

STEERING SYSTEM

ST

SECTION

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PRECAUTIONS

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

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

NDST0035

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER" used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The Supplemental Restraint System consists of a driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.

Information necessary to service the system safely is included in the **RS 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 should be performed by an authorized NISSAN 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 RS Section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. Spiral cable and wiring harnesses (except "SEAT BELT PRE-TENSIONER") covered with yellow insulation either just before the harness connectors or for the complete harness are related to the SRS.

Precautions for Steering System

NDST0002

- Before disassembly, thoroughly clean the outside of the unit.
- Disassembly should be done in a clean work area. It is important to prevent the internal parts from becoming contaminated by dirt or other foreign matter.
- For easier and proper assembly, place disassembled parts in order on a parts rack.
- Use nylon cloths or paper towels to clean the parts; common shop rags can leave lint that might interfere with their operation.
- Before inspection or reassembly, carefully clean all parts with a general purpose, non-flammable solvent.
- Before assembly, apply a coat of recommended power steering fluid* to the hydraulic parts. Petroleum jelly may be applied to O-rings and seals. Do not use any grease.
- Replace all gaskets, seals and O-rings. Avoid damaging O-rings, seals and gaskets during installation. Perform functional tests whenever designated.

*: Genuine NISSAN PSF II or equivalent. Refer to MA-11, "Fluids and Lubricants".

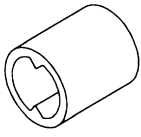
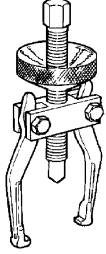
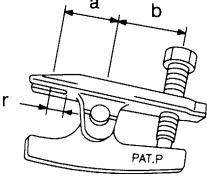
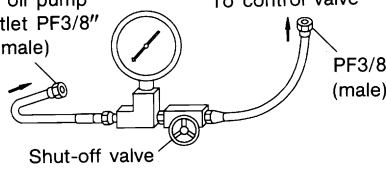
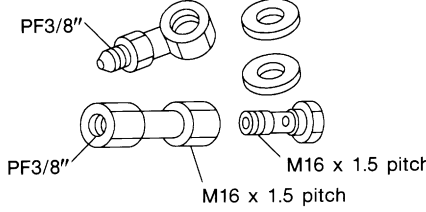
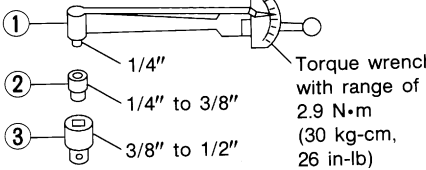
PREPARATION

Special Service Tools

Special Service Tools

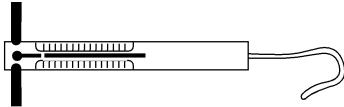
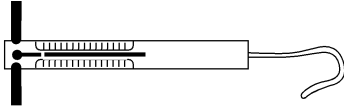

NDST0003

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description		GI
KV48100700 (J26364) Torque adapter		Measuring pinion rotating torque	MA
(J41777) Steering wheel puller		Removing and installing steering wheel	EM
HT72520000 (J25730-B) Ball joint remover		Removing tie-rod outer end and lower ball joint a: 33 mm (1.30 in) b: 50 mm (1.97 in) r: R11.5 mm (0.453 in)	LC
KV48103500 (J26357 and J26357-10) Pressure gauge		Measuring oil pressure	EC
KV48102500 (J33914) Pressure gauge adapter		Measuring oil pressure	FE
ST3127S000 1 GG91030000 (See J25765-A) Torque wrench 2 HT62940000 (—) Socket adapter 3 HT62900000 (—) Socket adapter		Measuring turning torque	AT

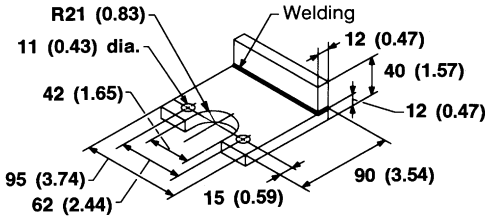
PREPARATION

Special Service Tools (Cont'd)

Tool number (Kent-Moore No.) Tool name	Description	
(J44372) 5-60 Pound pull gauge	 <p>WST052</p>	Measuring steering wheel turning force
(J44183-A) 20-100 Pound pull gauge	 <p>WST052</p>	Measuring rack sliding force
(J45219) Inner tie-rod wrench (34mm)	 <p>LST074</p>	Removing and installing the inner tie rod sockets.

Commercial Service Tool

NDST0004

Tool name	Description	
Oil pump attachment	 <p>NT179</p>	Disassembling and assembling oil pump Unit: mm (in)

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

NVH Troubleshooting Chart

NDST0005S01

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

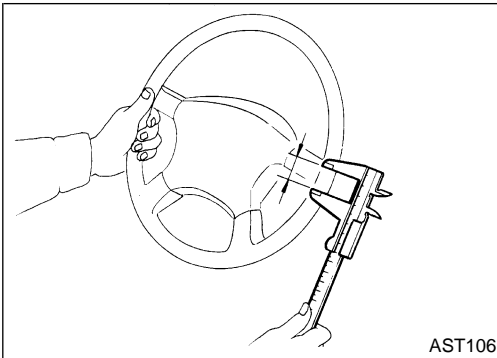
Symptom	STEERING	Possible cause and SUSPECTED PARTS																	Reference page						
		Fluid level	Air in hydraulic system	Tie-rod ball joint swinging force	Tie-rod ball joint rotating torque	Tie-rod ball joint end play	Steering gear fluid leakage	Steering wheel play	Steering gear rack sliding force	Drive belt looseness	Improper steering wheel	Improper installation or looseness or tilt lock lever	Mounting rubber deterioration	Steering column deformation or damage	Improper installation or looseness of steering column	Steering linkage looseness	DRIVE SHAFT	AXLE		SUSPENSION	TIRES	ROAD WHEEL	BRAKES		
Noise	STEERING	Noise	x	x	x	x	x	x	x	x	x						x	x	x	x	x	x	x		ST-7
		Shake										x	x	x			x	x	x	x	x	x	x		ST-7
		Vibration										x	x	x	x		x	x	x	x	x				ST-19
		Shimmy										x	x	x			x	x	x	x	x	x	x		ST-19
		Judder											x				x		x	x	x	x	x		ST-7
																								ST-6	
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																								ST-10	
																								ST-17	
																								Refer to Noise Vibration and Harshness AX-3.	
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																								Refer to Noise Vibration and Harshness BR-5.	

x: Applicable

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ON-VEHICLE SERVICE

Checking Steering Wheel Play



Checking Steering Wheel Play

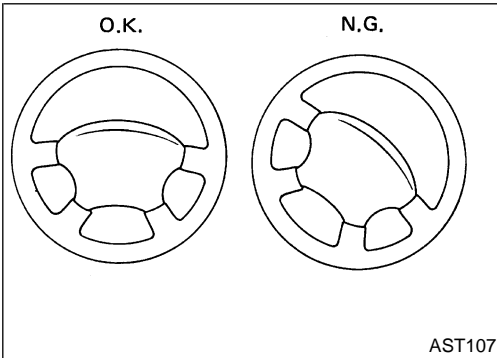
NDST0006

- With wheels in a straight-ahead position, check steering wheel play.

Steering wheel play:

35 mm (1.38 in) or less

- If it is not within specification, check the following for loose or worn components.
 - a) Steering gear assembly
 - b) Steering column
 - c) Front suspension and axle



Checking Neutral Position on Steering Wheel

NDST0007

PRE-CHECKING

NDST0007S01

- Make sure that wheel alignment is correct.

Wheel alignment:

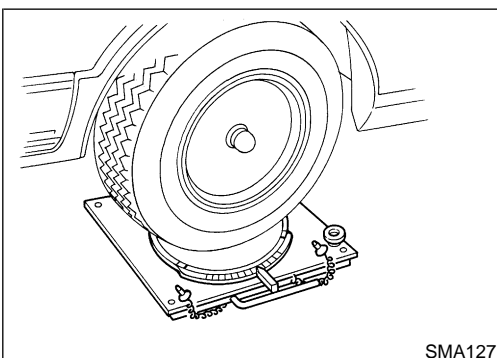
Refer to SU-13, "Wheel Alignment".

- Verify that the steering gear is centered before removing the steering wheel.

CHECKING

NDST0007S02

1. Check that the steering wheel is in the neutral position when driving straight ahead.
2. If it is not in the neutral position, remove the steering wheel and reinstall it correctly.
3. If the neutral position is still not correct:
 - a. Loosen tie-rod lock nuts.
 - b. Move tie-rods in the opposite directions the same amount on both left and right sides. This will compensate for error in the neutral position.



Checking Front Wheel Turning Angle

NDST0008

1. Rotate steering wheel all the way right and left; measure turning angle.

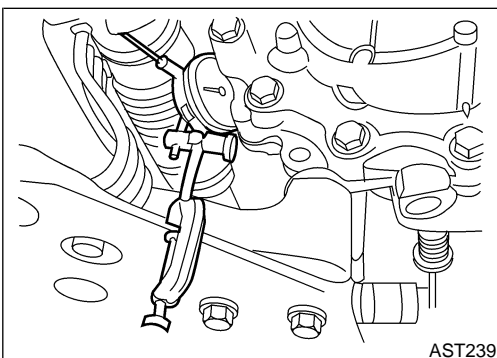
Turning angle of full turns:

Refer to SU-13, "Wheel Alignment".

2. If it is not within specification, check rack stroke.

Rack stroke "L":

Refer to "Steering Gear and Linkage", ST-25.



Checking Gear Housing Movement

NDST0009

1. Check the movement of steering gear housing during stationary steering on a dry paved surface.

- Apply a force of 49 N (5 kg, 11 lb) to steering wheel to check the gear housing movement.

Turn off ignition key while checking.

Movement of gear housing:

±2 mm (±0.08 in) or less

2. If movement exceeds the limit, replace mounting insulator after confirming proper installation of gear housing mounting brackets.

Checking and Adjusting Drive Belts

Refer to **MA-13**, "Checking Drive Belts".

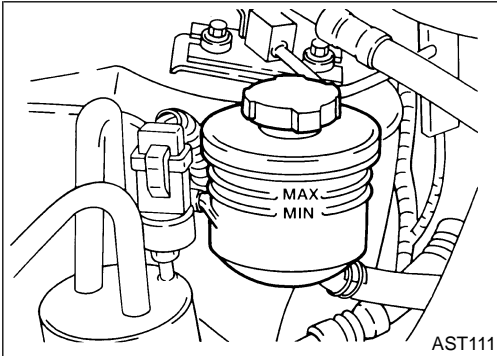
NDST0010

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AST111

Checking Fluid Level

NDST0011

Check fluid level with engine OFF.

Check fluid level by referring to the scale on reservoir tank.

Fluid level should be checked at fluid temperatures of 0 to 30°C (32 to 86°F).

CAUTION:

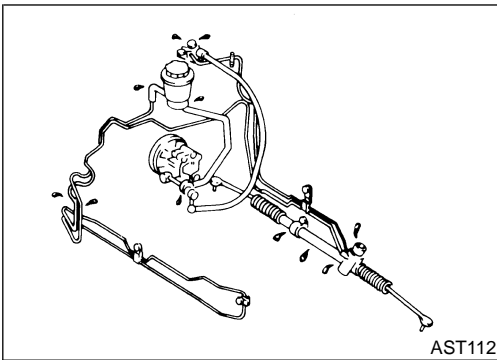
- Do not overfill.
- Recommended fluid is Type F Automatic Transmission Fluid.

EC

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AST112

Checking Fluid Leakage

NDST0012

Check the lines for improper attachment, leaks, cracks, damage, chafing and deterioration.

1. Run engine at idle speed or 1,000 rpm.

- Make sure fluid temperature in reservoir tank rises to 60 to 80°C (140 to 176°F).

2. Turn steering wheel right-to-left several times.

3. Hold steering wheel at each "lock" position for five seconds and carefully check for fluid leakage.

CAUTION:

Do not hold the steering wheel in a locked position for more than 15 seconds.

4. If fluid leakage from any line is noticed, loosen flare nut and then retighten.

- Do not overtighten flare nut as this can damage O-ring, washer and threads.

5. Check rack boots for accumulation of power steering fluid.

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Bleeding Hydraulic System

NDST0013

1. Raise front end of vehicle until wheels are clear of the ground.

2. Add fluid into reservoir tank to specified level. Then quickly turn steering wheel fully to right and left and lightly touch steering stoppers.

Repeat steering wheel operation until fluid level no longer decreases.

3. Start engine.

Repeat step 2.

- Incomplete air bleeding will cause the following to occur:

a) Air bubbles in reservoir tank

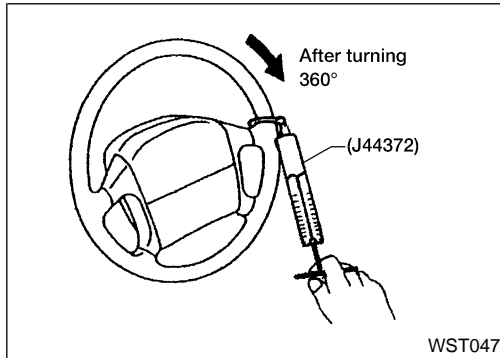
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ON-VEHICLE SERVICE

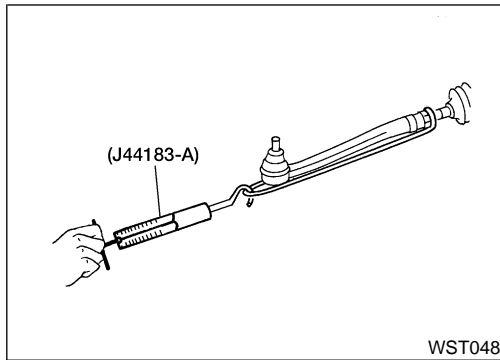
Bleeding Hydraulic System (Cont'd)

- b) Clicking noise in power steering pump
 - c) Excessive buzzing in power steering pump
- When this happens, bleed air again.

Fluid noise may occur in the valve or power steering pump. This is common when the vehicle is stationary or while turning the steering wheel slowly. This does not affect the performance or durability of the system.



WST047



WST048

Checking Steering Wheel Turning Force

NDST0014

1. Park vehicle on a level, dry surface and set parking brake.
2. Run engine at idle speed or 1,000 rpm.
3. Bring power steering fluid up to operating temperature.
 - **Make sure fluid temperature in reservoir tank rises to 60 to 80°C (140 to 176°F).**
 - **Tires need to be inflated to normal pressure.**
4. Check steering wheel turning force when steering wheel has been turned 360° from the neutral position.

Steering wheel turning force:

39 N (4 kg, 9 lb) or less

5. If steering wheel turning force is out of specification, check rack sliding force.
 - a. Disconnect steering column lower joint and knuckle arms from the gear.
 - b. Start and run engine at idle to make sure steering fluid has reached normal operating temperature.
 - c. Pull tie-rod slowly to move it from neutral position to ± 11.5 mm (± 0.453 in) at speed of 3.5 mm (0.138 in)/s. Check that rack sliding force is within specification.

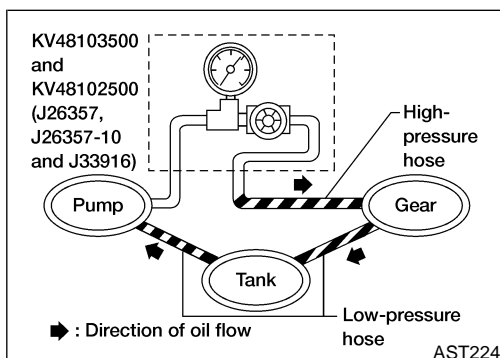
Average rack sliding force:

108 - 284 N (11 - 29 kg, 24 - 64 lb)

Maximum rack sliding force:

324 N (33 kg, 73 lb)

6. If rack sliding force is not within specification, refer to "Checking Hydraulic System", ST-8.
7. If rack sliding force is OK, inspect steering column. Refer to "Inspection", ST-15.



AST224

Checking Hydraulic System

NDST0015

Before starting, check belt tension, driving pulley and tire pressure.

1. Set Tool. Open shut-off valve. Then bleed air. Refer to "Bleeding Hydraulic System", ST-7.
2. Run engine at idle speed or 1,000 rpm.
 - **Make sure fluid temperature in reservoir tank rises to 60 to 80°C (140 to 176°F).**

WARNING:

Warm up engine with shut-off valve fully opened. If engine is started with shut-off valve closed, fluid pressure in power steering pump increases to maximum. This will raise fluid temperature abnormally.

GI

3. Check pressure with steering wheel fully turned to left and right positions with engine idling at 1,000 rpm.

MA

CAUTION:

Do not hold the steering wheel in a locked position for more than 15 seconds.

EM

Power steering pump maximum pressure:

7,355 - 8,336 kPa

(75 - 85 kg/cm², 1,067 - 1,209 psi)

LC

- If pressure reaches maximum operating pressure, system is OK.
 - If pressure increases above maximum operating pressure, check power steering pump flow control valve. Refer to "Components", ST-21.
4. If power steering pressure is below the maximum operating pressure, slowly close shut-off valve and check pressure again.

EC

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CAUTION:

Do not close shut-off valve for more than 15 seconds.

AX

- If pressure increases to maximum operating pressure, gear is damaged. Refer to "Removal and Installation", ST-17.
 - If pressure remains below maximum operating pressure, pump is damaged. Refer to "Disassembly", ST-22.
5. After checking hydraulic system, remove Tool and add fluid as necessary. Then completely bleed air out of system. Refer to "Bleeding Hydraulic System", ST-7.

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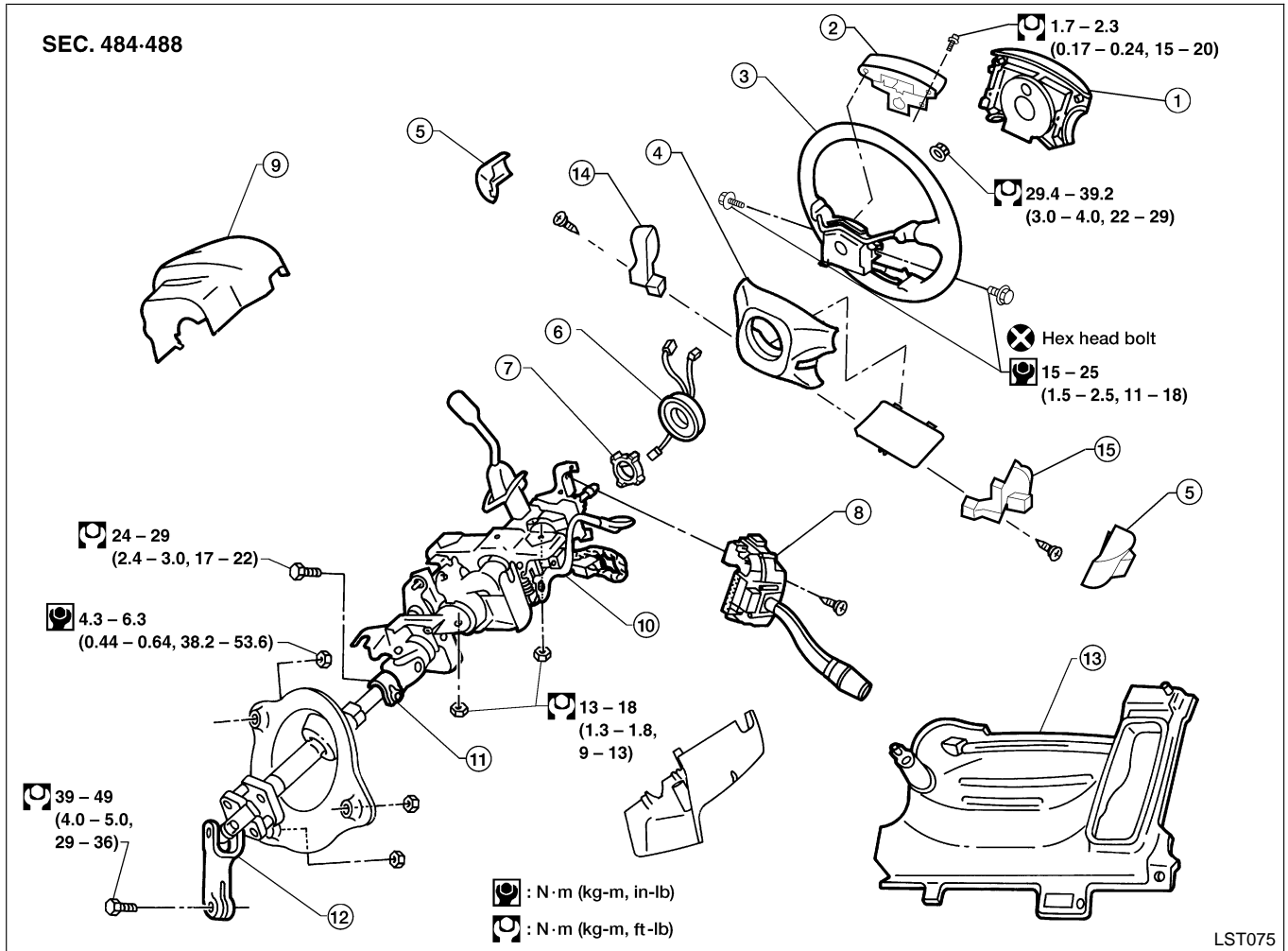
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STEERING WHEEL AND STEERING COLUMN

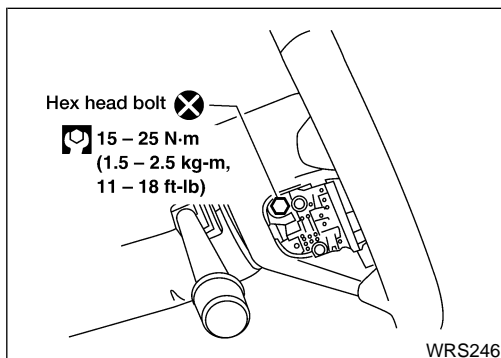
Components

Components

NDST0016



- | | | |
|--------------------------|------------------------------|---|
| 1. Driver air bag module | 6. Spiral cable | 11. Upper joint |
| 2. Dynamic damper | 7. Turn signal cancel cam | 12. Lower joint |
| 3. Steering wheel | 8. Combination switch | 13. Driver lower reinforcement |
| 4. Steering wheel cover | 9. Column cover | 14. ASCD steering switch |
| 5. Side cover | 10. Steering column assembly | 15. Steering wheel audio control switch |



Removal and Installation STEERING WHEEL

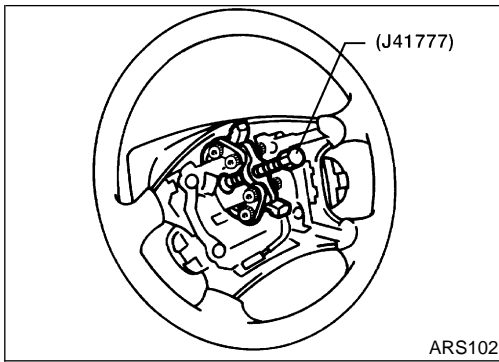
NDST0017

NDST0017S01

1. Remove driver air bag module and spiral cable. Refer to **RS-19**, "Driver Air Bag Module and Spiral Cable".
2. Disconnect horn and main switch connectors.
3. Remove steering wheel nut.

STEERING WHEEL AND STEERING COLUMN

Removal and Installation (Cont'd)



4. Remove steering wheel with puller.
 - For installation, refer to **RS-21**, "Driver Air Bag Module and Spiral Cable".

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TURN SIGNAL CANCEL CAM

NDST0017S02

Removal

NDST0017S0201

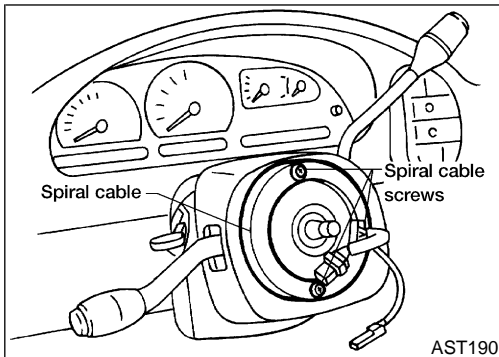
1. Remove the steering wheel. Refer to "STEERING WHEEL", ST-10.
2. Disconnect air bag harness and main harness connectors.

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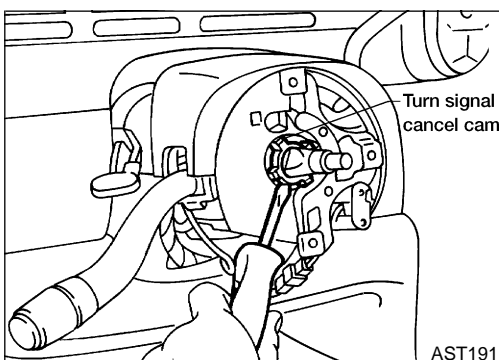
3. Remove three screws securing the spiral cable, then remove the spiral cable.

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4. Remove the turn signal cancel cam from the steering column shaft by prying up with a screwdriver.

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Installation

NDST0017S0202

1. Install the turn signal cancel cam with the flat surface up.
2. Align spiral cable correctly when installing steering wheel. Refer to **RS-21**, "Driver Air Bag Module and Spiral Cable".
3. Install the steering wheel. Refer to "STEERING WHEEL", ST-10.

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STEERING WHEEL AND STEERING COLUMN

Removal and Installation (Cont'd)

STEERING COLUMN

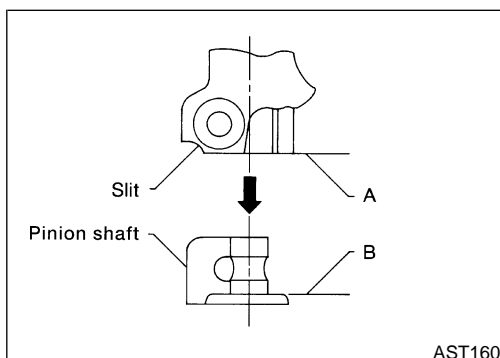
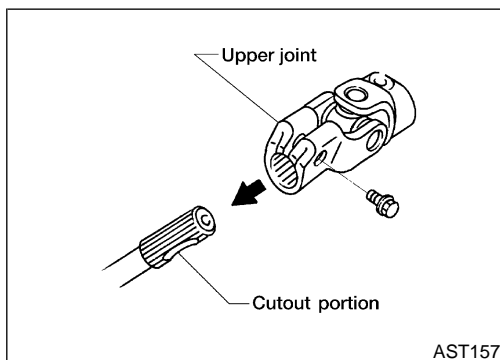
NDST0017S03

Removal

NDST0017S0301

CAUTION:

- The rotation of the spiral cable (SRS "AIR BAG" component part) is limited. If the steering gear must be removed, set the front wheels in the straight-ahead direction. Do not rotate the steering column while the steering gear is removed.
 - Remove the steering wheel before removing the steering lower joint to avoid damaging the SRS spiral cable. Refer to "STEERING WHEEL", ST-10.
1. Remove driver air bag module and spiral cable. Refer to **RS-19**, "Driver Air Bag Module and Spiral Cable".
 2. Remove driver lower finisher and reinforcement.
 3. Remove position indicator wire.
 4. Remove side ventilator duct on driver side.
 5. Remove shift control cable.
 6. Disconnect electrical connectors from ignition switch, shift lock solenoid and combination switch.
 7. Remove two screws securing combination switch and remove combination switch.
 8. Remove four nuts attaching steering column and remove steering column.



Installation

NDST0017S0302

- Align spiral cable correctly when installing steering wheel. Refer to **RS-21**, "Driver Air Bag Module and Spiral Cable".
 - When installing steering column, finger tighten all lower bracket and clamp retaining bolts; then tighten them securely. Do not apply undue stress to steering column.
 - When attaching upper joint, be sure tightening bolt faces cut-out portion.
- When installing intermediate shaft, align slit of lower joint with pinion shaft. Insert joint until surface A contacts surface B.

CAUTION:

After installation, turn steering wheel to make sure it moves smoothly. Ensure that the number of turns from the straight forward position to left and right locks are the same. Be sure that the steering wheel is in a neutral position when driving straight ahead.

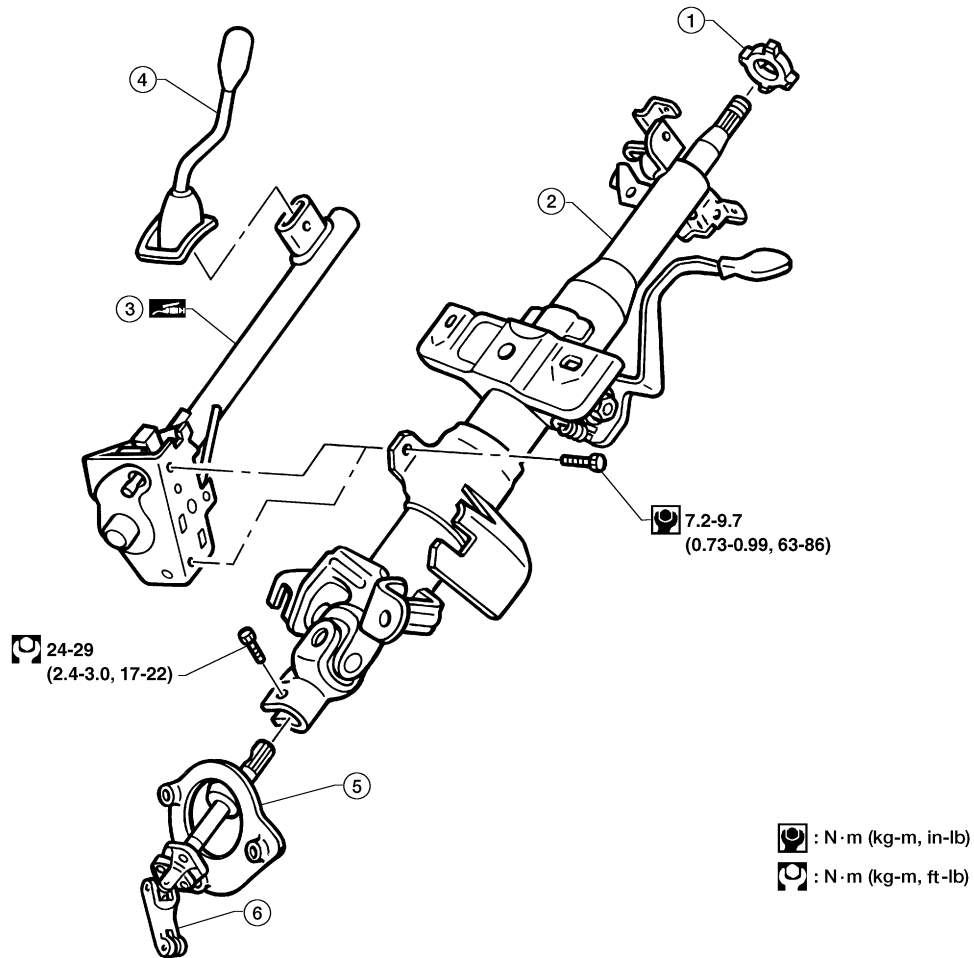
STEERING WHEEL AND STEERING COLUMN

Disassembly and Assembly

Disassembly and Assembly

NDST0018

SEC. 484-488



AST218

- | | | |
|-----------------------------|-----------------------|----------------|
| 1. Turn signal cancel cam | 3. Shift control tube | 5. Cover |
| 2. Steering column assembly | 4. Selector lever | 6. Lower joint |

1. When disassembling and assembling, unlock steering lock with key.
2. Remove bolts attaching shift control tube and remove shift control tube.

GI

MA

EM

LC

EC

FE

AT

AX

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BR

ST

RS

BT

HA

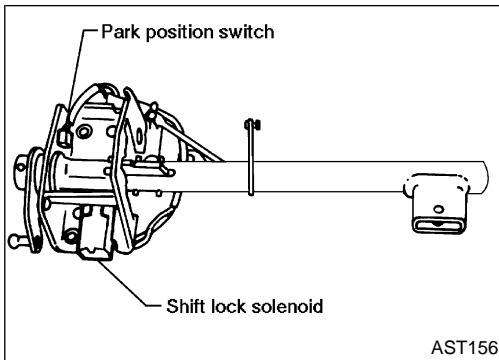
SC

EL

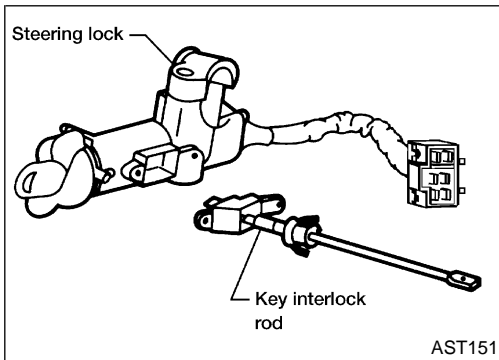
IDX

STEERING WHEEL AND STEERING COLUMN

Disassembly and Assembly (Cont'd)



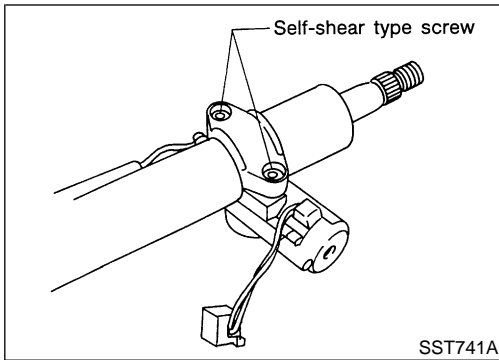
3. Remove four screws securing shift lock solenoid and park position switch.



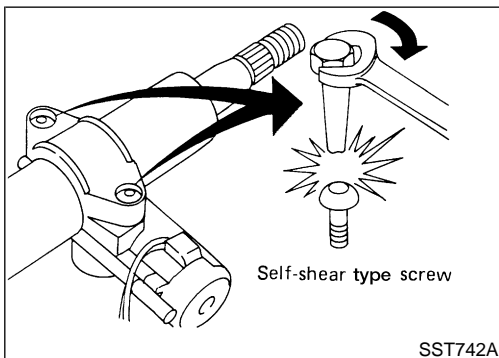
STEERING LOCK

NDST0018S01

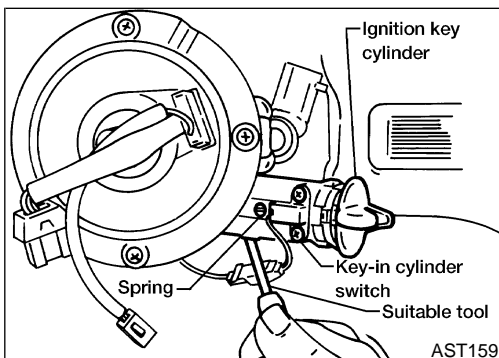
1. Remove key interlock rod from steering lock.



2. Break self-shear type screws with a drill or other appropriate tool and remove steering lock.



3. Install self-shear type screws, then tighten until heads break off.



IGNITION KEY CYLINDER

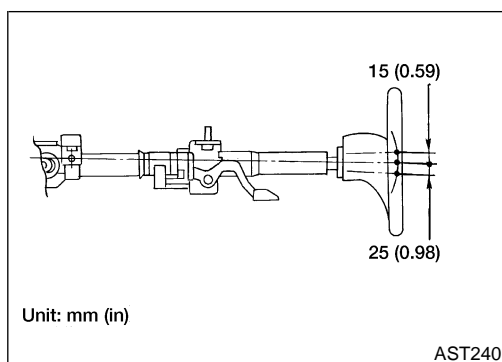
NDST0018S02

CAUTION:
Spring will pop out of steering lock when ignition key cylinder is removed.

1. Remove two screws securing key-in cylinder switch.
2. Remove shift lock rod.
3. Turn ignition key cylinder to the ON position and depress tab using a suitable tool.
4. Remove ignition key cylinder.

STEERING WHEEL AND STEERING COLUMN

Disassembly and Assembly (Cont'd)



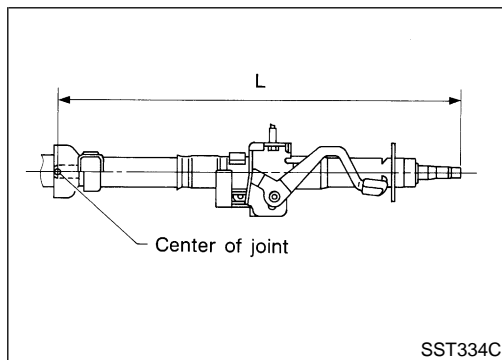
TILT MECHANISM

NDST0018S03

1. Remove two springs.

CAUTION:
Springs are under tension.

2. Remove adjusting bolt.
 - Adjusting bolt has left-hand threads.
3. Remove tilt lever and steering column mounting bracket.
4. After installing steering column, check tilt mechanism operation.



Inspection

NDST0019

- When steering wheel does not turn smoothly, check the steering column as follows and replace damaged parts.
 - a) Check column bearings for damage or unevenness. Lubricate with recommended multi-purpose grease or replace steering column as an assembly, if necessary.
 - b) Check jacket tube for deformation or breakage.
- When the vehicle is involved in a light collision, check column length "L". If it is not within specifications, replace steering column as an assembly.

Column length "L":

505.5 - 507.1 mm (19.90 - 19.96 in)

GI

MA

EM

LC

EC

FE

AT

AX

SU

BR

ST

RS

BT

HA

SC

EL

IDX

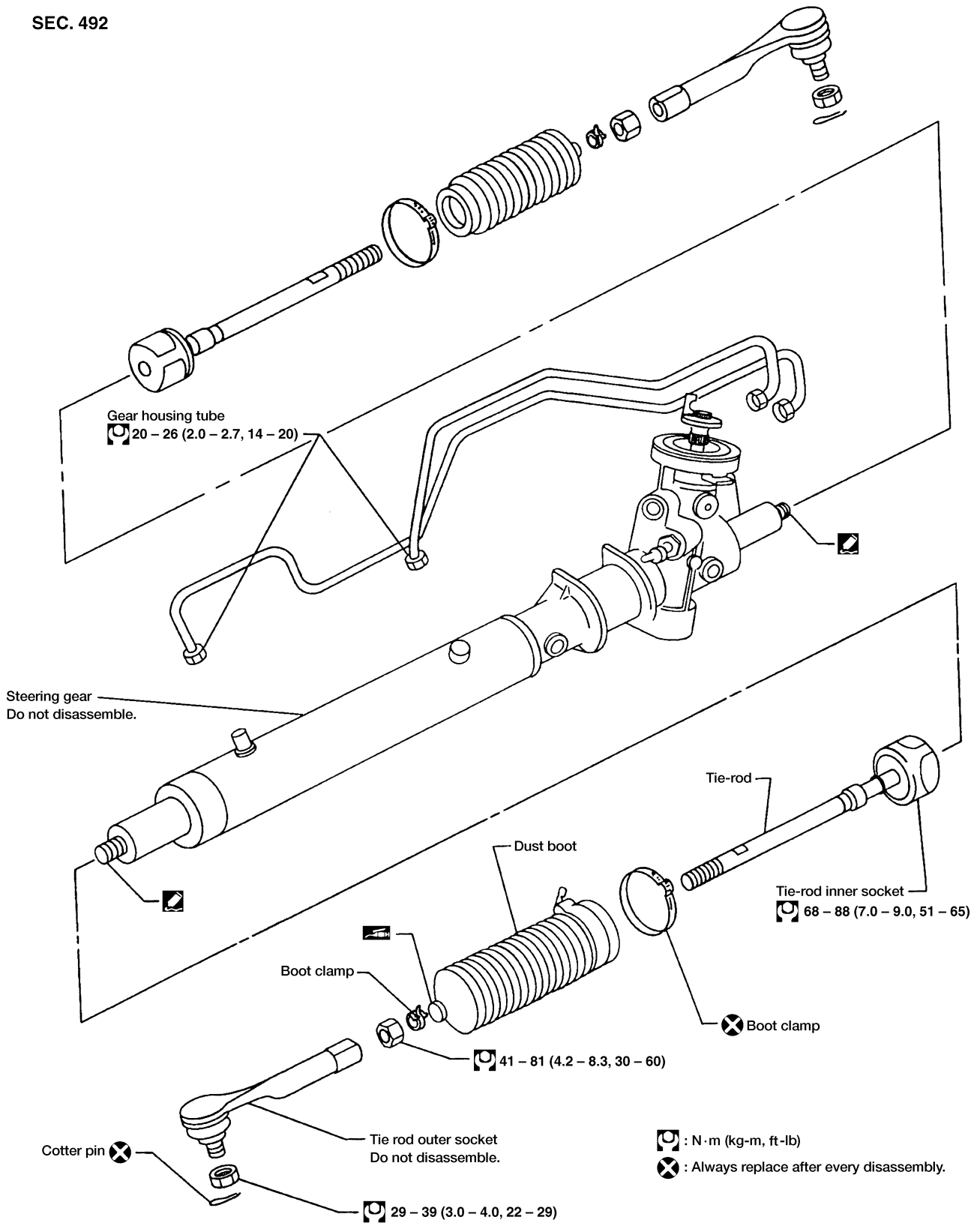
POWER STEERING GEAR AND LINKAGE

Components

Components

NDST0020

SEC. 492

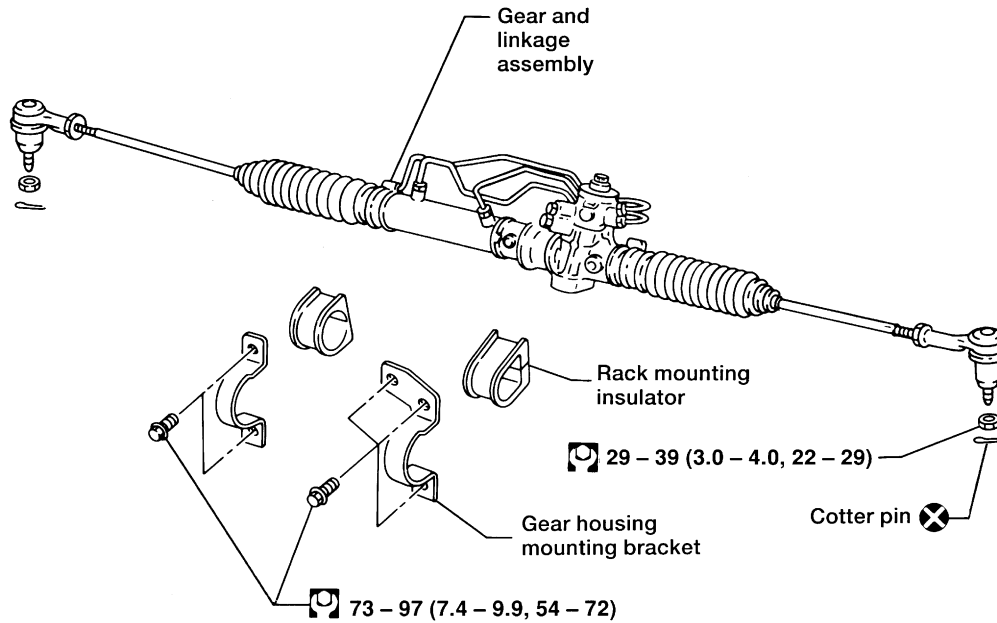


AST219

Removal and Installation

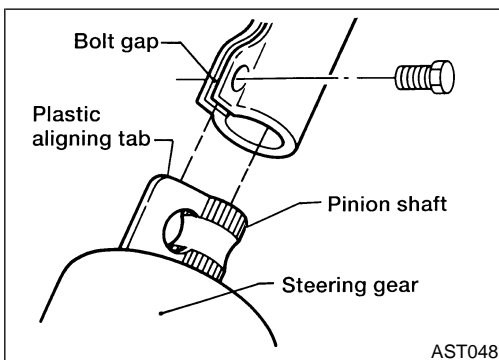
NDST0021

SEC. 492



: N·m (kg-m, ft-lb)

AST182

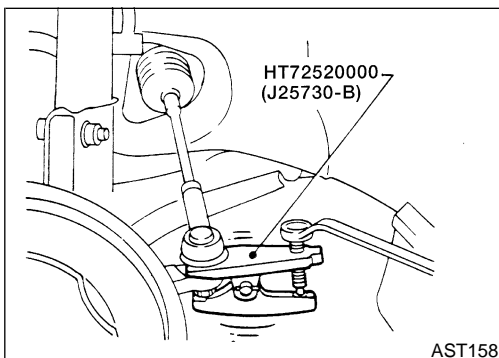


AST048

CAUTION:

The rotation of the spiral cable (SRS "AIR BAG" component part) is limited. If the steering gear must be removed, set the front wheels in the straight-ahead direction. Do not rotate the steering column while the steering gear is removed.

- Before removing lower joint from gear, set gear in neutral (wheels in straight-ahead position).
- To install, set left and right dust boots to equal deflection. Raise steering gear and linkage assembly so plastic aligning tab on pinion shaft enters bolt gap on lower joint assembly. **Service parts may not have plastic aligning tab.**
- Detach tie-rod outer sockets from knuckle arms with Tool.

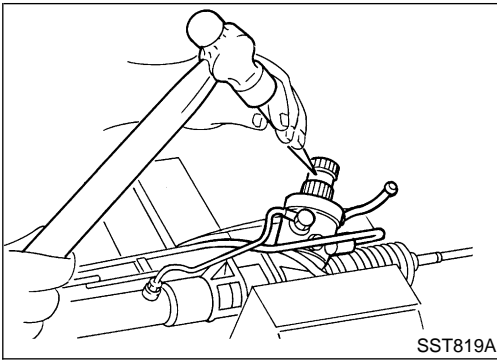


AST158

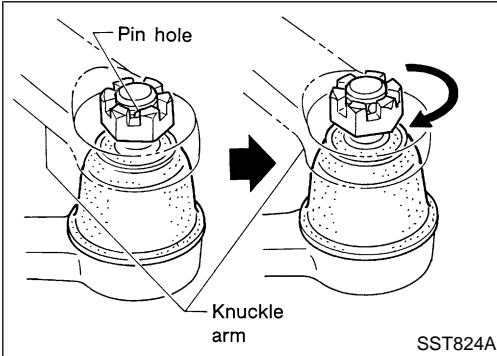
GI
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POWER STEERING GEAR AND LINKAGE

Removal and Installation (Cont'd)



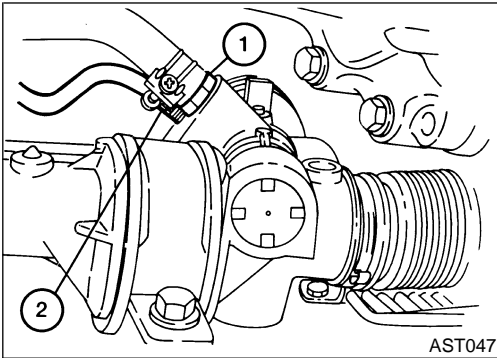
- After removing steering gear from vehicle, mark pinion shaft and pinion housing to record neutral position.
- To install, set left and right dust boots to equal deflection. Align matching marks on pinion shaft and pinion housing.



- Initially tighten nut on tie-rod outer socket and knuckle arm to 29 to 39 N·m (3 to 4 kg-m, 22 to 29 ft-lb). Then tighten further to align nut groove with first pin hole so that cotter pin can be installed.

CAUTION:

Tightening torque must not exceed 49 N·m (5 kg-m, 36 ft-lb).



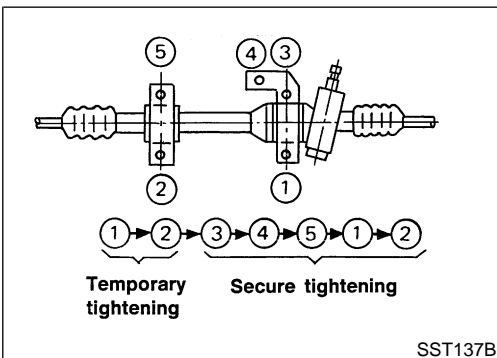
- Install lines.
- The O-ring in the low-pressure line 1 is larger than that in the high-pressure line 2. Take care to install the proper O-ring.
- Observe specified tightening torque when tightening high-pressure and low-pressure line flare nuts. Excessive tightening can damage threads or O-rings.

Low-pressure side "1":

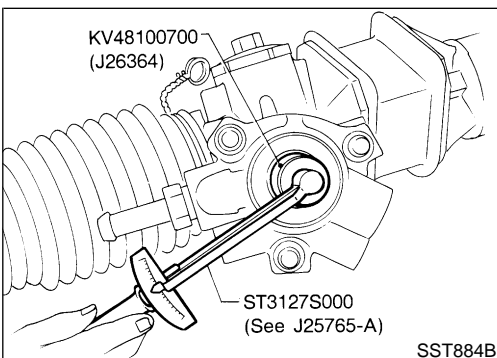
: 27 - 39 N·m (2.8 - 4.0 kg-m, 20 - 29 ft-lb)

High-pressure side "2":

: 15 - 25 N·m (1.5 - 2.5 kg-m, 11 - 18 ft-lb)



- Tighten gear housing mounting bracket bolts in the order shown.



Disassembly

1. Prior to disassembling, measure pinion rotating torque.

NDST0022

Within ±100° from the neutral position:

Average rotating torque

0.5 - 1.4 N·m (5 - 14 kg-cm, 4.3 - 12.2 in-lb)

Maximum torque deviation

0.4 N·m (4 kg-cm, 3.5 in-lb)

Except for above measuring range:

Maximum rotating torque

1.9 N·m (19 kg-cm, 16 in-lb)

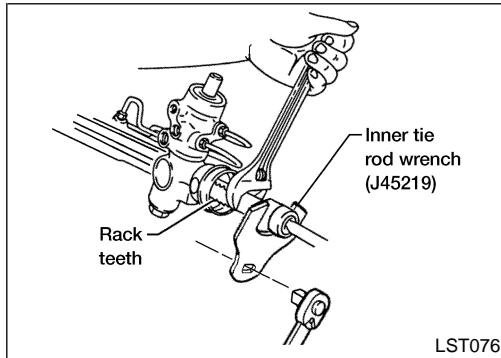
POWER STEERING GEAR AND LINKAGE

Disassembly (Cont'd)

Maximum force deviation

0.6 N-m (6 kg-cm, 5.2 in-lb)

- If pinion rotating torque is not within specifications, replace steering gear assembly. GI
- Before measuring, disconnect gear housing tube and drain fluid. MA
- Use soft jaws when holding steering gear housing. Handle gear housing carefully, as it is made of aluminum. Do not grip cylinder in a vise. EM



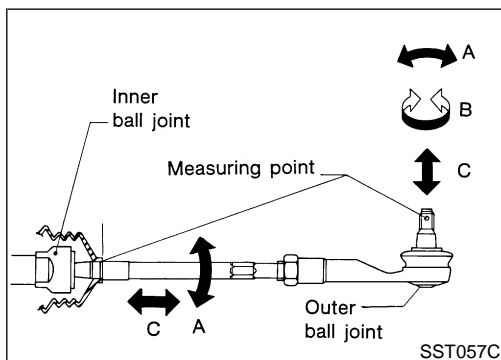
2. Remove tie-rod outer sockets and boots. LC
3. Remove tie-rod inner sockets, using inner tie-rod wrench (J45219). EC

Inspection

Thoroughly clean all parts in cleaning solvent or Type F Automatic Transmission Fluid. Blow dry with compressed air, if available. SU

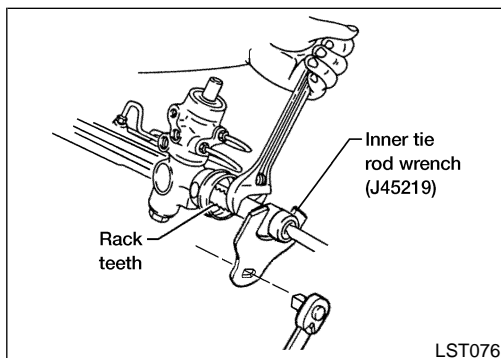
BOOT

- Check condition of boots. If cracked excessively, replace. BR
- Check boots for accumulation of power steering fluid. ST



TIE-ROD OUTER AND INNER SOCKETS

- Check outer and inner ball joints for swing force "A" and axial end play "C". Refer to "Steering Gear and Linkage", ST-25. BT
- Check outer ball joint for rotating torque "B". Refer to "Steering Gear and Linkage", ST-25. HA
- Check condition of dust cover. If excessively cracked, replace outer tie-rod. SC

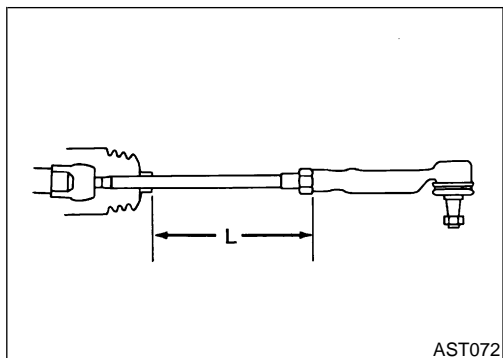


Assembly

1. Install tie-rod inner sockets, using inner tie-rod wrench (J45219). Install dust boots and outer sockets. IDX
- Apply locking sealant to inner socket threads.

POWER STEERING GEAR AND LINKAGE

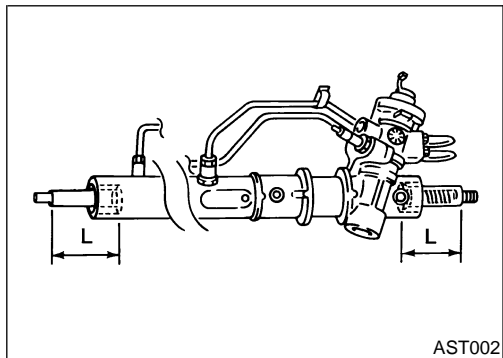
Assembly (Cont'd)



2. Tighten outer socket lock nut.

Tie-rod length "L":

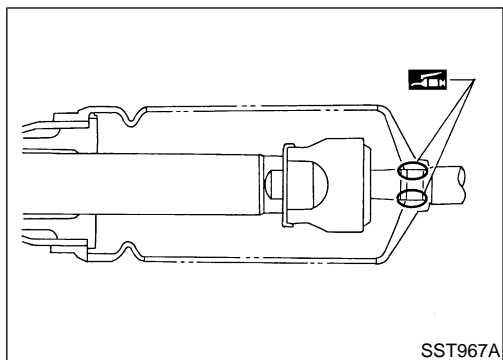
Refer to "Steering Gear and Linkage", ST-25.



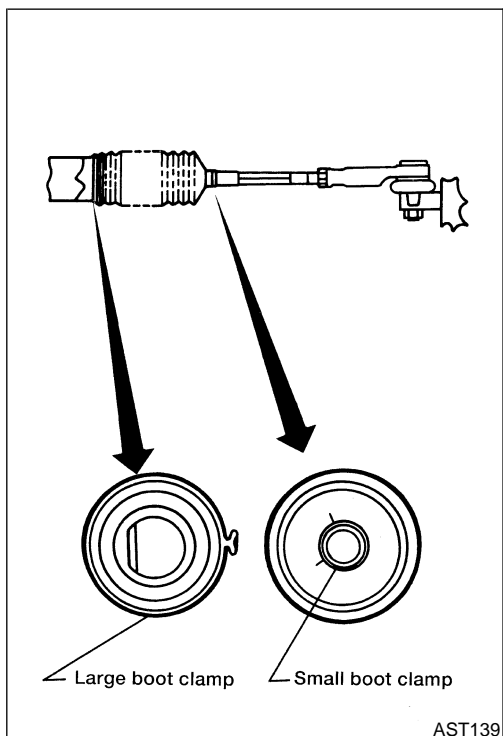
3. Measure rack stroke.

Rack stroke "L":

Refer to "Steering Gear and Linkage", ST-25.



4. Before installing boot, coat the contact surfaces between boot and tie-rod with grease.



5. Install boot clamps.

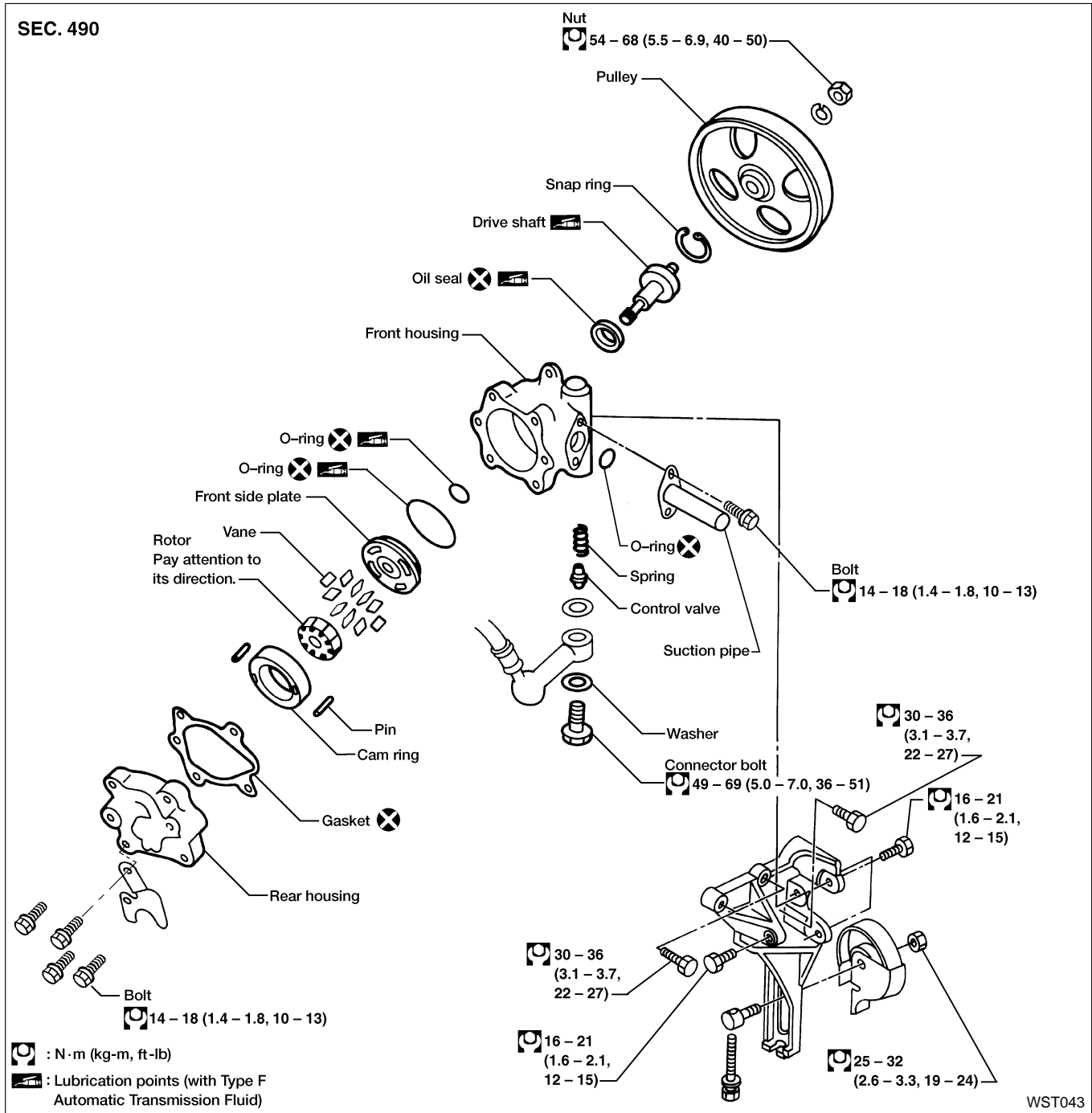
- Install large boot clamp using suitable tool and crimp securely.
- Install small boot clamp as shown.

POWER STEERING OIL PUMP

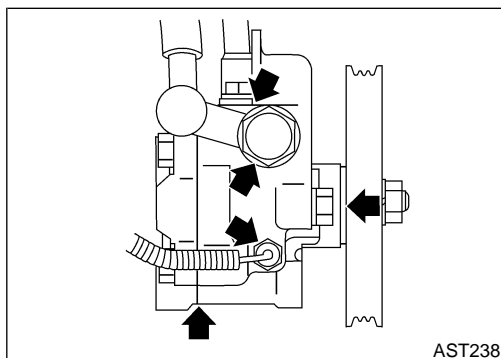
Components

Components

NDST0025



GI
MA
EM
LC
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HA
SC
EL



Pre-disassembly Inspection

NDST0026

Disassemble the power steering pump only if the following items are found.

- Fluid leak from any point shown in the figure.
- Deformed or damaged pulley.

IDX

POWER STEERING OIL PUMP

Inspection

Inspection

PULLEY AND PULLEY SHAFT

NDST0027

NDST0027S01

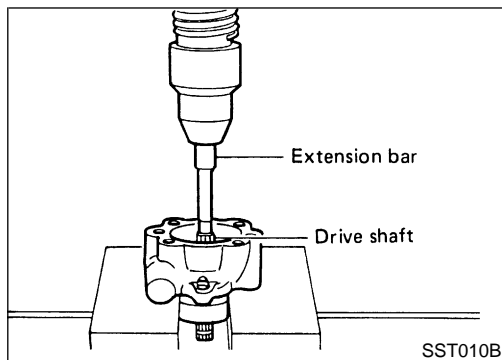
- If pulley is cracked or deformed, replace it.
- If fluid leak is found around the pulley shaft oil seal, replace the seal.

Disassembly

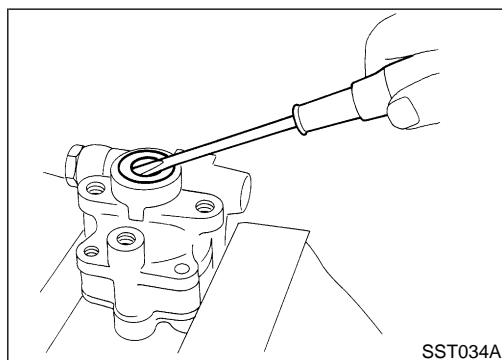
NDST0028

CAUTION:

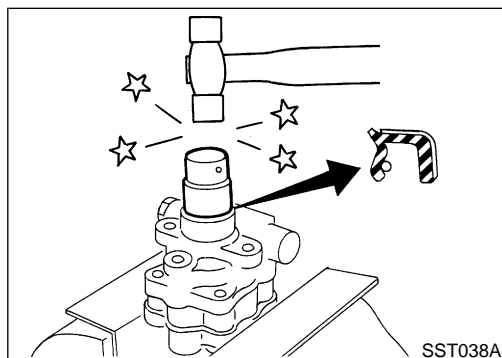
- Parts which can be serviced are strictly limited.
- Disassemble in as clean a place as possible.
- Clean your hands before disassembly.
- Do not use rags; use nylon cloths or paper towels.
- When disassembling and reassembling, do not let foreign matter enter or contact the parts.



- Remove snap ring, then draw drive shaft out.
- Be careful not to drop drive shaft.



- Remove oil seal.
- Be careful not to damage front housing.



Assembly

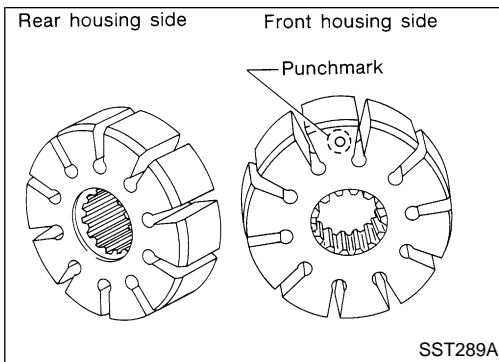
NDST0029

Assemble power steering pump, noting the following instructions.

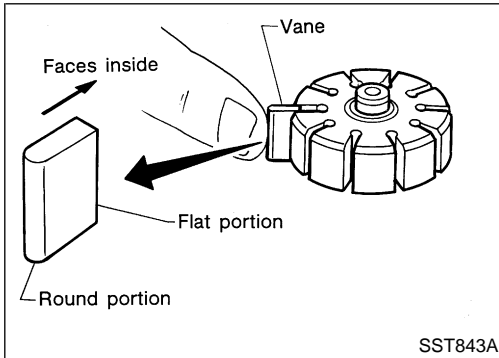
- Make sure O-rings and oil seal are properly installed.
- Always install new O-rings and oil seal.
- Be careful of oil seal direction.
- Coat each part with Type F Automatic Transmission Fluid when assembling.

POWER STEERING OIL PUMP

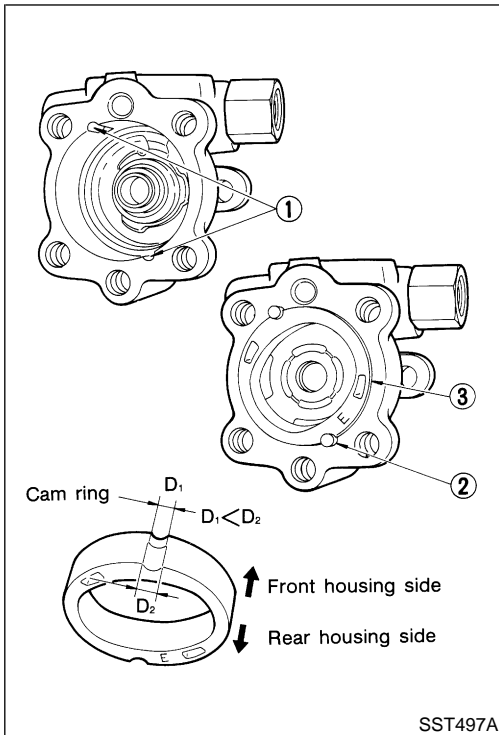
Assembly (Cont'd)



- Pay attention to the direction of rotor.



- When assembling vanes to rotor, rounded surfaces of vanes must face cam ring side.



- Insert pin 2 into pin groove 1 of front housing and front side plate. Then install cam ring 3 as shown at left.

Cam ring:

D_1 is less than D_2

GI

MA

EM

LC

EC

FE

AT

AX

SU

BR

ST

RS

BT

HA

SC

EL

IDX

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

General Specifications

NDST0030

Applied model	All
Steering model	Power steering (TRW)
Steering gear type	PR28T
Turns of steering wheel (Lock to lock)	3.0
Steering column type	Collapsible, tilt

Steering Wheel

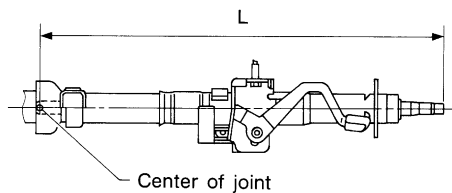
NDST0031
mm (in)

Steering wheel axial play	0 (0)
Steering wheel play	35 (1.38) or less
Movement of gear housing	± 2 (± 0.08) or less

Steering Column

NDST0032
mm (in)

Steering column length "L"	505.5 - 507.1 (19.90 - 19.96)
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SST334C

SERVICE DATA AND SPECIFICATIONS (SDS)

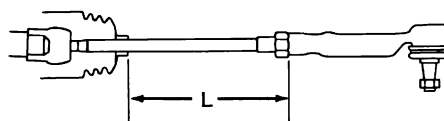
Steering Gear and Linkage

Steering Gear and Linkage

NDST0033

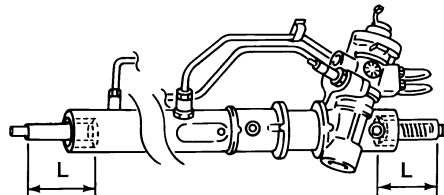
Steering gear type	PR28T	
Tie-rod outer ball joint	Swinging force "A" at cotter pin hole	2.0 - 137.3 N (0.2 - 14 kg, 0.4 - 30.9 lb)
	Rotating torque "B"	0.15 - 6.22 N·m (1.5 - 63.4 kg-cm, 1.3 - 55.0 in-lb)
Tie-rod inner ball joint	Swinging force* "A"	0.20 - 215.8 N (0.02 - 22 kg, 0.04 - 48.5 lb)
	Axial end play limit "C"	0.4 mm (0.016 in)
Tie-rod standard length "L"	RH side	182.7 mm (7.19 in)
	LH side	182.7 mm (7.19 in)

*: Measuring point at outside end of boot



AST072

Rack stroke "L"	72 mm (2.83 in)
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AST002

Pinion gear preload without gear oil Within $\pm 100^\circ$ from the neutral position	Average rotating torque	0.5 - 1.4 N·m (5 - 14 kg-cm, 4.3 - 12.2 in-lb)
	Maximum torque deviation	0.4 N·m (4 kg-cm, 3.5 in-lb)
Except above range	Maximum rotating torque	1.9 N·m (19 kg-cm, 16 in-lb)
	Maximum torque deviation	0.6 N·m (6 kg-cm, 5.2 in-lb)

Power Steering

NDST0034

Rack sliding force Under normal operating oil pressure	Range within ± 11.5 mm (± 0.453 in) from the neutral position	108 - 284 N (11 - 29 kg, 24 - 64 lb)
	Except above range	Not more than 324 N (33 kg, 73 lb)
Steering wheel turning force (Measured at one full turn from the neutral position)	39 N (4 kg, 9 lb) or less	
Fluid capacity (Approximate)	1.1 ℓ (1-1/8 US qt, 1 Imp qt)	
Oil pump maximum pressure	7,355 - 8,336 kPa (75 - 85 kg/cm ² , 1,067 - 1,209 psi)	

NOTES