HOW TO USE THIS MANUAL

This service manual describes the service procedures for the CRF450X.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition.

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

Sections 1 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
Section 4 through 19 describe parts of the motorcycle, 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 don't know the source of the trouble, go to section 21 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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Honda Motor Co., Ltd.
SERVICE PUBLICATION OFFICE

CONTENTS

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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.

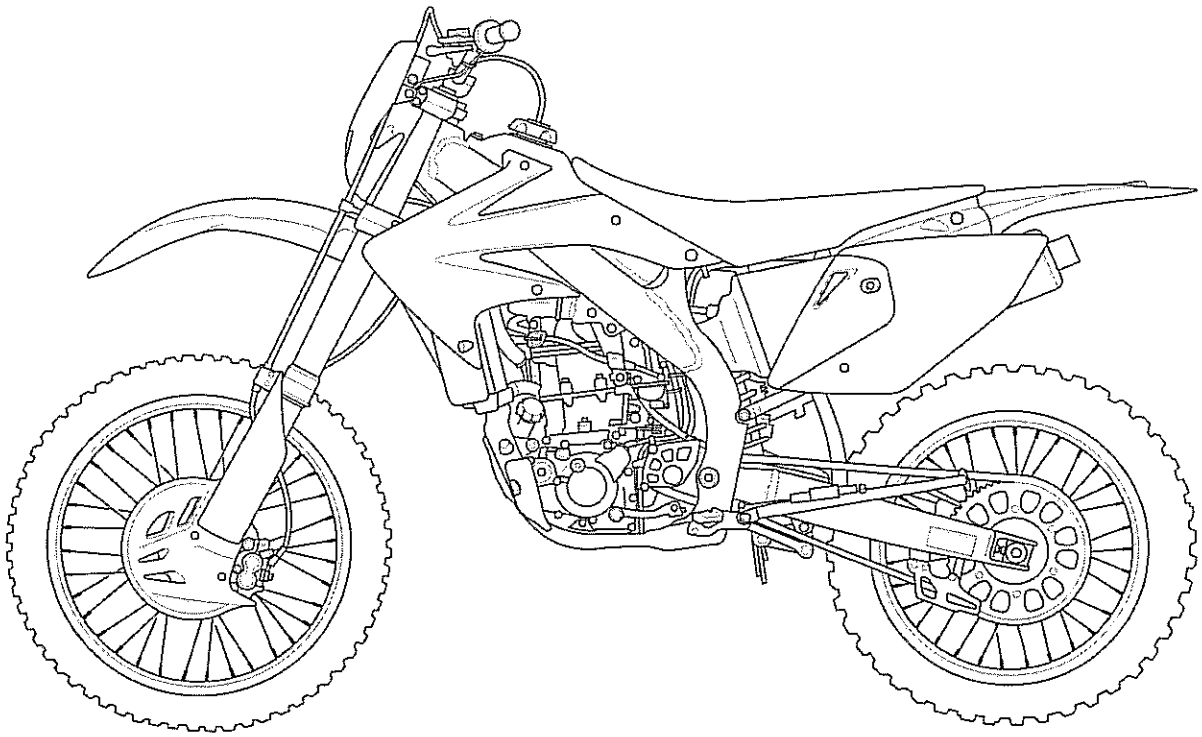
	Replace the part(s) with new one(s) before assembly.
	Use the recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1).
	Use multi-purpose grease (lithium based multi-purpose grease NLGI #2 or equivalent).
	Use 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
	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
	Use silicone grease.
	Apply a locking agent. Use a medium strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use fork or suspension fluid.

1. GENERAL INFORMATION

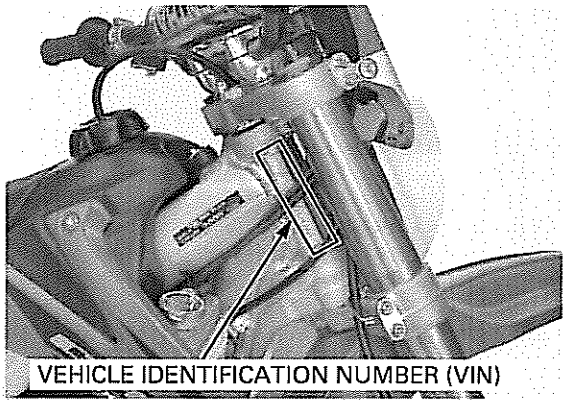
SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the motorcycle. Metric bolts, nuts and screws are not interchangeable with English fastener.
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 shown in the Cable and Harness Routing (page 1-20).

MODEL IDENTIFICATION

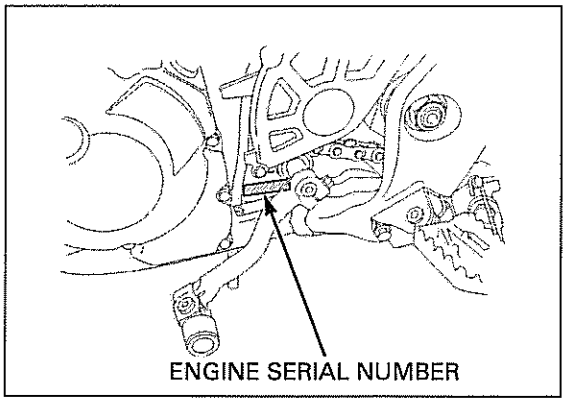


The Vehicle Identification Number (VIN) is stamped on the right side of the steering head.



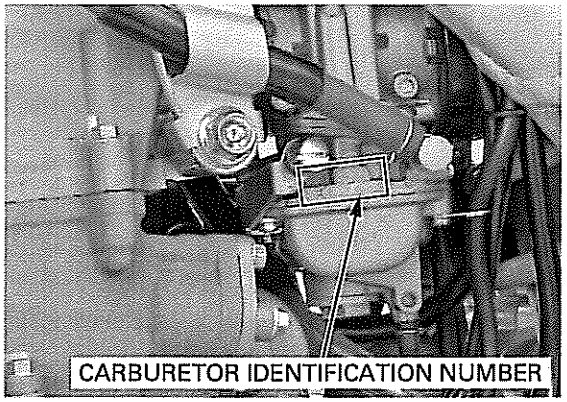
VEHICLE IDENTIFICATION NUMBER (VIN)

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



ENGINE SERIAL NUMBER

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



CARBURETOR IDENTIFICATION NUMBER

GENERAL SPECIFICATIONS

ITEM				SPECIFICATION
DIMENSIONS	Overall length			2,180 mm (85.8 in)
	Overall width			821 mm (32.3 in)
	Overall height			1,273 mm (50.1 in)
	Wheelbase			1,483 mm (58.4 in)
	Seat height			963 mm (37.9 in)
	Footpeg height			431 mm (17.0 in)
	Ground clearance			345 mm (13.6 in)
	Dry weight			116 kg (256 lbs)
FRAME	Frame type			Twin tube
	Front suspension			Telescopic fork
	Front suspension axle travel			279 mm (11.0 in)
	Front suspension cushion stroke			315 mm (12.4 in)
	Rear suspension			Pro-Link
	Rear wheel travel			313 mm (12.3 in)
	Rear damper			Decarbon type with nitrogen gas filled damper
	Front tire size			80/100-21 51M
	Rear tire size			110/100-18 64M
	Tire brand (Dunlop)			Front: D742F/Rear: D756
	Front brake			Hydraulic single disc
	Front brake swept area			334.5 cm^2 (51.8 in^2)
	Rear brake			Hydraulic single disc
	Rear brake swept area			391.1 cm^2 (60.6 in^2)
	Caster angle			27°10′
	Trail length			110 mm (4.3 in)
	Fuel tank capacity			8.6 liter (2.27 US gal, 1.89 Imp gal)
	Fuel tank reserve capacity			1.4 liter (0.37 US gal, 0.31 Imp gal)
ENGINE	Bore and stroke			96.0 x 62.1 mm (3.78 x 2.44 in)
	Displacement			449.4 cm^3 (27.41 cu-in)
	Compression ratio			12.0 : 1
	Valve train			Chain drive and OHC with rocker arm
	Intake valve	opens	at 1 mm (0.04 in) lift	10° BTDC
		closes	at 1 mm (0.04 in) lift	45° ABDC
	Exhaust valve	opens	at 1 mm (0.04 in) lift	50° BBDC
		closes	at 1 mm (0.04 in) lift	15° ATDC
	Lubrication system			Forced pressure and wet sump
	Oil pump type			Trochoid
	Cooling system			Liquid cooled
	Air filtration			Oiled polyurethane foam
	Crankshaft type			Assembled type
	Engine dry weight			32.3 kg (71.2 lbs)
	Cylinder arrangement			Single cylinder, inclined 6° from vertical
CARBURETOR	Carburetor type			Piston valve type
	Venturi diameter			40 mm (1.6 in)
DRIVE TRAIN	Clutch system			Multi-plate, wet
	Clutch operation system			Cable operated
	Transmission			Constant mesh, 5-speed
	Primary reduction			2.739 (63/23)
	Final reduction			3.923 (51/13)
	Gear ratio		1st	2.230 (29/13)
			2nd	1.625 (26/16)
			3rd	1.235 (21/17)
			4th	1.000 (19/19)
			5th	0.826 (19/23)
	Gearshift pattern			Left foot operated return system, 1 - N - 2 - 3 - 4 - 5

ITEM		SPECIFICATION
ELECTRICAL	Ignition system	ICM (Ignition Control Module)
	Starting system	Electric starter motor and kickstarter
	Charging system	Single phase output alternator
	Regulator/rectifier	SCR shorted/Single phase, half wave rectification
	Lighting system	Battery and alternator

LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	At draining	0.67 liter (0.71 US qt, 0.59 Imp qt)	–
	At filter change	0.70 liter (0.74 US qt, 0.62 Imp qt)	–
	At disassembly	0.87 liter (0.92 US qt, 0.78 Imp qt)	–
Transmission oil capacity	At draining	0.65 liter (0.69 US qt, 0.57 Imp qt)	–
	At disassembly	0.75 liter (0.79 US qt, 0.66 Imp qt)	–
Recommended engine oil		Pro Honda, GN4, HP4 (without molybdenum additives) or HP4M (with molybdenum additives) 4-stroke oil, or 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 or MB Viscosity: SAE 10W-40	–
Recommended transmission oil		Pro Honda HP Trans Oil, Pro Honda GN4 or HP4 (without molybdenum additives) 4-stroke oil or an equivalent 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 10 W-40	–
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	–
	Side clearance	0.05 – 0.13 (0.002 – 0.005)	–

FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Fuel tank capacity	8.6 liter (2.27 US gal, 1.89 Imp gal)
Carburetor identification number	FCR04A
Main jet	#142
Slow jet	#45
Jet needle	NCVU
Jet needle clip position (Standard)	2nd from the top
Pilot screw initial opening	1-1/4 turns out
Float level	8.0 mm (0.31 in)
Idle speed	1,700 ± 100 rpm
Throttle grip free play	3 – 5 mm (1/8 – 1/4 in)
Hot starter lever free play	2 – 3 mm (1/16 – 1/8 in)
PAIR control valve specified vacuum (Carifornia type)	56 kPa (420 mm Hg)

COOLING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	At change	1.11 liter (1.16 US qt, 0.97 Imp qt)
	At disassembly	1.20 liter (1.27 US qt, 1.06 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm^2, 16 – 20 psi)
Recommended antifreeze		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
Standard coolant concentration		1 : 1 mixture with distilled water

CYLINDER HEAD/VALVES SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			402 kPa (4.1 kgf/cm², 58 psi) at 360 rpm	–
Cylinder head warpage			–	0.05 (0.002)
Valve and valve guide	Valve clearance	IN	0.16 ± 0.03 (0.006 ± 0.001)	–
		EX	0.28 ± 0.03 (0.011 ± 0.001)	–
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	–
		EX	4.965 – 4.980 (0.1955 – 0.1961)	4.96 (0.195)
	Valve guide I.D.	IN	5.500 – 5.512 (0.2165 – 0.2170)	5.552 (0.2186)
		EX	5.000 – 5.012 (0.1969 – 0.1973)	5.052 (0.1989)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	–
		EX	0.020 – 0.047 (0.0008 – 0.0019)	–
	Valve guide projection above cylinder head	IN	16.1 – 16.3 (0.63 – 0.64)	–
		EX	17.9 – 18.1 (0.70 – 0.71)	–
	Valve seat width	IN	1.1 – 1.3 (0.04 – 0.05)	2.0 (0.08)
		EX	1.3 – 1.5 (0.05 – 0.06)	2.0 (0.08)
Valve spring free length		IN	40.68 (1.602)	39.7 (1.56)
		EX	42.82 (1.686)	41.9 (1.65)
Rocker arm	Rocker arm I.D.		12.000 – 12.018 (0.4724 – 0.4731)	12.05 (0.474)
	Rocker arm shaft O.D.		11.967 – 11.975 (0.4711 – 0.4715)	11.92 (0.469)
	Rocker arm-to-shaft clearance		0.025 – 0.051 (0.0010 – 0.0020)	0.10 (0.004)
Camshaft	Cam lobe height	IN	36.890 – 37.130 (1.4524 – 1.4618)	36.890 (1.4524)
		EX	35.063 – 35.303 (1.3804 – 1.3899)	35.063 (1.3804)
Valve lifter O.D.			25.978 – 25.993 (1.0228 – 1.0233)	25.97 (1.022)
Valve lifter bore I.D.			26.010 – 26.026 (1.0240 – 1.0246)	26.04 (1.025)

CYLINDER/PISTON SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		96.000 – 96.015 (3.7795 – 3.7801)	96.05 (3.781)
	Out of round		–	0.010 (0.0004)
	Taper		–	0.010 (0.0004)
	Warpage		–	0.05 (0.002)
Piston, piston ring	Piston mark direction		IN mark facing toward the intake side	–
	Piston O.D.		95.970 – 95.980 (3.7783 – 3.7787)	95.87 (3.774)
	Piston O.D. measurement point		5.0 mm (0.20 in) from the bottom of skirt	–
	Piston pin bore I.D.		19.002 – 19.008 (0.7481 – 0.7483)	19.03 (0.749)
	Piston pin O.D.		18.994 – 19.000 (0.7478 – 0.7480)	18.98 (0.747)
	Piston-to-piston pin clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.04 (0.002)
	Top ring mark		R mark side facing up	–
	Piston ring-to-ring groove clearance	Top	0.065 – 0.100 (0.0026 – 0.0039)	0.115 (0.0045)
	Piston ring end gap	Top ring	0.25 – 0.31 (0.010 – 0.012)	0.45 (0.018)
		Oil ring (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.90 (0.035)
Cylinder-to-piston clearance			0.020 – 0.045 (0.0008 – 0.0018)	0.18 (0.007)
Connecting rod small end I.D.			19.016 – 19.034 (0.7487 – 0.7494)	19.04 (0.750)
Connecting rod-to-piston pin clearance			0.016 – 0.040 (0.0006 – 0.0016)	0.06 (0.002)

CLUTCH/STARTER CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever free play		10 – 20 (3/8 – 3/4)	–
Clutch spring free length		44.7 (1.76)	43.7 (1.72)
Clutch disc thickness		2.92 – 3.08 (0.115 – 0.121)	2.85 (0.112)
Clutch plate warpage		–	0.15 (0.006)
Kickstarter pinion gear I.D.		22.007 – 22.028 (0.8664 – 0.8672)	22.05 (0.868)
Kickstarter pinion gear bushing	I.D.	20.000 – 20.021 (0.7874 – 0.7882)	20.04 (0.789)
	O.D.	21.979 – 22.000 (0.8653 – 0.8661)	21.96 (0.865)
Kickstarter spindle O.D.		19.980 – 19.993 (0.7866 – 0.7871)	19.97 (0.786)
Kickstarter idle gear I.D.		20.020 – 20.041 (0.7882 – 0.7890)	20.07 (0.790)
Kickstarter idle gear bushing	I.D.	17.000 – 17.018 (0.6693 – 0.6700)	17.04 (0.671)
	O.D.	19.979 – 20.000 (0.7866 – 0.7874)	19.96 (0.786)
Countershaft O.D. at kickstarter idle gear		16.966 – 16.984 (0.6680 – 0.6687)	16.95 (0.667)
Driven gear boss	I.D.	36.009 – 36.034 (1.4177 – 1.4189)	36.034 (1.4189)
	O.D.	45.660 – 45.673 (1.7976 – 1.7981)	45.660 (1.7976)
Reduction gear A I.D.		12.010 – 12.050 (0.4728 – 0.4744)	12.050 (0.4744)
Reduction gear B I.D.		10.045 – 10.085 (0.3955 – 0.3970)	10.085 (0.3970)
Idle gear I.D.		12.010 – 12.050 (0.4728 – 0.4744)	12.050 (0.4744)
Gear holder shafts O.D.		11.989 – 12.000 (0.4720 – 0.4724)	11.989 (0.4720)
Reduction gear shaft O.D.		9.980 – 9.995 (0.3929 – 0.3935)	9.980 (0.3929)

CRANKCASE/CRANKSHAFT/TRANSMISSION/BALANCER SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Crankshaft	Side clearance		0.30 – 0.75 (0.012 – 0.030)	0.75 (0.030)
	Radial clearance		0.006 – 0.018 (0.0002 – 0.0007)	0.05 (0.002)
	Runout	R	–	0.03 (0.001)
		L	–	0.05 (0.002)
Transmission	Gear I.D.	M4	28.007 – 28.028 (1.1026 – 1.1035)	28.05 (1.104)
		M5	25.020 – 25.041 (0.9850 – 0.9859)	25.07 (0.987)
		C1	22.007 – 22.028 (0.8664 – 0.8672)	22.04 (0.868)
		C2	30.020 – 30.041 (1.1819 – 1.1827)	30.07 (1.184)
		C3	25.020 – 25.041 (0.9850 – 0.9859)	25.07 (0.987)
	Bushing O.D.	M4	27.959 – 27.980 (1.1007 – 1.1016)	27.94 (1.100)
		C2	29.979 – 30.000 (1.1803 – 1.1811)	29.95 (1.179)
	Bushing I.D.	C2	27.000 – 27.021 (1.0630 – 1.0638)	27.04 (1.065)
	Gear-to-bushing clearance	M4	0.027 – 0.069 (0.0011 – 0.0027)	0.11 (0.004)
		C2	0.020 – 0.062 (0.0008 – 0.0024)	0.12 (0.005)
	Mainshaft O.D.	M5	24.959 – 24.980 (0.9826 – 0.9835)	24.94 (0.982)
	Countershaft O.D.	C1 bearing	18.987 – 19.000 (0.7475 – 0.7480)	18.94 (0.746)
		C2 bushing	26.959 – 26.980 (1.0614 – 1.0622)	26.94 (1.061)
		C3	24.959 – 24.980 (0.9826 – 0.9835)	24.96 (0.983)
	Gear-to-shaft clearance	M5	0.040 – 0.082 (0.0016 – 0.0032)	0.13 (0.005)
		C3	0.040 – 0.082 (0.0016 – 0.0032)	0.082 (0.0032)
	Bushing-to-shaft clearance	C2	0.020 – 0.062 (0.0008 – 0.0024)	0.12 (0.005)
Shift fork, shift fork shaft	Fork claw thickness		4.93 – 5.00 (0.194 – 0.197)	4.8 (0.19)
	Shift fork I.D.	C	10.989 – 11.011 (0.4326 – 0.4335)	11.011 (0.4335)
		R, L	12.035 – 12.056 (0.4738 – 0.4746)	12.070 (0.4750)
	Fork shaft O.D.	C	10.969 – 10.980 (0.4319 – 0.4323)	10.969 (0.4319)
		R, L	11.966 – 11.984 (0.4711 – 0.4718)	11.950 (0.4700)

FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cold tire pressure			98 kPa (1.0 kgf/cm², 14 psi)	–
Axle runout			–	0.20 (0.008)
Wheel rim runout	Radial		–	2.0 (0.08)
	Axial		–	2.0 (0.08)
Wheel hub-to-rim distance			28.0 ± 1.0 (1.10 ± 0.04)	–
Fork	Spring free length		500 (19.7)	493 (19.4)
	Slider runout		–	0.20 (0.008)
	Recommended fork oil		Pro-Honda HP Fork Oil 5W or equivalent	–
	Oil level		42 – 47 (1.65 – 1.85)	–
	Fluid capacity	Outer tube	332 cm³ (11.2 US oz, 11.7 Imp oz)	–
		Fork damper	190 cm³ (6.4 US oz, 6.7 Imp oz)	
Compression damping adjuster standard position			14 clicks out from full in	–
Rebound damping adjuster standard position			7 clicks out from full in	–

REAR WHEEL/SUSPENSION SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Cold tire pressure		98 kPa (1.0 kgf/cm², 14 psi)	–
Axle runout		–	0.20 (0.008)
Wheel rim runout	Radial	–	2.0 (0.08)
	Axial	–	2.0 (0.08)
Wheel hub-to-rim distance		45.5 ± 1.00 (1.79 ± 0.04)	–
Drive chain slack		25 – 35 (1.0 – 1.4)	60 (2.4)
Drive chain size/link	DID	520MXV - 114	–
Drive chain slider thickness		–	5.0 (0.20)
Drive chain tensioner roller I.D.	Upper	–	39 (1.5)
	Lower	–	35 (1.4)
Shock absorber	Damper gas pressure	980 kPa (10.0 kg/cm², 142 psi)	–
	Damper compressed gas	Nitrogen gas	–
	Recommended shock oil	Pro-Honda HP Fork Oil 5W or equivalent	–
	Damper rod compressed force at 12 mm compressed	20.0 – 24.0 kgf (44.1 – 52.9 lbf)	–
	Standard oil capacity	395 cm³ (13.4 US oz 13.9 Imp oz)	–
	Spring installed length (standard)	258.5 (10.18)	–
High speed side compression damping adjuster standard position		3/4 – 1-1/4 turns out from full in	–
Low speed side compression damping adjuster standard position		10 clicks out from full in	–
Rebound damping adjuster standard position		11 – 14 clicks out from full in	–

HYDRAULIC BRAKE SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Front	Brake fluid	DOT 4	–
	Brake disc thickness	3.0 (0.12)	2.5 (0.10)
	Brake disc warpage	–	0.15 (0.006)
	Master cylinder I.D.	11.000 – 11.043 (0.4331 – 0.4348)	11.050 (0.4350)
	Master piston O.D.	10.957 – 10.987 (0.4314 – 0.4324)	10.840 (0.4268)
	Caliper cylinder I.D.	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)
	Caliper piston O.D.	26.861 – 26.894 (1.0575 – 1.0588)	26.853 (1.0572)
Rear	Brake fluid	DOT 4	–
	Brake disc thickness	4.0 (0.16)	3.5 (0.14)
	Brake disc warpage	–	0.15 (0.006)
	Master cylinder I.D.	9.520 – 9.563 (0.3748 – 0.3765)	9.575 (0.3770)
	Master piston O.D.	9.477 – 9.504 (0.3731 – 0.3742)	9.465 (0.3726)
	Caliper cylinder I.D.	22.650 – 22.700 (0.8917 – 0.8937)	22.712 (0.8942)
	Caliper piston O.D.	22.585 – 22.618 (0.8892 – 0.8905)	22.573 (0.8887)
	Brake pedal push rod standard length	79.6 mm (3.13 in)	–

BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM			SPECIFICATIONS
Battery	Capacity		12 V – 6 Ah
	Current leakage		0.1 mA max.
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	0.5 A/5 – 10 h
		Quick	3.0 A/1.0h
Alternator	Capacity		78 W/5,000 rpm

IGNITION SYSTEM SPECIFICATIONS

ITEM			SPECIFICATION
Spark plug	Standard	(NGK)	IFR8H11
		(DENSO)	VK24PRZ11
	Optional	(NGK)	IFR9H11
		(DENSO)	VK27PRZ11
Spark plug gap			1.0 – 1.1 mm (0.039 – 0.043 in)
Ignition coil resistance (at 20 °C/68 °F)	Primary		0.1 – 0.3 Ω
	Secondary with plug cap		9 – 16 kΩ
	Secondary with out plug cap		4 – 8 kΩ
Ignition coil peak voltage			100 V minimum
Ignition pulse generator resistance (at 20°C/68°F)			180 – 280 Ω
Ignition pulse generator peak voltage			0.7 V minimum
Alternator exciter coil resistance (at 20°C/68°F)			9 – 28 Ω
Ignition timing ("F" mark)			8° ± 2° BTDC/1,800 rpm
Throttle position sensor resistance (at 20 °C/68 °F)			4 – 6 kΩ

ELECTRIC STARTER SPECIFICATIONS

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	10.25 (0.404)	6.75 (0.266)

LIGHTS/METER/SWITCHES SPECIFICATIONS

ITEM	SPECIFICATIONS
Headlight	12 V – 35 W
Tail light	LED
Fuse	15 A

STANDARD TORQUE VALUES

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm hex bolt and nut	5.2 (0.5, 3.8)	5 mm screw	4.2 (0.4, 3.1)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9.0 (0.9, 6.6)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt	
10 mm hex bolt and nut	34 (3.5, 25)	(8 mm head)	9.0 (0.9, 6.6)
12 mm hex 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	27 (2.8, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

ENGINE & FRAME TORQUE VALUES

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

NOTE:

1. Apply oil to the threads and seating surface.
2. Apply a locking agent to the threads.
3. Stake.
4. U-nut
5. ALOC bolt/screw; replace with new one.
6. Loosen the bolt 1/8 to 1/4 turns after tightening it to the specified torque, then tighten the pivot nut.
7. Apply grease to the threads.

ENGINE

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine oil drain bolt	1	8	16 (1.6, 12)	
Transmission oil drain bolt	1	8	22 (2.2, 16)	
Crankshaft hole cap	1	30	15 (1.5, 11)	NOTE 7
Timing hole cap	1	14	10 (1.0, 7)	
Spark plug	1	14	22 (2.2, 16)	

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Throttle drum cover bolt	1	5	3.4 (0.3, 2.5)	
Needle jet	1	7	1.8 (0.2, 1.3)	
Main jet	1	5	1.5 (0.2, 1.1)	
Slow jet	1	10	1.5 (0.2, 1.1)	
Slow air jet	1	5	0.9 (0.1, 0.7)	
Starter jet	1	5	1.5 (0.2, 1.1)	
Carburetor top cover bolt	2	4	2.1 (0.2, 1.5)	
Throttle shaft screw	1	4	2.1 (0.2, 1.5)	NOTE 2
Float chamber screw	4	4	2.1 (0.2, 1.5)	
Accelerator pump cover screw	3	4	2.1 (0.2, 1.5)	
Carburetor drain plug	1	18	4.9 (0.5, 3.6)	
Choke valve lock nut	1	12	2.1 (0.2, 1.5)	
Hot start valve lock nut	1	–	2.1 (0.2, 1.5)	
Jet needle holder	1	8	2.1 (0.2, 1.5)	
Throttle position sensor torx screw	1	5	3.4 (0.3, 2.5)	NOTE 2

COOLING SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Water pump impeller	1	7	12 (1.2, 9)	

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Drive sprocket bolt	1	8	31 (3.2, 23)	

CYLINDER HEAD/VALVES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head cover bolt	3	6	10 (1.0, 7)	
Camshaft holder mounting bolt	4	6	14 (1.4, 10)	NOTE 1
Decompressor lifter arm mounting nut	1	8	22 (2.2, 16)	NOTE 1
Decompressor cam mounting bolt	1	8	24 (2.4, 18)	NOTE 1
Decompressor adjusting bolt lock nut	1	5	10 (1.0, 7)	NOTE 1
Cylinder head nut	4	10	66 (6.7, 49)	NOTE 1
Cam chain tensioner bolt	1	6	12 (1.2, 9)	NOTE 2
Cam sprocket bolt	2	7	20 (2.0, 15)	NOTE 2

CYLINDER/PISTON

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cam chain tensioner lifter mounting bolt	2	6	12 (1.2, 9)	

CLUTCH/STARTER CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Gearshift drum center pin	1	8	22 (2.2, 16)	NOTE 2
Gearshift drum stopper arm bolt	1	6	12 (1.2, 9)	
Clutch center lock nut	1	18	80 (8.2, 59)	NOTE 1
Clutch spring bolt	6	6	12 (1.2, 9)	
Gearshift return spring pin	1	8	22 (2.2, 16)	
Gearshift pedal pinch bolt	1	6	12 (1.2, 9)	
Clutch cover bolt	6	8	10 (1.0, 7)	
Kickstarter pedal bolt	1	8	38 (3.9, 28)	
Primary drive gear bolt	1	12	108 (11.0, 80)	NOTE 1

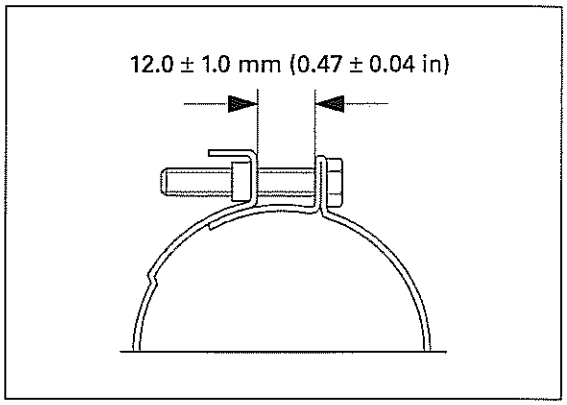
CRANKCASE/CRANKSHAFT/TRANSMISSION/BALANCER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Crankshaft bearing set plate torx screw	2	6	10 (1.0, 7)	NOTE 2
Countershaft bearing set plate screw	2	6	10 (1.0, 7)	NOTE 2
Gearshift drum bearing set plate bolt	2	6	10 (1.0, 7)	NOTE 2
Mainshaft bearing set plate bolt	2	6	10 (1.0, 7)	NOTE 2
Balancer shaft bearing set plate bolt	2	6	10 (1.0, 7)	NOTE 2
Balancer shaft nut	1	14	44 (4.5, 33)	NOTE 1
Oil jet mounting bolt	1	6	10 (1.0, 7)	NOTE 2

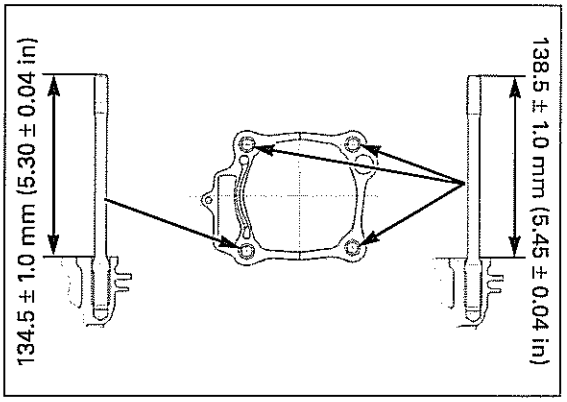
ALTERNATOR

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Flywheel nut	1	12	64 (6.5, 47)	NOTE 1
Ignition pulse generator mounting bolt	2	5	5.2 (0.5, 3.8)	NOTE 2
Stator mounting bolt	3	4	2.6 (0.3, 1.9)	NOTE 2

Insulator band:



Cylinder stud bolt:



FRAME

FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Seat mounting bolt	2	8	26 (2.7, 19)	
Sub-frame mounting bolt (upper)	2	8	30 (3.1, 22)	
(lower)	2	10	49 (5.0, 36)	
Seat bracket screw	1	5	3.9 (0.4, 2.9)	
Tank band hook screw	1	5	3.9 (0.4, 2.9)	
Muffler joint band bolt	1	8	21 (2.1, 15)	
Muffler mounting bolt	2	8	26 (2.7, 20)	
Exhaust pipe joint nut	2	8	21 (2.1, 15)	
Heat shield bolt	2	6	12 (1.2, 9)	
Exhaust pipe protector bolt	2	6	12 (1.2, 9)	
Spark arrester assembly mounting bolt	4	6	12 (1.2, 9)	
Diffuser mounting torx screw	1	6	12 (1.2, 9)	
Step bracket (upper)	2	12	54 (5.5, 40)	NOTE 1
(lower)	2	8	29 (3.0, 22)	NOTE 1
Rear fender mounting bolt	2	6	13 (1.3, 9)	

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine hanger plate bolt	4	8	26 (2.7, 19)	
Engine mounting nut (front)	1	10	54 (5.5, 40)	
(upper)	1	10	54 (5.5, 40)	
(lower)	1	10	54 (5.5, 40)	
Drive sprocket bolt	1	8	26 (2.7, 19)	

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front axle nut	1	16	88 (9.0, 65)	
Front axle holder bolt	4	8	20 (2.0, 15)	
Front spoke	36	BC3.5	3.68 (0.4, 2.7)	
Front rim lock	1	8	12 (1.2, 9)	
Front brake disc nut	6	6	16 (1.6, 12)	NOTE 4
Steering stem nut	1	26	108 (11.0, 80)	
Steering stem adjusting nut	1	30	See page 13-39	
Fork top bridge pinch bolt	4	8	22 (2.2, 16)	
Fork bottom bridge pinch bolt	4	8	20 (2.0, 15)	
Fork cap	2	39	30 (3.1, 22)	
Fork center bolt	2	22	69 (7.0, 51)	
Fork center bolt lock nut	2	12	22 (2.2, 16)	
Plug bolt	2	5	1.2 (0.1, 0.9)	
Fork damper	2	50	34 (3.5, 25)	
Fork protector mounting bolt	6	6	7.0 (0.7, 5.2)	NOTE 2
Front brake disc cover bolt	2	6	13 (1.3, 10)	NOTE 2
Brake lever adjusting lock nut	1	5	5.9 (0.6, 4.3)	
Handlebar upper holder bolt	4	8	22 (2.2, 16)	
Handlebar lower holder nut	2	10	44 (4.5, 32)	NOTE 4
Clutch lever pivot bolt	1	6	1.0 (0.1, 0.7)	
Clutch lever pivot nut	1	6	6.0 (0.6, 4.4)	
Engine stop button screw	1	4	1.5 (0.2, 1.1)	
Engine starter switch housing screw	2	4	1.15 (0.1, 0.8)	

REAR WHEEL/BRAKE/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear axle nut	1	22	128 (13.1, 94)	NOTE 4
Rear spoke	32	4.5	3.7 (0.4, 2.7)	
Rear rim lock	1	8	12 (1.2, 9)	
Rear brake disc nut	6	6	16 (1.6, 12)	NOTE 4
Driven sprocket nut	6	8	32 (3.3, 24)	
Rear wheel bearing retainer	1	50	44 (4.5, 32)	
Swingarm pivot nut	1	14	88 (9.0, 65)	NOTE 4
Shock arm nut (swingarm side)	1	12	53 (5.4, 39)	NOTE 1, 4
(shock link side)	1	12	53 (5.4, 39)	
Shock link nut (frame side)	1	12	53 (5.4, 39)	NOTE 1, 4
Shock absorber upper mounting nut	1	10	44 (4.5, 32)	NOTE 4
Shock absorber lower mounting nut	1	10	44 (4.5, 32)	NOTE 4
Shock absorber spring lock nut	1	60	44 (4.5, 32)	NOTE 1, 4
Drive chain slider screw	3	5	4.2 (0.4, 3.1)	
Drive chain roller bolt/nut	2	8	12 (1.2, 9)	
Drive chain guide mounting bolt/nut	3	6	12 (1.2, 9)	NOTE 4
Drive chain adjusting bolt lock nut	2	8	27 (2.8, 20)	
Shock absorber damper rod end nut	1	12	37 (3.8, 27)	NOTE 3
Shock absorber damping adjuster	1	27	29 (3.0, 21)	NOTE 3

HYDRAULIC BRAKE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Brake hose oil bolt	4	10	34 (3.5, 25)	
Brake lever adjusting lock nut	1	5	5.9 (0.6, 4.4)	
Brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	
Front brake hose guide bolt	1	6	5.2 (0.5, 3.8)	
Rear brake hose guide screw	6	5	1.2 (0.1, 0.9)	
Front master cylinder reservoir cover screw	2	5	1.0 (0.1, 0.7)	
Front master cylinder holder bolt	2	6	9.9 (1.0, 7)	
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	NOTE 2
Caliper bleed valve	2	8	5.4 (0.6, 4.0)	
Rear master cylinder mounting bolt	2	6	13 (1.3, 10)	
Rear master cylinder reservoir cover bolt	2	6	1.0 (0.1, 0.7)	
Front caliper pin bolt	1	8	22 (2.2, 16)	NOTE 2
Rear caliper pin bolt	1	12	27 (2.8, 20)	
Brake caliper pad pin	2	10	18 (1.8, 13)	
Front brake caliper pad pin plug	1	10	2.0 (0.2, 1.5)	
Front caliper bracket pin bolt	1	8	22 (2.2, 16)	NOTE 2
Rear caliper bracket pin bolt	1	8	12 (1.2, 9)	NOTE 2
Brake pedal pivot bolt	1	10	36 (3.7, 27)	NOTE 2
Brake pedal adjusting lock nut	1	6	5.9 (0.6, 4.4)	

LIGHTS/METER/SWITCHES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Head light mounting screw	2	5	0.69 (0.1, 0.5)	
Tail light mounting screw	2	5	4.2 (0.4, 3.1)	

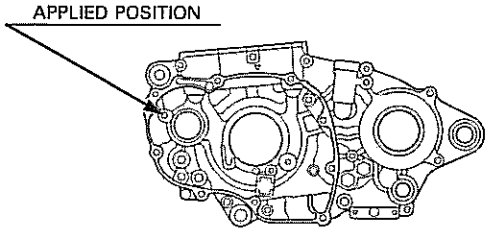
OTHERS

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Step bracket mounting bolt (upper)	1	10	54 (5.5, 40)	
(lower)	1	8	39 (4.0, 29)	
Side stand pivot bolt	1	10	See page 3-32	NOTE 6
Side stand pivot nut	1	10	39 (4.0, 29)	NOTE 4

LUBRICATION & SEAL POINTS

ENGINE

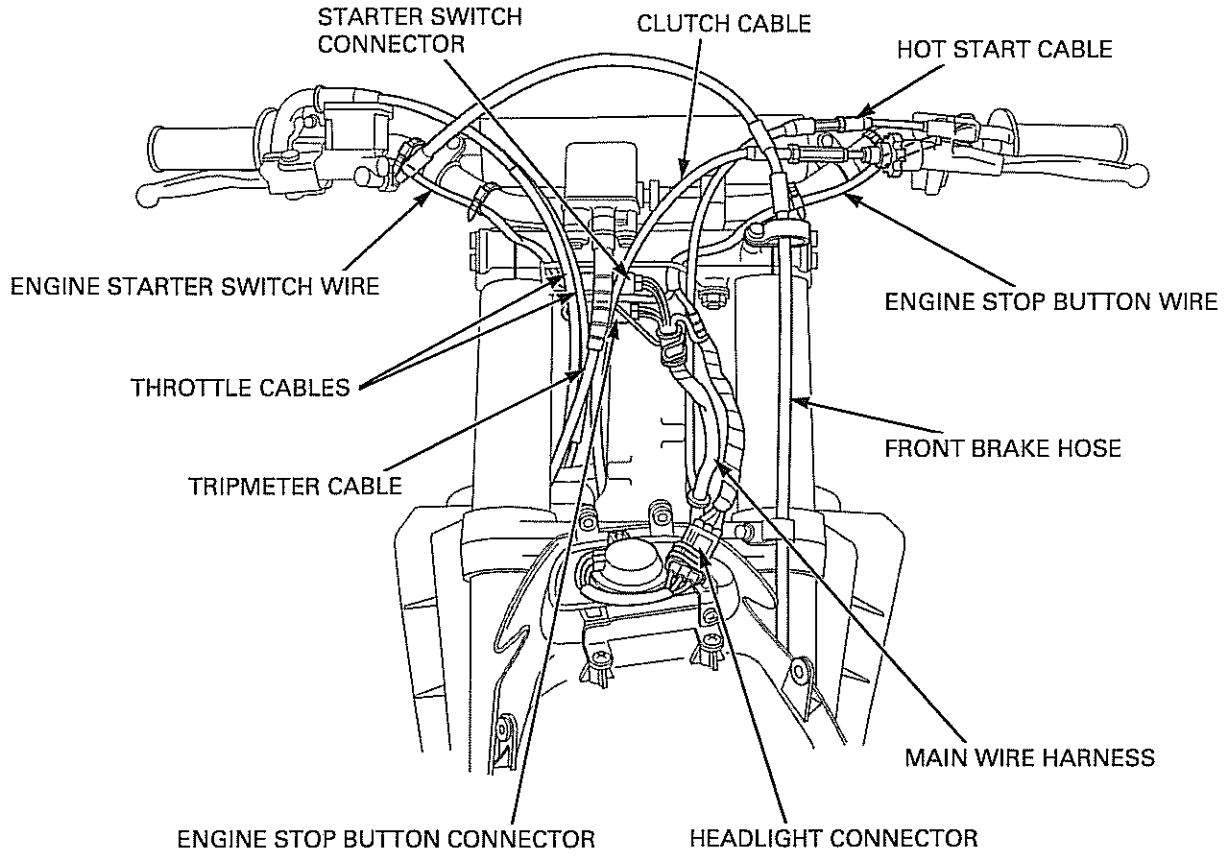
LOCATION	MATERIAL	REMARKS
Camshaft journal and lobes Rocker arm slipper surfaces Rocker arm and shaft sliding surfaces Valve stem (valve guide sliding surfaces) Valve stem end sliding surface Valve lifter outer surface Clutch outer guide inner surfaces Clutch outer needle bearing rolling area Clutch lifter lever cam area Kickstarter pinion sliding surfaces Kickstarter spindle spline area and gear rolling area Starter gear holder rolling surfaces Connecting rod small end inner surface Mainshaft spline area and sliding surface Countershaft spline area and sliding surface Transmission gear and sliding surfaces Shift fork gear guide area and guide pin area Shift fork sliding surface Shift fork shafts outer surface	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 100g : 70 cc)	
Camshaft holder mounting bolt threads Cylinder head nut threads and seating surfaces Balancer shaft nut seating surface Piston outer surface and piston pin hole Piston pin outer surface Piston rings Cylinder bore Kickstarter pinion inner surface Decompressor cam mounting bolt Decompressor lifter mounting nut threads Clutch lifter and lifter rod sliding area Clutch lifter piece needle bearing Clutch disc linings and plates Clutch center lock nut seating surfaces Clutch outer sliding surfaces Primary drive gear tightening bolt threads One-way clutch outer surfaces Starter clutch outer sliding surfaces Starter driven gear sliding surfaces Flywheel nut threads and seating surfaces Transmission gear teeth Gearshift fork pins and inner surfaces Shift drum guide grooves Shift spindle serration area Oil pump rotors sliding area Bearings O-rings	Engine oil	
Crankshaft hole cap threads Timing hole cap thread Countershaft O-ring Armature shaft end Oil seal lips Dust seal lips Oil filter spring contact area Water seal lip	Multi-purpose grease	

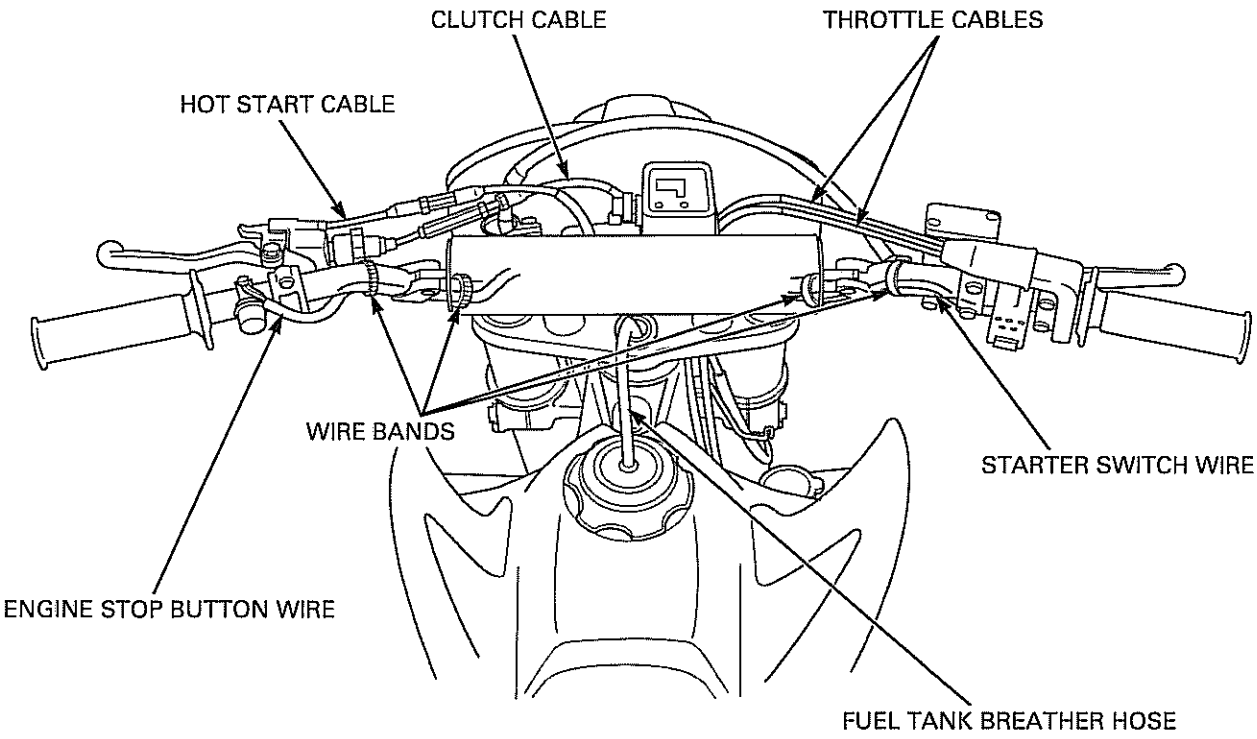
LOCATION	MATERIAL	REMARKS
Shift drum center pin bolt threads Stator mounting bolt threads Pulse generator mounting bolt Camshaft sprocket mounting bolt threads Balancer shaft bearing set plate bolt threads Mainshaft bearing set plate bolt threads Shift drum bearing set plate bolt threads Countershaft bearing set plate screw threads Cam chain tensioner bolt threads Throttle shaft screw threads Throttle position sensor mounting screw threads Oil jet mounting bolt Crankcase tightening bolt threads 	Locking agent	Coating width: 6.5 mm (0.26 in) from tip Coating width: 6.5 mm (0.26 in) from tip Coating width: 6.5 mm (0.26 in) from tip Coating width: 2.5 mm (0.10 in) from tip Coating width: 2.5 mm (0.10 in) from tip
Crankshaft bearing set plate torx screw threads	Locking agent (Pro Honda lock 3 or equivalent high strength locking agent)	Coating width: 6.5 mm (0.26 in) from tip
Alternator wire grommet sealing surface	Liquid sealant	

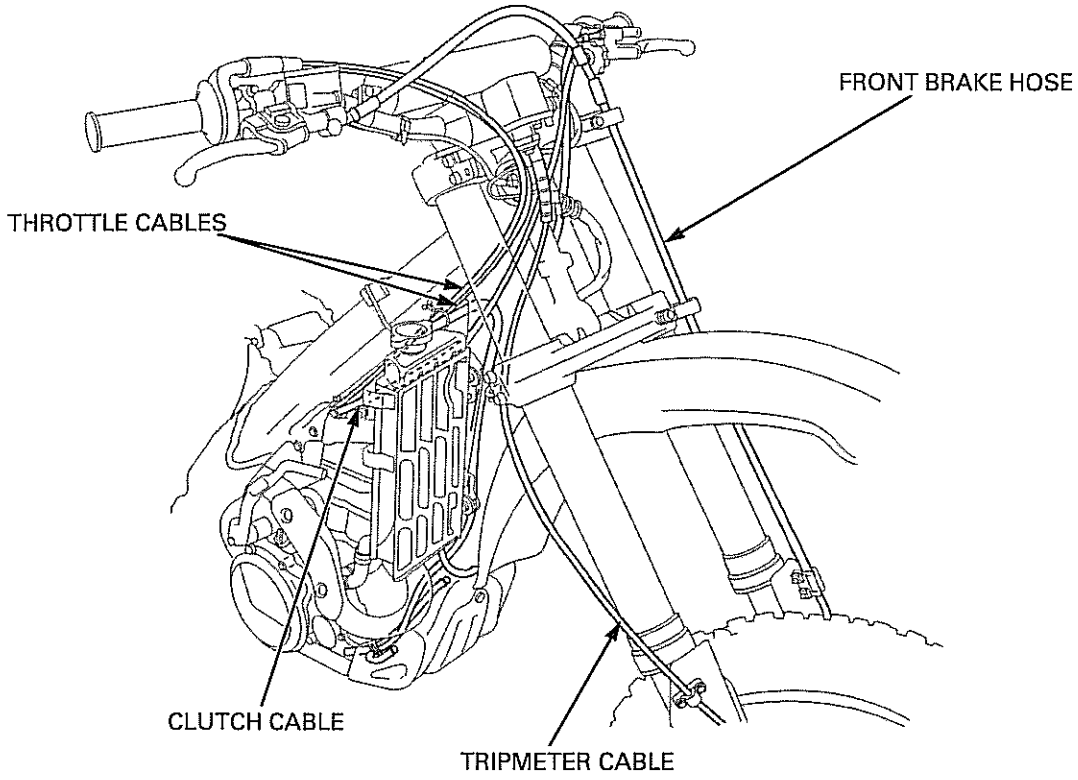
FRAME

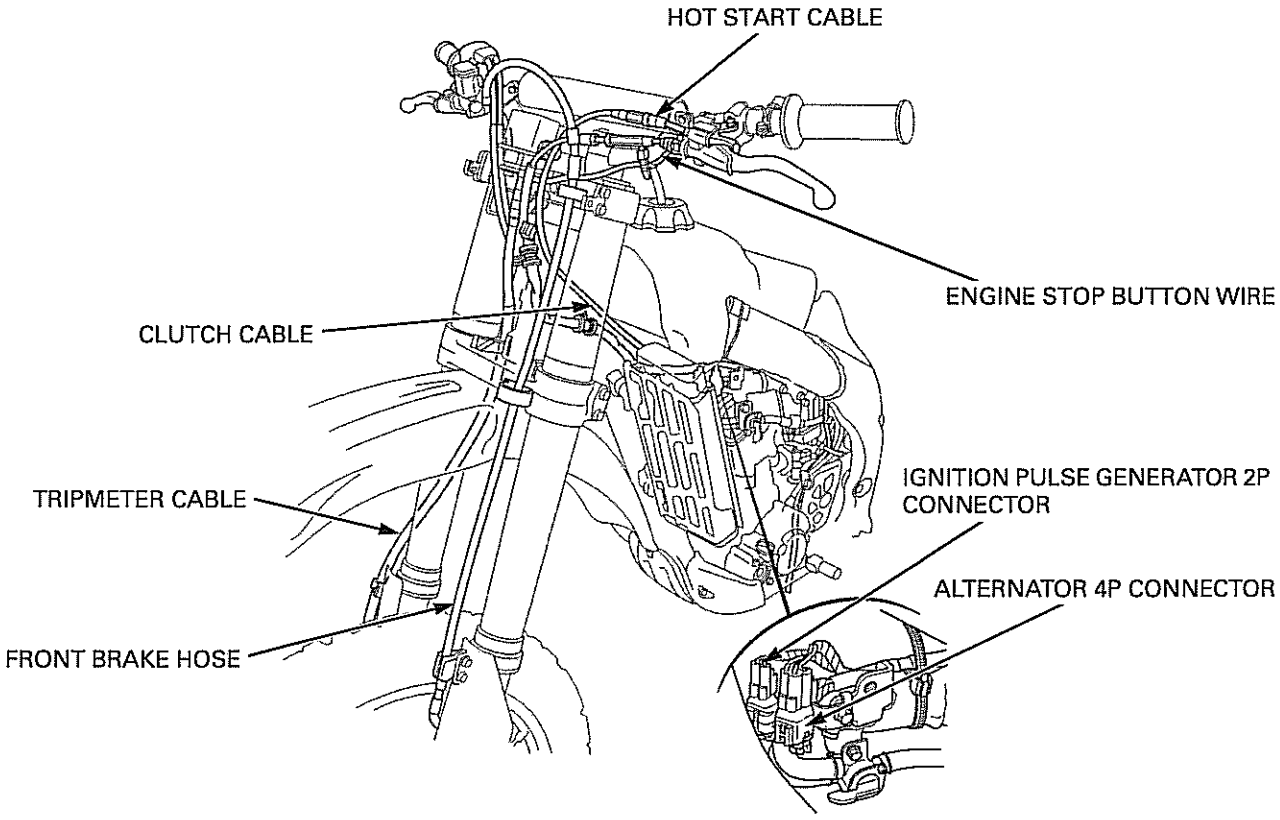
LOCATION	MATERIAL	REMARKS
Steering head bearing rolling area and dust seal lips	Urea based multi-purpose grease with extreme pressure (example: EXCELITE EP2 manufactured by KYODOYUSI Japan, Shell stamina EP2 or equivalent)	Apply 3 - 5 g for each bearing
Wheel bearing dust seal lips Wheel side collar inside surface Wheel bearing rolling area Kickstarter arm joint Swingarm pivot bolt sliding surface Swingarm pivot needle bearing rolling area Swingarm pivot thrust bearing rolling area Swingarm pivot dust seal lips Shock arm needle bearing rolling area Shock arm dust seal lips Shock linkage side collar Shock linkage needle bearing sliding surface Rear shock absorber spherical bearing rolling area Rear shock absorber dust seal lips Brake pedal pivot shaft sliding area Shift change pedal sliding area of pin Throttle cable sliding surface Clutch cable end adjuster inside surface Side stand pivot bolt sliding surface	Multi-purpose grease	Apply 3 g Apply 3 g
Brake caliper pin bolt sliding area Brake caliper bracket pin bolt sliding area Brake caliper dust seal lips Brake caliper and brake pin boots inside surface Brake lever pivot bolt sliding surface Brake lever adjusting bolt tip Rear master cylinder push rod rounded surface Rear master cylinder boot fitting area Clutch cable end adjuster inner surface Clutch lever pivot bolt sliding surface	Silicone grease	
Drive chain slider mounting screw threads Front fork protector bolt threads Front disc cover bolt threads Front brake caliper mount bolt Caliper slide pins thread Brake pedal pivot bolt threads	Locking agent	
Brake caliper piston seal lips Brake caliper piston outer surface Master cylinder inner surface Master cylinder piston outer surface	DOT4 brake fluid	
Handlebar grip rubber inner surface Air cleaner housing connecting surface	Honda Bond A or Honda Hand Grip Cement (U.S.A only)	
Fork cap O-rings Center bolt O-rings Fork oil seal Fork dust seal Damping adjuster O-ring	Pro-Honda HP Fork Oil 5W	
Shock link nut seating surface Throttle grip sliding area	Engine oil	
Front engine hanger - to - engine contacting area	Molybdenum disulfide paste (Dow Corning® 321 or equivalent)	

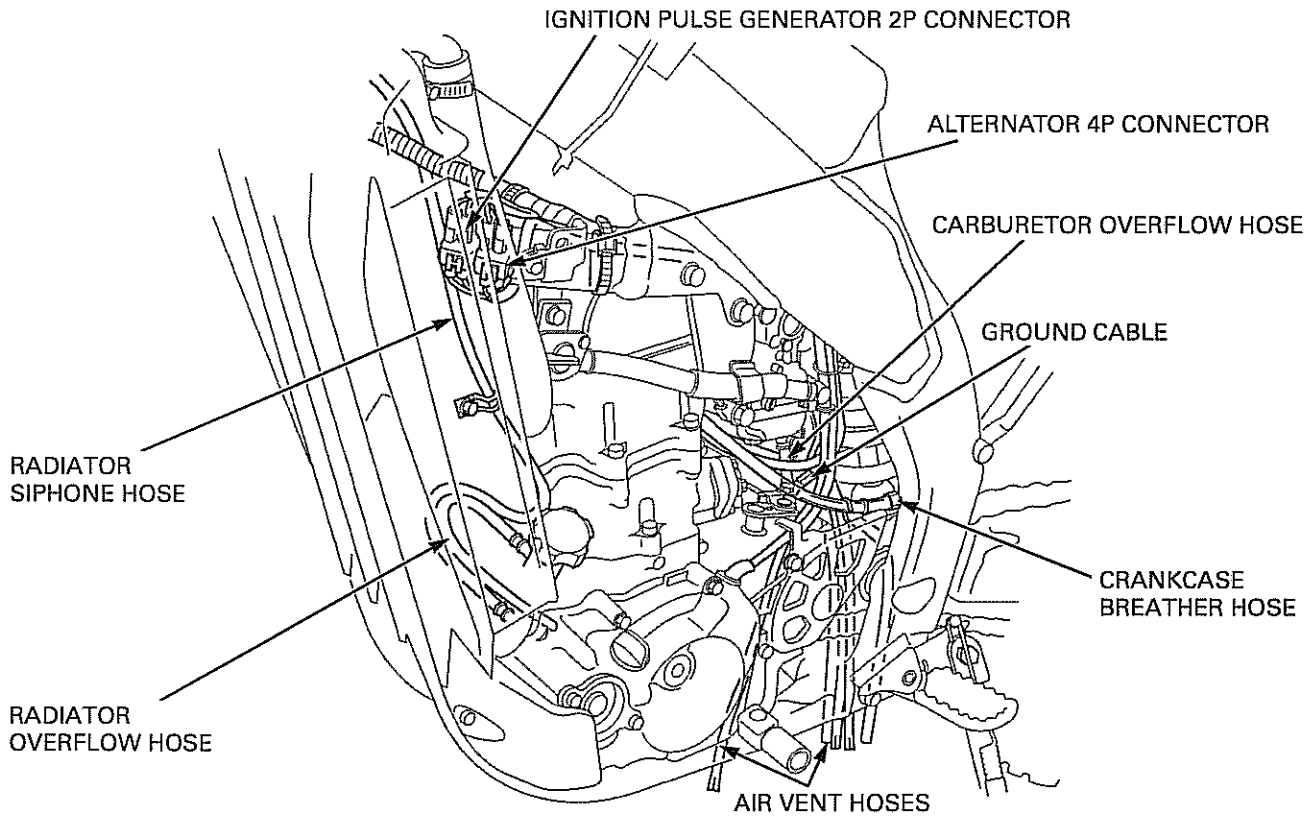
CABLE & HARNESS ROUTING

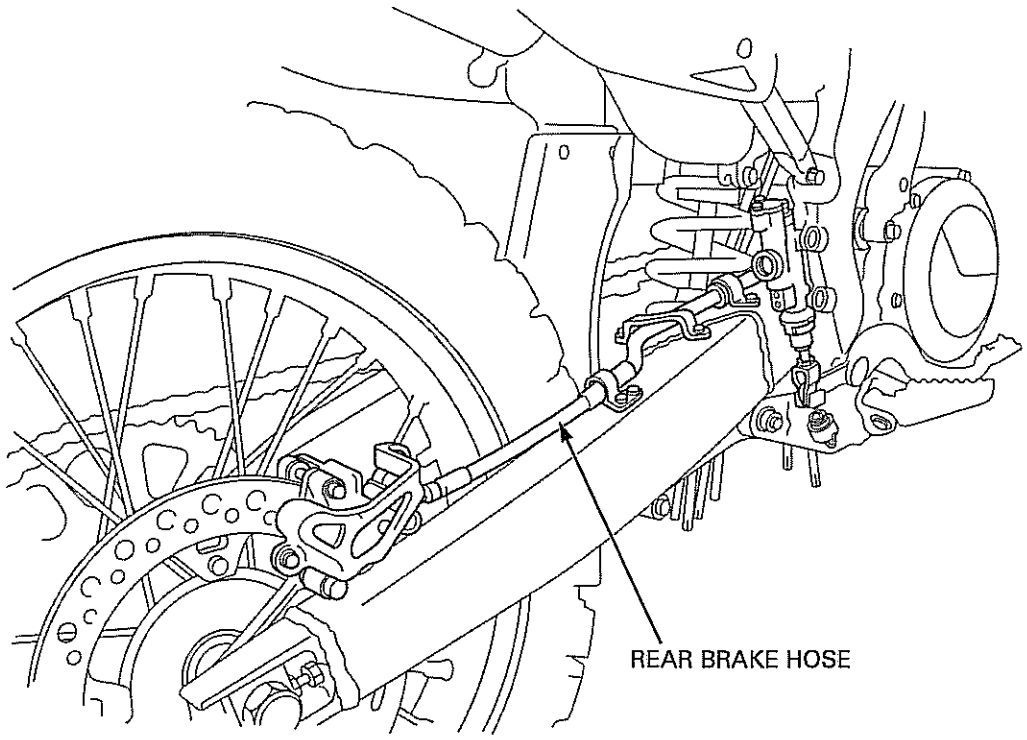


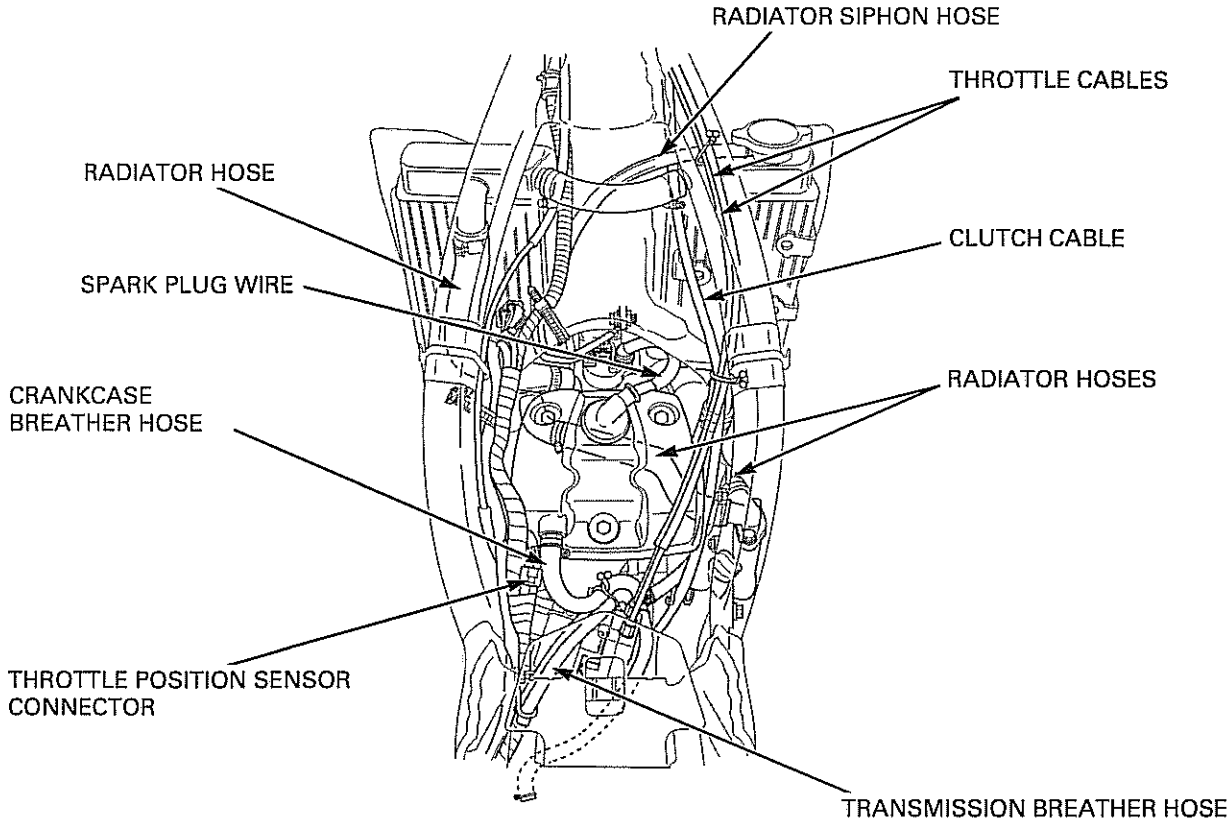



FRONT BRAKE HOSE
THROTTLE CABLES
CLUTCH CABLE
TRIPMETER CABLE


HOT START CABLE
ENGINE STOP BUTTON WIRE
CLUTCH CABLE
TRIPMETER CABLE
IGNITION PULSE GENERATOR 2P CONNECTOR
ALTERNATOR 4P CONNECTOR
FRONT BRAKE HOSE


IGNITION PULSE GENERATOR 2P CONNECTOR
ALTERNATOR 4P CONNECTOR
CARBURETOR OVERFLOW HOSE
GROUND CABLE
RADIATOR SIPHONE HOSE
CRANKCASE BREATHER HOSE
RADIATOR OVERFLOW HOSE
AIR VENT HOSES


REAR BRAKE HOSE


RADIATOR SIPHON HOSE
THROTTLE CABLES
RADIATOR HOSE
CLUTCH CABLE
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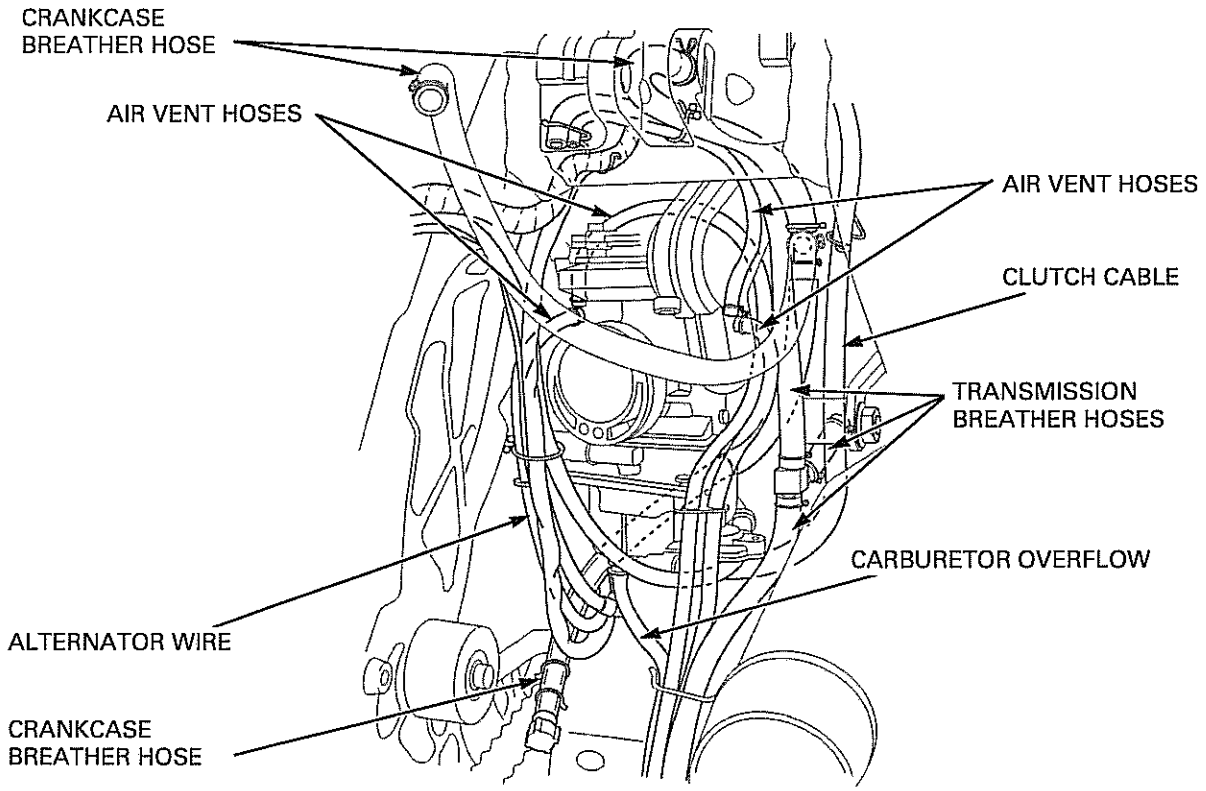
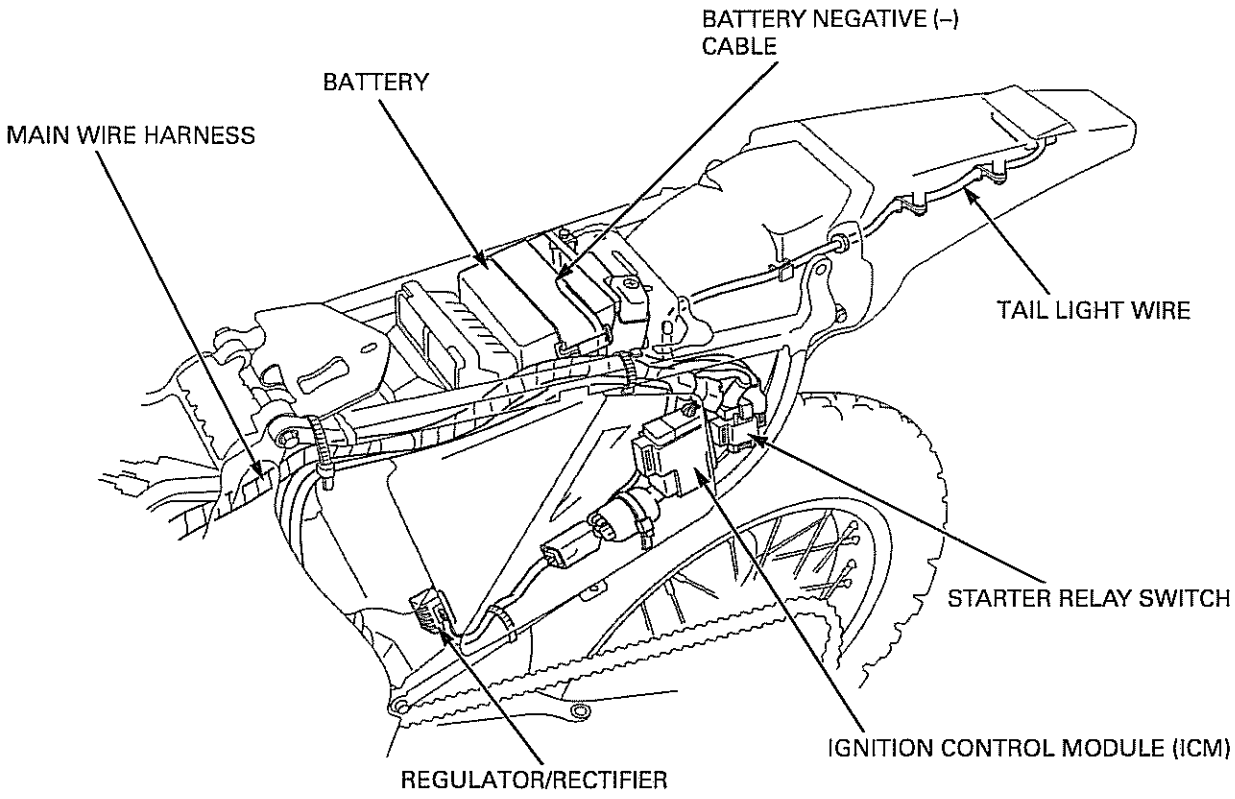
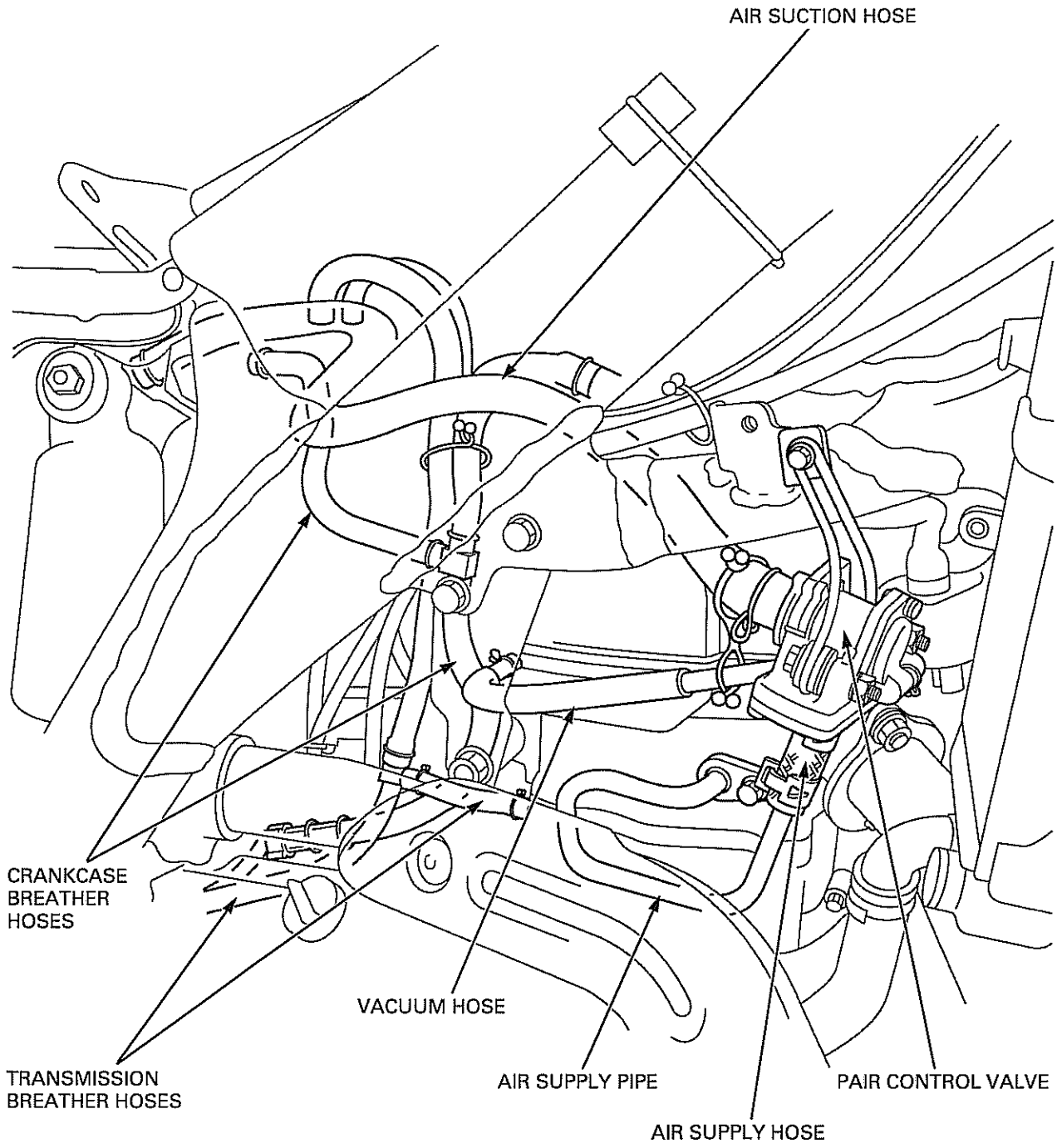
RADIATOR HOSES
CRANKCASE
BREATHER HOSE
THROTTLE POSITION SENSOR
CONNECTOR
TRANSMISSION BREATHER HOSE

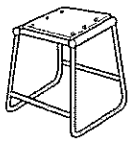

CRANKCASE
BREATHER HOSE
AIR VENT HOSES
AIR VENT HOSES
CLUTCH CABLE
TRANSMISSION
BREATHER HOSES
CARBURETOR OVERFLOW
ALTERNATOR WIRE
CRANKCASE
BREATHER HOSE

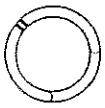
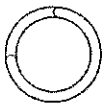
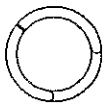
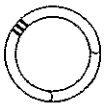
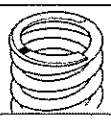
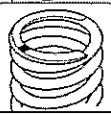
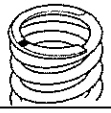

BATTERY NEGATIVE (–) CABLE
BATTERY
MAIN WIRE HARNESS
TAIL LIGHT WIRE
STARTER RELAY SWITCH
IGNITION CONTROL MODULE (ICM)
REGULATOR/RECTIFIER

SECONDARY AIR SUPPLY SYSTEM (CALIFORNIA TYPE ONLY)



OPTIONAL PARTS

ITEM		REMARKS
MAINTENANCE:		
Work stand		For maintenance
Pin spanner		Pin spanner A x 2 For shock absorber spring installed length (preload) adjustment (two required)
DRIVE CHAIN & SPROCKET:		
Driven sprocket /chain link	Standard	51T (Aluminum)/114
	Optional	50T (Aluminum)/114 52T (Aluminum)/116
HANDLEBAR LOWER HOLDER:		
	Standard	3 mm offset
	Optional	no offset

ITEM			REMARKS	
FORK:				
Spring	**TYPE**		**SPRING RATE**	**OIL CAPACITY**
	Light	2 scribe marks 	0.45 kgf/mm (25.20 lbf/in)	Standard 338 cm³ (11.4 US oz, 11.9 Imp oz) Maximum 407 cm³ (13.8 US oz, 14.3 Imp oz) Minimum 311 cm³ (10.5 US oz, 10.9 Imp oz)
	Standard	No mark (factory products) or 1 scribe mark (after market parts)  or 	0.47 kgf/mm (26.32 lbf/in)	Standard 332 cm³ (11.2 US oz, 11.7 Imp oz) Maximum 402 cm³ (13.6 US oz, 14.2 Imp oz) Minimum 306 cm³ (10.3 US oz, 10.8 Imp oz)
	Heavy	3 scribe marks 	0.49 kgf/mm (27.44 lbf/in)	Standard 335 cm³ (11.3 US oz, 11.8 Imp oz) Maximum 405 cm³ (13.7 US oz, 14.3 Imp oz) Minimum 309 cm³ (10.5 US oz, 10.9 Imp oz)
SHOCK ABSORBER:				
Spring	**TYPE**		**SPRING RATE**	**IDENTIFICATION MARK**
	Light		5.30 kgf/mm (383.3 lbf/in)	Blue paint
	Stan-dard		5.50 kgf/mm (397.8 lbf/in)	No mark (factory Products) or Red paint (after market parts)
	Heavy		5.70 kgf/mm (559.0 lbf/in) 5.90 kgf/mm (426.7 lbf/in)	Pink paint Silver paint

The standard fork and shock springs mounted on the motorcycle when it leaves the factory are not marked. Before replacing the springs, be sure to mark them so they can be distinguished from other optional springs.

EMISSION CONTROL SYSTEMS

The California Air Resources Board (CARB) requires manufacturers to certify that their motorcycles comply with applicable exhaust emissions standards during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 6,000 km (3,730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Limited Warranty for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

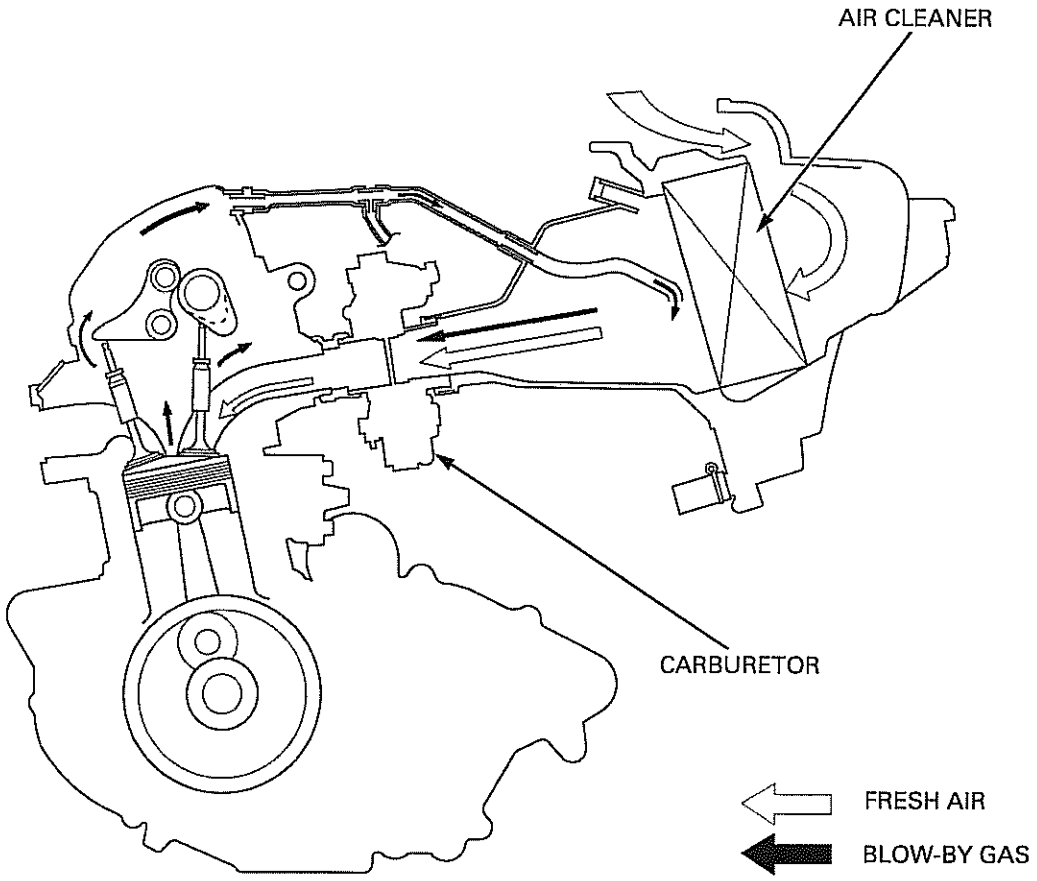
SOURCE OF EMISSIONS

The combustion process produces carbon monoxide, oxides of nitrogen and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but is toxic.

Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

CRANKCASE EMISSION CONTROL SYSTEM

The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and carburetor.

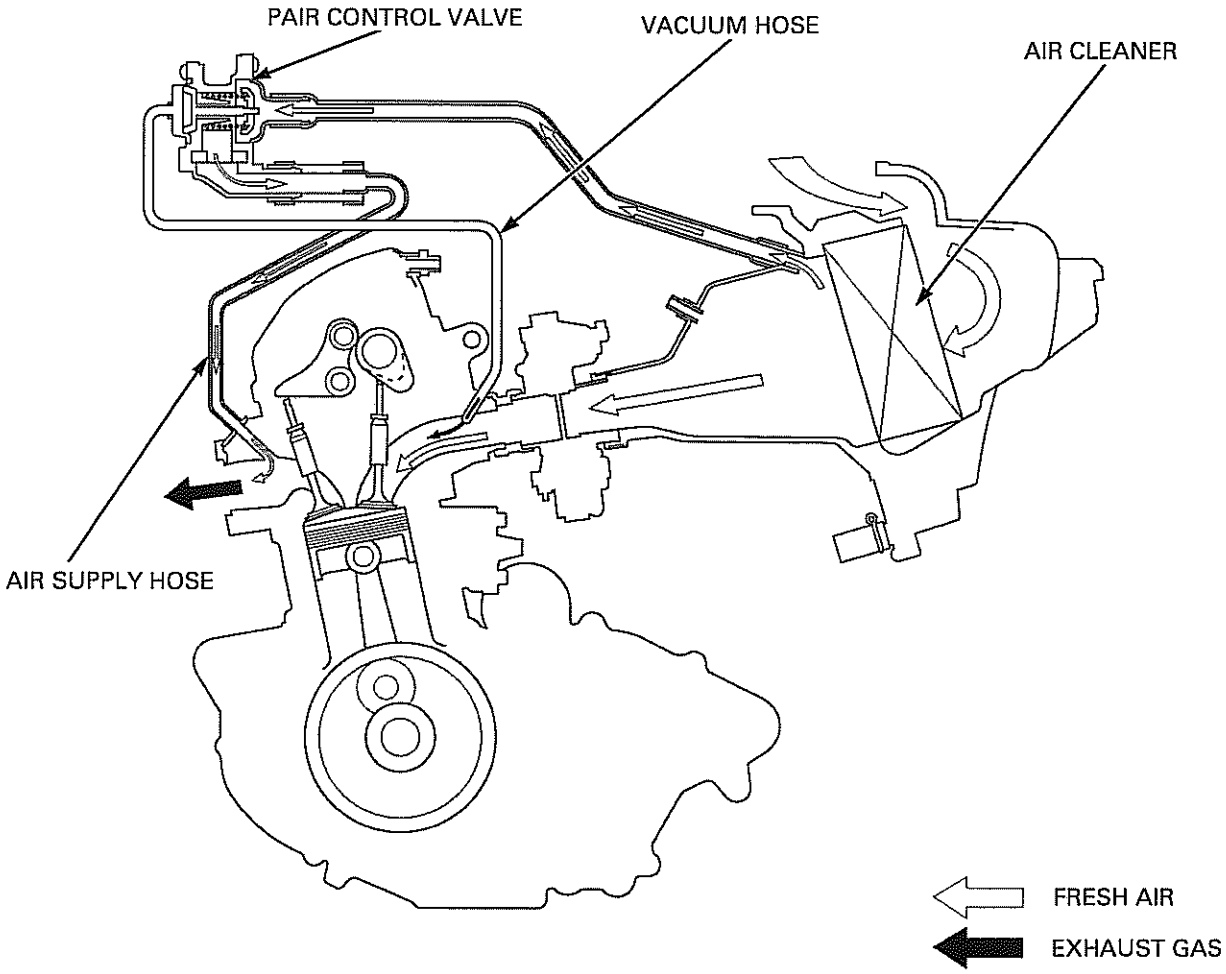


EXHAUST EMISSION CONTROL SYSTEM (PULSE SECONDARY AIR INJECTION SYSTEM): California type only

The exhaust emission control system includes a secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port whenever there is a negative pressure pulse in the exhaust system. This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water vapor.

This model has a pulse secondary air injection (PAIR) control valve. A PAIR check valve prevents reverse air flow through the system. The PAIR control valve reacts to high intake manifold vacuum and will cut off the supply of fresh air during engine deceleration, thereby preventing afterburn in the exhaust system.

No adjustment to the PAIR system should be made, although periodic inspection of the components is recommended.



NOISE EMISSION CONTROL SYSTEM

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: U.S. Federal law prohibits, or Canadian provincial law may prohibit the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any vehicle for the purpose of noise control prior to its sale or delivery to the ultimate customer or while it is in use; (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

1. Removal of or puncturing of the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

MEMO

2. FRAME/BODY PANELS/EXHAUST SYSTEM

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the body panels, fuel tank and exhaust system.
- Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.
- Always replace the exhaust pipe gaskets after removing the exhaust pipe from the engine.
- Always inspect the exhaust system for leaks after installation.

TORQUE VALUES

Seat mounting bolt		26 N·m (2.7 kgf·m, 19 lbf·ft)
Sub-frame mounting bolt	(upper)	30 N·m (3.1 kgf·m, 22 lbf·ft)
	(lower)	49 N·m (5.0 kgf·m, 36 lbf·ft)
Exhaust pipe joint nut		21 N·m (2.1 kgf·m, 15 lbf·ft)
Muffler joint band bolt		21 N·m (2.1 kgf·m, 15 lbf·ft)
Muffler mounting bolt		26 N·m (2.7 kgf·m, 19 lbf·ft)
Heat shield bolt		12 N·m (1.2 kgf·m, 9 lbf·ft)
Exhaust pipe protector bolt		12 N·m (1.2 kgf·m, 9 lbf·ft)
Diffuser mounting torx screw		11 N·m (1.1 kgf·m, 8 lbf·ft)

TROUBLESHOOTING

Excessive exhaust noise
- Broken exhaust system
- Exhaust gas leak

Poor performance
- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

SEAT

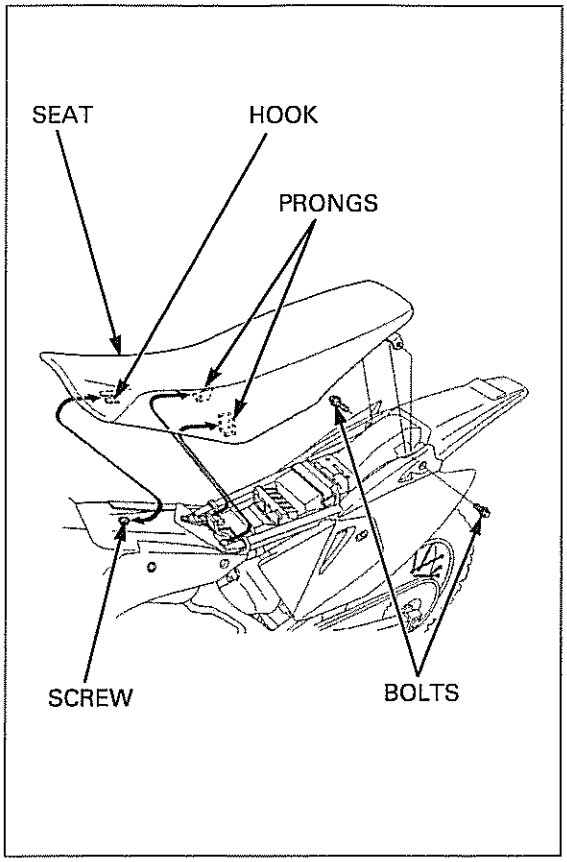
REMOVAL

Remove the two bolts and seat.

INSTALLATION

Align the seat hook with the mounting screw on the fuel tank and the seat prongs with the sub-frame. Install and tighten the seat mounting bolts to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

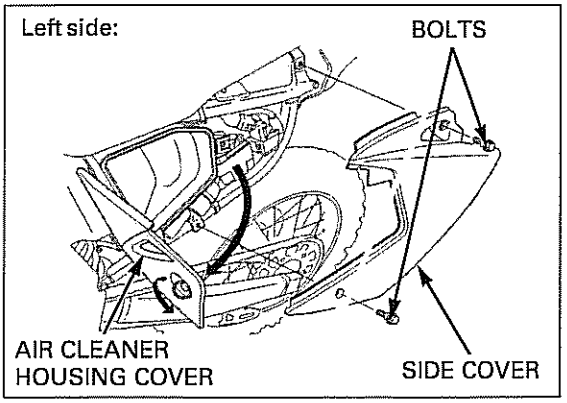


SIDE COVER

REMOVAL/INSTALLATION

Left side only: Open the air cleaner housing cover.

Remove the seat mounting bolt, side cover bolt and side cover.



Be careful not to damage the tabs.

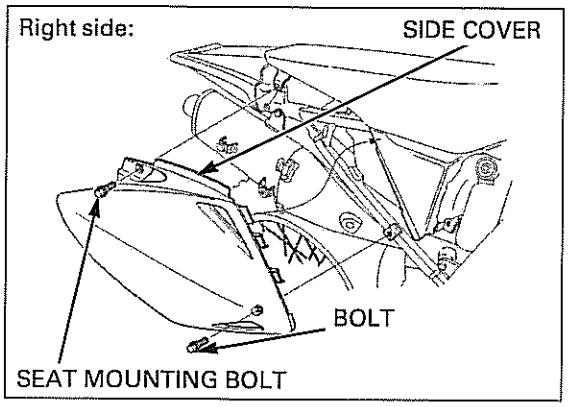
Install the side cover by inserting its tabs into the air cleaner housing.
Tighten the side cover bolt securely.

Tighten the seat mounting bolt to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

Left side only:

Close the air cleaner housing cover.

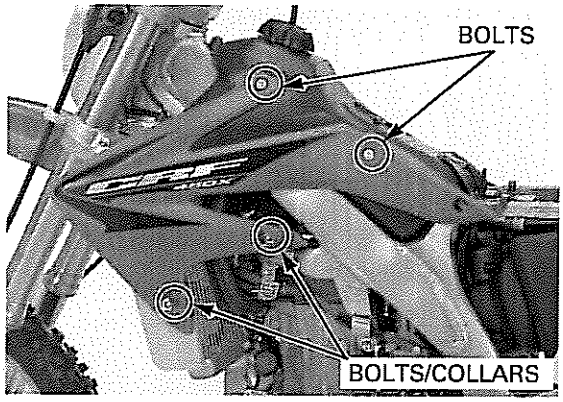


RADIATOR SHROUD

REMOVAL/INSTALLATION

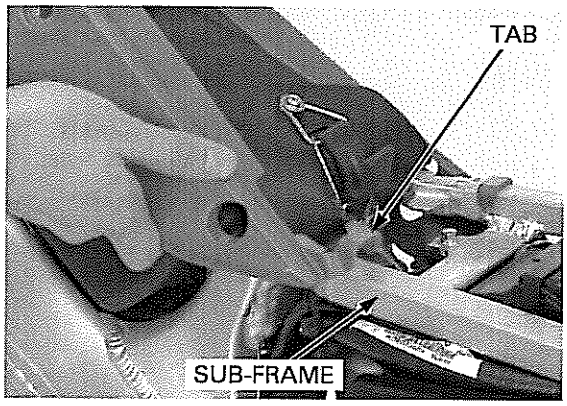
Remove the seat (page 2-3).

Remove the bolts, collars and radiator shroud.



Install the tab onto the sub-frame.

Installation is in the reverse order of removal.

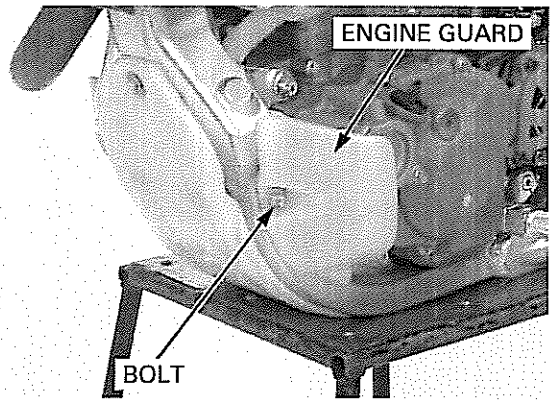


ENGINE GUARD

LEFT/RIGHT ENGINE GUARD REMOVAL/INSTALLATION

Remove the bolt and engine guard.

Install the engine guard and tighten the bolt securely.



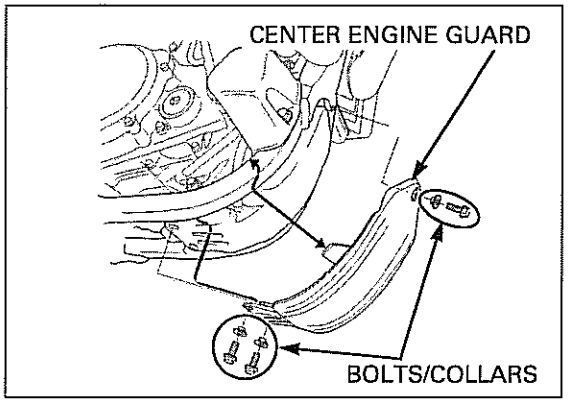
CENTER ENGINE GUARD REMOVAL/INSTALLATION

Remove the bolts and collars.

Remove the center engine guard from the radiator reservoir tank.

Install the center engine guard by aligning its tabs with the radiator reservoir tank groove.
Install the collars and bolts.

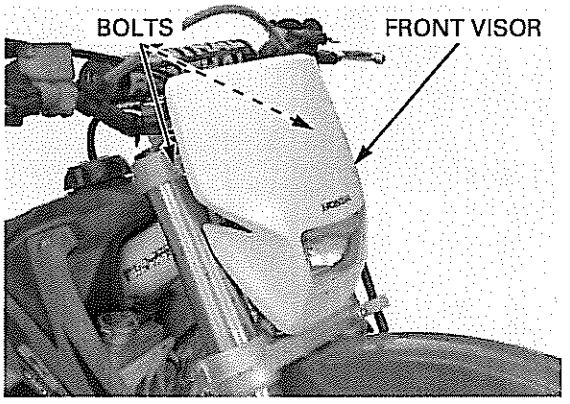
Tighten the bolts securely.



FRONT VISOR

REMOVAL/INSTALLATION

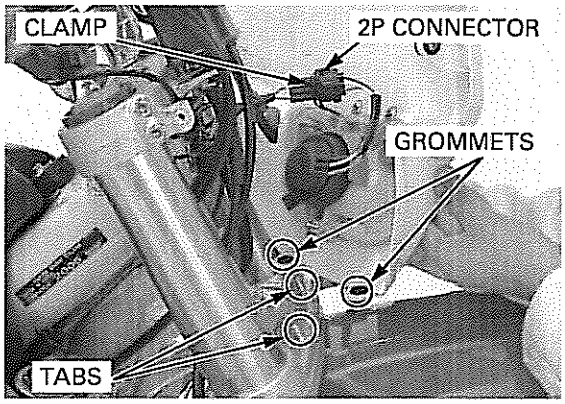
Remove the bolts and front visor.



Release the headlight 2P connector from the wire clamp and disconnect it.

Install the front visor by aligning its grommets with the tabs on the steering stem.

Installation is in the reverse order of removal.



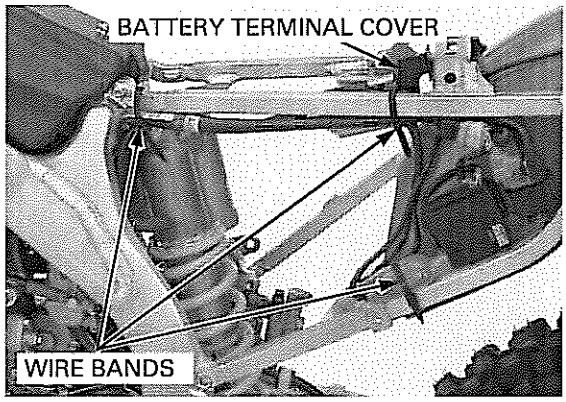
SUB-FRAME

REMOVAL

Remove the following:

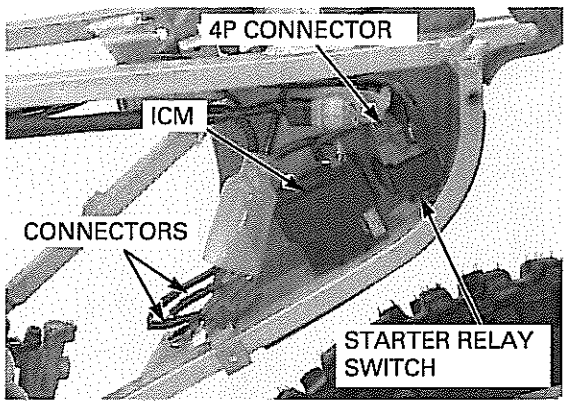
- Seat (page 2-3)
- Side covers (page 2-3)
- Muffler (page 2-9)
- Battery (page 16-5)
- Air cleaner housing (page 5-7)

Remove the wire bands and battery terminal cover.

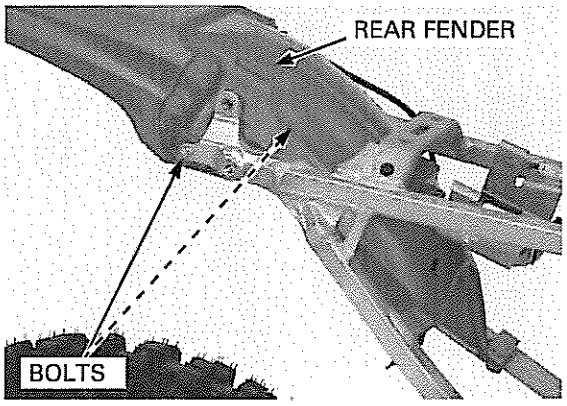


Disconnect the tail light connectors and starter relay switch 4P connector.

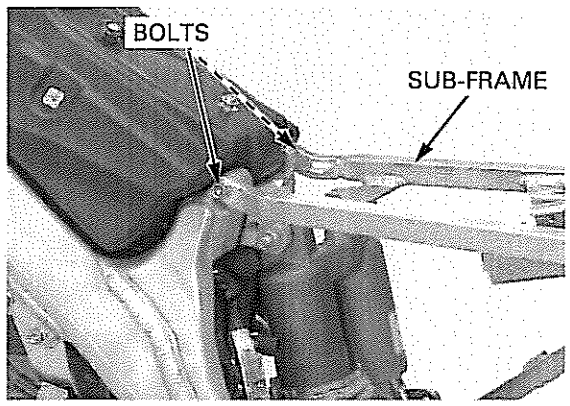
Remove the starter relay switch and ignition control module (ICM) from the rear fender.



Remove the bolts and rear fender.



Remove the sub-frame upper mounting bolts and sub-frame.

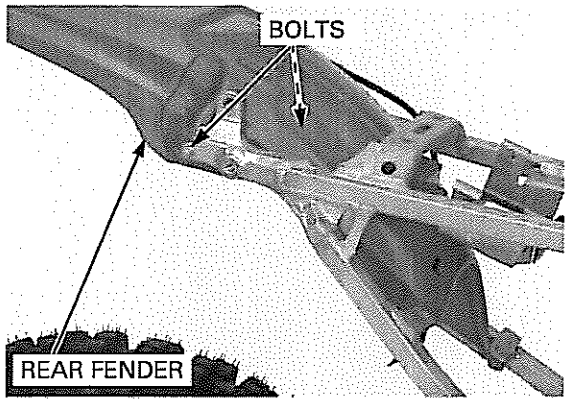


INSTALLATION

Do not tighten the sub-frame upper mounting bolts yet.

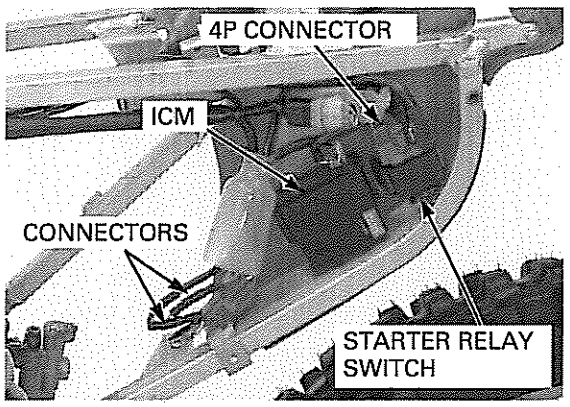
Install the sub-frame and upper mounting bolts.

Install the rear fender and tighten the bolts securely.



Route the wire harnesses properly (page 1-20). Be careful not to damage the wires.

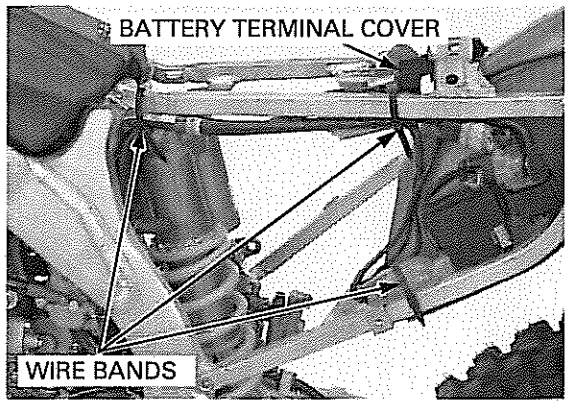
Connect the tail light connectors and starter relay switch 4P connector.
Install the starter relay switch and ICM onto the rear fender.



Install the wire bands and battery terminal cover.

Install the following:

- Air cleaner housing (page 5-9)
- Battery (page 16-5)
- Muffler (page 2-9)
- Side covers (page 2-3)
- Seat (page 2-3)



FUEL TANK

REMOVAL/INSTALLATION

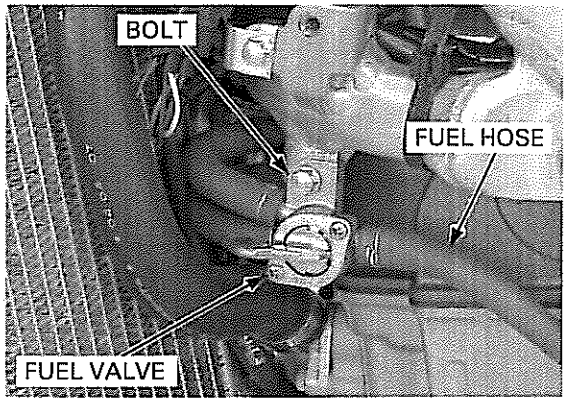
Remove the radiator shrouds (page 2-4).

Turn the fuel valve to "OFF" and disconnect the fuel hose.

Place an approved gasoline container and catch the gasoline.

Wipe off spilled out gasoline.

Remove the bolt and fuel valve.



Disconnect the breather hose from the steering stem.

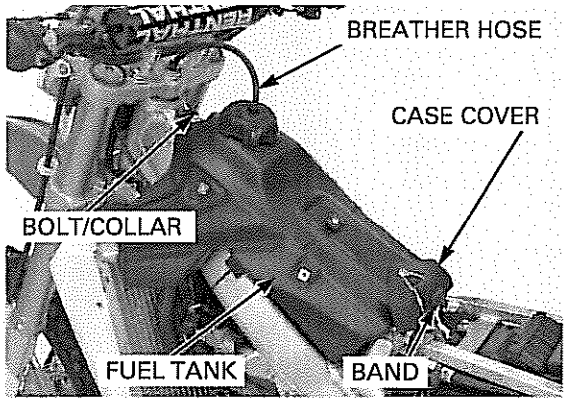
Unhook the band and air cleaner case cover from the fuel tank.

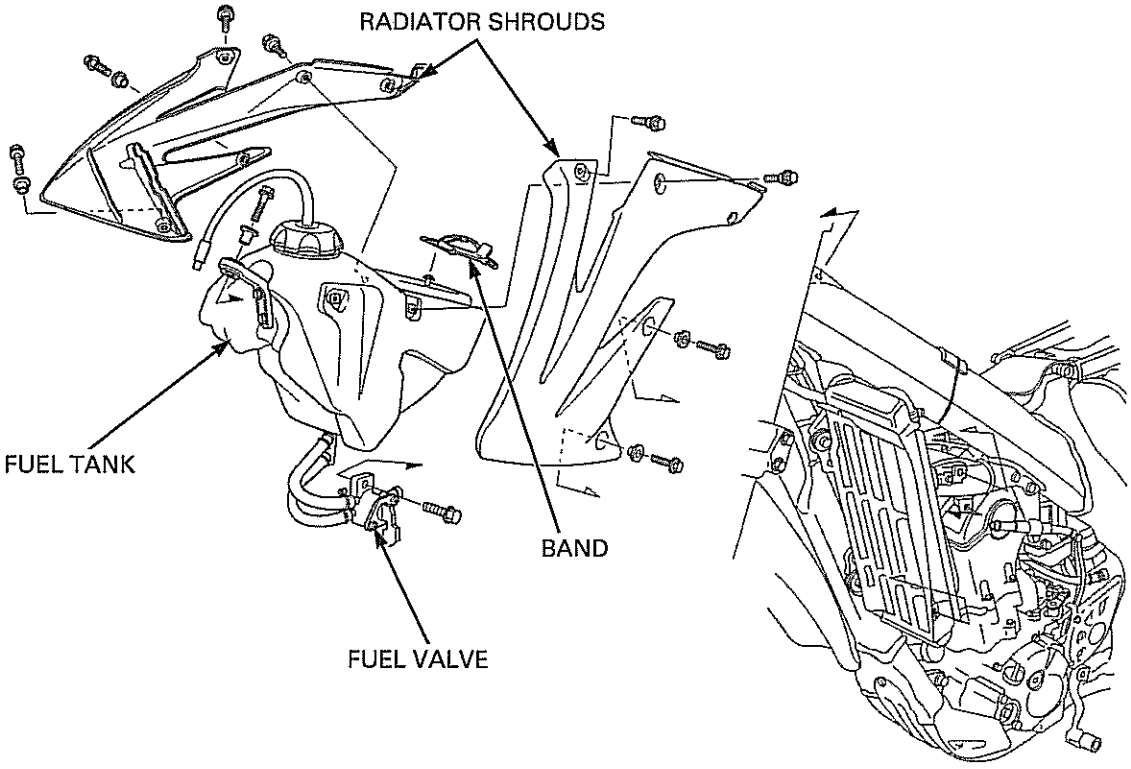
Remove the bolt, collar and fuel tank.

Installation is in the reverse order of removal.

NOTE:

- Insert the breather hose into the steering stem as shown.
- After installation, make sure there are no fuel leaks.



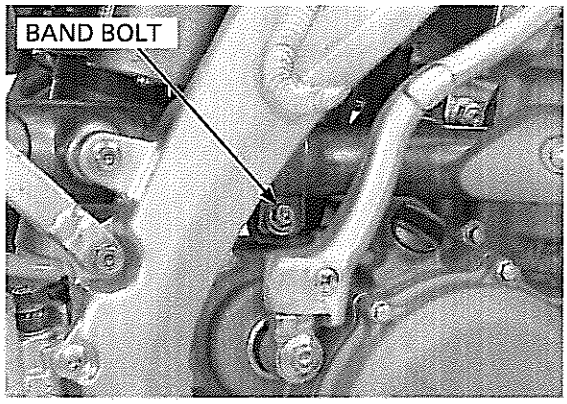


EXHAUST SYSTEM

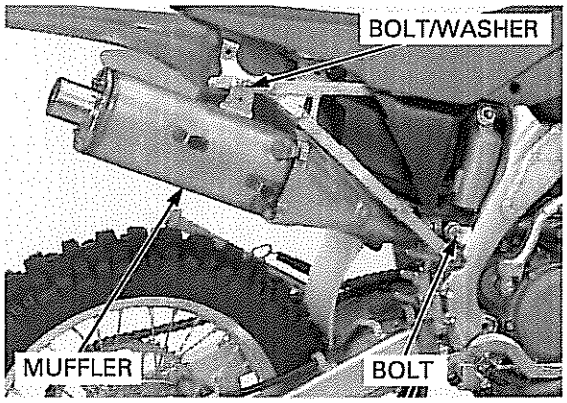
MUFFLER REMOVAL/INSTALLATION

Remove the right side cover (page 2-3).

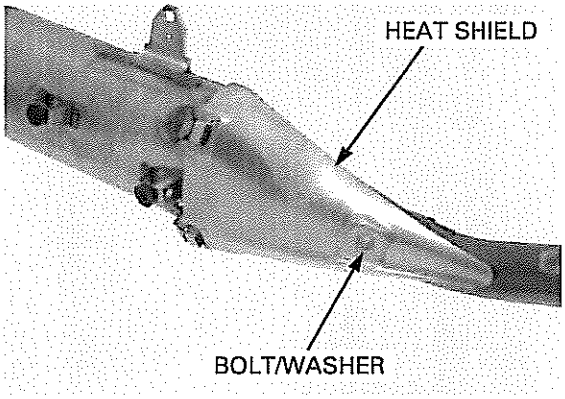
Loosen the muffler joint band bolt.



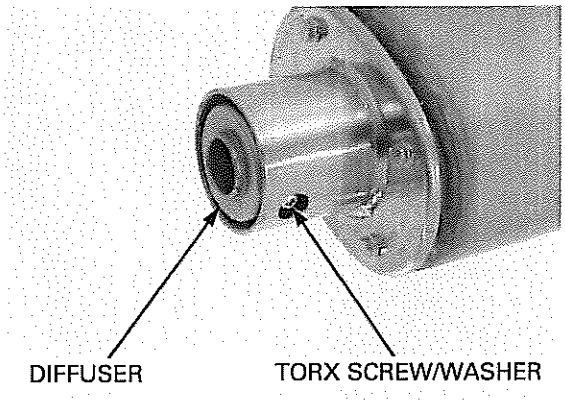
Remove the muffler mounting bolts, washer and muffler.



Remove the bolt, washer and heat shield from the muffler.



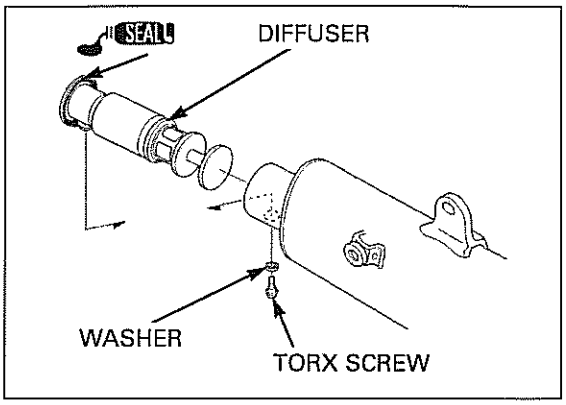
Remove the torx screw, washer and diffuser from the muffler.



Apply muffler sealant to the diffuser as shown.

Install the diffuser, washer and torx screw to the muffler.
Tighten the torx screw to the specified torque.

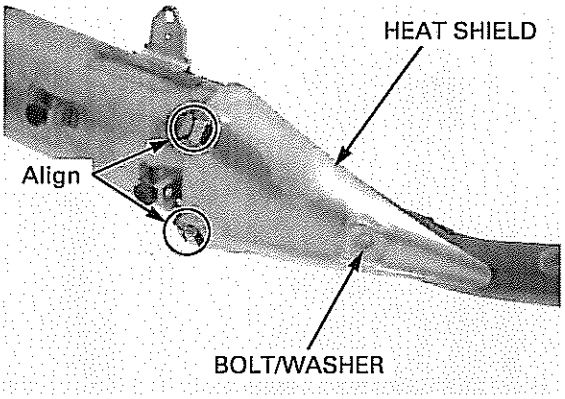
TORQUE: 11 N·m (1.1 kgf·m, 8 lbf·ft)



Align the muffler tabs and heat shield grommets.

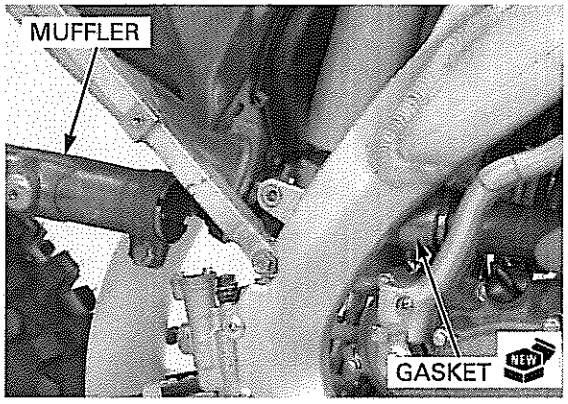
Install the heat shield, washer and tighten the bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install a new gasket onto the exhaust pipe.

Install the muffler to the exhaust pipe.



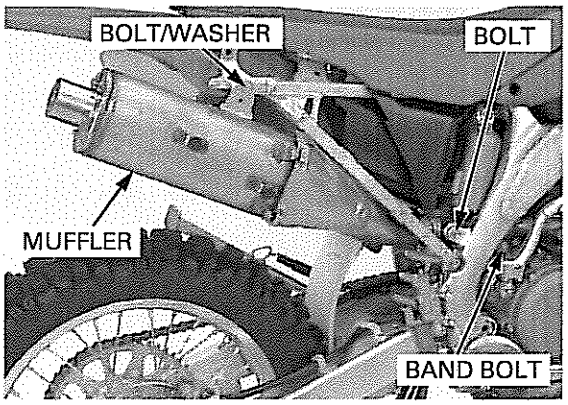
Install the washer and muffler mounting bolts.
Tighten the muffler joint band bolt to the specified torque.

TORQUE: 21 N·m (2.1 kgf·m, 15 lbf·ft)

Tighten the muffler mounting bolts to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

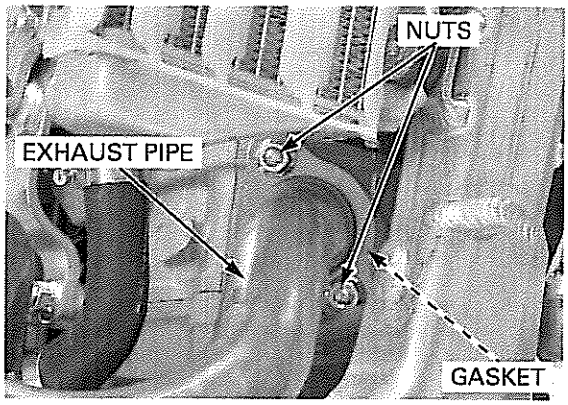
Install the right side cover (page 2-3).



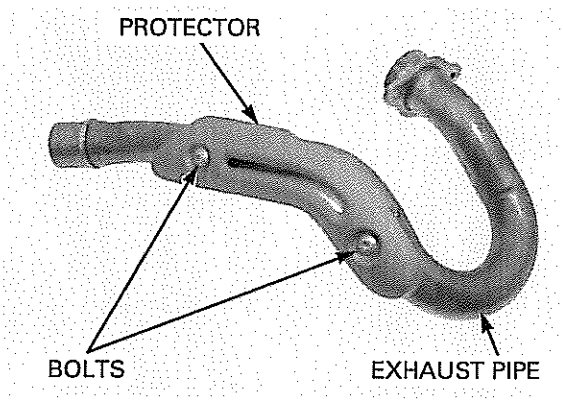
EXHAUST PIPE REMOVAL

Remove the muffler (page 2-9).

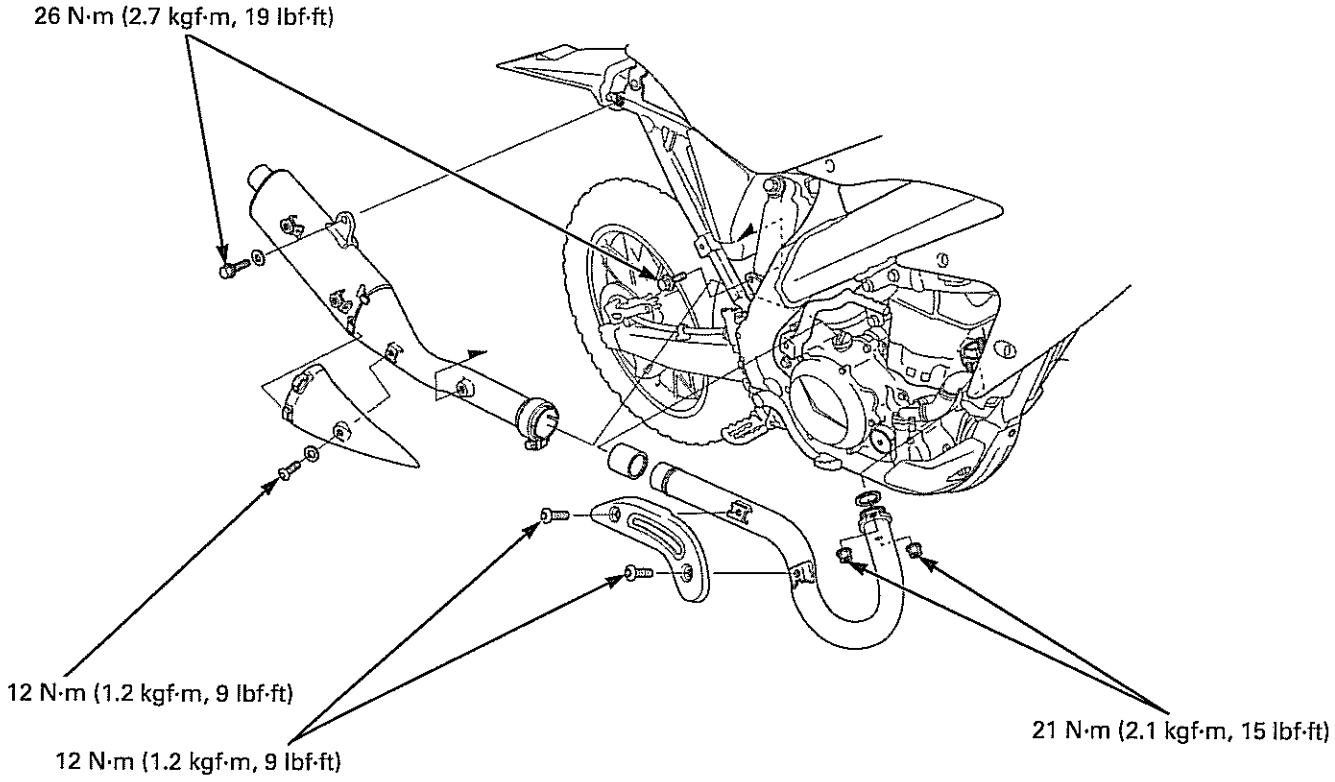
Remove the exhaust pipe joint nuts, exhaust pipe and gasket.



Remove the bolts and protector from the exhaust pipe.

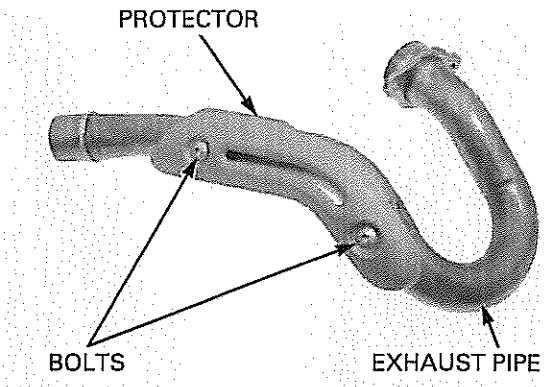


INSTALLATION



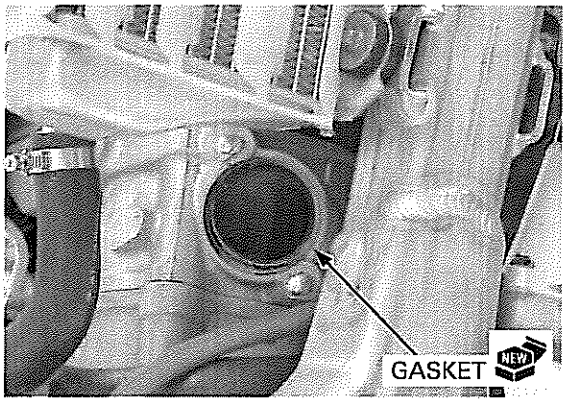
Install the protector and tighten the bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install a new gasket to the cylinder head.

- Always replace the exhaust pipe gasket with a new one.



Install the exhaust pipe and tighten the nuts to the specified torque.

TORQUE: 21 N·m (2.1 kgf·m, 15 lbf·ft)

Install the muffler (page 2-9).