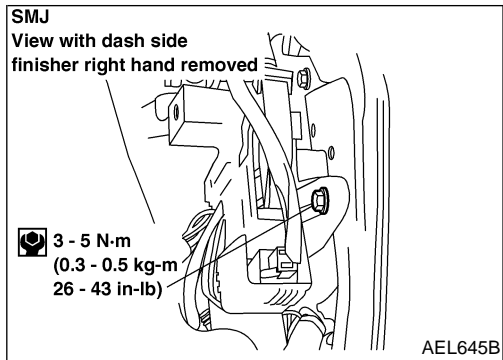


# SUPER MULTIPLE JUNCTION (SMJ)

## Installation



## Installation

To install SMJ, tighten bolts until orange “fulltight” mark appears <sup>NEEL0146</sup> 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.

# SUPER MULTIPLE JUNCTION (SMJ)

Terminal Arrangement

## Terminal Arrangement

NEEL0147

### MAIN HARNESS

(M65)

24B	23B	22B	21B	20B	19B	18B	17B	16B	15B	14B	13B	12B	11B	10B	9B	8B	7B	6B	5B	4B	3B	2B	1B
24A	23A	22A	21A	20A	19A	18A	17A	16A	15A	14A	13A	12A	11A	10A	9A	8A	7A	6A	5A	4A	3A	2A	1A



24A	23A	22A	21A	20A	19A	18A	17A	16A	15A	14A	13A	12A	11A	10A	9A	8A	7A	6A	5A	4A	3A	2A	1A
24B	23B	22B	21B	20B	19B	18B	17B	16B	15B	14B	13B	12B	11B	10B	9B	8B	7B	6B	5B	4B	3B	2B	1B

(E43)

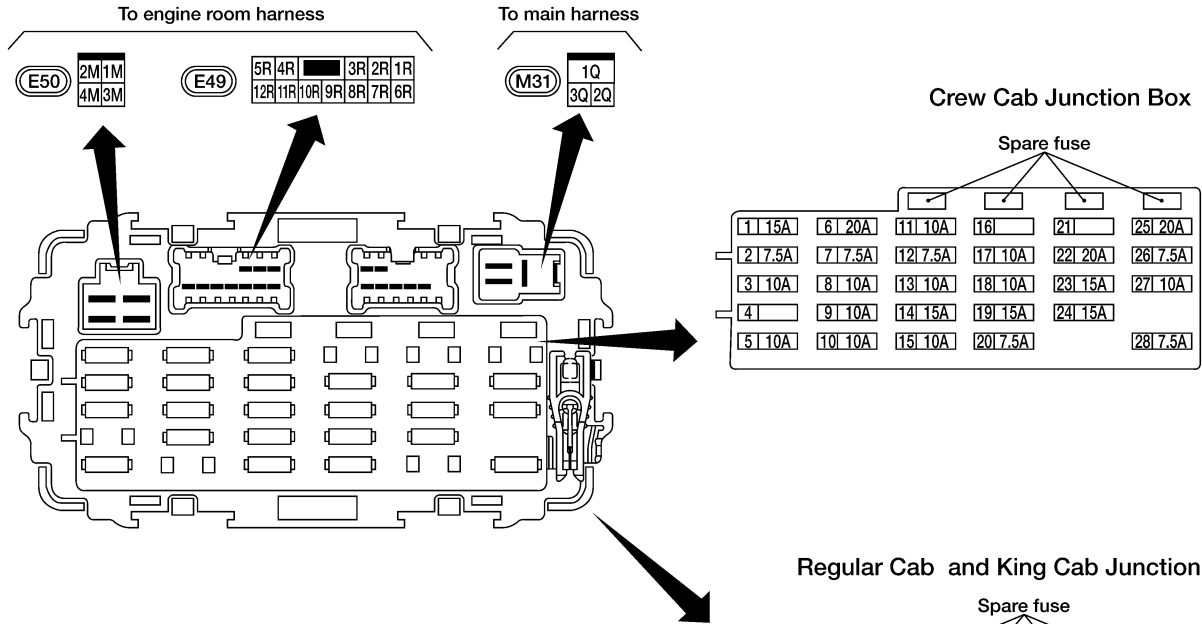
### ENGINE ROOM HARNESS

# FUSE BLOCK — JUNCTION BOX (J/B)

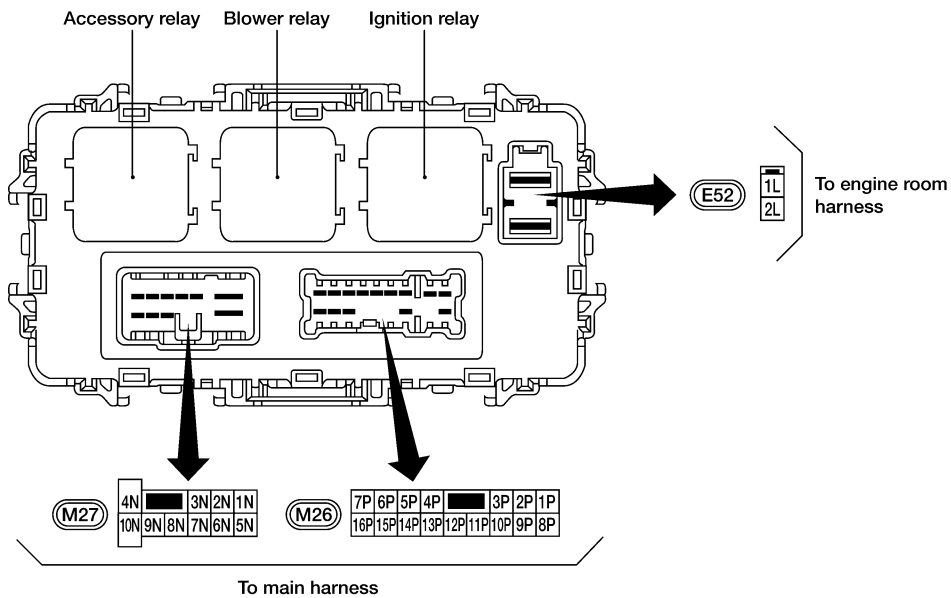
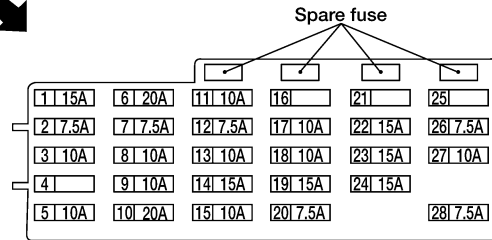
Terminal Arrangement

## Terminal Arrangement

NEEL0148



Regular Cab and King Cab Junction Box



WEL434A

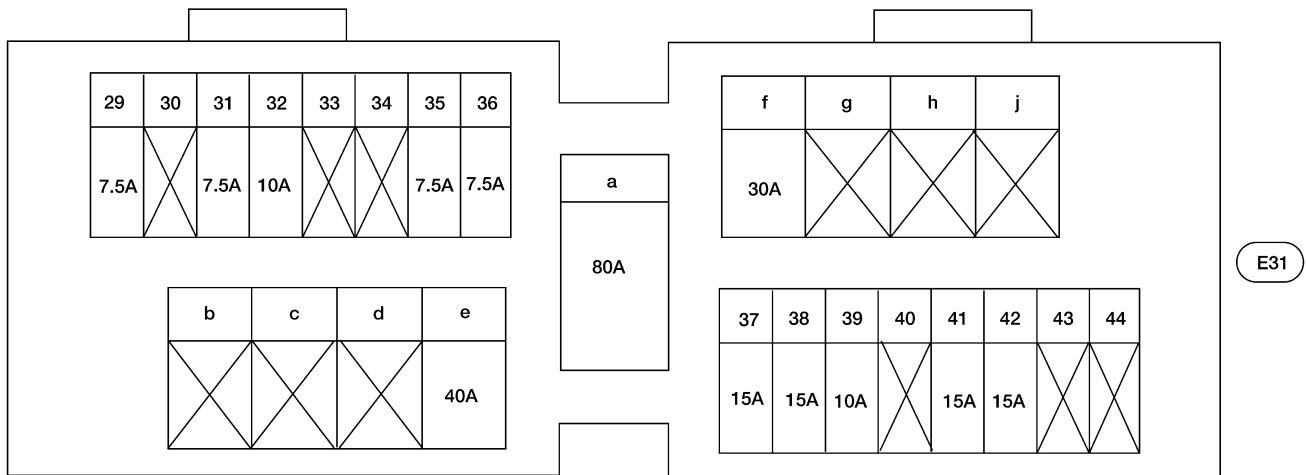
# FUSE AND FUSIBLE LINK BOX

Terminal Arrangement

NEEL0149

## Terminal Arrangement

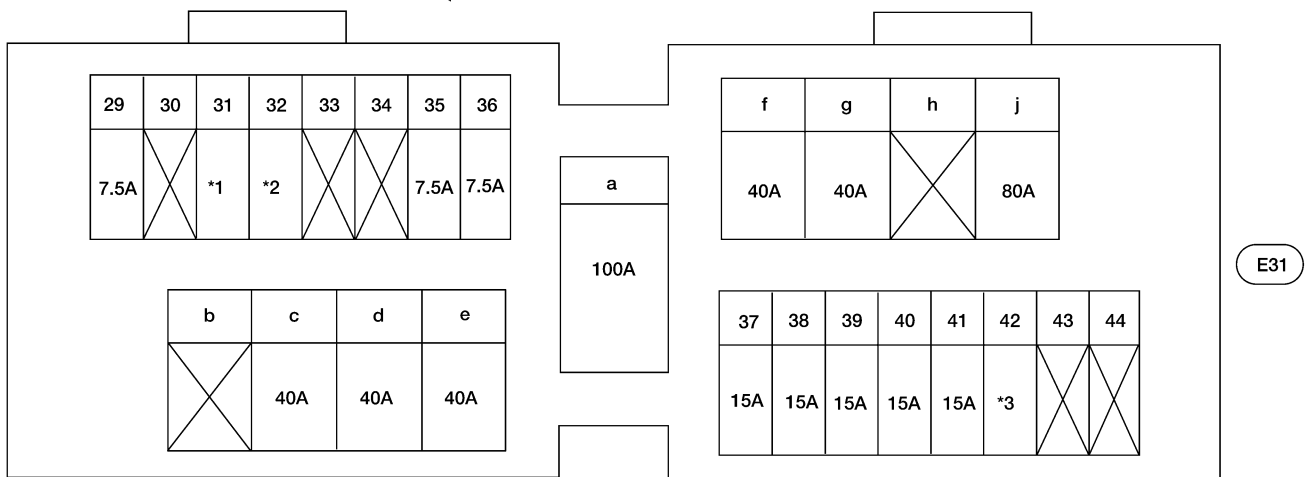
For KA24DE ENGINE



No 29 - 44: FUSE

a - j: FUSIBLE LINK

For VG33E and VG33ER ENGINES



No 29 - 44: FUSE

a - j: FUSIBLE LINK

- \*1 : 7.5A  
 : N/A
- \*2 : 10A  
 : 15A
- \*3 : 15A  
 : 20A

- : With VG33ER
- : Except VG33ER

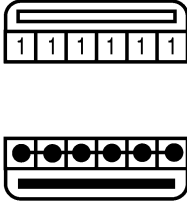
# JOINT CONNECTOR

Terminal Arrangement

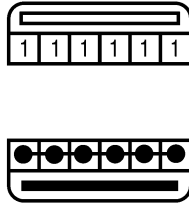
## Terminal Arrangement

NEEL0205

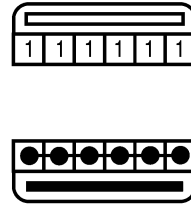
JOINT CONNECTOR - 1 (F31)



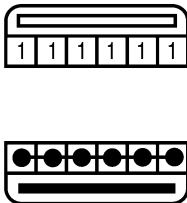
JOINT CONNECTOR - 2 (F32)



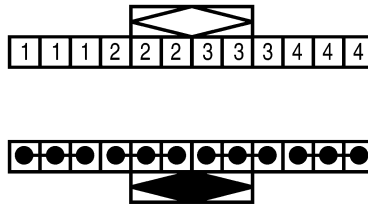
JOINT CONNECTOR - 3 (F33)



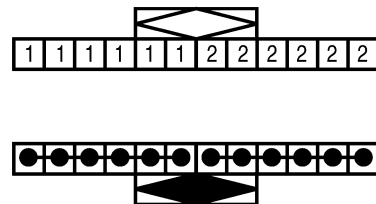
JOINT CONNECTOR - 4 (F34)



JOINT CONNECTOR - 5 (M84)



JOINT CONNECTOR - 6 (M85)

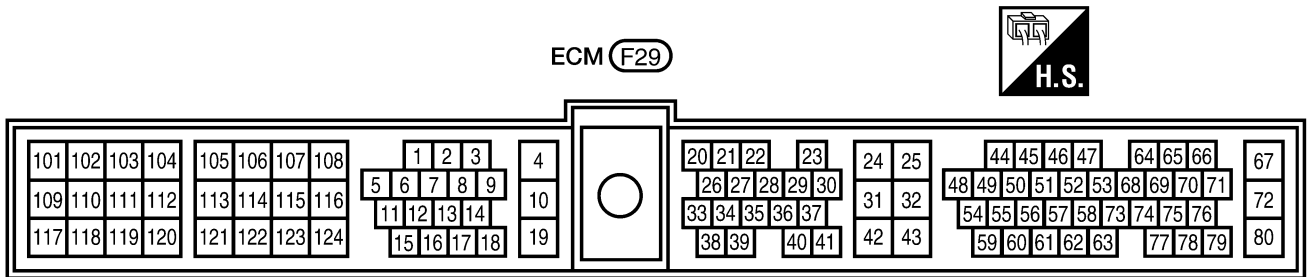


# ELECTRICAL UNITS

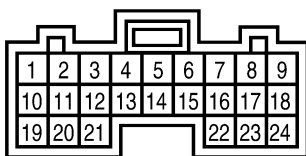
Terminal Arrangement

## Terminal Arrangement

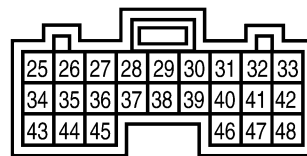
NEEL0150



### TCM (TRANSMISSION CONTROL MODULE)



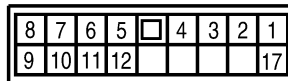
(M77)



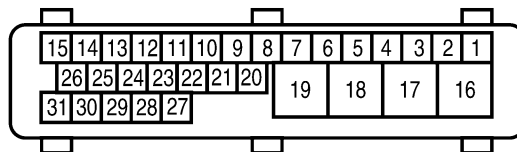
(M78)



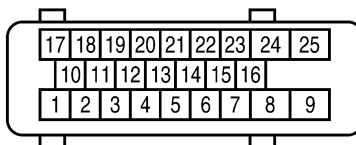
### ABS CONTROL UNIT (WITH KA24DE ENGINE) (M23)



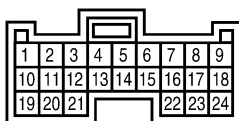
### ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)(2WD WITH VG33E AND VG33ER ENGINE) (E39)



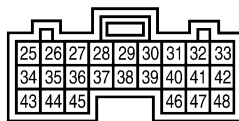
### ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)(4WD WITH VG33E AND VG33ER ENGINE) (E39)



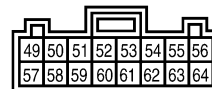
### SMART ENTRANCE CONTROL UNIT



(M110)



(M111)



(M112)



# QUICK REFERENCE CHART: FRONTIER   2001 EQUIPPED WITH KA24DE ENGINE

## ENGINE TUNE-UP DATA

Engine model	KA24DE		
Firing order	1-3-4-2		
Idle speed rpm	800 ± 50		
MT (in neutral)	20 ± 2°		
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 (Double Platinum Tipped)		
Type	Standard	PFR5G-11	
	Cold	PFR6G-11	
Gap (nominal)	mm (in)	1.1 (0.043)	
Drive belt deflection (Cold)	mm (in)	Used belt	
		Limit	After adjustment
Generator	17 (0.67)	10-12 (0.39-0.47)	8-10 (0.31-0.39)
		10-12 (0.39-0.47)	8-10 (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
Generator	222.4 (22.7, 50)	355.8-444.8 (36.3-45.4, 80-100)	489.3-578.2 (49.9-59.0, 110-130)
		200.2 (20.4, 45)	355.8-444.8 (36.3-45.4, 80-100)
Air conditioner compressor	224.4 (22.7, 50)	355.8-444.8 (36.3-45.4, 80-100)	489.3-578.2 (49.9-59.0, 110-130)
Power steering oil pump		80-100	110-130
Applied pushing force	N (kg, lb)	98 (10, 22)	
Radiator cap relief pressure	kPa (kg/cm <sup>2</sup> , psi)	78 - 98 (0.8 - 1.0, 11 - 14)	
Cooling system leakage testing pressure	kPa (kg/cm <sup>2</sup> , psi)	157 (1.6, 23)	
Compression pressure	Standard	1226 (12.5, 178)/300	
	Minimum	1030 (10.5, 149)/300	
Tightening torque	N·m	kg-m	ft-lb
		20 - 29	2.0 - 3.0
Spark plug		2.0 - 3.0	14 - 22
Oil pan drain plug		29 - 39	3.0 - 4.0
		3.0 - 4.0	22 - 29

## FRONT WHEEL BEARING

Lock nut tightening torque	N · m (kg·m, ft-lb)	34 - 39 (3.5 - 4.0, 25 - 29)
Preload (At hub bolt)	N (kg, lb)	New seal 9.8 - 28.4 (1.0 - 2.9, 2.2 - 6.4)
		Used seal 9.8 - 23.5 (1.0 - 2.4, 2.2 - 5.3)

## CLUTCH PEDAL

	Unit: mm (in)	
Pedal height	221 - 231 (8.70 - 9.09)	
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	261.5 (10.30), LT26B
Parking brake	Number of notches*2	
	10 - 12	

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

## FRONT WHEEL ALIGNMENT (Unladen\*1)

Camber	Minimum	-0°05' (-0.08°)	
	Nominal	0°25' (0.42°)	
	Maximum	0°55' (0.92°)	
	Left and right difference	45° (0.75°) or less	
Caster	Minimum	0°06' (0.10°)	
	Nominal	0°36' (0.60°)	
	Maximum	1°06' (1.10°)	
	Left and right difference	45° (0.75°) or less	
Kingpin inclination	Minimum	8°35' (8.58°)	
	Nominal	9°05' (9.08°)	
	Maximum	9°35' (9.58°)	
Total toe-in	Minimum	2 (0.08)	
	Distance (A - B)	Nominal	3 (0.12)
	mm (in)	Maximum	4 (0.16)
	Angle (left plus right)	Minimum	11' (0.18°)
Degree minute (Decimal degree)	Nominal	16' (0.27°)	
	Maximum	20' (0.33°)	
			P225/70R15
Wheel turning angle Inside	Minimum	35°00' (35.00°)	
	Nominal	37°00' (37.00°)	
	Maximum	37°00' (37.00°)	
Full turn *2 Outside	Minimum	31°36' (31.60°)	
	Nominal	33°36' (33.60°)	
	Maximum	33°36' (33.60°)	

\*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		60	15.9 gal
Coolant (with reservoir)	MT	7.3	7-3/4 qt
	AT	7.1	7-1/2 qt
Engine	Drain and refill	3.5	3-3/4 qt
	With oil filter	3.3	3-1/2 qt
Dry engine (engine overhaul)		4.1	4-1/2 qt
Manual Transmission (F5W71C)		2.0	4-1/4 pt
Final drive (C200)		1.31	2-3/8 pt
Power steering system		0.9-1.0	30.4-33.8 fl oz
Air conditioning system	Lubricant	200 ml	6.8 fl oz
	Refrigerant*	0.6-0.7 kg	1.32-1.54 lb

\*R-134a

# QUICK REFERENCE CHART: FRONTIER   2001

## EQUIPPED WITH VG33E ENGINE

### ENGINE TUNE-UP DATA

Engine model	VG33E		
Firing order	1-2-3-4-5-6		
Idle speed	rpm	750° ± 50	
MT (in neutral)		750° ± 50	
AJT (in "P" or "N" position)		750° ± 50	
Ignition timing (degree B.T.D.C. at idle speed)	10° ± 1°		
CO% at idle	Idle mixture screw is preset and sealed at factory		
Spark plug	NGK Double Tipped Platinum		
	Standard	PFR5G-11	
Type	Cold	PFR6G-11	
	Hot	PFR4G-11	
Gap (nominal)	mm (in)	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/cm <sup>2</sup> , psi)	78 - 98 (0.8 - 1.0, 11 - 14)	
Cooling system leakage testing pressure	kPa (kg/cm <sup>2</sup> , psi)	157 (1.6, 23)	
Compression pressure	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

### BRAKE

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°03' (0.05°)	0°06' (0.10°)
	Nominal	0°33' (0.55°)	0°36' (0.60°)
	Maximum	1°03' (1.05°)	1°06' (1.10°)
	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Caster	Minimum	2°04' (2.07°)	1°40' (1.67°)
	Nominal	2°34' (2.57°)	2°10' (2.17°)
	Maximum	3°04' (3.07°)	2°40' (2.67°)
	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
Kingpin inclination	Minimum	10°23' (10.38°)	10°18' (10.30°)
	Nominal	10°53' (10.88°)	10°48' (10.80°)
	Maximum	11°23' (11.38°)	11°18' (11.30°)
Total toe-in	Minimum	3 (0.12)	3 (0.12)
	Nominal	4 (0.16)	4 (0.16)
	Maximum	5 (0.20)	5 (0.20)
Angle (left plus right)	Minimum	15' (0.25°)	15' (0.25°)
	Nominal	20' (0.33°)	20' (0.33°)
	Maximum	25' (0.42°)	25' (0.42°)
Wheel turning angle	Inside	Minimum	31°00' (31.00°)
		Nominal	33°00' (33.00°)
	Outside	Minimum	29°00' (29.00°)
		Nominal	31°00' (31.00°)
	Full turn *2	Minimum	1°00' (31.00°)
		Maximum	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	73.5	19.4 gal		
Coolant (with reservoir)	10.95	11-5/8 qt		
Engine	With oil filter	3.3	3-1/2 qt	
	Without oil filter	3.0	3-1/8 qt	
	Dry engine (engine overhaul)	3.8	4 qt	
Transmission	MT	2WD	2.8	5-7/8 pt
		4WD	5.1	10-3/4 pt
	AT	2WD	8.3	8-3/4 qt
		4WD	8.5	9 qt
Transfer	2.2	2-3/8 qt		
Final drive	Rear	H233B	2.8	5-7/8 pt
	Front	R200A	1.5	3-1/8 pt
Power steering system	1.0 - 1.1	33.8 - 37.2		
Air conditioning system	Lubricant	200 ml	6.8 fl oz	
	Refrigerant *	0.6 - 0.7 kg	1.32 - 1.54 lb	

\*R-134a

### FRONT WHEEL BEARING

Item	Model		
	2WD	4WD	
Lock nut tightening torque N • m (kg•m, ft•lb)	34 - 39 (3.5 - 4.0, 25 - 29)	—	
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, in•lb) Axial end play mm (in)	0.5 - 1.5 (0.05 - 0.15, 4.3 - 13.0) 0 (0)
	Used seal 9.8 - 23.5 (1.0 - 2.4, 2.2 - 5.3)	Turning angle degree	15° - 30°
		Wheel bearing preload at wheel hub bolt (kg, lb)	7.06 - 20.99 (0.72 - 2.14, 1.59 - 4.72)

### CLUTCH PEDAL

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

Unit: mm (in)



# QUICK REFERENCE CHART: FRONTIER   2001

## EQUIPPED WITH VG33ER ENGINE

### ENGINE TUNE-UP DATA

Engine model	VG33ER		
Firing order	1-2-3-4-5-6		
Idle speed	rpm	750° ± 50	
MT (in neutral)		750° ± 50	
A/T (in "P" or "N" position)		750° ± 50	
Ignition timing (degree B.T.D.C. at idle speed)	10° ± 1°		
CO% at idle	Idle mixture screw is preset and sealed at factory		
Spark plug	NGK Double Tipped Platinum		
	Standard	PFR6G-11	
Type	Cold	PFR7G-11	
	Hot	PFR5G-11	
Gap (nominal)	mm (in)	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	16.5 (0.65)	9.5 - 10.5 (0.37 - 0.41)	8.5 - 9.5 (0.33 - 0.37)
Supercharger	16.5 (0.65)	9.5 - 10.5 (0.37 - 0.41)	8.5 - 9.5 (0.33 - 0.37)
Power steering oil pump	15 (0.59)	9.5 - 10.5 (0.37 - 0.41)	8.5 - 9.5 (0.33 - 0.37)
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	294 (30.66)	730-818 (75.5-83.5, 166.5-184.1)	838-926 (85.5-94.5, 188.5-208.4)
Supercharger	29.4 (30.66)	730-818 (75.5-83.5, 166.5-184.1)	838-926 (85.5-94.5, 188.5-208.4)
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/cm <sup>2</sup> , psi)	78 - 98 (0.8 - 1.0, 11 - 14)	
Cooling system leakage testing pressure	kPa (kg/cm <sup>2</sup> , psi)	157 (1.6, 23)	
Compression pressure	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

### BRAKE

Disc brake		
Pad minimum thickness		2.0 (0.079)
Rotor repair limit		0.07 (0.0028)
Runout		
Minimum thickness		24.0 (0.945), CL28VD
Drum brake		
Lining minimum thickness		1.5 (0.059)
Drum repair limit		296.5 (11.67), LT30A
Maximum inner diameter		
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°03' (0.05°)	0°06' (0.10°)
	Nominal	0°33' (0.55°)	0°36' (0.60°)
	Maximum	1°03' (1.05°)	1°06' (1.10°)
	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
	Degree minute (Decimal degree)		
Caster	Minimum	2°04' (2.07°)	1°40' (1.67°)
	Nominal	2°34' (2.57°)	2°10' (2.17°)
	Maximum	3°04' (3.07°)	2°40' (2.67°)
	Left and right difference	45' (0.75°) or less	45' (0.75°) or less
	Degree minute (Decimal degree)		
Kingpin inclination	Minimum	10°23' (10.38°)	10°18' (10.30°)
	Nominal	10°53' (10.88°)	10°48' (10.80°)
	Maximum	11°23' (11.38°)	11°18' (11.30°)
Degree minute (Decimal degree)			
Total toe-in	Minimum	3 (0.12)	3 (0.12)
	Nominal	4 (0.16)	4 (0.16)
	Maximum	5 (0.20)	5 (0.20)
	Distance (A - B) mm (in)		
Angle (left plus right)	Minimum	15' (0.25°)	15' (0.25°)
	Nominal	20' (0.33°)	20' (0.33°)
	Maximum	25' (0.42°)	25' (0.42°)
	Degree minute (Decimal degree)		
Wheel turning angle	Inside		
	Minimum	30°48' (30.80°)	30°48' (30.80°)
	Nominal	32°48' (32.80°)	32°48' (32.80°)
	Maximum	32°48' (32.80°)	32°48' (32.80°)
	Degree minute (Decimal degree)		
Full turn *2	Outside		
	Minimum	28°42' (28.70°)	28°42' (28.70°)
	Nominal	30°42' (30.70°)	30°42' (30.70°)
	Maximum	30°42' (30.70°)	30°42' (30.70°)
	Degree minute (Decimal degree)		

\*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.

### FRONT WHEEL BEARING

		Model	
		2WD	4WD
Lock nut tightening torque		34 - 39 (3.5 - 4.0, 25 - 29)	
N • m (kg•m, ft·lb)		—	
Preload (At hub bolt)	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)
	Used seal	9.8 - 23.5 (1.0 - 2.4, 2.2 - 5.3)	Retightening torque after loosening wheel bearing lock nut N•m (kg•m, in·lb)
			0.5 - 1.5 (0.05 - 0.15, 4.3 - 13.0)
		Axial end play mm (in)	0 (0)
		Turning angle degree	15° - 30°
		Wheel bearing preload at wheel hub bolt (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)

### REFILL CAPACITIES

	Unit	Metric measure	US measure
Fuel tank		73.5	19.4 gal
Coolant (with reservoir)		10.95	11-5/8 qt
Engine	With oil filter	3.3	3-1/2 qt
	Without oil filter	3.0	3-1/8 qt
	Dry engine (engine overhaul)	3.8	4 qt
Transmission	MT	2WD	2.8
		4WD	5.1
	AT	2WD	8.3
		4WD	8.5
Transfer		2.2	2-3/8 qt
Final drive	Rear	H233B	2.8
	Front	R200A	1.5
Power steering system		1.0 - 1.1	33.8 - 37.2
Air conditioning system	Lubricant	200 ml	6.8 fl oz
	Refrigerant *	0.6 - 0.7 kg	1.32 - 1.54 lb

\*P-134a