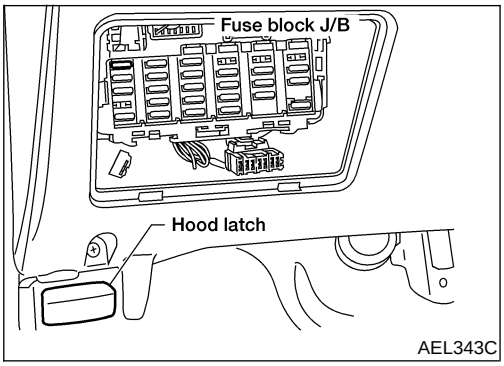
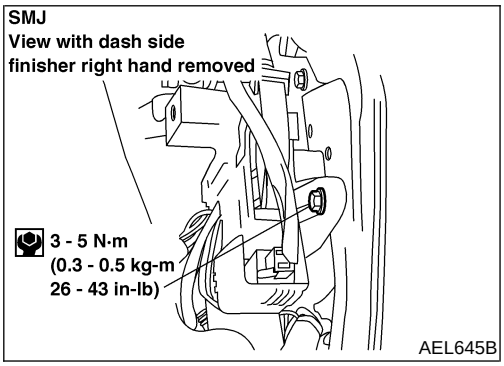




Installation

NEEL0146

To install SMJ, tighten bolts until orange “fulltight” mark appears and then retighten to specified torque as required.

: 3 - 5 N·m (0.3 - 0.5 kg-m, 26 - 43 in-lb)

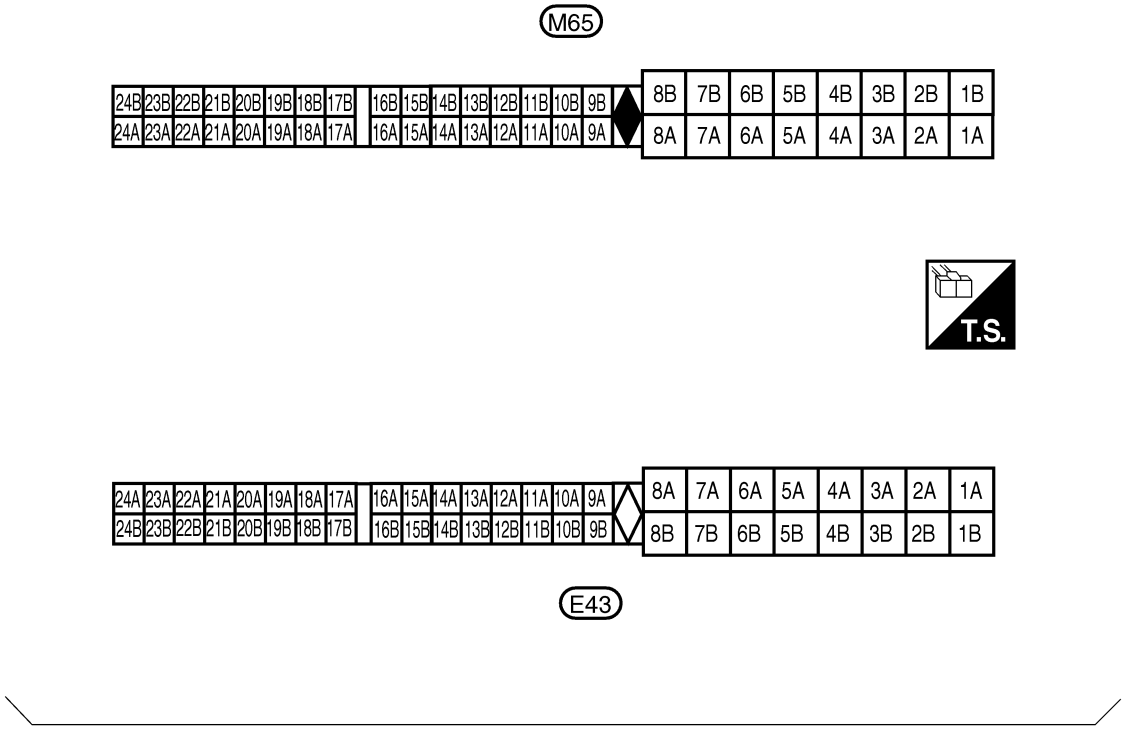
CAUTION:

Do not overtighten bolts, otherwise, they may be damaged.

Terminal Arrangement

NEEL0147

MAIN HARNESS

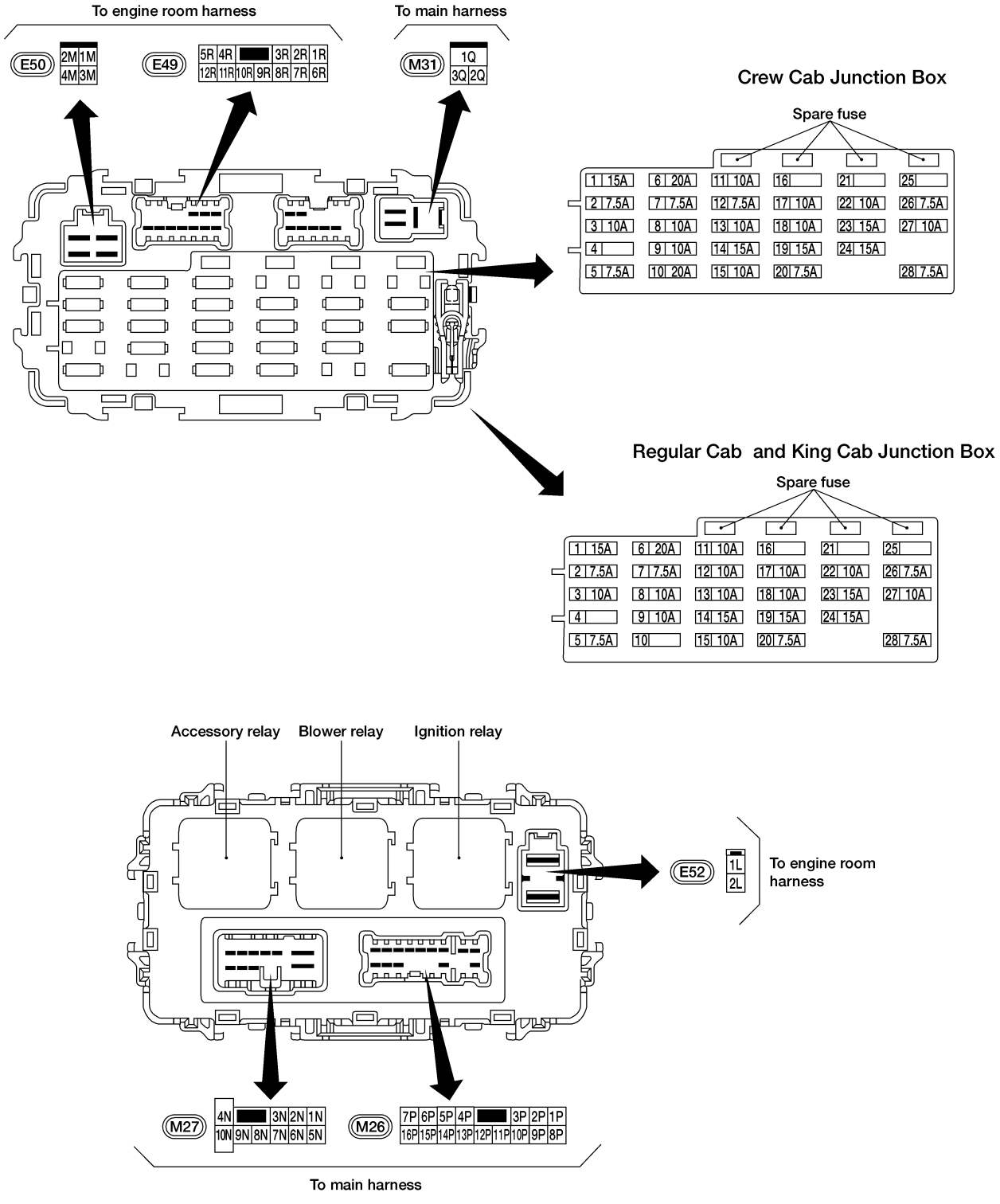


ENGINE ROOM HARNESS

AEL646B

Terminal Arrangement

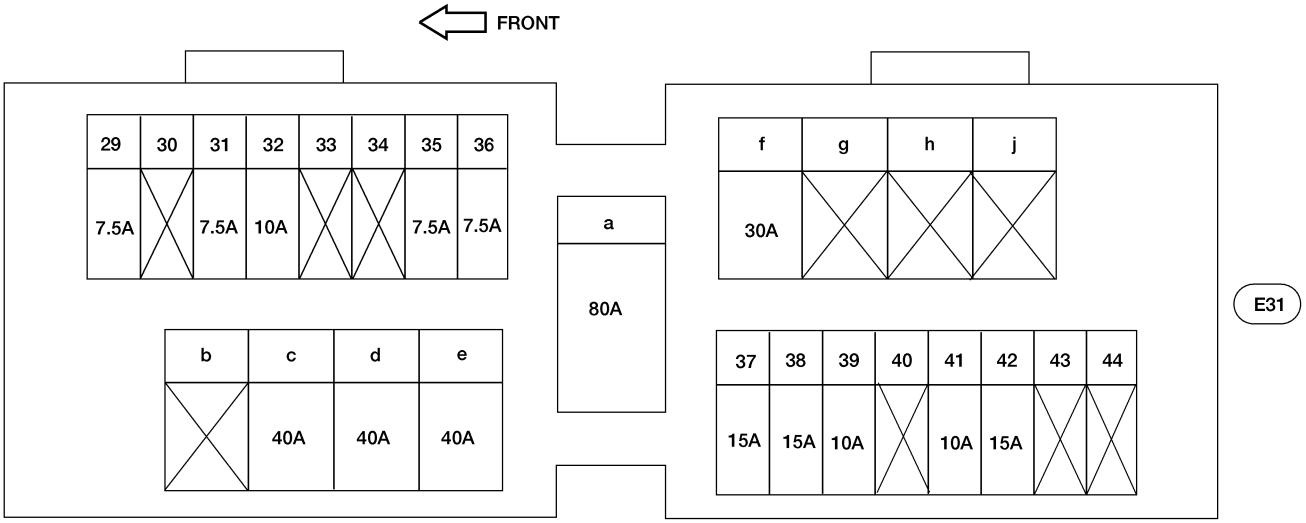
NEEL0148



Terminal Arrangement

NEEL0149

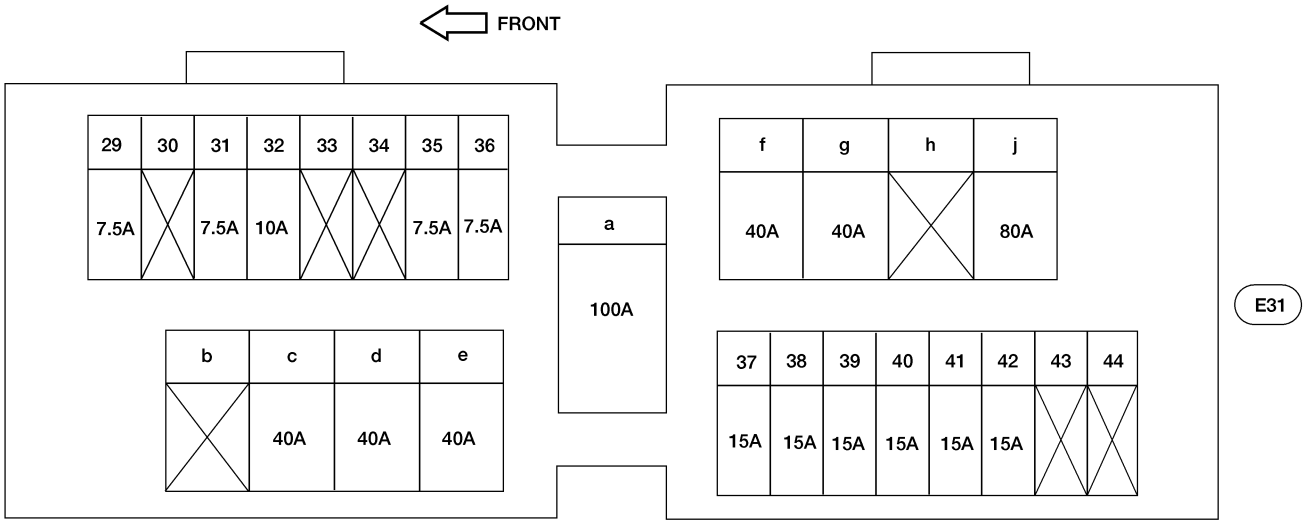
For KA24DE



No 29 - 44: FUSE

a - j: FUSIBLE LINK

For VG33E



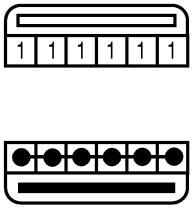
No 29 - 44: FUSE

a - j: FUSIBLE LINK

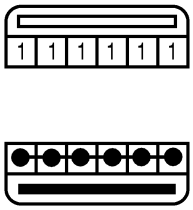
Terminal Arrangement

NEEL0205

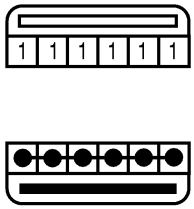
JOINT CONNECTOR - 1 (F31)



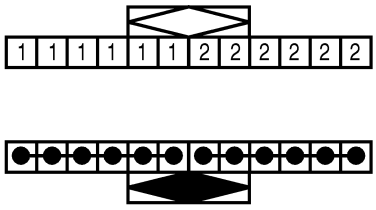
JOINT CONNECTOR - 2 (F32)



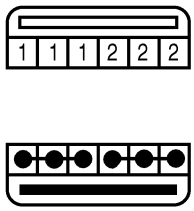
JOINT CONNECTOR - 3 (F33)



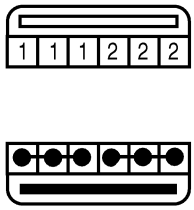
JOINT CONNECTOR - 4 (F34)



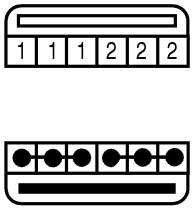
JOINT CONNECTOR - 5 (M84)



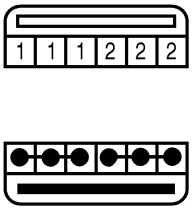
JOINT CONNECTOR - 6 (M85)



JOINT CONNECTOR - 7 (M74)



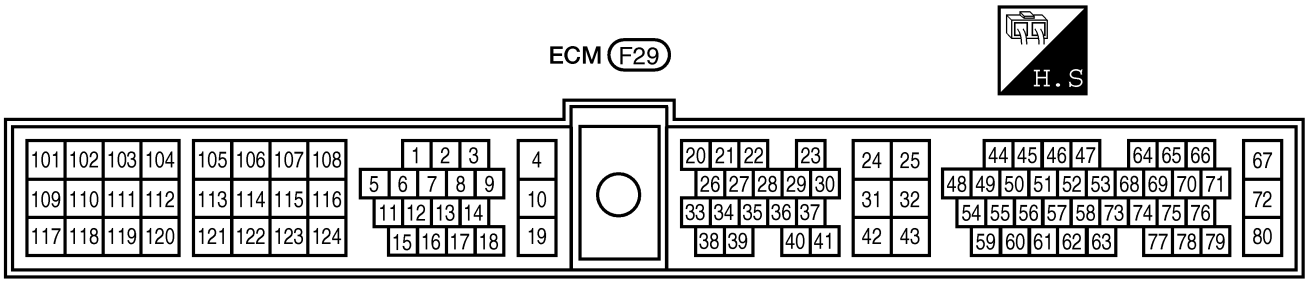
JOINT CONNECTOR - 8 (M73)



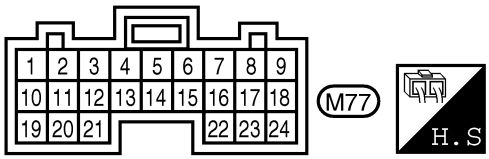
Terminal Arrangement

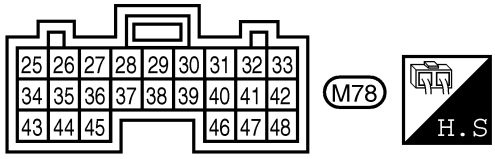
NEEL0150

ECM F29

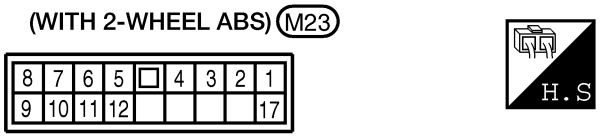


TCM (TRANSMISSION CONTROL MODULE)

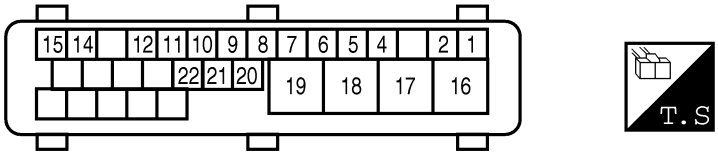




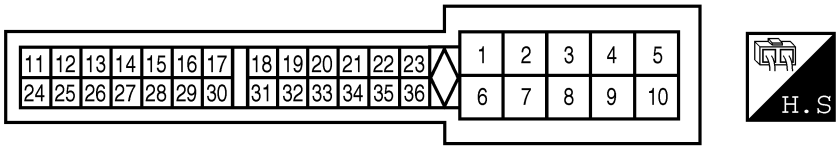
ABS CONTROL UNIT
(WITH 2-WHEEL ABS) M23



ABS ACTUATOR AND ELECTRIC UNIT
(CONTROL UNIT) E39



SMART ENTRANCE CONTROL UNIT M10



AEL528C

NOTES

QUICK REFERENCE CHART: FRONTIER 168 [ ] 2000

EQUIPPED WITH 2.4L, KA ENGINE

ENGINE TUNE-UP DATA

Engine model		KA24DE	
Firing order		1-3-4-2	
Idle speed rpm			
MT		800 ± 50	
A/T (in "N" position)		800 ± 50	
Ignition timing (degree B.T.D.C. at idle speed)		20 ± 2°	
CO% at idle		Idle mixture screw is preset and sealed at factory	
Spark plug		NGK (Single Platinum Tipped)	NGK (Double PlatinumTipped)
Type	Hot	–	PFR4G-11
	Standard	FR5AP-10	PFR5G-11
	Cold	R6AP-10	PFR6G-11
		FR7AP-10	–
Gap (nominal) mm (in)		1.0 (0.039)	1.1 (0.043)

Drive belt deflection (Cold) mm (in)	Used belt		
	Limit	Deflection after adjustment	Deflection of new belt
		10-12	8-10
Generator	17 (0.67)	(0.39-0.47)	(0.31-0.39)
Air conditioner compressor	16 (0.63)	10-12 (0.39-0.47)	8-10 (0.31-0.39)
Power steering oil pump	17 (0.67)	10-13 (0.39 - 0.51)	8 - 10 (0.31 - 0.39)

Drive belt tension N (kg, lb)	Used belt		
	Limit	Tension after adjustment	Tension of new belt
	222.4	355.8-444.8	489.3-578.2
	(22.7, 50)	(36.3-45.4,	(49.9-59.0
Generator		80-100)	110-130)
	200.2	355.8-444.8	489.3-578.2
	(20.4, 45)	(36.3-45.4,	(49.9-59.0,
Air conditioner compressor		80-100)	110-130)
	224.4	355.8-444.8	489.3-578.2
	(22.7, 50)	(36.3-45.4,	(49.9-59.0,
Power steering oil pump		80-100)	110-130)

Applied pressed force N (kg, lb)		98 (10, 22)	
Radiator cap relief pressure kPa (kg/cm², psi)		78 - 98 (0.8 - 1.0, 11 - 14)	
Cooling system leakage testing pressure kPa (kg/cm², psi)		157 (1.6, 23)	
Compression pressure kPa (kg/cm², psi)/rpm	Standard	1226 (12.5, 178)	
	Minimum	1030 (10.5, 149)	
Tightening torque		N·m	kg-m ft-lb
Spark plug		20 - 29	2.0 - 3.0 14 - 22
Oil pan drain plug		29 - 39	3.0 - 4.0 22 - 29

FRONT WHEEL BEARING

Item	Model			
	2WD		4WD	
Tightening torque N • m (kg•m, ft-lb)	34 - 39 (3.5 - 4.0, 25 - 29)		—	
Return angle degree	45° - 60°		—	
Preload (At hub bolt) N (kg, lb)	New seal	9.8 - 28.4 (1.0 - 2.9, 2.2 - 6.4)	Wheel bearing Tightening torque N • m (kg•m, ft-lb)	78 - 98 (8-10, 58 - 72)
			Retightening torque after loosening wheel bearing lock nut N•m (kg•m, ft-lb)	0.5 - 1.5 (0.05 - 0.15, 0.4 - 1.1)
			Axial end play mm (in)	0 (0)
	Used seal	9.8 - 23.5 (1.0 - 2.4, 2.2 - 5.3)	Start force at wheel hub bolt N • m (kg, lb)	A
			Turning angle degree	15° - 30°
			Starting force at wheel hub bolt N • m (kg, lb)	B
			Wheel bearing preload at wheel hub bolt B- A N (kg, lb)	7.06 - 20.99 (0.72 - 2.14, 1.59 - 4.72)

CLUTCH PEDAL

Unit: mm (in)

Pedal height	227 - 237 (8.94 - 9.33)
Pedal free play	9-16 (0.35-0.63)

BRAKE

Unit: mm (in)

Disc brake	
Pad minimum thickness	2.0 (0.079)
Rotor repair limit Runout	0.07 (0.0028)
Minimum thickness	24.0 (0.945), CL28VD
Drum brake	
Lining minimum thickness	1.5 (0.059)
Drum repair limit Maximum inner diameter	296.5 (11.67), LT30A
Parking brake	
Number of notches*2	10 - 12

*1 At pulling force: 196 N (20 kg, 44 lb)

FRONT WHEEL ALIGNMENT (Unladen*1)

		2WD	4WD
Camber	Minimum	-0°05' (-0.08°)	0°06' (0.10°)
	Nominal	0°25' (0.42°)	0°36' (0.60°)
	Maximum	0°55' (0.92°)	1°06' (1.10°)
Degree minute (Decimal degree)	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Caster	Minimum	0°06' (0.10°)	1°40' (1.67°)
	Nominal	0°36' (0.60°)	2°10' (2.17°)
	Maximum	1°06' (1.10°)	2°40' (2.67°)
Degree minute (Decimal degree)	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Kingpin inclination	Minimum	8°35' (8.58°)	10°18' (10.30°)
	Nominal	9°05' (9.08°)	10°48' (10.80°)
Degree minute (Decimal degree)	Maximum	9°35' (9.58°)	11°18' (11.30°)
Total toe-in	Minimum	2 (0.08)	3 (0.12)
Distance (A - B)	Nominal	3 (0.12)	4 (0.16)
mm (in)	Maximum	4 (0.16)	5 (0.20)
Angle (left plus right)	Minimum	11' (0.18°)	15' (0.25°)
Degree minute	Nominal	16' (0.27°)	20' (0.33°)
(Decimal degree)	Maximum	20' (0.33°)	25' (0.42°)

			Except P215/65R15	P215/65R15	Except P255/65R16	P255/65R16
Wheel turning angle	Inside	Minimum	36°00' (36.00°)	35°00' (35.00°)	33°06' (33.10°)	31°00' (31.00°)
Degree minute		Nominal	38°00' (38.00°)	37°00' (37.00°)	35°06' (35.10°)	33°00' (33.00°)
(Decimal degree)		Maximum	38°00' (38.00°)	37°00' (37.00°)	35°06' (35.10°)	33°00' (33.00°)
Full turn *2	Outside	Minimum	32°36' (32.60°)	31°36' (31.60°)	31°12' (31.20°)	29°00' (29.00°)
Degree minute		Nominal	34° 36' (34.60°)	33°36' (33.60°)	33°12' (33.20°)	31°00' (31.00°)
(Decimal degree)		Maximum	34°36' (34.60°)	33°36' (33.60°)	33°12' (33.20°)	31°00' (31.00°)

*1 Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
*2 On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

REFILL CAPACITIES

Unit				Metric measure	US measure
Fuel tank				80ℓ	21.1 gal
Coolant (with reservoir)		MT	2WD	9.1ℓ	9-5/8 qt
			4WD	9.2ℓ	9-3/4 qt
		AT		8.9ℓ	9-1/2 qt
Engine	Drain and refill	With oil filter	2WD	3.5ℓ	3-3/4 qt
			4WD	3.9ℓ	4-1/8 qt
		Without oil filter	2WD	3.3ℓ	3-1/2 qt
			4WD	3.7ℓ	3-7/8 qt
	Dry engine (engine overhaul)		2WD	4.1ℓ	4-1/2 qt
			4WD	4.5ℓ	4-3/4 qt
Manual Transmission (F5W71C)			2WD	2.0ℓ	4-1/4 pt
			4WD	4.9ℓ	10-3/8 pt
Automatic transmission (2WD)				7.9ℓ	8-3/8 qt
Transfer (4WD)				2.2ℓ	2-3/8 qt
Final drive	Front (4WD)		R180A	1.3ℓ	2-3/4 pt
	Rear		H190A	1.5ℓ	3-1/8 pt
			C200	1.3ℓ	2-3/4 pt
Power steering system				0.9-1.0ℓ	30.4-33.8 fl oz
Air conditioning system			Lubricant	0.2ℓ	6.8 n fl oz
			Refrigerant*	0.6-0.7 kg	1.32-1.54 lb

*R-134a

QUICK REFERENCE CHART: FRONTIER 168 [ ] 2000

EQUIPPED WITH 3.3L, VG ENGINE

ENGINE TUNE-UP DATA

Engine model		VG33E		
Firing order		1-2-3-4-5-6		
Idle speed rpm				
MT		750° ± 50		
A/T (in "N" position)		750° ± 50		
Ignition timing (degree B.T.D.C. at idle speed)		15° ± 2°		
CO% at idle		Idle mixture screw is preset and sealed at factory		
Spark plug		NGK Single Tipped Platinum	NGK Double Tipped Platinum	
Type	Standard	FR5AP-10	PFR5G-11	
	Cold	FR6AP-10	PFR6G-11	
	Hot	FR4AP-10	PFR4G-11	
Gap (nominal) mm (in)		1.0 (0.039)	1.1 (0.043)	

Drive belt deflection (Cold) mm (in)	Used belt		
	Limit	Deflection after adjustment	Deflection of new belt
Generator	11 (0.43)	7 - 8 (0.24 - 0.31)	6 - 7 (0.24 - 0.28)
Air conditioner compressor	18 (0.71)	12 - 13 (0.47 - 0.51)	10.5 - 11.5 (0.413 - 0.453)
Power steering oil pump	15 (0.59)	9.5 - 10.5 (0.374 - 0.413)	8 - 9 (0.31 - 0.35)

Drive belt tension N (kg, lb)	Used belt		
	Limit	Tension after adjustment	Tension of new belt
Generator	226 (23, 51)	554.1-642.4 (56.5-65.5, 124.6-144.4)	671.8-760.0 (68.5-77.5, 151.0-170.9)
Air conditioner compressor	196 (20, 44)	495.3-583.5 (50.5-59.5, 111.4-131.2)	603.1-691.4 (61.5-70.5, 135.6-155.5)
Power steering oil pump	275 (28, 62)	554.1-642.4 (56.5-65.5, 124.6-144.4)	671.8-760.0 (68.5-77.5, 151.0-170.9)

Applied pressed force N (kg, lb)	98 (10, 22)		
Radiator cap relief pressure kPa (kg/cm², psi)	78 - 98 (0.8 - 1.0, 11 - 14)		
Cooling system leakage testing pressure kPa (kg/cm², psi)	157 (1.6, 23)		
Compression pressure kPa (kg/cm², psi)/rpm Standard	1,196 (12.2, 173)/300		
Minimum	883 (9.0, 128)/300		
Tightening torque	N·m	kg-m	ft-lb
Spark plug	20 - 29	2.0 - 3.0	14 - 22
Oil pan drain plug	29 - 39	3.0 - 4.0	22 - 29

FRONT WHEEL BEARING

	Model			
Item	2WD		4WD	
Tightening torque N • m (kg•m, ft-lb)	34 - 39 (3.5 - 4.0, 25 - 29)		—	
Return angle degree	45° - 60°		—	
Preload (At hub bolt) N (kg, lb)	New seal	9.8 - 28.4 (1.0 - 2.9, 2.2 - 6.4)	Wheel bearing Tightening torque N • m (kg•m, ft-lb)	78 - 98 (8-10, 58 - 72)
			Retightening torque after loosening wheel bearing lock nut N•m (kg•m, ft-lb)	0.5 - 1.5 (0.05 - 0.15, 0.4 - 1.1)
			Axial end play mm (in)	0 (0)
	Used seal	9.8 - 23.5 (1.0 - 2.4, 2.2 - 5.3)	Start force at wheel hub bolt N • m (kg, lb)	A
			Turning angle degree	15° - 30°
			Starting force at wheel hub bolt N • m (kg, lb)	B
			Wheel bearing preload at wheel hub bolt B- A N (kg, lb)	7.06 - 20.99 (0.72 - 2.14, 1.59 - 4.72)

CLUTCH PEDAL

Unit: mm (in)

Pedal height	227 - 237 (8.94 - 9.33)
Pedal free play	9 - 16 (0.35 - 0.63)

BRAKE

Unit: mm (in)

Disc brake	
Pad minimum thickness	2.0 (0.079)
Rotor repair limit Runout	0.07 (0.0028)
Minimum thickness	24.0 (0.945), CL28VD
Drum brake	
Lining minimum thickness	1.5 (0.059)
Drum repair limit Maximum inner diameter	296.5 (11.67), LT30A
Parking brake	
Number of notches*2	10 - 12

*1 At pulling force: 196 N (20 kg, 44 lb)

FRONT WHEEL ALIGNMENT (Unladen*1)

		2WD	4WD
Camber	Minimum	0°06' (0.10°)	0°06' (0.10°)
	Nominal	0°36' (0.60°)	0°36' (0.60°)
	Maximum	1°06' (1.10°)	1°06' (1.10°)
Degree minute (Decimal degree)	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Caster	Minimum	1°40' (1.67°)	1°40' (1.67°)
	Nominal	2°10' (2.17°)	2°10' (2.17°)
	Maximum	2°40' (2.67°)	2°40' (2.67°)
Degree minute (Decimal degree)	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Kingpin inclination	Minimum	10°18' (10.30°)	10°18' (10.30°)
	Nominal	10°48' (10.80°)	10°48' (10.80°)
Degree minute (Decimal degree)	Maximum	11°18' (11.30°)	11°18' (11.30°)
Total toe-in	Minimum	3 (0.12)	3 (0.12)
Distance (A - B)	Nominal	4 (0.16)	4 (0.16)
mm (in)	Maximum	5 (0.20)	5 (0.20)
Angle (left plus right)	Minimum	15' (0.25°)	15' (0.25°)
Degree minute	Nominal	20' (0.33°)	20' (0.33°)
(Decimal degree)	Maximum	25' (0.42°)	25' (0.42°)

			Except P255/65R16	P255/65R16	Except P255/65R16	P255/65R16
Wheel turning angle	Inside	Minimum	33°06' (33.10°)	31°00' (31.00°)	33°06' (33.10°)	31°00' (31.00°)
Degree minute		Nominal	35°06' (35.10°)	33°00' (33.00°)	35°06' (35.10°)	33°00' (33.00°)
(Decimal degree)		Maximum	35°06' (35.10°)	33°00' (33.00°)	35°06' (35.10°)	33°00' (33.00°)
Full turn *2	Outside	Minimum	31°12' (31.20°)	29°00' (29.00°)	31°12' (31.20°)	29°00' (29.00°)
Degree minute		Nominal	33°12' (33.20°)	31°00' (31.00°)	33°12' (33.20°)	31°00' (31.00°)
(Decimal degree)		Maximum	33°12' (33.20°)	31°00' (31.00°)	33°12' (33.20°)	31°00' (31.00°)

*1 Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
*2 On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

REFILL CAPACITIES

Unit			Metric measure	US measure
Fuel tank			80ℓ	21.1 gal
Coolant (with reservoir)			10.95ℓ	11-5/8 qt
Engine	With oil filter		3.3ℓ	3-1/2 qt
	Without oil filter		3.0ℓ	3-1/8 qt
	Dry engine (engine overhaul)		3.8ℓ	4 qt
Transmission	MT	2WD	2.4ℓ	5-1/8 pt
		4WD	5.1ℓ	10-3/4 pt
	AT	2WD	8.3ℓ	8-3/4 qt
		4WD	8.5ℓ	9 qt
Transfer			2.2ℓ	2-3/8 qt
Final drive	Rear	H233B	2.8ℓ	5-7/8 pt
	Front	R200A	1.5ℓ	3-1/8 pt
Power steering system			1.0 - 1.1ℓ	33.8 - 37.2
Air conditioning system		Lubricant	0.2ℓ	6.8 fl oz
		Refrigerant *	0.6 - 0.7 kg	1.32 - 1.54 lb

*R-134a