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CONTENTS

6MT: RS6F52A	Inspection19
FUNCTION DIAGNOSIS9	PARK/NEUTRAL POSITION SWITCH20 Removal and Installation20
M/T SYSTEM9	Inspection20
System Diagram9 System Description	CONTROL LINKAGE21 Exploded View21
SYMPTOM DIAGNOSIS11	Removal and Installation21 Adjustment22
NOISE, VIBRATION AND HARSHNESS	
(NVH) TROUBLESHOOTING11	AIR BREATHER HOSE24
NVH Troubleshooting Chart11	Exploded View
PRECAUTION12	Removal and Installation24
1 112070 11011	REMOVAL AND INSTALLATION26
PRECAUTIONS12	
Precaution for Supplemental Restraint System	TRANSAXLE ASSEMBLY26
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	Exploded View26 Removal and Installation26
SIONER"12	Removal and Installation26
Precaution for Procedure without Cowl Top Cover12 Service Notice or Precautions12	DISASSEMBLY AND ASSEMBLY28
PREPARATION13	TRANSAXLE ASSEMBLY28
DDED A DATION (6	Exploded View28 Disassembly32
PREPARATION	Assembly
Special Service Tools	Adjustment49
Commercial Gervice Tools13	
ON-VEHICLE MAINTENANCE17	INPUT SHAFT AND GEAR56
M/T OII	Exploded View56
M/T OIL	Disassembly56
Draining	Assembly
Refilling17 Inspection17	Inspection61
mapedion	MAINSHAFT AND GEAR63
ON-VEHICLE REPAIR18	Exploded View63
OIDE OIL OEAL	Disassembly63
SIDE OIL SEAL18	Assembly64
Removal and Installation18	Inspection69
BACK-UP LAMP SWITCH19	REVERSE IDLER SHAFT AND GEAR72
Removal and Installation19	Exploded View72

Disassembly	72	Component Parts Location - Coupe	
Assembly		Component Parts Location - Sedan	
Inspection	72	Component Description	101
FINAL DRIVE	74	CONTROL SYSTEM	102
Exploded View	74	System Diagram	102
Disassembly	74	System Description	
Assembly	74	Component Parts Location - Coupe	104
Inspection	77	Component Parts Location - Sedan	
SHIFT FORK AND FORK ROD		Component Description	106
		LOCK-UP AND SELECT CONTROL SYSTEM	л
Exploded View		LOCK-OF AND SELECT CONTROL STSTEN	
Assembly		Cyctom Diagram	107
Inspection		System DiagramSystem Description	
mapection	00	Component Parts Location - Coupe	
SERVICE DATA AND SPECIFICATIONS		Component Parts Location - Coupe Component Parts Location - Sedan	
(SDS)	. 82	Component Description	
SERVICE DATA AND SPECIFICATIONS		·	
SERVICE DATA AND SPECIFICATIONS	00	SHIFT MECHANISM	
(SDS)		System Diagram	
General Specifications		System Description	
End Play Baulk Ring Clearance		Component Parts Location - Coupe Component Parts Location - Sedan	
Dimension		Component Description	
Differential Side Bearing Preload		Component Description	114
Differential Side Gear Clearance		SHIFT LOCK SYSTEM	115
CVT: RE0F09B	• .	System Diagram	115
OV1: N201 00D		System Description	115
BASIC INSPECTION	. 85	Component Parts Location	
		Component Description	115
DIAGNOSIS AND REPAIR WORKFLOW		ON BOARD DIAGNOSTIC (OBD) SYSTEM .	447
Work Flow		Diagnosis Description	
Diagnostic Work Sheet	86		
INSPECTION AND ADJUSTMENT	88	DIAGNOSIS SYSTEM (TCM)	
ADDITIONAL OFFICE WILEY DEDLACING		CONSULT-III Function (TRANSMISSION)	
ADDITIONAL SERVICE WHEN REPLACING	00	Diagnostic Tool Function	122
ADDITIONAL SERVICE WHEN REPLACING	88	COMPONENT DIAGNOSIS	123
CONTROL UNIT: Precaution for TCM and CVT			0
Assembly Replacement	88	U1000 CAN COMM CIRCUIT	123
Accountry Replacement	00	Description	123
FUNCTION DIAGNOSIS	. 89	DTC Logic	
0)/T 0)/07514		Diagnosis Procedure	123
CVT SYSTEM		P0615 START SIGNAL	124
System Diagram		Description	
Component Parts Location - Coupe		DTC Logic	
Component Parts Location - Sedan	91	Diagnosis Procedure	
MECHANICAL SYSTEM	92	-	
Cross-Sectional View	92	P0703 STOP LAMP SWITCH	
System Diagram	93	Description	
System Description		DTC Logic	
Component Parts Location - Coupe		Diagnosis Procedure	
Component Parts Location - Sedan		Component Inspection (Stop Lamp Switch)	127
Component Description	95	P0705 PARK/NEUTRAL POSITION SWITCH	. 129
HYDRAULIC CONTROL SYSTEM	97	Description	
System Diagram		DTC Logic	
System Description		Diagnosis Procedure	

Component Inspection130	DTC Logic150
	Diagnosis Procedure150
P0710 CVT FLUID TEMPERATURE SENSOR	Component Inspection [Pressure Control Sole-
132	noid Valve A (Line Pressure Solenoid Valve)]151
Description132	
DTC Logic132	P0776 PRESSURE CONTROL SOLENOID B
Diagnosis Procedure132	PERFORMANCE (SEC PRESSURE SOLE-
Component Inspection (CVT Fluid Temperature	NOID VALVE)152
Sensor)	Description152
,	DTC Logic152
P0715 INPUT SPEED SENSOR (PRI SPEED	Diagnosis Procedure152
SENSOR)135	Component Inspection [Pressure Control Sole-
Description135	noid Valve A (Line Pressure Solenoid Valve)] 153
DTC Logic135	Component Inspection [Pressure Control Sole-
Diagnosis Procedure135	noid Valve B (Secondary Pressure Solenoid
	Valve)]153
P0720 VEHICLE SPEED SENSOR CVT (SEC-	· · · · · · · · · · · · · · · · · · ·
ONDARY SPEED SENSOR)138	P0778 PRESSURE CONTROL SOLENOID B
Description138	ELECTRICAL (SEC PRESSURE SOLENOID
DTC Logic138	VALVE) 155
Diagnosis Procedure138	Description
DOTOE ENGINE OPEED CLONA!	DTC Logic
P0725 ENGINE SPEED SIGNAL142	Diagnosis Procedure
Description142	Component Inspection [Pressure Control Sole-
DTC Logic142	noid Valve B (Secondary Pressure Solenoid
Diagnosis Procedure142	Valve)]156
DOZZO DELT DAMACE	vaive)j130
P0730 BELT DAMAGE143	P0826 MANUAL MODE SWITCH157
Description	Description157
DTC Logic	DTC Logic157
Diagnosis Procedure143	Diagnosis Procedure157
P0740 TORQUE CONVERTER CLUTCH SO-	Component Inspection (Manual Mode Switch) 159
LENOID VALVE144	
Description	P0840 TRANSMISSION FLUID PRESSURE
•	SENSOR A (SEC PRESSURE SENSOR) 160
DTC Logic	Description160
Diagnosis Procedure	DTC Logic160
Component Inspection (Torque Converter Clutch	Diagnosis Procedure160
Solenoid Valve)145	·
P0744 A/T TCC S/V FUNCTION (LOCK -UP) 146	P0841 PRESSURE SENSOR FUNCTION 163
Description	Description163
DTC Logic	DTC Logic163
Diagnosis Procedure	Diagnosis Procedure163
Component Inspection (Torque Converter Clutch	Component Inspection [Pressure Control Sole-
Solenoid Valve)147	noid Valve A (Line Pressure Solenoid Valve)]164
Component Inspection (Lock-up Select Solenoid	Component Inspection [Pressure Control Sole-
	noid Valve B (Secondary Pressure Solenoid
Valve)147	Valve)]164
P0745 LINE PRESSURE SOLENOID VALVE.148	
Description	P0845 TRANSMISSION FLUID PRESSURE
DTC Logic148	SENSOR B (PRI PRESSURE SENSOR) 166
Diagnosis Procedure	Description166
Component Inspection [Pressure Control Sole-	DTC Logic166
noid Valve A (Line Pressure Solenoid Valve)] 149	Diagnosis Procedure166
TIOID VAIVE A (LITTE FTESSURE SOIETIOID VAIVE)] 149	-
P0746 PRESSURE CONTROL SOLENOID A	P0868 SECONDARY PRESSURE DOWN 169
PERFORMANCE (LINE PRESSURE SOLE-	Description169
NOID VALVE)150	DTC Logic169
Description 150	Diagnosis Procedure169

Component Inspection [Pressure Control Sole-		Wiring Diagram - CVT SHIFT LOCK SYSTEM -	
noid Valve A (Line Pressure Solenoid Valve)]	170	Sedan	
Component Inspection [Pressure Control Sole-		Diagnosis Procedure	194
noid Valve B (Secondary Pressure Solenoid		FOU BLACKIONS	
Valve)]	170	ECU DIAGNOSIS	197
P1701 TRANSMISSION CONTROL MODULE	!	TCM	.197
(POWER SUPPLY)		Reference Value	
Description		Wiring Diagram—CVT CONTROL SYSTEM—	
DTC Logic		Coupe	202
		Wiring Diagram—CVT CONTROL SYSTEM—Se-	
Diagnosis Procedure	1/2	dan	
P1705 THROTTLE POSITION SENSOR	. 175	Fail-safe	
Description		DTC Inspection Priority Chart	220
DTC Logic		DTC Index	
Diagnosis Procedure			
		SYMPTOM DIAGNOSIS	. 222
P1722 ESTM VEHICLE SPEED SIGNAL		SYSTEM SYMPTOM	222
Description			
DTC Logic		Symptom Table	222
Diagnosis Procedure	176	PRECAUTION	. 233
P1723 CVT SPEED SENSOR FUNCTION	178		
Description		PRECAUTIONS	. 233
DTC Logic		Precaution for Supplemental Restraint System	
Diagnosis Procedure		(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	
Diagnosis i locedule	170	SIONER"	233
P1726 ELECTRIC THROTTLE CONTROL		Precaution for Procedure without Cowl Top Cover.	233
SYSTEM	. 180	Precaution Necessary for Steering Wheel Rota-	
Description		tion After Battery Disconnect	233
DTC Logic		Precaution for On Board Diagnosis (OBD) System	
Diagnosis Procedure		of CVT and Engine	
		Precaution for TCM and CVT Assembly Replace-	
P1740 LOCK-UP SELECT SOLENOID		ment	234
VALVE	. 181	Removal and Installation Procedure for CVT Unit	
Description	181	Connector	234
DTC Logic	181	Precaution	235
Diagnosis Procedure		Service Notice or Precaution	236
Component Inspection (Lock-up Select Solenoid		ATFTEMP COUNT Conversion Table	237
Valve)	182	DDED A DATION	
P1745 LINE PRESSURE CONTROL	400	PREPARATION	238
		PREPARATION	238
Description		Special Service Tool	
DTC Logic		Commercial Service Tool	
Diagnosis Procedure	103		200
P1777 STEP MOTOR	. 184	ON-VEHICLE MAINTENANCE	. 240
Description			
DTC Logic		CVT FLUID	
Diagnosis Procedure		Inspection	
Component Inspection (Step Motor)		Changing	241
		FLUID COOLER CLEANING	242
P1778 STEP MOTOR - FUNCTION	. 187		
Description		Cleaning	∠ 4∠
DTC Logic		STALL TEST	.245
Diagnosis Procedure	187	Inspection and Judgment	
SHIET I OCK SYSTEM	400		
SHIFT LOCK SYSTEM		LINE PRESSURE TEST	. 247
Description	189	Inspection and Judgment	247
Wiring Diagram - CVT SHIFT LOCK SYSTEM - Coupe	100	DOAD TEST	
COUNE	169	ROAD TEST	249

Description249	ADDITIONAL SERVICE WHEN REPLACING	
Check before Engine Is Started249	CONTROL UNIT	266
Check at Idle250	ADDITIONAL SERVICE WHEN REPLACING	
Cruise Test251	CONTROL UNIT : Service After Replacing TCM	
	and Transaxle Assembly	266
CVT POSITION253		
Inspection and Adjustment253	FUNCTION DIAGNOSIS	. 268
ON-VEHICLE REPAIR254	CVT SYSTEM	. 268
TRANSMISSION CONTROL MORNIE	System Diagram	268
TRANSMISSION CONTROL MODULE254	Component Parts Location - Coupe	269
Exploded View	Component Parts Location - Sedan	270
Removal and Installation254	MECHANICAL SYSTEM	271
CONTROL DEVICE255	Cross-Sectional View	
Exploded View255	System Diagram	
Removal and Installation	System Description	
	Component Parts Location - Coupe	
CONTROL CABLE256		
Exploded View256	Component Possiption	
Removal and Installation256	Component Description	∠15
AID DDEATHED HOSE	HYDRAULIC CONTROL SYSTEM	. 276
AIR BREATHER HOSE257	System Diagram	276
Exploded View	System Description	
Removal and Installation257	Component Parts Location - Coupe	
DIFFERENTIAL SIDE OIL SEAL258	Component Parts Location - Sedan	
Exploded View	Component Description	
Removal and Installation	·	
Removal and installation256	CONTROL SYSTEM	
REMOVAL AND INSTALLATION259	System Diagram	281
	System Description	281
TRANSAXLE ASSEMBLY259	Component Parts Location - Coupe	283
Exploded View259	Component Parts Location - Sedan	
Removal and Installation	Component Description	284
Inspection		
	LOCK-UP AND SELECT CONTROL SYSTEM	
SERVICE DATA AND SPECIFICATIONS		. 286
(SDS)261	System Diagram	
	System Description	
SERVICE DATA AND SPECIFICATIONS	Component Parts Location - Coupe	
(SDS)261	Component Parts Location - Sedan	
General Specification	Component Description	288
Vehicle Speed When Shifting Gears261	SHIFT MECHANISM	200
Stall Speed261		
Line Pressure	System Diagram	
Solenoid Valves262	System Description	
CVT Fluid Temperature Sensor262	Component Parts Location - Coupe	
Primary Speed Sensor262	Component Parts Location - Sedan	
Secondary Speed Sensor262	Component Description	292
Removal and Installation262	SHIFT LOCK SYSTEM	294
CVT: RE0F10A	System Diagram	
	System Description	
	Component Parts Location	
BASIC INSPECTION263		
		7001
DIAGNOSIS AND REPAIR WORKFLOW263	Component Description	294
DIAGNOSIS AND REPAIR WORKFLOW263 Work Flow	Component Description	
DIAGNOSIS AND REPAIR WORKFLOW263	ON BOARD DIAGNOSTIC (OBD) SYSTEM .	. 296
DIAGNOSIS AND REPAIR WORKFLOW263 Work Flow	Component Description	. 296 296

Diagnostic Tool Function	301	Diagnosis Procedure	. 324
COMPONENT DIA CNOCIO		Component Inspection (Torque Converter Clutch	í
COMPONENT DIAGNOSIS	302	Solenoid Valve)	. 325
U1000 CAN COMM CIRCUIT	302	P0744 A/T TCC S/V FUNCTION (LOCK -UP).	327
Description		Description	
DTC Logic		DTC Logic	
Diagnosis Procedure		Diagnosis Procedure	
Blagnoolo i rooddaro	002		
U1010 CONTROL UNIT (CAN)	303	Component Inspection (Torque Converter Clutch	
Description		Solenoid Valve)	
DTC Logic		Component Inspection (Lock-up Select Solenoid	
Diagnosis Procedure		Valve)	. 328
-		P0745 LINE PRESSURE SOLENOID VALVE	329
P0703 STOP LAMP SWITCH		Description	
Description	304	DTC Logic	
DTC Logic	304	Diagnosis Procedure	
Diagnosis Procedure	304	Component Inspection [Pressure Control Sole-	. 525
Component Inspection (Stop Lamp Switch)	305	noid Valve A (Line Pressure Solenoid Valve)]	330
DOTOS DADIZINEUTDAL DOCUTION CANTO		mold valve A (Line r ressure Solemold valve)]	. 550
P0705 PARK/NEUTRAL POSITION SWITCH		P0746 PRESSURE CONTROL SOLENOID A	ı
Description		PERFORMANCE (LINE PRESSURE SOLE-	
DTC Logic		NOID VALVE)	331
Diagnosis Procedure	307	Description	
Component Inspection (Park/Neutral Position		DTC Logic	
Switch)	308		
	_	Diagnosis Procedure	. აა ၊
P0710 CVT FLUID TEMPERATURE SENSO	R	Component Inspection [Pressure Control Sole-	
	. 310	noid Valve A (Line Pressure Solenoid Valve)]	. 332
Description		P0776 PRESSURE CONTROL SOLENOID B	
DTC Logic	310	PERFORMANCE (SEC PRESSURE SOLE-	
Diagnosis Procedure	310		
Component Inspection (CVT Fluid Temperature)	NOID VALVE)	
Sensor)		Description	
,		DTC Logic	
P0715 INPUT SPEED SENSOR (PRI SPEEI	D	Diagnosis Procedure	. 333
SENSOR)	313	Component Inspection [Pressure Control Sole-	
Description	313	noid Valve A (Line Pressure Solenoid Valve)]	. 334
DTC Logic		Component Inspection [Pressure Control Sole-	
Diagnosis Procedure		noid Valve B (Secondary Pressure Solenoid	
		Valve)]	. 334
P0720 VEHICLE SPEED SENSOR CVT (SE		P0778 PRESSURE CONTROL SOLENOID B	
ONDARY SPEED SENSOR)			
Description	318	ELECTRICAL (SEC PRESSURE SOLENOID	
DTC Logic		VALVE)	
Diagnosis Procedure	318	Description	. 336
		DTC Logic	. 336
P0725 ENGINE SPEED SIGNAL		Diagnosis Procedure	. 336
Description	322	Component Inspection [Pressure Control Sole-	
DTC Logic	322	noid Valve B (Secondary Pressure Solenoid	
Diagnosis Procedure	322	Valve)]	337
DOZZO DEL T DAMACE		-	
P0730 BELT DAMAGE		P0826 MANUAL MODE SWITCH	
Description		Description	
DTC Logic		DTC Logic	
Diagnosis Procedure	323	Diagnosis Procedure	
P0740 TORQUE CONVERTER CLUTCH SC) _	Component Inspection (Manual Mode Switch)	. 340
LENOID VALVE		DOGAO TRANSMISSION EL UR RECOURS	
		P0840 TRANSMISSION FLUID PRESSURE	_
Description		SENSOR A (SEC PRESSURE SENSOR)	
DTC Logic	324	Description	2/1

DTC Logic	. 341 Diagnosis Procedure3	60
Diagnosis Procedure		61
P0841 PRESSURE SENSOR FUNCTION		
Description	•	
DTC Logic	<u> </u>	
Diagnosis Procedure		
Component Inspection [Pressure Control Sole-		
noid Valve A (Line Pressure Solenoid Valve)]	.345 P1778 STEP MOTOR - FUNCTION3	64
Component Inspection [Pressure Control Sole-	Description3	64
noid Valve B (Secondary Pressure Solenoid	DTC Logic3	64
Valve)]	. 345 Diagnosis Procedure3	64
P0868 SECONDARY PRESSURE DOWN	.346 SHIFT POSITION INDICATOR CIRCUIT 3	66
Description	Description 0	66
DTC Logic	O	66
Diagnosis Procedure		66
Component Inspection [Pressure Control Sole-		
noid Valve A (Line Pressure Solenoid Valve)]	347 SHIFT LOCK SYSTEM3	
Component Inspection [Pressure Control Sole-	Description	67
noid Valve B (Secondary Pressure Solenoid	Wiring Diagram - CVT SHIFT LOCK SYSTEM -	
Valve)]	347 Coupe3	67
v di v C/J	Wiring Diagram - CVT SHIFT LOCK SYSTEM -	
P1701 TRANSMISSION CONTROL MODULE	Sedan3	
(POWER SUPPLY)	Dia ana aria Dana arahama	72
Description	240	
DTC Logic		75
Diagnosis Procedure		
Diagnosis i roccaule		
P1705 THROTTLE POSITION SENSOR	Reference Value	75
Description	Wiring Diagram - CVT CONTROL SYSTEM -	
DTC Logic	352 Coupe3	80
Diagnosis Procedure	viring Diagram - CVT CONTROL SYSTEM - Se-	
•	0an	
P1722 ESTM VEHICLE SPEED SIGNAL		
Description	. 353 DTC Inspection Priority Chart3	
DTC Logic	.353 DTC Index	99
Diagnosis Procedure		00
P1723 CVT SPEED SENSOR FUNCTION		00
Description	355 SYSTEM SYMPTOM4	
·	Symptom Lable	00
DTC Logic Diagnosis Procedure	. 555	
-	. 355 PRECAUTION 4	10
P1726 ELECTRIC THROTTLE CONTROL	PRECAUTIONS4	10
SYSTEM	FIEGALIOH IOI SUDDIEHIEHIAI NESHAHI SYSIEHI	
Description	. 357 (SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	
DTC Logic	. ³⁵⁷ SIONER" 4	10
Diagnosis Procedure	. 357 Precaution for Procedure without Cowl Top Cover. 4	
DAZAO LOCK LID SELECT SOLENOID	Precaution Necessary for Steering Wheel Rota-	-
P1740 LOCK-UP SELECT SOLENOID	tion After Pottery Disconnect	10
VALVE	Precaution for On Board Diagnosis (OBD) System	
Description	of CVT and Engine	11
DTC Logic	. 300 Precaution for TCM and CVT Assembly Replace.	
Diagnosis Procedure	. 358 ment	11
Component Inspection (Lock-up Select Solenoid	Removal and Installation Procedure for CVT Unit	11
Valve)	359	11
·	Connector4	
P1745 LINE PRESSURE CONTROL	0 1 11 11 5 11	
Description	. 360 Service Notice or Precaution	
	A TETERAD COUNTY CONVOCATION LONG	1/1

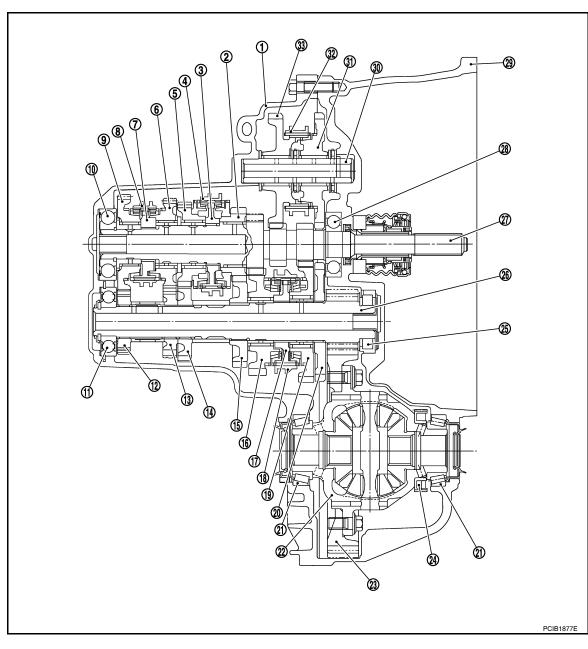
PREPARATION415	PARK/NEUTRAL POSITION (PNP) SWITCH	
PREPARATION 415	Exploded View	
	Removal and Installation	436
Special Service Tool	PRIMARY SPEED SENSOR	427
Commercial Service Tool415	Exploded View	
ON-VEHICLE MAINTENANCE416	Removal and Installation	
CVT FLUID 416	SECONDARY SPEED SENSOR	438
Inspection416	Exploded View	438
Changing CVT Fluid417	Removal and Installation	
CVT FLUID COOLER SYSTEM418	OIL PUMP FITTING BOLT	
Cleaning418	Exploded View	439
STALL TEST 421	Removal and Installation	439
Inspection and Judgment421	CONTROL VALVE	440
•	Exploded View	
LINE PRESSURE TEST 423	Removal and Installation	
Inspection and Judgment423	Inspection and Adjustment	
ROAD TEST 425	REMOVAL AND INSTALLATION	447
Description425		
Check before Engine Is Started425	TRANSAXLE ASSEMBLY	
Check at Idle426	Exploded View	
Cruise Test427	Removal and Installation	447
CVT POSITION 429	Inspection	449
Inspection and Adjustment429	DISASSEMBLY AND ASSEMBLY	450
ON-VEHICLE REPAIR430	TORQUE CONVERTER AND CONVERTER	
	HOUSING OIL SEAL	450
TRANSMISSION CONTROL MODULE 430		
Exploded View430	Exploded View	
Removal and Installation430	Disassembly	
CONTROL DEVICE	Assembly	450
CONTROL DEVICE 431	SERVICE DATA AND SPECIFICATIONS	j
Exploded View431	(SDS)	
Removal and Installation431	(000)	451
Inspection and Adjustment432	SERVICE DATA AND SPECIFICATIONS	
CONTROL CABLE 433	(SDS)	451
Exploded View433	General Specification	
Removal and Installation	Vehicle Speed When Shifting Gears	
Temoval and metallation	Stall Speed	
DIFFERENTIAL SIDE OIL SEAL 434	Line Pressure	
Exploded View434	Solenoid Valves	
Removal and Installation434	CVT Fluid Temperature Sensor	
	Primary Speed Sensor	
AIR BREATHER HOSE435	Secondary Speed Sensor	
Exploded View435	Removal and Installation	
Removal and Installation435		02

FUNCTION DIAGNOSIS

M/T SYSTEM

System Diagram

CROSS-SECTIONAL VIEW



- Transaxle case 1.
- 3rd-4th coupling sleeve 4.
- 5th-6th synchronizer hub 7.
- 10. Input shaft rear bearing
- 5th main gear 13.
- 2nd main gear 16.
- 19. 1st main gear
- 22. Differential case assembly
- 25. Mainshaft front bearing

- 2. 3rd input gear
- 4th input gear 5.
- 8. 5th-6th coupling sleeve
- 11. Mainshaft rear bearing
- 4th main gear 14.
- 17. 1st-2nd synchronizer hub
- 20. Reverse main gear
- 23. Final gear
- 26. Mainshaft

- 3. 3rd-4th synchronizer hub
- 6. 5th input gear
- 9. 6th input gear
- 12. 6th main gear
- 15. 3rd main gear
- 18. 1st-2nd coupling sleeve
- 21. Differential side bearing
- 24. Speedometer drive gear
- 27. Input shaft

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- 28. Input shaft front bearing
- 29. Clutch housing

30. Reverse idler shaft

- 31. Reverse idler gear (Front)
- 32. Reverse coupling sleeve
- 33. Reverse idler gear (Rear)

System Description

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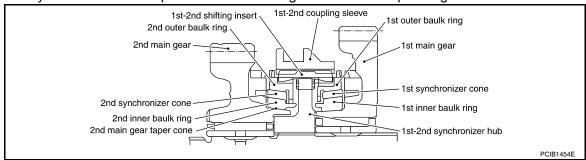
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DOUBLE-CONE SYNCHRONIZER

Double-cone synchronizer is adopted for 3rd gear to reduce operating force of the shift lever.

TRIPLE-CONE SYNCHRONIZER

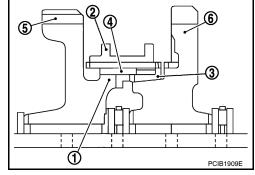
Triple-cone synchronizer are adopted for 1st and 2nd gears to reduce operating force of the shift lever.



REVERSE GEAR NOISE PREVENTION FUNCTION (SYNCHRONIZING METHOD)

Reverse gear can be matched smoothly in a structure by setting synchronizer hub (1) of reverse idler gear (5) [Rear], reverse coupling sleeve (2), reverse baulk ring (3), and reverse insert spring (4) to reverse idler gears, and letting reverse gear be synchronized.

6 : Reverse idler gear (Front)



NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

Use the chart below to help you find the cause of the symptom. The numbers indicate the order of the inspection. If necessary, repair or replace these parts.

Reference page			MA-12		OC MA	07-1/1	TM-21	CC MT			OC MI	07-1/1	
SUSPECTED (Possible caus		OIL (Oil level is low.)	OIL (Wrong oil.)	OIL (Oil level is high.)	GASKET (Damaged)	OIL SEAL (Worn or damaged)	SHIFT CONTROL LINKAGE (Worn)	STRIKING ROD ASSEMBLY	SHIFT FORK (Worn)	GEAR (Worn or damaged)	BEARING (Worn or damaged)	BAULK RING (Wom or damaged)	INSERT SPRING (Damaged)
	Noise	1	2							3	3		
Symptoms	Oil leakage		3	1	2	2							
σγιηριστίο	Hard to shift or will not shift		1	1			2					3	3
	Jumps out of gear						1	2	3	3			

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PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

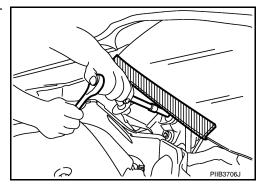
WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

Precaution for Procedure without Cowl Top Cover

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When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Service Notice or Precautions

INFOID:000000000420157

- · Do not reuse transaxle oil, once it has been drained.
- · Check oil level or replace oil with vehicle on level surface.
- · During removal or installation, keep inside of transaxle clear of dust or dirt.
- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they do not interfere with the function of the parts they are applied.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, use it.
- Be careful not to damage sliding surfaces and mating surfaces.

< PREPARATION > [6MT: RS6F52A]

PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000004201578

Α

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Fool number Kent-Moore No.) Fool name		Description
(V381054S0 J-34286) Puller		Removing differential side bearing outer race Removing mainshaft front bearing
270040004	ZZA0601D	
ST33400001 J-26082) Drift	3 b	Installing differential side oil seal (clutch housing side) a: 60 mm (2.36 in) dia. b:47 mm (1.85 in) dia.
	ZZA0814D	
ST35321000 —) Drift	b →	 Installing input shaft oil seal Installing reverse main gear Installing 1st main gear bushing Installing 1st-2nd synchronizer hub assembly
	ZZA1000D	 Installing 2nd main gear bushing Installing 3rd main gear a: 49 mm (1.93 in) dia. b: 41 mm (1.61 in) dia.
3T33200000 J-26082) Drift	a b	 Installing mainshaft front bearing Installing 6th input gear bushing Installing 4th main gear Installing 5th main gear Installing 6th main gear a: 60 mm (2.36 in) dia. b: 44.5 mm (1.752 in) dia.
770070000	ZZA1002D	
6T30720000 J-25405) Orift	a b ZZAO811D	 Installing differential side oil seal (transaxle case side) Installing differential side bearing outer race (transaxle case side) Installing mainshaft rear bearing Installing differential side bearing a: 77 mm (3.03 in) dia. b: 55.5 mm (2.185 in) dia.
ST33061000 J-8107-2) Drift	-b-	 Installing bore plug Removing differential side bearing (transaxle case side) Removing differential side bearing (clutch housing side) a: 38 mm (1.50 in) dia. b: 28.5 mm (1.122 in) dia.

< PREPARATION > [6MT: RS6F52A]

< PREPARATION >		[6M1: R56F52A]
Tool number (Kent-Moore No.) Tool name		Description
ST33052000 (—) Drift	b ZZA1023D	 Removing input shaft rear bearing Removing 5th input gear bushing, 4th input gear, 4th input gear bushing, 3rd-4th synchronizer hub assembly, and 3rd input gear Installing input shaft front bearing Removing mainshaft rear bearing Removing 6th main gear Removing 4th main gear and 5th main gear a: 22 mm (0.87 in) dia. b: 28 mm (1.10 in) dia.
KV40105020 (—) Drift	c c zzA1133D	 Removing 5th input gear and 5th-6th synchronizer hub assembly Removing 3rd main gear, 2nd main gear, 2nd main gear bushing, 1st-2nd synchronizer hub assembly, 1st main gear, 1st main gear bushing, and reverse main gear a: 39.7 mm (1.563 in) dia. b: 35 mm (1.38 in) dia. c: 15 mm (0.59 in)
ST30031000 (J-22912-01) Puller	ZZA0537D	Measuring wear of inner baulk ring
KV40105710 (—) Press stand	ZZA1058D	 Installing 3rd-4th synchronizer hub assembly Installing 4th input gear bushing Installing 5th input gear bushing Installing 5th-6th synchronizer hub assembly Installing 2nd main gear bushing Installing 3rd main gear a: 46 mm (1.81 in) dia. b: 41 mm (1.61 in)
ST30901000 (J-26010-01) Drift	a b c ZZA0978D	 Installing input shaft rear bearing Installing 4th main gear Installing 5th main gear Installing 6th main gear Installing mainshaft rear bearing a: 79 mm (3.11 in) dia. b: 45 mm (1.77 in) dia. c: 35.2 mm (1.386 in) dia.
ST30032000 (J-26010-01) Drift	a b c ZZA0978D	Installing input shaft front bearing a: 80 mm (3.15 in) dia. b: 38 mm (1.50 in) dia. c: 31 mm (1.22 in) dia.

PREPARATION

< PREPARATION >	[6MT: RS6F52A]
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Tool number (Kent-Moore No.) Tool name		Description	Α
ST38220000 (—) Press stand	b ZZA1058D	Installing reverse main gear Installing 1st main gear bushing Installing 1st-2nd synchronizer hub assembly a: 63 mm (2.48 in) dia. b: 65 mm (2.56 in)	В
KV40101630 (J-35870) Drift	30	Installing reverse main gear a: 68 mm (2.68 in) dia. b: 60 mm (2.36 in) dia.	TM
	ZZA1003D		F
KV38102510 (—) Drift	a b zzaobsed	 Installing 1st main gear bushing Installing 1st-2nd synchronizer hub assembly Installing differential side bearing (transaxle case side) Installing differential side bearing (clutch housing side) a: 71 mm (2.80 in) dia. b: 65 mm (2.56 in) dia. 	G
(—) (J-39713) Preload adapter		Measuring end play of side gear	
·			J
	NT087		K

Commercial Service Tools

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Tool name		Description
Pin punch		Removing and installing retaining pin a: 4.5 mm (0.177 in) dia.
	a	
	NT410	
Pin punch		Removing and installing retaining pin of selector lever a: 5.5 mm (0.217 in) dia.
	a	
	NT410	

< PREPARATION > [6MT: RS6F52A]

Removing and installing retaining pin of each shifter lever a: 7.5 mm (0.295 in) dia.
NT410
Installing striking rod oil seal and shifter lever oil seal a: 24.5 mm (0.965 in) dia.
S-NT063
Removing each bearing, gear, and bushing
ZZA0537D
Removing each bearing, gear, and bushing
NT077
Loosening bolts and nuts

ON-VEHICLE MAINTENANCE

M/T OIL

Draining INFOID:000000004201580 B

1. Start engine and let it run to warm up transaxle oil.

- 2. Stop engine and remove the drain plug to drain the oil.
- 3. Install the drain plug with a new gasket to the transaxle case. Tighten the drain plug to the specified torque. Refer to TM-28, "Exploded View".

CAUTION:

Do not reuse gasket.

Refilling INFOID:000000004201581

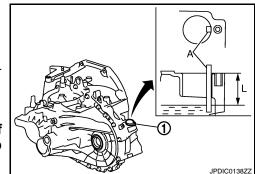
1. Remove the filler plug (1) and fill transaxle with new oil.

Oil grade : Refer to MA-12, "Fluids and Lubricants".

2. After refilling oil, measure oil level to check if it is within the specification using suitable gauge (A) as shown.

CAUTION:

- Do not start engine while checking oil level.
- Insert the suitable gauge straight and against the wall of the filler plug hole, then measure the gauge from the top of the filler plug hole to the oil level as shown.



Oil level "L" : Refer to TM-82, "General Specifications".

3. Install the filler plug with a new O-ring to the clutch housing.

CAUTION:

Do not reuse O-ring.

Tighten filler plug bolt to the specified torque. Refer to <u>TM-28</u>, "Exploded View".

Inspection INFOID:000000004201582

LEAKAGE

Make sure that oil is not leaking from transaxle or around it.

LEVEL

- Remove the filler plug (1).
- Measure oil level to check if it is within the specification using a suitable gauge (A) as shown.

CAUTION:

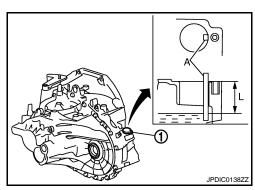
- Do not start engine while checking oil level.
- Insert the suitable gauge straight and against the wall of the filler plug hole, then measure the gauge from the top of the filler plug hole to the oil level as shown.



Install the filler plug with a new O-ring to the clutch housing. CAUTION:

Do not reuse O-ring.

4. Tighten the filler plug bolt to the specified torque. Refer to TM-28, "Exploded View".



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ON-VEHICLE REPAIR

SIDE OIL SEAL

Removal and Installation

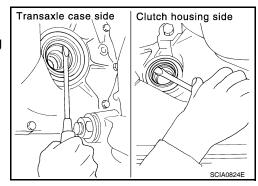
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[6MT: RS6F52A]

REMOVAL

- 1. Remove the drive shaft. Refer to <u>FAX-11</u>, "Removal and <u>Installation (Left Side)</u>", <u>FAX-12</u>, "Removal and <u>Installation (Right Side)</u>".
- 2. Remove oil seal using suitable tool. **CAUTION:**

Do not damage the transaxle case surface when removing oil seal.



INSTALLATION

1. Drive the oil seal straight into the transaxle case and clutch housing to the specified dimension "A" using Tools.

Dimension "A" : 0 $\pm\pm$ 0.5 mm (0 \pm 0.020 in)

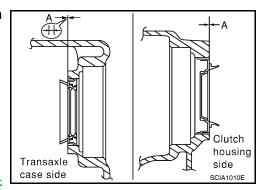
Tool numbers : ST30720000 (J-25405)

: ST33400001 (J-26082)

CAUTION:

Do not reuse oil seal.

- 2. Install the drive shaft. Refer to FAX-11, "Removal and Installation (Left Side)", FAX-12, "Removal and Installation (Right Side)".
- 3. Check the transaxle fluid level. Refer to TM-17, "Inspection".



[6MT: RS6F52A]

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BACK-UP LAMP SWITCH

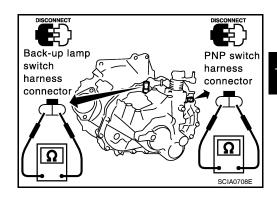
Removal and Installation

For removal and installation of back-up lamp switch, refer to <u>TM-28</u>. "Exploded View".

Inspection INFOID:000000004201585

· Check continuity.

Gear position	Continuity
Reverse	Yes
Except reverse	No



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PARK/NEUTRAL POSITION SWITCH

< ON-VEHICLE REPAIR >

PARK/NEUTRAL POSITION SWITCH

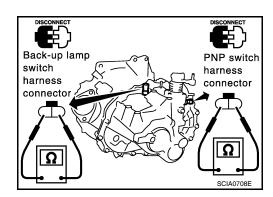
Removal and Installation

For removal and installation of park/neutral position switch, refer to TM-28, "Exploded View".

Inspection INFOID:000000004201587

· Check continuity.

Gear position	Continuity
Neutral	Yes
Except neutral	No

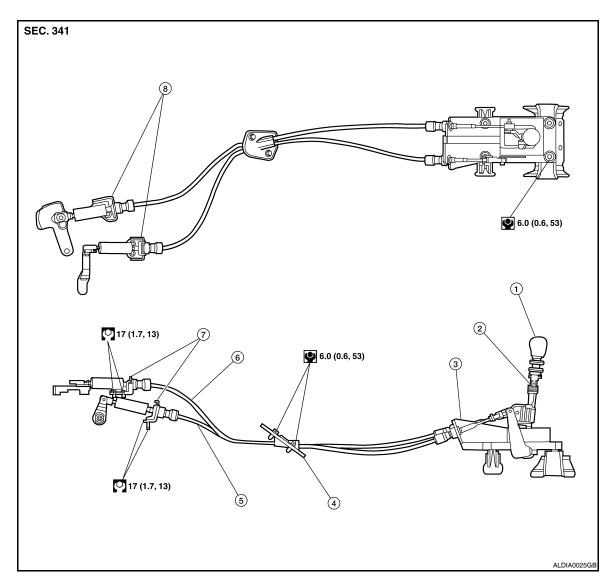


[6MT: RS6F52A]

INFOID:0000000004201586

CONTROL LINKAGE

Exploded View



- 1. Control lever knob
- 4. Retainer grommet
- Lock plate

- 2. Control lever
- Select cable
- 8. Cable bracket

- 3. Control device assembly
- 6. Shift cable

Removal and Installation

REMOVAL

- Shift control lever to the neutral position.
- 2. Remove the air filter assembly. Refer to EM-25, "Removal and Installation" (QR25DE), EM-129, "Removal and Installation" (VQ35DE).
- 3. Remove the shift cable from the shift lever and cable bracket.
- 4. Remove the select cable from the select lever and cable bracket.
- 5. Remove the center console. Refer to IP-18, "Disassembly and Assembly".
- 6. Remove the shift cable from the control device assembly.
- 7. Remove the select cable from the control device assembly.
- 8. Remove the bracket covering the retainer grommet.

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< ON-VEHICLE REPAIR > [6MT: RS6F52A]

- 9. Remove the retainer grommet bolts and retainer grommet.
- 10. Remove the shift cable and select cable from the vehicle.
- 11. Remove the control device assembly bolts and the control device assembly.

INSTALLATION

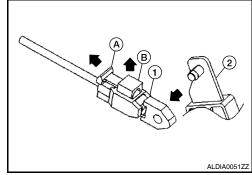
Installation is in the reverse order of removal.

- After assembly, make sure control lever automatically returns to Neutral when it is moved to 1st, 2nd, or Reverse.
- When control lever is shifted to each position, make sure there is no binding or disconnection at each connection.

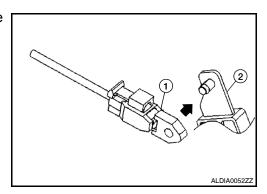
Adjustment INFOID:0000000004201590

SELECT CABLE ADJUSTMENT

- 1. Remove the select cable eye end (1) from the select lever (2) of the control device.
- 2. Slide the lock (A) on the select cable eye end (1) away from the cable end.
- 3. Turn the select cable eye end (1) over and push the stopper (B) to release the adjustment.

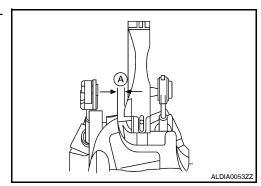


4. Install the select cable eye end (1) to the select lever (2) of the control device



5. Hold the shift lever with the gap between the reverse gate stopper and the shifter base at the specified distance (A).

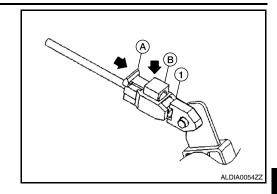
Distance "A" : 6.3 – 7.0 mm (0.25 – 0.28 in)



CONTROL LINKAGE

< ON-VEHICLE REPAIR > [6MT: RS6F52A]

- 6. Push the stopper (B) into the cable eye end housing (1).
- 7. Slide the lock (A) over the stopper (B).
- 8. Check for smooth gear select operation.



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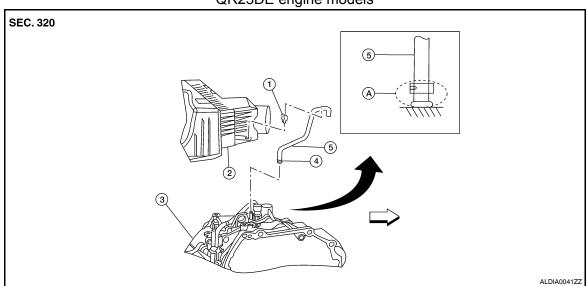
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AIR BREATHER HOSE

Exploded View

QR25DE engine models

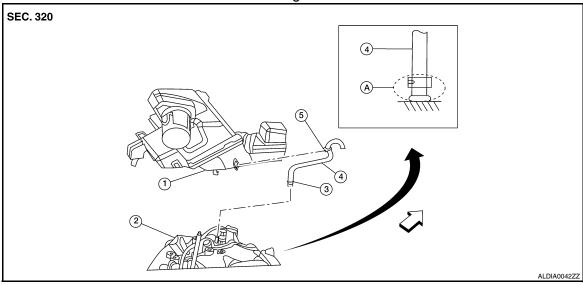


- 1. Clip
- 4. Clip
- ←: Front

- 2. Air cleaner case
- 5. Air breather hose
- 3. Transaxle assembly
- A. Set paint mark and clip at front side

[6MT: RS6F52A]

VQ35DE engine models



- 1. Air cleaner case
- Air breather hose
- \Leftarrow : Front

- 2. Transaxle assembly
- 5. Clip

- 3. Clip
- A. Set paint mark and clip at front side

INFOID:0000000004201592

Removal and Installation

Refer to the figure for air breather hose removal and installation information.

- CAUTION:
- Install air breather hose with paint mark and clip facing front.
- Install air breather hose onto air breather tube until overlap area reaches the spool.
- Install air breather hose to air cleaner case by fully inserting the clip.

AIR BREATHER HOSE

< ON-VEHICLE REPAIR > [6MT: RS6F52A]

• Make sure there are no pinched or restricted areas on air breather hose caused by bending or winding when installing it.

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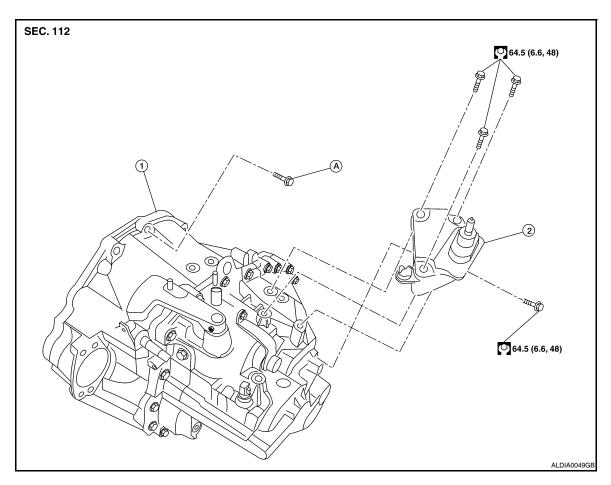
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REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View



- 1. Transaxle assembly
- 2. LH engine mounting bracket
- A. Refer to <u>TM-26</u>, "Removal and Installation"

Removal and Installation

CAUTON:

If transaxle assembly is removed from the vehicle, always replace CSC (Concentric Slave Cylinder). Inserted CSC returns to the original position when removing transaxle assembly. Dust on clutch disc sliding parts may damage CSC seal and may cause clutch fluid leakage.

REMOVAL

 Remove the engine and transaxle as an assembly. Refer to <u>EM-72, "Removal and Installation"</u> (QR25DE), <u>EM-202, "Removal and Installation"</u> (VQ35DE).
 CAUTION:

Do not depress clutch pedal during removal procedure.

- 2. Disconnect the electrical connectors from the following:
 - Back-up lamp switch
 - · Park/neutral position switch
- 3. Remove the harness from the transaxle.
- 4. Remove the starter motor. Refer to <u>STR-25, "Removal and Installation"</u> (QR25DE), <u>STR-51, "Removal and Installation"</u> (VQ35DE).
- 5. Remove the transaxle to engine and engine to transaxle bolts.

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[6MT: RS6F52A]

TRANSAXLE ASSEMBLY

< REMOVAL AND INSTALLATION >

- 6. Separate the transaxle from the engine.
- 7. If necessary remove the following:
 - · Air breather hose
 - Switches
 - LH engine mount
 - Brackets

INSTALLATION

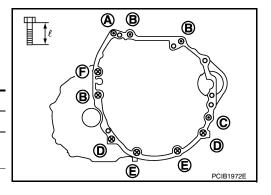
Installation is in the reverse order of removal.

- If transaxle is removed from the vehicle, always replace CSC. Refer to CL-13, "Removal and Installation".
- When installing the transaxle assembly to the engine, install the bolts following the standard below.
 CAUTION:

When installing transaxle assembly do not bring transaxle input shaft into contact with clutch cover.

- QR25DE engine models
 - Transaxle to engine
 - : Engine to transaxle

Bolt symbol	Α	В	С	D	E	F
Quantity	1	3	1	2	2	1
Bolt length " ℓ " mm (in)	45 (1.77)		80 (3.15)	45 (1.77)	35 (1.38)	45 (1.77)
Tightening torque N·m (kg - m, ft- lb)	35.3 (3.6, 26)		4.5 5, 55)		2.6 3, 31)	48.0 (4.9, 35)

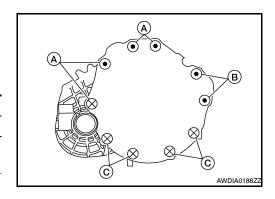


VQ35DE engine models

(): Transaxle to engine

(X): Engine to transaxle

Bolt No.	Α	В	С	
Quantity	4	2	4	
Bolt length " ℓ " mm (in)	55 (2.17)	116.5 (4.59)	45 (1.77)	
Tightening torque N⋅m (kg - m, ft- lb)	74.5 (7.6, 55)		50.0 (5.1, 37)	



- Bleed the air from the clutch hydraulic system. Refer to <u>CL-7, "Air Bleeding Procedure"</u>.
- After installation, check oil level, and check for leaks and loose mechanisms. Refer to TM-17, "Inspection".

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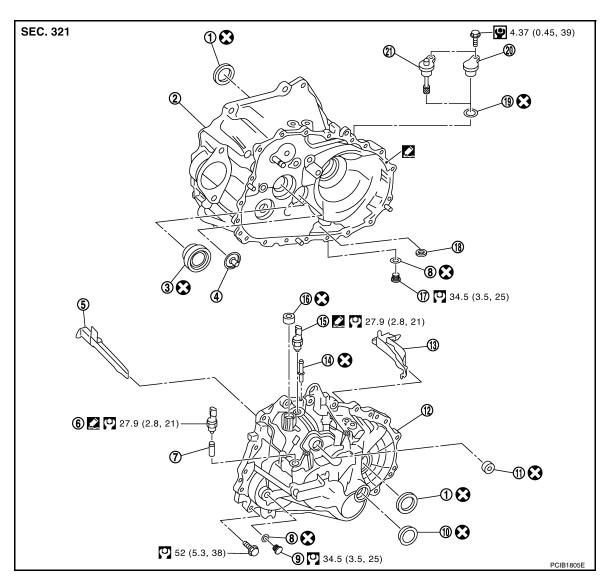
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DISASSEMBLY AND ASSEMBLY

TRANSAXLE ASSEMBLY

Exploded View

CASE AND HOUSING



- 1. Differential side oil seal
- 4. Oil channel
- 7. Plunger
- 10. Bore plug
- 13. Oil gutter B
- 16. Shifter lever oil seal
- 19. O-ring

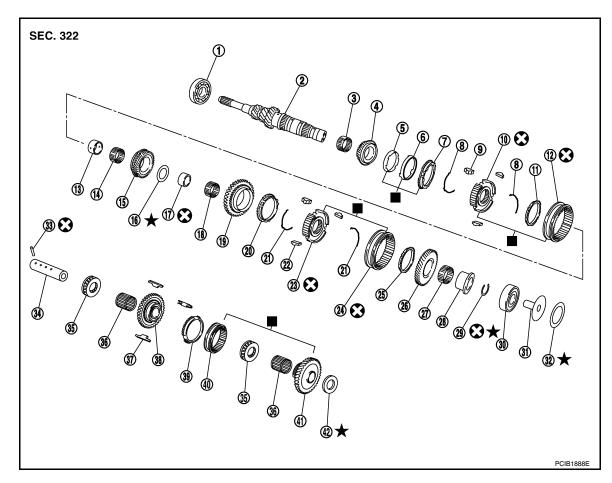
- 2. Clutch housing
- 5. Oil gutter A
- 8. Gasket
- 11. Striking rod oil seal
- 14. Air breather tube
- 17. Drain plug
- 20. Filler plug (With ABS models)
- 3. Input shaft oil seal
- 6. Back-up lamp switch
- 9. Plug
- 12. Transaxle case
- 15. Park/Neutral position (PNP) switch

[6MT: RS6F52A]

- 18. Magnet
- 21. Speedometer pinion gear (Without ABS models)

Apply Genuine Silicone RTV or an equivalent. Refer to GI-15. "Recommended Chemical Products and Sealants".

SHAFT AND GEAR



- 1. Input shaft front bearing
- 4. 3rd input gear
- 7. 3rd outer baulk ring
- 10. 3rd-4th synchronizer hub
- 13. 4th input gear bushing
- 16. Thrust washer
- 19. 5th input gear
- 22. 5th-6th shifting insert
- 25. 6th baulk ring
- 28. 6th input gear bushing
- 31. Oil channel
- 34. Reverse idler shaft
- 37. Reverse insert spring
- 40. Reverse coupling sleeve
- : Replace the parts as a set.

- 2. Input shaft
- 5. 3rd inner baulk ring
- 8. 3rd-4th spread spring
- 11. 4th baulk ring
- 14. 4th needle bearing
- 17. 5th input gear bushing
- 20. 5th baulk ring
- 23. 5th-6th synchronizer hub
- 26. 6th input gear
- 29. Snap ring
- 32. Input shaft rear bearing adjusting shim
- 35. Thrust needle bearing
- 38. Reverse idler gear (Front)
- 41. Reverse idler gear (Rear)

- 3. 3rd needle bearing
- 6. 3rd synchronizer cone
- 9. 3rd-4th shifting insert
- 12. 3rd-4th coupling sleeve
- 15. 4th input gear
- 18. 5th needle bearing
- 21. 5th-6th spread spring
- 24. 5th-6th coupling sleeve
- 27. 6th needle bearing
- 30. Input shaft rear bearing
- 33. Retaining pin
- 36. Reverse idler gear needle bearing
- 39. Reverse baulk ring
- 42. Reverse idler gear adjusting shim

Refer to $\underline{\text{GI-4, "Components"}}$ for symbols not described on the above.

· Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

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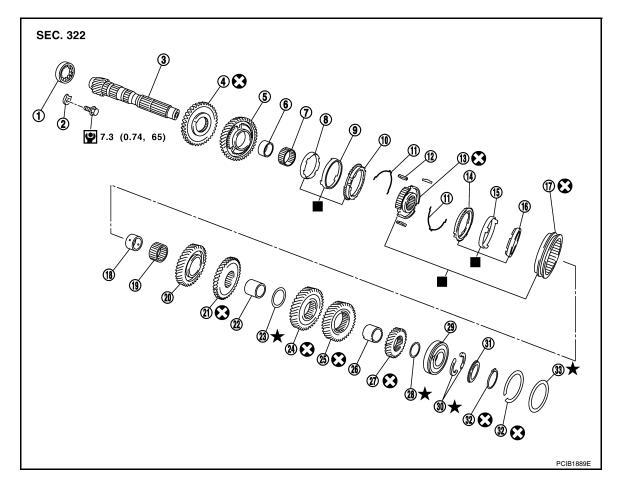
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- 1. Mainshaft front bearing
- 4. Reverse main gear
- 7. 1st needle bearing
- 10. 1st outer baulk ring
- 13. 1st-2nd synchronizer hub
- 16. 2nd inner baulk ring
- 19. 2nd needle bearing
- 22. 3rd-4th mainshaft spacer
- 25. 5th main gear
- 28. 6th main gear adjusting shim
- 31. C-ring holder

- 2. Mainshaft bearing retainer
- 5. 1st main gear
- 8. 1st inner baulk ring
- 11. 1st-2nd spread spring
- 14. 2nd outer baulk ring
- 17. 1st-2nd coupling sleeve
- 20. 2nd main gear
- 23. 4th main adjusting shim
- 26. 5th-6th mainshaft spacer
- 29. Mainshaft rear bearing
- 32. Snap ring

- 3. Mainshaft
- 6. 1st main gear bushing
- 9. 1st synchronizer cone
- 12. 1st-2nd shifting insert
- 15. 2nd synchronizer cone
- 18. 2nd main gear bushing
- 21. 3rd main gear
- 24. 4th main gear
- 27. 6th main gear
- 30. Mainshaft C-ring
- 33. Mainshaft rear bearing adjusting shim

: Replace the parts as a set.

Refer to GI-4, "Components" for symbols not described on the above.

· Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

SHIFT FORK AND FORK ROD

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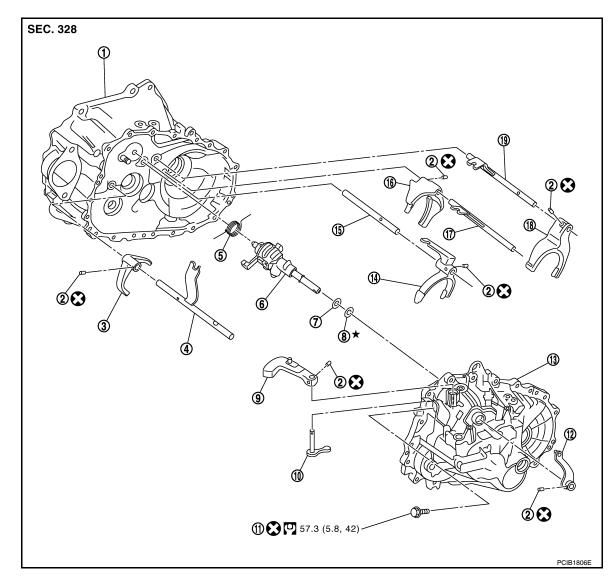
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- Clutch housing
- Reverse fork rod
- Striking rod shim 7.
- 10. Shifter lever B
- 13. Transaxle case
- 16. 1st-2nd shift fork
- 19. 5th-6th fork rod

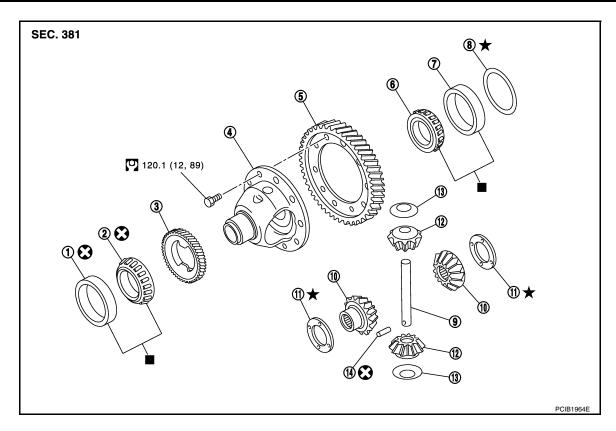
- Retaining pin 2.
- 5. Return spring
- 8. Striking rod adjusting shim
- 11. Guide bolt
- 14. 3rd-4th shift fork
- 17. 1st-2nd fork rod

- Reverse shift fork 3.
- 6. Striking rod assembly
- 9. Shifter lever A
- 12. Selector lever
- 15. 3rd-4th fork rod
- 18. 5th-6th shift fork

FINAL DRIVE

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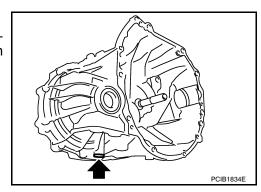


- 1. Differential side bearing outer race (clutch housing side)
- 4. Differential case
- 7. Differential side bearing outer race (transaxle case side)
- 10. Side gear
- 13. Pinion mate thrust washer
- Differential side bearing (clutch housing side)
- 5. Final gear
- 8. Differential side bearing adjusting 9. shim
- 11. Side gear thrust washer
- 14. Retaining pin

- 3. Speedometer drive gear
- Differential side bearing (transaxle case side)
- 9. Pinion mate shaft
- 12. Pinion mate gear
- Replace parts as a set

Disassembly

- 1. Remove drain plug and gasket from clutch housing.
- 2. Remove plug bolt and then plug (with ABS models) or speedometer pinion gear (without ABS models) and O-ring from clutch housing.

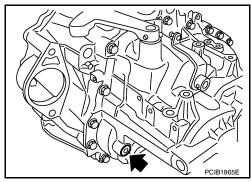


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TRANSAXLE ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

Remove plug and gasket from transaxle case.



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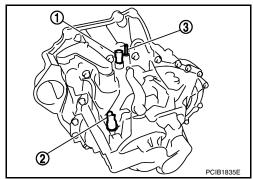
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- 4. Remove park/neutral position (PNP) switch (1) from transaxle
- 5. Remove back-up lamp switch (2) and plunger from transaxle

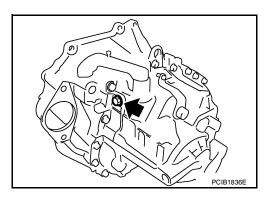
CAUTION:

Do not lose plunger.

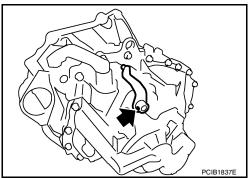
6. Remove air breather tube (3) from transaxle case.



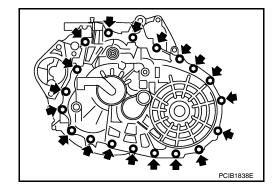
7. Remove guide bolt from transaxle case.



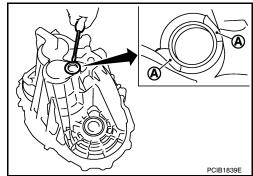
8. Remove retaining pin using suitable tool and then remove selector lever from transaxle case.



9. Remove transaxle case bolts.

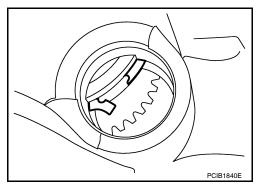


- 10. Remove bore plug from transaxle case. **CAUTION:**
 - Do not damage transaxle case.
 - Access bore plug from cutout (A) of transaxle case when removing.



[6MT: RS6F52A]

- 11. Remove transaxle case following the procedures below.
- a. Expand snap ring at mainshaft rear bearing accessing from the bore plug hole. Then pull up transaxle case from clutch housing until snap ring comes off.



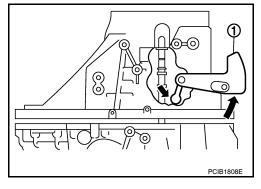
b. With shifter lever A (1) held in the position shown, remove transaxle case from clutch housing.

CAUTION:

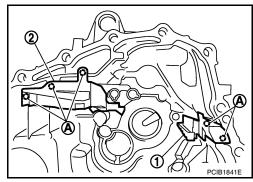
Do not drop each adjusting shim.

NOTE:

Make sure to hold shifter lever A (1) in the position shown. Otherwise transaxle case cannot be removed from clutch housing.



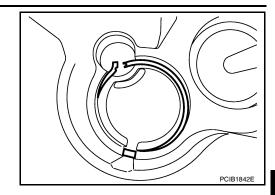
- 12. Remove oil gutter A (1) and oil gutter B (2) from transaxle case.
 - A : Tab of oil gutter



TRANSAXLE ASSEMBLY

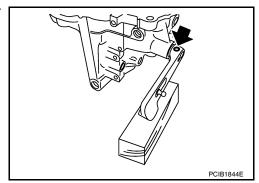
< DISASSEMBLY AND ASSEMBLY >

13. Remove snap ring from transaxle case.



[6MT: RS6F52A]

14. Remove retaining pin using suitable tool and then remove shifter lever A and shifter lever B from transaxle case.

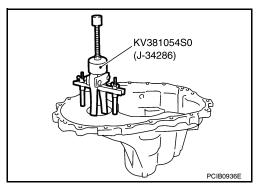


15. Remove differential side bearing outer race from transaxle case using Tool, then remove differential side bearing adjusting shim from transaxle case.

> **Tool number** :KV381054SO (J-34286)

CAUTION:

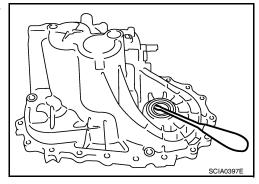
Do not damage transaxle case.



16. Remove differential side oil seal from transaxle case using suitable tool.

CAUTION:

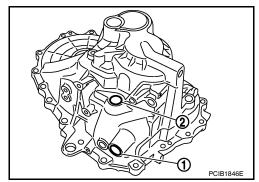
Do not damage transaxle case.



17. Remove shifter lever oil seal (1) and striking rod oil seal (2) from transaxle case.

CAUTION:

Do not damage transaxle case.



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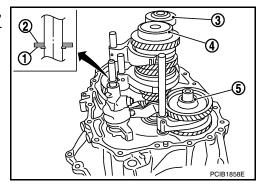
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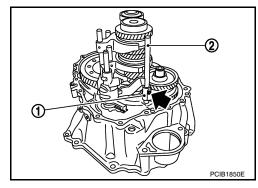
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18. Remove striking rod shim (1), striking rod adjusting shim (2), mainshaft rear bearing adjusting shim (3), input shaft rear bearing adjusting shim (4), and reverse idler gear adjusting shim (5).

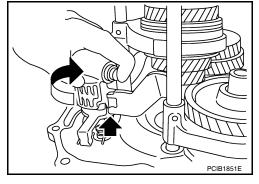


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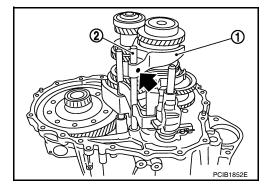
- 19. Remove retaining pin of reverse shift fork (1) using suitable tool.
 - 2 : Reverse fork rod



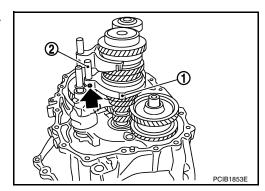
- 20. Rotate striking lever of striking rod assembly as shown. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod assembly.
- 21. Pull out reverse shift fork and reverse fork rod.



- 22. Remove retaining pin of 5th-6th shift fork (1) using suitable tool.
 - 2 : 5th-6th fork rod

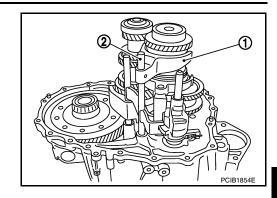


- 23. Remove retaining pin of 3rd-4th shift fork (1) using suitable tool.
- 24. Pull out 3rd-4th fork rod (2).

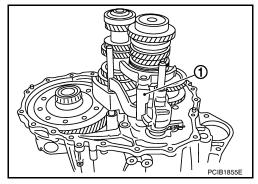


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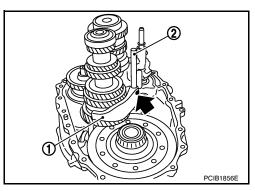
25. Pull out 5th-6th shift fork (1) and 5th-6th fork rod (2).



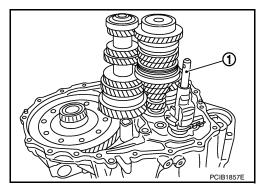
26. Pull out 3rd-4th shift fork (1).



- 27. Remove retaining pin of 1st-2nd shift fork (1) using suitable tool.
- 28. Pull out 1st-2nd shift fork and 1st-2nd fork rod (2).



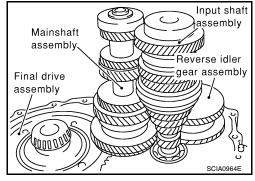
29. Remove striking rod assembly (1).



- 30. Remove gear components from clutch housing in the following procedure.
- Remove a set of input shaft assembly, mainshaft assembly, and reverse idler gear assembly by tapping the tip of input shaft from the back of the clutch housing with a plastic hammer.
 CAUTION:

Always withdraw mainshaft straight out. Failure to do so can damage resin oil channel on clutch housing side.

b. Remove final drive assembly.



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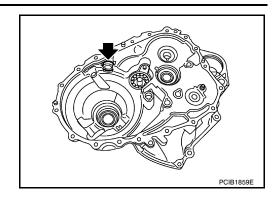
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31. Remove magnet from clutch housing.



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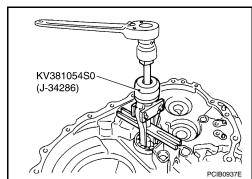
32. Remove mainshaft bearing retainer and then mainshaft front bearing from clutch housing using Tool.

Tool number :KV381054SO (J-34286)

CAUTION:

Do not damage clutch housing, mainshaft front bearing, and oil channel.

33. Remove oil channel from clutch housing.

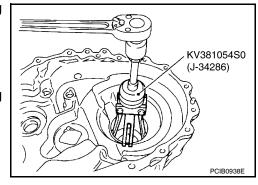


34. Remove differential side bearing outer race from clutch housing using Tool.

Tool number :KV381054SO (J-34286)

CAUTION:

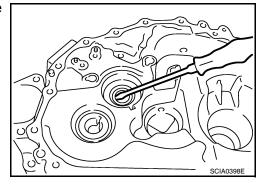
Do not damage clutch housing and differential side bearing outer race.



35. Remove input shaft oil seal from clutch housing using suitable tool.

CAUTION:

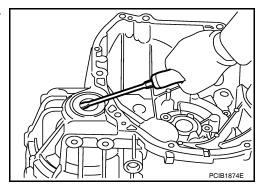
Do not damage clutch housing.



36. Remove differential side oil seal from clutch housing using suitable tool.

CAUTION:

Do not damage clutch housing.



Assembly

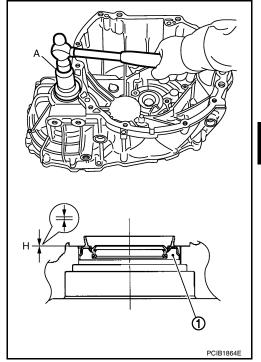
 Install differential side oil seal (1) to clutch housing using Tool (A).

Dimension "H" : -0.5 - 0.5 mm (-0.020 - 0.020 in)

Tool number : ST33400001 (J-26082)

CAUTION:

- Do not reuse differential side oil seal.
- When installing, do not incline differential side oil seal.
- Do not damage clutch housing.



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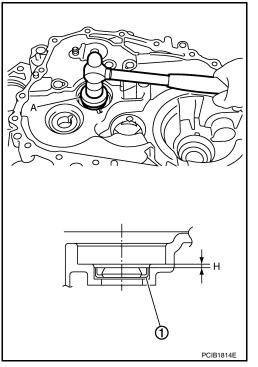
2. Install input shaft oil seal (1) to clutch housing using Tool (A).

Dimension "H" : 1.1 - 2.1 mm (0.043 - 0.083 in)

Tool number : ST35321000 (—)

CAUTION:

- Do not reuse input shaft oil seal.
- When installing, do not incline input shaft oil seal.
- Do not damage clutch housing.



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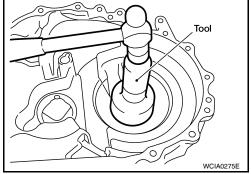
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 Install differential side bearing outer race to clutch housing using Tool.

Tool number : ST30720000 (J-25405)

CAUTION:

Replace differential side bearing and differential side bearing outer race as a set.

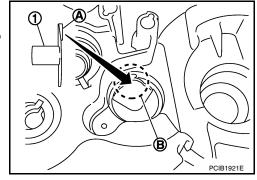


[6MT: RS6F52A]

4. Install oil channel (1) on mainshaft side.

CAUTION:

When installing oil channel, fit the rib (A) of oil channel into the processed area of the spot facing (B).

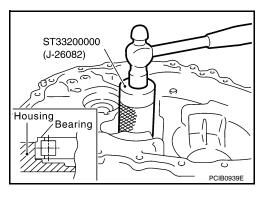


Install mainshaft front bearing to clutch housing using Tool.

Tool number : ST33200000 (J-26082)

CAUTION:

Be careful with the orientation of mainshaft front bearing.



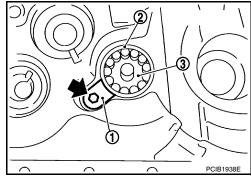
6. Install mainshaft bearing retainer (1) to clutch housing and tighten bolt to the specified torque.

2 : Mainshaft front bearing

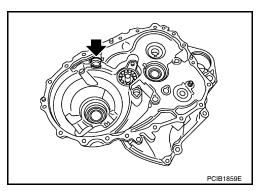
3 : Oil channel

CAUTION:

Install with punched surface facing up.

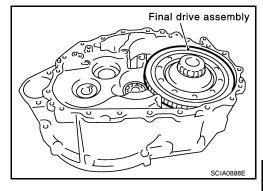


Install magnet to clutch housing.



< DISASSEMBLY AND ASSEMBLY >

8. Install final drive assembly into clutch housing.

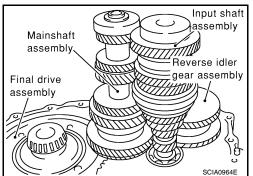


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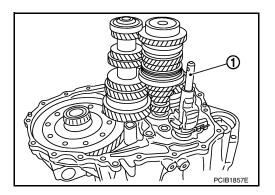
9. Install input shaft assembly, mainshaft assembly, and reverse idler gear assembly into clutch housing.

CAUTION:

- Wrap tape to the spline of input shaft so as not to damage the input shaft oil seal.
- Be careful with the orientation of reverse idler shaft.

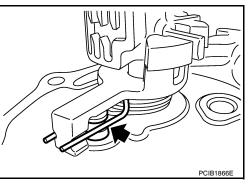


10. Install striking rod assembly (1) into clutch housing.



CAUTION:

• Check that return spring is securely seated in the groove on return pin.



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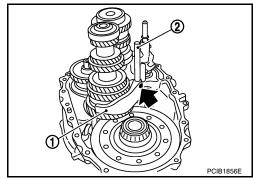
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11. Install 1st-2nd shift fork (1) and 1st-2nd fork rod (2) and then install retaining pin to 1st-2nd shift fork.

CAUTION:

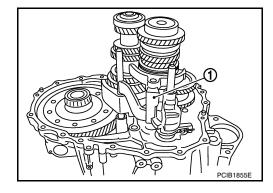
- Do not reuse retaining pin.
- Be careful with the orientation of 1st-2nd shift fork and 1st-2nd fork rod.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of 1st-2nd shift fork.



[6MT: RS6F52A]

12. Install 3rd-4th shift fork (1) to 3rd-4th coupling sleeve. **CAUTION:**

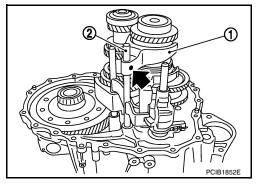
Be careful with the orientation of 3rd-4th shift fork.



13. Install 5th-6th shift fork (1) and 5th-6th fork rod (2) and then install retaining pin to 5th-6th shift fork.

CAUTION:

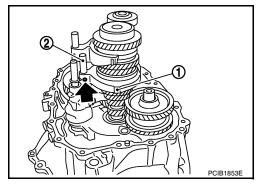
- Do not reuse retaining pin.
- Be careful with the orientation of 5th-6th shift fork and 5th-6th fork rod.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of 5th-6th shift fork.



14. Install 3rd-4th fork rod (2) and then install retaining pin to 3rd-4th shift fork (1).

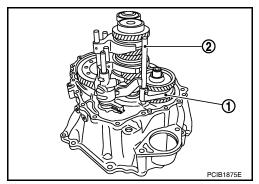
CAUTION:

- · Do not reuse retaining pin.
- Be careful with the orientation of 3rd-4th fork rod.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of 3rd-4th shift fork.



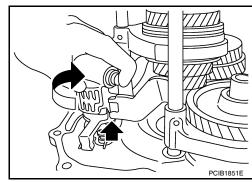
Install reverse shift fork (1) and reverse fork rod (2).
 CAUTION:

Be careful with the orientation of reverse shift fork and reverse fork rod.



< DISASSEMBLY AND ASSEMBLY >

16. Rotate striking lever of striking rod assembly as shown. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod assembly.



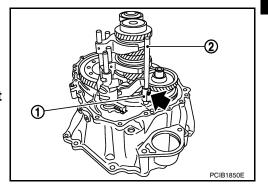
[6MT: RS6F52A]

17. Install retaining pin to reverse shift fork (1).

2 : Reverse fork rod

CAUTION:

- Do not reuse retaining pin.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of reverse shift fork.



18. Install selected differential side bearing adjusting shim(s) and differential side bearing outer race.

For selection of adjusting shim(s), refer to <u>TM-49</u>, "Adjustment".

19. Install selected reverse idler gear adjusting shim onto reverse idler gear assembly.

For selection of adjusting shim, refer to <u>TM-49</u>, "Adjustment".

20. Install selected input shaft rear bearing adjusting shim onto input shaft.

• For selection of adjusting shim, refer to TM-49, "Adjustment".

21. Install selected striking rod adjusting shim onto striking rod assembly.

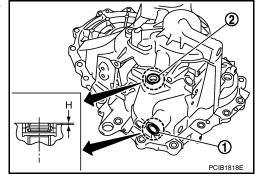
For selection of adjusting shim, refer to TM-49, "Adjustment".

Install shifter lever oil seal (1) and striking rod oil seal (2) to transaxle case using suitable tool.

Dimension "H" : 0 - 1.0 mm (0 - 0.039 in)

CAUTION:

- Do not reuse shifter lever oil seal and striking rod oil seal.
- When installing, do not incline shifter lever oil seal and striking rod oil seal.
- Do not damage transaxle case.



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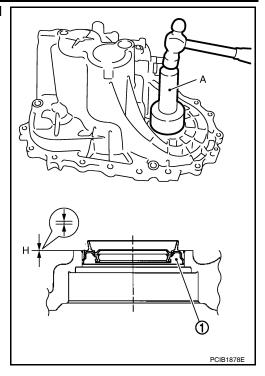
23. Install differential side oil seal (1) to transaxle case using Tool (A) [SST: ST30720000 (J-25405)].

Dimension "H" : -0.5 - 0.5 mm (-0.020 - 0.020 in)

Tool number : ST30720000 (J-25405)

CAUTION:

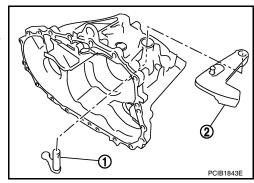
- · Do not reuse differential side oil seal.
- When installing, do not incline differential side oil seal.
- Do not damage transaxle case.



[6MT: RS6F52A]

24. Install shifter lever B (1) and shifter lever A (2) to transaxle case. **CAUTION:**

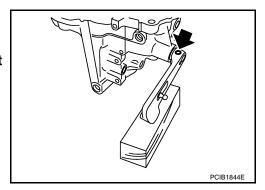
Be careful with the orientation of shifter lever B and shifter lever A.



25. Install retaining pin to shifter lever A.

CAUTION:

- Do not reuse retaining pin.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of shifter lever A.

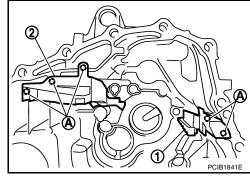


- 26. Install transaxle case according to the following:
- a. Install selected mainshaft rear bearing adjusting shim into transaxle case.
 - For selection of adjusting shim, refer to TM-49, "Adjustment".

< DISASSEMBLY AND ASSEMBLY >

Install oil gutter A (1) and oil gutter B (2) to transaxle case.
 CAUTION:

Insert the tab (A) of oil gutter A and oil gutter B into transaxle case.

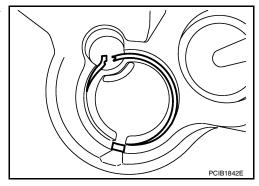


[6MT: RS6F52A]

 Temporarily install snap ring of mainshaft rear bearing into transaxle case.

CAUTION:

Do not reuse snap ring.

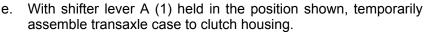


d. Apply recommended sealant to mating surface of clutch housing as shown.

 Use Genuine Silicone RTV or an equivalent. Refer to GI-15, "Recommended Chemical Products and Sealants".

CAUTION:

- Remove old sealant adhering to the mounting surfaces.
 Also remove any moisture, oil, or foreign material adhering to both mounting surfaces.
- Apply sealant so as not to break the bead.
- The width of sealant bead is 1 2 mm (0.04 0.08 in).
- The height of sealant bead is 0.4 1 mm (0.016 0.04 in).
- The overlap length of both ends of sealant bead is 3 5 mm (0.12 0.20 in).

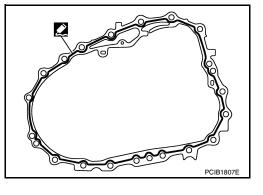


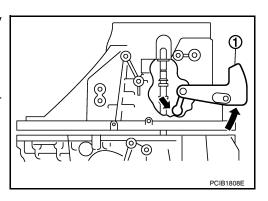
CAUTION:

Do not damage striking rod oil seal.

NOTE:

Make sure to hold shifter lever A in the position shown. Otherwise transaxle case cannot be installed to clutch housing.





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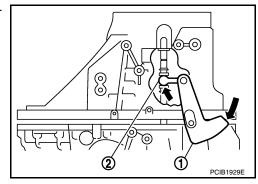
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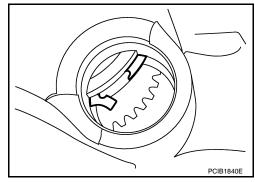
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- f. While rotating shifter lever A (1) in the direction shown, assemble transaxle case to clutch housing.
 - 2 : Shifter lever B

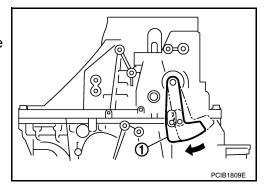


[6MT: RS6F52A]

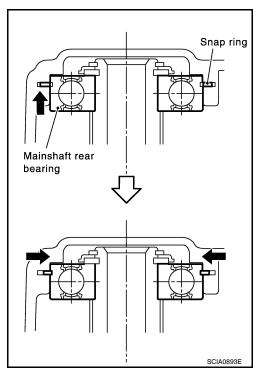
- g. Accessing from the bore plug hole, expand snap ring at mainshaft rear bearing so that the ring catches the periphery of mainshaft rear bearing.
- h. Temporarily tighten transaxle case bolts.



- i. Shift the shifter lever A (1) to 2nd gear position.
 - NOTE:
 - The 2nd gear position is attained when shifter lever A is in the position shown.

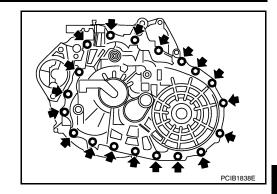


- When transaxle is shifted to the 2nd gear position, mainshaft assembly is lifted.
- j. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure from step d.



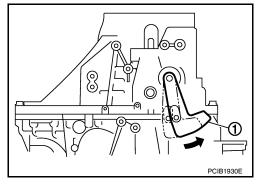
< DISASSEMBLY AND ASSEMBLY >

Tighten transaxle case bolts to the specified torque.



Shift the shifter lever A (1) to neutral position. NOTE:

The neutral position is attained when shifter lever A is in the position shown.

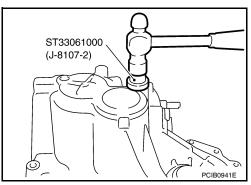


27. Install bore plug to transaxle case using Tool.

Tool number : ST33061000 (J-8107-2)

CAUTION:

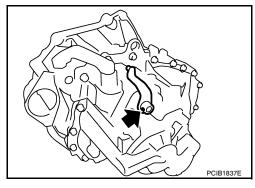
Do not reuse bore plug.



28. Install selector lever to transaxle case and then install retaining pin to selector lever.

CAUTION:

- Do not reuse retaining pin.
- Assemble retaining pin from the direction shown until it becomes flush with the end surface of selector lever.



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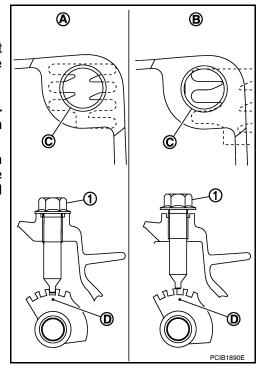
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- 29. Install guide bolt (1) according to the following:
- a. Shift the shifter lever A and selector lever to neutral position (A).
- b. Visually confirm from the guide bolt mounting hole (C) that shift lever A is securely set to neutral position (A). If it is not in the neutral position (B), repeat the procedure from step a. CAUTION:

The guide groove (D) of striking rod assembly will be damaged when assembling guide bolt (1) if the lever is not in the neutral position (B).

c. Check continuity between terminals of park/neutral position (PNP) switch to confirm it in the neutral position. If it is not in the neutral position, remove park/neutral position (PNP) switch and repeat the procedure from step a. Refer to <u>TM-20</u>, "<u>Inspection</u>".

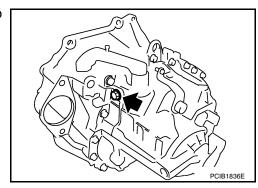


[6MT: RS6F52A]

d. Install guide bolt to transaxle case and then tighten guide bolt to the specified torque.

CAUTION:

Do not reuse guide bolt.



- 30. Apply recommended sealant to threads of park/neutral position (PNP) switch (1). Then install it to transaxle case and tighten to the specified torque.
 - Use Genuine Silicone RTV or an equivalent. Refer to GI-15, "Recommended Chemical Products and Sealants".
 CAUTION:

Remove old sealant and oil adhering to threads.

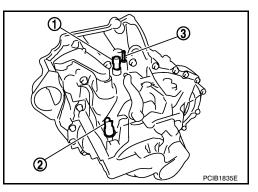
- 31. Install plunger to transaxle case.
- 32. Apply recommended sealant to threads of back-up lamp switch (2). Then install it to transaxle case and tighten to the specified torque.
 - Use Genuine Silicone RTV or an equivalent. Refer to GI-15, "Recommended Chemical Products and Sealants".
 CAUTION:

Remove old sealant and oil adhering to threads.

33. Install air breather tube (3) to transaxle case.

CAUTION:

- · Do not reuse air breather tube.
- Assemble air breather tube until its collar element contacts with transaxle case.

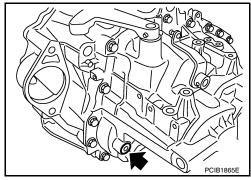


< DISASSEMBLY AND ASSEMBLY >

34. Install gasket onto plug and then install them into transaxle case. Tighten plug to the specified torque.

CAUTION:

Do not reuse gasket.



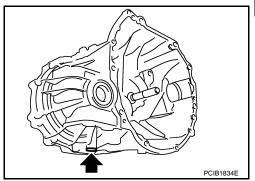
[6MT: RS6F52A]

35. Install gasket onto drain plug and then install them into clutch housing. Tighten drain plug to the specified torque.

CAUTION:

Do not reuse gasket.

- 36. Install O-ring onto plug (with ABS models) or speedometer pinion gear (without ABS models) and then install it into clutch housing. Tighten bolt to the specified torque.
 CAUTION:
 - Do not reuse O-ring.
 - After oil is filled, tighten bolt to specified torque.



INFOID:0000000004201598

Adjustment

DIFFERENTIAL SIDE BEARING PRELOAD

 When adjusting differential side bearing preload, select adjusting shim for differential side bearing. To select adjusting shim, measure clearance "L" between transaxle case and differential side bearing outer race.

CAUTION:

Up to 2 adjusting shims can be selected.

 Calculate dimension "L" (thickness of adjusting shim) using the following procedure to satisfy specification of preload for differential side bearing.

Preload : Refer to TM-84, "Differential Side Bearing Preload".

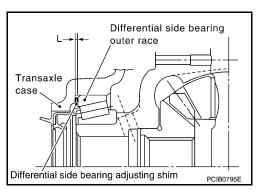
Dimension "L" = (L1 - L2) + Preload

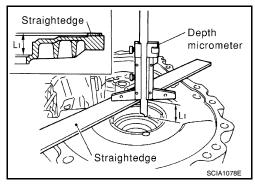
L : Thickness of adjusting shim

L1 : Distance between transaxle case end face and mounting face of adjusting shim

L2 : Distance between differential side bearing outer race and clutch housing end face

- Using a depth micrometer and straightedge, measure dimension "L1" between transaxle case end face and mounting face of adjusting shim.
- Install differential side bearing outer race onto differential side bearing on final gear side. Holding lightly differential side bearing outer race horizontally by hand, rotate final gear five times or more (for smooth movement of bearing roller).





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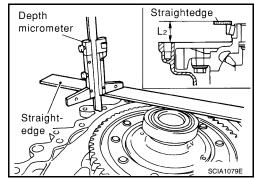
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3. Using a depth micrometer and straightedge as shown, measure dimension "L2" between differential side bearing outer race and clutch housing end face.

CAUTION:

"L2": Measure at 4 point by approximately 90 degrees and use the average value.



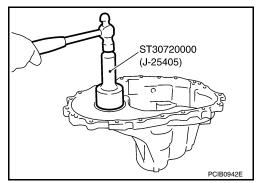
[6MT: RS6F52A]

4. Install selected differential side bearing adjusting shim and then install differential side bearing outer race using Tool.

Tool number : ST30720000 (J-25405)

CAUTION:

Replace differential side bearing and differential side bearing outer race as a set.



REVERSE IDLER GEAR END PLAY

 When adjusting reverse idler gear end play, select adjusting shim for reverse idler gear. To select adjusting shim (1), measure clearance between transaxle case (2) and reverse idler gear (Rear) (3).
 CAUTION:

Only 1 adjusting shim can be selected.

 Calculate dimension "Q" (thickness of adjusting shim) using the following procedure to satisfy specification of end play for reverse idler gear.

End play : Refer to TM-83, "End Play".

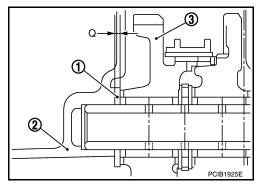
Dimension "Q" = (Q1 - Q2) - End play

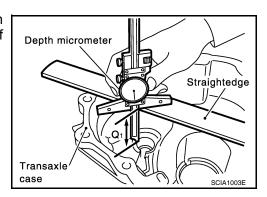
Q : Thickness of adjusting shim

Q1 : Distance between transaxle case end face and mounting face of adjusting shim

Q2 : Distance between clutch housing end face and end face of reverse idler gear (Rear)

 Using a depth micrometer and straightedge, measure dimension "Q1" between transaxle case end face and mounting face of adjusting shim.





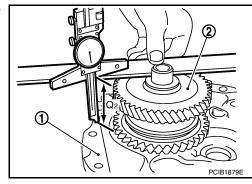
< DISASSEMBLY AND ASSEMBLY >

2. Using a depth micrometer and straightedge as shown, measure dimension "Q2" between clutch housing (1) end face and end face of reverse idler gear (Rear) (2).

CAUTION:

"Q2": Measure at 4 point by approximately 90 degrees and use the average value.

3. Install selected reverse idler gear adjusting shim onto reverse idler gear (Rear).



Input shaft

rear bearing

adjusting shim-

Transaxle

case

[6MT: RS6F52A1

Input shaft

rear bearing

INPUT SHAFT END PLAY

 When adjusting input shaft end play, select adjusting shim for input shaft rear bearing. To select adjusting shim, measure clearance between transaxle case and input shaft rear bearing.
 CAUTION:

Only 1 adjusting shim can be selected.

 Calculate dimension "O" (thickness of adjusting shim) using the following procedure to satisfy specification of end play for input shaft rear bearing.

End play : Refer to TM-83, "End Play".

Dimension "O" = (O1 - O2) - End play

O : Thickness of adjusting shim

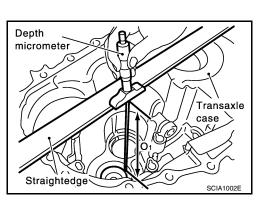
O1 : Distance between transaxle case end face and mounting face of adjusting shim

O2 : Distance between clutch housing end face and end face of input shaft rear bearing

 Using a depth micrometer and straightedge, measure dimension "O1" between transaxle case end face and mounting face of adjusting shim.

CAUTION:

"O1": Measure at 4 point by approximately 90 degrees and use the average value.

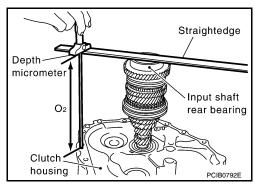


 Using a depth micrometer and straightedge as shown, measure dimension "O2" between clutch housing end face and end face of input shaft rear bearing.

CAUTION:

"O2": Measure at 4 point by approximately 90 degrees and use the average value.

Install selected input shaft rear bearing adjusting shim onto input shaft.



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STRIKING ROD END PLAY

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 When adjusting striking rod end play, select adjusting shim (1) for striking rod (2). To select adjusting shim, measure clearance between transaxle case (3) and striking rod shim (4).
 CAUTION:

Only 1 adjusting shim can be selected.

 Calculate dimension "R" (thickness of adjusting shim) using the following procedure to satisfy specification of end play for striking rod.

End play : Refer to TM-83, "End Play".

Dimension "R" = (R1 - R2) - End play

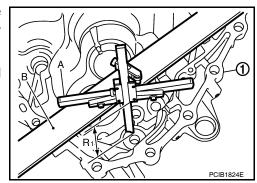
R : Thickness of adjusting shim

R1 : Distance between transaxle case end face and mounting face of adjusting shim

R2 : Distance between clutch housing end face and end face of striking rod shim

 Using a depth micrometer (A) and straightedge (B), measure dimension "R1" between transaxle case (1) end face and mounting face of adjusting shim.
 CAUTION:

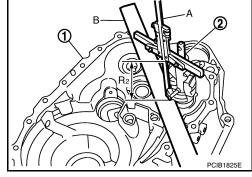
"R1": Measure at 4 point by approximately 90 degrees and use the average value.



 Using a depth micrometer (A) and straightedge (B) as shown, measure dimension "R2" between clutch housing (1) end face and end face of striking rod shim (2).

CAUTION:

- "R2": Measure at 4 point by approximately 90 degrees and use the average value.
- When measuring, be careful for the inclination of striking rod assembly and striking rod shim.
- Install selected striking rod adjusting shim onto striking rod assembly.



MAINSHAFT END PLAY

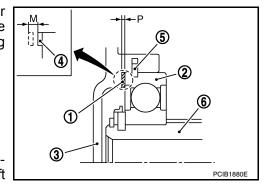
 When adjusting mainshaft end play, select adjusting shim (1) for mainshaft rear bearing (2). To select adjusting shim, measure clearance "M" between transaxle case (3) and dummy adjusting shim (4) on mainshaft rear bearing.

5 : Snap ring6 : Mainshaft

CAUTION:

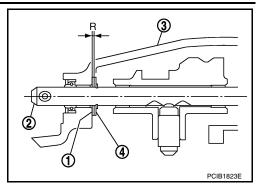
Only 1 adjusting shim can be selected.

 Calculate dimension "P" (thickness of adjusting shim) using the following procedure to satisfy specification of end play for mainshaft rear bearing.



End play : Refer to TM-83, "End Play".

Dimension "P" = (M + N) - End play



[6MT: RS6F52A]

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P: Thickness of adjusting shim

M : Distance between dummy adjusting shim on mainshaft rear bearing end face and transaxle

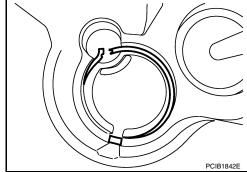
case end face

N* : Thickness of dummy adjusting shim

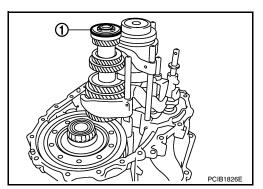
- *: Refer to the latest parts information to use a dummy adjusting shim of which part number is the thinnest in thickness.
- 1. Install transaxle case according to the following:
- Temporarily install snap ring of mainshaft rear bearing into transaxle case.

CAUTION:

Do not reuse snap ring.



Install dummy adjusting shim (1) to mainshaft assembly.



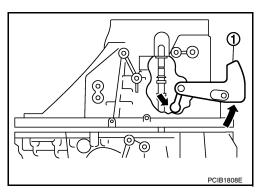
c. With shifter lever A (1) held in the position shown, temporarily assemble transaxle case to clutch housing.

CAUTION:

Do not damage striking rod oil seal.

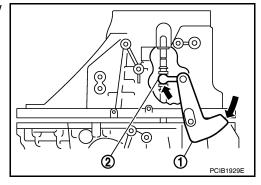
NOTE:

Make sure to hold shifter lever A in the position shown. Otherwise transaxle case cannot be installed to clutch housing.



d. While rotating shifter lever A (1) in the direction of the arrow shown, assemble transaxle case to clutch housing.

2 : Shifter lever B



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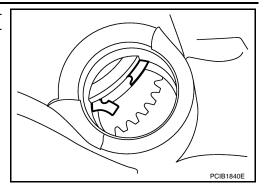
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- Accessing from the bore plug hole, expand snap ring at mainshaft rear bearing so that the ring catches the periphery of mainshaft rear bearing.
- f. Temporarily tighten transaxle case bolts.

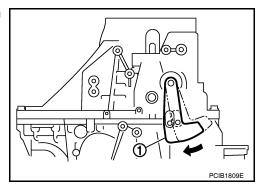


[6MT: RS6F52A]

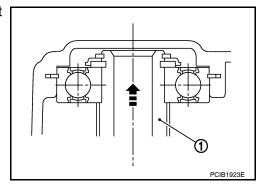
2. Shift the shifter lever A to 2nd gear position.

NOTE:

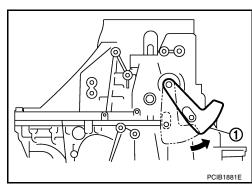
• The 2nd gear position is attained when shifter lever A (1) is in the position shown.



 When transaxle is shifted to the 2nd gear position, mainshaft assembly (1) is lifted.

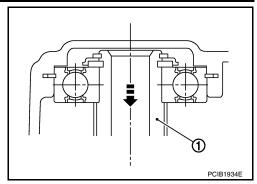


- 3. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure 1 from step c.
- 4. Shift the shifter lever A to 1st gear position, and then shift it to 2nd gear position. Repeat 3 times. **NOTE:**
 - The mainshaft rear bearing position will be stabilized by shifting between 1st gear position and 2nd gear position alternately.
 - The 1st gear position is attained when shifter lever A (1) is in the position shown.



< DISASSEMBLY AND ASSEMBLY >

· When transaxle is shifted to the 1st gear position, mainshaft assembly (1) is declined.



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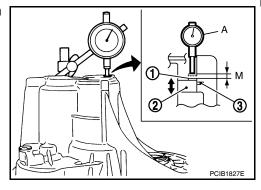
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Set the dial indicator (A) to dummy adjusting shim (1) through the bore plug mounting hole.

: Mainshaft rear bearing

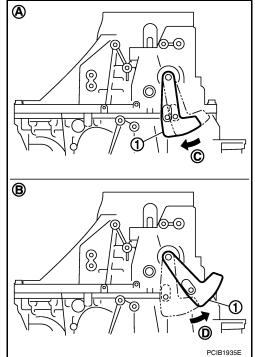
: Snap ring

: Movement between 1st and 2nd



a. Shift the shifter lever A (1) to 2nd gear position (A), and then rotate it in the direction of the arrow (C) until it stops. Using this position as the reference point, measure the amount of movement when shifting shifter lever A to 1st gear position (B) and rotating it in the direction of the arrow (D) until it stops. This measurement is the "M" dimension.

b. When measurement "M" is 0 - 0.06 mm (0 - 0.0024 in), adjustment terminates, and the dummy adjusting shim becomes reqular adjusting shim. Select adjusting shim from the computed expressions when measurement "M" is over 0.06 mm (0.0024 in).



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INPUT SHAFT AND GEAR

Exploded View

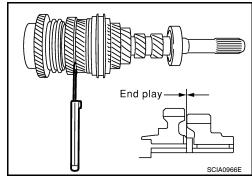
Refer to TM-28, "Exploded View".

Disassembly INFOID:000000004201600

1. Before disassembling, measure end play for 3rd, 4th, 5th, and 6th input gears.

End play standard value : Refer to TM-83, "End Play".

2. Remove oil channel.

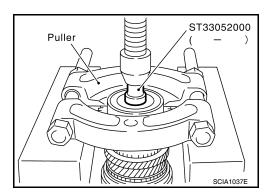


[6MT: RS6F52A]

3. Press out input shaft rear bearing using Tool and a puller.

Tool number : ST33052000 (—)

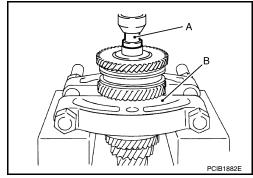
Remove snap ring.



5. Press out 6th input gear, 6th needle bearing, 6th input gear bushing, 5th-6th synchronizer hub assembly, and 5th input gear using Tool (A) and a puller (B).

Tool number : ST33052000 (—)

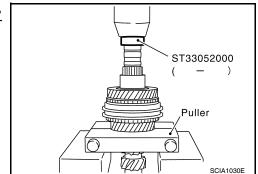
Remove 5th needle bearing.



7. Press out 5th input gear bushing, thrust washer, 4th input gear, 4th needle bearing, 4th input gear bushing, 3rd-4th synchronizer hub assembly, and 3rd input gear using Tool and a puller.

Tool number : ST33052000 (—)

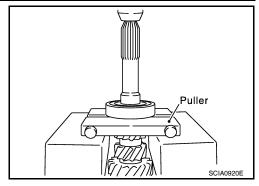
8. Remove 3rd needle bearing.



INPUT SHAFT AND GEAR

< DISASSEMBLY AND ASSEMBLY >

9. Press out input shaft front bearing using a puller.



[6MT: RS6F52A]

Assembly

1. Install 3rd needle bearing to input shaft.

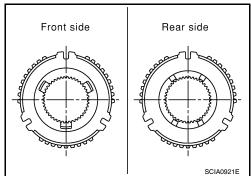
Install 3rd input gear, 3rd inner baulk ring, 3rd synchronizer cone, and 3rd outer baulk ring to input shaft.CAUTION:

Replace 3rd inner baulk ring, 3rd synchronizer cone, and 3rd outer baulk ring as a set.

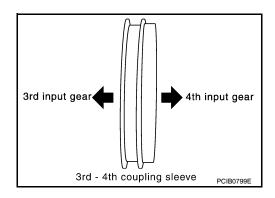
3. Install 3rd-4th spread spring, 3rd-4th shifting insert, and 3rd-4th synchronizer hub onto 3rd-4th coupling sleeve.

CAUTION:

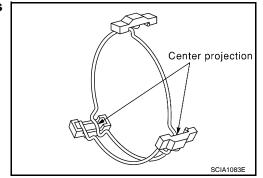
- Be careful with orientation of 3rd-4th synchronizer hub.
- Do not reuse 3rd-4th synchronizer hub and 3rd-4th coupling sleeve.
- Replace 3rd-4th synchronizer hub and 3rd-4th coupling sleeve as a set.



• Be careful with orientation of 3rd-4th coupling sleeve.



 Be sure not to hook center projection of 2 spread springs on same shifting insert.



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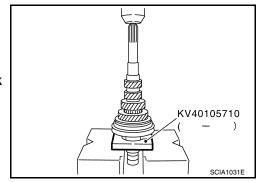
< DISASSEMBLY AND ASSEMBLY >

4. Press in 3rd-4th synchronizer hub assembly using Tool.

Tool number : KV40105710 (—)

CAUTION:

Align grooves of 3rd-4th shifting insert and 3rd outer baulk ring.

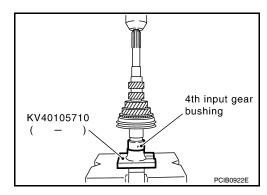


[6MT: RS6F52A]

5. Press in 4th input gear bushing using Tool.

Tool number : KV40105710 (—)

- 6. Install 4th baulk ring.
- 7. Install 4th needle bearing and 4th input gear to input shaft.

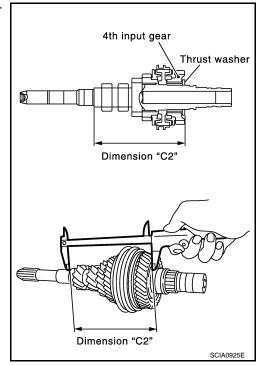


8. Select thrust washer so that dimension "C2" satisfies the standard value below. Then install thrust washer onto input shaft.

Standard value for dimension "C2" : Refer to TM-84, "Dimension".

CAUTION:

Only one thrust washer can be selected.



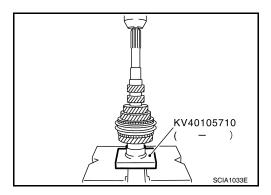
9. Press in 5th input gear bushing using Tool.

Tool number : KV40105710 (—)

CAUTION:

Do not reuse 5th input gear bushing.

- 10. Install 5th needle bearing and 5th input gear to input shaft.
- 11. Install 5th baulk ring.



[6MT: RS6F52A]

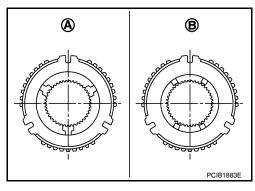
12. Install 5th-6th synchronizer hub, 5th-6th spread spring, and 5th-6th shifting insert onto 5th-6th coupling sleeve.

CAUTION:

Be careful with orientation of 5th-6th synchronizer hub.

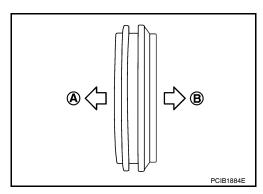
A : Front sideB : Rear side

- Do not reuse 5th-6th synchronizer hub and 5th-6th coupling sleeve.
- Replace 5th-6th synchronizer hub and 5th-6th coupling sleeve as a set.

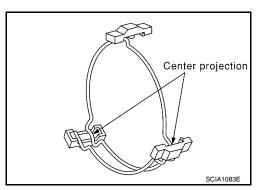


• Be careful with orientation of 5th-6th coupling sleeve.

A : 5th input gear sideB : 6th input gear side



 Be sure not to hook center projection of 2 spread springs on same shifting insert.

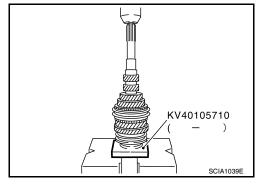


13. Press in 5th-6th synchronizer hub assembly using Tool

Tool number : KV40105710 (—)

CAUTION:

Align grooves of 5th-6th shifting insert and 5th baulk ring.



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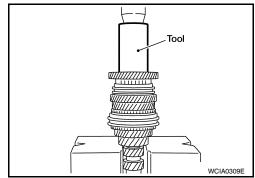
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14. Install 6th needle bearing, 6th input gear, 6th baulk ring onto 6th input gear bushing and then press in 6th input gear bushing onto

input shaft using Tool.

Tool number : ST33200000 (J-26082)



[6MT: RS6F52A]

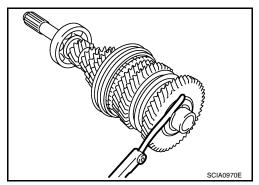
15. Install snap ring onto input shaft and make sure that end play (gap between snap ring and groove) of 6th input gear bushing satisfies the standard value.

End play standard value :Refer to TM-83, "End Play".

• If measurement is outside the standard range, select snap ring.

CAUTION:

Do not reuse snap ring.

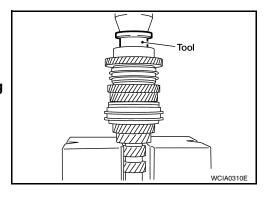


16. Press in input shaft rear bearing using Tool.

Tool number : ST30901000 (J-26010-01)

CAUTION:

Install input shaft rear bearing with its brown surface facing the 6th input gear side.

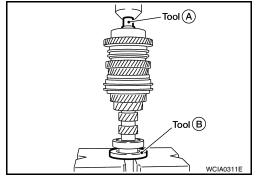


17. Press in input shaft front bearing using Tools.

Tool number : ST33052000 (—)

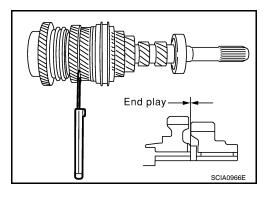
: ST30032000 (J-26010-01

18. Install oil channel onto input shaft.



19. Check end play of 3rd, 4th, 5th, and 6th input gears.

End play standard value : Refer to TM-83, "End Play".

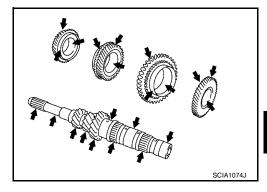


[6MT: RS6F52A] Inspection

INPUT SHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- · Damage, peeling, dent, uneven wear, bending, etc. of shaft
- Excessive wear, damage, peeling, etc. of gears

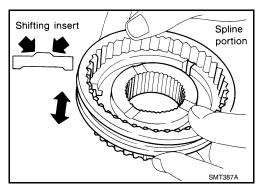


SYNCHRONIZER

Synchronizer Hub and Coupling Sleeve

Check items below. If necessary, replace them with new ones.

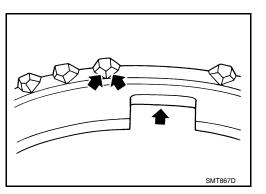
- Damage and excessive wear of contact surfaces of coupling sleeve, synchronizer hub and shifting insert
- Coupling sleeve and synchronizer hub must move smoothly.



Baulk Ring and Spread Spring

Check items below. If necessary, replace them with new ones.

· If any crack, damage, or excessive wear is found on cam face of baulk ring or working face of insert, replace it.



Baulk Ring Clearance for Single Cone Synchronizer (4th, 5th, and 6th)

 Push baulk ring on the cone and measure the clearance between baulk ring and cone. If measurement is below limit, replace it with a new one.

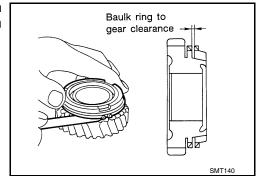
Clearance

Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

ance".



Baulk Ring Clearance for Double Cone Synchronizer (3rd)

TM-61

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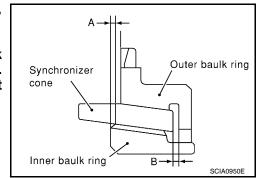
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< DISASSEMBLY AND ASSEMBLY >

 Check the clearance between outer baulk ring, synchronizer cone, and inner baulk ring as follows.

CAUTION:

The clearances "A" and "B" are controlled with outer baulk ring, synchronizer cone, and inner baulk ring as a set. Replace them as a set if the clearances are outside the limit value.



[6MT: RS6F52A]

1. Measure the clearance "A" at 2 points or more diagonally opposite using Tool. Then calculate mean value.

Tool number : ST30031000 (J-22912-01)

Clearance "A"

Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

ance".

2. Measure the clearance "B" at 2 points or more diagonally opposite using a feeler gauge. And then calculate mean value.

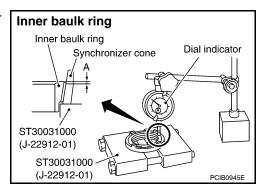
Clearance "B"

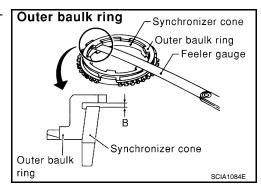
Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

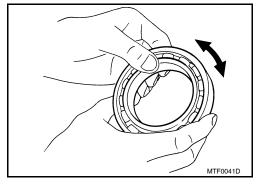
ance".





BEARING

Check bearing for damage and rough rotation. If necessary, replace with new one.



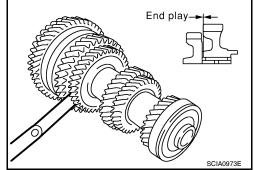
Exploded View

Refer to TM-28, "Exploded View".

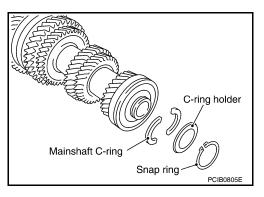
Disassembly INFOID.000000004201604

1. Before disassembling, measure the end play of 1st and 2nd main gears.

End play standard value : Refer to TM-83, "End Play".



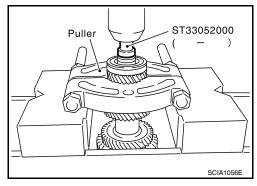
- 2. Remove snap ring.
- 3. Remove C-ring holder and then remove mainshaft C-ring.



4. Press out mainshaft rear bearing, 6th main gear adjusting shim, and 6th main gear using Tool and a puller.

Tool number : ST33052000 (—)

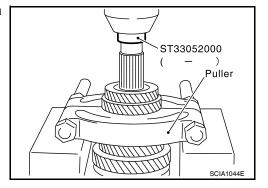
5. Remove 5th-6th mainshaft spacer.



6. Press out 4th main gear and 5th main gear using Tool and a puller.

Tool number : ST33052000 (—)

- 7. Remove 4th main gear adjusting shim.
- 8. Remove 3rd-4th mainshaft spacer.



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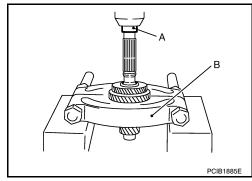
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< DISASSEMBLY AND ASSEMBLY >

9. Press out 3rd main gear and 2nd main gear using Tool (A) and a puller (B).

Tool number : KV40105020 (—)

10. Remove 2nd needle bearing.

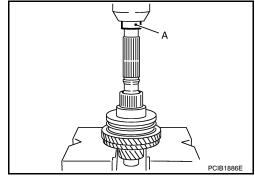


[6MT: RS6F52A]

INFOID:0000000004201605

11. Press out 2nd main gear bushing, 1st-2nd synchronizer hub assembly, 1st main gear, 1st needle bearing, 1st main gear bushing, and reverse main gear using Tool (A).

Tool number : KV40105020 (—)



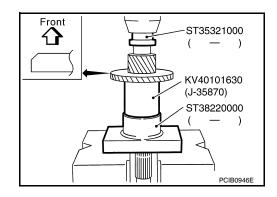
Assembly

1. Press in reverse main gear using Tools.

Tool numbers : ST35321000 (—)

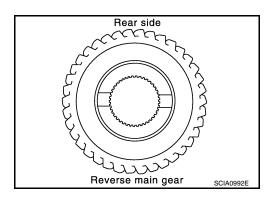
: KV40101630 (J-35870)

: ST38220000 (—)



CAUTION:

- · Be careful with orientation of reverse main gear.
- Do not reuse reverse main gear.



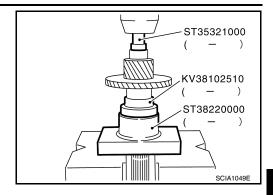
< DISASSEMBLY AND ASSEMBLY >

2. Press in 1st main gear bushing using Tools.

Tool numbers : ST35321000 (—) : KV38102510 (—)

: ST38220000 (—)

3. Install 1st needle bearing and then 1st main gear.

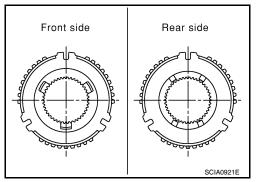


[6MT: RS6F52A]

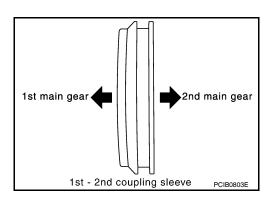
4. Install 1st-2nd spread spring, 1st-2nd shifting insert, and 1st-2nd synchronizer hub onto 1st-2nd coupling sleeve.

CAUTION:

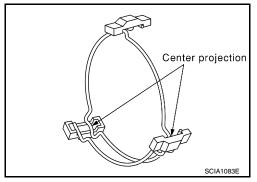
- Be careful with orientation of 1st-2nd synchronizer hub.
- Do not reuse 1st-2nd synchronizer hub and 1st-2nd coupling sleeve.
- Replace 1st-2nd synchronizer hub and 1st-2nd coupling sleeve as a set.



• Be careful with orientation of 1st-2nd coupling sleeve.



 Be sure not to hook center projection of 2 spread springs on same 1st-2nd shifting insert.



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< DISASSEMBLY AND ASSEMBLY >

 Install 1st inner baulk ring, 1st synchronizer cone, and 1st outer baulk ring onto mainshaft and then press in 1st-2nd synchronizer hub assembly onto mainshaft using Tools.

Tool numbers : ST35321000 (—) : KV38102510 (—) : ST38220000 (—)

CAUTION:

- Outer baulk ring, synchronizer cone, and inner baulk ring on 2nd gear-side must have been removed.
- Be careful with orientation of coupling sleeve.
- Replace 1st inner baulk ring, 1st synchronizer cone, and 1st outer baulk ring as a set.
- 6. Press in 2nd main gear bushing using Tools.

Tool numbers : ST35321000 (—) : KV40105710 (—)

7. Install 2nd outer baulk ring, 2nd synchronizer cone, and 2nd inner baulk ring.

CAUTION:

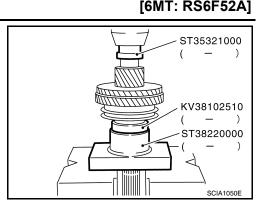
Replace 2nd outer baulk ring, 2nd synchronizer cone, and 2nd inner baulk ring as a set.

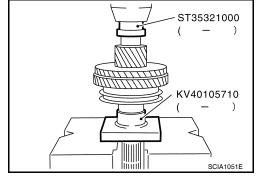
- 8. Install 2nd needle bearing and 2nd main gear.
- 9. Press in 3rd main gear using Tools.

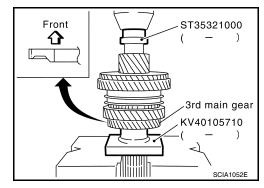
Tool numbers : ST35321000 (—) : KV40105710 (—)

CAUTION:

- · Be careful with orientation of 3rd main gear.
- Do not reuse 3rd main gear.
- 10. Install 3rd-4th mainshaft spacer.







< DISASSEMBLY AND ASSEMBLY >

11. Select 4th main gear adjusting shim so that dimension "C1" satisfies the standard value below and install 4th main gear adjusting shim onto mainshaft.

Standard value for dimension "C1": Refer to <u>TM-84,</u> "<u>Dimension</u>".

CAUTION:

Only one adjusting shim can be selected.

3rd-4th mainshaft spacer
4th main gear adjusting shim
Dimension "C1"

4th main gear adjusting shim
Dimension "C1"

12. Press in 4th main gear using Tools.

Tool numbers : ST33200000 (J-26082)

: ST30901000 (J-26010-01)

CAUTION:

- Be careful with orientation of 4th main gear.
- Do not reuse 4th main gear.

13. Press in 5th main gear using Tools.

Tool numbers : ST33200000 (J-26082)

: ST30901000 (J-26010-01)

CAUTION:

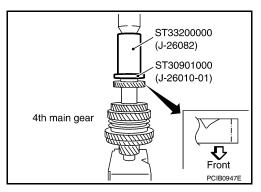
- Be careful with orientation of 5th main gear.
- Do not reuse 5th main gear.
- 14. Install 5th-6th mainshaft spacer.
- 15. Press in 6th main gear using Tools (A) and (B).

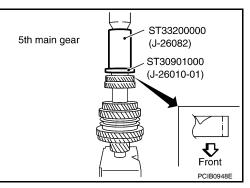
Tool numbers A: ST33200000 (J-26082)

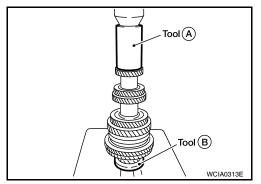
B: ST30901000 (J-26010-01)

CAUTION:

Do not reuse 6th main gear.







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16. Select 6th main gear adjusting shim and then install it onto mainshaft.

Calculate thickness "S" of 6th main gear adjusting shim following the procedure below so that end play dimension between 6th main gear and mainshaft rear bearing becomes the dimension shown below.

End play :Refer to TM-83, "End Play".

Dimension "S" = (S1 - S2) - End play

S : Thickness of adjusting shim

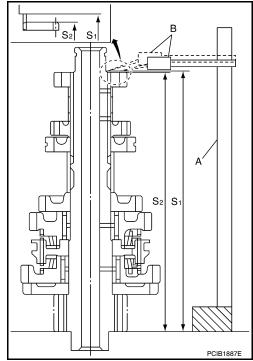
S1 : Dimension from mainshaft standard face to mainshaft rear bearing press-fit end face

S2 : Dimension from mainshaft standard face to 6th main gear end face

CAUTION:

Only one adjusting shim can be selected.

- a. Measure dimension "S1" and "S2" using a height gauge (A) and pick tester (B).
- b. Install selected 6th main gear adjusting shim to mainshaft.

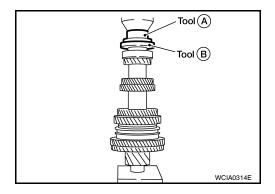


[6MT: RS6F52A]

17. Press in mainshaft rear bearing using Tools.

Tool numbers A: ST30720000 (J-25405)

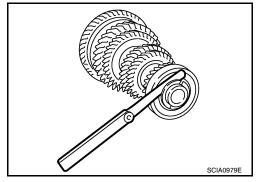
B: ST30901000 (J-26010-01)



18. Install mainshaft C-ring onto mainshaft and check that end play of mainshaft rear bearing satisfies the standard value.

End play standard value : Refer to TM-83, "End Play".

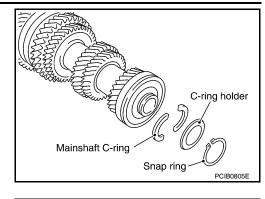
• If measurement is outside the standard range, reselect mainshaft C-ring.



< DISASSEMBLY AND ASSEMBLY >

19. Install C-ring holder and then install snap ring. **CAUTION:**

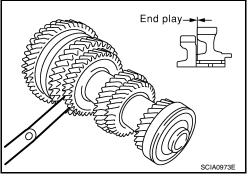
Do not reuse snap ring.



[6MT: RS6F52A]

20. Check end play of 1st and 2nd main gears.

End play standard value : Refer to TM-83, "End Play".

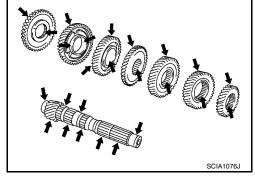


Inspection INFOID:0000000004201606

MAINSHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- Damage, peeling, dent, uneven wear, bending, and other nonstandard conditions of the shaft.
- Excessive wear, damage, peeling, and other non-standard conditions of the gears.

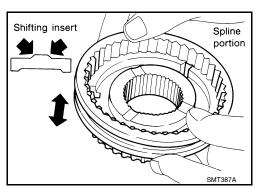


SYNCHRONIZER

Synchronizer Hub and Coupling Sleeve

Check items below. If necessary, replace them with new ones.

- Damage and unusual wear on contact surfaces of coupling sleeve, synchronizer hub and shifting insert.
- Coupling sleeve and synchronizer hub must move smoothly.



Baulk Ring and Spread Spring

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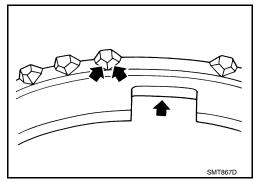
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Check items below. If necessary, replace them with new ones.

• If any crack, damage, or excessive wear is found on cam face of baulk ring or working face of insert, replace it.



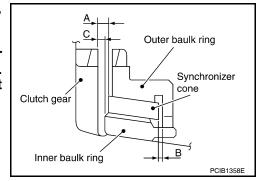
[6MT: RS6F52A]

Baulk Ring Clearance for Triple Cone Synchronizer (1st and 2nd)

• Check the clearance between outer baulk ring, synchronizer cone, and inner baulk ring as follows.

CAUTION:

The clearances "A", "B", and "C" are controlled with outer baulk ring, synchronizer cone, and inner baulk ring as a set. Replace them as a set if the clearances are outside the limit value.



 Measure the clearance "A" at two points or more diagonally opposite using a feeler gauge (B) when pressing outer baulk ring (1), synchronizer cone (2), and inner baulk ring (3) toward gear taper cone (C). Then calculate mean value.

Clearance "A"

Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

ance".

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2. Measure the clearance "B" at two points or more diagonally opposite using a feeler gauge. Then calculate mean value.

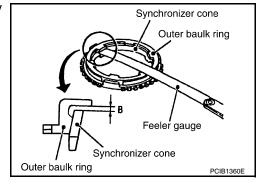
Clearance "B"

Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

ance".



< DISASSEMBLY AND ASSEMBLY >

3. Measure the clearance "C" at two points or more diagonally opposite using a feeler gauge (A) when pressing outer baulk ring (1), synchronizer cone (2), and inner baulk ring (3) toward gear taper cone (B). Then calculate mean value.

Clearance "C"

Standard value : Refer to TM-83, "Baulk Ring Clear-

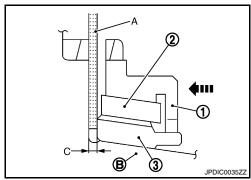
ance".

Limit value : Refer to TM-83, "Baulk Ring Clear-

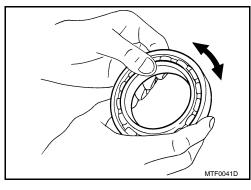
ance".

BEARING

Check bearing for damage and rough rotation. If necessary, replace with new one.



[6MT: RS6F52A]



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REVERSE IDLER SHAFT AND GEAR

Exploded View

Refer to TM-28, "Exploded View".

Disassembly INFOID:0000000004201608

- 1. Remove reverse idler gear (Rear), reverse coupling sleeve, and reverse insert spring simultaneously.
- 2. Remove reverse idler gear needle bearing.
- 3. Remove thrust needle bearing.
- 4. Remove reverse baulk ring.
- 5. Remove reverse idler gear (Front).
- 6. Remove reverse idler gear needle bearing.
- 7. Remove thrust needle bearing.
- 8. Remove retaining pin from reverse idler shaft.

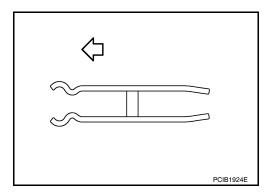
Assembly INFOID:000000004201609

Assembly is in the reverse order of disassembly.

←: Front

CAUTION:

- · Be careful with orientation of reverse insert spring.
- Do not reuse retaining pin.



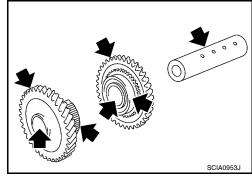
[6MT: RS6F52A]

Inspection INFOID:000000004201610

REVERSE IDLER SHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- Damage, peeling, dent, uneven wear, bending, and other nonstandard conditions of the shaft.
- Excessive wear, damage, peeling, and other non-standard conditions of the gears.



SYNCHRONIZER

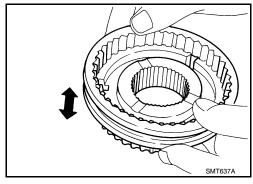
Synchronizer Hub and Coupling Sleeve

REVERSE IDLER SHAFT AND GEAR

< DISASSEMBLY AND ASSEMBLY >

Check items below. If necessary, replace them with new ones.

- Damage and unusual wear on contact surfaces of coupling sleeve, synchronizer hub of reverse idler gear (Rear), and insert spring.
- Coupling sleeve and synchronizer hub of reverse idler gear (Rear) must move smoothly.



[6MT: RS6F52A]

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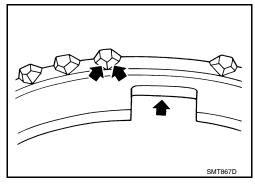
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Baulk Ring

Check items below. If necessary, replace them with new ones.

• If any crack, damage, or excessive wear is found on cam face of baulk ring or working face of insert, replace it.



Baulk Ring Clearance for Single Cone Synchronizer (Reverse)

• Push baulk ring on the cone and measure the clearance between baulk ring and cone. If the measurement is below limit, replace it with a new one.

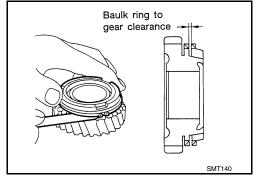
Clearance

Standard value : Refer to TM-83, "Baulk Ring Clear-

ance".

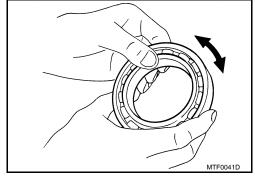
Limit value : Refer to TM-83, "Baulk Ring Clear-

ance".



BEARING

Check bearing for damage and rough rotation. If necessary, replace with new one.



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FINAL DRIVE

Exploded View

Refer to TM-28, "Exploded View".

Disassembly INFOID:000000004201612

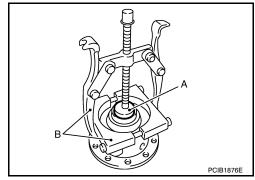
1. Remove final gear mounting bolts and then separate the final gear from differential case.

2. Remove differential side bearing (clutch housing side) using Tool and pullers (B).

Tool number : ST33061000 (J-8107-2)

CAUTION:

Hook a puller on the cage of differential side bearing.



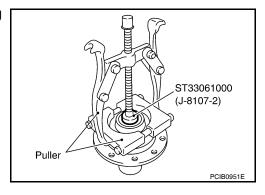
[6MT: RS6F52A]

- 3. Remove speedometer drive gear.
- 4. Remove differential side bearing (transaxle case side) using Tool and pullers.

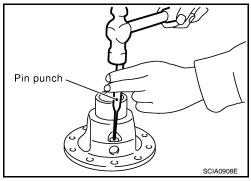
Tool number : ST33061000 (J-8107-2)

CAUTION:

Hook a puller on the inner race of differential side bearing.



- 5. Remove retaining pin from differential case using suitable tool and then remove pinion mate shaft.
- 6. Rotate pinion mate gears and remove pinion mate gears, pinion mate thrust washers, side gears, and side gear thrust washers from differential case.



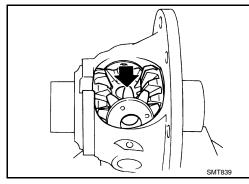
Assembly

1. Apply gear oil to sliding area of differential case, each gear, and thrust washer.

FINAL DRIVE

< DISASSEMBLY AND ASSEMBLY >

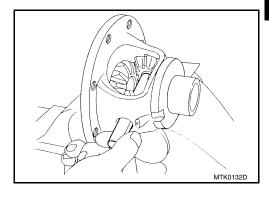
- Install side gear thrust washers and side gears into differential case.
- 3. While rotating pinion mate thrust washers and pinion mate gears, aligning them diagonally, install them into differential case.



[6MT: RS6F52A]

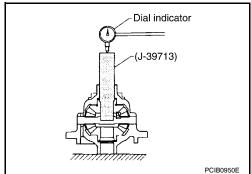
4. Insert pinion mate shaft into differential case. **CAUTION:**

Do not damage pinion mate thrust washers.



- Measure end play of side gears following the procedure below. Then select side gear thrust washer.
- a. Put differential case vertically so that its side gear to be measured faces upward.
- b. Place the Tool and a dial indicator onto side gears.

Tool number (J-39713)



Move side gears up and down to measure the clearance and select thrust washer so that it satisfies the standard value.

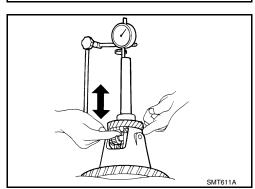
> tween side gear and differential case with thrust

Allowable Clearance be- : Refer to TM-84, "Differential Side Gear Clearance".

washer

CAUTION:

- There should be no resistance and gears should rotate freely.
- Place differential case upside down. Measure the end play for opposite side-gears likewise securely.
- Only one thrust washer can be selected.



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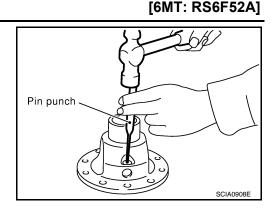
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Install retaining pin into pinion mate shaft using suitable tool. CAUTION:

Do not reuse retaining pin.



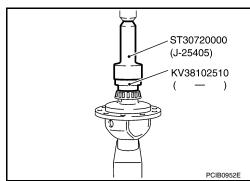
7. Press in differential side bearing (transaxle case side) to differential case using Tools.

Tool numbers : ST30720000 (J-25405)

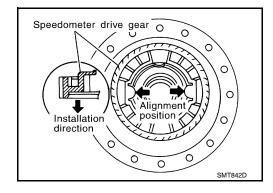
: KV38102510 (—)

CAUTION:

Replace differential side bearing and differential side bearing outer race as a set.



8. Align and install speedometer drive gear onto differential case.



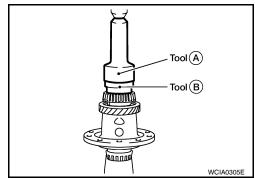
9. Press in differential side bearing (clutch housing side) to differential case using Tools (A) and (B).

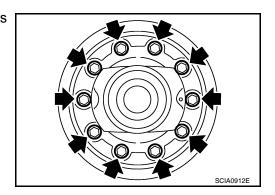
Tool numbers A: ST30720000 (J-25405)

B: KV38102510 (—)

CAUTION:

- Do not reuse differential side bearing and differential side bearing outer race.
- Replace differential side bearing and differential side bearing outer race as a set.
- 10. Install final gear into differential case and tighten final gear bolts to the specified torque.



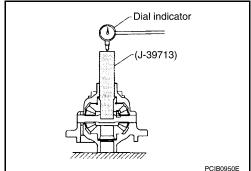


[6MT: RS6F52A] Inspection

INSPECTION BEFORE DISASSEMBLY

- Check the clearance between side gear and differential case as follows.
- 1. Clean final drive assembly sufficiently to prevent side gear thrust washer, differential case, side gear, and other parts from sticking by gear oil.
- Put differential case vertically so that side gear to be measured faces upward.
- 3. Place Tool and a dial indicator onto side gear.

Tool number (J-39713)



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4. Move side gear up and down, and measure the clearance.

tween side gear and differential case with thrust washer

Allowable Clearance be- : Refer to TM-84, "Differential **Side Gear Clearance".**

CAUTION:

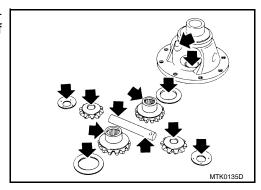
There should be no resistance and gears should rotate freely.

- 5. If not within specification, adjust the clearance by changing side gear thrust washer thickness.
- 6. Turn differential case upside down and measure the clearance between side gear and differential case on the other side in the same way.



Gear, Washer, Shaft, And Case

· Check side gears, side gear thrust washers, pinion mate shaft, pinion mate gears, pinion mate thrust washers and differential case. If necessary, replace with a new one.



Bearing

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[6MT: RS6F52A]

• Check for bearing damage and rough rotation. If necessary, replace with a new one.

CAUTION:

When replacing tapered roller bearing, replace outer and inner races as a set.



SHIFT FORK AND FORK ROD

< DISASSEMBLY AND ASSEMBLY >

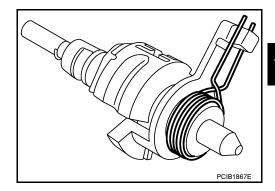
SHIFT FORK AND FORK ROD

Exploded View

Refer to TM-28, "Exploded View".

Disassembly INFOID.000000004201616

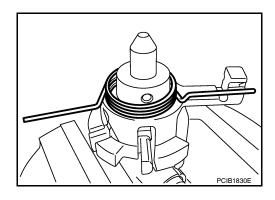
1. Remove return spring to striking rod assembly.



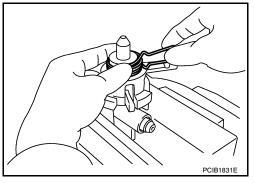
Assembly

 Temporarily install return spring to striking rod assembly. CAUTION:

Be careful with the orientation of return spring.

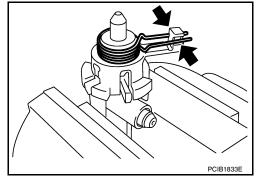


2. Attach one end of the return spring to striking interlock of striking rod assembly while holding return spring.



CAUTION:

 When installing, check that return spring is securely seated in the groove of striking interlock of striking rod assembly.



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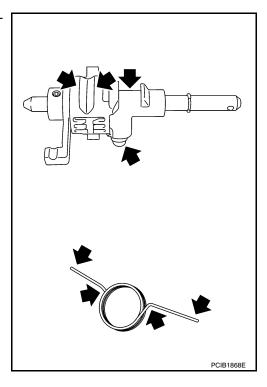
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Inspection INFOID:000000004201618

STRIKING ROD ASSEMBLY AND RETURN SPRING

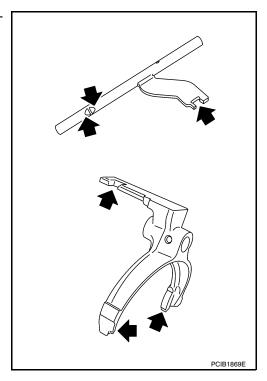
• Check contact surfaces and sliding area for wear, damage, bending, etc. If necessary, replace parts.



[6MT: RS6F52A]

FORK ROD AND SHIFT FORK

• Check contact surfaces and sliding area for wear, damage, bending, etc. If necessary, replace parts.



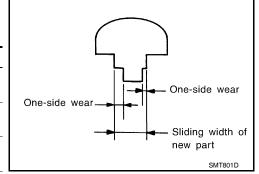
SHIFT FORK

SHIFT FORK AND FORK ROD

< DISASSEMBLY AND ASSEMBLY >

 Check if the width of shift fork hook (sliding area with coupling sleeve) is within allowable specification below.

Item	One-side wear specification	Sliding width of new part
1st-2nd	0.2 mm (0.008 in)	7.80 - 7.93 mm (0.3071 - 0.3122 in)
3rd-4th	0.2 mm (0.008 in)	7.80 - 7.93 mm (0.3071 - 0.3122 in)
5th-6th	0.2 mm (0.008 in)	6.10 - 6.23 mm (0.2402 - 0.2453 in)
Reverse	0.2 mm (0.008 in)	12.80 - 12.93 mm (0.5039 - 0.5091 in)



[6MT: RS6F52A]

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SERVICE DATA AND SPECIFICATIONS (SDS)

[6MT: RS6F52A]

INFOID:0000000004201619

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

TRANSAXLE

Engine type			QR25DE	VQ35DE
Transaxle model			RS6F52A	
Model code number		JA60A	JA60B	
Number of speed			6)
Synchromesh typ	e		Wai	ner
Shift pattern				
			R 1	3 5 N 4 6 PCIB1769E
Gear ratio	1st		3.500	3.154
	2nd		1.9	
	3rd		1.3	
	4th		1.0	56
	5th		0.8	10
	6th		0.673	0.630
	Reverse		3.375	3.002
Number of teeth	Input gear	1st	14	13
		2nd	20	
		3rd	28	
		4th	36	
		5th	42	
		6th	49	46
		Reverse	14	13
	Main gear	1st	49	41
		2nd	39	
		3rd	39	
		4th	38	
		5th	3	4
		6th	33	29
		Reverse	3	8
	Reverse idler gear	Front	3	
		Rear	3	
Oil level		mm (in)	61.0 - 67.0 (2.402 - 2.638)	66.5 - 71.5 (2.618 - 2.815)
Oil capacity (Refe	rence)	ℓ (US pt, Imp pt)	1.7 (3-	5/8, 3)
Remarks	Reverse synchroniz	zer	Insta	alled
	Double-cone synch	ronizer	31	
	Triple-cone synchro	onizer	1st an	d 2nd

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

FINAL GEAR

Engine type		Engine type QR25DE VQ35		VQ35DE
Transaxle model		RS6F52A		
Model code number		JA60A	JA60B	
Final gear ratio		3.813 4.133		
Number of teeth Final gear/Pinion		61/16	62/15	
Side gear/Pinion mate gear		14/10)	

End Play

Unit: mm (in)

[6MT: RS6F52A]

Items	Standard value
1st main gear	0.20 - 0.30 (0.0079 - 0.0118)
2nd main gear	0.06 - 0.16 (0.0024 - 0.0063)
6th main gear	0 - 0.1 (0 - 0.004)
3rd input gear	0.18 - 0.31 (0.0071 - 0.0122)
4th input gear	0.20 - 0.30 (0.0079 - 0.0118)
5th input gear	0.06 - 0.16 (0.0024 - 0.0063)
6th input gear	0.06 - 0.16 (0.0024 - 0.0063)
Reverse idler gear	0.04 - 0.10 (0.0016 - 0.0039)
6th input gear bushing	0 - 0.1 (0 - 0.004)
Input shaft	0 - 0.06 (0 - 0.0024)
Mainshaft	0 - 0.06 (0 - 0.0024)
Mainshaft C-ring	0 - 0.06 (0 - 0.0024)
Striking rod	0.05 - 0.152 (0.0020 - 0.0060)

Baulk Ring Clearance

INFOID:0000000004201621

Unit: mm (in)

Me	asurement point	Standard value	Limit value	
3rd (Double-cone synchronizer)	Clearance between synchronizer cone and cone synchronizer) Clearance between synchronizer cone and inner baulk ring end face "A" 0.6 - 0.8 (0.024 - 0.037)		0.2 (0.008)	
A PCIB0249E	Clearance between outer baulk ring pawl and synchronizer cone "B"	0.6 - 1.1 (0.024 -0.043)	0.2 (0.008)	
1st and 2nd (Triple-cone synchronizer)	Clearance between synchronizer cone and clutch gear end face "A"	0.6 - 1.2 (0.024 - 0.047)	0.3 (0.012)	
<u>→ </u>	Clearance between outer baulk ring pawl and synchronizer cone "B"	0.6 - 1.1 (0.024 - 0.043)	0.2 (0.008)	
C B PCIB0835J	Clearance between inner baulk ring and clutch gear end face "C"	0.7 - 1.1 (0.028 - 0.043)	0.3 (0.012)	
4th		0.9 - 1.45 (0.035 - 0.057)	0.7 (0.028)	

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Measurement point	Standard value	Limit value
5th	0.95 - 1.4 (0.037 - 0.055)	0.7 (0.028)
6th	0.95 - 1.4 (0.037 - 0.055)	0.7 (0.028)
Reverse	0.95 - 1.4 (0.037 - 0.055)	0.7 (0.028)

Dimension INFOID:000000004201622

Unit: mm (in)

[6MT: RS6F52A]

		Unit: mm (in)
	Measurement point	Standard value
Mainshaft: Dimension "C1"		173.85 - 173.95 (6.844 - 6.848)
	Spacer /	
	Adjusting shim	
	Dimension "C1"	
	SCIA1009E	
Input shaft: Dimension "C2"		154.7 - 154.8 (6.091 - 6.094)
	4th input gear	
	Thrust washer	
	Dimension "C2"	
	SCIA1008E	

Differential Side Bearing Preload

INFOID:0000000004201623

Unit: mm (in)

Differential side bearing preload: L*	0.15 - 0.21 (0.0059 - 0.0083)

^{*:} Install shims which are "deflection of differential case" + "L" in thickness.

Differential Side Gear Clearance

INFOID:0000000004201624

Unit: mm (in)

Allowable clearance between side gear and differential case with thrust washer	0.1 - 0.2 (0.004 - 0.008)

< BASIC INSPECTION > [CVT: RE0F09B]

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

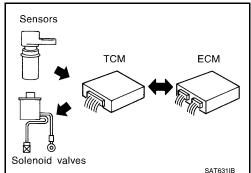
Work Flow

INTRODUCTION

The TCM receives a signal from the vehicle speed sensor, PNP switch and provides shift control or lock-up control via CVT solenoid valves.

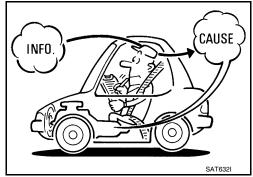
The TCM also communicates with the ECM by means of a signal sent from sensing elements used with the OBD-related parts of the CVT system for malfunction-diagnostic purposes. The TCM is capable of diagnosing malfunctioning parts while the ECM can store malfunctions in its memory.

Input and output signals must always be correct and stable in the operation of the CVT system. The CVT system must be in good operating condition and be free of valve seizure, solenoid valve malfunction, etc.



It is much more difficult to diagnose an error that occurs intermittently rather than continuously. Most intermittent errors are caused by poor electric connections or improper wiring. In this case, careful checking of suspected circuits may help prevent the replacement of good parts.

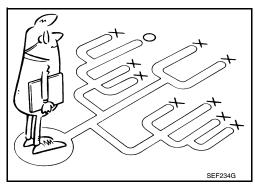
A visual check only may not find the cause of the errors. A road test with CONSULT-III (or GST) or a circuit tester connected should be performed. Follow the "DETAILED FLOW".



Before undertaking actual checks, take a few minutes to talk with a customer who approaches with a driveability complaint. The customer can supply good information about such errors, especially intermittent ones. Find out what symptoms are present and under what conditions they occur. A "Diagnostic Work Sheet" as shown on the example (Refer to TM-86) should be used.

Start your diagnosis by looking for "conventional" errors first. This will help troubleshoot driveability errors on an electronically controlled engine vehicle.

Also check related Service bulletins.



DETAILED FLOW

1. COLLECT THE INFORMATION FROM THE CUSTOMER

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using diagnosis worksheet. Refer to <u>TM-86, "Diagnostic Work Sheet".</u>

>> GO TO 2.

2. CHECK SYMPTOM 1

Check the following items based on the information obtained from the customer.

- Fail-safe. Refer to TM-219, "Fail-safe".
- CVT fluid inspection. Refer to TM-240, "Inspection".
- Line pressure test. Refer to TM-247, "Inspection and Judgment".

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CVT: RE0F09B]

• Stall test. Refer to TM-245, "Inspection and Judgment".

>> GO TO 3.

3. CHECK DTC

- Check DTC.
- Perform the following procedure if DTC is detected.
- · Record DTC.
- Erase DTC. Refer to <u>TM-117</u>, "<u>Diagnosis Description</u>".

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 6.

4. PERFORM DIAGNOSTIC PROCEDURE

Perform "Diagnostic Procedure" for the displayed DTC.

>> GO TO 5.

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform "DTC CONFIRMATION PROCEDURE" for the displayed DTC.

Is DTC detected?

YES >> GO TO 4.

NO >> GO TO 6.

6.CHECK SYMPTOM 2

Try to confirm the symptom described by the customer.

Is any malfunction present?

>> GO TO 7. YES

NO >> INSPECTION END

7. RODE TEST

8. CHECK SYMPTOM 3

Try to confirm the symptom described by the customer.

Is any malfunction present?

YES >> GO TO 2.

NO >> INSPECTION END

Diagnostic Work Sheet

INFORMATION FROM CUSTOMER

KEY POINTS

- WHAT..... Vehicle & CVT model
- WHEN Date, Frequencies
- WHERE..... Road conditions
- · HOW..... Operating conditions, Symptoms

Customer name MR/MS	Model & Year	VIN
Trans. Model	Engine	Mileage
malfunction Date	Manuf. Date	In Service Date
Frequency	☐ Continuous ☐ Intermittent (times a day)

Perform "RODE TEST". Refer to TM-249, "Description". >> GO TO 8.

DIAGNOSIS AND REPAIR WORKFLOW

	NO INOI L	CTION >				[CVT: RE0F09B]
Sympt	oms		☐ Vehicle does not move. (I	☐ Any positio	n □ Particular position)	_
			□ No shift			
			□ Lock-up malfunction			
			\square Shift shock or slip (\square N \rightarrow D \square N \rightarrow R \square Lock-up \square Any drive position)			
			☐ Noise or vibration			
			☐ No pattern select			
			☐ Others		,	
Malfur	nction indicate	ar Jamp (MIL)	☐ Continuously lit	□ Not lit	, ;	
			-		1	
JIAGI	NOSTIC V	VORK SHE	=E I			
1	☐ Read the	item on cautio	ons concerning fail-safe and unde	erstand the cu	ustomer's complaint.	<u>TM-219</u>
	□ CVT fluid	inspection, sta	all test and line pressure test			_
		☐ CVT fluid in	inspection			
			Leak (Repair leak location.)			<u>TM-240</u>
			State Amount			
2		□ Stall test				
			Torque converter one-way clutch	h	☐ Engine	
			Reverse brake Forward clutch		☐ Line pressure low ☐ Primary pulley	<u>TM-245,</u> <u>TM-247</u>
			Steel belt		☐ Secondary pulley	
		☐ Line press	sure inspection - Suspected part:			
3	□ Perform	self-diagnosis.				TM-119
		Enter checks	s for detected items.			
	□ Perform					<u>TM-249</u>
4	4-1.		e engine is started			<u>TM-249</u>
	4-2.	Check at idle	9			TM-250
	4-3.	Cruise test TM-251				
5	□ Inspect each system for items found to be NG in the self-diagnosis and repair or replace the malfunctioning parts. □ Perform all road tests and enter the checks again for the required items. □ TM-249				TM-249	
6	- Lenonn		tems, perform the "diagnosis pro	•		
6 7	□ For any r	emaining Ni 🗦 it		ccaare and	cpair or replace the manufic	

TM-87

INSPECTION AND ADJUSTMENT

[CVT: RE0F09B]

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT: Precaution for TCM and CVT Assembly Replacement

CAUTION:

- Check if new data (Unit ID) are entered correctly after replacing CVT assembly and erasing data in TCM. (Connect CONSULT-III, and then turn ignition switch OFF.)
- When replacing CVT assembly or TCM, refer to the pattern table below and erase the EEPROM in the TCM if necessary.

EEPROM ERASING PATTERNS

CVT assembly	TCM	Erasing EEPROM in TCM	Remarks
Replaced	Replaced	Not required	Not required because the EEPROM in the TCM is in the default state. (CVT assembly must be replaced first.)
Not replaced	Replaced	Not required	Not required because the EEPROM in the TCM is in the default state.
Replaced	Not replaced	Required	Required because data has been written in the EE-PROM in the TCM and because the TCM cannot write data from the ROM assembly in the transmission.

METHOD FOR ERASING THE EEPROM IN THE TCM

- 1. Turn ignition switch ON.
- 2. Move selector lever to "R" position.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".
- 4. Press the brake pedal and turn the brake switch ON.
- 5. Press the accelerator pedal (0.5/8 4/8 throttle) not to exceed the half, and hold it in the half or less open position. (This will set the closed throttle position signal to OFF and the wide open throttle position signal to OFF.)
- 6. Perform "ERASE".
- Wait 3 seconds and then release the accelerator pedal.
- 8. Turn ignition switch OFF.

METHOD FOR WRITING DATA FROM THE ROM ASSEMBLY IN THE TRANSAXLE

In the following procedure, the TCM reads data from the ROM assembly and writes it to the EEPROM in the TCM.

- 1. Erase the EEPROM in the TCM.
- 2. Move selector lever to "P" position.
- 3. Turn ignition switch ON.

CHECK METHOD

- Standard: About 2 seconds after the ignition switch ON, the CVT indicator lamp lights up for 2 seconds.
- Non-standard: Even after the ignition switch ON, the CVT indicator lamp does not light up after 2 seconds or illuminates immediately.

CAUTION:

Perform in the "P" or "N" position.

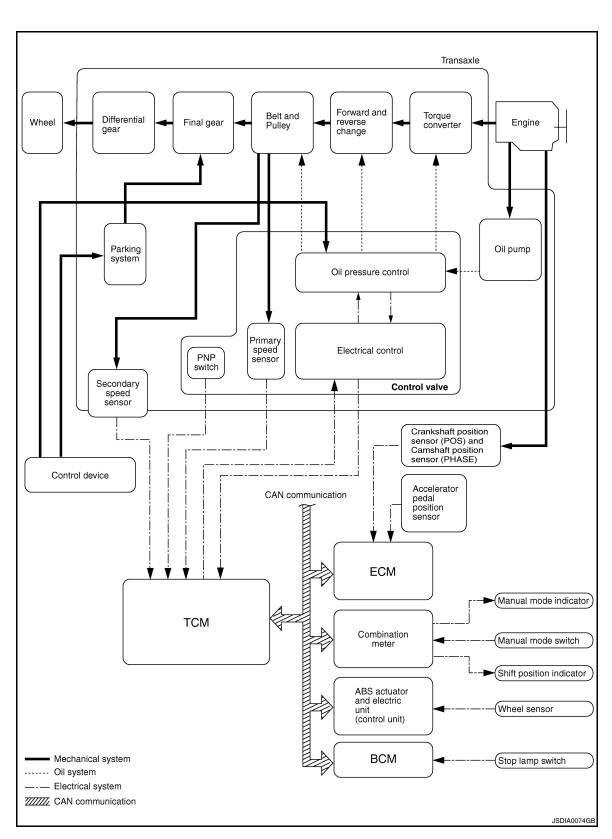
Action for Non-standard

- Replace the CVT assembly.
- Replace the TCM.

FUNCTION DIAGNOSIS

CVT SYSTEM

System Diagram



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[CVT: RE0F09B]

INFOID:0000000004201628

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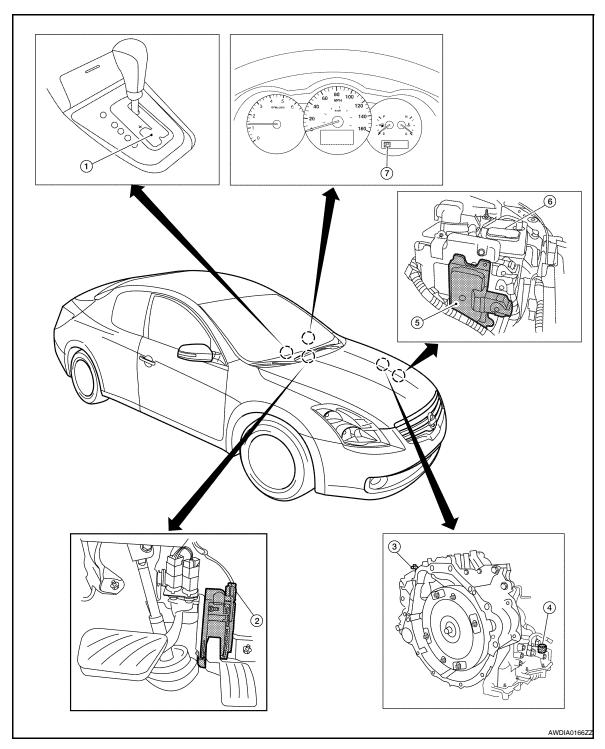
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Component Parts Location - Coupe



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- 2. Accelerator pedal position (APP)
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

[CVT: RE0F09B]

Component Parts Location - Sedan

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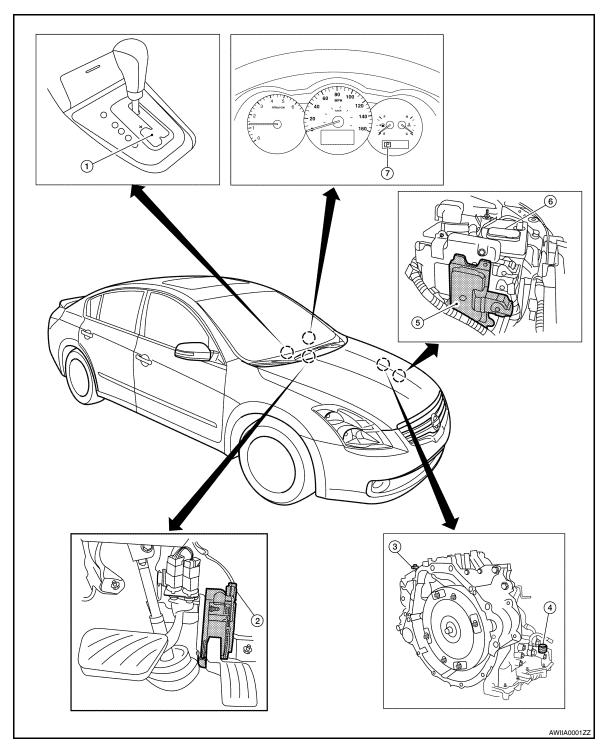
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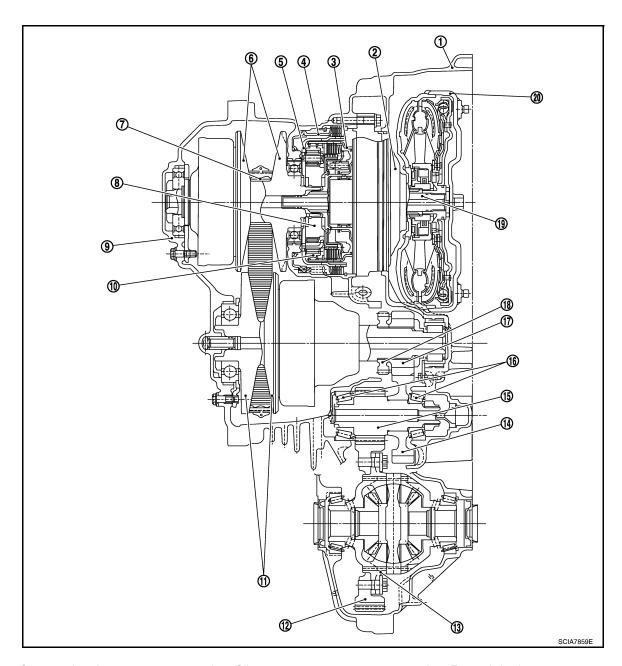


- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- 7. Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

MECHANICAL SYSTEM

Cross-Sectional View



- 1. Converter housing
- 4. Reverse brake
- 7. Steel belt
- 10. Internal gear
- 13. Differential case
- 16. Taper roller bearing
- 19. Input shaft

- 2. Oil pump
- 5. Planetary carrier
- 8. Sun gear
- 11. Secondary pulley
- 14. Idler gear
- 17. Output gear
- 20. Torque converter

3. Forward clutch

[CVT: RE0F09B]

- 6. Primary pulley
- 9. Side cover
- 12. Final gear
- 15. Reduction gear
- 18. Parking gear

[CVT: RE0F09B]

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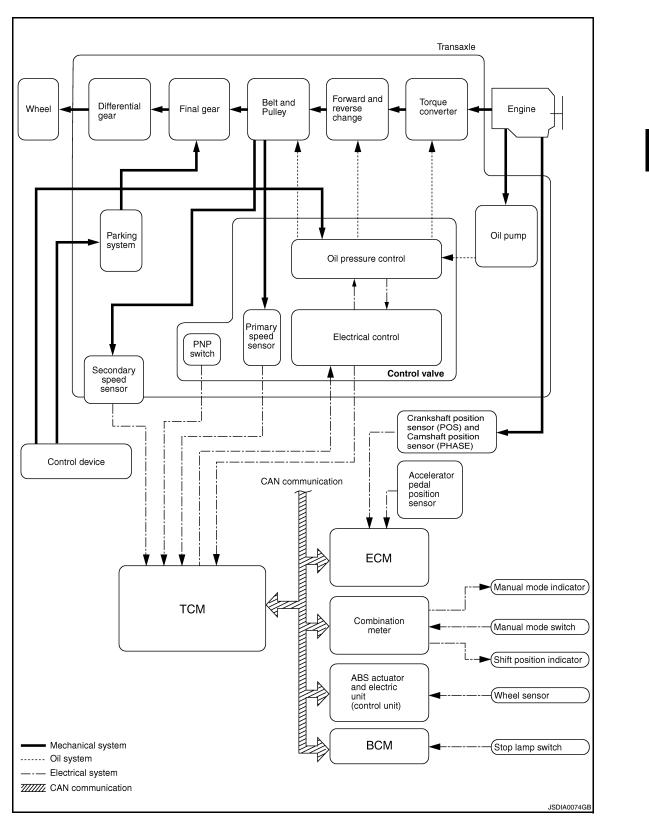
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System Diagram

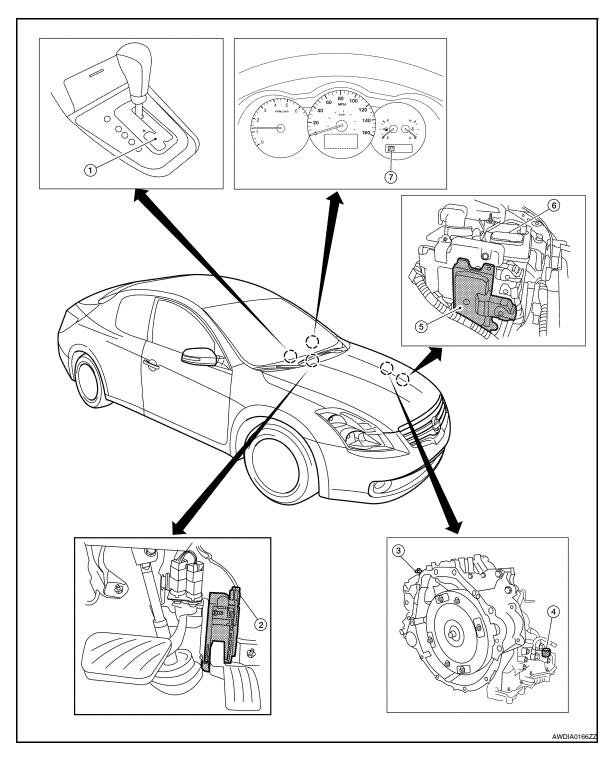


System Description

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Transmits the power from the engine to the drive wheel.

Component Parts Location - Coupe



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

Component Parts Location - Sedan

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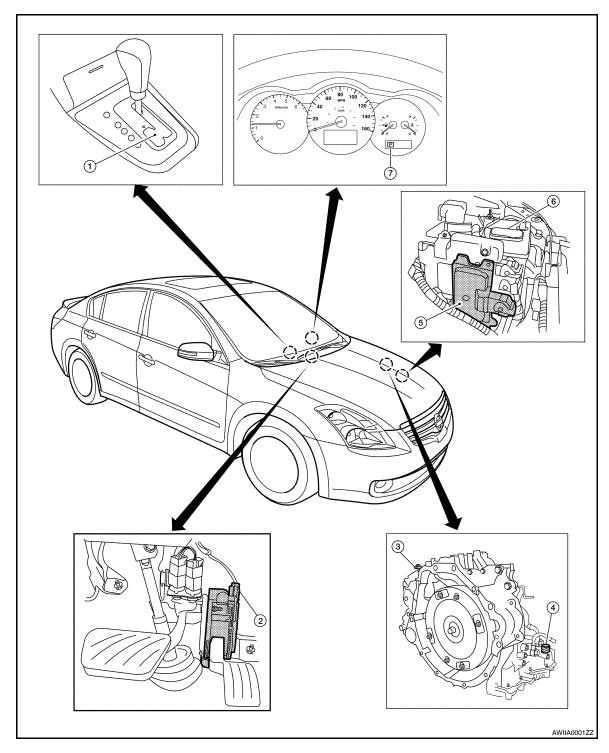
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- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

Component Description

[CVT: RE0F09B]

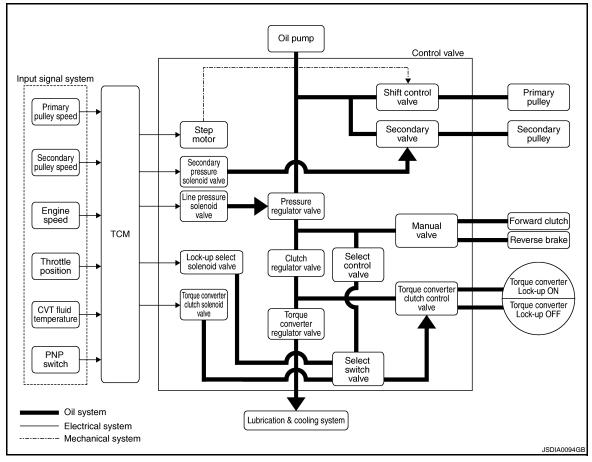
< FUNCTION DIAGNOSIS >

Item	Function			
Torque converter	The torque converter is the device that increases the engine torque as well as the conventional A/T and transmits it to the transaxle.			
Oil pump	It is a parachoid type oil pump with the flow control valve directly controlled by the engine. Discharged oil from oil pump is transmitted to the control valve. It is used as the oil of primary and secondary pulley operation and the oil of clutch operation and the lubricant for each part.			
Planetary gear				
Forward clucth	Perform the transmission of drive power and the switching of forward/backward movement.			
Reverse brake				
Primary pulley	It is composed of a pair of pulleys (the groove width is changed			
Secondary pulley	freely in the axial direction) and the steel belt (the steel star wheels are placed continuously and the belt is guided with the multilayer			
Steel belt	steel rings on both sides). The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.			
Output gear				
Idler gear	The drive power from the secondary pulley returns the decelera-			
Reduction gear	tion gears [primary deceleration (output gear/idler gear pair) and secondary deceleration (reduction gear/final gear pair)]. It is trans-			
Final gear	mitted from differential to drive wheel.			
Differential				
Manual shaft				
Parking rod	The parking rod rotates the parking pole and the parking pole en-			
Parking pawl	 gages with the parking gear when the manual shaft is in P position. As a result the parking gear and the output axis are fixed. 			
Parking gear				

INFOID:0000000004201637

HYDRAULIC CONTROL SYSTEM

System Diagram



System Description

The hydraulic control mechanism consists of the oil pump directly driven by the engine, the hydraulic control valve that controls line pressure and transmission, and the input signal line.

LINE PRESSURE AND SECONDARY PRESSURE CONTROL

• When an input torque signal equivalent to the engine drive force is sent from the ECM to the TCM, the TCM controls the line pressure solenoid valve and secondary pressure solenoid valve.

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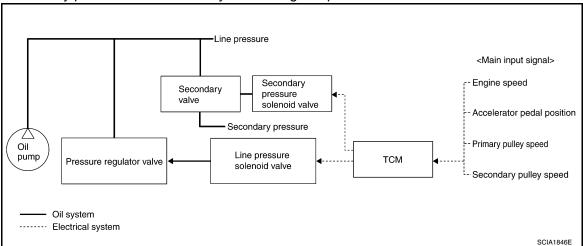
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HYDRAULIC CONTROL SYSTEM

[CVT: RE0F09B] < FUNCTION DIAGNOSIS >

This line pressure solenoid controls the pressure regulator valve as the signal pressure and adjusts the pressure of the operating oil discharged from the oil pump to the line pressure most appropriate to the driving state. Secondary pressure is controlled by decreasing line pressure.



Nomal Control

Optimize the line pressure and secondary pressure, depending on driving conditions, on the basis of the throttle position, the engine speed, the primary pulley (input) revolution speed, the secondary pulley (output) revolution speed, the brake signal, the PNP switch signal, the lock-up signal, the voltage, the target gear ratio, the fluid temperature, and the fluid pressure.

Feedback Control

When controlling the normal fluid pressure or the selected fluid pressure, the secondary pressure can be set more accurately by using the fluid pressure sensor to detect the secondary pressure and controlling the feedback.

[CVT: RE0F09B]

Component Parts Location - Coupe

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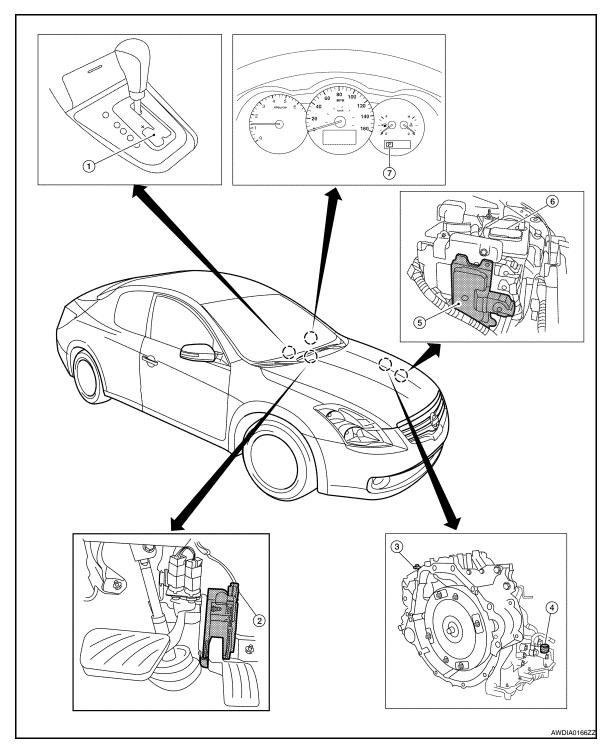
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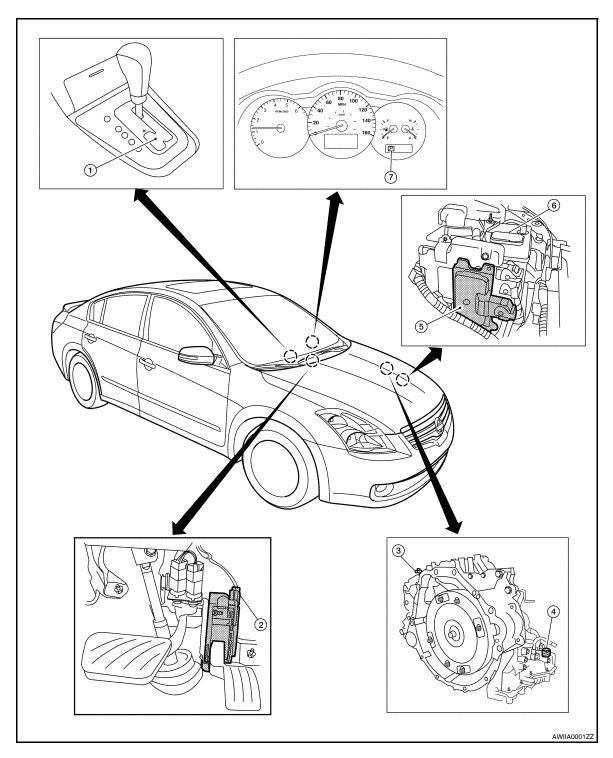
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- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- 7. Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

Component Parts Location - Sedan



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

HYDRAULIC CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

Component Description

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[CVT: RE0F09B]

TRANSAXLE ASSEMBLY

Name	Function				
Torque converter regulator valve	Optimizes the supply pressure for the torque converter depending on driving conditions				
Pressure regulator valve	Optimizes the discharge pressure from the oil pump depending on driving conditions.				
TCC control valve	 Activates or deactivate the lock-up. Lock-up smoothly by opening lock-up operation excessively. 				
TCC solenoid valve	<u>TM-144</u>				
Shift control valve	Controls flow-in/out of line pressure from the primary pulley depending on the stroke difference between the stepping motor and the primary pulley.				
Secondary valve	Controls the line pressure from the secondary pulley depending on operating conditions.				
Clutch regulator valve	Adjusts the clutch operating pressure depending on operating conditions.				
Secondary pressure solenoid valve	<u>TM-155</u>				
Line pressure solenoid valve	<u>TM-148</u>				
Step motor	<u>TM-184</u>				
Manual valve	Transmits the clutch operating pressure to each circuit in accordance with the selected position.				
Select control valve	Engages forward clutch, reverse brake smoothly depending on select operation.				
Select switch valve	Switches torque converter clutch solenoid valve control pressure use to torque converte clutch control valve or select control valve.				
Lockup select solenoid valve	<u>TM-181</u>				
Primary speed sensor	<u>TM-135</u>				
Secondary speed sensor	<u>TM-138</u>				
PNP switch	<u>TM-129</u>				
Primary pulley					
Secondary pulley	TM OF				
Forward clutch	<u>TM-95</u>				
Torque converter					

EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	Judges the vehicle driving status according to the signal from each sensor and controls the non-step transmission mechanism properly.
Accelerator pedal position sensor	<u>TM-175</u>

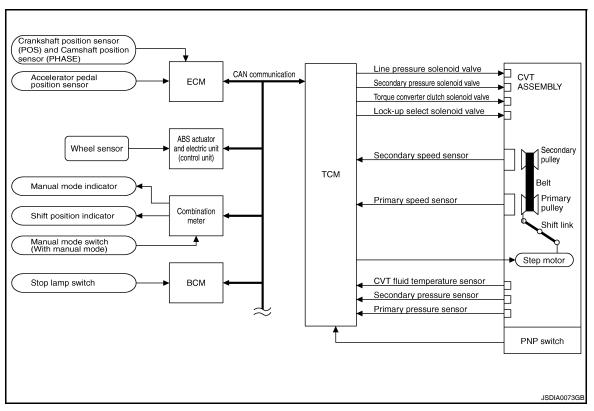
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CONTROL SYSTEM

System Diagram



System Description

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[CVT: RE0F09B]

The CVT senses vehicle operating conditions through various sensors. It always controls the optimum shift position and reduces shifting and lock-up shocks.

CONTROL SYSTEM OUTLINE

The function of the TCM is to:

- Receive input signals sent from various switches and sensors.
- Determine required line pressure, shifting point, and lock-up operation.
- · Send required output signals to the step motor and the respective solenoids.

SENSORS (or SIGNALS)		TCM		ACTUATORS
PNP switch Accelerator pedal position signal Closed throttle position signal Engine speed signal CVT fluid temperature sensor Vehicle speed signal Manual mode signal Stop lamp switch signal Primary speed sensor Secondary speed sensor Primary pressure sensor Secondary pressure sensor	\Rightarrow	Shift control Line pressure control Primary pressure control Secondary pressure control Lock-up control Engine brake control Vehicle speed control Fail-safe control Self-diagnosis CONSULT-III communication line Duet-EA control CAN system On board diagnosis	⇒	Step motor Torque converter clutch solenoid valve Lock-up select solenoid valve Line pressure solenoid valve Secondary pressure solenoid valve Manual mode indicator Shift position indicator CVT indicator lamp Starter relay

INPUT/OUTPUT SIGNAL OF TCM

[CVT: RE0F09B]	

	Control item	Fluid pressure control	Select con- trol	Shift control	Lock-up control	CAN com- munication control	Fail-safe function(*2)
	PNP switch	Х	Х	Х	Х	Х	Х
	Accelerator pedal position signal (*1)	Х	Х	Х	Х	Х	Х
	Closed throttle position signal ^(*1)	Х		Х	Х	Х	
	Engine speed signal(*1)	Х	Х		Х	Х	Х
	CVT fluid temperature sensor	Х	Х	Х	Х		Х
Input	Manual mode signal(*1)	Х		Х	Х	Х	Х
прис	Stop lamp switch signal ^(*1)	Х		Х	Х	Х	
	Primary speed sensor	Х		Х	Х	Х	Х
	Secondary speed sensor	Х	Х	Х	Х	Х	Х
	Primary pressure sensor	Х		Х			
	Secondary pressure sensor	Х		Х			Х
	TCM power supply voltage signal	Х	Х	Х	Х	Х	Х
Output	Step motor			Х			Х
	TCC solenoid valve		Х		Х		Х
	Lock-up select solenoid valve		Х		Х		Х
	Line pressure solenoid valve	Х	Х	Х			Х
	Secondary pressure solenoid valve	Х		Х			Х

^{*1:} Input by CAN communications.

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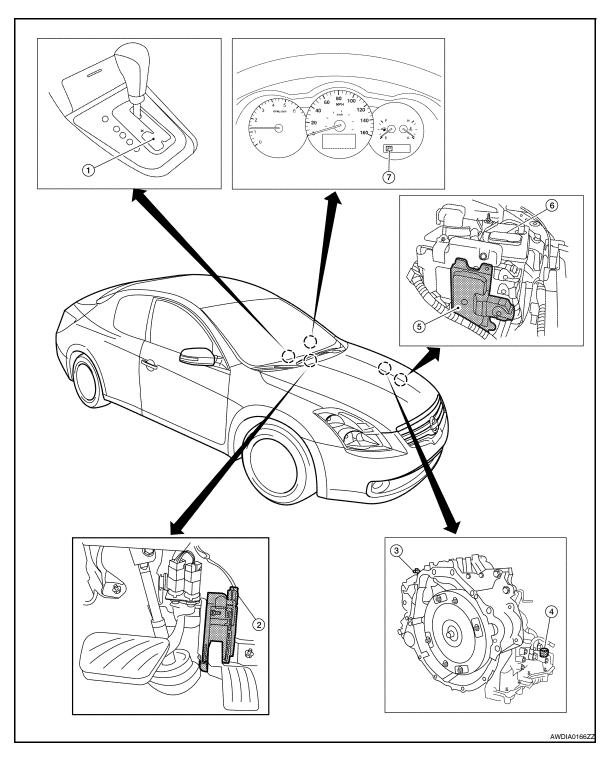
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^{*2:} If these input and output signals are different, the TCM triggers the fail-safe function.

Component Parts Location - Coupe



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

Component Parts Location - Sedan

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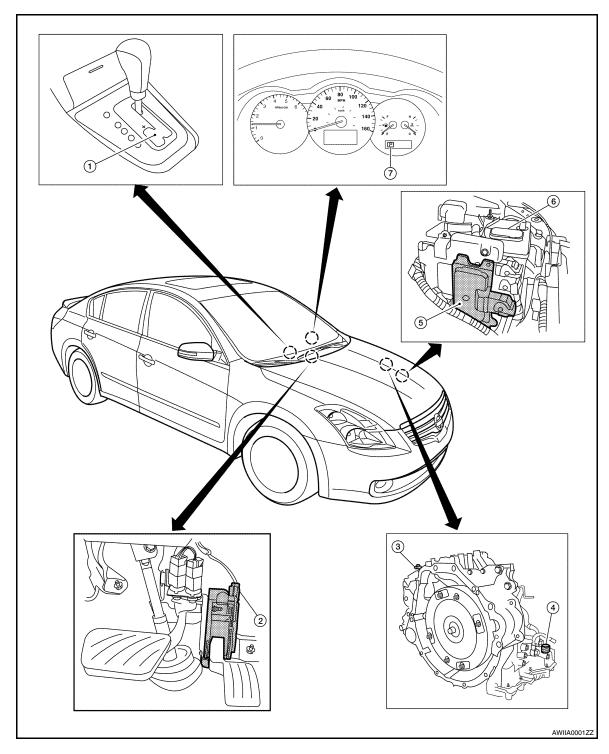
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- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- 7. Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

Component Description

INFOID:0000000004201646

[CVT: RE0F09B]

TRANSAXLE ASSEMBLY

Name	Function
PNP switch	TM-129
CVT fluid temperature sensor	TM-132
Primary speed sensor	<u>TM-135</u>
Secondary speed sensor	<u>TM-138</u>
Primary pressure sensor	TM-138
Secondary pressure sensor	TM-160
Step motor	<u>TM-184</u>
TCC solenoid valve	TM-144
Lock-up select solenoid valve	TM-181
Line pressure solenoid valve	TM-148
Secondary pressure solenoid valve	<u>TM-155</u>

EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	Optimally controls continuously variable transmission system by judging driving conditions based on signals from each sensor.
Stop lamp switch	<u>TM-126</u>

INFOID:0000000004201647

LOCK-UP AND SELECT CONTROL SYSTEM

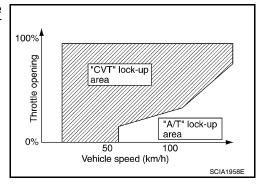
System Diagram

Line pressure Forward clutch Select control valve Manual valve Reverse brake <Main input signal> -Engine speed Torque Select switch valve Torque converter clutch Accelerator pedal position converter solenoid valve regulator valve **TCM** Primary pulley speed -Secondary pully speed Lock-up select solenoid CVT fluid temperature -PNP switch Torque converte Lock-up ON Torque converter clutch control valve Torque converter ock-up OFF Oil system Electrical system SCIA2374E

System Description

INFOID:0000000004201648

- The torque converter clutch piston in the torque converter is engaged to eliminate torque converter slip to increase power transmission efficiency.
- The torque converter clutch control valve operation is controlled by the torque converter clutch solenoid valve, which is controlled by a signal from TCM. The torque converter clutch control valve engages or releases the torque converter clutch piston.
- When shifting between "N" ("P") ⇔ "D" ("R"), torque converter clutch solenoid controls engagement power of forward clutch and reverse brake.
- The lock-up applied gear range was expanded by locking up the torque converter at a lower vehicle speed than conventional CVT models.



TORQUE CONVERTER CLUTCH AND SELECT CONTROL VALVE CONTROL

Lock-up Released

In the lock-up released state, the torque converter clutch control valve is set into the unlocked state by the torque converter clutch solenoid and the lock-up apply pressure is drained.

In this way, the torque converter clutch piston is not coupled.

Lock-up Applied

In the lock-up applied state, the torque converter clutch control valve is set into the locked state by the torque converter clutch solenoid and lock-up apply pressure is generated.

In this way, the torque converter clutch piston is pressed and coupled.

Select Control

When shifting between "N" ("P") \Leftrightarrow "D" ("R"), optimize the operating pressure on the basis of the throttle position, the engine speed, and the secondary pulley (output) revolution speed to lessen the shift shock.

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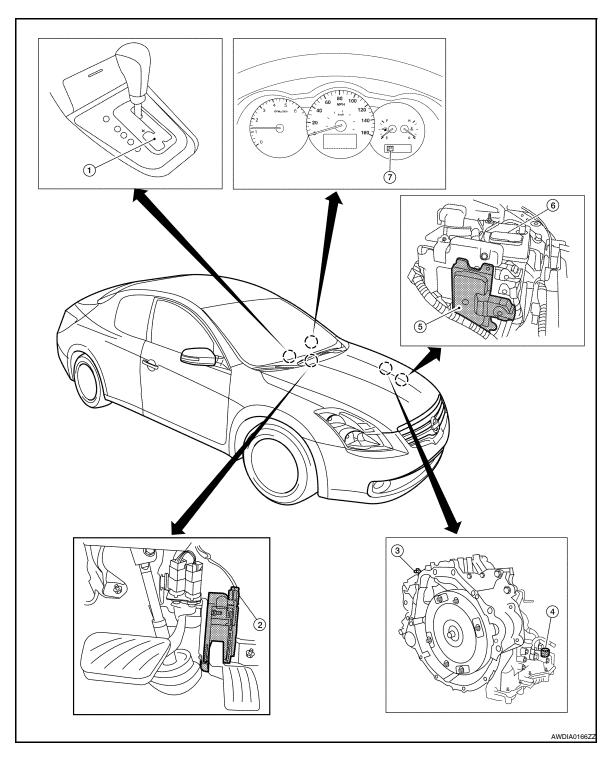
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Component Parts Location - Coupe



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

Component Parts Location - Sedan

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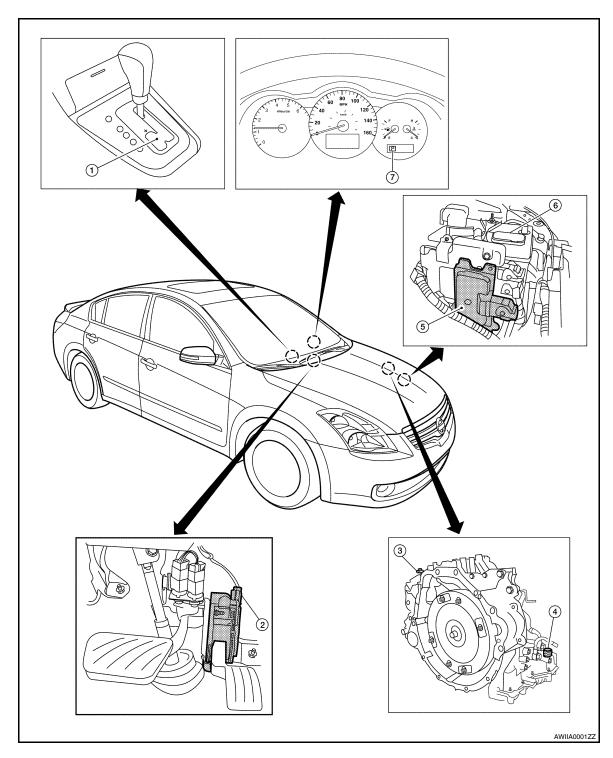
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- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

LOCK-UP AND SELECT CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[CVT: RE0F09B]

Component Description

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TRANSAXLE ASSEMBLY

Name	Function
Torque converter regulator valve	
TCC control valve	
Select control valve	<u>TM-101</u>
Select switch valve	
Manual valve	
TCC solenoid valve	<u>TM-144</u>
Lock-up select solenoid valve	<u>TM-181</u>
Primary speed sensor	<u>TM-135</u>
Secondary speed sensor	<u>TM-138</u>
CVT fluid temperature sensor	<u>TM-132</u>
PNP switch	<u>TM-129</u>
Forward clutch	
Reverse brake	<u>TM-101</u>
Torque converter	

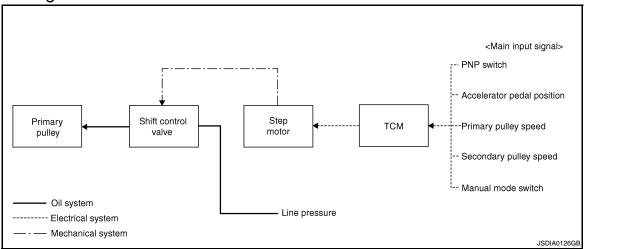
EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	<u>TM-101</u>
Accelerator pedal position sensor	<u>TM-175</u>

< FUNCTION DIAGNOSIS > [CVT: RE0F09B]

SHIFT MECHANISM

System Diagram



NOTE:

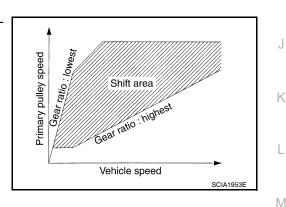
The gear ratio is set for every position separately.

System Description

In order to select the gear ratio which can obtain the driving force in accordance with driver's intention and the vehicle condition, TCM monitors the driving conditions, such as the vehicle speed and the throttle position and selects the optimum gear ratio, and determines the gear change steps to the gear ratio. Then send the command to the step motor, and control the flow-in/flow-out of line pressure from the primary pulley to determine the position of the moving-pulley and control the gear ratio.

"D" POSITION

Shifting over all the ranges of gear ratios from the lowest to the highest.



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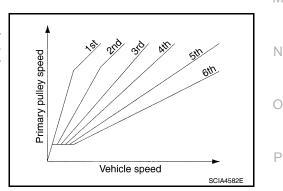
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"M" POSITION

When the selector lever is put in the manual shift gate side, the fixed changing gear line is set. By moving the selector lever to + side or - side, the manual mode switch is changed over, and shift change like M/T becomes possible following the changing gear set line step by step.



DOWNHILL ENGINE BRAKE CONTROL (AUTO ENGINE BRAKE CONTROL)

When downhill is detected with the accelerator pedal released, the engine brake will be strengthened up by downshifting so as not to accelerate the vehicle more than necessary.

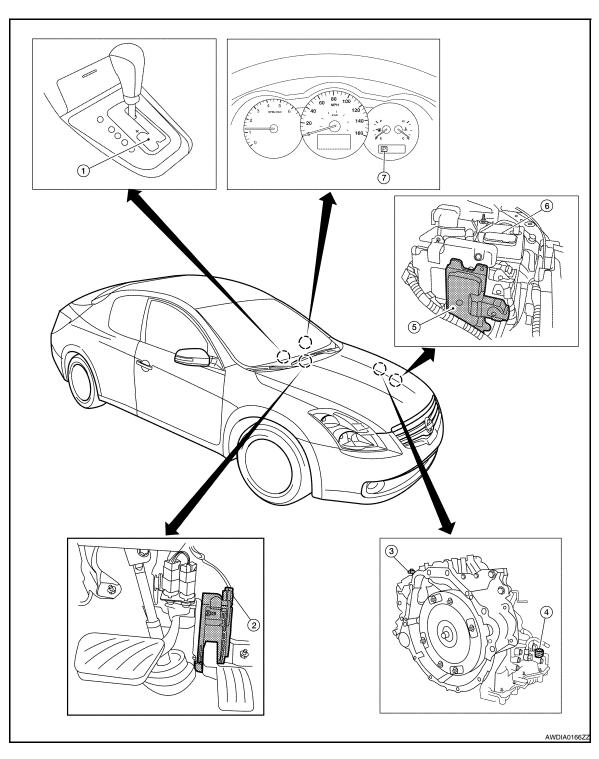
ACCELERATION CONTROL

[CVT: RE0F09B]

According to vehicle speed and a change of accelerator pedal angle, driver's request for acceleration and driving scene are judged. This function assists improvement in acceleration feeling by making the engine speed proportionate to the vehicle speed. And a shift map which can gain a larger driving force is available for compatibility of mileage with driveability.

Component Parts Location - Coupe

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- Control device assembly (Manual mode select switch and manual mode position select switch)
- Accelerator pedal position (APP) sensor
- 3. Secondary speed sensor

[CVT: RE0F09B]

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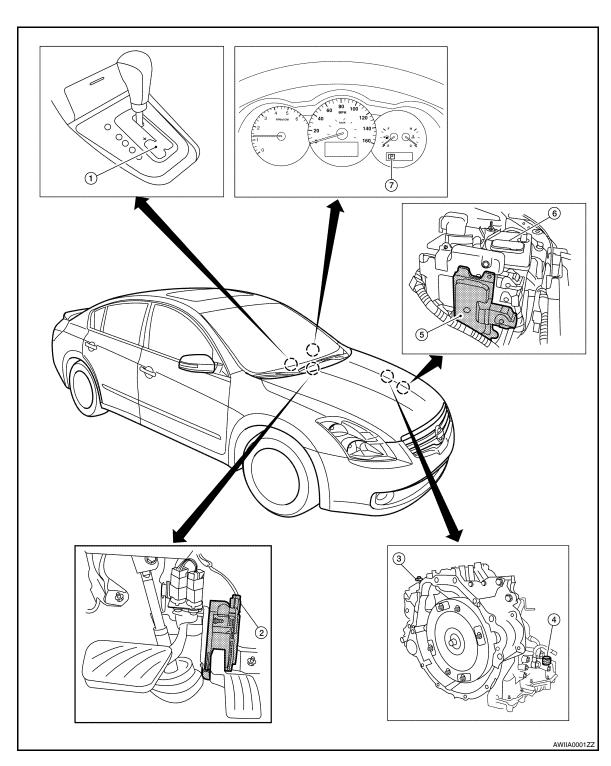
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- 4. CVT unit harness connector
- 5. TCM

6. Battery

7. Shift position indicator Manual mode indicator

Component Parts Location - Sedan



- Control device assembly (Manual mode select switch and manual mode position select switch)
- 4. CVT unit harness connector
- Shift position indicator Manual mode indicator
- 2. Accelerator pedal position (APP) sensor
- 5. TCM

- 3. Secondary speed sensor
- 6. Battery

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

Component Description

[CVT: RE0F09B]

TRANSAXLE ASSEMBLY

Item	Functoin
PNP switch	<u>TM-129</u>
Primary speed sensor	<u>TM-135</u>
Secondry speed sensor	<u>TM-138</u>
Step motor	<u>TM-184</u>
Shift control valve	<u>TM-101</u>
Primary pulley	<u>TM-95</u>
Secondary pulley	<u>TM-95</u>

EXCEPT TRANSAXLE ASSEMBLY

Item	Functoin
TCM	<u>TM-101</u>

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SHIFT LOCK SYSTEM

System Diagram

CVT DEVICE

System Description

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

Component Parts Location

- BCM (view with instrument panel re- 2. moved
- Shift lock release button
- Steering column
- Detention switch (for manual shift)
- Stop lamp switch
- 6. Shift lock solenoid/Detent switch

CVT device connector

Component Description

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SHIFT LOCK SYSTEM

[CVT: RE0F09B]

< FUNCTION DIAGNOSIS >

Component		nent	Function
CVT device		Shift lock solenoid	TM-115, "System Description"
	Shift lock solenoid	Lock plate	The lock plate restricts the position pin stroke by selector button operation according to the shift lock unit status.
		Position pin	The position pin, linking with the selector button, restricts the selector lever movement.
	Shift lock release button		Pressing the shift lock release button cancels the shift lock forcibly.
Stop lamp switch		BRC-38. "Component Function Check"	

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< FUNCTION DIAGNOSIS >

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:0000000004201661

ICVT: RE0F09B1

DESCRIPTION

The CVT system has two self-diagnostic systems.

The first is the emission-related on board diagnostic system (OBD-II) performed by the TCM in combination with the ECM. The malfunction is indicated by the MIL (malfunction indicator lamp) and is stored as a DTC in the ECM memory, and the TCM memory.

The second is the TCM original self-diagnosis performed by the TCM. The malfunction is stored in the TCM memory. The detected items are overlapped with OBD-II self-diagnostic items. For detail, refer to TM-119. TCONSULT-III Function (TRANSMISSION)".

OBD-II FUNCTION

The ECM provides emission-related on board diagnostic (OBD-II) functions for the CVT system. One function is to receive a signal from the TCM used with OBD-related parts of the CVT system. The signal is sent to the ECM when a malfunction occurs in the corresponding OBD-related part. The other function is to indicate a diagnostic result by means of the MIL (malfunction indicator lamp) on the instrument panel. Sensors, switches and solenoid valves are used as sensing elements.

The MIL automatically illuminates in "One or Two Trip Detection Logic" when a malfunction is sensed in relation to CVT system parts.

ONE OR TWO TRIP DETECTION LOGIC OF OBD-II

One Trip Detection Logic

If a malfunction is sensed during the first test drive, the MIL will illuminate and the malfunction will be stored in the ECM memory as a DTC. The TCM is not provided with such a memory function.

Two Trip Detection Logic

When a malfunction is sensed during the first test drive, it is stored in the ECM memory as a 1st trip DTC (diagnostic trouble code) or 1st trip freeze frame data. At this point, the MIL will not illuminate. — 1st trip If the same malfunction as that experienced during the first test drive is sensed during the second test drive, the MIL will illuminate. — 2nd trip

The "trip" in the "One or Two Trip Detection Logic" means a driving mode in which self-diagnosis is performed during vehicle operation.

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

How to Read DTC and 1st Trip DTC

DTC and 1st trip DTC can be read by the following methods.

(ⓐ) with CONSULT-III or ⓐ GST) CONSULT-III or GST (Generic Scan Tool) Examples: P0705, P0720 etc. These DTC are prescribed by SAE J2012.

(CONSULT-III also displays the malfunctioning component or system.)

- 1st trip DTC No. is the same as DTC No.
- Output of the diagnostic trouble code indicates that the indicated circuit has a malfunction. However, in case of the Mode II and GST, they do not indicate whether the malfunction is still occurring or occurred in the past and returned to normal.

CONSULT-III can identify them as shown below, therefore, CONSULT-III (if available) is recommended.

- DTC or 1st trip DTC of a malfunction is displayed in SELF-DIAGNOSTIC RESULTS mode for "ENGINE" with CONSULT-III. Time data indicates how many times the vehicle was driven after the last detection of a DTC.
- If the DTC is being detected currently, the time data will be "0".
- If a 1st trip DTC is stored in the ECM, the time data will be "1t".

Freeze Frame Data and 1st Trip Freeze Frame Data

 The ECM has a memory function, which stores the driving condition such as fuel system status, calculated load value, engine coolant temperature, short term fuel trim, long term fuel trim, engine speed and vehicle speed at the moment the ECM detects a malfunction.

Data which are stored in the ECM memory, along with the 1st trip DTC, are called 1st trip freeze frame data, and the data, stored together with the DTC data, are called freeze frame data and displayed on CONSULT-III or GST. The 1st trip freeze frame data can only be displayed on the CONSULT-III screen, not on the GST. For details, refer to EC-1155, "CONSULT-III Function".

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[CVT: RE0F09B]

Only one set of freeze frame data (either 1st trip freeze frame data or freeze frame data) can be stored in the ECM. 1st trip freeze frame data is stored in the ECM memory along with the 1st trip DTC. There is no priority for 1st trip freeze frame data, and it is updated each time a different 1st trip DTC is detected. However, once freeze frame data (2nd trip detection/MIL on) is stored in the ECM memory, 1st trip freeze frame data is no longer stored. Remember, only one set of freeze frame data can be stored in the ECM. The ECM has the following priorities to update the data.

Priority	Items		
1	Freeze frame data	Misfire — DTC: P0300 - P0306 Fuel Injection System Function — DTC: P0171, P0172, P0174, P0175	
2		Except the above items (Includes CVT related items)	
3	1st trip freeze frame data		

Both 1st trip freeze frame data and freeze frame data (along with the DTC) are cleared when the ECM memory is erased.

How to Erase DTC

- The diagnostic trouble code can be erased by CONSULT-III, GST or ECM DIAGNOSTIC TEST MODE as described following.
- If the battery cable is disconnected, the diagnostic trouble code will be lost within 24 hours.
- When you erase the DTC, using CONSULT-III or GST is easier and quicker than switching the mode selector on the ECM.
- The following emission-related diagnostic information is cleared from the ECM memory when erasing DTC related to OBD-II. For details, refer to <u>EC-1555</u>, "<u>DTC Index</u>".
- Diagnostic trouble codes (DTC)
- 1st trip diagnostic trouble codes (1st trip DTC)
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values
- How to Erase DTC (With CONSULT-III)

The emission related diagnostic information in the TCM and ECM can be erased by selecting "ALL Erase" in the "Description" of "FINAL CHECK" mode with CONSULT-III.

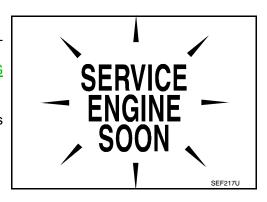
- How to Erase DTC (With GST)
- 1. If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.
- Select Mode 4 with GST (Generic Scan Tool). For details, refer to <u>EC-1164, "Diagnosis Tool Function"</u>.

MALFUNCTION INDICATOR LAMP (MIL)

Description

The MIL is located on the instrument panel.

- The MIL will light up when the ignition switch is turned ON without the engine running. This is a bulb check.
 - If the MIL does not light up, refer to MWI-28, "WARNING LAMPS/INDICATOR LAMPS: System Diagram".
- 2. When the engine is started, the MIL should go off. If the MIL remains on, the on board diagnostic system has detected an engine system malfunction.



DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (TCM)

CONSULT-III Function (TRANSMISSION)

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[CVT: RE0F09B]

CONSULT-III can display each diagnostic item using the diagnostic test modes shown below.

FUNCTION

Diagnostic test mode	Function
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on CONSULT-III.
Self-diagnostic results	Self-diagnostic results can be read and erased quickly.
Data monitor	Input/Output data in the TCM can be read.
CAN diagnostic support monitor	The results of transmit/receive diagnosis of CAN communication can be read.
CALIB data	Characteristic information for TCM and CVT assembly can be read. Do not use, but displayed.
Function test	Performed by CONSULT-III instead of a technician to determine whether each system is "OK" or "NG".
ECU part number	TCM part number can be read.

WORK SUPPORT MODE

Display Item List

Item name	Description	
ENGINE BRAKE ADJ.	The engine brake level setting can be canceled.	
CONFORM CVTF DETERIORTN	The CVT fluid deterioration level can be checked.	

Engine Brake Adjustment

"ENGINE BRAKE LEVEL"

0 : Initial set value (Engine brake level control is activated)

OFF : Engine brake level control is deactivated.

CAUTION:

Mode of "+1""0""-1""-2""OFF" can be selected by pressing the "UP""DOWN" on CONSULT-III screen. However, do not select mode other than "0" and "OFF". If the "+1" or "-1" or "-2" is selected, that might cause the irregular driveability.

Check CVT Fluid Deterioration Date

"CVTF DETERIORATION DATE"

More than 210000 : It is necessary to change CVT fluid.

Less than 210000 : It is not necessary to change CVT fluid.

CAUTION:

Touch "CLEAR" after changing CVT fluid, and then erase "CVTF DETERIORATION DATE".

SELF-DIAGNOSTIC RESULT MODE

After performing self-diagnosis, place check marks for results on the <u>TM-86</u>, "<u>Diagnostic Work Sheet</u>". Reference pages are provided following the items.

Display Items List

Refer to TM-221, "DTC Index".

DATA MONITOR MODE

Display Items List

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[CVT: RE0F09B]

X: Standard, —: Not applicable, ▼: Option

	Moi	nitor item selec	ction	
Monitored item (Unit)	ECU IN- PUT SIG- NALS	MAIN SIG- NALS	SELEC- TION FROM MENU	Remarks
VSP SENSOR (km/h)	Х	_	▼	Output speed sensor (secondary speed sensor)
ESTM VSP SIG (km/h)	Х	_	▼	_
PRI SPEED SEN (rpm)	Х	_	▼	_
ENG SPEED SIG (rpm)	Х	_	▼	_
SEC HYDR SEN (V)	Х	_	▼	_
PRI HYDR SEN (V)	Х	_	▼	_
ATF TEMP SEN (V)	Х	_	▼	CVT fluid temperature sensor
VIGN SEN (V)	Х	_	▼	_
VEHICLE SPEED (km/h)	_	Х	▼	Vehicle speed recognized by the TCM.
PRI SPEED (rpm)	_	Х	▼	Primary pulley speed
SEC SPEED (rpm)	_	_	▼	Secondary pulley speed
ENG SPEED (rpm)	_	Х	▼	_
SLIP REV (rpm)	_	Х	▼	Difference between engine speed and primary pulley speed.
GEAR RATIO	_	Х	▼	_
G SPEED (G)	_	_	▼	_
ACC PEDAL OPEN (0.0/8)	Х	х	•	Degree of opening for accelerator recognized by the TCM. For fail-safe operation, the specific value used for control is displayed.
TRQ RTO	_	_	▼	_
SEC PRESS (MPa)	_	Х	▼	_
PRI PRESS (MPa)	_	Х	▼	_
ATFTEMP COUNT	_	х	•	Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to TM-237.
DSR REV (rpm)	_	_	▼	_
DGEAR RATIO	_	_	▼	_
DSTM STEP (step)	_	_	▼	_
STM STEP (step)	_	Х	▼	_
LU PRS (MPa)	_	_	▼	_
LINE PRS (MPa)	_	_	▼	_
TGT SEC PRESS (MPa)	_	_	▼	_
ISOLT1 (A)	_	х	▼	Torque converter clutch solenoid valve output current
ISOLT2 (A)	_	X	▼	Pressure control solenoid valve A (line pressure solenoid valve) output current
ISOLT3 (A)	_	Х	▼	Pressure control solenoid valve B (secondary pressure solenoid valve) output current

[CVT: RE0F09B]

	Monitor item selection			
Monitored item (Unit)	ECU IN- PUT SIG- NALS	MAIN SIG- NALS	SELEC- TION FROM MENU	Remarks
SOLMON1 (A)	Х	х	▼	Torque converter clutch solenoid valve monitor current
SOLMON2 (A)	Х	Х	▼	Pressure control solenoid valve A (line pressure solenoid valve) monitor current
SOLMON3 (A)	Х	х	▼	Pressure control solenoid valve B (secondary pressure solenoid valve) monitor current
INH SW3M (On/Off)	Х	_	▼	PNP switch 3 ON-OFF status monitor
INH SW4 (On/Off)	Х	_	▼	PNP switch 4 ON-OFF status
INH SW3 (On/Off)	Х	_	▼	PNP switch 3 ON-OFF status
INH SW2 (On/Off)	Х	_	▼	PNP switch 2 ON-OFF status
INH SW1 (On/Off)	Х	_	▼	PNP switch 1 ON-OFF status
BRAKE SW (On/Off)	Х	Х	•	Stop lamp switch (Signal input with CAN communications)
FULL SW (On/Off)	Х	Х	▼	Signal input with CAN approximate the
IDLE SW (On/Off)	Х	Х	▼	Signal input with CAN communications
SPORT MODE SW (On/Off)	Х	Х	▼	
STRDWNSW (On/Off)	Х	_	▼	Not mounted but displayed.
STRUPSW (On/Off)	X	_	▼	
DOWNLVR (On/Off)	Х	_	▼	_
UPLVR (On/Off)	Х	_	▼	_
NONMMODE (On/Off)	Х	_	▼	_
MMODE (On/Off)	Х	_	▼	_
INDLRNG (On/Off)	_	_	▼	Not mounted but displayed.
INDDRNG (On/Off)	_	_	▼	"D" position indicator output
INDNRNG (On/Off)	_	_	▼	"N" position indicator output
INDRRNG (On/Off)	_	_	▼	"R" position indicator output
INDPRNG (On/Off)	_	_	▼	"P" position indicator output
CVT LAMP (On/Off)	_	_	▼	_
SPORT MODE IND (On/Off)	_	_	▼	Not mounted but displayed.
MMODE IND (On/Off)	_	_	▼	_
SMCOIL D (On/Off)	_	_	▼	Step motor coil "D" energizing status
SMCOIL C (On/Off)	_	_	▼	Step motor coil "C" energizing status
SMCOIL B (On/Off)	_	_	▼	Step motor coil "B" energizing status
SMCOIL A (On/Off)	_	_	▼	Step motor coil "A" energizing status
LUSEL SOL OUT (On/Off)	_	_	▼	_
REV LAMP (On/Off)	_	Х	▼	_
STRTR RLY OUT (On/Off)	_	_	▼	Starter relay

[CVT: RE0F09B] Monitor item selection SELEC-ECU IN-Monitored item (Unit) Remarks MAIN SIG-TION **PUT SIG-FROM** NALS **NALS MENU** LUSEL SOL MON (On/Off) ▼ STRTR RLY MON (On/Off) Starter relay VDC ON (On/Off) Χ TCS ON (On/Off) Χ ABS ON (On/Off) Χ ACC ON (On/Off) Χ \blacksquare Not mounted but displayed. Indicates position is recognized by TCM. Indi-**RANGE** Χ cates a specific value required for control when fail-safe function is activated. M GEAR POS Χ Displays the value measured by the voltage Voltage (V) probe. Frequency (Hz) \blacksquare DUTY-HI (high) (%) ▼ The value measured by the pulse probe is dis-

▼

played.

Diagnostic Tool Function

DUTY-LOW (low) (%)

PLS WIDTH-HI (ms) PLS WIDTH-LOW (ms)

INFOID:0000000004201663

Refer to EC-1142, "Diagnosis Description".

OBD-II SELF-DIAGNOSTIC PROCEDURE (WITH GST)

U1000 CAN COMM CIRCUIT

< COMPONENT DIAGNOSIS >

COMPONENT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:0000000004201664

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic INFOID:0000000004201665

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
U1000	CAN COMM CIRCUIT	When TCM is not transmitting or receiving CAN communication signal for 2 seconds or more.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- Turn ignition switch ON.
- Start engine and wait for at least 6 seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Follow the procedure "With CONSULT-III".

Is "U1000 CAN COMM CIRCUIT" detected?

YFS >> Go to TM-123, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK CAN COMMUNICATION CIRCUIT

(P)With CONSULT-III

- Turn ignition switch ON and start engine.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "U1000 CAN COMM CIRCUIT" indicated?

YES >> Go to LAN section. Refer to LAN-25, "CAN System Specification Chart".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

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[CVT: RE0F09B]

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INFOID:0000000004201666

P0615 START SIGNAL

Description INFOID:000000004201667

- TCM controls starter relay in IPDM E/R.
- TCM switches starter relay ON at "P" or "N" position and allows to crank engine.
- Then it prohibits cranking other than at "P" or "N" position.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0615	STARTER RELAY/CIRC	If this signal is ON other than in "P" or "N" position, this is judged to be a malfunction. (And if it is OFF in "P" or "N" position, this too is judged to be a malfunction.)	Harness or connectors (Starter relay and TCM circuit is open or shorted.) Starter relay circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(E)With CONSULT-III

- 1. Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P0615 STARTER RELAY/CIRC" detected?

YES >> Go to TM-124, "Diagnosis Procedure".

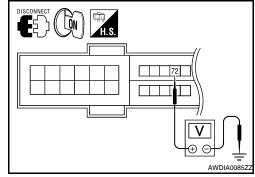
NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK STARTER RELAY SIGNAL

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and IPDM E/R harness connector F10.
- 3. Turn ignition switch ON.
- Check voltage between IPDM E/R harness connector F10 terminal 72 and ground.

IPDM E/R harr	ness connector		Voltage (Approx.)	
Connector Terminal		Ground	voltage (Approx.)	
F10	72		Battery voltage	



INFOID:0000000004201669

[CVT: RE0F09B]

Is the inspection result normal?

YES >> Check starter relay and starter control relay. Refer to PCS-14, "Diagnosis Description".

NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND IPDM E/R (PART 1)

P0615 START SIGNAL

< COMPONENT DIAGNOSIS >

- 1. Turn ignition switch OFF.
- Check continuity between TCM harness connector F16 (A) terminal 20 and IPDM E/R harness connector F10 (B) terminal 72.

TCM harne	ss connector	IPDM E/R har	ness connector	Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	20	F10 (B)	72	Existed

[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

$3.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND IPDM E/R 2 (PART 2)

Check continuity between TCM harness connector F16 terminal 20 and ground.

TCM harnes	ss connector		Continuity
Connector	Terminal	Ground	Continuity
F16	20		Not existed

DISCONNECT OFF H.S. AWDTROO87ZZ

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

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P0703 STOP LAMP SWITCH

Description INFOID:000000004201670

BCM detects ON/OFF state of the stop lamp switch and transmits the data to the TCM via CAN communication by converting the data to a signal.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0703	BRAKE SW/CIRC	When the brake switch does not switch to ON or OFF.	Harness or connectors (Stop lamp switch, and BCM circuit are open or shorted.) (CAN communication line is open or shorted.) Stop lamp switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Start engine.
- 3. Start vehicle for at least 3 consecutive seconds.
- 4. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P0703 BRAKE SW/CIRC" detected?

YES >> Go to TM-126, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

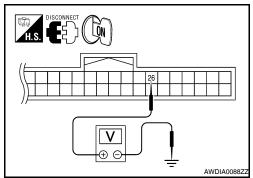
INFOID:0000000004201672

[CVT: RE0F09B]

1. CHECK STOP LAMP SWITCH CIRCUIT

- Check and adjust the installation position of stop lamp switch. Refer to <u>BR-13</u>, "<u>Inspection and Adjust-ment</u>".
- 2. Turn ignition switch OFF.
- 3. Disconnect BCM harness connector M18.
- Turn ignition switch ON.
- 5. Check voltage between BCM harness connector M18 terminal 26 and ground.

BCM harness connector			Condition	
Connec- tor	Terminal	Ground	Condition	(Approx.)
M18	26		Depressed brake pedal	Battery voltage
			Released brake pedal	0 V



Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

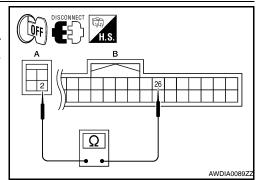
P0703 STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

$\overline{2}$.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 1)

- 1. Turn ignition switch OFF.
- Disconnect stop lamp switch harness connector.
- Check continuity between stop lamp switch harness connector E38 (A) terminal 2 and BCM harness connector M18 (B) terminal 26.

Stop lamp switch harness con- nector		BCM harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E38 (A)	2	M18 (B)	26	Existed



[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 2)

Check continuity between BCM harness connector M18 terminal 26 and ground.

BCM harne	ss connector		Continuity
Connector	Terminal	Ground	Continuity
M18	26		Not existed

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Is the inspection result normal?

YES >> GO TO 4.

>> Repair or replace damaged parts. NO

4. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to TM-127, "Component Inspection (Stop Lamp Switch)".

Is the inspection result normal?

>> Check the following.

- · Harness for short or open between battery and stop lamp switch
- 10A fuse (No. 7, located in fuse block)

NO >> Repair or replace stop lamp switch.

5.CHECK BCM

With CONSULT-III

- 1. Turn ignition switch OFF.
- Connect BCM connector.
- Turn ignition switch ON.
- Select "BRAKE SW 1" in "DATA MONITOR" of "BCM" and verify the proper operation of ON/OFF. Refer to BCS-47, "Reference Value".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace BCM. Refer to BCS-96, "Removal and Installation".

6.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

 ${f 1}$.CHECK STOP LAMP SWITCH

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INFOID:0000000004201673

P0703 STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

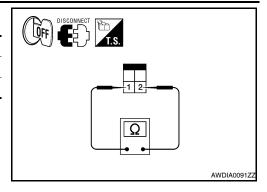
Check continuity between stop lamp switch terminals 1 and 2.

Stop lamp sw	itch terminal	Condition	Continuity
1	1 2	Depressed brake pedal	Existed
1 2	Released brake pedal	Not existed	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. <u>BR-17</u>, "Exploded View".



[CVT: RE0F09B]

P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

P0705 PARK/NEUTRAL POSITION SWITCH

Description INFOID:0000000004201674

The PNP switch is included in the control valve assembly.

- The PNP switch includes 4 transmission position switches.
- TCM judges the selector lever position by the PNP switch signal.

Shift position	PNP switch 1	PNP switch 2	PNP switch 3	PNP switch 4	PNP switch 3 (monitor)
Р	OFF	OFF	OFF	OFF	OFF
R	ON	OFF	OFF	ON	OFF
N	ON	ON	OFF	OFF	OFF
D	ON	ON	ON	ON	ON

DTC Logic INFOID:0000000004201675

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0705	PNP SW/CIRC	TCM does not receive the correct voltage signal (based on the gear position) from the switch.	 Harness or connectors (PNP switches circuit is open or shorted.) PNP switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1.CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine.
- Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

VEHICLE SPEED More than 10 km/h (6 MPH)

ENG SPEED : More than 450 rpm ACC PEDAL OPEN : More than 1.0/8

Follow the procedure "With CONSULT-III".

Is "P0705 PNP SW/CIRC" detected?

YES >> Go to TM-129, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

1. CHECK CVT POSITION

- Disconnect CVT unit harness connector.
- Remove control cable from manual lever. Refer to TM-256, "Exploded View".
- Check PNP switch. Refer to TM-130, "Component Inspection".

Is the inspection result normal?

YES >> Adjust CVT position. Refer to TM-253, "Inspection and Adjustment".

NO >> GO TO 2.

TM-129

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INFOID:0000000004201676

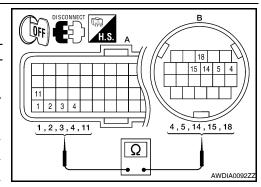
P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

$\overline{2}$. CHECK HARNESS BETWEEN TCM AND PNP SWITCH (PART 1)

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check continuity between TCM harness connector F16 (A) terminal 1, 2, 3, 4, 11 and CVT unit harness connector F46 (B) terminal 5, 14, 15, 18, 4.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	1		5	Existed
	2	F46 (B)	14	Existed
F16 (A)	3		15	Existed
	4		18	Existed
	11		4	Existed



[CVT: RE0F09B]

Is the inspection result normal?

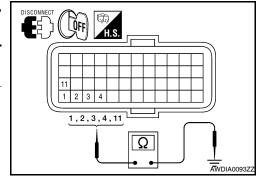
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND PNP SWITCH (PART 2)

Check continuity between TCM harness connector F16 terminal 1, 2, 3, 4, 11 and ground.

TCM harnes	ss connector		Continuity
Connector	Terminal		Continuity
	1		
	2	Ground	
F16	3		Not existed
	4		
	11		



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the TCM. Refer to TM-254, "Exploded View".

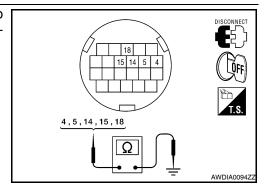
NO >> Repair or replace damaged parts.

Component Inspection

INFOID:0000000004201677

1. CHECK PNP SWITCH

Check the continuity of the PNP switch by changing selector lever to various positions and checking continuity between CVT unit terminals and ground.



P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

Shift position CVT unit terminal Continuity

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			,	
	4			
	5			
Р	18		Not existed	
	14			
	15			
R	4		Existed	
ĸ	15		Existed	
N	4	Ground	Existed	
	5		LAISIEU	
	4			
	5			
D	18		Existed	
	14			
	15			
	5			
L	18		Existed	
	14			

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, "<u>Exploded View</u>".

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[CVT: RE0F09B]

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P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

P0710 CVT FLUID TEMPERATURE SENSOR

Description INFOID.000000004201678

The CVT fluid temperature sensor detects the CVT fluid temperature and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0710	ATF TEMP SEN/CIRC	During running, the CVT fluid temperature sensor signal voltage is excessively high or low.	 Harness or connectors (Sensor circuit is open or shorted.) CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION (PART 1)

(II) With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Check that output voltage of CVT fluid temperature sensor is within the range specified below.

ATF TEMP SEN : 0.16 – 2.03 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

NO-1 ("ATF TEMP SEN" indicates 0.15 or less.)>>Refer to TM-132, "Diagnosis Procedure".

NO-2 ("ATF TEMP SEN" indicates 2.04 or more.)>>GO TO 2.

2.CHECK DTC DETECTION (PART 2)

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 14 minutes.

RANGE : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

@With GST

Follow the procedure "With CONSULT-III".

Is "P0710 ATF TEMP SEN/CIRC" detected?

YES >> Go to TM-132, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

 ${f 1}$.CHECK CVT FLUID TEMPERATURE SENSOR CIRCUIT

INFOID:0000000004201680

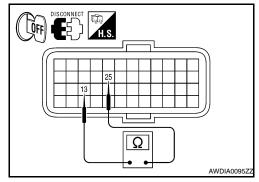
[CVT: RE0F09B]

P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 13 and 25.

TCM harness connector			Temperature	Resistance
Connector	Terr	minal	°C (°F)	(Approx.)
F16	F16 13 25	20 (68)	6.5 kΩ	
1 10	13	23	80 (176)	0.9 kΩ



[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 5.

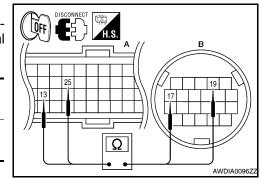
NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 1)

1. Disconnect CVT unit harness connector.

Check continuity between TCM harness connector F16 (A) terminal 13, 25 and CVT unit harness connector F46 (B) terminal 17, 19.

TCM harnes	ss connector	nector CVT unit harness connector		
Connector	Terminal	Connector Terminal		Continuity
F16 (A)	13	F46 (B)	17	Existed
1 10 (A)	25	1 40 (B)	19	LXISIEU



Is the inspection result normal?

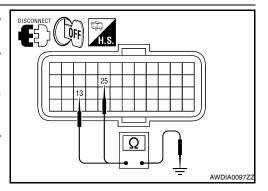
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 2)

Check continuity between TCM harness connector F16 terminal 13, 25 and ground.

TCM harness connector			Continuity	
Connector	Connector Terminal		Continuity	
F16	13	- Ground Not	Not existed	
	25		Not existed	



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK CVT FLUID TEMPERATURE SENSOR

Check CVT fluid temperature sensor. Refer to <u>TM-134</u>, "Component Inspection (CVT Fluid Temperature Sensor)".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

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P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:0000000004201681

[CVT: RE0F09B]

1.CHECK CVT FLUID TEMPERATURE SENSOR

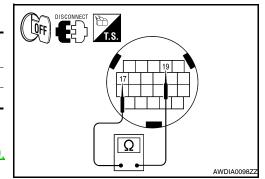
Check resistance between CVT unit terminal 17 and 19.

CVT unit terminal		Temperature °C (°F)	Resistance (Approx.)
17	19	20 (68)	6.5 kΩ
	19	80 (176)	0.9 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



P0715 INPUT SPEED SENSOR (PRI SPEED SENSOR)

< COMPONENT DIAGNOSIS >

P0715 INPUT SPEED SENSOR (PRI SPEED SENSOR)

Description INFOID:0000000004201682

The input speed sensor (primary speed sensor) detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0715	INPUT SPD SEN/CIRC	 Input speed sensor (primary speed sensor) signal is not input due to an open circuit. An unexpected signal is input when vehicle is being driven. 	Harness or connectors (Sensor circuit is open or shorted.) Input speed sensor (primary speed sensor)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

1. Turn ignition switch ON.

- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Driving location : Driving the vehicle uphill (in-

creased engine load) will help maintain the driving conditions required

for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0715 INPUT SPD SEN/CIRC" detected?

YES >> Go to TM-135, "Diagnosis Procedure".

NO >> Check itermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR)

INFOID:0000000004201684

[CVT: RE0F09B]

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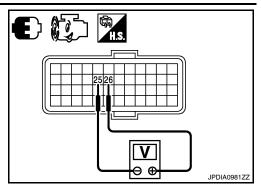
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P0715 INPUT SPEED SENSOR (PRI SPEED SENSOR)

< COMPONENT DIAGNOSIS >

- Start engine.
- 2. Check voltage between TCM harness connector F16 terminal 25 and 26.

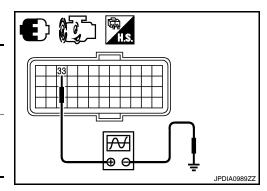
TCM	Data (Approx.)		
Connector	Terminal		Бака (Арргох.)
F16	25 26		5.0 V



[CVT: RE0F09B]

3. If OK, check the pulse when vehicle cruises.

TCM harness connector		Condition	Voltage
Con- nector	Termi- nal	Condition	(Approx.)
F16	33	When running at 20 km/h (12 MPH) in "M1" position with the closed throttle position signal OFF, use the CONSULT-III pulse frequency measuring function.	660 Hz



Is the inspection result normal?

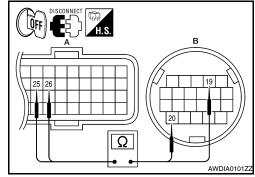
OK >> GO TO 7.

NG - 1 >> Battery voltage is not supplied: GO TO 2.

NG - 2 >> Battery voltage is supplied, but there is a malfunction in the frequency: GO TO 4.

- 2. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (SENSOR POWER AND SENSOR GROUND) (PART 1)
- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 25 and 26 and CVT unit harness connector F46 (B) terminal 19 and 20.

TCM harnes	TCM harness connector		CVT unit harness connector	
Connector	Terminal	Connector Terminal		Continuity
F16 (A)	25	F46 (B)	19	Existed
F 10 (A)	26	1 40 (B)	20	Existed



Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

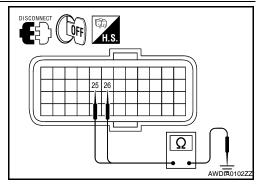
3. Check harness between TCM and CVT unit harness connector (sensor power and sensor ground) (part 2)

Check continuity between TCM harness connector F16 terminal 25 and 26 and ground.

TCM harness connector			Continuity	
Connector	Connector Terminal		Continuity	
F16	25	Ground	Not existed	
F IO	26	1	Not existed	

Is the inspection result normal?

YES >> GO TO 6.



P0715 INPUT SPEED SENSOR (PRI SPEED SENSOR)

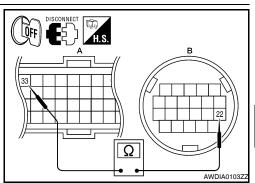
< COMPONENT DIAGNOSIS >

>> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR [INPUT SPEED SENSOR (PRIMARY SPEED SENSOR)] (PART 1)

- Turn ignition switch OFF.
- 2. Disconnect TCM harness connector and CVT unit harness connector.
- 3. Check continuity between TCM harness connector F16 (A) terminal 33 and CVT unit harness connector F46 (B) terminal 22.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector Terminal		Continuity
F16 (A)	33	F46 (B)	22	Existed



[CVT: RE0F09B1

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

 ${f 5}$. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR [INPUT SPEED SENSOR (PRIMARY SPEED SENSOR)] (PART 2)

Check continuity between TCM harness connector F16 terminal 33 and ground.

TCM harness connector			Continuity
Connector	Connector Terminal		Continuity
F16	33		Not existed

Is the inspection result normal?

YES >> GO TO 6.

Ω >> Repair or replace damaged parts. AWDIA0104ZZ

6. CHECK THE TCM SHORT

Replace same type TCM, perform self-diagnosis check. Erase self-diagnostic results and then drive the vehicle [10 km/h (6 MPH) or more], perform self-diagnosis check. Refer to TM-135, "DTC Logic".

Is the "P0715 INPUT SPD SEN/CIRC" detected again?

YES >> GO TO 7.

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

/.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

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< COMPONENT DIAGNOSIS >

P0720 VEHICLE SPEED SENSOR CVT (SECONDARY SPEED SENSOR)

Description INFOID:000000004201685

The vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] detects the revolution of the CVT output shaft and emits a pulse signal. The pulse signal is sent to the TCM, which converts it into vehicle speed.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0720	VEH SPD SEN/CIR AT	Signal from vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] not input due to open or short circuit. An unexpected signal input during running .	Output speed sensor (secondary speed

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(I) With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 12 consecutive seconds.

ACC PEDAL OPEN : More than 1.0/8 RANGE : "D" position

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

@With GST

Follow the procedure "With CONSULT-III".

Is "P0720 VEH SPD SEN/CIR AT" detected?

YES >> Go to TM-138, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

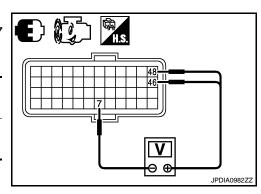
1. CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR)

(P)With CONSULT-III

Start engine.

Check voltage between TCM harness connector F16 terminal 7 and 46 and 7 and 48.

Т	Voltage (Approx.)		
Connector Terminal			voltage (Approx.)
F16	7	46	Battery voltage
		48	Dattery voltage



INFOID:0000000004201687

[CVT: RE0F09B]

< COMPONENT DIAGNOSIS >

3. If OK, check the pulse when vehicle cruises.

	ess connec- or	Condition	Data (Ap-
Connec- tor	Terminal	Condition	prox.)
F16	34	When running at 20 km/h (12 MPH) in "D" position, use the CONSULT-III pulse frequency measuring function.	400 Hz

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[CVT: RE0F09B]

Is the inspection result normal?

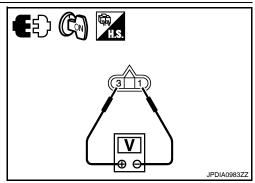
YES >> GO TO 11.

NO >> GO TO 2.

$2.\mathsf{CHECK}$ POWER AND SENSOR GROUND

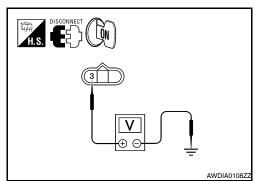
- Turn ignition switch OFF.
- Disconnect output speed sensor (secondary speed sensor) harness connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between output speed sensor (secondary speed sensor) harness connector F23 terminal 1 and 3.

Output speed ser	Voltage (Approx.)		
Connector	Terr		
F23	1	3	Battery voltage



5. Check voltage between output speed sensor (secondary speed sensor) harness connector F23 terminal 3 and ground.

Output speed sensor (secondary speed sensor) harness connector			Voltage (Approx.)
Connector	Terminal	Ground	
F23	3		Battery voltage



Is the inspection result normal?

YES >> GO TO 3.

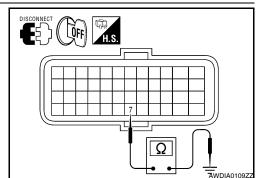
NO-1 >> Battery voltage is not supplied between terminals 1 and 3, terminals 3 and ground: GO TO 6.

NO-2 >> Battery voltage is not supplied between terminals 1 and 3 only: GO TO 8.

3. CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (SENSOR GROUND)

- Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- Check continuity between TCM harness connector F16 terminal 7 and ground.

TCM harne	ss connector		Continuity
Connector	Connector Terminal		Continuity
F16	7		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (PART 1)

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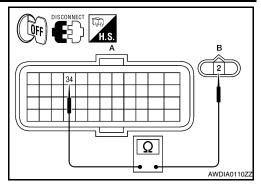
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< COMPONENT DIAGNOSIS >

Check continuity between TCM harness connector F16 (A) terminal 34 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 2.

Connector Terminal Connector Terminal F16 (A) 34 F23 (B) 2 Existed	TCM harnes	ss connector	Output speed sensor (second- ary speed sensor) harness connector		Continuity
F16 (A) 34 F23 (B) 2 Existed	Connector	Terminal	Connector	Terminal	
1 10 (X) 2 EXISTED	F16 (A)	34	F23 (B)	2	Existed



[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (PART 2)

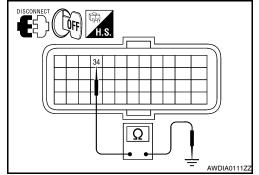
Check continuity between TCM harness connector F16 terminal 34 and ground.

TCM harnes	ss connector		Continuity
Connector	Terminal	Ground	Continuity
F16	34		Not existed

Is the inspection result normal?

YES >> GO TO 10.

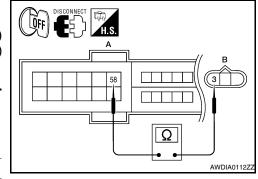
NO >> Repair or replace damaged parts.



6.CHECK HARNESS BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (POWER) (PART 1)

- Turn ignition switch OFF.
- 2. Disconnect IPDM E/R harness connector F10.
- Check continuity between IPDM E/R harness connector F10 (A) terminal 58 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 3.

IPDM E/R har	ness connector	ary speed sens	sensor (second- or) harness con- ctor	Continuity
Connector	Terminal	Connector	Terminal	
F10 (A)	58	F23 (B)	3	Existed



Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

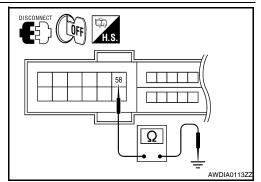
7.CHECK HARNESS BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (POWER) (PART 2)

Check continuity between IPDM E/R harness connector F10 terminal 58 and ground.

IPDM E/R har	ness connector		Continuity
Connector Terminal		Ground	Continuity
F10	58		Not existed

Is the inspection result normal?

YES >> Check the following. If NG, repair or replace damaged parts.



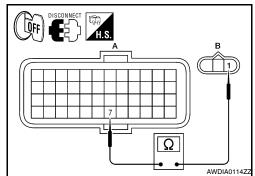
< COMPONENT DIAGNOSIS >

- · Harness for short or open between ignition switch and IPDM E/R
- 10A fuse (No. 34, located in IPDM E/R)
- Ignition switch
- NO >> Repair or replace damaged parts.

 $8.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (SENSOR GROUND) (PART 1)

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 7 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 1.

TCM harne	ss connector	Output speed sensor (secondary speed sensor) harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F16 (A)	7	F23 (B)	1	Existed



[CVT: RE0F09B1

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace damaged parts.

9.check harness between tcm and output speed sensor (secondary speed sensor) (sensor ground) (part 2)

Check continuity between TCM harness connector F16 terminal 7 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	7		Not existed

DISCONNECT OFF H.S. AWDIA0109ZZ

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace damaged parts.

10. CHECK TCM

- 1. Replace same type TCM. Refer to TM-254, "Exploded View".
- 2. Connect each connector.
- Perform "DTC CONFIRMATION PROCEDURE". Refer to TM-138, "DTC Logic".

Is "P0720 VEH SPD SEN/CIR AT" detected?

YES >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

NO >> Replace TCM. Refer to TM-254, "Exploded View".

11. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

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[CVT: RE0F09B]

INFOID:0000000004201690

< COMPONENT DIAGNOSIS >

P0725 ENGINE SPEED SIGNAL

Description INFOID:000000004201688

The engine speed signal is sent from the ECM to the TCM by CAN communication line.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0725	ENGINE SPEED SIG	 TCM does not receive the CAN communication signal from the ECM. Engine speed is too low while driving. 	Harness or connectors (The ECM to the TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(II) With CONSULT-III

- 1. Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 10 consecutive seconds.

PRI SPEED SEN : More than 1000 rpm

Is "P0725 ENGINE SPEED SIG" detected?

YES >> Go to TM-142, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK DTC WITH ECM

(P)With CONSULT-III

- Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC detected item. Refer to <u>EC-1555</u>, "DTC Index".

2.CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P0725 ENGINE SPEED SIG" detected?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

TM-142

P0730 BELT DAMAGE

< COMPONENT DIAGNOSIS >

P0730 BELT DAMAGE

Description INFOID:0000000004201691

TCM selects the gear ratio using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signal. Then it changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley.

DTC Logic INFOID:0000000004201692

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause	
P0730	BELT DAMG	Unexpected gear ratio detected.	Transaxle assembly	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and maintain the following conditions for at least 30 consecutive seconds.

TEST START FROM 0 km/h (0 MPH)

CONSTANT ACCELERATION : Keep 30 sec or more VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8 **RANGE** : "D" position **ENG SPEED** : 450 rpm or more

Is "P0730 BELT DAMG" detected?

YES >> Go to TM-143, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

CHECK DTC

(II) With CONSULT-III

Turn ignition switch ON. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Are any DTC displayed?

YES-1 >> DTC for "P0730 BELT DAMG" is displayed: Go to replace transaxle assembly. Refer to TM-259. "Exploded View"

YES-2 >> DTC except for "P0730 BELT DAMG" is displayed: Go to check DTC detected item. Refer to TM-221, "DTC Index".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident". TΜ

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[CVT: RE0F09B]

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P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

Description INFOID:000000004201694

- The torque converter clutch solenoid valve is activated by the TCM in response to signals sent from the vehicle speed and accelerator pedal position sensors. Lock-up piston operation will then be controlled.
- Lock-up operation, however, is prohibited when CVT fluid temperature is too low.
- When the accelerator pedal is depressed (less than 2.0/8) in lock-up condition, the engine speed should not change abruptly. If there is a big jump in engine speed, there is no lock-up.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0740	TCC SOLENOID/CIRC	Normal voltage not applied to solenoid due to open or short circuit.	Torque converter clutch solenoid valve Harness or connectors (Solenoid circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Wait at least 10 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

®With GST

Follow the procedure "With CONSULT-III".

Is "P0740 TCC SOLENOID/CIRC" detected?

YES >> Go to TM-144, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

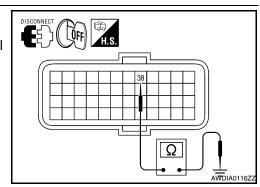
Diagnosis Procedure

lagnosis Procedure

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 38 and ground.

TCM harness connector			Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	38		3.0 – 9.0 Ω



[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

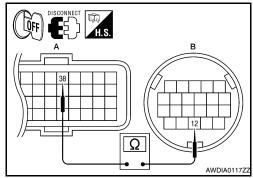
2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 1)

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 38 and CVT unit harness connector F46 (B) terminal 12.

TCM harne	ness connector CVT unit harness connector Continuity		CVT unit harness connector	
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	38	F46 (B)	12	Existed



[CVT: RE0F09B]

Is the inspection result normal?

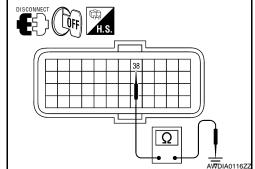
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 2)

Check continuity between TCM harness connector F16 terminal 38 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	38		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check torque converter clutch solenoid valve. Refer to <u>TM-145</u>, "Component Inspection (Torque Converter <u>Clutch Solenoid Valve)"</u>.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, "<u>Exploded View</u>".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:0000000004201697

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

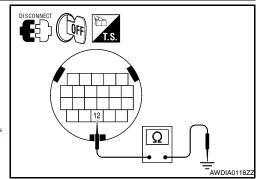
Check resistance between CVT unit terminal 12 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
12	Giodila	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



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P0744 A/T TCC S/V FUNCTION (LOCK -UP)

< COMPONENT DIAGNOSIS >

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

Description INFOID:000000004201698

This malfunction is detected when the torque converter clutch does not lock-up as instructed by the TCM. This is not only caused by electrical malfunction (circuits open or shorted), but also by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0744	A/T TCC S/V FNCTN	 CVT cannot perform lock-up even if electrical circuit is good. TCM detects as irregular by comparing difference value with slip rotation. There is big difference engine speed and primary speed when TCM lock-up signal is on. 	Torque converter clutch solenoid valve Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(II) With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following condition for at least 30 seconds.

ACC PEDAL OPEN : More than 1.0/8 RANGE : "D" position

VEHICLE SPEED : Constant speed of more than 40 km/h (25 MPH)

With GST

Follow the procedure "With CONSULT-III".

Is "P0744 A/T TCC S/V FNCTN" detected?

YES >> Go to TM-146, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-247, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-247, "Inspection and Judgment".

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

- 1. Turn ignition switch OFF.
- Disconnect CVT unit harness connector.
- Check torque converter clutch solenoid valve. Refer to <u>TM-147</u>, "Component Inspection (Torque Converter Clutch Solenoid Valve)".

Is the inspection result normal?

TM-146

INFOID:0000000004201700

[CVT: RE0F09B]

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

< COMPONENT DIAGNOSIS >

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

3 .CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to TM-147, "Component Inspection (Lock-up Select Solenoid Valve)".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

f 4 .CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM

Check output speed sensor (secondary speed sensor) system. Refer to TM-146, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-135, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

O.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

>> Replace TCM. Refer to TM-254, "Exploded View". YES

NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

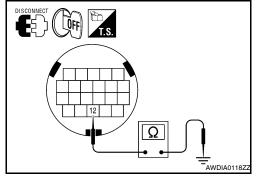
Check resistance between CVT unit terminal 12 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
12		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer "Exploded View".



Component Inspection (Lock-up Select Solenoid Valve)

1. CHECK LOCK-UP SELECT SOLENOID VALVE

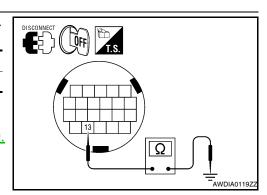
Check resistance between CVT unit connector terminal and ground.

CVT unit terminal	Ground	Resistance (Approx.)
13	Olouna	6.0 – 19.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer TM-259. "Exploded View".



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INFOID:0000000004201701

INFOID:0000000004201702

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P0745 LINE PRESSURE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P0745 LINE PRESSURE SOLENOID VALVE

Description INFOID:000000004201703

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0745	L/PRESS SOL/CIRC	 Normal voltage not applied to solenoid due to open or short circuit. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve A (line pressure solenoid valve)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Start engine and wait at least 5 seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Follow the procedure "With CONSULT-III".

Is "P0745 L/PRESS SOL/CIRC" detected?

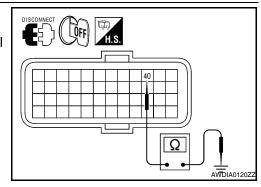
YES >> Go to TM-148, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

- 1.check pressure control solenoid valve a (line pressure solenoid valve) circuit
- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- Check resistance between TCM harness connector F16 terminal 40 and ground.

TCM harness connector			Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	40		3.0 – 9.0 Ω



INFOID:0000000004201705

[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

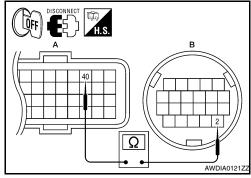
2. CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)] (PART 1)

P0745 LINE PRESSURE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit connector.
- Check continuity between TCM harness connector F16 (A) terminal 40 and CVT unit harness connector F46 (B) terminal 2.

•	TCM harne	CM harness connector		CVT unit harness connector	
-	Connector	Terminal	Connector	Terminal	Continuity
-	F16 (A)	40	F46 (B)	2	Existed



[CVT: RE0F09B]

Is the inspection result normal?

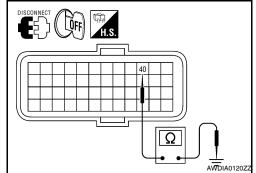
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)] (PART 2)

Check continuity between TCM vehicle side harness connector F16 terminal 40 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	40		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to <u>TM-149</u>, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]"

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, "<u>Exploded View</u>".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1.check pressure control solenoid valve a (line pressure solenoid valve)

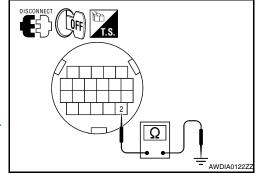
Check resistance between CVT unit terminal 2 and ground.

	Resistance (Approx.)
Ground	3.0 – 9.0 Ω
	Ground

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u> "Exploded View".



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P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE SOLENOID VALVE)

[CVT: RE0F09B]

INFOID:0000000004201709

< COMPONENT DIAGNOSIS >

P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE SOLENOID VALVE)

Description INFOID:000000004201707

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0746	PRS CNT SOL/A FCTN	Unexpected gear ratio was detected in the low side due to excessively low line pressure.	 Line pressure control system Output speed sensor (secondary speed sensor) Input speed sensor (primary speed sensor)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 10 consecutive seconds. Test start from 0 km/h (0 MPH).

ATF TEMP SEN : 1.0 - 2.0 VACC PEDAL OPEN : More than 1.0/8RANGE : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0746 PRS CNT SOL/A FCTN" detected?

YES >> Go to TM-150, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-247, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-247, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

- 1. Turn ignition switch OFF.
- 2. Disconnect CVT unit harness connector.

TM-150

P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

B. Check pressure control solenoid valve A (line pressure solenoid valve). Refer to TM-151, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

3.check output speed sensor (secondary speed sensor) system

Check output speed sensor (secondary speed sensor) system. Refer to TM-138, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-135, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1.check pressure control solenoid valve a (line pressure solenoid valve)

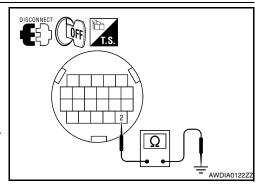
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Giodila	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u> "Exploded View".



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P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE **SOLENOID VALVE)**

< COMPONENT DIAGNOSIS >

P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRES-SURE SOLENOID VALVE)

[CVT: RE0F09B]

Description INFOID:0000000004201711

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic INFOID:0000000004201712

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0776	PRS CNT SOL/B FCTN	Secondary pressure is too high or too low compared with the commanded value while driving.	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve system) Transmission fluid pressure sensor A (secondary pressure sensor) Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 30 consecutive seconds.

: 1.0 - 2.0 V ATF TEMP SEN ACC PEDAL OPEN : More than 1.0/8 **RANGE** : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

: Driving the vehicle uphill (increased engine load) will help maintain the driving **Driving location**

conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0776 PRS CNT SOL/B FCTN" detected?

YES >> Go to TM-152, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

INFOID:0000000004201713

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-247, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-247, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

- Turn ignition switch OFF.
- Disconnect CVT unit harness connector.

P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

3. Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to <u>TM-153</u>, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

3.check pressure control solenoid valve a (line pressure solenoid valve)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to <u>TM-153</u>, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

4.CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYSTEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to <u>TM-160, "DTC Logic"</u>.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

Check resistance between CVT unit terminal 2 and ground.

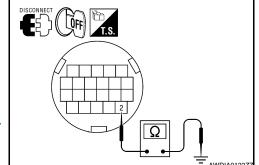
CVT unit terminal	Ground	Resistance (Approx.)
2	Giodila	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO

>> Replace transaxle assembly. Refer to <u>TM-259</u>, "Exploded View".



[CVT: RE0F09B]

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Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

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P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

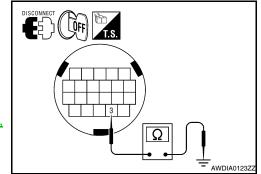
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Ground	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



[CVT: RE0F09B]

P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

Description INFOID:0000000004201716

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0778	PRS CNT SOL/B CIRC	 Normal voltage not applied to solenoid due to cut line, short, or the like. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Start engine.
- Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

®With GST

Follow the procedure "With CONSULT-III".

Is "P0778 PRS CNT SOL/B CIRC" detected?

YES >> Go to TM-155, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE) CIRCUIT

- Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 39 and ground.

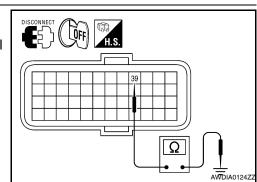
TCM harness connector			Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	39		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE) (PART 1)



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P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 39 and CVT unit harness connector F46 (B) terminal 3.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	39	F46 (B)	3	Existed

[CVT: RE0F09B]

Is the inspection result normal?

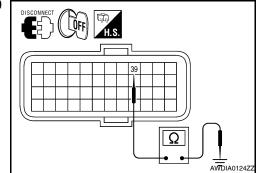
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE) (PART 2)

Check continuity between TCM harness connector F16 terminal 39 and ground.

TCM harnes	TCM harness connector		Continuity
Connector	Terminal	Ground	Continuity
F16	39		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to TM-156, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

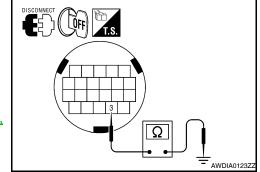
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Ground	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>. "Exploded View".



P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

P0826 MANUAL MODE SWITCH

Description INFOID:000000004201720

Manual mode switch is installed in CVT control device. The manual mode switch sends shift up and shift down switch signals to TCM.

TCM sends the switch signals to combination meter via CAN communication line. Then manual mode switch position is indicated on the CVT position indicator.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0826	MANUAL MODE SWITCH	When an impossible pattern of switch signals is detected, a malfunction is detected.	Harness or connectors (These switches circuit is open or shorted.) (TCM, and combination meter circuit are open or shorted.) (CAN communication line is open or shorted.) Manual mode select switch (Built into control device) Manual mode position select switch (Built into control device)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

MMODE : On

Is "P0826 MANUAL MODE SWITCH" detected?

YES >> Go to TM-157, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK MANUAL MODE SWITCH SIGNALS

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Check the ON/OFF operations of each monitor item.

Item name Condition		Display value
MMODE	Manual shift gate position (neutral)	On
	Other than the above	Off
NONMMODE	Manual shift gate position (neutral, +side, -side)	Off
NONWINIODE	Other than the above	On

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P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

Item name	Condition	Display value
UPLVR	Selector lever: + side	On
	Other than the above	Off
DOWNLVR	Selector lever: – side	On
DOWNERK	Other than the above	Off

Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever is shifted to the "+ (up)" or "- (down)" side (1st \Leftrightarrow 6th gear).

Is the inspection result normal?

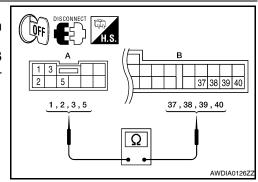
YES >> GO TO 7. NO >> GO TO 2.

2.CHECK HARNESS BETWEEN CVT DEVICE AND COMBINATION METER (PART 1)

1. Turn ignition switch OFF.

- 2. Disconnect CVT device harness connector and combination meter harness connector.
- 3. Check continuity between CVT device harness connector M23 (A) terminal 1, 2, 3 and 5 and combination meter harness connector M24 (B) terminal 40, 38, 39 and 37.

CVT device ha	rness connector		meter harness ector	Continuity
Connector	Terminal	Connector	Terminal	
	1	M24 (B)	40	Existed
M23 (A)	2		38	
IVIZ3 (A)	3		39	LAISIEU
	5		37	



[CVT: RE0F09B]

Is the inspection result normal?

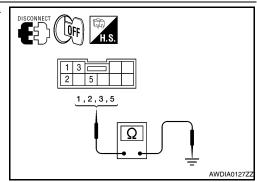
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

${\bf 3.}$ CHECK HARNESS BETWEEN CVT DEVICE AND COMBINATION METER (PART 2)

Check continuity between CVT device harness connector M23 terminal 1, 2, 3, and 5 and ground.

CVT device ha	rness connector		Continuity
Connector	Terminal		Continuity
	1	Ground	
M23	2	Ground	Not existed
IVIZO	3		Not existed
	5	1	



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

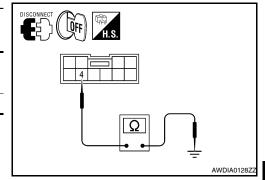
4.CHECK GROUND CIRCUIT (PART 1)

P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

Check continuity between CVT device harness connector M23 terminal 4 and ground.

CVT device harness connector			Continuity
Connector	Terminal	Ground	Continuity
M23	4		Existed



[CVT: RE0F09B]

Is the inspection result normal?

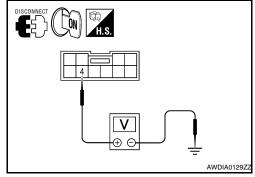
YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK GROUND CIRCUIT (PART 2)

- Turn ignition switch ON.
- Check voltage between CVT device harness connector M23 terminal 4 and ground.

CVT device ha	rness connector		Voltage (Approx.)
Connector	Terminal	Ground	voltage (Approx.)
M23	4		0 V



Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6.CHECK MANUAL MODE SWITCH

Check manual mode switch. Refer to TM-159, "Component Inspection (Manual Mode Switch)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

/.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

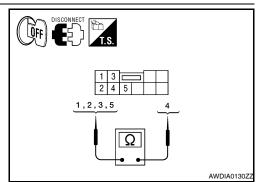
NO >> Repair or replace damaged parts.

Component Inspection (Manual Mode Switch)

1. CHECK MANUAL MODE SWITCH

Check continuity between CVT device terminals.

CVT device	e terminals	Condition	Continuity
5	4	Manual shift gate position (neutral)	Not existed
5	4	Other than the above	Existed
1	4	Manual shift gate position (neutral)	Existed
1	1 4	Other than the above	Not existed
3	4	Selector lever: UP (+ side)	Existed
3	4	Other than the above	Not existed
2	4	Selector lever: DOWN (- side)	Existed
2	4	Other than the above	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts. Α

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P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SENSOR)

< COMPONENT DIAGNOSIS >

P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SENSOR)

Description INFOID:000000004201724

The transmission fluid pressure sensor A (secondary pressure sensor) detects secondary pressure of CVT and sends TCM the signal.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0840	TR PRS SENS/A CIRC	Signal voltage of the transmission fluid pressure sensor A (secondary pressure sensor) is too high or too low while driving.	Harness or connectors (Sensor circuit is open or shorted.) Transmission fluid pressure sensor A (secondary pressure sensor)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and wait for at least 5 consecutive seconds.

With GST

Follow the procedure "With CONSULT-III".

Is "P0840 TR PRS SENS/A CIRC" detected?

YES >> Go to TM-160, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201726

[CVT: RE0F09B]

1. CHECK INPUT SIGNAL

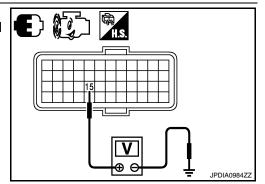
- 1. Start engine.
- 2. Check voltage between TCM harness connector F16 terminal 15 and ground.

	ess connec- or		Condition	Voltage (Approx.)
Connec- tor	Terminal	Ground	Condition	(Approx.)
F16	15		"N" position idle	1.0 V

3. Turn ignition switch OFF.

Is the inspection result normal?

YES >> GO TO 8. NO >> GO TO 2.



P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SENSOR)

< COMPONENT DIAGNOSIS >

$\overline{2}$.check power and sensor ground

1. Turn ignition switch ON.

2. Check voltage between TCM harness connector F16 terminal 25 and 26.

Т	Voltage (Approx.)		
Connector	Terr	voltage (Approx.)	
F16	25	26	5.0 V

CONNECT H.S. AWDIA0132ZZ

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Is the inspection result normal?

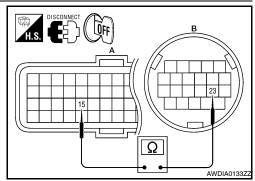
YES >> GO TO 3.

NO >> GO TO 5.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT [TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR)] (PART 1)

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit harness connector.
- 3. Check continuity between TCM harness connector F16 (A) terminal 15 and CVT unit harness connector F46 (B) terminal 23.

TCM harnes	TCM harness connector		CVT unit harness connector	
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	15	F46 (B)	23	Existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK HARNESS BETWEEN TCM AND CVT UNIT [TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR)] (PART 2)

Check continuity between TCM harness connector F16 terminal 15 and ground.

TCM harnes	TCM harness connector		Continuity
Connector	Terminal	Ground	Continuity
F16	15		Not existed

DISCONNECT OFF H.S. AWDIA0134ZZ

Is the inspection result normal?

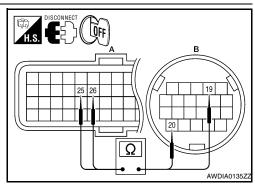
YES >> GO TO 7.

NO >> Repair or replace damaged parts.

CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART
 1)

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 25, 26 and CVT unit harness connector F46 (B) terminal 19, 20.

TCM harnes	ss connector	CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	25	F46 (B)	19	Existed
1 10 (A)	26	1 1 0 (D)	20	LXISICU



Is the inspection result normal?

TM-161

P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SEN-SOR)

< COMPONENT DIAGNOSIS >

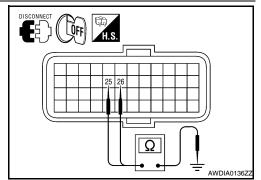
YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART

Check continuity between TCM harness connector F16 terminal 25, 26 and ground.

TCM harness connector			Continuity	
Connector	Terminal	Ground	Continuity	
F16	25	Giodila	Not existed	
	26		Not existed	
Is the inspection result normal?				



[CVT: RE0F09B]

is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7.CHECK TCM

- Replace same type TCM. Refer to TM-254, "Exploded View".
- Connect each connector.
- Perform "DTC CONFIRMATION PROCEDURE". Refer to TM-160, "DTC Logic".

Is "P0840 TR PRS SENS/A CIRC" detected?

>> Replace transaxle assembly. Refer to TM-259, "Exploded View".

>> Replace TCM. Refer to TM-254, "Exploded View". NO

8. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

P0841 PRESSURE SENSOR FUNCTION

< COMPONENT DIAGNOSIS >

P0841 PRESSURE SENSOR FUNCTION

Description INFOID:0000000004201727

Using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signal, TCM changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley to control the gear ratio.

DTC Logic INFOID:0000000004201728

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0841	PRESS SEN/FNCTN	Correlation between the values of the transmission fluid pressure sensor A (secondary pressure sensor) and the transmission fluid pressure sensor B (primary pressure sensor) is out of specification.	Harness or connectors (Sensor circuit is open or shorted.) Transmission fluid pressure sensor A (secondary pressure sensor) Transmission fluid pressure sensor B (primary pressure sensor)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 12 consecutive seconds.

VEHICLE SPEED : 40 km/h (25 MPH) or more

RANGE : "D" position

Is "P0841 PRESS SEN/FNCTN" detected?

YFS >> Go to TM-163, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1.CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-247, "Inspection and Judgment".

Is the inspection result normal?

YES >> .GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-247, "Inspection and Judgment".

2.CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYS-TEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to TM-160, "Description".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK TRANSMISSION FLUID PRESSURE SENSOR B (PRIMARY PRESSURE SENSOR) SYSTEM

Check transmission fluid pressure sensor B (primary pressure sensor) system. Refer to TM-166, "Description".

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P0841 PRESSURE SENSOR FUNCTION

< COMPONENT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

- 1. Turn ignition switch OFF.
- 2. Disconnect CVT unit harness connector.
- 3. Check pressure control solenoid valve A (line pressure solenoid valve). Refer to TM-164, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to TM-164, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to TM-184, "Description".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

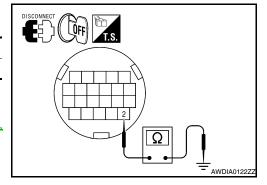
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Ground	$3.0 - 9.0 \Omega$

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, "Exploded View".



[CVT: RE0F09B]

Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

P0841 PRESSURE SENSOR FUNCTION

< COMPONENT DIAGNOSIS >

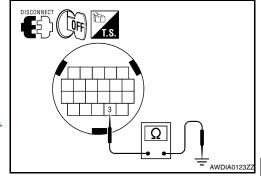
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Olouna	$3.0 - 9.0 \Omega$

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



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P0845 TRANSMISSION FLUID PRESSURE SENSOR B (PRI PRESSURE SENSOR)

< COMPONENT DIAGNOSIS >

P0845 TRANSMISSION FLUID PRESSURE SENSOR B (PRI PRESSURE SENSOR)

Description INFOID:000000004201732

The transmission fluid pressure sensor B (primary pressure sensor) detects primary pressure of CVT and sends TCM the signal.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0845	TR PRS SENS/B CIRC	Signal voltage of the transmission fluid pressure sensor B (primary pressure sensor) is too high or too low while driving.	Harness or connectors (Sensor circuit is open or shorted.) Transmission fluid pressure sensor B (primary pressure sensor)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Make sure that output voltage of line temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and wait for at least 5 consecutive seconds.

With GST

Follow the procedure "With CONSULT-III".

Is "P0845 TR PRS SENS/B CIRC" detected?

YES >> Go to TM-166, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201734

[CVT: RE0F09B]

1. CHECK INPUT SIGNAL

- 1. Start engine.
- Check voltage between TCM harness connector F16 terminal 14 and ground.

TCM harness connector			Condition	Voltage (Approx.)
Connector	Terminal	Ground		prox.)
F16	14		"N" position idle	0.7 – 3.5 V

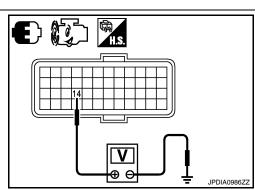
3. Turn ignition switch OFF.

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 2.

2.CHECK SENSOR POWER AND SENSOR GROUND



P0845 TRANSMISSION FLUID PRESSURE SENSOR B (PRI PRESSURE SENSOR)

< COMPONENT DIAGNOSIS >

- 1. Turn ignition switch ON.
- Check voltage between TCM harness connector F16 terminal 25 and 26.

7	Voltage (Ap-		
Connector	Connector Terminal		
F16	25	26	5.0 V

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Is the inspection result normal?

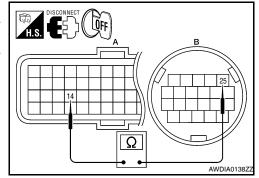
YES >> GO TO 3.

NO >> GO TO 5.

3. Check harness between TCM and CVT unit [Transmission fluid pressure sensor b (PRIMARY PRESSURE SENSOR)] (PART 1)

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 14 and CVT unit harness connector F46 (B) terminal 25.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Terminal Connector Termi		Continuity
F16 (A)	14	F46 (B)	25	Existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK HARNESS BETWEEN TCM AND CVT UNIT [TRANSMISSION FLUID PRESSURE SENSOR B (PRIMARY PRESSURE SENSOR)] (PART 2)

Check continuity between TCM harness connector F16 terminal 14 and ground.

TCM harnes	ss connector		Continuity
Connector Terminal		Ground	Continuity
F16	14		Not existed

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Is the inspection result normal?

YES >> GO TO 7.

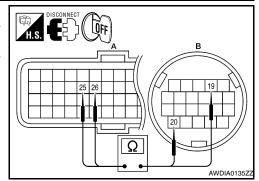
NO >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 1)

1. Turn ignition switch OFF.

- Disconnect TCM harness connector and CVT unit harness connector.
- 3. Check continuity between TCM harness connector F16 (A) terminal 25, 26 and CVT unit harness connector F46 (B) terminal 19, 20.

TCM harness connector		CVT unit harness connector		Continuity
Connector Terminal		Connector	Terminal	Continuity
F16 (A)	25	E46 (B)	19	Existed
1 10 (A)	26	F46 (B)	20	



Is the inspection result normal?

YES >> GO TO 6.

P0845 TRANSMISSION FLUID PRESSURE SENSOR B (PRI PRESSURE SENSOR)

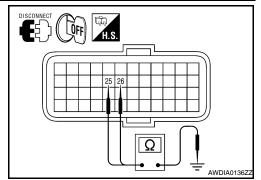
< COMPONENT DIAGNOSIS >

NO >> Repair or replace damaged parts.

6. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART

Check continuity between TCM harness connector F16 terminal 25, 26 and ground.

TCM harnes	ss connector	Ground	Continuity
Connector	Terminal		
E16	25		Not existed
F16	26		Not existed



[CVT: RE0F09B]

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. CHECK TCM

- 1. Replace same type TCM. Refer to TM-254, "Exploded View".
- 2. Connect each connector.
- 3. Perform "DTC CONFIRMATION PROCEDURE". Refer to TM-166, "DTC Logic".

Is "P0840 TR PRS SENS/A CIRC" detected?

YES >> Replace transaxle assembly. Refer to <u>TM-259</u>, "Exploded View".

NO >> Replace TCM. Refer to TM-254, "Exploded View".

8.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

P0868 SECONDARY PRESSURE DOWN

< COMPONENT DIAGNOSIS >

P0868 SECONDARY PRESSURE DOWN

Description INFOID:0000000004201735

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0868	SEC/PRESS DOWN	Secondary fluid pressure is too low compared with the commanded value while driving.	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve) system Transmission fluid pressure sensor A (secondary pressure sensor) Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and maintain the following conditions for at least 10 consecutive seconds.

VEHICLE SPEED (accelerate slow- : $0 \rightarrow 50$ km/h (31 MPH)

ly)

ACC PEDAL OPEN : 0.5/8 – 1.0/8 RANGE : "D" position

Is "P0868 SEC/PRESS DOWN" detected?

YES >> Go to TM-169, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-247, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-247, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

- 1. Turn ignition switch OFF.
- 2. Disconnect CVT unit harness connector.

[CVT: RE0F09B]

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INFOID:0000000004201737

TM-169

P0868 SECONDARY PRESSURE DOWN

< COMPONENT DIAGNOSIS >

Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to <u>TM-170</u>, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.check pressure control solenoid valve a (line pressure solenoid valve)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to <u>TM-170</u>, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYSTEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to <u>TM-160, "DTC Logic"</u>.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1.CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

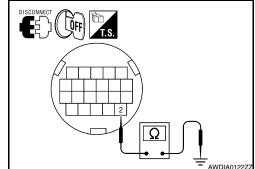
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Oround	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>. "Exploded View".



[CVT: RE0F09B]

Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

 $1. {\sf check\ pressure\ control\ solenoid\ valve\ b\ (secondary\ pressure\ solenoid\ valve)}$

P0868 SECONDARY PRESSURE DOWN

< COMPONENT DIAGNOSIS >

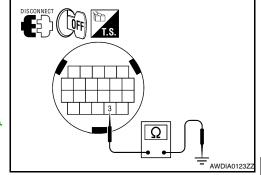
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



[CVT: RE0F09B]

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P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

Description INFOID:000000004201740

When the power supply to the TCM is cut OFF, for example because the battery is removed, and the self-diagnosis memory function stops, malfunction is detected.

NOTE:

Since "P1701 TCM-POWER SUPPLY" will be indicated when replacing TCM, perform diagnosis after erasing "SELF-DIAG RESULTS"

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1701	TCM-POWER SUPPLY	 When the power supply to the TCM is cut OFF, for example because the battery is removed, and the self-diagnosis memory function stops. This is not a malfunction message (Whenever shutting OFF a power supply to the TCM, this message appears on the screen). 	Harness or connectors (Battery or ignition switch and TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Wait for at least 2 consecutive seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1701 TCM-POWER SUPPLY" detected?

YES >> Go to TM-172, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

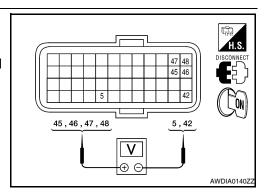
Diagnosis Procedure

INFOID:0000000004201742

[CVT: RE0F09B]

1. CHECK TCM POWER SOURCE

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between TCM harness connector F16 terminal 46, 48, 45, 47 and 5, 42.



P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

TCM	TCM harness connector Connector Terminal			\ /=!4===
			Condition	Voltage (Approx.)
	46 5, 42	Ignition switch ON	Battery voltage	
		5, 42	Ignition switch OFF	0 V
F16			Ignition switch ON	Battery voltage
		Ignition switch OFF	0 V	
_	45		Always	Battery
	47			voltage

Is the inspection result normal?

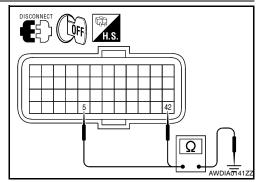
YES >> GO TO 6. NO >> GO TO 2.

2.CHECK TCM GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Check continuity between TCM harness connector F16 terminal 5, 42 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	5	Ground	Existed
F16	42		LXISICG



Is the inspection result normal?

YES >> GO TO 3.

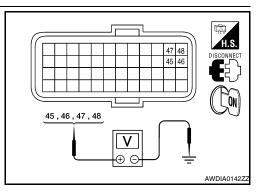
NO >> Repair or replace damaged parts.

3.CHECK TCM POWER CIRCUIT

1. Turn ignition switch ON.

2. Check voltage between TCM harness connector F16 terminal 46, 48, 45, 47 and ground.

TCM harness connector			Condition	Voltage
Connec- tor	Terminal		Conducti	(Approx.)
	46		Ignition switch ON	Battery voltage
	(Ground	Ignition switch OFF	0 V
F16	48	Ignition switch ON	Battery voltage	
		Ignition switch OFF	0 V	
	45		Always	Battery
	47		Aiways	voltage



Is the inspection result normal?

YES >> GO TO 6. NO >> GO TO 4.

4. CHECK HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 1)

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[CVT: RE0F09B]

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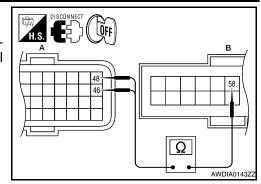
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P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

- Turn ignition switch OFF.
- 2. Disconnect IPDM E/R harness connector F10.
- Check continuity between TCM harness connector F16 (A) terminal 46, 48 and IPDM E/R harness connector F10 (B) terminal 58

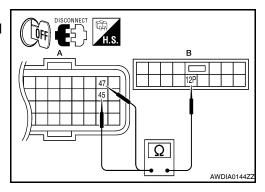
TCM harness connector		IPDM E/R harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	46	F10 (B)	58	Existed
F10 (A)	48	1 10 (B)	38	Existed



[CVT: RE0F09B]

- 4. Disconnect fuse block J/B harness connector E6.
- 5. Check continuity between TCM harness connector F16 terminal 45, 47 and fuse block J/B harness connector E6 terminal 12P.

TCM harness connector		Fuse block J/B harness con- nector		Continuity
Connector	Terminal	Connector	Terminal	
E16 (A)	45	E6 (B)	12P	Existed
F16 (A)	47	ЕО (В)	125	Existed



Is the inspection result normal?

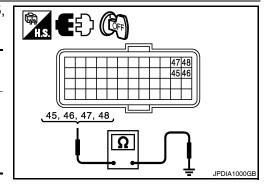
YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 2)

Check continuity between TCM harness connector F16 terminal 45, 46, 47, 48 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
	45		Not existed
F16	46		
	47		
	48		
		•	



Is the inspection result normal?

YES >> Check the following. If NG, repair or replace damaged parts.

- 10A fuse (No. 34, located in IPDM E/R)
- 10A fuse (No. 11, located in fuse block)
- Ignition switch.Refer to PG-74, "Wiring Diagram Battery Power Supply —".

NO >> Repair or replace damaged parts.

6.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

P1705 THROTTLE POSITION SENSOR

< COMPONENT DIAGNOSIS >

P1705 THROTTLE POSITION SENSOR

Description INFOID:0000000004201743

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor etc. The actuator sends a signal to the ECM, and ECM sends the signal to TCM with CAN communication.

DTC Logic INFOID:0000000004201744

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1705	TP SEN/CIRC A/T	TCM does not receive the proper accelerator pedal position signals (input by CAN communication) from ECM.	ECM Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Depress accelerator pedal fully and release it, then wait for 5 seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1705 TP SEN/CIRC A/T" detected?

YES >> Go to TM-175, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

${f 1}$.CHECK DTC WITH ECM

(P)With CONSULT-III

- Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YFS >> GO TO 2.

NO >> Check DTC Detected Item. Refer to EC-1555, "DTC Index".

f 2.CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1705 TP SEN/CIRC A/T" detected?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts. TΜ

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INFOID:0000000004201745

[CVT: RE0F09B]

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P1722 ESTM VEHICLE SPEED SIGNAL

< COMPONENT DIAGNOSIS >

P1722 ESTM VEHICLE SPEED SIGNAL

Description INFOID:000000004201746

The vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) to TCM by CAN communication line.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1722	ESTM VEH SPD SIG	 CAN communication with the ABS actuator and the electric unit (control unit) is malfunctioning. There is a great difference between the vehicle speed signal from the ABS actuator and the electric unit (control unit), and the vehicle speed sensor signal. 	Harness or connectors (Sensor circuit is open or shorted.) ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

ACC PEDAL OPEN : 1.0/8 or less

VEHICLE SPEED : 30 km/h (19 MPH) or more

Is "P1722 ESTM VEH SPD SIG" detected?

YES >> Go to TM-176, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201748

[CVT: RE0F09B]

${f 1}.$ CHECK DTC WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "ABS".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC detected item. Refer to BRC-121, "DTC No. Index" (TCS/ABS), BRC-223, "DTC No. Index" (VDC/TCS/ABS).

2. CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1722 ESTM VEH SPD SIG" detected?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> GO TO 3.

${f 3.}$ DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

P1722 ESTM VEHICLE SPEED SIGNAL

< COMPONENT DIAGNOSIS > [CVT: RE0F09B]

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

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P1723 CVT SPEED SENSOR FUNCTION

Description INFOID:000000004201749

The vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] detects the revolution of parking gear and generates a pulse signal. The pulse signal is sent to the TCM, which converts it into vehicle speed.

The input speed sensor (primary speed sensor) detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1723	CVT SPD SEN/FNCTN	A rotation sensor error is detected because the gear does not change in accordance with the position of the stepping motor. CAUTION: One of the "P0720 VEH SPD SEN/CIR AT", the "P0715 INPUT SPD SEN/CIRC" or the "P0725 ENGINE SPEED SIG" is displayed with the DTC at the same time.	Harness or connectors (Sensor circuit is open or shorted.) Output speed sensor (secondary speed sensor) Input speed sensor (primary speed sensor) Engine speed signal system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

Is "P1723 CVT SPD SEN/FNCTN" detected?

YES >> Go to TM-178, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201751

[CVT: RE0F09B]

CHECK STEP MOTOR FUNCTION

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1778 STEP MOTR/FNC" detected?

YES >> Repair or replace damaged parts. Refer to TM-187, "DTC Logic".

NO >> GO TO 2.

2.CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM

Check output speed sensor (secondary speed sensor) system. Refer to <u>TM-138, "DTC Logic"</u>.

Is the inspection result normal?

P1723 CVT SPEED SENSOR FUNCTION

P1723 CVT SPEED SENSOR FUNCTION		
< COMPONENT DIAGNOSIS >	[CVT: RE0F09B]	
YES >> GO TO 3.		
NO >> Repair or replace damaged parts.		Α
3.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM		
Check input speed sensor (primary speed sensor) system. Refer to TM-135, "DTC Logic"	· 	В
Is the inspection result normal?		
YES >> GO TO 4. NO >> Repair or replace damaged parts.		
4. CHECK ENGINE SPEED SIGNAL SYSTEM		С
Check engine speed signal system. Refer to TM-142, "DTC Logic".		TM
Is the inspection result normal?		1111
YES >> GO TO 5. NO >> Repair or replace damaged parts.		
5.DETECT MALFUNCTIONING ITEMS		Е
Check TCM connector pin terminals for damage or loose connection with harness connection to the inspection result normal?	otor.	_
Is the inspection result normal? YES >> Replace TCM. Refer to TM-254, "Exploded View".		F
NO >> Repair or replace damaged parts.		
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P1726 ELECTRIC THROTTLE CONTROL SYSTEM

< COMPONENT DIAGNOSIS >

P1726 ELECTRIC THROTTLE CONTROL SYSTEM

Description INFOID.000000004201752

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor etc. The actuator sends a signal to the ECM, and ECM sends the signal to TCM with CAN communication.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1726	ELEC TH CONTROL	The electronically controlled throttle for ECM is malfunctioning.	Harness or connectors (Sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Start engine and let it idle for 5 seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1726 ELEC TH CONTROL" detected?

YES >> Go to TM-180, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201754

ICVT: RE0F09B1

1. CHECK DTC WITH ECM

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Select "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC Detected Item. Refer to EC-1555, "DTC Index".

2.CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1726 ELEC TH CONTROL" detected?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

P1740 LOCK-UP SELECT SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P1740 LOCK-UP SELECT SOLENOID VALVE

Description INFOID:0000000004201755

Lock-up select solenoid valve controls lock-up clutch pressure or forward clutch pressure (reverse brake

When controlling lock-up clutch, the valve is turned OFF. When controlling forward clutch, it is turned ON.

DTC Logic INFOID:0000000004201756

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1740	LU-SLCT SOL/CIRC	 Normal voltage not applied to solenoid due to cut line, short, or the like. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Lock-up select solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

RANGE : "D" or "N" position

(At each time, wait for 5 seconds.)

With GST

Follow the procedure "With CONSULT-III".

Is "P1740 LU-SLCT SOL/CIRC" detected?

YES >> Go to TM-181, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LOCK-UP SELECT SOLENOID VALVE CIRCUIT

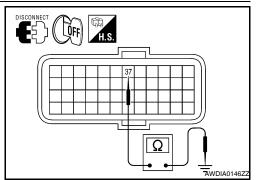
- Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 37 and ground.

TCM harnes	ss connector		Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	37		6.0 – 19.0 Ω

Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 1)



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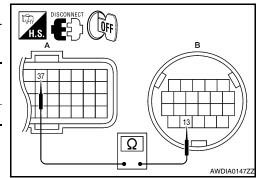
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P1740 LOCK-UP SELECT SOLENOID VALVE

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 37 and CVT unit harness connector F46 (B) terminal 13.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	37	F46 (B)	13	Existed



[CVT: RE0F09B]

Is the inspection result normal?

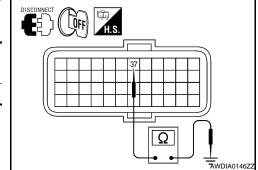
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.check harness between tcm and cvt unit (lock-up select solenoid valve) (part 2)

Check continuity between TCM harness connector F16 terminal 37 and ground.

TCM harnes	ss connector		Continuity
Connector Terminal		Ground	Continuity
F16	37		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to TM-182, "Component Inspection (Lock-up Select Solenoid Valve)".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Lock-up Select Solenoid Valve)

INFOID:0000000004201758

1. CHECK LOCK-UP SELECT SOLENOID VALVE

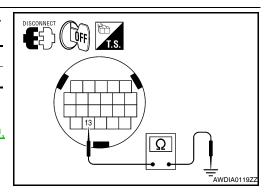
Check resistance between CVT unit connector terminal and ground.

13 6.0 – 19.0 Ω	CVT unit terminal	Ground	Resistance (Approx.)
	13	Giodila	6.0 – 19.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-259</u>, <u>"Exploded View"</u>.



P1745 LINE PRESSURE CONTROL

< COMPONENT DIAGNOSIS >

P1745 LINE PRESSURE CONTROL

Description INFOID:0000000004201759

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic INFOID:0000000004201760

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1745	L/PRESS CONTROL	TCM detects the unexpected line pressure.	TCM

DTC CONFIRMATION PROCEDURE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON
- Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Is "P1745 L/PRESS CONTROL" detected?

>> Go to TM-183, "Diagnosis Procedure". YES

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

1.CHECK DTC

(P)With CONSULT-III Start engine.

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1745 L/PRESS CONTROL" displayed?

>> Replace TCM. Refer to TM-254, "Removal and Installation". YES

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident". TΜ

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[CVT: RE0F09B]

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INFOID:0000000004201761

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P1777 STEP MOTOR

Description INFOID:000000004201762

The step motor changes the step with turning 4 coils ON/OFF according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled.

DTC Logic (INFOID:000000004201763

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1777	STEP MOTR CIRC	Each coil of the step motor is not energized properly due to an open or a short.	Harness or connectors (Step motor circuit is open or shorted.) Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Start engine.
- Drive vehicle for at least 5 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Follow the procedure "With CONSULT-III".

Is "P1777 STEP MOTR CIRC" detected?

YES >> Go to TM-184, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

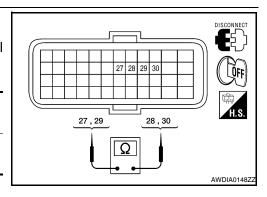
INFOID:0000000004201764

[CVT: RE0F09B]

1. CHECK STEP MOTOR CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 27, 29 and 28, 30.

Т	Resistance (Ap-		
Connector	Terr	prox.)	
F16	27	28	30.0 Ω
1.10	29	30	30.0 12

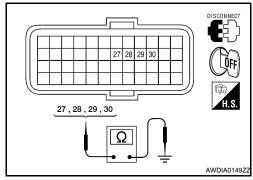


P1777 STEP MOTOR

< COMPONENT DIAGNOSIS >

Check resistance between TCM harness connector F16 terminal 27, 28, 29, 30 and ground.

TCM harne	ss connector		Resistance (Ap-
Connector	Terminal		prox.)
F16	27	Ground	15.0 Ω
	28		
	29		
	30		



[CVT: RE0F09B]

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Is the inspection result normal?

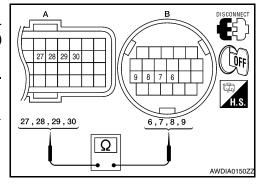
YES >> GO TO 5. NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 1)

Disconnect CVT unit harness connector.

2. Check continuity between TCM harness connector F16 (A) terminal 27, 28, 29, 30 and CVT unit harness connector F46 (B) terminal 9, 8, 7, 6.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	27		9	Existed
E16 (A)	28	F46 (B)	8	
F16 (A)	29		7	Existed
	30		6	



Is the inspection result normal?

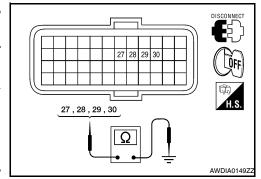
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

$3. {\sf CHECK}$ HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 2)

Check continuity between TCM harness connector F16 terminal 27, 28, 29, 30 and ground.

TCM harne	ess connector		Continuity
Connector	Terminal		Continuity
	27	Ground	Not existed
F16	28		
	29		
	30		



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK STEP MOTOR

Check step motor. Refer to TM-186, "Component Inspection (Step Motor)".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

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< COMPONENT DIAGNOSIS >

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Step Motor)

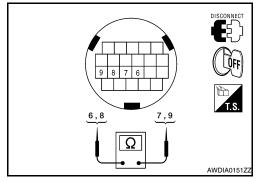
INFOID:0000000004201765

[CVT: RE0F09B]

1. CHECK STEP MOTOR

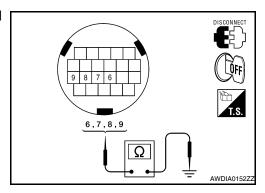
1. Check resistance between CVT unit terminal 6, 8 and 7, 9.

CVT unit	Resistance (Approx.)	
6	7	30.0 Ω
8	9	30.0 \(\frac{1}{2} \)



2. Check resistance between CVT unit terminal 6, 7, 8, 9 and ground.

CVT unit terminal		Resistance (Approx.)
6		
7	Ground	15.0 Ω
8		15.0 \$2
9		



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to TM-259, "Exploded View".

P1778 STEP MOTOR - FUNCTION

< COMPONENT DIAGNOSIS >

P1778 STEP MOTOR - FUNCTION

Description INFOID:0000000004201766

 The step motor's 4 aspects of ON/OFF change according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled.

- This diagnosis item is detected when electrical system is OK, but mechanical system is NG.
- This diagnosis item is detected when the state of the changing the speed mechanism in unit does not operate normally.

DTC Logic INFOID:0000000004201767

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1778	STEP MOTR/FNC	There is a great difference between the number of steps for the stepping motor and for the actual gear ratio.	Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

- Always drive vehicle at a safe speed.
- . Before starting "DTC CONFIRMATION PROCEDURE", confirm "Hi" or "Mid" or "Low" fixation by "PRI SPEED" and "VEHICLE SPEED" on "DATA MONITOR MODE".
- If hi-geared fixation occurred, go to TM-187, "Diagnosis Procedure".

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and maintain the following conditions for at least 30 consecutive seconds.

TEST START FROM 0 km/h (0 MPH)

CONSTANT ACCELERATION : Keep 30 sec or more VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8 **RANGE** : "D" position **ENG SPEED** : 450 rpm or more

Follow the procedure "With CONSULT-III".

Is "P1778 STEP MOTR/FNC" detected?

>> Go to TM-187, "Diagnosis Procedure". YES

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

1. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to TM-184, "Description".

Is the inspection result normal?

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[CVT: RE0F09B]

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INFOID:0000000004201768

P1778 STEP MOTOR - FUNCTION

[CVT: RE0F09B]

< COMPONENT DIAGNOSIS >

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-135, "Description".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM

Check output speed sensor (secondary speed sensor) system. Refer to <u>TM-138, "Description"</u>.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-254, "Exploded View".

NO >> Repair or replace damaged parts.

SHIFT LOCK SYSTEM

Description INFOID:0000000004201769

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

PARK POSITION SWITCH (INTELLIGENT KEY SYSTEM)

Wiring Diagram - CVT SHIFT LOCK SYSTEM - Coupe

(BODY CONTROL M

STOP LAMP SWITCH (E38)

FUSE BLOCK (J/B) (E6)

IGNITION SWITCH ON OR START INFOID:0000000004201770

[CVT: RE0F09B]

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CVT SHIFT LOCK SYSTEM-VQ35DE

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[CVT: RE0F09B]

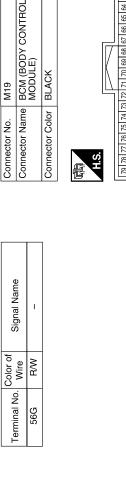
CVT SHIFT LOCK SYSTEM CONNECTORS - VQ35DE

Connector Name WIRE TO WIRE

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Connector No.

Connector Color WHITE



96 8G 7G 6G 5G 4G 3G 17G 16G 15G 14G 13G 12G 11G 10G 2G 1G

26G 25G 24G 23G 22G 21G 20G 34G 33G 32G 31G 30G 29G 28G 27G 19G 18G

 41G
 40G
 39G
 38G
 37G
 36G
 35G

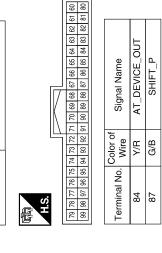
 50G
 49G
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 42G

72G 71G 70G 69G 68G 67G 66G 80G 79G 77G 76G 75G 74G 73G 65G 64G

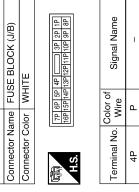
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83G

58G 57G 56G 55G 63G 62G 61G 60G 59G 54G 53G 52G 51G







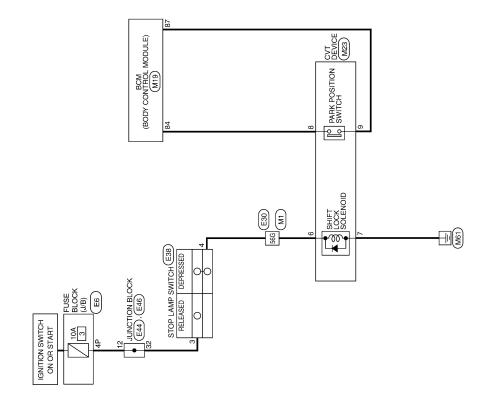
Connector No. M23	Connector Name CVT DEVICE	Connector Color WHITE	1 3	Ď	Terminal No. Wire Signal Name	6 R/W S/LOCK_SOL_GND	7 B S/LOCK_SOL_INPUT	8 Y/R DETENT_KEY_SW	
Connect	Connect	Connect	優	Ċ.	Terminal	9	7	8	

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				А
HOLL		Signal Name		В
Connector No. E38 Connector Name STOP I AMP SWITCH	HITE			С
or No.	Connector Color WHITE	No. Color of V V		ТМ
Connector No.	Connect	Terminal No.		Е
				F
Signal Name	1		E46 JUNCTION BLOCK WHITE 31 30 29 28	G
Color of Wire				Н
Terminal No.	56G		Connector No. Connector Name Connector Color H.S. Terminal No. W W	I
				J
				К
		76 86 96 146 156 166 177 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Name	L
0 RE TO WIR	WHITE	16 26 106	E44 JUNCTION BLOCK BROWN 5 4	M
Connector No. E30 Connector Name WIRE TO WIRE	or Color WH	110 2G 11 110 2G 11 120 136 120 136 136 136 136 136 136 136 136 136 136		N
Connector No.	Connector Color	E ST	Connector No. Connector Color Connector Color Terminal No. No. No. 12 GG	0
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[CVT: RE0F09B]



CVT SHIFT LOCK SYSTEM - VQ35DE

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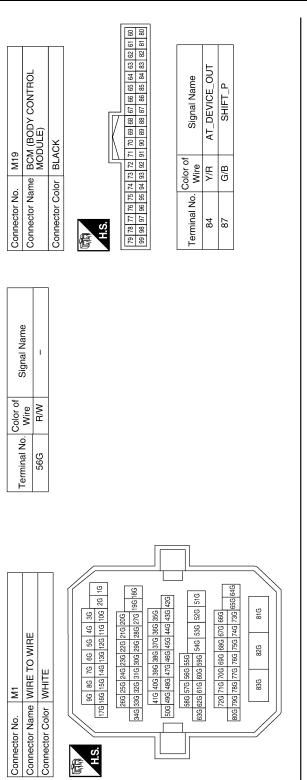
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VAT D	Connector No. E6	Connector Name FUSE BLOCK (J/B)	Connector Color WHITE	179 69 59 44	Terminal No. Color of Signal Name	4Р Р		
0. ame CV Wire Wire Wire Wire Wire Wire Wire Wire	3	T DEVICE	ITE	5 6 8 10		S/LOCK_SOL_GND	S/LOCK_SOL_INPUT	DETENT KEY SW
		ame CV	olor WF	- 2	Color of Wire	W/A	В	Y/R

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DETENT_KEY_SW

G/B

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Terminal No.

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Connector Name Connector Color

Connector No.

Connector No. E38		
Terminal No. Wire Signal Name 56G L –	Connector No. E46 Connector Name JUNCTION BLOCK Connector Color WHITE 31 30 23 28 77 28 28 40 39 38 37 38 38 38 38 38 38 38 38 38 38 38 38 38	Terminal No. Color of Signal Name
Connector No. E30 Connector Name WIRE TO WIRE Connector Color WHITE Connector Color WHITE 16 26 106 116 126 136 146 156 166 176 16 26 106 116 126 136 146 156 166 176 206 216 226 236 246 256 266 176 366 376 386 376 386 386 406 416 426 438 449 456 466 476 486 486 506 666 816 826 536 546 586 676 176 726 816 826 536 776 786 786 786 886	Connector No. E44 Connector Name JUNCTION BLOCK Connector Color BROWN S 4 3 2 1 S 4 3 2 1 S 1 10 9 8 7 6	Terminal No. Color of Wire Signal Name

Diagnosis Procedure

INFOID:0000000004201772

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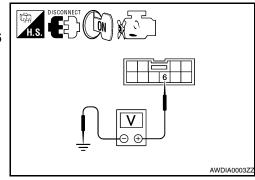
1. CHECK POWER SOURCE

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

- Disconnect CVT device connector.
- Turn ignition switch ON.
- 3. Check voltage between CVT device connector M23 terminal 6 and ground.

CVT device		Condition	Voltage	
Connector	Terminal	Condition	(Approx.)	
M23	6	Brake pedal depressed	Battery voltage	
IVIZO	0	Brake pedal released	0V	



Is the inspection result normal?

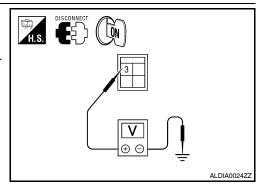
YES >> GO TO 5.

NO >> GO TO 2.

2. CHECK POWER SOURCE AT STOP LAMP SWITCH

- Turn ignition switch OFF.
- 2. Disconnect stop lamp switch connector.
- Turn ignition switch ON.
- 4. Check voltage between stop lamp switch connector E38 terminal 3 and ground.

Stop lan	np switch	Ground	Voltage (Approx.)	
Connector	Terminal	Ground		
E38	3		Battery voltage	



Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the following:

- Harness for short or open between fuse block (J/B) and stop lamp switch
- 10A fuse [No. 3, located in fuse block (J/B)]

3. CHECK STOP LAMP SWITCH

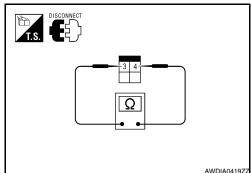
- Turn ignition switch OFF.
- Check continuity between stop lamp switch terminals 3 and 4.

CVT device terminals	Condition	Continuity
3 and 4	Brake pedal depressed	Yes
3 and 4	Brake pedal released	No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace stop lamp switch. Refer to BR-17, "Exploded View".



$oldsymbol{4}$. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND CVT DEVICE FOR OPEN

Check continuity between stop lamp switch connector E38 (A) terminal 4 and CVT device connector M23 (B) terminal 6.

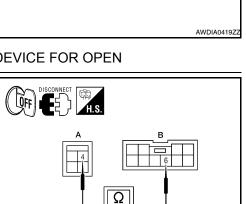
Stop lan	Stop lamp switch		CVT device	
Connector	Terminal	Connector	Terminal	Continuity
E38 (A)	4	M23 (B)	7	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connectors.

5. CHECK GROUND CIRCUIT



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SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

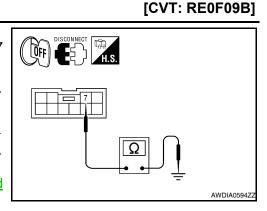
- 1. Turn ignition switch OFF.
- 2. Check continuity between CVT device connector M23 terminal 7 and ground.

CVT	device	Ground	Continuity	
Connector	Connector Terminal		Continuity	
M23	7	_	Yes	

Is the inspection result normal?

YES >> Replace CVT device. Refer to <u>TM-255, "Removal and Installation"</u>.

NO >> Repair harness or connectors.



ECU DIAGNOSIS

TCM

Reference Value

INFOID:0000000004201773

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VALUES ON THE DIAGNOSIS TOOL

Item name	Condition	Display value (Approx.)
VSP SENSOR	During driving	Approximately matches the speedometer reading.
ESTM VSP SIG	During driving	Approximately matches the speedometer reading.
PRI SPEED SEN	During driving (lock-up ON)	Approximately matches the engine speed.
ENG SPEED SIG	Engine running	Closely matches the tachometer reading.
SEC HYDR SEN	"N" position idle	0.8 - 1.0 V
PRI HYDR SEN	"N" position idle	0.7 - 3.5 V
ATETEMB COUNTY	When CVT fluid temperature is 20°C (68°F).	47
ATFTEMP COUNT*	When CVT fluid temperature is 80°C (176°F).	161
VIGN SEN	Ignition switch: ON	Battery voltage
VEHICLE SPEED	During driving	Approximately matches the speedometer reading.
PRI SPEED	During driving (lock-up ON)	Approximately matches the engine speed.
SEC SPEED	During driving	45 X Approximately matches the speedom eter reading.
ENG SPEED	Engine running	Closely matches the tachometer reading.
GEAR RATIO	During driving	2.37 - 0.43
ACC PEDAL OPEN	Released accelerator pedal - Fully depressed accelerator pedal	0.0/8 - 8.0/8
SEC PRESS	"N" position idle	0.5 - 0.9 MPa
PRI PRESS	"N" position idle	0.3 - 0.9 MPa
STM STEP	During driving	-20 step – 190 step
1001.74	Lock-up OFF	0.0 A
ISOLT1	Lock-up ON	0.7 A
1001 TO	Release your foot from the accelerator pedal.	0.8 A
ISOLT2	Press the accelerator pedal all the way down.	0.0 A
ISOLT3	Secondary pressure low - Secondary pressure high.	0.8 - 0.0 A
COLMONIA	Lock-up OFF	0.0 A
SOLMON1	Lock-up ON	0.6 - 0.7 A
SOL MON3	"N" position idle	0.8 A
SOLMON2	When stalled	0.3 - 0.6 A
COL MONIS	"N" position idle	0.6 - 0.7 A
SOLMON3	When stalled	0.4 - 0.6 A
INILI CINION	Selector lever in "D" position	ON
INH SW3M	Selector lever in "P", "R" and "N" positions	OFF
INILL OVAZA	Selector lever in "R" and "D" positions	ON
INH SW4	Selector lever in "P" and "N" positions	OFF

< ECU DIAGNOSIS > [CVT: RE0F09B]

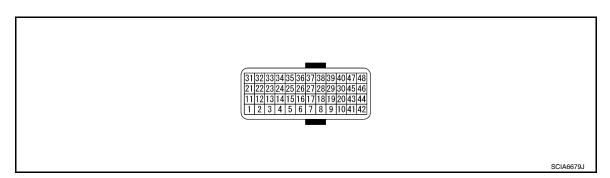
Item name	Condition	Display value (Approx.)
INH SW3	Selector lever in "D" position	ON
INFI SWS	Selector lever in "P", "R" and "N" positions	OFF
INH SW2	Selector lever in "N" and "D" positions	ON
INFI SVVZ	Selector lever in "P" and "R" positions	OFF
INH SW1	Selector lever in "R", "N" and "D" positions	ON
IIVE SWI	Selector lever in "P" position	OFF
BRAKE SW	Depressed brake pedal	ON
DRAKE SW	Released brake pedal	OFF
FULL SW	Fully depressed accelerator pedal	ON
FULL 3W	Released accelerator pedal	OFF
IDLE SW	Released accelerator pedal	ON
IDLE SW	Fully depressed accelerator pedal	OFF
DOWNLVR	Selector lever: - side	ON
DOWNLYN	Other than the above	OFF
UPLVR	Selector lever: + side	ON
OFLVK	Other than the above	OFF
NONMMODE	Manual shift gate position (neutral, +side, -side)	OFF
NONIMIODE	Other than the above	ON
MMODE	Manual shift gate position (neutral)	ON
WINIODE	Other than the above	OFF
INDDRNG	Selector lever in "D" position	ON
INDUINIO	Selector lever in other positions	OFF
INDNRNG	Selector lever in "N" position	ON
INDIVINO	Selector lever in other positions	OFF
INDRRNG	Selector lever in "R" position	ON
INDICITIO	Selector lever in other positions	OFF
INDPRNG	Selector lever in "P" position	ON
INDI NIVO	Selector lever in other positions	OFF
SMCOIL D	During driving	Changes ON ⇔ OFF.
SMCOIL C	During driving	Changes ON ⇔ OFF.
SMCOIL B	During driving	Changes ON ⇔ OFF.
SMCOIL A	During driving	Changes ON ⇔ OFF.
	Selector lever in "P" and "N" positions	ON
LUSEL SOL OUT	Wait at least for 5 seconds with the selector lever in "R" and "D" positions	OFF
CTDTD DLV OLIT	Selector lever in "P" and "N" positions	ON
STRTR RLY OUT	Selector lever in other positions	OFF
STRTR RLY MON	Selector lever in "P" and "N" positions	ON
STRIK KLI WON	Selector lever in other positions	OFF
VDC ON	VDC operate	ON
VDC ON	Other conditions	OFF
TOS ON	TCS operate	ON
TCS ON	Other conditions	OFF
ADC ON	ABS operate	ON
ABS ON	Other conditions	OFF

< ECU DIAGNOSIS > [CVT: RE0F09B]

Item name	Condition	Display value (Approx.)
	Selector lever in "N" and "P" position.	N·P
RANGE	Selector lever in "R" position.	R
	Selector lever in "D" position.	D
M GEAR POS	During driving	1, 2, 3, 4, 5, 6

^{*} Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to <u>TM-237</u>, <u>"ATFTEMP COUNT Conversion Table"</u>.

TERMINAL LAYOUT



PHYSICAL VALUES

	nal No. e color)	Description			Condition	Value (Approx.)	
+	-	Signal name	Input/Output			(Арргох.)	
1					Selector lever in "N", "D" positions	0 V	
(P/B)	Ground	PNP switch 2	Output		Selector lever in other positions	10.0 V – Battery voltage	
					Selector lever in "D" position	0 V	
2 (P/L)	Ground	PNP switch 3	Output	Ignition switch ON	Selector lever in other positions	8.0 V – Battery voltage	
2					Selector lever in "R", "D tions		0 V
3 (G/O)	Ground	PNP switch 4	Output		Selector lever in other positions	10.0 V – Battery voltage	
					Selector lever in "D" position	0 V	
4 (GR)	Ground	PNP switch 3 (monitor)	Output		Selector lever in other positions	8.0 V – Battery voltage	
5 (B)	Ground	Ground	Output		Always	0 V	
6 (O)	Ground	K-LINE	Inout/Output		_	_	
7 (W)	Ground	Sensor ground	Input		Always	0 V	
8 (G/W)	_	CLOCK	_	_		_	
9 (L/R)	_	CHIP SELECT	_		_		
10 (BR/R)	_	DATA I/O	_		_	_	

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	nal No. color)	Description			Condition	Value (Approx.)
+	-	Signal name	Input/Output			(Approx.)
11	Ground	PNP switch 1	Output	Ignition switch ON	Selector lever in "R", "N", "D" positions	0 V
(BR/W)	Ground	THE SWILDIN	Output	ignition switch on	Selector lever in other position	Battery voltage
13	Ground	CVT fluid temperature sen-	Output	Ignition switch ON	When CVT fluid temperature is 20°C (68°F)	2.0 V
(V)	Ground	sor	Cutput	ignition owner or	When CVT fluid temperature is 80°C (176°F)	
14 (R/W)	Ground	Transmission fluid pres- sure sensor B (Primary pressure sensor)	Input	"N" position idle	0.7 – 3.5 V	
15 (V/W)	Ground	Transmission fluid pres- sure sensor A (Secondary pressure sensor)	Input	N position rate		1.0 V
40					Selector lever in "R" position	0 V
19 (G/B)	Ground	Back-up lamp relay	Input	Ignition switch ON	Selector lever in other positions	Battery voltage
20 (R/B)	Ground	Starter relay	Input	Ignition switch ON	Selector lever in "N", "P" posi- tions	
(100)					Selector lever in other positions	0 V
25 (W/R)	Ground	Sensor ground	Input		Always	
26	Ground	Sensor power	Input	Ignition switch ON	Ignition switch ON —	
(L/O)	Oround	Serisor power	input	Ignition switch OFF	_	0 V
27 (R/G)	Ground	Step motor D	Input	Within 2 seconds after	r ignition switch ON, the time	10.0 msec
28 (R)	Ground	Step motor C	Input		g the pulse width measurement	30.0 msec
29 (O/B)	Ground	Step motor B	Input	CAUTION: Connect the diagnost diagnosts connecto	sis data link cable to the vehicle	10.0 msec
30 (G/R)	Ground	Step motor A	Input	diagnosis connecto		30.0 msec
31 (P)	_	CAN-L	Inout/Output		_	_
32 (L)	_	CAN-H	Inout/Output		_	_
33 (LG)	Ground	Input speed sensor (Primary speed sensor)	Input	When driving ["M1" po	osition, 20 km/h (12 MPH)]	660 Hz
34 (LG/R)	Ground	Output speed sensor (Secondary speed sensor)	Input	When driving ["D" pos	sition, 20 km/h (12 MPH)]	400 Hz
37		Lock-up select solenoid			Selector lever in "P", "N" positions	Battery voltage
(L/B)	Ground	valve	Output	Ignition switch ON	Wait at least for 5 seconds with the selector lever in "R", "D" positions.	
38		Torque converter clutch so-		When vehicle cruis-	When CVT performs lock-up	6.0 V
(L/W)	Ground	lenoid valve	Output	es in "D" position	When CVT does not perform lock-up	1.0 V

< ECU DIAGNOSIS > [CVT: RE0F09B]

	nal No. e color)	Description			Condition	Value (Approx.)
+	-	Signal name	Input/Output			(Арргох.)
39	Ground	Pressure control solenoid valve B (Secondary pres-	Output		Release your foot from the accelerator pedal.	5.0 – 7.0 V
(W/B)	Ground	sure solenoid valve)	Output	"P", "N" position idle	Press the accelerator pedal all the way down.	3.0 – 4.0 V
40	Ground	Pressure control solenoid valve A (Line pressure so-	Output	i , is position fale	Release your foot from the accelerator pedal.	5.0 – 7.0 V
(R/Y)	Ground	lenoid valve)	Output		Press the accelerator pedal all the way down.	1.0 – 3.0 V
42 (B)	Ground	Ground	Output		0 V	
45 (L/R)	Ground	Power supply (memory back-up)	Input		Always	Battery voltage
46 (Y)	Ground	Power supply	Input	Ignition switch ON	_	Battery voltage
(1)				Ignition switch OFF	_	0 V
47 (L/R)	Ground	Power supply (memory back-up)	Input		Always	Battery voltage
48	Ground	Power supply	Input	Ignition switch ON —		Battery voltage
(Y)				Ignition switch OFF	_	0 V

^{*1:} A circuit tester cannot be used to test this item.

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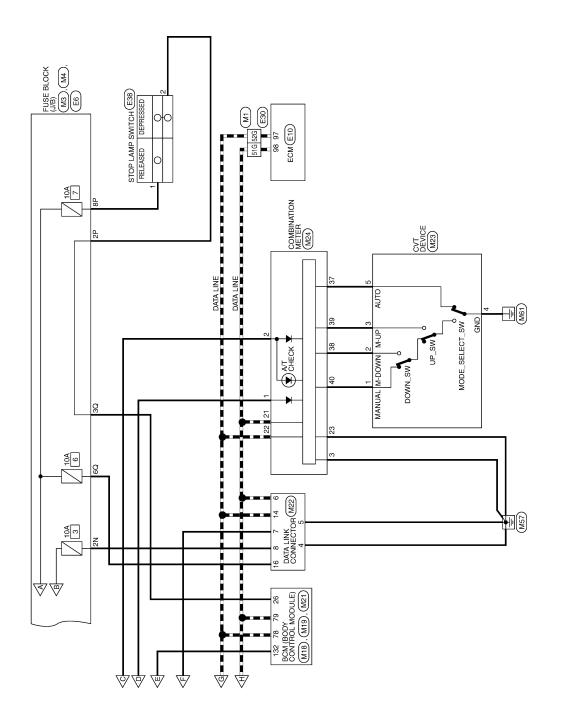
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Connector Name FUSE BLOCK (J/B)

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Connector No.

Connector Color | WHITE

[CVT: RE0F09B]

Signal Name STOP_LAMP_HIGH SW

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Color of Wire

Terminal No.

CVT CONTROL SYSTEM CONNECTORS-VQ35DE

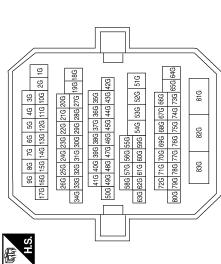


Signal Name	ı	ı	1	ı	I	I	I
Color of Wire	Ь	0	٦	BR	0	Т	Ь
Terminal No. Wire	86	13G	15G	20G	34G	51G	52G

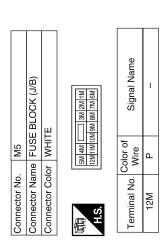
Signal Name

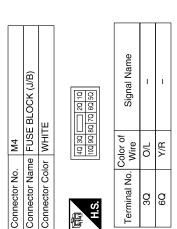
Color of Wire

Terminal No.



_	-			BCM (BODY CONTROL MODULE)	EN
M/L	g		M18		GREEN
_			o.	ame	olor
N ^L	2N		Connector No.	Connector Name	Connector Color
					-





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[CVT: RE0F09B]

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	DATA LINK CONNECTOR WHITE		9 10 11 12 13 14 15 16 1		Signal Name	GND	GND	CAN-H	K-LINE	IGN_SW	CAN-L	BATT			Signal Name		BAI	IGN	GND	GND	CAN-H
H	me DATA L		9 10		Color of Wire	В	В	_	0	ŋ	۵	Y/R	-	-	Color of Wire	2 2	W/L	0	В	В	_
Connector No.	Connector Name		是 H.S.		Terminal No.	4	2	9	7	80	14	16			Terminal No.	,	-	2	3	4	21
Connector No. M21	Connector Name BCM (BODY CONTROL MODULE)	Connector Color GREEN	管	H.S.	151 (30) (22) (28) (27) (28) (27) (29) (15) (15) (15) (15) (15) (15) (15) (15		Terminal No Mira		132 R SI_CONI_USM						Connector No. M24	Connector Name COMBINATION METER	Connector Color WHITE	_			S.C.
Connector No. M19	Connector Name BCM (BODY CONTROL MODULE)	Connector Color BLACK		H.S.	79 78 77 76 74 75 75 77 70 69 68 67 66 65 64 63 62 61 60 69 68 67 66 65 64 63 62 61 60 69 68 67 66 65 64 63 62 61 80 88 87 66 65 64 83 82 81 80 80 80 80 66 64 65 64 83 82 81 80<	-	Terminal No Miro Signal Name	ם מ	a	/9 L CAN-H					Connector No. M23	Connector Name CVT DEVICE	Connector Color WHITE			1 3 6 7 9	,

AT SHIFT DOWN NOT M RANGE AT SHIFT UP M RANGE CAN-H GND GND BB <u>м</u> (5 ≥ В |₾ 21 22 22 23 37 37 40





Signal Name	MT_MODE	M_DOWN	M_UP	GND	AT_MODE
Color of Wire	LG/R	BR	M	В	g
Terminal No.	1	2	3	4	5

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Connector Name | JOINT CONNECTOR-E04

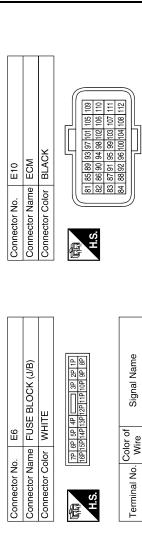
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E22

Connector No.

Connector Color WHITE

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	_				_	
		Signal Name	CAN-	CAN-H		
	_	Color of		- -	,	
		Terminal No. Wire	44	68	8	
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97	ш	>				
2P	8P	12P				
		1	1			
1	ı	1	ı	ı	ı	
_	œ	>	Ъ	В	0	

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Signal Name

Color of Wire

Terminal No.

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H.S.

Connector Name WIRE TO WIRE

E3

Connector No.

Connector Color WHITE

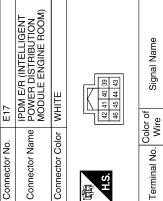


	JOINT CONNECTOR-E(ITE	4 3 2 1 1	Signal Name	1	ı
7	ne JOI	or WHITE	4	Color of Wire	٦	_
Confinector No.	Connector Name	Connector Color	H.S.	Terminal No.	2	8
						•

Signal Name

Color of Wire P

Terminal No.



START_CONT

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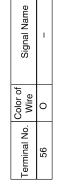
		А
Connector No. E34 Connector Name BACK-UP LAMP RELAY Connector Color BLUE Laminal No. Wire Signal Name 1 0	ION BLOCK	В
BLUE Signature of	### Signs Si	С
Name BAG Name BAG No Color BLL No Wire of R	No. E47 Color of MH BBR	TM
Connector No. Connector Name Connector Color Terminal No. Wold 2 2 2 3 3 5 L	Connector No. E47 Connector Name JUNCTION BLOCK Connector Color WHITE Terminal No. Wire Signal Nam 45 BR	Е
		F
Name of the state	SC K SE	G
Signal Name		Н
Color of Wire of L D B B B B B B B B B B B B B B B B B B		
8G 8G 20G 20G 34G 51G 52G	ctor Nc lord lord lord lord lord lord lord lord	I
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		K
E30	## H T T P P P P P P P P P P P P P P P P P	L
E30 WHITE	E38 STOP LAMP SWITCH WHITE 3 4 1 2 - - - -	M
E30 WHITE Or WHITE Or WHITE Or WHITE Or WHITE Or Or Or Or Or Or Or O		
ctor Na	ttor N. Stor N	Ν
Conne Conne H.S.	Connec Connec Termin 1 2	0
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Connector No. F1 Connector Name WIRE TO WIRE Connector Color WHITE
TION BLOCK

14 13 12 11 10 9 8 8 1 1 1 10 1 1 1 1 1 1 1 1 1 1 1 1 1	Signal Name	I	ı	ı	1	1	-
7 6 5	Color of Wire	٦	G/B	L/R	Ь	В	0
нну H.S.	Terminal No.	-	4	9	8	14	15





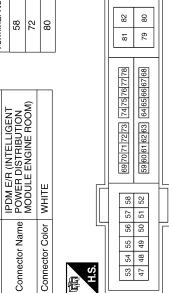


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	JUNCTION BLOCK	BROWN	54 53 52 51 54 53 52 51	Signal Name	1	1
. E49				Color of Wire	ГG	С
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	51	52

Signal Name	TA TA	NPSW N	STARTER_MOTO
Color of) All (- 8/8	B/W
Terminal No	84	22	08

Connector No.



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Signal Name	S/M-C	S/M-B	S/M-A	CAN-L	CAN-H	PRI SPEED SENSOR	SEC SPEED SENSOR	L/U&SELECT-ON/OFF SOL	L/U&SELECT-LINER SOL	SEC LINER SOL	PL LINER SOL	GND	BATT	VIGN	BATT	NBIA
Color of Wire	В	O/B	G/R	Ь	٦	LG/W	LG/R	L/W	G	M/B	R/Y	В	I/R	\	L/R	٨
Terminal No.	28	59	30	31	32	33	34	37	38	39	40	42	45	46	47	48

	$\overline{}$															-
Signal Name	R RANGE SW	N RANGE SW	D RANGE SW	L RANGE SW	GND	K-LINE	SENSOR GND	CLOCK (SEL2)	CHIP SELECT (SEL1)	DATA I/O (SEL3)	P RANGE SW	ATF TEMP SENS	PRI OIL PRESS SENS	SEC OIL PRESS SENS	SENSOR GND	
Color of Wire	P/B	P/L	G/O	GR	В	0	8	G/W	Ľ	BR/R	BR/W	^	B/W	W/N	W/R	
Terminal No.	-	2	3	4	5	9	7	8	6	10	11	13	14	15	25	

Connector No.	F16
Connector Name	Connector Name TCM (TRANSMISSION CONTROL MODULE)
Connector Color BLACK	BLACK
是 H.S.	
31 32 33 34	31 32 33 34 35 36 37 38 39 40 47 48



F23	SECONDARY SPEED SENSOR	BLACK	
Connector No.	Connector Name	Connector Color	

	SECONDARY SPEE SENSOR	BLACK	3 5 1	Signal Nan	SENSOR_G	SEC_SPEED_S	NUN
				Color of Wire	≥	LG/R	 >
l	ᇤ	응				_	
	Connector Name	Connector Color	师 H.S.	Terminal No.	-	2	ď

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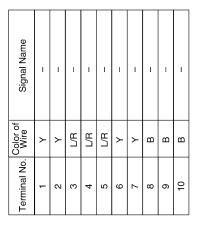
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[CVT: RE0F09B]

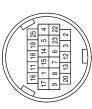
Connector No.	F73
Connector Name	Connector Name JOINT CONNECTOR-F05
Connector Color BLACK	BLACK

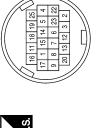




al No.	Color of Wire	Signal Name
8	В	S/M-COIL C
6	9/H	S/M-COIL D
#	W/S	CLOCK
12	ŋ	L/U&SELECT-LINEAR SOL
13	MΠ	L/U&SELECT-ON/OFF SOL
14	T/A	INH SW 3
15	G/O	INH SW 4
16	BR/R	DATA I/O
17	۸	ATF TEMP SENSOR
18	GR	INH SW 3 M
19	M/R	SENSOR GND
20	0/1	SENSOR POWER SOURCE
22	LG	PRI SPEED SENSOR
23	W/N	SEC OIL PRESSURE SENSOR
25	B/W	PRI OIL PRESSURE SENSOR

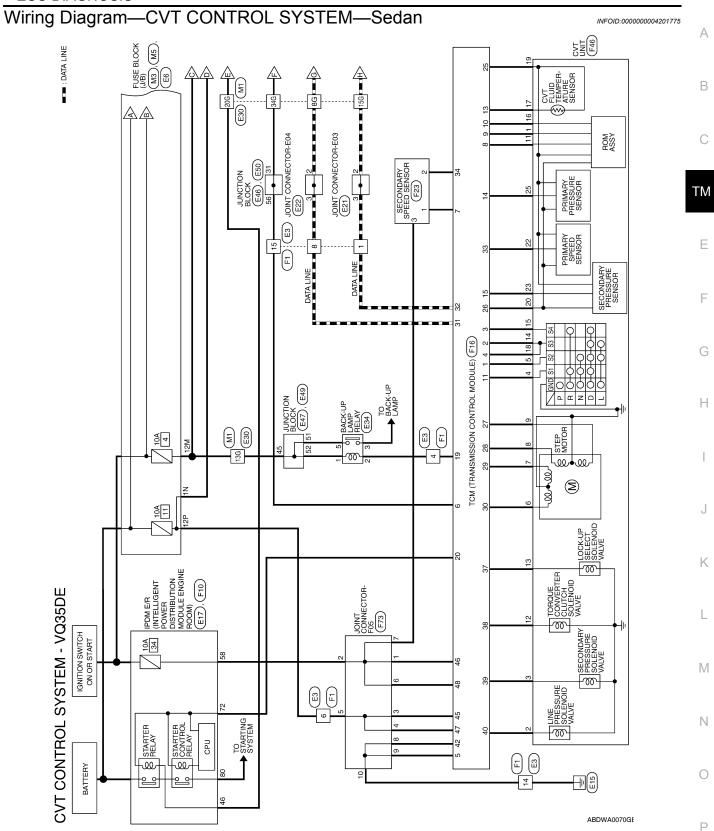




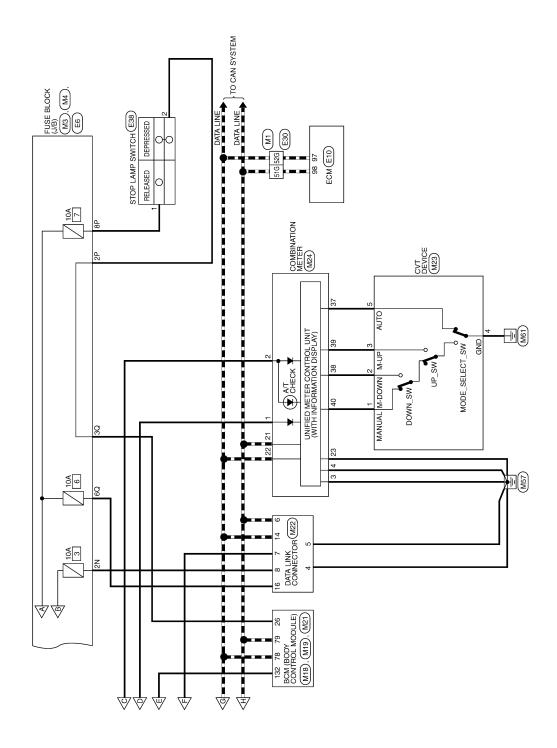


Signal Name	CHIP SELECT	PL LINEAR SOL	SEC LINEAR SOI	INH SW 1	INH SW 2	S/M-COIL A	S/M-COIL B
Color of Wire	L/R	R/Υ	M/B	BR/W	P/B	G/R	O/B
Terminal No.	-	2	က	4	5	9	7

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■ : DATA LINE



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STOP_LAMP_HIGH SW

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CVT CONTROL SYSTEM - VQ35DE CONNECTORS

Signal Name	ı	1	I	I	I	I	ı
Color of Wire	۵	0	٦	BR	0	٦	Ь
Terminal No. Wire	98	13G	15G	20G	34G	51G	52G

ISF BLOCK (J/B)	HTE			7N 6N 5N 4N					ı	ı									
ame FL	olc W		N.	- I'			Color c	Wire	M	σ									
nector N	nector Co			ď			Minal No.		Z	2N									
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signal Na	ı	ı	ı	ı	ı	ı	1												
Wire	۵	0	_	BR	0	_	۵												
erminal No.	8G	13G	15G	20G	34G	51G	52G												
	<u> </u>																		
		_		//					Ţ]_					7			
					3 2G 1G		19G 18G		ا د	440	3 516			65G 64G	Γ				
PF	<u> </u>			46	2G 11G 10G	G 21G 20G	3G 28G 27G	220 200 250	200 200 200 200 200 200 200 200 200 200	130 440 430	16 536 520		8G 67G 66G	5G 74G 73G					
		!		76 66	G 14G 13G 1	24G 23G 22	31G 30G 26	200 200 2	200 000	d 4/ d 40d 4	56G 55G 60G 59G 54		70G 69G 6	776 76G 73	-				
WIR	WHI			96 80	17G 16G 15	26G 25G	4G 33G 32G	44.0	1 0	201a 49a 48	58G 57G 3G 62G 61G		72G 71G	0G 79G 78G		83			
ctor Nam	ctor Colo								Ţ					8		//	//		
	Conne																		
	TO WIRE Signal Name	Terminal No. Wire Signal Name 8G P –	WHITE	To WIRE Signal Name 8G P 13G O 15G L	To WIRE Signal Name 8G P 13G O 15G L 15G RB	Terminal No. October Signal Name Signa	Terminal No. Oxford Signal Name Signal	Terminal No. Oxford Signal Name Connector Name FUSE BLC	To WIRE 8G P	Terminal No. Wire Signal Name Connector Name FUSE BLC	Terminal No. Wire Signal Name Connector Name FUSE BLC	COMPRE Signal Name Connector Name FUSE BLC	TowIRE 8G P - Connector Name FUSE BLC 8G P - CONNECTOR WITTE 15G L - CONNECTOR NAME 8G SSG SSG SSG SSG SSG SSG SSG SSG SSG S	COMPRE Signal Name Connector Name FUSE BLC	CONINGE Signal Name Connector Name FUSE BLC	Terminal No. Wire Signal Name Connector Name FUSE BLC			

	M4	Connector No.	M5		Connector No.	M18	
Connector Name F	Connector Name FUSE BLOCK (J/B)	Connector Name FUSE BLOCK (J/B)	ne FUSE BI	LOCK (J/B)	Connector Name	Connector Name BCM (BODY CONTROL	ROL
Connector Color WHITE	WHITE	Connector Color WHITE	NHITE			MODULE)	
					Connector Color GREEN	GREEN	
D40	3 30 20 10		5M 4M] 3M 2M 1M			
H.S.	100 90 80 70 60 50	H.S.	12M11M10M9M 8M 7M 6M	8M 7M 6M			
					Ġ.		
Terminal No. Wire	of Signal Name	Terminal No. Wire	Color of Wire	Signal Name	39 38 37 36 35 34 59 58 57 56 55 54	39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 28 58 57 56 55 54 53 50 51 50 48 47 46 45 44 43 49 47 40	25 24 23 22 21 2 45 44 43 42 41 4
3Q 0/L	1	12M	۵	1			
6Q Y/R	ı				Color of	olor of	

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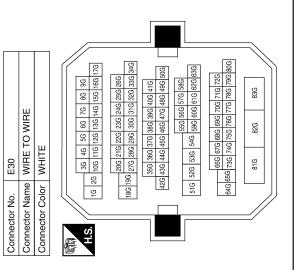
Connector No. E10	Connector Name ECM	Connector Color BLACK	H.S. (81 65 89 93 97 ftot 106 109 82 96 99 ftot 106 110 82 82 83 95 99 ftot 106 110 83 87 91 95 99 ftot 101 111 83 87 91 95 99 ftot 101 111 83 87 91 99 96 96 ftot 101 111		olor of	Terminal No. Wire Signal Name	97 P CAN-L	98 L CAN-H		
Connector No. E6	Connector Name FUSE BLOCK (J/B)	Connector Color WHITE	(17) (6) (5) (4) (2) (1) (10) (9) (1) (10) (10) (10) (10) (10) (10) (10)	Terminal No. Vire Signal Name	2P LG –	- R -	12P V –			
o. E3	Connector Name WIRE TO WIRE	Connector Color WHITE	1 2 3 1 4 5 6 7 8 9 10 11 12 13 14 15 16	Color of Signal Name	-	1	>	1	- I	- 0
Connector No.	Connector Na	Connector Co	所 S.H	Terminal No. Wire	-	4	9	8	14	15

Connector No. E17 Connector No. E21
M E/R (INTEL VER DISTRIB DULE ENGINU ITE

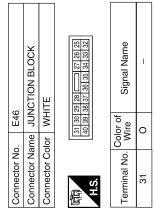
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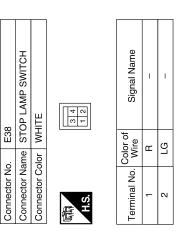
Connector No.		E34	
Connector Name		BACK-UP LAMP RELAY	`~
Connector Color		BLUE	
		8 4	
H.S.			
Terminal No.	Color of Wire	of Signal Name	
-	0	ı	
2	۳	ı	
	≯	1	
2	ГС	ı	

Signal Name	1	1	1	I	1	ı
Color of Wire	Ь	BR	0	٦	٦	Ь
Terminal No. Wire	8G	20G	34G	15G	51G	52G



	JUNCTION BLOCK	ITE	42 41 41 41 42 46 45 44 43	Signal Name	ı
. E47		lor WHITE	46 4	Color of Wire	BR
Connector No.	Connector Name	Connector Color	呵奇 H.S.	Terminal No.	45





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Signal Name		Connector Color WHITE	7 6 5 4 3 2 1 16 15 14 13 12 11 10 9 8	Terminal No. Color of Signal Name	1 L –	4 G/B –	6 L/R –	- В	14 B –	15 0 –											
Me Connector No. Connector Name Connector Name Connector Name Terminal No. Will Selection of the selection	E50 JUNCTION BLOCK	WHITE	25 55 55																		
	e e		S.	Terminal No. Wir											18	62					
	Connector No. E49 Connector Name JUNCTION BLOCK	BROWN	54 53 52 51	Signal Name	1							I E/R (INTELLIGENT ER DISTRIBUTION ULE ENGINE ROOM)	WHITE		l		Signal Name	AT_ECU	NPSW	STARTER_MOTOR	







Terminal No.	Color of Wire	Signal Name
31	d	CAN-L
32	L	CAN-H
33	LG	PRI_SPEED_SENSOR
34	H/97	SEC_SPEED_SENSOR
37	L/B	L/U&SEL-ON/OFF_SOL
38	MΠ	L/U&SEL-LINER_SOL
39	M/B	SEC-LINER-SOL
40	J.∕H	PL_LINER_SOL
42	В	GND
45	H/I	BATT
46	Å	NBIA
47	L/R	BATT
48	Y	VIGN







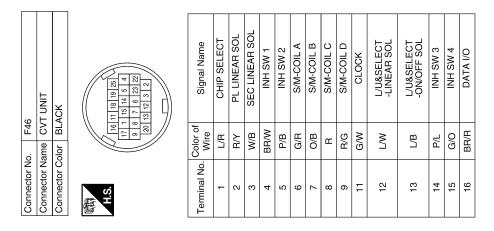
Signal Name	R_RANGE_SW	N_RANGE_SW	D_RANGE_SW	L_RANGE_SW	GND	K-LINE	SENSOR_GND	CLOCK_(SEL2)	CHIP_SELECT_(SEL1)	DATA_I/O_(SEL3)	P_RANGE_SW	ATF_TEMP_SENS	PRI_OIL_PRESS_SENS	SEC_OIL_PRESS_SE NS	REV LAMP RLY	ST-RLY	SENSOR_GND	SENS_POWER_ SOURCE	S/M-D	S/M-C	S/M-B	Q/M-A
Color of Wire	P/B	P/L	G/O	GR	B	0	8	G/W	L/R	BR/R	BR/W	>	B/W	W/N	G/B	R/B	W/R	0/1	R/G	Œ	O/B	G/R
Terminal No.	-	2	က	4	2	9	7	8	6	10	11	13	14	15	19	20	25	26	27	28	59	30

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Connector No.). F73	
Connector Name		JOINT CONNECTOR-F05
Connector Color	_	BLACK
H.S.	10	9 4 6
Terminal No.	Color of Wire	Signal Name
•	>	ı
2	>	ı
,	<u>.</u>	

Signal Name	ı	ı	ı	ı	I	I	I	ı	ı	_
Color of Wire	>	>	L/R	L/R	L/R	>	>	В	В	В
Terminal No. Wire	-	2	က	4	2	9	7	8	6	10

Signal Name	ATF TEMP SENSOR	INH SW 3 M	SENSOR GND	SENSOR POWER SOURCE	PRI SPEED SENSOR	SEC OIL PRESSURE SENSOR	PRI OIL PRESSURE SENSOR
Color of Wire	۸	GR	W/R	0/1	LG	W/N	R/W
Terminal No.	17	18	19	20	22	23	25



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Fail-safe

The TCM has an electrical fail-safe mode. This mode makes it possible to operate even if there is an error in a main electronic control input/output signal circuit.

FAIL-SAFE FUNCTION

If any malfunction occurs in a sensor or solenoid, this function controls the CVT to make driving possible.

Output Speed Sensor (Secondary Speed Sensor)

< ECU DIAGNOSIS > [CVT: RE0F09B]

The shift pattern is changed in accordance with throttle position when an unexpected signal is sent from the output speed sensor (secondary speed sensor) to the TCM. The manual mode position is inhibited, and the transaxle is put in "D".

Input Speed Sensor (Primary Speed Sensor)

The shift pattern is changed in accordance with throttle position and secondary speed (vehicle speed) when an unexpected signal is sent from the input speed sensor (primary speed sensor) to the TCM. The manual mode position is inhibited, and the transaxle is put in "D".

PNP Switch

If an unexpected signal is sent from the PNP switch to the TCM, the transaxle is put in "D".

Manual Mode Switch

If an unexpected signal is sent from the manual mode switch to the TCM, the transaxle is put in "D".

CVT Fluid Temperature Sensor

If an unexpected signal is sent from the CVT fluid temperature sensor to the TCM, the gear ratio in use before receiving the unexpected signal is maintained or the gear ratio is controlled to keep engine speed under 2,800 rpm.

Transmission Fluid Pressure Sensor A (Secondary Pressure Sensor)

- If an unexpected signal is sent from the transmission fluid pressure sensor A (secondary pressure sensor) to the TCM, the secondary pressure feedback control is stopped and the offset value obtained before the nonstandard condition occurs is used to control line pressure.
- If transmission fluid pressure sensor A (secondary pressure sensor) error signal is input to TCM, secondary pressure feedback control stops, but line pressure is controlled normally.

Pressure Control Solenoid A (Line Pressure Solenoid)

If an unexpected signal is sent from the solenoid to the TCM, the pressure control solenoid A (line pressure solenoid) is turned OFF to achieve the maximum fluid pressure.

Pressure Control Solenoid B (Secondary Pressure Solenoid)

If an unexpected signal is sent from the solenoid to the TCM, the pressure control solenoid B (secondary pressure solenoid) is turned OFF to achieve the maximum fluid pressure.

Torque Converter Clutch Solenoid

If an unexpected signal is sent from the solenoid to the TCM, the torque converter clutch solenoid is turned OFF to cancel the lock-up.

Step Motor

If an unexpected signal is sent from the step motor to the TCM, the step motor coil phases "A" through "D" are all turned OFF to hold the gear ratio used right before the non-standard condition occurred.

CVT Lock-up Select Solenoid

If an unexpected signal is sent from the solenoid to the TCM, the CVT lock-up select solenoid is turned OFF to cancel the lock-up.

TCM Power Supply (Memory Back-up)

Transaxle assembly is protected by limiting the engine torque when the memory back-up power supply (for controlling) from the battery is not supplied to TCM. Normal statues is restored when turning the ignition switch OFF to ON after the normal power supply.

DTC Inspection Priority Chart

INFOID:0000000004201777

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

NOTE:

If DTC "U1000 CAN COMM CIRCUIT" is displayed with other DTCs, first perform the trouble diagnosis for "DTC U1000 CAN COMMUNICATION LINE". Refer to TM-123.

Priority	Detected items (DTC)
1	U1000 CAN communication line
2	Except above

< ECU DIAGNOSIS > [CVT: RE0F09B]

DTC Index

NOTE:

If DTC "U1000 CAN COMM CIRCUIT" is displayed with other DTCs, first perform the trouble diagnosis for "DTC U1000 CAN COMMUNICATION LINE". Refer to <a href="https://example.com/thosps://example.com/t

OBD-II (DTC)	TCM self-diagnosis		
MIL* ¹ ,"ENGINE" with CONSULT-III GST* ²	"TRANSMISSION" with CONSULT-III	Items (CONSULT-III screen terms)	Reference page
	P0615	STARTER RELAY/CIRC	<u>TM-124</u>
_	P0703	BRAKE SW/CIRC	<u>TM-126</u>
P0705	P0705	PNP SW/CIRC	<u>TM-129</u>
P0710	P0710	ATF TEMP SEN/CIRC	<u>TM-132</u>
P0715	P0715	INPUT SPD SEN/CIRC	<u>TM-135</u>
P0720	P0720	VEH SPD SEN/CIR AT	<u>TM-138</u>
_	P0725	ENGINE SPEED SIG	<u>TM-142</u>
_	P0730	BELT DAMG	<u>TM-143</u>
P0740	P0740	TCC SOLENOID/CIRC	<u>TM-144</u>
P0744	P0744	A/T TCC S/V FNCTN	<u>TM-146</u>
P0745	P0745	L/PRESS SOL/CIRC	<u>TM-148</u>
P0746	P0746	PRS CNT SOL/A FCTN	<u>TM-150</u>
P0776	P0776	PRS CNT SOL/B FCTN	<u>TM-152</u>
P0778	P0778	PRS CNT SOL/B CIRC	<u>TM-155</u>
_	P0826	MANUAL MODE SWITCH	<u>TM-157</u>
P0840	P0840	TR PRS SENS/A CIRC	<u>TM-160</u>
_	P0841	PRESS SEN/FNCTN	<u>TM-163</u>
P0845	P0845	TR PRS SENS/B CIRC	<u>TM-166</u>
_	P0868	SEC/PRESS DOWN	<u>TM-169</u>
_	P1701	TCM-POWER SUPPLY	<u>TM-172</u>
_	P1705	TP SEN/CIRC A/T	<u>TM-175</u>
_	P1722	ESTM VEH SPD SIG	<u>TM-176</u>
_	P1723	CVT SPD SEN/FNCTN	<u>TM-178</u>
_	P1726	ELEC TH CONTROL	<u>TM-180</u>
P1740	P1740	LU-SLCT SOL/CIRC	<u>TM-181</u>
_	P1745	L/PRESS CONTROL	<u>TM-183</u>
P1777	P1777	STEP MOTR CIRC	<u>TM-184</u>
P1778	P1778	STEP MOTR/FNC	<u>TM-187</u>
U1000	U1000	CAN COMM CIRCUIT	<u>TM-123</u>

^{• *1:} Refer to TM-117, "Diagnosis Description".

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^{• *2:} These numbers are prescribed by SAE J2012.

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:0000000004201779

[CVT: RE0F09B]

The diagnostics item numbers show the sequence for inspection. Inspect in order from item 1.

No.	Item	Symptom	Condition	Diagnostic Item	Reference page
				1. Engine idle speed	EC-1051
				2. Engine speed signal	<u>TM-142</u>
				3. Accelerator pedal position sensor	<u>TM-175</u>
				4. CVT position	<u>TM-253</u>
				5. CVT fluid temperature sensor	<u>TM-132</u>
			ON vehicle	6. CAN communication line	<u>TM-123</u>
1		Large shock. ("N"→ "D" position)		7. CVT fluid level and state	<u>TM-240</u>
		D position)		8. Line pressure test	<u>TM-247</u>
				9. Torque converter clutch solenoid valve	<u>TM-144</u>
				10. Lock-up select solenoid valve	<u>TM-181</u>
				11. PNP switch	TM-129
			OFF webiele	12. Forward clutch	TM 050
			OFF vehicle	13. Control valve	<u>TM-259</u>
				1. Engine idle speed	EC-1051
				2. Engine speed signal	<u>TM-142</u>
	Chiff Chools			3. Accelerator pedal position sensor	<u>TM-175</u>
	Shift Shock			4. CVT position	TM-253
				5. CVT fluid temperature sensor	<u>TM-132</u>
			ON vehicle	6. CAN communication line	<u>TM-123</u>
2		Large shock. ("N"→ "R" position)		7. CVT fluid level and state	TM-240
		ix position)		8. Line pressure test	TM-247
				9. Torque converter clutch solenoid valve	<u>TM-144</u>
				10. Lock-up select solenoid valve	<u>TM-181</u>
				11. PNP switch	TM-129
			OFF vehicle	12. Reverse brake	TM 250
			OFF vehicle	13. Control valve	<u>TM-259</u>
				1. CVT position	TM-253
			ONLorabiala	2. Engine speed signal	<u>TM-142</u>
•		Shock is too large for	ON vehicle	3. CAN communication line	TM-123
3		lock-up.		4. CVT fluid level and state	TM-240
			OFF	5. Torque converter	TM 050
			OFF vehicle	6. Control valve	<u>TM-259</u>

< SYMPTOM DIAGNOSIS >

lo.	Item	Symptom	Condition	Diagnostic Item	Reference page	-
				CVT fluid level and state	TM-240	-
				2. CVT position	TM-253	-
				3. CAN communication line	TM-123	-
				4. Line pressure test	TM-247	-
				5. Stall test	TM-245	-
			ON ARTH	6. Step motor	<u>TM-184</u>	-
			ON vehicle	7. Primary speed sensor	<u>TM-135</u>	
		Vehicle cannot be		8. Secondary speed sensor	<u>TM-138</u>	
4		started from "D" position.		9. Accelerator pedal position sensor	<u>TM-175</u>	- =
				10. CVT fluid temperature sensor	<u>TM-132</u>	-
				11. Secondary pressure sensor	<u>TM-160</u>	-
				12. Power supply	<u>TM-172</u>	-
				13. Oil pump assembly		-
			055 111	14. Forward clutch	T14.050	
			OFF vehicle	15. Control valve	<u>TM-259</u>	
	Slips/Will			16. Parking components		
	Not Engage			CVT fluid level and state	<u>TM-240</u>	-
				2. CVT position	TM-253	-
				3. CAN communication line	<u>TM-123</u>	-
				4. Line pressure test	TM-247	-
				5. Stall test	<u>TM-245</u>	-
				6. Step motor	<u>TM-184</u>	-
			ON vehicle	7. Primary speed sensor	<u>TM-135</u>	-
		Vehicle cannot be		8. Secondary speed sensor	<u>TM-138</u>	-
		started from "R" position.		9. Accelerator pedal position sensor	<u>TM-175</u>	-
				10. CVT fluid temperature sensor	<u>TM-132</u>	=
				11. Secondary pressure sensor	<u>TM-160</u>	-
				12. Power supply	<u>TM-172</u>	-
				13. Oil pump assembly		-
			OFF vehicle	14. Reverse brake	Th4 050	
				15. Control valve	<u>TM-259</u>	
				16. Parking components		

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[CVT: RE0F09B]

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[CVT: RE0F09B]

Reference No. Item Symptom Condition Diagnostic Item page 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. Engine speed signal TM-142 4. Primary speed sensor TM-135 5. Torque converter clutch solenoid valve TM-144 6. CAN communication line TM-123 ON vehicle 7. Stall test TM-245 8. Step motor TM-184 6 Does not lock-up. 9. PNP switch TM-129 10. Lock-up select solenoid valve TM-181 11. CVT fluid temperature sensor TM-132 12. Secondary speed sensor TM-138 13. Secondary pressure sensor TM-160 14. Torque converter OFF vehicle 15. Oil pump assembly TM-259 16. Control valve Slips/Will Not Engage 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. Engine speed signal TM-142 4. Primary speed sensor TM-135 5. Torque converter clutch solenoid valve TM-144 6. CAN communication line TM-123 ON vehicle 7. Stall test TM-245 8. Step motor TM-184 Does not hold lock-7 up condition. 9. PNP switch TM-129 10. Lock-up select solenoid valve TM-181 11. CVT fluid temperature sensor TM-132 12. Secondary speed sensor TM-138 13. Secondary pressure sensor TM-160 14. Torque converter OFF vehicle 15. Oil pump assembly TM-259 16. Control valve

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference page
				CVT fluid level and state	TM-240
				2. Line pressure test	<u>TM-247</u>
				3. Engine speed signal	<u>TM-142</u>
			ON vehicle	4. Primary speed sensor	<u>TM-135</u>
8		Lock-up is not re-		5. Torque converter clutch solenoid valve	<u>TM-144</u>
Ö		leased.		6. CAN communication line	<u>TM-123</u>
				7. Stall test	<u>TM-245</u>
				8. Torque converter	
			OFF vehicle	9. Oil pump assembly	TM-259
				10. Control valve	
	-			1. CVT fluid level and state	TM-240
				2. Line pressure test	TM-247
				3. Stall test	TM-245
				4. Accelerator pedal position sensor	<u>TM-175</u>
	Slips/Will Not Engage			5. CAN communication line	<u>TM-123</u>
	Not Engage			6. PNP switch	<u>TM-129</u>
				7. CVT position	TM-253
			ON vehicle	8. Step motor	<u>TM-184</u>
		With selector lever in		9. Primary speed sensor	TM-135
		"D" position, acceleration is extremely		10. Secondary speed sensor	<u>TM-138</u>
				11. Accelerator pedal position sensor	<u>TM-175</u>
				12. Primary pressure sensor	<u>TM-166</u>
				13. Secondary pressure sensor	<u>TM-160</u>
				14. CVT fluid temperature sensor	TM-132
				15. Power supply	<u>TM-172</u>
				16. Torque converter	
			OFF	17. Oil pump assembly	TM 050
			OFF vehicle	18. Forward clutch	<u>TM-259</u>

19. Control valve

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[CVT: RE0F09B]

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[CVT: RE0F09B]

Reference No. Item Symptom Condition Diagnostic Item page 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. Stall test TM-245 4. Accelerator pedal position sensor TM-175 5. CAN communication line TM-123 6. PNP switch TM-129 7. CVT position TM-253 ON vehicle 8. Step motor TM-184 With selector lever in 9. Primary speed sensor TM-135 "R" position, acceler-10. Secondary speed sensor TM-138 10 ation is extremely 11. Accelerator pedal position sensor TM-175 poor. 12. Primary pressure sensor TM-166 13. Secondary pressure sensor TM-160 14. CVT fluid temperature sensor TM-132 15. Power supply TM-172 16. Torque converter 17. Oil pump assembly OFF vehicle TM-259 Slips/Will 18. Reverse brake Not Engage 19. Control valve 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. Engine speed signal TM-142 4. Primary speed sensor TM-135 5. Torque converter clutch solenoid valve TM-144 6. CAN communication line TM-123 7. Stall test ON vehicle TM-245 8. Step motor TM-184 11 Slips at lock-up. 9. PNP switch TM-129 10. Lock-up select solenoid valve TM-181 11. CVT fluid temperature sensor TM-132 12. Secondary speed sensor TM-138 13. Secondary pressure sensor TM-160 14. Torque converter OFF vehicle 15. Oil pump assembly TM-259 16. Control valve

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic Item	Reference page	
				CVT fluid level and state	TM-240	_
				2. Line pressure test	TM-247	_
				3. Accelerator pedal position sensor	<u>TM-175</u>	=
				4. PNP switch	TM-129	_
				5. CAN communication line	<u>TM-123</u>	_
				6. Stall test	TM-245	_
				7. CVT position	TM-253	
			ON vehicle	8. Step motor	<u>TM-184</u>	-
				9. Primary speed sensor	TM-135	- =
				10. Secondary speed sensor	TM-138	-
2		No creep at all.		11. Accelerator pedal position sensor	<u>TM-175</u>	=
				12. CVT fluid temperature sensor	TM-132	=
				13. Primary pressure sensor	TM-166	-
				14. Secondary pressure sensor	TM-160	-
				15. Power supply	TM-172	-
				16. Torque converter		-
			OFF vehicle	17. Oil pump assembly		
				18. Gear system	TM 250	
				19. Forward clutch	<u>TM-259</u>	
				20. Reverse brake		
	Other			21. Control valve		
				CVT fluid level and state	TM-240	-
				Line pressure test	TM-240 TM-247	-
				3. PNP switch		-
					TM-129	-
				4. Stall test	TM-245	-
				5. CVT position	TM-253	-
			ON vehicle	6. Step motor	TM-184	_
				7. Primary speed sensor	TM-135	_
				8. Secondary speed sensor	TM-138	_
_	,	Vehicle cannot run in		9. Accelerator pedal position sensor	<u>TM-175</u>	_
3		all positions.		10. CVT fluid temperature sensor	<u>TM-132</u>	_
		,		11. Secondary pressure sensor	<u>TM-160</u>	_
				12. Power supply	<u>TM-172</u>	_
				13. Torque converter		
				14. Oil pump assembly		
				15. Gear system		
			OFF vehicle	16. Forward clutch	TM-259	
				17. Reverse brake		
				18. Control valve		
				19. Parking components		

[CVT: RE0F09B]

Reference No. Item Symptom Condition Diagnostic Item page 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. PNP switch TM-129 4. Stall test TM-245 5. CVT position TM-253 6. Step motor TM-184 ON vehicle 7. Primary speed sensor TM-135 8. Secondary speed sensor TM-138 With selector lever in 9. Accelerator pedal position sensor TM-175 14 "D" position, driving 10. CVT fluid temperature sensor TM-132 is not possible. TM-160 11. Secondary pressure sensor 12. Power supply TM-172 13. Torque converter 14. Oil pump assembly 15. Gear system OFF vehicle TM-259 16. Forward clutch 17. Control valve 18. Parking components Other 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. PNP switch TM-129 4. Stall test TM-245 5. CVT position TM-253 6. Step motor TM-184 ON vehicle 7. Primary speed sensor TM-135 8. Secondary speed sensor TM-138 With selector lever in 9. Accelerator pedal position sensor TM-175 15 "R" position, driving TM-132 10. CVT fluid temperature sensor is not possible. 11. Secondary pressure sensor TM-160 12. Power supply TM-172 13. Torque converter 14. Oil pump assembly 15. Gear system OFF vehicle TM-259 16. Reverse brake 17. Control valve 18. Parking components

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference page	•				
				1. CVT fluid level and state	TM-240	•				
				2. Engine speed signal	<u>TM-142</u>	-				
				3. Primary speed sensor	<u>TM-135</u>	-				
			ON vehicle	4. Secondary speed sensor	<u>TM-138</u>	-				
16		Judder occurs during lock-up.		5. Accelerator pedal position sensor	<u>TM-175</u>	-				
		look up.		6. CAN communication line	<u>TM-123</u>	-				
				7. Torque converter clutch solenoid valve	<u>TM-144</u>					
			OFF vehicle	8. Torque converter	TM 250					
			OFF Verlicie	9. Control valve	<u>TM-259</u>					
				CVT fluid level and state	TM-240	-				
			ON vehicle	2. Engine speed signal	<u>TM-142</u>	-				
				3. CAN communication line	TM-123	-				
					4. Torque converter		-			
7	Strange noise in "D" position.	oise in "D"	5. Oil pump assembly							
			OFF vehicle	6. Gear system	<u>TM-259</u>					
				7. Forward clutch						
	Other			8. Control valve						
				9. Bearing						
				CVT fluid level and state	TM-240	-				
			ON vehicle	2. Engine speed signal	<u>TM-142</u>	-				
		Strange noise in "R"						3. CAN communication line	<u>TM-123</u>	-
8				4. Torque converter		-				
O		position.		5. Oil pump assembly						
			OFF vehicle	6. Gear system	TM-259					
				7. Reverse brake						
				8. Control valve						
-				CVT fluid level and state	<u>TM-240</u>					
			ON vehicle	2. Engine speed signal	<u>TM-142</u>	_				
		0(1000000000000000000000000000000000000		3. CAN communication line	<u>TM-123</u>	-				
9		Strange noise in "N" position.		4. Torque converter						
			OFF vehicle	5. Oil pump assembly	TM-259					
			OTT VEHICLE	6. Gear system	1 IVI-233					
				7. Control valve						

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[CVT: RE0F09B]

[CVT: RE0F09B]

Reference No. Item Symptom Condition Diagnostic Item page 1. CVT fluid level and state TM-240 2. CVT position TM-253 3. CAN communication line TM-123 4. Step motor TM-184 Vehicle does not de-ON vehicle 5. Primary speed sensor TM-135 20 celerate by engine 6. Secondary speed sensor TM-138 brake. 7. Line pressure test TM-247 8. Engine speed signal TM-142 9. Accelerator pedal position sensor TM-175 OFF vehicle 10. Control valve TM-259 1. CVT fluid level and state TM-240 2. Line pressure test TM-247 3. Accelerator pedal position sensor **TM-175** 4. CAN communication line TM-123 TM-245 5. Stall test ON vehicle 6. Step motor TM-184 7. Primary speed sensor TM-135 8. Secondary speed sensor TM-138 21 Maximum speed low. 9. Primary pressure sensor TM-166 Other 10. Secondary pressure sensor TM-160 11. CVT fluid temperature sensor TM-132 12. Torque converter 13. Oil pump assembly OFF vehicle 14. Gear system TM-259 15. Forward clutch 16. Control valve With selector lever in 1. PNP switch TM-129 ON vehicle "P" position, vehicle TM-253 2. CVT position does not enter parking condition or, with 22 selector lever in another position, park-OFF vehicle 3. Parking components TM-259 ing condition is not cancelled. 1. PNP switch TM-129 ON vehicle 2. CVT fluid level and state TM-240 3. CVT position TM-253 Vehicle runs with 23 CVT in "P" position. 4. Parking components OFF vehicle 5. Gear system TM-259

6. Control valve

No.	Item	Symptom	Condition	Diagnostic Item	Reference page
				1. PNP switch	TM-129
			ON vehicle	2. CVT fluid level and state	<u>TM-240</u>
				3. CVT position	TM-253
24		Vehicle runs with CVT in "N" position.		4. Gear system	
		CVI III IN position.		5. Forward clutch	
			OFF vehicle	6. Reverse brake	<u>TM-259</u>
				7. Control valve	
				CVT fluid level and state	<u>TM-240</u>
				2. Engine speed signal	<u>TM-142</u>
				3. Primary speed sensor	<u>TM-135</u>
			ON vehicle	4. Torque converter clutch solenoid valve	<u>TM-144</u>
25		Engine stall.		5. CAN communication line	<u>TM-123</u>
				6. Stall test	<u>TM-245</u>
				7. Secondary pressure sensor	<u>TM-160</u>
			OFF alkinia	8. Torque converter	TM 050
			OFF vehicle	9. Control valve	<u>TM-259</u>
				1. CVT fluid level and state	<u>TM-240</u>
				2. Engine speed signal	<u>TM-142</u>
			ON vehicle	3. Primary speed sensor	<u>TM-135</u>
00	Other	Engine stalls when	ON vehicle	4. Torque converter clutch solenoid valve	<u>TM-144</u>
26	Other	selector lever shifted "N"→"D"or "R".		5. CAN communication line	<u>TM-123</u>
		. , , , , , , , , , , , , , , , , , , ,		6. Stall test	<u>TM-245</u>
			OFF webiele	7. Torque converter	TM 050
		OFF	OFF vehicle	8. Control valve	<u>TM-259</u>
				1. CVT fluid level and state	<u>TM-240</u>
			ON mahiala	2. Accelerator pedal position sensor	<u>TM-175</u>
27		Engine speed does not return to idle.	ON vehicle	3. Secondary speed sensor	<u>TM-138</u>
		not retain to late.		4. CAN communication line	<u>TM-123</u>
			OFF vehicle	5. Control valve	<u>TM-259</u>
				1. CVT fluid level and state	TM-240
				2. CVT position	<u>TM-253</u>
	28			3. Line pressure test	TM-247
		CVT does not shift.		4. Engine speed signal	<u>TM-142</u>
			ON vehicle	5. Accelerator pedal position sensor	<u>TM-175</u>
28				6. CAN communication line	<u>TM-123</u>
				7. Primary speed sensor	<u>TM-135</u>
				8. Secondary speed sensor	<u>TM-138</u>
				9. Step motor	<u>TM-184</u>
			055	10. Control valve	T14.053
			OFF vehicle	11. Oil pump assembly	<u>TM-259</u>

[CVT: RE0F09B]

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference page
		Engine does not start		Ignition switch and starter	<u>PG-74,</u> <u>STR-3</u>
29		in "N" or "P" position.	ON vehicle	2. CVT position	<u>TM-253</u>
				3. PNP switch	<u>TM-129</u>
		Engine starts in posi-		Ignition switch and starter	<u>PG-74,</u> STR-3
30		tions other than "N" or "P".	ON vehicle	2. CVT position	<u>TM-253</u>
		01 1 .		3. PNP switch	<u>TM-129</u>
		When brake pedal is depressed with ignition switch ON, se-		1. Stop lamp switch	
				2. Shift lock solenoid	
31	Other	lector lever cannot be shifted from "P" position to other po- sition.	ON vehicle	3. Control device	<u>TM-189</u>
		When brake pedal is		1. Stop lamp switch	
		not depressed with ignition switch ON,		2. Shift lock solenoid	
32	2	selector lever can be shifted from "P" position to other position.	3. Control device	<u>TM-189</u>	
				1. Manual mode switch	
33		Cannot be changed to manual mode.		2. CAN communication line	TM-123
				3. Combination meter	<u>MWI-176</u>

[CVT: RE0F09B] < PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRF-TFNSIONER"

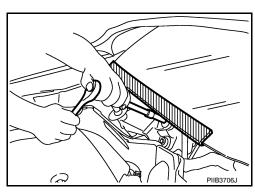
The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Baq Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

Precaution for Procedure without Cowl Top Cover

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precaution Necessary for Steering Wheel Rotation After Battery Disconnect INFOID:0000000004201782

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NVIS/IVIS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

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INFOID:0000000004201781

PRECAUTIONS

< PRECAUTION > [CVT: RE0F09B]

Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.

- Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
- 4. Perform the necessary repair operation.
- 5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
- Perform a self-diagnosis check of all control units using CONSULT-III.

Precaution for On Board Diagnosis (OBD) System of CVT and Engine

INFOID:0000000004201783

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the battery cable from the negative terminal before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to an open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Be sure to route and secure the harnesses properly after work. Interference of the harness with a bracket, etc. may cause the MIL to light up due to a short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to a malfunction of the EVAP system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

Precaution for TCM and CVT Assembly Replacement

INFOID:0000000004201784

CAUTION:

- Check if new data (Unit ID) are entered correctly after replacing CVT assembly and erasing data in TCM. (Connect CONSULT-III, and then turn ignition switch OFF.)
- When replacing CVT assembly or TCM, refer to the pattern table below and erase the EEPROM in the TCM if necessary.

EEPROM ERASING PATTERNS

CVT assembly	TCM	Erasing EEPROM in TCM	Remarks
Replaced	Replaced	Not required	Not required because the EEPROM in the TCM is in the default state. (CVT assembly must be replaced first.)
Not replaced	Replaced	Not required	Not required because the EEPROM in the TCM is in the default state.
Replaced	Not replaced	Required	Required because data has been written in the EE-PROM in the TCM and because the TCM cannot write data from the ROM assembly in the transmission.

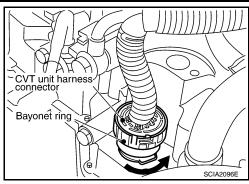
Removal and Installation Procedure for CVT Unit Connector

INFOID:0000000004201785

REMOVAL

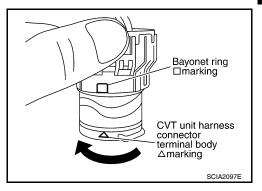
[CVT: RE0F09B] < PRECAUTION >

Rotate bayonet ring counterclockwise, pull out CVT unit harness connector upward and remove it.

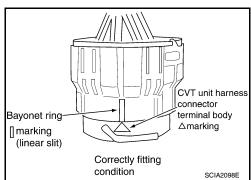


INSTALLATION

Align CVT unit harness connector terminal body marking with bayonet ring marking, insert CVT unit harness connector, and then rotate bayonet ring clockwise.

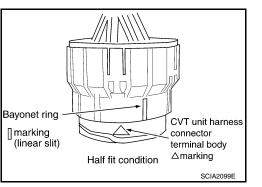


Rotate bayonet ring clockwise until CVT unit harness connector terminal body marking is aligned with the bayonet ring marking (linear slit) as shown.



CAUTION:

- Securely align Δ marking on CVT unit harness connector terminal body with bayonet ring slit. Then, be careful not to make a half fit condition as shown.
- · Do not mistake the slit of bayonet ring for other dent portion.



Precaution INFOID:0000000004201786

NOTE:

If any malfunction occurs in the RE0F09B model transaxle, replace the entire transaxle assembly.

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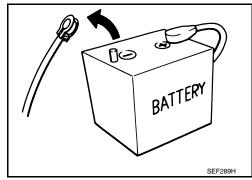
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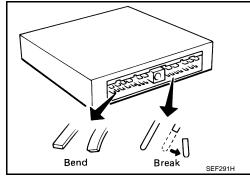
< PRECAUTION > [CVT: RE0F09B]

Before connecting or disconnecting the TCM harness connector, turn ignition switch OFF and disconnect negative battery cable. Because battery voltage is applied to TCM even if ignition switch is turned OFF.

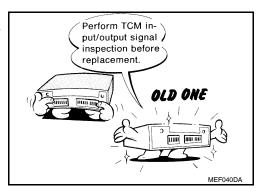


 When connecting or disconnecting pin connectors into or from TCM, take care not to damage pin terminals (bend or break).

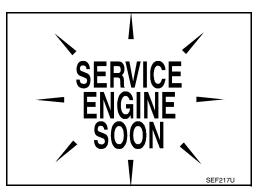
When connecting pin connectors make sure that there are not any bends or breaks on TCM pin terminal.



 Before replacing TCM, perform TCM input/output signal inspection and make sure whether TCM functions properly or not. <u>TM-197</u>, "<u>Reference Value</u>".



- After performing each TROUBLE DIAGNOSIS, perform "DTC Confirmation Procedure".
 - If the repair is completed the DTC should not be displayed in the "DTC Confirmation Procedure".
- Always use the specified brand of CVT fluid. Refer to <u>TM-261</u>. "General Specification".
- Use lint-free paper, not cloth rags, during work.
- After replacing the CVT fluid, dispose of the waste oil using the methods prescribed by law, ordinance, etc.



Service Notice or Precaution

INFOID:0000000004201787

CVT FLUID COOLER SERVICE

If CVT fluid contains friction material (clutches, brakes, etc.), or if a CVT is replaced, inspect and clean the CVT fluid cooler mounted in the radiator or replace the radiator. Flush cooler lines using cleaning solvent and compressed air after repair. For CVT fluid cooler cleaning procedure, refer to TM-242. "Cleaning". For radiator replacement, refer to CO-38, "Removal and Installation".

OBD-II SELF-DIAGNOSIS

PRECAUTIONS

< PRECAUTION > [CVT: RE0F09B]

CVT self-diagnosis is performed by the TCM in combination with the ECM. The results can be read through
the blinking pattern of the malfunction indicator lamp (MIL). Refer to the table on <u>TM-119</u>, <u>"CONSULT-III</u>
<u>Function (TRANSMISSION)"</u> for the indicator used to display each self-diagnostic result.

The self-diagnostic results indicated by the MIL are automatically stored in both the ECM and TCM memories.

Always perform the procedure on <u>TM-117</u>, <u>"Diagnosis Description"</u> to complete the repair and avoid unnecessary blinking of the MIL.

For details of OBD-II, refer to TM-117, "Diagnosis Description".

Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to PG-58, "Description" (Coupe) or PG-129, "Description" (Sedan).

ATFTEMP COUNT Conversion Table

INFOID:0000000004201788

ATFTEMP COUNT	Temperature °C (°F)	ATFTEMP COUNT	Temperature °C (°F)
4	-30 (-22)	177	90 (194)
8	-20 (-4)	183	95 (203)
13	-10 (14)	190	100 (212)
17	-5 (23)	196	105 (221)
21	0 (32)	201	110 (230)
27	5 (41)	206	115 (239)
32	10 (50)	210	120 (248)
39	15 (59)	214	125 (257)
47	20 (68)	218	130 (266)
55	25 (77)	221	135 (275)
64	30 (86)	224	140 (284)
73	35 (95)	227	145 (293)
83	40 (104)	229	150 (302)
93	45 (113)	231	155 (311)
104	50 (122)	233	160 (320)
114	55 (131)	235	165 (329)
124	60 (140)	236	170 (338)
134	65 (149)	238	175 (347)
143	70 (158)	239	180 (356)
152	75 (167)	241	190 (374)
161	80 (176)	243	200 (392)
169	85 (185)	_	_

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< PREPARATION > [CVT: RE0F09B]

PREPARATION

PREPARATION

Special Service Tool

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Tool number (Kent-Moore No.)	ay differ from those of special service tools illusti	Description
Tool name — (OTC3492) Oil pressure gauge set	SCIA7531E	Measuring line pressure
	a b SCIA5777E	Installing differential side oil seal Transaxle case side (left) a: 65.83 mm (2.59 in) dia. b: 53.85 mm (2.12 in) dia.
ST33400001 (J-47005) Drift	a b SCIA5777E	Installing differential side oil seal • Converter housing side (right) a: 69.85 mm (2.75 in) dia. b: 49.53 mm (1.95 in) dia.

Commercial Service Tool

INFOID:0000000004201790

Tool number Tool name		Description
31197CA000 Drive plate location guide	Ta a	Installing transaxle assembly a: 14 mm (0.55 in) dia.
31093CA000	SCIA2013E	Removing and installing transaxle assembly
Slinger	SCIA2014E	

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Tool number Tool name		Description	Α
31092CA000 Slinger	SCIA2015E	Removing and installing transaxle assembly	В
Power tool		Loosening nuts and bolts	TM
	PBICO190E		E

TM-239

ON-VEHICLE MAINTENANCE

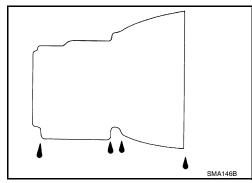
CVT FLUID

Inspection INFOID:000000004201791

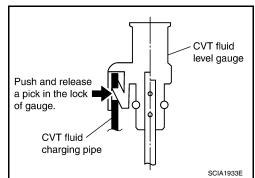
CHECKING CVT FLUID

Fluid level should be checked with the fluid warmed up to 50 to 80°C (122 to 176°F). The fluid level check procedure is as follows:

- 1. Check for fluid leakage.
- With the engine warmed up, drive the vehicle in an urban area. When ambient temperature is 20°C (68°F), it takes about 10 minutes for the CVT fluid to warm up to 50 to 80°C (122 to 176°F).
- 3. Park the vehicle on a level surface.
- 4. Apply parking brake firmly.
- 5. With engine at idle, while depressing brake pedal, move shift selector throughout the entire shift range.
- Pull out the CVT fluid level gauge from the CVT fluid charging pipe after pressing the tab on the CVT fluid level gauge to release the lock.



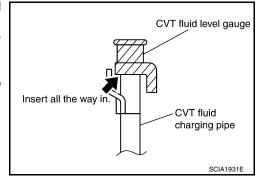
[CVT: RE0F09B]



7. Wipe fluid off the CVT fluid level gauge. Insert the CVT fluid level gauge rotating 180° from the originally installed position, then securely push the CVT fluid level gauge until it meets the top end of the CVT fluid charging pipe.

CAUTION:

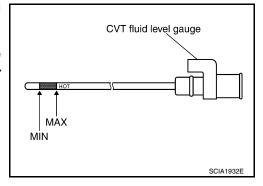
When wiping away the CVT fluid level gauge, always use lint-free paper, not a cloth rag.



8. Place the selector lever in "P" or "N" and make sure the fluid level is within the specified range.

CAUTION:

When reinstalling CVT fluid level gauge, insert it into the CVT fluid charging pipe and rotate it to the original installation position until it is securely locked.



Check CVT fluid condition.

- If CVT fluid is very dark or smells burned, check operation of CVT. Flush cooling system after repair of CVT.
- If CVT fluid contains frictional material (clutches, brakes, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of CVT. Refer to <u>CO-38</u>, "Removal and Installation" and TM-242. "Cleaning".

Fluid status	Conceivable cause	Required operation
Varnished (viscous varnish state)	Clutch, brake scorched	Replace the CVT fluid and check the CVT main unit and the vehicle for malfunctions (wire harnesses, cooler pipes, etc.)
Milky white or cloudy	Water in the fluid	Replace the CVT fluid and check for places where water is getting in.
Large amount of metal powder mixed in	Unusual wear of sliding parts within CVT	Replace the CVT fluid and check for improper operation of the CVT.



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[CVT: RE0F09B]

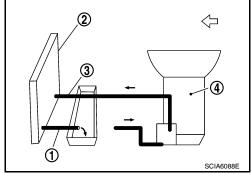
1. Warm up CVT fluid by driving the vehicle for 10 minutes.

- ← : Vehicle front
- Radiator (2)

Changing

- CVT fluid cooler hose (inlet side) (3)
- Transaxle assembly (4)
- Drain CVT fluid from CVT fluid cooler hose (outlet side) (1) and refill with new CVT fluid at CVT fluid charging pipe with the engine running at idle speed.
- 3. Refill until new CVT fluid comes out from CVT fluid cooler hose (outlet side) (1).

About 30 to 50% extra fluid will be required for this procedure.



CVT fluid:

Refer to TM-261, "General Specification".

Fluid capacity:

Refer to TM-261, "General Specification".

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Do not mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the warranty.
- When filling CVT fluid, take care not to scatter heat generating parts such as exhaust.
- Delete CVT fluid deterioration date with CONSULT-III after changing CVT fluid. Refer to TM-119, "CONSULT-III Function (TRANSMISSION)".
- 4. Check fluid level and condition. Refer to TM-240, "Inspection".

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FLUID COOLER CLEANING

Cleaning

Whenever an automatic transaxle is repaired, overhauled, or replaced, the CVT fluid cooler mounted in the radiator must be inspected and cleaned.

Metal debris and friction material, if present, can be trapped or become deposit in the CVT fluid cooler. This debris can contaminate the newly serviced CVT or, in severe cases, can block or restrict the flow of CVT fluid. In either case, malfunction of the newly serviced CVT may occur.

Debris, if present, may deposit as CVT fluid enters the cooler inlet. It will be necessary to back flush the cooler through the cooler outlet in order to flush out any built up debris.

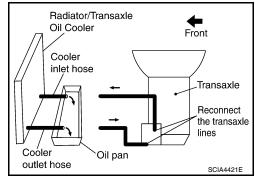
CVT FLUID COOLER CLEANING PROCEDURE

- 1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
- 2. Identify the inlet and outlet fluid cooler hoses.
- 3. Disconnect the fluid cooler inlet and outlet rubber hoses from the steel cooler tubes or bypass valve.

NOTE:

Replace the cooler hoses if rubber material from the hose remains on the tube fitting.

4. Allow any CVT fluid that remains in the cooler hoses to drain into the oil pan.

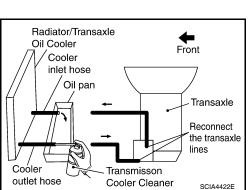


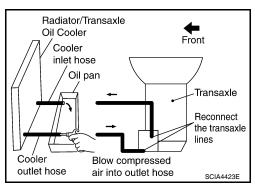
[CVT: RE0F09B]

5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- · Avoid contact with eyes and skin.
- · Do not breath vapors or spray mist.
- Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
- 7. Insert the tip of an air gun into the end of the cooler outlet hose.
- 8. Wrap a shop rag around the air gun tip and end of the cooler outlet hose.
- 9. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose for 10 seconds to force out any remaining CVT fluid.
- 10. Repeat steps 5 through 9 three additional times.
- 11. Position an oil pan under the banjo bolts that connect the CVT fluid cooler steel lines to the transaxle.
- 12. Remove the banjo bolts.
- 13. Flush each steel line from the cooler side back toward the transaxle by spraying Transmission Cooler Cleaner in a continuous stream for 5 seconds.
- 14. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through each steel line from the cooler side back toward the transaxle for 10 seconds to force out any remaining CVT fluid.
- 15. Ensure all debris is removed from the steel cooler lines.
- 16. Ensure all debris is removed from the banjo bolts and fittings.





FLUID COOLER CLEANING

< ON-VEHICLE MAINTENANCE >

17. Perform "CVT FLUID COOLER DIAGNOSIS PROCEDURE".

CVT FLUID COOLER DIAGNOSIS PROCEDURE

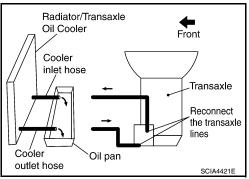
NOTE:

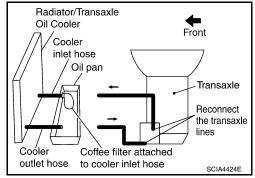
Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

- 1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
- 2. Clean the exterior and tip of the cooler inlet hose.
- Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- · Do not breath vapors or spray mist.
- 4. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
- 5. Tie a common white, basket-type coffee filter to the end of the cooler inlet hose.

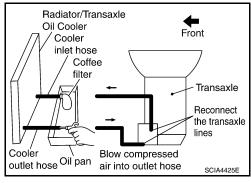


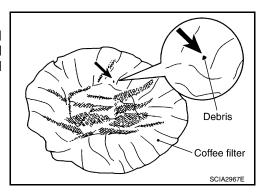


- 6. Insert the tip of an air gun into the end of the cooler outlet hose.
- 7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
- 8. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose to force any remaining CVT fluid into the coffee filter.
- 9. Remove the coffee filter from the end of the cooler inlet hose.
- 10. Perform "CVT FLUID COOLER INSPECTION PROCEDURE".

CVT FLUID COOLER INSPECTION PROCEDURE

- 1. Inspect the coffee filter for debris.
- a. If small metal debris less than 1 mm (0.040 in) in size or metal powder is found in the coffee filter, this is normal. If normal debris is found, the CVT fluid cooler/radiator can be re-used and the procedure is ended.





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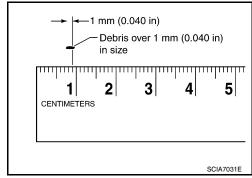
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FLUID COOLER CLEANING

< ON-VEHICLE MAINTENANCE >

b. If one or more pieces of debris are found that are over 1 mm (0.040 in) in size and/or peeled clutch facing material is found in the coffee filter, the fluid cooler is not serviceable. The radiator/ fluid cooler must be replaced and the inspection procedure is ended.



[CVT: RE0F09B]

CVT FLUID COOLER FINAL INSPECTION

After performing all procedures, ensure that all remaining oil is cleaned from all components.

STALL TEST

Inspection and Judgment

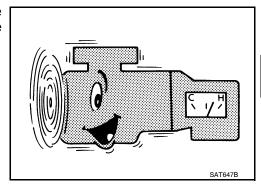
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[CVT: RE0F09B]

INSPECTION

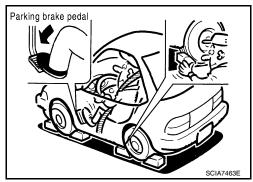
1. Inspect the amount of engine oil. Replenish the engine oil if necessary.

2. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F). Inspect the amount of CVT fluid. Replenish if necessary.



3. Securely engage the parking brake so that the tires do not turn.

- 4. Install a tachometer where it can be seen by driver during test.
 - It is good practice to mark the point of specified engine rpm on indicator.
- 5. Start engine, apply foot brake, and place selector lever in "D" position.



While holding down the foot brake, gradually press down the accelerator pedal.

7. Quickly read off the stall speed, and then quickly remove your foot from the accelerator pedal.

CAUTION:

Do not hold down the accelerator pedal for more than 5 seconds during this test.

Stall speed: Refer to TM-261, "Stall Speed".

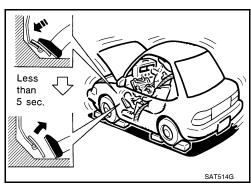
- 8. Move the selector lever to the "N" position.
- 9. Cool down the CVT fluid.

CAUTION:

Run the engine at idle for at least 1 minute.

10. Repeat steps 6 through 9 with selector lever in "R" position.

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[CV	T: RI	E0F0	9B]

	Selector lever position		Funcated available leastion
	"D"	"R"	Expected problem location
	Н	0	Forward clutch
	0	Н	Reverse brake
Stall rotation	L	L	Engine and torque converter one-way clutch
Stall rotation	н	Н	Line pressure low Primary pulley Secondary pulley Steel belt

O: Stall speed within standard value position.

H: Stall speed is higher than standard value.

L: Stall speed is lower than standard value.

LINE PRESSURE TEST

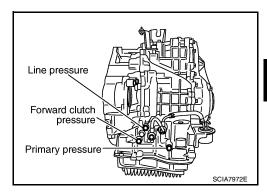
Inspection and Judgment

INFOID:0000000004201795

[CVT: RE0F09B]

INSPECTION

Line Pressure Test Port



Line Pressure Test Procedure

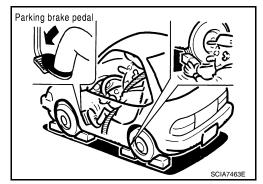
- 1. Inspect the amount of engine oil and replenish if necessary.
- Drive the car for about 10 minutes to warm it up so that the CVT fluid reaches in the range of 50 to 80°C (122 to 176°F), then inspect the amount of CVT fluid and replenish if necessary.

The CVT fluid temperature rises in the range of 50 to 80°C (122 to 176°F) during 10 minutes of driv-

3. After warming up CVT, remove the oil pressure detection plug and install the oil pressure gauge [special service tool: — (OTC3492)]. CAUTION:

When using the oil pressure gauge, be sure to use the O-ring attached to the oil pressure detection plug.

4. Securely engage the parking brake so that the tires do not turn.



Start the engine, and then measure the line pressure at both idle and the stall speed.

CAUTION:

- Keep the brake pedal pressed all the way down during measurement.
- When measuring the line pressure at the stall speed. Refer to TM-261, "Stall Speed".

Line pressure: Refer to TM-261, "Line Pressure".

6. After the measurements are complete, install the oil pressure detection plug and tighten to the specified torque below.



: 7.5 N·m (0.77 kg-m, 66 in-lb)

CAUTION:

Do not reuse O-ring.

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[CVT: RE0F09B]

Apply CVT fluid to O-ring.

Line Pressure

Engine speed	Line pressure kPa (kg/cm², psi)
	"R", "D" positions
At idle	750 (7.65, 108.8)
At stall	5,700 (58.14, 826.5)* ¹

^{*1:} Reference values

JUDGMENT

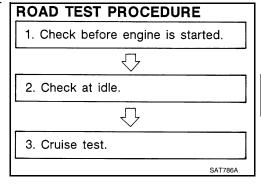
Judgment		Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example Oil pump wear Pressure regulator valve or plug sticking or spring fatigue Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example • Accelerator pedal position signal malfunction • CVT fluid temperature sensor malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking
Stall speed	Line pressure does not rise higher than the line pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example • Accelerator pedal position signal malfunction • TCM malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example • Accelerator pedal position signal malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

ROAD TEST

Description INFOID:000000004201796

DESCRIPTION

- The purpose of the test is to determine overall performance of CVT and analyze causes of problems.
- The road test consists of the following three parts:
- "Check Before Engine Is Started" <u>TM-249</u>.
- 2. "Check at Idle" TM-250.
- 3. "Cruise Test" TM-251.



[CVT: RE0F09B]

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- Before road test, familiarize yourself with all test procedures and items to check.
- Perform tests on all items until specified symptom is found. Troubleshoot items which check out No Good after road test.



CONSULT-III SETTING PROCEDURE

- Using CONSULT-III, perform a cruise test and record the result.
- Print the result and ensure that shifts and lock-ups take place as per Shift Schedule.
- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 2. Touch "MAIN SIGNALS" to set recording condition.
- 3. See "Numerical Display", "Barchart Display" or "Line Graph Display".
- Touch "START".
- 5. When performing cruise test. Refer to TM-251, "Cruise Test".
- 6. After finishing cruise test part, touch "RECORD".
- 7. Touch "STORE".
- 8. Touch "BACK".
- 9. Touch "DISPLAY".
- 10. Touch "PRINT".
- 11. Check the monitor data printed out.

Check before Engine Is Started

1. CHECK CVT INDICATOR LAMP

- 1. Park vehicle on flat surface.
- 2. Move selector lever to "P" position.
- 3. Turn ignition switch OFF. Wait at least 5 seconds.
- 4. Turn ignition switch ON. (Do not start engine.)

Does shift position indicator come on for about 2 seconds?

- YES >> 1. Turn ignition switch OFF.
 - Perform self-diagnosis and note NG items.
 Refer to <u>TM-119</u>, "CONSULT-III Function (TRANSMISSION)".
 - 3. Go to TM-250, "Check at Idle".

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[CVT: RE0F09B]

NO >> Stop "Road Test". Refer to TM-222, "Symptom Table".

Check at Idle

1. CHECK STARTING THE ENGINE

- Park vehicle on flat surface.
- 2. Move selector lever to "P" or "N" position.
- 3. Turn ignition switch OFF.
- 4. Turn ignition switch to "START" position.

Is engine started?

YES >> GO TO 2.

NO >> Stop "Road Test". Refer to TM-222, "Symptom Table".

2.CHECK STARTING THE ENGINE

- 1. Turn ignition switch ON.
- 2. Move selector lever to "D", "M" or "R" position.
- 3. Turn ignition switch to "START" position.

Is engine started?

YES >> Stop "Road Test". Refer to TM-222, "Symptom Table".

NO >> GO TO 3.

3.CHECK "P" POSITION FUNCTION

- 1. Move selector lever to "P" position.
- 2. Turn ignition switch OFF.
- 3. Release parking brake.
- 4. Push vehicle forward or backward.
- 5. Apply parking brake.

Does vehicle move when it is pushed forward or backward?

YES >> Refer to TM-222, "Symptom Table". Continue "Road Test".

NO >> GO TO 4.

4. CHECK "N" POSITION FUNCTION

- 1. Start engine.
- 2. Move selector lever to "N" position.
- Release parking brake.

Does vehicle move forward or backward?

YES >> Refer to TM-222, "Symptom Table". Continue "Road Test".

NO >> GO TO 5.

5. CHECK SHIFT SHOCK

- 1. Apply foot brake.
- Move selector lever to "R" position.

Is there large shock when changing from "N" to "R" position?

YES >> Refer to TM-222, "Symptom Table". Continue "Road Test".

NO >> GO TO 6.

6.CHECK "R" POSITION FUNCTION

Release foot brake for several seconds.

Does vehicle creep backward when foot brake is released?

YES >> GO TO 7.

NO >> Refer to TM-222, "Symptom Table". Continue "Road Test".

1. CHECK "D" POSITION FUNCTION

Move selector lever to "D" position and check if vehicle creeps forward.

Does vehicle creep forward in all positions?

YES >> Go to TM-251, "Cruise Test".

NO >> Stop "Road Test". Refer to TM-222, "Symptom Table".

[CVT: RE0F09B] Cruise Test

${f 1}$.CHECK VEHICLE SPEED WHEN SHIFTING GEARS — PART 1

Drive vehicle for approximately 10 minutes to warm engine oil and CVT fluid up to operating temperature.

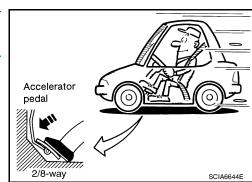
CVT fluid operating temperature: 50 - 80°C (122 - 176°F)

- 2. Park vehicle on flat surface.
- 3. Move selector lever to "P" position.
- 4. Start engine.
- 5. Move selector lever to "D" position.
- 6. Accelerate vehicle to 2/8-way throttle depressing accelerator pedal constantly.
 - Read vehicle speed and engine speed. Refer to TM-261. "Vehicle Speed When Shifting Gears"

OK or NG

OK >> GO TO 2.

>> Refer to TM-222. "Symptom Table". Continue "Road NG



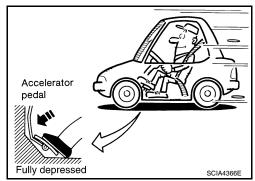
2.CHECK VEHICLE SPEED WHEN SHIFTING GEARS — PART 2

- 1. Park vehicle on flat surface.
- 2. Move selector lever to "D" position.
- 3. Accelerate vehicle to full depression depressing accelerator pedal constantly.
 - ® Read vehicle speed and engine speed.Refer to TM-261, "Vehicle Speed When Shifting Gears"

OK or NG

OK >> GO TO 3.

>> Refer to TM-222, "Symptom Table". Continue "Road NG Test".



3.CHECK MANUAL MODE FUNCTION

Move to manual mode from "D" position.

Does it switch to manual mode?

YES >> GO TO 4.

NO >> Refer to TM-222, "Symptom Table". Continue "Road Test".

4. CHECK SHIFT-UP FUNCTION

During manual mode driving, is upshift from M1 \rightarrow M2 \rightarrow M3 \rightarrow M4 \rightarrow M5 \rightarrow M6 performed?

lacktriangle Read the gear position. Refer to TM-119, "CONSULT-III Function (TRANSMISSION)".

Is upshifting correctly performed?

YES >> GO TO 5.

NO >> Refer to TM-222, "Symptom Table". Continue "Road Test".

5. CHECK SHIFT-DOWN FUNCTION

During manual mode driving, is downshift from M6 \rightarrow M5 \rightarrow M4 \rightarrow M3 \rightarrow M2 \rightarrow M1 performed?

Read the gear position. Refer to TM-119, "CONSULT-III Function (TRANSMISSION)".

Is downshifting correctly performed?

YES >> GO TO 6.

NO >> Refer to TM-222, "Symptom Table". Continue "Road Test". TM

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[CVT: RE0F09B]

6. CHECK ENGINE BRAKE FUNCTION

Check engine brake.

Does engine braking effectively reduce speed in M1 position?

YES >> 1. Stop the vehicle.

2. Perform self-diagnosis. Refer to <u>TM-119</u>, "<u>CONSULT-III Function (TRANSMISSION)</u>". >> Refer to <u>TM-222</u>, "<u>Symptom Table</u>". then continue trouble diagnosis.

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CVT POSITION

Inspection and Adjustment

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[CVT: RE0F09B]

INSPECTION

- 1. Place selector lever in "P" position, and turn ignition switch ON (engine stop).
- 2. Make sure that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also make sure that selector lever can be shifted from "P" position only when brake pedal is depressed.
- 3. Move the selector lever and check for excessive effort, sticking, noise or rattle.
- 4. Confirm the selector lever stops at each position with the feel of engagement when it is moved through all the positions. Check that the actual position of the selector lever matches the position shown by the shift position indicator and the manual lever on the transaxle.
- 5. The method of operating the selector lever to individual positions correctly should be as shown.
- 6. When selector button is pressed in "P", "R", or "N" position without applying forward/backward force to selector lever, check button operation for sticking.
- Confirm the back-up lamps illuminate only when selector lever is placed in the "R" position. Confirm the back-up lamps do not illuminate when the selector lever is pushed toward the "R" position when in the "P" or "N" position.
- 8. Confirm the engine can only be started with the selector lever in the "P" and "N" positions.
- 9. Make sure transaxle is locked completely in "P" position.
- 10. When selector lever is set to manual shift gate, make sure that manual mode is displayed on combination meter.

Shift selector lever to "+" and "-" sides, and check that set shift position changes.

ADJUSTMENT

CAUTION:

Apply parking brake before adjustment.

1. Loosen the control cable nut.

- 2. Place the manual lever and the selector lever in "P" position.
- 3. Tighten control cable nut to specified torque.

Control cable nut: Refer to TM-256, "Exploded

View".

CAUTION:

Secure the manual lever when tightening control cable nut. Make sure the manual lever stays in the "P" position.

Check the operation of the CVT.

Pess selector button to operate selector lever, while depressing the brake pedal.
Press selector button to operate selector lever.
Selector lever can be operated without pressing selector button.

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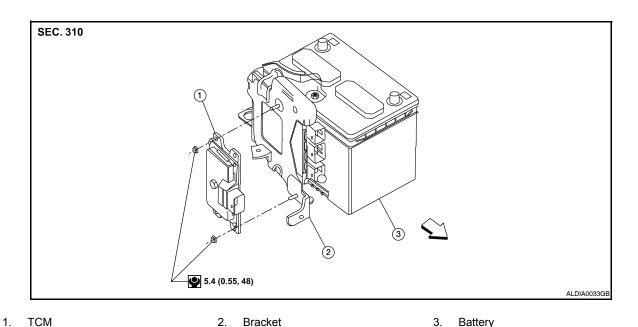
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[CVT: RE0F09B]

ON-VEHICLE REPAIR

TRANSMISSION CONTROL MODULE

Exploded View



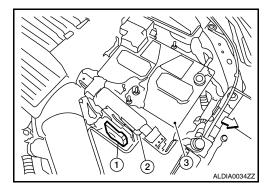
Removal and Installation

INFOID:0000000004201802

REMOVAL

←: Front

- 1. Disconnect the battery negative terminal. Refer to PG-139, "Removal and Installation".
- 2. Remove the fresh air intake tube (upper) EM-25, "Removal and Installation".
- 3. Disconnect the TCM harness connector.
- 4. Remove the TCM (1) from the bracket (2).
 - <⊐: Front
 - Battery (3)

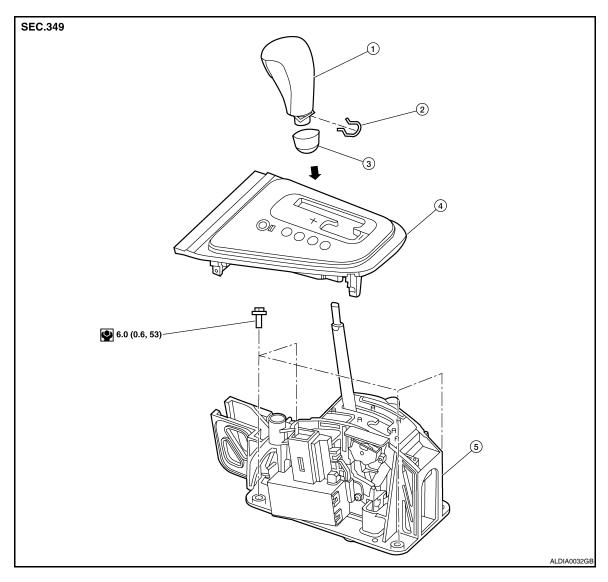


INSTALLATION

Installation is in the reverse order of removal.

CONTROL DEVICE

Exploded View



- 1. Control lever knob
- 4. Control device selector plate
- 2. Lock pin
- Control device assembly
- 3. Knob cover

Removal and Installation

REMOVAL

- 1. Remove the center console assembly. Refer to IP-18, "Disassembly and Assembly".
- Disconnect the control cable from the control device assembly.
- 3. Disconnect the CVT device harness connector from the control device assembly.
- 4. Remove the control device assembly bolts and the control device assembly.

INSTALLATION

Installation is in the reverse order of removal.

- When installing the control cable to the control device assembly, make sure that the control cable is fully
 pressed in with the ribbed surface facing upward.
- After installation is completed, adjust and check CVT position. Refer to <u>TM-253</u>, "<u>Inspection and Adjust-ment</u>".

[CVT: RE0F09B]

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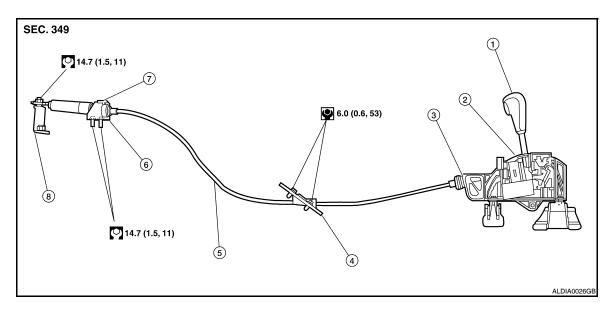
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CONTROL CABLE

Exploded View



- 1. Control lever
- 4. Retainer grommet
- 7. Lock plate

- 2. Control device assembly
- Control cable
- 8. Manual lever

- 3. Control cable socket
- 6. Bracket

Removal and Installation

INFOID:0000000004201806

[CVT: RE0F09B]

REMOVAL

- 1. Shift control lever to "P".
- 2. Remove the air filter assembly. Refer to EM-25, "Removal and Installation".
- 3. Remove the control cable nut and control cable from the manual lever.
- 4. Remove the lock plate and the control cable from the bracket.
- 5. Remove the center console. Refer to IP-18, "Disassembly and Assembly".
- 6. Remove the bracket covering the retainer grommet.
- 7. Remove the retainer grommet bolts and the retainer grommet.
- 8. Remove the control cable from the control device assembly.
- Remove the control cable from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

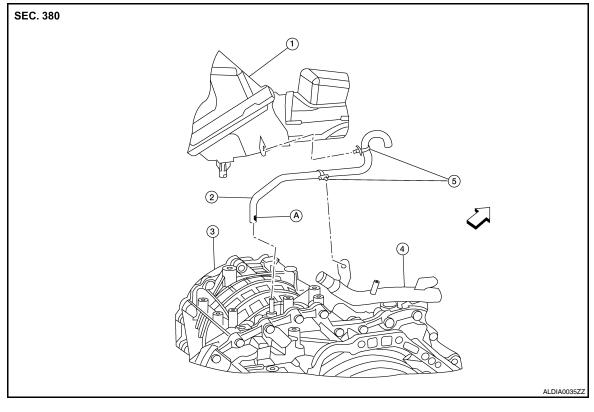
- When installing the control cable to the control device assembly, make sure that the control cable socket is fully pressed into the control device assembly, and the control cable end is fully pressed in with the ribbed surface facing upward.
- After installation is complete, adjust and check the CVT position. Refer to <u>TM-253</u>, "Inspection and Adjustment".

[CVT: RE0F09B]

INFOID:0000000004201807

AIR BREATHER HOSE

Exploded View



- 1. Air cleaner
- 4. Heater pipe
- ←: Front

- 2. Air breather hose
- 5. Clip

- 3. Transaxle assembly
- A. Paint mark

Removal and Installation

CAUTION:

- · Install air breather hose with paint mark facing front.
- Insert air breather hose onto air breather tube until overlap area reaches the spool.
- · Install air breather hose to heater pipe and air cleaner case by fully inserting the clip.
- Make sure there are no pinched or restricted areas on air breather hose caused by bending or winding when installing it.

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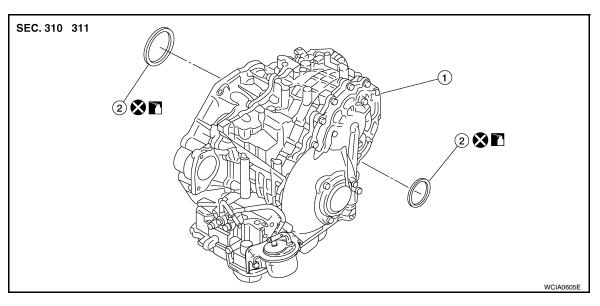
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DIFFERENTIAL SIDE OIL SEAL

Exploded View INFOID:0000000004201809



- 1. Transaxle assembly
- Differential side oil seal
- :NISSAN CVT Fluid NS-2

[CVT: RE0F09B]

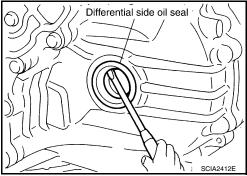
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Removal and Installation

REMOVAL

- 1. Remove drive shaft assembly. Refer to FAX-11, "Removal and Installation (Left Side)" and FAX-12, "Removal and Installation (Right Side)".
- 2. Remove the differential side oil seal using suitable tool **CAUTION:**

Do not scratch transaxle case or converter housing.



INSTALLATION

Drive the new differential side oil seal into the transaxle case side (B) and converter housing side (C) until it is flush using Tools.

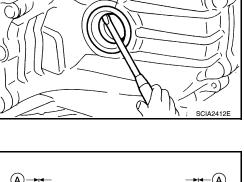
> **Tool number** (J-47244) (LH)

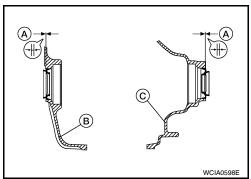
> > : ST33400001 (J-47005) (RH)

Dimension A $: 0 \pm 0.5 \text{ mm } (0 \pm 0.02 \text{ in})$

CAUTION:

- Do not reuse differential side oil seals.
- Apply specified NISSAN CVT fluid to side oil seals.
- 2. Install drive shaft assembly. Refer to FAX-11, "Removal and Installation (Left Side)" and FAX-12, "Removal and Installation (Right Side)".
- 3. Check CVT fluid level. Refer to TM-240, "Inspection".

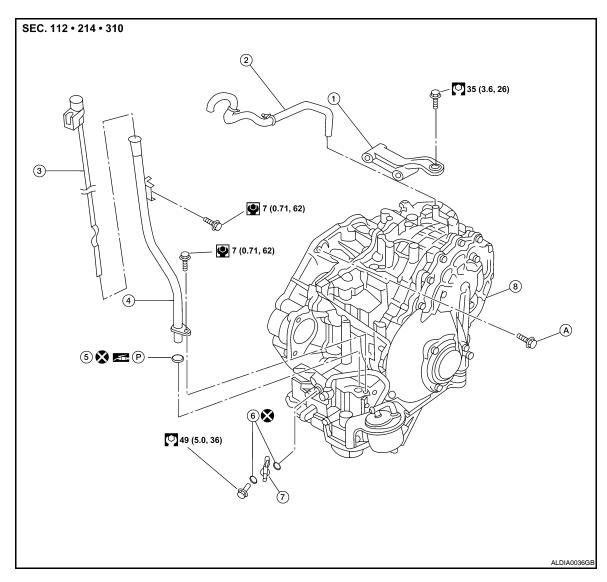




REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View



- Rear gusset
- 4. CVT fluid charging pipe
- 7. Fluid cooler tube

- 2. Air breather hose
- 5. O-ring
- 8. Transaxle assembly

- 3. CVT fluid level gauge
- 6. Copper washer
- A. Refer to <u>TM-259</u>, "Removal and <u>Installation"</u>.

Removal and Installation

REMOVAL

 Remove the engine and transaxle as an assembly. Refer to <u>EM-72, "Removal and Installation"</u>. NOTE:

Using paint, put matching marks on the drive plate and torque converter when removing the torque converter to drive plate nuts.

- 2. Disconnect the electrical connectors from the following:
 - CVT unit harness connector. Refer to TM-234, "Removal and Installation Procedure for CVT Unit Connector".
 - · Secondary speed sensor

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< REMOVAL AND INSTALLATION >

- 3. Remove the harness from the transaxle.
- 4. Remove the transaxle to engine and engine to transaxle bolts.
- 5. Remove the CVT fluid charging pipe.
- 6. Separate the transaxle from the engine.
- 7. If necessary, remove the following from the CVT:
 - · Fluid cooler tube
 - · Air breather hose
 - Brackets

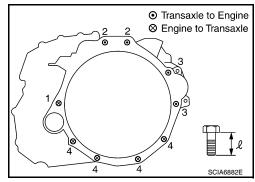
INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drive train components.
- · Do not reuse O-rings.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to EM-52, "Removal and Installation".
- After converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- When installing CVT assembly to the engine assembly, attach the bolts in accordance with the following standard.

Bolt No.	1	2	3	4
Number of bolts	1	2	2	4
Bolt length " ℓ "mm (in)	55 (2.17)	45 (1.77)		
Tightening torque N⋅m (kg-m, ft-lb)	75 (7.7, 55)		43 (4.4, 32)	



[CVT: RE0F09B]

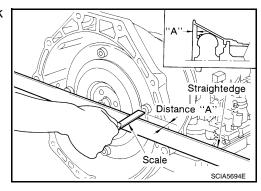
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque.
- After completing installation, check for fluid leakage, fluid level, and the positions of CVT. Refer to <u>TM-240</u>, <u>"Inspection"</u> and <u>TM-253</u>, <u>"Inspection and Adjustment"</u>.
- When replacing the CVT assembly, erase EEP ROM in TCM.

Inspection INFOID:000000004201813

Installation and Inspection of Torque Converter

 After inserting the torque converter to the CVT, be sure to check distance "A" to ensure it is within specifications.

Distance "A" : 14.0 mm (0.55 in) or more



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

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[CVT: RE0F09B]

Applied model		VQ35DE engine		
Applied Hodel		2WD		
CVT model		RE0F09B		
CVT assembly	Model code number	1XE1B		
	D position	Variable		
Transmission gear ratio	Reverse	1.750		
	Final drive	5.173		
Recommended fluid		NISSAN CVT Fluid NS-2*1		
Fluid capacity		10.2 liter (10-6/8 US qt, 9 Imp qt)		

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Do not mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the warranty.

Vehicle Speed When Shifting Gears

Numerical value data are reference values.

Engine type	Throttle position Shift pattern		Engine speed (rpm)		
Liigilie type	Throttle position	Shint pattern	At 40 km/h (25 MPH)	At 60 km/h (37 MPH)	
VQ35DE	8/8	"D" position	2,900 – 4,100	3,900 – 5,600	
VQSSDE	2/8	D position	900 – 2,000	1,000 – 2,000	

CAUTION:

Lock-up clutch is engaged when vehicle speed is approximately 18 km/h (11 MPH) to 90 km/h (56 MPH).

Stall Speed

	Stall speed	2,700 – 3,250 rpm
--	-------------	-------------------

Line Pressure

Engine speed	Line pressure kPa (kg/cm², psi)
	"R", "D" positions
At idle	750 (7.65, 108.8)
At stall	5,700 (58.14, 826.5) ^{*1}

^{*1:} Reference values

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^{*1:} Refer to MA-12, "Fluids and Lubricants".

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Solenoid Valves

Name	Resistance (Approx.)	Terminal
Pressure control solenoid valve B (secondary pressure solenoid valve)		3
Pressure control solenoid valve A (line pressure solenoid valve)	$3.0-9.0~\Omega$	2
Torque converter clutch solenoid valve		12
Lock-up select solenoid valve	6 – 19 Ω	13

CVT Fluid Temperature Sensor

INFOID:0000000004201819

[CVT: RE0F09B]

Name	Condition	CONSULT-III "DATA MONITOR" (Approx.)	Resistance (Approx.)
ATF TEMP SEN	20°C (68°F)	1.8 – 2.0 V	6.5 kΩ
ATT TEIVII OLIN	80°C (176°F)	0.6 – 1.0 V	0.9 kΩ

Primary Speed Sensor

INFOID:0000000004201820

Name	Condition	Data (Approx.)
Primary speed sensor	When driving ["M1" position, 20 km/h (12 MPH)]	660 Hz

Secondary Speed Sensor

INFOID:0000000004201821

Name	Condition	Data (Approx.)
Secondary speed sensor	When driving ["D" position, 20 km/h (12 MPH)]	400 Hz

Removal and Installation

< BASIC INSPECTION > [CVT: RE0F10A]

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

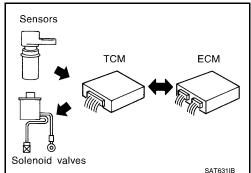
Work Flow

INTRODUCTION

The TCM receives a signal from the vehicle speed sensor, PNP switch and provides shift control or lock-up control via CVT solenoid valves.

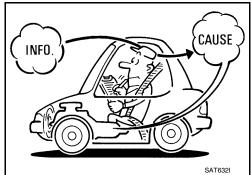
The TCM also communicates with the ECM by means of a signal sent from sensing elements used with the OBD-related parts of the CVT system for malfunction-diagnostic purposes. The TCM is capable of diagnosing malfunctioning parts while the ECM can store malfunctions in its memory.

Input and output signals must always be correct and stable in the operation of the CVT system. The CVT system must be in good operating condition and be free of valve seizure, solenoid valve malfunction, etc.



It is much more difficult to diagnose an error that occurs intermittently rather than continuously. Most intermittent errors are caused by poor electric connections or improper wiring. In this case, careful checking of suspected circuits may help prevent the replacement of good parts.

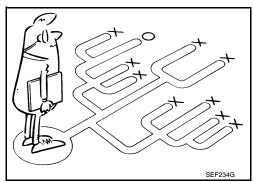
A visual check only may not find the cause of the errors. A road test with CONSULT-III (or GST) or a circuit tester connected should be performed. Follow the "DETAILED FLOW".



Before undertaking actual checks, take a few minutes to talk with a customer who approaches with a driveability complaint. The customer can supply good information about such errors, especially intermittent ones. Find out what symptoms are present and under what conditions they occur. A "Diagnostic Work Sheet" as shown on the example (Refer to TM-264) should be used.

Start your diagnosis by looking for "conventional" errors first. This will help troubleshoot driveability errors on an electronically controlled engine vehicle.

Also check related Service bulletins.



DETAILED FLOW

1. COLLECT THE INFORMATION FROM THE CUSTOMER

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using diagnosis worksheet. Refer to TM-264, "Diagnostic Work Sheet".

>> GO TO 2.

2. CHECK SYMPTOM 1

Check the following items based on the information obtained from the customer.

- Fail-safe. Refer to TM-397, "Fail-safe".
- CVT fluid inspection. Refer to <u>TM-416</u>, "Inspection".
- Line pressure test. Refer to TM-423, "Inspection and Judgment".

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CVT: RE0F10A]

• Stall test. Refer to TM-421, "Inspection and Judgment".

>> GO TO 3.

3. CHECK DTC

- Check DTC.
- Perform the following procedure if DTC is detected.
- Record DTC.
- Erase DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 6.

4. PERFORM DIAGNOSTIC PROCEDURE

Perform "Diagnostic Procedure" for the displayed DTC.

>> GO TO 5.

Perform "DTC CONFIRMATION PROCEDURE" for the displayed DTC.

Is DTC detected?

YES

NO

6. CHECK SYMPTOM 2

Try to confirm the symptom described by the customer.

Is any malfunction present?

YES >> GO TO 7.

NO >> INSPECTION END

7. RODE TEST

Perform "RODE TEST". Refer to TM-425, "Description".

>> GO TO 8.

8. CHECK SYMPTOM 3

Try to confirm the symptom described by the customer.

Is any malfunction present?

YES >> GO TO 2.

NO >> INSPECTION END

Diagnostic Work Sheet

INFORMATION FROM CUSTOMER

KEY POINTS

- WHAT.....Vehicle & CVT model
- WHEN.....Date, Frequencies
- WHERE...Road conditions
- HOW......Operating conditions, Symptoms

Customer name MR/MS	Model & Year VIN		
Trans. Model	Engine	Mileage	
Malfunction Date	Manuf. Date In Service Date		
Frequency	☐ Continuous ☐ Intermittent (times a day)		

5. PERFORM DTC CONFIRMATION PROCEDURE >> GO TO 4. >> GO TO 6.

DIAGNOSIS AND REPAIR WORKFLOW

			☐ Vehicle does not move.	(□ Any positio	n □ Particular position)	
			☐ No shift			
Symptoms			☐ Lock-up malfunction			
			☐ Shift shock or slip (☐ N	\rightarrow D \square N \rightarrow	R □ Lock-up □ Any drive p	osition)
Symp	toms		☐ Noise or vibration			
			☐ No pattern select			
			□ Others			
			()	
Malfunction indicator lamp (MIL) □ Continuously lit □ Not lit			□ Not lit			
DIAG	NOSTIC	WORKSHEET				
1	☐ Read t	the item on cautions conce	erning fail-safe and understand	the customer's	s complaint.	TM-397
	□ CVT fl	uid inspection, stall test ar	nd line pressure test			
		☐ CVT fluid inspection				
2	☐ Leak (Repair leak location.)				TM-416	
	☐ State ☐ Amount					
		☐ Stall test				
		☐ Torque converter one-way clutch ☐ Engine				
		☐ Reverse brake ☐ Line pressure low ☐ Forward clutch ☐ Primary pulley			<u>TM-421,</u> TM-423	
		☐ Steel belt ☐ Secondary pulley				
		☐ Line pressure inspec	tion - Suspected part:			
3	□ Perfor	m self-diagnosis.				TM-298
J		Enter checks for detected items.				<u>1101 230</u>
	□ Perform road test.				<u>TM-425</u>	
4	4-1. Check before engine is started4-2. Check at idle		started			TM-425
7						<u>TM-426</u>
				TM-427		
5	☐ Inspect each system for items found to be NG in the self-diagnosis and repair or replace the malfunctioning parts.					
6	☐ Perform all road tests and enter the checks again for the required items. <u>TM-425</u>					
7	☐ For any remaining NG items, perform the "diagnosis procedure" and repair or replace the malfunctioning parts.					
	☐ Erase	the results of the self-diag	nosis from the TCM and the E	CM.		

TM-265

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INSPECTION AND ADJUSTMENT

< BASIC INSPECTION > [CVT: RE0F10A]

INSPECTION AND ADJUSTMENT ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT: Service After Replacing TCM and Transaxle Assembly

SERVICE AFTER REPLACING TCM AND TRANSAXLE ASSEMBLY

Perform the applicable service in the following sheet when replacing TCM or transaxle assembly. **CAUTION:**

- · Do not start the engine until the service is completed.
- "TCM-POWER SUPPLY [P1701]" may be indicated soon after replacing TCM or transaxle assembly (after erasing the memory at the pattern B). Restart the self-diagnosis after erasing the self-diagnosis result. Check that no error is detected.

TCM	CVT assembly	Service pattern		
Replace the new unit.	Do not replace the unit.	"PATTERN A"		
Do not replace the unit.	Replace the new or old unit.			
Deplete the old unit	Do not replace the unit.	"PATTERN B"		
Replace the old unit.	Replace the new or old unit.			
Replace the new unit.	Replace the new or old unit.	"PATTERN C"		

NOTE:

Old unit means that the unit has been already used for another vehicle.

PATTERN A

- 1. Shift the selector lever to "P" position after replacing TCM. Turn ignition switch ON.
- 2. Check that the shift position indicator in the combination meter turns ON (It indicates approximately 1 or 2 seconds after turning the ignition switch ON.)
 - Check the following items if the shift position indicator does not turn ON. Repair or replace the shift position indicator if necessary.
 - The harness between TCM and ROM ASSY in the transaxle assembly is open or short.
 - Cable disconnected, loosen, or bent from the connector housing.

PATTERN B

- 1. Turn ignition switch ON after replacing each part.
- 2. Start engine.

CAUTION:

Do not start the driving.

- Select "DATA MONITOR".
- 4. Warm up transaxle assembly until "ATFTEMP COUNT" indicates 47 [approximately 20°C (68°F)] or more. Turn ignition switch OFF.
- 5. Turn ignition switch ON.

CAUTION:

Do not start engine.

- 6. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".
- 7. Shift the selector lever to "R" position.
- 8. Depress slightly the accelerator pedal (Pedal angle: 2/8) while depressing the brake pedal.
- 9. Perform "ERASE".
- 10. Shift selector lever to "R" position after replacing TCM. Turn ignition switch OFF.
- 11. Wait approximately 10 minutes after turning ignition switch OFF.
- 12. Turn ignition switch ON while shifting selector lever to "R" position.

CAUTION:

Do not start engine.

- Select "Special function".
- 14. Check that the value on "CALIBRATION DATA" is same as the data after erasing "Calibration Data".

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION > [CVT: RE0F10A]

- Restart the procedure from step 3 if the values are not same.
- 15. Shift selector lever to "P" position.
- 16. Check that the shift position indicator in the combination meter turns ON (It indicates approximately 1 or 2 seconds after shifting the selector lever to "P" position.)
 - Check the following items if the shift position indicator does not turn ON. Repair or replace the shift position indicator if necessary.
 - The harness between TCM and ROM ASSY in the transaxle assembly is open or short.
 - Cable disconnected, loosen, or bent from the connector housing.
 - Power supply and ground of TCM. Refer to TM-349.

Calibration Data

Item name	Display value	Item name	Display value
INIT CLB ID 1	0000	GAIN PL	256
JNIT CLB ID 2	0000	OFFSET PL	40
JNIT CLB ID 3	0000	OFFSET2 PL	0
JNIT CLB ID 4	0000	MAP NO SEC	32
JNIT CLB ID 5	0000	GAIN SEC	256
JNIT CLB ID 6	0000	OFFSET SEC	40
MAP NO LU	33	OFFSET2 SEC	0
AIN LU	256	MAP NO SL	32
FFSET LU	40	GAIN SL	256
FFSET2 LU	0	OFFSET SL	40
IAP NO PL	32	OFFSET2 SL	0

PATTERN C

- 1. Replace transaxle assembly first, and then replace TCM.
- 2. Perform the service of "PATTERN A". (Perform the service of "PATTERN B" if TCM is replaced first.)

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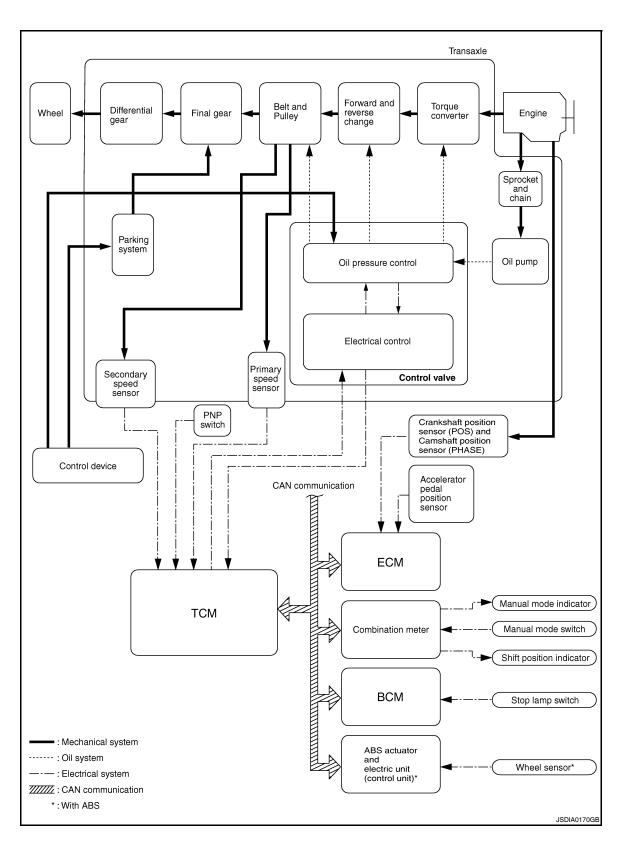
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[CVT: RE0F10A]

FUNCTION DIAGNOSIS

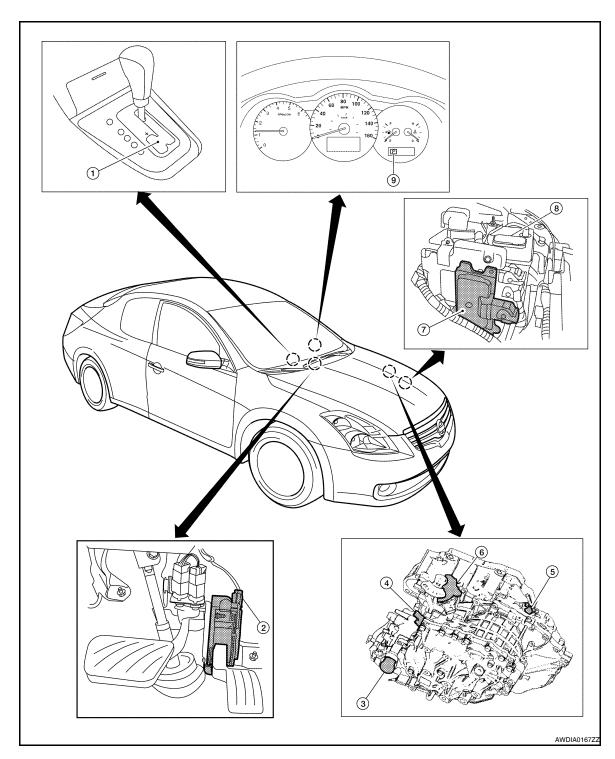
CVT SYSTEM

System Diagram



Component Parts Location - Coupe

INFOID:0000000004201827



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

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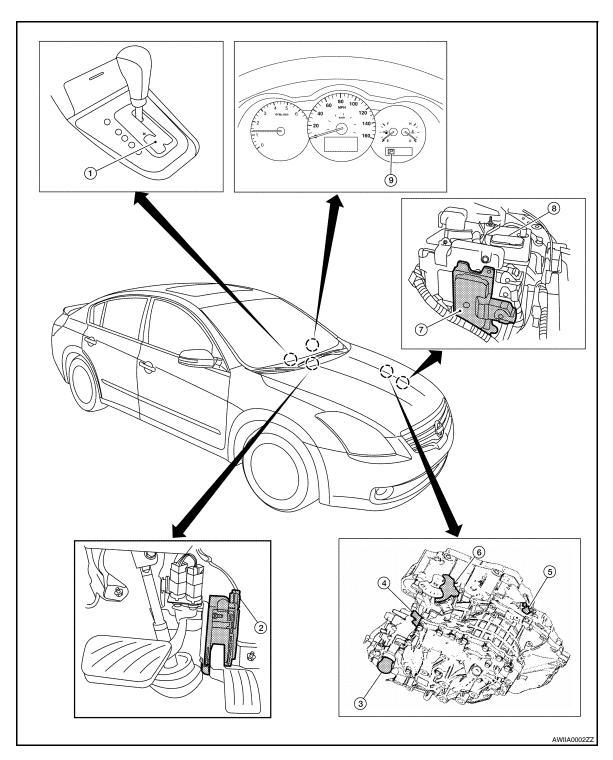
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Component Parts Location - Sedan



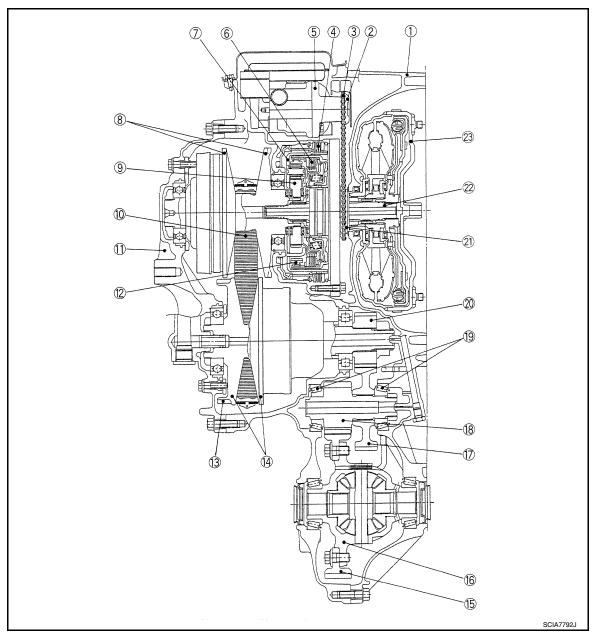
- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

MECHANICAL SYSTEM

Cross-Sectional View



- 1. Converter housing
- 4. Reverse brake
- 7. Planetary carrier
- 10. Steel belt
- 13. Parking gear
- 16. Differential case
- 19. Taper roller bearing
- 22. Input shaft

- 2. Driven sprocket
- 5. Oil pump
- 8. Primary pulley
- 11. Side cover
- 14. Secondary pulley
- 17. Idler gear
- 20. Output gear
- 23. Torque converter

- 3. Chain
- 6. Forward clutch
- 9. Sun gear
- 12. Internal gear
- 15. Final gear
- 18. Reduction gear
- 21. Drive sprocket

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[CVT: RE0F10A]

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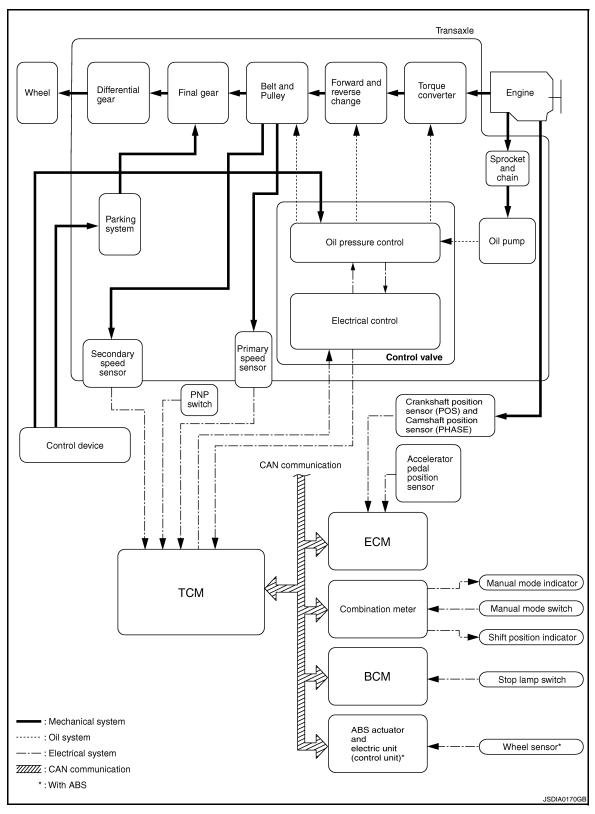
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System Diagram



System Description

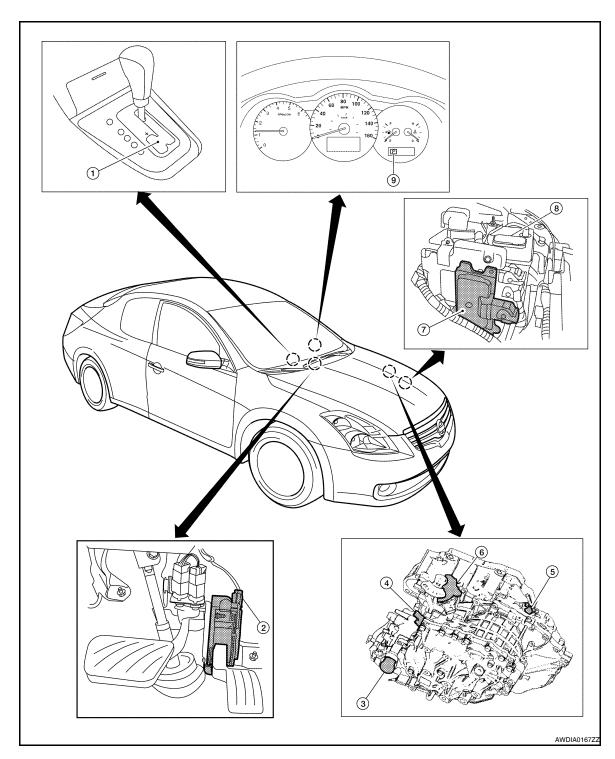
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[CVT: RE0F10A]

Transmits the power from the engine to the drive wheel.

Component Parts Location - Coupe

INFOID:0000000004201832



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

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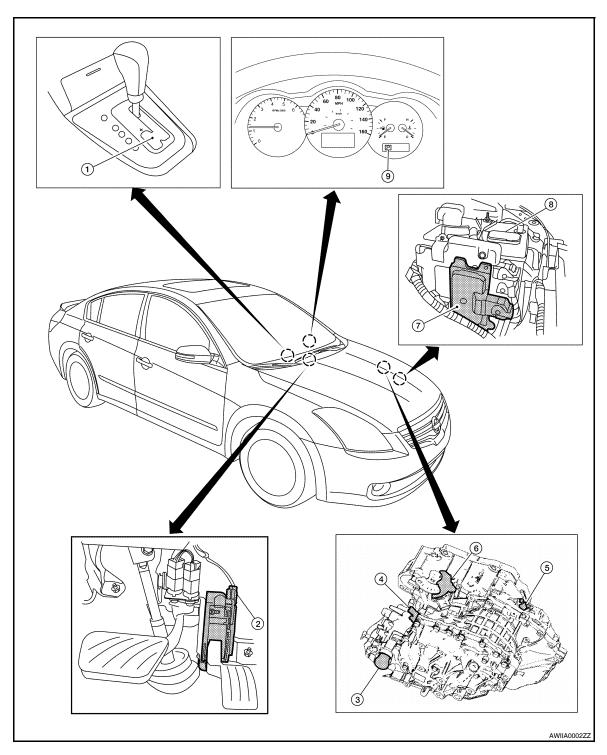
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Component Parts Location - Sedan



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

MECHANICAL SYSTEM

[CVT: RE0F10A] < FUNCTION DIAGNOSIS >

Component Description

INFOID:0000000004201834

Item	Function
Torque converter	The torque converter is the device that increases the engine torque as well as the conventional A/T and transmits it to the transaxle.
Oil pump	The efficiency of pump discharge rate at low-rpm and the optimization at high-rpm have been increased through the oil pump drive chain by adopting a vane-type oil pump controlled by the engine. Discharged oil from oil pump is transmitted to the control valve. It is used as the oil of primary and secondary pulley operation and the oil of clutch operation and the lubricant for each part.
Planetary gear	
Forward clutch	Perform the transmission of drive power and the switching of forward/backward movement.
Reverse brake	
Primary pulley	It is composed of a pair of pulleys (the groove width is changed freely in the axial direc-
Secondary pulley	tion) and the steel belt (the steel star wheels are placed continuously and the belt is guid- ed with the multilayer steel rings on both sides). The groove width changes according to
Steel belt	wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.
Output gear	
Idler gear	The drive power from the secondary pulley returns the deceleration gears [primary de-
Reduction gear	celeration (output gear/idler gear pair) and secondary deceleration (reduction gear/final
Final gear	gear pair)]. It is transmitted from differential to drive wheel.
Differential	
Manual shaft	
Parking rod	The parking rod rotates the parking pole and the parking pole engages with the parking
Parking pawl	gear when the manual shaft is in P position. As a result the parking gear and the output axis are fixed.
Parking gear	

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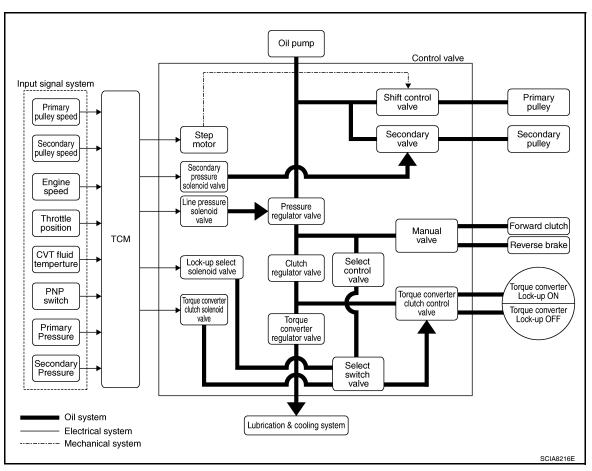
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HYDRAULIC CONTROL SYSTEM

System Diagram



System Description

INFOID:0000000004201836

[CVT: RE0F10A]

The hydraulic control mechanism consists of the oil pump directly driven by the engine, the hydraulic control valve that controls line pressure and transmission, and the input signal line.

LINE PRESSURE AND SECONDARY PRESSURE CONTROL

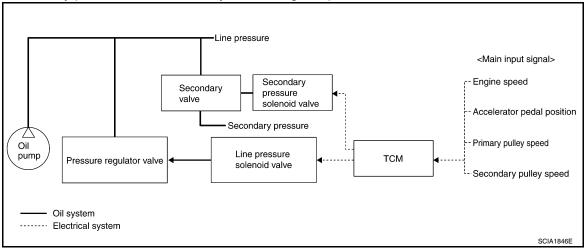
• When an input torque signal equivalent to the engine drive force is sent from the ECM to the TCM, the TCM controls the line pressure solenoid valve and secondary pressure solenoid valve.

HYDRAULIC CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

This line pressure solenoid controls the pressure regulator valve as the signal pressure and adjusts the pressure of the operating oil discharged from the oil pump to the line pressure most appropriate to the driving

state. Secondary pressure is controlled by decreasing line pressure.



Normal Control

Optimize the line pressure and secondary pressure, depending on driving conditions, on the basis of the throttle position, the engine speed, the primary pulley (input) revolution speed, the secondary pulley (output) revolution speed, the brake signal, the PNP switch signal, the lock-up signal, the voltage, the target gear ratio, the fluid temperature, and the fluid pressure.

Feedback Control

When controlling the normal fluid pressure or the selected fluid pressure, the secondary pressure can be set more accurately by using the fluid pressure sensor to detect the secondary pressure and controlling the feedback.

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[CVT: RE0F10A]

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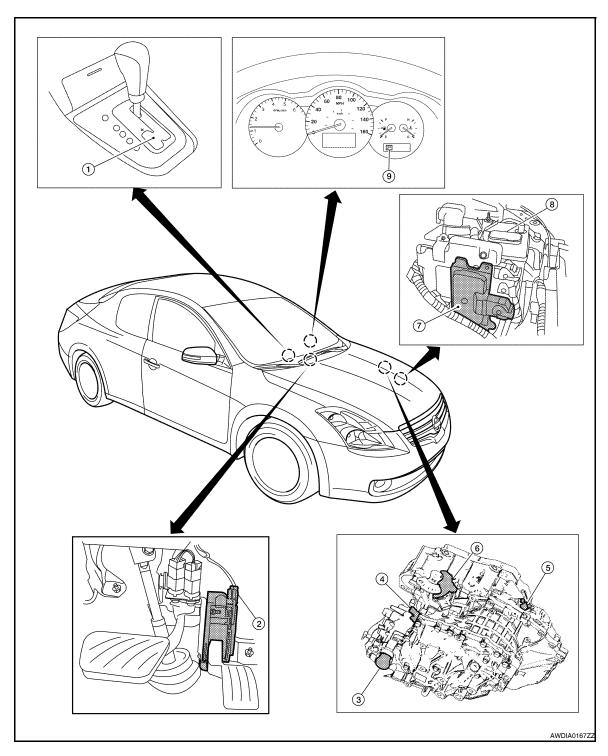
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Component Parts Location - Coupe



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

Component Parts Location - Sedan

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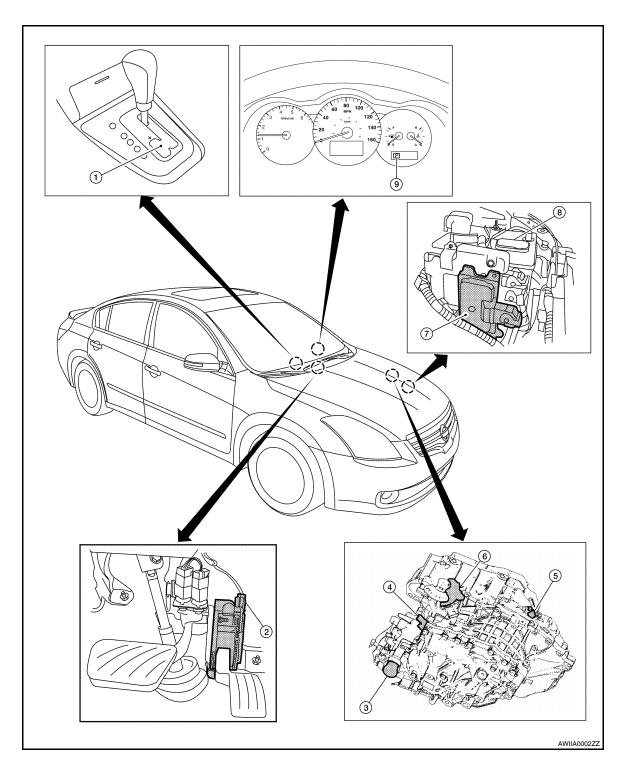
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- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

Component Description

TRANSAXLE ASSEMBLY

HYDRAULIC CONTROL SYSTEM

Torque converter regulator valve

Pressure regulator valve

TCC control valve

TCC solenoid valve

Shift control valve

Secondary valve

Step motor

Manual valve

PNP switch

Primary pulley Secondary pulley

Forward clutch Torque converter

Select control valve

Select switch valve

Primary speed sensor

Secondary speed sensor

Clutch regulator valve

Secondary pressure solenoid valve

Line pressure solenoid valve

Lock-up select solenoid valve

Name

[CVT: RE0F10A] **Function** Optimizes the supply pressure for the torque converter depending on driving conditions. Optimizes the discharge pressure from the oil pump depending on driving conditions. · Activates or deactivate the lock-up. · Lock-up smoothly by opening lock-up operation excessively. TM-327 Controls flow-in/out of line pressure from the primary pulley depending on the stroke difference between the stepping motor and the primary pulley. Controls the line pressure from the secondary pulley depending on operating conditions. Adjusts the clutch operating pressure depending on operating conditions. TM-336 TM-329 TM-361 Transmits the clutch operating pressure to each circuit in accordance with the selected Engages forward clutch, reverse brake smoothly depending on select operation. Switches torque converter clutch solenoid valve control pressure use to torque converter

TM-358

TM-313

TM-318

TM-313

TM-275

EXCEPT TRANSAXLE ASSEMBLY

Name	Function	
TCM	Judges the vehicle driving status according to the signal from each sensor and controls the non-step transmission mechanism properly.	
Accelerator pedal position sensor	<u>TM-352</u>	

clutch control valve or select control valve.

position.

[CVT: RE0F10A]

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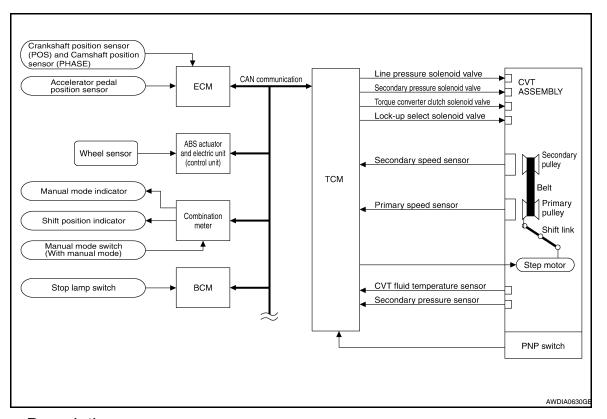
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INFOID:0000000004201841

CONTROL SYSTEM

System Diagram



System Description

The CVT senses vehicle operating conditions through various sensors. It always controls the optimum shift position and reduces shifting and lock-up shocks.

TCM FUNCTION

The function of the TCM is to:

- Receive input signals sent from various switches and sensors.
- · Determine required line pressure, shifting point, and lock-up operation.
- Send required output signals to the step motor and the respective solenoids.

SENSORS (or SIGNAL)
PNP switch Accelerator pedal position signal Closed throttle position signal Engine speed signal CVT fluid temperature sensor Vehicle speed signal Manual mode signal Stop lamp switch signal Primary speed sensor Secondary speed sensor Secondary pressure sensor

^{*:} Without manual mode.

INPUT/OUTPUT SIGNAL OF TCM

TM-281

[CVT: RE0F10A]

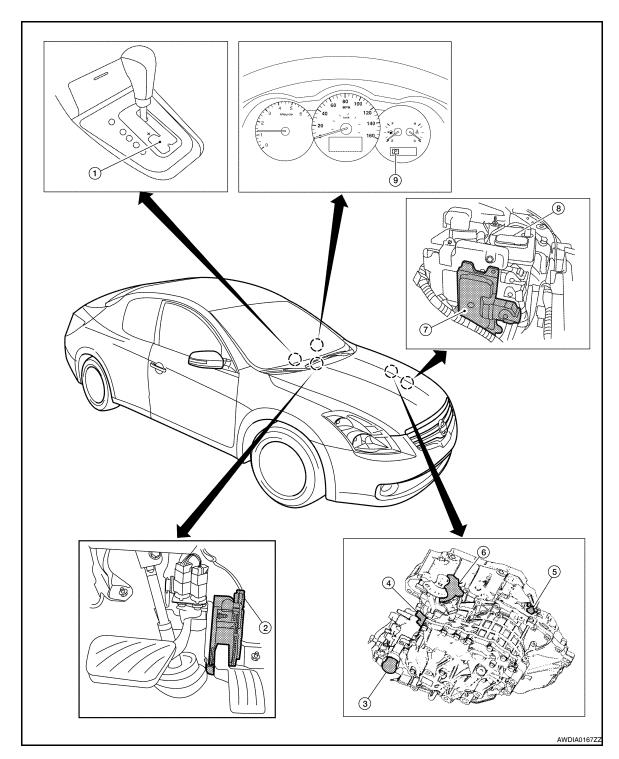
	Control item	Fluid pressure control	Select con- trol	Shift control	Lock-up control	CAN com- munication control	Fail-safe function(*2)
	PNP switch	Х	Х	Х	Х	Х	Х
	Accelerator pedal position signal (*1)	Х	Х	Х	Х	Х	Х
	Closed throttle position signal(*1)	Х		Х	Х	Х	
	Engine speed signal ^(*1)	Х	Х		Х	Х	Х
Input	CVT fluid temperature sensor	Х	Х	Х	Х		Х
IIIput	Manual mode signal(*1)	Х		Х	Х	Х	Х
	Stop lamp switch signal ^(*1)	Х		Х	Х	Х	
	Primary speed sensor	Х		Х	Х	Х	Х
	Secondary speed sensor	Х	Х	Х	Х	Х	Х
	Secondary pressure sensor	Х		Х			Х
	Step motor			Х			Х
Output	TCC solenoid valve		Х		Х		Х
	Lock-up select solenoid valve		Х		Х		Х
	Line pressure solenoid valve	Х	Х	Х			Х
	Secondary pressure solenoid valve	Х		Х			Х

^{*1:} Input by CAN communications.

^{*2:} If these input and output signals are different, the TCM triggers the fail-safe function.

Component Parts Location - Coupe

INFOID:0000000004201842



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

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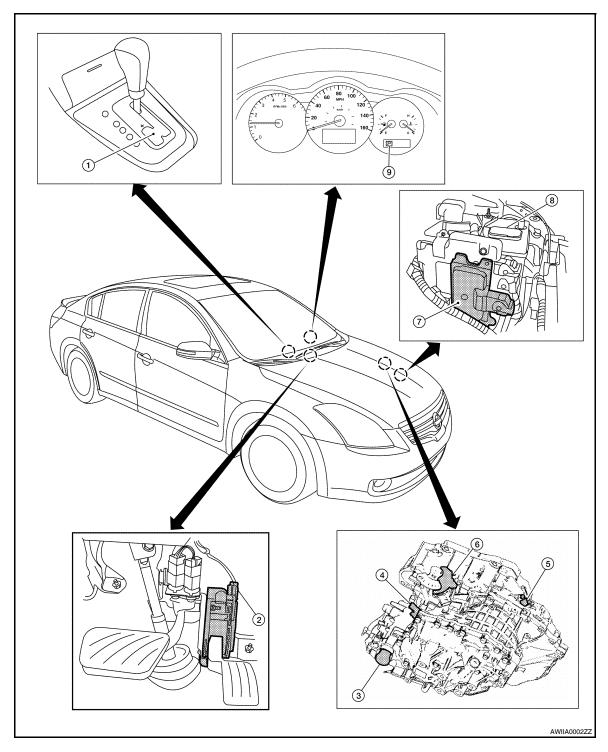
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INFOID:0000000004201843



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

Component Description

TRANSAXLE ASSEMBLY

CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

Name	Function	A
PNP switch	<u>TM-307</u>	
CVT fluid temperature sensor	<u>TM-310</u>	
Primary speed sensor	<u>TM-313</u>	В
Secondary speed sensor	<u>TM-318</u>	
Secondary pressure sensor	<u>TM-341</u>	C
Step motor	<u>TM-361</u>	
TCC solenoid valve	<u>TM-324</u>	
Lock-up select solenoid valve	<u>TM-358</u>	TM
Line pressure solenoid valve	<u>TM-329</u>	_
Secondary pressure solenoid valve	TM-333	

EXCEPT TRANSAXLE ASSEMBLY

Name	Function	
TCM Optimally controls continuously variable transmission system by judging driv tions based on signals from each sensor.		
Stop lamp switch	<u>TM-304</u>	

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[CVT: RE0F10A]

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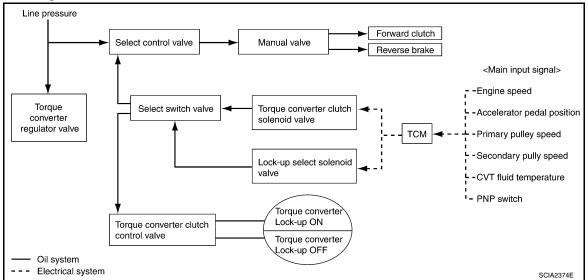
LOCK-UP AND SELECT CONTROL SYSTEM

System Diagram

< FUNCTION DIAGNOSIS >

INFOID:0000000004201845

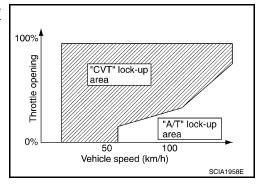
[CVT: RE0F10A]



System Description

INFOID:0000000004201846

- The torque converter clutch piston in the torque converter is engaged to eliminate torque converter slip to increase power transmission efficiency.
- The torque converter clutch control valve operation is controlled by the torque converter clutch solenoid valve, which is controlled by a signal from TCM. The torque converter clutch control valve engages or releases the torque converter clutch piston.
- When shifting between "N" ("P") ⇔"D" ("R"), torque converter clutch solenoid controls engagement power of forward clutch and reverse brake.
- · The lock-up applied gear range was expanded by locking up the torque converter at a lower vehicle speed than conventional CVT models.



TORQUE CONVERTER CLUTCH AND SELECT CONTROL VALVE CONTROL

Lock-up Released

In the lock-up released state, the torque converter clutch control valve is set into the unlocked state by the torque converter clutch solenoid and the lock-up apply pressure is drained.

In this way, the torque converter clutch piston is not coupled.

Lock-up Applied

In the lock-up applied state, the torque converter clutch control valve is set into the locked state by the torque converter clutch solenoid and lock-up apply pressure is generated.

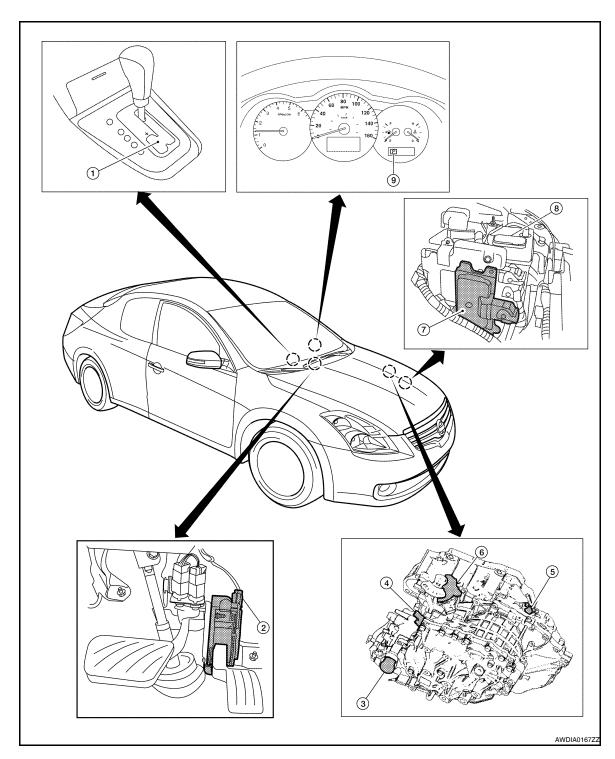
In this way, the torque converter clutch piston is pressed and coupled.

Select Control

When shifting between "N" ("P") ⇔"D" ("R"), optimize the operating pressure on the basis of the throttle position, the engine speed, and the secondary pulley (output) revolution speed to lessen the shift shock.

Component Parts Location - Coupe

INFOID:0000000004201847



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

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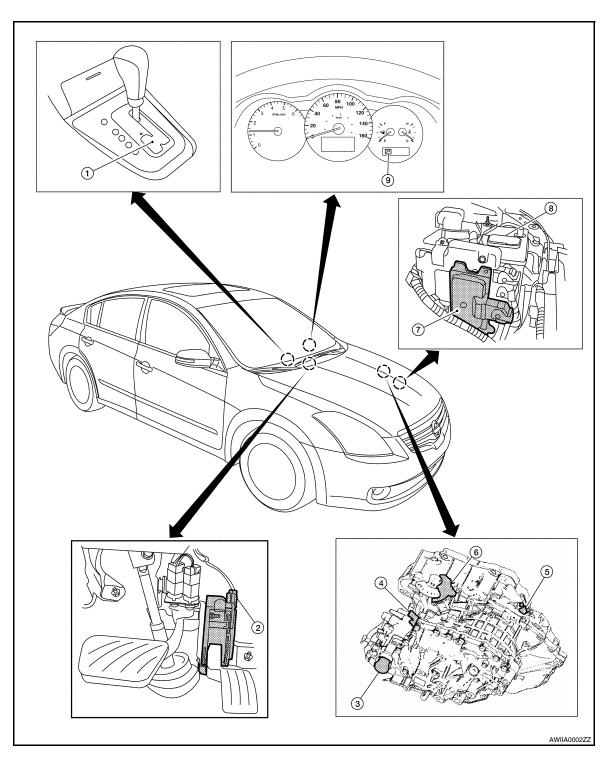
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Component Parts Location - Sedan

INFOID:0000000004201848



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

Component Description

TRANSAXLE ASSEMBLY

LOCK-UP AND SELECT CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[CVT: RE0F10A]

Name	Function	
Torque converter regulator valve		
TCC control valve		
Select control valve	<u>TM-279</u>	
Select switch valve		
Manual valve		
TCC solenoid valve	<u>TM-324</u>	
Lock-up select solenoid valve	<u>TM-358</u>	
Primary speed sensor	<u>TM-313</u>	Т
Secondary speed sensor	<u>TM-318</u>	· .
CVT fluid temperature sensor	<u>TM-310</u>	
PNP switch	<u>TM-307</u>	
Forward clutch		
Reverse brake	<u>TM-275</u>	
Torque converter		
XCEPT TRANSAXLE ASSEMBLY		
Name	Function	
TCM	<u>TM-284</u>	
Accelerator pedal position sensor	<u>TM-352</u>	

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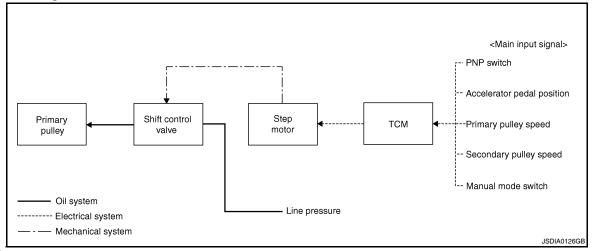
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SHIFT MECHANISM

System Diagram

INFOID:0000000004201850

[CVT: RE0F10A]



NOTE:

The gear ratio is set for every position separately.

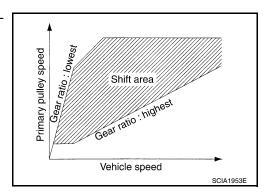
System Description

INFOID:0000000004201851

In order to select the gear ratio which can obtain the driving force in accordance with driver's intention and the vehicle condition, TCM monitors the driving conditions, such as the vehicle speed and the throttle position and selects the optimum gear ratio, and determines the gear change steps to the gear ratio. Then send the command to the step motor, and control the flow-in/flow-out of line pressure from the primary pulley to determine the position of the moving-pulley and control the gear ratio.

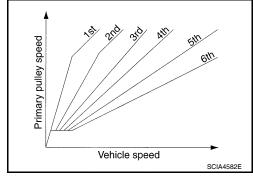
"D" POSITION

Shifting over all the ranges of gear ratios from the lowest to the highest.



"M" POSITION

When the selector lever is put in the manual shift gate side, the fixed changing gear line is set. By moving the selector lever to + side or - side, the manual mode switch is changed over, and shift change like M/T becomes possible following the changing gear set line step by step.



DOWNHILL ENGINE BRAKE CONTROL (AUTO ENGINE BRAKE CONTROL)

When downhill is detected with the accelerator pedal released, the engine brake will be strengthened up by downshifting so as not to accelerate the vehicle more than necessary.

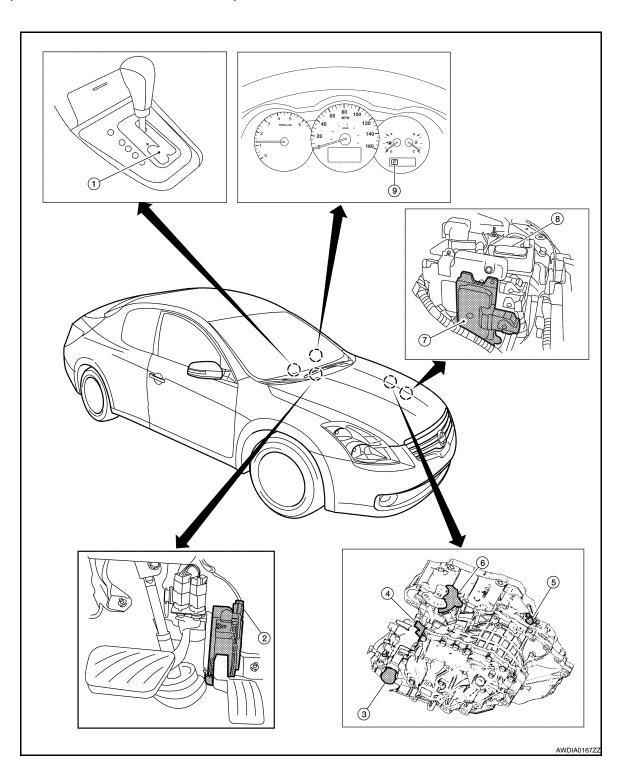
ACCELERATION CONTROL

[CVT: RE0F10A]

According to vehicle speed and a change of accelerator pedal angle, driver's request for acceleration and driving scene are judged. This function assists improvement in acceleration feeling by making the engine speed proportionate to the vehicle speed. And a shift map which can gain a larger driving force is available for compatibility of mileage with driveability.

Component Parts Location - Coupe

INFOID:0000000004201852



- Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

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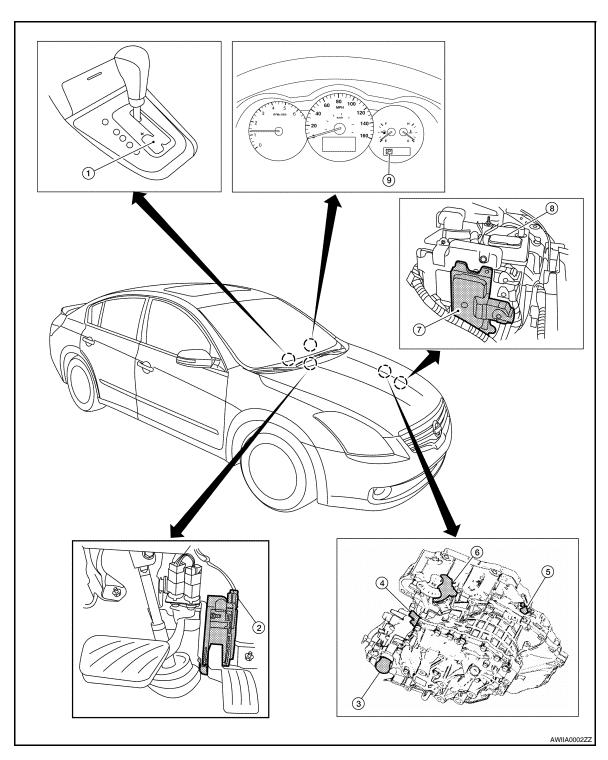
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Component Parts Location - Sedan

INFOID:0000000004201853



- 1. Control device assembly
- 4. Primary speed sensor
- 7. TCM

- 2. Accelerator pedal position sensor
- 5. Secondary speed sensor
- 8. Battery

- 3. CVT unit harness connector
- 6. PNP switch
- Shift position indicator Manual mode indicator

Component Description

TRANSAXLE ASSEMBLY

INFOID:0000000004201854

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

Item	Function
PNP switch	<u>TM-307</u>
Primary speed sensor	<u>TM-313</u>
Secondary speed sensor	<u>TM-318</u>
Step motor	<u>TM-361</u>
Shift control valve	<u>TM-279</u>
Primary pulley	<u>TM-275</u>
Secondary pulley	<u>TM-275</u>

EXCEPT TRANSAXLE ASSEMBLY

Item	Function
TCM	<u>TM-284</u>

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[CVT: RE0F10A]

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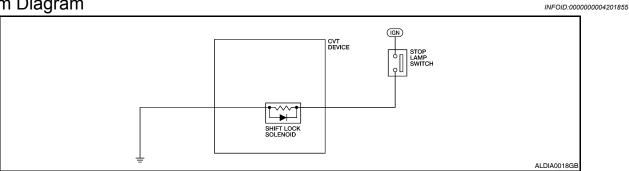
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[CVT: RE0F10A]

SHIFT LOCK SYSTEM

System Diagram



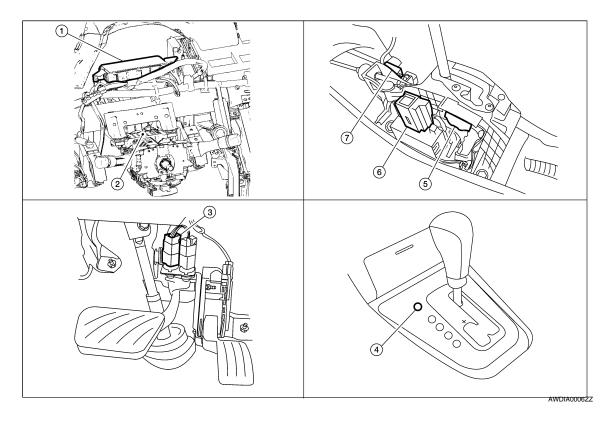
System Description

INFOID:0000000004201856

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

Component Parts Location

INFOID:0000000004201857



- BCM (view with instrument panel re- 2. moved
- 4. Shift lock release button
- Steering column
- 5. Detention switch (for manual shift)
- 3. Stop lamp switch
- 6. Shift lock solenoid/Detent switch (kev)

7. CVT device connector

Component Description

INFOID:0000000004201858

SHIFT LOCK SYSTEM

SHIFT LOCK STSTEW				
< FUNCTION [DIAGNOSIS >	[CVT: RE0F10A]		
	Compor	nent	Function	
CVT device		Shift lock solenoid	TM-294, "System Description"	
	Shift lock solenoid	Lock plate	The lock plate restricts the position pin stroke by selector button operation according to the shift lock unit status.	
		Position pin	The position pin, linking with the selector button, restricts the selector lever movement.	
	Shift lock release bu	ıtton	Pressing the shift lock release button cancels the shift lock forcibly.	

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ON BOARD DIAGNOSTIC (OBD) SYSTEM

< FUNCTION DIAGNOSIS >

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:0000000004201859

ICVT: RE0F10A1

DESCRIPTION

The CVT system has two self-diagnostic systems.

The first is the emission-related on board diagnostic system (OBD-II) performed by the TCM in combination with the ECM. The malfunction is indicated by the MIL (malfunction indicator lamp) and is stored as a DTC in the ECM memory, and the TCM memory.

The second is the TCM original self-diagnosis performed by the TCM. The malfunction is stored in the TCM memory. The detected items are overlapped with OBD-II self-diagnostic items. For detail, refer to TM-298. "CONSULT-III Function (TRANSMISSION)".

OBD-II FUNCTION

The ECM provides emission-related on board diagnostic (OBD-II) functions for the CVT system. One function is to receive a signal from the TCM used with OBD-related parts of the CVT system. The signal is sent to the ECM when a malfunction occurs in the corresponding OBD-related part. The other function is to indicate a diagnostic result by means of the MIL (malfunction indicator lamp) on the instrument panel. Sensors, switches and solenoid valves are used as sensing elements.

The MIL automatically illuminates in "One or Two Trip Detection Logic" when a malfunction is sensed in relation to CVT system parts.

ONE OR TWO TRIP DETECTION LOGIC OF OBD-II

One Trip Detection Logic

If a malfunction is sensed during the first test drive, the MIL will illuminate and the malfunction will be stored in the ECM memory as a DTC. The TCM is not provided with such a memory function.

Two Trip Detection Logic

When a malfunction is sensed during the first test drive, it is stored in the ECM memory as a 1st trip DTC (diagnostic trouble code) or 1st trip freeze frame data. At this point, the MIL will not illuminate. — 1st trip If the same malfunction as that experienced during the first test drive is sensed during the second test drive, the MIL will illuminate. — 2nd trip

The "trip" in the "One or Two Trip Detection Logic" means a driving mode in which self-diagnosis is performed during vehicle operation.

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

How to Read DTC and 1st Trip DTC

DTC and 1st trip DTC can be read by the following methods.

(ⓐ with CONSULT-III or ⓑ GST) CONSULT-III or GST (Generic Scan Tool) Examples: P0705, P0720 etc. These DTC are prescribed by SAE J2012.

(CONSULT-III also displays the malfunctioning component or system.)

- 1st trip DTC No. is the same as DTC No.
- Output of the diagnostic trouble code indicates that the indicated circuit has a malfunction. However, in case of the Mode II and GST, they do not indicate whether the malfunction is still occurring or occurred in the past and returned to normal.

CONSULT-III can identify them as shown below, therefore, CONSULT-III (if available) is recommended.

- DTC or 1st trip DTC of a malfunction is displayed in SELF-DIAGNOSTIC RESULTS mode for "ENGINE" with CONSULT-III. Time data indicates how many times the vehicle was driven after the last detection of a DTC.
- If the DTC is being detected currently, the time data will be "0".
- If a 1st trip DTC is stored in the ECM, the time data will be "1t".

Freeze Frame Data and 1st Trip Freeze Frame Data

• The ECM has a memory function, which stores the driving condition such as fuel system status, calculated load value, engine coolant temperature, short term fuel trim, long term fuel trim, engine speed and vehicle speed at the moment the ECM detects a malfunction.

Data which are stored in the ECM memory, along with the 1st trip DTC, are called 1st trip freeze frame data, and the data, stored together with the DTC data, are called freeze frame data and displayed on CONSULT-III or GST. The 1st trip freeze frame data can only be displayed on the CONSULT-III screen, not on the GST. For details, refer to EC-125, "CONSULT-III Function" (for California), EC-654, "CONSULT-III Function" (except for California).

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< FUNCTION DIAGNOSIS >

Only one set of freeze frame data (either 1st trip freeze frame data or freeze frame data) can be stored in the ECM. 1st trip freeze frame data is stored in the ECM memory along with the 1st trip DTC. There is no priority for 1st trip freeze frame data, and it is updated each time a different 1st trip DTC is detected. However, once freeze frame data (2nd trip detection/MIL on) is stored in the ECM memory, 1st trip freeze frame data is no longer stored. Remember, only one set of freeze frame data can be stored in the ECM. The ECM has the following priorities to update the data.

Priority	Items			
1	Misfire — DTC: P0300 - P0306 Freeze frame data Misfire — DTC: P0300 - P0306 Fuel Injection System Function — DTC: P0171, P0172, P0174, P0175			
2	Except the above items (Includes CVT related items)			
3	1st trip freeze frame data			

Both 1st trip freeze frame data and freeze frame data (along with the DTC) are cleared when the ECM memory is erased.

How to Erase DTC

- The diagnostic trouble code can be erased by CONSULT-III, GST or ECM DIAGNOSTIC TEST MODE as described following.
- If the battery cable is disconnected, the diagnostic trouble code will be lost within 24 hours.
- When you erase the DTC, using CONSULT-III or GST is easier and quicker than switching the mode selector on the ECM.
- The following emission-related diagnostic information is cleared from the ECM memory when erasing DTC related to OBD-II. For details, refer to <u>EC-125</u>, "CONSULT-III Function" (for California), <u>EC-654</u>, "CONSULT-III Function" (except for California).
- Diagnostic trouble codes (DTC)
- 1st trip diagnostic trouble codes (1st trip DTC)
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values
- How to Erase DTC (With CONSULT-III)

The emission related diagnostic information in the TCM and ECM can be erased by selecting "ALL Erase" in the "Description" of "FINAL CHECK" mode with CONSULT-III.

- How to Erase DTC (With GST)
- 1. If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.
- 2. Select Mode 4 with GST (Generic Scan Tool). For details, refer to <u>EC-125, "CONSULT-III Function"</u> (for California), <u>EC-654, "CONSULT-III Function"</u> (except for California).

MALFUNCTION INDICATOR LAMP (MIL)

Description

The MIL is located on the instrument panel.

- The MIL will light up when the ignition switch is turned ON without the engine running. This is a bulb check.
 - If the MIL does not light up, refer to <u>MWI-28</u>, "<u>WARNING LAMPS/INDICATOR LAMPS</u>: <u>System Diagram</u>" (for California), <u>MWI-28</u>, "<u>WARNING LAMPS/INDICATOR LAMPS</u>: <u>System Diagram</u>" (except for California).
- When the engine is started, the MIL should go off.
 If the MIL remains on, the on board diagnostic system has
 detected an engine system malfunction.



[CVT: RE0F10A]

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DIAGNOSIS SYSTEM (TCM)

CONSULT-III Function (TRANSMISSION)

INFOID:0000000004201860

[CVT: RE0F10A]

CONSULT-III can display each diagnostic item using the diagnostic test modes shown below.

FUNCTION

Diagnostic test mode	Function
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on CONSULT-III.
Self-diagnostic results	Self-diagnostic results can be read and erased quickly.
Data monitor	Input/Output data in the TCM can be read.
CAN diagnostic support monitor	The results of transmit/receive diagnosis of CAN communication can be read.
CALIB data	Characteristic information for TCM and CVT assembly can be read. Do not use, but displayed.
Function test	Performed by CONSULT-III instead of a technician to determine whether each system is "OK" or "NG".
ECU part number	TCM part number can be read.

WORK SUPPORT MODE

Display Item List

Item name	Description
ENGINE BRAKE ADJ.	The engine brake level setting can be canceled.
CONFORM CVTF DETERIORTN	The CVT fluid deterioration level can be checked.

Engine Brake Adjustment

"ENGINE BRAKE LEVEL"

0 : Initial set value (Engine brake level control is activated)

OFF : Engine brake level control is deactivated.

CAUTION:

Mode of "+1""0""-1""-2""OFF" can be selected by pressing the "UP""DOWN" on CONSULT-III screen. However, do not select mode other than "0" and "OFF". If the "+1" or "-1" or "-2" is selected, that might cause the irregular driveability.

Check CVT Fluid Deterioration Date

"CVTF DETERIORATION DATE"

More than 210000 : It is necessary to change CVT fluid.

Less than 210000 : It is not necessary to change CVT fluid.

CAUTION:

Touch "CLEAR" after changing CVT fluid, and then erase "CVTF DETERIORATION DATE".

SELF-DIAGNOSTIC RESULT MODE

After performing self-diagnosis, place check marks for results on the <u>TM-264, "Diagnostic Work Sheet"</u>. Reference pages are provided following the items.

Display Items List

Refer to TM-399, "DTC Index".

DATA MONITOR MODE

Display Items List

[CVT: RE0F10A]

	Mo	nitor item selec	ction	X: Standard, —: Not applicable, ▼: Option
Monitored item (Unit)	ECU INPUT SIGNALS	MAIN SIG- NALS	SELEC- TION FROM MENU	Remarks
VSP SENSOR (km/h)	Х	_	▼	Output speed sensor (secondary speed sensor)
ESTM VSP SIG (km/h)	Х	_	▼	Models without ABS dose not indicate.
PRI SPEED SEN (rpm)	Х	_	▼	_
ENG SPEED SIG (rpm)	Х	_	▼	_
SEC HYDR SEN (V)	Х	_	▼	_
PRI HYDR SEN (V)	Х	_	▼	Not mounted but displayed.
ATF TEMP SEN (V)	Х	_	▼	CVT fluid temperature sensor
VIGN SEN (V)	Х	_	▼	_
VEHICLE SPEED (km/h)	_	Х	▼	Vehicle speed recognized by the TCM.
PRI SPEED (rpm)	_	Х	▼	Primary pulley speed
SEC SPEED (rpm)	_	_	▼	Secondary pulley speed
ENG SPEED (rpm)	_	Х	▼	_
SLIP REV (rpm)	_	Х	▼	Difference between engine speed and primary pulley speed.
GEAR RATIO	_	Х	▼	_
G SPEED (G)	_	_	▼	_
ACC PEDAL OPEN (0.0/8)	х	Х	•	Degree of opening for accelerator recognized by the TCM. For fail-safe operation, the specific value used for control is displayed.
TRQ RTO	_	_	▼	_
SEC PRESS (MPa)	_	Х	▼	_
PRI PRESS (MPa)	_	Х	▼	Not mounted but displayed.
ATFTEMP COUNT	_	Х	•	Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to TM-414.
DSR REV (rpm)	_	_	▼	_
DGEAR RATIO	_	_	▼	_
DSTM STEP (step)	_	_	▼	_
STM STEP (step)	_	Х	▼	_
LU PRS (MPa)	_	_	▼	_
LINE PRS (MPa)	_	_	▼	_
TGT SEC PRESS (MPa)	_	_	▼	_
ISOLT1 (A)	_	Х	•	Torque converter clutch solenoid valve output current
ISOLT2 (A)	_	Х	•	Pressure control solenoid valve A (line pressure solenoid valve) output current
ISOLT3 (A)	_	X	▼	Pressure control solenoid valve B (secondary pressure solenoid valve) output current

	Monitor item selection				
Monitored item (Unit)	ECU INPUT SIGNALS	MAIN SIG- NALS	SELEC- TION FROM MENU	Remarks	
SOLMON1 (A)	Х	Х	▼	Torque converter clutch solenoid valve monitor current	
SOLMON2 (A)	х	Х	▼	Pressure control solenoid valve A (line pressure solenoid valve) monitor current	
SOLMON3 (A)	Х	Х	▼	Pressure control solenoid valve B (secondary pressure solenoid valve) monitor current	
P POSITION SW (On/Off)	Х	_	▼	_	
R POSITION SW (On/Off)	Х	_	▼	_	
N POSITION SW (On/Off)	Х	_	▼	_	
D POSITION SW (On/Off)	Х	_	▼	_	
L POSITION SW (On/Off)	Х	_	▼	_	
BRAKE SW (On/Off)	Х	Х	•	Stop lamp switch (Signal input with CAN communications)	
FULL SW (On/Off)	Х	Х	▼		
IDLE SW (On/Off)	Х	Х	▼	Signal input with CAN communications	
SPORT MODE SW (On/Off)	Х	Х	▼	-	
STRDWNSW (On/Off)	Х	_	▼		
STRUPSW (On/Off)	Х	_	▼		
DOWNLVR (On/Off)	Х	_	▼		
UPLVR (On/Off)	Х	_	▼	Not mounted but displayed.	
NONMMODE (On/Off)	Х	_	▼		
MMODE (On/Off)	Х	_	▼		
INDLRNG (On/Off)	_	_	▼	_	
INDDRNG (On/Off)	_	_	▼	"D" position indicator output	
INDNRNG (On/Off)	_	_	▼	"N" position indicator output	
INDRRNG (On/Off)	_	_	▼	"R" position indicator output	
INDPRNG (On/Off)	_	_	▼	"P" position indicator output	
CVT LAMP (On/Off)	_	_	▼	_	
SPORT MODE IND (On/Off)	_	_	▼	_	
MMODE IND (On/Off)	_	_	▼	_	
SMCOIL D (On/Off)	_	_	▼	Step motor coil "D" energizing status	
SMCOIL C (On/Off)	_	_	▼	Step motor coil "C" energizing status	
SMCOIL B (On/Off)	_	_	▼	Step motor coil "B" energizing status	
SMCOIL A (On/Off)	_	_	▼	Step motor coil "A" energizing status	
LUSEL SOL OUT (On/Off)	_	_	▼	_	
REV LAMP (On/Off)	_	Х	▼	_	
LUSEL SOL MON (On/Off)	_	_	▼	_	
VDC ON (On/Off)	X	_	▼	_	

DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

	Мо	nitor item selec	ction	
Monitored item (Unit)	ECU INPUT SIGNALS	MAIN SIG- NALS	SELEC- TION FROM MENU	Remarks
TCS ON (On/Off)	Х	_	▼	_
ABS ON (On/Off)	Х	_	▼	Models without ABS dose not indicate.
ACC ON (On/Off)	Х	_	▼	Not mounted but displayed.
RANGE	_	Х	•	Indicates position is recognized by TCM. Indicates a specific value required for control when fail-safe function is activated.
M GEAR POS	_	Х	▼	_
Voltage (V)	_	_	▼	Displays the value measured by the voltage probe.
Frequency (Hz)	_	_	▼	
DUTY-HI (high) (%)	_	_	▼	
DUTY-LOW (low) (%)	_	_	▼	The value measured by the pulse probe is displayed.
PLS WIDTH-HI (ms)	_	_	▼	
PLS WIDTH-LOW (ms)	_	_	▼	

Diagnostic Tool Function

INFOID:0000000004201861

[CVT: RE0F10A]

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OBD-II SELF-DIAGNOSTIC PROCEDURE (WITH GST)

Refer to <u>EC-134, "Diagnosis Tool Function"</u> (for California), <u>EC-663, "Diagnosis Tool Function"</u> (except for California)

TM-301

COMPONENT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:000000004201862

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H and CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
U1000	CAN COMM CIRCUIT	When TCM is not transmitting or receiving CAN communication signal for 2 seconds or more.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(I) With CONSULT-III

- 1. Turn ignition switch ON.
- Start engine and wait for at least 6 seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

@With GST

Follow the procedure "With CONSULT-III".

Is "U1000 CAN COMM CIRCUIT" detected?

YES >> Go to TM-302, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000004201864

[CVT: RE0F10A]

1. CHECK CAN COMMUNICATION CIRCUIT

(P)With CONSULT-III

- Turn ignition switch ON and start engine.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "U1000 CAN COMM CIRCUIT" indicated?

YES >> Go to LAN section. Refer to LAN-25, "CAN System Specification Chart".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< COMPONENT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description INFOID:0000000004201865

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H and CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic INFOID:0000000004201866

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller to TCM.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Start engine and wait for at least 6 seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Follow the procedure "With CONSULT-III".

Is "U1010 CONTROL UNIT (CAN)" detected?

>> Go to TM-303, "Diagnosis Procedure" YES

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

1. CHECK CAN COMMUNICATION CIRCUIT

(P)With CONSULT-III

- Turn ignition switch ON and start engine.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "U1010 CONTROL UNIT (CAN)" indicated?

YES >> Go to LAN section. Refer to LAN-25, "CAN System Specification Chart".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

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INFOID:0000000004201867

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P0703 STOP LAMP SWITCH

Description INFOID.000000004201868

BCM detects ON/OFF state of the stop lamp switch and transmits the data to the TCM via CAN communication by converting the data to a signal.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0703	BRAKE SW/CIRC	When the brake switch does not switch to ON or OFF.	Harness or connectors (Stop lamp switch, and BCM circuit are open or shorted.) (CAN communication line is open or shorted.) Stop lamp switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(II) With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Start engine.
- Start vehicle for at least 3 consecutive seconds.
- 4. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P0703 BRAKE SW/CIRC" detected?

YES >> Go to TM-304, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

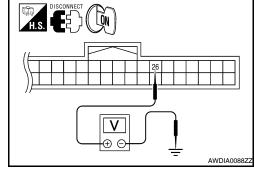
INFOID:0000000004201870

[CVT: RE0F10A]

1. CHECK STOP LAMP SWITCH CIRCUIT

- Check and adjust the installation position of stop lamp switch. Refer to <u>BR-13</u>, "<u>Inspection and Adjust-ment</u>".
- 2. Turn ignition switch OFF.
- 3. Disconnect BCM connector M18.
- Turn ignition switch ON.
- 5. Check voltage between BCM harness connector M18 terminal 26 and ground.

BCM harness connector			Condition	Voltage (Approx.)
Connector	Terminal	Ground		(Дрргох.)
M18			Depressed brake pedal	Battery voltage
			Released brake pedal	0 V



Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 2.

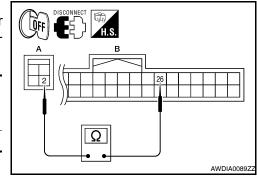
2.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 1)

P0703 STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

- Turn ignition switch OFF.
- 2. Disconnect stop lamp switch connector.
- Check continuity between stop lamp switch harness connector E38 (A) terminal 2 and BCM harness connector M18 (B) terminal 26.

Stop lamp switch harness connector		BCM harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E38 (A)	2	M18 (B)	26	Existed



Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 2)

Check continuity between BCM harness connector M18 terminal 26 and ground.

BCM harne	ss connector		Continuity
Connector Terminal		Ground	Continuity
M18	26		Not existed

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Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to TM-305, "Component Inspection (Stop Lamp Switch)".

Is the inspection result normal?

YES >> Check the following.

- · Harness for short or open between battery and stop lamp switch
- 10A fuse (No. 7, located in fuse block)

NO >> Repair or replace stop lamp switch.

5.CHECK BCM

(P)With CONSULT-III

- Turn ignition switch OFF.
- Connect BCM connector M18.
- Turn ignition switch ON.
- Select "BRAKE SW 1" in "DATA MONITOR" of "BCM" and verify the proper operation of ON/OFF. Refer to BCS-47, "Reference Value".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace BCM. Refer to BCS-96, "Removal and Installation".

6.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

 ${f 1}$.CHECK STOP LAMP SWITCH

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INFOID:0000000004201871

P0703 STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

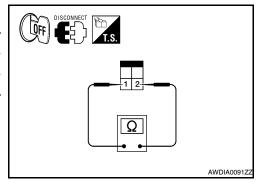
Check continuity between stop lamp switch terminals.

Stop lamp switch terminal		Condition	Continuity
1	1 2	Depressed brake pedal	Existed
		Released brake pedal	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. <u>BR-17</u>, "Exploded View".



[CVT: RE0F10A]

P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

P0705 PARK/NEUTRAL POSITION SWITCH

Description INFOID:0000000004201872

- The PNP switch assembly includes a transaxle range switch.
- The transaxle range switch detects the selector lever position and sends a signal to the TCM.

DTC Logic INFOID:0000000004201873

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0705	PNP SW/CIRC	TCM does not receive the correct voltage signal (based on the gear position) from the switch.	 Harness or connectors (PNP switches circuit is open or shorted.) PNP switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1.CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine. 3.
- Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

VEHICLE SPEED : More than 10 km/h (6 MPH)

ENG SPEED : More than 450 rpm ACC PEDAL OPEN : More than 1.0/8

Follow the procedure "With CONSULT-III".

Is "P0705 PNP SW/CIRC" detected?

YES >> Go to TM-307, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

1. CHECK POWER SOURCE

- Turn ignition switch OFF.
- Disconnect PNP switch connector.
- Turn ignition switch ON.
- 4. Check voltage between PNP switch harness connector F25 terminal 3 and ground.

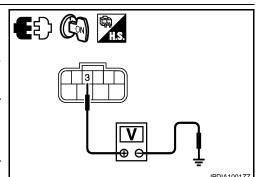
PNP switch ha	rness connector		Voltage (Approx.)	
Connector Terminal		Ground	Voltage (Approx.)	
F25	3		Battery voltage	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check the following.

- Harness for short or open between ignition switch and PNP switch
- 10A fuse (No. 4, located in fuse block)



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[CVT: RE0F10A]

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TM-307

P0705 PARK/NEUTRAL POSITION SWITCH

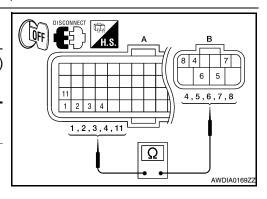
< COMPONENT DIAGNOSIS >

· Ignition switch

$2.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND PNP SWITCH (PART 1)

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM connector.
- 3. Check continuity between TCM harness connector F16 (A) terminal 1, 2, 3, 4, 11 and PNP switch harness connector F25 (B) terminal 5, 6, 7, 8, 4.

TCM harness connector		PNP switch harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	1		5	
	2		6	
F16 (A)	3	F25 (B)	7	Existed
	4		8	
	11		4	



[CVT: RE0F10A]

Is the inspection result normal?

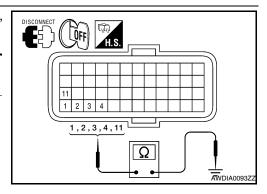
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND PNP SWITCH (PART 2)

Check continuity between TCM harness connector F16 terminal 1, 2, 3, 4, 11 and ground.

TCM harnes	ss connector		Continuity		
Connector	Terminal		Continuity		
	1				
	2	Ground	Not existed		
F16	3				
	4				
	11				



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK CVT POSITION

- 1. Remove control cable from manual lever. Refer to TM-433, "Exploded View".
- Check continuity PNP switch connector terminals. Refer to <u>TM-308</u>, "Component Inspection (Park/Neutral Position Switch)"

Is the inspection result normal?

YES >> Adjust CVT position. Refer to TM-429, "Inspection and Adjustment".

NO >> GO TO 5.

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Park/Neutral Position Switch)

INFOID:0000000004201875

1. CHECK PNP SWITCH

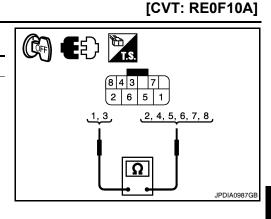
1. Adjust PNP switch position. Refer to TM-429, "Inspection and Adjustment".

P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

2. Check continuity between PNP switch terminals.

PNP switch terminal		Condition	Continuity
1	2	Manual lever in "P" position	
3	4	wanda level iii i position	
3	5	Manual lever in "R" position	
1	2	Manual lever in "N" position	Existed
3	6	ivianual level in 14 position	
3	7	Manual lever in "D" position	
3	8	Manual lever in "L" position	



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace PNP switch. Refer to <u>TM-436, "Exploded View"</u>.

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P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

P0710 CVT FLUID TEMPERATURE SENSOR

Description INFOID:000000004201876

The CVT fluid temperature sensor detects the CVT fluid temperature and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0710	ATF TEMP SEN/CIRC	During running, the CVT fluid temperature sensor signal voltage is excessively high or low.	Harness or connectors (Sensor circuit is open or shorted.) CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION (PART 1)

(II) With CONSULT-III

- 1. Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Check that output voltage of CVT fluid temperature sensor is within the range specified below.

ATF TEMP SEN : 0.16 – 2.03 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

NO-1 ("ATF TEMP SEN" indicates 0.15 or less.)>>Refer to TM-310, "Diagnosis Procedure".

NO-2 ("ATF TEMP SEN" indicates 2.04 or more.)>>GO TO 2.

2.CHECK DTC DETECTION (PART 2)

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 14 minutes.

RANGE : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

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Follow the procedure "With CONSULT-III".

Is "P0710 ATF TEMP SEN/CIRC" detected?

YES >> Go to TM-310, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

 ${f 1}$.CHECK CVT FLUID TEMPERATURE SENSOR CIRCUIT

INFOID:0000000004201878

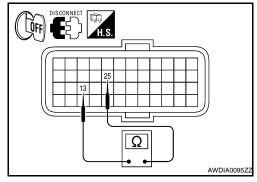
[CVT: RE0F10A]

P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

- Turn ignition switch OFF.
- 2. Disconnect TCM connector.
- 3. Check resistance between TCM harness connector F16 terminal 13, 25.

TC	M harness conne	Temperature	Resistance	
Connector	Terr	minal	°C (°F)	(Approx.)
F16	13 25		20 (68)	6.5 kΩ
1 10	13	25	80 (176)	0.9 kΩ



[CVT: RE0F10A]

Is the inspection result normal?

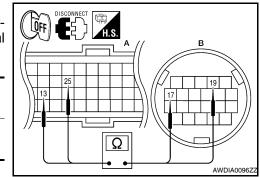
YES >> GO TO 5. NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 1)

1. Disconnect CVT unit connector.

Check continuity between TCM harness connector F16 (A) terminal 13, 25 and CVT unit harness connector F46 (B) terminal 17, 19.

	TCM harnes	ss connector	CVT unit harness connector		Continuity
_	Connector	Terminal	Connector Terminal		Continuity
_	F16 (A)	13	F46 (B)	Existed	
	1 10 (A)	25	1 40 (B)	19	LXISIEU



Is the inspection result normal?

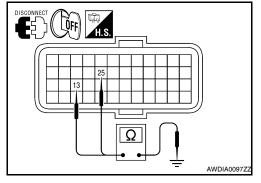
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 2)

Check continuity between TCM harness connector F16 terminal 13, 25 and ground.

TCM harnes	ss connector		Continuity
Connector	Terminal	Ground	
F16	13	Cround	Not existed
FIO	25		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK CVT FLUID TEMPERATURE SENSOR

Check CVT fluid temperature sensor. Refer to <u>TM-312</u>, "Component Inspection (CVT Fluid Temperature Sensor)".

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK DTC

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is only "P0710 ATF TEMP SEN/CIRC" detected?

YES >> Replace control valve. Refer to <u>TM-447</u>, "<u>Exploded View</u>".

NO >> Replace transaxle assembly. Refer to TM-447, "Removal and Installation".

6. DETECT MALFUNCTIONING ITEMS

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P0710 CVT FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

[CVT: RE0F10A]

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:0000000004201879

1. CHECK CVT FLUID TEMPERATURE SENSOR

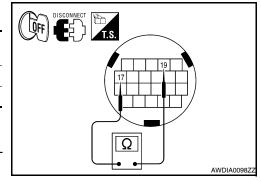
Check resistance between CVT unit terminals.

CVT unit terminal		Temperature °C (°F)	Resistance (Approx.)
17	17 19	20 (68)	6.5 kΩ
		80 (176)	0.9 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> Perform "SELF-DIAG RESULTS" mode for "TRANS-



< COMPONENT DIAGNOSIS >

P0715 INPUT SPEED SENSOR (PRI SPEED SENSOR)

Description INFOID:000000004201880

The input speed sensor (primary speed sensor) detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0715	INPUT SPD SEN/CIRC	 Input speed sensor (primary speed sensor) signal is not input due to an open circuit. An unexpected signal is input when vehicle is being driven. 	Harness or connectors (Sensor circuit is open or shorted.) Input speed sensor (primary speed sensor)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

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Follow the procedure "With CONSULT-III".

Is "P0715 INPUT SPD SEN/CIRC" detected?

YES >> Go to TM-313, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR)

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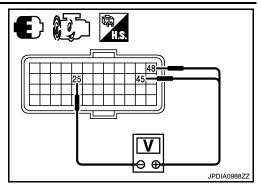
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< COMPONENT DIAGNOSIS >

- Start engine.
- 2. Check voltage between TCM harness connector F16 terminal 25, 46 and 25, 48.

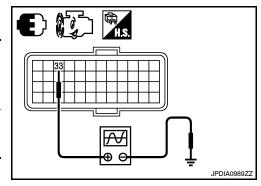
Т	Voltage (Approx.)		
Connector	Terr	Voltage (Approx.)	
F16	25	46	Battery voltage
1 10	48		



[CVT: RE0F10A]

3. If OK, check pulse when vehicle cruises.

TCM harness connector		Condition	Data (Ap-
Connec- tor	Terminal	Condition	prox.)
F16	33	When running at 20 km/h (12 MPH) in "M1" position, use the CONSULT-III pulse frequency measuring function.	730 Hz



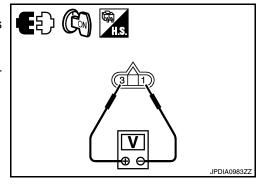
Is the inspection result normal?

YES >> GO TO 12. NO >> GO TO 2.

2.CHECK POWER AND SENSOR GROUND

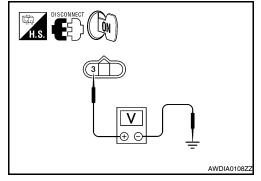
- Turn ignition switch OFF.
- Disconnect input speed sensor (primary speed sensor) harness connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between input speed sensor (primary speed sensor) harness connector F8 terminal 1 and 3.

Input speed sensor	Voltage (Approx.)			
Connector	Connector Terminal			
F8	1	3	Battery voltage	



5. Check voltage between input speed sensor (primary speed sensor) harness connector F8 terminal 3 and ground.

	(primary speed senses connector	0 1	Voltage (Approx.)
Connector Terminal		Ground	
F8 3			Battery voltage



Is the inspection result normal?

YES >> GO TO 3.

NO-1 >> Battery voltage is not supplied between terminals 1 and 3, terminal 3 and ground: GO TO 6.

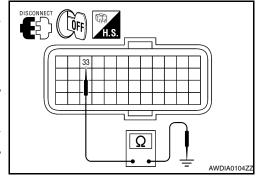
NO-2 >> Battery voltage is not supplied between terminals 1 and 3 only: GO TO 8.

3.CHECK HARNESS BETWEEN TCM AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (SENSOR GROUND)

< COMPONENT DIAGNOSIS >

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit harness connector.
- 3. Check continuity between TCM harness connector F16 terminal 33 and ground.

TCM vehicle side	harness connector		Continuity
Connector Terminal		Ground	Continuity
F16	33		Not existed



[CVT: RE0F10A]

Is the inspection result normal?

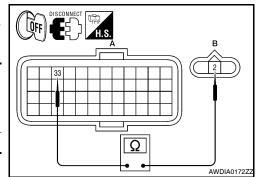
YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK HARNESS BETWEEN TCM AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (PART 1)

Check continuity between TCM harness connector F16 (A) terminal 33 and input speed sensor (primary speed sensor) harness connector F8 (B) terminal 2.

TCM harnes	ess connector Input speed sensor (primary speed sensor) harness connector tor Contir		speed sensor) harness connec-	
Connector	Terminal	Connector Terminal		
F16 (A)	33	F8 (B)	2	Existed



Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

CHECK HARNESS BETWEEN TCM AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (PART
 2)

Check continuity between TCM harness connector F16 terminal 33 and ground.

TCM harnes	ss connector		Continuity
Connector	Connector Terminal		Continuity
F16	33		Not existed

DISCONNECT OFF HLS

Is the inspection result normal?

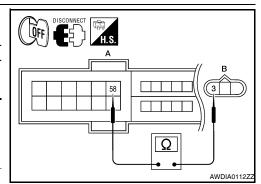
YES >> GO TO 10.

NO >> Repair or replace damaged parts.

6.CHECK HARNESS BETWEEN IPDM E/R AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (POWER) (PART 1)

- Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector F10.
- Check continuity between IPDM E/R harness connector F10 terminal 58 and input speed sensor (primary speed sensor) harness connector F8 terminal 3.

IPDM E/R harness connector		Input speed sensor (primary speed sensor) harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F10 (A)	58	F8 (B)	3	Existed



Is the inspection result normal?

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YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7.CHECK HARNESS BETWEEN IPDM E/R AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (POWER) (PART 2)

Check continuity between IPDM E/R harness connector F10 terminal 58 and ground.

IPDM E/R harness connector			Continuity
Connector	Terminal	Ground	Continuity
F10	58		Not existed

DISCONNECT H.S. AWDIA0113ZZ

[CVT: RE0F10A]

Is the inspection result normal?

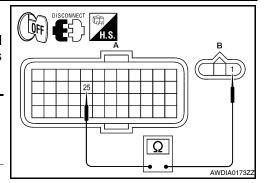
YES

- >> Check the following.
 - Harness for short or open between ignition switch and IPDM E/R
 - 10A fuse (No. 34, located in IPDM E/R)
 - Ignition switch
- NO >> Repair or replace damaged parts.

8.CHECK HARNESS BETWEEN TCM AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (SENSOR GROUND) (PART 1)

- 1. Turn ignition switch OFF.
- Disconnect TCM connector.
- Check continuity between TCM harness connector F16 terminal 25 (A) and input speed sensor (primary speed sensor) harness connector F8 (B) terminal 1.

TCM harnes	ss connector	Input speed sensor (primary speed sensor) harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F16 (A)	25	F8 (B)	1	Existed



Is the inspection result normal?

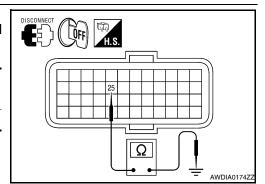
YES >> GO TO 9.

NO >> Repair or replace damaged parts.

9.CHECK HARNESS BETWEEN TCM AND INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) (SENSOR GROUND) (PART 2)

- 1. Disconnect CVT unit harness connector.
- Check continuity between TCM harness connector F16 terminal 25 and ground.

Connector Terminal Ground	TCM harness connector			Continuity
	Connector	Terminal	Ground	Continuity
F16 25 Not ex	F16	25		Not existed



Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace damaged parts.

10. CHECK CVT UNIT CIRCUIT

< COMPONENT DIAGNOSIS >

Check continuity between CVT unit harness connector F46 terminal 19 and ground.

CVT unit harness connector			Continuity
Connector	Terminal	Ground	Continuity
F46	19		Not existed

DISCONNECT OFF H.S.

[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace damaged parts.

11.CHECK TCM

- 1. Replace same type TCM. Refer to TM-430, "Exploded View".
- 2. Connect each connector.
- Perform "DTC CONFIRMATION PROCEDURE". Refer to TM-313, "DTC Logic".

Is "P0715 INPUT SPD SEN/CIRC" detected?

YES >> Replace input speed sensor (primary speed sensor). Refer to TM-437, "Removal and Installation".

NO >> Replace TCM. Refer to TM-430, "Exploded View".

12. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

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< COMPONENT DIAGNOSIS >

P0720 VEHICLE SPEED SENSOR CVT (SECONDARY SPEED SENSOR)

Description INFOID:000000004201883

The vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] detects the revolution of the CVT output shaft and emits a pulse signal. The pulse signal is transmitted to the TCM, which converts it into vehicle speed.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0720	VEH SPD SEN/CIR AT	Signal from vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] not input due to open or short circuit. An unexpected signal input during running .	Output speed sensor (secondary speed

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(I) With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 12 consecutive seconds.

ACC PEDAL OPEN : More than 1.0/8 RANGE : "D" position

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

@With GST

Follow the procedure "With CONSULT-III".

Is "P0720 VEH SPD SEN/CIR AT" detected?

YES >> Go to TM-318, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

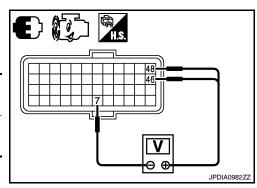
1. CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR)

(P)With CONSULT-III

Start engine.

2. Check voltage between TCM harness connector F16 terminal 7, 46 and 7, 48.

TCM harness connector			
Terr	Voltage (Approx.)		
7	46	Battery voltage	
1	48	Battery voltage	
		Terminal 46	



INFOID:0000000004201885

[CVT: RE0F10A]

< COMPONENT DIAGNOSIS >

3. If OK, check pulse when vehicle cruises.

	ess connec- or	Condition	Data (Ap- prox.)
Connector	Terminal		ριοχ.)
F16	34	When running at 20 km/h (12 MPH) in "D" position, use the CONSULT-III pulse frequency measuring function.	480 Hz

CONNECT H.S. AWDIA0106ZZ

[CVT: RE0F10A]

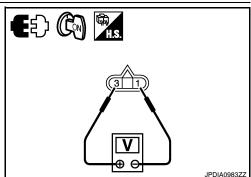
Is the inspection result normal?

YES >> GO TO 11. NO >> GO TO 2.

2. CHECK POWER AND SENSOR GROUND

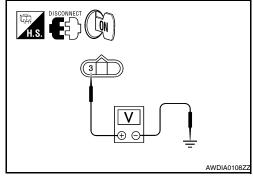
- 1. Turn ignition switch OFF.
- 2. Disconnect output speed sensor (secondary speed sensor) harness connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between output speed sensor (secondary speed sensor) harness connector F23 terminal 1 and 3.

Output speed senso	Voltage (Approx.)	
Connector	Terr	
F23	1	Battery voltage



5. Check voltage between output speed sensor (secondary speed sensor) harness connector F23 terminal 3 and ground.

Output speed sensor (secondary speed sensor) harness connector		0 1	Voltage (Approx.)
Connector	Terminal	Ground	
F23	3		Battery voltage



Is the inspection result normal?

YES >> GO TO 3.

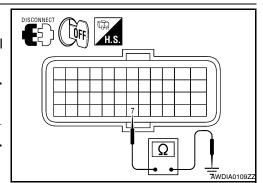
NO-1 >> Battery voltage is not supplied between terminals 1 and 3, terminals 3 and ground: GO TO 6.

NO-2 >> Battery voltage is not supplied between terminals 1 and 3 only: GO TO 8.

3.CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (SENSOR GROUND)

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check continuity between TCM harness connector F16 terminal 7 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	7		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (PART 1)

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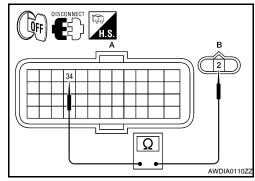
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< COMPONENT DIAGNOSIS >

Check continuity between TCM harness connector F16 (A) terminal 34 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 2.

Connector Terminal Connector Terminal F16 (A) 34 F23 (B) 2 Existed	TCM harnes	ss connector	Output speed sensor (secondary speed sensor) harness connector		Continuity
F16 (A) 34 F23 (B) 2 Existed	Connector	Terminal	Connector	Terminal	
	F16 (A)	34	F23 (B)	2	Existed



[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (PART 2)

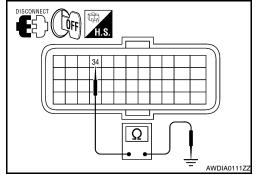
Check continuity between TCM harness connector F16 terminal 34 and ground.

TCM harnes	ss connector		Continuity
Connector	Terminal	Ground	Continuity
F16	34		Not existed

Is the inspection result normal?

YES >> GO TO 10.

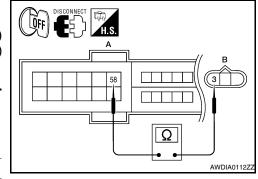
NO >> Repair or replace damaged parts.



6.CHECK HARNESS BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (POWER) (PART 1)

- Turn ignition switch OFF.
- Disconnect IPDM E/R connector F10.
- Check continuity between IPDM E/R harness connector F10 (A) terminal58 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 3.

IPDM E/R harness connector		Output speed sensor (second- ary speed sensor) harness con- nector		Continuity
Connector	Terminal	Connector	Terminal	
F10 (A)	58	F23 (B)	3	Existed



Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. CHECK HARNESS BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (POWER) (PART 2)

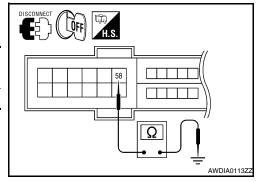
Check continuity between IPDM E/R harness connector F10 terminal 58 and ground.

IPDM E/R har	ness connector		Continuity
Connector	Connector Terminal		Continuity
F10	58		Not existed

Is the inspection result normal?

YES >> Check the following.

 Harness for short or open between ignition switch and IPDM E/R



< COMPONENT DIAGNOSIS >

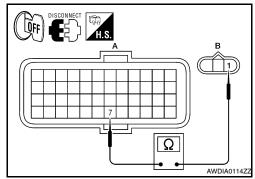
- 10A fuse (No. 34, located in IPDM E/R)
- · Ignition switch

NO >> Repair or replace damaged parts.

 $8.\mathsf{check}$ harness between tcm and output speed sensor (secondary speed sensor) (SENSOR GROUND) (PART 1)

- 1. Turn ignition switch OFF.
- Disconnect TCM connector.
- Check continuity between TCM harness connector F16 (A) terminal 7 and output speed sensor (secondary speed sensor) harness connector F23 (B) terminal 1.

TCM vehicle side harness con- nector		Output speed sensor (second- ary speed sensor) vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F16 (A)	7	F23 (B)	1	Existed



[CVT: RE0F10A]

Is the inspection result normal?

YFS >> GO TO 9.

NO >> Repair or replace damaged parts.

9.CHECK HARNESS BETWEEN TCM AND OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) (SENSOR GROUND) (PART 2)

Check continuity between TCM harness connector F16 terminal 7 and ground.

TCM vehicle side	harness connector		Continuity
Connector Terminal		Ground	Continuity
F16	7		Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace damaged parts.

10.CHECK TCM

- Replace same type TCM. Refer to TM-430, "Exploded View".
- Connect each connector. 2.
- Perform "DTC CONFIRMATION PROCEDURE". Refer to TM-318, "DTC Logic".

Is "P0720 VEH SPD SEN/CIR AT" detected?

YES >> Replace output speed sensor (secondary speed sensor). Refer to TM-438, "Removal and Installation".

NO >> Replace TCM. Refer to TM-430, "Exploded View".

11. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts. Ω

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[CVT: RE0F10A]

INFOID:0000000004201888

< COMPONENT DIAGNOSIS >

P0725 ENGINE SPEED SIGNAL

Description INFOID:000000004201886

The engine speed signal is transmitted from ECM to TCM by CAN communication line.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0725	ENGINE SPEED SIG	TCM does not receive the CAN communication signal from the ECM. Engine speed is too low while driving.	Harness or connectors (The ECM to the TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(II) With CONSULT-III

- 1. Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 10 consecutive seconds.

PRI SPEED SEN : More than 1000 rpm

Is "P0725 ENGINE SPEED SIG" detected?

YES >> Go to TM-322, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK DTC WITH ECM

(P)With CONSULT-III

- Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC detected item. Refer to <u>EC-527, "DTC Index"</u> (for California), <u>EC-1015, "DTC Index"</u> (except for California).

2. CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P0725 ENGINE SPEED SIG" detected?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

P0730 BELT DAMAGE

< COMPONENT DIAGNOSIS >

P0730 BELT DAMAGE

Description INFOID:000000004201889

TCM selects the gear ratio using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signal. Then it changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0730	BELT DAMG	Unexpected gear ratio detected.	Transaxle assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1.check dtc detection

With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and maintain the following conditions for at least 30 consecutive seconds.

TEST START FROM 0 km/h (0 MPH)

CONSTANT ACCELERATION : Keep 30 sec or more
VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8

RANGE : "D" position

ENG SPEED : 450 rpm or more

Is "P0730 BELT DAMG" detected?

YES >> Go to TM-323, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1.CHECK DTC

(II) With CONSULT-III

Turn ignition switch ON.

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Are any DTC displayed?

YES-1 >> DTC for "P0730 BELT DAMG" is displayed: Go to replace transaxle assembly. Refer to <u>TM-447</u>, <u>"Exploded View"</u>.

YES-2 >> DTC except for "P0730 BELT DAMG" is displayed: Go to check DTC detected item. Refer to TM-399, "DTC Index".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

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INFOID:0000000004201891

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

Description INFOID:000000004201892

- The torque converter clutch solenoid valve is activated by the TCM in response to signals sent from the vehicle speed and accelerator pedal position sensors. Lock-up piston operation will then be controlled.
- Lock-up operation, however, is prohibited when CVT fluid temperature is too low.
- When the accelerator pedal is depressed (less than 2.0/8) in lock-up condition, the engine speed should not change abruptly. If there is a big jump in engine speed, there is no lock-up.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0740	TCC SOLENOID/CIRC	Normal voltage not applied to solenoid due to open or short circuit.	Torque converter clutch solenoid valve Harness or connectors (Solenoid circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Wait at least 10 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

@With GST

Follow the procedure "With CONSULT-III".

Is "P0740 TCC SOLENOID/CIRC" detected?

YES >> Go to TM-324, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

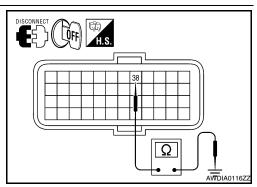
Diagnosis Procedure

agnosis Procedure

1.check torque converter clutch solenoid valve circuit

- 1. Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 38 and ground.

TCM harne	ss connector		Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	38		3.0 – 9.0 Ω



[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 1)

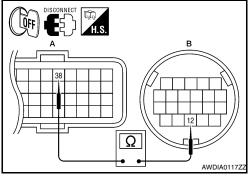
P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

Disconnect CVT unit harness connector.

Check continuity between TCM harness connector F16 (A) terminal 38 and CVT unit harness connector F46 (B) terminal 12.

TCM harne	ss connector	CVT unit harness connector		ctor Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
F16 (A)	38	F46 (B)	12	Existed	



[CVT: RE0F10A]

Is the inspection result normal?

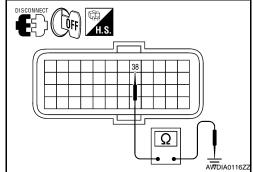
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 2)

Check continuity between TCM harness connector F16 terminal 38 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	38		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check torque converter clutch solenoid valve. Refer to <u>TM-325</u>, "Component Inspection (Torque Converter <u>Clutch Solenoid Valve)"</u>.

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK DTC

(P)With CONSULT-III

Turn ignition switch ON.

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is only "P0740 TCC SOLENOID/CIRC" detected?

YES >> Replace control valve. Refer to TM-447, "Exploded View".

NO >> Replace transaxle assembly. Refer to TM-447, "Removal and Installation".

6. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

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INFOID:0000000004201895

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

Check resistance between CVT unit terminal 12 and ground.

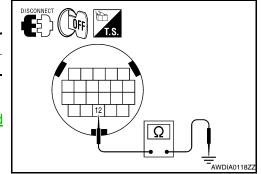
CVT unit terminal	Ground	Resistance (Approx.)
12	Giodila	3.0 – 9.0 Ω

Is the inspection result normal?

YES

>> INSPECTION END

NO >> Replace control valve. Refer to TM-447, "Exploded



[CVT: RE0F10A]

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

< COMPONENT DIAGNOSIS >

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

Description INFOID:000000004201896

This malfunction is detected when the torque converter clutch does not lock-up as instructed by the TCM. This is not only caused by electrical malfunction (circuits open or shorted), but also by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0744	A/T TCC S/V FNCTN	 CVT cannot perform lock-up even if electrical circuit is good. TCM detects as irregular by comparing difference value with slip rotation. There is big difference engine speed and primary speed when TCM lock-up signal is on. 	Torque converter clutch solenoid valve Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- Start engine and maintain the following condition for at least 30 seconds.

ACC PEDAL OPEN : More than 1.0/8 RANGE : "D" position

VEHICLE SPEED : Constant speed of more than 40 km/h (25 MPH)

With GST

Follow the procedure "With CONSULT-III".

Is "P0744 A/T TCC S/V FNCTN" detected?

YES >> Go to TM-327, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1.CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-423, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

- 1. Turn ignition switch OFF.
- 2. Disconnect CVT unit connector.
- 3. Check torque converter clutch solenoid valve. Refer to <u>TM-328</u>, "Component Inspection (<u>Torque Converter Clutch Solenoid Valve</u>)".

Is the inspection result normal?

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P0744 A/T TCC S/V FUNCTION (LOCK -UP)

< COMPONENT DIAGNOSIS >

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3 .CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to TM-328, "Component Inspection (Lock-up Select Solenoid Valve)".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

$oldsymbol{4}$.CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM

Check output speed sensor (secondary speed sensor) system. Refer to TM-318, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-313, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

O.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

>> Replace TCM. Refer to TM-430, "Exploded View". YFS

NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve) 1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

INFOID:0000000004201899

ICVT: RE0F10A1

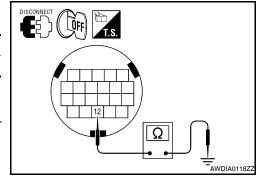
Check resistance between CVT unit terminal 12 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
12	Ground	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

>> Perform "SELF-DIAG RESULTS" mode for "TRANS-NO MISSION".



Component Inspection (Lock-up Select Solenoid Valve)

INFOID:0000000004201900

1. CHECK LOCK-UP SELECT SOLENOID VALVE

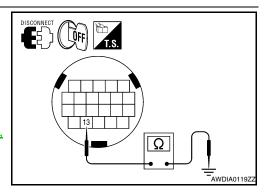
Check resistance between CVT unit terminal 13 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
13	Giodila	17.0 – 38.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer TM-447. "Exploded View".



P0745 LINE PRESSURE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P0745 LINE PRESSURE SOLENOID VALVE

Description INFOID:000000004201901

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0745	L/PRESS SOL/CIRC	 Normal voltage not applied to solenoid due to open or short circuit. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve A (line pressure solenoid valve)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

With CONSULT-III

- 1. Turn ignition switch ON.
- Start engine and wait at least 5 seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

®With GST

Follow the procedure "With CONSULT-III".

Is "P0745 L/PRESS SOL/CIRC" detected?

YES >> Go to TM-329, "Diagnosis Procedure".

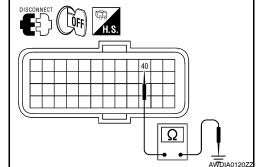
NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1.check pressure control solenoid valve a (line pressure solenoid valve) circuit

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 40 and ground.

TCM harnes	ss connector		Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	40		3.0 – 9.0 Ω



[CVT: RE0F10A]

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Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 2.

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)] (PART 1)

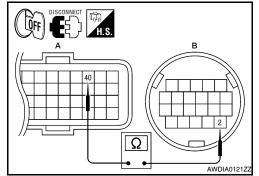
TM-329

P0745 LINE PRESSURE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit harness connector.
- Check continuity between TCM harness connector F16 (A) terminal 40 and CVT unit harness connector F46 (B) terminal 2.

TCM harne	ss connector	CVT unit harness connector		ctor CVT unit harness connector Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
F16 (A)	40	F46 (B)	2	Existed	



[CVT: RE0F10A]

Is the inspection result normal?

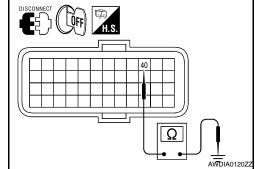
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)] (PART 2)

Check continuity between TCM harness connector F16 terminal 40 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	40		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to TM-330, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]"

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-430, "Exploded View".

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1.check pressure control solenoid valve a (line pressure solenoid valve)

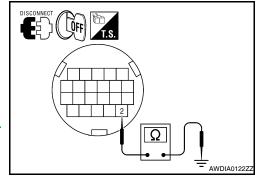
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Oround	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, <u>"Exploded View"</u>.



P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE **SOLENOID VALVE)**

< COMPONENT DIAGNOSIS >

P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE SOLENOID VALVE)

Description INFOID:0000000004201905

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic INFOID:0000000004201906

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0746	PRS CNT SOL/A FCTN	Unexpected gear ratio was detected in the low side due to excessively low line pressure.	Line pressure control system Output speed sensor (secondary speed sensor) Input speed sensor (primary speed sensor)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 10 consecutive seconds. Test start from 0 km/h (0 MPH).

ATF TEMP SEN : 1.0 - 2.0 V ACC PEDAL OPEN : More than 1.0/8

RANGE : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0746 PRS CNT SOL/A FCTN" detected?

>> Go to TM-331, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1.CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-423, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-423, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

- Turn ignition switch OFF.
- Disconnect CVT unit connector.

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INFOID:0000000004201907

P0746 PRESSURE CONTROL SOLENOID A PERFORMANCE (LINE PRESSURE **SOLENOID VALVE)**

< COMPONENT DIAGNOSIS >

[CVT: RE0F10A] Check pressure control solenoid valve A (line pressure solenoid valve). Refer to TM-332, "Component

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

3.check output speed sensor (secondary speed sensor) system

Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Check output speed sensor (secondary speed sensor) system. Refer to TM-318, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-313, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

>> Replace TCM. Refer to TM-430, "Exploded View". YES

>> Repair or replace damaged parts. NO

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)1 INFOID:0000000004201908

1.check pressure control solenoid valve a (line pressure solenoid valve)

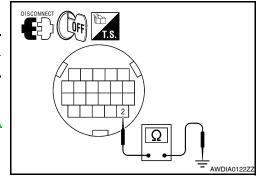
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Orodina	$3.0 - 9.0 \Omega$

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer "Exploded View".



P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

Description INFOID:0000000004201909

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0776	PRS CNT SOL/B FCTN	Secondary pressure is too high or too low compared with the commanded value while driving.	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve system) Transmission fluid pressure sensor A (secondary pressure sensor) Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- 3. Start engine and maintain the following conditions for at least 30 consecutive seconds.

ATF TEMP SEN : 1.0 - 2.0 V

ACC PEDAL OPEN : More than 1.0/8 RANGE : "D" position

VEHICLE SPEED : 10 km/h (6 MPH) or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0776 PRS CNT SOL/B FCTN" detected?

YES >> Go to TM-333, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-423, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-423, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

- 1. Turn ignition switch OFF.
- Disconnect CVT unit connector.

[CVT: RE0F10A]

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TM-333

P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

3. Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to <u>TM-334, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]"</u>.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

3.check pressure control solenoid valve a (line pressure solenoid valve)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to <u>TM-334</u>, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

4. CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYSTEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to <u>TM-341, "DTC Logic"</u>.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1.CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

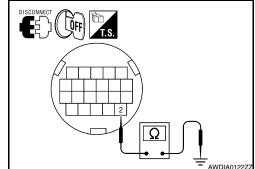
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	inal Ground	Resistance (Approx.)
2	Oround	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u> "Exploded View".



[CVT: RE0F10A]

Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

P0776 PRESSURE CONTROL SOLENOID B PERFORMANCE (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

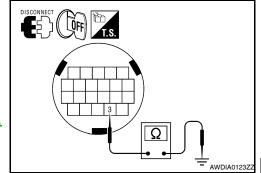
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Olouna	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, <u>"Exploded View"</u>.



[CVT: RE0F10A]

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P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

Description INFOID:000000004201914

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0778	PRS CNT SOL/B CIRC	 Normal voltage not applied to solenoid due to cut line, short, or the like. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Start engine.
- 2. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Follow the procedure "With CONSULT-III".

Is "P0778 PRS CNT SOL/B CIRC" detected?

YES >> Go to TM-336, "Diagnosis Procedure".

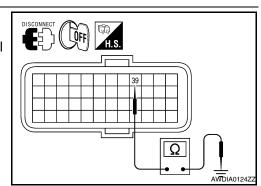
NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE) CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 39 and ground.

TCM harness connector			Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	39		3.0 – 9.0 Ω



INFOID:0000000004201916

[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)] (PART 1)

P0778 PRESSURE CONTROL SOLENOID B ELECTRICAL (SEC PRESSURE SOLENOID VALVE)

< COMPONENT DIAGNOSIS >

- Disconnect CVT unit harness connector.
- 2. Check continuity between TCM harness connector F16 (A) terminal 39 and CVT unit harness connector F46 (B) terminal 3.

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16 (A)	39	F46 (B)	3	Existed

[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT [PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)] (PART 2)

Check continuity between TCM harness connector F16 terminal 39 and ground.

TCM harnes	TCM harness connector		Continuity
Connector	Terminal	Ground	Continuity
F16	39		Not existed

DISCONNECT OFF INS

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to TM-337, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, "<u>Exploded View</u>".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

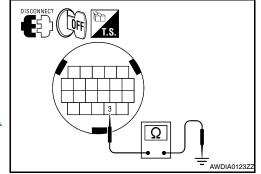
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Olouna	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>. "Exploded View".



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P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

P0826 MANUAL MODE SWITCH

Description INFOID:0000000004201918

Manual mode switch is installed in shift control device. The manual mode switch sends shift up and shift down switch signals to TCM with CAN communication.

TCM sends the switch signals to combination meter via CAN communication line. Then manual mode switch position is indicated on the shift position indicator.

DTC Logic INFOID:0000000004201919

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0826	MANUAL MODE SWITCH	When an impossible pattern of switch signals is detected, a malfunction is detected.	Harness or connectors (These switches circuit is open or shorted.) (TCM, and combination meter circuit are open or shorted.) (CAN communication line is open or shorted.) Manual mode select switch (Built into control device) Manual mode position select switch (Built into control device)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

MMODE

Is "P0826 MANUAL MODE SWITCH" detected?

>> Go to TM-338, "Diagnosis Procedure". YES

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

1. CHECK MANUAL MODE SWITCH SIGNALS

(P)With CONSULT-III

Turn ignition switch ON.

Diagnosis Procedure

- Select "DATA MONITOR".
- 3. Check the ON/OFF operations of each monitor item.

Item name	em name Condition	
MMODE	Manual shift gate position (neutral)	On
MIMODE	Other than the above	Off
NONMMODE	Manual shift gate position (neutral, +side, -side)	Off
INCINIVIIVICUE	Other than the above	On

INFOID:0000000004201920

[CVT: RE0F10A]

TM-338

P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

Item name	Condition	Display value
UPLVR	Selector lever: + side	On
	Other than the above	Off
DOWNLVR	Selector lever: – side	On
	Other than the above	Off

Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever is shifted to the "+ (up)" or "- (down)" side (1st \Leftrightarrow 6th gear).

Is the inspection result normal?

YES >> GO TO 7.

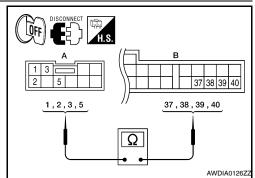
NO >> GO TO 2.

2.CHECK HARNESS BETWEEN CVT DEVICE AND COMBINATION METER (PART 1)

1. Turn ignition switch OFF.

- 2. Disconnect control device harness connector and combination meter harness connector.
- 3. Check continuity between CVT device harness connector M23 (A) terminals 1, 2, 3, 5 and combination meter harness connector M24 (B) terminals 40, 38, 39, 37.

CVT device harness connector		Combination meter harness connector		Continu- ity
Connector	Terminal	Connector	Terminal	ity
	1	M24 (B)	40	
M23 (A)	2		38	Existed
W25 (A)	3		39	LXISIGU
	5		37	



Is the inspection result normal?

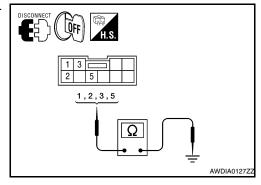
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

$3. {\sf CHECK}$ HARNESS BETWEEN CVT DEVICE AND COMBINATION METER (PART 2)

Check continuity between CVT device harness connector M23 terminals 1, 2, 3, 5 and ground.

CVT device ha	rness connector		Continuity
Connector	Terminal		Continuity
	1	Ground	
M23	2	Ground	Not existed
IVIZO	3		Not existed
	5		



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

CHECK GROUND CIRCUIT (PART 1)

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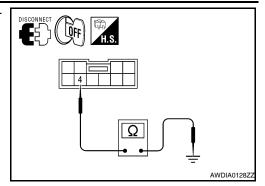
0

P0826 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

Check continuity between CVT device harness connector M23 terminal 4 and ground.

CVT device vehicle side harness connector			Continuity
Connector	Terminal	Ground	
M23 4			Existed



[CVT: RE0F10A]

Is the inspection result normal?

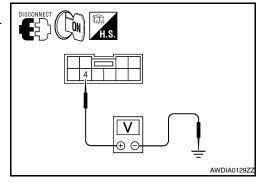
YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK GROUND CIRCUIT (PART 2)

- 1. Turn ignition switch ON.
- Check voltage between CVT device harness connector M23 terminal 4 and ground.

CVT device ha	CVT device harness connector		Voltage (Approx.)
Connector	Connector Terminal		voitage (Approx.)
M23	M23 4		0 V



Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6. CHECK MANUAL MODE SWITCH

Check manual mode switch. Refer to TM-340, "Component Inspection (Manual Mode Switch)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

/.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

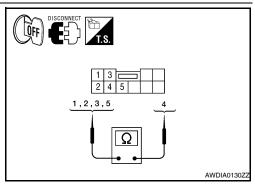
Component Inspection (Manual Mode Switch)

INFOID:0000000004201921

1. CHECK MANUAL MODE SWITCH

Check continuity between CVT device terminals.

CVT devi	ce terminal	Condition	Continuity
5	4	Manual shift gate position (neutral)	Not existed
5	4	Other than the above	Existed
1	4	Manual shift gate position (neutral)	Existed
ı	1 4	Other than the above	Not existed
3	4	Selector lever: UP (+ side)	Existed
3	4	Other than the above	Not existed
2	2 4	Selector lever: DOWN (- side)	Existed
2	4	Other than the above	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SEN-SOR)

< COMPONENT DIAGNOSIS >

P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SENSOR)

Description INFOID:0000000004201922

The transmission fluid pressure sensor A (secondary pressure sensor) detects secondary pressure of CVT and sends TCM the signal.

DTC Logic INFOID:0000000004201923

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0840	TR PRS SENS/A CIRC	Signal voltage of the transmission fluid pressure sensor A (secondary pressure sensor) is too high or too low while driving.	Harness or connectors (Sensor circuit is open or shorted.) Transmission fluid pressure sensor A (secondary pressure sensor)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and wait for at least 5 consecutive seconds.

Follow the procedure "With CONSULT-III".

Is "P0840 TR PRS SENS/A CIRC" detected?

YES >> Go to TM-341, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

${f 1}.$ CHECK INPUT SIGNAL

Start engine.

Check voltage between TCM harness connector F16 terminal 15 and ground.

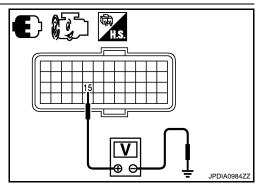
TCM coi	TCM connector		Condition	Voltage (Ap-
Connector	Terminal	Ground	Condition	prox.)
F16	15		"N" position idle	1.0 V

Turn ignition switch OFF.

Is the inspection result normal?

YES >> GO TO 8. NO >> GO TO 2.

2.CHECK POWER AND SENSOR GROUND



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[CVT: RE0F10A]

INFOID:0000000004201924

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P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SEN-SOR)

< COMPONENT DIAGNOSIS >

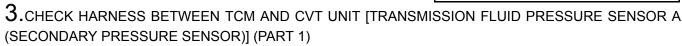
- Turn ignition switch ON.
- Check voltage between TCM harness connector F16 terminals 25 and 26.

Т	Voltage (Approx.)		
Connector	Terr	voltage (Applox.)	
F16	25	26	5.0 V

Is the inspection result normal?

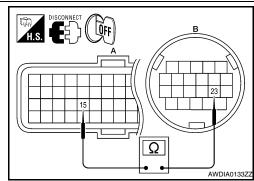
>> GO TO 3. NO >> GO TO 5.

YES



- Turn ignition switch OFF.
- Disconnect TCM harness connector and CVT unit connector. 2.
- Check continuity between TCM harness connector F16 (A) terminal 15 and CVT unit harness connector F46 (B) terminal 23.

TCM harnes	TCM harness connector		CVT unit harness connector	
Connector	Terminal	Connector	Terminal	Continuity
F16	15	F46	23	Existed



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[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

f 4.CHECK HARNESS BETWEEN TCM AND CVT UNIT [TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR)] (PART 2)

Check continuity between TCM harness connector F16 terminal 15 and ground.

TCM harnes	TCM harness connector		Continuity
Connector	Connector Terminal		Continuity
F16	15		Not existed

Ω

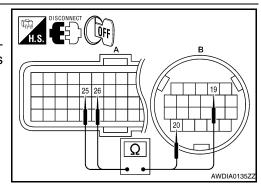
Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

- ${f 5.}$ CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 1)
- 1. Turn ignition switch OFF.
- Disconnect TCM connector and CVT unit connector.
- Check continuity between TCM harness connector F16 (A) terminals 25, 26 and CVT unit harness connector F46 (B) terminals 19, 20.

TCM harnes	ss connector	CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F16	25	F46	19	Existed
1-10	26	1 40	20	LAISIEU



Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

 $oldsymbol{6}$.CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART

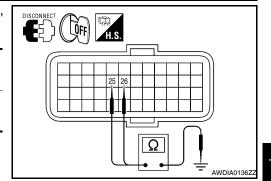
P0840 TRANSMISSION FLUID PRESSURE SENSOR A (SEC PRESSURE SENSOR)

< COMPONENT DIAGNOSIS >

2)

Check continuity between TCM harness connector F16 terminals 25, 26 and ground.

TCM harne	TCM harness connector		Continuity
Connector	Terminal	Ground	Continuity
F16	25	Giodila	Not existed
1 10	26		Not existed



[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. CHECK TCM

- Replace same type TCM. Refer to <u>TM-430, "Removal and Installation"</u>.
- Connect each connector.
- Perform "DTC CONFIRMATION PROCEDURE". Refer to <u>TM-341</u>, "<u>DTC Logic</u>".

Is "P0840 TR PRS SENS/A CIRC" detected?

YES (Only DTC P0840 detected)>>Replace control valve. Refer to TM-447, "Exploded View".

YES (DTC P0840 and except DTC P0840 are detected)>>Replace transaxle assembly. Refer to <u>TM-447.</u> "Removal and Installation".

NO >> Replace TCM. Refer to TM-430, "Removal and Installation".

8. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Removal and Installation".

NO >> Repair or replace damaged parts.

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P0841 PRESSURE SENSOR FUNCTION

[CVT: RE0F10A]

< COMPONENT DIAGNOSIS >

P0841 PRESSURE SENSOR FUNCTION

Description INFOID:0000000004201925

Using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signal, TCM changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley to control the gear ratio.

DTC Logic INFOID:0000000004201926

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause	
P0841	PRESS SEN/FNCTN	Secondary pressure became higher than line pressure.	Harness or connectors (Sensor circuit is open or shorted.) Transmission fluid pressure sensor A (secondary pressure sensor)	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 12 consecutive seconds.

VEHICLE SPEED : 40 km/h (25 MPH) or more

RANGE : "D" position

Is "P0841 PRESS SEN/FNCTN" detected?

YFS >> Go to TM-344, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

INFOID:0000000004201927

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-423, "Inspection and Judgment".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-423, "Inspection and Judgment".

2.CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYS-TEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to TM-341, "Description".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.check pressure control solenoid valve a (line pressure solenoid valve)

- Turn ignition switch OFF.
- Disconnect CVT unit connector.

P0841 PRESSURE SENSOR FUNCTION

< COMPONENT DIAGNOSIS >

3. Check pressure control solenoid valve A (line pressure solenoid valve). Refer to TM-345, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

4.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to <u>TM-345</u>, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to TM-361, "Description".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

 $1. {\sf CHECK\ PRESSURE\ CONTROL\ SOLENOID\ VALVE\ A\ (LINE\ PRESSURE\ SOLENOID\ VALVE)}$

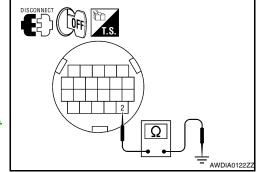
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, "Exploded View".



Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

 $1. {\sf CHECK\ PRESSURE\ CONTROL\ SOLENOID\ VALVE\ B\ (SECONDARY\ PRESSURE\ SOLENOID\ VALVE)}$

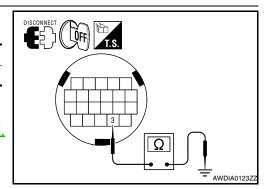
Check resistance between CVT unit terminal 3 and ground.

-		
CVT unit terminal	Ground	Resistance (Approx.)
3	Ground	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, "Exploded View".



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P0868 SECONDARY PRESSURE DOWN

< COMPONENT DIAGNOSIS >

P0868 SECONDARY PRESSURE DOWN

Description INFOID:000000004201933

The pressure control solenoid valve B (secondary pressure solenoid valve) regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P0868	SEC/PRESS DOWN	Secondary fluid pressure is too low compared with the commanded value while driving.	Harness or connectors (Solenoid circuit is open or shorted.) Pressure control solenoid valve B (secondary pressure solenoid valve) system Transmission fluid pressure sensor A (secondary pressure sensor) Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and maintain the following conditions for at least 10 consecutive seconds.

VEHICLE SPEED (accelerate slow- : 0 → 50 km/h (31 MPH)

ly)

ACC PEDAL OPEN : 0.5/8 - 1.0/8 RANGE : "D" position

Is "P0868 SEC/PRESS DOWN" detected?

YES >> Go to TM-346, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000004201935

[CVT: RE0F10A]

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to TM-423, "Inspection and Judgment"

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to TM-423, "Inspection and Judgment".

2.CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

- Turn ignition switch OFF.
- 2. Disconnect CVT unit connector.

P0868 SECONDARY PRESSURE DOWN

< COMPONENT DIAGNOSIS >

3. Check pressure control solenoid valve B (secondary pressure solenoid valve). Refer to <u>TM-347</u>, "Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

3.check pressure control solenoid valve a (line pressure solenoid valve)

Check pressure control solenoid valve A (line pressure solenoid valve). Refer to <u>TM-347</u>, "Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

4.CHECK TRANSMISSION FLUID PRESSURE SENSOR A (SECONDARY PRESSURE SENSOR) SYSTEM

Check transmission fluid pressure sensor A (secondary pressure sensor) system. Refer to <u>TM-341, "DTC Logic"</u>.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection [Pressure Control Solenoid Valve A (Line Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE A (LINE PRESSURE SOLENOID VALVE)

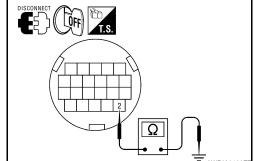
Check resistance between CVT unit terminal 2 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
2	Olouna	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u> "Exploded View".



Component Inspection [Pressure Control Solenoid Valve B (Secondary Pressure Solenoid Valve)]

1. CHECK PRESSURE CONTROL SOLENOID VALVE B (SECONDARY PRESSURE SOLENOID VALVE)

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P0868 SECONDARY PRESSURE DOWN

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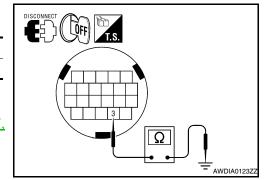
Check resistance between CVT unit terminal 3 and ground.

CVT unit terminal	Ground	Resistance (Approx.)
3	Giodila	3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, <u>"Exploded View"</u>.



[CVT: RE0F10A]

P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

Description INFOID:000000004201938

When the power supply to the TCM is cut OFF, for example because the battery is removed, and the self-diagnosis memory function stops, malfunction is detected.

NOTE:

Since "P1701 TCM-POWER SUPPLY" will be indicated when replacing TCM, perform diagnosis after erasing "SELF-DIAG RESULTS"

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1701	TCM-POWER SUPPLY	 When the power supply to the TCM is cut OFF, for example because the battery is removed, and the self-diagnosis memory function stops. This is not a malfunction message (Whenever shutting OFF a power supply to the TCM, this message appears on the screen). 	Harness or connectors (Battery or ignition switch and TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Wait for at least 2 consecutive seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1701 TCM-POWER SUPPLY" detected?

YES >> Go to TM-349, "Diagnosis Procedure".

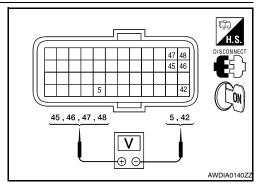
NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK TCM POWER SOURCE

- 1. Turn ignition switch OFF.
- 2. Disconnect TCM harness connector.
- 3. Check voltage between TCM harness connector F16 terminal 46, 48, 45, 47 and 5, 42.

TCM harness connector				Voltage	
Connec- tor	Terr	minal	Condition	(Approx.)	
	46		Ignition switch ON	Battery voltage	
		5, 42	Ignition switch OFF	0 V	
F16	48		Ignition switch ON	Battery voltage	
			Ignition switch OFF	0 V	
	45		Always	Battery	
	47			voltage	



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P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

Is the inspection result normal?

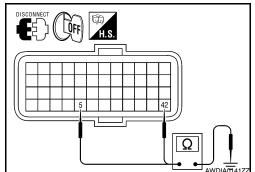
YES >> GO TO 6. NO >> GO TO 2.

2.CHECK TCM GROUND CIRCUIT

Turn ignition switch OFF.

Check continuity between TCM harness connector F16 terminal 5, 42 and ground.

TCM harne	ss connector	- Ground Exist	Continuity	
Connector	Terminal		Continuity	
F16	5		Evisted	
r10	42		Existed	



[CVT: RE0F10A]

Is the inspection result normal?

YES >> GO TO 3.

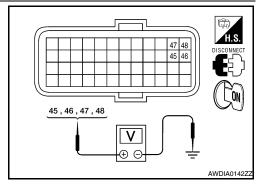
NO >> Repair or replace damaged parts.

3.CHECK TCM POWER CIRCUIT

Turn ignition switch ON.

Check voltage between TCM harness connector F16 terminal 46, 48, 45, 47 and ground.

TCM vehicle side har- ness connector			Condition	Voltage
Connector	Connector Terminal			(Approx.)
	46	Ground	Ignition switch ON	Battery voltage
			Ignition switch OFF	0 V
F16	48		Ignition switch ON	Battery voltage
			Ignition switch OFF	0 V
	45		Always	Battery
	47			voltage



Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 4.

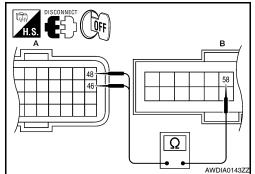
4. CHECK HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 1)

Turn ignition switch OFF.

Disconnect IPDM E/R harness connector F10.

Check continuity between TCM harness connector F16 (A) terminal 46, 48 and IPDM E/R harness connector F10 (B) terminal 58.

TCM harnes	ss connector	IPDM E/R harness connector		Continuity
Connector Terminal		Connector	Terminal	
F16 (A)	46	F10 (B)	58	Existed
1 10 (A)	48	110(B)		



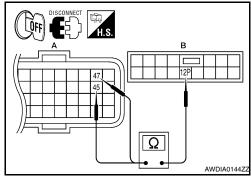
P1701 TRANSMISSION CONTROL MODULE (POWER SUPPLY)

< COMPONENT DIAGNOSIS >

4. Disconnect fuse block J/B harness connector.

Check continuity between TCM harness connector F16 (A) terminal 45, 47 and fuse block J/B harness connector E6 terminal 12P.

TCM harness connector		Fuse block J/B harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F16 (A)	45	E6 (B)	12P	Existed
F10 (A)	47	L0 (B)	IZF	LXISIGU



[CVT: RE0F10A]

Is the inspection result normal?

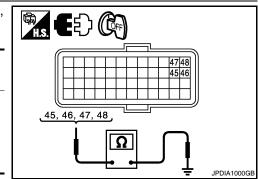
YES >> GO TO 5.

NO >> Repair or replace damaged parts.

$5.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 2)

Check continuity between TCM harness connector F16 terminal 45, 46, 47, 48 and ground.

TCM harness connector			Continuity
Connector	Terminal		Continuity
F16	45	Ground	Not existed
	46		
	47		NOT EXISTED
	48		



Is the inspection result normal?

YES

- >> Check the following.
 - 10A fuse (No. 34, located in IPDM E/R)
 - 10A fuse [No. 11, located in fuse block (J/B)]
 - Ignition switch. Refer to PG-74.
- NO >> Repair or replace damaged parts.

6.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

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P1705 THROTTLE POSITION SENSOR

Description INFOID:000000004201941

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor etc. The actuator sends a signal to the ECM, and ECM sends the signal to TCM with CAN communication.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1705	TP SEN/CIRC A/T	TCM does not receive the proper accelerator pedal position signals (input by CAN communication) from ECM.	ECM Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- 2. Depress accelerator pedal fully and release it, then wait for 5 seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1705 TP SEN/CIRC A/T" detected?

YES >> Go to TM-352, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000004201943

[CVT: RE0F10A]

1. CHECK DTC WITH ECM

(P)With CONSULT-III

- Turn ignition switch ON.
- Perform "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC Detected Item. Refer to <u>EC-527</u>, "<u>DTC Index</u>" (for california), <u>EC-1015</u>, "<u>DTC Index</u>" (except for california).

2. CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1705 TP SEN/CIRC A/T" detected?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

P1722 ESTM VEHICLE SPEED SIGNAL

< COMPONENT DIAGNOSIS >

P1722 ESTM VEHICLE SPEED SIGNAL

Description INFOID:0000000004201944

The vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) to TCM by CAN communication line.

DTC Logic INFOID:0000000004201945

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause	TM
P1722	ESTM VEH SPD SIG	 CAN communication with the ABS actuator and the electric unit (control unit) is malfunctioning. There is a great difference between the 	Harness or connectors (Sensor circuit is open or shorted.)	Е
		vehicle speed signal from the ABS actuator and the electric unit (control unit), and the vehicle speed sensor signal.	ABS actuator and electric unit (control unit)	F

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1.CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

ACC PEDAL OPEN : 1.0/8 or less

VEHICLE SPEED : 30 km/h (19 MPH) or more

Is "P1722 ESTM VEH SPD SIG" detected?

>> Go to TM-353, "Diagnosis Procedure".

>> Check intermittent incident. Refer to GI-42, "Intermittent Incident". NO

Diagnosis Procedure

 ${f 1}$.CHECK DTC WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "ABS".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC detected item. Refer to BRC-121, "DTC No. Index" (TCS/ABS), BRC-223, "DTC No. Index" (VDC/TCS/ABS).

$\mathbf{2}.$ CHECK DTC WITH TCM

(P)With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1722 ESTM VEH SPD SIG" detected?

>> Replace TCM. Refer to TM-430, "Exploded View". YES

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

TM-353

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[CVT: RE0F10A]

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INFOID:0000000004201946

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P1722 ESTM VEHICLE SPEED SIGNAL

[CVT: RE0F10A]

< COMPONENT DIAGNOSIS >

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

P1723 CVT SPEED SENSOR FUNCTION

< COMPONENT DIAGNOSIS >

P1723 CVT SPEED SENSOR FUNCTION

Description INFOID:000000004201947

The vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] detects the revolution of parking gear and generates a pulse signal. The pulse signal is sent to the TCM, which converts it into vehicle speed.

The input speed sensor (primary speed sensor) detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1723	CVT SPD SEN/FNCTN	A rotation sensor error is detected because the gear does not change in accordance with the position of the stepping motor. CAUTION: One of the "P0720 VEH SPD SEN/CIR AT", the "P0715 INPUT SPD SEN/CIRC" or the "P0725 ENGINE SPEED SIG" is displayed with the DTC at the same time.	 Harness or connectors (Sensor circuit is open or shorted.) Output speed sensor (secondary speed sensor) Input speed sensor (primary speed sensor) Engine speed signal system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTÉ:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- 1. Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving

conditions required for this test.

Is "P1723 CVT SPD SEN/FNCTN" detected?

YES >> Go to TM-355, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK STEP MOTOR FUNCTION

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1778 STEP MOTR/FNC" detected?

YES >> Repair or replace damaged parts. Refer to TM-364, "DTC Logic".

NO >> GO TO 2.

2.CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM

Check output speed sensor (secondary speed sensor) system. Refer to TM-318. "DTC Logic".

Is the inspection result normal?

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INFOID:00000000004201949

P1723 CVT SPEED SENSOR FUNCTION

[CVT: RE0F10A]

< COMPONENT DIAGNOSIS >

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM

Check input speed sensor (primary speed sensor) system. Refer to TM-313, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK ENGINE SPEED SIGNAL SYSTEM

Check engine speed signal system. Refer to TM-322, "DTC Logic".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

P1726 ELECTRIC THROTTLE CONTROL SYSTEM

< COMPONENT DIAGNOSIS >

P1726 ELECTRIC THROTTLE CONTROL SYSTEM

Description INFOID:0000000004201950

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor etc. The actuator sends a signal to the ECM, and ECM sends the signal to TCM with CAN communication.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1726	ELEC TH CONTROL	The electronically controlled throttle for ECM is malfunctioning.	Harness or connectors (Sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1.CHECK DTC DETECTION

With CONSULT-III

- Start engine and let it idle for 5 seconds.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1726 ELEC TH CONTROL" detected?

YES >> Go to TM-357, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK DTC WITH ECM

(P)With CONSULT-III

- Turn ignition switch ON.
- Select "SELF-DIAG RESULTS" mode for "ENGINE".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC Detected Item. Refer to <u>EC-527, "DTC Index"</u> (for California), <u>EC-1015, "DTC Index"</u> (except for California).

2.check dtc with tcm

(II) With CONSULT-III

Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Is "P1726 ELEC TH CONTROL" detected?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

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[CVT: RE0F10A]

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P1740 LOCK-UP SELECT SOLENOID VALVE

< COMPONENT DIAGNOSIS >

P1740 LOCK-UP SELECT SOLENOID VALVE

Description INFOID:0000000004201953

Lock-up select solenoid valve controls lock-up clutch pressure or forward clutch pressure (reverse brake

When controlling lock-up clutch, the valve is turned OFF. When controlling forward clutch, it is turned ON.

DTC Logic INFOID:0000000004201954

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1740	LU-SLCT SOL/CIRC	 Normal voltage not applied to solenoid due to cut line, short, or the like. TCM detects as irregular by comparing target value with monitor value. 	Harness or connectors (Solenoid circuit is open or shorted.) Lock-up select solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(E)With CONSULT-III

- Turn ignition switch ON.
- Select "DATA MONITOR".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

: "D" or "N" position **RANGE**

(At each time, wait for 5 seconds.)

Follow the procedure "With CONSULT-III".

Is "P1740 LU-SLCT SOL/CIRC" detected?

YES >> Go to TM-358, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK LOCK-UP SELECT SOLENOID VALVE CIRCUIT

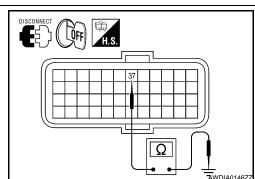
- Turn ignition switch OFF.
- Disconnect TCM harness connector.
- Check resistance between TCM harness connector F16 terminal 37 and ground.

TCM harness connector			Resistance (Ap-
Connector	Terminal	Ground	prox.)
F16	37		17.0 – 38.0 Ω

Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 2.

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 1)



INFOID:0000000004201955

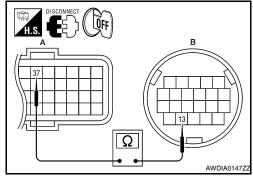
[CVT: RE0F10A]

P1740 LOCK-UP SELECT SOLENOID VALVE

< COMPONENT DIAGNOSIS >

- 1. Disconnect CVT unit harness connector.
- 2. Check continuity between TCM harness connector F16 (A) terminal 37 and CVT unit harness connector F46 (B) terminal 13.

	TCM harness connector		CVT unit harness connector		Continuity
•	Connector	Terminal	Connector	Terminal	Continuity
•	F16 (A)	37	F46 (B)	13	Existed



[CVT: RE0F10A]

Is the inspection result normal?

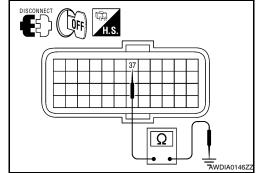
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

 $3. {\sf CHECK}$ HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 2)

Check continuity between TCM harness connector F16 terminal 37 and ground.

TCM harness connector			Continuity
Connector	Terminal	Ground	Continuity
F16	37		Not existed



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to TM-359, "Component Inspection (Lock-up Select Solenoid Valve)".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transaxle assembly. Refer to TM-447, "Exploded View".

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to TM-430, "Exploded View".

NO >> Repair or replace damaged parts.

Component Inspection (Lock-up Select Solenoid Valve)

INFOID:0000000004201956

1. CHECK LOCK-UP SELECT SOLENOID VALVE

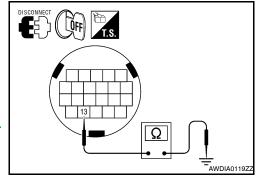
Check resistance between CVT unit terminal 13 and ground.

CVT unit terminal	- Ground -	Resistance (Approx.)
13		17.0 – 38.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to <u>TM-447</u>, <u>"Exploded View"</u>.



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P1745 LINE PRESSURE CONTROL

[CVT: RE0F10A]

INFOID:0000000004201959

< COMPONENT DIAGNOSIS >

P1745 LINE PRESSURE CONTROL

Description INFOID:000000004201957

The pressure control solenoid valve A (line pressure solenoid valve) regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1745	L/PRESS CONTROL	TCM detects the unexpected line pressure.	TCM

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON
- Select "DATA MONITOR".
- Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Is "P1745 L/PRESS CONTROL" detected?

YES >> Go to TM-360, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK DTC

(P)With CONSULT-III

- Start engine.
- Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

is "P1745 L/PRESS CONTROL" displayed?

YES >> Replace TCM. Refer to TM-430, "Removal and Installation".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

P1777 STEP MOTOR

< COMPONENT DIAGNOSIS >

P1777 STEP MOTOR

Description INFOID:000000004201960

The step motor changes the step with turning 4 coils ON/OFF according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1777	STEP MOTR CIRC	Each coil of the step motor is not energized properly due to an open or a short.	 Harness or connectors (Step motor circuit is open or shorted.) Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(II) With CONSULT-III

- Start engine.
- 2. Drive vehicle for at least 5 consecutive seconds.
- 3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

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Follow the procedure "With CONSULT-III".

Is "P1777 STEP MOTR CIRC" detected?

YES >> Go to TM-361, "Diagnosis Procedure".

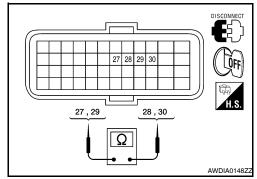
NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK STEP MOTOR CIRCUIT

- Turn ignition switch OFF.
- Disconnect TCM harness connector.
- 3. Check resistance between TCM harness connector F16 terminal 27, 29 and 28, 30.

Т	Resistance (Ap-		
Connector	Terr	prox.)	
F16	27	28	30.0 Ω
F10	29	30	30.0 12



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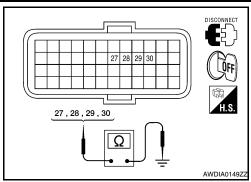
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< COMPONENT DIAGNOSIS >

4. Check resistance between TCM harness connector F16 terminal 27, 28, 29, 30 and ground.

TCM harne	TCM harness connector		Resistance (Ap-	
Connector	Terminal		prox.)	
	27	Ground 15		
F16	28		15.0 Ω	
FIO	29		15.0 12	
	30			



[CVT: RE0F10A]

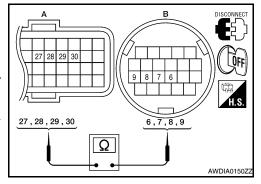
Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 2.

$2.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 1)

- 1. Disconnect CVT unit harness connector.
- 2. Check continuity between TCM harness connector F16 (A) terminal 27, 28, 29, 30 and CVT unit harness connector F46 (B) terminal 9, 8, 7, 6.

TCM harness connector		CVT unit harness connector		Continuity	
Connector Terminal		Connector	Terminal	Continuity	
	27		9	Existed	
E16 (A)	28	F46 (B)	8		
F16 (A)	29		7		
	30		6		



Is the inspection result normal?

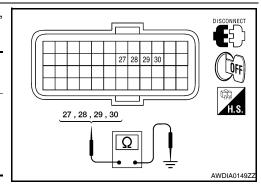
YES >> GO TO 3.

NO >> Repair or replace damaged parts.

$3.\mathsf{CHECK}$ HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 2)

Check continuity between TCM harness connector F16 terminal 27, 28, 29, 30 and ground.

TCM harne	TCM harness connector		Continuity	
Connector	Terminal	- Ground	Continuity	
	27		Not existed	
F16	28			
1 10	29		Not existed	
	30			



Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK STEP MOTOR

Check step motor. Refer to TM-363, "Component Inspection (Step Motor)".

Is the inspection result normal?

YES >> GO TO 6. NO >> GO TO 5.

5.CHECK DTC

(I) With CONSULT-III

- Turn ignition switch ON.
- 2. Perform "SELFDIAG RESULTS" mode for "TRANSMISSION".

TM-362

P1777 STEP MOTOR

< COMPONENT DIAGNOSIS >

Is "P1777 STEP MOTER CIRC" detected?

YES (Only DTC P1777 detected)>>Replace control valve. Refer to TM-447, "Exploded View".

YES (DTC P0725 and DTC U1000 in addition to DTC P1777 are detected)>>When DTC is detected as listed below, replace control valve. Refer to TM-447, "Exploded View".

- DTC for P1777 and P0725 are detected.
- DTC for P1777 and U1000 are detected.
- DTC for P1777, P0725 and U1000 are detected.

NO >> Replace transaxle assembly. Refer to TM-447, "Removal and Installation".

6. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

1. CHECK STEP MOTOR

YES >> Replace TCM. Refer to TM-430, "Exploded View".

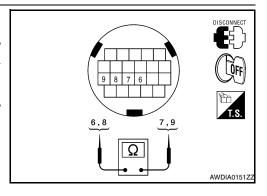
NO >> Repair or replace damaged parts.

Component Inspection (Step Motor)

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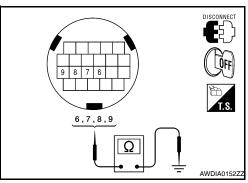
1. Check resistance between CVT unit terminal 6, 8 and 7, 9.

CVT unit terminal		Resistance (Approx.)	
6	7	30.0 Ω	
8	9	30.0 52	



Check resistance between CVT unit terminal 6, 7, 8, 9 and ground.

CVT unit terminal		Resistance (Approx.)
6		
7	Ground	15.0 Ω
8		
9		



Is the inspection result normal?

YES >> INSPECTION END

NO >> Perform "SELFDIAG RESULTS" mode for "TRANSMISSION".

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P1778 STEP MOTOR - FUNCTION

Description INFOID:000000004201964

- The step motor's 4 aspects of ON/OFF change according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled.
- This diagnosis item is detected when electrical system is OK, but mechanical system is NG.
- This diagnosis item is detected when the state of the changing the speed mechanism in unit does not operate normally.

DTC Logic

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen term)	Malfunction is detected when	Possible cause
P1778	STEP MOTR/FNC	There is a great difference between the number of steps for the stepping motor and for the actual gear ratio.	Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

- Always drive vehicle at a safe speed.
- Before starting "DTC CONFIRMATION PROCEDURE", confirm "Hi" or "Mid" or "Low" fixation by "PRI SPEED" and "VEHICLE SPEED" on "DATA MONITOR MODE".
- If hi-geared fixation occurred, go to <u>TM-364, "Diagnosis Procedure"</u>.
 NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

(P)With CONSULT-III

- Turn ignition switch ON.
- 2. Select "DATA MONITOR".
- 3. Make sure that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 - 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Start engine and maintain the following conditions for at least 30 consecutive seconds.

TEST START FROM 0 km/h (0 MPH)

CONSTANT ACCELERATION : Keep 30 sec or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

With GST

Follow the procedure "With CONSULT-III".

Is "P1778 STEP MOTR/FNC" detected?

YES >> Go to TM-364, "Diagnosis Procedure".

NO >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

1. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to TM-361, "Description".

Is the inspection result normal?

INFOID:0000000004201966

[CVT: RE0F10A]

P1778 STEP MOTOR - FUNCTION	
< COMPONENT DIAGNOSIS >	[CVT: RE0F10A]
YES >> GO TO 2. NO >> Repair or replace damaged parts.	А
2.CHECK INPUT SPEED SENSOR (PRIMARY SPEED SENSOR) SYSTEM	^
Check input speed sensor (primary speed sensor) system. Refer to TM-313, "Description of the control of the con	on".
Is the inspection result normal?	В
YES >> GO TO 3. NO >> Repair or replace damaged parts.	
3. CHECK OUTPUT SPEED SENSOR (SECONDARY SPEED SENSOR) SYSTEM	С
Check output speed sensor (secondary speed sensor) system. Refer to TM-318, "Desc	cription".
Is the inspection result normal?	TM
YES >> GO TO 4.	
NO >> Repair or replace damaged parts. 4.DETECT MALFUNCTIONING ITEMS	Е
Check TCM connector pin terminals for damage or loose connection with harness con	
Is the inspection result normal?	F
YES >> Replace TCM. Refer to <u>TM-430, "Exploded View"</u> .	
NO >> Repair or replace damaged parts.	
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SHIFT POSITION INDICATOR CIRCUIT

< COMPONENT DIAGNOSIS >

SHIFT POSITION INDICATOR CIRCUIT

Description INFOID:000000004201967

- TCM sends position indicator signals to combination meter by CAN communication line.
- Manual mode switch position is indicated on shift position indicator.

Component Function Check

INFOID:0000000004201968

ICVT: RE0F10A1

1. CHECK SHIFT POSITION INDICATOR

CAUTION:

Always drive vehicle at a safe speed.

- 1. Start engine.
- Check if correct selector lever position ("P", "N", "R" or "D") is displayed as selector lever is moved into each position.
- 3. Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when selector lever is shifted to the "UP (+ side)" or "DOWN (− side)" side (1st ⇔ 6th gear).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to TM-366, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000004201969

1. CHECK INPUT SIGNALS

(P)With CONSULT-III

- 1. Start engine.
- 2. Check if correct selector lever position ("P", "N", "R" or "D") is displayed as selector lever is moved into each position.
- 3. Select "RANGE" on "DATA MONITOR" and read out the value.
- 4. Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when selector lever is shifted to the "UP (+ side)" or "DOWN (− side)" side (1st ⇔ 6th gear).

Is the inspection result normal?

- YES >> INSPECTION END
- NO-1 >> The actual gear position does not change, or shifting into the manual mode is not possible (no gear shifting in the manual mode possible). Or the shift position indicator is not indicated.
 - Check manual mode switch. Refer to <u>TM-340</u>, "<u>Component Inspection (Manual Mode Switch)</u>".
 - Check CVT main system (Fail-safe function actuated).
 - Perform "SELF-DIÁG RESULTS" mode for "TRANSMISSION".
- NO-2 >> The actual gear position changes, but the shift position indicator is not indicated.
 - Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".
- NO-3 >> The actual gear position and the indication on the shift position indicator do not coincide.
 - Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".
- NO-4 >> Only a specific position or positions is/are not indicated on the shift position indicator.
 - Check combination meter. Refer to <u>MWI-38, "CONSULT-III Function (METER/M&A)"</u>.

SHIFT LOCK SYSTEM

Description INFOID:0000000004201970

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

PARK POSITION SWITCH (INTELLIGENT KEY SYSTEM)

Wiring Diagram - CVT SHIFT LOCK SYSTEM - Coupe

MODULE)

(BODY CONTROL N

STOP LAMP SWITCH (E38) DEPRESSED

RELEASED

FUSE BLOCK (J/B) E6

10A

IGNITION SWITCH ON OR START

INFOID:0000000004201971

[CVT: RE0F10A]

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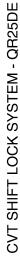
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Connector Name | BCM (BODY CONTROL | MODULE) BLACK

Connector Color

M19

Connector No.

Signal Name

Color of Wire

Terminal No.

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56G

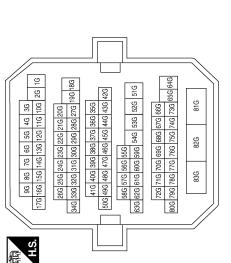
[CVT: RE0F10A]

CVT SHIFT LOCK SYSTEM CONNECTORS - QR25DE



			٦.
	99	80	
	61	81	
	62	82	
	83	83	
	95	84	
	65	85	
	99	98	
	29	87	
107	89	88	
IV.	69	89	
IN.	2	90	
	71 70	91	
	72	92	
	73 72	93	
	74	95	
	75	95	
		96	
	97 77 87	97	
H.S.	78	86	
	6	6	1

Signal Name	AT_DEVICE_OUT	SHIFT_P	
Color of Wire	Y/R	G/B	
Terminal No.	84	87	



E6	Connector Name FUSE BLOCK (J/B)	WHITE	
Connector No.	Connector Name	Connector Color	

Connector Name | CVT DEVICE

M23

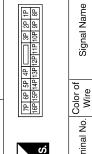
Connector No.

WHITE

Connector Color







Signal Name	S/LOCK_SOL_GND	S/LOCK_SOL_INPUT	DETENT_KEY_SW	DETENT_KEY_SW
Color of Wire	B/W	В	Y/R	G/B
erminal No.	9	7	8	6

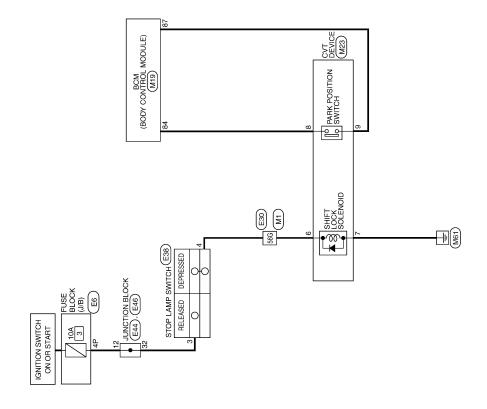
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		А
Signal Name		В
DP U		С
COO COO N. W.		ТМ
Connector Nam Connector Cold Connector Cold H.S. H.S. 4		Е
		F
Signal Name	E46 JUNCTION BLOCK WHITE 31 30 29 28 77 36 35 34 33 22 40 39 18 37 36 35 34 33 22 70 of Signal Name 7	G
Color of Wire L	Connector No. E46	Н
Terminal No. C	Connector No. E46 Connector Name JUNCTI Connector Color WHITE ALS Terminal No. Wire S32 32 V	I
<u>F</u>	Territoria de la companya della companya della companya de la companya della comp	J
		К
E30 WIRE TO WIRE	ION BLOCK □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	L
E30 WHRE TO WIRE		M
Connector No. E. Connector Name W Connector Color W Connector Colo		N
Connector No. Connector Cold		0
	ABDIA0221GE	В

TM-369

INFOID:0000000004201972

[CVT: RE0F10A]



CVT SHIFT LOCK SYSTEM - QR25DE

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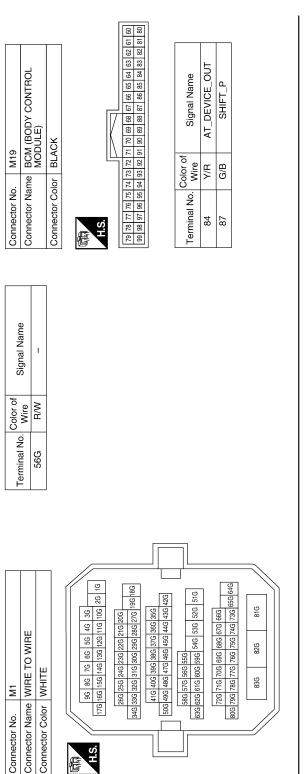
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CVT SHIFT LOCK SYSTEM - QR25DE CONNECTORS
SHIFT LOCK SYSTEM - QR25DI
SHIFT LOCK SYSTEM - QR25DI
SHIFT LOCK SYSTEM
SHIFT LOCK SYST
SHIFT LOCK



E6	Connector Name FUSE BLOCK (J/B)	WHITE	7P 68 5P 4P 3P 2P 1P 6P 5P 5P 6P 5P 6P 5P 6P 5P 6P 5P 6P	r of Signal Name	ı			
Connector No.	Connector Name	Connector Color WHITE	TP 6P	Terminal No. Wire	4P P			
			ı					
3	T DEVICE	IITE	018 919	Signal Name	S/LOCK_SOL_GND	S/LOCK_SOL_INPUT	DETENT_KEY_SW	DETENT_KEY_SW
M23	ume CV	olor WF	2 4 5	Color of Wire	B/W	В	Y/R	G/B
Connector No.	Connector Name CVT DEVICE	Connector Color WHITE	画 H.S.	Color of Terminal No. Wire	9	7	8	6

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[CVT: RE0F10A]

Connector No. E38		
Terminal No. Wire Signal Name 56G L –	Connector No. E46 Connector Name JUNCTION BLOCK Connector Color WHITE 31 30 23 28 77 28 28 40 39 38 37 38 38 38 38 38 38 38 38 38 38 38 38 38	Terminal No. Color of Signal Name
Connector No. E30 Connector Name WIRE TO WIRE Connector Color WHITE Connector Color WHITE 16 26 106 116 126 136 146 156 166 176 16 26 106 116 126 136 146 156 166 176 206 216 226 236 246 256 266 176 356 356 376 386 376 386 386 406 416 426 438 449 456 469 476 489 886 516 266 677 886 886 176 176 176 186 816 826 536 176 176 176 176 176 186 816 826 738 146 756 176 176 176 176 186	Connector No. E44 Connector Name JUNCTION BLOCK Connector Color BROWN S 4 3 2 1 S 4 3 2 1 S 1 10 9 8 7 6	Terminal No. Color of Wire Signal Name

Diagnosis Procedure

INFOID:0000000004494648

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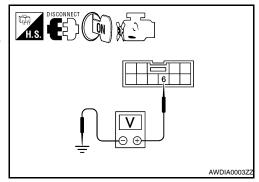
1. CHECK POWER SOURCE

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

- Disconnect CVT device connector.
- Turn ignition switch ON.
- 3. Check voltage between CVT device connector M23 terminal 6 and ground.

CVT device		Condition	Voltage	
Connector	Terminal	Condition	(Approx.)	
M23	6	Brake pedal depressed	Battery voltage	
10125		Brake pedal released	0V	



[CVT: RE0F10A]

Is the inspection result normal?

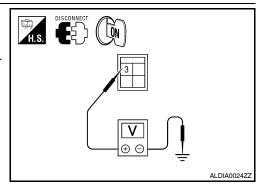
YES >> GO TO 5.

NO >> GO TO 2.

2. CHECK POWER SOURCE AT STOP LAMP SWITCH

- Turn ignition switch OFF.
- 2. Disconnect stop lamp switch connector.
- Turn ignition switch ON.
- 4. Check voltage between stop lamp switch connector E38 terminal 3 and ground.

Stop lamp switch		Ground	Voltage	
Connector	Terminal	Glound	(Approx.)	
E38	3	_	Battery voltage	



Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the following:

- Harness for short or open between fuse block (J/B) and stop lamp switch
- 10A fuse [No. 3, located in fuse block (J/B)]

3. CHECK STOP LAMP SWITCH

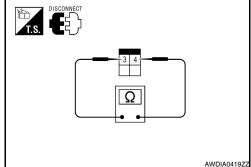
- Turn ignition switch OFF.
- Check continuity between stop lamp switch terminals 3 and 4.

CVT device terminals	Condition	Continuity
3 and 4	Brake pedal depressed	Yes
	Brake pedal released	No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace stop lamp switch. Refer to BR-17, "Exploded View".



$oldsymbol{4}$. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND CVT DEVICE FOR OPEN

Check continuity between stop lamp switch connector E38 (A) terminal 4 and CVT device connector M23 (B) terminal 6.

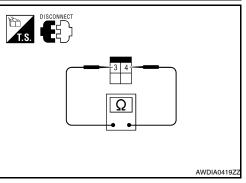
Stop lan	Stop lamp switch		CVT device	
Connector	Terminal	Connector	Terminal	Continuity
E38 (A)	4	M23 (B)	7	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connectors.

5. CHECK GROUND CIRCUIT



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SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

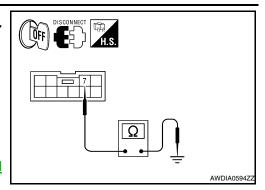
- 1. Turn ignition switch OFF.
- 2. Check continuity between CVT device connector M23 terminal 7 and ground.

CVT device		Ground	Continuity	
Connector	Terminal	Glound	Continuity	
M23	7	_	Yes	

Is the inspection result normal?

YES >> Replace CVT device. Refer to <u>TM-255, "Removal and Installation"</u>.

NO >> Repair harness or connectors.



[CVT: RE0F10A]

< ECU DIAGNOSIS > [CVT: RE0F10A]

ECU DIAGNOSIS

TCM

Reference Value

INFOID:0000000004201974

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VALUES ON THE DIAGNOSIS TOOL

Item name	Condition	Display value (Approx.)	
VSP SENSOR	During driving	Approximately matches the speedometer reading.	ΤN
ESTM VSP SIG*	During driving	Approximately matches the speedometer reading.	
PRI SPEED SEN	During driving (lock-up ON)	Approximately matches the engine speed.	E
ENG SPEED SIG	Engine running	Closely matches the tachometer reading.	F
SEC HYDR SEN	"N" position idle	1.0 V	
ATE TEMP OFM	When CVT fluid temperature is 20°C (68°F)	2.0 V	
ATF TEMP SEN	When CVT fluid temperature is 80°C (176°F)	1.0 V	(
VIGN SEN	Ignition switch: ON	Battery voltage	
VEHICLE SPEED	During driving	Approximately matches the speedometer reading.	-
PRI SPEED	During driving (lock-up ON)	Approximately matches the engine speed.	
SEC SPEED	During driving	45 X Approximately matches the speedometer reading.	
ENG SPEED	Engine running	Closely matches the tachometer reading.	
GEAR RATIO	During driving	2.34 - 0.39	
ACC PEDAL OPEN	Released accelerator pedal - Fully depressed accelerator pedal	0.0/8 - 8.0/8	
SEC PRESS	"N" position idle	1.3 MPa	
STM STEP	During driving	0 step – 177 step	
100174	Lock-up "OFF"	0.0 A	
ISOLT1	Lock-up "ON"	0.7 A	
100170	Release your foot from the accelerator pedal.	0.8 A	
ISOLT2	Press the accelerator pedal all the way down.	0.0 A	
ISOLT3	Secondary pressure low - Secondary pressure high	0.8 – 0.0 A	
COLMONA	Lock-up "OFF"	0.0 A	
SOLMON1	Lock-up "ON"	0.7 A	
001110110	"N" position idle	0.8 A	
SOLMON2	When stalled	0.3 – 0.6 A	(
001 MONO	"N" position idle	0.6 – 0.7 A	
SOLMON3	When stalled	0.4 – 0.6 A	
D DOOLTION COM	Selector lever in "P" position	On	
P POSITION SW	When setting selector lever to other positions.	Off	
D DOOLTION STO	Selector lever in "R" position	On	
R POSITION SW	When setting selector lever to other positions.	Off	
	Selector lever in "N" position	On	
N POSITION SW	When setting selector lever to other positions.	Off	

Item name	Condition	Display value (Approx.)
D POSITION SW	Selector lever in "D" position	On
D FOSITION SW	When setting selector lever to other positions.	Off
BRAKE SW	Depressed brake pedal	On
	Released brake pedal	Off
FULL SW	Fully depressed accelerator pedal	On
FULL SW	Released accelerator pedal	Off
IDLE CW	Released accelerator pedal	On
IDLE SW	Fully depressed accelerator pedal	Off
INDDDNC	Selector lever in "D" position	On
INDDRNG	When setting selector lever to other positions.	Off
INDNIDNIC	Selector lever in "N" position	On
INDNRNG	When setting selector lever to other positions.	Off
INDEDNIC	Selector lever in "R" position	On
INDRRNG	When setting selector lever to other positions.	Off
	Selector lever in "P" position	On
INDPRNG	When setting selector lever to other positions.	Off
SMCOIL D	During driving	Changes On ⇔ Off
SMCOIL C	During driving	Changes On ⇔ Off
SMCOIL B	During driving	Changes On ⇔ Off
SMCOIL A	During driving	Changes On ⇔ Off
	Selector lever in "P", "N" positions	On
LUSEL SOL OUT	Wait at least for 5 seconds with the selector lever in "R", "D" position	Off
	Selector lever in "P", "N" positions	On
LUSEL SOL MON	Wait at least for 5 seconds with the selector lever in "R", "D" or position	Off
ADC ON	ABS operate	On
ABS ON	Other conditions	Off
	Selector lever in "N" or "P" position	N·P
RANGE	Selector lever in "R" position	R
	Selector lever in "D" position	D
DOMAIL VD	Selector lever: - side	On
DOWNLVR	Other than the above	Off
LIDLYD	Selector lever: + side	On
UPLVR	Other than the above	Off
NONMACDE	Manual shift gate position (neutral, +side, -side)	Off
NONMMODE	Other than the above	On
	Manual shift gate position (neutral)	On
MMODE	Other than the above	Off
M GEAR POS	During driving	1, 2, 3, 4, 5, 6

TERMINAL LAYOUT

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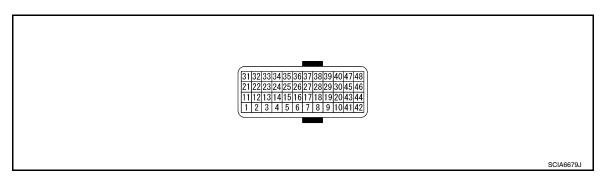
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PHYSICAL VALUES

	nal No. color)	Description			Condition	Value (Ap-
+	-	Signal name	Input/Output			prox.)
1	Ground	R RANGE SW	Output		Selector lever in "R" position	Battery voltage
(P/B)	Ground	KINNOL SW	Output		When setting selector lever to other positions	0 V
2	Ground	N RANGE SW	Output		Selector lever in "N" position	Battery voltage
(P/L)	Ground	NIVANOE OW	σαιραί	Ignition switch ON	When setting selector lever to other positions	0 V
3	Ground	D RANGE SW	Output	ignition switch on	Selector lever in "D" positions	Battery voltage
(G/O)	Ground	DIVANGE SW	Output		When setting selector lever to other positions	0 V
4	Ground	L RANGE SW	Output		Selector lever in "L" position	Battery voltage
(GR)	Ground	ETANGE GW	σαιραί		When setting selector lever to other positions	0 V
5 (B)	Ground	Ground	Output	Always		0 V
6 (O)	Ground	K-LINE	Input/Output	_		_
7 (W)	Ground	Sensor ground	Input	Always		0 V
8 (G/W)	_	CLOCK	_	_		_
9 (L/R)	_	CHIP SELECT	_	_		_
10 (BR/R)	_	DATA I/O	_		_	_
11	Ground	P RANGE SW	Output	Ignition switch ON	Selector lever in "P" position	Battery voltage
(BR/W)	Giouria	F MANGE SW	Output	ignition switch ON	When setting selector lever to other positions	0 V
13	Ground	CVT fluid temperature sensor	Output	Ignition switch ON	When CVT fluid temperature is 20°C (68°F)	2.0 V
(V)	Giound	Ovi ilulu temperature sensor	σαιραί	igililion switch ON	When CVT fluid temperature is 80°C (176°F)	1.0 V
14* ¹ (LG)	_	_	_		_	_

< ECU	DIAGNO	OSIS >	TC	M	[CVT:	RE0F10A]
	nal No. color)	Description			Condition	Value (Ap-
+	_	Signal name	Input/Output			prox.)
15 (V/W)	Ground	Transmission fluid pressure sensor A (secondary pressure sensor)	Input	"N" position idle		1.0 V
25 (W/R)	Ground	Sensor ground	Input		Always	0 V
26 (L/O)	Ground	Sensor power	Input	Ignition switch ON Ignition switch OFF	<u> </u>	5.0 V 0 V
27 (R/G)	Ground	Step motor D	Input			10.0 msec
28 (R)	Ground	Step motor C	Input	Within 2 seconds after ignition switch ON, the time measurement by using the pulse width measure-		30.0 msec
29 (O/B)	Ground	Step motor B	Input	_	rel) of CONSULT-III.*2	10.0 msec
30 (G/R)	Ground	Step motor A	Input			30.0 msec
31 (P)	_	CAN-L	Input/Output		_	_
32 (L)	_	CAN-H	Input/Output		_	_
33 (LG/W)	Ground	Input speed sensor (primary speed sensor)	Input	When driving ["M1" position, 20 km/h (12 MPH)]		730 Hz
34 (LG/R)	Ground	Output speed sensor (secondary speed sensor)	Input	When driving ["D" position, 20 km/h (12 MPH)]		480 Hz
37					Selector lever in "P" or "N" positions	Battery voltage
(L/W)	Ground	Lock-up select solenoid valve	Output	Ignition switch ON	Wait at least for 5 seconds with the selector lever in "R" or "D" positions	0 V
38		Torque converter clutch sole-		When vehicle cruis-	When CVT performs lock-up	6.0 V
(G)	Ground	noid valve	Output	es in "D" position	When CVT does not per- form lock-up	1.0 V
39	Ground	Pressure control solenoid valve B (secondary pressure solenoid	Output		Release your foot from the accelerator pedal	5.0 – 7.0 V
(W/B)	Oround	valve)	Output	"P" or "N" position	Press the accelerator pedal all the way down	3.0 – 4.0 V
40	Ground	Pressure control solenoid valve	Output	idle	Release your foot from the accelerator pedal	5.0 – 7.0 V
(R/Y)	Cround	A (line pressure solenoid valve)	Julput		Press the accelerator pedal all the way down	1.0 – 3.0 V
42 (B)	Ground	Ground	Output		Always	0 V
45 (L/R)	Ground	Power supply (memory back-up)	Input		Always	Battery voltage
46 (Y)	Ground	Power supply	Input	Ignition switch ON	_	Battery voltage
(1)				Ignition switch OFF	_	0 V
47 (L/R)	Ground	Power supply (memory back-up)	Input		Always	Battery voltage

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< ECU DIAGNOSIS > [CVT: RE0F10A]

	nal No. color)	Description			Condition	Value (Approx.)	
+	-	Signal name	Input/Output			prox.)	
48	Ground	und Power supply	Input	Ignition switch ON	_	Battery voltage	
(Y)				Ignition switch OFF	_	0 V	

^{*1:} This circuit is not used.

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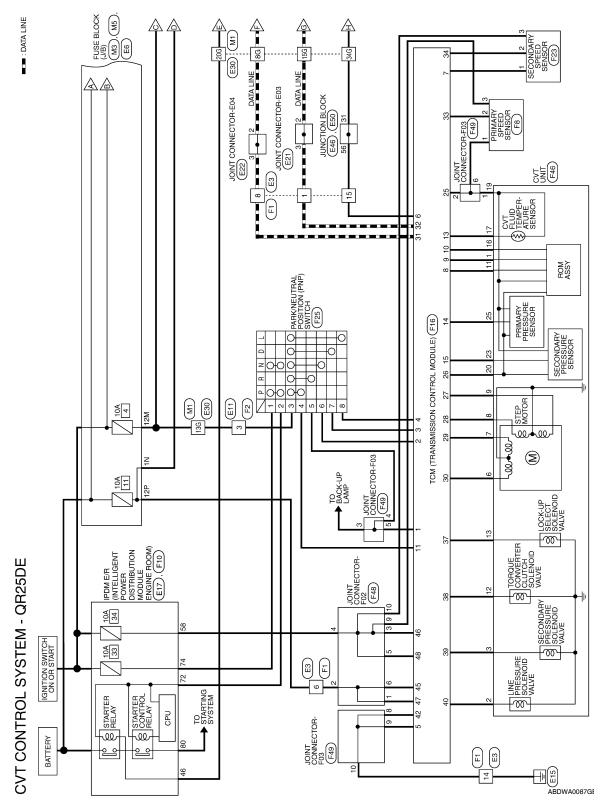
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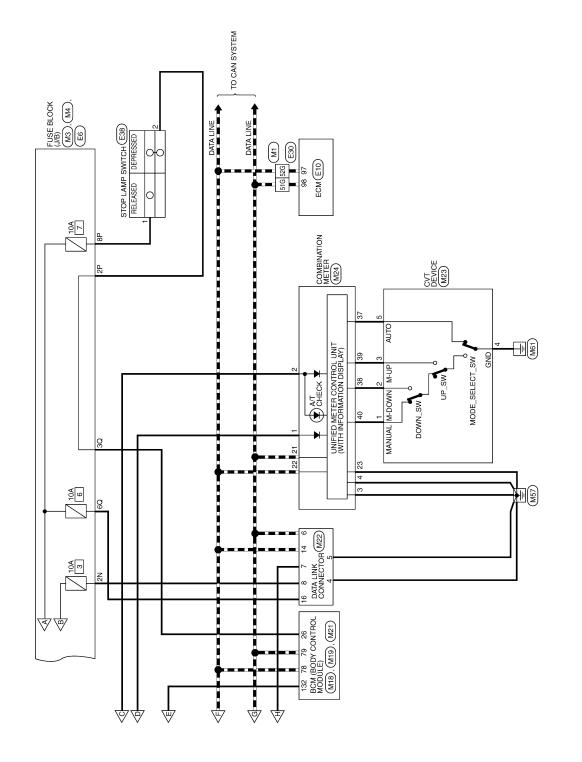
^{*2:} A circuit tester cannot be used to test this item.

Wiring Diagram - CVT CONTROL SYSTEM - Coupe

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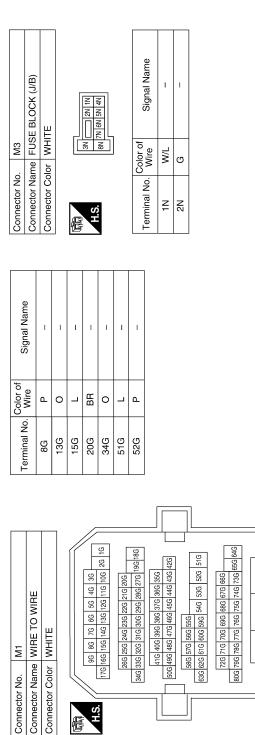
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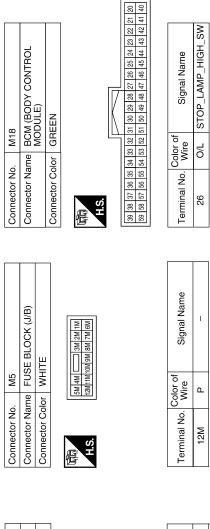
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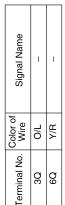
CVT CONTROL SYSTEM CONNECTORS - QR25DE

Connector No.

H.S. **E**







[CVT: RE0F10A]

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816

82G

83G

FUSE BLOCK (J/B)

Connector Name

A

Connector No.

Connector Color WHITE

[CVT: RE0F10A]

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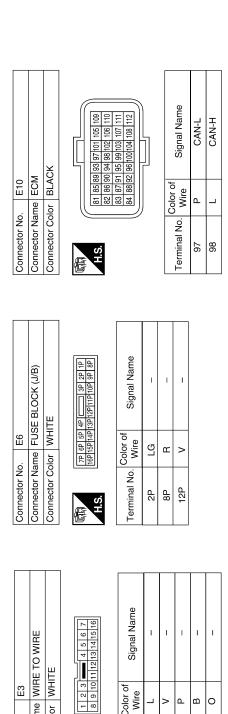
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	Connector Name DATA LINK CONNECTOR Connector Color WHITE		11 12 13 14 15 16	Signal Name	GND	GND	CAN-H	K-LINE	IGN_SW	CAN-L	BATT
. M22	me DAT		9 10 11	Color of Wire	В	В	_	0	ŋ	۵	Y/R
Connector No.	Connector Name DATA L		原 H.S.	Terminal No.	4	2	9	7	80	14	16
Connector No. M21	Connector Name BCM (BODY CONTROL MODULE)	Connector Color GRAY	e e e e e e e e e e e e e e e e e e e	[50] [131 130 128 128 127 128 128 122 121 120 119 118 117 116 115 114 115 112 128 121 120 119 118 117 115 115 115 115 115 115 115 115 115		30,000	Terminal No. Wire Signal Name	132 R ST_CONT_USM			
M19	Connector Name BCM (BODY CONTROL MODULE)	Connector Color BLACK		76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 96 95 94 93 92 91 90 88 87 86 86 84 83 82 81			or of Signal Name	P CAN-L	H-WAC		
2	e e	olor		5 74 75		d	Terminal No. Wire	"	-	4	
Connector No. N	r Nan	ŭ		9 2			ĭ				

Color of Signal Name		1 W/L BAT	2 0 IGN	3 B GND	4 B GND	21 L CAN-H	14 15 16 17 18 19 20 P CAN-L	38	37 G NOT M RANGE	38 BR AT SHIFT DOWN	39 W AT SHIFT UP	40 LG/R M RANGE	
Connector No. M24	Connector Name COMBINATION METER	AND TOTO TOTO					1 2 3 4 5 6 7 8 9 10 11 12 13 14	23 24 25 26 27 28 29					
3	T DEVICE	Ē			5 6			Signal Name	MT_MODE	M_DOWN	M_UP	GND	
lo. M23	ame CV	10 x 0 0	1010	,	- 2		Color of	. Wire	LG/R	BR	M	В	
Connector No.	Connector Name CVT DEVICE	O rotocaco		E		H.S.		Terminal No.	-	2	က	4	1

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Color of Wire

Terminal No.

H.S.

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Connector Name WIRE TO WIRE Connector Color WHITE

Connector No.

WH C	Connector No. E11 Connector Name WIRE TO WIRE Connector Color WHITE 1 2 m 3 4 1 2 m 3 4 1 2 m 3 4	Connector No. E17 Connector Name POWEF MODUL Connector Color WHITE H.S.	oolor WHI	Connector No. E17 Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM) Connector Color WHITE ALS ALS ALS ALS ALS ALS ALS AL	Connector No. E21 Connector Name JOINT C Connector Color WHITE M.S.	o. E21 ame JOIN olor WHI	Connector No. E21 Connector Name JOINT CONNECTOR-E03 Connector Color WHITE
Color of No. Wire	Signal Name	Terminal No. Wire	Color of Wire	Signal Name	Terminal No. Wire	Color of Wire	Signal Name
BB	1	46	ч	START_CONT	2	_	1
					c	-	

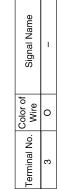
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			A
Signal Name	E50 JUNCTION BLOCK WHITE	Signal Name	С
Oolor of Wire BR BR P P P P P P P P P P P P P P P P P		Color of Wire	TM
13G 15G 20G 34G 34G 52G 52G	Connector No. Connector Name Connector Connector Connector Color	H.S. Terminal No. 656	Е
			F
286 346 346 346 346 346 346 346 346 346 34	1725 1725 1735 1735 1735 1735 1735 1735 1735 173	Φ	G
E30 WHRE TO WIRE	Rec Rec	<u>窓 路 知 窓 窓</u> <u> </u>	Н
E30 WHITE Idor WHITE Idor WHITE Idor WHITE Idor Idor	662 573 746	(31) 30) 29) 28 Color of Wire	I
Connector No. E30 Connector Name WIRE TO WIRE Connector Color WHITE 36 46 56 66 7 16 20 106 116 126 136 14 186 196 276 286 286 386 386 386 376 386 386 376 386 386 376 386 386 376 386 386 386 386 386 386 386 386 386 38	Connector No. Connector Name Connector Connector Connector Color	H.S. H.S. Terminal No. 31	J
			K
NNNECTOR-E04 ITILI Signal Name	SWITCH	Signal Name	L
	E38 STOP LAMP SWITCH	Signa	M
Connector No. E22 Connector Name JOINT Connector Color WHITE H.S. Terminal No. Wire 2 P 3 P	Connector No. E38 Connector Name STOP L Connector Color WHITE	H.S. Color of Wire 1 R R 2 LG	Ν
Col		Ter Leur	0
	•		abdia0227GB

or No.	F2	Connector No.	F8
or Name	or Name WIRE TO WIRE	Connector Name	Connector Name PRIMARY SPEED SENSOR
or Color	or Color WHITE	Connector Color BLACK	BLACK
		[<

	Signal Name	SENSOR_GND	PRI_SPEED_SENSOR	VIGN
J)	Color of Wire	W/R	LG/W	Y
H.S.	Terminal No.	-	2	3





F1 WIRE TO WIRE WHITE	13 12 11 10 9 8 8 1 1 10 10 10 10 10 10 10 10 10 10 10 10	Signal Name	ı	ı	ı	ı	ı
9 7	7 6 5 14 15 14	Color of Wire	_	E.	۵	В	0
Connector No. Connector Name Connector Color	赋利 H.S.	Terminal No.	1	9	8	14	15

Signal Name	AT_ECU	NPSW	START_IG_EGI	STARTER_MOTOR
Color of Wire	Y	R/B	\	B/W
Terminal No.	28	72	74	80

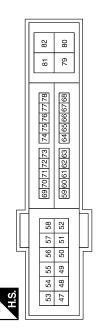
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Connector Name

F10

Connector No.

Connector Color WHITE



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[CVT:	RE0F1	0A]
-------	-------	-----

Signal Name	S/M-C	S/M-B	S/M-A	CAN-L	CAN-H	PRI SPEED SENSOR	SEC SPEED SENSOR	L/U&SELECT-ON/OFF SOL	L/U&SELECT-LINER SOL	SEC LINER SOL	PL LINER SOL	GND	BATT	VIGN	BATT	NIGN
Color of Wire	В	O/B	G/R	Р	٦	LG/W	LG/R	L/W	G	W/B	R/Υ	В	L/R	¥	L/R	У
Terminal No.	58	58	08	31	32	33	34	37	88	68	40	42	45	46	47	48

No. Wire Signal Name	P/B R RANGE SW	P/L N RANGE SW	G/O D RANGE SW	GR L RANGE SW	B GND	O K-LINE	W SENSOR GND	G/W CLOCK (SEL2)	L/R CHIP SELECT (SEL1)	BR/R DATA I/O (SEL3)	BR/W P RANGE SW	V ATF TEMP SENS	R/W PRI OIL PRESS SENS	V/W SEC OIL PRESS SENS	W/R SENSOR GND	L/O SENS POWER SOURCE	
ellilla NO.	1	2	3	4	5	9	7	8	6	10	11	13	14	15	25	56	27

Connector No.	F16	9							
Connector Name	22	ΣX	ᄩ	Z Z	Ž	SN	IISS DOI	TCM (TRANSMISSION CONTROL MODULE)	
Connector Color	BLACK	¥	X						
優									
H.S.									
		垳		ΙП	ᅰ			- [[6
31 32 33 34	35	38	37	88	39	49	47	84	_
21 22 23 24	22	56	27	88	53	8	45	46	
11 12 13 14	15	16	17	18	19	20	43	44	
1 2 3 4	5	9	7	∞	6	9	4	45	_
	Ш	li	Ш	li	Ш	Ш	Ш	1)	`
		ř	1	٦	L	l		1	\
		J	l	l					

		_		_		_	_	_
Signal Name	N_A_NDI	P_N_OUTPUT	NSI	TU9TU0_9	R_OUTPUT	N_OUTPUT	TU9TU0_a	L_OUTPUT
Color of Wire	>	B/B	0	BR/W	B/B	P/L	0/9	G/R
Terminal No.	-	2	3	4	5	9	7	8

Connector No.	F25
Connector Name	Connector Name PARK/NEUTRAL POSITION (PNP) SWITCH
Connector Color BLACK	BLACK



F23	SECONDARY SPEED SENSOR	BLACK	
Connector No.	Connector Name	Connector Color	

BLACK	3 2 1
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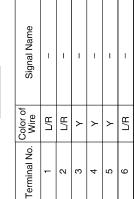
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[CVT: RE0F10A]

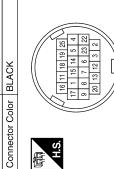
Connector No.	F48
Connector Name	Connector Name JOINT-CONNECTOR-F02
Connector Color	BLACK







Signal Name	S/M-B	S/M-C	S/M-D	CLOCK_(SEL2)	L/U&SELECT-LINEAR_SOL	L/U&SELECT-ON/OFF_SOL	DATA_I/O_(SEL3)	ATF_TEMP_SENSOR	SENSOR_GND	SENSOR POWER_ SOURCE	SEC_OIL_PRESSURE_ SENSOR	PRI_OIL_PRESSURE_ SENSOR
Color of Wire	O/B	В	R/G	G/W	Э	L/W	BR/R	>	W/R	0/7	W/W	ГG
erminal No.	7	8	6	11	12	13	16	17	19	20	23	25







Connector Name CVT UNIT

F46

Connector No.

Signal Name	CHIP_SELECT_(SEL1)	PL_LINEAR_SOL	SEC_LINEAR_SOL	S/M-A
Color of Wire	L/R	R/Y	M/B	G/R
Terminal No.	-	2	3	9

Signal Name	_	_	_	_	_	1	_	_	_
Color of Wire	W/B	W/R	G/W	P/B	B/B	W/B	В	В	В
Terminal No.	-	2	3	4	2	9	8	6	10

F49	JOINT CONNECTOR-F03	BLACK	5 4 3 7 2 1
Connector No.	Connector Name	Connector Color	(国) H.S.

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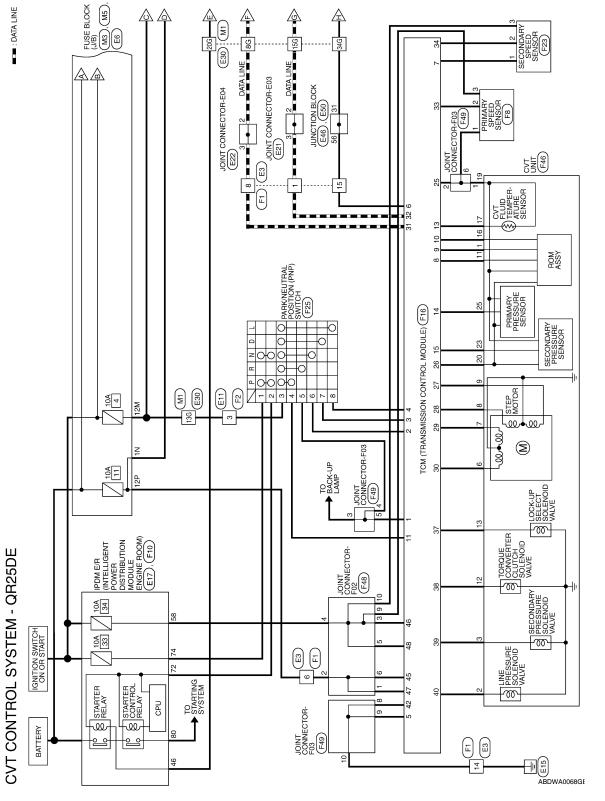
Wiring Diagram - CVT CONTROL SYSTEM - Sedan

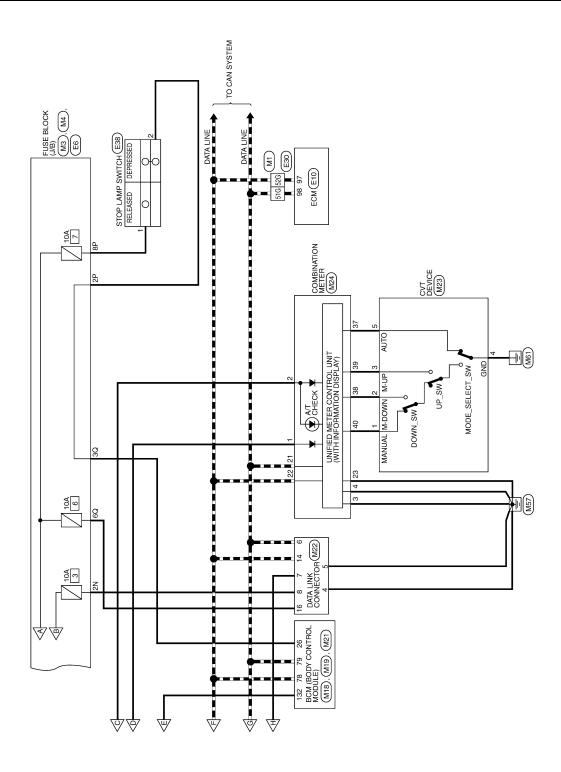
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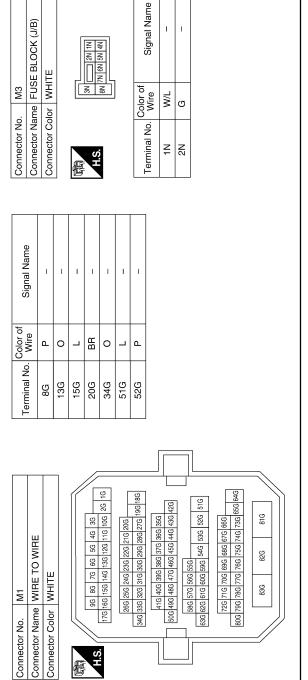
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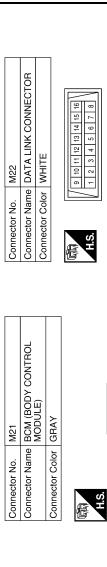
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CVT CONTROL SYSTEM - QR25DE CONNECTORS



Connector No. Connector Name	SE BLOCK (J/B) Connector Nam IITE Connector Colo Connector Colo Signal Name Signal Name Terminal No. Connector Colo	T	Connector Name Bo	r Color G		8 8	10.	1	
	Connector No. M5 Connector Name FUSE BLC Connector Color WHITE MAN AM		0	Connecto	(Fig.	% %	Terminal No. Wire	26 O/L STOP_LAMP_HIGH_SW	
or No. M5 or Name FUS or Color WH tankinimin No. Wire	(J/B)		SE BLOCK (J/B)	ITE	M3 M7 M8 M0 M0 M0 M0 M0 M0 M0		Signal Name	I	
Connecte Con	(J/B)		Connector Name FU	Connector Color WH	S)		Color of Wire		



Connector Name BCM (BODY CONTROL MODULE)

M19

Connector No.

BLACK

Connector Color

Signal Name	GND	GND	CAN-H	K-LINE	IGN_SW	CAN-L	BATT
Color of Wire	В	В	7	0	В	Д	Y/R
Terminal No. Wire	4	2	9	7	8	14	16
130 130 132 132 132 133 132 132 132 131 133		30,20	Terminal No. Wire Signal Name	132 R ST_CONT_USM			

Signal Name

Color of Wire ݐ

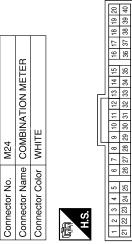
Terminal No.

78

CAN-H CAN-L



Signal Name	BAT	NÐI	GND	GND	CAN-H	CAN-L	GND	NOT M RANGE	AT SHIFT DOWN	AT SHIFT UP	M RANGE
Color of Wire	M/L	0	В	В	Г	Ь	В	g	BR	>	LG/R
Terminal No.	1	2	3	4	21	22	23	37	38	39	40
						_		7			



	ПЕ	5 6 8 10	Signal Name	MT_MODE	M_DOWN	M_UP	GND	AT_MODE
	lor WHITE	2 1 3	Color of Wire	LG/R	BR	Μ	В	Э
COLLIGATION INVALIDE	Connector Color	斯 H.S.	Terminal No.	-	2	3	4	2

Connector No.	M23
Connector Name	CVT DEVICE
Connector Color	WHITE
所 H.S.	1 3 7 9 2 4 5 6 8 11



Signal Name	MT_MODE	M_DOWN	M_UP	GND	AT_MODE
Color of Wire	LG/R	BR	×	В	В
Terminal No.	-	2	က	4	5

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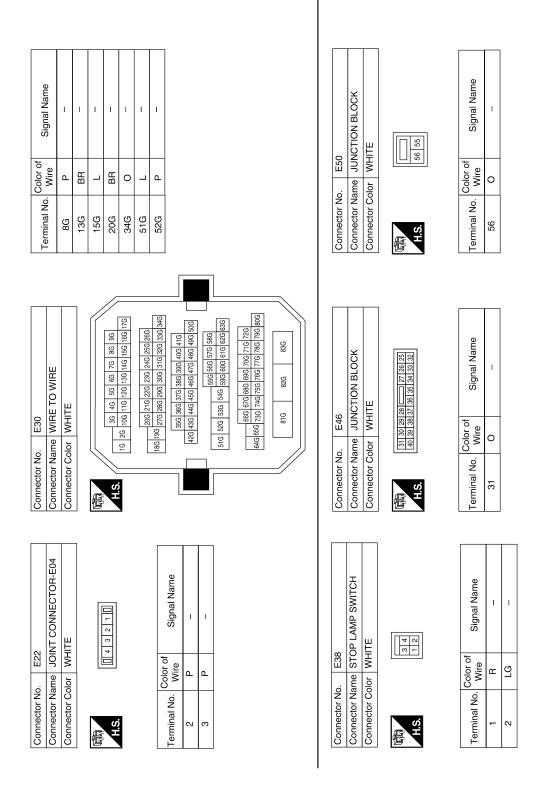
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E10	ECM	BLACK	81 88 89 93 97 101 106 109 82 86 99 99 94 98 102 106 110	83 87 91 95 99 103 107 1111 84 88 92 96 100 104 108 112		, of	re Signal Name	CAN-L	CAN-H
Connector No.	Connector Name ECM	Connector Color BLACK	H.S.	8 2	J		Terminal No. Wire	97 P	7 86
	SE BLOCK (J/B)	ITE	7P 6P 5P 4P (3P 2P 1P 6P15P14P 13P 12P11P100 5P 8P	Signal Name	ı	1	-		
Connector No. E6	Connector Name FUSE BLOCK (J/B)	Connector Color WHITE	(FP) (FP) (4P) (4P) (4P) (4P) (4P) (4P) (4P) (4	Terminal No. Wire	2P LG	8P R	12P V		
			3 4 5 6 7 10 11 11 21 31 41 516	Signal Name		1		1	ı
Connector No. E3	Connector Name WIRE TO WIRE	Connector Color WHITE	8 9 10111	Terminal No. Wire	7	^ 9	В	14 B	15 0

_	Connector Name JOINT CONNECTOR-E03	HTE	<u>-</u>	4 8 2 1 III	Signal Name	1
. E21	me JO	lor WF			Color of Wire	_
Connector No.	Connector Na	Connector Color WHITE	4	H.S.	Terminal No. Wire	2
	I					
_	PDM E/R (INTELLIGENT	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)	ПТЕ	42 41 40 39	Signal Name	START_CONT
. E17	<u> </u>	# 28	lor WH	77	Color of Wire	ш
Connector No.		Connector Na	Connector Color WHITE	明.S.	Terminal No. Wire	46
_	RE TO WIRE	HTE		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Signal Name	I
E11	me WIF	lor WH		<u>- w</u>	Color of Wire	BR
Connector No. E11	Connector Name WIRE TO WIRE	Connector Color WHITE		H.S.	Terminal No. Wire	ო

Signal Name	1	
Color of Wire	BB	
Terminal No.	3	

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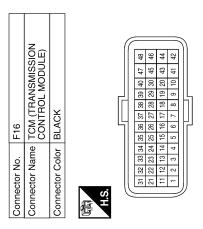
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Connector No.	lo.		Connector No.	. No. F2	0.		Connector No.	. F8	
onnector N	Connector Name WIRE TO WIRE	TO WIRE	Connector	Name W	Connector Name WIRE TO WIRE		Connector Na	ıme PR	Connector Name PRIMARY SPEED SENSOR
onnector C	Connector Color WHITE	ш	Connector	Connector Color WHITE	HITE		Connector Color BLACK	llor BL	JOK
H.S.	7 6 5 4 16 15 14 18	5 4 5 1 1 10 9 8	原 H.S.	7 -	10 9 8 7 6 5		H.S.		<u>2</u>
Terminal No.	Color of Wire	Signal Name	Terminal No.	Color of Wire	f Signal Name		Terminal No. Wire	Color of Wire	Signal Name
-	_	ı	ဇ	0	ı		-	M/R	SENSOR_GND
9	L/R	ı]	2	LG/W	PRI_SPEED_SENSOR
8	۵	ı					3	>	VIGN
14	В	ı							
15	0	1							

															С
															TM
															Е
				Ж											F
Signal Name	AT_ECU	NPSW	START_IG_EGI	STARTER_MOTOR											G
Color of Wire	>	R/B	>	B/W ST											Н
Terminal No.	58	72	74	80		Γ									I
H H							81 82	79 80							J
							767778	89 29 99							K
	IPDM E/R (INTELLIGENT POWER DISTRIBUTION	GINE ROOM)					69 70 71 72 73 74 75 76 77 78	5960616263 6465666768							L
F10	PDM E/R (IN OWER DIST	MODULE EN	WHITE					25 39	_						M
Connector No.	Connector Name F		Connector Color \				1	48 49 50							Ν
Conne	Conne		Conne	4	H.S.		C L	SC 74							0
											AE	DIA017	6GB		

Signal Name	S/M-C	S/M-B	S/M-A	CAN-L	CAN-H	PRI SPEED SENSOR	SEC SPEED SENSOR	L/U&SELECT-ON/OFF SOL	L/U&SELECT-LINER SOL	SEC LINER SOL	PL LINER SOL	GND	BATT	VIGN	ВАТТ	VIGN
Color of Wire	В	O/B	G/R	Ь	٦	LG/W	LG/R	M	g	W/B	R/Υ	В	L/R	Y	L/R	Υ
Terminal No.	28	56	08	31	32	33	34	37	38	39	40	42	45	46	47	48

Signal Name	R RANGE SW	N RANGE SW	D RANGE SW	L RANGE SW	GND	K-LINE	SENSOR GND	CLOCK (SEL2)	CHIP SELECT (SEL1)	DATA I/O (SEL3)	P RANGE SW	ATF TEMP SENS	PRI OIL PRESS SENS	SEC OIL PRESS SENS	SENSOR GND	SENS POWER SOURCE	S/M-D
Color of Wire	P/B	D/L	G/O	GR	В	0	Μ	G/W	L/R	BR/R	BR/W	۸	R/W	MΛ	W/R	L/O	R/G
Terminal No.	1	2	3	4	5	9	7	8	6	10	11	13	14	15	25	26	27



Terminal No.	Wire	Signal Name
-	>	IGN_P_N
2	B/B	P_N_OUTPUT
3	0	NSI
4	BR/W	P_OUTPUT
5	B/B	R_OUTPUT
9	T/A	N_OUTPUT
7	0/9	D_OUTPUT
8	G/R	L_OUTPUT



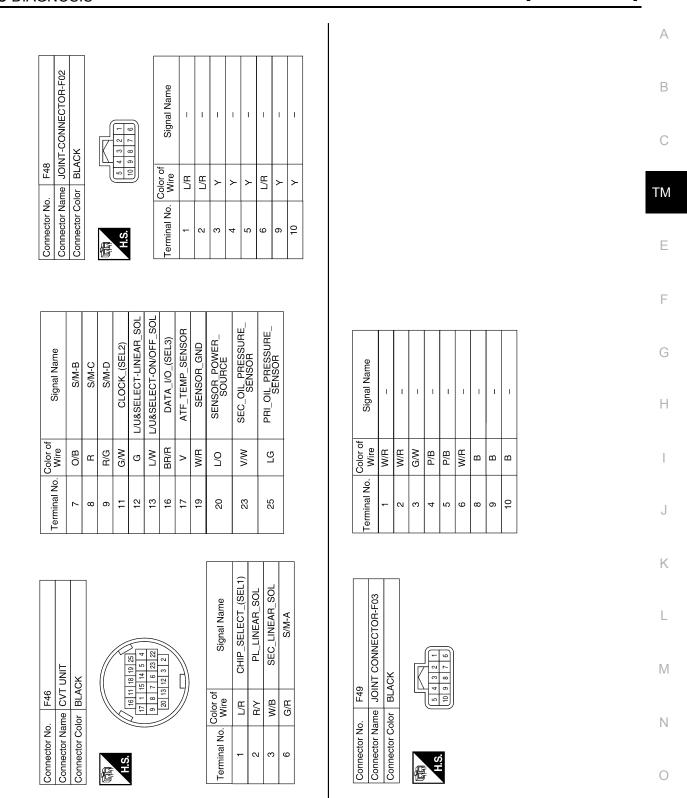


F23	SECONDARY SPEED SENSOR	BLACK	
Connector No.	Connector Name	Connector Color BLACK	



Signal Name	SENSOR_GND	SEC_SPEED_SENSOR	VIGN
Color of Wire	W	LG/R	Υ
Terminal No.	1	2	3

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Fail-safe

ABDIA0178GB

The TCM has an electrical fail-safe mode. This mode makes it possible to operate even if there is an error in a main electronic control input/output signal circuit.

FAIL-SAFE FUNCTION

If any malfunction occurs in a sensor or solenoid, this function controls the CVT to make driving possible.

Output Speed Sensor (Secondary Speed Sensor)

< ECU DIAGNOSIS > [CVT: RE0F10A]

The shift pattern is changed in accordance with throttle position when an unexpected signal is sent from the output speed sensor (secondary speed sensor) to the TCM. The manual mode position is inhibited, and the transaxle is put in "D".

Input Speed Sensor (Primary Speed Sensor)

The shift pattern is changed in accordance with throttle position and secondary speed (vehicle speed) when an unexpected signal is sent from the input speed sensor (primary speed sensor) to the TCM. The manual mode position is inhibited, and the transaxle is put in "D".

PNP Switch

If an unexpected signal is sent from the PNP switch to the TCM, the transaxle is put in "D".

Manual Mode Switch

If an unexpected signal is sent from the manual mode switch to the TCM, the transaxle is put in "D".

CVT Fluid Temperature Sensor

If an unexpected signal is sent from the CVT fluid temperature sensor to the TCM, the gear ratio in use before receiving the unexpected signal is maintained or the gear ratio is controlled to keep engine speed under 3,400 rpm.

Transmission Fluid Pressure Sensor A (Secondary Pressure Sensor)

- If an unexpected signal is sent from the transmission fluid pressure sensor A (secondary pressure sensor) to the TCM, the secondary pressure feedback control is stopped and the offset value obtained before the nonstandard condition occurs is used to control line pressure.
- If transmission fluid pressure sensor A (secondary pressure sensor) error signal is input to TCM, secondary pressure feedback control stops, but line pressure is controlled normally.

Pressure Control Solenoid A (Line Pressure Solenoid)

If an unexpected signal is sent from the solenoid to the TCM, the pressure control solenoid A (line pressure solenoid) is turned OFF to achieve the maximum fluid pressure.

Pressure Control Solenoid B (Secondary Pressure Solenoid)

If an unexpected signal is sent from the solenoid to the TCM, the pressure control solenoid B (secondary pressure solenoid) is turned OFF to achieve the maximum fluid pressure.

Torque Converter Clutch Solenoid

If an unexpected signal is sent from the solenoid to the TCM, the torque converter clutch solenoid is turned OFF to cancel the lock-up.

Step Motor

If an unexpected signal is sent from the step motor to the TCM, the step motor coil phases "A" through "D" are all turned OFF to hold the gear ratio used right before the non-standard condition occurred.

CVT Lock-up Select Solenoid

If an unexpected signal is sent from the solenoid to the TCM, the CVT lock-up select solenoid is turned OFF to cancel the lock-up.

TCM Power Supply (Memory Back-up)

Transaxle assembly is protected by limiting the engine torque when the memory back-up power supply (for controlling) from the battery is not supplied to TCM. Normal statues is restored when turning the ignition switch OFF to ON after the normal power supply.

DTC Inspection Priority Chart

INFOID:0000000004201978

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

NOTE:

If DTC "U1000 CAN COMM CIRCUIT" is displayed with other DTCs, first perform the trouble diagnosis for "DTC U1000 CAN COMMUNICATION LINE". Refer to TM-302.

Priority	Detected items (DTC)	
1	U1000 CAN COMM CIRCUIT U1010 CONTROL UNIT (CAN)	
2	Except above	

< ECU DIAGNOSIS > [CVT: RE0F10A]

DTC Index

NOTE:

If DTC "U1000 CAN COMM CIRCUIT" is displayed with other DTCs, first perform the trouble diagnosis for "DTC U1000 CAN COMMUNICATION LINE". Refer to TM-302.

OBD-II (DTC)	TCM self-diagnosis		
MIL*1, "ENGINE" with CON- SULT-III or GST*2 "TRANSMISSION" with CONSULT-III		Items (CONSULT-III screen terms)	Reference
_	P0703	BRAKE SW/CIRC	<u>TM-304</u>
P0705	P0705	PNP SW/CIRC	TM-307
P0710	P0710	ATF TEMP SEN/CIRC	<u>TM-310</u>
P0715	P0715	INPUT SPD SEN/CIRC	TM-313
P0720	P0720	VEH SPD SEN/CIR AT	TM-318
_	P0725	ENGINE SPEED SIG	TM-322
_	P0730	BELT DAMG	TM-323
P0740	P0740	TCC SOLENOID/CIRC	TM-324
P0744	P0744	A/T TCC S/V FNCTN	TM-327
P0745	P0745	L/PRESS SOL/CIRC	TM-329
P0746	P0746	PRS CNT SOL/A FCTN	TM-331
P0776	P0776	PRS CNT SOL/B FCTN	TM-333
P0778	P0778	PRS CNT SOL/B CIRC	TM-336
_	P0826	MANUAL MODE SWITCH	TM-338
P0840	P0840	TR PRS SENS/A CIRC	TM-341
_	P0841	PRESS SEN/FNCTN	TM-344
_	P0868	SEC/PRESS DOWN	TM-346
_	P1701	TCM-POWER SUPPLY	TM-349
_	P1705	TP SEN/CIRC A/T	TM-352
_	P1722 ^{*3}	ESTM VEH SPD SIG	TM-353
_	P1723	CVT SPD SEN/FNCTN	<u>TM-355</u>
_	P1726	ELEC TH CONTROL	TM-357
P1740	P1740	LU-SLCT SOL/CIRC	TM-358
_	P1745	L/PRESS CONTROL	TM-360
P1777	P1777	STEP MOTR CIRC	TM-361
P1778	P1778	STEP MOTR/FNC	TM-364
U1000	U1000	CAN COMM CIRCUIT	TM-302
U1010	U1010	CONTROL UNIT(CAN)	TM-303

^{• *1:} Refer to TM-296, "Diagnosis Description".

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^{• *2:} These numbers are prescribed by SAE J2012.

^{• *3:} Models without ABS does not indicate.

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:0000000004201980

[CVT: RE0F10A]

The diagnostics item numbers show the sequence for inspection. Inspect in order from item 1.

No.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. Engine idle speed	EC-28 (For California), EC-564 (Ex- cept for Cali- fornia)
				2. Engine speed signal	TM-322
				3. Accelerator pedal position sensor	TM-352
				4. CVT position	TM-429
			ON vehicle	5. CVT fluid temperature sensor	TM-310
1		Large shock. ("N"→"D" position)		6. CAN communication line	TM-302
				7. CVT fluid level and state	<u>TM-416</u>
				8. Line pressure test	TM-423
				9. Torque converter clutch solenoid valve	TM-324
				10. Lock-up select solenoid valve	TM-358
				11. PNP switch	TM-307
			OFF vehicle	12. Forward clutch	TNA 447
	Shift Shock			13. Control valve	<u>TM-447</u>
	Shift Shock			1. Engine idle speed	EC-28 (For California), EC-564 (Ex- cept for Cali- fornia)
				2. Engine speed signal	TM-322
				3. Accelerator pedal position sensor	TM-352
				4. CVT position	TM-429
			ON vehicle	5. CVT fluid temperature sensor	TM-310
2		Large shock. ("N"→"R" position)		6. CAN communication line	TM-302
				7. CVT fluid level and state	TM-416
				8. Line pressure test	TM-423
				9. Torque converter clutch solenoid valve	TM-324
				10. Lock-up select solenoid valve	TM-358
				11. PNP switch	TM-307
			OFF	12. Reverse brake	TNA 447
			OFF vehicle	13. Control valve	<u>TM-447</u>

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

0.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. CVT position	TM-429
		O	2. Engine speed signal	TM-322	
			ON vehicle	3. CAN communication line	TM-302
		Shock is too large for lock-up.		4. CVT fluid level and state	TM-416
			055 1:1	5. Torque converter	
			OFF vehicle	6. Control valve	<u>TM-447</u>
				CVT fluid level and state	TM-416
				2. CVT position	TM-429
				3. CAN communication line	TM-302
				4. Line pressure test	TM-423
				5. Stall test	TM-421
			ON alciala	6. Step motor	TM-361
			ON vehicle	7. Primary speed sensor	TM-313
		Vehicle cannot take off from "D" po-		8. Secondary speed sensor	TM-318
		sition.	OFF vehicle	9. Accelerator pedal position sensor	TM-352
				10. CVT fluid temperature sensor	TM-310
				11. Secondary pressure sensor	TM-341
				12. Power supply	TM-349
	Slips/Will	ge		13. Oil pump assembly	
	Not Engage			14. Forward clutch	
				15. Control valve	
				16. Parking components	
				1. CVT fluid level and state	<u>TM-416</u>
				2. CVT position	TM-429
				3. CAN communication line	TM-302
				4. Line pressure test	TM-423
				5. Stall test	<u>TM-421</u>
			ON vehicle	6. Step motor	TM-361
			ON VEHICLE	7. Primary speed sensor	TM-313
		Vehicle cannot take off from "R" po-		8. Secondary speed sensor	TM-318
		sition.		9. Accelerator pedal position sensor	<u>TM-352</u>
				10. CVT fluid temperature sensor	<u>TM-310</u>
			11. Secondary pressure sensor	TM-341	
			12. Power supply	TM-349	
			13. Oil pump assembly		
		OFF vehicle	14. Reverse brake	TN4 447	
				15. Control valve	<u>TM-447</u>
				16. Parking components	

TM-401

No.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
				3. Engine speed signal	TM-322
				4. Primary speed sensor	TM-313
				5. Torque converter clutch solenoid valve	TM-324
				6. CAN communication line	TM-302
			ON vehicle	7. Stall test	TM-421
6		December leady up		8. Step motor	TM-361
6		Does not lock-up.		9. PNP switch	TM-307
				10. Lock-up select solenoid valve	TM-358
				11. CVT fluid temperature sensor	TM-310
				12. Secondary speed sensor	TM-318
				13. Secondary pressure sensor	TM-341
				14. Torque converter	
			OFF vehicle	15. Oil pump assembly	TM-447
				16. Control valve	-
		Does not hold lock-up condition.		1. CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
			ON vehicle	3. Engine speed signal	TM-322
				4. Primary speed sensor	TM-313
	Slips/Will			5. Torque converter clutch solenoid valve	TM-324
	Not Engage			6. CAN communication line	TM-302
				7. Stall test	TM-421
_				8. Step motor	TM-361
7				9. PNP switch	TM-307
				10. Lock-up select solenoid valve	TM-358
				11. CVT fluid temperature sensor	TM-310
				12. Secondary speed sensor	TM-318
				13. Secondary pressure sensor	TM-341
				14. Torque converter	
			OFF vehicle	15. Oil pump assembly	<u>TM-447</u>
				16. Control valve	
				1. CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
				3. Engine speed signal	TM-322
			ON vehicle	4. Primary speed sensor	TM-313
		I a also un la mat nation de la		5. Torque converter clutch solenoid valve	TM-324
8		Lock-up is not released.		6. CAN communication line	TM-302
				7. Stall test	TM-421
				8. Torque converter	
			OFF vehicle	9. Oil pump assembly	<u>TM-447</u>
				10. Control valve	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference	
				1. CVT fluid level and state	TM-416	-
				2. Line pressure test	TM-423	=,
				3. Stall test	TM-421	-
				4. Accelerator pedal position sensor	TM-352	=,
				5. CAN communication line	TM-302	=
				6. PNP switch	TM-307	-
			ONLorabiala	7. CVT position	TM-429	_
			ON vehicle	8. Step motor	TM-361	
^		With selector lever in "D" position,		9. Primary speed sensor	TM-313	
9		acceleration is extremely poor.		10. Secondary speed sensor	TM-318	-
				11. Accelerator pedal position sensor	TM-352	=
				12. Secondary pressure sensor	TM-341	-
				13. CVT fluid temperature sensor	TM-310	-
				14. Power supply	TM-349	-
			OFF vehicle	15. Torque converter		=
				16. Oil pump assembly	<u>TM-447</u>	
				17. Forward clutch		
	Slips/Will			18. Control valve		
	Not Engage			1. CVT fluid level and state	<u>TM-416</u>	-
				2. Line pressure test	TM-423	-
				3. Stall test	TM-421	-
				4. Accelerator pedal position sensor	TM-352	-
				5. CAN communication line	TM-302	-
				6. PNP switch	TM-307	-
			011 - 12:11	7. CVT position	TM-429	-
			ON vehicle	8. Step motor	TM-361	-
		With selector lever in "R" position,		9. Primary speed sensor	TM-313	-
0		acceleration is extremely poor.		10. Secondary speed sensor	TM-318	-
				11. Accelerator pedal position sensor	TM-352	-
				12. Secondary pressure sensor	TM-341	-
				13. CVT fluid temperature sensor	<u>TM-310</u>	-
				14. Power supply	TM-349	-
				15. Torque converter		-
			055	16. Oil pump assembly		
			OFF vehicle	17. Reverse brake	<u>TM-447</u>	
				18. Control valve		

Р

No.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
				3. Engine speed signal	TM-322
				4. Primary speed sensor	TM-313
				5. Torque converter clutch solenoid valve	TM-324
				6. CAN communication line	TM-302
			ON vehicle	7. Stall test	TM-421
11	Slips/Will	Slips at lock-up.		8. Step motor	TM-361
- 11	Not Engage	Slips at lock-up.		9. PNP switch	TM-307
				10. Lock-up select solenoid valve	TM-358
				11. CVT fluid temperature sensor	TM-310
				12. Secondary speed sensor	TM-318
				13. Secondary pressure sensor	TM-341
				14. Torque converter	
			OFF vehicle	15. Oil pump assembly	<u>TM-447</u>
				16. Control valve	
				CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
				3. Accelerator pedal position sensor	TM-352
				4. PNP switch	TM-307
				5. CAN communication line	TM-302
				6. Stall test	TM-421
			ON vehicle	7. CVT position	TM-429
				8. Step motor	TM-361
				9. Primary speed sensor	TM-313
12	Other	No creep at all.		10. Secondary speed sensor	TM-318
12	Other	ino creep at all.		11. Accelerator pedal position sensor	TM-352
				12. CVT fluid temperature sensor	TM-310
				13. Secondary pressure sensor	TM-341
				14. Power supply	TM-349
				15. Torque converter	
				16. Oil pump assembly	
			OFF vehicle	17. Gear system	<u>TM-447</u>
			OFF VEHICLE	18. Forward clutch	
				19. Reverse brake	
				20. Control valve	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference	1
				1. CVT fluid level and state	<u>TM-416</u>	
				2. Line pressure test	TM-423	-
				3. PNP switch	TM-307	
				4. Stall test	TM-421	5
				5. CVT position	TM-429	-
			ONLyabiala	6. Step motor	TM-361	(
			ON vehicle	7. Primary speed sensor	<u>TM-313</u>	
				8. Secondary speed sensor	<u>TM-318</u>	6
				9. Accelerator pedal position sensor	TM-352	
13		Vehicle cannot run in all positions.		10. CVT fluid temperature sensor	TM-310	-
				11. Secondary pressure sensor	TM-341	-
				12. Power supply	TM-349	-
				13. Torque converter		=
				14. Oil pump assembly		
			OFF vehicle	15. Gear system		
				16. Forward clutch	TM-447	
				17. Reverse brake		
				18. Control valve		
	Other			19. Parking components		
				1. CVT fluid level and state	TM-416	
				2. Line pressure test	TM-423	
				3. PNP switch	TM-307	
				4. Stall test	TM-421	
				5. CVT position	TM-429	
			011	6. Step motor	TM-361	-
			ON vehicle	7. Primary speed sensor	TM-313	
				8. Secondary speed sensor	TM-318	•
,		With selector lever in "D" position,		9. Accelerator pedal position sensor	TM-352	
4		driving is not possible.		10. CVT fluid temperature sensor	TM-310	
				11. Secondary pressure sensor	TM-341	
				12. Power supply	TM-349	
				13. Torque converter		-
				14. Oil pump assembly		
			055	15. Gear system		
			OFF vehicle	16. Forward clutch	<u>TM-447</u>	
				17. Control valve		
				18. Parking components		

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No.	Item	Symptom	Condition	Diagnostic Item	Reference	
				CVT fluid level and state	<u>TM-416</u>	
				2. Line pressure test	TM-423	
				3. PNP switch	TM-307	
				4. Stall test	<u>TM-421</u>	
				5. CVT position	TM-429	
			ON vehicle	6. Step motor	TM-361	
			ON VEHICLE	7. Primary speed sensor	TM-313	
				8. Secondary speed sensor	TM-318	
15		With selector lever in "R" position,		9. Accelerator pedal position sensor	TM-352	
15		driving is not possible.		10. CVT fluid temperature sensor	TM-310	
				11. Secondary pressure sensor	TM-341	
				12. Power supply	TM-349	
				13. Torque converter		
				14. Oil pump assembly	=	
			OFF vehicle	15. Gear system	TM 447	
			OFF Vehicle	16. Reverse brake	<u>TM-447</u>	
				17. Control valve		
				18. Parking components		
			ON vehicle OFF vehicle ON vehicle	1. CVT fluid level and state	<u>TM-416</u>	
				2. Engine speed signal	TM-322	
		Judder occurs during lock-up.		3. Primary speed sensor	TM-313	
	Other			4. Secondary speed sensor	<u>TM-318</u>	
16	Other			5. Accelerator pedal position sensor	TM-352	
				6. CAN communication line	TM-302	
				7. Torque converter clutch solenoid valve	TM-324	
				8. Torque converter	TM-447	
				9. Control valve		
				1. CVT fluid level and state	<u>TM-416</u>	
				2. Engine speed signal	TM-322	
				3. CAN communication line	<u>TM-302</u>	
				4. Torque converter		
17		Strange noise in "D" position.		5. Oil pump assembly		
			OFF vehicle	6. Gear system		
			OFF vehicle	7. Forward clutch		
				8. Control valve	=	
				9. Bearing	-	
				1. CVT fluid level and state	<u>TM-416</u>	
			ON vehicle	2. Engine speed signal	TM-322	
				3. CAN communication line	TM-302	
40		Change noise in "D" and "C		4. Torque converter		
18		Strange noise in "R" position.		5. Oil pump assembly	TM-447	
			OFF vehicle	6. Gear system		
				7. Reverse brake		
				8. Control valve	-	

SYSTEM SYMPTOM

[CVT: RE0F10A]

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. CVT fluid level and state	<u>TM-416</u>
			ON vehicle	2. Engine speed signal	TM-322
				3. CAN communication line	TM-302
19		Strange noise in "N" position.		4. Torque converter	
			055	5. Oil pump assembly	Th. 4.47
			OFF vehicle	6. Gear system	<u>TM-447</u>
				7. Control valve	
				1. CVT fluid level and state	<u>TM-416</u>
				2. CVT position	<u>TM-429</u>
				3. CAN communication line	TM-302
				4. Step motor	TM-361
20		Vehicle does not decelerate by en-	ON vehicle	5. Primary speed sensor	TM-313
20		gine brake.		6. Secondary speed sensor	TM-318
				7. Line pressure test	TM-423
				8. Engine speed signal	TM-322
				9. Accelerator pedal position sensor	TM-352
			OFF vehicle	10. Control valve	<u>TM-447</u>
			ON vehicle	1. CVT fluid level and state	TM-416
				2. Line pressure test	TM-423
				3. Accelerator pedal position sensor	TM-352
	Other	Maximum speed low.		4. CAN communication line	TM-302
	Other			5. Stall test	TM-421
				6. Step motor	TM-361
				7. Primary speed sensor	TM-313
21				8. Secondary speed sensor	TM-318
				9. Secondary pressure sensor	TM-341
				10. CVT fluid temperature sensor	TM-310
				11. Torque converter	
				12. Oil pump assembly	
			OFF vehicle	13. Gear system	TM-447
				14. Forward clutch	
				15. Control valve	
	1	With selector lever in "P" position,		1. PNP switch	TM-307
22		vehicle does not enter parking con- dition or, with selector lever in anoth-	ON vehicle	2. CVT position	TM-429
~_		er position, parking condition is not cancelled.	OFF vehicle	3. Parking components	<u>TM-447</u>
				1. PNP switch	TM-307
			ON vehicle	2. CVT fluid level and state	TM-416
		Vehicle runs with CVT in "P" posi-		3. CVT position	TM-429
23		tion.		Parking components	
			OFF vehicle	5. Gear system	<u>TM-447</u>
			2	6. Control valve	

No.	Item	Symptom	Condition	Diagnostic Item	Reference
				1. PNP switch	TM-307
			ON vehicle	2. CVT fluid level and state	TM-416
				3. CVT position	TM-429
24		Vehicle runs with CVT in "N" position.		4. Gear system	
		uori.	OFF	5. Forward clutch	TN 447
			OFF vehicle	6. Reverse brake	<u>TM-447</u>
				7. Control valve	
				1. CVT fluid level and state	<u>TM-416</u>
				2. Engine speed signal	TM-322
				3. Primary speed sensor	TM-313
			ON vehicle	4. Torque converter clutch solenoid valve	TM-324
25		Engine stall.		5. CAN communication line	TM-302
				6. Stall test	TM-421
				7. Secondary pressure sensor	TM-341
				8. Torque converter	
			OFF vehicle	9. Control valve	<u>TM-447</u>
				CVT fluid level and state	<u>TM-416</u>
		Engine stalls when selector lever shifted "N"→"D" or "R".	ON vehicle	2. Engine speed signal	TM-322
				3. Primary speed sensor	TM-313
				4. Torque converter clutch solenoid valve	TM-324
26				5. CAN communication line	TM-302
	011-			6. Stall test	TM-421
	Other		OFF vehicle	7. Torque converter	<u> </u>
				8. Control valve	<u>TM-447</u>
		Engine speed does not return to idle.	ON vehicle	CVT fluid level and state	<u>TM-416</u>
				Accelerator pedal position sensor	TM-352
27				3. Secondary speed sensor	TM-318
				4. CAN communication line	TM-302
			OFF vehicle	5. Control valve	TM-447
				CVT fluid level and state	<u>TM-416</u>
				2. CVT position	TM-429
				3. Line pressure test	TM-423
				4. Engine speed signal	TM-322
			ON vehicle	5. Accelerator pedal position sensor	TM-352
28		CVT does not shift		6. CAN communication line	TM-302
				7. Primary speed sensor	TM-313
				8. Secondary speed sensor	TM-318
				9. Step motor	TM-361
				10. Control valve	
			OFF vehicle	11. Oil pump assembly	<u>TM-447</u>
					STR-3,
		Engine does not start in "N" or "P"		Ignition switch and starter	STR-29
29		position.	ON vehicle	2. CVT position	TM-429
				3. PNP switch	TM-307

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

No.	Item	Symptom	Condition	Diagnostic Item	Reference
		Engine starts in positions other than		Ignition switch and starter	<u>STR-3,</u> <u>STR-29</u>
30		"N" or "P".	ON vehicle	2. CVT position	<u>TM-429</u>
				3. PNP switch	<u>TM-307</u>
		When brake pedal is depressed with		1. Stop lamp switch	
31		ignition switch ON, selector lever cannot be shifted from "P" position to	ON vehicle	2. Shift lock solenoid	TM-367
	Other	0		3. Control device	
		When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from "P" position	ON vehicle	1. Stop lamp switch	
32				2. Shift lock solenoid	<u>TM-367</u>
		to other position.		3. Control device	
				1. Manual mode switch	
33		Cannot be changed to manual mode.	ON vehicle	2. CAN communication line	<u>TM-302</u>
		mode.		3. Combination meter	MWI-176

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< PRECAUTION > [CVT: RE0F10A]

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

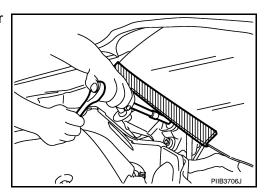
WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000004201982

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000004201983

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work.
 If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NVIS/IVIS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

PRECAUTIONS

< PRECAUTION > [CVT: RE0F10A]

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.

- 3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated
- 4. Perform the necessary repair operation.
- 5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
- Perform a self-diagnosis check of all control units using CONSULT-III.

Precaution for On Board Diagnosis (OBD) System of CVT and Engine

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The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the battery cable from the negative terminal before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will
 cause the MIL to light up due to an open circuit. (Be sure the connector is free from water, grease,
 dirt, bent terminals, etc.)
- Be sure to route and secure the harnesses properly after work. Interference of the harness with a bracket, etc. may cause the MIL to light up due to a short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube
 may cause the MIL to light up due to a malfunction of the EVAP system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

Precaution for TCM and CVT Assembly Replacement

INFOID:0000000004201985

CAUTION:

- Check if new data (Unit ID) are entered correctly after replacing CVT assembly and erasing data in TCM. (Connect CONSULT-III, and then turn ignition switch OFF.)
- When replacing CVT assembly or TCM, refer to the pattern table below and erase the EEPROM in the TCM if necessary.

EEPROM ERASING PATTERNS

CVT assembly	TCM Erasing EEPROM in TCM		Remarks
Replaced	Replaced	Not required	Not required because the EEPROM in the TCM is in the default state. (CVT assembly must be replaced first.)
Not replaced Replaced		Not required	Not required because the EEPROM in the TCM is in the default state.
Replaced	Not replaced	Required	Required because data has been written in the EE-PROM in the TCM and because the TCM cannot write data from the ROM assembly in the transmission.

Removal and Installation Procedure for CVT Unit Connector

INFOID:0000000004201986

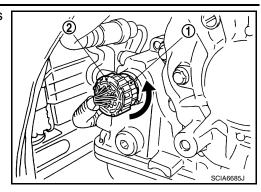
REMOVAL

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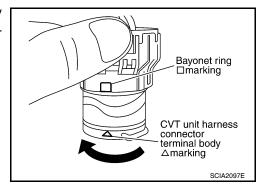
< PRECAUTION > [CVT: RE0F10A]

Rotate bayonet ring (1) counterclockwise, pull out CVT unit harness connector (2) and remove it.

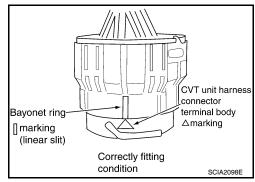


INSTALLATION

 Align Δ marking on CVT unit harness connector terminal body with [] marking on bayonet ring, insert CVT unit harness connector, and then rotate bayonet ring clockwise.

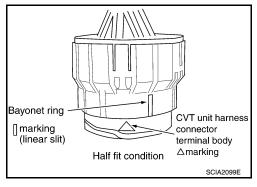


Rotate bayonet ring clockwise until Δ marking on CVT unit harness connector terminal body is aligned with the slit on bayonet ring as shown in the figure (correctly fitting condition), install CVT unit harness connector to CVT unit harness connector terminal body.



CAUTION:

- Securely align Δ marking on CVT unit harness connector terminal body with bayonet ring slit. Then, be careful not to make a half fit condition as shown in the figure.
- Do not mistake the slit of bayonet ring for other dent portion.



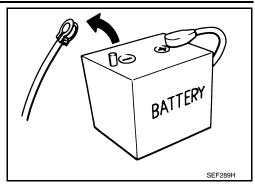
Precaution

NOTE:

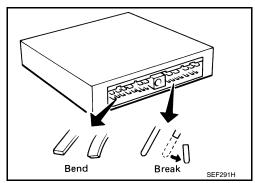
If any malfunction occurs in the RE0F10A model transaxle, replace the entire transaxle assembly.

< PRECAUTION > [CVT: RE0F10A]

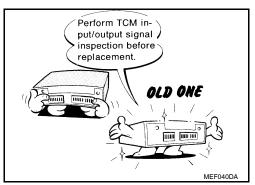
 Before connecting or disconnecting the TCM harness connector, turn ignition switch OFF and disconnect negative battery cable.
 Because battery voltage is applied to TCM even if ignition switch is turned OFF.



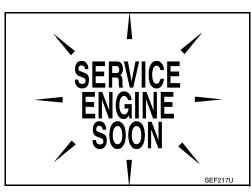
 When connecting or disconnecting pin connectors into or from TCM, take care not to damage pin terminals (bend or break).
 When connecting pin connectors make sure that there are not any bends or breaks on TCM pin terminal.



 Before replacing TCM, perform TCM input/output signal inspection and make sure whether TCM functions properly or not. <u>TM-375</u>. "Reference Value".



- After performing each TROUBLE DIAGNOSIS, perform "DTC CONFIRMATION PROCEDURE".
 If the repair is completed the DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".
- Always use the specified brand of CVT fluid. Refer to MA-12, "Fluids and Lubricants".
- Use lint-free paper, not cloth rags, during work.
- After replacing the CVT fluid, dispose of the waste oil using the methods prescribed by law, ordinance, etc.



INFOID:0000000004201988

CVT FLUID COOLER SERVICE

Service Notice or Precaution

If CVT fluid contains friction material (clutches, brakes, etc.), or if a CVT is replaced, inspect and clean the CVT fluid cooler mounted in the radiator or replace the radiator. Flush cooler lines using cleaning solvent and compressed air after repair. For CVT fluid cooler cleaning procedure, refer to TM-418. "Cleaning". For radiator replacement, refer to CO-15, "Removal and Installation".

OBD-II SELF-DIAGNOSIS

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PRECAUTIONS

< PRECAUTION > [CVT: RE0F10A]

• CVT self-diagnosis is performed by the TCM in combination with the ECM. The results can be read through the blinking pattern of the malfunction indicator lamp (MIL). Refer to the table on TM-298, "CONSULT-III Function (TRANSMISSION)" for the indicator used to display each self-diagnostic result.

The self-diagnostic results indicated by the MIL are automatically stored in both the ECM and TCM memories.

Always perform the procedure on <u>TM-296, "Diagnosis Description"</u> to complete the repair and avoid unnecessary blinking of the MIL.

For details of OBD-II, refer to <u>EC-112, "Diagnosis Description"</u> (for California), <u>EC-641, "Diagnosis Description"</u> (except for California).

Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to PG-58, "Description" (Coupe) or PG-129, "Description" (Sedan).

ATFTEMP COUNT Conversion Table

INFOID:0000000004201989

ATFTEMP COUNT	Temperature °C (°F)	ATFTEMP COUNT	Temperature °C (°F)
4	-30 (-22)	177	90 (194)
8	-20 (-4)	183	95 (203)
13	-10 (14)	190	100 (212)
17	-5 (23)	196	105 (221)
21	0 (32)	201	110 (230)
27	5 (41)	206	115 (239)
32	10 (50)	210	120 (248)
39	15 (59)	214	125 (257)
47	20 (68)	218	130 (266)
55	25 (77)	221	135 (275)
64	30 (86)	224	140 (284)
73	35 (95)	227	145 (293)
83	40 (104)	229	150 (302)
93	45 (113)	231	155 (311)
104	50 (122)	233	160 (320)
114	55 (131)	235	165 (329)
124	60 (140)	236	170 (338)
134	65 (149)	238	175 (347)
143	70 (158)	239	180 (356)
152	75 (167)	241	190 (374)
161	80 (176)	243	200 (392)
169	85 (185)	_	_

PREPARATION

< PREPARATION > [CVT: RE0F10A]

PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000004201990

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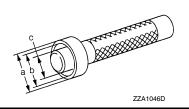
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Tool number (Kent-Moore No.) Tool name		Description	
— (OTC3492) Oil pressure gauge set	SCIA7531E	Measuring line pressure	

KV38100300 (—) Drift



Installing differential side oil seal

a: 54 mm (2.13 in)

b: 46 mm (1.81 in)

c: 32 mm (1.26 in)

INFOID:0000000004201991

Commercial Service Tool

Tool number Tool name

Power tool

Loosening nuts and bolts

PBIC0190E

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ON-VEHICLE MAINTENANCE

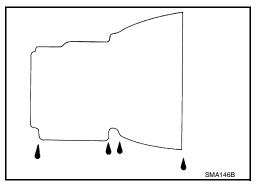
CVT FLUID

Inspection INFOID:000000004201992

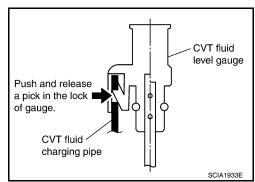
CHECKING CVT FLUID

Fluid level should be checked with the fluid warmed up to 50° to 80°C (122° to 176°F). The fluid level check procedure is as follows:

- 1. Check for fluid leakage.
- With the engine warmed up, drive the vehicle in an urban area. When ambient temperature is 20°C (68°F), it takes about 10 minutes for the CVT fluid to warm up to 50° to 80°C (122° to 176°F).
- 3. Park the vehicle on a level surface.
- 4. Apply parking brake firmly.
- 5. With engine at idle, while depressing brake pedal, move shift selector throughout the entire shift range.
- Pull out the CVT fluid level gauge from the CVT fluid charging pipe after pressing the tab on the CVT fluid level gauge to release the lock.



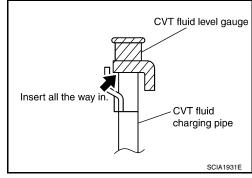
[CVT: RE0F10A]



7. Wipe fluid off the CVT fluid level gauge. Insert the CVT fluid level gauge rotating 180° from the originally installed position, then securely push the CVT fluid level gauge until it meets the top end of the CVT fluid charging pipe.

CAUTION:

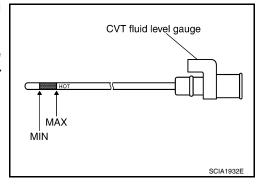
When wiping away the CVT fluid level gauge, always use lint-free paper, not a cloth rag.



8. Place the selector lever in "P" or "N" and make sure the fluid level is within the specified range.

CAUTION:

When reinstalling CVT fluid level gauge, insert it into the CVT fluid charging pipe and rotate it to the original installation position until it is securely locked.



CVT FLUID CONDITION

Check CVT fluid condition.

- · If CVT fluid is very dark or smells burned, check operation of CVT. Flush cooling system after repair of CVT.
- If CVT fluid contains frictional material (clutches, brakes, etc.). replace radiator and flush cooler line using cleaning solvent and compressed air after repair of CVT. Refer to CO-15, "Removal and Installation" and TM-418. "Cleaning".

Fluid status	Conceivable cause	Required operation
Varnished (viscous varnish state)	CVT fluid become degraded due to high temperatures.	Replace the CVT fluid and check the CVT main unit and the vehicle for malfunctions (wire harnesses, cooler pipes, etc.)
Milky white or cloudy	Water in the fluid	Replace the CVT fluid and check for places where water is getting in.
Large amount of metal powder mixed in	Unusual wear of sliding parts within CVT	Replace the CVT fluid and check for improper operation of the CVT.



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[CVT: RE0F10A]

Changing CVT Fluid

- 1. Warm up CVT fluid by driving the vehicle for 10 minutes.
- ✓=: Vehicle front
- Radiator (2)
- CVT fluid cooler hose [inlet side (3)]
- Transaxle assembly (4)
- 2. Drain CVT fluid from CVT fluid cooler hose [outlet side (1)] and refill with new specified NISSAN CVT fluid in the CVT fluid charging pipe with the engine running at idle speed.
- 3. Refill until new CVT fluid comes out from CVT fluid cooler hose [outlet side (1)].

NOTE:

About 30 to 50% extra fluid will be required for this procedure.

4. Check fluid level and condition. Refer to TM-416, "Inspection".

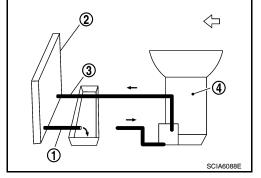
: Refer to TM-451, "General Specification" : Refer to TM-451, "General Specification"

CAUTION:

CVT fluid

Fluid capacity

- Use only Genuine NISSAN CVT Fluid NS-2. Never mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the warranty.
- When filling CVT fluid, take care not to scatter heat generating parts such as exhaust.
- Sufficiently shake the container of CVT fluid before using.
- Delete CVT fluid deterioration date with CONSULT-III after changing CVT fluid. Refer to TM-34, "CONSULT-III Function (TRANSMISSION)".



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CVT FLUID COOLER SYSTEM

Cleaning

Whenever an automatic transaxle is repaired, overhauled, or replaced, the CVT fluid cooler mounted in the radiator must be inspected and cleaned.

Metal debris and friction material, if present, can be trapped or become deposit in the CVT fluid cooler. This debris can contaminate the newly serviced CVT or, in severe cases, can block or restrict the flow of CVT fluid. In either case, malfunction of the newly serviced CVT may occur.

Debris, if present, may deposit as CVT fluid enters the cooler inlet. It will be necessary to back flush the cooler through the cooler outlet in order to flush out any built up debris.

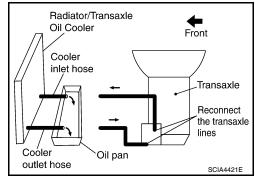
CVT FLUID COOLER CLEANING PROCEDURE

- 1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
- 2. Identify the inlet and outlet fluid cooler hoses.
- 3. Disconnect the fluid cooler inlet and outlet rubber hoses from the steel cooler tubes or bypass valve.

NOTE:

Replace the cooler hoses if rubber material from the hose remains on the tube fitting.

4. Allow any CVT fluid that remains in the cooler hoses to drain into the oil pan.

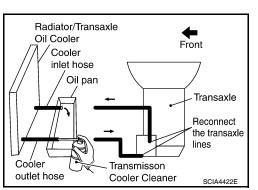


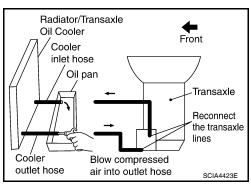
[CVT: RE0F10A]

5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- · Avoid contact with eyes and skin.
- · Do not breath vapors or spray mist.
- Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
- 7. Insert the tip of an air gun into the end of the cooler outlet hose.
- 8. Wrap a shop rag around the air gun tip and end of the cooler outlet hose.
- 9. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose for 10 seconds to force out any remaining CVT fluid.
- 10. Repeat steps 5 through 9 three additional times.
- 11. Position an oil pan under the banjo bolts that connect the CVT fluid cooler steel lines to the transaxle.
- 12. Remove the banjo bolts.
- 13. Flush each steel line from the cooler side back toward the transaxle by spraying Transmission Cooler Cleaner in a continuous stream for 5 seconds.
- 14. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through each steel line from the cooler side back toward the transaxle for 10 seconds to force out any remaining CVT fluid.
- 15. Ensure all debris is removed from the steel cooler lines.
- 16. Ensure all debris is removed from the banjo bolts and fittings.





CVT FLUID COOLER SYSTEM

< ON-VEHICLE MAINTENANCE >

17. Perform "CVT FLUID COOLER DIAGNOSIS PROCEDURE".

CVT FLUID COOLER DIAGNOSIS PROCEDURE

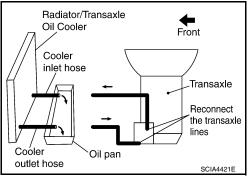
NOTE:

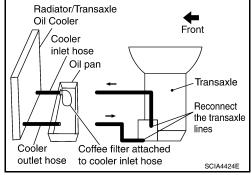
Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

- 1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
- 2. Clean the exterior and tip of the cooler inlet hose.
- Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- · Do not breath vapors or spray mist.
- 4. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
- 5. Tie a common white, basket-type coffee filter to the end of the cooler inlet hose.

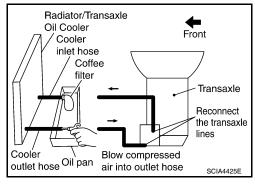


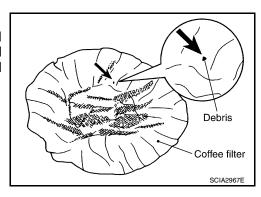


- 6. Insert the tip of an air gun into the end of the cooler outlet hose.
- 7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
- 8. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose to force any remaining CVT fluid into the coffee filter.
- 9. Remove the coffee filter from the end of the cooler inlet hose.
- 10. Perform "CVT FLUID COOLER INSPECTION PROCEDURE".

CVT FLUID COOLER INSPECTION PROCEDURE

- 1. Inspect the coffee filter for debris.
- a. If small metal debris less than 1 mm (0.040 in) in size or metal powder is found in the coffee filter, this is normal. If normal debris is found, the CVT fluid cooler/radiator can be re-used and the procedure is ended.





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[CVT: RE0F10A]

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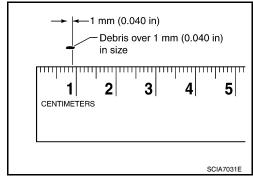
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CVT FLUID COOLER SYSTEM

< ON-VEHICLE MAINTENANCE >

b. If one or more pieces of debris are found that are over 1 mm (0.040 in) in size and/or peeled clutch facing material is found in the coffee filter, the fluid cooler is not serviceable. The radiator/ fluid cooler must be replaced and the inspection procedure is ended.



[CVT: RE0F10A]

CVT FLUID COOLER FINAL INSPECTION

After performing all procedures, ensure that all remaining oil is cleaned from all components.

STALL TEST

Inspection and Judgment

INFOID:0000000004201995

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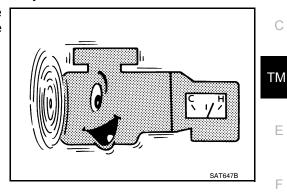
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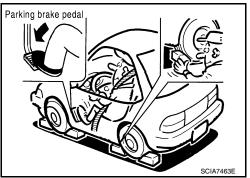
[CVT: RE0F10A]

INSPECTION

- 1. Inspect the amount of engine oil. Replenish the engine oil if necessary.
- 2. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F). Inspect the amount of CVT fluid. Replenish if necessary.



- 3. Securely engage the parking brake so that the tires do not turn.
- 4. Install a tachometer where it can be seen by driver during test.
 - · It is good practice to mark the point of specified engine rpm on indicator.
- 5. Start engine, apply foot brake, and place selector lever in "D" position.



- 6. While holding down the foot brake, gradually press down the accelerator pedal.
- 7. Quickly read off the stall speed, and then quickly remove your foot from the accelerator pedal.

CAUTION:

Do not hold down the accelerator pedal for more than 5 seconds during this test.

Stall speed : Refer to TM-451, "Stall Speed".

- 8. Move the selector lever to the "N" position.
- Cool down the CVT fluid.

CAUTION:

Run the engine at idle for at least 1 minute.

10. Repeat steps 6 through 9 with selector lever in "R" position.

JUDGMENT

	Selector lever position		Expected problem legation
	"D"	"R"	Expected problem location
Stall speed	Н	0	Forward clutch
	0	Н	Reverse brake
	L	L	Engine and torque converter one-way clutch
	Н	Н	Line pressure lowPrimary pulleySecondary pulleySteel belt

Less than

5 sec.

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STALL TEST

[CVT: RE0F10A]

< ON-VEHICLE MAINTENANCE >

- O: Stall speed within standard value position.
- H: Stall speed is higher than standard value.
- L: Stall speed is lower than standard value.

LINE PRESSURE TEST

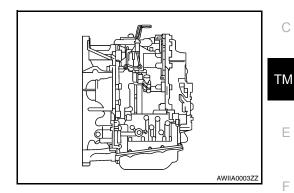
Inspection and Judgment

INFOID:0000000004201996

[CVT: RE0F10A]

INSPECTION

Line Pressure Test Port (A)



Line Pressure Test Procedure

- 1. Inspect the amount of engine oil and replenish if necessary.
- Drive the car for about 10 minutes to warm it up so that the CVT fluid reaches in the range of 50 to 80°C (122 to 176°F), then inspect the amount of CVT fluid and replenish if necessary. NOTE:

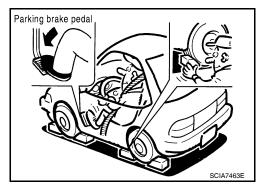
The CVT fluid temperature rises in the range of 50 to 80°C (122 to 176°F) during 10 minutes of driving.

3. After warming up CVT, remove the oil pressure detection plug and install the oil pressure gauge [special service tool: — (OTC3492)].

CAUTION:

When using the oil pressure gauge, be sure to use the O-ring attached to the oil pressure detection plug.

4. Securely engage the parking brake so that the tires do not turn.



5. Start the engine, and then measure the line pressure at both idle and the stall speed.

CAUTION:

- Keep the brake pedal pressed all the way down during measurement.
- When measuring the line pressure at the stall speed. Refer to TM-451, "Stall Speed".

: Refer to TM-451, "Line Pressure" Line pressure

6. After the measurements are complete, install the oil pressure detection plug and tighten to the specified torque below.



: 7.5 N·m (0.77 kg-m, 66 in-lb)

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.

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JUDGMENT

Judgment		Possible cause	
Idle speed	Low for all positions ("P", "R", "N", "D")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example Oil pump wear Pressure regulator valve or plug sticking or spring fatigue Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak Engine idle speed too low	
	Only low for a spe- cific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.	
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example • Accelerator pedal position signal malfunction • CVT fluid temperature sensor malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking	
Stall speed	Line pressure does not rise higher than the line pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example • Accelerator pedal position signal malfunction • TCM malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking	
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example • Accelerator pedal position signal malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking	
	Only low for a spe- cific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.	

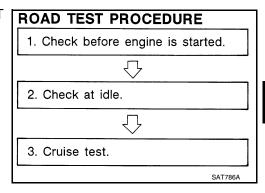
TM-424

ROAD TEST

Description INFOID:000000004201997

DESCRIPTION

- The purpose of the test is to determine overall performance of CVT and analyze causes of problems.
- The road test consists of the following three parts:
- "Check Before Engine Is Started" TM-425.
- "Check at Idle" TM-426.
- 3. "Cruise Test" TM-427.



[CVT: RE0F10A]

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- Before road test, familiarize yourself with all test procedures and items to check.
- Perform tests on all items until specified symptom is found. Troubleshoot items which check out No Good after road test.



CONSULT-III SETTING PROCEDURE

- Using CONSULT-III, perform a cruise test and record the result.
- Print the result and ensure that shifts and lock-ups take place as per Shift Schedule.
- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 2. Touch "MAIN SIGNALS" to set recording condition.
- 3. See "Numerical Display", "Barchart Display" or "Line Graph Display".
- Touch "START".
- When performing cruise test. Refer to <u>TM-427</u>, "Cruise <u>Test"</u>.
- 6. After finishing cruise test part, touch "RECORD".
- 7. Touch "STORE".
- 8. Touch "BACK".
- Touch "DISPLAY".
- 10. Touch "PRINT".
- 11. Check the monitor data printed out.

Check before Engine Is Started

1. CHECK CVT INDICATOR LAMP

- 1. Park vehicle on flat surface.
- Move selector lever to "P" position.
- 3. Turn ignition switch OFF. Wait at least 5 seconds.
- 4. Turn ignition switch ON. (Do not start engine.)

Does shift position indicator come on for about 2 seconds?

- YES >> 1. Turn ignition switch OFF.
 - Perform self-diagnosis and note NG items.
 Refer to <u>TM-298</u>, "CONSULT-III Function (TRANSMISSION)".
 - 3. Go to TM-426, "Check at Idle".

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NO >> Stop "Road Test". Refer to TM-400, "Symptom Table".

Check at Idle

1. CHECK STARTING THE ENGINE

- Park vehicle on flat surface.
- 2. Move selector lever to "P" or "N" position.
- Turn ignition switch OFF.
- 4. Turn ignition switch to "START" position.

Is engine started?

YES >> GO TO 2.

NO >> Stop "Road Test". Refer to TM-400, "Symptom Table".

2.CHECK STARTING THE ENGINE

- 1. Turn ignition switch ON.
- 2. Move selector lever to "D", "M" or "R" position.
- 3. Turn ignition switch to "START" position.

Is engine started?

YES >> Stop "Road Test". Refer to TM-400, "Symptom Table".

NO >> GO TO 3.

3.CHECK "P" POSITION FUNCTION

- 1. Move selector lever to "P" position.
- 2. Turn ignition switch OFF.
- 3. Release parking brake.
- 4. Push vehicle forward or backward.
- 5. Apply parking brake.

Does vehicle move when it is pushed forward or backward?

YES >> Refer to TM-400, "Symptom Table". Continue "Road Test".

NO >> GO TO 4.

4. CHECK "N" POSITION FUNCTION

- 1. Start engine.
- 2. Move selector lever to "N" position.
- 3. Release parking brake.

Does vehicle move forward or backward?

YES >> Refer to TM-400, "Symptom Table". Continue "Road Test".

NO >> GO TO 5.

5. CHECK SHIFT SHOCK

- Apply foot brake.
- Move selector lever to "R" position.

Is there large shock when changing from "N" to "R" position?

YES >> Refer to TM-400, "Symptom Table". Continue "Road Test".

NO >> GO TO 6.

6.CHECK "R" POSITION FUNCTION

Release foot brake for several seconds.

Does vehicle creep backward when foot brake is released?

YES >> GO TO 7.

NO >> Refer to TM-400, "Symptom Table". Continue "Road Test".

1. CHECK "D" POSITION FUNCTION

Move selector lever to "D" position and check if vehicle creeps forward.

Does vehicle creep forward in all positions?

YES >> Go to TM-427, "Cruise Test".

NO >> Stop "Road Test". Refer to TM-400, "Symptom Table".

[CVT: RE0F10A] Cruise Test

1.CHECK VEHICLE SPEED WHEN SHIFTING GEARS - PART 1.

Drive vehicle for approximately 10 minutes to warm engine oil and CVT fluid up to operating temperature.

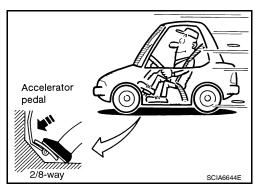
CVT fluid operating temperature: 50 - 80°C (122 - 176°F)

- 2. Park vehicle on flat surface.
- 3. Move selector lever to "P" position.
- 4. Start engine.
- 5. Move selector lever to "D" position.
- 6. Accelerate vehicle to 2/8-way throttle depressing accelerator pedal constantly.
 - Read vehicle speed and engine speed. Refer to TM-451, "Vehicle Speed When Shifting Gears".

OK or NG

OK >> GO TO 2.

>> Refer to TM-400, "Symptom Table". Continue "Road NG



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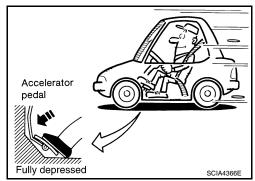
2.CHECK VEHICLE SPEED WHEN SHIFTING GEARS — PART 2

- 1. Park vehicle on flat surface.
- 2. Move selector lever to "D" position.
- 3. Accelerate vehicle to full depression depressing accelerator pedal constantly.
 - Read vehicle speed and engine speed.Refer to TM-451, "Vehicle Speed When Shifting Gears".

OK or NG

OK >> GO TO 3.

>> Refer to TM-400, "Symptom Table". Continue "Road NG Test".



3.CHECK MANUAL MODE FUNCTION

Move to manual mode from "D" position.

Does it switch to manual mode?

YES >> GO TO 4.

NO >> Refer to TM-400, "Symptom Table". Continue "Road Test".

4. CHECK SHIFT-UP FUNCTION

During manual mode driving, is upshift from M1 \rightarrow M2 \rightarrow M3 \rightarrow M4 \rightarrow M5 \rightarrow M6 performed?

Read the gear position. Refer to TM-298, "CONSULT-III Function (TRANSMISSION)".

Is upshifting correctly performed?

YES >> GO TO 5.

NO >> Refer to TM-400, "Symptom Table". Continue "Road Test".

5. CHECK SHIFT-DOWN FUNCTION

During manual mode driving, is downshift from M6 \rightarrow M5 \rightarrow M4 \rightarrow M3 \rightarrow M2 \rightarrow M1 performed?

(TRANSMISSION). Refer to TM-298, "CONSULT-III Function (TRANSMISSION)."

Is downshifting correctly performed?

YES >> GO TO 6.

NO >> Refer to TM-400, "Symptom Table". Continue "Road Test".

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TM-427

6. CHECK ENGINE BRAKE FUNCTION

Check engine brake.

Does engine braking effectively reduce speed in M1 position?

YES >> 1. Stop the vehicle.

 Perform self-diagnosis.
>> Refer to TM-400, "Symptom Table". then continue trouble diagnosis. NO

CVT POSITION

Inspection and Adjustment

INFOID:0000000004202001

[CVT: RE0F10A]

INSPECTION

- 1. Place selector lever in "P" position, and turn ignition switch ON (engine stop).
- 2. Make sure that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also make sure that selector lever can be shifted from "P" position only when brake pedal is depressed.
- 3. Move the selector lever and check for excessive effort, sticking, noise or rattle.
- 4. Confirm the selector lever stops at each position with the feel of engagement when it is moved through all the positions. Check that the actual position of the selector lever matches the position shown by the shift position indicator and the manual lever on the transaxle.
- 5. The method of operating the selector lever to individual positions correctly should be as shown.
- 6. When selector button is pressed in "P", "R", or "N" position without applying forward/backward force to selector lever, check button operation for sticking.
- Confirm the back-up lamps illuminate only when selector lever is placed in the "R" position. Confirm the back-up lamps do not illuminate when the selector lever is pushed toward the "R" position when in the "P" or "N" position.
- 8. Confirm the engine can only be started with the selector lever in the "P" and "N" positions.
- 9. Make sure transaxle is locked completely in "P" position.
- 10. When selector lever is set to manual shift gate, make sure that manual mode is displayed on combination meter.

Shift selector lever to "+" and "-" sides, and check that set shift position changes.

ADJUSTMENT

CAUTION:

Apply parking brake before adjustment.

- 1. Loosen the control cable nut.
- 2. Place the manual lever and the selector lever in "P" position.
- Tighten control cable nut to specified torque.

Control cable nut: Refer to TM-433, "Exploded View".

CAUTION:

Secure the manual lever when tightening control cable nut. Make sure the manual lever stays in the "P" position.

Check the operation of the CVT.

Press selector button to operate selector lever, while depressing the brake pedal.

Press selector button to operate selector button to operate selector lever.

Selector lever can be operated without pressing selector button.

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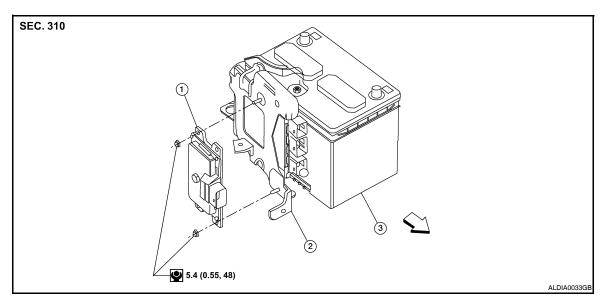
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INFOID:0000000004202003

ON-VEHICLE REPAIR

TRANSMISSION CONTROL MODULE

Exploded View



TCM
 ⇒: Front

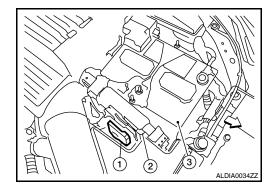
2. Bracket

3. Battery

Removal and Installation

REMOVAL

- 1. Disconnect the battery negative terminal.
- 2. Remove the fresh air intake tube (upper).
- 3. Disconnect the TCM harness connector.
- 4. Remove the TCM (1) from the bracket (2).
 - <⊐: Front
 - Battery (3)

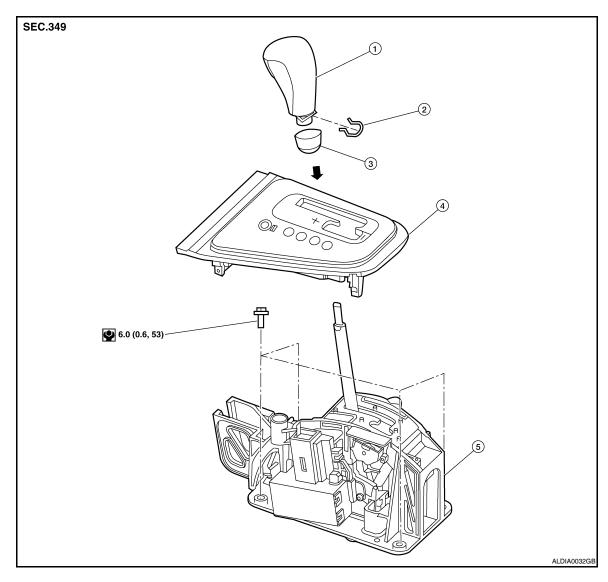


INSTALLATION

Installation is in the reverse order of removal.

CONTROL DEVICE

Exploded View INFOID:0000000004202004



- Control lever knob 1.
- 2. Lock pin

3. Knob cover

- Control device selector plate 5.
- Control device assembly

Removal and Installation

REMOVAL

- 1. Remove the center console assembly. Refer to IP-12, "Removal and Installation".
- 2. Disconnect the control cable from the control device assembly.
- Disconnect the CVT device harness connector from the control device assembly.
- Remove the control device assembly bolts and the control device assembly.

INSTALLATION

Installation is in the reverse order of removal.

- · When installing the control cable to the control device assembly, make sure that the control cable is fully pressed in with the ribbed surface facing upward.
- After installation is completed, adjust and check CVT position. Refer to TM-429, "Inspection and Adjustment".

[CVT: RE0F10A]

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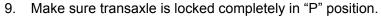
Inspection and Adjustment

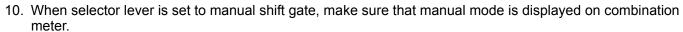
INFOID:0000000004202006

[CVT: RE0F10A]

INSPECTION

- 1. Place selector lever in "P" position, and turn ignition switch ON (engine stop).
- 2. Make sure that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also make sure that selector lever can be shifted from "P" position only when brake pedal is depressed.
- 3. Move the selector lever and check for excessive effort, sticking, noise or rattle.
- 4. Confirm the selector lever stops at each position with the feel of engagement when it is moved through all the positions. Check that the actual position of the selector lever matches the position shown by the shift position indicator and the manual lever on the transaxle.
- 5. The method of operating the selector lever to individual positions correctly should be as shown.
- 6. When selector button is pressed in "P", "R", or "N" position without applying forward/backward force to selector lever, check button operation for sticking.
- 7. Confirm the back-up lamps illuminate only when selector lever is placed in the "R" position. Confirm the back-up lamps do not illuminate when the selector lever is pushed toward the "R" position when in the "P" or "N" position.
- 8. Confirm the engine can only be started with the selector lever in the "P" and "N" positions.





Shift selector lever to "+" and "-" sides, and check that set shift position changes.



CAUTION:

Apply parking brake before adjustment.

- Loosen the control cable nut.
- 2. Place the manual lever and the selector lever in "P" position.
- 3. Tighten control cable nut to specified torque.

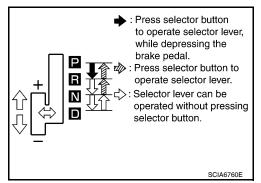
Control cable nut: Refer to TM-433, "Exploded

View".

CAUTION:

Secure the manual lever when tightening control cable nut. Make sure the manual lever stays in the "P" position.

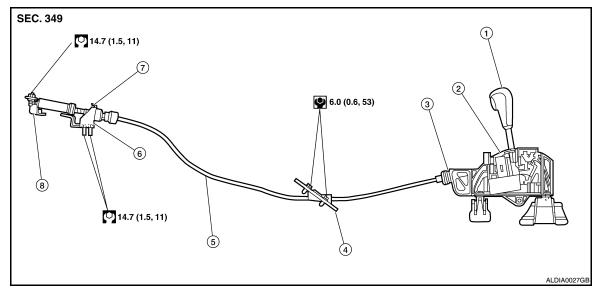
4. Check the operation of the CVT. Refer to TM-432, "Inspection and Adjustment".



TM-432

CONTROL CABLE

Exploded View



- 1. Control lever
- 4. Retainer grommet
- 7. Lock plate

- 2. Control device assembly
- 5. Control cable
- Manual lever

- 3. Control cable socket
- 6. Bracket

Removal and Installation

REMOVAL

1. Shift control lever to "P".

- Remove the air filter assembly. Refer to <u>EM-25, "Removal and Installation"</u>.
- 3. Remove the control cable nut and control cable form the manual lever.
- 4. Remove the lock plate and the control cable from the bracket.
- 5. Remove the center console. Refer to IP-12, "Removal and Installation".
- 6. Remove the bracket covering the retainer grommet.
- 7. Remove the retainer grommet bolts and the retainer grommet.
- 8. Remove the control cable from the control device assembly.
- 9. Remove the control cable from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

- When installing the control cable to the control device assembly, make sure that the control cable socket is
 fully pressed into the control device assembly, and the control cable end is fully pressed in with the ribbed
 surface facing upward.
- After installation is complete, adjust and check the CVT position. Refer to <u>TM-432</u>, "Inspection and Adjustment".

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[CVT: RE0F10A]

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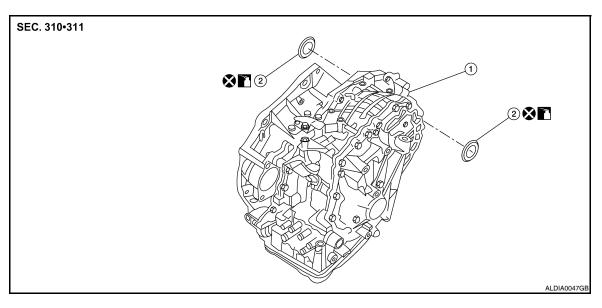
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DIFFERENTIAL SIDE OIL SEAL

Exploded View



- 1. CVT assembly
- 2. Differential side oil seal
- :NISSAN CVT Fluid NS-2

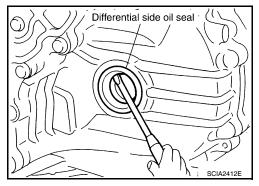
Removal and Installation

INFOID:0000000004202010

REMOVAL

- Remove drive shaft assembly. Refer to <u>FAX-11</u>, "Removal and <u>Installation (Left Side)</u>" and <u>FAX-12</u>, "Removal and <u>Installation (Right Side)</u>".
- 2. Remove the differential side oil seal using suitable tool **CAUTION**:

Do not scratch transaxle case or converter housing.



INSTALLATION

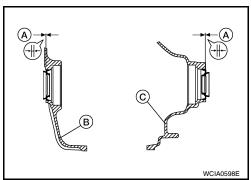
 Drive the new differential side oil seal into the transaxle case side (B) and converter housing side (C) until it is flush using Tool.

Tool number : KV38100300 (—)

Dimension A : $1.8 \pm 0.5 \text{ mm} (0.071 \pm 0.020 \text{ in})$

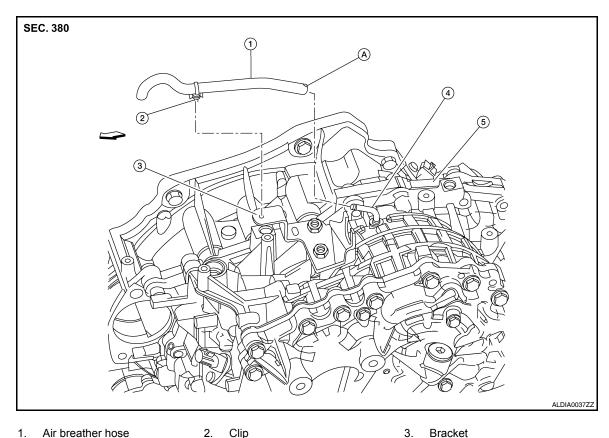
CAUTION:

- · Do not reuse differential side oil seals.
- Apply specified NISSAN CVT fluid to side oil seals.
- 2. Install drive shaft assembly. Refer to <u>FAX-11</u>, "Removal and <u>Installation (Left Side)"</u> and <u>FAX-12</u>, "Removal and Installation (Right Side)".
- 3. Check CVT fluid level. Refer to TM-416, "Inspection".



AIR BREATHER HOSE

Exploded View INFOID:0000000004202011



- Air breather hose
- Air breather tube

- CVT assembly
- Bracket
- Paint mark

Removal and Installation

←: Front

Refer to the figure for removal and installation.

CAUTION:

- Install air breather hose with paint mark facing upward.
- Insert air breather hose a minimum of 17mm (0.67 in) onto air breather tube (to end of air breather tubes radius end).
- Install air breather hose to bracket by fully inserting the clip.
- Make sure there are no pinched or restricted areas on air breather hose caused by bending or winding when installing it.

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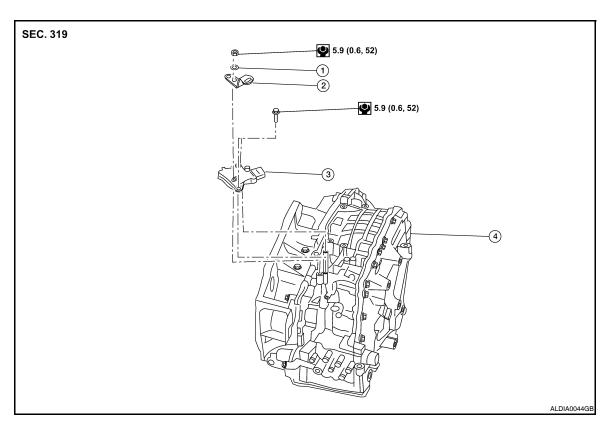
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PARK/NEUTRAL POSITION (PNP) SWITCH

Exploded View



1. Washer

2. Manual lever

3. PNP switch

4. CVT assembly

Removal and Installation

INFOID:0000000004202016

Refer to the figure for removal and installation.

NOTE:

- · Align PNP switch position when installing.
- After installation of PNP switch, check the continuity of PNP switch.
- After installation is complete, adjust and check CVT position. Refer to TM-429, "Inspection and Adjustment".

INFOID:0000000004202017

PRIMARY SPEED SENSOR

Exploded View

Nissan CVT Fluid NS-2

Removal and Installation

CVT assembly

Refer to the figure for removal and installation.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.
- After installation is complete, check for CVT fluid leakage and CVT fluid level. Refer to <u>TM-416</u>, <u>"Inspection"</u>.

2. O-ring

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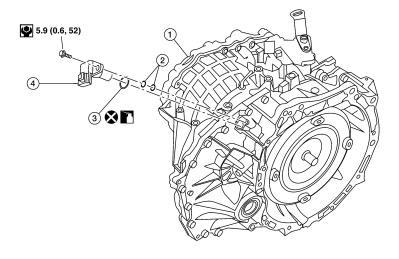
INFOID:0000000004202018

Primary speed sensor

SECONDARY SPEED SENSOR

Exploded View

SEC. 319



1. CVT assembly

2. Shims

3. O-ring

4. Secondary Speed Sensor

: Nissan CVT Fluid NS-2

Removal and Installation

INFOID:0000000004202020

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Refer to the figure for removal and installation.

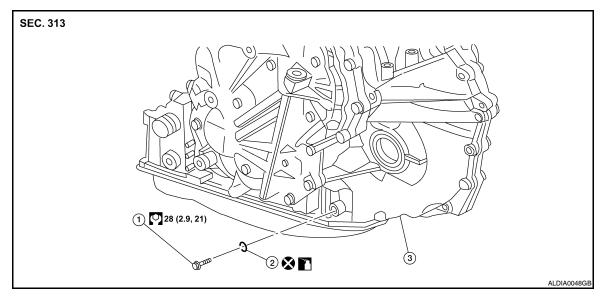
CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.
- Insert the shims.
- After installation is complete, check for CVT fluid leakage and CVT fluid level Refer to <u>TM-416</u>, <u>"Inspection"</u>.

INFOID:0000000004202021

OIL PUMP FITTING BOLT

Exploded View



1. Oil pump fitting bolt

2. O-ring

3. CVT assembly

: Nissan CVT Fluid NS-2

Removal and Installation

Refer to the figure for removal and installation.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.
- After installation is complete, check for CVT fluid leakage and CVT fluid level. Refer to <u>TM-416</u>, <u>"Inspection"</u>.

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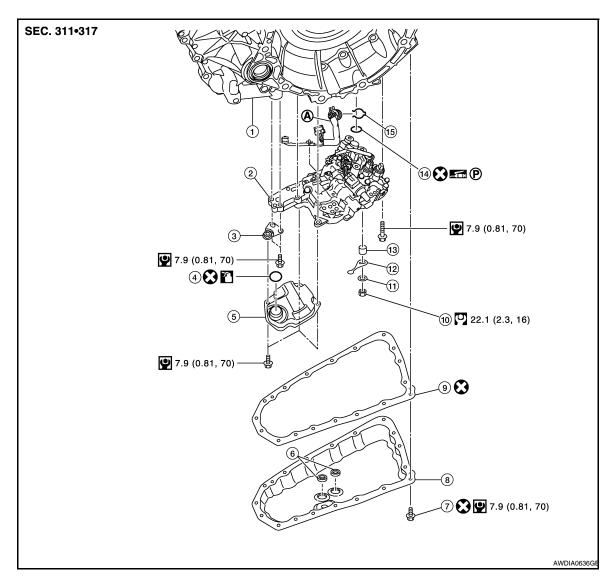
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Exploded View

COMPONENT PARTS LOCATION



- 1. Transaxle assembly
- 4. O-ring
- 7. Oil pan bolt
- 10. Lock nut
- 13. Collar
- io. Collai

- 2. Control valve
- 5. Oil strainer assembly
- 8. Oil pan
- 11. Washer
- 14. Lip seal

- 3. Bracket
- 6. Magnet
- 9. Oil pan gasket
- 12. Manual plate
- 15. Snap ring

A. CVT unit connector

For the following symbols, use the specified fluid.

NISSAN CVT Fluid NS-2

Removal and Installation

REMOVAL

- Disconnect negative battery terminal. Refer to <u>PG-68</u>, "<u>Removal and Installation</u>" (coupe), <u>PG-139</u>, "<u>Removal and Installation</u>" (sedan).
- Pump out CVT fluid from CVT charging pipe.

TM-440

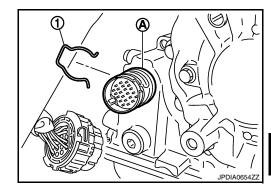
INFOID:0000000004507227

[CVT: RE0F10A]

< ON-VEHICLE REPAIR > [CVT: RE0F10A]

3. Disconnect the CVT unit connector. Refer to TM-411, "Removal and Installation Procedure for CVT Unit Connector".

4. Remove the snap ring (1) from the CVT unit connector (A).

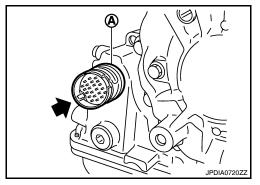


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5. Press the CVT unit connector (A) into the transaxle case. **CAUTION:**

Never damage the CVT unit connector. NOTE:

Clean around the connector to prevent foreign materials from entering into the transaxle case.



6. Remove the oil pan bolts, and then remove the oil pan and oil pan gasket.

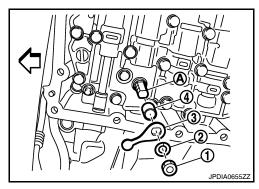
7. Remove the magnets from the oil pan.

8. Remove the lock nut (1) and washer (2), and then remove the manual plate (3).



Remove the collar (4) from the manual shaft (A). CAUTION:

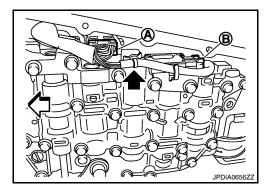
Never drop the collar.



10. Disconnect the connectors (A) and (B).

Clips

Front of vehicle



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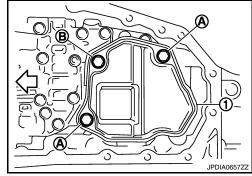
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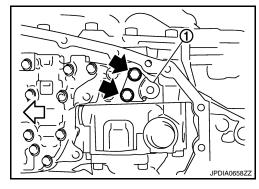
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- 11. Remove the oil strainer assembly bolts (A) and (B), and then remove the oil strainer assembly (1).
 - ← Front of vehicle



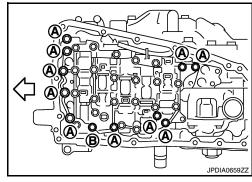
- 12. Remove the bracket (1).
 - **←** Bolt
 - ← Front of vehicle



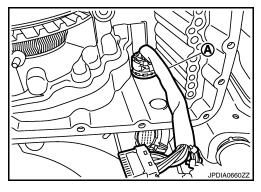
- 13. Remove the control valve bolts (A) and (B), and then remove the control valve from the transaxle case.
 - ← Front of vehicle

CAUTION:

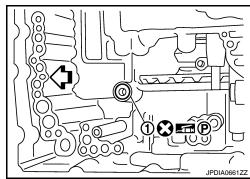
Never drop the control valve, ratio control valve and manual shaft.



14. Remove CVT unit connector (A) from the transaxle case inside.



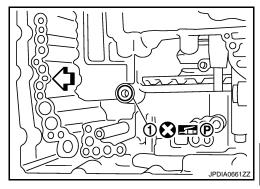
- 15. Remove the lip seal (1) from the transaxle case.
 - ← Front of vehicle



INSTALLATION

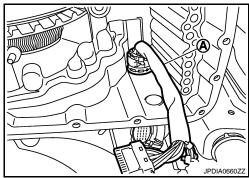
1. Install the lip seal (1) to the transaxle case.

← Front of vehicle



Install the CVT unit connector (A) to the transaxle case.

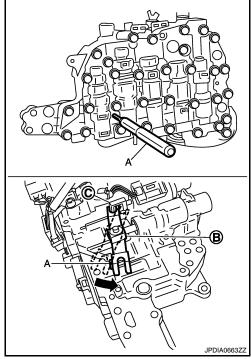
Connect the CVT unit connector with the stopper facing up, and then press in until it clicks.



- Press in the ratio control valve (B) in the (←) direction, and then fix the linkage in the position shown with the linkage fixing pin (A) from the back of control valve through the hole for fixing.
- Check that one end of linkage engages with the step motor end (C) and that the linkage is in the direction shown.
- 5. Install the control valve to the transaxle case.

CAUTION:

- Never drop the linkage fixing pin. If it is dropped, repeat the installation procedure from step 3.
- Never pinch the harness into between the control valve and the transaxle case.



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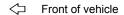
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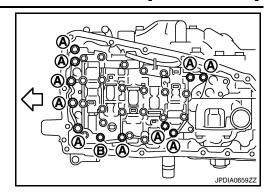
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6. Fix the control valve using the control valve bolts (A) and (B).



Bolt	Nominal length (mm)	Quantity
Α	54	10
В	44	1



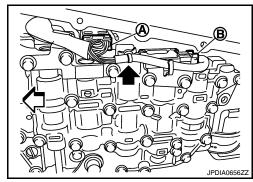
- 7. Pull the linkage fixing pin out.
- 8. Connect the connectors (A) and (B).



← Front of vehicle

CAUTION:

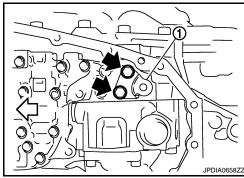
- Never pinch the harness into between the control valve and the transaxle case.
- Securely insert the connector until it clicks and locks.



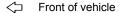
9. Install the bracket (1).



Front of vehicle



10. Install the oil strainer assembly (1) using the oil strainer assembly bolts (A) and (B).



Bolt	Nominal length (mm)	Quantity
А	12	2
В	44	1

CAUTION:

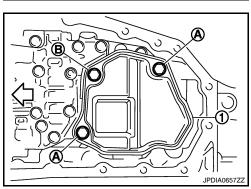
- · Never reuse O-ring.
- Apply NISSAN CVT fluid NS-2 when installing the O-ring.

Remove the bracket and adjust the position again if the bolt hole positions are not aligned.

11. Install the collar to the manual shaft.

CAUTION:

Never drop the collar.



[CVT: RE0F10A] < ON-VEHICLE REPAIR >

12. Assemble the manual plate (1) while aligning with the groove (A) of the manual valve, and then tighten washer (2) the lock nut (3) to the specified torque.

CAUTION:

Assemble the manual plate while aligning its end with the cutout () of the manual valve.

Front of vehicle

- 13. Install the snap ring of CVT unit connector, and then connect the CVT unit harness connector.
- 14. Install the magnet while aligning it with the convex side of oil

CAUTION:

Completely eliminate the iron powder from the magnet area of oil pan and the magnet.

15. Install the oil pan gasket to the oil pan.

CAUTION:

- Completely wipe out any moisture, oil, and old gasket from the oil pan gasket surface and bolt hole of oil pan and transaxle case.
- · Never reuse oil pan gaskets.
- 16. Install the oil pan assembly to the transaxle case with the following procedure.
 - 1. Install the oil pan assembly to the transaxle case, and then temporarily tighten the oil pan bolt. **CAUTION:**

Never reuse oil pan bolts.

- 2. Tighten the oil pan bolts in the order shown to the specified
- 3. Tighten the oil pan bolts again clockwise from (1) shown to the specified torque.
- 17. Fill CVT fluid from CVT fluid charging pipe to the specified level.

CVT fluid : Refer to TM-451, "General Spec-

ification"

: Refer to TM-451, "General Spec-Fluid capacity

ification"

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CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Never mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the warranty.
- When filling CVT fluid, take care not to scatter heat generating parts such as exhaust.
- Sufficiently shake the container of CVT fluid before using.
- Delete CVT fluid deterioration date with CONSULT-III after changing CVT fluid. Refer to TMxx,"CONSULT-III Function (TRANSMISSION)".
- 18. With the engine warmed up, drive the vehicle in an urban area.

When ambient temperature is 20°C (68°F), it takes about 10 minutes for the CVT fluid to warm up to 50° to 80°C (122° to 176°F).

- 19. Check CVT fluid level and condition. Refer to TM-416, "Inspection".
- 20. Connect negative battery terminal. Refer to PG-68, "Removal and Installation" (coupe), PG-139, "Removal and Installation" (sedan).

Inspection and Adjustment

INSPECTION AFTER REMOVAL

Check oil pan for foreign material.

- If a large amount of worn material is found, clutch plate may be worn.
- If iron powder is found, bearings, gears, or clutch plates may be worn.
- If aluminum powder is found, bushing may be worn, or chips or burrs of aluminum casting parts may enter. Check points where wear is found in all cases.

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INFOID:0000000004507228

[CVT: RE0F10A]

< ON-VEHICLE REPAIR >

INSPECTION AFTER REMOVAL

Check the CVT fluid level and leakage. Refer to TM-416, "Inspection".

INSPECTION AFTER INSTALLATION

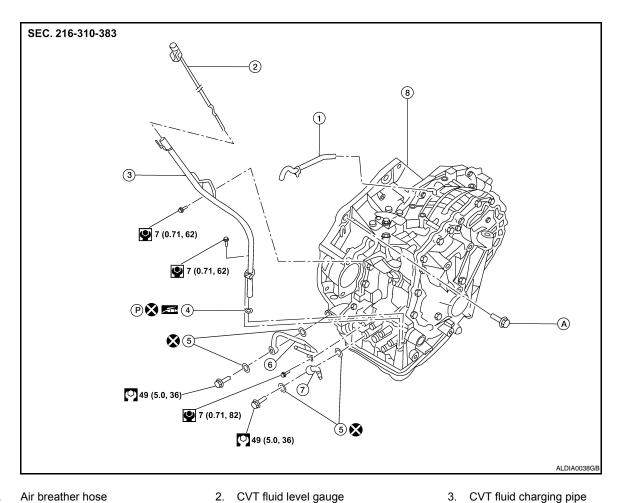
Erase the TCM data.

- Erase the CVT fluid degradation level data using CONSULT-III. Refer to TM-298, "CONSULT-III Function (TRANSMISSION)".
- Erase the memory of ROM using CONSULT-III. Refer to TM-298, "CONSULT-III Function (TRANSMIS-SION)".

REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View INFOID:0000000004202023



1. Air breather hose

O-ring

- 2. CVT fluid level gauge
 - Copper washer
- 8. CVT assembly
- Refer to TM-447, "Removal and Installation".

Removal and Installation

Fluid cooler tube

REMOVAL

4.

7.

Remove the engine and transaxle as an assembly. Refer to EM-72, "Removal and Installation". NOTE:

Using paint, put matching marks on the drive plate and torque converter when removing the torque converter to drive plate nuts.

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6. Fluid cooler tube

TRANSAXLE ASSEMBLY

< REMOVAL AND INSTALLATION >

- Disconnect the electrical connectors from the following:
 - Primary speed sensor (1)
 - Secondary speed sensor (3)
 - CVT unit connector (2)
 - PNP switch (4)
- 3. Remove the harness from the CVT.
- 4. Remove the CVT to engine and engine to CVT bolts.
- 5. Separate the CVT from the engine.
- 6. If necessary, remove the following from the CVT:
 - · Primary speed sensor
 - Secondary speed sensor
 - · PNP switch
 - · CVT fluid charging pipe
 - Water tube and hoses
 - Air breather hose
 - · Any necessary brackets

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing fluid cooler tube align the tube (1) against the rib (2) as shown.
- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly.
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drivetrain components.
- Do not reuse O-rings.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to <u>EM-52</u>, "Removal and Installation".
- ALDIA0039ZZ

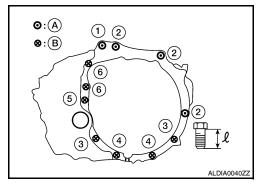
(1)

- After converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.

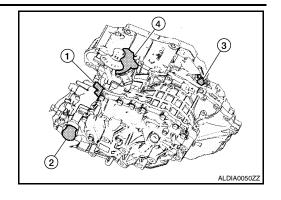
When installing the CVT to the engine, attach the bolts in accordance with the following standard.

- A: Transaxle assembly to engine assembly.
- · B : Engine assembly to transaxle assembly.

Bolt No.	1	2	3	4	5	6
Number of bolts	1	3	2	2	1	2
Bolt length " ℓ " mm (in)	45 (1.77)	45 (1.77)	45 (1.77)	35 (1.38)	45 (1.77)	45 (1.77)
Tightening torque N·m (kg-m, ft-lb)	35 (3.6, 26)	75 (7.7, 55)	43 (4.4, 32)	43 (4.4, 32)	48 (4.9, 35)	48 (4.9, 35)



- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque.
- After completing installation, check for fluid leakage, fluid level, and the positions of CVT. Refer to <u>TM-416.</u> "Inspection" and <u>TM-429</u>, "Inspection and Adjustment".
- When replacing the CVT assembly, erase EEP ROM in TCM.



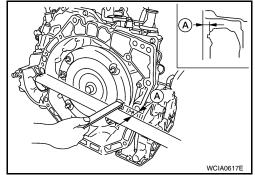
[CVT: RE0F10A]

Inspection INFOID:000000004202025

Installation and Inspection of Torque Converter

 After installing the torque converter to the CVT, be sure to check distance "A" to ensure it is within specifications.

Distance "A" : 14.4 mm (0.567 in)



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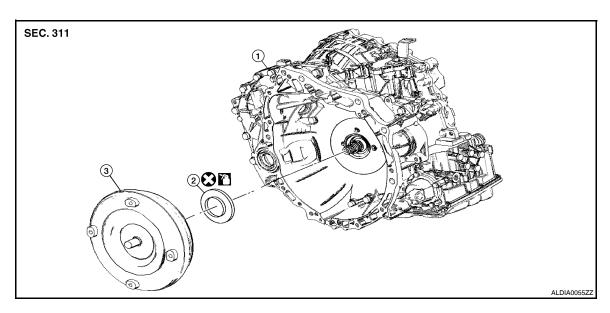
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DISASSEMBLY AND ASSEMBLY

TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

Exploded View



1. CVT assembly

- 2. Converter housing oil seal
- 3. Torque converter

[CVT: RE0F10A]

: Apply CVT Fluid. Refer to MA-12, "Fluids and Lubricants".

Disassembly

- 1. Remove torque converter.
- 2. Remove the converter housing oil seal using suitable tool.

Do not scratch converter housing.

Assembly

- Drive the converter housing oil seal in evenly using suitable tool.
 CAUTION:
 - Do not reuse converter housing oil seal.
 - Apply CVT fluid to converter housing oil seal.
- 2. Install the torque converter.

SERVICE DATA AND SPECIFICATIONS (SDS)

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SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:0000000004202029

[CVT: RE0F10A]

Applied model CVT model		QR25DE	engine
		2WD RE0F10A	
	D range	2.349 – 0.394 1.750 5.798	
Transmission gear ratio	Reverse		
	Final drive		
Recommended fluid NISSAN CVT Fluid NS-2*1		Fluid NS-2*1	
Fluid capacity		8.3 liter (8-3/4 US qt, 7-1/4 Imp qt)	

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Do not mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the NISSAN new vehicle limited warranty.

Vehicle Speed When Shifting Gears

Numerical value data are reference values.

Engine type	Throttle position	Shift pattern	Engine sp	peed (rpm)
Liigiile type		Offinit pattern	At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
QR25DE	8/8	"D" position	3,400 – 4,200	4,300 – 5,100
QRZSDE	2/8	"D" position	1,400 – 2,200	1,600 – 2,400

CAUTION:

Lock-up clutch is engaged when vehicle speed is approximately 18 km/h (11 MPH) to 90 km/h (56 MPH).

Stall Speed

Stall speed	2,500 – 3,000 rpm
Line Pressure	INFOID:000000004202032

Engine speed	Line pressure kPa (kg/cm ² , psi)
Eligino opoca	"R" or "D" positions
At idle	750 (7.65, 108.8)
At stall	5,700 (58.14, 826.5)

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^{*1:} Refer to MA-12, "Fluids and Lubricants".

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Solenoid Valves

Name	Resistance (Approx.)	Terminal
Pressure control solenoid valve B (secondary pressure solenoid valve)		3
Pressure control solenoid valve A (line pressure solenoid valve)	$3.0-9.0~\Omega$	2
Torque converter clutch solenoid valve		12
Lock-up select solenoid valve	17.0 – 38.0 Ω	13

CVT Fluid Temperature Sensor

INFOID:0000000004202034

[CVT: RE0F10A]

Name	Condition	CONSULT-III "DATA MONITOR" (Approx.)	Resistance (Approx.)
ATF TEMP SEN	20°C (68°F)	2.0 V	6.5 kΩ
ATT TEMP SEN	80°C (176°F)	1.0 V	0.9 kΩ

Primary Speed Sensor

INFOID:0000000004202035

Name	Condition	Data (Approx.)
Primary speed sensor	When driving ["M1" position, 20 km/h (12 MPH)]	730 Hz

Secondary Speed Sensor

INFOID:0000000004202036

Name	Condition	Data (Approx.)
Secondary speed sensor	When driving ["D" position, 20 km/h (12 MPH)]	480 Hz

Removal and Installation

INFOID:0000000004202037

Bide and the second of the sec	44.4 (0.507:)
Distance between end of converter housing and torque converter	14.4 mm (0.567 in)