90-96 VFR 750F

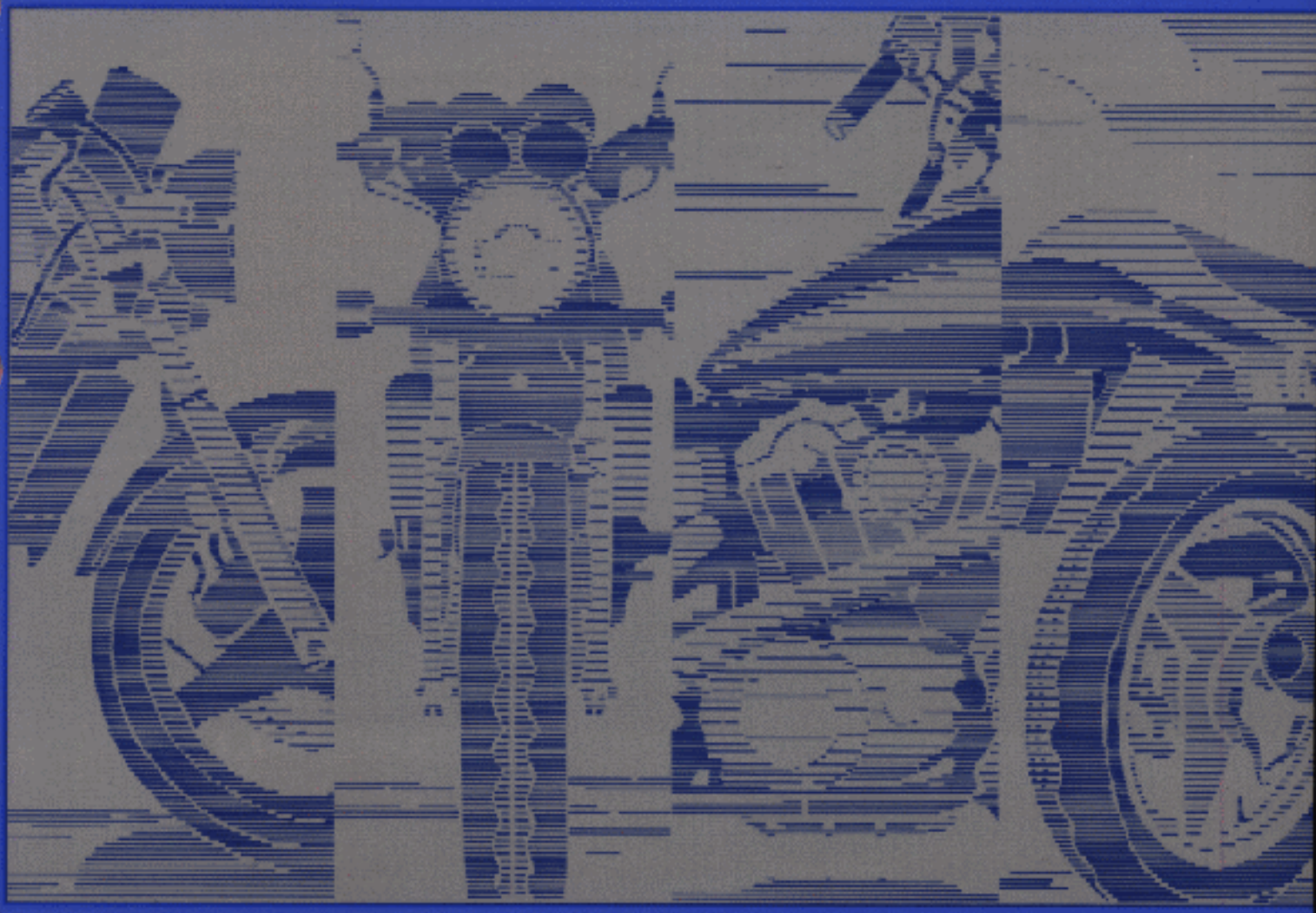
Service Manual

This manual is provided FREE of charge and should be distributed to as many VFR owners you know! I decided to scan this manual because, though most mechanics are very efficient, I found some to be incompetent, and wanted to be able to check their work. This manual cost me $60, which I know some people can't afford. I think human lives are worth more than $60. In my opinion, this manual should have come with the bike in the first place!!!

This is page is obviously not in the original service manual. All other pages are exactly as printed. Honda included several updated pages to this manual when I purchased it. These updates are included. If Honda has made any amendments/updates to this manual since November 1997.
They are not included in this digitized manual.

HONDA

SERVICE MANUAL



90-96
VFR750F

61MT406

Important Safety Notice

⚠WARNING **Indicates a strong possibility of severe personal injury or death if instructions are not followed.**

CAUTION: **Indicates a possibility of equipment damage if instructions are not followed.**

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains *some* warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda, might be done or of the possibly hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda, *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service methods or tools selected.

Introduction

This service manual describes the service procedures for the VFR750F.
This Model Specific Manual includes every service procedure that is of a specific nature to this particular model. Basic service procedures that are common to other Honda Motorcycles/Motor Scooters/ATVs are covered in the Common Service Manual. This Model Specific Service Manual should be used together with the Common Service Manual in order to provide complete service information on all aspects of this motorcycle.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency and the California Air Resources Board.

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

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 19 describe parts of the motorcycle, grouped according to locations.

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

Most sections describe the service procedures through a system illustration. Refer to the next page for details on how to use this manual.

If you don't know the source of the trouble, go to section 20 TROUBLESHOOTING.

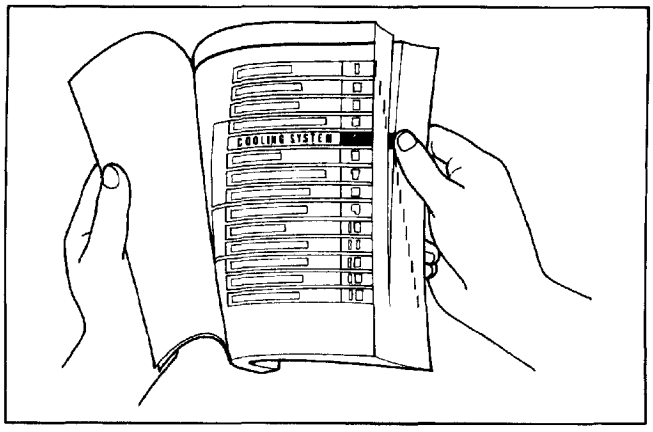
Contents

	General Information	1
	Body Panels/Exhaust System Sub Frame	2
	Maintenance	3
Engine and Drive Train	Lubrication	4
Engine and Drive Train	Cooling System	5
Engine and Drive Train	Fuel System	6
Engine and Drive Train	Engine Removal/Installation	7
Engine and Drive Train	Cylinder Head/Valves	8
Engine and Drive Train	Clutch System	9
Engine and Drive Train	Gearshift Linkage	10
Engine and Drive Train	Crankshaft/Piston/Transmission	11
Chassis	Front Wheel/Suspension/Steering	12
Chassis	Rear Wheel/Suspension	13
Chassis	Brakes	14
Electrical	Charging System/Alternator	15
Electrical	Ignition System	16
Electrical	Electric Starter/Starter Clutch	17
Electrical	Lights/Meters/Switches	18
Electrical	Wiring Diagram	19
	Troubleshooting	20
	Index	21

HONDA MOTOR CO.,LTD.
SERVICE PUBLICATIONS OFFICE

Date of Issue: February, 1994

How to Use This Manual

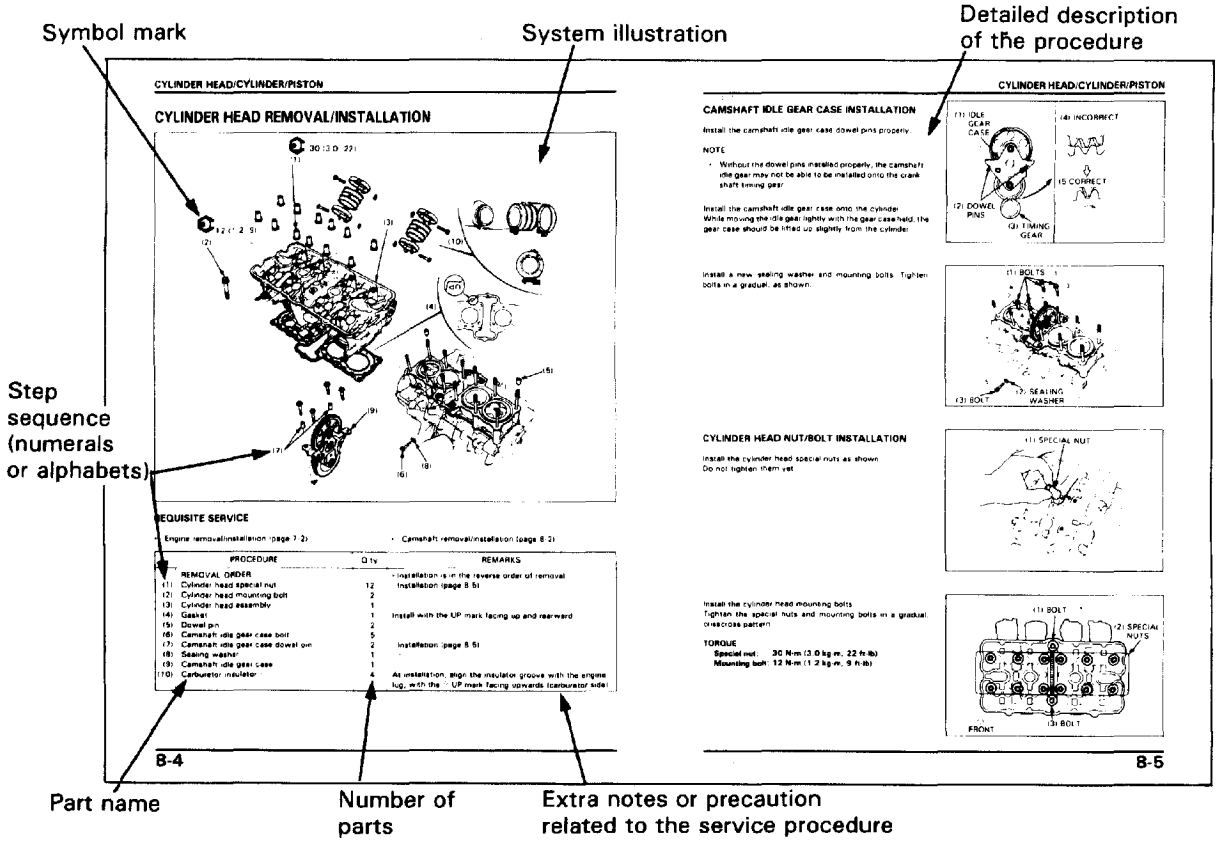


Finding Information You Need

- This manual is divided into sections which cover each of the major components of the motorcycle.
  To quickly find the section you are interested in, the first page of each section is marked with a black tab that lines up with one of the thumb index tabs before this page.
  The first page of each section lists the table of contents within the section.
  Read the service information and troubleshooting related to the section before you begin working.
- An index of the entire book is provided in the last chapter to directly locate the information you need.

Note on the Explanation Method of This Manual

- The removal and installation of parts are for the most part illustrated by large and clear illustrations that should provide the reader with visual aid in understanding the major point for servicing.
- The system illustrations are augmented by callouts whose numbers or letters indicate the order in which the parts should be removed or installed.
- The sequence of steps represented numerically are differentiated from the ones represented alphabetically to notify the reader that they must perform these steps seperately.
  For example, if the steps prior and up to camshaft removal are performed with the engine installed, but the subsequent steps like cylinder head removal require engine removal, the callouts are grouped in numerical and alphabetical orders.
- The illustrations may contain symbol marks to indicate necessary service procedures and precautions that need to be taken. Refer to the next page for the meaning of each symbol mark.
- Also in the illustration is a chart that lists information such as the order in which the part is removed/installed, the name of the part, and some extra notes that may be needed.
- Step by step instructions are provided to supplement the illustrations when detailed explanation of the procedure is necessary or illustrations alone would not suffice.
- Service procedures required before or after the procedure described on that particular page, or inspection/adjustment procedures required following the installation of parts, are described under the title Requisite Service.
- Standard workshop procedures and knowledge covered in the Common Service Manual are abbreviated in this manual.



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 special tool
	Use optional tool. Use the same procedure you use to order parts.
 10 (1.0, 7.2)	Torque specification. 10 N·m (1.0 kg-m, 7.2 ft-lb)
	Use 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 middle strength locking agent unless otherwise specified.
	Apply sealant
	Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

1. General Information

General Safety	1-1	Lubrication & Seal Points	1-25
Model Indentification	1-3	Cable & Harness Routing	1-29
Specifications	1-5	Emission Control Systems	1-42
Torque Values	1-16	Emission Control Information Labels (U.S.A. only)	1-44
Tools	1-23		

General Safety

Carbon Monoxide

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

⚠ WARNING

- **The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.**

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

Gasoline

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

⚠ WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**

Hot Components

⚠ WARNING

- **Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.**

Used Engine/Transmission Oil

⚠ WARNING

- **Used engine oil (or transmission oil in two-strokes) may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT OF REACH OF CHILDREN.**

Brake Dust

Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠ WARNING

- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer.**

Brake Fluid

CAUTION

- **Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.**

Coolant

Under some conditions, the ethylene glycol in engine coolant is combustible and its flame is not visible. If the ethylene glycol does ignite, you will not see any flame, but you can be burned.

⚠ WARNING

- **Avoid spilling engine coolant on the exhaust system or engine parts. They may be hot enough to cause the coolant to ignite and burn without a visible flame.**
- **Coolant (ethylene glycol) can cause some skin irritation and is poisonous if swallowed. KEEP OUT OF REACH OF CHILDREN.**
- **Do not remove the radiator cap when the engine is hot. The coolant is under pressure and could scald you.**
- **Keep hands and clothing away from the cooling fan, as it starts automatically.**

If it contacts your skin, wash the affected areas immediately with soap and water. If it contacts your eyes, flush them thoroughly with fresh water and get immediate medical attention. If it is swallowed, the victim must be forced to vomit then rinse mouth and throat with fresh water before obtaining medical attention. Because of these dangers, always store coolant in a safe place, away from the reach of children.

Nitrogen Pressure

For shock absorbers with a gas-filled reservoir:

⚠ WARNING

- **The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.**
- **Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury if it is heated or pierced.**

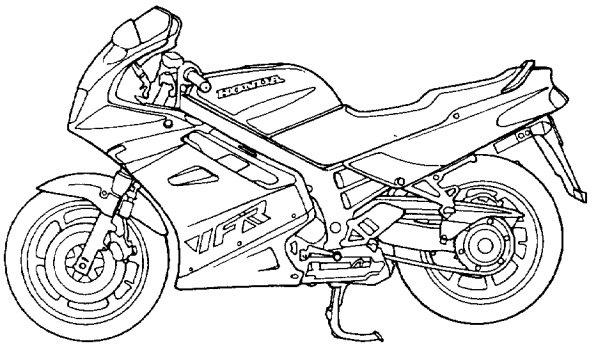
Battery Hydrogen Gas & Electrolyte

⚠ WARNING

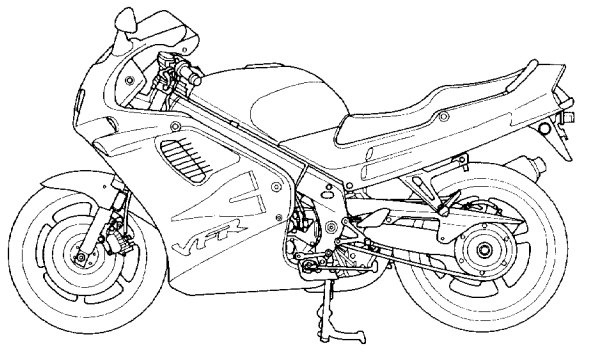
- **The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.**
- **The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
  - **If electrolyte gets on your skin, flush with water.**
  - **If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.**
- **Electrolyte is poisonous.**
  - **If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. KEEP OUT OF REACH OF CHILDREN.**

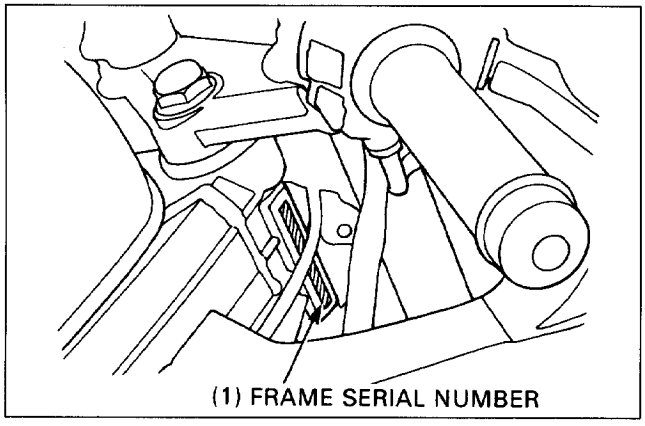
Model Identification

'90 Shown, '91, '92 and '93 Similar:

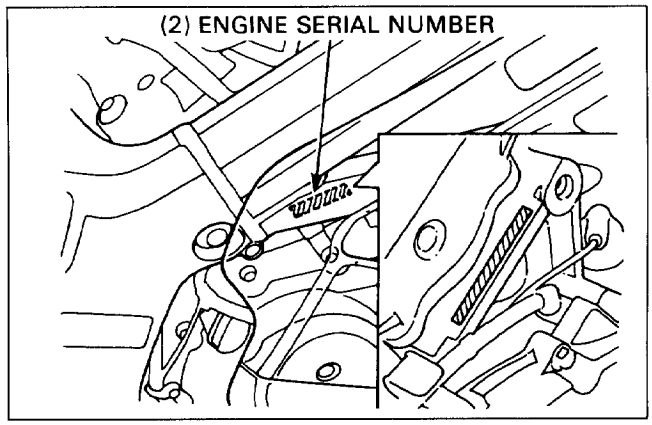


After '93:



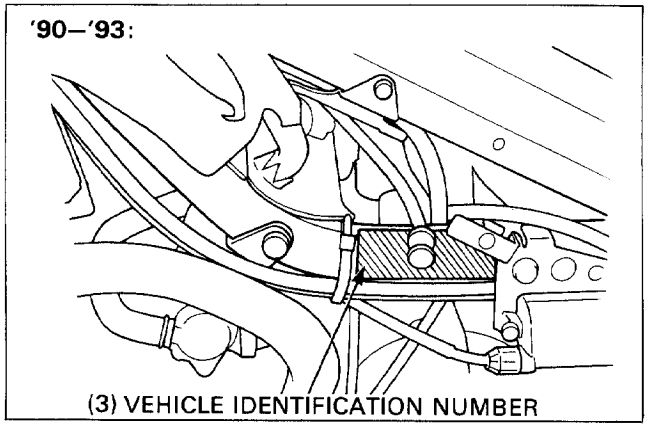


The frame serial number is stamped on the right side of the steering head.



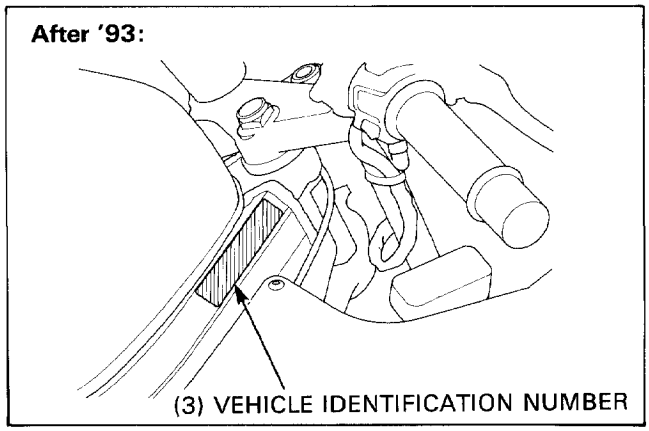
The engine serial number is stamped on the right side of the crankcase.

'90–'93:



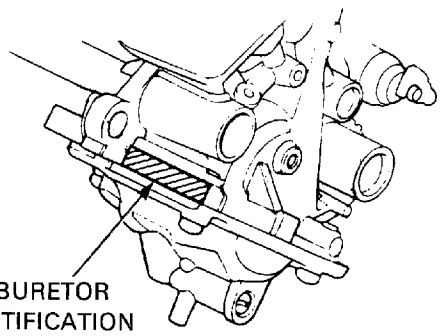
The Vehicle Identification Number (VIN) is located on the left side of the frame down tube.

After '93:



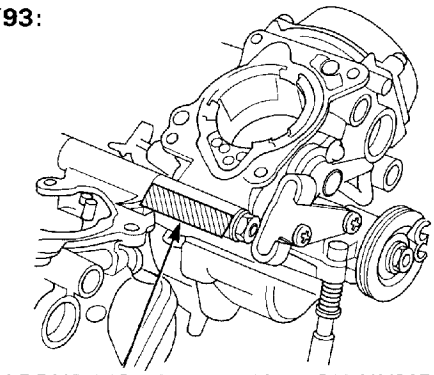
The Vehicle Identification Number (VIN) is located on the right side of the main frame.

'90–'93:



(4) CARBURETOR IDENTIFICATION NUMBER

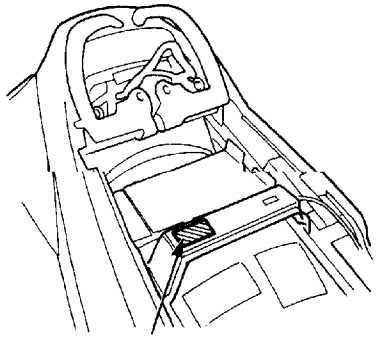
After '93:



(4) CARBURETOR IDENTIFICATION NUMBER

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

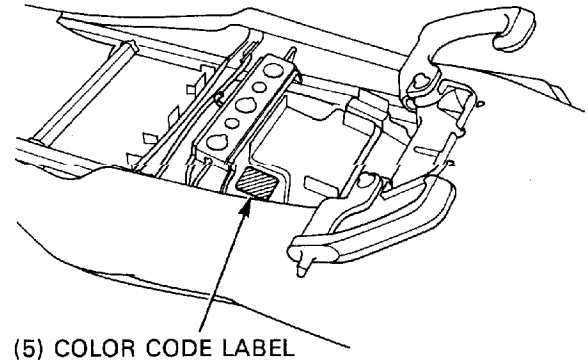
'90–'93:



(5) COLOR CODE LABEL

The color code label is attached on the upper rear sub frame tube cross member under the seat. When ordering a color coded part, always specify its designated color code.

After '93:



(5) COLOR CODE LABEL

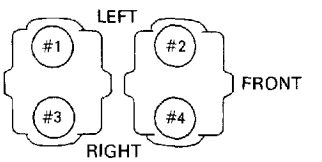
The color code label is attached on the rear fender under the seat. When ordering a color coded part, always specify its designated color code.

Specifications

General

Item		Specifications
Dimensions	Overall length '90–'93:	2,180 mm (85.8 in)
	After '93:	2,125 mm (83.7 in)
	Overall width '90–'93:	700 mm (27.6 in)
	After '93:	720 mm (28.3 in)
	Overall height	1,185mm (46,7 in)
	Wheelbase	1,470 mm (57.9 in)
	Seat height	800 mm (31.5 in)
	Footpeg height	350 mm (13.8 ih)
	Ground clearance	130 mm (5.1 in)
	Dry weight '90–'93:	216 kg (476 lbs)
	After '93: (49 state type)	211 kg (465 lbs)
	(California type)	212 kg (467 lbs)
	(Canada type)	210 kg (463 lbs)
	Curb weight '90–'93:	240 kg (529 lbs)
	After '93: (49 state type)	237 kg (523 lbs)
	(California type)	238 kg (525 lbs)
	(Canada type)	236kg (520 lbs)
	Maximum weight capacity '90–'93:	189 kg (417 lbs)
	After '93:	
	(49 state/California type)	175 kg (386 lbs)
	(Canada type)	179 kg (395 lbs)
Frame	Frame type	Diamond
	Front suspension	Telescopic fork
	Front wheel travel '90–'93:	140 mm (5.5 in)
	After '93:	130 mm (5.1 in)
	Rear suspension	Swingarm, Pro-link
	Rear wheel travel	130 mm (5.1 in)
	Rear damper	Gas-filled damper
	Front tire size	120/70 VR17-V250, 120/70 ZR17
	Rear tire size	170/60 VR17-V250, 170/60 ZR17
	Tire brand	
	(Bridgestone) FR/RR '90:	CYROX-19F/CYROX-16F
	After '93:	BT54F RADIAL G/BT54R RADIAL G
	(Dunlop) FR/RR '91–'93:	K510FC/K510C
	After '93:	D202FN/D202J
	(Michelin) FR/RR '90:	A59X (COO)/M59X (AOO)
	After '93:	A89X/M89X
	Front brake	Hydraulic disc brake
	Rear brake	Hydraulic disc brake
	Caster angle	26°
	Trail length '90–'93:	100 mm (3.9 in)
	After '93:	99 mm (3.9 in)
	Fuel tank capacity '90–'93:	19 lit. (5.0 US gal, 4.2 Imp gal)
	After '93:	21 lit. (5.5 US gal, 4.6 Imp gal)
	Fuel tank reserve capacity	3.5 lit. (0.92 US gal, 0.77 Imp gal)

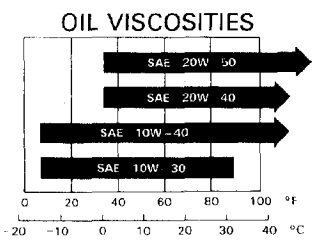
General (cont'd)

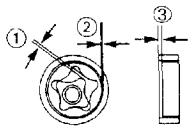
Item		Specifications
Engine	Bore and stroke	70.0 x 48.6 mm (2.76 x 1.91 in)
	Displacement	748 cm^3 (45.6 cu-in)
	Compression ratio	11.0 : 1
	Valve train	Gear driven DOHC, 4 valves per cylinder
	Intake valve opens at 1mm lift	
	'90–'93:	15° BTDC
	After '93: (49 state/Canada)	15° BTDC
	(California)	–5° BTDC
	Intake valve closes at 1mm lift	
	'90–'93:	35° ABDC
	After '93: (49 state/Canada)	37° ABDC
	(California)	35° ABDC
	Exhaust valve opens at 1mm lift	
	'90–'93:	40° BBDC
	After '93: (49 state/Canada)	35° BBDC
	(California)	45° BBDC
	Exhaust valve closes at 1mm lift	
	'90–'93:	10° ATDC
	After '93: (49 state/Canada)	10° ATDC
	(California)	–5° ATDC
	Lubrication system	Forced pressure and wet type
	Oil pump type	Trochoid
	Cooling system	Liquid cooling system with cooling fan
	Air filtration	Paper filter
	Crankshaft type	Unit-type, 4 main journals
	Engine weight (dry) '90–'93	79 kg (174 lbs)
	After '93:	76.5 kg (169 lbs)
	Firing order	#1-180° –#3-270° –#2-180° –#4-90° –#1
	Cylinder arrangement	4 cylinders, 90°V
	Cylinder number	
Carburetor	Carburetor type	Constant Venturi
	Throttle bore '90–'93:	36 mm (1.4 in)
	After '93:	34 mm (1.3 in)
Drive train	Clutch system	Wet, multi-plate
	Clutch operation system	Hydraulic
	Transmission	6-speeds, constant-mesh
	Primary reduction	1.939 (64/33)
	Secondary reduction	———
	Third reduction	———
	Final reduction	2.6875 (43/16)
	Gear ratio 1st	2.8461 (37/13)
	Gear ratio 2nd	2.0625 (33/16)
	Gear ratio 3rd	1.6315 (31/19)
	Gear ratio 4th	1.3333 (28/21)
	Gear ratio 5th	1.1538 (30/26)
	Gear ratio 6th	1.0357 (29/28)
	Gear ratio reverse	———
	Gearshift pattern	Left foot operated return system 1-N-2-3-4-5-6
Electrical	Ignition system	Full transistor ignition
	Starting system	Electric starter motor
	Charging system	Triple phase output alternator
	Regulator/rectifier	SCR shorted/triple phase, full-wave rectification
	Lighting system	Battery
	AC regulator type	———

Unit: mm (in)

Lubrication

Item			Standard	Service limit
Engine oil capacity at draining			2.9 ℓ (3.1 US qt, 2.6 Imp qt)	———
at disassembly		'90–'93:	4.0 ℓ (4.2 US qt, 3.5 Imp qt)	———
		After '93:	3.8 ℓ (4.0 US qt, 3.3 Imp qt)	———
at oil filter change			3.1 ℓ (3.3 US qt, 2.7 Imp qt)	———
Recommended engine oil			Use Honda 4-stroke oil an equivalent. API service classification SF or SG.	———
			The viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.	
Oil pressure at oil pressure switch			490–588 kPa (5.0–6.0 kg/cm², 71.1–85.3 psi)	———
Oil pump rotor tip clearance ①			0.10 (0.004)	0.15 (0.006)
body clearance ②			0.15–0.22 (0.006–0.009)	0.35 (0.014)
end clearance ③			0.02–0.07 (0.001–0.003)	0.10 (0.004)





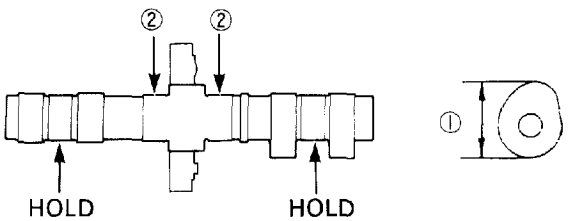
Fuel system

Item			Standard	Service limit
Carburetor identification number				
	(49 state type)	'90–'91:	VDJBA	———
		'92–'93:	VDJJA	———
		After '93:	VP34A	———
	(California type)	'90–'91:	VDJCA	———
		'92–'93:	VDJKA	———
		After '93:	VP33A	———
	(Canada type)	'90–'91:	VDJ1A	———
		'92–'93:	VDJ5A	———
		After '93:	VP35A	———
Main jet		'90–'93:	#130	———
		After '93:	#125 (49 state/Canada type)	———
			Front: #128/	———
			Rear: #125 (California type)	———
	(High altitude)		———	———
	(2,3)		———	———
	(1,4)		———	———
Slow jet	(49 state/Canada type)		#40	———
	(California type)	'90–'93:	#38	———
		After '93:	#40	———
Jet needle position			———	———
Pilot screw initial opening			See page 6-22	———
Pilot screw high altitude adjustment			See page 6-24	———
Pilot screw final opening			See page 6-22	———
Air screw initial opening			———	———
Air screw high altitude adjustment			———	———
Float level		'90–'93:	9.0 (0.35)	———
		After '93:	13.7 (0.54)	———
Carburetor vacuum difference			Within 20 mmHg (0.8 inHg)	40 mmHg (1.6 inHg)
Base carburetor (For carburetor synchronization)				
		'90–'93:	No.2 carburetor	———
		After '93:	No.1 carburetor	———
Idle speed	(49 state type)	'90–'93:	1,000 ± 100 rpm	———
		After '93:	1,100 ± 100 rpm	———
	(California type)		1,200 ± 100 rpm	———
	(Canada type)		1,000 ± 100 rpm	———
Throttle grip free play			2–6 (0.08–0.24)	———
Accelerator pump clearance			———	———
Pulse secondary air injection (PAIR) control valve vacuum pressure (U.S.A. only)			360 mmHg (14.2 inHg)	———

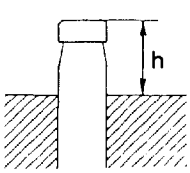
Unit: mm (in)

Cylinder head

Item			Standard	Service limit
Cylinder compression			1,373 kPa (14.0 kg/cm², 199 psi)/400 rpm	—
Cylinder compression difference			Within 30 mmHg (1.2 inHg) of each other	—
Valve clearance	IN		0.13–0.19 (0.005–0.007)	—
(cold)	EX		0.22–0.28 (0.009–0.011)	—
Cylinder head warpage			—	0.1 (0.004)
Cam lobe height ①	IN	(49 state/Canada type)	36.280–36.440 (1.4283–1.4346)	36.25 (1.427)
		(California type)	33.980–34.140 (1.3378–1.3441)	33.95(1.3366)
	EX	(49 state/Canada type) '90–'93:	36.370–36.530 (1.4319–1.4382)	36.34 (1.431)
		After '93:	36.070–36.230 (1.4201–1.4264)	36.04 (1.419)
		(California type) '90–'93:	35.270–35.430 (1.3886–1.3949)	35.24(1.3874)
		After '93:	35.470–35.630 (1.3965–1.4028)	35.44(1.3953)
Camshaft runout ②			—	0.05 (0.002)
Camshaft oil clearance			0.020–0.062 (0.0008–0.0024)	0.10 (0.004)



Camshaft journal O.D.		24.949–24.970 (0.9822–0.9831)	24.94 (0.982)
Camshaft holder – Cylinder head I.D.		25.000–25.021 (0.9843–0.9851)	—
Valve stem O.D.	IN	4.475–4.490 (0.1762–0.1767)	4.465 (0.1758)
	EX	4.465–4.480 (0.1758–0.1764)	4.455 (0.1754)
Valve guide I.D.	IN	4.500–4.512 (0.1772–0.1776)	4.562 (0.1796)
	EX	4.500–4.512 (0.1772–0.1776)	4.612 (0.1816)
Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.07 (0.0028)
	EX	0.020 – 0.047 (0.0008 – 0.0019)	0.10 (0.0039)
Valve guide projection above cylinder head (h)	IN	15.30–15.50 (0.602–0.610)	—
	EX	15.30–15.50 (0.602–0.610)	—



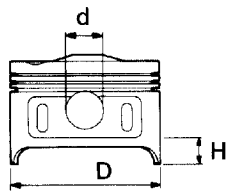
Before guide installation:
1. Chill the valve guides in the freezer section of a refrigerator for about an hour.
2. Heat the cylinder head to 100–150 °C (212–300°F).

Valve seat width	IN		1.0 (0.04)	1.5 (0.06)
	EX		1.0 (0.04)	1.5 (0.06)
Valve spring free length		Inner	34.2 (1.35)	32.5 (1.28)
		Outer	38.1 (1.50)	36.2 (1.43)
		inner IN	—	—
		inner EX	—	—
		outer IN	—	—
		outer EX	—	—
Rocker arm I.D.	IN		—	—
	EX		—	—
Rocker arm shaft O.D.	IN		—	—
	EX		—	—
Rocker arm-to-rocker arm shaft clearance			—	—
Valve lifter O.D.			25.978–25.993 (1.0228–1.0233)	25.968 (1.0224)
Valve lifter bore I.D.			26.010–26.026 (1.0240–1.0246)	26.04 (1.025)
Hydraulic lash adjuster assist spring free length			—	—
Hydraulic lash adjuster compression stroke with kerosene			—	—

Unit: mm (in)

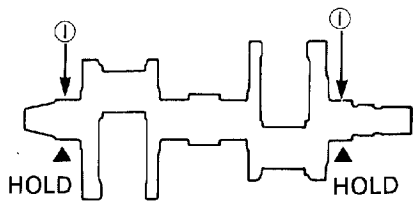
Cylinder/piston

Item	Standard	Service limit
Cylinder I.D.	70.000–70.015 (2.755–2.756)	70.10 (2.759)
Cylinder out of round	—	0.10 (0.004)
Cylinder taper	—	0.10 (0.004)
Cylinder warpage	—	0.10 (0.004)
Piston mark direction	With "IN" mark facing to the intake side	—
Piston O.D. (D)	69.970–69.990 (2.755–2.756)	69.85 (2.750)
Piston O.D. measurement point (H)	10 (0.4)	—
Piston pin hole I.D. (d)	17.002–17.008 (0.6694–0.6696)	17.02 (0.670)
Cylinder-to-piston clearance	—	—
Piston pin O.D.	16.994–17.000 (0.6691–0.6693)	16.98 (0.669)
Piston-to-piston pin clearance	0.002–0.014 (0.0001–0.0005)	—
Connecting rod-to-piston pin clearance	0.016–0.040 (0.0006–0.0020)	—
Top ring-to-ring groove clearance	0.015–0.050 (0.0006–0.0019)	0.10 (0.04)
Second ring-to-ring groove clearance	0.015–0.045 (0.0006–0.0018)	0.10 (0.004)
Top ring end gap	0.20–0.35 (0.008–0.014)	0.5 (0.02)
Second ring end gap	0.35–0.50 (0.014–0.020)	0.7 (0.03)
Oil ring (side rail) end gap	0.20–0.80 (0.008–0.031)	1.00 (0.039)
Top ring mark	Install with the marked side up	—
Second ring mark	Install with the marked side up	—



Crankshaft

Connecting and small end I.D.		17.016–17.034 (0.6699–0.6706)	17.04 (0.671)
Connecting rod big end side clearance		0.10–0.30 (0.004–0.012)	0.40 (0.016)
radial clearance		—	—
Crankshaft runout ①		—	0.05 (0.002)
Crankpin oil clearance		0.030–0.052 (0.0012–0.0020)	0.08 (0.003)
Connecting rod bearing selection		See page 11-9	—
Main journal oil clearance	'90–'93:	0.023–0.045 (0.0009–0.0018)	0.06 (0.002)
	After '93:	0.019–0.037 (0.0007–0.0015)	0.05 (0.002)
Main journal bearing selection		See page 11-8	—

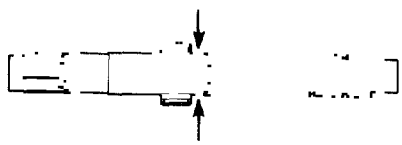
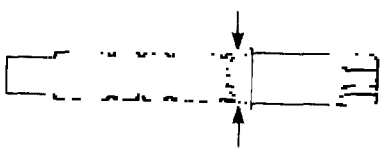


Starter system

Starter motor brush length	12.0–13.0 (0.47–0.51)	6.5 (0.26)
Starter clutch driven gear O.D.	47.175–47.200 (1.8573–1.8583)	47.16 (1.857)
Kickstarter pinion gear I.D.	—	—
Kickstarter spindle O.D.	—	—
Kickstarter idle gear I.D.	—	—
Countershaft O.D. at kickstarter idle gear	—	—
Kickstater idle gear bushing O.D.	—	—
I.D.		

Unit: mm (in)

Transmission

Item	Standard	Service limit
Transmission gear I.D. M5	28.000–28.021 (1.1024–1.1032)	28.04 (1.104)
M6	28.000–28.021 (1.1024–1.1032)	28.04 (1.104)
C2	31.000–31.016 (1.2205–1.2211)	31.04 (1.222)
C3	31.000–31.016 (1.2205–1.2211)	31.04 (1.222)
C4	31.000–31.016 (1.2205–1.2211)	31.04 (1.222)
Transmission gear bushing O.D. M5	27.959–27.980 (1.1007–1.1016)	27.94 (1.010)
M6	27.959–27.980 (1.1007–1.1016)	27.94 (1.010)
C2	30.970–30.995 (1.2193–1.2203)	30.95 (1.219)
C3	30.950–30.975 (1.2185–1.2195)	30.93 (1.218)
C4	30.950–30.975 (1.2185–1.2195)	30.93 (1.218)
Transmission gear bushing I.D. M5	24.985–25.006 (0.9834–0.9845)	27.94 (1.010)
C2	28.000–28.021 (1.1024–1.1032)	28.04 (1.104)
C3	27.995–28.016 (1.1022–1.1029)	28.04 (1.104)
C4		
Gear-to-bushing clearance at M5 gear	0.020–0.062 (0.0008–0.0024)	—
at M6 gear	0.020–0.062 (0.0008–0.0024)	—
at C2 gear	0.005–0.046 (0.0002–0.0018)	—
at C3 gear	0.025–0.066 (0.0001–0.0026)	—
at C4 gear	0.025–0.066 (0.0001–0.0026)	—
Mainshaft O.D. at M5 gear bushing	24.959–24.980 (0.9826–0.9835)	24.95 (0.982)
		
Countershaft O.D. at C2 gear bushing	27.967–27.980 (1.1011–1.1016)	27.96 (1.101)
		
Gear-to-shaft clearance	—	—
Gear bushing-to-shaft clearance at M5 gear	0.005–0.047 (0.0002–0.0019)	—
at C2 gear	0.020–0.054 (0.0008–0.0021)	—
at C3 gear	0.015–0.049 (0.0006–0.0019)	—
at C4 gear	0.015–0.049 (0.0006–0.0019)	—
Shift fork claw thickness L	6.43–6.50 (0.253–0.256)	6.40 (0.252)
C	6.43–6.50 (0.253–0.256)	6.40 (0.252)
R	6.43–6.50 (0.253–0.256)	6.40 (0.252)
Shift fork I.D. L	14.016–14.034 (0.5518–0.5525)	14.043 (0.5529)
C	14.016–14.034 (0.5518–0.5525)	14.043 (0.5529)
R	14.016–14.034 (0.5518–0.5525)	14.043 (0.5529)
Shift fork shaft O.D.	13.973–13.984 (0.5501–0.5506)	13.965 (0.5498)

Unit: mm (in)

Clutch system

Item	Standard	Service limit
Clutch lever free play	10–20 (0.4–0.8)	—
Recommended clutch fluid	DOT4	
Clutch master cylinder I.D.	14.000–14.043 (0.5512–0.5529)	14.06 (0.553)
Clutch master piston O.D.	13.957–13.984 (0.5495–0.5506)	13.94 (0.549)
Clutch slave cylinder I.D.	35.700–35.762 (1.4055–1.4079)	35.78 (1.409)
Clutch slave cylinder piston O.D.	35.650–35.675 (1.4035–1.4045)	35.63 (1.403)
Clutch outer guide I.D.	24.995–25.012 (0.9841–0.9847)	25.08 (0.987)
Clutch spring free length	44.4 (1.75)	41.2 (1.62)
Clutch disc thickness A	2.92–3.08 (0.115–0.121)	2.5 (0.10)
B (Judder spring side)	2.92–3.08 (0.115–0.121)	2.5 (0.10)
C	—	—
Clutch plate warpage	—	—
Centrifugal clutch drum I.D.	—	—
bushing O.D.	—	—
Centrifugal clutch center guide I.D.	—	—
O.D.	—	—
Centrifugal clutch center guide collar height	—	—
Centrifugal clutch weight lining thickness	—	—
Centrifugal clutch spring free length	—	—
Clutch lining thickness	—	—
Crankshaft O.D. at clutch center	—	—

Cooling system

Cooling capacity (Radiator and engine)	2.3 ℓ (0.61 US gal, 0.51 Imp gal)	—
(Reserve tank)	0.3 ℓ (0.08 US gal, 0.07 Imp gal)	—
Radiator cap relief pressure	93–123 kPa (0.95–1.25 kg/cm², 14–18 psi)	—
Thermostat begins to open	80–84°C (176–183°F)	—
Thermostat fully open	95°C (203°F)	—
Thermostat valve lift	8.0 (0.315) min.	—

Drive train

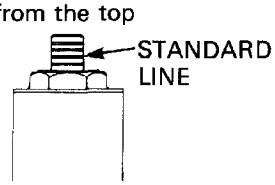
Recommended final drive oil	—	—
Final drive gear oil capacity at disassembly	—	—
at draining	—	—
Final drive gear backlash	—	—
Ring gear-to stop pin clearance (A)	—	—
Stop pin shim	—	—
Ring gear spacer	—	—
Pinion spacer	—	—
Output gear backlash	—	—
Output gear I.D.	—	—
Output gear bushing O.D.	—	—
I.D.	—	—
Output drive shaft O.D.	—	—
Output gear damper spring free length	—	—
Output shaft adjustment shim	—	—
Countershaft drive shaft adjustment shim	—	—

Unit: mm (in)

Wheels/tires

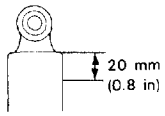
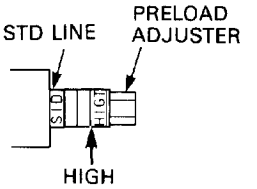
Item		Standard	Service limit
Minimum tire tread depth (FR)		———	1.5 (0.06)
(RR)		———	2.0 (0.08)
Cold tire pressure Rider only (FR)		250 kPa (2.50 kg/cm², 36 psi)	———
Rider only (RR)		290 kPa (2.90 kg/cm², 42 psi)	———
Rider and passenger (FR)		250 kPa (2.50 kg/cm², 36 psi)	———
Rider and passenger (RR)		290 kPa (2.90 kg/cm², 42 psi)	———
Front and rear axle runout		———	0.2 (0.01)
Front and rear wheel runout (Radial)		———	2.0 (0.08)
(Axial)		———	2.0 (0.08)
Front wheel hub-to-rim distance		———	———
Front wheel hub standard surface		———	———
Rear wheel hub-to-rim distance		———	———
Rear wheel hub standard surface		———	———
Wheel balance weight (FR/RR)		———	60 g (2.1 oz)
Drive chain slack		15–25 (0.6–1.0)	40 (1.6)
Drive chain size/link (DID)	'90–'93:	DID50VA6-122	———
	After '93:	DID50V4-122	———
(RK)	'90–'93:	RK50HFO-122	———
	After '93:	RK50MFOZ1-122	———

Front suspension

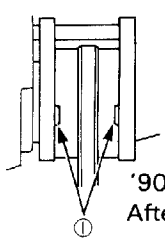
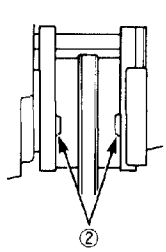
Front spring free length	'90–'91:	413.6 (16.28)	405.3 (15.96)
	'92–'93:	427.1 (16.81)	418.5 (16.48)
	After '93:	340.2 (13.39)	330.0 (13.0)
Front spring free length A		———	———
B		———	———
Fork spring direction		Tightly wound coil end facing down	———
Fork tube runout		———	0.2 (0.01)
Recommended fork oil		Pro Honda Suspension Fluid SS-7	———
Fork oil level (49 state/California type)	'90–'91:	175 (6.89)	———
	'92–'93:	178 (7.01)	———
	After '93:	177 (6.97)	———
(Canada type)	'90–'91:	187 (7.36)	———
	'92–'93:	178 (7.01)	———
	After '93:	177 (6.97)	———
Fork oil level (R)		———	———
(L)		———	———
Fork oil capacity (49 state/California type)	'90–'91:	383 cc (13.0 US oz, 13.4 Imp oz)	———
	'92–'93:	386 cc (13.1 US oz, 13.5 Imp oz)	———
	After '93:	412 cc (13.9 US oz, 14.5 Imp oz)	———
(Canada type)	'90–'91:	394 cc (13.3 US oz, 13.8 Imp oz)	———
	'92–'93:	386 cc (13.1 US oz, 13.5 Imp oz)	———
	After '93:	412 cc (13.9 US oz, 14.5 Imp oz)	———
Fork oil capacity (R)		———	———
(L)		———	———
Fork air pressure		———	———
Fork spring preload adjuster standard position (After '91)		3rd position from the top 	
Steering bearing preload		0.1–0.15 kg	

Unit: mm (in)

Rear suspension

Item		Standard	Service limit
Shock absorber spring free length	'90–'91:	195.3 (7.69)	191.4 (7.54)
	'92–'93:	184.8 (7.28)	181.1 (7.13)
	After '93:	———	———
Shock absorber spring free length (R)		———	———
(L)		———	———
Damper gas pressure		———	———
Damper compressed gas		———	———
Damper rod compressed force at 10mm (0.4 in) compressed		———	———
Damper drilling point for disposal 		20 mm (0.8 in) from the top surface	———
Shock absorber spring installed length (Standard) 			
	'90–'91:	181.9 (7.16)	———
	'92–'93:	171.4 (6.75)	———
	After '93:	———	———
Shock absorber spring compression adjuster range		LOW–STD–MIDDLE–HIGH POSITIONS	———
Shock absorber spring direction		With tapered end facing upper spring seat.	———
Recommended shock absorber oil		———	———
Shock absorber oil capacity		———	———
air pressure		———	———
Compression adjuster standard position		12 clicks from lowest position	———
Rebound adjuster standard position	'92–'93:	1-1/8 turn from hardest position	———
	After '93:	1 turn from hardest position	———

Brakes

Front brake fluid		DOT4	———
brake lever free play		———	———
brake pad wear indicator 		———	to the groove ①
brake disc thickness	'90–'93:	5.0 (0.21)	4.0 (0.20)
	After '93:	4.5 (0.18)	3.5 (0.14)
brake disc runout		———	0.3 (0.012)
master cylinder I.D.		12.700–12.743 (0.5000–0.5017)	12.76 (0.502)
master piston O.D.		12.657–12.684 (0.4983–0.04994)	12.65 (0.498)
caliper cylinder I.D.		25.400–25.450 (1.0000–1.0020)	25.46 (1.002)
caliper cylinder I.D. (Upper)		———	———
(Lower)		———	———
caliper piston O.D.		25.335–25.368 (0.9974–0.9987)	25.33
caliper piston O.D. (Upper)		———	———
(Lower)		———	———
brake drum I.D.		———	———
brake lining thickness		———	———
Rear brake fluid		DOT4	———
brake pedal height		———	———
brake pedal free play		———	———
brake pad wear indicator 		———	to the groove ②
brake disc thickness		6.0 (0.24)	5.0 (0.21)
runout		———	0.3 (0.012)
master cylinder I.D.		12.700–12.743 (0.5000–0.5017)	12.76 (0.502)
master piston O.D.		12.657–12.684 (0.4983–0.4994)	12.65 (0.498)
caliper cylinder I.D.		27.000–27.050 (1.0629–1.0632)	27.06 (1.065)
caliper piston O.D.		26.918–26.968 (1.0598–1.0617)	26.91 (1.059)
brake drum I.D.		———	———
brake lining thickness		———	———

Battery/charging system

Item	Standard	Service limit
Alternator charging coil resistance (At 20°C/68° F)	0.1–1.0Ω	———
Regulator/rectifier regulated voltage/amperage	13.5–16V/5–9A at 5,000 rpm	———
Battery capacity	12V–10AH	———
Battery specific gravity (Full charged)	———	———
(Needs charging)	———	———
Battery charging rate (Normal)	1.2A (5–10 hours)	———
(Quick)	5A (1 hour)	———
Battery voltage (Fully charged at 20°C/68° F)	Over 13.1V	———
(Needs charging at 20°C/68° F)	Below 12.5V	———
Alternator lighting coil resistance (At 20°C/68° F)	———	———
AC regulator regulated voltage (With analogue type)	———	———
(With digital type)	———	———

Ignition system

Spark plug		———
'90–'93: (Standard NGK)	CR8EH9	———
(Standard NIPPONDENSO)	U24FER9	———
(For cold climate/below 5°C/41° F NGK)	———	———
(For cold climate/below 5°C/41° F NIPPONDENSO)	———	———
(For extended high speed riding NGK)	CR9EH9	———
(For extended high speed riding NIPPONDENSO)	U27FER9	———
After '93: (Standard NGK)	CR9EH9	———
(Standard NIPPONDENSO)	U27FER9	———
(For cold climate/below 5°C/41° F NGK)	CR8EH9	———
(For cold climate/below 5°C/41° F NIPPONDENSO)	U24FER9	———
(For extended high speed riding NGK)	———	———
(For extended high speed riding NIPPONDENSO)	———	———
Spark plug gap	0.8–0.9 (0.03–0.04)	———
Ignition timing "F" mark	15° BTDC at idle	———
Advance starts	2,000 rpm	———
stops	———	———
Fully advance	———	———
Alternator exciter coil resistance (At 20°C/68° F)	———	———
Ignition coil resistance (At 20°C/68° F)		———
Primary	2–4Ω	———
Secondary with plug cap	17–24 kΩ	———
Secondary without plug cap	13–17 kΩ	———
Ignition pulse generator resistance (At 20°C/68° F)	200–400Ω	———

Lights/meters/switches

Item		Standard	Service limit
Main fuse		30A	———
Fuse		10A x 6, 20A x 1	———
Headlight (high/low beam)		12V 45/45W	———
Tail/brake light	'90–'93:	12V 32/3cp	———
	After '93:	12V 32/2cp	———
License light	'90–'93:	12V 4cp	———
	After '93:	12V 8W	———
Position light		———	———
Front turn signal/running light	'90–'93:	12V 32/3cp x 2	———
	After '93:	12V 23/8W x 2	———
Front turn signal light		———	———
Rear turn signal light	'90–'93:	12V 32cp x 2	———
	After '93:	12V 23W	———
Instrument light		12V 1.7W x 5	———
Oil pressure indicator	'90–'93:	12V 3.4W	———
	After '93:	12V 1.7W	———
Tail/brake light indicator		———	———
Side stand indicator	'90–'93:	12V 3.4W	———
	After '93:	12V 1.7W	———
Low fuel indicator	'90–'93	12V 3.4W	———
	After '93:	12V 5W	———
Coolant temperature indicator		———	———
Oil temperature indicator		———	———
High beam indicator	'90–'93:	12V 3.4W	———
	After '93:	12V 1.7W	———
Turn signal indicator	'90–'93:	12V 3.4W x 2	———
	After '93:	12V 1.7W x 2	———
Neutral indicator	'90–'93:	12V 3.4W	———
	After '93:	12V 1.7W	———
Reverse indicator		———	———
Overdrive indicator		———	———
Oil temperature sensor resistance		———	———
Fuel unit resistance (At full level)		4–10 Ω	———
(At low level)		90–100 Ω	———
Fuel pump flow capacity (min./minute)		900 cc (30.4 US oz, 31.7 Imp oz)/min.	———
Thermo sensor resistance (85°C/185° F)		39–49 Ω	———
(120°C/248° F)		14–18 Ω	———
Fan motor switch Starts to close (ON)		93–103°C (207–217° F)	———
Stops opening (OFF)		92–98°C (198–208° F)	———

Torque Values

Standard

Item	Torque N·m (kg-m, ft-lb)	Item	Torque N·m (kg-m, ft-lb)
5 mm bolt and nut	5 (0.5, 3.5)	5 mm screw	4 (0.4, 3)
6 mm bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 7)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	9 (0.9, 7)
10 mm bolt and nut	35 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm bolt and nut	55 (5.5, 40)	8 mm flange bolt and nut	27 (2.7, 20)
		10 mm flange bolt and nut	40 (4.0, 29)

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

'90–'93:

NOTES:
1. Apply a locking agent to the threads.
2. Apply sealant to the threads.
3. Stake.
4. Apply oil to the seating surface and threads.

Engine ('90–'93)

Item	Q'ty	Tread Dia (mm)	Torque N·m	Torque kg-m	Torque ft-lb	Remarks
Lubrication:						
Oil pump driven sprocket bolt	1	6	18	1.8	13	NOTE 1
Oil pressure switch	1	–	12	1.2	9	NOTE 2
Oil drain bolt	1	12	38	3.8	27	
Oil pump mount bolt	3	6	12	1.2	9	
Oil filter	1	20	10	1.0	7	
Oil filter boss	1	20	18	1.8	13	NOTE 1
Cylinder head/Cylinder:						
Clinder head cover bolt	8	6	10	1.0	7	
Camshaft holder bolt	32	6	12	1.2	9	
Cylinder head bolt	16	9	45	4.5	33	
	4	6	12	1.2	9	
Cam gear case bolt	8	6	10	1.0	7	
	2	8	23	2.3	17	
Thermosensor	1	–	10	1.0	7	NOTE 2
Spark plug	4	10	12	1.2	9	
Clutch/Gearshift linkage:						
Timing hole cap	1	45	18	1.8	13	
Slave cylinder bleed bolt	1	8	9	0.9	9	
Clutch center lock nut	1	22	90	9.0	65	NOTE 3
Gear shift return spring pin	1	8	25	2.5	18	
Shift drum bearing set plate bolt	2	6	12	1.2	9	
Shift drum center bolt	1	8	23	2.3	17	
Crankcase/Crankshaft/Transmission:						
Connecting rod cap nut	8	8	34	3.4	25	NOTE 4
Crankcase bolt 6 mm	15	6	12	1.2	9	
8 mm	1	8	23	2.3	17	
9 mm	8	9	33	3.3	24	NOTE 4
10 mm	2	10	40	4.0	29	
Mainshaft bearing set plate bolt	3	6	12	1.2	9	NOTE 1

Engine ('90–'93)[cont'd]

Item	Q'ty	Tread Dia (mm)	Torque N·m	Torque kg-m	Torque ft-lb	Remarks
Neutral switch	1	10	12	1.2	9	
Drive sprocket bolt	1	10	52	5.2	38	
Alternator:						
Alternator cover bolt	6	6	10	1.0	7	
Flywheel bolt	1	10	90	9.0	65	
Starter clutch:						
Starter motor terminal nut	1	6	4.5	0.45	3.3	
Starter clutch bolt	1	12	90	9.0	65	
Starter clutch cover bolt	3	8	40	4.0	30	NOTE 1
Fuel system:						
Carburetor band screw	6	5	1	0.1	0.7	

Frame ('90–'93)

Item	Q'ty	Tread Dia (mm)	Torque N·m	Torque kg-m	Torque ft-lb	Remarks
Frame/Exhaust system						
Exhaust pipe joint	8	8	30	3.0	22	
Muffler mounting bolt	1	8	30	3.0	22	
Side stand pivot bolt	1	10	8	0.8	6	
Side stand pivot lock nut	1	10	40	4.0	29	
Side stand switch bolt	1	6	9	0.9	7	
Cooling system						
Thermo sensor	1	—	10	1.0	7	NOTE 2
Fan motor switch	1	16	18	1.8	13	NOTE 2
Fuel system						
Fuel fill cap mounting bolt	3	4	3	0.3	2.2	
Engine mount						
Engine mounting bolt	6	10	40	4.0	29	
Engine mount adjusting bolt	2	22	9	0.9	7	
Engine mount lock nut	2	22	55	5.5	40	
Rear lower engine mounting nut	1	12	55	5.5	40	
Front						
Front axle bolt	1	14	60	6.0	43	
Front axle pinch bolt	2	8	22	2.2	16	
Handlebar pinch bolt	2	8	23	2.3	17	
Handlebar weight bolt	2	6	10	1.0	7	
Fork pinch bolt (Upper)	2	8	23	2.3	17	
(Lower)	2	10	50	5.0	36	
Fork socket bolt	2	37	23	2.3	17	
Fork piston rod lock nut	2	10	20	2.0	14	
Steering stem nut	1	24	105	10.5	76	
Steering head bearing adjustment nut	1	26	25	2.5	18	
Ignition switch mounting bolt	2	8	25	2.5	18	NOTE 1
Brake						
Brake pipe flare nut	2	10	17	1.7	12	NOTE 4
Front caliper mount bolt	4	8	27	2.7	20	
Brake hose bolt	5	10	35	3.5	25	
Clutch fluid hose bolt	2	10	35	3.5	25	
Rear brake torque rod link bolt	2	10	35	3.5	25	

Frame ('90–'93)[cont'd]

Item	Q'ty	Tread Dia (mm)	Torque N·m	Torque kg-m	Torque ft-lb	Remarks
Rear caliper stay bolt	2	8	27	2.7	20	
Rear caliper disc mount nut	4	8	35	3.5	25	
Front caliper disc mount bolt	12	8	43	4.3	31	
Foot peg mount bolt	4	8	33	3.3	24	
Rear						
Swingarm pivot lock nut (Left side)	1	18	95	9.5	69	
Swingarm pivot bolt	1	30	15	1.5	16	
Swingarm pivot lock nut	1	30	80	8.0	58	
Bearing holder pinch bolt	1	14	55	5.5	40	
Rear wheel nut	4	12	110	11	80	
Shock absorber mounting bolt	2	10	45	4.5	33	
Shock absorber joint lock nut	1	14	65	6.5	47	
Rear axle nut	1	35	195	19.5	141	
Driven sprocket nut	6	8	33	3.3	24	
Sub frame mount bolt	2	10	45	4.5	33	
	2	10	45	4.5	33	Socket bolt

After '93:

NOTE: 1. Apply locking agent to the threads
2. Apply sealant to the threads
3. Stake
4. Apply oil to the threads and seating surface
5. Apply grease to the threads and seating surface
6. A lock bolt. Do not reuse.

Engine (After '93)

Item	Q' ty	Thread dia. (mm)	Torque N•m (kg-m, ft-lb)	Remarks
Lubrication:				
Oil pump driven sprocket bolt	1	6	18 (1.8, 13)	Note 1
Oil pressure switch	1		12 (1.2, 9)	Note 2
Oil drain bolt	1	12	30 (3.0, 22)	
Oil pump assembly bolt	3	6	13 (1.3, 9)	
Oil pipe bolt/nut	1/1	6	12 (1.2, 9)	
Oil filter	1	20	10 (1.0, 7)	Note 4
Oil filter boss	1	20	18 (1.8, 13)	Note 1
Cooling System:				
Water pump cover and mounting bolt	4	6	13 (1.3, 9)	
Fuel System:				
Carburetor insulator band screw	8	5	1 (0.1, 0.7)	
Cylinder Head/Cylinder:				
Cylinder head cover bolt	8	6	10 (1.0, 7)	
Camshaft holder bolt	32	6	12 (1.2, 9)	Note 4
Cylinder head bolt	16	9	45 (4.5, 33)	Note 4
	4	6	12 (1.2, 9)	
Cam gear case bolt	8	6	12 (1.2, 9)	
	2	8	27 (2.7, 20)	
Vacuum port joint	4	5	4 (0.4, 2.9)	
Sealing bolt	1	18	45 (4.5, 33)	Note 1
Spark plug	4	10	12 (1.2, 9)	

Engine (After '93)[cont'd]

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Clutch System:				
Right crankcase cover bolt	13	6	12 (1.2, 9)	
Clutch lifter plate bolt	5	6	12 (1.2, 9)	
Clutch center lock nut	1	22	110 (11.0, 80)	Note 3, 4
Slave cylinder bleeder	1	8	9 (0.9, 6.5)	
Clutch fluid hose bolt	2	10	35 (3.5, 25)	
Clutch lever pivot bolt	1	6	1 (0.1, 0.7)	
nut	1	6	6 (0.6, 4.3)	
Gearshift Linkage:				
Gearshift return spring pin	1	8	23 (2.3, 17)	Note 1
Shift drum center bolt	1	8	23 (2.3, 17)	Note 1
Gearshift pedal pinch bolt	1	6	22 (2.2, 16)	
Drive sprocket cover rubber bolt	2	6	12 (1.2, 9)	Note 6
Chain guide plate bolt	2	6	12 (1.2, 9)	Note 1
Speed sensor bolt	2	6	10 (1.0, 7)	
Crankshaft/Piston/Transmission:				
Connecting rod cap nut	8	8	34 (3.4, 25)	Note 4
Crankcase bolt 6 mm	15	6	12 (1.2, 9)	
8 mm	1	8	23 (2.3, 17)	Note 4
9 mm	8	9	32 (3.2, 23)	Note 4
10 mm	2	10	40 (4.0, 29)	Note 4
Neutral switch	1	10	12 (1.2, 9)	
Drive sprocket bolt	1	10	52 (5.2, 38)	
Charging System/Alternator:				
Alternator cover bolt	6	6	12 (1.2, 9)	
Flywheel bolt	1	10	85 (8.5, 61)	Note 4
Stator bolt	4	6	12 (1.2, 9)	
Ignition System:				
Ignition pulse generator bolt	3	6	10 (1.0, 7)	
Timing hole cap	1	45	18 (1.8, 13)	Note 5
Electric Starter/Starter Clutch:				
Starter motor terminal nut	1	6	10 (1.0, 7)	
Starter clutch bolt	1	12	90 (9.0, 65)	Note 4
Starter clutch cover bolt	3	8	40 (4.0, 29)	Note 1
Starter motor assembly bolt	3	5	5 (0.5, 3.6)	

Frame (After '93)

Item	Q' ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Body Panels/Exhaust System/Sub Frame:				
Exhaust pipe joint nut	11	6	12 (1.2, 9)	
Side stand pivot bolt	1	8	23 (2.3, 17)	
Footpeg stay bolt	4	8	27 (2.7, 20)	
Rear grab rail bolt	2	8	35 (3.5, 25)	
Sub frame mounting bolt	4	10	40 (4.0, 29)	
Fuel tank mounting bolt	1	6	11 (1.1, 8)	
Cooling System:				
Fan motor switch	1	16	18 (1.8, 13)	
Thermosensor	1	—	10 (1.0, 7)	Note 2
Engine Mount:				
Engine mounting bolt	6	10	40 (4.0, 29)	
Engine mount adjusting bolt	2	22	9 (0.9, 6.5)	
Engine mount lock nut	2	22	55 (5.5, 40)	
Rear lower engine mounting nut	1	12	55 (5.5, 40)	
Front Wheel/Suspension/Steering:				
Front axle bolt	1	14	40 (4.0, 29)	
Front axle pinch bolt	2	8	22 (2.2, 16)	
Handlebar pinch bolt	2	8	23 (2.3, 17)	
Front brake disc bolt	12	6	20 (2.0, 14)	Note 6
Fork pinch bolt (Upper)	2	8	23 (2.3, 17)	
(lower)	2	10	50 (5.0, 36)	
Fork cap	2	37	23 (2.3, 17)	
Fork socket bolt	2	8	20 (2.0, 14)	Note 1
Fork piston rod lock nut	2	10	20 (2.0, 14)	
Steering stem nut	1	24	105 (10.5, 76)	
Steering head bearing adjustment nut	1	26	25 (2.5, 18)	Note 4
Ignition switch mounting bolt	2	8	25 (2.5, 18)	Note 1
Rear Wheel/Suspension:				
Rear axle nut	1	35	195 (19.5, 141)	Note 4
Rear brake disc bolt	4	8	35 (3.5, 25)	
Driven sprocket nut	6	8	33 (3.3, 24)	Note 4
Shock absorber mounting bolt	2	10	45 (4.5, 33)	
Shock absorber upper bracket nut	1	10	45 (4.5, 33)	
Shock link bolt	2	10	45 (4.5, 33)	
Shock arm plate bolt (swingarm side)	1	10	45 (4.5, 33)	
Swingarm pivot nut (left side)	1	18	95 (9.5, 69)	
Swingarm adjusting bolt	1	30	15 (1.5, 16)	
Swingarm pivot lock nut	1	30	80 (8.0, 58)	
Bearing holder pinch bolt	1	14	55 (5.5, 40)	
Rear brake torque rod link bolt	2	10	35 (3.5, 25)	

Frame (After '93) [cont'd]

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Brake System:				
Brake hose bolt	4	10	35 (3.5, 25)	
Front brake pipe flare nut	2	10	17 (1.7, 12)	
Caliper bleed valve	2	8	5.5 (0.55, 4.0)	
Pad pin	2	10	18 (1.8, 13)	
Pad pin plug	2	10	2.5 (0.25, 1.8)	
Front caliper mounting bolt	2	8	27 (2.7, 20)	Note 6
Rear caliper stay bolt	2	8	27 (2.7, 20)	
Caliper pin bolt (Front)	1	8	23 (2.3, 17)	Note 1
(Rear)	1	8	28 (2.8, 20)	
Caliper bracket pin bolt	2	8	13 (1.3, 9)	Note 1
Front brake lever pivot bolt	1	6	1 (0.1, 0.7)	
nut	1	6	6 (0.6, 4.3)	
Rear master cylinder mounting bolt	2	6	12 (1.2, 9)	
Rear master cylinder reservoir bolt	1	6	12 (1.2, 9)	

Tools

- The tools for bearing removal and installation are not contained in this list. Refer to section 1, Ball Bearing Replacement, of the Common Service Manual.
- The newly designed tools are indicated with * mark in the list.

Description	Tool number	Remarks	Ref. sect(s)
Vacuum gauge	07404−0030000	or M937B−021−XXXX (U.S.A. only)	3
Drive chain cutter	07HMH−MR10102	Drive chain (After '93)	3
−Link plate holder	07NMH−MW00110 or 07PMH−MZ20110		
Pilot screw wrench			
'90−'93:	07908−4730002	Carburetor	3
After '93: (Canada type)	07908−4220201		
(49 state/California)	07KMA−MS60101 and 07PMA−MZ20110		
Oil filter wrench	07HAA−PJ70100	Oil filter	4
Oil pressure gauge	07506−3000000	or equivalent commer-	4
Oil pressure gauge attachment	07510−4220100	cially available in	4
Antifreeze tester	Commercially available	U.S.A.	5
Cooling system tester	Commercially aveilable		5
Float level gauge	07401−0010000	Carburetor	6
Lock nut wrench	07HMA−MR70200	Engine mount	7
*Pivot lock nut wrench	07908−4690002	Swingarm	7, 13
Valve guide driver	07HMD−ML00100	Valve guide	8
Tappet hole protector	07HMG−MR70001	Valve	8
Valve spring compressor	07757−0010000		8
Valve spring compressor attachment	07959−KM30101		8
Valve seat cutter, 24.5 mm (45° EX)	07780−0010100	or equivalent commer-	8
Valve seat cutter, 29 mm (45° IN)	07780−0010300	cially available in	8
Valve flat cutter, 25 mm (32° EX)	07780−0012000	U.S.A.	8
Valve flat cutter, 30 mm (32° IN)	07780−0012200		8
Valve interior cutter, 30 mm (60° IN)	07780−0014000		8
Valve interior cutter, 26 mm (60° EX)	07780−0014500		8
Cutter holder, 4.5 mm	07781−0010600		8
Valve guide reamer, 4.5 mm	07HMH−ML00101	or equivalent commer-	8
Compression gauge	07305−0010000	cially available in	8
Compression gauge attachment	07JMJ−KY20100 or 07PMJ−MY50100	U.S.A.	8
Clutch center holder	07724−0050001	Clutch	9
Lock nut wrench 26 x 30 mm	07716−0020203		9
Driver	07746−0030100	Mainshaft bearing	11
Attachment, 25 mm I.D.	07746−0030200		11
Bearing remover head, 20 mm	07746−0050600	Front wheel bearing	12
Bearing remover shaft	07746−0050100		12
Driver	07749−0010000		
Attachment, 42x 47 mm	07746−0010300	Front wheel bearing Rear axle housing Driven sprocket hub	12, 13
Pilot, 20 mm	07746−0040500	Front wheel bearing Swingarm	12, 13
Fork seal driver	07947−KA50100	Fork	12
Fork seal driver attachment	07947−KF00100		12
Lock nut wrench, 30 x 32 mm	07716−0020400	Steering	12
Steering stem socket	07916−3710100		12
Ball race remover set	07946−KM90001	Steering head	12
− Driver attachment A	07946−KM90100	Included in set	
− Driver attachment B	07946−KM90200		
− Driver shaft assembly	07946−KM90300		
− Bearing remover A	07946−KM90401		
− Bearing remover B	07946−KM90500		
− Base assembly	07946−KM90600		
Steering stem driver	07946−MB00000	Steering head	12