

2004-2007



**SERVICE MANUAL**

**TRX400FA**

**FOURTRAX RANCHER® AT™**

**TRX400FGA**

**FOURTRAX RANCHER AT GPScape™**

## HOW TO USE THIS MANUAL

This service manual describes the service procedures for the TRX400FA/TRX400FGA.

Follow the Maintenance Schedule (Section 4) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the California Air Resources Board.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.





Sections 1 and 4 apply to the whole vehicle. Section 3 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Section 5 through 25 describe parts of the vehicle, grouped according to location.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedure.

If you are not familiar with this vehicle, go to section 2 Technical Feature. If you don't know the source of the trouble, go to section 26 Troubleshooting.

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgement. You will find important safety information in a variety of forms including:

- Safety Labels – on the vehicle
- Safety Messages – preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:
  -  **DANGER** You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
  -  **WARNING** You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
  -  **CAUTION** You CAN be HURT if you don't follow instructions.
- Instructions – how to service this vehicle correctly and safely.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

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# SYMBOLS

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	<p>Replace the part(s) with new one(s) before assembly.</p>
	<p>Use recommended engine oil, unless otherwise specified.</p>
	<p>Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).</p>
	<p>Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).</p>
	<p>Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent).            Example: Molykote® BR-2 plus manufactured by Dow Corning U.S.A.            Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan</p>
	<p>Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent).            Example: Molykote® G-n Paste manufactured by Dow Corning U.S.A.            Honda Moly 60 (U.S.A. only)            Rocol ASP manufactured by Rocol Limited, U.K.            Rocol Paste manufactured by Sumico Lubricant, Japan</p>
	<p>Use silicone grease.</p>
	<p>Apply a locking agent. Use a middle strength locking agent unless otherwise specified.</p>
	<p>Apply sealant.</p>
	<p>Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.</p>
	<p>Use Fork or Suspension Fluid.</p>

# 1. GENERAL INFORMATION

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## GENERAL INFORMATION

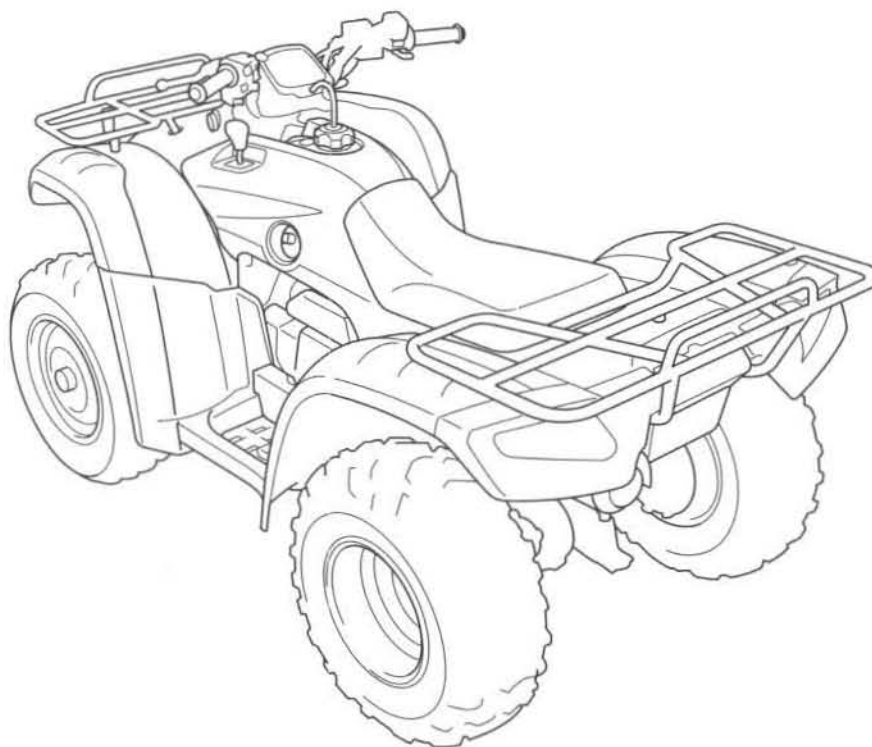
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### SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that don't meet Honda's design specifications may cause damage to the vehicle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the vehicle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque diagonally in incremental steps unless a particular sequence is specified.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as show in the Cable and Harness Routing (page 1-24).

### MODEL IDENTIFICATION

'04 shown; After '04 similar:



## GENERAL INFORMATION

The model identification label is located on the frame down tube.



The frame serial number is stamped on the front side of the frame.



The engine serial number is stamped on the left side of the rear crankcase.



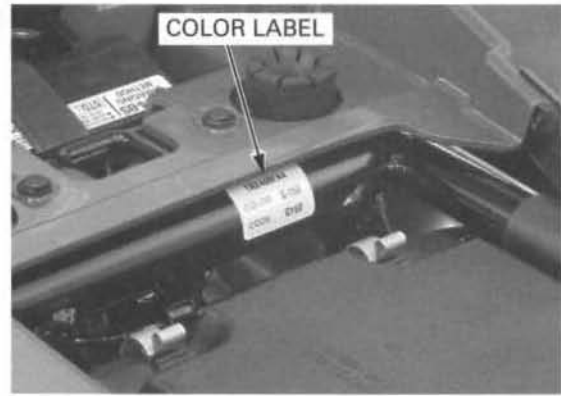
The carburetor identification number is stamped on the left side of the carburetor body.



## GENERAL INFORMATION

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The color label is attached on the cross member of the frame under the seat. When ordering color coded parts, always specify the designated color code.







## GENERAL INFORMATION

ITEM		SPECIFICATIONS
DRIVE TRAIN	Clutch system Transmission  Primary reduction Secondary reduction Final reduction      Front Rear Sub-transmission      Drive ratio                        Reverse Gearshift pattern      Sub-transmission D (Drive)  R (Reverse)	Centrifugal, wet HONDAMATIC (automatic; non-stage speed) with sub-transmission (constant mesh) 1.048 (65/62) 1.722 (31/18) 3.769 (13/49) 3.692 (13/48) 1.684 (32/19) 2.021 (24/19 - 32/29) D - N - R 2-mode; Automatic and Manual (ESP; 5 speeds) 1-mode (fixed low ratio)
ELECTRICAL	Ignition system  Starting system  Charging system Regulator/rectifier  Lighting system	DC-CDI (Direct current-Capacitor discharge ignition) Electric starter motor and emergency recoil starter Triple phase output alternator SCR shorted, triple phase full wave rectifica- tion Battery

## LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	2.6 liters (2.7 US qt, 2.3 Imp qt)	-
	After draining/filter change	2.8 liters (3.0 US qt, 2.5 Imp qt)	-
	After disassembly	3.3 liters (3.5 US qt, 2.9 Imp qt)	-
Recommended engine oil		Pro Honda GN4 or HP4 (without molybdenum additives) 4-stroke oil (U.S.A. and Canada), or Honda 4-stroke oil (Canada only), or an equivalent motor oil API service classification: SG or Higher except oils labeled as energy conserving on the circular API service label JASO T 903 standard: MA Viscosity: SAE 10W-40	-
Oil pressure 80°C(176°F)	at 1,400 rpm	130 kPa (1.3 kgf/cm <sup>2</sup> , 18 psi)	-
	at 4,000 rpm	580 kPa (6.0 kgf/cm <sup>2</sup> , 85 psi)	-
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 - 0.22 (0.006 - 0.009)	0.25 (0.010)
	Side clearance	0.02 - 0.09 (0.001 - 0.004)	0.11 (0.004)

## FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Carburetor identification number	VE6CA
Main jet	# 142
Slow jet	# 45
Jet needle clip position	2nd groove from top
Pilot screw opening	2 - 1/4 turns out
Float level	15.9 mm (0.63 in)
Idle speed	1,400 ± 100 rpm
Throttle lever free play	3 - 8 mm (1/8 - 5/16 in)

## GENERAL INFORMATION

# CYLINDER HEAD/VALVE/CAMSHAFT SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Cylinder compression at 450 rpm		736 kPa (7.5 kgf/cm <sup>2</sup> , 107 psi)	-
Valve clearance		IN	0.15 (0.006)
		EX	0.15 (0.006)
Valve, valve guide	Valve stem O.D.	IN	5.475 - 5.490 (0.2156 - 0.2161)
		EX	5.455 - 5.470 (0.2148 - 0.2154)
	Valve guide I.D.	IN/EX	5.500 - 5.512 (0.2165 - 0.2170)
	Stem-to-guide clearance	IN	0.010 - 0.037 (0.0004 - 0.0015)
		EX	0.030 - 0.057 (0.0012 - 0.0022)
	Valve guide projection above cylinder head	IN	15.8 - 16.0 (0.62 - 0.63)
EX		15.8 - 16.0 (0.62 - 0.63)	
Valve seat width	IN/EX	1.0 - 1.1 (0.039 - 0.043)	
			1.4 (0.06)
Valve spring	Free length	Inner	37.8 (1.49)
		Outer	42.7 (1.68)
Rocker arm	Arm I.D.	IN/EX	12.000 - 12.018 (0.4724 - 0.4731)
	Shaft O.D.	IN/EX	11.964 - 11.984 (0.4710 - 0.4718)
	Arm-to-shaft clearance	IN/EX	0.016 - 0.054 (0.0006 - 0.0021)
Camshaft and cam follower	Cam lobe height	IN	35.9795 - 36.2195 (1.41651 - 1.42600)
		EX	35.9245 - 36.1654 (1.41435 - 1.42383)
	Cam follower O.D.	IN/EX	22.467 - 22.482 (0.8845 - 0.8851)
	Follower bore I.D.	IN/EX	22.510 - 22.526 (0.8862 - 0.8868)
	Follower-to-bore clearance	IN/EX	0.028 - 0.059 (0.0011 - 0.0023)
Cylinder head warpage		-	0.10 (0.004)

## CYLINDER/PISTON SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Cylinder	I.D.	85.000 - 85.010 (3.3465 - 3.3468)	85.10 (3.350)	
	Out of round	-	0.10 (0.004)	
	Taper	-	0.10 (0.004)	
	Warpage	-	0.10 (0.004)	
Piston, piston pin, piston ring	Piston O.D. at 20 (0.8) from bottom	84.965 - 84.985 (3.3451 - 3.3459)	84.93 (3.344)	
	Piston pin hole I.D.	18.002 - 18.008 (0.7087 - 0.7090)	18.04 (0.710)	
	Piston pin O.D.	17.994 - 18.000 (0.7084 - 0.7087)	17.96 (0.707)	
	Piston-to-piston pin clearance	0.002 - 0.014 (0.0001 - 0.0006)	0.08 (0.003)	
	Piston ring end gap	Top	0.15 - 0.30 (0.006 - 0.012)	0.5 (0.02)
		Second	0.30 - 0.45 (0.012 - 0.018)	0.6 (0.02)
		Oil (side rail)	0.20 - 0.70 (0.008 - 0.028)	-
	Piston ring-to-ring groove clearance	Top	0.030 - 0.060 (0.0012 - 0.0024)	0.09 (0.004)
Second		0.030 - 0.060 (0.0012 - 0.0024)	0.09 (0.004)	
Cylinder-to-piston clearance		0.015 - 0.045 (0.0006 - 0.0018)	0.10 (0.004)	
Connecting rod small end I.D.		18.016 - 18.034 (0.7093 - 0.7100)	18.07 (0.711)	
Connecting rod-to-piston pin clearance		0.016 - 0.040 (0.0006 - 0.0016)	0.10 (0.004)	

## CENTRIFUGAL CLUTCH SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch	Drum I.D.	140.0 - 140.2 (5.51 - 5.52)	140.4 (5.53)
	Weight lining thickness	3.0 (0.12)	2.0 (0.08)
	Clutch spring height	3.10 (0.122)	3.00 (0.118)
	Clutch weight spring free length	21.6 (0.85)	22.5 (0.89)
Clutch drum boss I.D.		27.000 - 27.021 (1.0630 - 1.0638)	27.05 (1.065)
Crankshaft O.D. at clutch drum		26.959 - 26.980 (1.0614 - 1.0622)	26.93 (1.060)

**ALTERNATOR/STARTER CLUTCH SPECIFICATIONS**

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Starter driven gear boss O.D.		45.660 – 45.673 (1.7976 – 1.7981)	45.65 (1.797)
Starter idle gear	Gear I.D.	10.01 – 10.05 (0.394 – 0.396)	10.07 (0.396)
	Shaft O.D.	9.980 – 9.995 (0.3929 – 0.3935)	9.997 (0.393)

**SUB-TRANSMISSION SPECIFICATIONS**

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Shift fork	Claw thickness	4.93 – 5.00 (0.194 – 0.197)	4.5 (0.18)
Reverse idle gear	Gear I.D.	12.000 – 12.018 (0.4724 – 0.4731)	12.04 (0.474)
	Shaft O.D.	11.966 – 11.984 (0.4711 – 0.4718)	11.94 (0.470)
	Gear-to-shaft clearance	0.016 – 0.052 (0.0006 – 0.0020)	0.10 (0.004)
Countershaft drive gear	Gear I.D.	21.000 – 21.021 (0.8268 – 0.8276)	21.05 (0.829)
	Bushing O.D.	20.959 – 20.980 (0.8252 – 0.8260)	20.93 (0.824)
	Bushing I.D.	18.016 – 18.034 (0.7093 – 0.7100)	18.07 (0.711)
	Shaft O.D.	17.982 – 18.000 (0.7080 – 0.7087)	17.94 (0.706)
	Gear-to-bushing clearance	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
	Bushing-to-shaft clearance	0.016 – 0.052 (0.0006 – 0.0020)	0.10 (0.004)
Gear change stopper spring free length		39.0 (1.54)	38.7 (1.52)

**CRANKSHAFT/AUTOMATIC TRANSMISSION SPECIFICATIONS**

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Crankshaft	Runout	–	0.05 (0.002)
	Big end side clearance	0.05 – 0.65 (0.002 – 0.026)	0.8 (0.03)
	Big end radial clearance	0.006 – 0.018 (0.0002 – 0.0007)	0.05 (0.002)

## GENERAL INFORMATION

### FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		-	4.0 mm (0.16 in)
Cold tire pressure	Standard	25 kPa (0.25 kgf/cm <sup>2</sup> , 3.6 psi)	-
	Minimum	22 kPa (0.22 kgf/cm <sup>2</sup> , 3.2 psi)	-
	Maximum	28 kPa (0.28 kgf/cm <sup>2</sup> , 4.0 psi)	-
	With cargo	25 kPa (0.25 kgf/cm <sup>2</sup> , 3.6 psi)	-
Tie-rod distance between the ball joints		347.5 ± 1 mm (13.68 ± 0.4 in)	-
Toe		Toe-out: 18 ± 15 mm (11/18 ± 9/16 in)	-

### REAR WHEEL/SUSPENSION SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		-	4.0 mm (0.16 in)
Cold tire pressure	Standard	25 kPa (0.25 kgf/cm <sup>2</sup> , 3.6 psi)	-
	Minimum	22 kPa (0.22 kgf/cm <sup>2</sup> , 3.2 psi)	-
	Maximum	28 kPa (0.28 kgf/cm <sup>2</sup> , 4.0 psi)	-
	With cargo	25 kPa (0.25 kgf/cm <sup>2</sup> , 3.6 psi)	-

### BRAKE SYSTEM SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Recommended brake fluid		Honda DOT 4 brake fluid	-
Front brake	Drum I.D.	160.0 (6.30)	161 (6.34)
	Shoe lining thickness	4.0 (0.16)	2.0 (0.08)
	Brake panel warpage	-	0.4 (0.02)
	Waterproof seal lip length	22 (0.9)	20 (0.8)
	Master cylinder I.D.	14.0 (0.55)	-
	Wheel cylinder I.D.	19.0 (0.75)	-
	Brake lever free play	25 - 30 (1 - 1-3/16)	-
Rear brake	Drum I.D.	160.0 (6.30)	161.0 (6.34)
	Shoe lining thickness	5.3 (0.21)	To index mark
	Brake lever free play	15 - 20 (5/8 - 1-3/4)	-
	Brake pedal free play	15 - 20 (5/8 - 1-3/4)	-

## FRONT DRIVING MECHANISM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Front differential	Oil capacity	At draining	240 cm <sup>3</sup> (8.1 US oz, 8.4 Imp oz)
		At disassembly	300 cm <sup>3</sup> (10.1 US oz, 10.6 Imp oz)
	Recommended oil		Hypoid gear oil SAE #80
	Gear backlash		0.05 – 0.25 (0.002 – 0.010)
	Backlash difference		–
	Slip torque		14 – 17 N·m (1.45 – 1.75 kgf·m, 10 – 13 lbf·ft)
	Face cam-to-housing distance		3.3 – 3.7 (0.13 – 0.15)
	Differential ring gear depth		6.55 – 6.65 (0.2579 – 0.2618)
	Cone spring height		2.8 (0.11)

## REAR DRIVING MECHANISM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Rear axle	Axle runout	–	3.0 (0.12)
Final drive	Oil capacity	At draining	85 cm <sup>3</sup> (2.9 US oz, 3.0 Imp oz)
		At disassembly	100 cm <sup>3</sup> (3.4 US oz, 3.5 Imp oz)
	Recommended oil		Hypoid gear oil SAE #80
	Gear backlash		0.05 – 0.25 (0.002 – 0.010)
	Backlash difference		–
	Ring gear-to-stop pin clearance		0.3 – 0.6 (0.01 – 0.02)

## BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS	
Battery	Capacity	12V – 12 Ah	
	Current leakage	1 mA max.	
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	1.4 A/5 – 10 h
Quick		6.0 A/1.0 h	
Alternator	Capacity	0.32 kW/5,000 rpm	
	Charging coil resistance (20°C/68°F)	0.1 – 1.0 Ω	

## IGNITION SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Spark plug	Standard	DPR8EA-9 (NGK) X24EPR-U9 (DENSO)
	For cold climate (below 5°C/41°F)	DPR7EA-9 (NGK) X22EPR-U9 (DENSO)
Spark plug gap		0.8 – 0.9 mm (0.03 – 0.04 in)
Ignition coil peak voltage		100 V minimum
Ignition pulse generator peak voltage		0.7 V minimum
Ignition timing ("F" mark)		10° BTDC at idle

## ELECTRIC STARTER SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.5 (0.49)	9.0 (0.35)

## GENERAL INFORMATION

### LIGHTS/METERS/SWITCHES SPECIFICATIONS

ITEM		SPECIFICATIONS
Bulb	Headlight	12V - 30/30 W x 2
	Brake/taillight	12V - 21/5 W x 2
	Neutral indicator	LED
	Reverse indicator	LED
	4WD indicator	LED
	Oil temperature indicator	LED
	Combination meter light	LED x 12
Fuse	Main	30 A
	Main (control motor)	30 A
	Sub-fuse	15 A x 2, 10 A x 2
Carburetor heater resistance (at 20°C/68°F)		13 - 15 Ω

## STANDARD TORQUE VALUES

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm bolt and nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head; small head)	10 (1.0, 7)
10 mm bolt and nut	34 (3.5, 25)	6 mm flange bolt (8 mm head; large flange)	12 (1.2, 9)
12 mm bolt and nut	54 (5.5, 40)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
		8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

## ENGINE & FRAME TORQUE VALUES

- Torque specifications listed below are for important fasteners.
- Others should be tightened to standard torque values listed above.

### NOTE:

1. Apply locking agent to the threads.
2. Apply engine oil to the threads and seating surface.
3. Apply grease to the threads and seating surface.
4. Lock nut: replace with a new one.
5. Stake.
6. Self-lock nut; replace with a new one.
7. Castle nut: tighten to the specified torque and further tighten until its grooves aligns with the cotter pin hole.
8. U-nut.

## ENGINE MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine oil drain bolt	1	12	25 (2.5, 18)	
Engine oil filter center bolt	1	20	18 (1.8, 13)	
Timing hole cap	1	14	10 (1.0, 7)	
Spark plug	1	12	22 (2.2, 16)	
Tappet adjusting hole cap	2	30	20 (2.0, 14)	
Valve adjusting screw lock nut	2	6	17 (1.7, 12)	

## LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front crankcase cover socket bolt	4	10	34 (3.5, 25)	
Oil feed pipe setting cap bolt	1	20	18 (1.8, 13)	
Oil pump assembly bolt	1	5	6 (0.6, 4.3)	

## FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Carburetor insulator band screw	2	5	4 (0.4, 2.9)	
Throttle position (TP) sensor mounting screw	2	5	4 (0.4, 2.9)	NOTE 1

## CYLINDER HEAD/VALVE/CAMSHAFT

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head flange cap nut	4	10	39 (4.0, 29)	NOTE 2
Cam chain tensioner pivot bolt	1	6	12 (1.2, 9)	NOTE 1



## GENERAL INFORMATION

### CYLINDER/PISTON

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder stud bolt	4	10	12 (1.2, 9)	See page 1-15

### CENTRIFUGAL CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Centrifugal clutch lock nut	1	20	118 (12.0, 87)	NOTE 2, 4, 5
Primary driven gear socket bolt	4	6	17 (1.7, 12)	NOTE 2

### ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Recoil starter driven pulley bolt	1	12	108 (11.0, 80)	NOTE 2
Starter one-way clutch socket bolt	6	8	30 (3.1, 22)	NOTE 1
Alternator stator mounting bolt	3	6	10 (1.0, 7)	
Ignition pulse generator mounting bolt	2	5	6 (0.6, 4.3)	

### SUB-TRANSMISSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Gearshift stopper cap bolt	1	18	18 (1.8, 13)	
Neutral/Drive/Reverse switch	3	10	13 (1.3, 9)	
Gearshift fork lock nut ('04:)	1	10	35 (3.6, 26)	NOTE 1
Gearshift fork lock nut (After '04:)	1	10	39 (4.0, 29)	NOTE 1

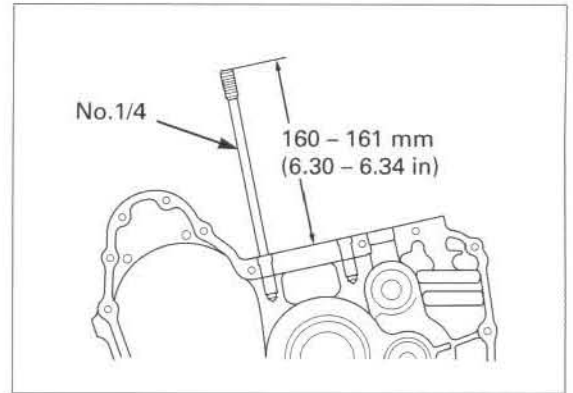
### CRANKSHAFT/AUTOMATIC TRANSMISSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Angle sensor mounting bolt	2	5	6 (0.6, 4.3)	NOTE 1
Angle sensor bracket bolt	2	6	10 (1.0, 7)	

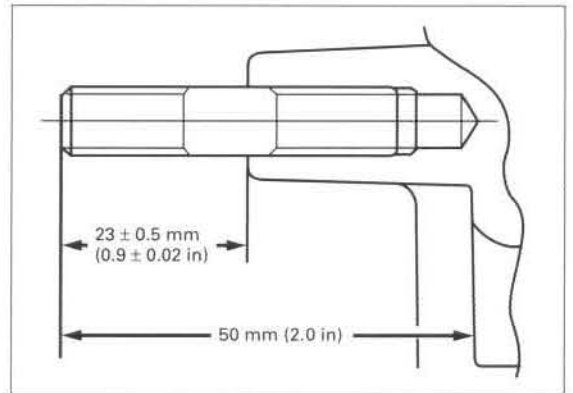
### LIGHTS/METERS/SWITCHES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil thermosensor	1	12	18 (1.8, 13)	

**Cylinder stud bolt**



**Exhaust pipe stud bolt**



## GENERAL INFORMATION

### FRAME

#### FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Muffler band bolt	2	8	23 (2.3, 17)	
Muffler cover high tension bolt	2	6	22 (2.2, 16)	
Exhaust pipe cover high tension bolt	2	6	22 (2.2, 16)	
Muffler pipe cover high tension bolt	6	6	22 (2.2, 16)	
Exhaust cover stay band	2	-	2 (0.2, 1.5)	
Exhaust pipe cover A/B band	4	-	2 (0.2, 1.5)	
Step mounting bolt	4	8	32 (3.3, 24)	
Step bracket bolt	4	8	32 (3.3, 24)	

#### MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front differential oil filler cap	1	30	12 (1.2, 9)	
Front differential oil drain bolt	1	8	12 (1.2, 9)	
Rear final gear case oil filler cap	1	30	12 (1.2, 9)	
Rear final gear case oil check bolt	1	8	12 (1.2, 9)	
Rear final gear case oil drain bolt	1	8	12 (1.2, 9)	
Tie-rod lock nut	4	12	54 (5.5, 40)	

#### LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cooling fan mounting screws	3	5	3 (0.3, 2.2)	NOTE 1
Fan motor mounting tapping screw	3	5	2 (0.15, 1.1)	
Oil cooler tapping screw	1	5	2 (0.15, 1.1)	

#### FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Fuel meter mounting bolt	2	6	12 (1.2, 9)	
Fuel valve mounting bolt	2	6	9 (0.9, 6.5)	
Starting enrichment (SE) valve nut	1	14	2 (0.2, 1.4)	
Throttle drum cover screw	1	4	2 (0.15, 1.1)	

#### ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Right lower engine hanger bolt/nut	1	10	54 (5.5, 40)	
Left lower engine hanger bolt/nut	1	10	54 (5.5, 40)	
Upper engine hanger bracket bolt (frame side)	1	10	54 (5.5, 40)	
Upper engine hanger bolt (engine side)	2	8	32 (3.3, 24)	

#### SUB-TRANSMISSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Shift lever pivot bolt	1	8	21 (2.1, 15)	NOTE 3, 8
Gearshift arm high tension bolt	1	6	16 (1.6, 12)	
Slide plate bolt	2	6	10 (1.0, 7)	
Tie-rod bolt	1	6	10 (1.0, 7)	
Control wire lock nut	1	14	26 (2.7, 20)	

## GENERAL INFORMATION

### FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Handlebar lower holder nut	2	10	39 (4.0, 29)	NOTE 6
Steering shaft end nut	1	14	108 (11.0, 80)	NOTE 6
Steering shaft holder flange bolt	2	8	32 (3.3, 24)	
Tie-rod ball joint nut	4	12	54 (5.5, 40)	
Upper arm pivot nut	4	10	44 (4.5, 33)	NOTE 6
Lower arm pivot nut	4	10	44 (4.5, 33)	NOTE 6
Upper and lower arm ball joint nut	4	12	29 (3.0, 22)	NOTE 7
Shock absorber mounting nut	4	10	30 (3.1, 22)	NOTE 6
Front wheel nut	8	10	64 (6.5, 47)	
Front axle nut	2	16	78 (8.0, 58)	NOTE 7

### REAR WHEEL/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Rear wheel nut	8	10	64 (6.5, 47)	
Rear wheel hub nut	2	20	137 (14.0, 101)	NOTE 7
Shock absorber upper mounting flange bolt/nut	1	10	44 (4.5, 33)	NOTE 6
Shock absorber lower mounting flange bolt	1	10	44 (4.5, 33)	
Swingarm left pivot bolt	1	30	118 (12.0, 87)	
Swingarm right pivot bolt	1	30	4 (0.4, 2.9)	
Swingarm right pivot lock nut	1	30	118 (12.0, 87)	
Final gear case mounting flange bolt	8	10	54 (5.5, 40)	
Left axle housing mounting nut	4	10	44 (4.5, 33)	NOTE 6
Skid plate mounting flange bolt	3	8	32 (3.3, 24)	
Trailer hitch mounting bolt/nut	2	10	44 (4.5, 33)	NOTE 6

### BRAKE SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Front master cylinder reservoir cap screw	2	4	2 (0.15, 1.1)	
Front master cylinder holder SH bolt	2	6	12 (1.2, 9)	
Front brake lever pivot bolt	1	6	6 (0.6, 4.3)	
Front brake lever pivot nut	1	6	6 (0.6, 4.3)	
Brake hose oil bolt	3	10	34 (3.5, 25)	
Brake hose clamp flange bolt	4	6	12 (1.2, 9)	
Brake pipe bolt	2	10	17 (1.7, 12)	
Front brake panel flange bolt	8	8	29 (3.0, 22)	
Wheel cylinder bolt	4	6	8 (0.8, 5.8)	
Wheel cylinder nut	4	8	17 (1.7, 12)	
Wheel cylinder oil pipe joint nut	4	10	16 (1.6, 12)	
Wheel cylinder bleed valve	2	8	6 (0.6, 4.3)	
Rear brake arm pinch bolt	1	8	20 (2.0, 14)	
Rear brake panel drain bolt	1	8	12 (1.2, 9)	

### FRONT DRIVING MECHANISM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Front differential mounting flange bolt/nut	2	10	44 (4.5, 33)	NOTE 6
Front differential mounting bracket flange bolt	2	8	22 (2.2, 16)	
Front differential mounting flange nut	1	8	22 (2.2, 16)	
Gear case cover flange bolt	6	8	25 (2.6, 19)	
Gear case cover bolt	2	10	49 (5.0, 36)	NOTE 1
Differential case assembly mounting bolt	8	8	49 (5.0, 36)	NOTE 1
Final drive clutch assembly mounting flange bolt	3	8	25 (2.5, 18)	
Front sensor cover SH bolt	2	6	10 (1.0, 7)	
Clutch cover stay SH bolt	3	6	10 (1.0, 7)	
Clutch cover flange bolt	2	6	7 (0.7, 5.1)	

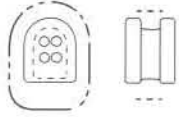
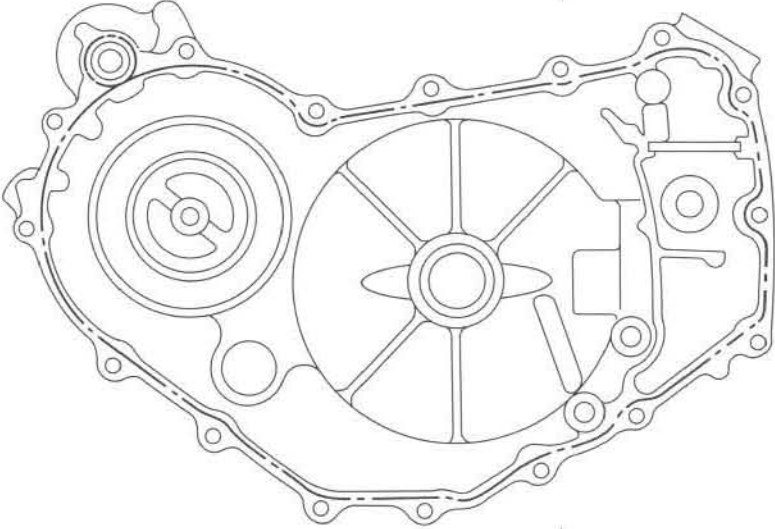
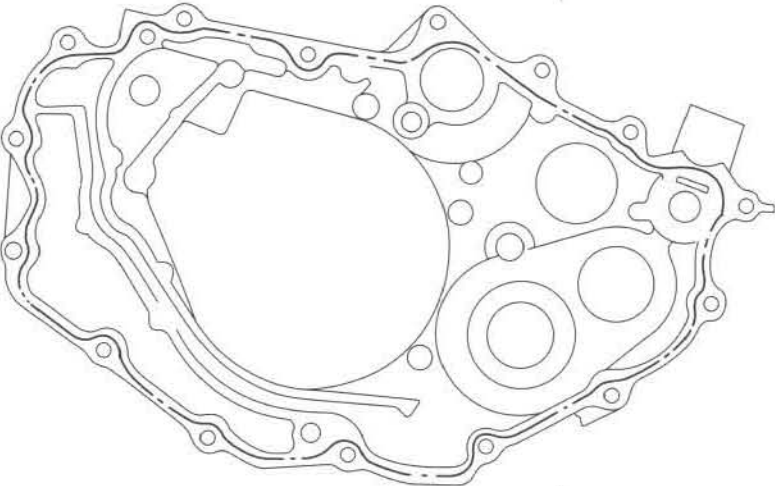
## GENERAL INFORMATION

### REAR DRIVING MECHANISM

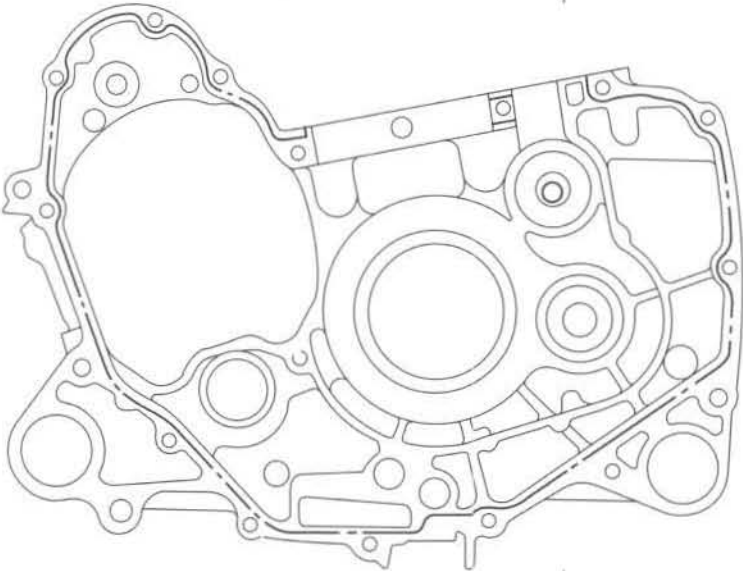
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Final gear case pinion bearing lock nut	1	64	98 (10.0, 72)	NOTE 4, 5
Final gear case cover bolt, 10 mm	2	10	49 (5.0, 36)	NOTE 1
Final gear case cover bolt, 8 mm	6	8	25 (2.6, 19)	

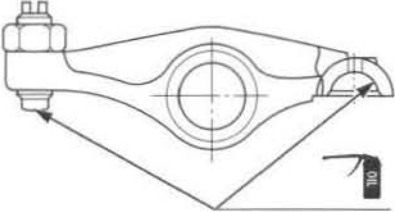
# LUBRICATION & SEAL POINTS

## ENGINE

LOCATION	MATERIAL	REMARKS
<p>Alternator wire grommet seating surface</p> 	<p>Sealant</p>	
<p>Front crankcase cover mating surface</p> 		
<p>Rear crankcase cover mating surface</p> 		

## GENERAL INFORMATION

LOCATION	MATERIAL	REMARKS
<p>Front and rear crankcase mating surface</p> 	<p>Sealant</p>	
<p>Piston pin outer surface            Camshaft cam lobes            Starter gear bearing outer surface</p> <p>Rocker arm shaft (rocker arm sliding surface)            Intake and exhaust valve stem (guide sliding surface)            Transmission bushing journal surface            Starter idle gear shaft journal surface            Starter idle gear teeth            Starter motor pinion end</p>	<p>Molybdenum disulfide solution (a mixture of engine oil and molybdenum disulfide grease in a ratio of 1:1)</p>	<p>Do not apply to tapered area</p>

LOCATION	MATERIAL	REMARKS
<p>Cylinder head cap nut threads and seating surfaces                      Cylinder bore                      Piston outer surface and piston pin hole                      Piston rings                      Connecting rod small end inner surface                      Centrifugal clutch lock nut threads and seating surface                      Cam chain tensioner pivot inner surface                      Cam followers (entire surface)                      Cam chain                      Rocker arm followers and adjusting screw tips</p>	<p>Engine oil</p>	
		
<p>Clutch outer journal surface                      Clutch drive plate one-way clutch contact area                      Primary driven gear bolt threads and seating surface                      Transmission gear teeth and bearing surface                      Mainshaft, countershaft journals                      Recoil starter driven pulley bolt threads and seating surface                      Starter one-way clutch                      Each ball bearing and needle bearing rotating area                      Each oil seal lips                      Each O-ring                      Automatic transmission body contact area                      Automatic transmission control motor gear teeth                      Automatic transmission final driven gear teeth                      Automatic transmission angle sensor shaft journal surface                      Shift fork shaft sliding surface (case/cover/stopper)                      Gearshift lever shaft sliding surface</p>		
<p>Recoil starter driven pulley oil seal lips</p>	<p>Multi-purpose grease</p>	
<p>Gearshift lever and pin sliding surface</p>	<p>Lithium base grease</p>	
<p>Cam chain adjuster mounting bolt threads                      Cam chain tensioner pivot bolt threads                      Camshaft retainer plate mounting bolt threads                      Starter one-way clutch mounting bolt threads                      Recoil starter pulley mounting bolt threads                      Ignition pulse generator mounting bolt threads                      Angle sensor mounting bolt threads                      Rocker arm shaft stopper bolt threads                      Gearshift fork mounting nut threads                      Throttle position sensor mounting screw threads</p>	<p>Locking agent</p>	



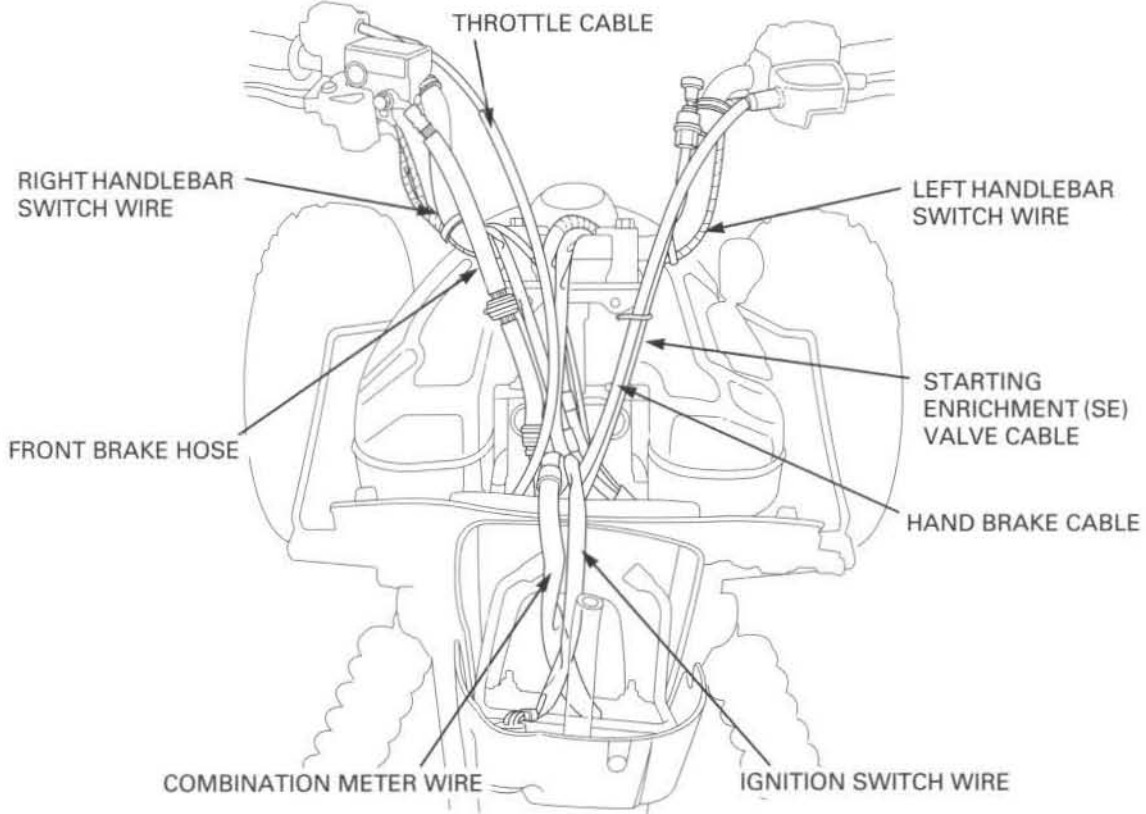
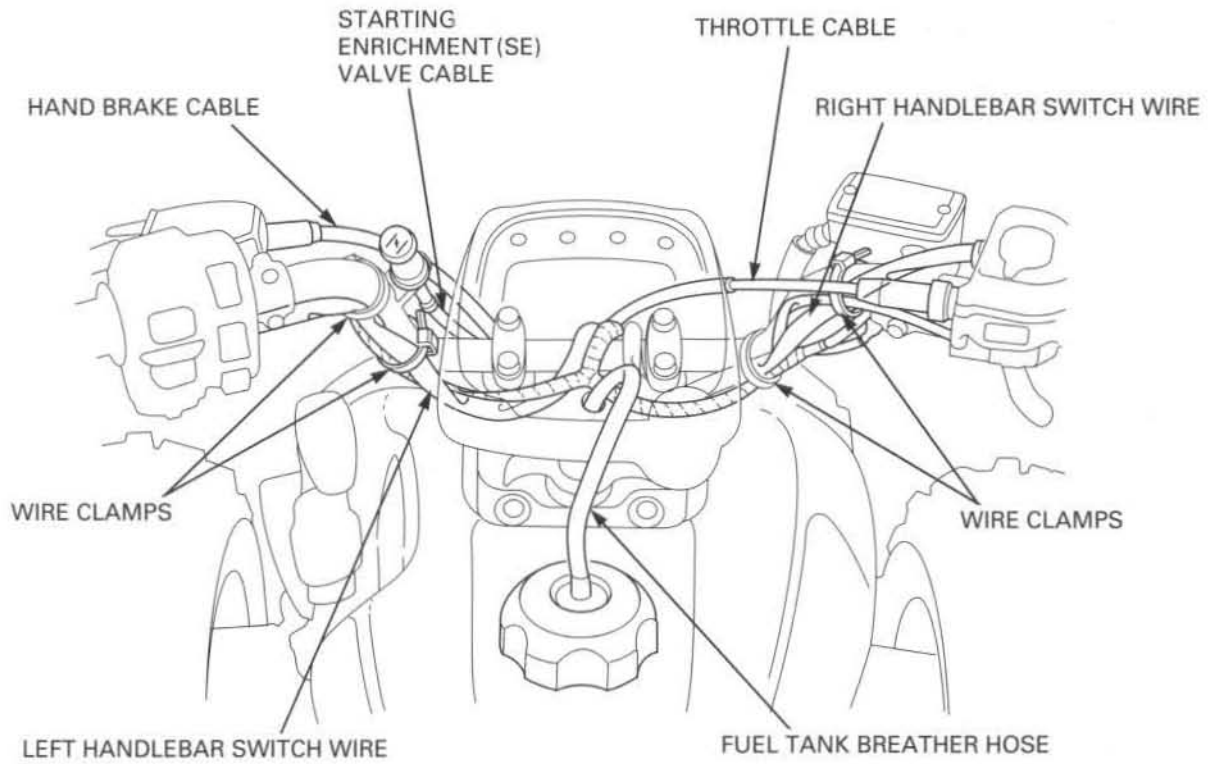


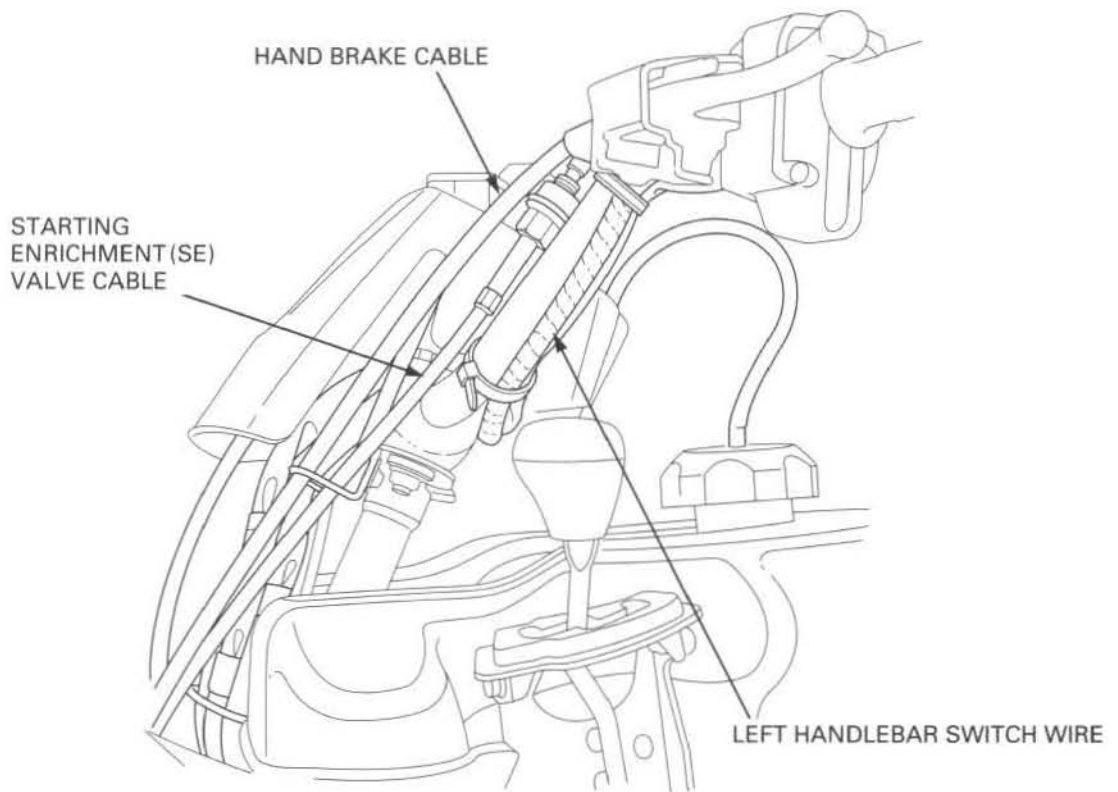
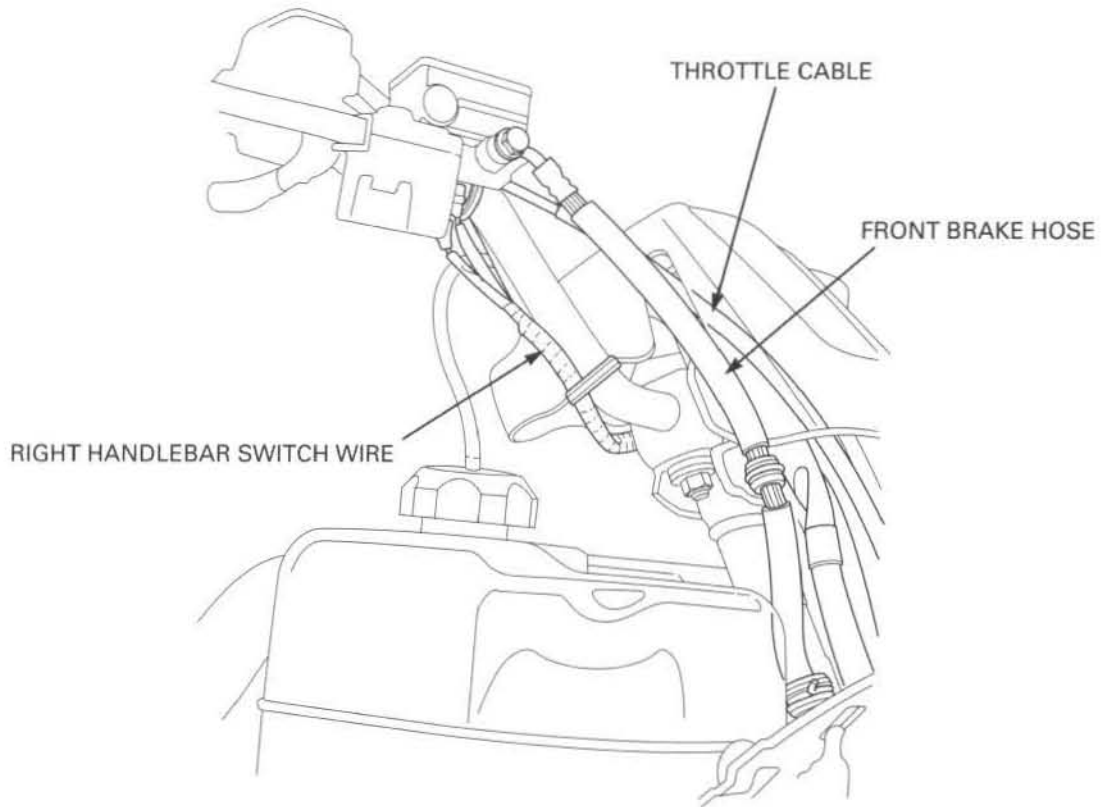
## GENERAL INFORMATION

LOCATION	MATERIAL	REMARKS
Front shock absorber lower dust seal lips and metal bushing	Molybdenum disulfide paste	
Front brake lever-to-master piston contacting area Front brake lever pivot bolt Wheel cylinder adjuster screw threads and adjusting nut spindle outer surface Wheel cylinder body boot and piston boot grooves Front brake panel shoe metal contacting areas Wheel cylinder adjuster and piston grooves (shoe contacting grooves) Rear brake caliper slide pin boot grooves and boots inside	Silicone grease	
Throttle cable outer inside Choke cable outer inside Rear brake cable inside	Cable lubricant	
Brake master cylinder piston and cups Wheel cylinder piston and cup	Honda DOT4 brake fluid	
Handlebar grip rubber inside Air cleaner housing-to-air cleaner connecting tube mating areas Air cleaner housing-to-snorkel duct mating areas Air cleaner housing-to-breather joint mating areas Air cleaner housing-to-sub-chamber connecting tube mating areas	Honda bond A or Honda Hand Grip Cement (U.S.A. only) or equivalent	
Air cleaner element	Pro-Honda foam filter oil or equivalent	
Oil cooler hose joint O-rings	Engine oil	
Wheel cylinder-to-brake panel mating surface Front differential case mating surface Rear final gear case mating surface	Sealant	
Cooling fan nut threads	Locking agent	

GENERAL INFORMATION

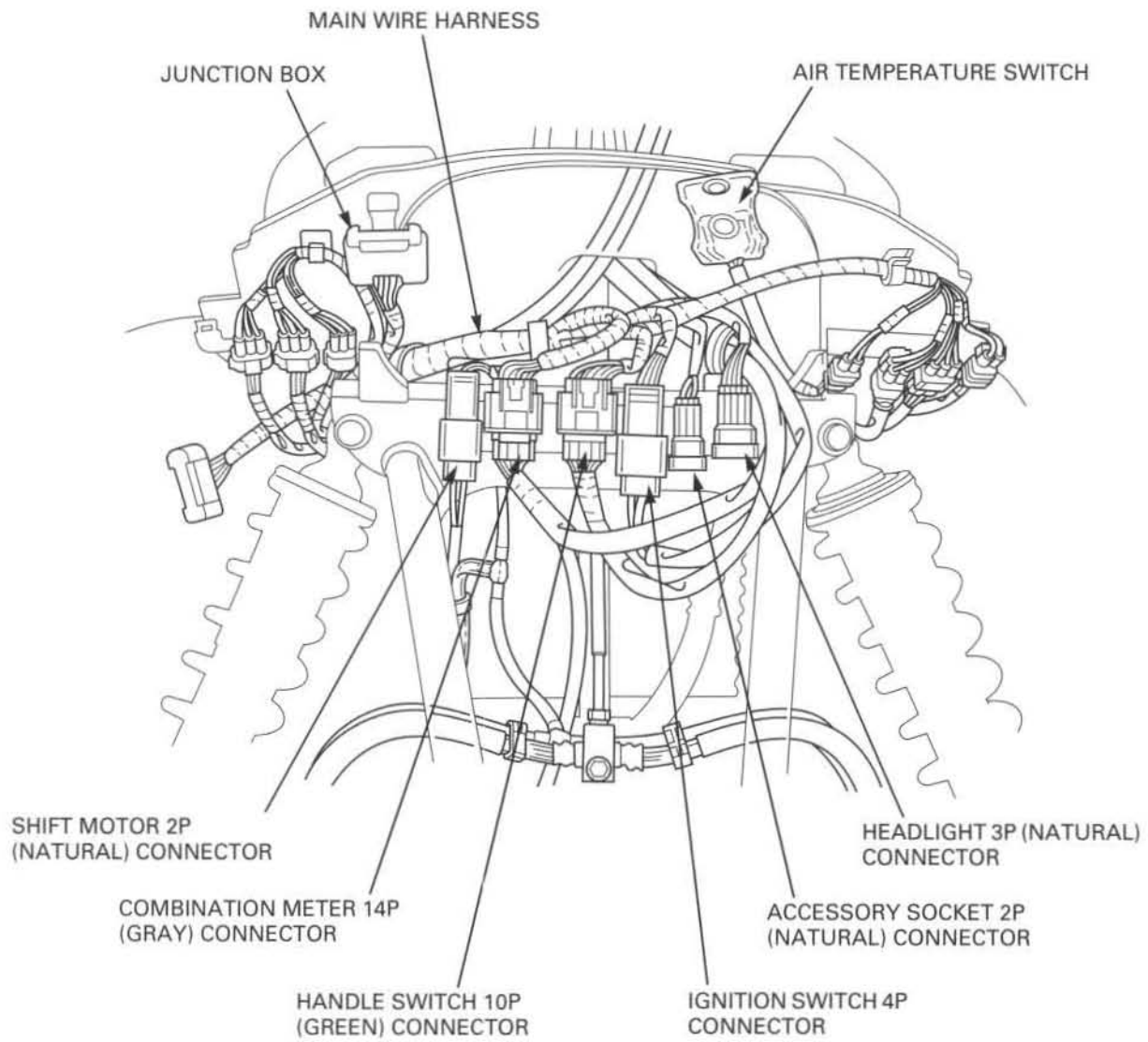
CABLE & HARNESS ROUTING

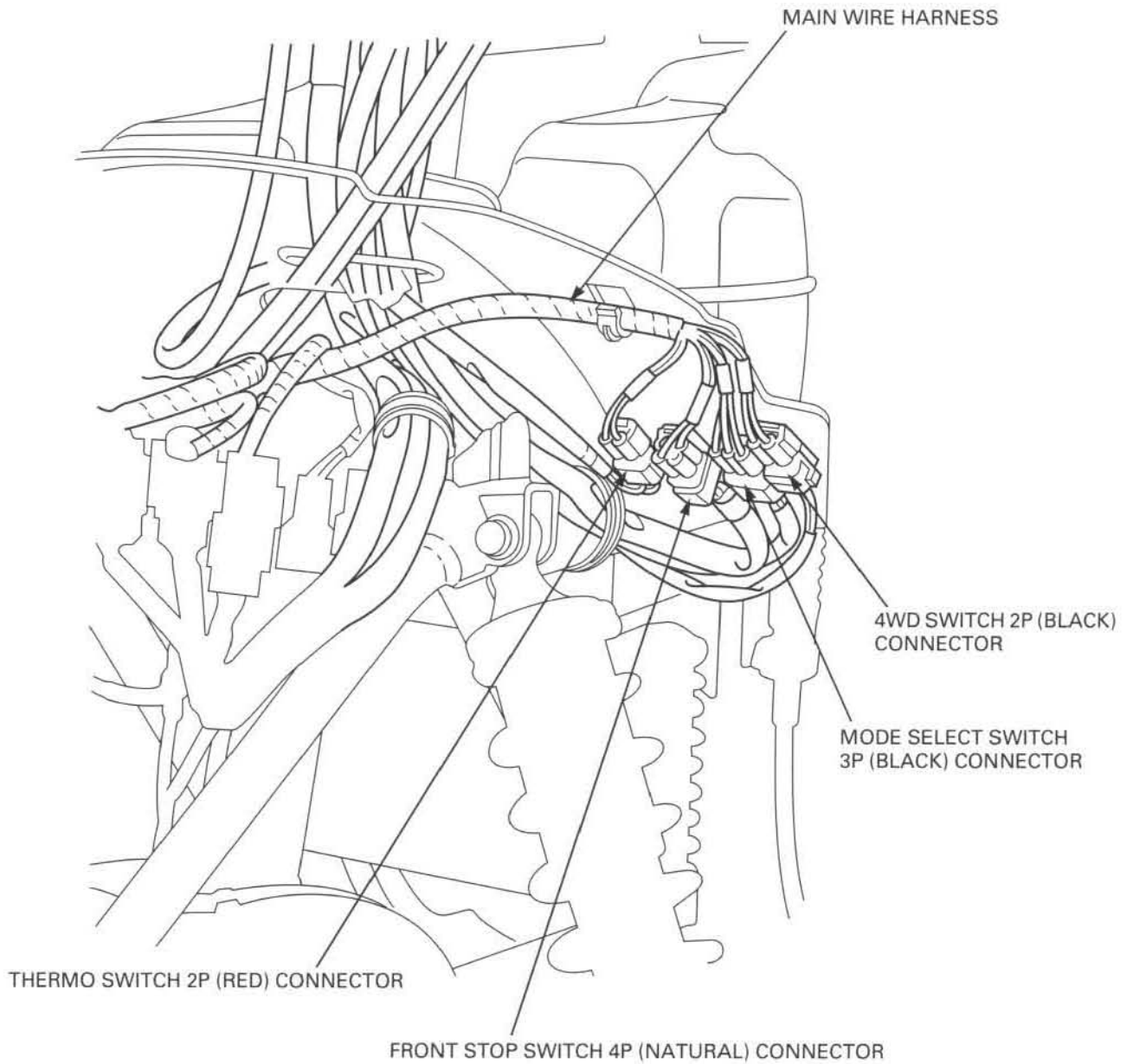




**GENERAL INFORMATION**

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