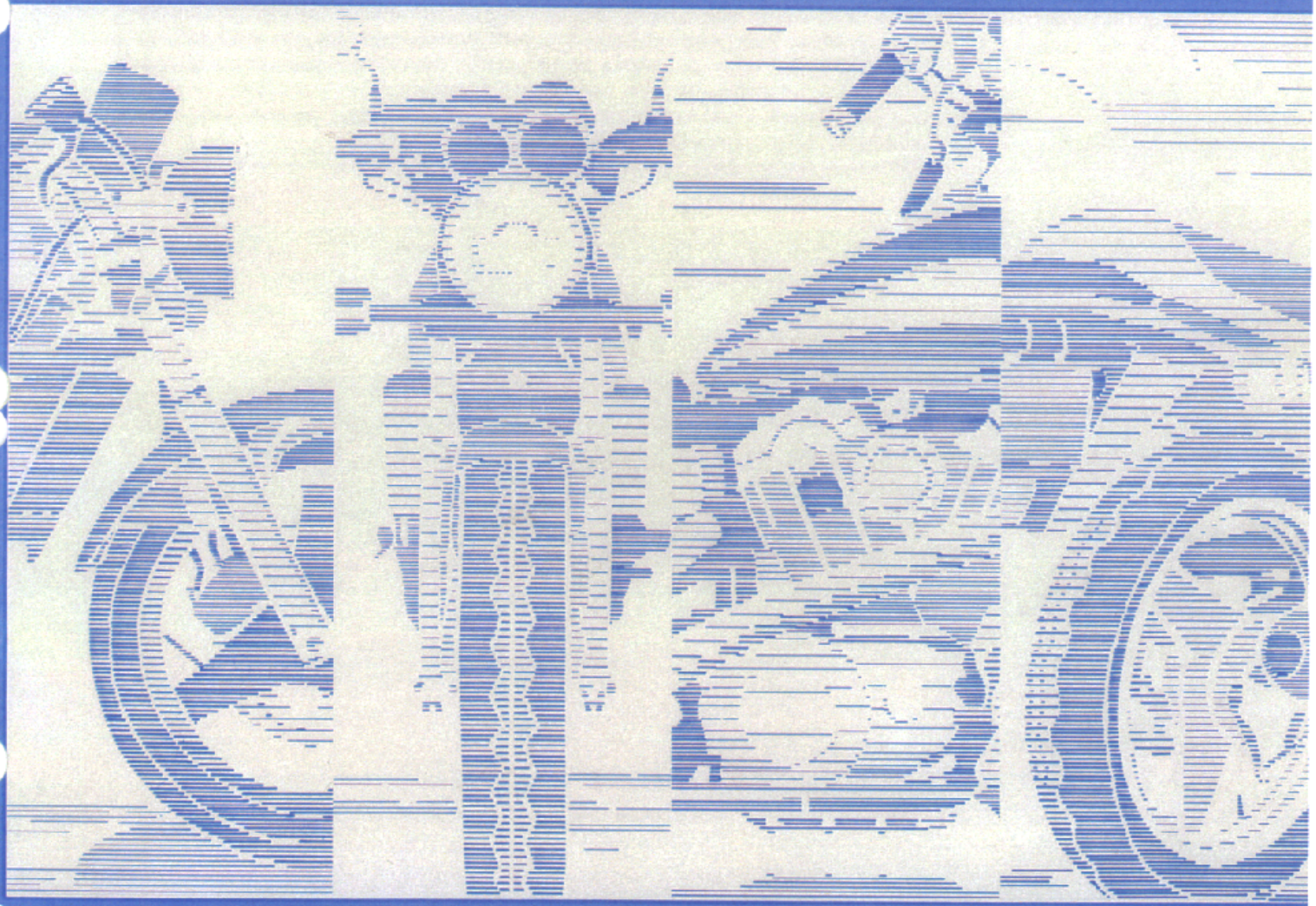
HONDA

SERVICE MANUAL



93-95
CBR900RR

Introduction

This service manual describes the service procedures for the CBR900RR.

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 compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
Sections 4 through 18 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 describe the service procedure 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.

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SERVICE PUBLICATION OFFICE

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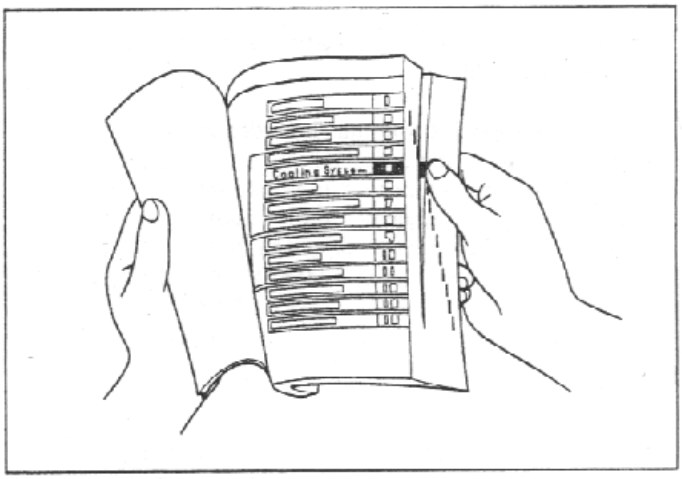
How To Use This Manual

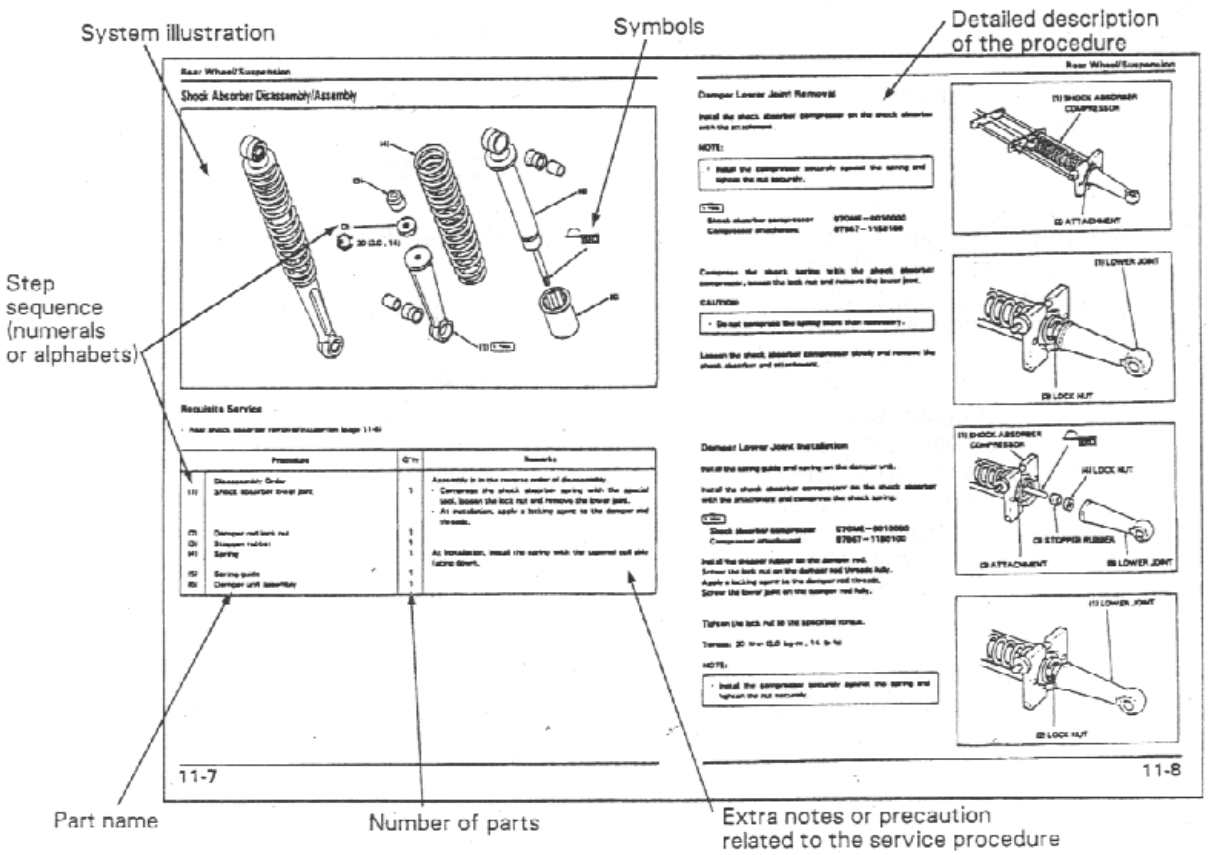
Finding The Information You Need



- This manual is devided 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 sections 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 call outs 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 symbols to indicate necessary service procedures and precautions that need to be taken.
  Refer to the next page for the meaning of each symbol.
- Also in the illustration is a chart that lists information such as the order in which the parts is removal/installed, the name of the part, and some extra notes that may needed.
- Step by step instructions are provided to supplement the illustrations when datailed 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. These tools are obtained as you order parts.
 10 (1.0, 7)	Torque specification. 10 N·m (1.0 kg-m, 7 lb-ft)
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 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 the agent of the middle strength, unless otherwise specified.
	Apply sealant.
	Use brake fluid DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

MEMO

1. General Information

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 may cause loss of consciousness and can 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

- **Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.**
- **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.**

To prevent the possibility of an explosion, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber reservoir. Dispose of the oil in a manner acceptable to the Environmental Protection Agency (EPA).

Before disposal of the shock absorber, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber.

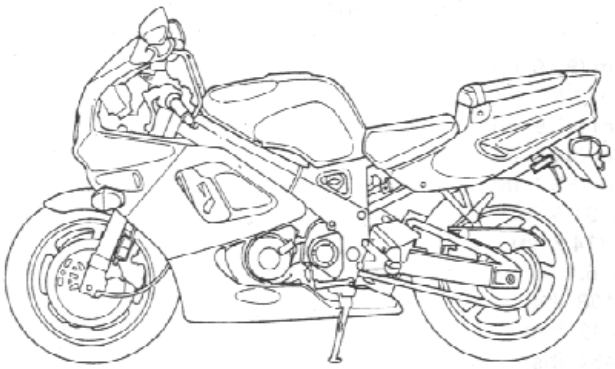
Battery Hydrogen Gas & Electrolyte

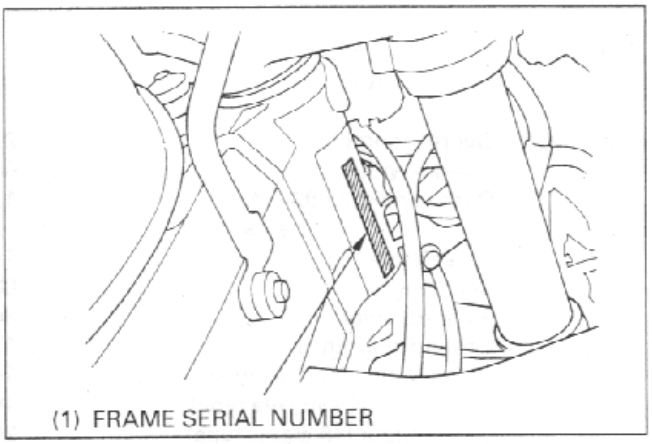
⚠WARNING

- **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 immediately.**
- **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.**

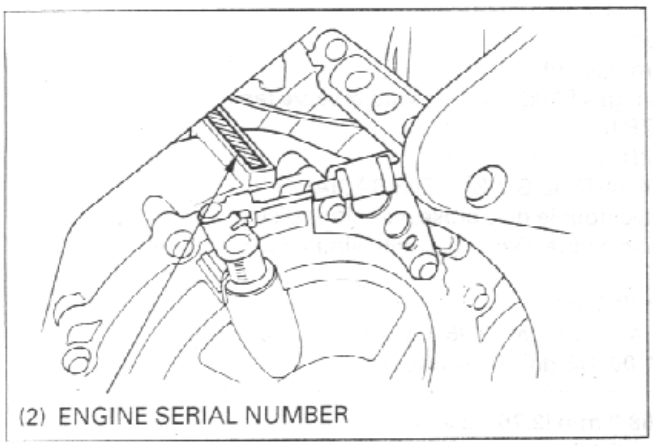
Model Identification

'93 Shown; After '93 Similar:

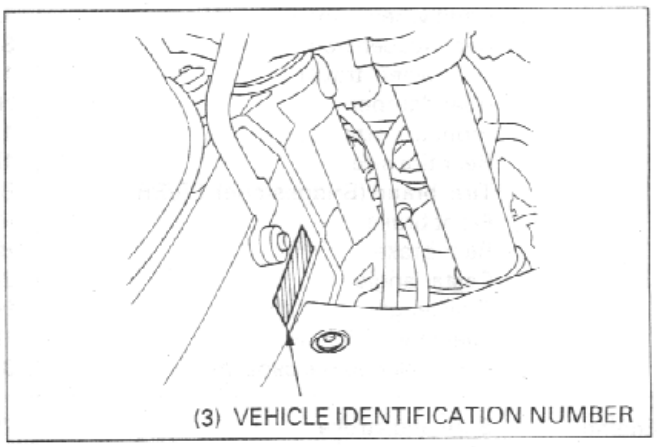




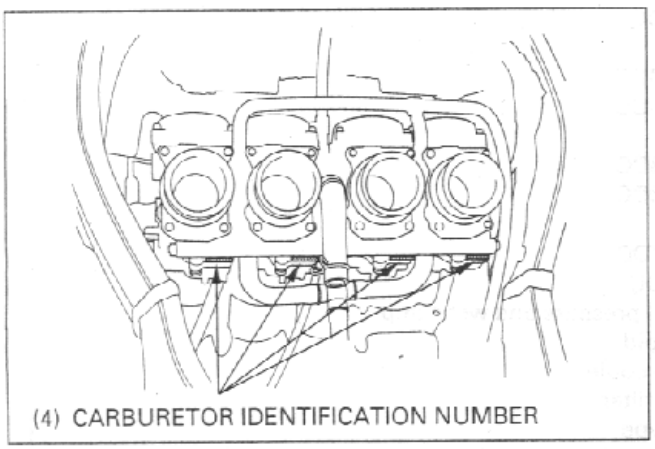
(1) The frame serial number is stamped on the right side of the steering head.



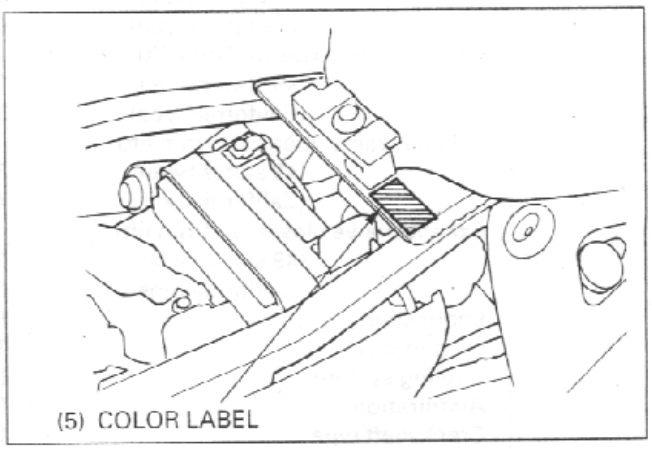
(2) The engine serial number is stamped on the right side of the upper crankcase.



(3) The Vehicle Identification Number (VIN) is located on right side of the frame near the steering head on the Safety Certification Label.



(4) The carburetor identification numbers are stamped on the intake side of the carburetor body as shown.



(5) The color label is attached as shown. When ordering color-coded parts, always specify the designated color code.

Specifications

General

Item		Specifications
Dimensions	Overall length	2,055 mm (80.9 in)
	Overall width	685 mm (27.0 in)
	Overall height ('93-'94:)	1,115 mm (43.9 in)
	(After '94:)	1,130 mm (44.5 in)
	Wheelbase	1,400 mm (55.1 in)
	Seat height	800 mm (31.5 in)
	Footpeg height	364 mm (14.3 in)
	Ground clearance	130 mm (5.1 in)
	Dry weight (49 states type)	185 kg (408 lbs)
	(California type)	187 kg (412 lbs)
	Curb weight (49 states type)	206 kg (454 lbs)
	(California type)	208 kg (459 lbs)
	Maximum weight capacity	164 kg (362 lbs)
Frame	Frame type	Diamond
	Front suspension	Telescopic fork
	Front wheel travel	120 mm (4.7 in)
	Rear suspension	Swingarm
	Rear wheel travel	112 mm (4.4 in)
	Rear damper	Nitrogen gas filled damper, with reserve tank
	Front tire size	130/70ZR16
	Rear tire size	180/55ZR17
	Tire brand (Bridgestone) FR/RR	BT−50F RADIAL G / BT−50R RADIAL G
	Front brake	Hydraulic double disc brake, with four-piston caliper
	Rear brake	Hydraulic single disc brake, with single piston caliper
	Caster angle	24°
	Trail length	90 mm (3.5 in)
	Fuel tank capacity	18.0 ℓ (4.76 US gal , 3.96 Imp gal)
	Fuel tank reserve capacity	3.8 ℓ (1.00 US gal , 0.84 Imp gal)
Engine	Bore and stroke	70.0 x 58.0 mm (2.76 x 2.28 in)
	Displacement	893 cm³ (54.5 cu-in)
	Compression ratio	11.0 : 1
	Valve train	Chain drive and DOHC
	Intake valve opens (at 1mm lift)	
	(49 states type)	15° BTDC
	(California type)	0° BTDC
	Intake valve closes (at 1mm lift)	
	(49 states type)	35° ABDC
	(California type)	37° ABDC
	Exhaust valve opens (at 1mm lift)	
	(49 states type)	39° BBDC
	(California type)	40° BBDC
	Exhaust valve closes (at 1mm lift)	
	(49 states type)	11° ATDC
	(California type)	0° ATDC
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Liquid cooled
	Air filtration	Paper filter
	Crankshaft type	Unit type
	Engine weight (49 states type)	66.4 kg (146.4 lbs)
	(California type)	67.7 kg (149.3 lbs)
	Firing order	1 2 4 3
	Cylinder arrangement	Four cylinder, inline
	Cylinder number	

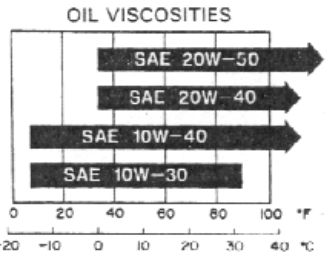
General (Cont'd)

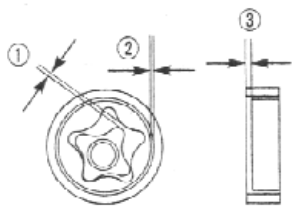
Item		Specifications
Carburetor	Carburetor type	CV (Constant Velocity) type, with flat valve
	Throttle bore	38 mm (1.5 in)
Drive Train	Clutch system	Multi-plate, wet
	Clutch operation system	Cable operating
	Transmission	6-speeds constant mesh
	Primary reduction	1.5200 (76/50)
	Secondary reduction	N/A
	Third reduction	N/A
	Final reduction	2.6875 (43/16)
	Gear ratio 1st	2.7692 (36/13)
	Gear ratio 2nd	2.0000 (32/16)
	Gear raito 3rd	1.5789 (30/19)
	Gear ratio 4th	1.4000 (28/20)
	Gear ratio 5th	1.2500 (25/50)
	Gear ratio 6th	1.1739 (27/23)
	Gear ratio reverse	N/A
	Gearshift pattern	Left foot operated, return system, 1−N 2 3−4−5−6
Electrical	Ignition system	Full transistor digital ignition
	Starting system	Starter motor
	Charging system	Triple phase output alternator
	Regulator/rectifier type	SCR shorted/triple phase, full-wave rectification
	Lighting system	Battery
	AC regulator type	N/A

Unit : mm (in)

Lubrication System

Item		Standard	Service Limit
Engine oil capacity at draining	'93-'94:	3.1 ℓ (3.3 US qt , 2.7 Imp qt)	———
	After '94:	3.5 ℓ (3.7 US qt , 3.1 Imp qt)	———
at disassembly	'93-'94:	4.0 ℓ (4.2 US qt , 3.5 Imp qt)	———
	After '94:	4.4 ℓ (4.6 US qt , 3.9 Imp qt)	———
at oil filter change	'93-'94:	3.2 ℓ (3.4 US qt , 2.8 Imp qt)	———
	After '94:	3.6 ℓ (3.8 US qt , 3.2 Imp qt)	———
Recommended engine oil		Use Honda GN4 4-stroke Oil or equivalent API Service Classification : SF or SG Viscosity : SAE 10W-40 Other 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		500 kPa (5.0 kg/cm², 71 psi) at 6,000 rpm (176°F/80°C)	———
Oil pump rotor tip clearance ①		0.15 (0.006)	0.20 (0.008)
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)





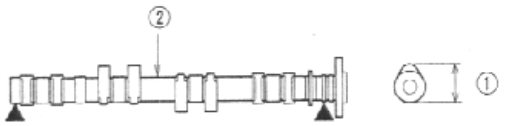
Fuel System

Carburetor identification number (49 states type)	VP84A	———
(California type)	VP81A	———
Main jet	# 115	———
Slow jet	# 40	———
Jet needle clip position	N/A	———
Pilot screw initial opening (49 states type)	See page 5-17	———
(California type)	See page 5-17	———
Pilot screw high altitude adjustment	See page 5-18	———
Air screw opening	N/A	———
Air screw high altitude adjustment	N/A	———
Float level	13.7 (0.54)	———
Carburetor vacuum difference	20 mm (0.8 in) Hg	———
Base carburetor (For carburetor synchronization)	No. 3 carburetor	———
Idle speed	1,100 ± 100 rpm	———
Throttle grip free play	2—6 (0.08—0.24)	———
Pulse secondary air injection (PAIR) system (California type)	Pulse secondary air injection (PAIR) check valves are built into the Puls secondary air injection (PAIR) control valve	———
Pulse secondary air injection (PAIR) control valve vacuum pressure	350 ± 30 mmHg	———

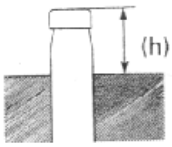
Unit : mm (in)

Cylinder Head

Item	Standard	Service Limit
Cylinder compression	1,200 kPa (12.0 kg/cm², 171 psi)	———
Valve clearance (Below 95°F/35°C) IN	0.13—0.19 mm (0.005—0.007 in)	———
EX	0.19—0.25 mm (0.007—0.010 in)	———
Cylinder head warpage	———	0.10 (0.004)
Cam lobe height ① IN (49 states type)	36.040—36.280 (1.4189—1.4283)	36.01 (1.418)
IN (California type)	34.940—35.180 (1.3756—1.3850)	34.91 (1.374)
EX (49 states type)	35.800—36.040 (1.4094—1.4189)	35.77 (1.408)
EX (California type)	35.100—35.340 (1.3819—1.3913)	35.07 (1.381)
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. A	N/A	———
B	N/A	———
Camshaft holder I. D. A	N/A	———
B	N/A	———
Valve stem O. D. IN	4.475—4.490 (0.1762—0.1768)	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)	4.540 (0.1787)
EX	4.500—4.512 (0.1772—0.1776)	4.540 (0.1787)
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 (h) IN	14.60—14.80 (0.575—0.583)	———
EX	14.80—15.00 (0.583—0.591)	———



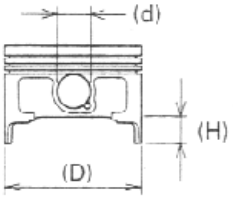
Before guide installation:
1. Chill the valve guides in the freezer section of the refrigerator for about an hour.
2. Heat the cylinder head to 212-300°F (100-150°C)

Valve seat width	0.90—1.10 (0.035—0.043)	1.5 (0.06)
Valve spring free length IN	N/A	———
EX	N/A	———
inner IN	35.77 (1.408)	34.07 (1.341)
inner EX	35.77 (1.408)	34.07 (1.341)
outer IN	39.69 (1.563)	37.79 (1.488)
outer EX	39.69 (1.563)	37.79 (1.488)
Rocker arm I. D. IN	N/A	———
EX	N/A	———
Sub-rocker arm I. D. IN	N/A	———
EX	N/A	———
Rocker arm shaft O. D. IN	N/A	———
EX	N/A	———
Sub-rocker arm shaft O. D. IN	N/A	———
EX	N/A	———
Rocker arm-to-rocker arm shaft clearance	N/A	———
Sub-rocker arm-to-rocker arm shaft clearance	N/A	
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)
Hydraulic lash adjuster assist spring free length	N/A	———
Hydraulic lash adjuster compression stroke with kerosene	N/A	———

Unit : mm (in)

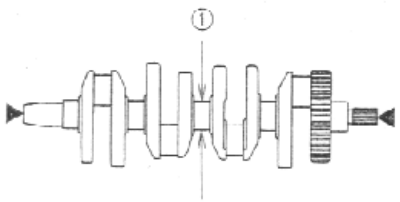
Cylinder/Piston

Item	Standard	Service Limit
Cylinder I. D.	70.000—70.015 (2.7559—2.7565)	70.10 (2.760)
Cylinder out of round	————	0.10 (0.004)
Cylinder taper	————	0.10 (0.004)
Cylinder warpage	————	0.05 (0.002)
Piston mark direction	"IN" mark facing toward the intake side	————
Piston O. D. (D)	69.965—69.985 (2.7545—2.7553)	69.90 (2.752)
Piston O. D. measurement point (H)	15 mm (0.6 in) from the bottom	————
Piston pin hole I. D. (d)	17.002—17.008 (0.6694—0.6696)	17.03 (0.670)
Cylinder-to-piston clearance	0.015—0.050 (0.0006—0.0020)	————
Piston pin O. D. ('93-'94:)	16.993—17.000 (0.6690—0.6693)	16.98 (0.669)
(After '94:)	16.994—17.000 (0.6691—0.6693)	16.98 (0.669)
Piston-to-piston pin clearance ('93-'94:)	0.002—0.015 (0.0001—0.0006)	————
(After '94:)	0.002—0.014 (0.0001—0.0006)	————
Connecting rod-to-piston pin clearance ('93-'94:)	0.016—0.041 (0.0006—0.0016)	————
(After '94:)	0.016—0.040 (0.0006—0.0016)	————
Top ring-to-ring groove clearance	0.015—0.050 (0.0006—0.0020)	0.10 (0.004)
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	0.40—0.55 (0.016—0.022)	0.7 (0.03)
Oil ring (side rail) end gap	0.2—0.8 (0.01—0.03)	1.0 (0.04)
Top ring mark	"R" mark facing up	————
Second ring mark	"RN" mark facing up	————



Crankshaft

Connecting rod small end I. D.	17.016—17.034 (0.6699—0.6706)	17.04 (0.671)
Connecting rod big end side clearance	0.05—0.20 (0.002—0.008)	0.30 (0.012)
radial clearance	N/A	————
Crankshaft runout ①	————	0.05 (0.002)
Crankpin oil clearance	0.030—0.052 (0.0012—0.0020)	0.06 (0.002)
Crankpin bearing selection	See page 10-6	————
Main journal oil clearance	0.017—0.035 (0.0007—0.0014)	0.04 (0.002)
Main journal bearing selection	See page 11-4	————



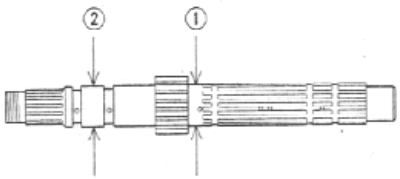
Kickstarter

Kickstarter pinion gear I. D.	N/A	————
Kickstarter spindle O. D.	N/A	————
Kickstarter idle gear I. D.	N/A	————
Countershaft O. D. at kickstarter idle gear	N/A	————
Kickstarter idle gear bushing O. D.	N/A	————
I. D.	N/A	————

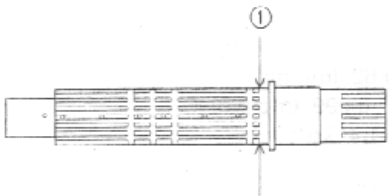
Unit : mm (In)

Transmission

Item	Standard	Service Limit
Transmission gear I. D. M5, M6	28.000—28.021 (1.1024—1.1032)	28.04 (1.104)
C1	24.000—24.021 (0.9449—0.9457)	24.04 (0.946)
C2, C3, C4	31.000—31.025 (1.2205—1.2215)	31.04 (1.222)
Transmission gear bushing O. D. M5, M6	27.959—27.980 (1.1007—1.1016)	27.94 (1.100)
C2	30.955—30.980 (1.2187—1.2197)	30.93 (1.218)
C3, C4	30.950—30.975 (1.2185—1.2195)	30.93 (1.218)
Transmission gear bushing I. D. M5	24.985—25.006 (0.9837—0.9845)	25.02 (0.985)
C2	27.985—28.006 (1.1018—1.1026)	28.02 (1.103)
Gear-to-bushing clearance at M5, M6 gear	0.020—0.062 (0.0008—0.0024)	———
at C2 gear	0.020—0.070 (0.0008—0.0028)	———
at C3, C4 gear	0.025—0.075 (0.0010—0.0030)	———
Mainshaft O. D. at M5 gear ①	24.967—24.980 (0.9830—0.9835)	24.96 (0.983)
at clutch outer guide ②	24.980—24.993 (0.9835—0.9840)	24.95 (0.982)



Countershaft O. D. at C2 gear ①	27.967—27.980 (1.1011—1.1016)	27.96 (1.101)



Gear-to-shaft clearance	N/A	———
Gear bushing-to-shaft clearance at M5 gear	0.005—0.039 (0.0002—0.0015)	———
at C2 gear	0.005—0.039 (0.0002—0.0015)	———
Shift fork claw thickness L	5.93—6.00 (0.233—0.236)	5.90 (0.232)
C	5.93—6.00 (0.233—0.236)	5.90 (0.232)
R	5.93—6.00 (0.233—0.236)	5.90 (0.232)
Shift fork I. D. L	12.000—12.021 (0.4724—0.4733)	12.03 (0.474)
C	12.000—12.021 (0.4724—0.4733)	12.03 (0.474)
R	12.000—12.021 (0.4724—0.4733)	12.03 (0.474)
Shift fork shaft O. D. L	11.957—11.968 (0.4707—0.4712)	11.95 (0.470)
C	11.957—11.968 (0.4707—0.4712)	11.95 (0.470)
R	11.957—11.968 (0.4707—0.4712)	11.95 (0.470)
Shift drum O. D.	N/A	———

Unit : mm (in)

Clutch System

Item	Standard	Service Limit
Clutch lever free play	10—20 (0.39—0.79)	———
Recommended clutch fluid	N/A	———
Clutch master cylinder I. D.	N/A	———
Clutch master piston O. D.	N/A	———
Clutch outer I. D.	N/A	———
Clutch outer guide O. D.	34.975—34.991 (1.3770—1.3776)	34.965 (1.3766)
I. D.	24.9935—25.0065 (0.98399—0.98451)	25.016 (0.9849)
Mainshaft O. D. at clutch outer guide	24.980—24.993 (0.9835—0.9840)	24.96 (0.983)
Clutch spring free height	N/A	———
Clutch spring free length	45.5 (1.79)	43.6 (1.72)
Clutch disc thickness	2.92—3.08 (0.115—0.121)	2.6 (0.10)
Clutch disc thickness A	N/A	———
B	N/A	———
Clutch plate warpage	———	0.30 (0.012)
Centrifugal clutch drum I. D.	N/A	———
bushing O. D.	N/A	———
Centrifugal clutch center guide I. D.	N/A	———
O. D.	N/A	———
Centrifugal clutch center guide collar height	N/A	———
Centrifugal clutch weight lining thickness	N/A	———
Centrifugal clutch spring free length	N/A	———
Clutch lining thickness	N/A	———
Crankshaft O. D. at clutch center	N/A	———

Cooling System

Coolant capacity (Radiator and engine)	2.8 ℓ (0.74 US gal , 0.62 Imp gal)	———
(Reserve tank)	0.45 ℓ (0.119 US gal , 0.099 Imp gal)	———
Radiator cap relief pressure	110—140 kPa (1.1—1.4 kg/cm², 16—20 psi)	———
Thermostat begins to open	176—183 °F (80—84 °C)	———
Thermostat fully open	203 °F (95 °C)	———
Thermostat valve lift	8 mm (0.3 in)minimum	———

Drive Train

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

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 Driver only (FR)	250 kPa (2.50 kg/cm², 36 psi)	———
Driver only (RR)	290 kPa (2.90 kg/cm², 42 psi)	———
Driver and passenger (FR)	250 kPa (2.50 kg/cm², 36 psi)	———
Driver and passenger (RR)	290 kPa (2.90 kg/cm², 42 psi)	———
Front and rear axle runout	———	0.2 (0.01)
Front and rear wheel rim runout (Radial)	———	2.0 (0.08)
(Axial)	———	2.0 (0.08)
Front wheel hub-to-rim distance	N/A	———
Front wheel hub standard surface	N/A	———
Rear wheel hub-to-rim distance	N/A	———
Rear wheel hub standard surface	N/A	———
Wheel balance weight (Front)	N/A	———
(Rear)	N/A	———
Drive chain slack	25—35 (0.98—1.38)	———
Drive chain size/link (DID)	DID50V4/108	———
(RK)	RK50MFOZ1/108	———

Front Suspension

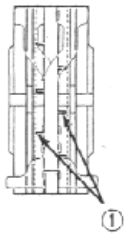
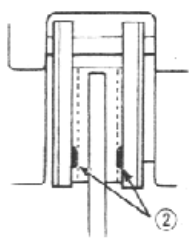
Fork spring free length ('93-'94:)	306.7 (12.07)	300.6 (11.83)
(After '94:)	243.8 (9.60)	238.9 (9.41)
Fork spring free length A	N/A	———
B	N/A	———
Fork spring direction	With the tapered end facing down	———
Fork tube runout	———	0.2 (0.01)
Recommended fork oil	Pro Honda Suspension Fluid SS—8	———
Fork oil level ('93-'94:)	110 (4.3)	———
(After '94:)	112 (4.4)	———
Fork oil level (R)	N/A	———
(L)	N/A	———
Fork oil capacity ('93-'94:)	509 cc (17.2 US oz, 17.9 Imp oz)	———
(After '94:)	564 cc (19.1 US oz, 19.9 Imp oz)	———
Fork oil capacity (R)	N/A	———
(L)	N/A	———
Fork air pressure	N/A	———
Spring preload adjuster standard position ①	Third position from the top	———
Rebound adjuster standard position ('93-'94:)	7 clicks out from full in	———
(After '94:)	6 clicks out from full in	———
Compression adjuster standard position (After '94:)	6 clicks out from full in	———
Steering bearing preload	1.5—2.0 kg (3.3—4.4 lbs)	———

Rear Suspension

Shock absorber spring free length	163.5 (6.44)	160.2 (6.31)
Damper gas pressure	1,000—1,300 kPa (10.0—13.0 kg/cm², 142—185 psi)	———
Damper compressed gas	Nitrogen	———
Damper rod compressed force at 8 mm compressed	15.4—20.0 kg (34.0—44.1 lbs)	———
Damper drilling point		
Shock absorber spring adjuster standard position	2nd groove	———
Shock absorber spring directrion	With the tapered end facing up	———
Recommended shock absorber oil	N/A	———
Shock absorber oil capacity	N/A	———
air pressure	N/A	———
Rebound adjuster standard position	1 turn out from full in	———
Compression adjuster standard position	1-1/2 turns out from full in	———

Unit : mm (in)

Brakes

Item		Standard	Service Limit
Front	brake fluid	DOT4	———
	brake lever free play	N/A	———
	brake pad wear indicator	N/A	To the groove ①
	 ①		
	brake disc thickness	4.5 (0.18)	3.5 (0.14)
	brake disc runout	N/A	0.30 (0.012)
	master cylinder I. D.	14.000 – 14.043 (0.5512—0.5529)	14.055 (0.5533)
	master piston O. D	13.957—13.984 (0.5495—0.5506)	13.945 (0.5490)
	caliper cylinder I. D.	N/A	———
	caliper cylinder I. D. A	30.230—30.280 (1.1902—1.1921)	30.29 (1.193)
	B	27.000—27.050 (1.0630—1.0650)	27.06 (1.065)
	caliper piston O. D.	N/A	———
	caliper piston O. D. A	30.148—30.198 (1.1869—1.1889)	30.14 (1.187)
	B	26.935—26.968 (1.0604—1.0617)	26.927 (1.0601)
	brake drum I. D.	N/A	———
	brake lining thickness	N/A	———
Rear	brake fluid	DOT4	———
	brake pedal height	83 (3.3)	———
	brake pad wear indicator	N/A	To the groove ②
	 ②		
	brake disc thickness	5.0 (0.20)	4.0 (0.16)
	brake disc runout	N/A	0.30 (0.012)
	master cylinder I. D.	15.870—15.913 (0.6248—0.6265)	15.925 (0.6270)
	master piston O. D.	15.827—15.854 (0.6231—0.6242)	15.815 (0.6226)
	caliper cylinder I. D.	38.180—38.230 (1.5031—1.5051)	38.24 (1.506)
	caliper piston O. D.	38.115—38.148 (1.5006—1.5019)	38.107 (1.5003)
	brake drum I. D.	N/A	———
	brake lining thickness	N/A	———

Battery/Charging System

Battery current leakage	0.1 mA max.	———
Alternator charging coil resistance (At 68 °F/20 °C)	0.1—0.3 Ω	———
Regulator/rectifier regulated voltage/amperage	13.0—15.5V/below 1A at 5,000 rpm	———
Battery capacity	12V—8AH	———
Battery specific gravity (Fully charging)	N/A	———
(Needs charging)	N/A	———
Battery charging rate (Normal)	0.9A / 5—10 hours	———
(Quick)	4.0A / 1 hour	———
Battery voltage (Fully charged 68 °F/20 °C)	13.0—13.2V	———
(Needs charging 68 °F/20 °C)	Below 12.3V	———
Alternator lighting coil resistance (At 68 °F/20 °C)	N/A	———
AC regulator regulated voltage (With analogue type)	N/A	———
(With digital type)	N/A	———

Unit : mm (in)

Starting System

Item	Standard	Service Limit
Starter driven gear O. D.	51.699—51.718 (2.0354—2.0361)	51.684 (2.0348)
Starter clutch outer I. D.	N/A	———
Starter motor brush spring tension	N/A	———
brush length	12.0—13.0 (0.47—0.51)	4.5 (0.18)

Ignition System

Spark plug		———
(Standard: NGK)	CR9EH-9	———
(Standard: NIPPONDENSO)	U27FER 9	———
(For cold climate/below 41° F/5° C: NGK)	CR8EH-9	———
(For cold climate/below 41° F/5° C: NIPPONDENSO)	U24FER 9	———
(For extended high speed riding: NGK)	N/A	———
(For extended high speed riding: NIPPONDENSO)	N/A	———
Spark plug gap	0.80—0.90 mm (0.031—0.035 in)	———
Ignition timing "F" mark	10° BTDC at idle	———
Advance start	N/A	———
stop	N/A	———
Full advance	36°BTDC / 4,300 ± 100 rpm	———
Alternator exciter coil resistance (At 68° F/20° C)	N/A	———
Ignition coil resistance (Primary: at 68° F/20° C)	2.5—3.2 Ω	———
(Secondary with plug cap)	21—27 kΩ	———
(Secondary without plug cap)	11—17 kΩ	———
Ignition pulse generator resistance (At 68° F/20° C)	460—580 Ω	———

Lights/Meters/Switches

Main fuse	30A	———
Fuse	10A x 4, 20A x 1	———
Headlight (high/low beam) ('93-'94:)	12V—60/55W x 2	———
(After '94:)	12V—45/45W x 2	———
Tail/brake light	12V—32/3CP x 2	———
License light	12V—4CP	———
Position light bulb (After '94:)	12V—5W	———
Front turn signal/running light	12V—32/3CP x 2	———
Front turn signal light	N/A	———
Rear turn signal light	12V—32CP x 2	———
Instrument lights	12V—1.7W x 4	———
Oil pressure indicator	12V—1.7W	———
Tail/brake light indicator	N/A	———
Side stand indicator	12V—1.7W	———
Low fuel indicator	N/A	———
Coolant temperature indicator	N/A	———
Oil temperature indicator	N/A	———
High beam indicator	12V—1.7W	———
Turn signal indicator	12V—1.7W	———
Neutral indicator	12V—1.7W	———
Reverse indicator	N/A	———
Overdrive indicator	N/A	———
Oil temperature sensor resistance	N/A	———
Fuel unit resistance (At full level)	N/A	———
(At low level)	N/A	———
Fuel pump flow capacity (min. /minute)	900 cc (30.4 US oz , 31.7 Imp oz) at 13V	———
Coolant temperature sensor resistance (At 176°F/80°C)	45—60 Ω	———
Fan motor switch starts to close (ON)	208—216 °F (98—102 °C)	———
stops opening (OFF)	199—207 °F (93—97 °C)	———

Torque Values

Standard

Fastener Type	Torque N·m (kg-m, lb-ft)	Fastener Type	Torque N·m (kg-m, lb-ft)
5 mm hex bolt and nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	9 (0.9, 6.5)
10 mm hex bolt and nut	35 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex 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.

Notes: 1. Apply sealant to the threads.
2. Apply a locking agent to the threads.
3. Apply molybdenum disulfide oil to the threads and flange surface.
4. Left hand threads.
5. Stake.
6. Apply oil to the threads and flange surface.
7. Apply clean engine oil to the O-ring.
8. Torque wrench scale reading using a special tool.
9. Apply grease to the threads and flange surface.
10. UBS bolt.
11. U-nut.
12. ALOC bolt ; Replace with a new one.

Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Maintenance:				
Crankshaft hole cap	1	45	18 (1.8 , 13)	Note 3, 7
Spark plug	4	10	12 (1.2 , 9)	
Lubrication System:				
Oil drain bolt	1	12	36 (3.6 , 26)	
Oil filter cartridge	1	20	10 (1.0 , 7)	Note 7
Oil pump driven sprocket bolt	1	6	15 (1.5 , 11)	Note 2
Oil cooler bolt	1	20	64 (6.4 , 46)	Note 2
Cooling System:				
Water pump cover bolt	3	6	13 (1.3 , 9)	
Engine coolant temperature (ECT) sensor	1	PT 1/8	10 (1.0 , 7)	Note 1
Fuel System:				
Carburetor insulator band screw	8	5	———	See page 1-16
Carburetor assembly bolt, 5 mm	1	5	5 (0.5 , 3.6)	
6 mm	1	6	10 (1.0 , 7)	
Vacuum plug for synchronization	3	5	3.0 (0.30 , 2.2)	
Boost joint for synchronization	1	5	2.5 (0.25 , 1.8)	
Cylinder Head/Valves:				
Breather plate flange bolt	3	6	12 (1.2 , 9)	Note 2
Cylinder head stud bolt	8	8	25 (2.5 , 18)	
Cylinder head cover special bolt	6	6	10 (1.0 , 7)	
Camshaft holder flange bolt	10	6	12 (1.2 , 9)	
Cylinder head socket bolt	10	9	48 (4.8 , 35)	Note 3
Camshaft sprocket bolt	4	7	20 (2.0 , 14)	Note 2
Cam chain tensioner lifter mounting bolt	2	6	12 (1.2 , 9)	
Air bleed tube joint	1	10	24 (2.4 , 17)	Note 1

Engine (Cont'd)

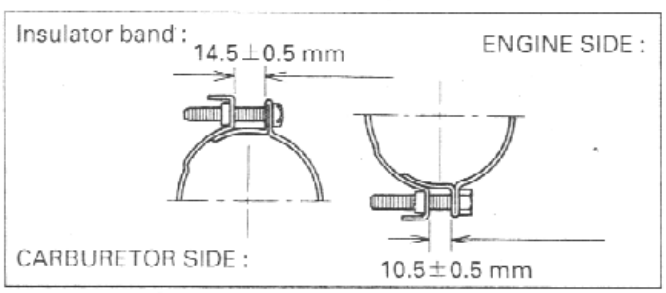
Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Clutch/Gearshift Linkage:				
Right crankcase cover SH bolt	7	6	12 (1.2 , 9)	
Clutch center lock nut	1	22	130 (13.0 , 94)	Note 5, 6
Drive sprocket bolt	1	10	54 (5.4 , 39)	
Gearshift pedal spring stopper	1	8	22 (2.2 , 16)	
Shift drum center bolt	1	8	23 (2.3 , 17)	Note 2
Crankcase/Piston/Cylinder:				
Crankcase bolt, 10 mm	1	10	39 (3.9 , 28)	
9 mm	10	9	36 (3.6 , 26)	Note 6
8 mm	2	8	24 (2.4 , 17)	
6 mm	18	6	12 (1.2 , 9)	
Connecting rod nut	8	8	34 (3.4 , 25)	Note 6
Lower crankcase sealing bolt	1	20	44 (4.4 , 32)	Note 2
Charging System/Alternator:				
Left crankcase cover SH bolt	10	6	12 (1.2 , 9)	
Flywheel flange bolt	1	10	103 (10.3 , 74)	Note 6
Stator mounting socket bolt	4	6	12 (1.2 , 9)	
Ignition System:				
Ignition pulse generator rotor cover SH bolt	8	6	12 (1.2 , 9)	
Ignition pulse generator rotor special bolt	1	10	59 (5.9 , 43)	
Electric Starter/Starter Clutch:				
Starter one-way clutch socket bolt	6	6	16 (1.6 , 12)	Note 2
Lights/Meters/Switches:				
Neutral switch	1	10	12 (1.2 , 9)	
Oil pressure switch	1	PT1/8	12 (1.2 , 9)	Note 1

Frame

Frame/Body Panels/Exhaust System:				
Upper cowl stay mounting bolt	2	8	26 (2.6 , 19)	
Exhaust pipe joint nut	8	7	12 (1.2 , 9)	
Muffler mounting bolt/nut	2	8	26 (2.6 , 19)	
Step holder mounting bolt	4	8	26 (2.6 , 19)	
Foot peg mounting bolt	2	10	44 (4.4 , 32)	Note 12
Bank sensor	2	8	10 (1.0 , 7)	
Seat rail adjusting bolt	1	20	2 (0.2 , 1.4)	
Seat rail lock nut	1	20	54 (5.4 , 39)	
Side stand bracket bolt	2	10	44 (4.4 , 32)	Note 12
Fuel System:				
Fuel valve	1	22	34 (3.4 , 25)	
Sub-air cleaner mounting screw	1	6	7 (0.7 , 5.1)	
Cooling System:				
Fan motor nut	1	5	2.5 (0.25 , 1.8)	Note 2
Fan motor switch	1	PT1/8	18 (1.8 , 13)	Note 1
Engine Mounting:				
Left engine hanger bolt	2	10	39 (3.9 , 28)	
Right engine hanger bolt	1	10	44 (4.4 , 32)	
Engine hanger bolt (rear/upper)	1	10	39 (3.9 , 28)	
(rear/lower)	1	10	39 (3.9 , 28)	
Engine hanger adjusting bolt	1	22	11 (1.1 , 8)	
Engine hanger adjusting bolt lock nut	1	22	54 (5.4 , 39)	
Engine hanger plate bolt	4	8	27 (2.7 , 20)	

Frame (Cont'd)

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Front Suspension:				
Steering stem nut	1	24	105 (10.5 , 76)	See page 12-18
Top steering stem nut A	1	26	———	
Top steering stem nut B	1	26	———	
Fork top bridge pinch socket bolt	2	8	23 (2.3 , 17)	
Fork bottom bridge pinch bolt	2	10	50 (5.0 , 36)	
Handlebar pinch bolt	2	8	23 (2.3 , 17)	
Front axle bolt	1	14	60 (6.0 , 43)	
Front axle holder bolt	4	8	22 (2.2 , 16)	
Front brake disc mounting bolt	12	6	20 (2.0 , 14)	Note 12
Fork cap	2	42	23 (2.3 , 17)	
Fork socket bolt	2	8	20 (2.0 , 14)	Note 2
Rear Suspension:				
Rear axle nut	1	18	95 (9.5 , 69)	
Rear brake disc bolt	4	8	43 (4.3 , 31)	Note 12
Driven sprocket nut	5	12	88 (8.8 , 64)	Note 6
Rear cushion upper mounting nut	1	10	45 (4.5 , 33)	Note 11
Shock arm plate nut	2	10	45 (4.5 , 33)	Note 11
Shock link nut	2	10	45 (4.5 , 33)	Note 11
Swingarm pivot adjusting bolt	1	30	15 (1.5 , 11)	See page 13-16
Swingarm pivot lock nut	1	30	65 (6.5 , 47)	
Swingarm pivot nut	1	18	95 (9.5 , 69)	
Brake System:				
Front brake caliper mounting bolt ('93-'94)	4	8	27 (2.7 , 20)	Note 12
(After '94)	4	8	31 (3.1 , 22)	Note 12
Front brake pipe mounting nut	2	10	17 (1.7 , 12)	
Front brake caliper assembly Torx bolt	8	8	33 (3.3 , 24)	Note 2
Front oil cup mounting nut	1	6	6 (0.6 , 4.3)	Note 11
Brake lever pivot bolt	1	6	1 (0.1 , 0.7)	
Brake lever pivot nut	1	6	6 (0.6 , 4.3)	
Brake oil bolt	5	10	35 (3.5 , 25)	
Pad pin	3	10	18 (1.8 , 13)	
Pad pin plug	3	10	2.5 (0.25 , 1.8)	
Brake caliper bleeder	3	8	6 (0.6 , 4.3)	
Rear brake hose mounting bolt	1	6	12 (1.2 , 9)	
Rear master cylinder joint nut ('93 '94)	1	8	6 (0.6 , 4.3)	
(After '94)	1	8	18 (1.8 , 13)	
Rear master cylinder hose joint screw	1	4	1.5 (0.15 , 1.1)	
Rear master cylinder push rod joint lock nut	1	8	18 (1.8 , 13)	
Rear brake caliper pin bolt	1	12	28 (2.8 , 20)	
Rear brake caliper bolt	1	8	23 (2.3 , 17)	
Rear caliper clamp bolt	1	6	9 (0.9 , 6.5)	Note 12
Lights/Meters/Switches:				
Side stand mounting bolt	1	10	10 (1.0 , 7)	
Side stand lock nut	1	10	29 (2.9 , 21)	
Side stand switch mounting bolt	1	6	10 (1.0 , 7)	
Ignition switch mounting bolt	2	8	24 (2.4 , 17)	Note 2



Tools

Special

Description	Tool Number	Applicability
Maintenance:		
Oil filter wrench	07HAA – PJ70100	
Drive chain cutter	07HMH – MR10103	07HMH – MR1010B (U.S.A. only)
– link plate holder	07NMH – MW00110	07PMA – MZ2011A (U.S.A. only)
Lubrication System:		
Oil pressure gauge attachment	07510 – 4220100	Equivalent commercially available in U.S.A.
Fuel System:		
Pilot screw wrench	07KMA – MN90100	07MMA – MV9010A (U.S.A. only)
Cylinder Head/Valves:		
Valve spring compressor attachment	07959 – KM30101	
Tappet hole protector	07HMG – MR70002	Not available in U.S.A
Valve guide driver	07HMD – ML00101	
Valve guide reamer, 4.5 mm	07HMH – ML00101	07HMH – ML0010A (U.S.A. only)
Crankshaft/Transmission:		
Driver shaft	07964 – MB00200	
Driver, 40 mm I.D.	07746 – 0030100	
Inner driver, 25 mm	07746 – 0030200	
Front Wheel/Suspension/Steering:		
Steering stem socket	07916 – 3710101	07916 – 3710100 (U.S.A. only)
Ball race remover set	07946 – KM90001	Adjustable bearing puller, 25 – 40 mm (07736 – A01000A) with commercially available 3/8 x 16 slide hammer (U.S.A. only)
– Driver attachment, A	07946 – KM90100	
– Driver attachment, B	07946 – KM90200	
– Driver shaft assembly	07946 – KM90300	
– Bearing remover, A	07946 – KM90401	
– Bearing remover, B	07946 – KM90500	
– Assembly base	07946 – KM90600	
Steering stem driver	07946 – MB00000	
Slider weight	07KMD – KZ30100	
Rear Wheel/Suspension:		
Pivot adjusting wrench	07908 – 4690002	07HMA – MR70200
Bearing remover set	07936 – 3710001	
– Bearing remover	07936 – 3710600	
– Remover handle	07936 – 3710100	
– Sliding weight	07741 – 0010201	
Pin driver	07GMD – KT80100	
Shock absorber compressor	07GME – 0010000	
Shock absorber compressor attachment	07NME – MY70100	
Needle bearing remover	07HMC – MR70100	
Driver shaft	07946 – MJ00100	
Brake System:		
Snap ring pliers	07914 – 3230001	
Charging System/Alternator:		
Flywheel holder	07925 – ME90000	Equivalent commercially available in U.S.A.

Common

Description	Tool Number	Applicability
Frame/Body Panels/Exhaust System:		
Lock nut wrench, 20 x 24 mm	07716—0020100	
Lubrication System:		
Oil pressure gauge	07506—3000000	Equivalent commercially available in U.S.A.
Fuel System:		
Float level gauge	07401—0010000	
Cylinder Head/Valves:		
Valve spring compressor	07757—0010000	
Valve seat cutter		
Seat cutter, 27.5 mm (45° IN/EX)	07780—0010200	Equivalent commercially available in U.S.A.
Flat cutter, 30 mm (32° IN)	07780—0012200	
27 mm (32° EX)	07780—0013300	
Interior cutter, 30 mm (60° IN/EX)	07780—0014000	
Cutter holder, 4.5 mm	07781—0010600	
Clutch/Gearshift Linkage:		
Clutch center holder	07724—0050001	Equivalent commercially available in U.S.A.
Lock nut wrench, 30 x 32 mm	07716—0020400	
Extension bar	07716—0020500	
Driver	07749—0010000	
Attachment, 37 x 40 mm	07746—0010200	
Attachment, 42 x 47 mm	07746—0010300	
Pilot, 35 mm	07746—0040800	
Crankshaft/Transmission:		
Driver, 40 mm I.D.	07746—0030100	
Inner driver, 25 mm	07746—0030200	
Front Wheel/Suspension/Steering:		
Lock nut wrench, 30 x 32 mm	07716—0020400	
Extension bar	07716—0020500	
Driver	07749—0010000	
Attachment, 42 x 47 mm	07746—0010300	
Pilot, 20 mm	07746—0040500	
Bearing remover shaft	07746—0050100	Equivalent commercially available in U.S.A.
Bearing remover head, 20 mm	07746—0050600	
Rear Wheel/Suspension:		
Driver	07749—0010000	
Attachment, 32 x 35 mm	07746—0010100	
Attachment, 37 x 40 mm	07746—0010200	
Attachment, 42 x 47 mm	07746—0010300	
Attachment, 24 x 26 mm	07746—0010700	
Pilot, 20 mm	07746—0040500	
Pilot, 28 mm	07746—0041100	
Pilot, 17 mm	07746—0040400	
Bearing remover shaft	07746—0050100	Equivalent commercially available in U.S.A.
Bearing remover head, 20 mm	07746—0050600	
Charging System/Alternator:		
Torx bit, T30	07703—0010200	Equivalent commercially available in U.S.A.
Rotor puller	07733—0020001	
Electrical Equipment:		
Digital multimeter (KOWA)	07411—0020000	
Analogue tester	07308—0020001 (SANWA) or TH—5H (KOWA)	

Lubrication & Seal Points

Engine

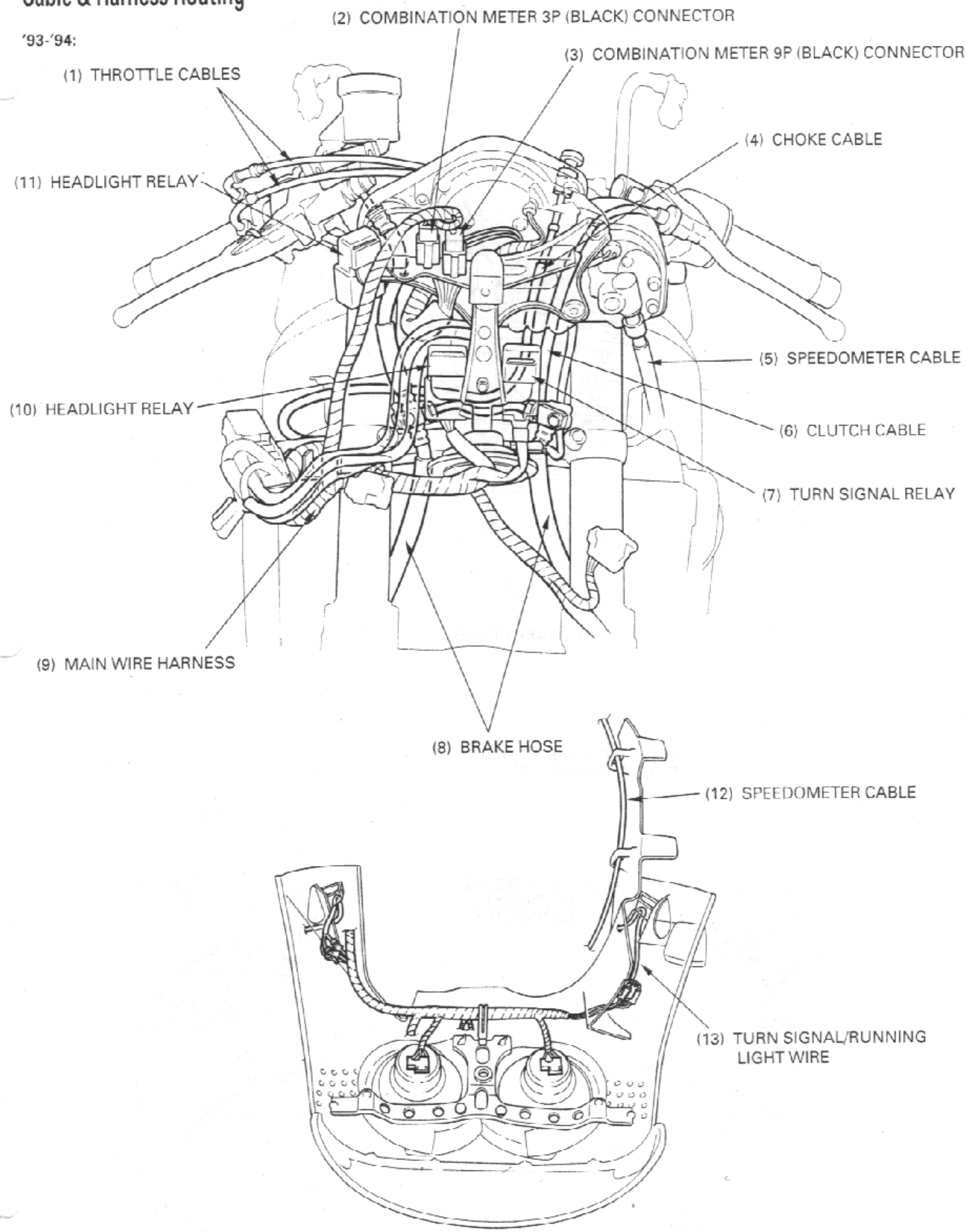
Location	Material	Remarks
Crankcase mating surface	Liquid sealant	· Wipe off the excess sealant · Do not apply the sealant to near the bearing
Cylinder head bolt threads and seating surface Camshaft lobes/journals Valve lifter outer sliding surface Valve stem (valve guide sliding surface) Connecting rod small end Main journal bearings Connecting rod bearings M3/4, C5, C6 shifter gear (shift fork grooves) Starter idle gear shaft Clutch outer inner surface Crankshaft hole cap threads	Molybdenum disulfide oil (A mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Oil pressure switch threads Cylinder head semi-circular cut-out Alternator grommet Ignition pulse generator grommet Engine coolant temperature (ECT) sensor threads	Sealant	
Cylinder head cover breather plate bolt threads Cam sprocket bolt threads Oil pump driven sprocket bolt threads Shift drum bearing set plate bolt threads Starter clutch outer bolt threads Crankcase sealing bolt (20/18 mm) threads Ignition pulse generator cover bolt threads (Marked ▼) Mainshaft bearing set plate bolt threads Oil cooler center bolt Shift drum center bolt	Locking agent	Clean and apply to the threads
Starter clutch sliding surface Clutch center lock nut threads and seating surface Flywheel bolt threads and seating surface Oil filter threads and O-ring Piston sliding surface Piston ring grooves Piston pin bore Piston rings Lower crankcase bolt threads and seating surface (Main journal tightening bolts) Connecting rod nut threads and seating surface Cam chain tensioner collar sliding surface Cam chain tensioner and slipper surface Each gear teeth and rotating surface Oil strainer packing O-rings Each bearing	Engine oil	
Oil seal lips	Multi-purpose grease	

Frame

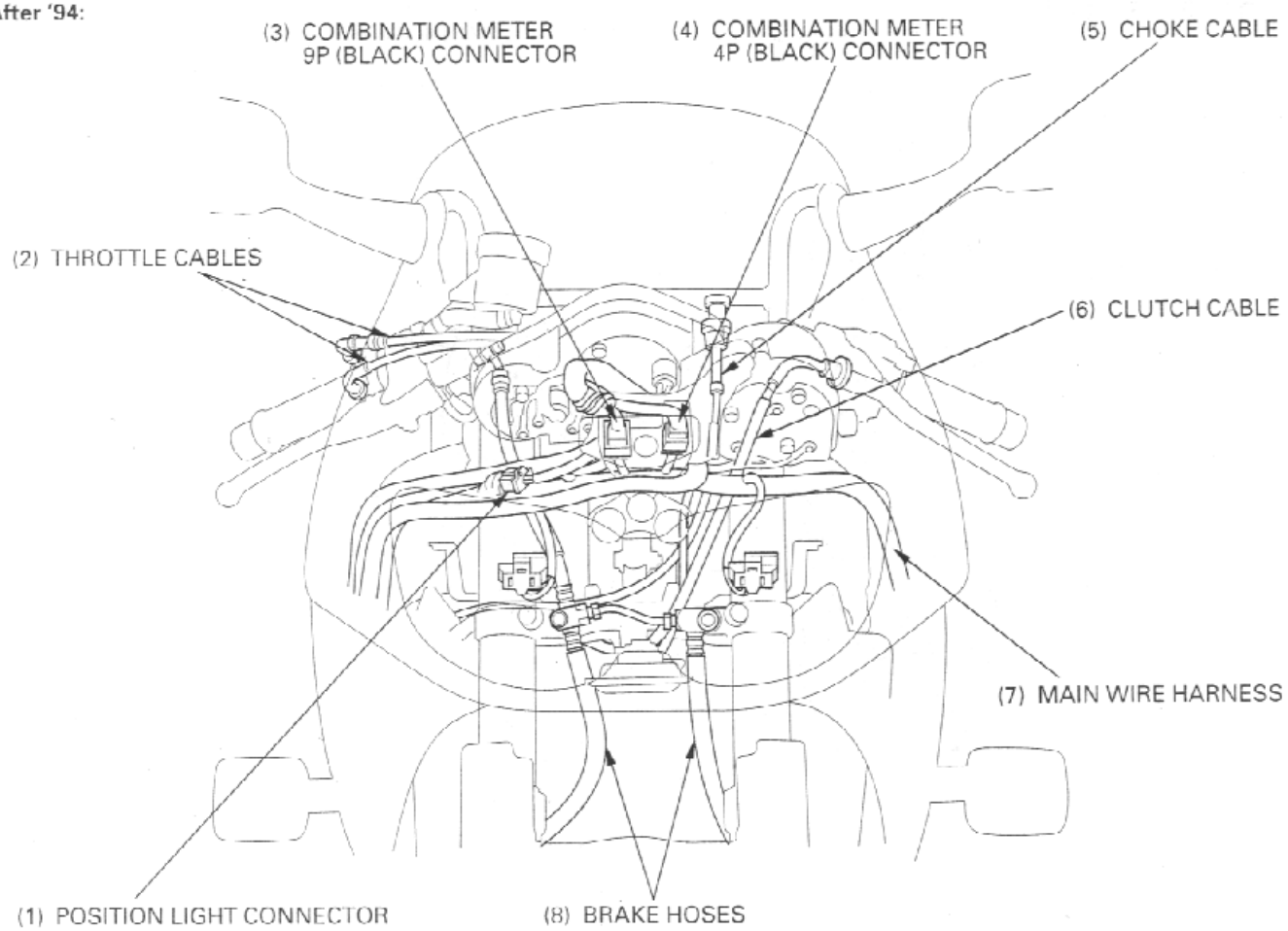
Location	Material	Remarks
Steering head bearing Steering head bearing dust seal Throttle pipe sliding surface Clutch lever pivot Wheel bearing dust seal lips Wheel side collar inside Wheel axle and swingarm pivot surface Footpeg pivot sliding surface Rear brake pedal pivot sliding surface Rear brake spindle surface Rear brake pivot surface Swingarm pivot needle bearings Swingarm pivot dust seal lips Shock absorber dust seal lips Shock absorber needle bearing Shock link pivot dust seal lips Shock link pivot needle bearings Pillion seat lock hook Pillion seat pivot Gearshift pedal pivot sliding surface	Multi-purpose grease	Apply thin coat of grease
Throttle cable end Side stand pivot sliding surface	Molybdenum disulfide grease	
Shock absorber spring adjuster cam surface	Molybdenum paste	
Driven sprocket nut threads and seating surface Throttle cable casing inner Choke cable casing inner Clutch cable casing inner Speedometer cable inner ('93-'94) Front brake pipe joint Steering top threads	Engine oil	
Brake master cylinder cups Brake caliper piston seals	DOT 4 brake fluid	
Handle grip	Honda Bond A	
Brake caliper boot inside and push rod tips Front brake lever pivot and piston tips Rear caliper pin bolt sliding surface	Silicone grease	
Front brake caliper assembly bolt threads Fork socket bolt threads Ignition switch mounting bolt threads Fuel valve lever screw threads Handlebar weight screw threads	Locking agent	Clean and apply to the threads
Fork cap O-ring Fork oil seal lips	Fork fluid	

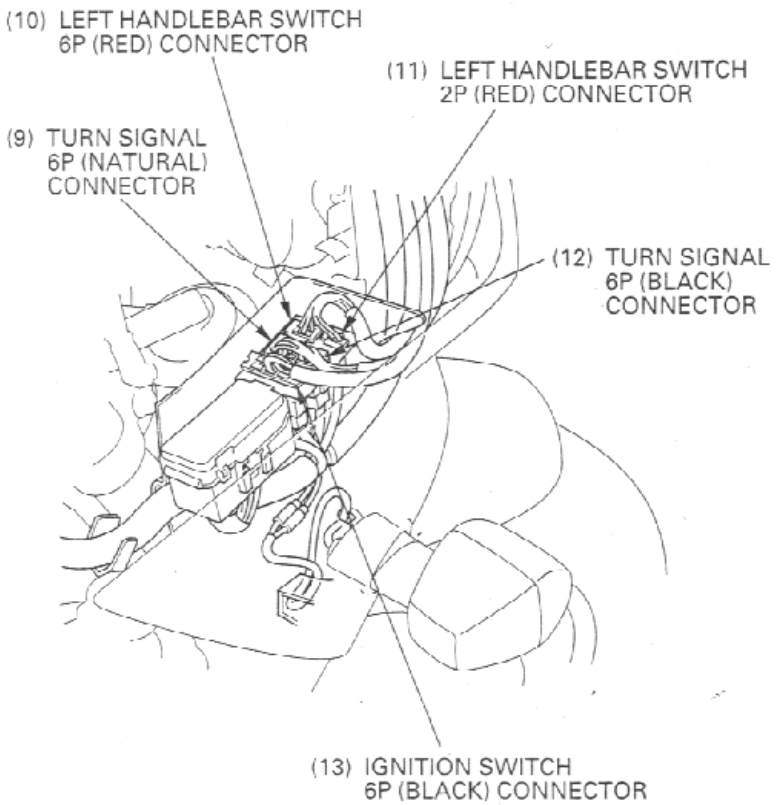
Cable & Harness Routing

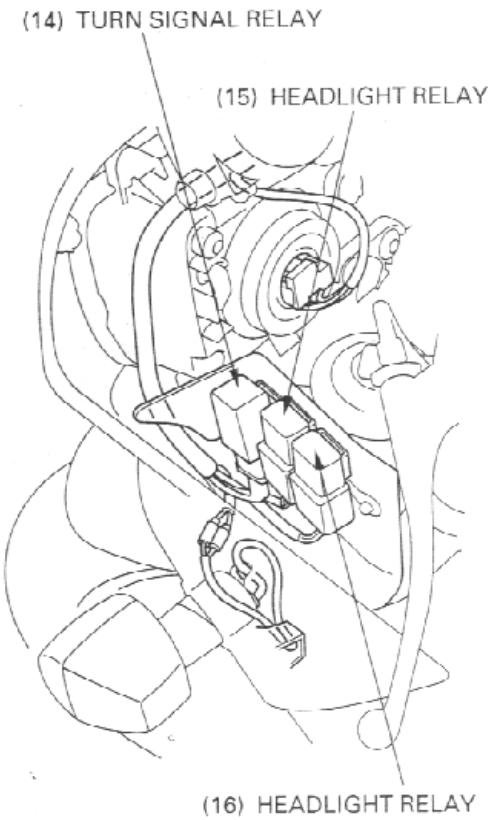
'93-'94:



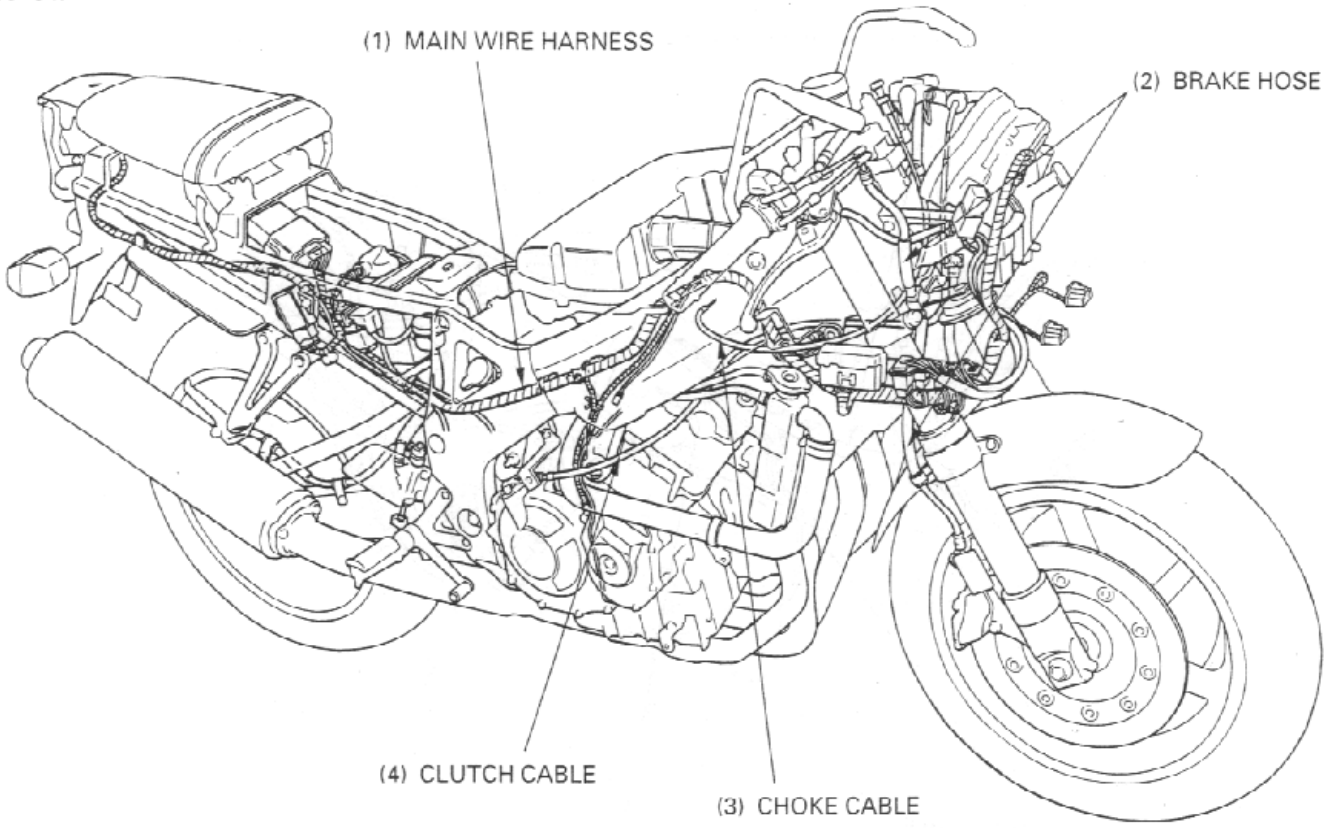
After '94:

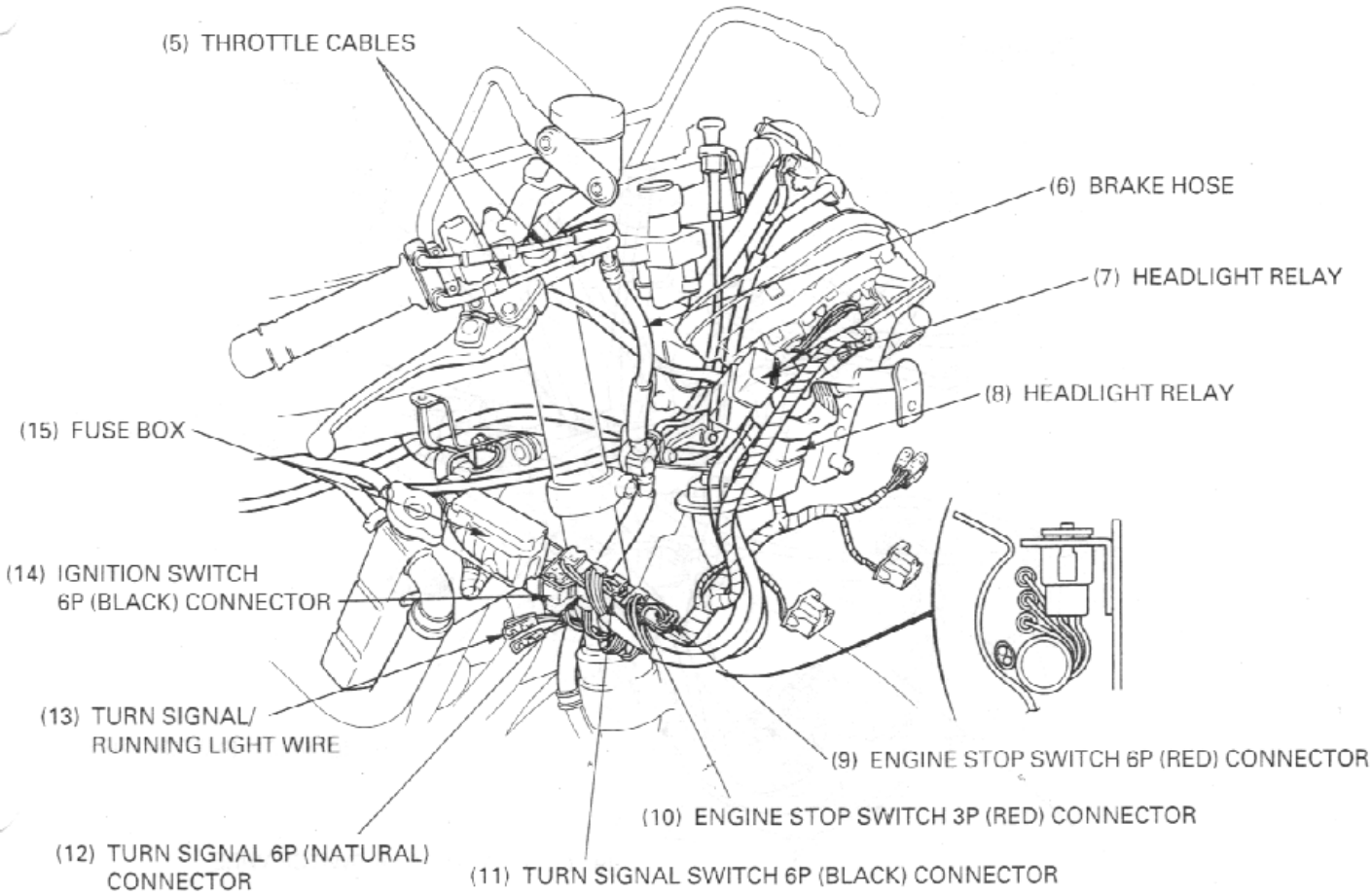

(3) COMBINATION METER 9P (BLACK) CONNECTOR
(4) COMBINATION METER 4P (BLACK) CONNECTOR
(5) CHOKE CABLE
(2) THROTTLE CABLES
(6) CLUTCH CABLE
(7) MAIN WIRE HARNESS
(1) POSITION LIGHT CONNECTOR
(8) BRAKE HOSES


(10) LEFT HANDLEBAR SWITCH 6P (RED) CONNECTOR
(11) LEFT HANDLEBAR SWITCH 2P (RED) CONNECTOR
(9) TURN SIGNAL 6P (NATURAL) CONNECTOR
(12) TURN SIGNAL 6P (BLACK) CONNECTOR
(13) IGNITION SWITCH 6P (BLACK) CONNECTOR

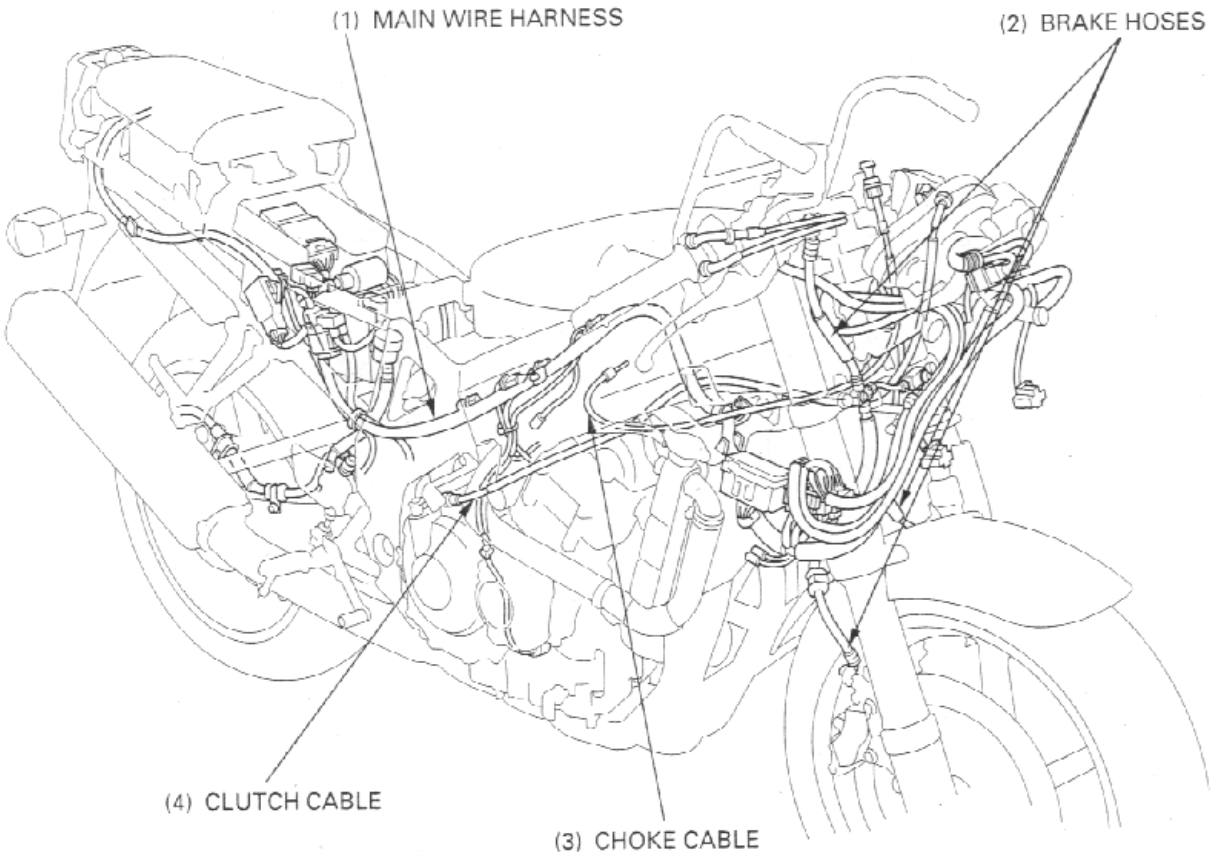

(14) TURN SIGNAL RELAY
(15) HEADLIGHT RELAY
(16) HEADLIGHT RELAY

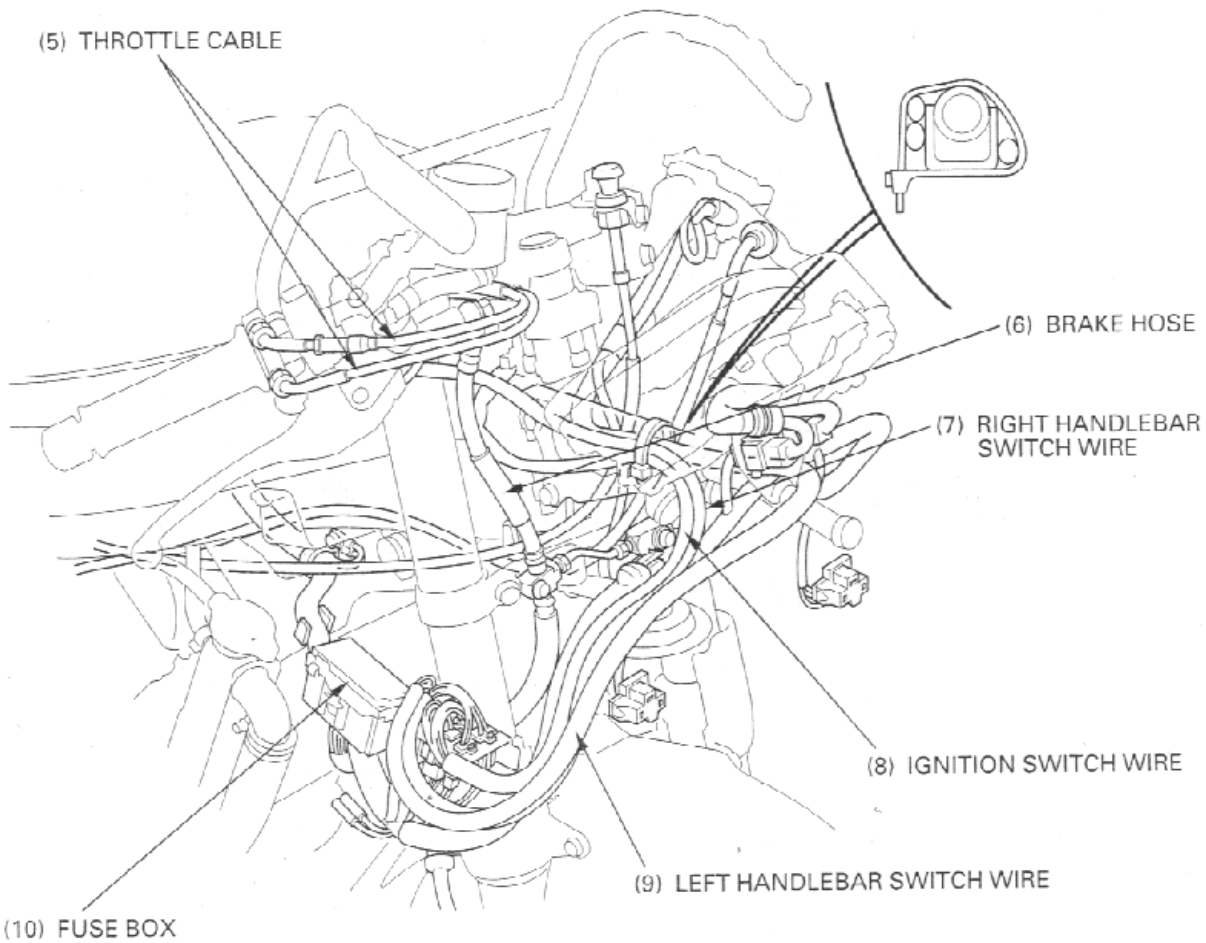
'93-'94:


(1) MAIN WIRE HARNESS
(2) BRAKE HOSE
(4) CLUTCH CABLE
(3) CHOKE CABLE

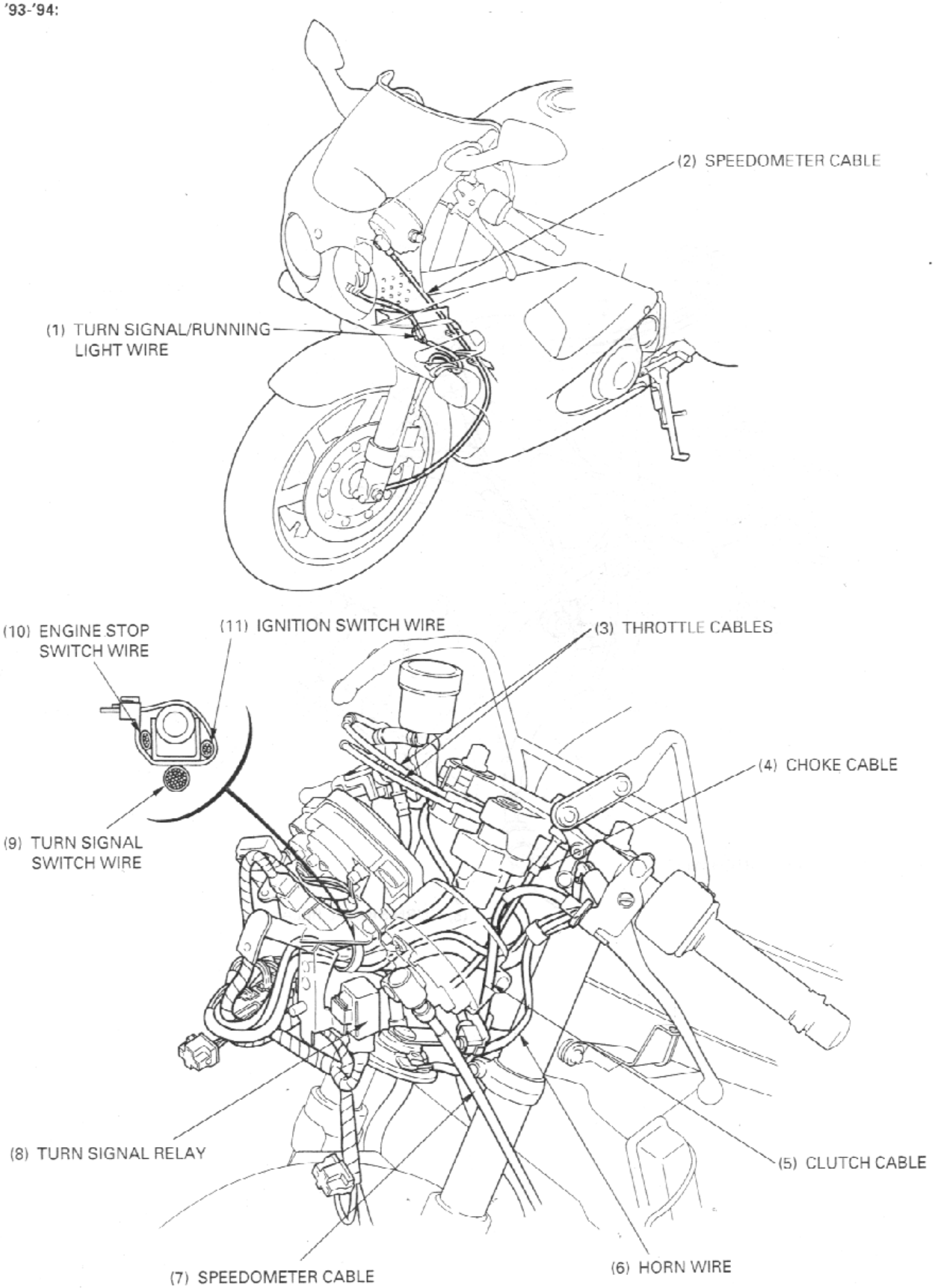

(5) THROTTLE CABLES
(6) BRAKE HOSE
(7) HEADLIGHT RELAY
(8) HEADLIGHT RELAY
(15) FUSE BOX
(14) IGNITION SWITCH 6P (BLACK) CONNECTOR
(13) TURN SIGNAL/ RUNNING LIGHT WIRE
(9) ENGINE STOP SWITCH 6P (RED) CONNECTOR
(10) ENGINE STOP SWITCH 3P (RED) CONNECTOR
(12) TURN SIGNAL 6P (NATURAL) CONNECTOR
(11) TURN SIGNAL SWITCH 6P (BLACK) CONNECTOR

After '94:

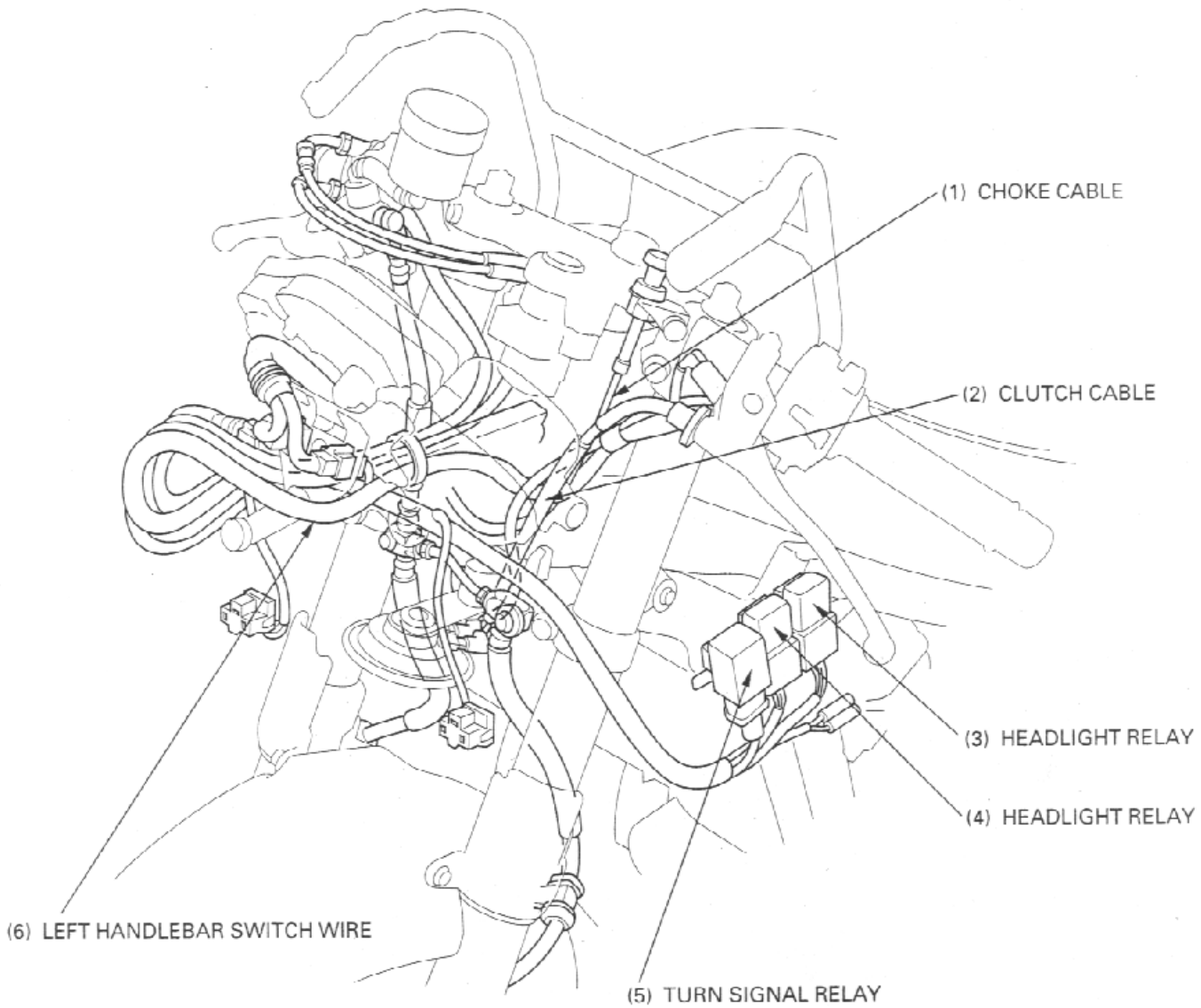

(1) MAIN WIRE HARNESS
(2) BRAKE HOSES
(4) CLUTCH CABLE
(3) CHOKE CABLE

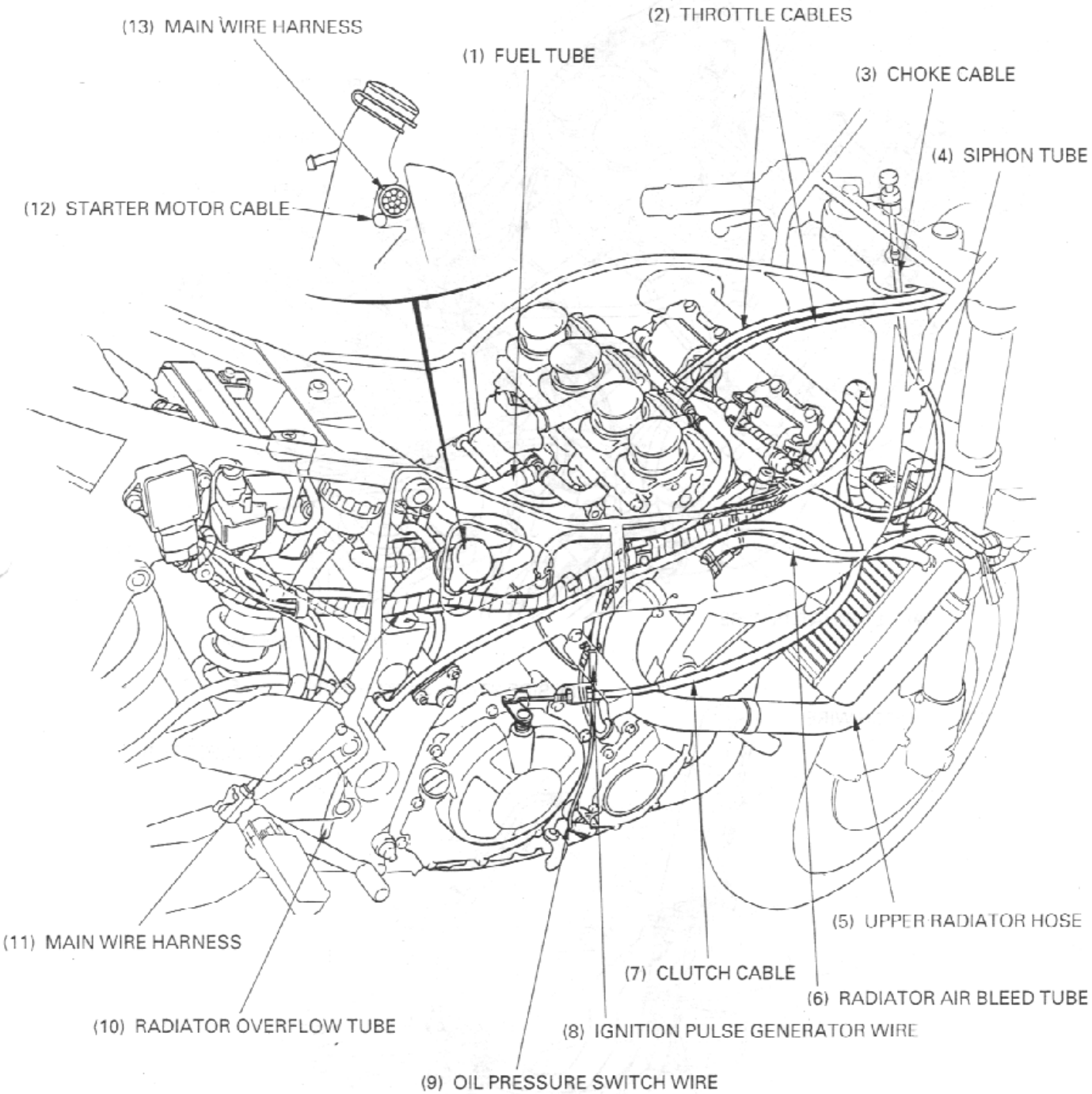

(5) THROTTLE CABLE
(6) BRAKE HOSE
(7) RIGHT HANDLEBAR SWITCH WIRE
(8) IGNITION SWITCH WIRE
(9) LEFT HANDLEBAR SWITCH WIRE
(10) FUSE BOX

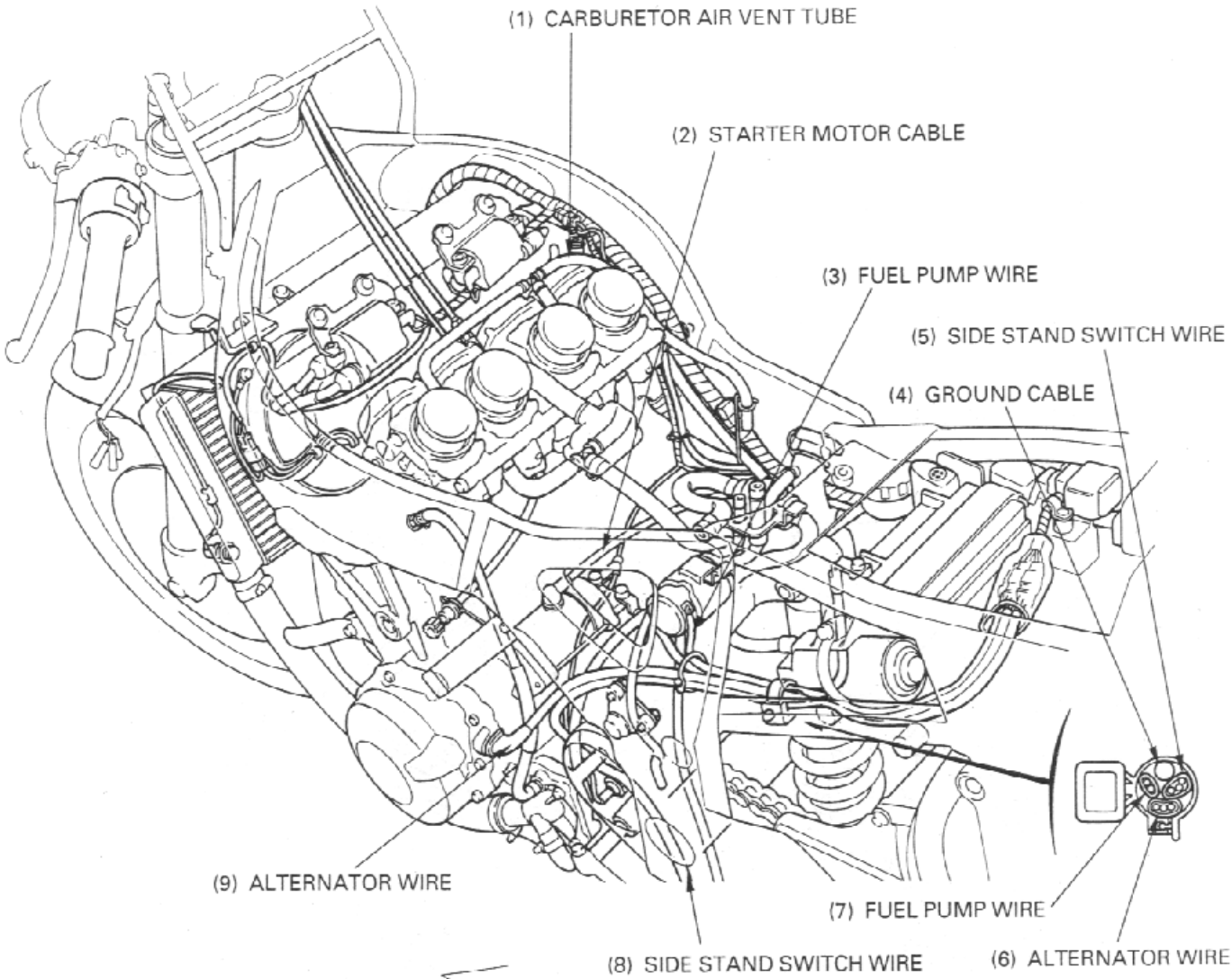
'93-'94:

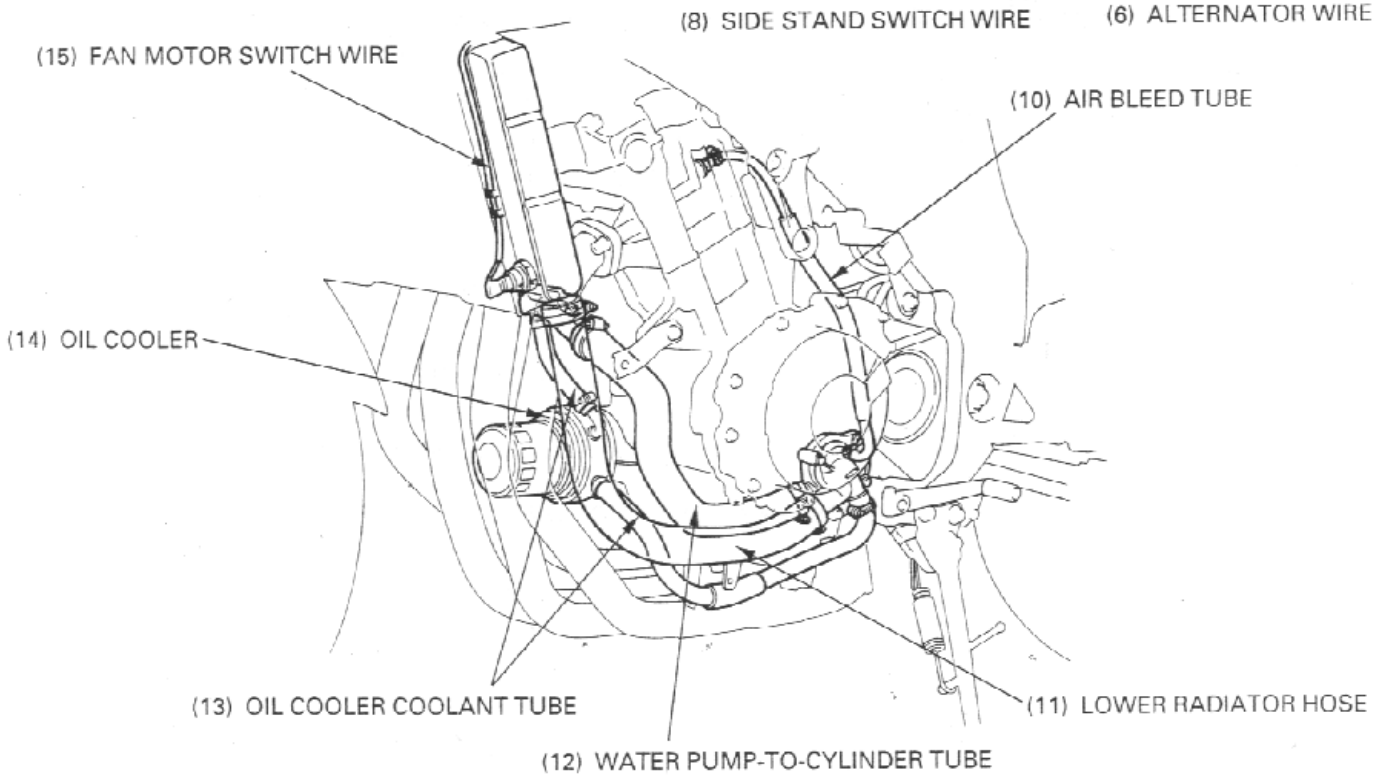

(2) SPEEDOMETER CABLE
(1) TURN SIGNAL/RUNNING LIGHT WIRE
(10) ENGINE STOP SWITCH WIRE
(11) IGNITION SWITCH WIRE
(3) THROTTLE CABLES
(4) CHOKE CABLE
(9) TURN SIGNAL SWITCH WIRE
(8) TURN SIGNAL RELAY
(5) CLUTCH CABLE
(7) SPEEDOMETER CABLE
(6) HORN WIRE

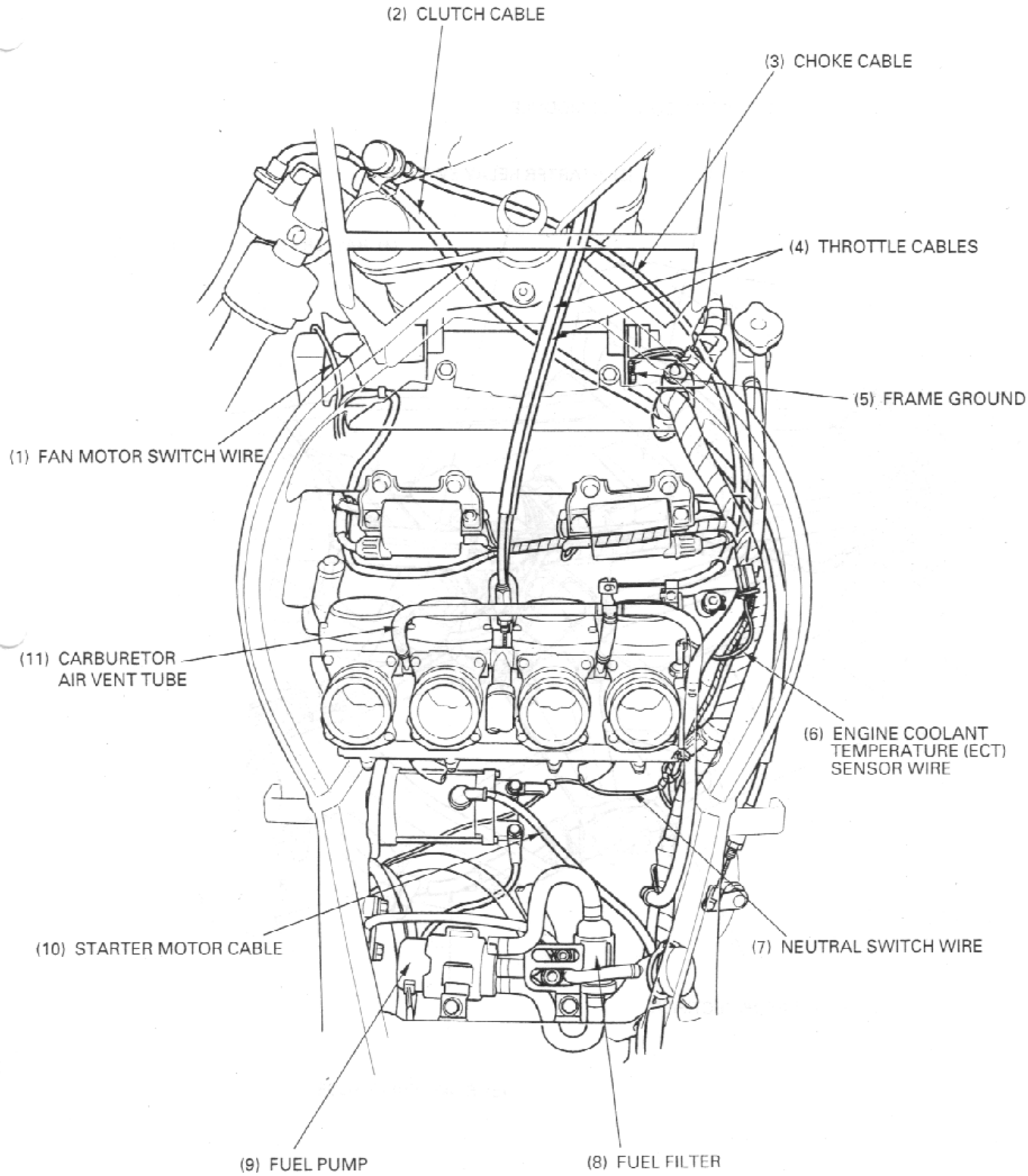
After '94:

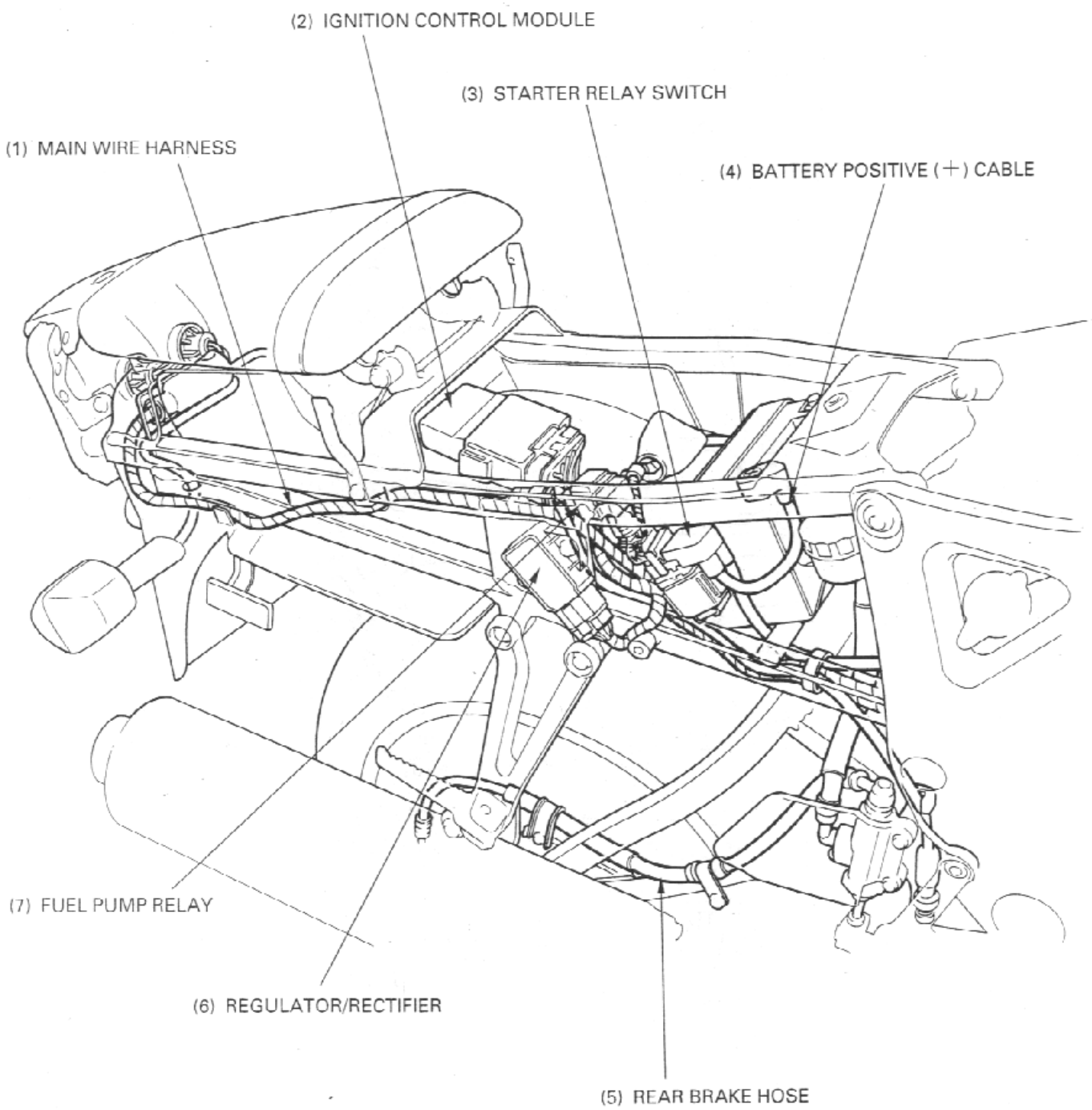

(1) CHOKE CABLE
(2) CLUTCH CABLE
(3) HEADLIGHT RELAY
(4) HEADLIGHT RELAY
(5) TURN SIGNAL RELAY
(6) LEFT HANDLEBAR SWITCH WIRE


(13) MAIN WIRE HARNESS
(2) THROTTLE CABLES
(1) FUEL TUBE
(3) CHOKE CABLE
(4) SIPHON TUBE
(12) STARTER MOTOR CABLE
(5) UPPER RADIATOR HOSE
(11) MAIN WIRE HARNESS
(7) CLUTCH CABLE
(6) RADIATOR AIR BLEED TUBE
(10) RADIATOR OVERFLOW TUBE
(8) IGNITION PULSE GENERATOR WIRE
(9) OIL PRESSURE SWITCH WIRE

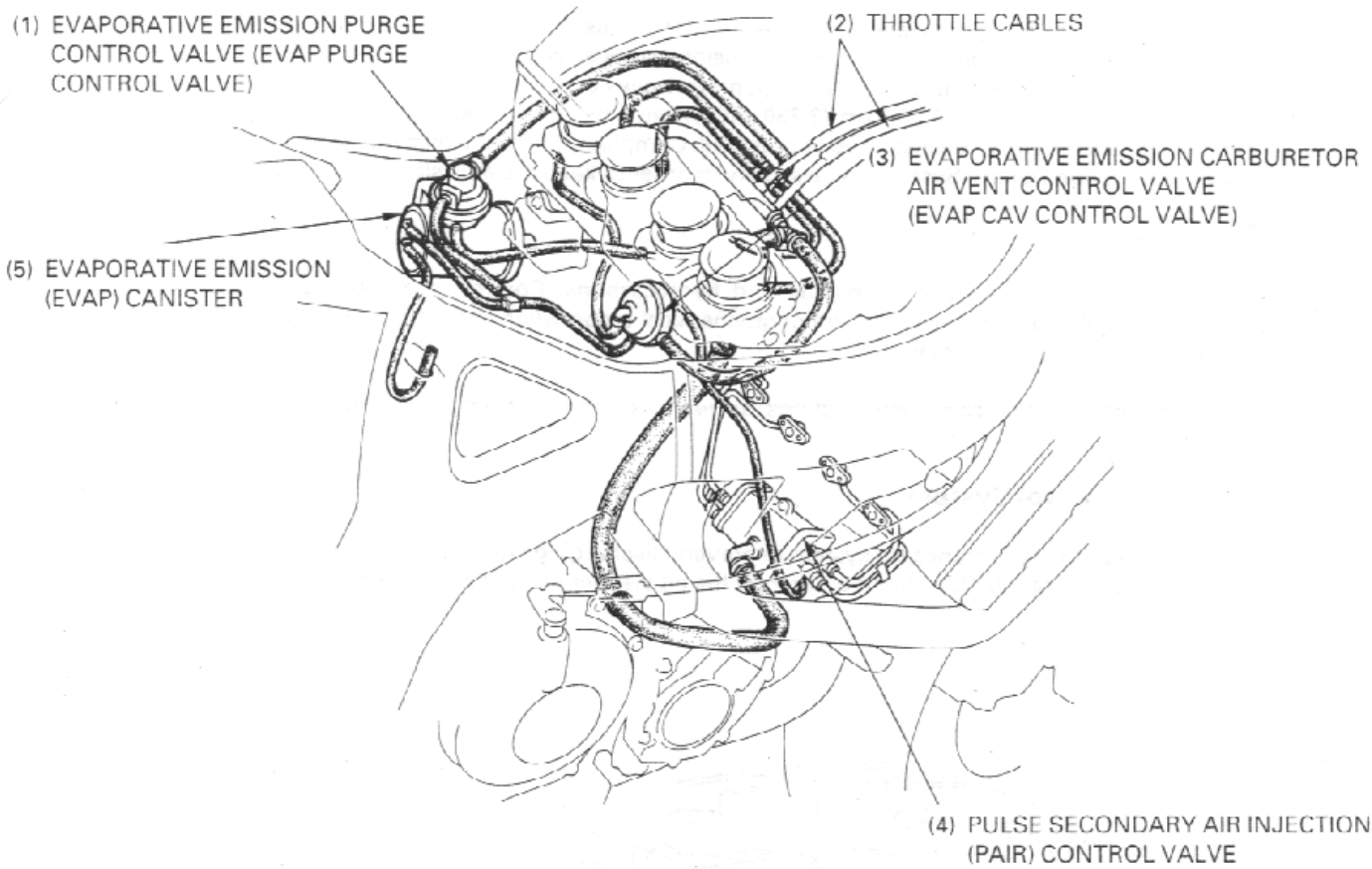

(1) CARBURETOR AIR VENT TUBE
(2) STARTER MOTOR CABLE
(3) FUEL PUMP WIRE
(5) SIDE STAND SWITCH WIRE
(4) GROUND CABLE
(9) ALTERNATOR WIRE
(7) FUEL PUMP WIRE
(8) SIDE STAND SWITCH WIRE
(6) ALTERNATOR WIRE


(15) FAN MOTOR SWITCH WIRE
(10) AIR BLEED TUBE
(14) OIL COOLER
(13) OIL COOLER COOLANT TUBE
(11) LOWER RADIATOR HOSE
(12) WATER PUMP-TO-CYLINDER TUBE

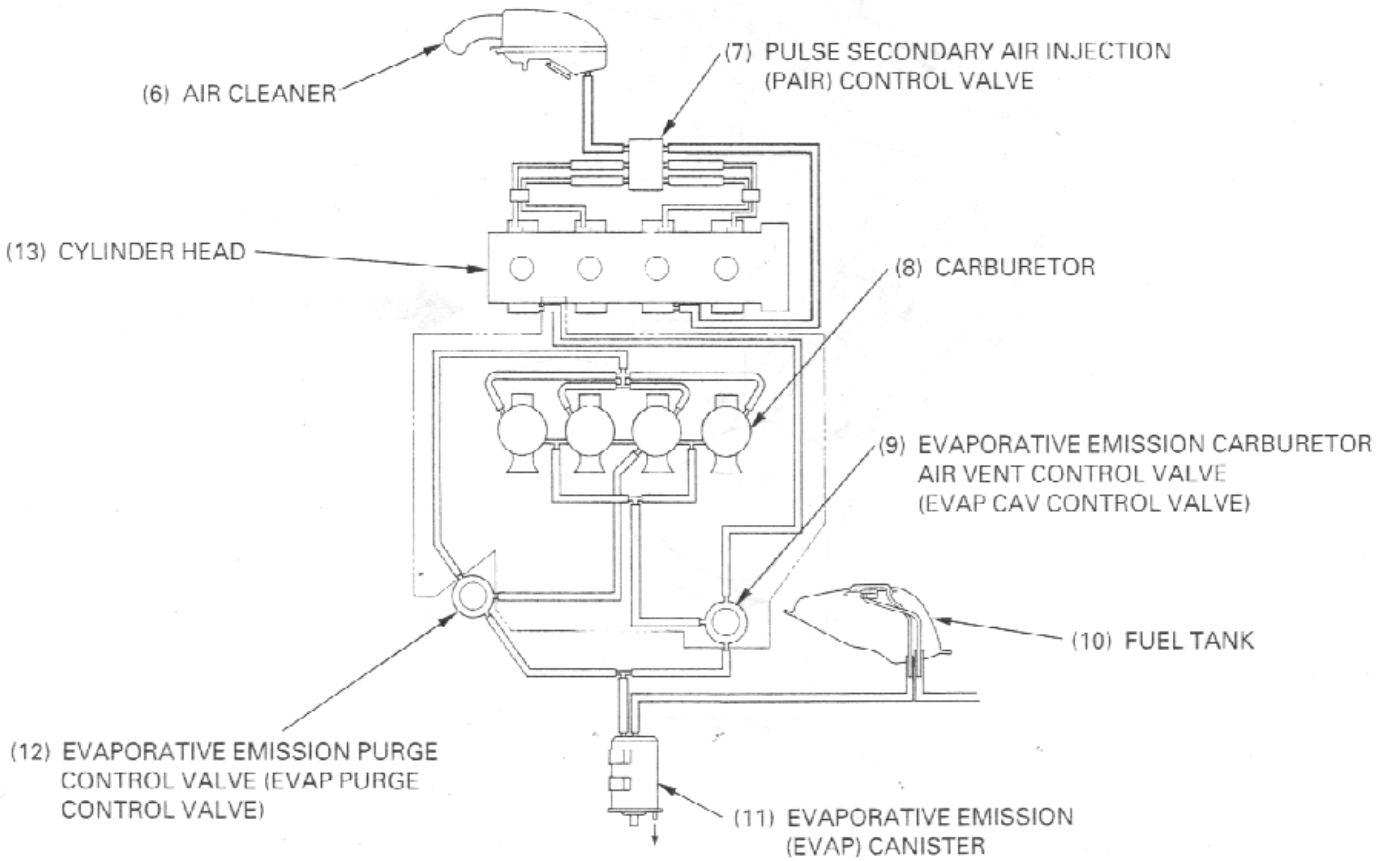

(2) CLUTCH CABLE
(3) CHOKE CABLE
(4) THROTTLE CABLES
(5) FRAME GROUND
(1) FAN MOTOR SWITCH WIRE
(11) CARBURETOR AIR VENT TUBE
(6) ENGINE COOLANT TEMPERATURE (ECT) SENSOR WIRE
(10) STARTER MOTOR CABLE
(7) NEUTRAL SWITCH WIRE
(9) FUEL PUMP
(8) FUEL FILTER


(2) IGNITION CONTROL MODULE
(3) STARTER RELAY SWITCH
(1) MAIN WIRE HARNESS
(4) BATTERY POSITIVE (+) CABLE
(7) FUEL PUMP RELAY
(6) REGULATOR/RECTIFIER
(5) REAR BRAKE HOSE

Emission Control System Routing (California Type Only) :



Emission Control System Diagram (California Type Only) :



Emission Control Systems (U.S.A. Only)

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require 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 1 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 Warrantics for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

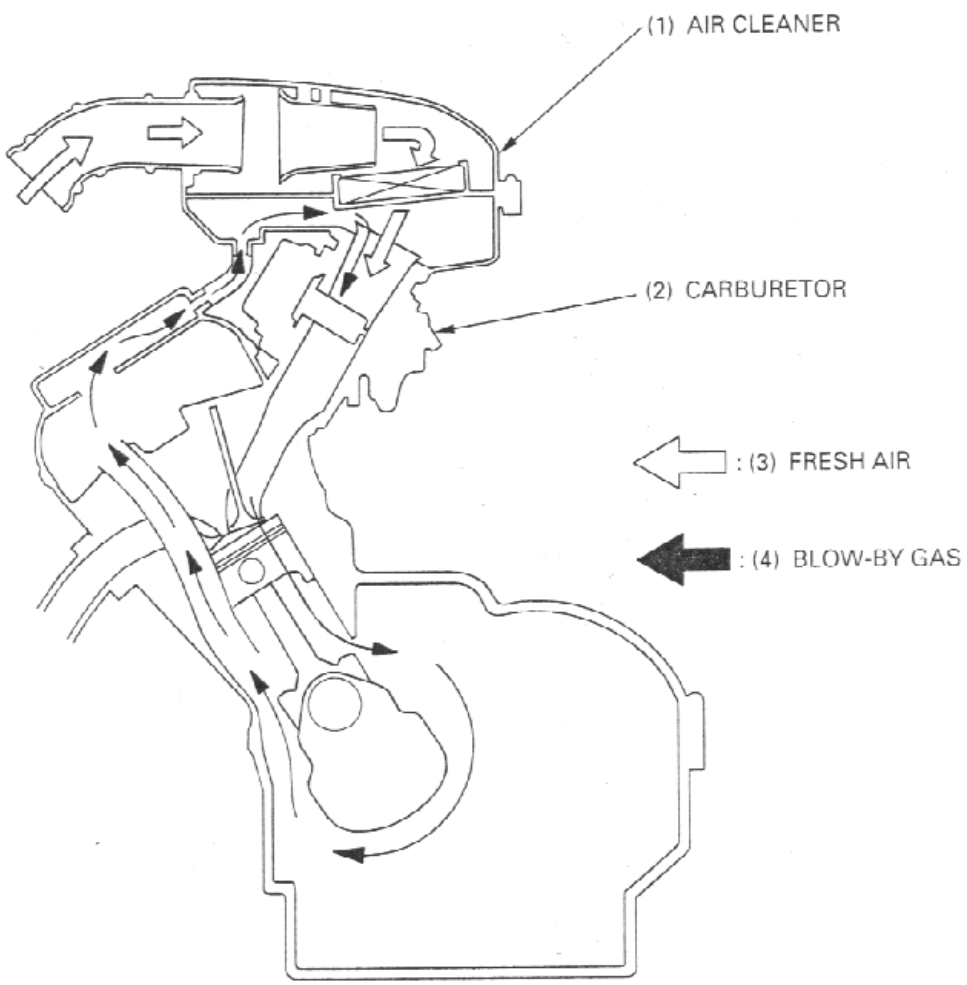
Source Of Emission

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons 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 it 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

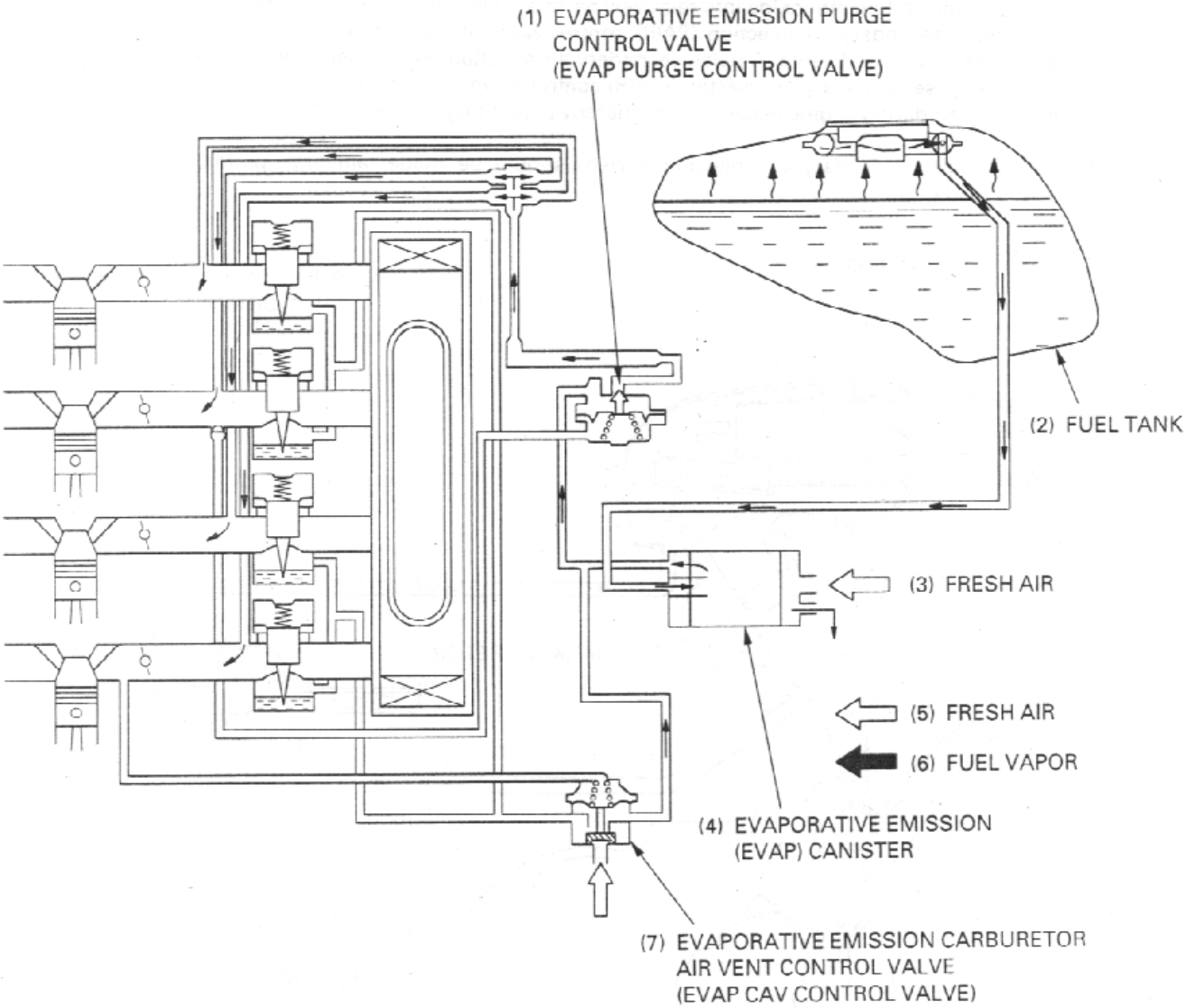
The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and the carburetor.



Evaporative Emission Control System (California Type Only)

This vehicle complies with the California Air Resouces Board evaporative emission regulations.

Fuel vapor from the fuel tank and carburetors is routed into the evaporative emission canister where it is absorbed and stored while the engine is stopped. When the engine is running and the evaporative emission purge control valve (EVAP purge control valve) is open fuel vapor in the evaporative emission canister is drawn into the engine through the carburetor. At the same time, the evaporative emission carburetor air vent control valve (EVAP CAV control valve) is open and air is drawn into the carburetor through the valve.



Noise Emission Control System

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits 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 new vehicle for purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (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 the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any parts 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.

Exhaust Emission Control System

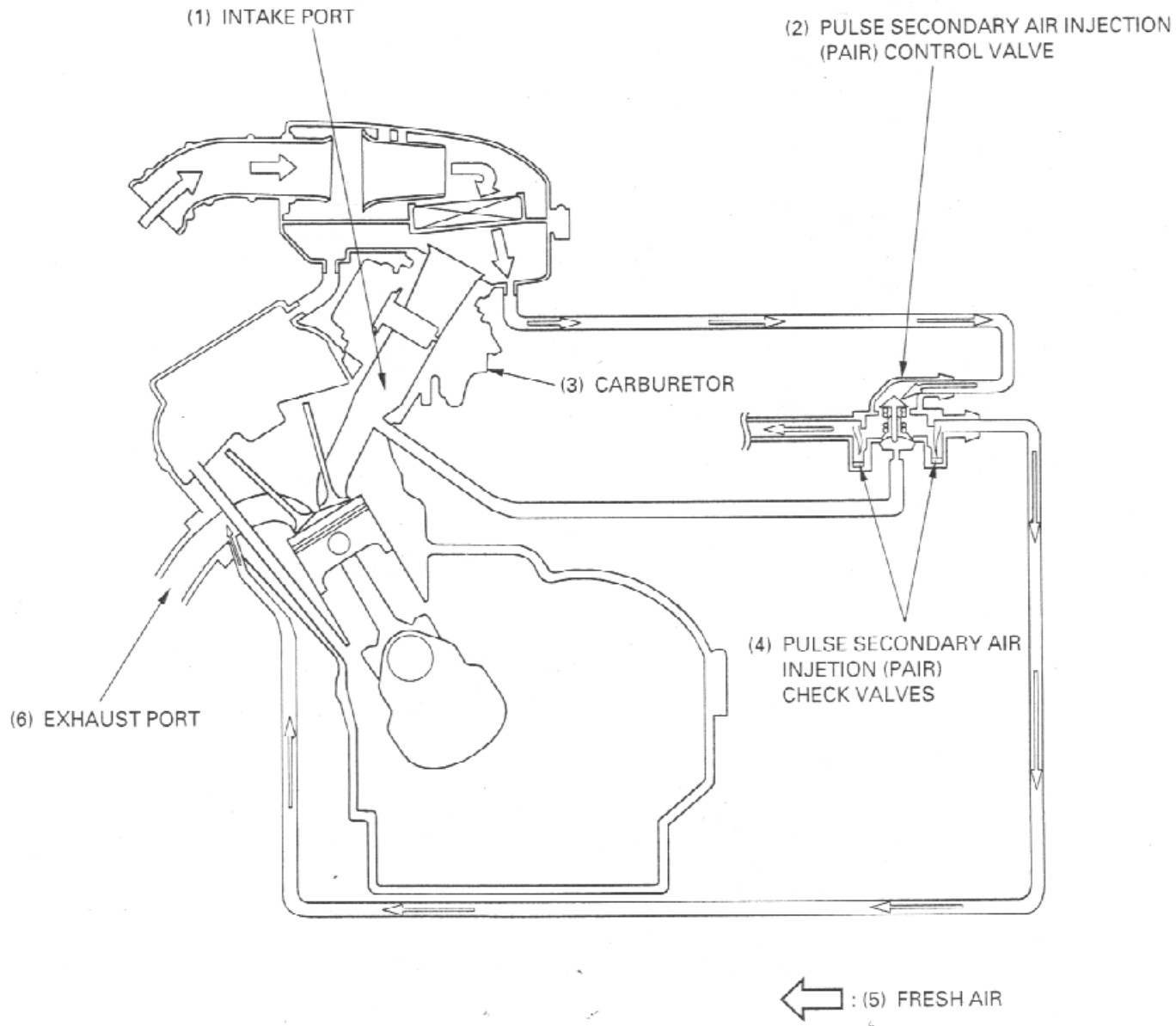
The exhaust emission control system is composed of lean carburetor setting and no adjustment should be made except idle speed adjustment with the throttle stop screw.

Pulse Secondary Air Injection System (California only)

The exhaust emission control system consists of 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.

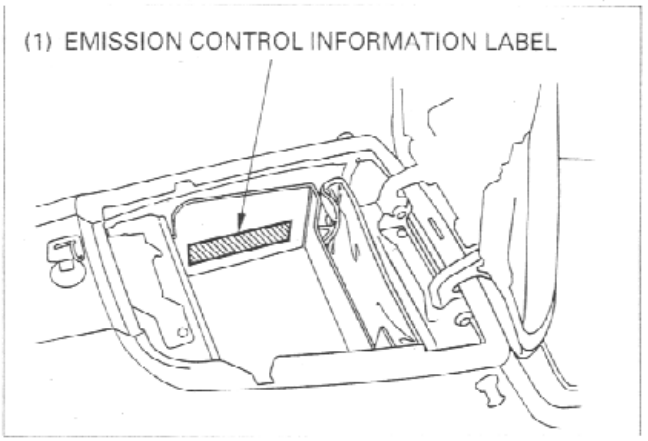
This model has the pulse secondary air injection (PAIR) control valve; it consists of check valves built into the pulse secondary air injection (PAIR) control valve. A pulse secondary air injection (PAIR) check valve prevents reverse air flow through the system. The pulse secondary air injection (PAIR)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

No adjustment to the pulse secondary air injection system should be made, although periodic inspection of the components is recommended.



Emission Control Information Labels (U. S. A. Only)

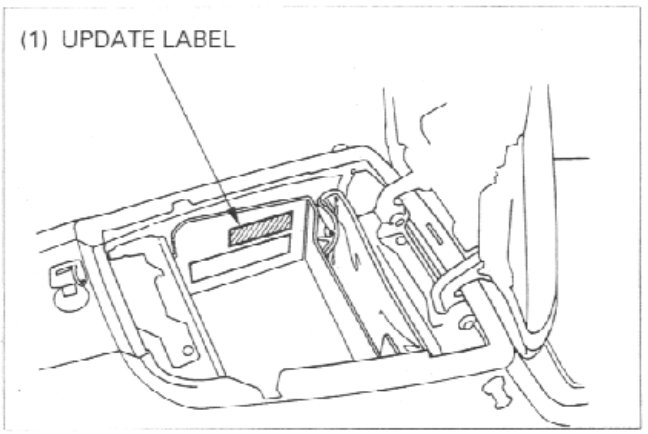
An Emission Control Information Label is located on the side wall of the storage compartment as shown.
The pillion seat must be opend to read it.
It lists basic tune-up specifications.



Vehicle Emission Control Information Update Label

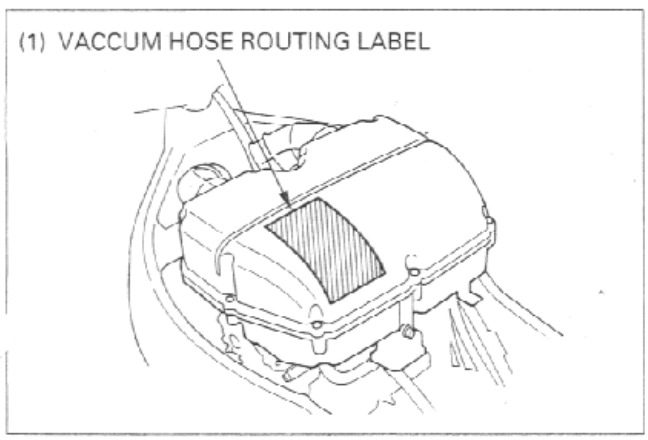
After making a high altitude carburetor adjustment, attach an update label on the side wall of the storage compartment as shown.

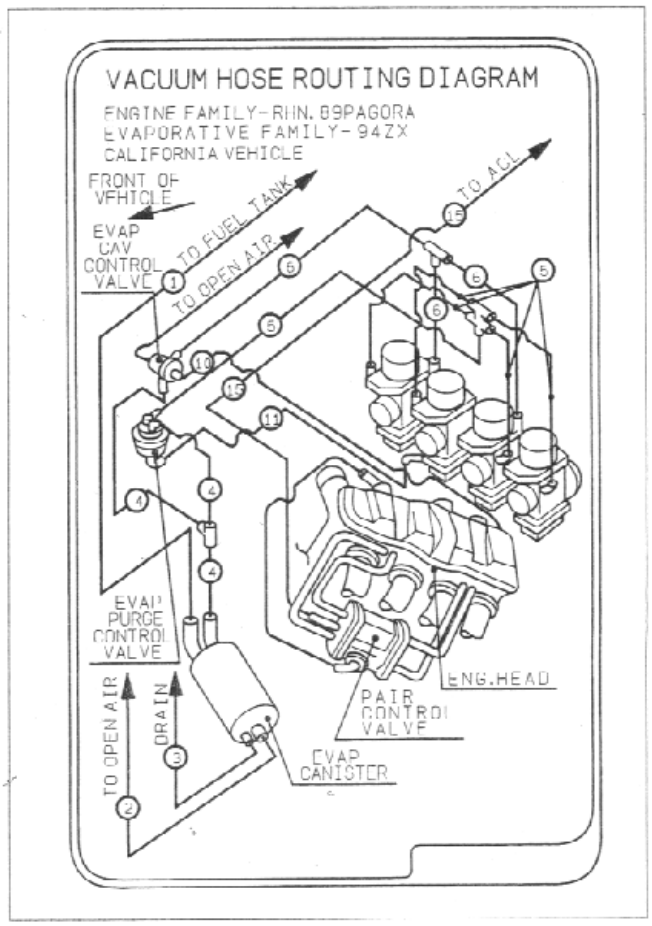
After re-adjusting the carburetor back to standard settings for low altitude, remove the update label.



Vacuum Hose Routing Diagram Label (California Type Only)

The Vacuum Hose Routing Diagram Label is on the air cleaner housing cover as shown.
The fuel tank must be removed to read it. Refer to page 2-9 for fuel tank removal.





MEMO

2. Frame/Body Panels/Exhaust System

Service Information

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.**

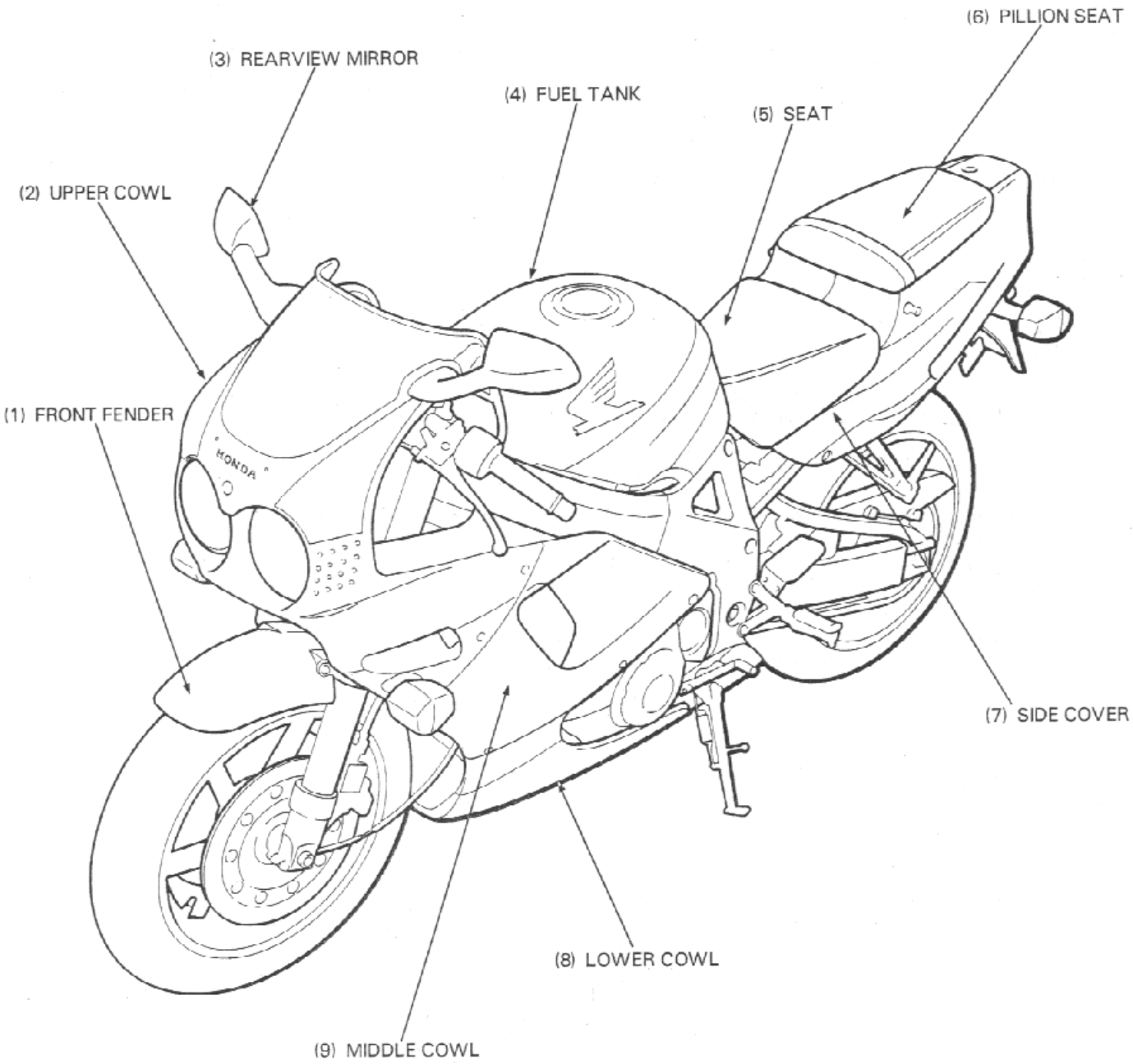
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or exposion.
- This section covers removal and installation of the frame body panels, fuel tank and exhaust system.
- Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
- Loosely install all of the exhaust pipe fasteners. Always tighten the exhaust clamps first, then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
- Always inspect the exhaust system for leaks after installation.

Troubleshooting

Excessive Exhaust Noise
- Broken exhaust system
- Exhaust gas leak

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

Body Panel Locations



Seat

Removal

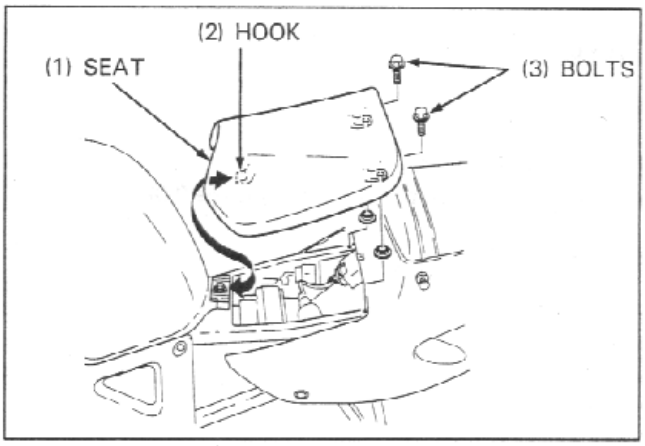
Remove the two seat mounting bolts behind the seat.

Slide the seat to the rear and then off.

Installation

Align the seat hook with the frame bracket and install the seat.

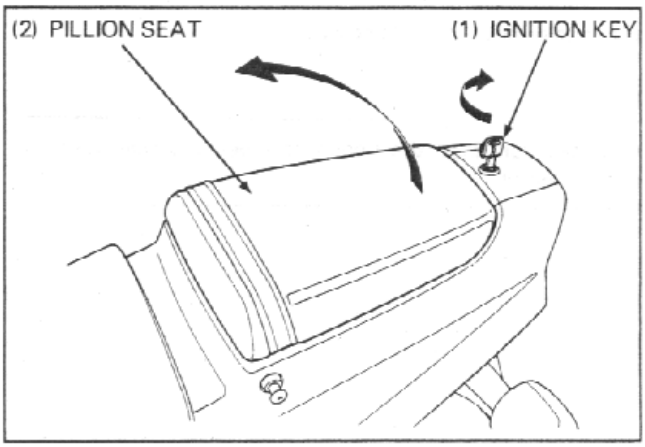
Install and tighten the seat mounting bolts.



Pillion Seat

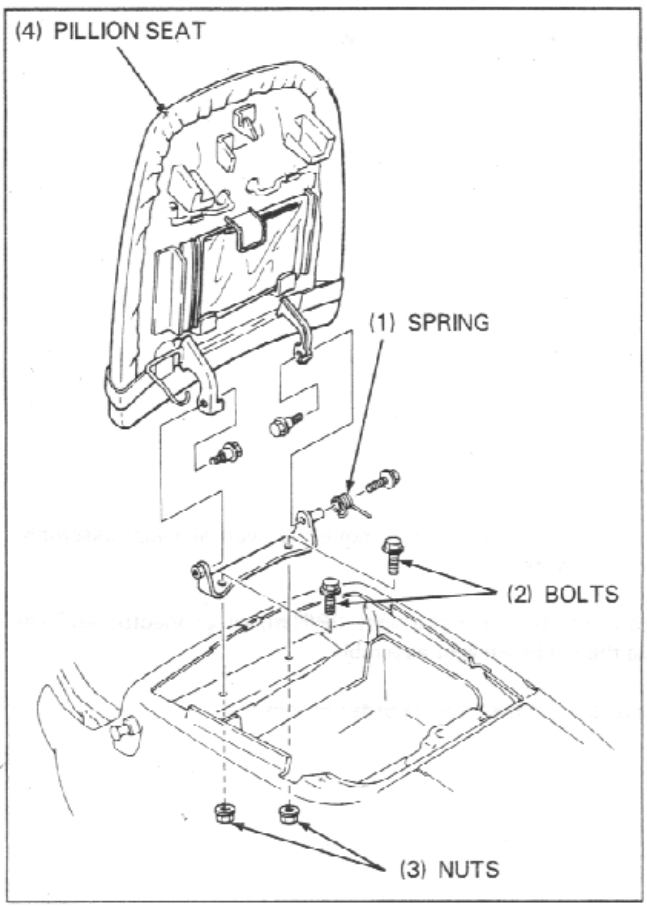
Removal/Installation

Open the pillion seat using the ignition key.



Unhook the pillion seat spring.
Remove the two mounting bolts, nuts and pillion seat assembly.

Installation is in the reverse order of removal.



Side Cover

Removal/Installation

Remove the seat (page 2-3).
Open the pillion seat using the ignition key (page 2-3).

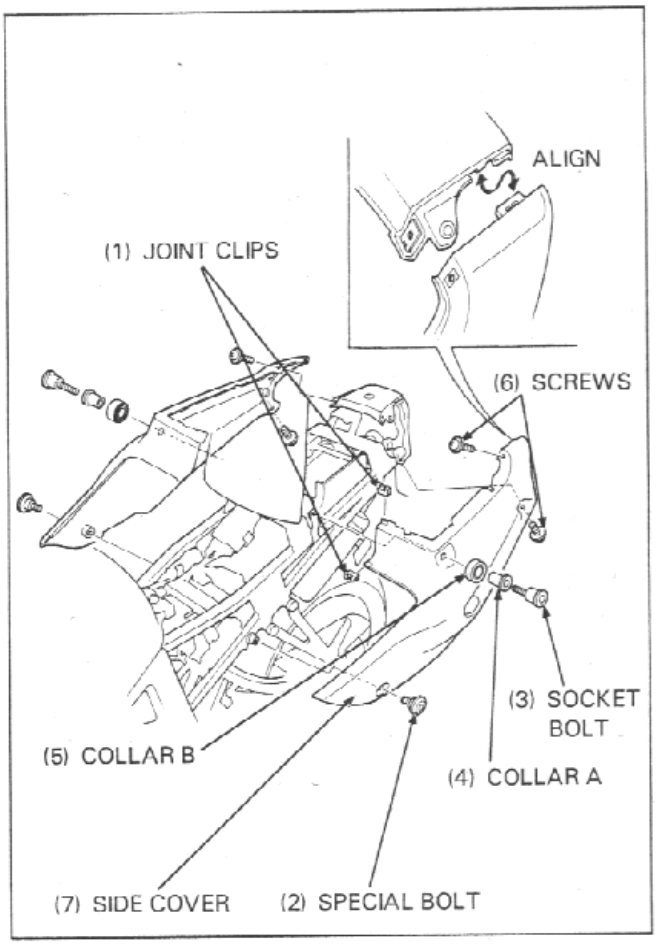
Remove the two joint clips.

Remove the following:
—Special bolt
—Socket bolt
—Collar A
—Collar B
—Screws

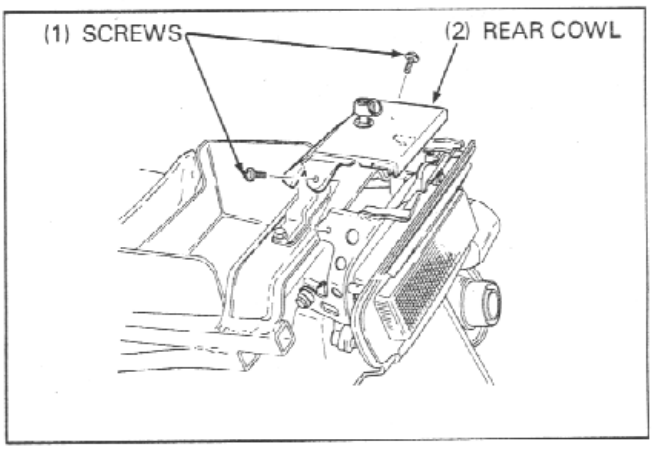
Separate and remove the side cover.

NOTE:

- At installation, align the hooks between the side cover and rear cowl.



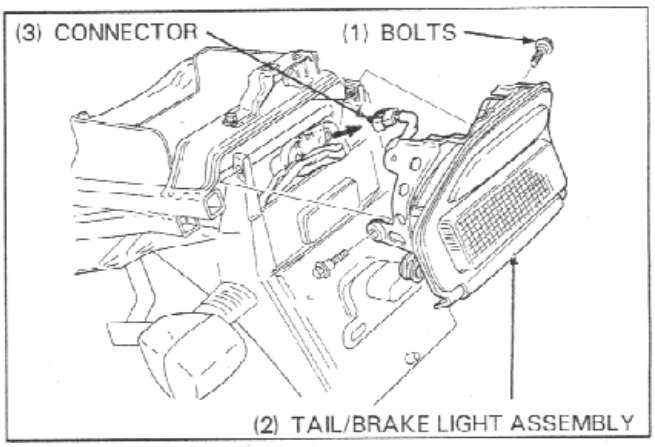
Remove the screws and rear cowl.



Remove the two bolts and remove the tail/brake light assembly from the rear fender.

Disconnect the tail/brake light 3P(Natural) connector and remove the tail/brake light assembly.

Installation is in the reverse order of removal.



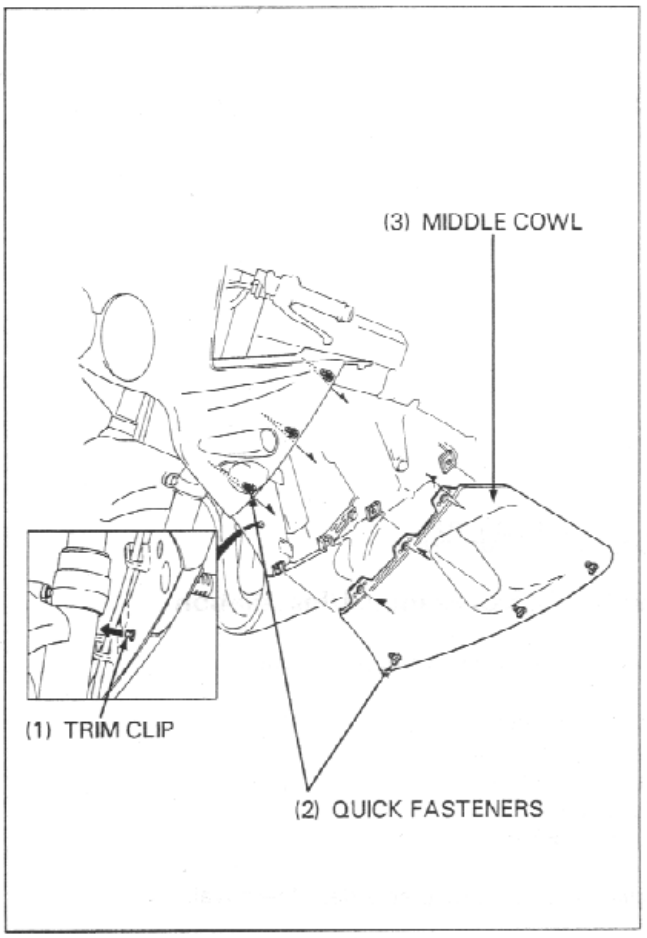
Middle Cowl

Removal/Installation

Remove the trim clip.

Turn the quick fasteners counterclockwise and release the fasteners.
Remove the middle cowl.

Installation is in the reverse order of removal.



Lower Cowl

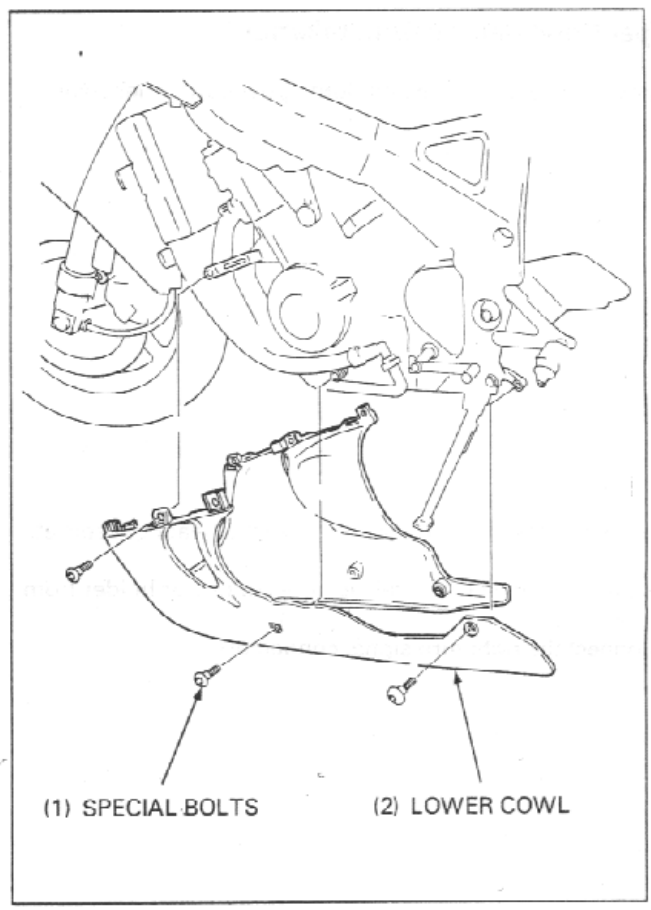
Removal/Installation

Remove the middle cowl.

Remove the six special bolts and lower cowl.

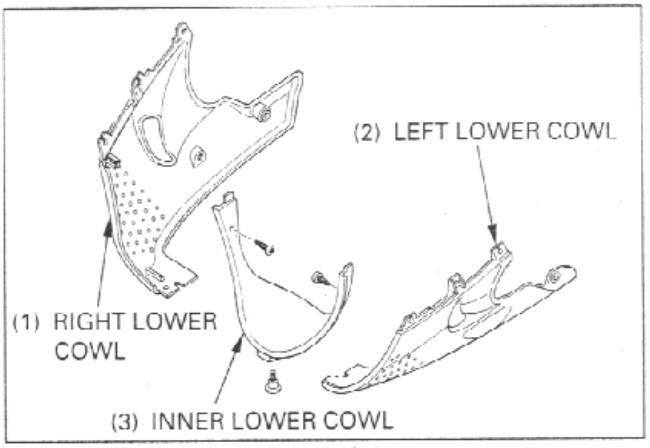
NOTE:

- During removal and installation, support the lower cowl securely.



Separate the lower cowl.

Installation is in the reverse order of removal.



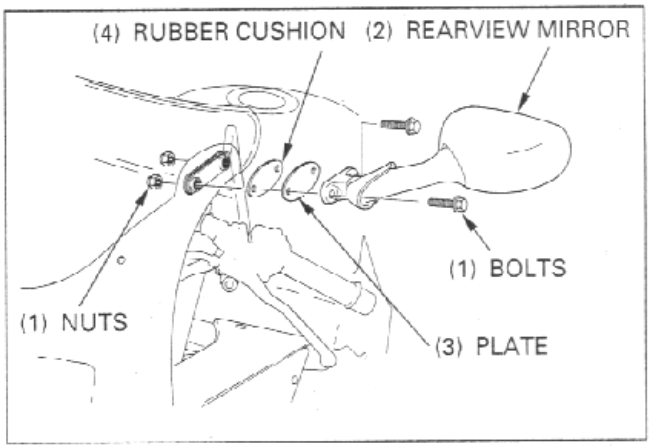
Upper Cowl ('93-'94)

Rearview Mirror Removal/Installation

Remove the rearview mirror pivot boot.

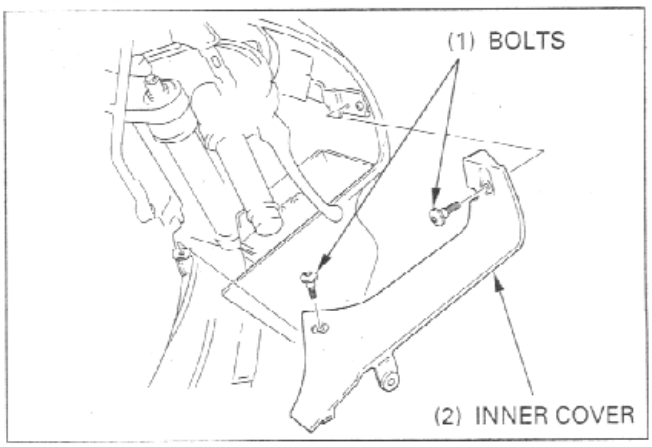
Remove the following:
- SH bolts and nuts
- Rearview mirror
- Mirror plate
- Rubber cushion

Installation is in the reverse order of removal.



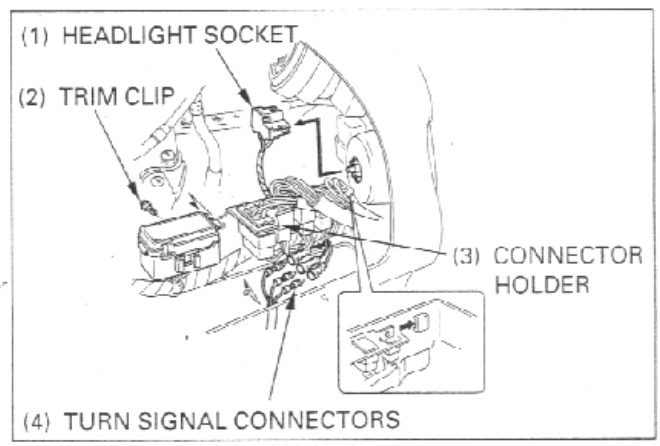
Upper Cowl Removal/Installation

Remove the special bolts and right upper cowl inner cover.

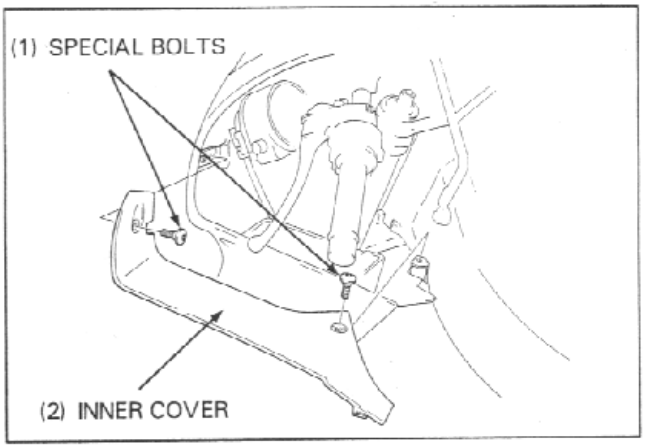


Release the retaining tabs and remove the headlight socket.

Remove the trim clip and release the connector holder from the upper cowl.
Disconnect the right turn signal connectors.

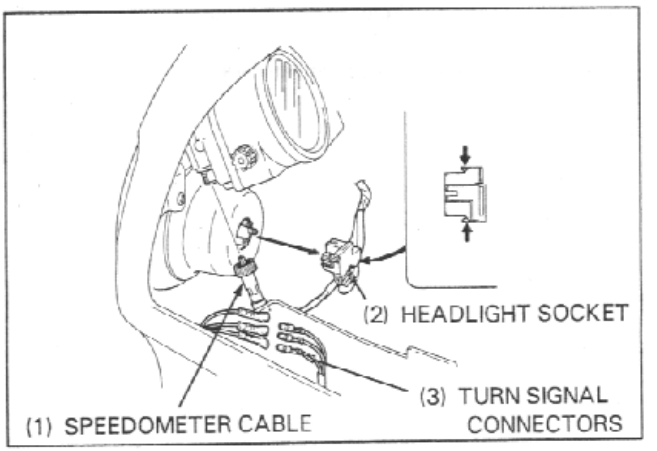


Remove the special bolts and left upper cowl inner cover.



Disconnect the speedometer cable.

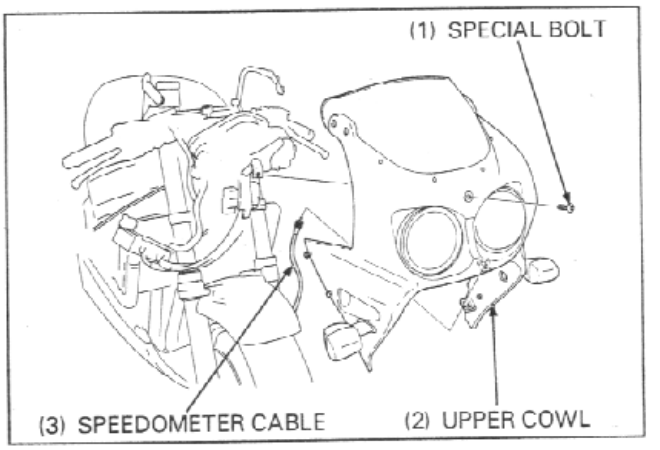
Release the retaining tabs and remove the headlight socket.
Disconnect the left turn signal connectors.



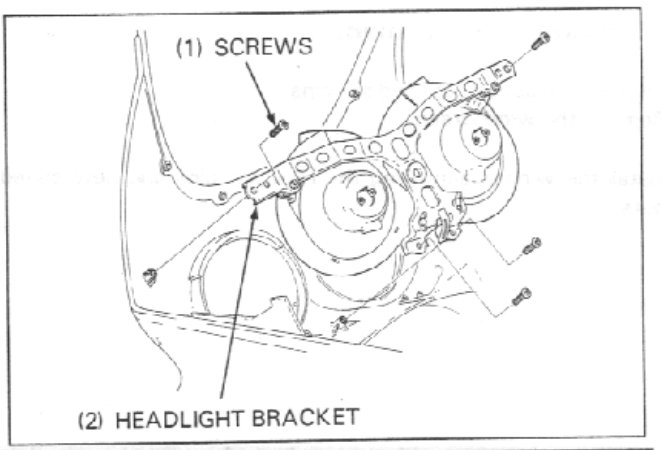
Remove the rearview mirror (page 2-6).
Remove the special bolt and remove the upper cowl assembly.

NOTE:

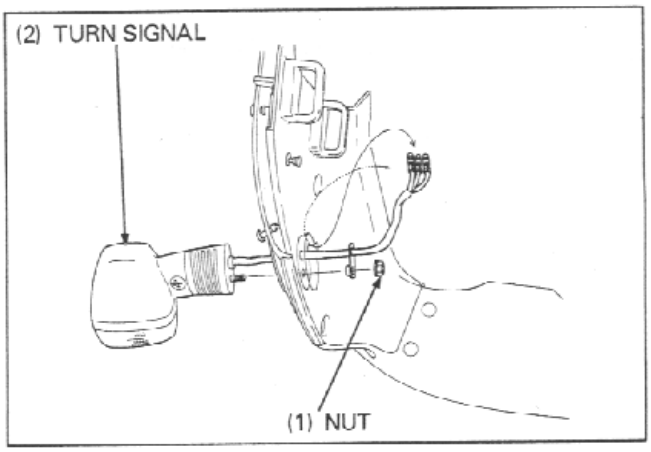
- At installation, route the speedometer cable through the guide as shown.



Remove the four screws and headlight bracket assembly.

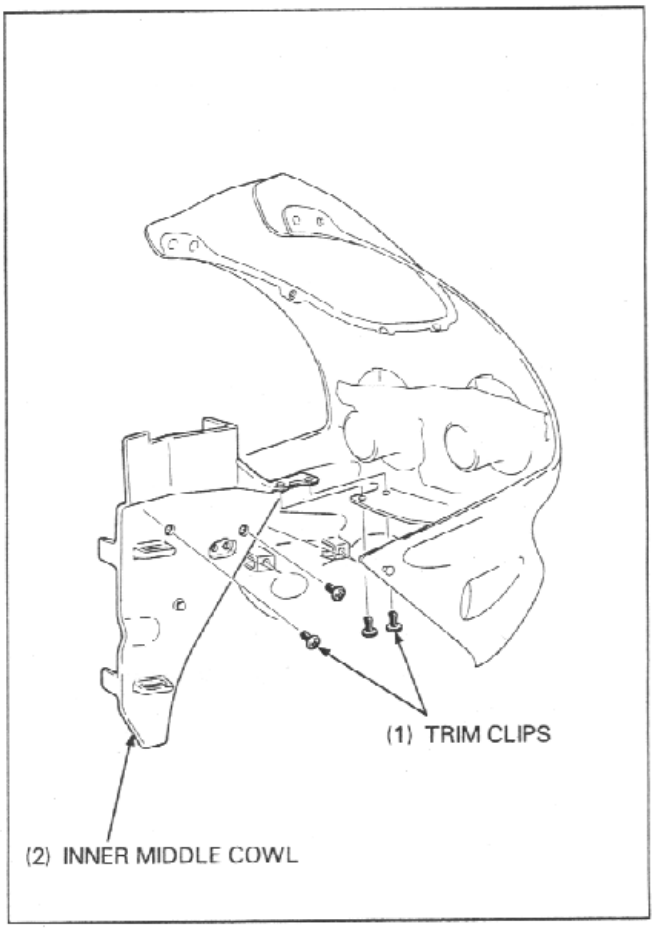


Remove the nut and turn signal.



Remove the trim clips and inner middle cowls.

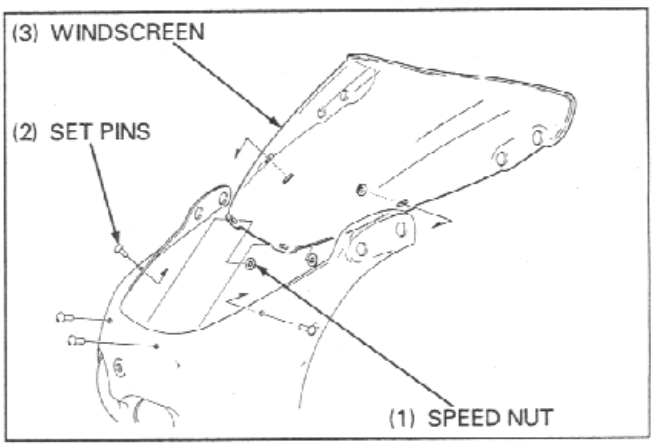
Installation is in the reverse order of removal.



Windscreen Replacement

Remove the speed nuts and set pins.
Remove the windscreen.

Install the windscreen using the new set pins and new speed nuts.

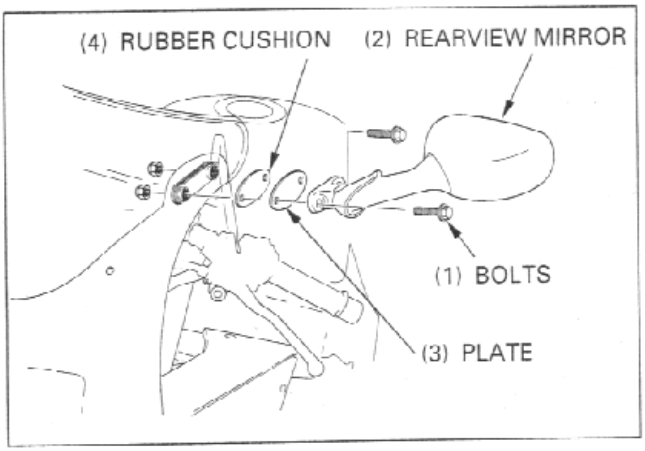


Upper Cowl (After '94)

Rearview Mirror Removal

Remove the rearview mirror pivot boot.

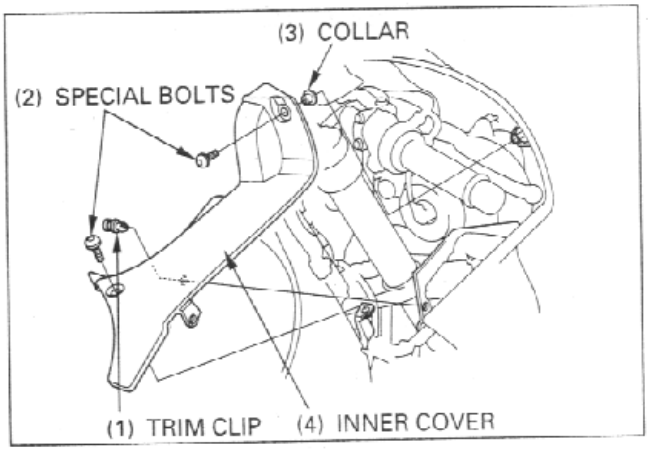
Remove the following:
- SH bolt
- Rearview mirror
- Mirror plate
- Rubber cushion



Upper Cowl Removal

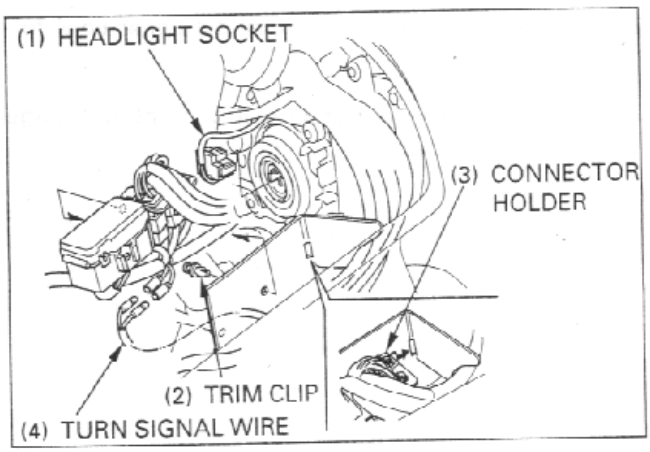
Remove the both middle cowl (page 2-5)

Remove the trim clip, special bolts, collar and right upper cowl inner cover.

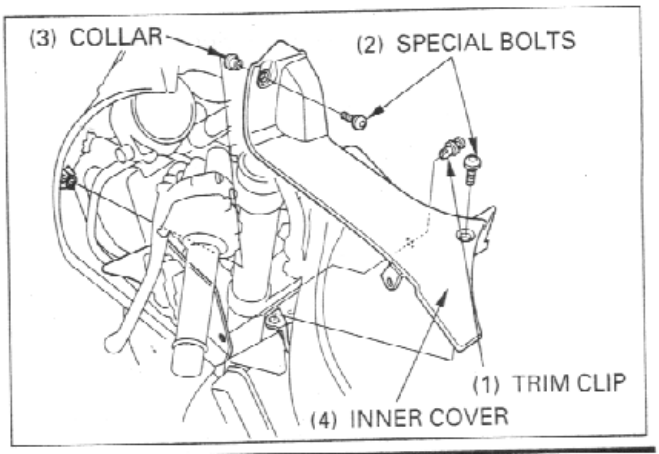


Release the retaining tabs and remove the headlight sockets.

Remove the trim clip and release the connector holder from the upper cowl.
Disconnect the right turn signal connectors.

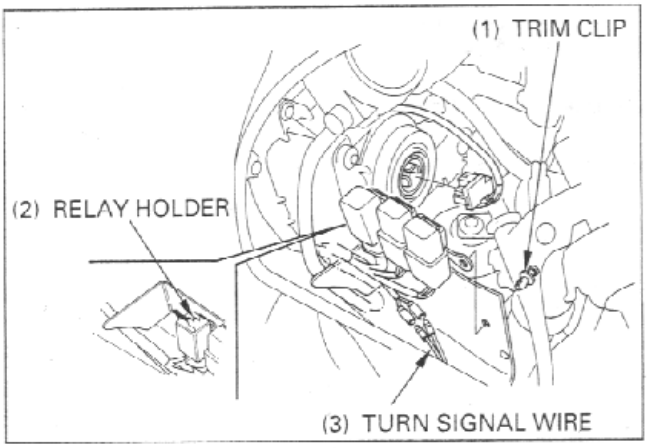


Remove the trim clip, special bolts, collar and left upper cowl inner cover.

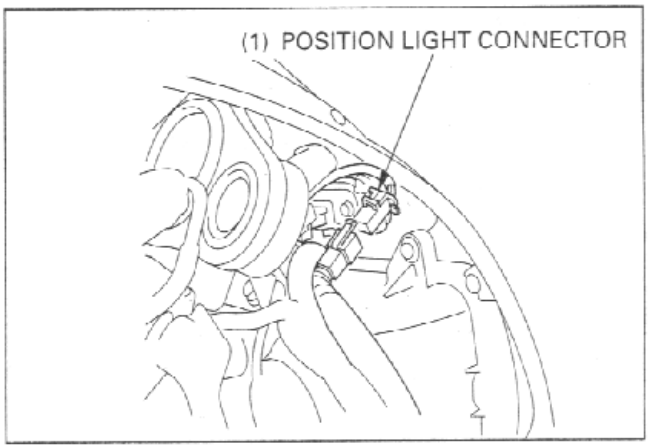


Remove the trim clip and release the relay holder bracket from the upper cowl.

Disconnect the right turn signal connectors.

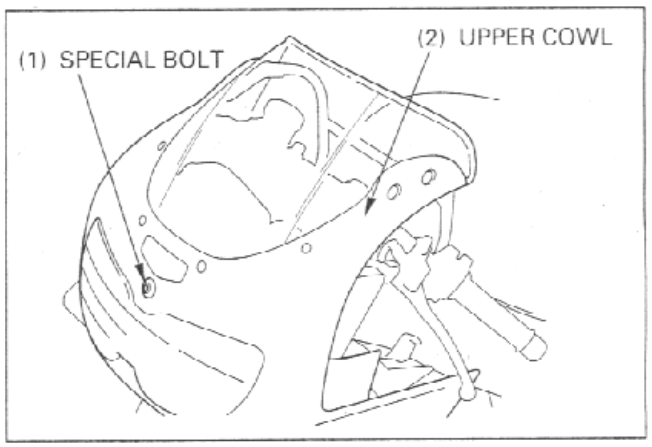


Disconnect the position light connector.

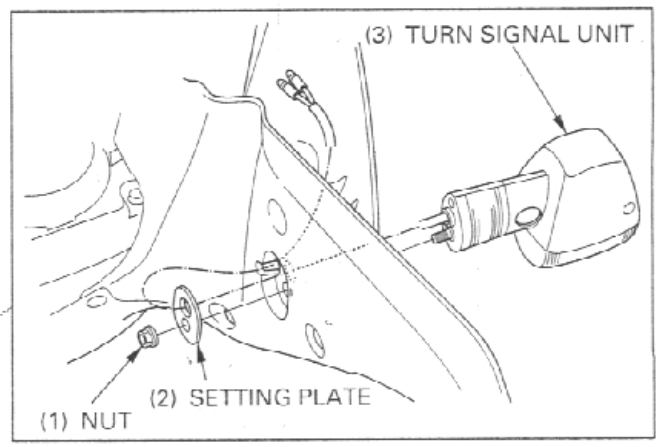


Remove the special bolt and remove the upper cowl forward.

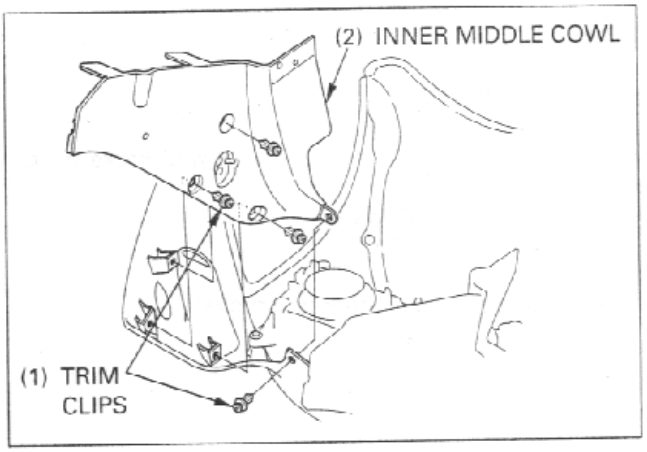
Remove the headlight unit and position light unit (page 18-9).



Remove the nut, setting plate and turn signal unit.



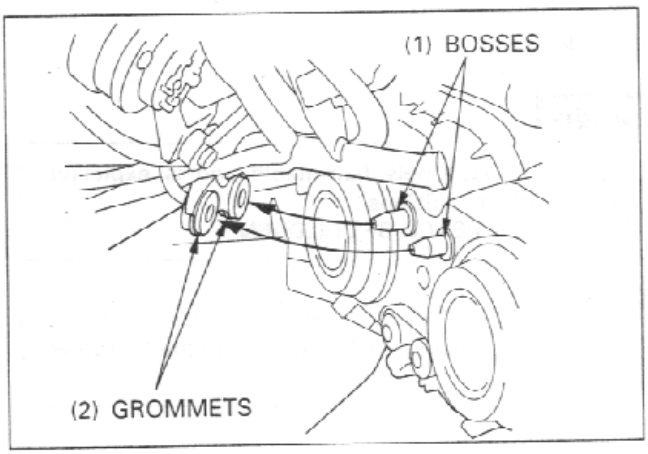
Remove the trim clips and inner middle cowl.



Install the upper cowl in the reverse order of removal.

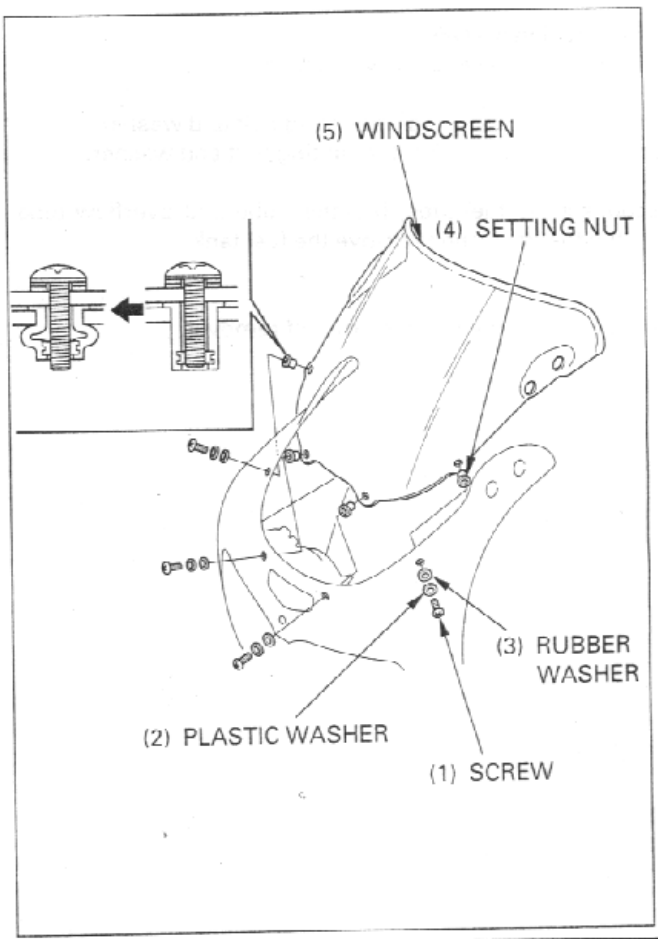
NOTE:

- At installation, align the bosses on the headlight unit, with the rubber grommets on the upper cowl stay.



Windscreen Replacement

Remove the screws, plastic washers and rubber washers. Remove the windscreen and setting nuts.

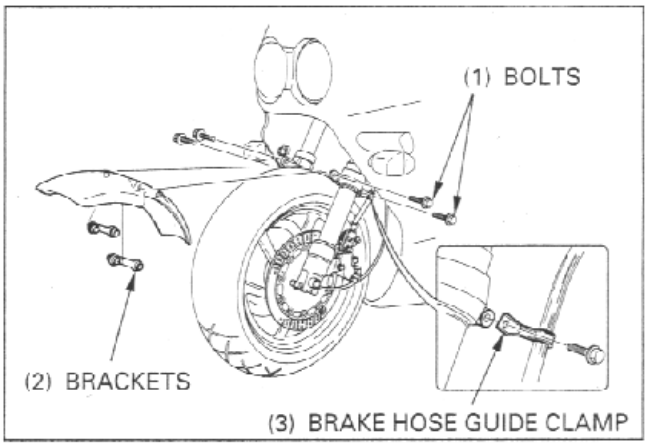


Front Fender

Removal/Installation

Remove the four SH bolts , two brackets and brake hose clamp.
Remove the front fender forward.

Installation is in the reverse order of removal.



Fuel Tank

⚠WARNING

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

NOTE:

- Before disconnecting the fuel tube, turn the fuel valve lever OFF.

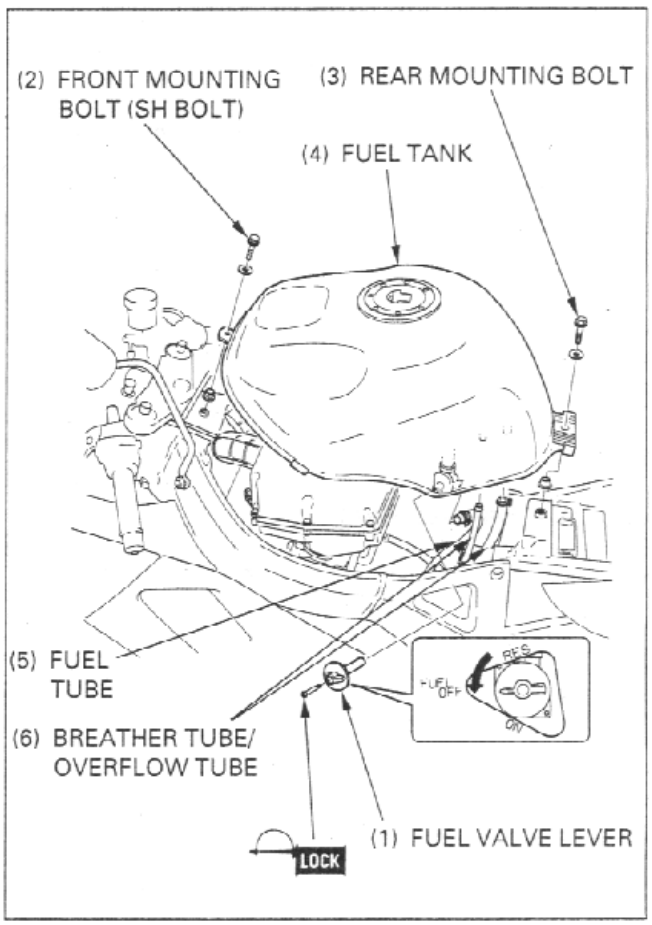
Remove the seat (page 2-3).

Turn the fuel valve OFF.
Remove the screw and fuel valve lever.

Remove the fuel tank rear mounting bolt and washer.
Remove the fuel tank front mounting bolt and washer.

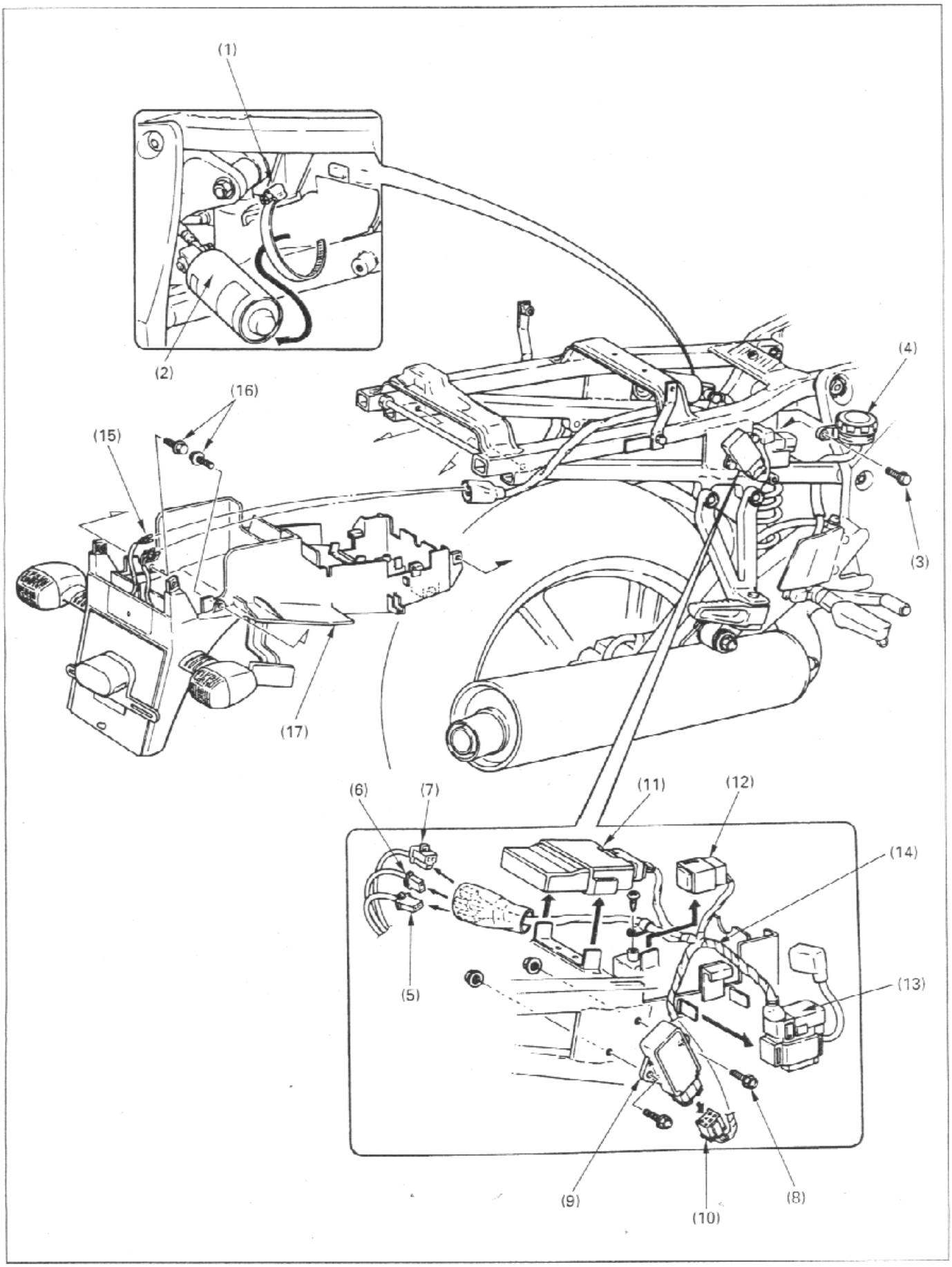
Disconnect the fuel tube, breather tube and overflow tube from the fuel tank, then remove the fuel tank.

Installation is in the reverse order of removal.



MEMO

Rear Fender Removal/Installation



NOTE:

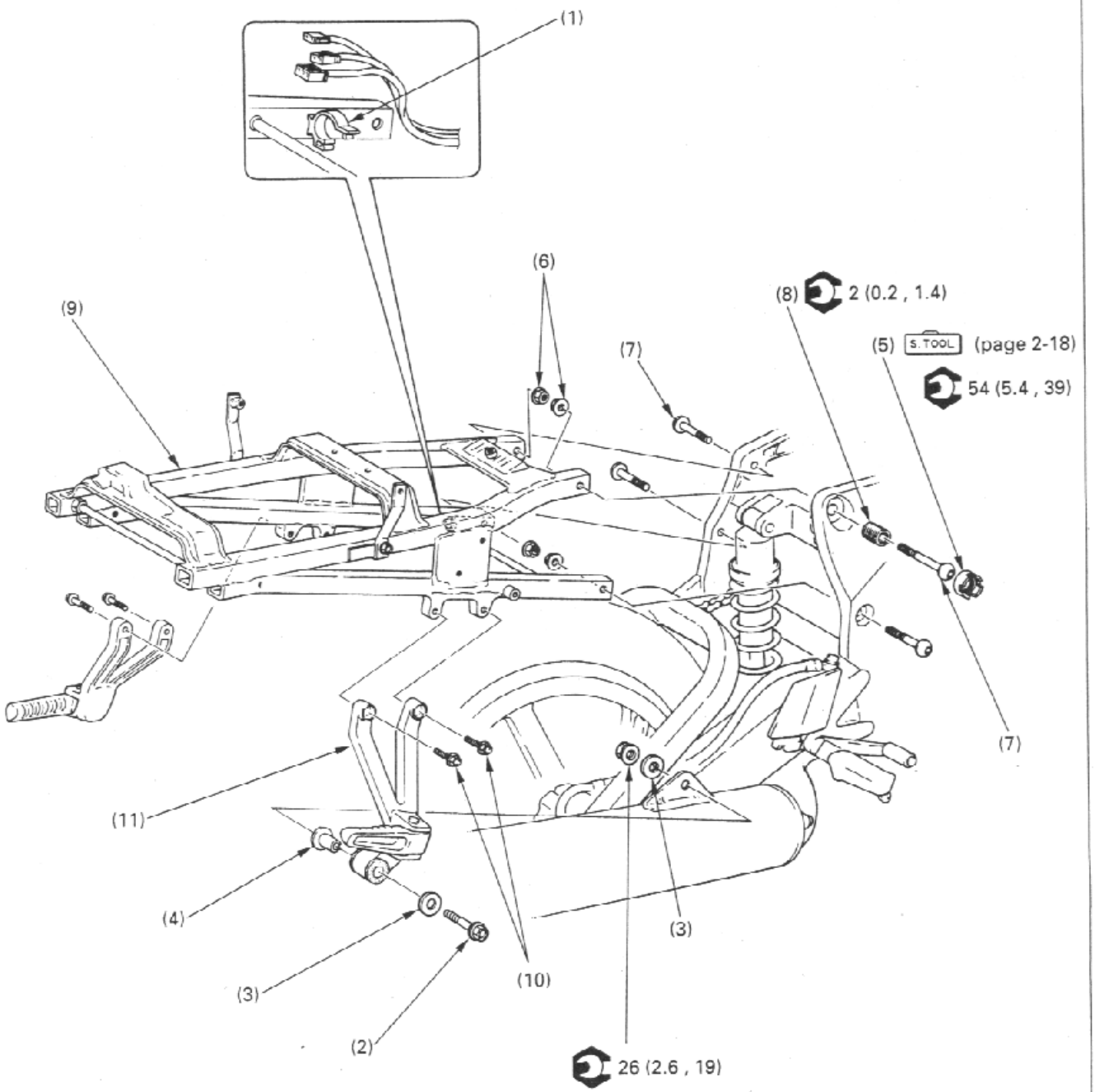
- Route the wire harness and tubes properly (page 1-21).

Requisite Service

- Side cover removal/installation (page 2-4)
- Battery removal/installation (page 15-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Reservoir tank band	1	
(2)	Rear shock reservoir tank	1	Remove the reservoir from the rear fender groove.
(3)	Rear brake reservoir mounting bolt	1	
(4)	Rear brake reservoir	1	
(5)	Side stand switch connector	1	
(6)	Fuel pump connector	1	
(7)	Alternator connector	1	
(8)	Regulator/rectifier mounting bolt/nut	2/2	
(9)	Regulator/rectifier	1	
(10)	Regulator/rectifier connector	1	
(11)	Spark unit	1	
(12)	Fuel pump relay	1	
(13)	Starter relay switch	1	
(14)	Wire harness	1	Remove the clamp screw, then remove.
(15)	Turn signal/license light connector	6	
(16)	Rear fender mounting bolt	2	
(17)	Rear fender assembly	1	At installation, align the front groove with the sub-frame.

Seat Rail Removal/Installation



Requisite Service

- Rear fender removal/installation (page 2-14)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Wire clamp	1	
(2)	Muffler mounting bolt/nut	1/1	
(3)	Plain washer	2	
(4)	Collar	1	
(5)	Seat rail adjusting bolt lock nut	1	Removal/installation (page 2-18)
(6)	Seat rail mounting nut	4	
(7)	Seat rail mounting bolt	4	
(8)	Seat rail adjusting bolt	1	
(9)	Seat rail assembly	1	
(10)	Pillion step holder bolt	4	
(11)	Pillion step holder	2	

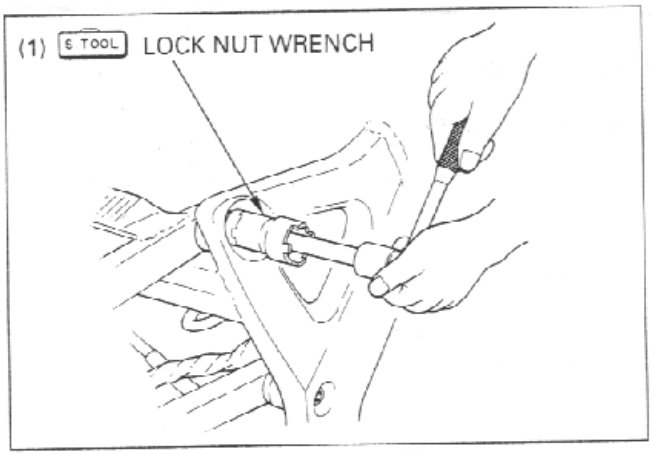
Lock Nut Removal/Installation

Removal

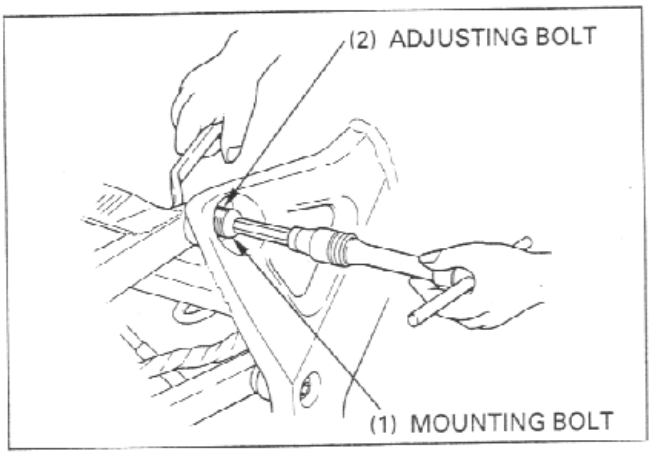
Remove the adjusting bolt lock nut.

S. TOOL

Lock nut wrench, 20 x 24 mm **07716—0020100**



Remove the all seat rail mounting bolts and nuts.
Loosen the adjusting bolt, then remove the seat rail assembly.

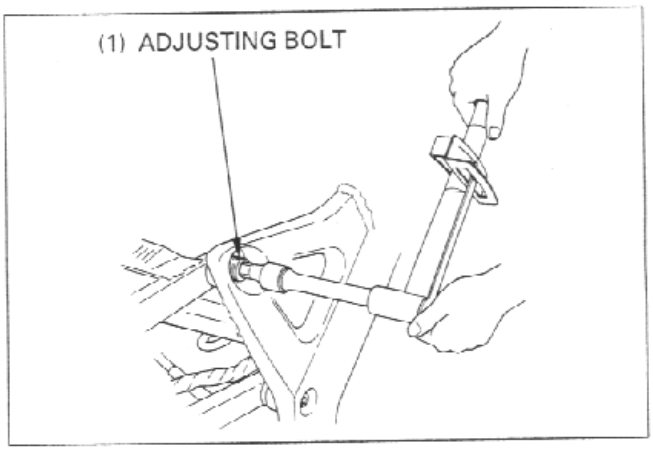


Installation

Temporarily install the three seat rail mounting bolts.

Install and tighten the seat rail adjusting bolt.

Torque: 2 N·m (0.2 kg-m , 1.4 lb ft)



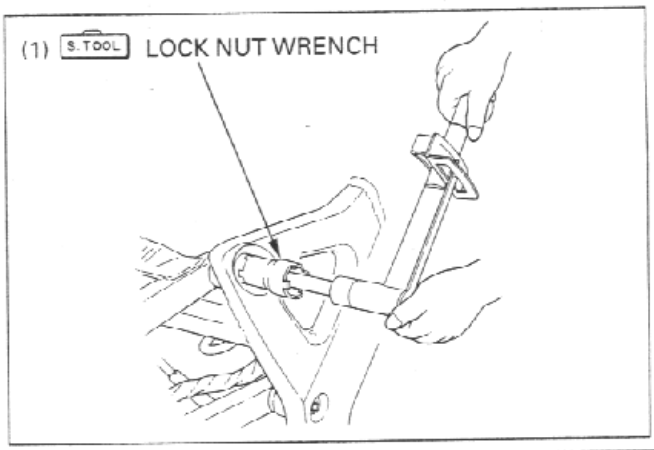
Install the seat rail mounting bolts and nuts ; tighten all the nuts.

Install the adjusting bolt lock nut and tighten to the specified torque.

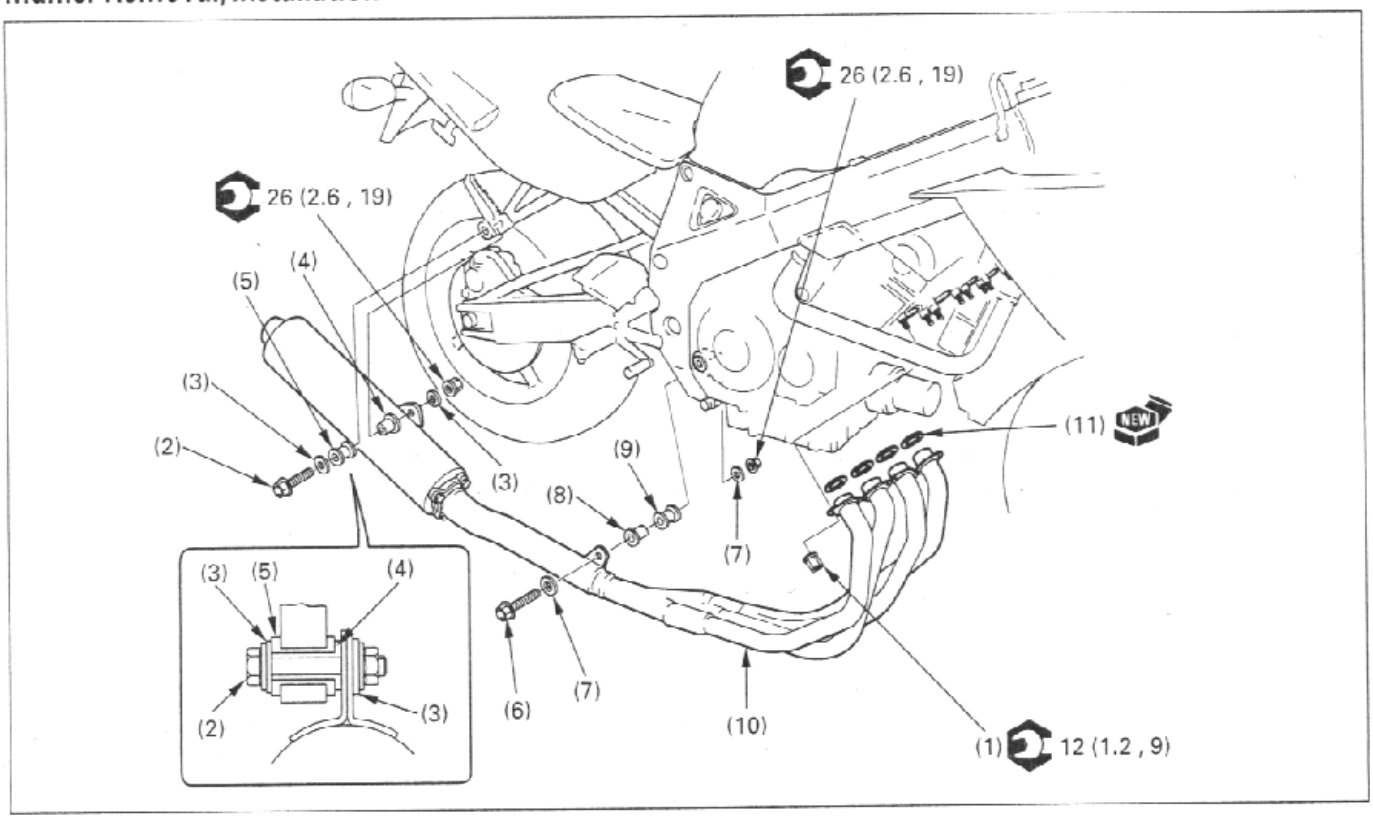
S. TOOL

Lock nut wrench, 20 x 24 mm **07716—0020100**

Torque: 54 N·m (5.4 kg-m , 39 lb-ft)



Muffler Removal/Installation



⚠WARNING

- **Do not service the exhaust system while it is hot.**

NOTE:

- When installing the exhaust pipe/muffler, install all the fasteners loosely. Always tighten the exhaust pipe joint nuts first, then tighten the mounting fasteners.

Requisite Service

- Lower cowl removal/installation (page 2-5)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Exhaust pipe joint nut	8	At installation, install all the fasteners loosely. Tighten the exhaust pipe joint nuts first.
(2)	Rear muffler mounting bolt /nut	1/1	
(3)	Washer	2	
(4)	Collar	1	
(5)	Rubber bushing	1	
(6)	Front muffler mounting bolt /nut	1/1	
(7)	Washer	1	
(8)	Collar	1	
(9)	Rubber bushing	1	
(10)	Muffler assembly	1	
(11)	Gasket	4	

MEMO

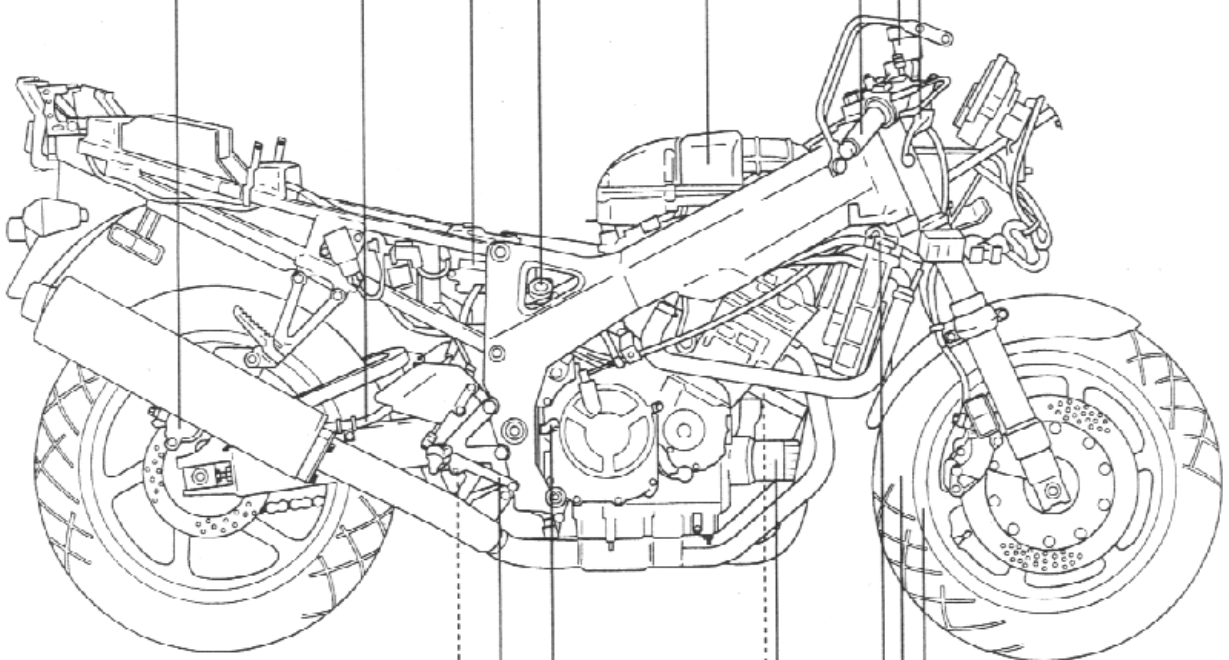
3. Maintenance

Service Information

- Refer to Common Service Manual for items not included in this manual.
- Refer to specifications (Section 1) for maintenance data.

Service Access Guide

- The following shows the locations of the parts that must be removed for the maintenance items listed below. Refer to the Common Service Manual for items not included in this manual.
- Refer to section 2 (Frame/Body Panels/Exhaust System), for the parts that must be removed for service.
  For example: AIR CLEANER (Contamination, clogging, replacement) : Parts
  · Fuel tank ——————— The part required must be removed for service.



(1) Reserve Tank Cap

(2) Brake Reservoir (Level check, fluid replacement)

(3) Brake Hose
(Leakage, deterioration, damage)

(4) Rear Brake Caliper
(Pad wear)

(5) Air Cleaner
(Contamination, clogging, replacement; page 3-5)
· Fuel tank

(6) Throttle Grip (Operation, free play)

(7) Master Cylinder
(Level check, fluid replacement)

(8) Brake Lever (Air in system)

(9) Brake Light Switch (Operation)

(10) Brake Pedal (Air in system)

(11) Oil Filler Cap/Level Gauge
(Level check, replacement)

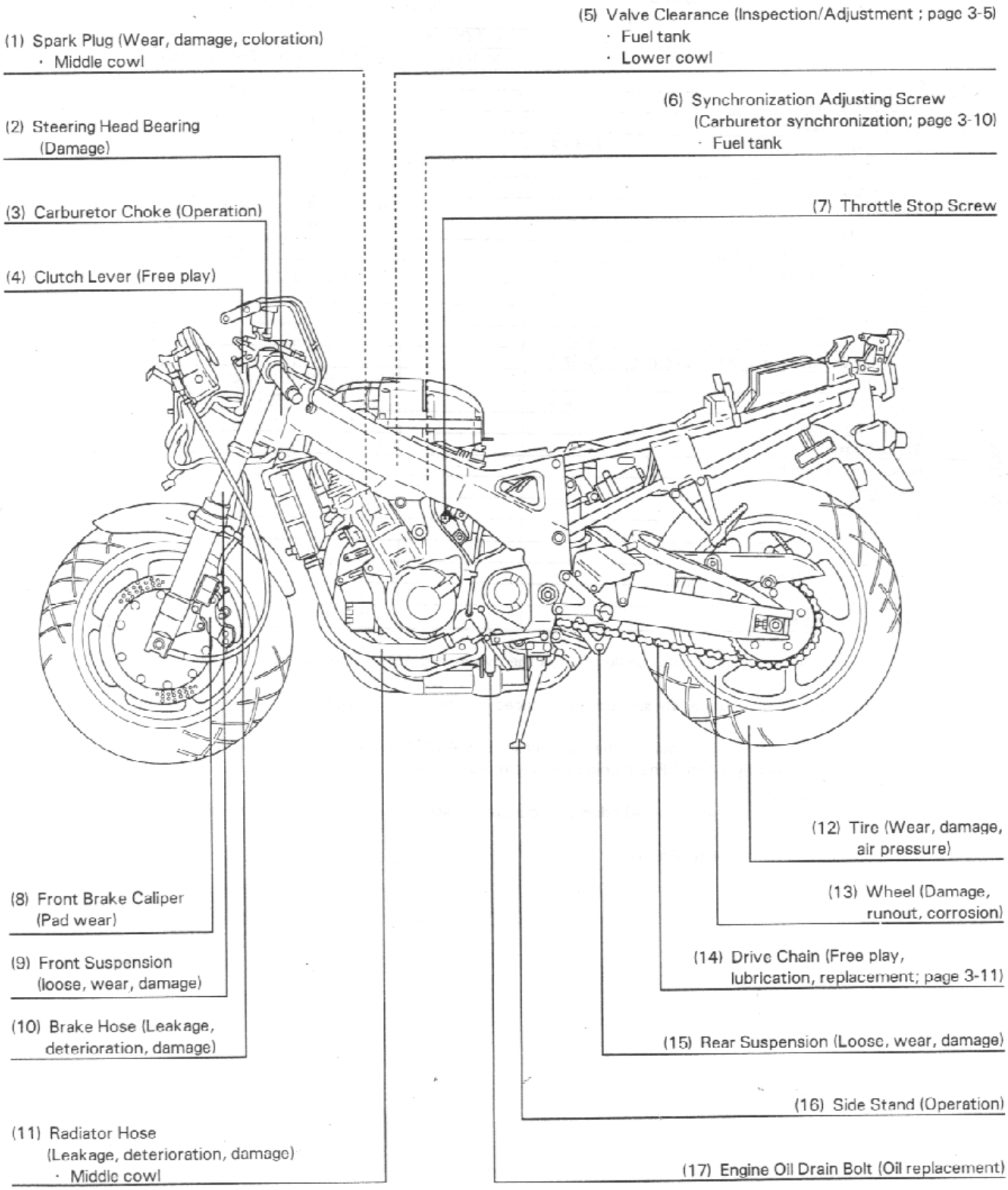
(12) Wheel
(Damage, runout, corrosion)

(13) Tire
(Wear, damage, air pressure)

(14) Radiator Filler Cap
(Coolant replacement)
· Right middle cowl

(15) Oil Filter (Replacement)
· Lower cowl

(16) Pulse Secondary Air Injection System
(California type only ; Air leaks, deterioration, damage)
· Middle cowl


(1) Spark Plug (Wear, damage, coloration)
· Middle cowl
(2) Steering Head Bearing (Damage)
(3) Carburetor Choke (Operation)
(4) Clutch Lever (Free play)
(5) Valve Clearance (Inspection/Adjustment ; page 3-5)
· Fuel tank
· Lower cowl
(6) Synchronization Adjusting Screw (Carburetor synchronization; page 3-10)
· Fuel tank
(7) Throttle Stop Screw
(8) Front Brake Caliper (Pad wear)
(9) Front Suspension (loose, wear, damage)
(10) Brake Hose (Leakage, deterioration, damage)
(11) Radiator Hose (Leakage, deterioration, damage)
· Middle cowl
(12) Tire (Wear, damage, air pressure)
(13) Wheel (Damage, runout, corrosion)
(14) Drive Chain (Free play, lubrication, replacement; page 3-11)
(15) Rear Suspension (Loose, wear, damage)
(16) Side Stand (Operation)
(17) Engine Oil Drain Bolt (Oil replacement)

Maintenance Schedule

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.
I: Inspect and Clean, Adjust, Lubricate, or Replace if necessary.
R: Replace, C: Clean, L: Lubricate, A: Adjust
The following items require some mechanical knowledge. Certain items (particularly those marked * and * *) may require more technical information and tools. Consult your authorized Honda dealer.

		Items \ Frequency	NOTE	Odometer Reading (Note 1)							Refer to page
				× 1,000 mi	0.6	4	8	12	16	20	24	
				× 100 km	10	64	128	192	256	320	384	
EMISSION RELATED ITEMS	*	Fuel Line					I		I		I	Note 5
	*	Throttle Operation					I		I		I	Note 5
	*	Carburetor Choke					I		I		I	Note 5
	*	Air Cleaner	Note 2					R			R	3-5
		Spark Plug				I	R	I	R	I	R	Note 5
	*	Valve Clearance							I			3-5
		Engine Oil			R		R		R		R	Note 5
		Engine Oil Filter			R		R		R		R	Note 5
	*	Carburetor Synchronization					I		I		I	3-10
	*	Carburetor Idle Speed			I	I	I	I	I	I	I	Note 5
		Radiator Coolant	Note 4				I		I		R	6-3, Note 5
	*	Cooling System					I		I		I	Note 5
	*	Secondary Air Supply System	Note 3				I		I		I	Note 5
	*	Evaporative Emission Control System	Note 3					I			I	Note 5
NON-EMISSION RELATED ITEMS		Drive Chain			Every 600 mi (1,000 km) I, L							3-11, Note 5
		Brake Fluid	Note 4			I	I	R	I	I	R	Note 5
		Brake Pad Wear				I	I	I	I	I	I	Note 5
		Brake System			I		I		I		I	Note 5
	*	Brake Light Switch					I		I		I	Note 5
	*	Headlight Aim					I		I		I	Note 5
		Clutch System			I	I	I	I	I	I	I	Note 5
		Side Stand					I		I		I	Note 5
	*	Suspension					I		I		I	Note 5
	*	Nuts, Bolts, Fasteners			I		I		I		I	1-14
	* *	Wheels/Tires					I		I		I	Note 5
	* *	Steering Head Bearings			I		I		I		I	Note 5

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.
* * In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

Notes:
1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. California model only.
4. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.
5. Refer to the Common Service Manual.

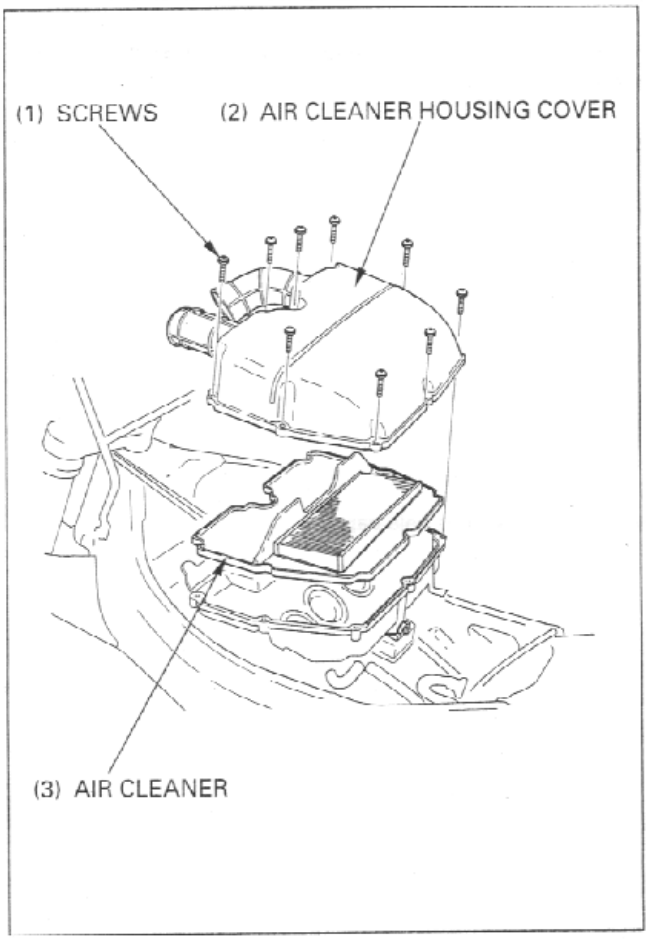
Air Cleaner

Remove the fuel tank (page 2-12).

Remove the nine screws and air cleaner housing cover.

Remove and discard the air cleaner in accordance with the maintenance schedule.
Also, replace the air cleaner any time it is excessively dirty or damaged.

Install the removed parts in the reverse order of removal.



Valve Clearance

Inspection

NOTE:

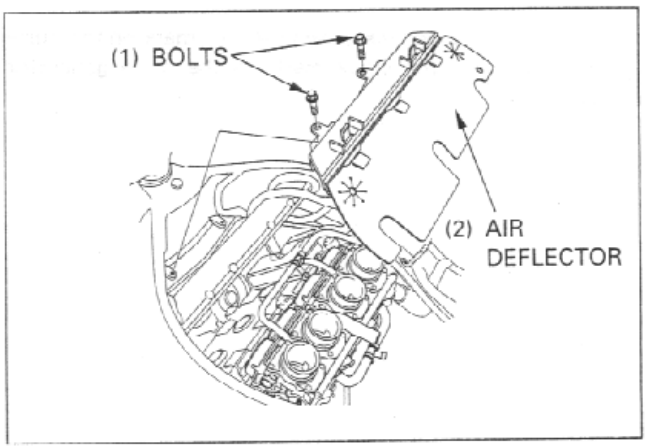
- Adjust the valve clearance while the engine is cold (Below 95°F/35°C).

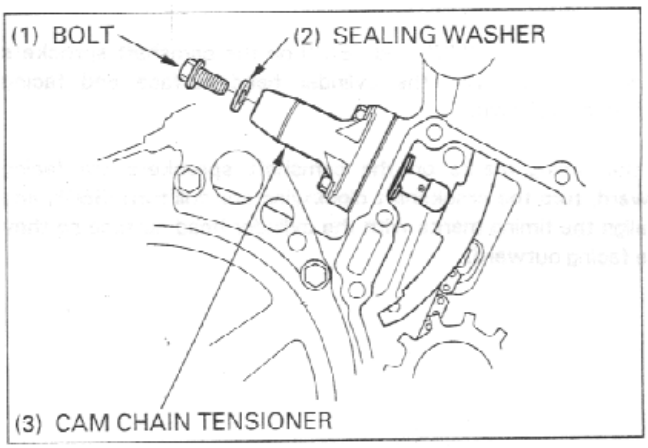
Remove the following :
– Air cleaner housing (page 5-3)
– Ignition coil (page 16-10)
– Lower cowl (page 2-5)

Remove the bolts and air deflector.

Remove the right middle cowl (page 2-5).

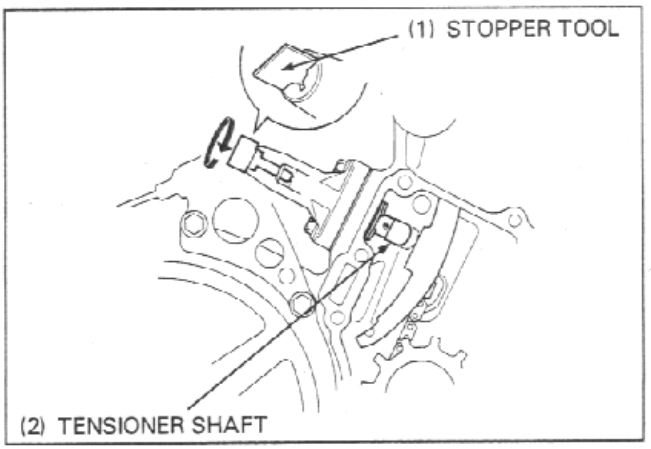
Remove the cam chain tensioner bolt and sealing washer.



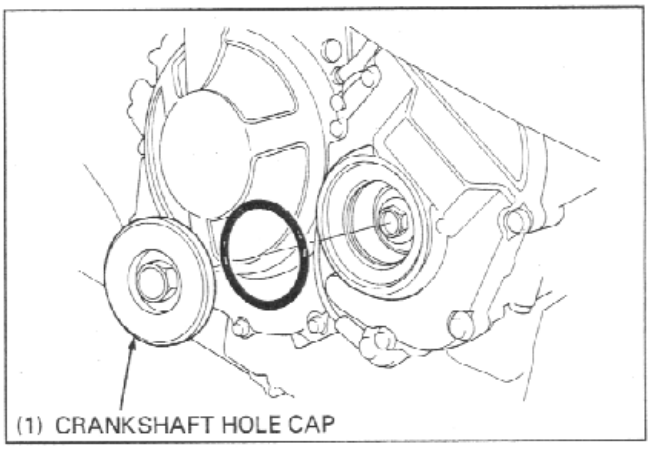


Turn the tensioner shaft fully in (clockwise) and secure it using the stopper tool (page 8-4).

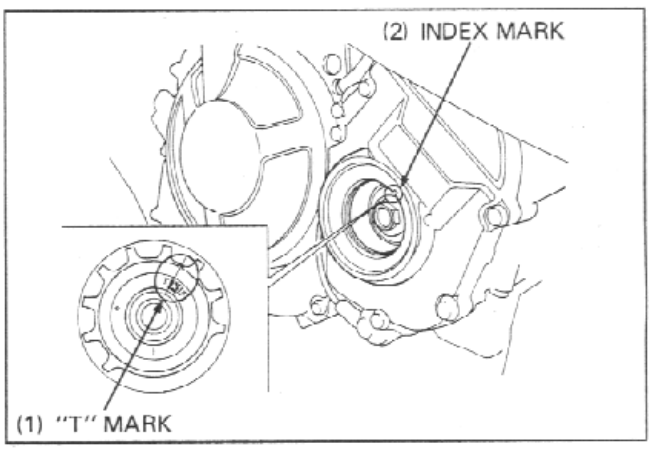
Remove the cylinder head cover (page 8-2).



Remove the crankshaft hole cap.

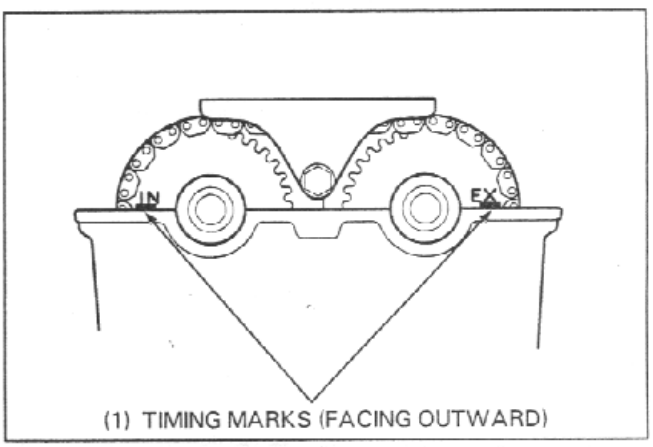


Turn the crankshaft clockwise, align the "T" mark on the pulse generator rotor with the index mark on the pulse generator rotor cover.



The timing marks ("IN" and "EX") on the camshaft sprockets must be flush with the cylinder head surface and facing outward as shown.

If the timing marks on the camshaft sprockets are facing inward, turn the crankshaft clockwise one full turn (360°) and realign the timing marks with the cylinder head surface so they are facing outward.

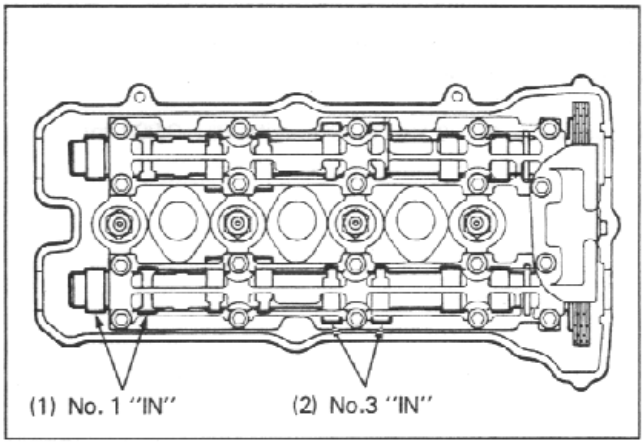


Insert a feeler gauge between the valve lifter and the cam lobe. Check the valve clearance for the No.1 and No.3 cylinder intake valves using the feeler gauge.

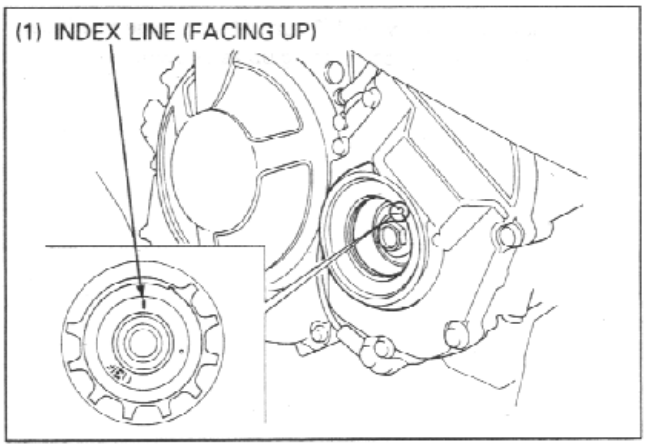
Valve Clearance : IN : 0.13—0.19 mm (0.005—0.007 in)

NOTE:

- Record the clearance for each valve for reference in shim selection if adjustment is required.



Turn the crankshaft clockwise 1/2 turn (180°), align the index line on the pulse generator rotor so that it is facing up as shown.

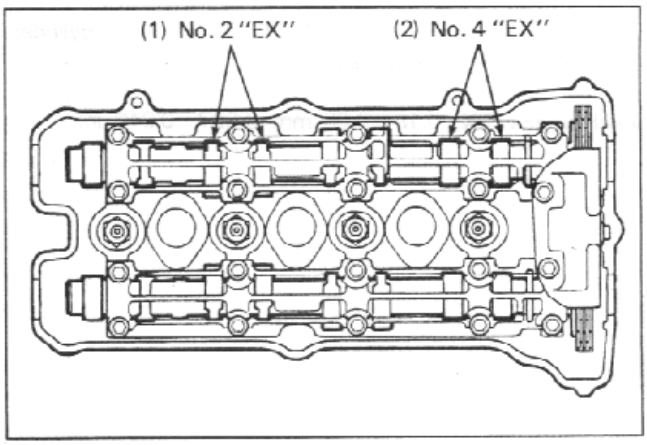


Check the valve clearance for the No.2 and No.4 cylinder exhaust valves using a feeler gauge.

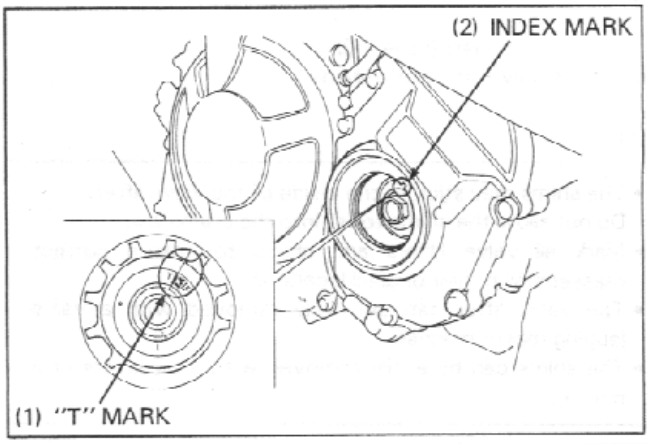
Valve Clearance : EX : 0.19—0.25 mm (0.007—0.010 in)

NOTE:

- Record the clearance for each valve for reference in shim selection if adjustment is required.

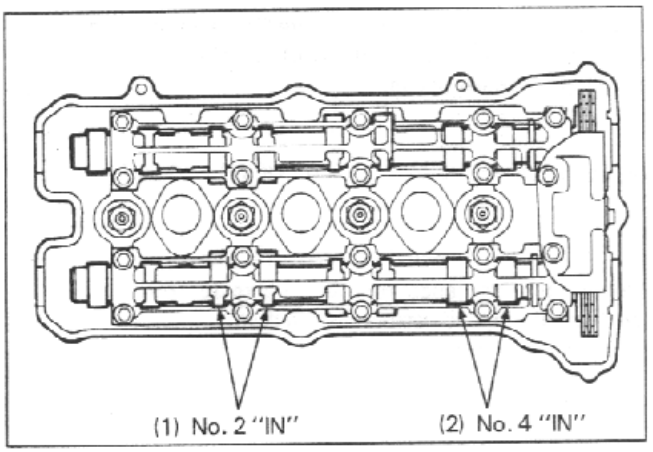


Turn the crankshaft clockwise 1/2 turn (180°), align the "T" mark on the pulse generator rotor with the index mark on the pulse generator rotor cover.

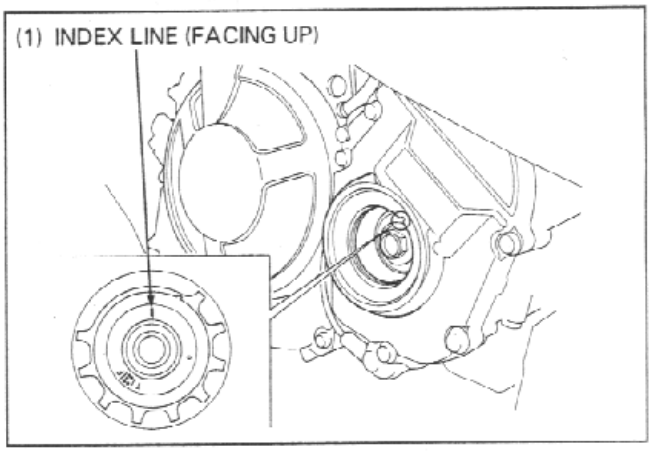


Check the valve clearance for the No.2 and No.4 cylinder intake valves using a feeler gauge.

Valve clearance : IN : 0.13—0.19 mm (0.005—0.007 in)

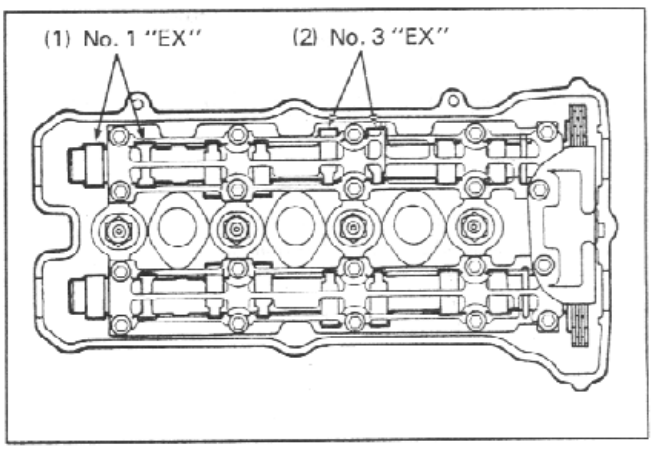


Turn the crankshaft clockwise 1/2 turn (180°), align the index line on the pulse generator rotor facing up as shown.



Check the valve clearance for the No.1 and No.3 cylinder exhaust valves using a feeler gauge.

Valve clearance : EX : 0.19—0.25 mm (0.007—0.010 in)

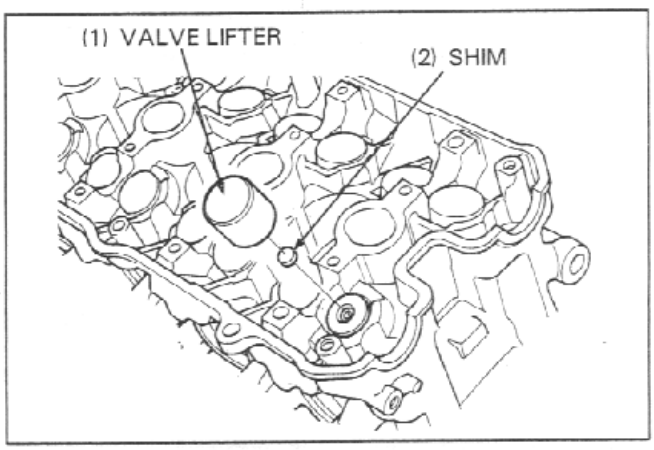


Adjustment

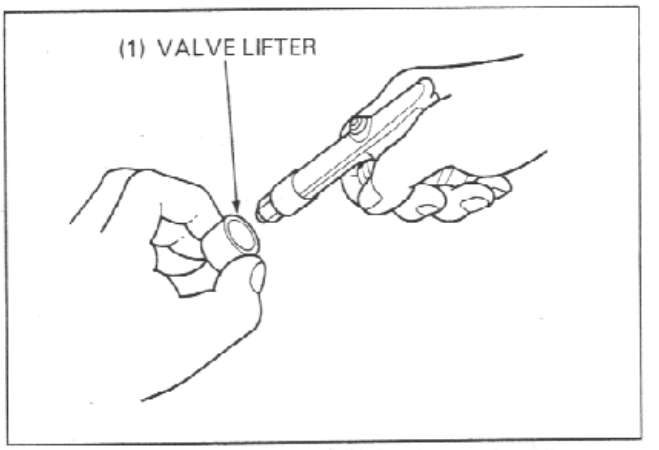
Remove the camshaft (page 8-2).
Remove the valve lifters and shims.

NOTE:

- The shims may stick to the inside of the valve lifter. Do not allow the shims to fall into the crankcase.
- Mark all valve lifters and shims to ensure correct reassembly in their original locations.
- The valve lifter can be easily removed with a valve lapping tool or magnet.
- The shims can be easily removed with a tweezers or a magnet.



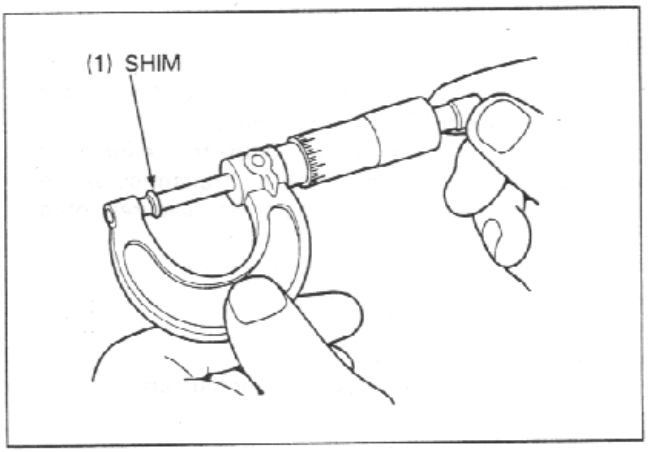
Clean the valve shim contact area in the valve lifter with compressed air.



Measure the shim thickness and record it.

NOTE:

- Sixty-five different thickness shims are available from the thinnest 1.200 mm thickness shim to the thickest 2.800 mm thickness shim in intervals of 0.025 mm.



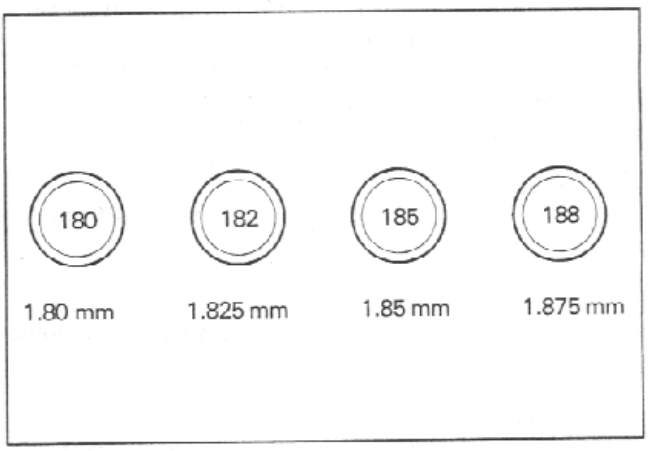
Calculate the new shim thickness using the equation below.

A = (B − C) + D

A: new shim thickness
B: recorded valve clearance
C: specified valve clearance
D: old shim thickness

NOTE:

- Make sure of the correct shim thickness by measuring the shim by micrometer.
- Reface the valve seat if carbon deposit result in a calculated dimension of over 2.800 mm.



Install the newly selected shim on the valve retainer.
Apply molybdenum disulfide oil to the valve lifters.
Install the valve lifter into the valve lifter holes.

NOTE:

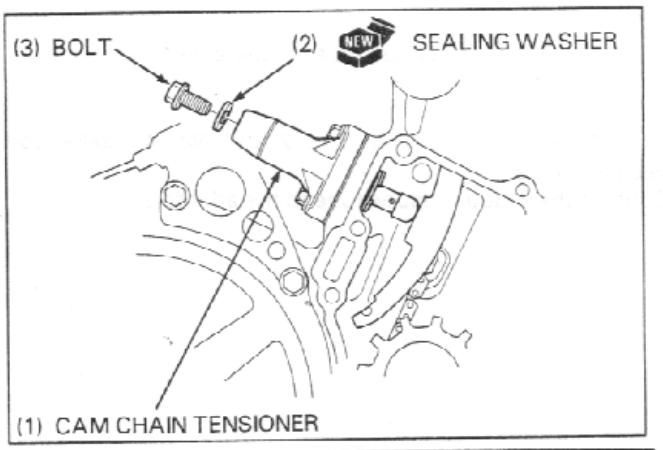
- Install the shims and valve lifters in their original locations.

Install the camshaft (page 8-2).

Rotate the camshafts by rotating the crankshaft clockwise several times.
Recheck the valve clearance.

Remove the stopper tool.
Install the new sealing washer and cam chain tensioner sealing bolt.
Tighten the bolt securely.

Install the removed parts in the reverse order of removal.

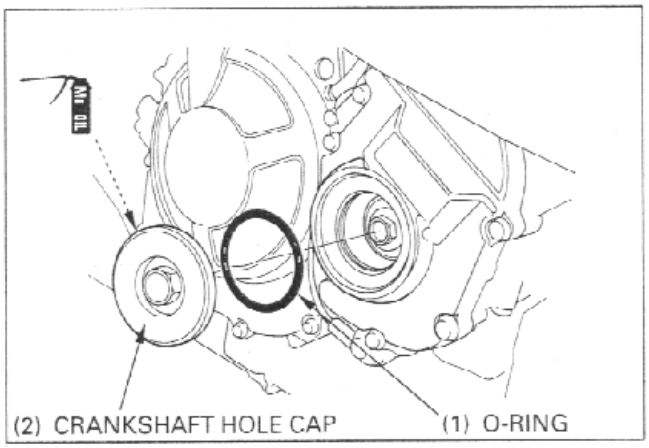


Make sure that the crankshaft hole cap O-ring is in good condition, replace if necessary.

Apply molybdenum disulfide oil to the cap threads.

Install and tighten the crankshaft hole cap.

Torque : 18 N·m (1.8 kg-m , 13 lb-ft)



Carburetor Synchronization

NOTE:

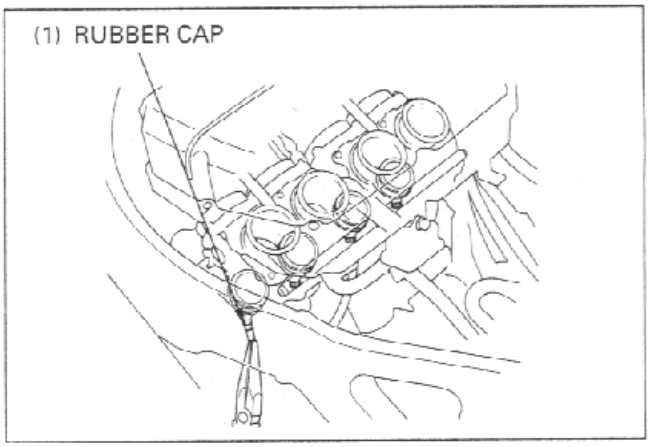
- Refer to section 2 of the Common Service Manual for carburetor synchronization procedure.
- Synchronize the carburetors with the engine at normal operating temperature, transmission in neutral and the motorcycle supported securely on a level surface.

Remove the fuel tank (page 2-12).

49 States type :
Remove the No.1 cylinder intake port rubber cap.

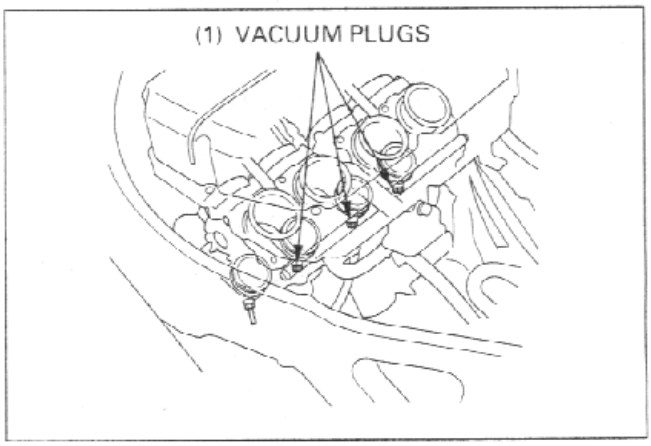
CAUTION:

- **Remove the No. 1 cylinder intake port rubber cap by pinching the end of the cap. Do not pinch the cap body or it will be damaged.**



California type :
Disconnect the No. 1 and No. 3 intake port tubes.

49 States type :
Remove the No. 2, No. 3 and No. 4 vacuum plugs from the engine intake ports.

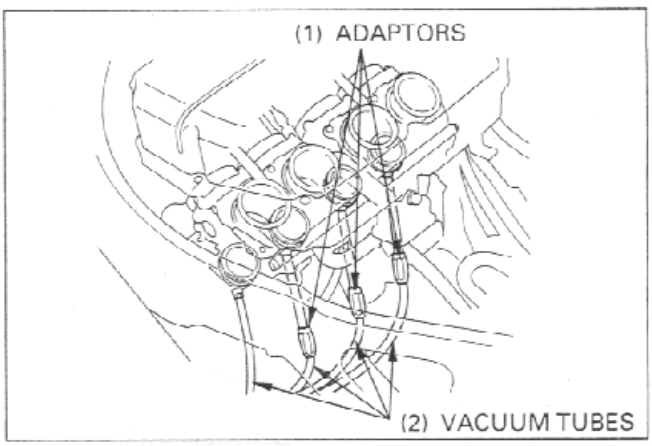


California type :
Remove the No. 2 and No. 4 vaccum plugs from the engine intake ports.

49 States type :
Screw the adaptors in the No. 2, No. 3 and No. 4 intake port vacuum holes.

Connect the vacuum gauge tubes to the adaptors.

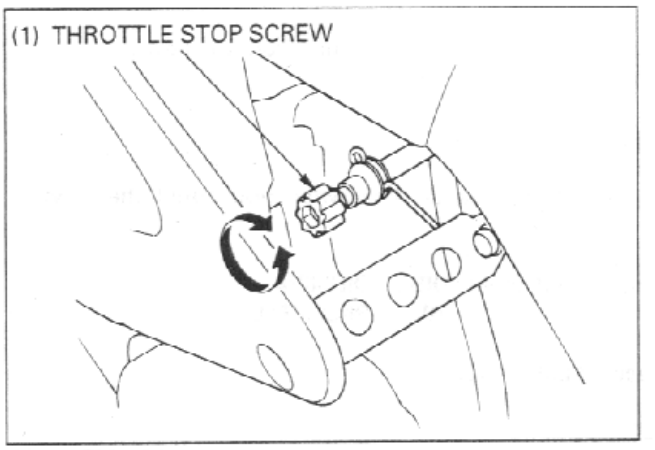
California type :
Screw the adaptors in the No. 2 and No. 4 intake port vacuum holes.
Connect the vacuum gauge tube to the adaptors.



49 states and California type :
Start the engine.
Turn the throttle stop screw and adjust the idle speed.

Idle speed : 1,100 ± 100 rpm

Check the each carburetor intake vacuum pressure is within 20 mm (0.8 in) Hg of the base carburetor.

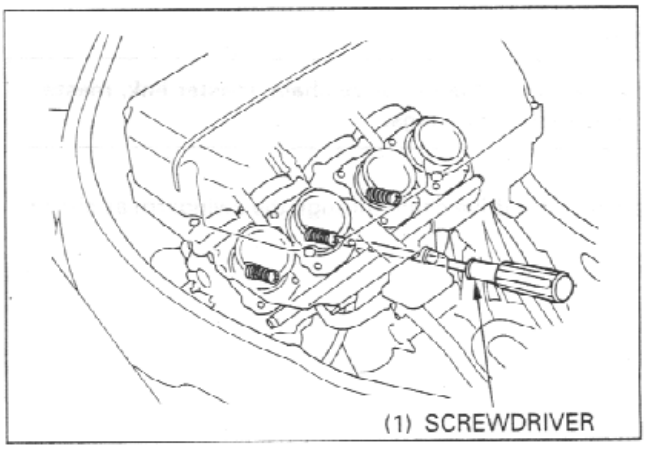


NOTE:

- The No. 3 carburetor cannot be adjusted; it is the base carburetor.
- The No. 3 cylinder intake vacuum pressure is the base vacuum pressure.

Synchronize to specification by turning the adjusting screw with the phillips screwdriver as shown.

Recheck the idle speed and each cylinder intake vacuum pressure so it is within 20 mm (0.8 in) Hg of the base carburetor reading after snapping the throttle grip 3 – 4 times.



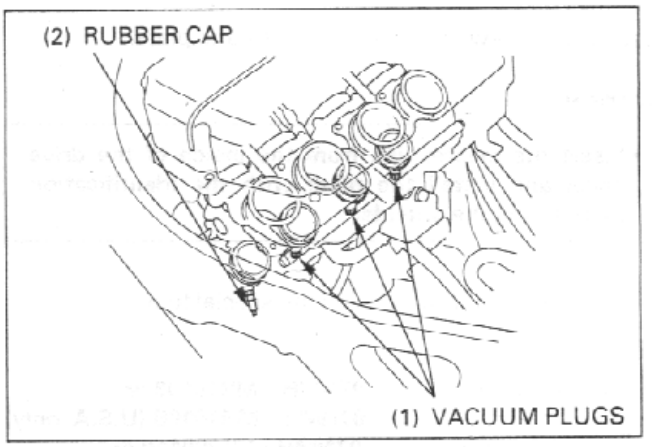
Remove the vacuum gauge tubes.

49 states type :
Install the vacumm plugs and rubber cap.

California type :
Install the vaccum plugs and intake port tubes.

NOTE:

- Route the intake port tubes properly (page 1-21).



Drive Chain

Replacement

The CBR900RR uses a drive chain with a staked master link.

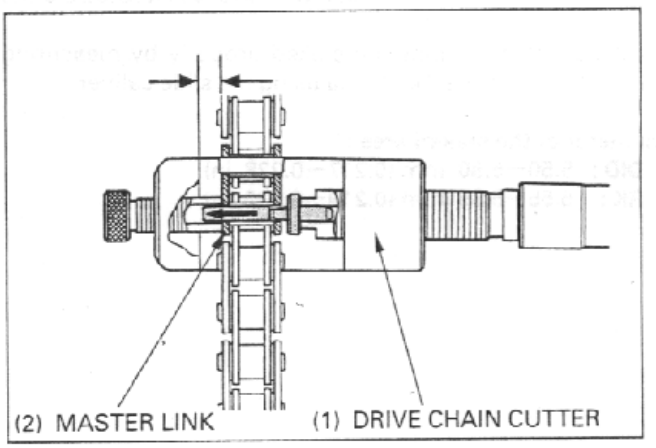
Loosen the drive chain.
Locate the crimped pin ends of the master link from the outside of the chain and remove the link with the chain cutter.

S. TOOL

Drive chain cutter **07HMH – MR10103 or 07HMH – MR1010B (U.S.A. only)**

NOTE:

- When using the special tool, follow the manufacturer's operating instructions.



Remove exceeded drive chain link from the new drive chain using the drive chain cutter.

NOTE:

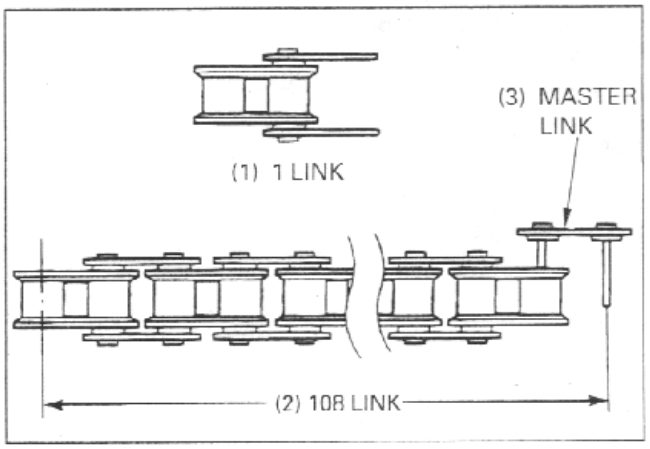
- Include the master link when you count the drive chain links.

Replacement chain : DID : DID50V4
RK : RK50MFOZ1

Specified links : 108 links

S.TOOL

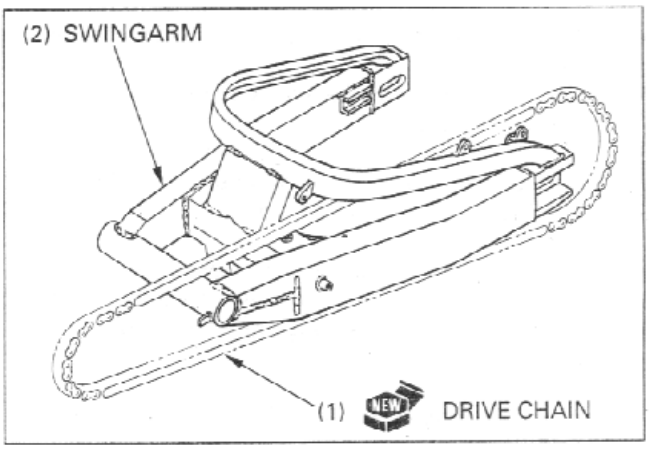
Drive chain Cutter **07HMH-MR10103**



CAUTION:

- **Never reuse the old drive chain, master link, master link plate and O-rings.**

Install the new drive chain through the swingarm as shown.



Assemble the new master link, O-rings and plate.

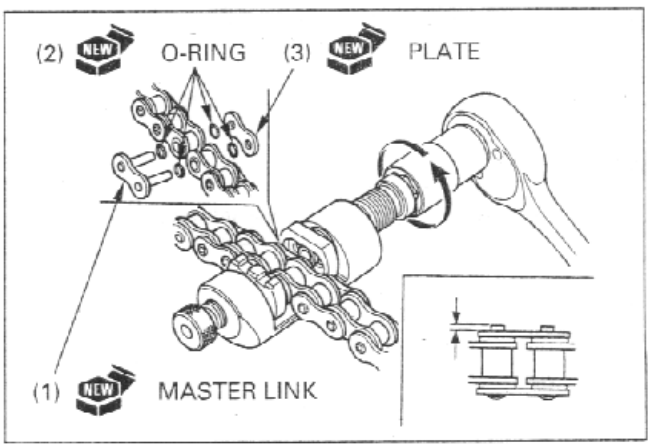
CAUTION:

- **Insert the master link from the inside of the drive chain and install the plate with the identification mark facing the outside.**

Stake the master link pins using the special tool.

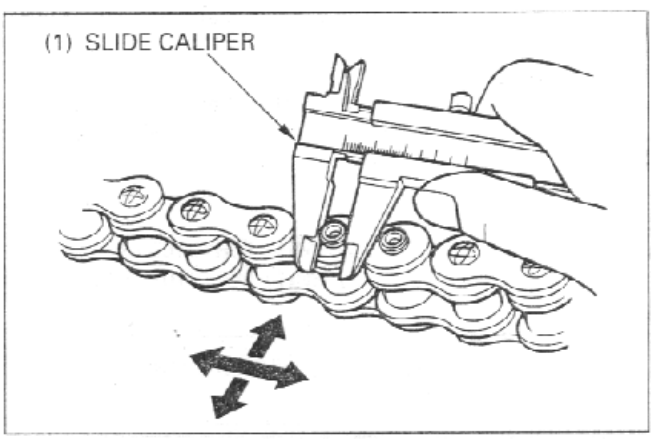
S.TOOL

Drive chain cutter **07HMH-MR10103 or**
07HMH-MR1010B (U.S.A. only)
-Link plate holder **07NMH-MW00110 or**
07PMA-MZ2011A (U.S.A. only)



Make sure that the pins are staked properly by measuring the diameter of the staked area using the slide caliper.

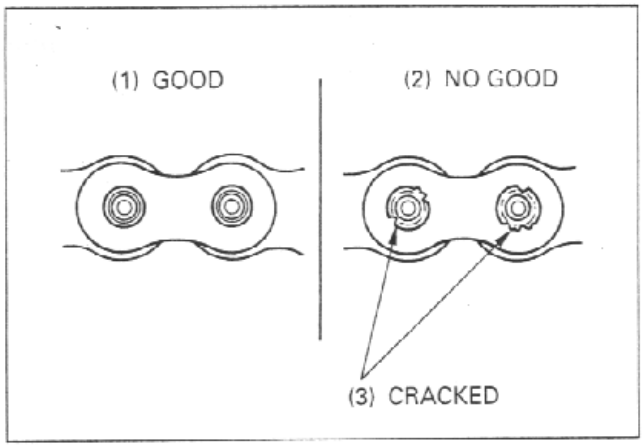
Diameter of the staked area :
DID : 5.50—5.80 mm (0.217—0.228 in)
RK : 5.55—5.85 mm (0.219—0.230 in)



After staking, check the staked area of the master link for cracks.
If there are cranks, replace the master link, O-rings and plate.

CAUTION:

- **Drive chains with clip-type master links must not be used.**



MEMO

4. Lubrication System

Service Information

⚠WARNING

- **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. 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.**
- **Used engine oil 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.**

- The oil pump can be serviced with the engine installed in the frame.
- For oil pressure check, refer to section 4 of the Common Service Manual ; for the switch location, see page 18-2 of this manual.
- The service procedures in this section must be performed with the engine oil drained.
- When removing and installing the oil pump use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

Troubleshooting

Oil Level Low
- Oil consumption
- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal

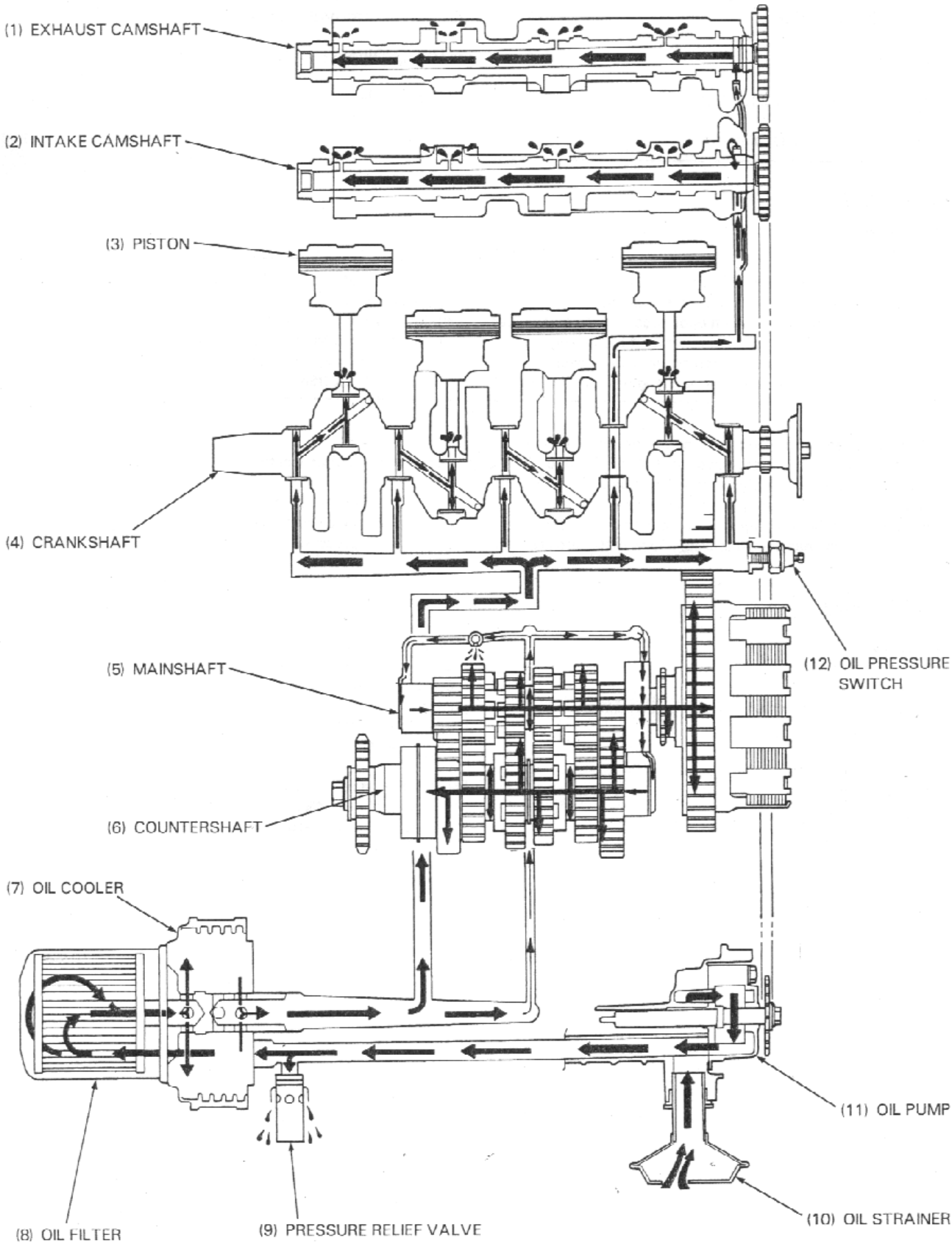
Low Or No Oil Pressure
- Clogged oil orifice
- Incorrect oil being used

No Oil Pressure
- Oil level too low
- Oil pump drive sprocket broken
- Oil pump damaged (pump shaft)
- Internal oil leaks

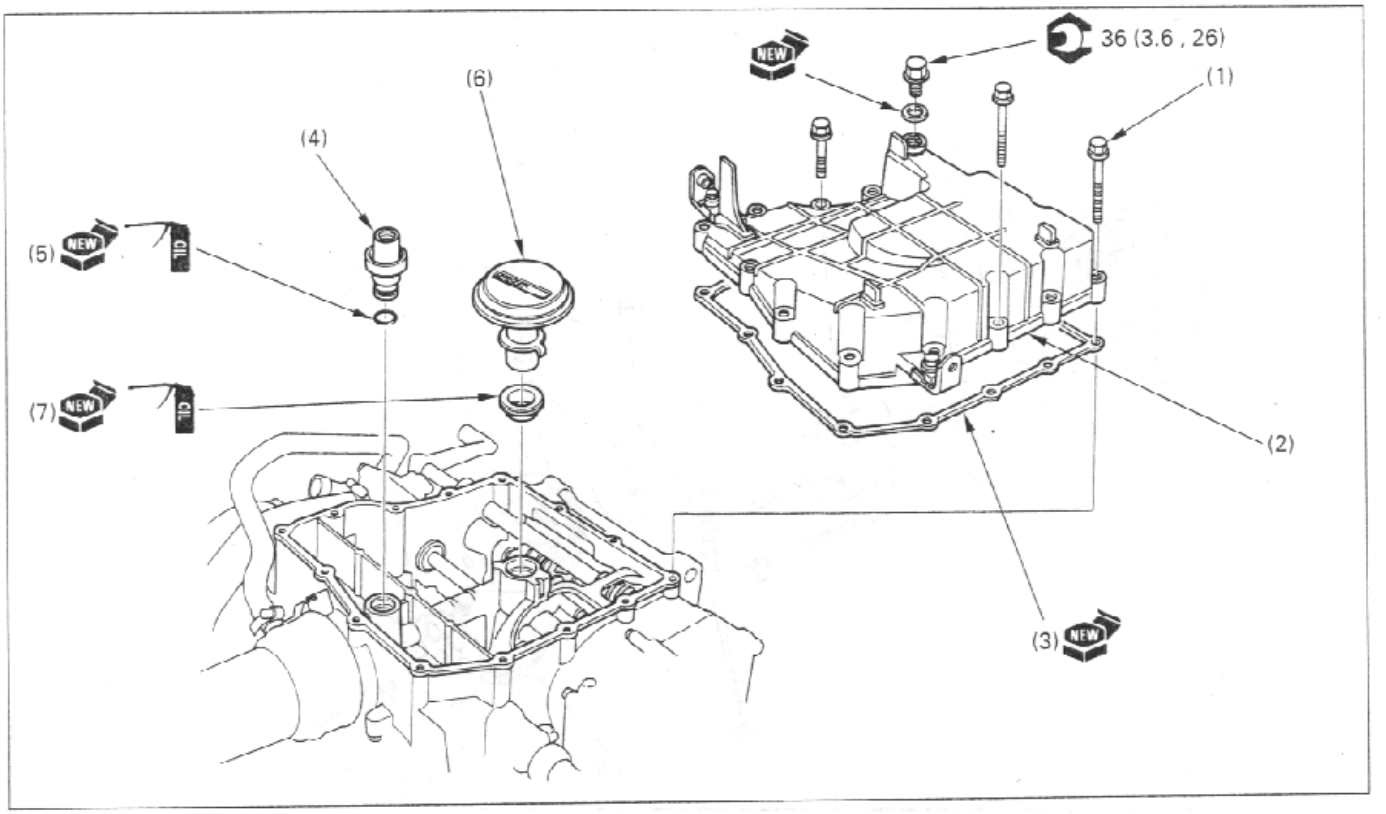
Low Oil Pressure
- Clogged oil strainer screen
- Oil pump worn or damaged
- Internal oil leak
- Incorrect oil being used
- Low oil level

High Oil Pressure
- Plugged oil filter, gallery, or metering orifice
- Incorrect oil being used

Lubrication System Diagram



Oil Pan Removal/Installation



NOTE:

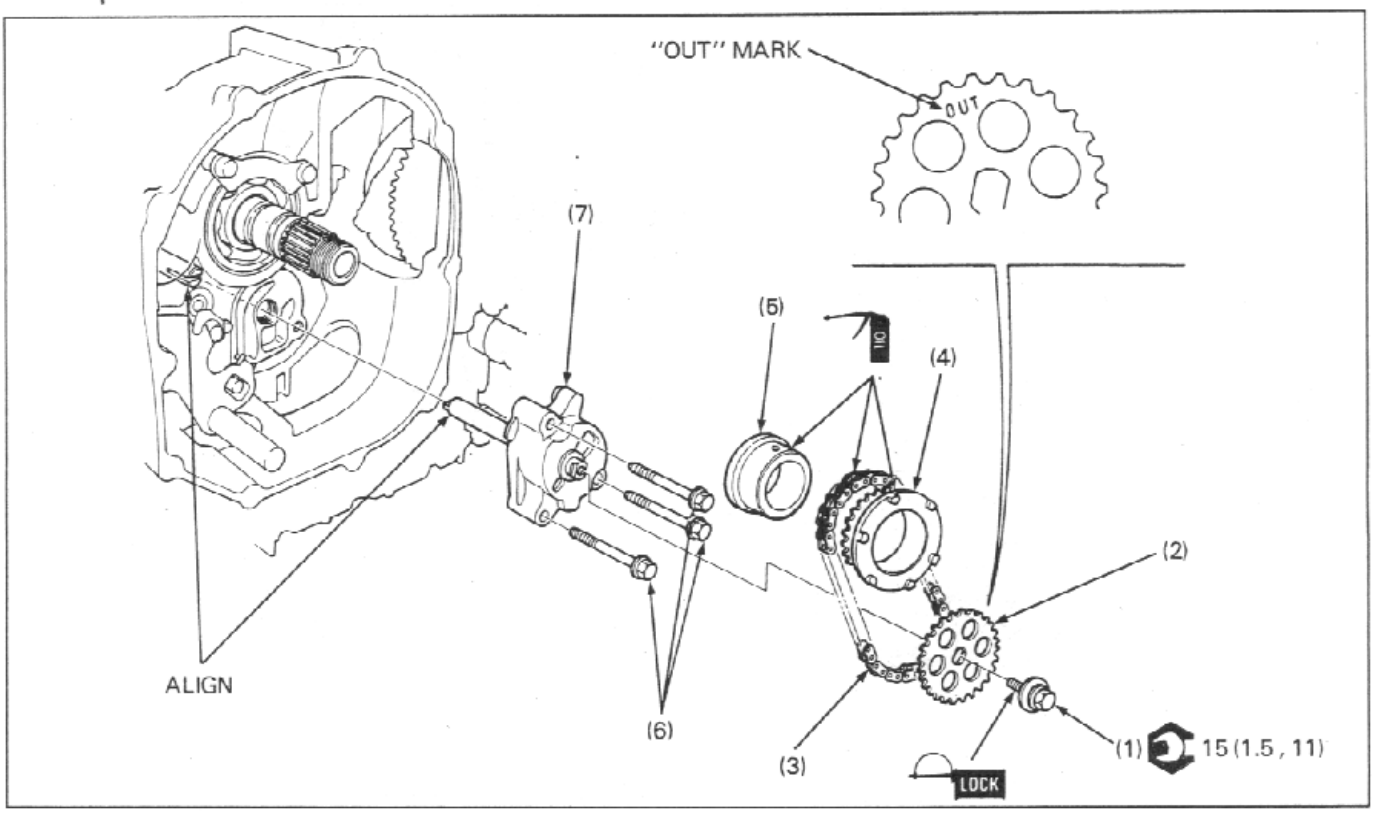
- Use care not to allow dust and dirt to enter the engine.
- After installation, check that there are no oil leaks.

Requisite Service

- Engine oil draining/refill
- Muffler removal/installation (page 2-19)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pan flange bolt	14	At installation, tighten the bolts in a crisscross pattern in 2 or 3 steps.
(2)	Oil pan	1	
(3)	Gasket	1	
(4)	Pressure relief valve	1	
(5)	O-ring	1	
(6)	Oil strainer	1	
(7)	Oil strainer gasket	1	At installation, install the new gasket onto the strainer with the flange side facing the strainer.

Oil Pump Removal/Installation



NOTE:

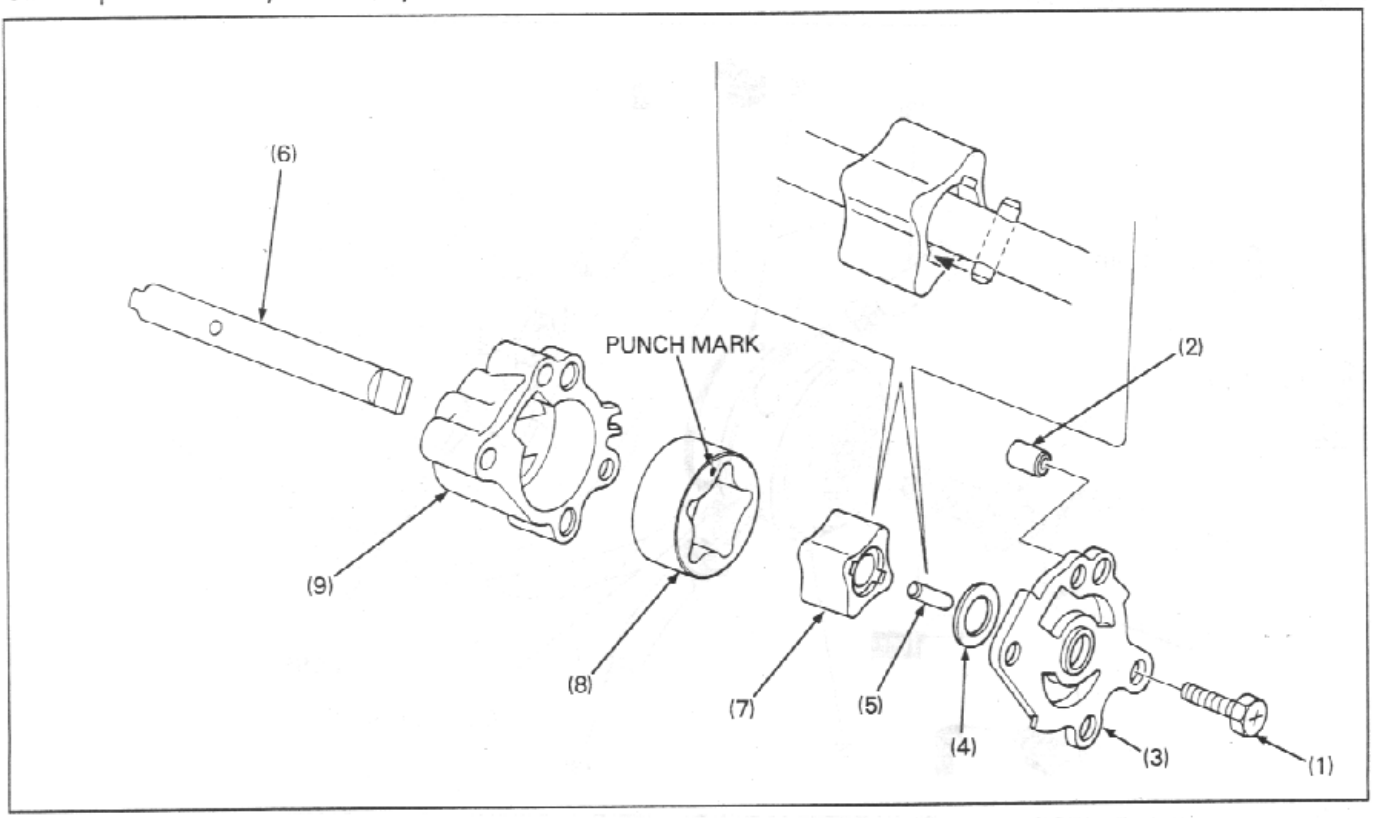
- Use care not to allow dust and dirt to enter the engine.
- After installation, check that there are no oil leaks and that oil pressure is correct.

Requisite Service

- Oil pan removal/installation (page 4-3)
- Clutch removal/installation (page 9-4, 12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pump driven sprocket bolt/washer	1	At installation, apply a locking agent to the threads.
(2)	Oil pump driven sprocket	1	At installation, install the driven sprocket with its "OUT" mark facing out.
(3)	Oil pump drive chain	1	
(4)	Oil pump sprocket	1	
(5)	Oil pump drive sprocket collar	1	
(6)	Flange bolt, 6 mm	3	
(7)	Oil pump assembly	1	At installation, align the oil pump shaft lug with the water pump shaft.

Oil Pump Disassembly/Assembly



NOTE:

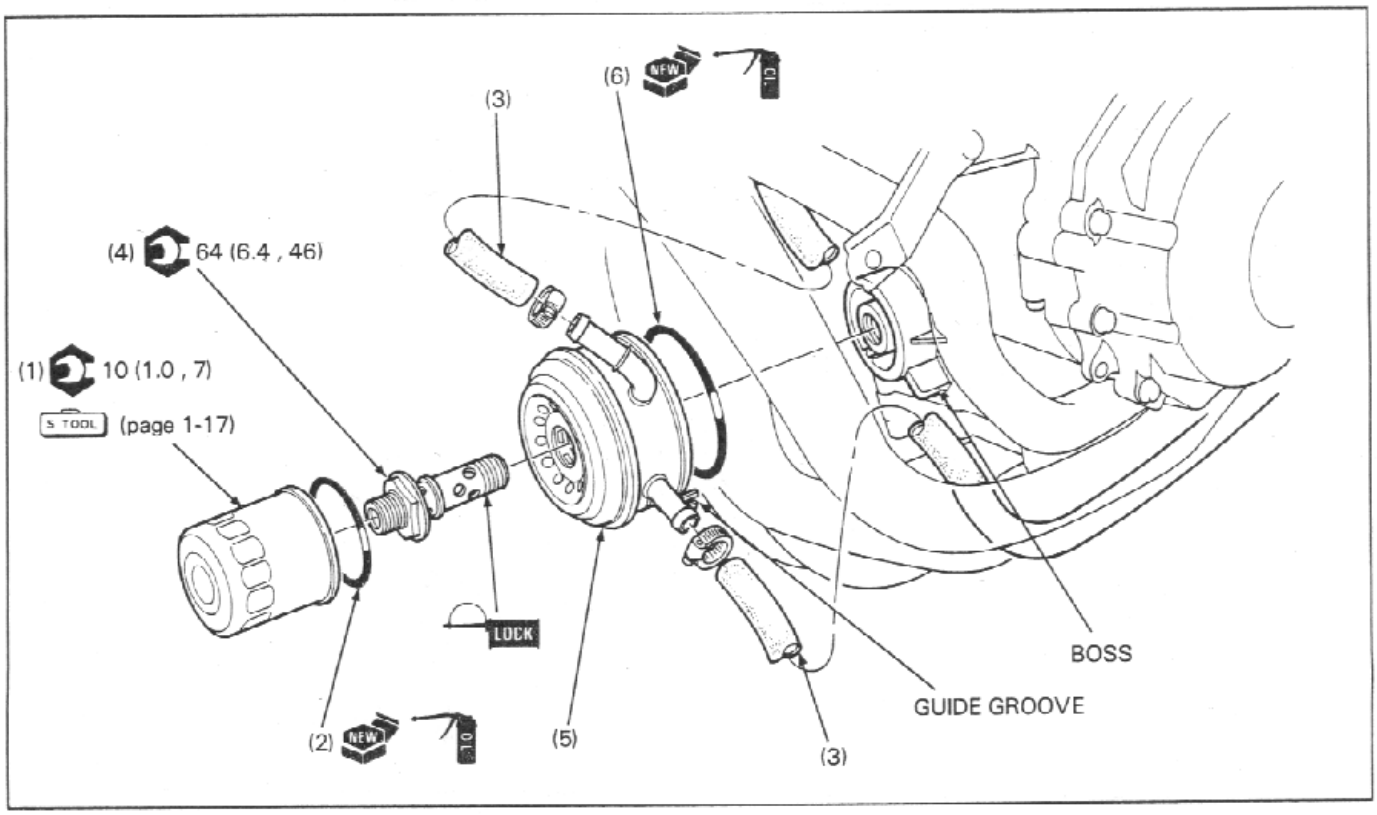
- If any portion of the oil pump is worn beyond the specified service limit, replace the oil pump as an assembly.
- Before assembling them, clean all disassembled parts thoroughly with clean engine oil.
- Refer to section 4 of the Common Service Manual for inspection information.
- Refer to page 1-6 for specification.

Requisite Service

- Oil pump removal/installation (page 4-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Oil pump cover bolt	1	
(2)	Dowel pin	1	
(3)	Oil pump cover	1	
(4)	Thrust washer	1	
(5)	Drive pin	1	At installation, install the drive pin into the hole in the pump shaft and align the pin with the groove in the inner rotor.
(6)	Oil pump shaft	1	
(7)	Inner rotor	1	
(8)	Outer rotor	1	At installation, install the punch mark on the outer rotor facing the oil pump cover.
(9)	Oil pump body	1	

Oil Cooler Removal/Installation



NOTE:

- Place the clean oil pan under the engine and catch the oil.

Requisite Service

- Middle/lower cowl removal/installation (page 2-5)
- Coolant draining (page 6-3)
- Engine oil draining/refill
- Coolant refill (Section 5 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil filter	1	NOTE: • At installation, tighten the oil filter to the specified torque using the special tool.
(2)	O-ring	1	At installation, apply clean engine oil to the new O-ring.
(3)	Coolant tube	2	
(4)	Oil cooler bolt	1	NOTE: • Clean and apply a locking agent to the threads. Do not use more locking agent than necessary.
(5)	Oil cooler	1	At installation, align the guide groove on the oil cooler with the crankcase boss.
(6)	O-ring, 62.4 x 3.1 mm	1	At installation, apply clean engine oil to the new O-ring.

5. Fuel System

Service Information

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.**

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

CAUTION:

- **Be sure to remove the diaphragms before cleaning air and fuel passages with compressed air. The diaphragms might be damaged.**

- Refer to section 2 for fuel tank removal and installation.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before disassembling the carburetor, place the suitable container under the carburetor drain tube loosen the bolt and drain the carburetor.
- After removing the carburetor, wrap the intake ports of the engine with a shop towel or cover it with piece of tape to prevent any foreign material from dropping into the engine.
- The vacuum chamber and float chamber can be serviced with the carburetors assembled.
- California Type Only :
  All hoses used in the evaporative emission control system are numbered for identification. When connecting one of these hoses, compare the hose number with the Vaccum Hose Routing Diagram Label, page 1-35.

NOTE:

- If the vehicle is to be stored for more than one month, drain the float bowls. Fuel left in the float bowls may cause clogged jets resulting in hard starting or poor driveability.

Troubleshooting

Engine Won't Start
- Too much fuel getting to the engine
  - Air cleaner clogged
  - —Flooded carburetors
- Intake air leak
- Fuel contaminated/deteriorated
- No fuel to carburetor
  - —Fuel strainer clogged
  - Fuel tube clogged
  - —Fuel valve stuck
  - —Fuel pump malfunction
  - —Float level misadjusted
  - —Fuel tank breather tube clogged
  - —Faulty fuel cut relay

Lean Mixture
- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Fuel pump malfunction
- Throttle valve faulty
- Vacuum piston faulty
- Evaporative emission carburetor air vent control valve (EVAP CAV control valve) faulty (California type only)

Rich Mixture
- Starting enrichment valve in ON position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

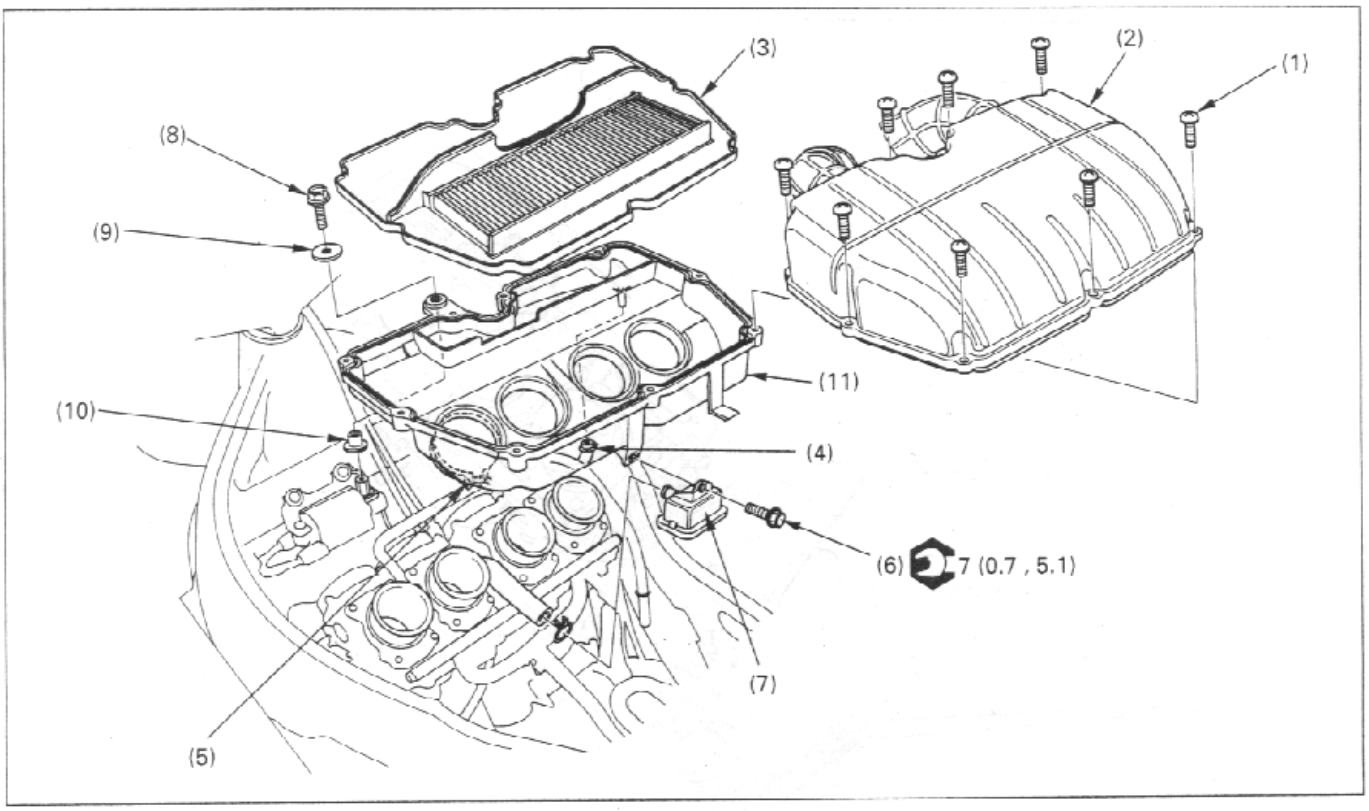
Engine Stalls, Hard To Start, Rough Idling
- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather tube clogged
- Fuel pump malfunction
- Pilot screw misadjusted
- Slow circuit or starting enrichment circuit clogged
- Emission control system is malfunction (California type only)

Afterburn When Engine Braking Is Used
- Lean mixture in slow circuit
- Air cut-off valve malfunction (California type only)
- Emission control system is malfunction (California type only)
  - — Pulse secondary air injection system faulty
  - —Loose, disconnected or deteriorated hoses of the emission control system

Backfiring Or Misfiring During Acceleration
- Ignition system malfunction
- Fuel mixture too lean

Poor Performance (Driveability) And Poor Fuel Economy
- Fuel system clogged
- Ignition system malfunction
- Emission control system is malfunction (California type only)
  - —Pulse secondary air injection system faulty
  - —Loose, disconnected or deteriorated hoses of the emission control system

Air Cleaner Housing Removal/Installation

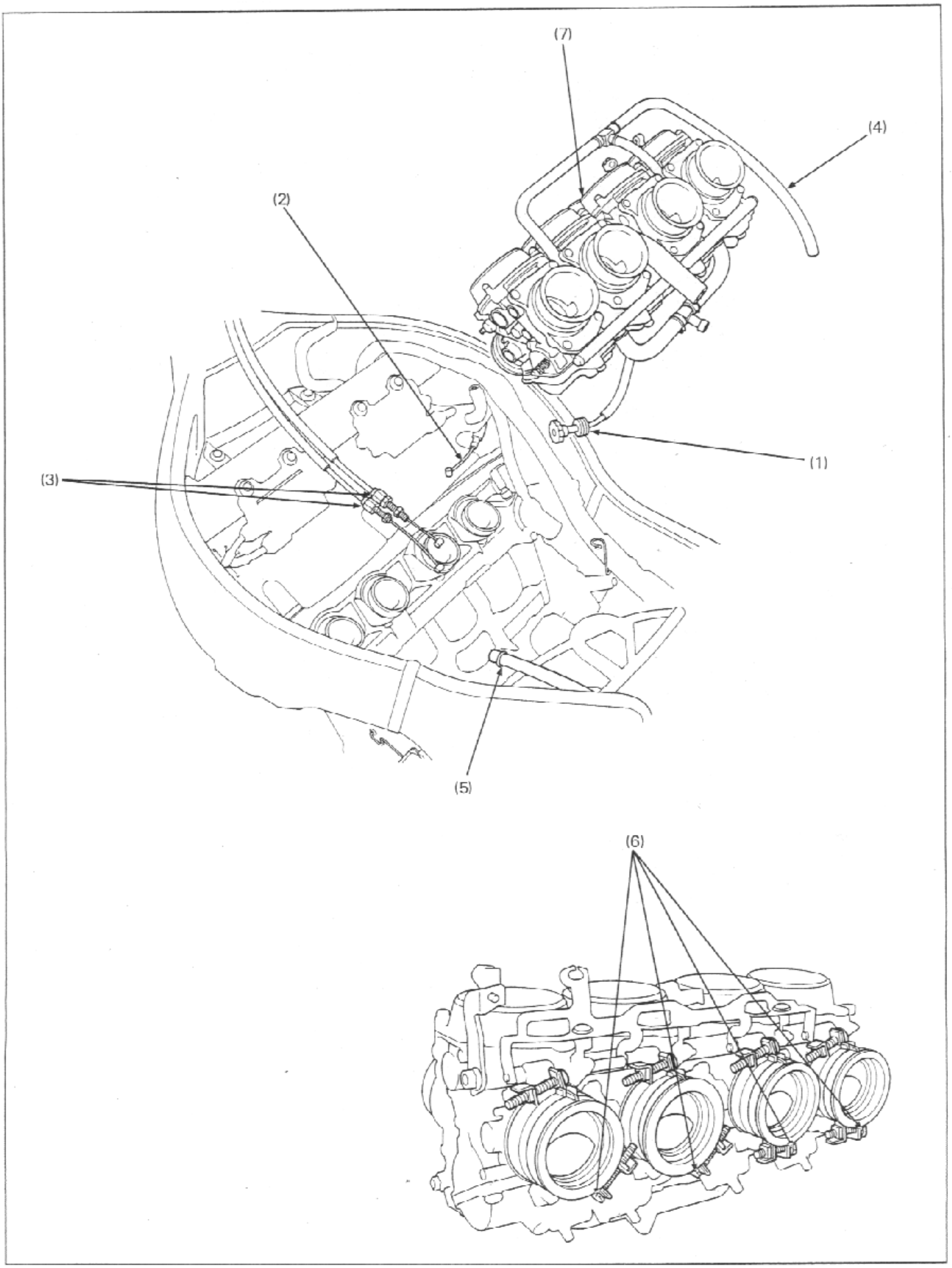


Requisite Service

- Fuel tank removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	9	
(2)	Air cleaner housing cover	1	
(3)	Air cleaner	1	
(4)	Crankcase breather tube	1	
(5)	Connecting tube band screw	4	Loosen only.
(6)	Sub-air cleaner housing bolt	1	
(7)	Sub-air cleaner housing	1	
(8)	Air cleaner housing mounting bolt	1	
(9)	Washer	1	
(10)	Collar	1	
(11)	Air cleaner housing	1	At installation, align the main wire harness with the guide on the air cleaner housing.

Carburetor Removal/Installation



⚠WARNING

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

· Work in a well ventilated area. Smoking or allowing flames or sparks in the work area where gasoline is stored can cause a fire or explosion.

NOTE:

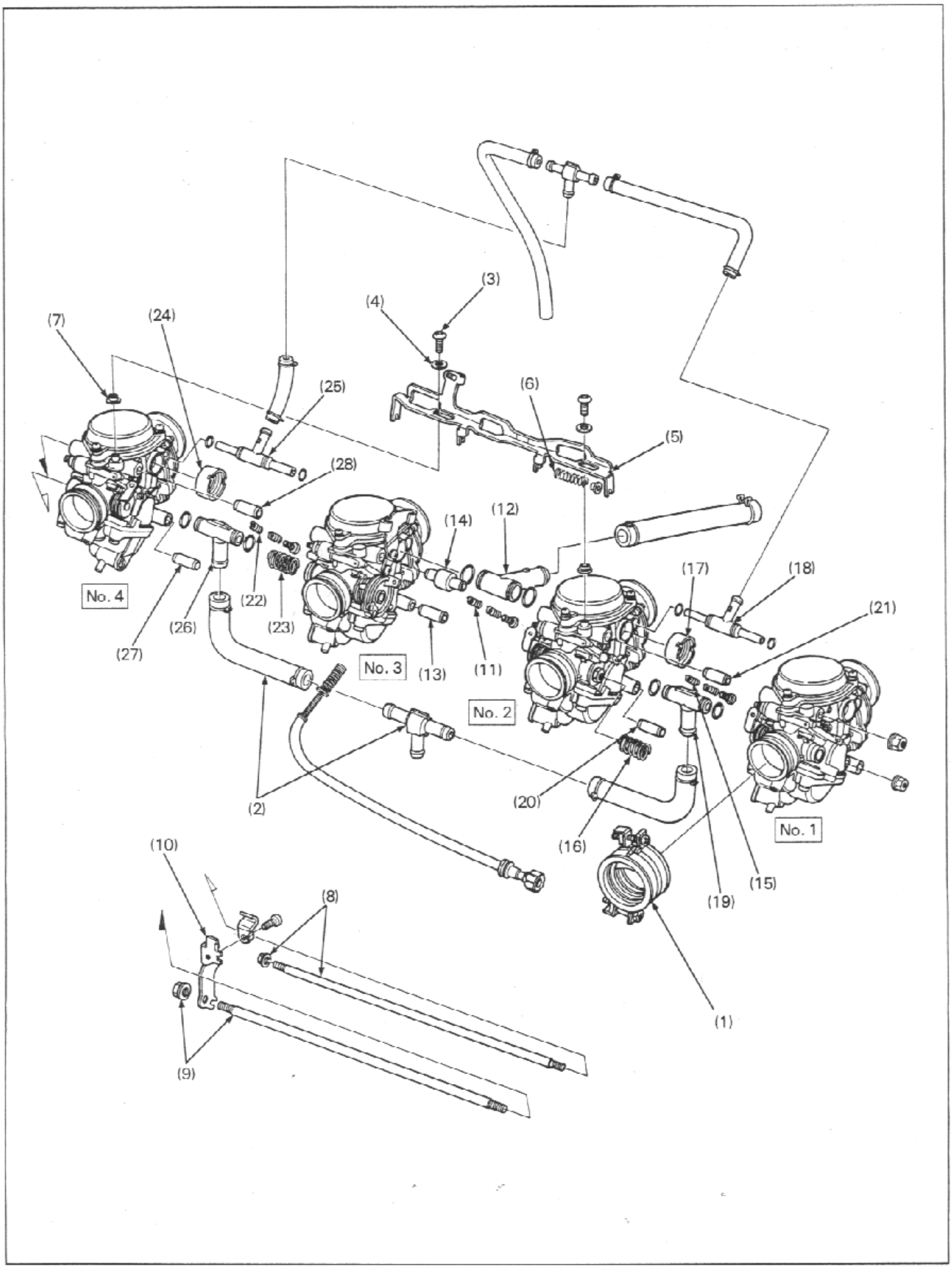
- Route the air vent and fuel tubes correctly (page 1-21).

Requisite Service

· Air cleaner housing removal/installation (page 5-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Throttle stop screw	1	
(2)	Choke cable	1	
(3)	Throttle cable	2	
(4)	Air vent tube	1	
(5)	Fuel tube	1	
(6)	Insulator band screw	4	· Loosen the engine side screws. · Screw tightening (page 1-16)
(7)	Carburetor assembly	1	NOTE: • Remove the carburetor assembly from the insulator. • After removing the carburetor assembly, do not place it up side down or the air intake might be deformed.

Carburetor Separation

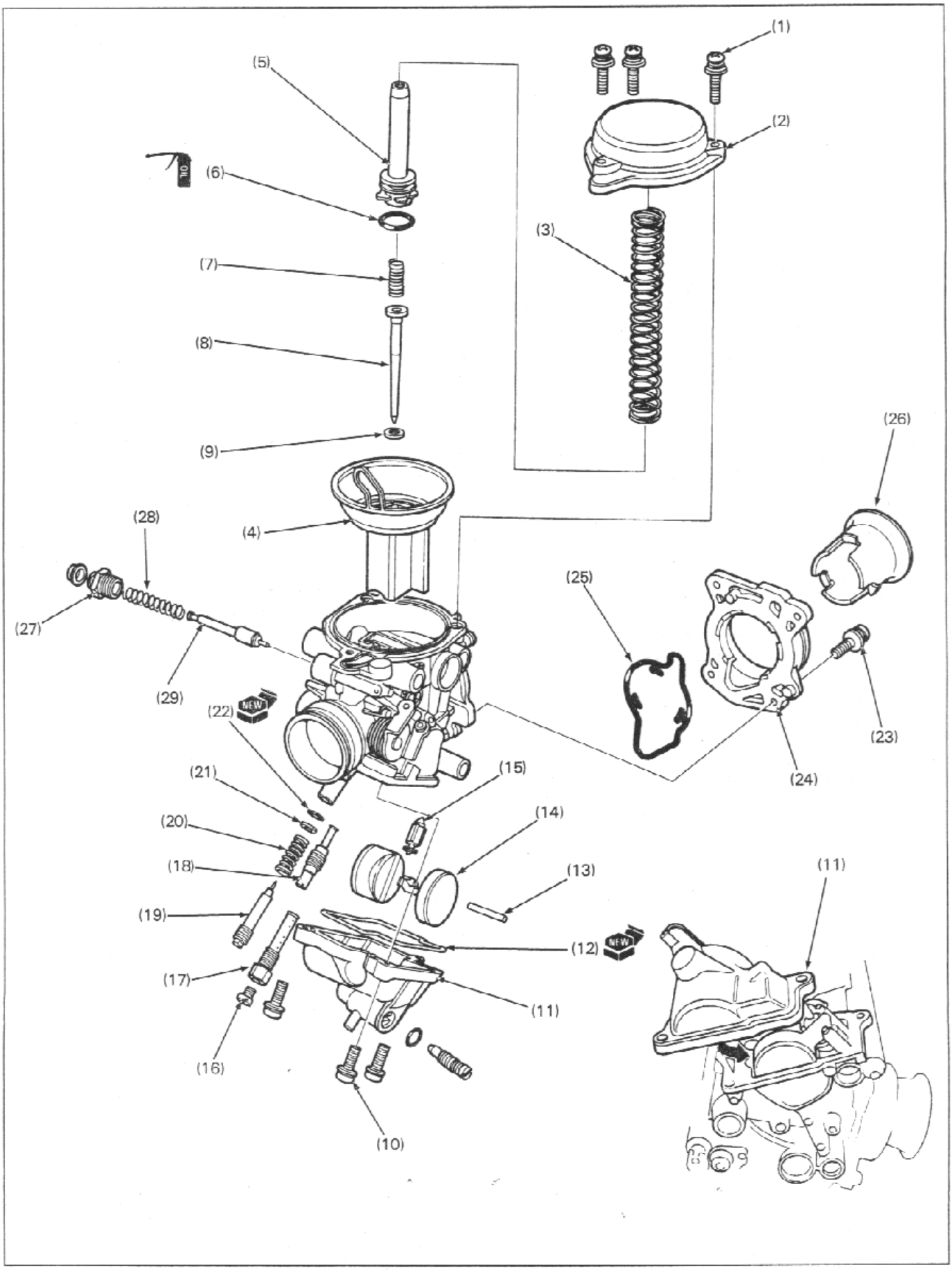


Requisite Service

- Carburetor removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Separate No.3/4 carb. from No.1/2 carb.		
(1)	Insulator	4	
(2)	Fuel tube/joint	2/1	
(3)	Starting enrichment valve arm screw	2	
(4)	Plastic washer	2	
(5)	Starting enrichment valve arm	1	
(6)	Thrust spring	1	
(7)	Plastic collar	2	
(8)	Carburetor connecting nut/bolt, 5 mm	2/1	NOTE:
(9)	Carburetor connecting nut/bolt, 6 mm	2/1	• Loosen the nuts gradually and alternately.
(10)	Starting enrichment valve cable holder	1	
(11)	No.2 carburetor synchronization spring	1	
(12)	Air joint pipe (3-way joint)/O-ring	1/2	
(13)	Dowel pin (5 mm bolt side)	1	
(14)	Collared dowel pin (6 mm bolt side)	1	
	Separate No.1 carb. from No.2 carb.		
(15)	No.1 carburetor synchronization spring	1	
(16)	Thrust spring	1	
(17)	Air joint rubber pipe	1	
(18)	Air vent joint pipe/O-ring	1/2	
(19)	Fuel joint pipe (3-way joint)/O-ring	1/2	
(20)	Dowel pin (5 mm bolt side)	1	
(21)	Dowel pin (6 mm bolt side)	1	
	Separate No.3 carb. from No.4 carb.		
(22)	No.4 carburetor synchronization spring	1	
(23)	Thrust spring	1	
(24)	Air joint rubber pipe	1	
(25)	Air vent joint pipe/O-ring	1/2	
(26)	Fuel joint pipe (3-way joint)/O-ring	1/2	
(27)	Dowel pin (5 mm bolt side)	1	
(28)	Dowel pin (6 mm bolt side)	1	

Carburetor Disassembly/Assembly



NOTE:

- Vacuum chamber, float chamber and jets can be serviced without separating the carburetors.
- Note the location of the each carburetor parts so they can be back in their original locations.
- The pilot screws are factory pre-set and should not be removed unless the carburetors are overhauled.
- Before disassembling the carburetors, turn each pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the screws. If new pilot screws are installed, turn each one out to the initial opening.

Requisite Service

- Carburetor separation (page 5-6)
- Carburetor combination (page 5-12)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
	Vacuum Chamber Disassembly Order		
(1)	Vacuum chamber cover screw	3	
(2)	Vacuum chamber cover	1	
(3)	Diaphragm spring	1	NOTE: • At installation, be careful not to damage the spring.
(4)	Diaphragm/vacuum piston	1	NOTE: • At installation, align the tab of the diaphragm with the carburetor body groove.
(5)	Jet needle holder	1	Removal/installation (page 5-10)
(6)	O-ring	1	
(7)	Jet needle holder spring	1	
(8)	Jet needle	1	
(9)	Washer	1	
	Float Chamber Disassembly		
(10)	Float chamber cover screw	3	At installation, first tighten the two screws on the dowel pin side.
(11)	Float chamber	1	Be careful not to damage the float valve during the removal /installation procedure.
(12)	O-ring	1	
(13)	Float pin	1	
(14)	Float	1	
(15)	Float valve	1	
(16)	Main jet	1	
(17)	Needle jet holder	1	
(18)	Slow jet	1	
(19)	Pilot screw	1	Adjustment (page 5-17)
(20)	Spring	1	
(21)	Washer	1	
(22)	O-ring	1	
	Air Funnel Disassembly Order		
(23)	Air funnel holder screw	4	
(24)	Air funnel holder	1	Installation (page 5-11).
(25)	O-ring	1	NOTE: • At installation, install the O-ring into the carburetor groove securely. • Replace the O-ring if necessary.
(26)	Air funnel	1	Installation (page 5-10).
	Starting Enrichment Valve Disassembly Order		
(27)	Valve nut	1	
(28)	Spring	1	
(29)	Starting enrichment valve	1	

Jet Needle Holder Removal/Installation

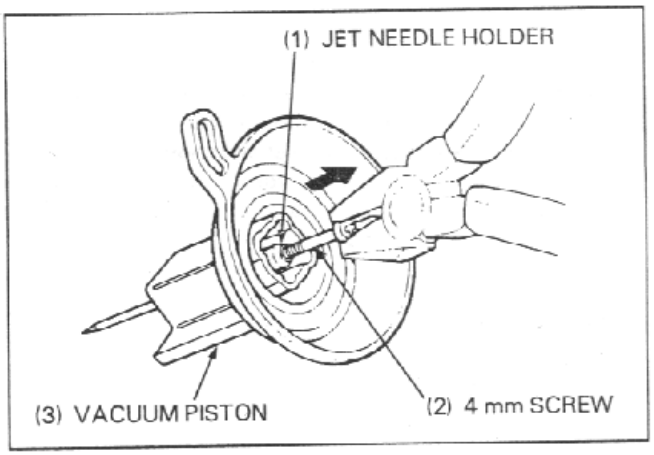
Removal

Remove the vacuum piston (page 5-8).

Temporarily install the 4 mm screw or equivalent (Example; vacuum chamber screw).
Pull the screw and remove the jet needle holder.

CAUTION:

- **Be careful not to damage the diaphragm.**
- **Do not remove the jet needle holder by pushing the jet needle.**

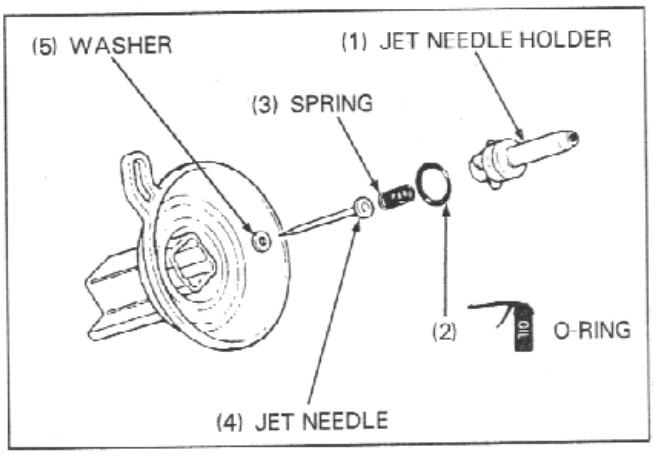


Installation

Check the O-ring on the jet needle holder for damage and replace if necessary.

Apply oil to the O-ring.
Press the jet needle holder into the vacuum piston until you feel a click indicating the O-ring is seated into the groove in the vacuum piston.

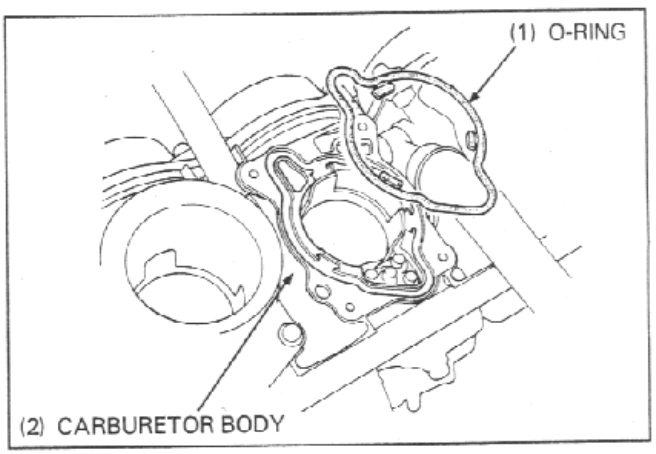
Install the vacuum piston (page 5-8).



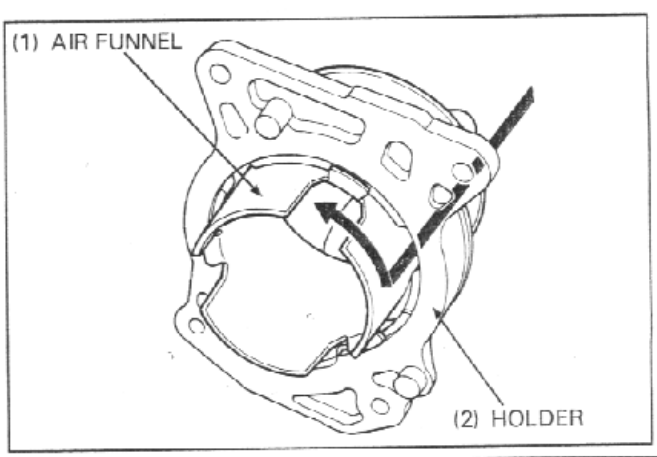
Air Funnel Installation

Check the O-ring is for damage and replace if necessary.

Install the O-ring into the carburetor body groove.

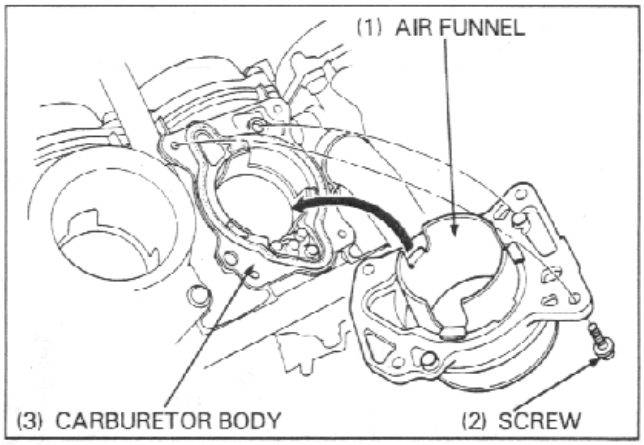


Install the air funnel into the holder.



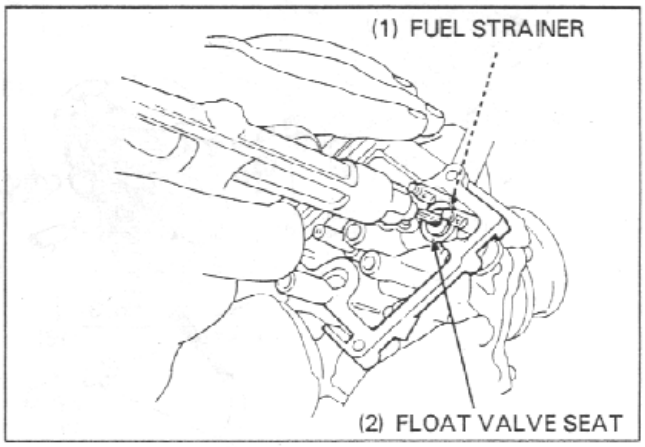
Align the cut out on the air funnel with the groove in the carburetor body, then install the air funnel/holder.

Install and tighten the air funnel holder screws.

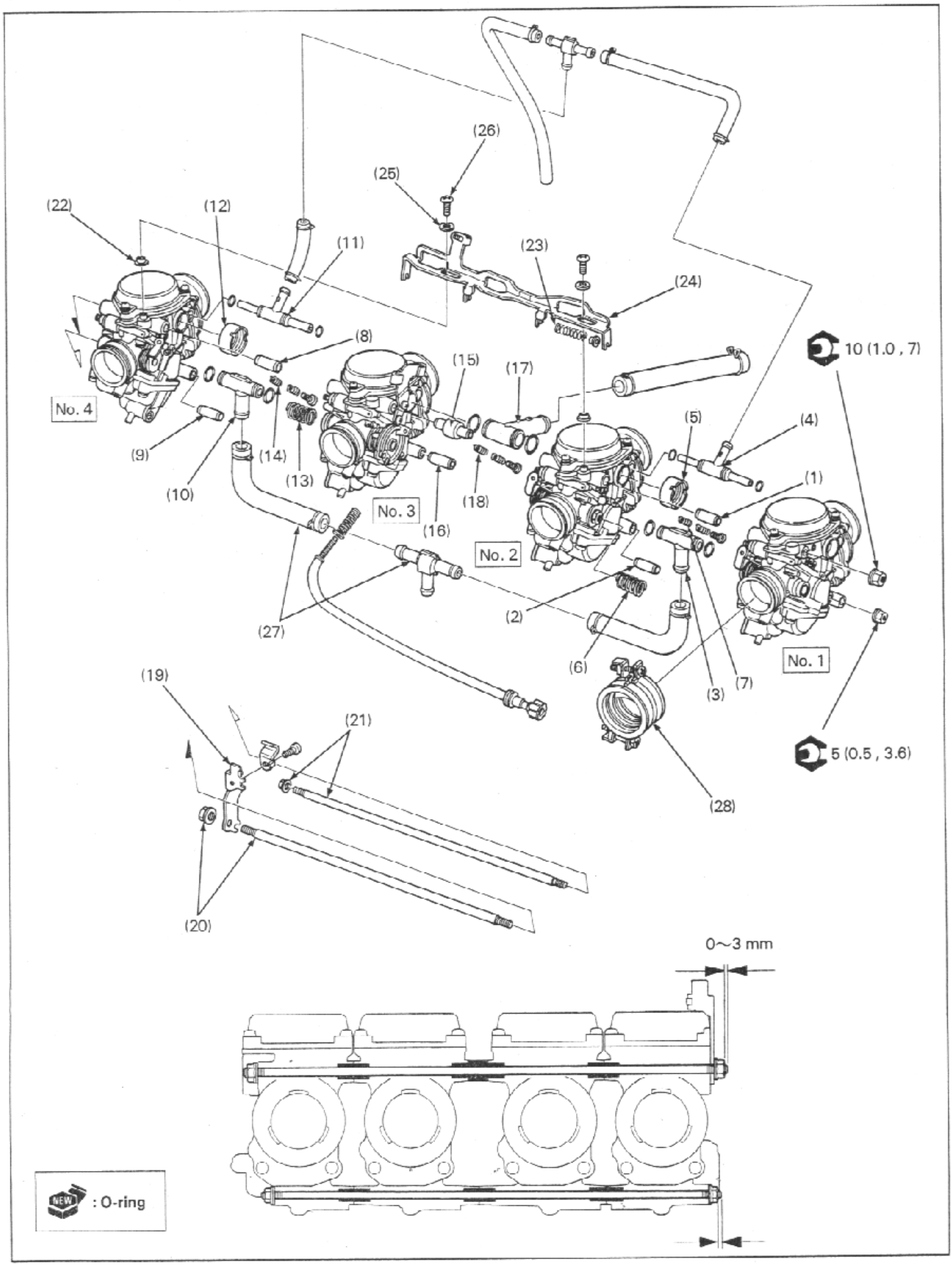


Carburetor Body Cleaning

Clean the fuel strainer in the float valve using the compressed air from the float valve seat side.



Carburetor Combination



NOTE:

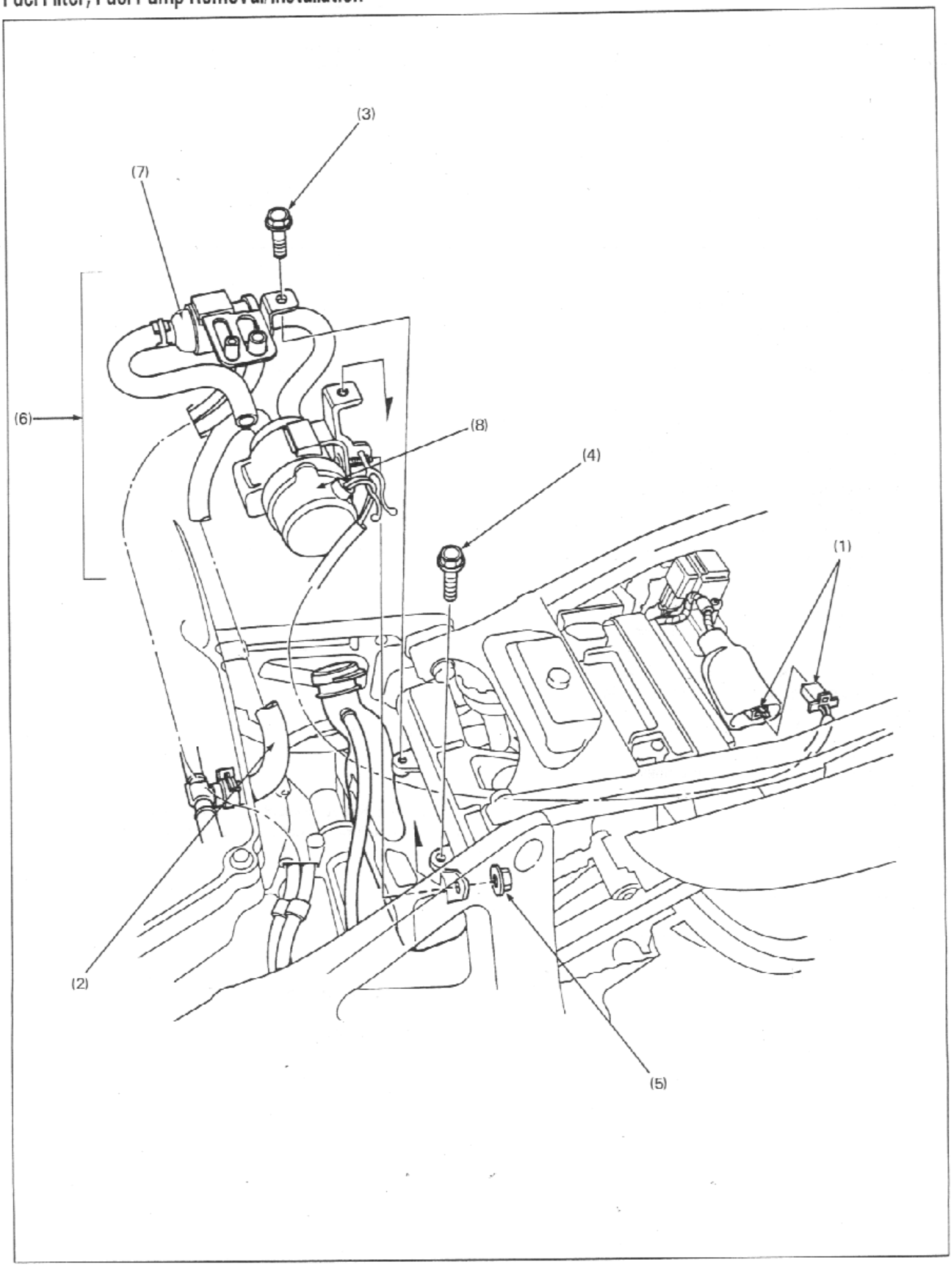
- No.3 carburetor is the base carburetor.
- Before tightening the carburetor connecting bolt/nut, check there is no clearance between each of the carburetor joints.
- Tighten the each connecting bolts/nuts gradually and alternately, be sure the bolt thread projections are equal height. Hold the nut and tighten the other nut on other side.

Requisite Service

- Carburetor disassembly (page 5-8)
- Carburetor installation (page 5-4)
- Carburetor synchronization (page 3-10)

	Procedure	Q'ty	Remarks
	Assemble No.1 carb. with No.2 carb.		
(1)	Dowel pin (6 mm bolt side)	1	
(2)	Dowel pin (5 mm bolt side)	1	
(3)	Fuel joint pipe (3-way joint)/O-ring	1/2	Always replace the O-ring with new ones.
(4)	Air vent joint pipe/O-ring	1/2	
(5)	Air joint rubber pipe	1	
(6)	Thrust spring	1	
(7)	No.1 carburetor synchronization spring	1	
	Assemble No.3 carb. with No.4 carb.		
(8)	Dowel pin (6 mm bolt side)	1	
(9)	Dowel pin (5 mm bolt side)	1	
(10)	Fuel joint pipe (3-way joint)/O-ring	1/2	Always replace the O-ring with new ones.
(11)	Air vent joint pipe/O-ring	1/2	
(12)	Air joint rubber pipe	1	
(13)	Thrust spring	1	
(14)	No.4 carburetor synchronization spring	1	
	Assemble No.3/4 carb. with No.1/2 carb.		
(15)	Distance collared dowel pin (6 mm bolt side)	1	
(16)	Dowel pin (5 mm bolt side)	1	
(17)	Air joint pipe (3-way joint)/O-ring	1/2	Always replace the O-ring with new ones.
(18)	No.2 carburetor synchronization spring	1	
(19)	Starting enrichment valve cable holder	1	
(20)	Carburetor connecting nut/bolt, 6 mm	2/1	**CAUTION:**
(21)	Carburetor connecting nut/bolt, 5 mm	2/1	**• Tighten each nut gradually and alternately with the above procedure. Do not over-tighten the nuts.**
(22)	Plastic collar	2	
(23)	Thrust spring	1	
(24)	Starting enrichment valve arm	1	
(25)	Plastic washer	2	
(26)	Starting enrichment valve arm screw	2	
(27)	Fuel tube/joint	2/1	
(28)	Insulator	4	NOTE: • Aligh the groove of the insulator with the lug of the carburetor. • Install the insulator with its "CARB" mark facing the carburetor.

Fuel Filter, Fuel Pump Removal/Installation



⚠WARNING

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

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area where gasoline is stored can cause a fire or explosion.

NOTE:

- Route the breather, overflow and fuel tubes correctly (page 1-21).

Requisite Service

- Fuel tank removal/installation (page 2-9)

	Procedure	Q'ty	Remarks
	Removal		Installation is in the reverse order of removal.
(1)	Fuel pump 2P (Black) connector	1	
(2)	Fuel tube	1	
(3)	Fuel filter mounting bracket flange bolt	1	
(4)	Fuel pump bracket mounting flange bolt	1	
(5)	Fuel pump bracket/reserve tank mounting flange nut	1	
(6)	Fuel pump/filter assembly	1	
(7)	Fuel filter	1	NOTE: • At installation, install the filter with the "⇨" mark facing the fuel pump.
(8)	Fuel pump	1	

Fuel Pump Inspection

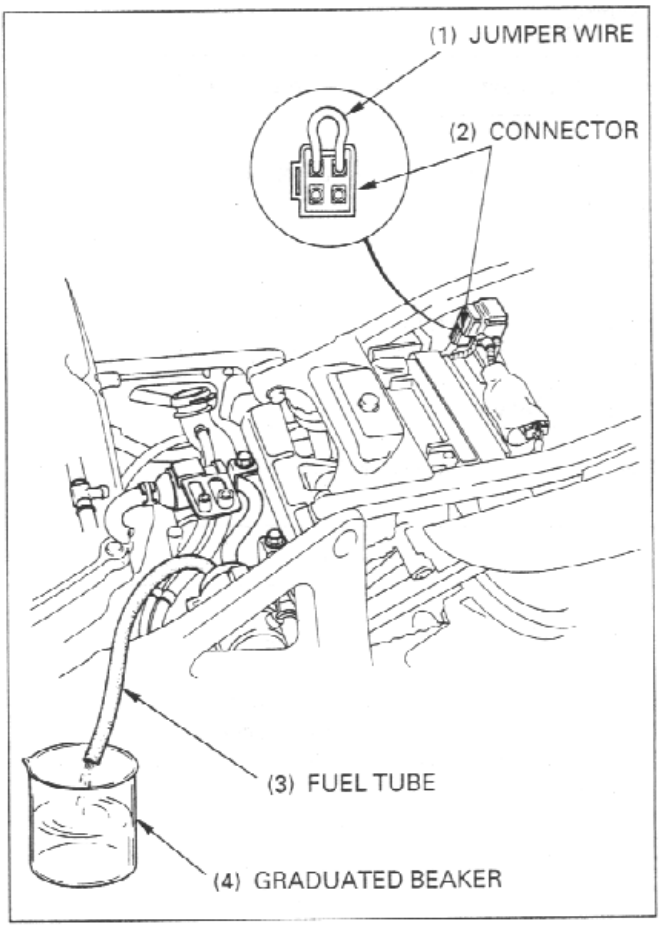
Turn the ignition switch "OFF".
Remove the fuel tank (page 2-12).
Disconnect the fuel tube.
Disconnect the fuel cut-off relay connector and connect the Black and Black/Brown wire terminals with a jumper wire.

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area.**
  Do not smoke or allow flames or sparks in your work area or where gasoline is stored.

Connect the fuel tank and fuel filter using a tube or equivalent.
Turn the ignition switch "ON" and let fuel flow into a graduated beaker for 5 seconds, then turn the ignition switch"OFF".
Multiply the amount in the beaker by 12 to determine the fuel pump flow capacity per minute.

Fuel pump flow minimum capacity:
900 cc (30.4 US oz , 31.7 Imp oz)/minute



Pilot Screw Adjustment

Idle Drop Procedure

⚠WARNING

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

NOTE:

- Make sure the carburetor synchronization is within specification before pilot screw adjustment (page 3-10).
- The pilot screw is factory pre-set and no adjustment is necessary unless the pilot screw are replaced.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.
- Use a tachometer with graduation of 50 rpm or smaller that will accurately indicate a 50 rpm change.

1. Using the special pilot screw wrench, turn each pilot screw clockwise until it seats lightly. Then back it out to the specification.

CAUTION:

- **Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.**

S TOOL

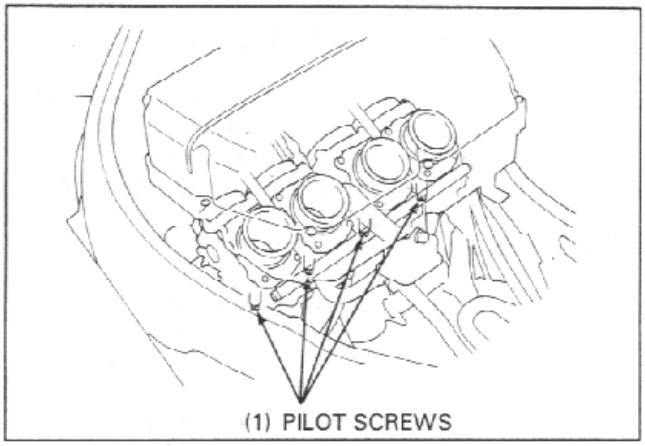
Pilot screw wrench **07KMA—MN90100 or 07MMA—MV9010A (U.S.A. only)**

Initial Opening : 2-1/2 turns out
2-3/4 turns out (California type)

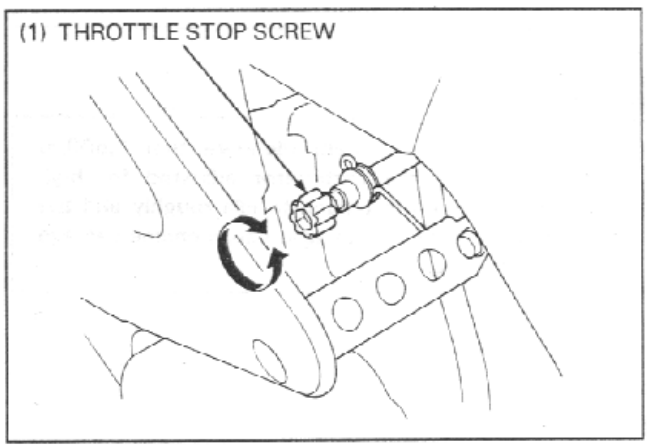
2. Warm up the engine to operating temperature.
3. Stop the engine and attach the tachometer according to the tachometer manufacturer's instruction.
4. Start the engine and adjust the idle speed with the throttle stop screw.

Idle Speed: 1,100 ± 100 rpm

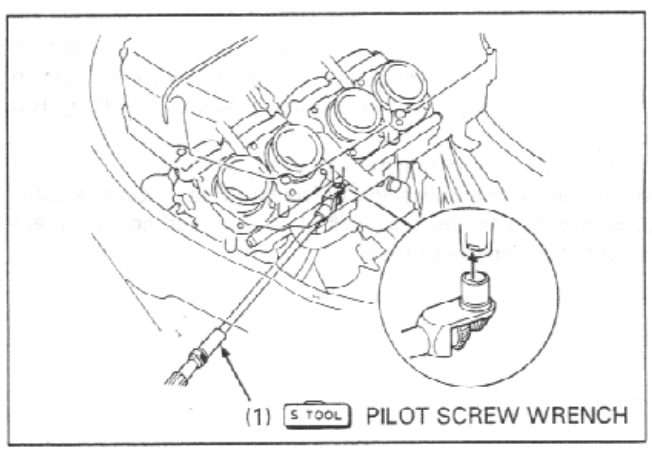
5. Turn all pilot screws 1/2 turns counterclockwise from the initial setting.
6. If the engine speed increases by 50 rpm or more, turn all pilot screws out by successive 1/2 turn increments until engine speed does not increase.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No. 3 carburetor pilot screw in until the engine speed drops 50 rpm.
9. Then turn the No. 3 pilot screw counterclockwise 1/2 turn from the position obtained in step 8.
10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8, 9 and 10 for the No. 1, 2 and 4 carburetor pilot screws.



(1) PILOT SCREWS



(1) THROTTLE STOP SCREW



(1) S TOOL PILOT SCREW WRENCH

High Altitude Adjustment (U. S. A. Only)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetors must be readjusted as follows to improve driveability and decrease exhaust emissions.
Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
Turn each pilot screw clockwise 1/2 turn.

High Altitude Setting : 1/2 turn in (49 states type)
1/2 turn in (California type)

S TOOL

Pilot screw wrench — **07KMA – MN90100 or 07MMA – MV9010A (U.S.A. only)**

Adjust the idle speed to 1,100 + 100 rpm (California : 1,100 ± 100 rpm) with the throttle stop screw.

NOTE:

- This adjustment must be made at high altitude to ensure proper high altitude operation.

Attach a Vehicle Emission Control Information Update Label on the side wall of the storage compartment as shown in the label position illustration.

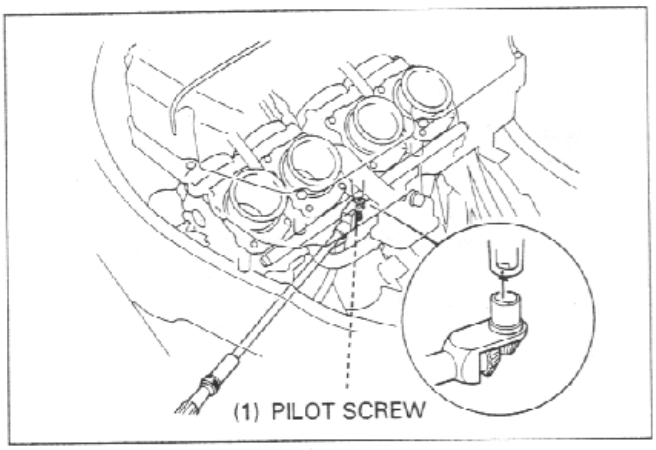
NOTE:

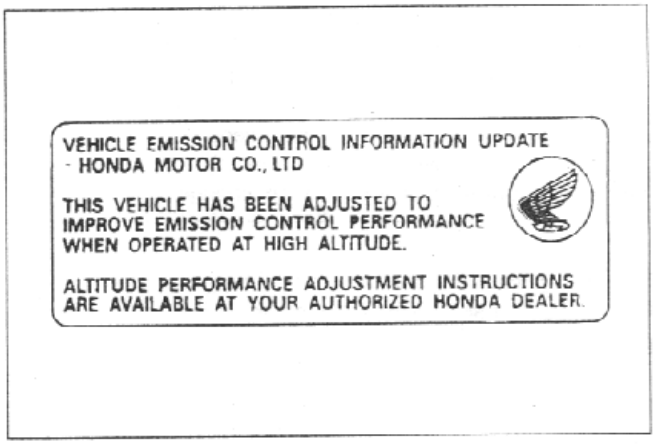
- Do not attach the label to any part that can be easily removed from the vehicle.

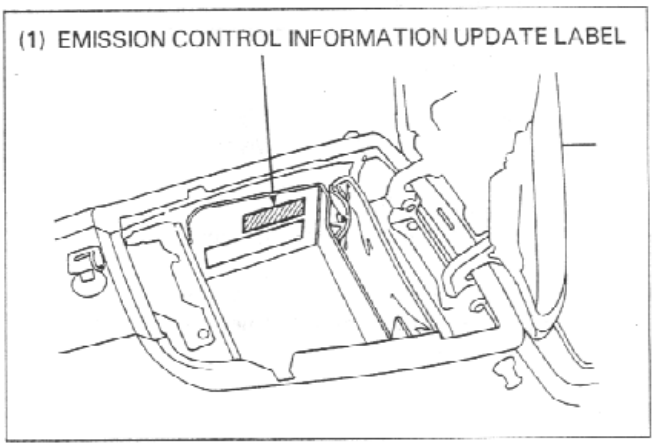
⚠WARNING

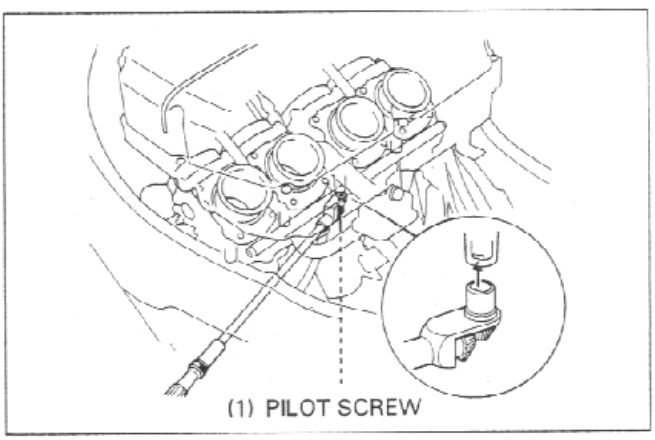
- **Sustained operation at an altitude lower than 1,500 m (5,000 feet) with the carburetor adjusted for high altitude may cause the engine to idle roughly and the engine stall in traffic. It may also cause engine damage due to overheating.**

When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw counterclockwise 1/2 turn to its original position and adjust the idle speed to 1,100 ± 100 rpm.
Be sure to make these adjustments at low altitude.
Remove the Vehicle Emission Control Information Update Label that is attached to the side wall of the storage compartment after adjusting for low altitude.









6. Cooling System

Service Information

⚠WARNING

- **Wait until the engine is cool before slowly removing the radiator cap. Removing the cap while the engine is hot and the coolant is under pressure may cause serious scalding.**
- **Radiator coolant is toxic. Keep it away from eyes, mouth, skin and clothes.**
  - **—If any coolant gets in your eyes, rinse them with water and consult a doctor immediately.**
  - **—If any coolant is swallowed, induce vomiting, gargle and consult a physician immediately.**
  - **—If any coolant gets on your skin or clothes, rinse thoroughly with plenty of water.**
- **KEEP OUT OF REACH OF CHILDREN.**

- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- All cooling system services can be done with the engine in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- Refer to section 25 of the Common Service Manual for fan motor switch and engine coolant temperature (ECT) sensor inspection.

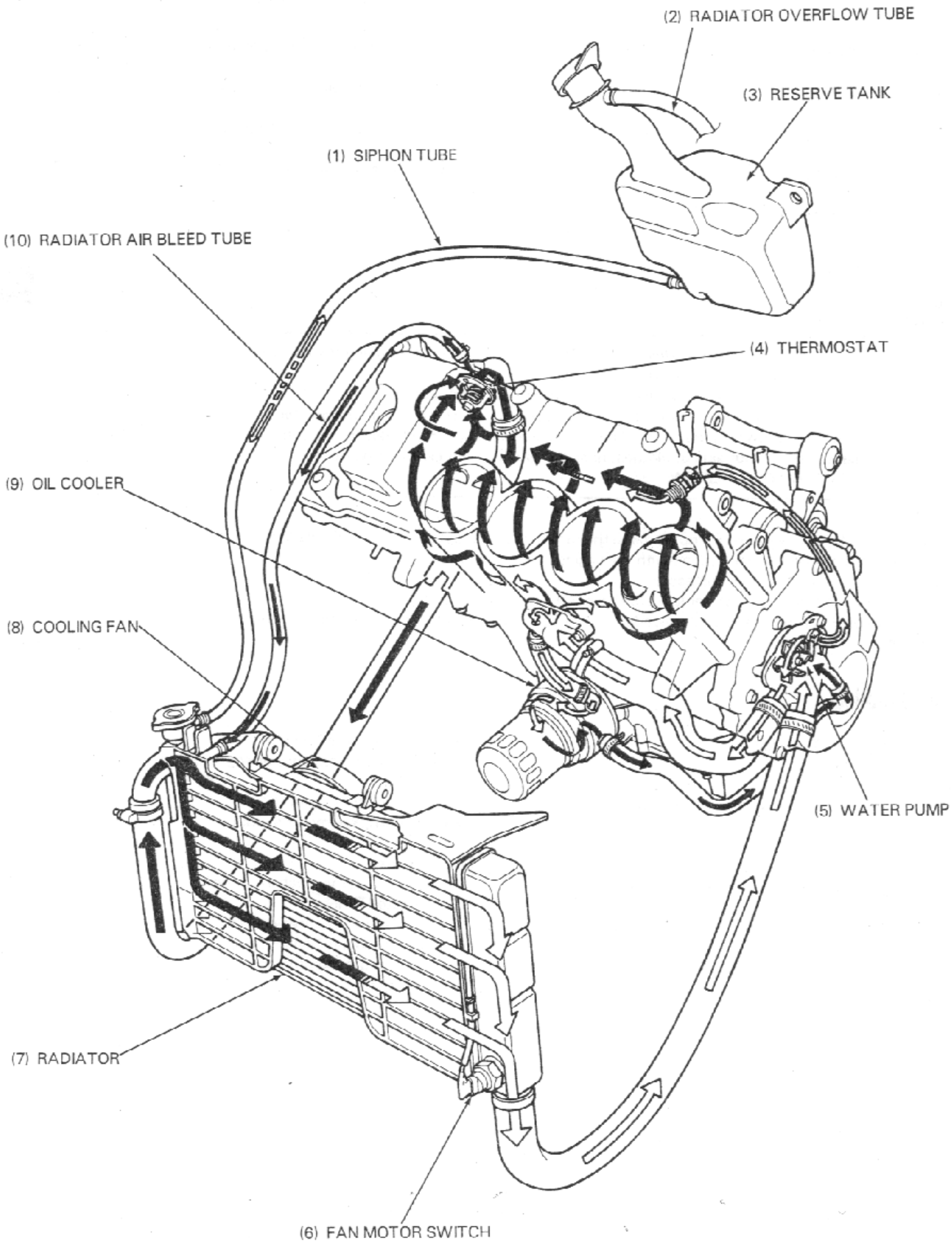
Troubleshooting

Engine Temperature Too High
- Faulty radiator cap
- Insufficient coolant
- Passages blocked in radiator, hoses or water jacket
- Air in system
- Faulty water pump
- Thermostat stuck closed
- Faulty temperature gauge or engine coolant temperature (ECT) sensor
- Faulty cooling fan motor
- Faulty fan motor switch

Engine Temperature Too Low
- Faulty temperature gauge or engine coolant temperature (ECT) sensor
- Thermostat stuck open
- Faulty cooling fan motor switch

Coolant Leaks
- Faulty water pump mechanical seal
- Deteriorated O-rings
- Damaged or deteriorated gasket
- Loose hose connection or clamp
- Damaged or deteriorated hose
- Faulty radiator cap

System Flow Pattern



Coolant Draining

⚠WARNING

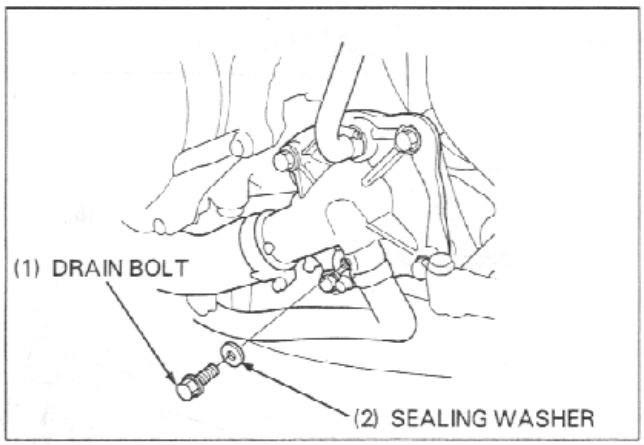
- **Wait until the engine is cool before servicing the cooling system. Removing the radiator cap while the engine is hot and the coolant is under pressure may cause serious scalding.**

NOTE:

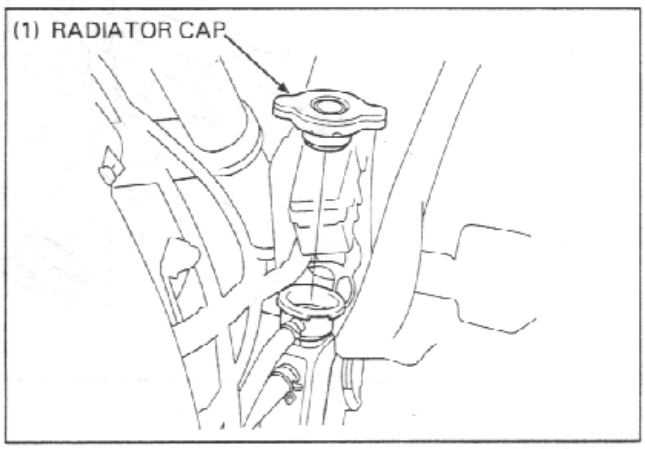
- For coolant replacement, refer to section 5 of the Common Service Manual.

Remove the lower cowl (page 2-5)

Remove the water pump drain bolt and sealing washer.

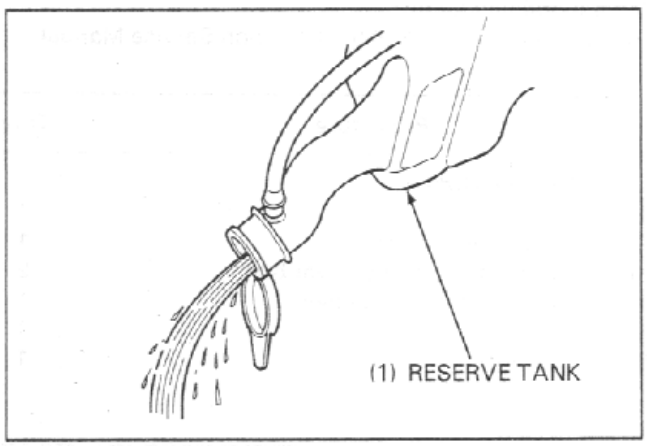


Remove the radiator cap and drain the coolant.

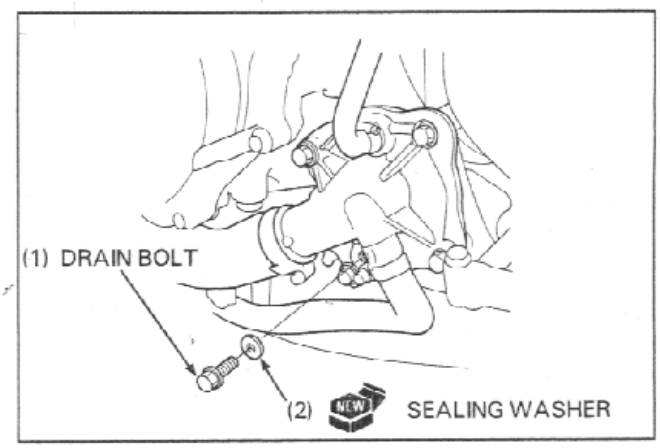


Remove the reserve tank (page 6-8).

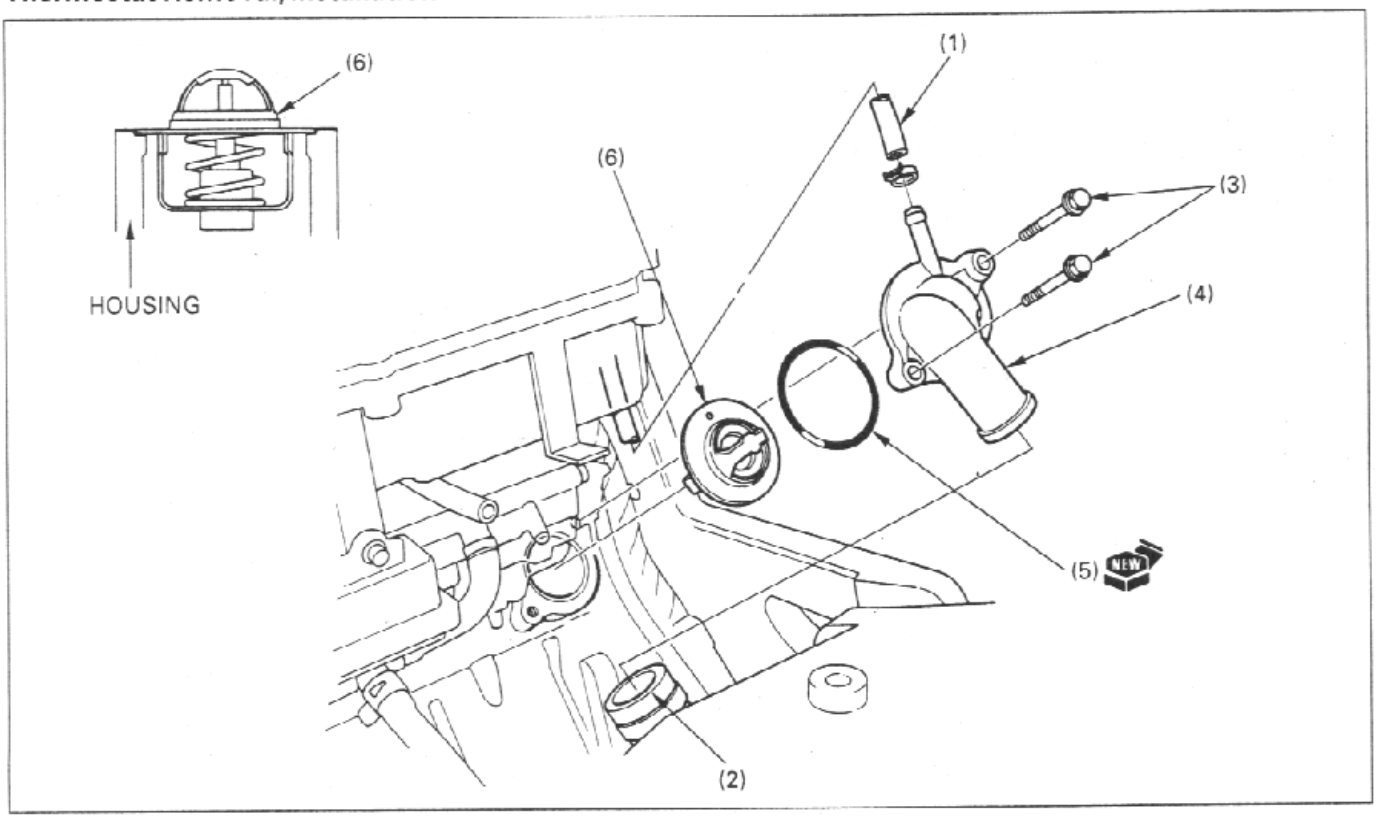
Drain the coolant from the reserve tank.



Install the water pump drain bolt with a new sealing washer.



Thermostat Removal/Installation

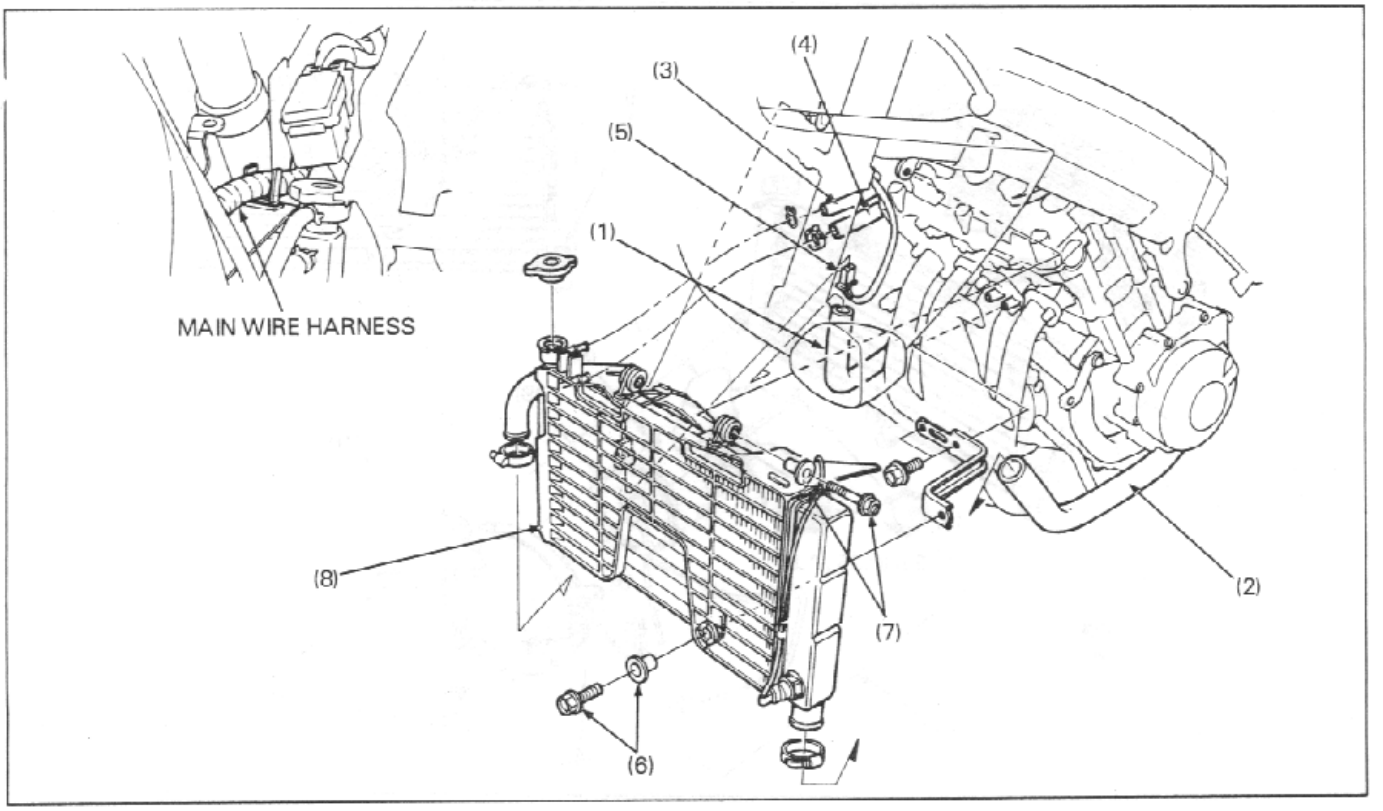


Requisite Service

- Coolant draining (page 6-3)
- Coolant refill (Section 5 of the Common Service Manual)
- Fuel tank removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Air bleed tube	1	
(2)	Upper radiator hose	1	
(3)	Thermostat housing cover bolt	2	
(4)	Thermostat housing cover	1	
(5)	O-ring	1	
(6)	Thermostat	1	**NOTE:** • Install the thermostat in the housing with its hole facing up.

Radiator Removal/Installation

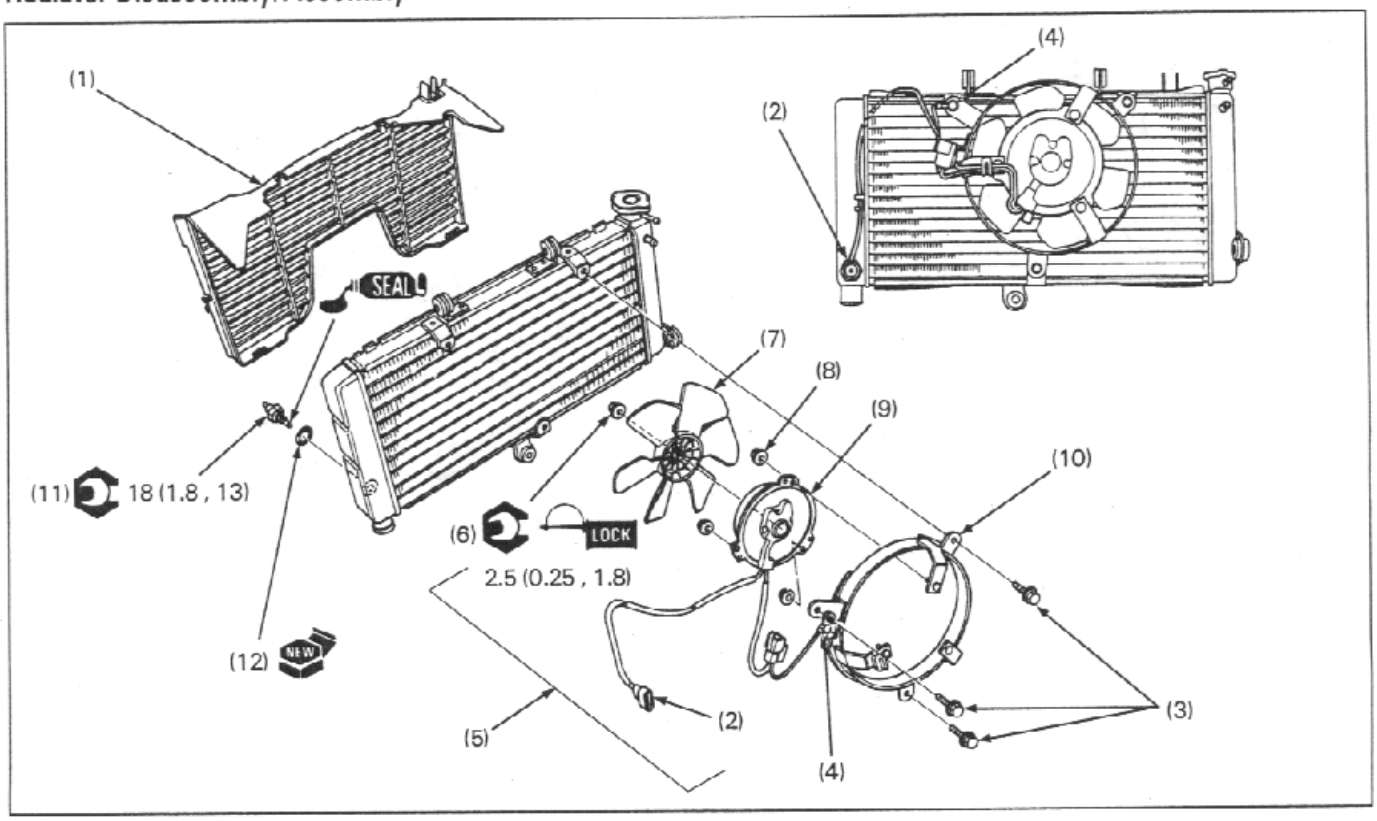


Requisite Service

- Coolant draining (page 6-3)
- Coolant refill (Section 5 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Upper radiator hose	1	
(2)	Lower radiator hose	1	
(3)	Radiator siphon tube	1	
(4)	Air bleed tube	1	
(5)	Fan motor connector	1	
(6)	Radiator lower mounting bolt/collar	1/1	
(7)	Radiator upper mounting bolt/collar	1/1	
(8)	Radiator assembly	1	**CAUTION:** • **During removal and installation, be careful not to damage the radiator core.** NOTE: • At installation, align the grommet hole with the boss on the frame. • At installation, install the main wire harness between the wire guides on the radiator grill.

Radiator Disassembly/Assembly

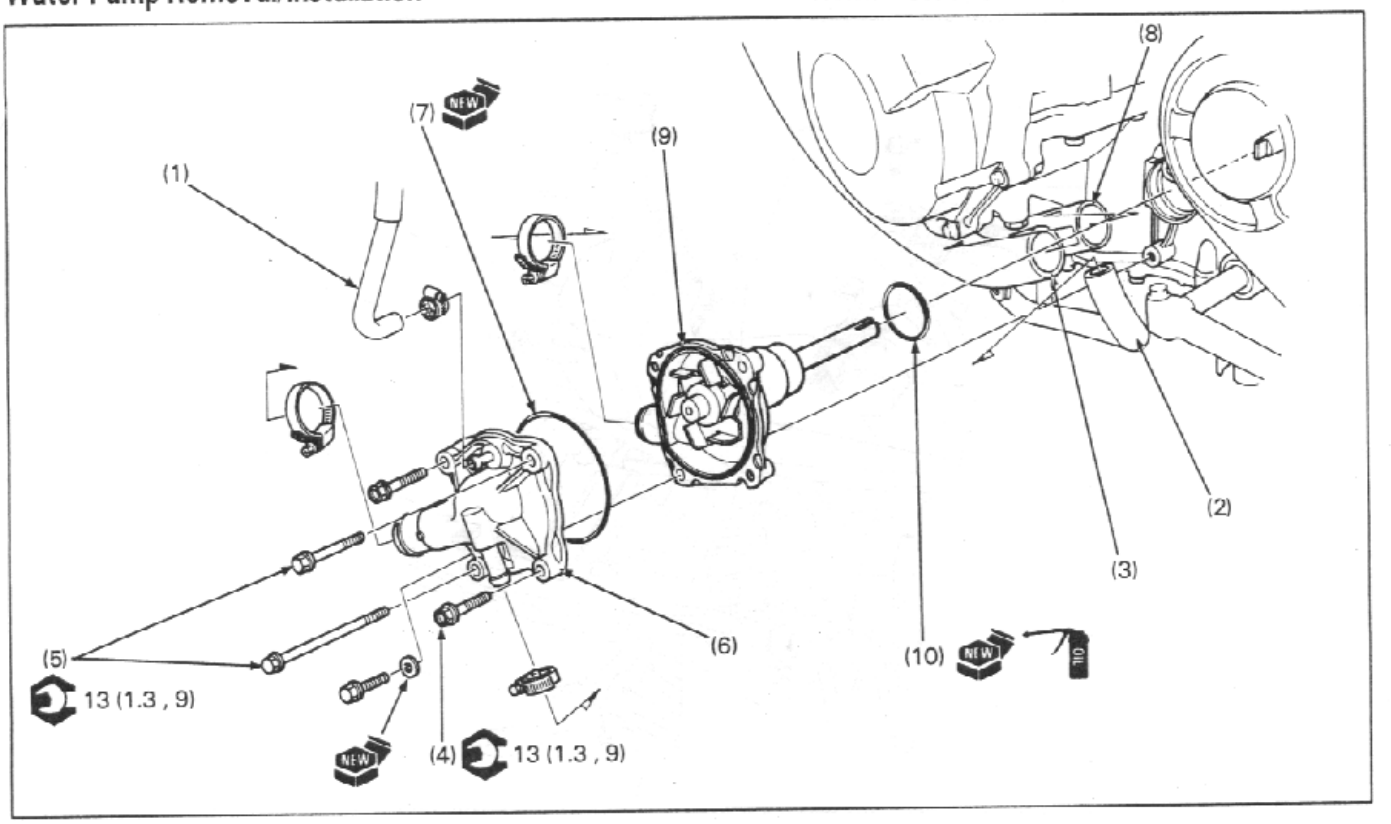


Requisite Service

- Radiator removal/installation (page 6-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Radiator grill	1	Release the four hooks from the radiator, then remove the radiator grill.
(2)	Fan motor switch connector	1	
(3)	SH bolt	3	
(4)	Ground eyelet	1	
(5)	Fan motor/shroud assembly	1	
(6)	Cooling fan nut	1	
(7)	Cooling fan	1	At installation, align the fan motor groove with the fan motor shaft.
(8)	Fan motor mounting nut	3	
(9)	Fan motor	1	Release the fan motor wire from the clamp.
(10)	Shroud	1	
(11)	Fan motor switch	1	
(12)	O-ring	1	

Water Pump Removal/Installation

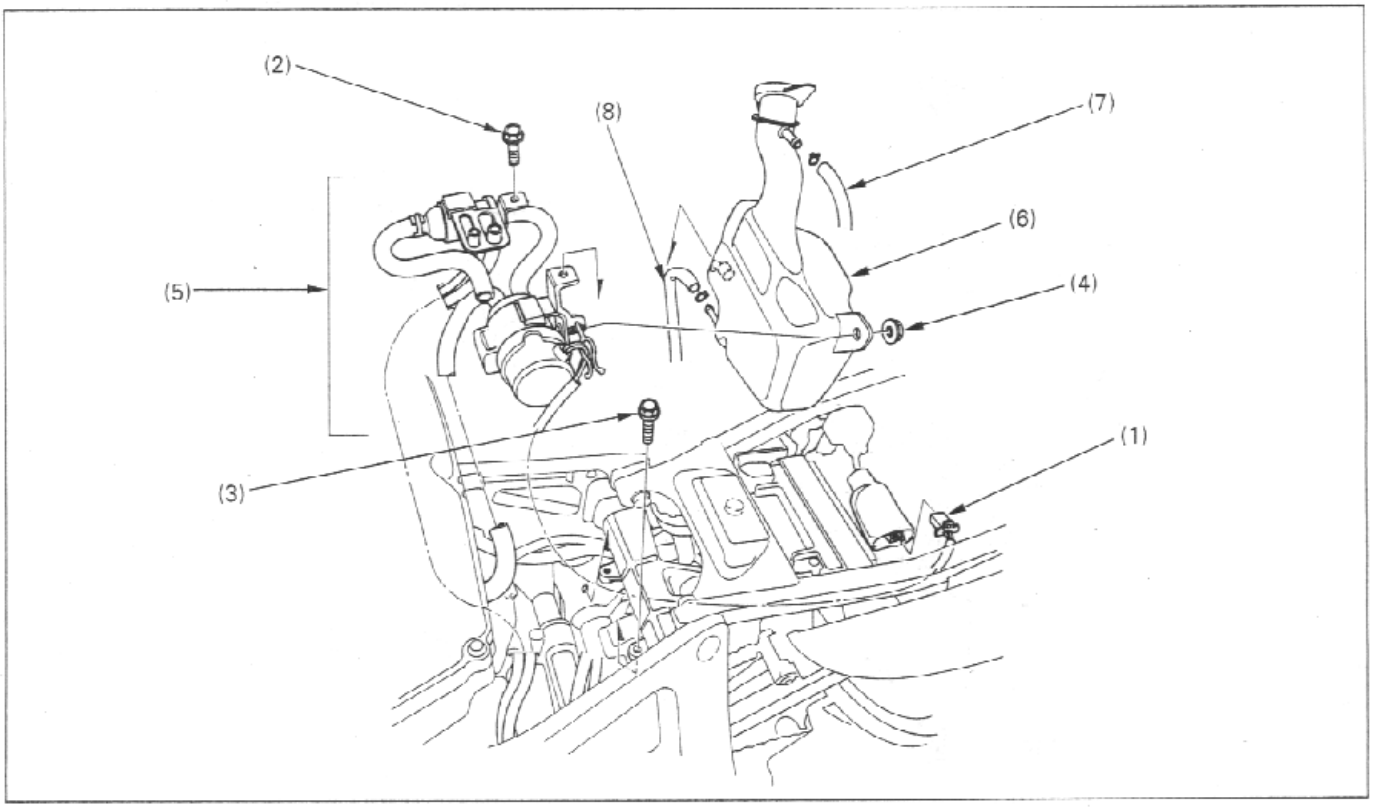


Requisite Service

- Coolant draining (page 6-3)
- Coolant refill (Section 5 of the Common Service Manual)
- Engine oil draining/refill

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Water pump-to-cylinder head hose	1	
(2)	Water pump-to-oil cooler hose	1	
(3)	Lower radiator hose	1	
(4)	Water pump cover SH bolt	2	
(5)	Water pump mounting SH bolt	2	
(6)	Water pump cover	1	
(7)	O-ring	1	
(8)	Water pump-to-water joint hose	1	
(9)	Water pump body	1	At installation, align the cut-out of the water pump shaft with the projection on the end of the oil pump shaft.
(10)	O-ring	1	

Radiator Reservoir Tank Removal/Installation



Requisite Service

- Coolant draining (page 6-3)
- Coolant refill (Section 5 of the Common Service Manual)
- Fuel tank removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuel pump connector	1	
(2)	Fuel filter mounting bracket flange bolt	1	
(3)	Fuel pump bracket mounting flange bolt	1	
(4)	Fuel pump bracket/reserve tank mounting nut	1	
(5)	Fuel pump/filter assembly	1	
(6)	Radiator reserve tank	1	Release the hook on the reserve tank from the hole in the frame.
(7)	Radiator overflow tube	1	
(8)	Siphon tube	1	

7. Engine Removal/Installation

Service Information

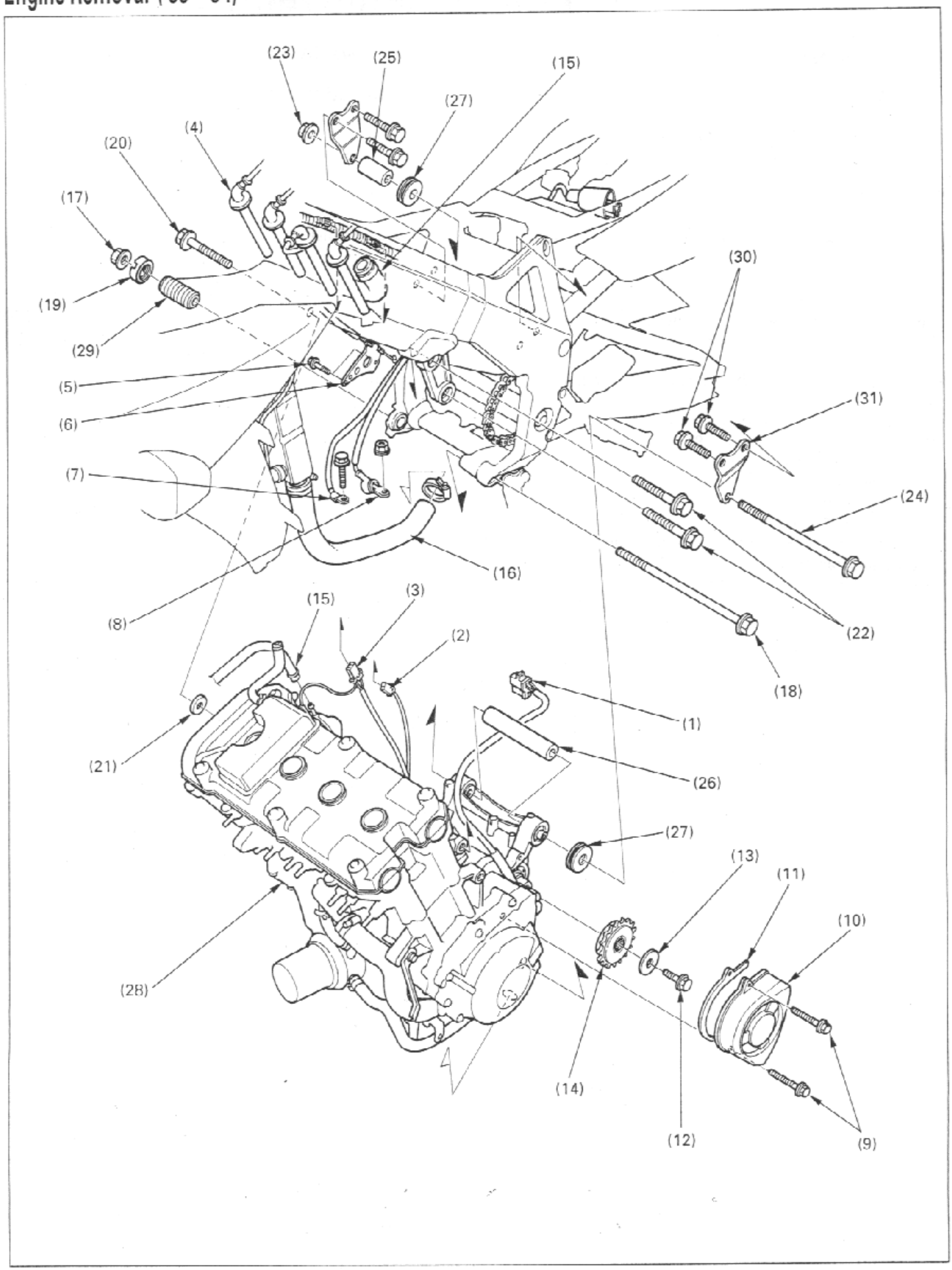
- During removal and installation, support the motorcycle using a safety stand or hoist.

CAUTION:

• Do not use the oil filter as a jacking point.

- The following components can be serviced with the engine installed in the frame.
  - —Alternator (Section 15)
  - —Clutch/gearshift linkage (Section 9)
  - Cylinder head/valves (Section 8)
  - —Gearshift linkage (Section 9)
  - —Oil cooler (Section 4)
  - —Oil pump (Section 4)
  - —Water pump (Section 6)
- The following components require engine removal for service.
  - Crankshaft/transmission (Section 11)
  - —Shift forks/shift drum (Section 9)

Engine Removal ('93 - '94)



CAUTION:

- **Do not use the oil filter as a jacking point.**

NOTE:

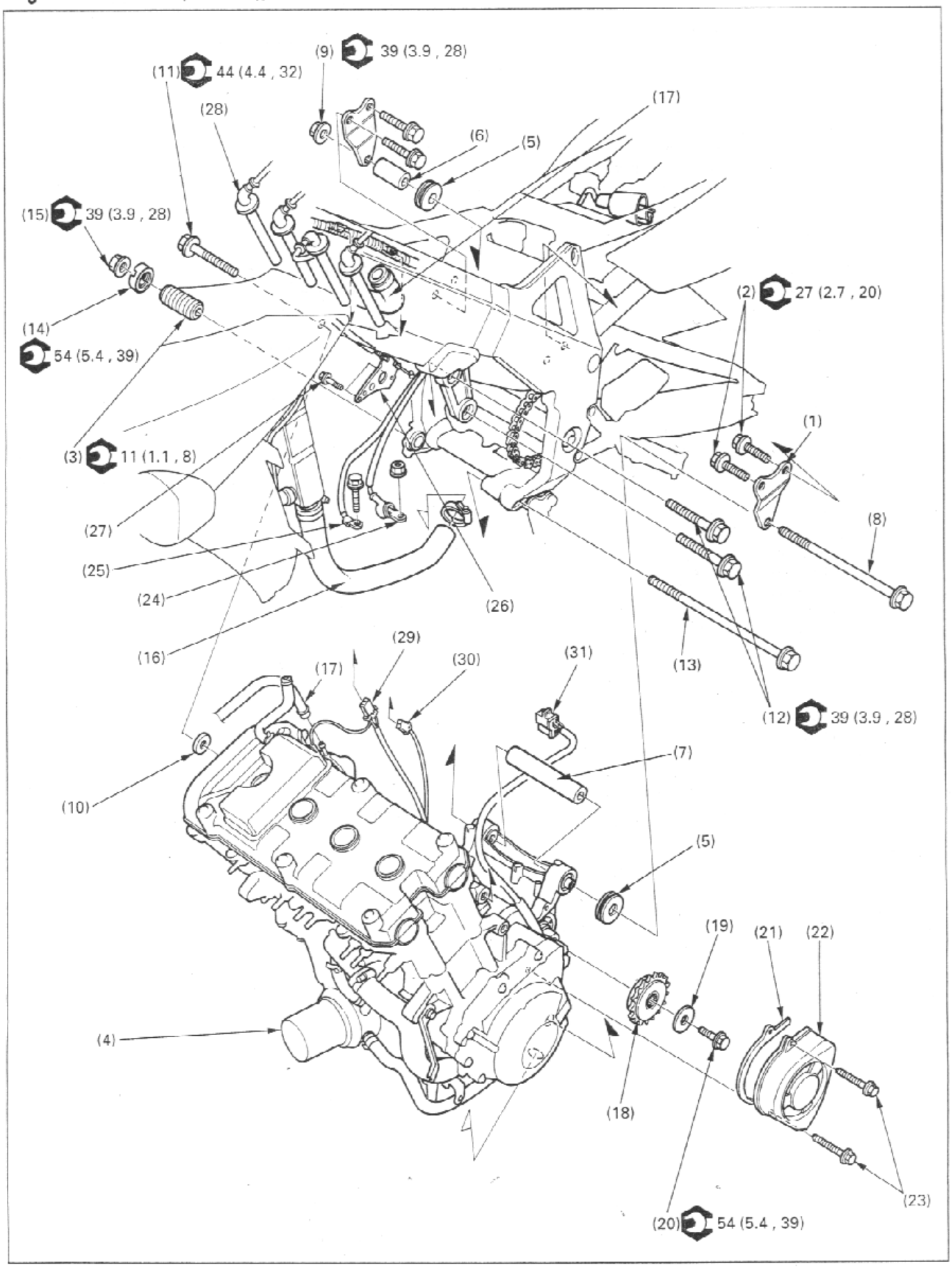
- Support the motorcycle using a safety stand or hoist.
- A floor jack or other adjustable support is required to support and maneuver the engine. The jack height must be continually adjusted to relieve stress for ease of mounting bolt removal.
- Turn the ignition switch OFF and disconnect the battery negative (−) terminal.

Requisite Service

- Fuel tank removal (page 2-12)
- Middle/lower cowl removal (page 2-5)
- Carburetor removal (page 5-4)
- Muffler removal (page 2-19)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Alternator 3P connector	1	
(2)	Ignition pulse generator 2P(Black) connector	1	
(3)	Oil pressure switch/neutral switch/engine coolant temperature (ECT) sensor 3P(Black) connector	1	
(4)	Spark plug cap	4	
(5)	Clutch cable holder SH bolt	2	
(6)	Clutch cable/holder	1	
(7)	Starter motor ground cable	1	
(8)	Starter motor cable	1	
(9)	Drive sprocket cover SH bolt	2	
(10)	Drive sprocket cover	1	
(11)	Plate	1	
(12)	Drive sprocket bolt	1	
(13)	Washer	1	
(14)	Drive sprocket	1	
(15)	Upper radiator hose/air bleed tube	1/1	
(16)	Lower radiator hose	1	
(17)	Engine hanger nut (Rear/lower)	1	
(18)	Engine hanger bolt (Rear/lower)	1	
(19)	Engine hanger adjusting bolt lock nut	1	Removal (page 7-10)
(20)	Right engine hanger bolt (Front)	1	
(21)	Collar	1	
(22)	Left engine hanger bolt (Front)	2	
(23)	Engine hanger nut (Rear/upper)	1	
(24)	Engine hanger bolt (Rear/upper)	1	
(25)	Collar (Short)	1	
(26)	Collar (Long)	1	
(27)	Spacer	2	
(28)	Engine assembly	1	
(29)	Engine hanger adjusting bolt	1	
(30)	Engine hanger plate bolt	4	
(31)	Engine hanger plate	2	

Engine Installation ('93 - '94)



CAUTION:

- **Do not use the oil filter as a jacking point.**
- **Install the right and left front engine hanger bolts in their proper location. Improper installation will damage the cylinder head.**

NOTE:

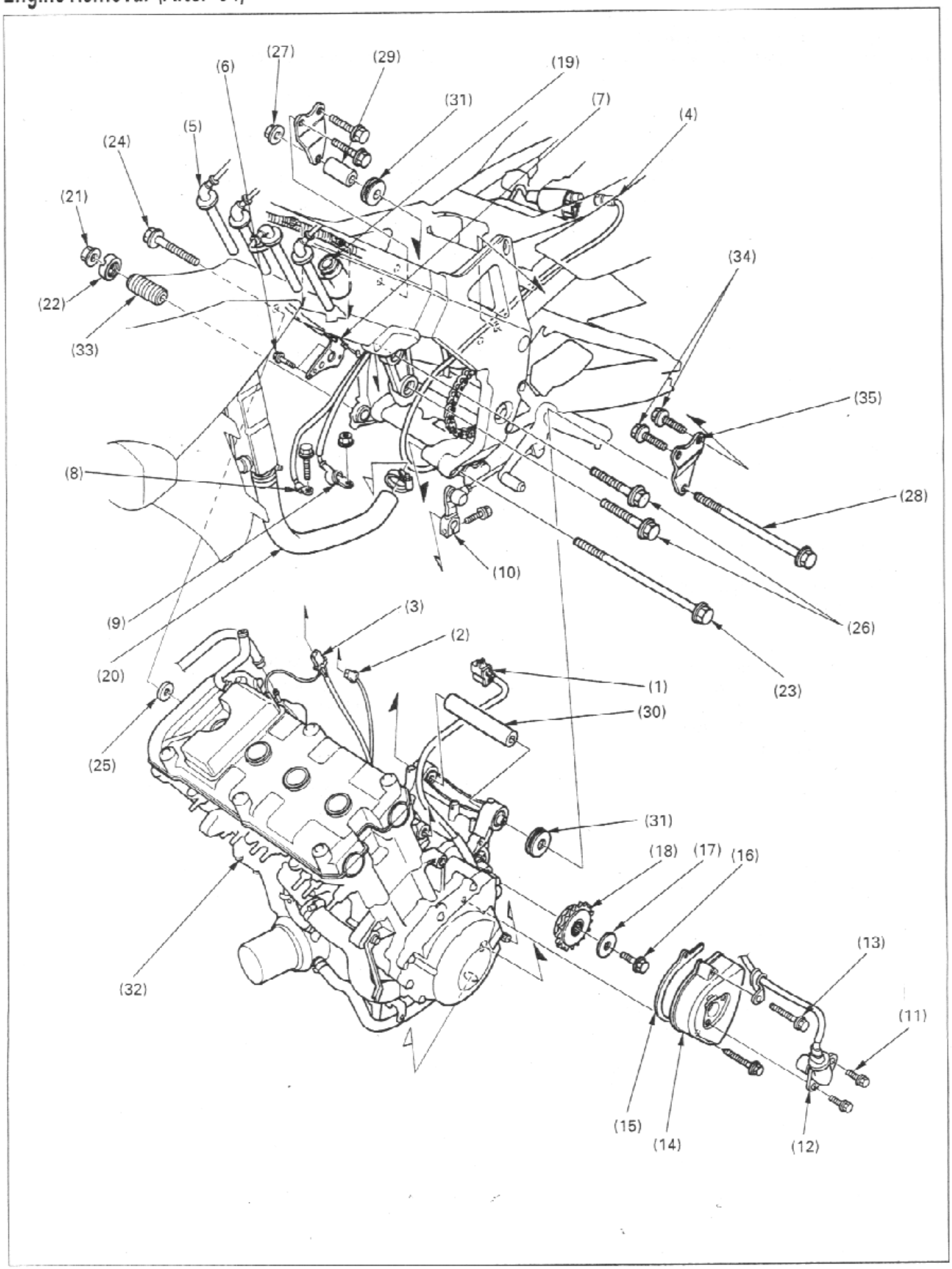
- Note the direction of the engine mounting bolts.
- Install and engine mounting bolts and nuts loosely. Tighten the hanger plate bolts first, then the lower adjusting bolt.
- Route the wire harnesses and tubes properly (page 1-21).

Requisite Service

- Fuel tank installation (page 2-12)
- Middle/lower cowl installation (page 2-5)
- Carburetor installation (page 5-4)
- Muffler installation (page 2-19)

	Procedure	Q'ty	Remarks
	Installation Order		
(1)	Engine hanger plate	2	
(2)	Engine hanger plate bolt	4	
(3)	Engine hanger adjusting bolt	1	
(4)	Engine assembly	1	
(5)	Spacer	2	
(6)	Collar (Short)	1	
(7)	Collar (Long)	1	
(8)	Engine hanger bolt (Rear/upper)	1	
(9)	Engine hanger nut (Rear/upper)	1	
(10)	Collar	1	
(11)	Right engine hanger bolt 10 x 41 mm (Front)	1	**CAUTION:**
(12)	Left engine hanger bolt 10 x 41 mm (Front)	2	**• Be careful not to interchange the right and left bolts.**
(13)	Engine hanger bolt (Rear/lower)	1	Tighten the adjusting bolt.
(14)	Engine hanger adjusting bolt lock nut	1	Installation (page 7-10)
(15)	Engine hanger nut (Rear/lower)	1	
(16)	Lower radiator hose	1	
(17)	Upper radiator hose/air bleed tube	1/1	
(18)	Drive sprocket	1	Install its "16T" mark facing out.
(19)	Washer	1	
(20)	Drive sprocket bolt	1	
(21)	Plate	1	
(22)	Drive sprocket cover	1	
(23)	Drive sprocket cover SH bolt	2	
(24)	Starter motor cable	1	
(25)	Starter motor ground cable	1	
(26)	Clutch cable/holder	1	
(27)	Clutch cable holder SH bolt	2	
(28)	Spark plug cap	4	
(29)	Oil pressure switch/neutral switch/engine coolant temperature (ECT) sensor 3P(Black) connector	1	
(30)	Ignition pulse generator 2P(Black) connector	1	
(31)	Alternator 3P connector	1	

Engine Removal (After '94)



CAUTION:

- **Do not use the oil filter as a jacking point.**

NOTE:

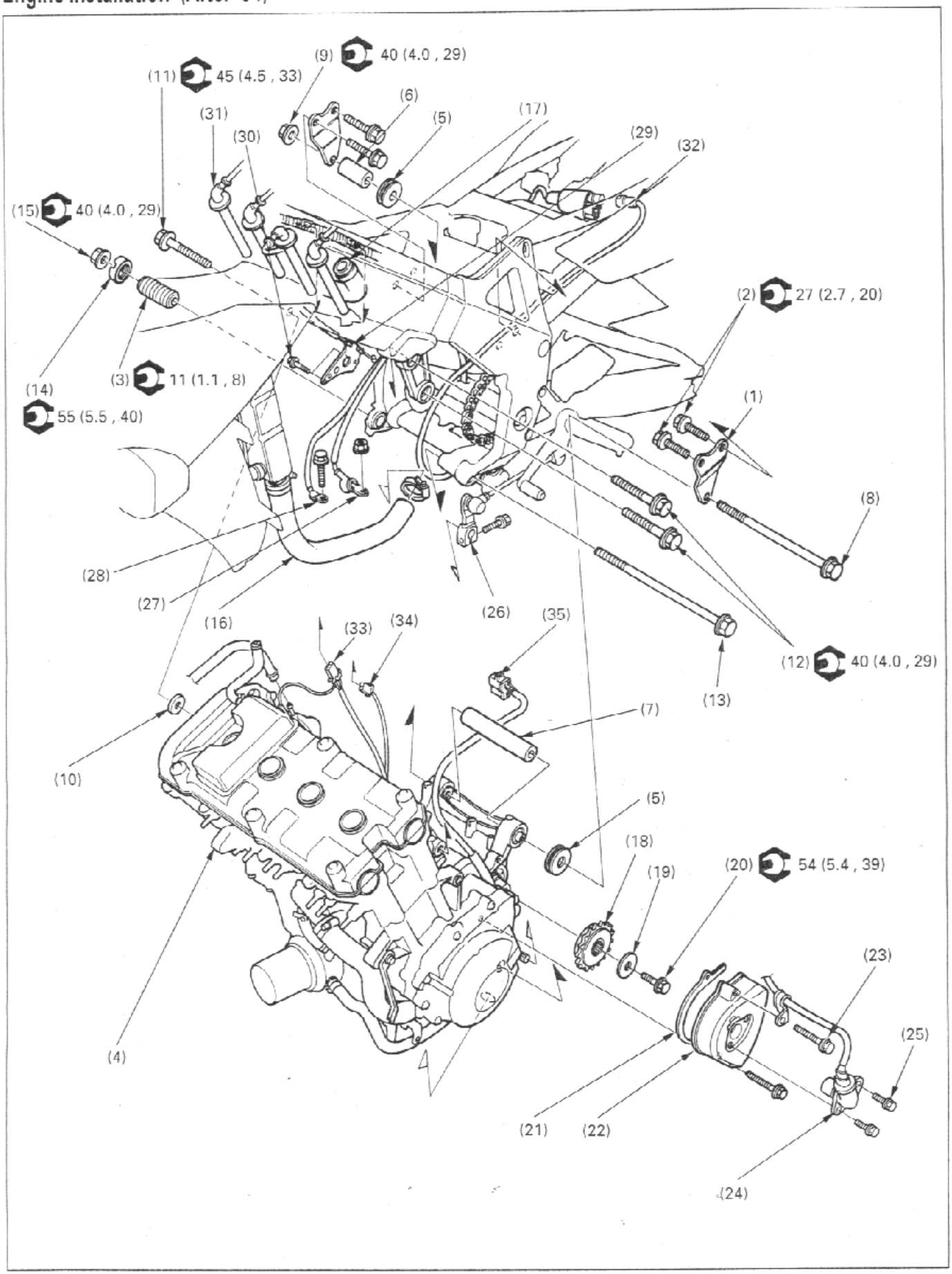
- Support the motorcycle using a safety stand or a hoist.
- A floor jack or other adjustable support is required to support and maneuver the engine. The jack height must be continually adjusted to relieve stress for ease of bolt removal.
- Turn the ignition switch OFF and disconnect the battery ground (−) terminal.

Requisite Service

- Fuel tank removal (page 2-12)
- Middle/lower cowl removal (page 2-5)
- Carburetor removal (page 5-4)
- Muffler removal (page 2-19)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Alternator 3P connector	1	
(2)	Pulse generator 2P(Black) connector	1	
(3)	Oil pressure switch/neutral switch/thermo sensor 3P(Black) connector	1	
(4)	Side stand switch connector	1	Release the side stand wire from the engine.
(5)	Spark plug cap	4	
(6)	Clutch cable holder SH bolt	2	
(7)	Clutch cable/holder	1	
(8)	Starter motor ground cable	1	
(9)	Starter motor cable	1	
(10)	Gearshift pedal link	1	
(11)	Speed sensor SH bolt	2	
(12)	Speed sensor	1	
(13)	Drive sprocket cover SH bolt	2	
(14)	Drive sprocket cover	1	
(15)	Plate	1	
(16)	Drive sprocket bolt	1	
(17)	Washer	1	
(18)	Drive sprocket	1	
(19)	Upper radiator hose	1	
(20)	Lower radiator hose	1	
(21)	Engine hanger nut (Rear/lower)	1	
(22)	Engine hanger adjusting bolt lock nut	1	Removal (page 7-10)
(23)	Engine hanger bolt (Rear/lower)	1	
(24)	Right engine hanger bolt (Front)	1	
(25)	Distance collar	1	
(26)	Left engine hanger bolt (Front)	2	
(27)	Engine hanger nut (Rear/upper)	1	
(28)	Engine hanger bolt (Rear/upper)	1	
(29)	Distance collar (Short)	1	
(30)	Distance collar (Long)	1	
(31)	Spacer	2	
(32)	Engine assembly	1	
(33)	Engine hanger adjusting bolt	1	
(34)	Engine hanger plate bolt	4	
(35)	Engine hanger plate	2	

Engine Installation (After '94)



CAUTION:

- **Do not use the oil filter as a jacking point.**
- **Install the right and left front engine hanger bolts in their proper location. Improper installation will damage the cylinder head.**

NOTE:

- Note the direction of the engine mounting bolts.
- All engine mounting bolts and nuts loosely install. First tighten the hanger plate bolts,then the lower adjusting bolt.
- Route the wire harnesses and tubes properly (page 1-21).

Requisite Service

- Fuel tank installation (page 2-12)
- Middle/lower cowl installation (page 2-5)
- Carburetor installation (page 5-4)
- Muffler installation (page 2-19)

	Procedure	Q'ty	Remarks
	Installation Order		
(1)	Engine hanger plate	2	
(2)	Engine hanger plate bolt	4	
(3)	Engine hanger adjusting bolt	1	
(4)	Engine assembly	1	
(5)	Spacer	2	
(6)	Distance collar (Short)	1	
(7)	Distance collar (Long)	1	
(8)	Engine hanger bolt (Rear/upper)	1	
(9)	Engine hanger nut (Rear/upper)	1	
(10)	Distance collar	1	
(11)	Right engine hanger bolt (Front)	2	CAUTION:
(12)	Left engine hanger bolt (Front)	1	• **Be careful not to interchange the right and left bolts.**
(13)	Engine hanger bolt (Rear/lower)	1	Tighten the adjusting bolt, then tighten the hanger bolt.
(14)	Engine hanger adjusting bolt lock nut	1	Installation (page 7-10)
(15)	Engine hanger nut (Rear/lower)	1	
(16)	Lower radiator hose	1	
(17)	Upper radiator hose	1	
(18)	Drive sprocket	1	Install its "16T" mark facing out.
(19)	Washer	1	
(20)	Drive sprocket bolt	1	
(21)	Plate	1	
(22)	Drive sprocket cover	1	
(23)	Drive sprocket cover SH bolt	2	
(24)	Speed sensor	1	
(25)	Speed sensor SH bolt	2	
(26)	Gearshift pedal link	1	
(27)	Starter motor cable	1	
(28)	Starter motor ground cable	1	
(29)	Clutch cable/holder	1	
(30)	Clutch cable holder SH bolt	2	
(31)	Spark plug cap	4	
(32)	Side stand switch connector	1	Route the side stand switch wire properly (page 1-21)
(33)	Oil pressure switch/neutral switch/thermo sensor 3P(Black) connector	1	
(34)	Pulse geneator 2P(Black) connector	1	
(35)	Alternator 3P connector	1	

Lock Nut Removal/Installation

Removal

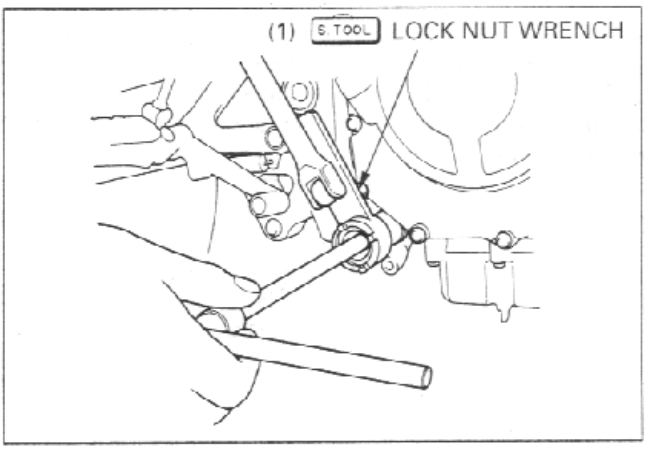
Remove the adjusting bolt lock nut.

NOTE:

- Remove the lock nut while holding the adjusting bolt.

S. TOOL

Lock nut wrench **07HMA – MR70200**



Installation

Tighten the adjusting bolt to the specified torque.

Torque: 11 N·m (1.1 kg-m , 8 lb-ft)

Install and tighten the engine hanger adjusting bolt lock nut.

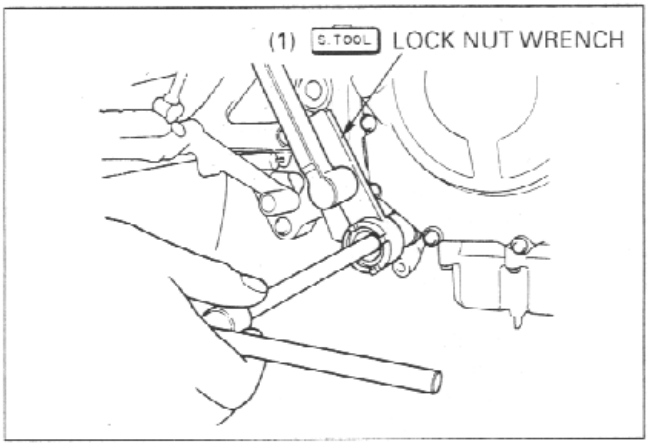
NOTE:

- Tighten the lock nut to the specified torque while holding the adjusting bolt.

S. TOOL

Lock nut wrench **07HMA – MR70200**

Torque: 54 N·m (5.4 kg-m , 39 lb-ft)



8. Cylinder Head/Valves

Service Information

- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Clean all disassembled parts with clean solvent and dry them using compressed air before inspection.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their proper locations.

Troubleshooting

- Engine top-end problems usually affect engine performance. These can be diagnosed by a compression or leak down test, or by tracing noises to the top-end with a sounding rod or stethoscope.
- If performance is poor at low speeds, check for white smoke in the crankcase breather tube. If there is smoke in the breather tube, check for a seized piston ring.

Compression Too Low, Hard Starting Or Poor Performance At Low Speed

- Valves
  - —Incorrect valve adjustment
  - —Burned or bent valves
  - —Incorrect valve timing
  - —Broken valve spring
  - —Uneven valve seating
- Cylinder head
  - —Leaking or damaged head gasket
  - —Warped or cracked cylinder head
- Cylinder, piston
  - —Leaking cylinder head gasket
  - —Loose spark plug
  - —Worn, stuck or broken piston ring
  - —Worn or damaged cylinder and piston

Compression Too High, Overheating Or Knocking

- Excessive carbon build-up in cylinder head or on top of piston

Excessive Smoke

- Cylinder head
  - —Worn valve stem or valve guide
  - —Damaged stem seal
- Cylinder, piston
  - —Worn cylinder, piston, or piston rings
  - —Improper installation of piston rings
  - —Scored or scratched piston or cylinder wall

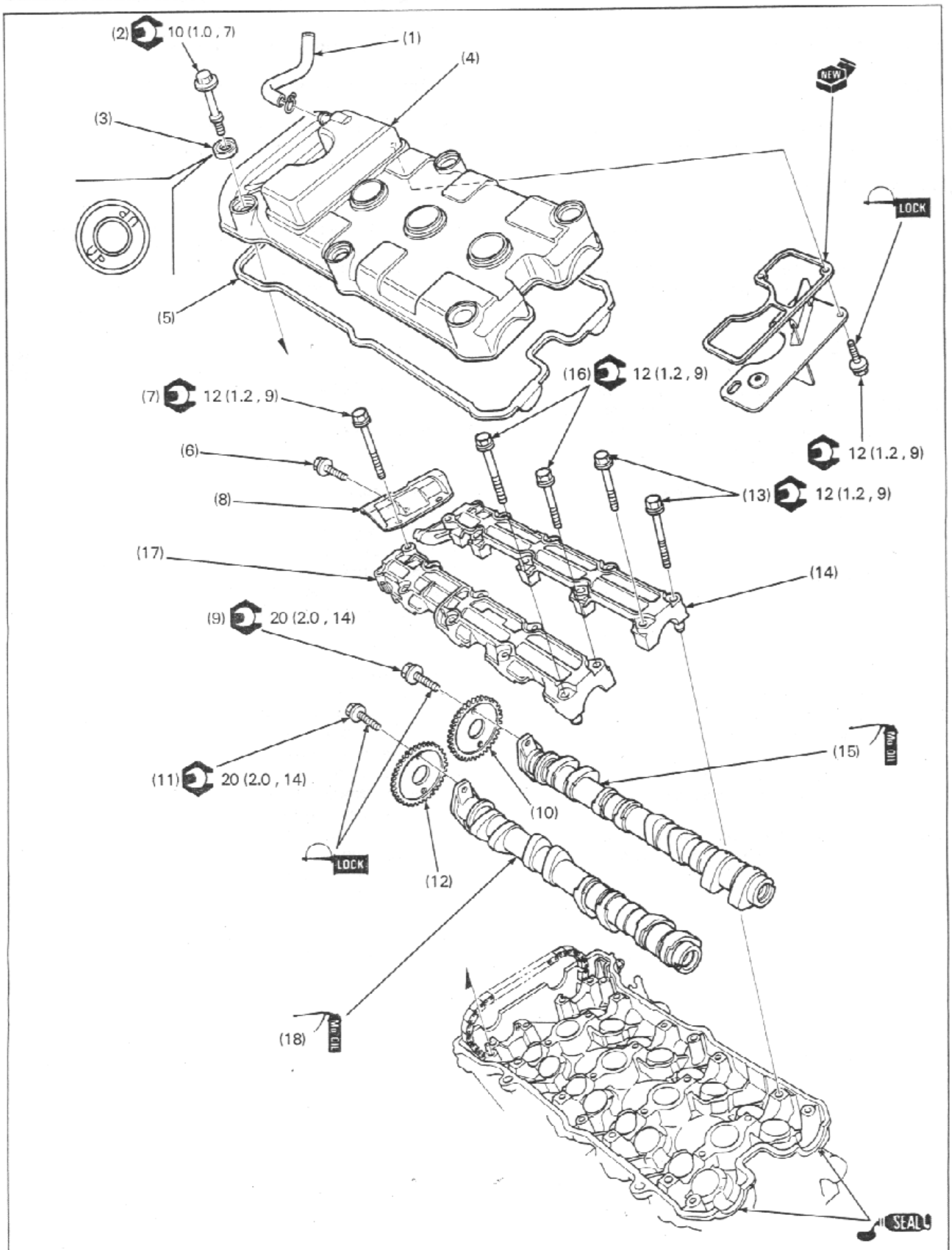
Excessive Noise

- Cylinder head
  - —Incorrect valve adjustment
  - —Sticking valve or broken valve spring
  - —Damaged or worn camshaft
  - —Loose or worn cam chain
  - —Worn or damaged cam chain
  - —Worn or damaged cam chain tensioner
  - —Worn cam sprocket teeth
- Cylinder, piston
  - —Worn cylinder and piston
  - —Worn piston pin and piston pin hole

Rough Idle

- Low cylinder compression

Camshaft Removal/Installation



NOTE:

- Before removal of the camshaft, release the cam chain tensioner (page 8-4).
- It is not necessary to remove the cam sprocket from the camshaft except replacing the camshaft or sprocket.

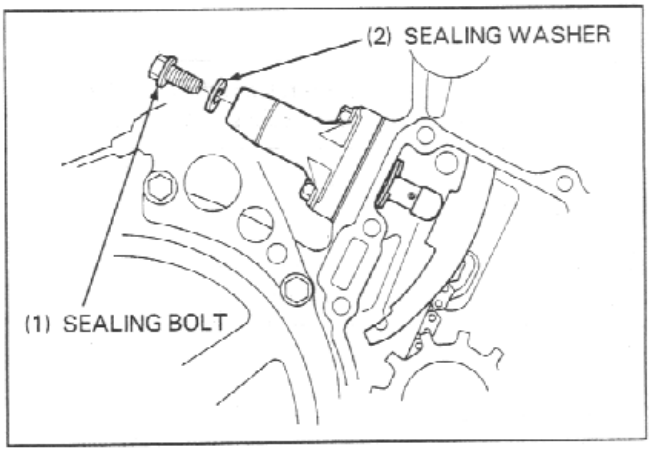
Requisite Service

- Middle, lower cowl removal/installation (page 2-5)
- Air cleaner housing removal/installation (page 5-3)
- Cam shaft tensioner releasing (page 8-4)
- Ignition coil removal/installation (page 16-10)

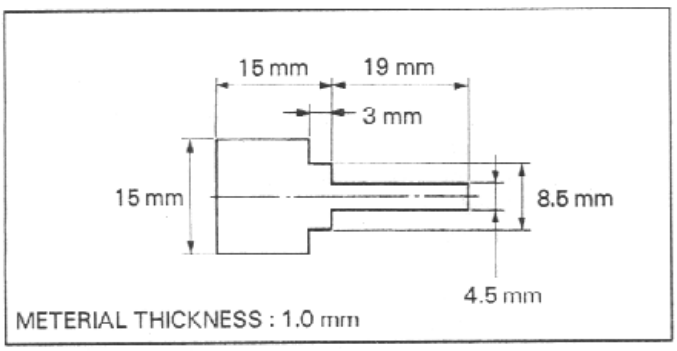
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Breather tube	1	
(2)	Cylinder head cover special bolt	6	NOTE: • At installation, tighten the "▲" marked side bolts first.
(3)	Washer	6	NOTE: • At installation, install the washer with its "UP" mark facing up.
(4)	Cylinder head cover	1	
(5)	Cylinder head cover packing	1	
(6)	Cam chain guide B bolt	1	
(7)	Cam chain guide B/camshaft holder bolt	2	NOTE: • Turn the crankshaft clockwise and align the "T" mark on the pulse generator rotor with the index mark on the pulse generator rotor cover. Make sure the No.1 piston is at TDC (Top Dead Center) on the compression stroke, then remove the holder bolts.
(8)	Cam chain guide B	1	
(9)	Intake cam sprocket bolt	2	NOTE: • It is not necessary to remove the cam sprocket from the camshaft except when replacing the camshaft or sprocket. • Be careful not to drop the bolts into the crankcase. • Suspend the cam chain with a piece of wire to prevent the chain falling into the crankcase.
(10)	Intake cam sprocket	1	
(11)	Exhaust cam sprocket bolt	2	
(12)	Exhaust cam sprocket	1	
(13)	Intake camshaft holder bolt	9	**CAUTION:** • **From outside to inside, loosen the bolts in a crisscross pattern in several steps or camshaft holder might break.**
(14)	Intake camshaft holder	1	Installation (page 8-4)
(15)	Intake camshaft	1	
(16)	Exhaust cam holder bolt	9	
(17)	Exhaust cam holder	1	
(18)	Exhaust camshaft	1	

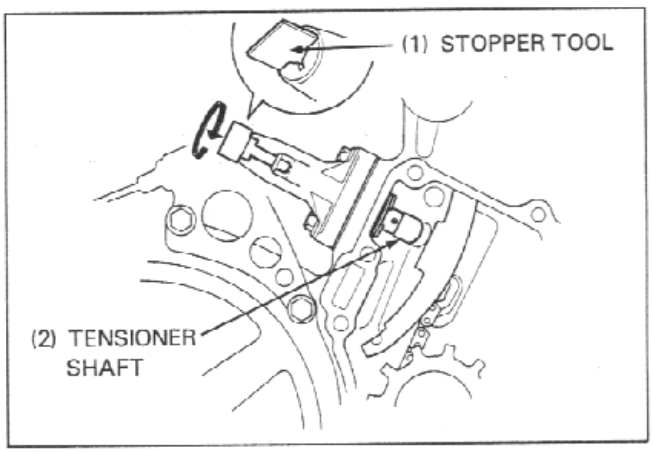
Cam Chain Tensioner Releasing

Remove the cam chain tensioner lifter sealing bolt and sealing washer.



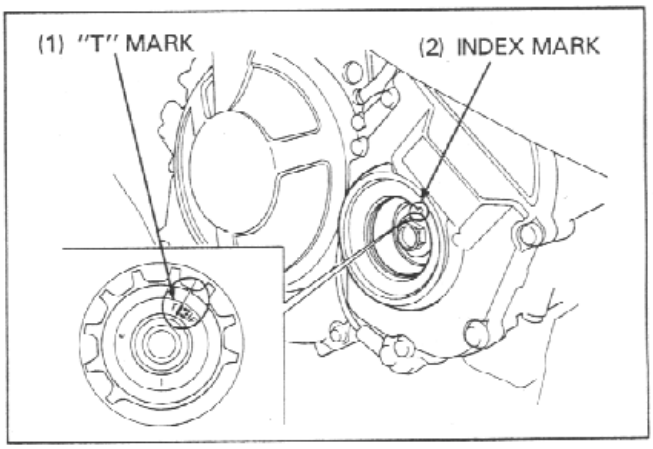
Turn the tensioner shaft fully in (clockwise) and secure it using the stopper tool.
This tool can easily be made from a thin (1 mm thickness) piece of steel.



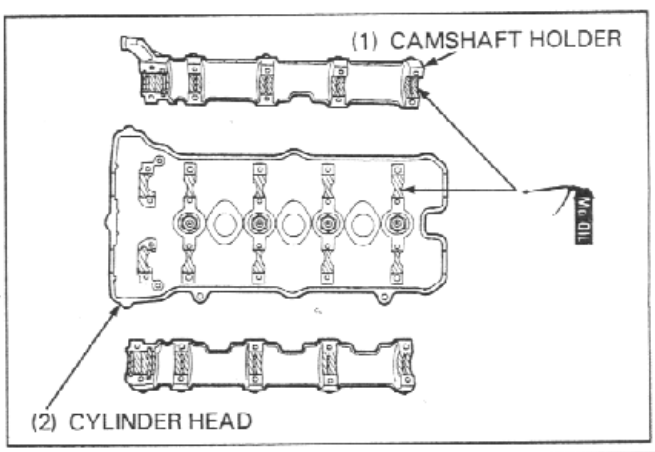


Camshaft Installation

Turn the crankshaft clockwise and align the "T" mark on the pulse generator rotor with the index mark on the pulse generator rotor cover.



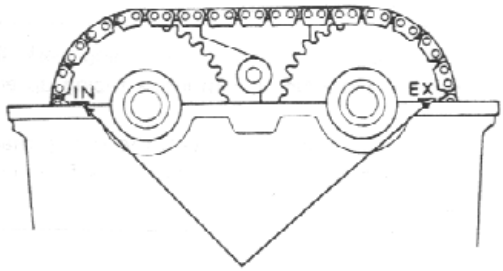
Apply molybdenum disulfide oil to the camshaft journals of the cylinder head and camshaft holder.



Install the cam chain over the cam sprocket and then install the intake and exhaust camshafts.

NOTE:

- Install the each camshaft to the correct locations with the identification marks.
  "IN": Intake camshaft
  "EX" : Exhaust camshaft
- Make sure that the timing marks on the camshaft sprockets are facing outward and flush with the cylinder head as shown.

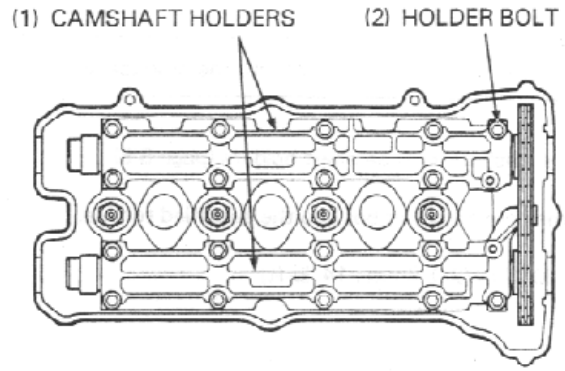


(1) TIMING MARK (FACING OUTWARD)

Install the camshaft holders onto the camshafts.
Temporarily install the eighteen holder bolts until the camshaft holders lightly contact the cylinder head surface.

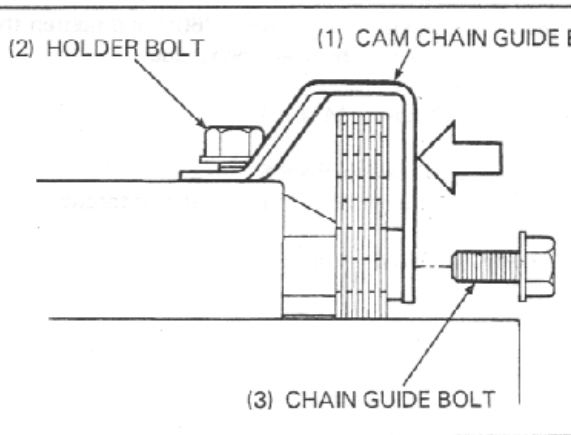
CAUTION:

- **Tightening the camshaft holder bolts on only one-side might cause a camshaft holder to break.**



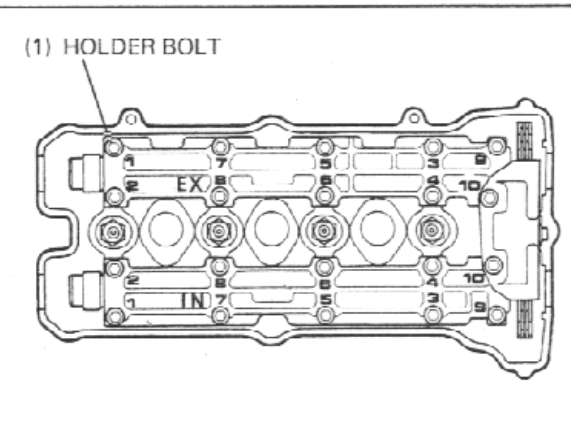
Install the cam chain guide B, cam chain guide mounting bolt and remaining holder bolts.

While pushing the cam chain guide B to the direction of the camshaft holder, temporarily tighten the holder bolts.



Tighten all camshaft holder bolts in the numerical order cast on the camshaft holder.

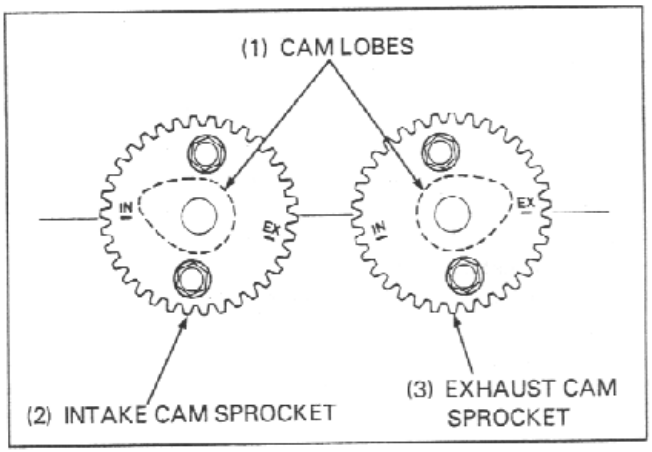
Torque : 12 N·m (1.2 kg-m , 9 lb-ft)



Reinstall the cam sprockets, if they were removed.

NOTE:

- Install the intake cam sprocket with the timing mark (IN) facing outward and the No. 1 cam lobes facing up and out as shown.
- Install the exhaust cam sprocket with the timing mark (EX) facing outward and the No. 1 cam lobes facing up and out as shown.

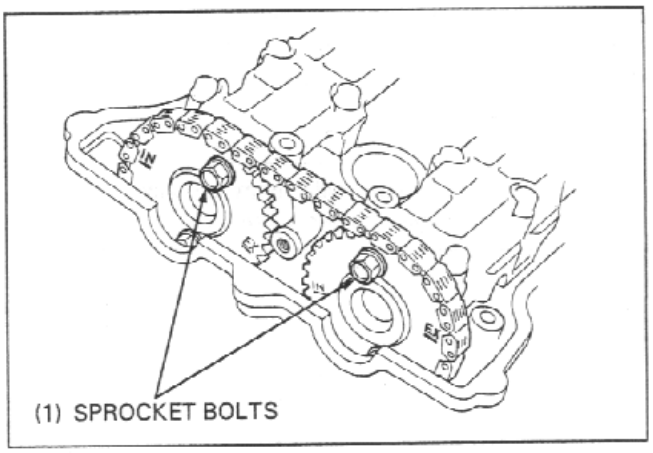


Clean and apply a locking agent to the cam sprocket bolt threads.

Temporarily install the cam sprocket bolts.

NOTE:

- Be careful not to drop the bolts into the crankcase.



Install the camshaft and camshaft holders (page 8-5).

Tighten the cam sprocket bolts to the specified torque.

Torque : 20 N·m (2.0 kg-m , 14 lb-ft)

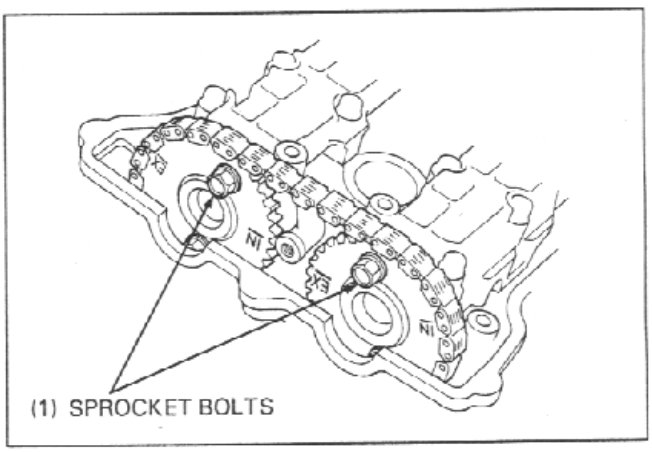
Turn crankshaft clockwise one full turn (360°) and tighten the other cam sprocket bolts to the specified torque.

Troque : 20 N·m (2.0 kg-m , 14 lb-ft)

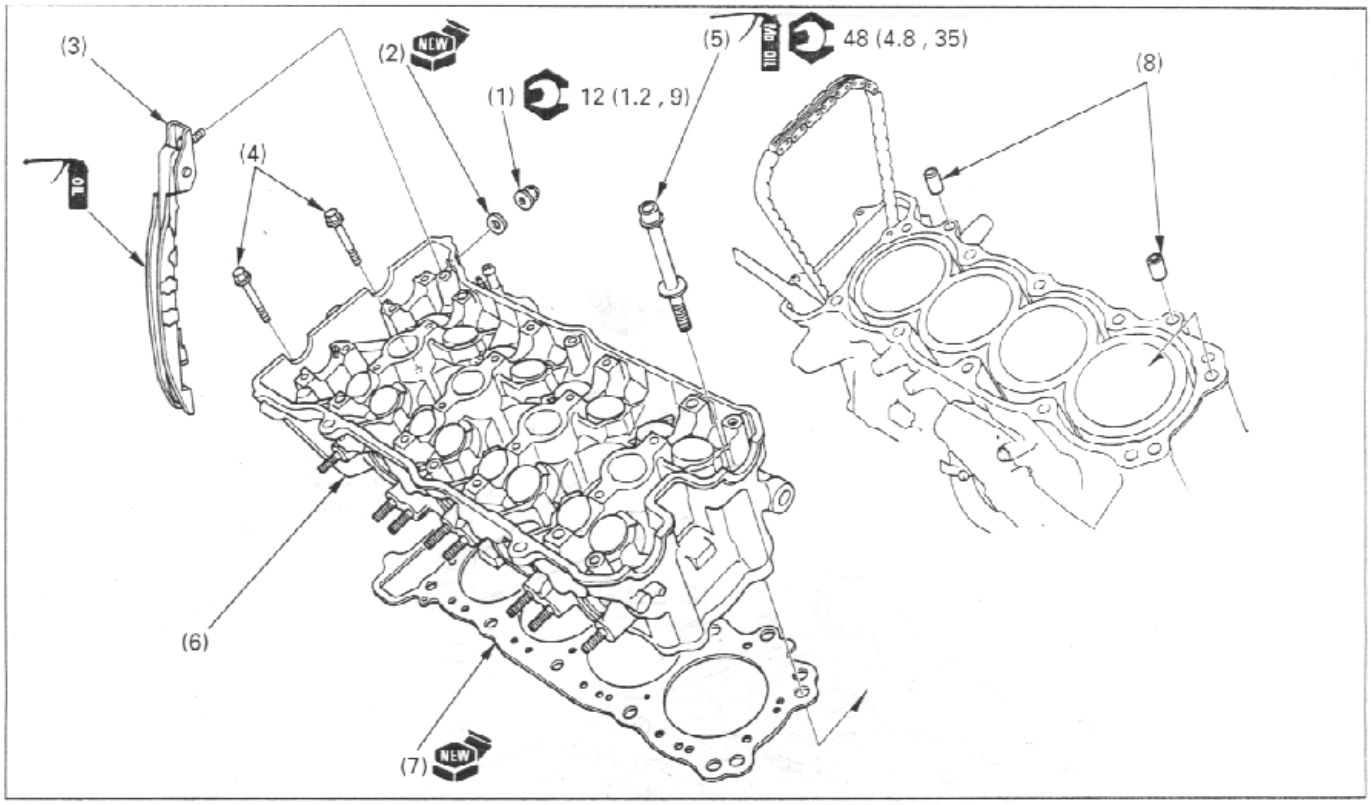
Install the cam chain guide B (page 8-5)
Tighten the camshaft holder bolts to the specified torque.

Troque : 12 N·m (1.2 kg-m , 9 lb-ft)

Recheck the valve timing.



Cylinder Head Removal/Installation

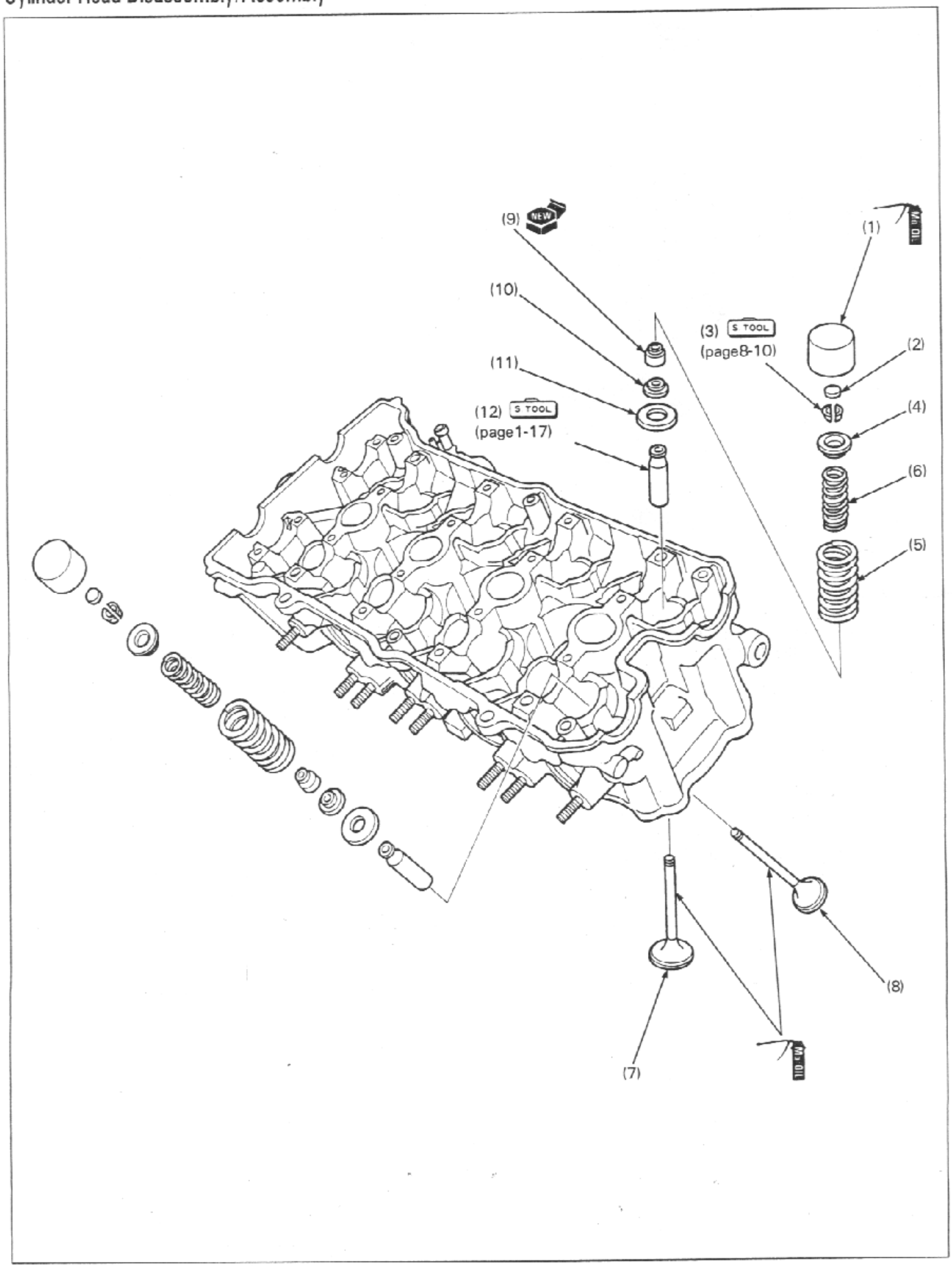


Requisite Service

- Muffler removal/installation (page 2-19)
- Coolant draining/refill (page 6-3)
- Camshaft removal/installation (page 8-2)
- Carburetor removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cam chain tensioner cap nut	1	
(2)	Sealing washer	1	
(3)	Cam chain tensioner	1	
(4)	Cylinder head flange bolt, 6 mm	2	
(5)	Cylinder head special bolt, 9 mm/washer	10	· Loosen the bolts in a crisscross pattern in 2 or 3 steps. · At installation, apply molybdenum disulfide oil to the bolt threads and seating surface.
(6)	Cylinder head	1	Suspend the cam chain with a piece of wire to prevent the chain from falling into the crankcase.
(7)	Gasket	1	
(8)	Dowel pin	2	

Cylinder Head Disassembly/Assembly



NOTE:

- Mark all parts during disassembly so they can be placed back in their original locations.
- Remove carbon deposits from the combustion chamber and clean the head gasket surface, before assembly.
  - —Avoid damaging the gasket surface.
  - —Gaskets will come off easier soaked in solvent.
- Valve guide replacement see section 9 of the Common Service Manual.

Requisite Service

- Cylinder head removal/installation (page 8-7)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Valve lifter	16	NOTE: • Remove the valve lifters using a hand lapping tool. Be careful not to damage the valve lifter bore.
(2)	Shim	16	
(3)	Valve spring cotter	32	NOTE: • To prevent loss of tension, do not compress the valve more than necessary.
(4)	Retainer	16	
(5)	Outer valve spring	16	At installation, install the valve springs with the narrow pitch coil end facing the combustion chamber.
(6)	Inner valve spring	16	
(7)	Intake valve	8	NOTE: • Before installation, lubricate each valve stem with molybdenum disulfide oil.
(8)	Exhaust valve	8	
(9)	Valve stem seal	16	
(10)	Inner valve spring seat	16	
(11)	Outer valve spring seat	16	
(12)	Valve guide	16	Valve guide projection (page 1-7)

Valve Cotter Removal/Installation

Remove the valve lifters and shims.

NOTE:

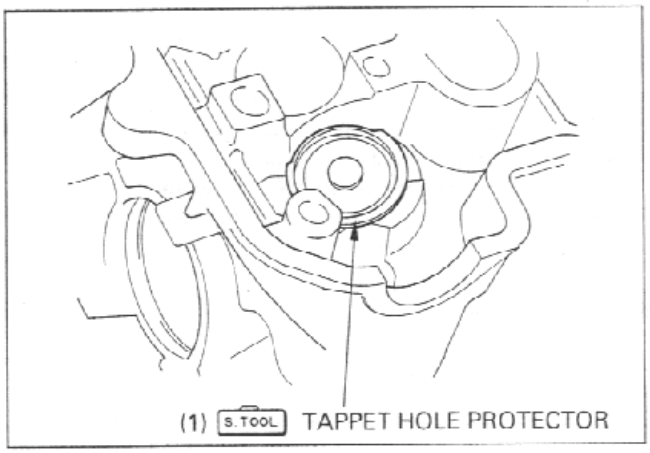
- Mark the positions of all valve lifters and shims to ensure correct reassembly.
- It is easy to remove the valve lifter with a valve lapping tool or magnet.
- Remove the shims with tweezers or a magnet.

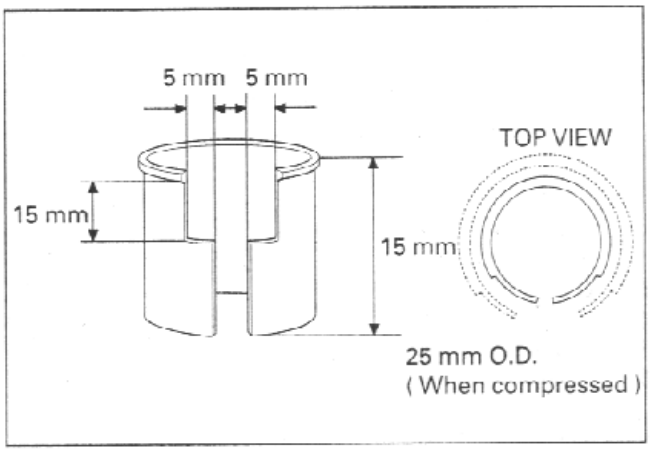
Install the tappet hole protector into the valve lifter bore.

S. TOOL

Tappet hole protector **07HMG – MR70002**
Not available in U.S.A

U.S.A. only:
An equivalent tool can easily be made from a plastic 35 mm film container as shown.





Install the valve spring compressor onto the valve and compress the valve spring.

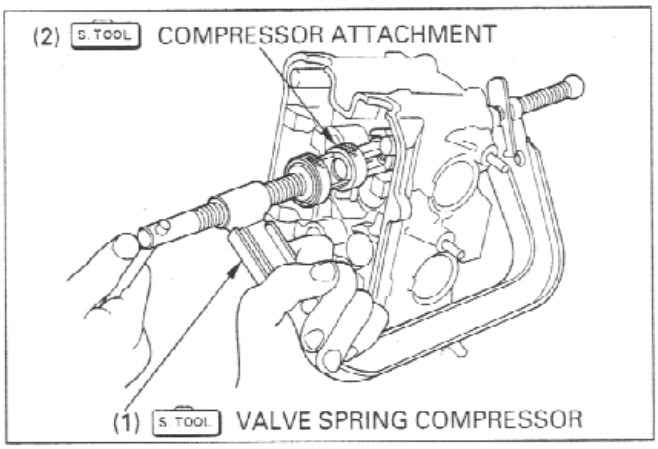
CAUTION:

- **To prevent loss of tension, do not compress the valve springs more than necessary.**

Remove the valve cotters.

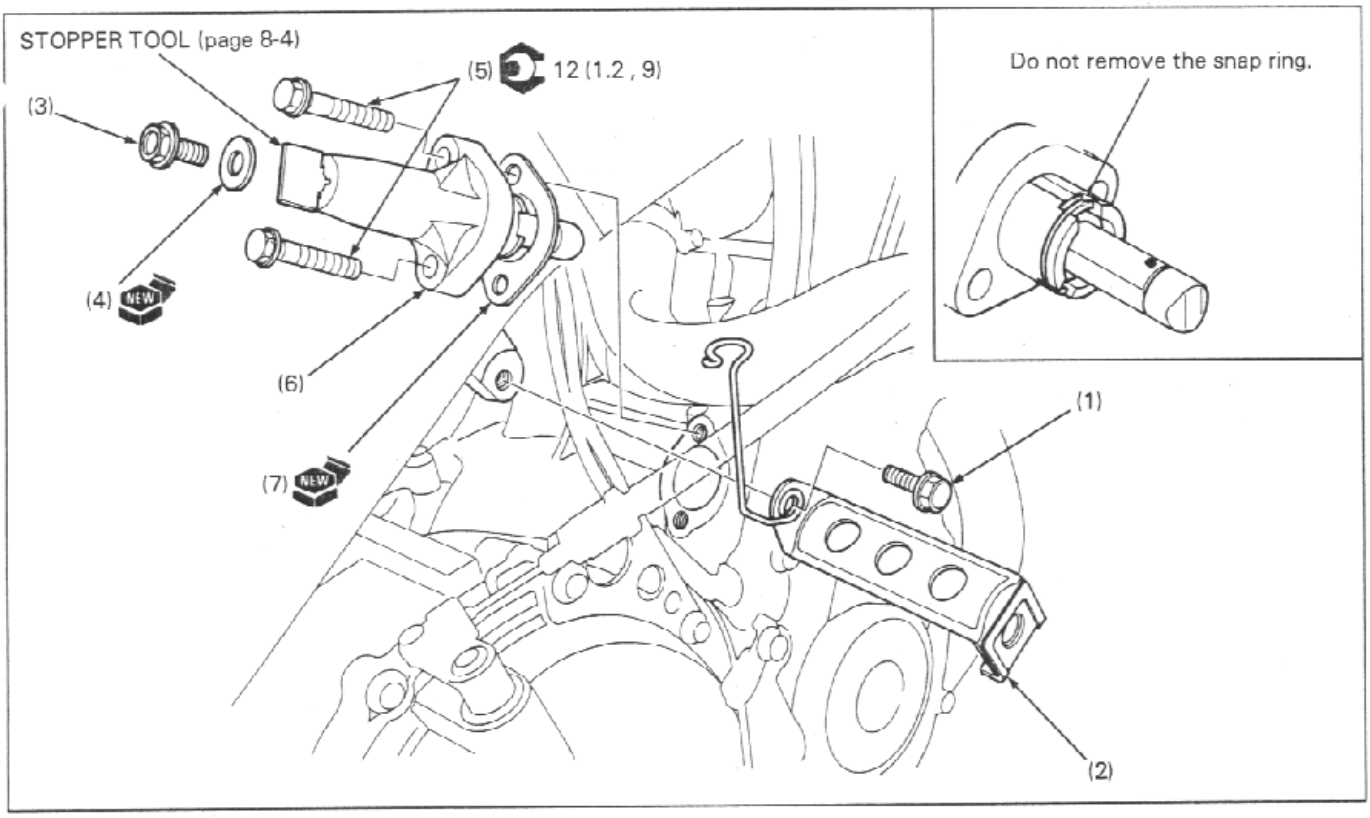
S. TOOL

Valve spring compressor **07757 – 0010000**
Valve spring compressor attachment **07959 – KM30101**



Installation is in the reverse order of removal.

Cam Chain Tensioner Lifter Removal/Installation



Requisite Service

- Right middle cowl removal/installation (page 2-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Right middle cowl bracket bolt	1	
(2)	Right middle cowl bracket	1	
(3)	Cam chain tensioner lifter sealing bolt	1	NOTE: • Before removal or installation, turn the chain tensioner fully in (clockwise) and secure it using the stopper tool, to prevent damaging the cam chain (page 8-4).
(4)	Sealing washer	1	
(5)	Cam chain tensioner lifter mounting bolt, 6 mm	2	
(6)	Cam chain tensioner lifter	1	**CAUTION:** **• Do not disassemble the cam chain tensioner lifter.**
(7)	Gasket	1	Note the direction of the gasket.

MEMO

9. Clutch/Gearshift Linkage

Service Information

- Clutch and gearshift linkage maintenance can be done with the engine in the frame.
- Transmission oil viscosity and level have an effect on clutch disengagement. When the clutch does not disengage or the vehicle creeps with clutch disengaged, inspect the transmission oil level before servicing the clutch system.

Troubleshooting

Hard To Shift
- Incorrect clutch adjustment
- Improper oil viscosity
- Bent shift forks
- Bent shift fork shaft
- Bent fork claw
- Damaged shift drum cam grooves
- Loose stopper plate bolt
- Damaged stopper plate and pin
- Damaged gearshift spindle

Transmission Jumps Out Of Gear
- Worn shift drum stopper arm
- Weak or broken shift arm return spring
- Loose stopper plate bolt
- Bent shift fork shaft
- Damaged shift drum cam grooves
- Damaged or bent shift forks
- Worn gear engagement dogs or slots

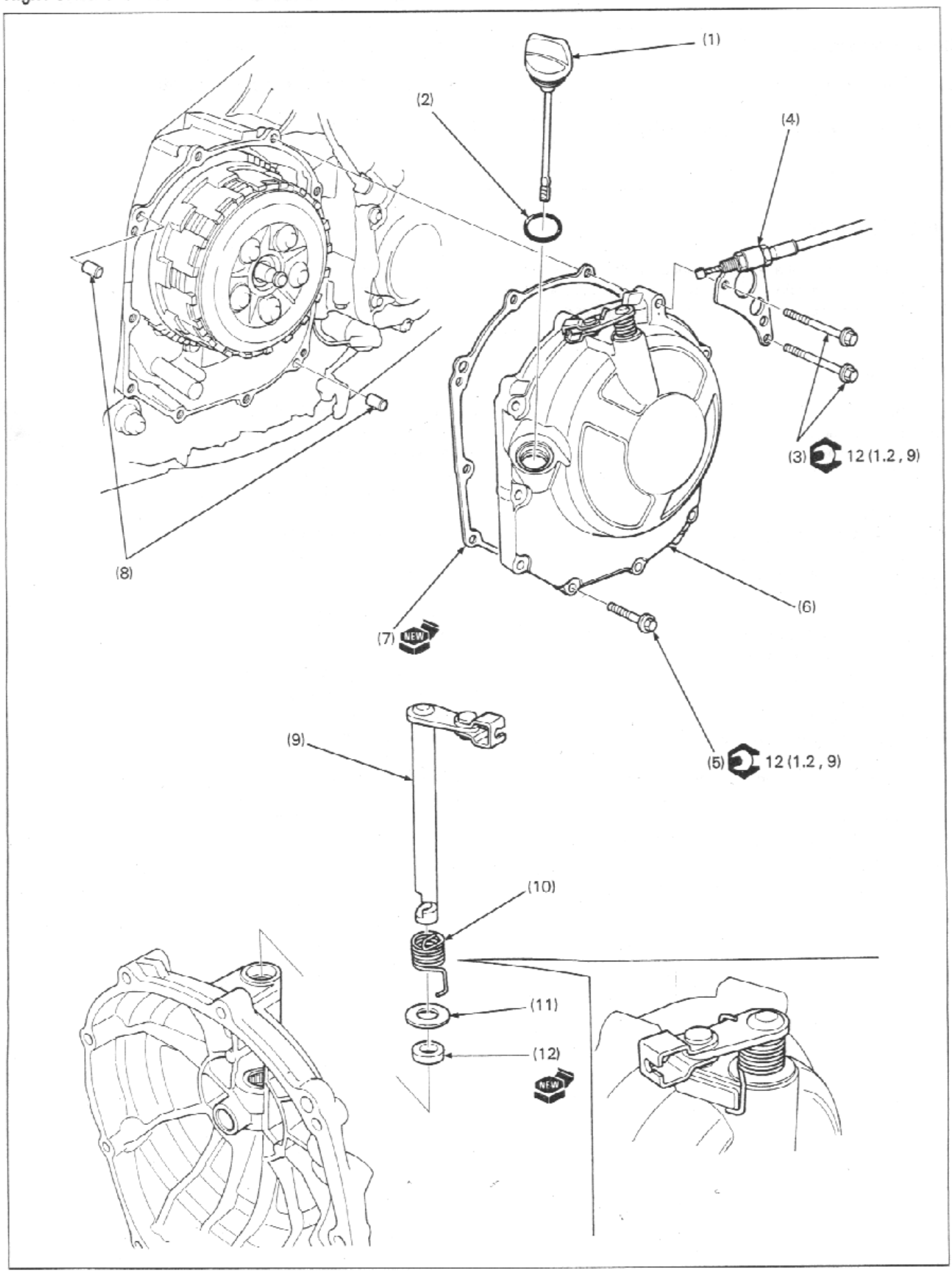
Gearshift Pedal Will Not Return
- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

Clutch Lever Too Hard To Pull In
- Damaged, kinked or dirty clutch cable
- Damaged clutch lifter mechanism
- Faulty clutch lifter bearing
- Clutch lifter piece installed improperly

Clutch Slips When Accelerating
- Incorrect clutch adjustment
- Worn clutch discs
- Weak clutch springs
- Transmission oil mixed with molybdenum or graphite additive

Motorcycle Creeps With The Engine Idling
- Incorrect clutch adjustment
- Clutch plates warped
- Loose clutch lock nut
- Oil level too high
- Improper oil viscosity
- Damaged clutch lifter mechanism
- Clutch lifter piece installed improperly

Right Crankcase Cover Removal/Installation

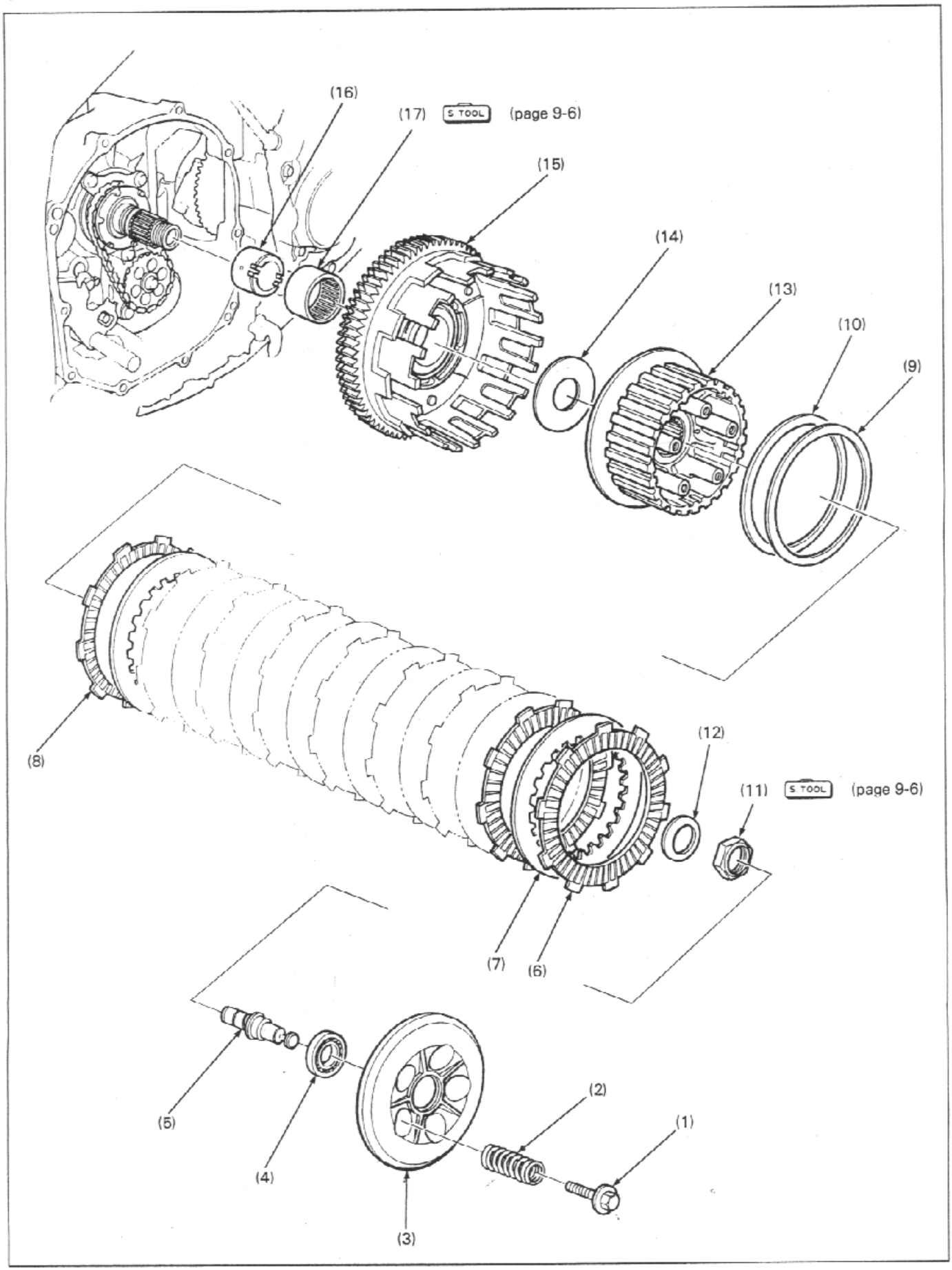


Requisite Service

- Engine oil draining/refill
- Lower cowl removal/installation (page2-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil filler cap/dip stick	1	
(2)	O-ring	1	
(3)	Clutch cable holder SH bolt	2	
(4)	Clutch cable holder	1	Remove the clutch cable from the clutch lifter arm.
(5)	Right crankcase cover SH bolt	8	
(6)	Right crankcase cover	1	At installation, align the cut out in the clutch lifter arm with the clutch lifter piece.
(7)	Gasket	1	
(8)	Dowel pin	2	
	Disassembly Order		Assembly is in the reverse order of disassembly.
(9)	Clutch lifter arm	1	
(10)	Return spring	1	
(11)	Washer	1	
(12)	Dust seal	1	

Clutch Removal



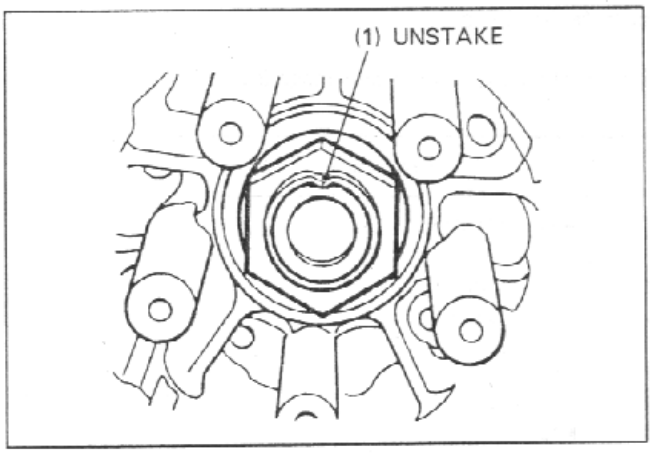
Requisite Service

- Right crankcase cover removal (page 9-2)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Flange bolt	5	
(2)	Clutch spring	5	
(3)	Pressure plate	1	
(4)	Lifter bearing	1	
(5)	Clutch lifter piece	1	
(6)	Clutch disc A	8	
(7)	Clutch plate	8	
(8)	Clutch disc B	1	
(9)	Judder spring	1	
(10)	Spring seat	1	
(11)	Clutch center lock nut	1	Removal (page 9-6)
(12)	Cone washer	1	
(13)	Clutch center	1	
(14)	Washer	1	
(15)	Clutch outer	1	Removal (page 9-6)
(16)	Clutch outer guide	1	
(17)	Needle bearing	1	Replacement (page 9-6)

Clutch Center Lock Nut Removal

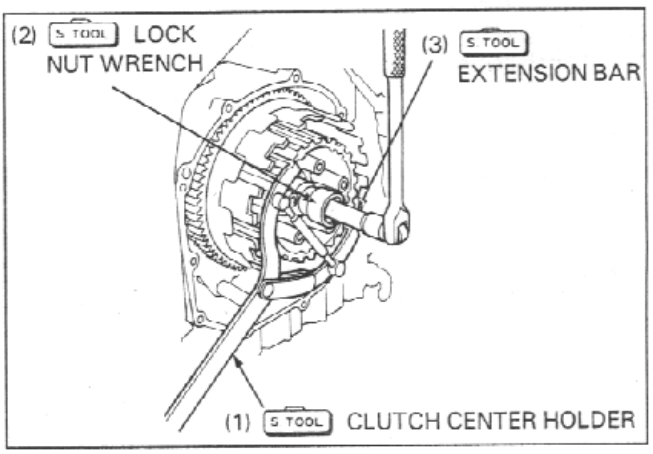
Unstake the clutch center lock nut.



Attach the clutch center holder to the clutch center. Remove the lock nut using the special tools.

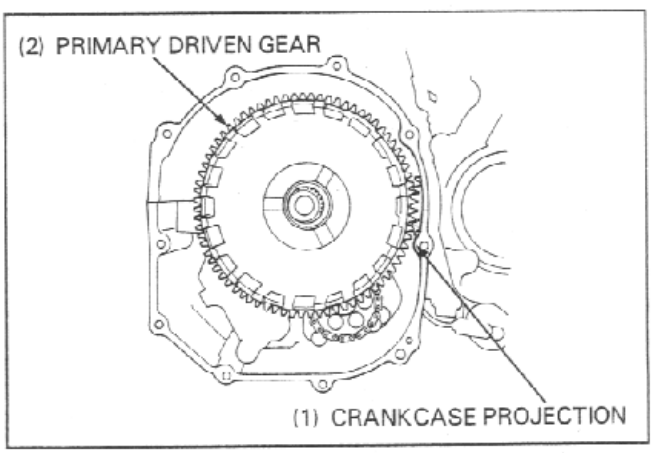
S TOOL

Clutch center holder	07724—0050001
Lock nut wrench, 30 x 32 mm	07716—0020400
Extension bar	07716—0020500



Clutch Outer Removal

Align the projection of the crankcase with between the teeth of the primary driven gear and remove the clutch outer from the mainshaft.

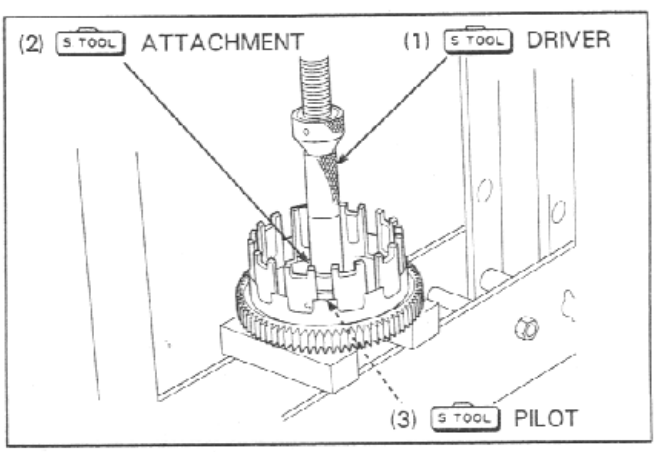


Clutch Outer Needle Bearing Replacement

Press the needle bearing out of the clutch outer using the following tools.

S TOOL

Driver	07749—0010000
Attachment, 37 x 40 mm	07716—0010200
Pilot, 35 mm	07716—0040800



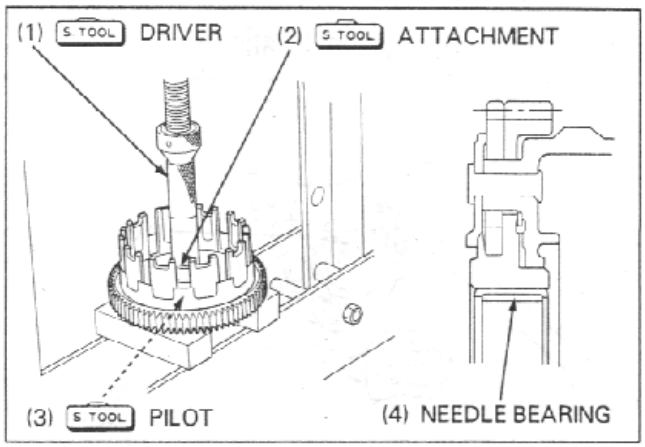
Press a new needle bearing into the clutch outer so that the casing of the needle bearing is flush with the clutch outer surface as shown.

NOTE:

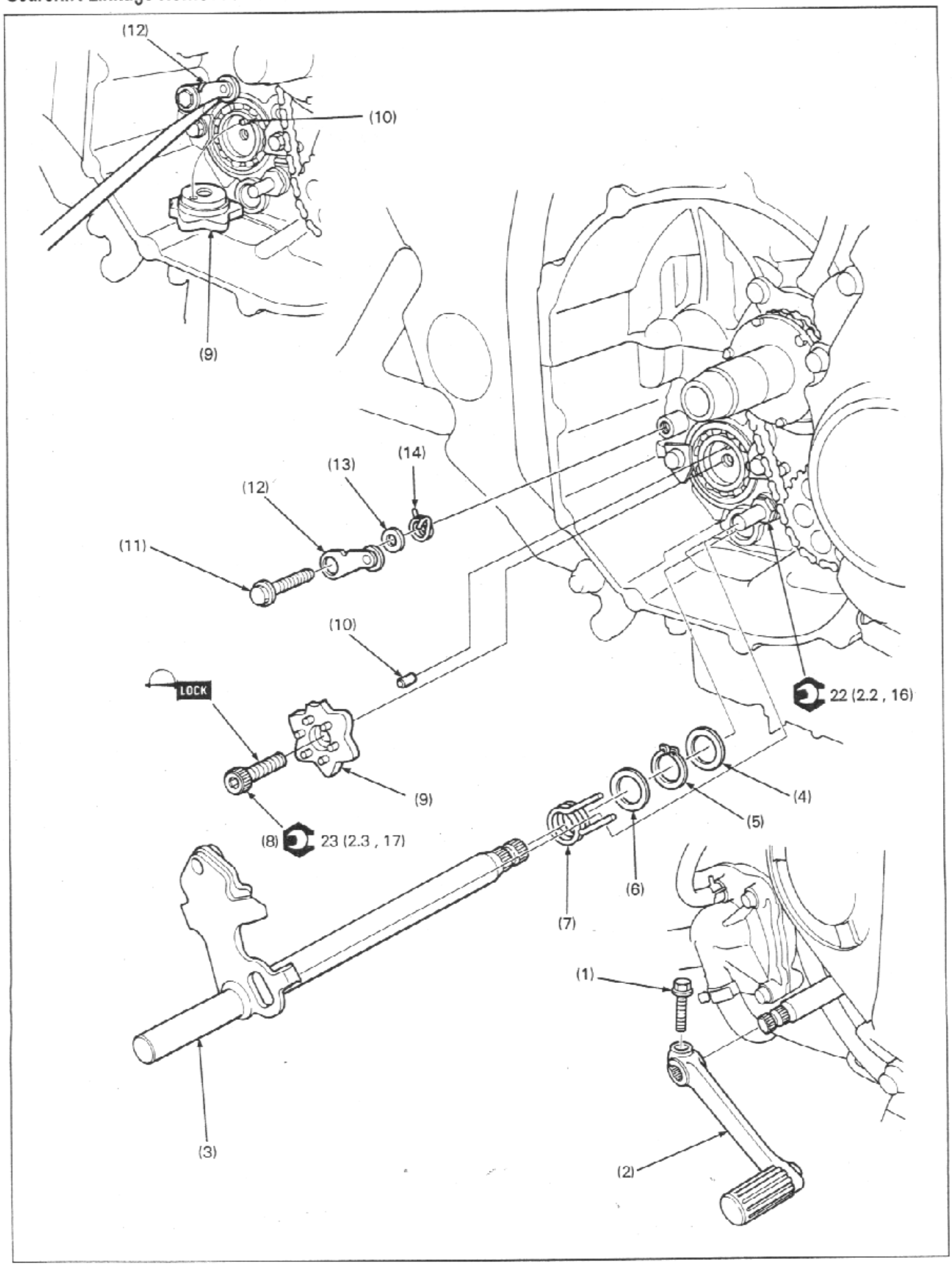
- Press the needle bearing into the clutch outer with the marked side facing up.

S TOOL

Driver	**07749—0010000**
Attachment, 42 x 47 mm	**07716—0010300**
Pilot, 35 mm	**07716—0040800**



Gearshift Linkage Removal/Installation



NOTE:

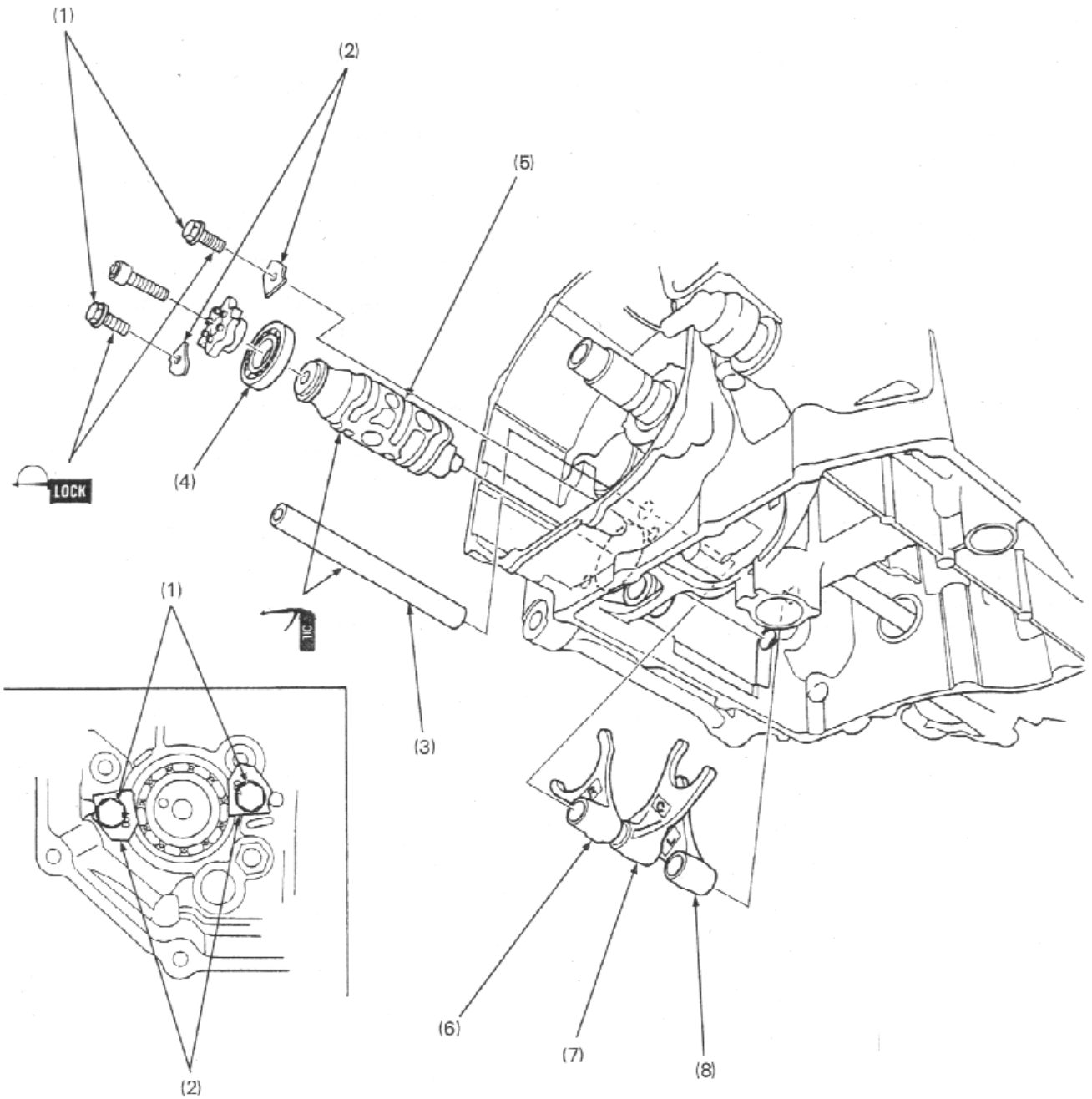
- After installation, check that the gearshift linkage operates properly.

Requisite Service

- Clutch removal (page 9-4)
- Clutch installation (page 9-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Gearshift pedal pinch bolt	1	
(2)	Gearshift pedal	1	At installation, align the slit in the gearshift pedal with the punch mark on the gearshift spindle.
(3)	Gearshift spindle assembly	1	At installation, align the pin on the crankcase with the gearshift spindle return spring ends.
(4)	Thrust washer	1	
(5)	Snap ring	1	At installation, install the snap ring with its chamfered side facing the return spring.
(6)	Thrust washer	1	
(7)	Return spring	1	
(8)	Gearshift cam center bolt	1	At installation, clean and apply a locking agent to the threads.
(9)	Gearshift cam	1	At installation, align the hole in the gearshift cam with the dowel pin on the shift drum.
(10)	Dowel pin	1	
(11)	Stopper arm bolt	1	
(12)	Stopper arm	1	
(13)	Washer	1	
(14)	Stopper arm spring	1	

Shift Drum/Shift Forks Removal/Installation.



NOTE:

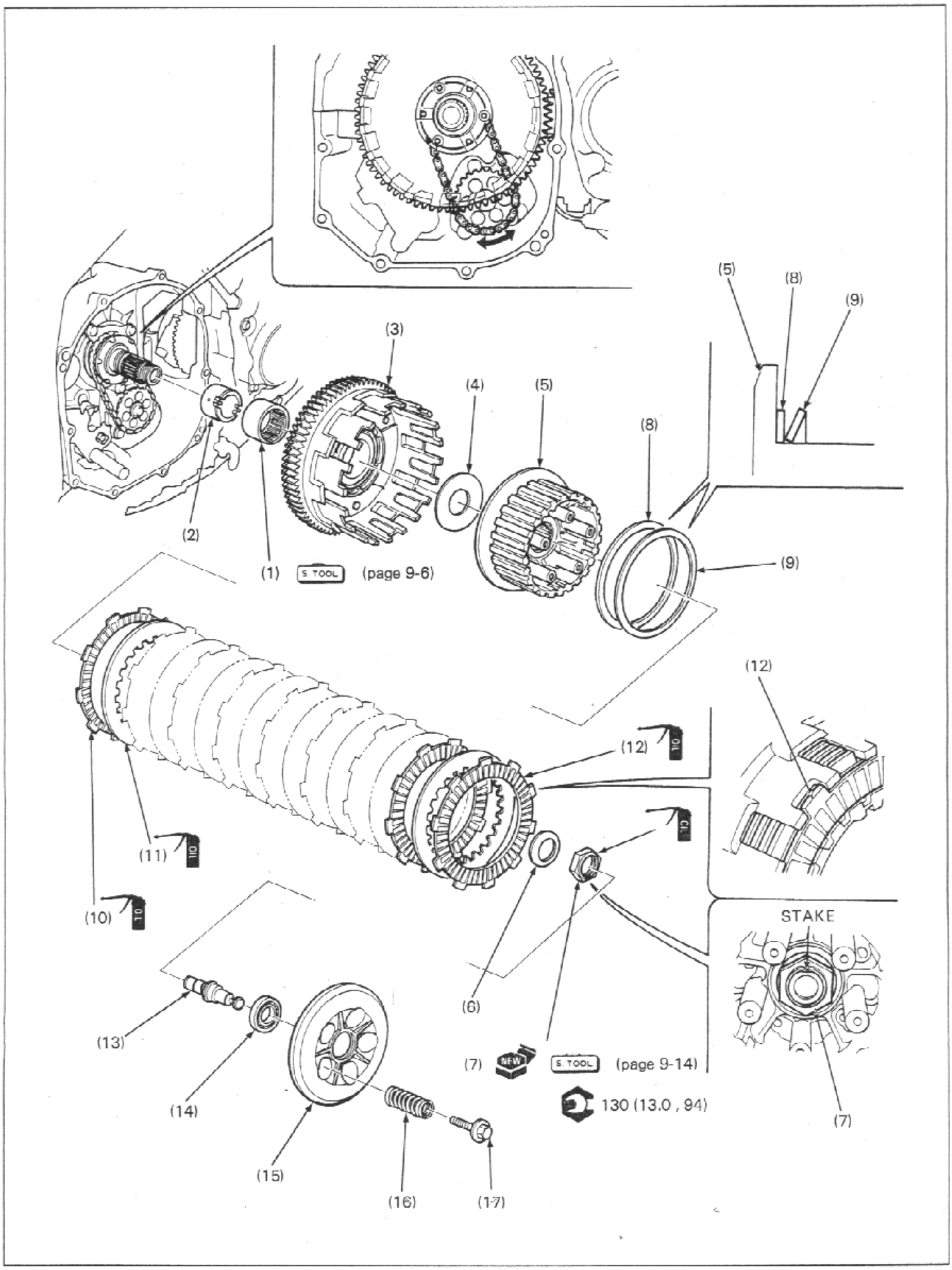
- Apply molybdenum disulfide oil to the shifter gear grooves.

Requisite Service

- Gearshift linkage removal/installation (page 9-8)
- Oil pan removal/installation (page 4-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Flange bolt	2	At installation, clean and apply a locking agent to the threads.
(2)	Shift drum set plate	2	NOTE: • At installation, install the set plate with its "OUT" mark facing out and align its cut-out with the projection of the crankcase.
(3)	Shift fork shaft	1	
(4)	Shift drum bearing	1	
(5)	Shift drum	1	
(6)	Right shift fork	1	At installation, install the shift forks with their marks facing to right.
(7)	Center shift fork	1	
(8)	Left shift fork	1	

Clutch Installation



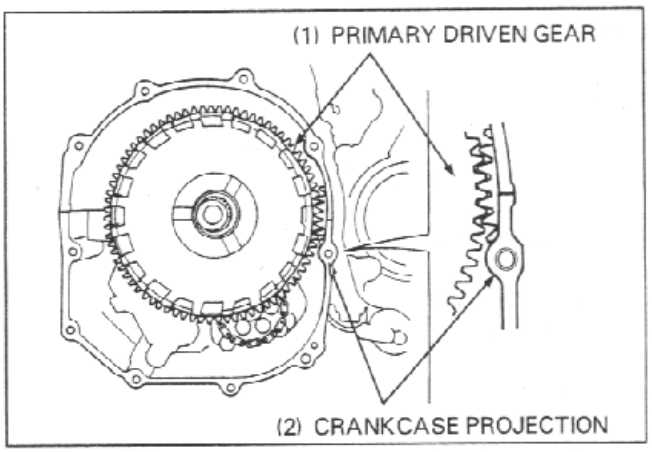
Requisite Service

- Right crankcase cover installation (page 9-2)

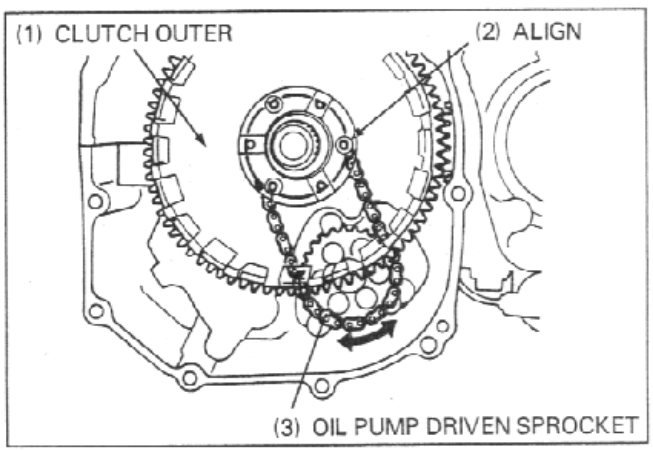
	Procedure	Q'ty	Remarks
	Installation Order		
(1)	Needle bearing	1	Replacement (page 9-6)
(2)	Clutch outer guide	1	
(3)	Clutch outer	1	Installation (page 9-14)
(4)	Washer	1	
(5)	Clutch center	1	
(6)	Cone washer	1	"OUT SIDE" mark facing out.
(7)	Clutch center lock nut	1	Installation (page 9-14)
(8)	Spring seat	1	
(9)	Judder spring	1	Note the direction of the spring
(10)	Clutch disc B	1	Larger I. D. disc.
(11)	Clutch plate	8	
(12)	Clutch disc A	8	NOTE: • Install the outer disc in the shallow slot on the clutch outer.
(13)	Clutch lifter piece	1	
(14)	Lifter bearing	1	
(15)	Pressure plate	1	
(16)	Clutch spring	5	
(17)	Flange bolt	5	

Clutch Outer Installation

Align the projection of the crankcase with between the teeth of the primary driven gear.



Turn the oil pump driven sprocket and align the pins on the oil pump sprocket with the holes of the clutch outer.



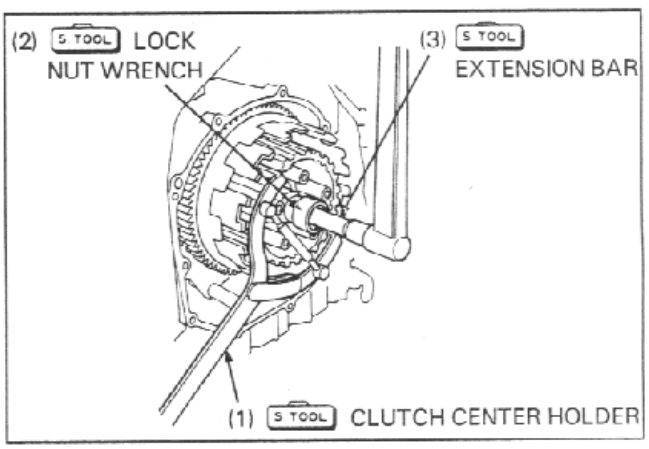
Clutch Center Lock Nut Installation

Attach the clutch center holder to the clutch center.
Tighten the new lock nut using the special tools.

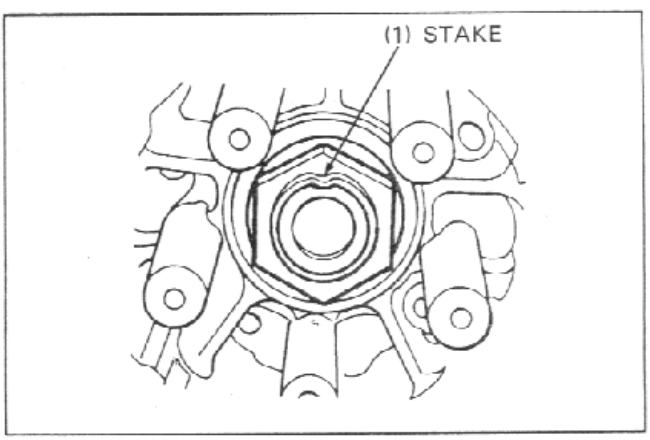
S TOOL

Clutch center holder	**07724—0050001**
Lock nut wrench, 30 x 32 mm	**07716—0020400**
Extension bar	**07716—0020500**

Torque : 130 N·m (13.0 kg-m , 94 lb-ft)



Stake the clutch center lock nut against the mainshaft.



10. Crankcase/Piston/Cylinder

Service Information

- This section covers crankcase separation for service of the crankshaft and piston.
- The following parts must be removed before separating the crankcase.
  - —Alternator (Section 15)
  - —Clutch/gearshift linkage (Section 9)
  - —Cylinder head (Section 8)
  - —Engine (Section 7)
  - —Oil pump (Section 4)
- Mark and store the bearing inserts to be sure of their correct locations for reassembly. If the inserts are improperly installed they will block the oil holes, causing insufficient lubrication and eventual engine seizure.
- Prior to assembling the crankcase halves apply a sealant to their mating surface. Wipe off excess sealant thoroughly.
- Mark and store the disassembled parts to ensure that they are reinstalled in their original locations.

Troubleshooting

Cylinder Compression Is Too Low, Or Engine Is Hard To Start
- Blown cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damaged cylinder or piston
- Bent valve, or bent and deteriorated valve seat

Cylinder Compression Is Too High, Or Engine Overheats Or Knocks
- Carbon deposits on the cylinder head and/or piston

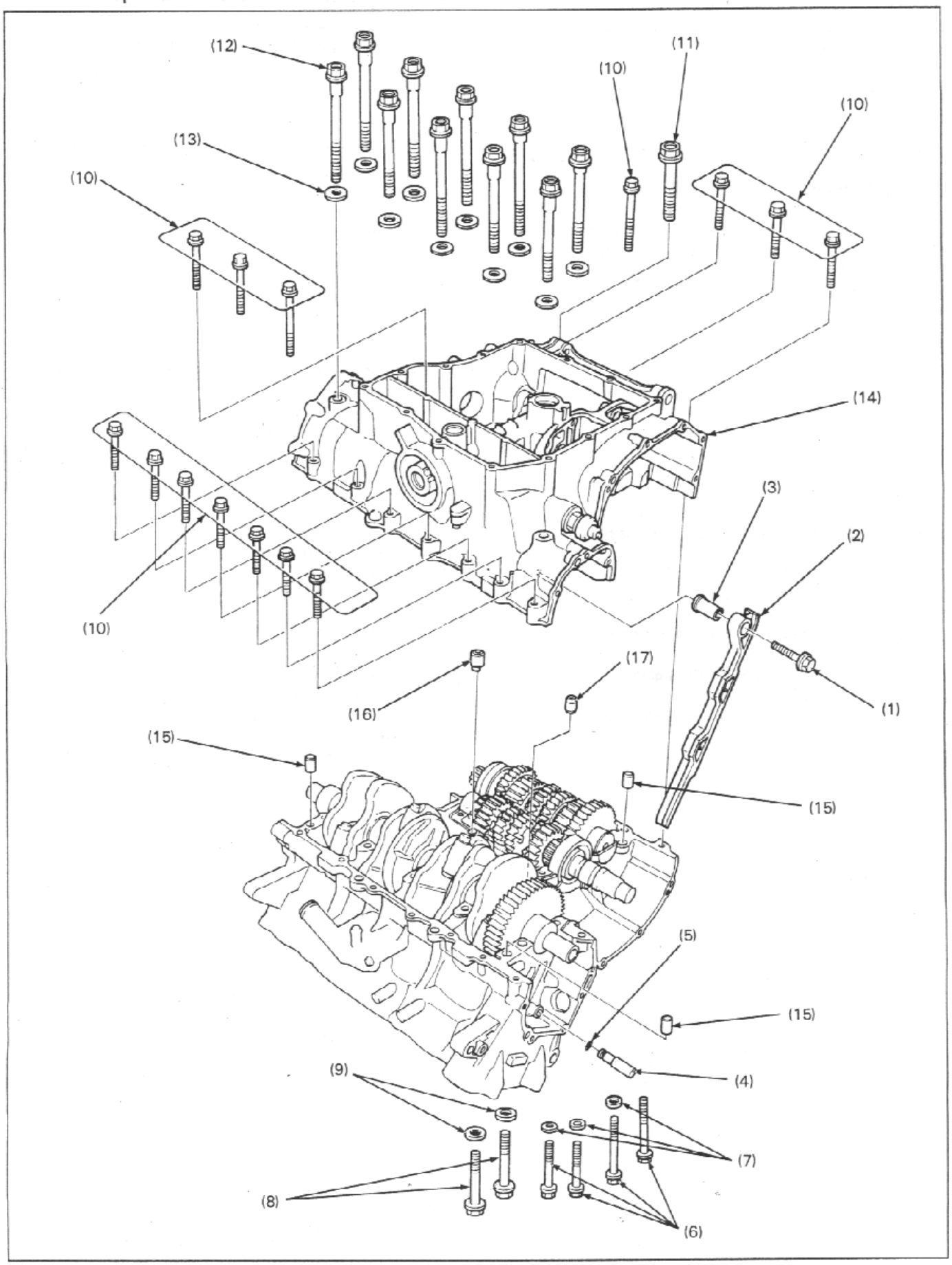
Piston Sounds
- Worn cylinder, piston and/or piston ring
- Worn piston pin hole and piston pin
- Worn connecting rod small end

Excessive Smoke
- Worn, stuck or broken piston ring
- Weak valve stem seal

Excessive Noise
- Worn connecting rod big-end bearing
- Bent connecting rod
- Worn crankshaft main bearing
- Worn transmission bearing

Engine Vibration
- Excessive crankshaft runout

Crankcase Separation

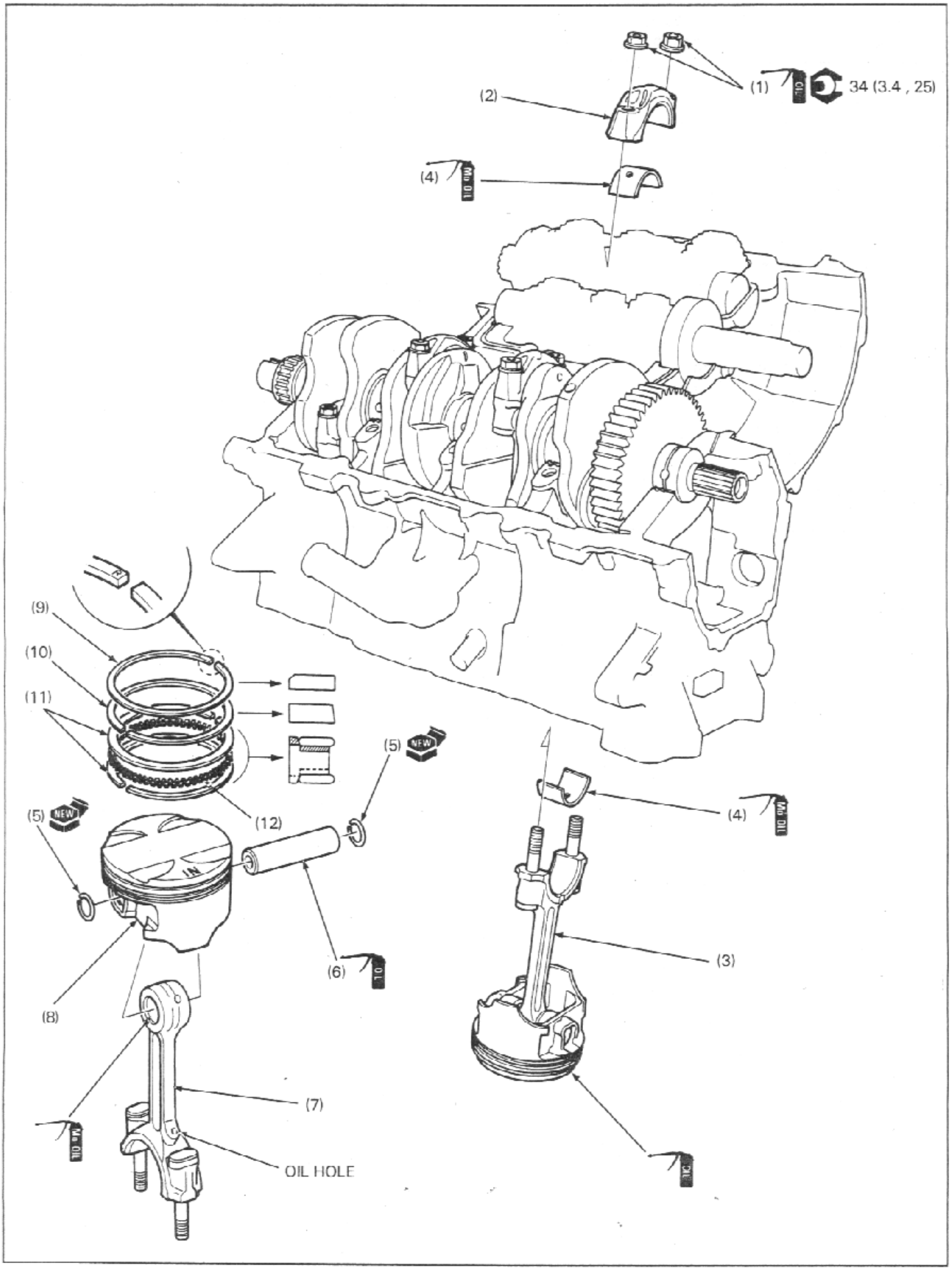


NOTE:

- Refer to Service Information (page 10-1) for removal of necessary parts before separating the crankcase.
- From the outside to inside, loosen the bolts in a crisscross pattern in several steps.

	Procedure	Q'ty	Remarks
	Separation Order		
(1)	Flange bolt	1	
(2)	Cam chain slipper	1	
(3)	Collar	1	
(4)	Sealing plug	1	
(5)	O-ring, 9.2 x 1.9 mm	1	
(6)	Upper crankcase bolt, 6 mm	4	
(7)	Sealing washer, 6 mm	3	
(8)	Upper crankcase bolt, 8 mm	2	
(9)	Sealing washer, 8 mm	2	
(10)	Lower crankcase bolt, 6 mm	14	
(11)	Lower crankcase bolt, 10 mm	1	
(12)	Lower crankcase bolt, 9 mm	10	Loosen the bolts in a crisscross pattern in 2 or 3 steps.
(13)	Sealing washer, 9 mm	10	
(14)	Lower crankcase	1	
(15)	Dowel pin	3	
(16)	Oil orifice, B	1	
(17)	Oil orifice, A	1	

Piston/Connecting Rod Removal/Installation



NOTE:

- Mark all parts during disassembly so they can be replaced in their original locations.
- Connecting rod bearing inserts are select fitted and are identified by color code. Select replacement bearings from the code table (page 10-6). After installing new bearings, recheck them with plastigauge to verify the correct clearance.
- Apply molybdenum disulfide oil to the connecting rod bearing and crankpin.

Requisite Service

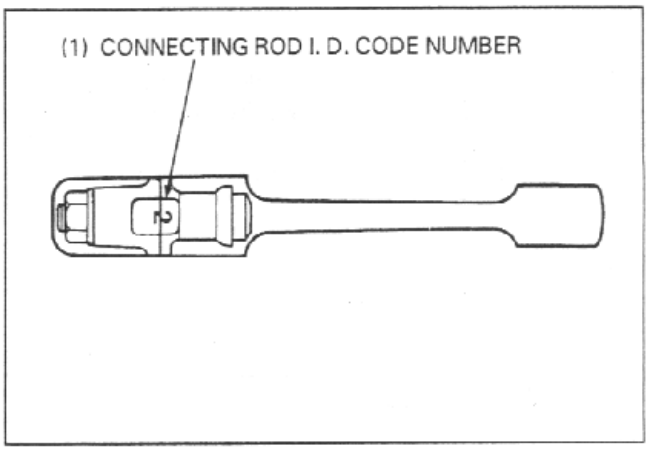
- Crankcase separation (page 10-2)
- Crankcase combination (page 10-8)

	Procedure	Q'ty	Remarks
	Piston, Connecting Rod Removal Order		Installation is in the reverse order of removal.
(1)	Connecting rod bearing cap nut	8	NOTE: • At installation, apply engine oil to the threads and seating surface of the nut. • Tighten the nuts gradually and alternately.
(2)	Connecting rod bearing cap	4	NOTE: • Note the direction of the bearing cap.
(3)	Connecting rod/piston assembly	4	**CAUTION:** • **Do not try to remove the connecting rod/piston assembly from the bottom of the cylinder; the assembly will be sticked so that the oil ring expands in the gap between the cylinder liner and the upper crankcase.** • **Be careful not to damage the crank pin with the connecting rod bolts.** NOTE: • At installation, install the connecting rod/piston assembly with the oil hole on the connecting rod facing the intake side.
(4)	Connecting rod bearing	8	NOTE: • At installation, align the oil hole between the connecting rod and bearing, and also align the bearing tabs with the groove in the connecting rod and bearing cap.
	Piston Removal Order		
(5)	Piston pin clip	8	
(6)	Piston pin	4	**CAUTION:** • **Do not reuse the piston pin clips. Always install new ones.** NOTE: • Apply molybdenum disulfide oil to the connecting rod small end.
(7)	Connecting rod	4	NOTE: • At installation, install the connecting rod with it oil hole side facing the "IN" mark on the piston head.
(8)	Piston assembly	4	
(9)	Top ring	4	At installation, install the piston rings with their marks facing up.
(10)	Second ring	4	
(11)	Side rail	8	
(12)	Spacer	4	

Connecting Rod Bearing Selection

Inspect the connecting rod bearing and crankpin oil clearance (See section 14 of the Common Service Manual).

Record the connecting rod I. D. code number (1, 2 or 3) or measure the I. D. with the bearing cap installed without bearing insert.

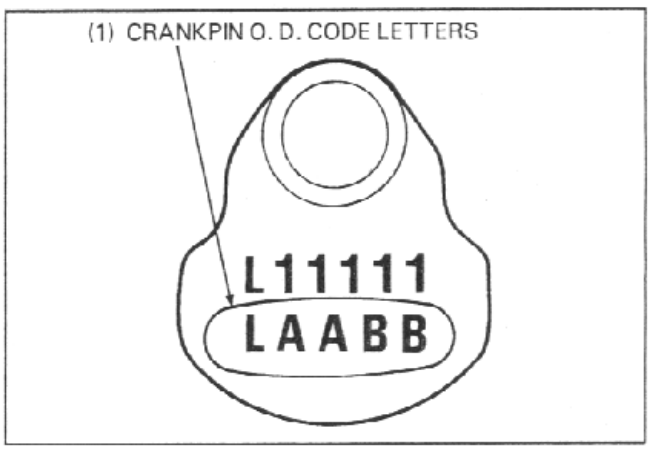


If you are replacing the crankshaft, record the corresponding crankpin O. D. code number (A, B or C).

If you are reusing the crankshaft, measure the crankpin O. D. with the micrometer.

NOTE:

- Numbers (A, B or C) on the crank weight are the codes for the crank pin O. D. s. starting from the left.

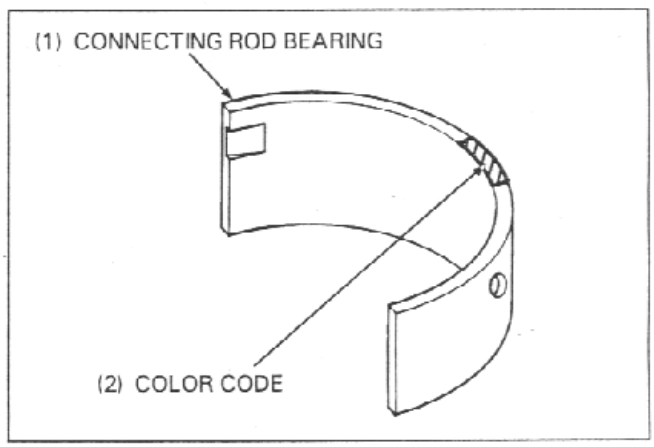


Cross-reference the crankpin and rod codes to determine the replacement bearing color.

Connecting Rod Bearing Selection Table :

Unit : mm (in)

Crankpin O. D. code \ Connecting rod I. D. code		1	2	3
		39.000-39.006 (1.5354-1.5357)	39.006-39.012 (1.5357-1.5359)	39.012-39.018 (1.5359-1.5361)
A	35.994-36.000 (1.4171-1.4173)	E (Yellow)	D (Green)	C (Brown)
B	35.988-35.994 (1.4168-1.4171)	D (Green)	C (Brown)	B (Black)
C	35.982-35.988 (1.4166-1.4168)	C (Brown)	B (Black)	A (Blue)

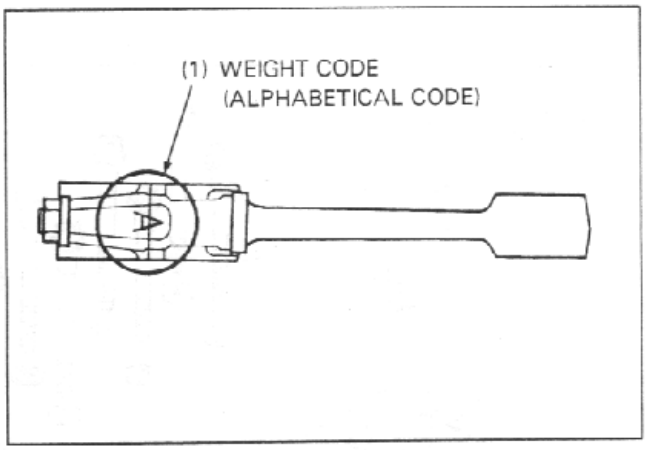


Bearing thickness:

A (Blue): Thick
B (Black):
C (Brown):
D (Green):
E (Yellow): Thin

Connecting Rod Selection

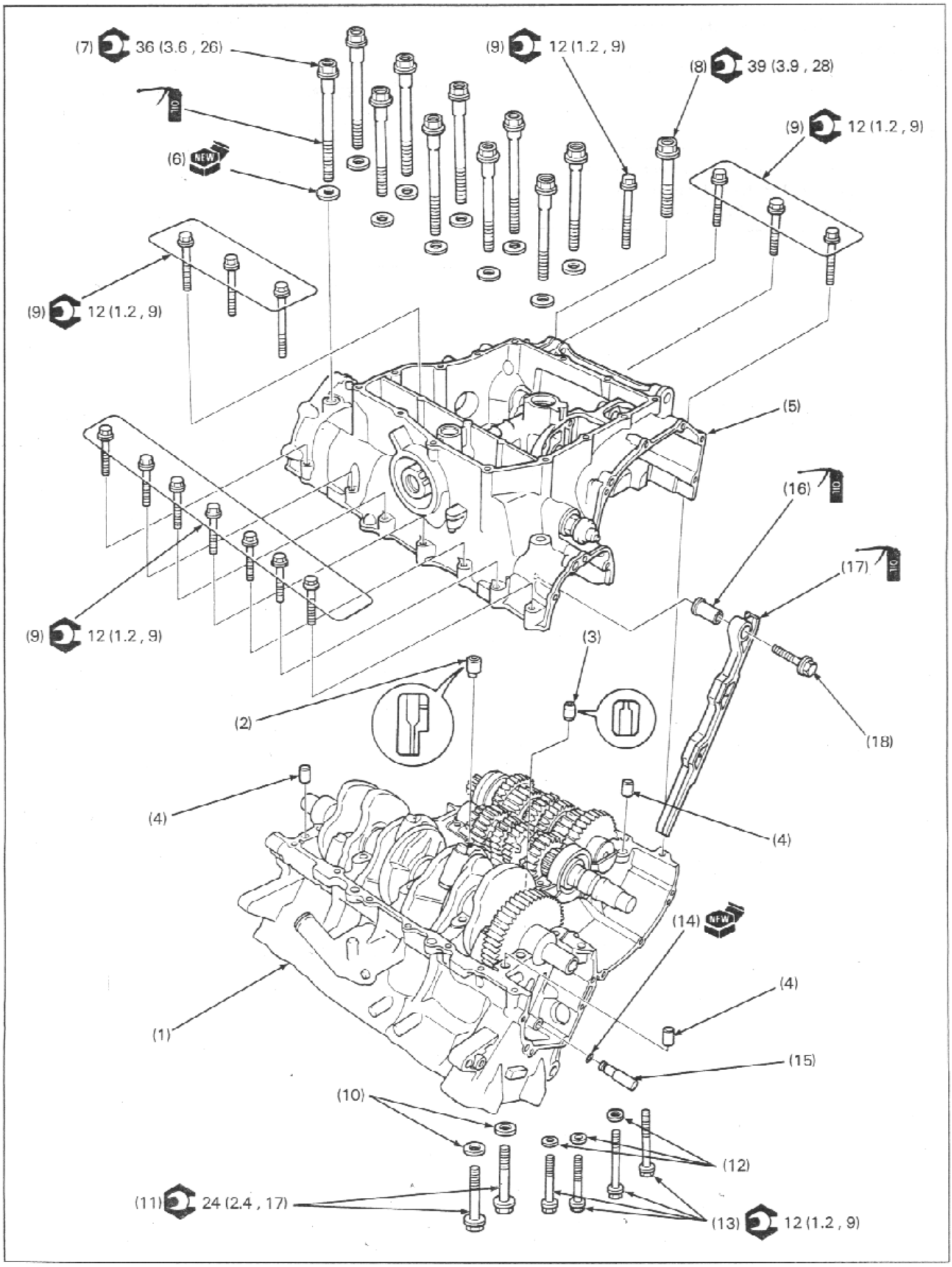
The weight code stamped on the connecting rod in an alphabetical code.
Be sure to use the connecting rods having the same weight code.



CAUTION:

- **If a connecting rod having the different weight code is to be used, be sure that the difference in weight (code) is held within a single weight selection.**

Crankcase Combination



NOTE:

- Refer to page 10-10 for crankcase case sealant area and detail of the bolt locations.
- Install sealing washers to the bolts indicated "▼" marks on the crankcase.
- From the inside to outside, tighten the bolts in a crisscross pattern in several steps.

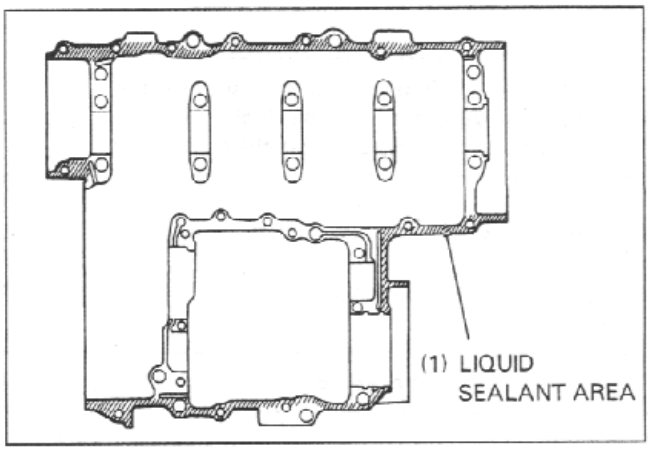
Requisite Service

- Crankcase separation (page 10-2)

	Procedure	Q'ty	Remarks
	Combination Order		
(1)	Upper crankcase	1	**CAUTION:** • **Do not apply sealant around the oil passage area and main bearing journal area.** Refer to page 10-10 for detail for apply area.
(2)	Oil orifice, B	1	NOTE: • Align the cut-out on the orifice with the upper crankcase groove and with the side oil hole facing the rearward.
(3)	Oil orifice, A	1	NOTE: • Install the orifice with its smaller oil hole side facing the lower crankcase.
(4)	Dowel pin	3	
(5)	Lower crankcase	1	
(6)	Sealing washer, 9 mm	10	
(7)	Lower crankcase bolt, 9 mm	10	Tightening order (page 10-10)
(8)	Lower crankcase bolt, 10 mm	1	
(9)	Lower crankcase bolt, 6 mm	14	
(10)	Sealing washer, 8 mm	2	
(11)	Upper crankcase bolt, 8 mm	2	
(12)	Sealing washer, 6 mm	3	
(13)	Upper crankcase bolt, 6 mm	4	
(14)	O-ring, 5.2 x 1.9 mm	1	
(15)	Sealing plug	1	
(16)	Collar	1	
(17)	Cam chain slipper	1	
(18)	Flange bolt	1	

Liquid Sealant Application

Apply a light but thorough coating of liquid sealant to the crankcase mating surface except to the main bearing journal bolt (lower crankcase bolt, 9 mm) area and the oil passage area as shown.



Crankcase Bolt Locations

Clean the crankcase 9 mm bolts thoroughly with solvent and blow them dry.
Apply clean engine oil to the 9 mm bolt threads and seating surface and install them.

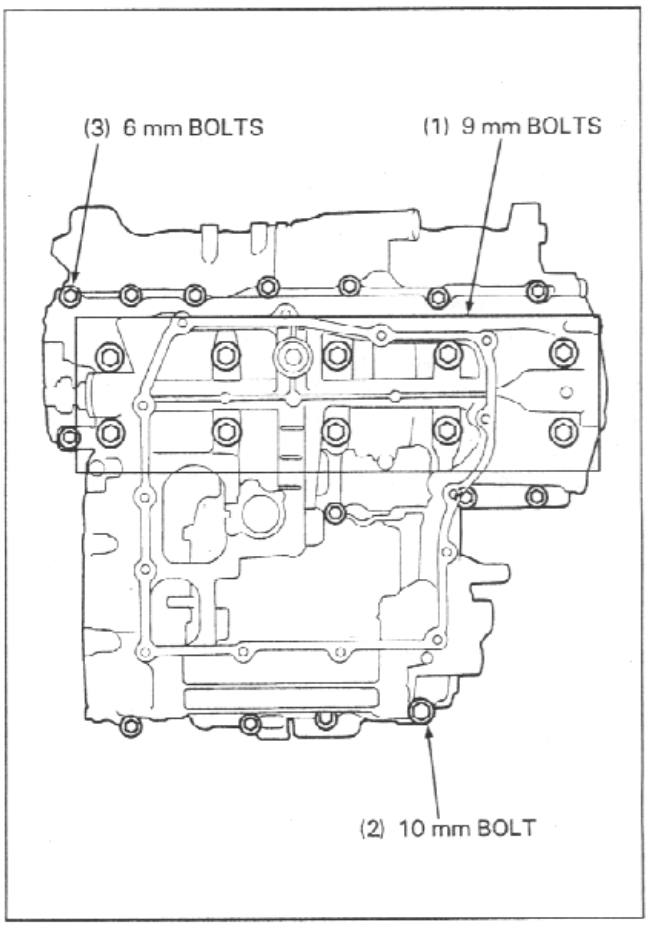
Loosely install all the lower crankcase bolt.
Make sure the upper and lower crankcase are seated securely.

From the inside to outside, tighten the lower crankcase 9 mm bolts in a crisscross pattern in 2 or 3 steps.

Torque : 36 N·m (3.6 kg-m , 26 lb-ft)

Tighten the 10 mm bolt, and then the 6 mm bolts.

Torque : 10 mm bolt : 39 N·m (3.9 kg-m , 28 lb-ft)
6 mm bolt : 12 N·m (1.2 kg-m , 9 lb-ft)

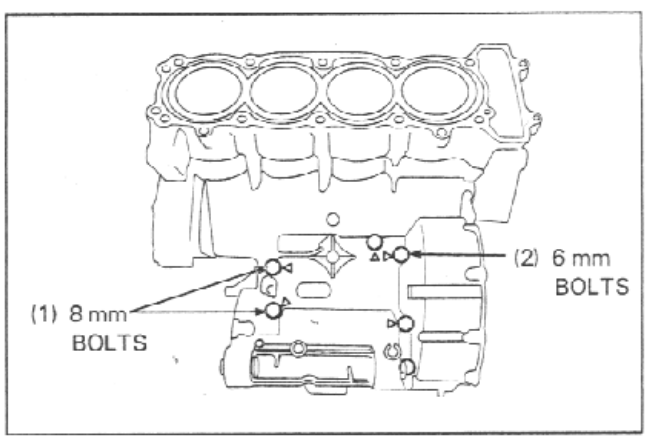


Install the upper crankcase bolts and the sealing washers.

NOTE:

- The sealing washer locations are indicated on the upper crankcase using the "▼" mark.

Torque : 8 mm bolt : 24 N·m (2.4 kg-m , 17 lb-ft)
6 mm bolt : 12 N·m (1.2 kg-m , 9 lb-ft)



11. Crankshaft/Transmission

Service Information

- The crankcase must be separated to service the crankshaft and transmission.
- Be careful not to damage the crankshaft main journal bearing while removing or installing the crankshaft.
- All bearing inserts are select fitted and are identified by color code. Select replacement bearings from the selection table (page 11-4).
- After installing new bearings, recheck them with plastigauge to verify correct clearance.
- Apply molybdenum disulfide oil to the main journals and crankpins during assembly.

Troubleshooting

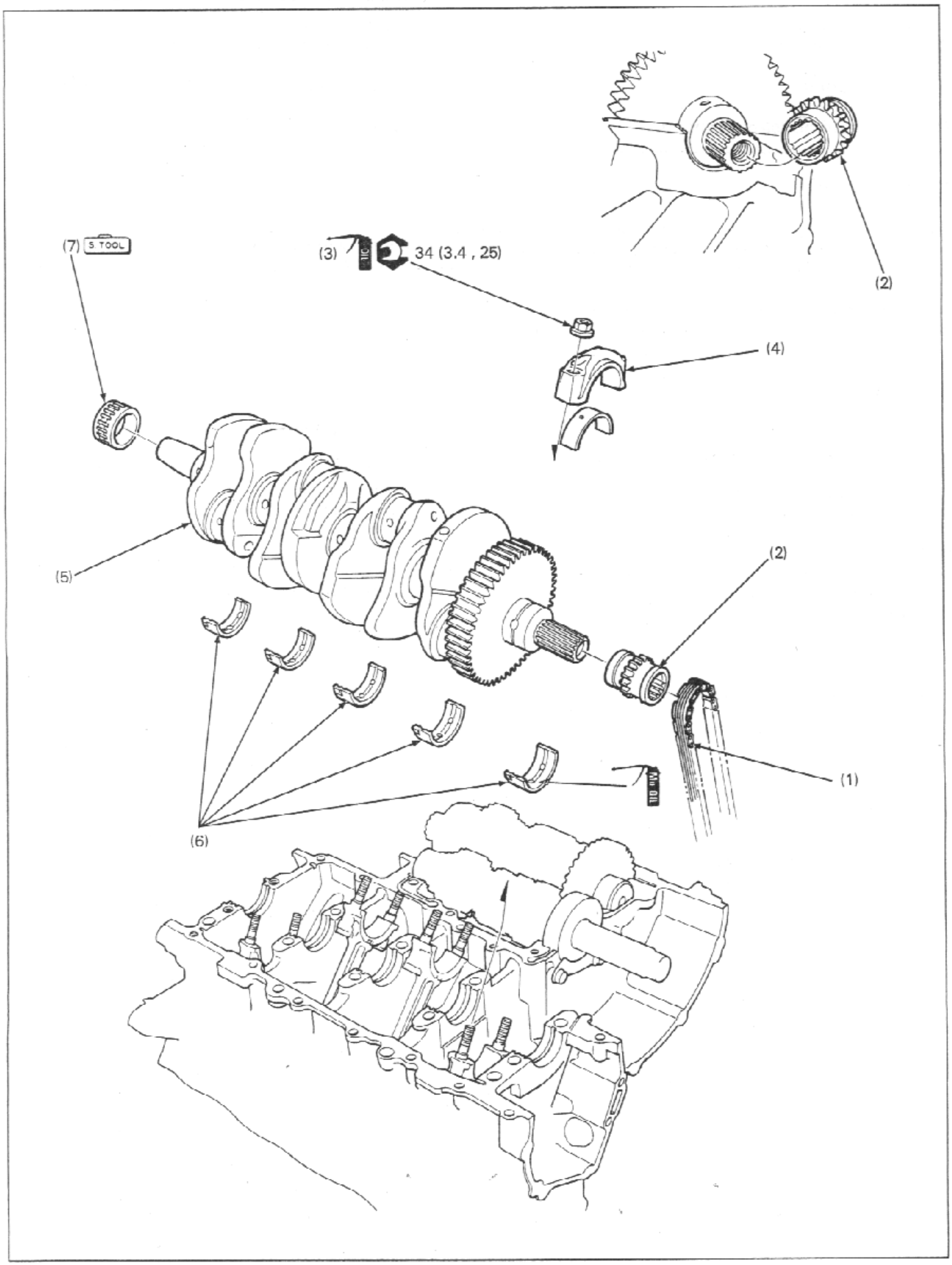
Excessive Noise
- Worn connecting rod big-end bearing
- Bent connecting rod
- Worn crankshaft main bearing
- Worn transmission bearing

Hard To Shift
- Improper clutch operation
- Incorrect transmission oil weight
- Incorrect clutch adjustment
- Bent shift fork
- Bent fork shaft
- Bent fork claw
- Damaged shift drum cam grooves
- Bent shift spindle

Transmission Jumps Out Of Gear
- Worn gear dogs or slots
- Bent fork shaft
- Broken shift drum stopper
- Worn or bent shift forks
- Broken shift linkage return spring

Engine Vibration
- Excessive crankshaft runout

Crankshaft Removal/Installation



NOTE:

- Mark all parts during disassembly so they can be replaced in their original locations.
- All bearing inserts are select fitted and are identified by color code. Select replacement bearings from the code table (page 11-4). After installing new bearings, recheck them with plastigauge to verify the correct clearance.
- Apply molybdenum disulfide oil to the connecting rod/main journal bearings, main journal and crankpin.

Requisite Service

- Crankcase separation (page 10-2)
- Crankcase combination (page 10-8)

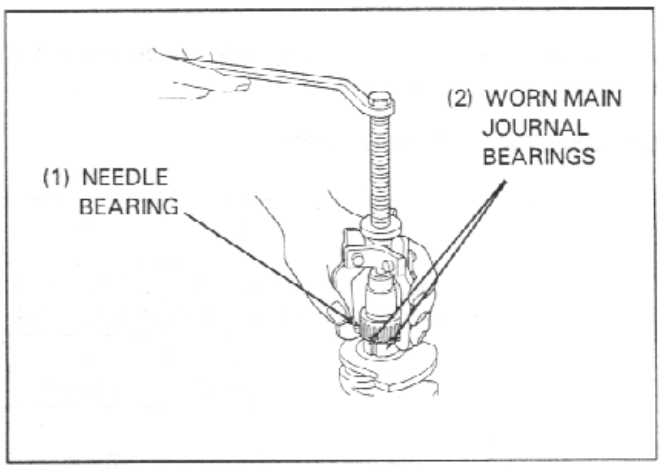
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cam chain	1	
(2)	Timing sprocket	1	At installation, align the wide groove in the timing sprocket with the wide tooth on the crankshaft.
(3)	Connecting rod bearing cap nut	8	At installation, apply engine oil to the connecting rod bolt threads and seating surface of the nuts.
(4)	Connecting rod bearing cap	4	NOTE: • Note the direction of the bearing cap. • At installation, install the bearing and bearing cap in their original locations as noted during removal.
(5)	Crankshaft	1	**CAUTION:** • **Before installation, position all the pistons at TDC (Top Dead Center) to prevent damaging the crankshaft pin with the connecting rod bolts.**
(6)	Main journal bearing	10	
(7)	Starter clutch needle bearing	1	Removal/installation (see below).

Starter Clutch Needle Bearing Replacement

Remove the needle bearing with a commercially available universal puller.

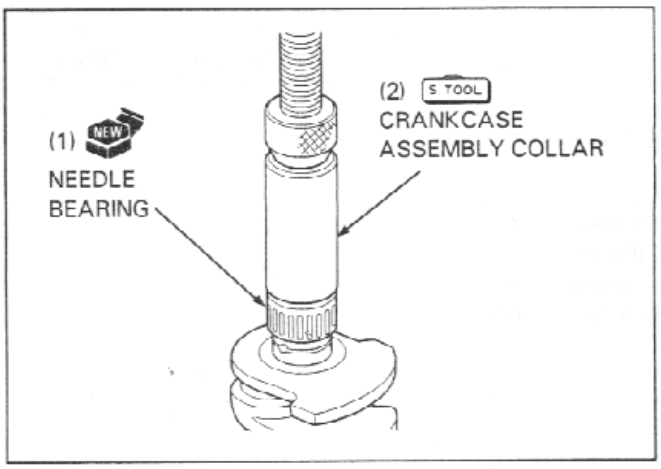
CAUTION:

- **To protect the crankshaft main journal from the bearing puller claws, cover the main journal properly: worn main journal bearings are usable as protectors.**



Drive a new needle bearing onto a crankshaft using a hydraulic press.

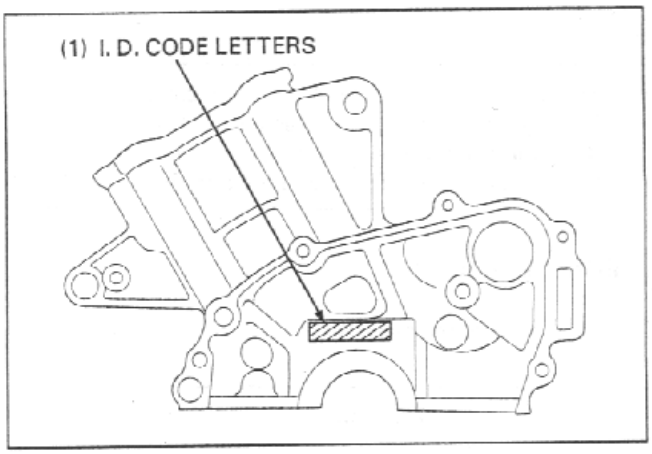
S TOOL
Crankcase assembly collar **07964—MB00200**



Crankshaft Bearing Selection

Main Journal Bearing Selection

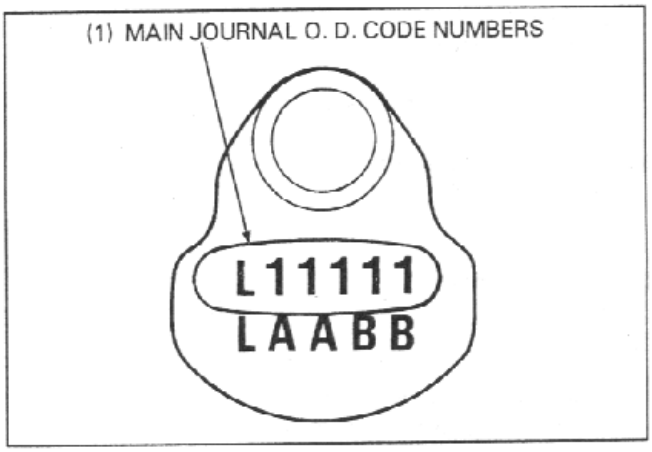
Record the crankcase I. D. letters from the pad on the left side of the upper crankcase as shown.



NOTE:

- The letters (A, B or C) on the upper crankcase are the codes for the main journal I. D. s from left to right.

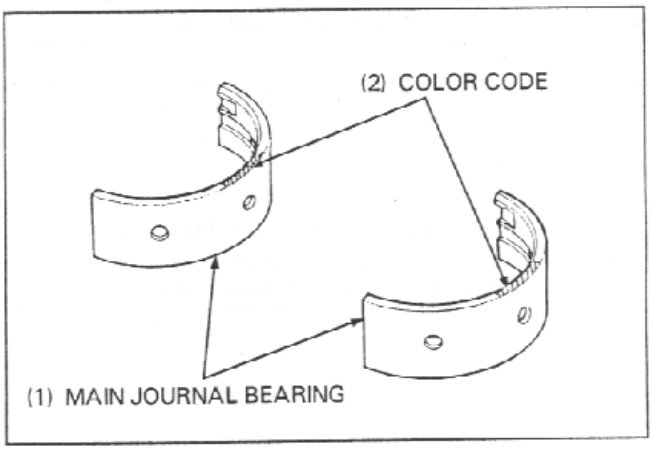
Record the corresponding main journal O.D. code numbers from the crank weight.



NOTE:

- The numbers (1, 2 or 3) on the crank weight are the codes for the main journal O. D. s from left to right.

Cross reference the case and journal codes to determine the replacement bearing color codes.



Main Journal Bearing Selection Table :

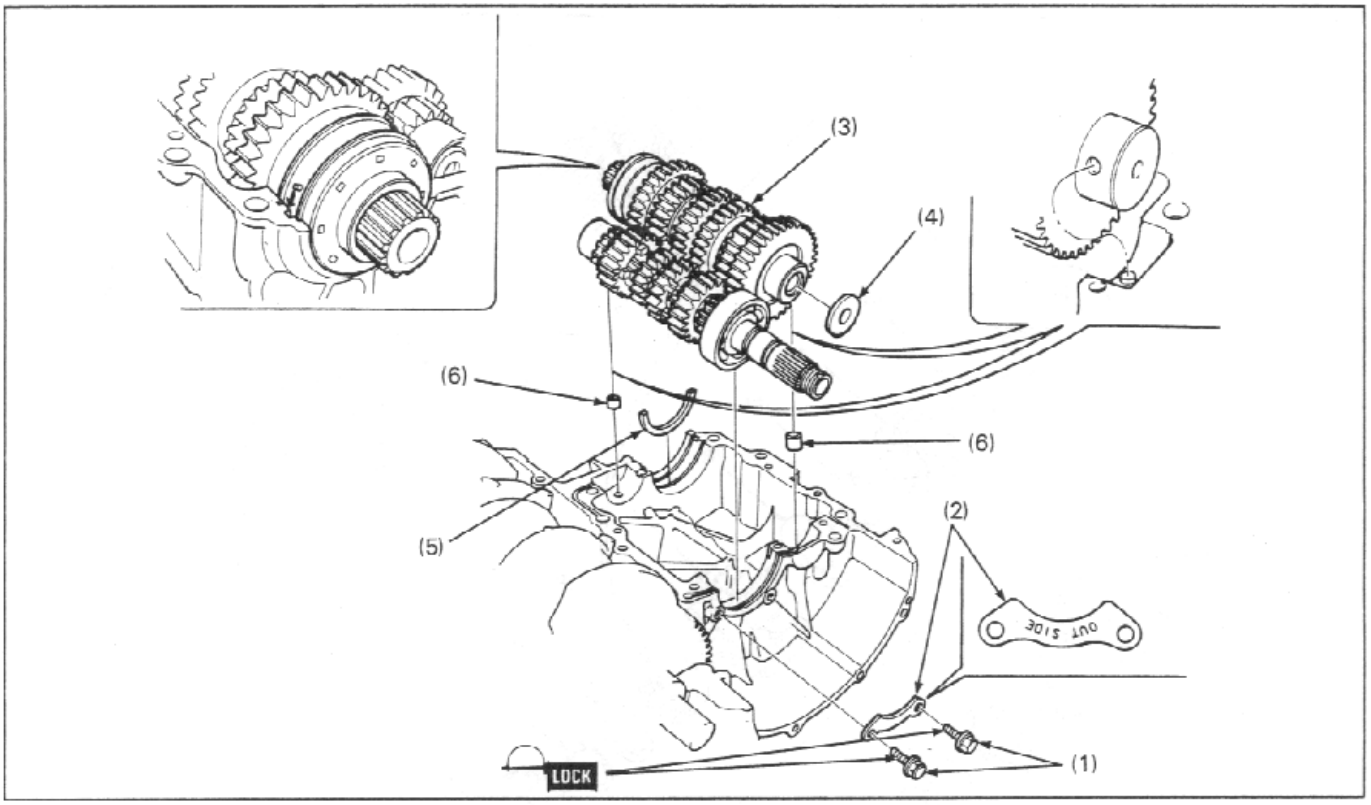
Unit : mm (in)

Crankcase I. D. Code / Crankshaft O. D. Code		A	B	C
		37.000-37.006 (1.4566-1.4569)	37.006-37.012 (1.4569-1.4572)	37.012-37.018 (1.4572-1.4574)
1	34.000-34.006 (1.3386-1.3388)	E (Pink)	D (Yellow)	C (Green)
2	33.994-34.000 (1.3383-1.3386)	D (Yellow)	C (Green)	B (Brown)
3	33.988-33.994 (1.3381-1.3383)	C (Green)	B (Brown)	A (Black)

Bearing thickness:

A (Black): Thick
B (Blown):
C (Green):
D (Yellow):
E (Pink): Thin

Transmission Removal/Installation

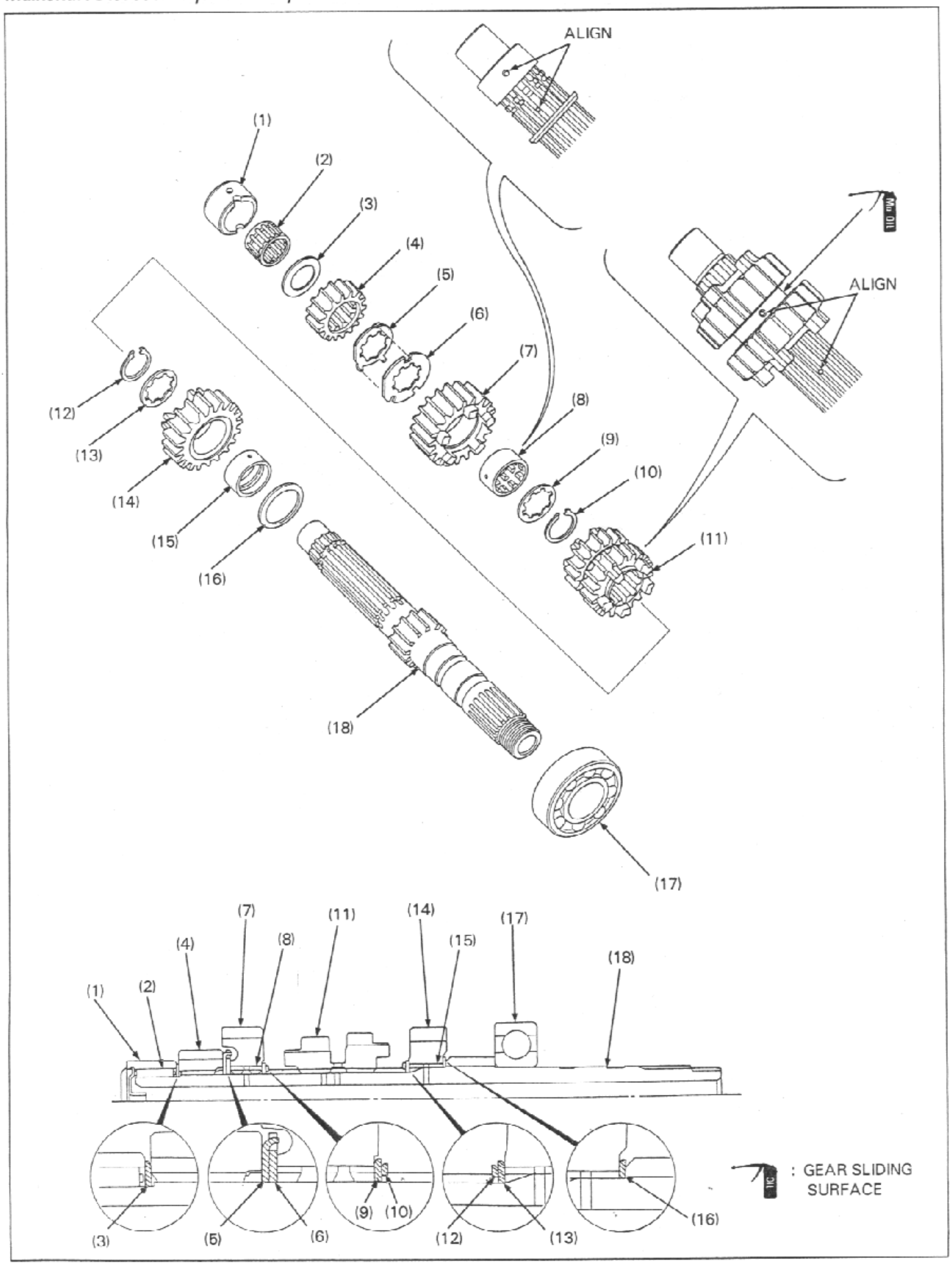


Requisite Service

- Crankcase separation (page 10-2)
- Crankcase combination (page 10-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Mainshaft bearing set plate bolt	2	At installation, clean and apply a locking agent to the threads.
(2)	Mainshaft bearing set plate	1	At installation, install the set plate with its "OUT SIDE" mark facing out.
(3)	Mainshaft/countershaft assembly	1	NOTE: • At installation, align the holes in the needle bearing cases with the dowel pins on the upper crankcase.
(4)	Orifice plate	1	
(5)	Countershaft bearing set plate	1	
(6)	Dowel pin	2	

Mainshaft Disassembly/Assembly



NOTE:

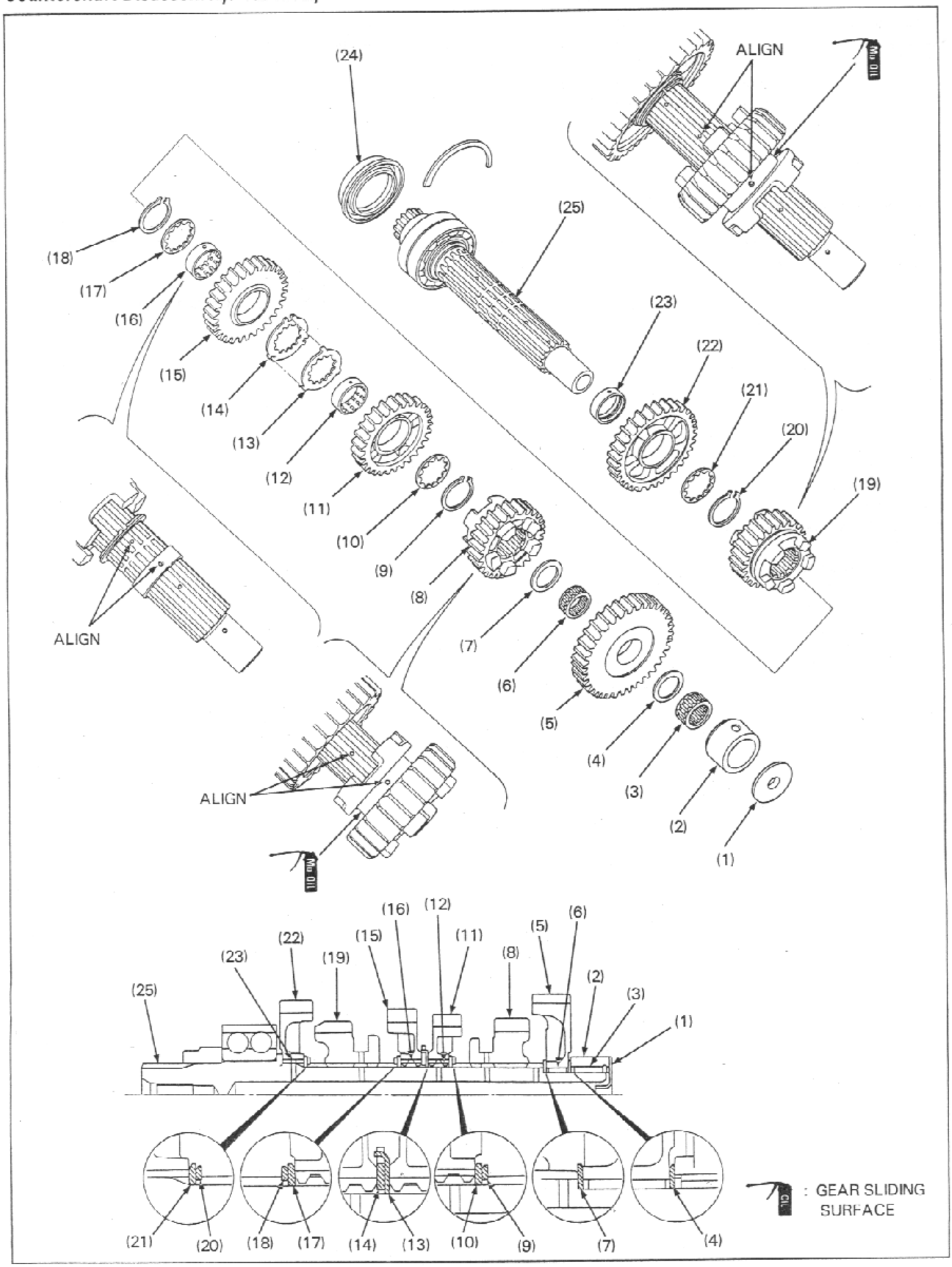
- Apply molybdenum disulfide oil to the shifter gear grooves.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
  After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
  Do not use worn snap rings which could easily spinning in the groove. They may be too loose to properly seat in the groove.
- Align the gap in the snap ring with the groove of the spline.

Requisite Service

- Transmission removal/installation (page 11-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Needle bearing outer case	1	
(2)	Needle bearing	1	
(3)	Thrust washer	1	
(4)	M2 gear (16T)	1	
(5)	Lock washer	1	At assembly, fit the tangs into the spline washer cut-outs.
(6)	Spline washer	1	
(7)	M6 gear (23T)	1	
(8)	Spline bushing	1	At installation, align the oil holes.
(9)	Spline washer	1	
(10)	Snap ring	1	
(11)	M3/M4 shifter gear (19/20T)	1	
(12)	Snap ring	1	
(13)	Spline washer	1	
(14)	M5 gear (20T)	1	
(15)	M5 gear bushing	1	
(16)	Thrust washer	1	
(17)	Mainshaft bearing	1	Replacement (page 11-10)
(18)	Mainshaft/M1 gear (13T)	1	

Countershaft Disassembly/Assembly



NOTE:

- Apply molybdenum disulfide oil to the shifter gear grooves.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
  After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
  Do not use worn snap rings which could easily spinning in the groove. They may be too loose to properly seat in the groove.
- Align the gap in the snap ring with the groove of spline.

Requisite Service

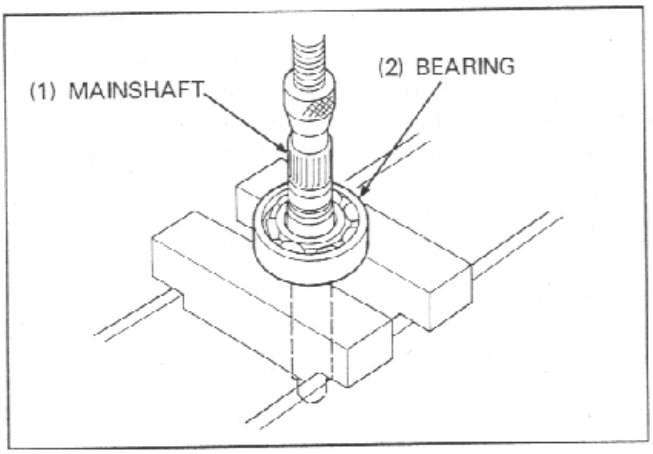
- Transmission removal/installation (page 11-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Orifice plate	1	
(2)	Needle bearing cap	1	
(3)	Needle bearing	1	
(4)	Thrust washer	1	
(5)	C1 gear (36T)	1	
(6)	Needle bearing	1	
(7)	Thrust washer	1	
(8)	C5 gear (25T)	1	At installation, align the oil holes.
(9)	Snap ring	1	
(10)	Spline washer	1	
(11)	C4 gear (28T)	1	
(12)	Spline bushing	1	
(13)	Lock washer	1	At assembly, fit the tangs into the spline washer cut-outs.
(14)	Spline washer	1	
(15)	C3 gear (30T)	1	
(16)	Spline bushing	1	At installation, align the oil holes.
(17)	Spline washer	1	
(18)	Snap ring	1	
(19)	C6 gear (27T)	1	
(20)	Snap ring	1	
(21)	Spline washer	1	
(22)	C2 gear (32T)	1	
(23)	C2 gear bushing	1	
(24)	Countershaft oil seal	1	
(25)	Countershaft/bearing/collar	1	

Mainshaft Bearing Replacement

Removal

Press out the mainshaft from the bearing using a hydraulic press.

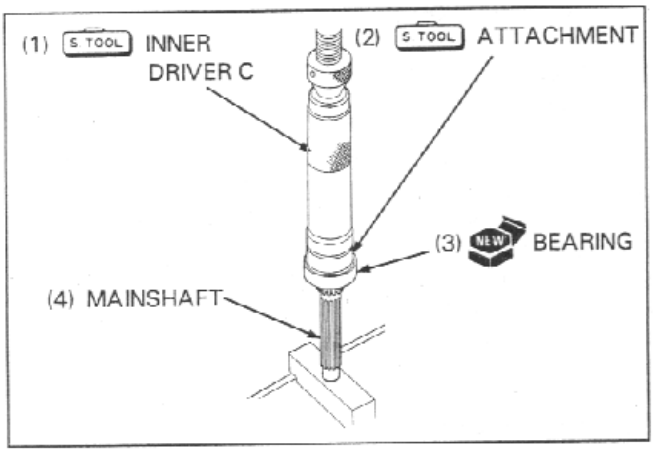


Installation

Hold the mainshaft bearing inner race with the special tools and press the mainshaft bearing into the mainshaft until it seats on the M1 gear completely.

S. TOOL

Driver C	**07746—0030100**
Attachment, 25 mm I. D.	**07746—0030200**



12. Front Wheel/Suspension/Steering

Service Information

⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

12

- When servicing the front wheel, support the motorcycle using a safety stand or hoist.
- Refer to the section 14 for brake system information.
- Use only tires marked "TUBELESS" and tubeless valves on rims marked "TUBELESS TIRE APPLICABLE".

Troubleshooting

Hard Steering
- Faulty steering head bearings
- Damaged steering head bearings
- Insufficient tire pressure
- Steering head bearing adjustment nut too tight

Steers To One Side Or Does Not Track Straight
- Unevenly adjusted right and left fork legs
- Bent fork
- Bent axle
- Wheel installed incorrectly
- Faulty steering head bearings
- Bent frame
- Worn wheel bearing
- Worn swingarm pivot components

Front Wheel Wobbling
- Bent rim
- Worn front wheel bearings
- Faulty tire
- Unbalanced tire and wheel

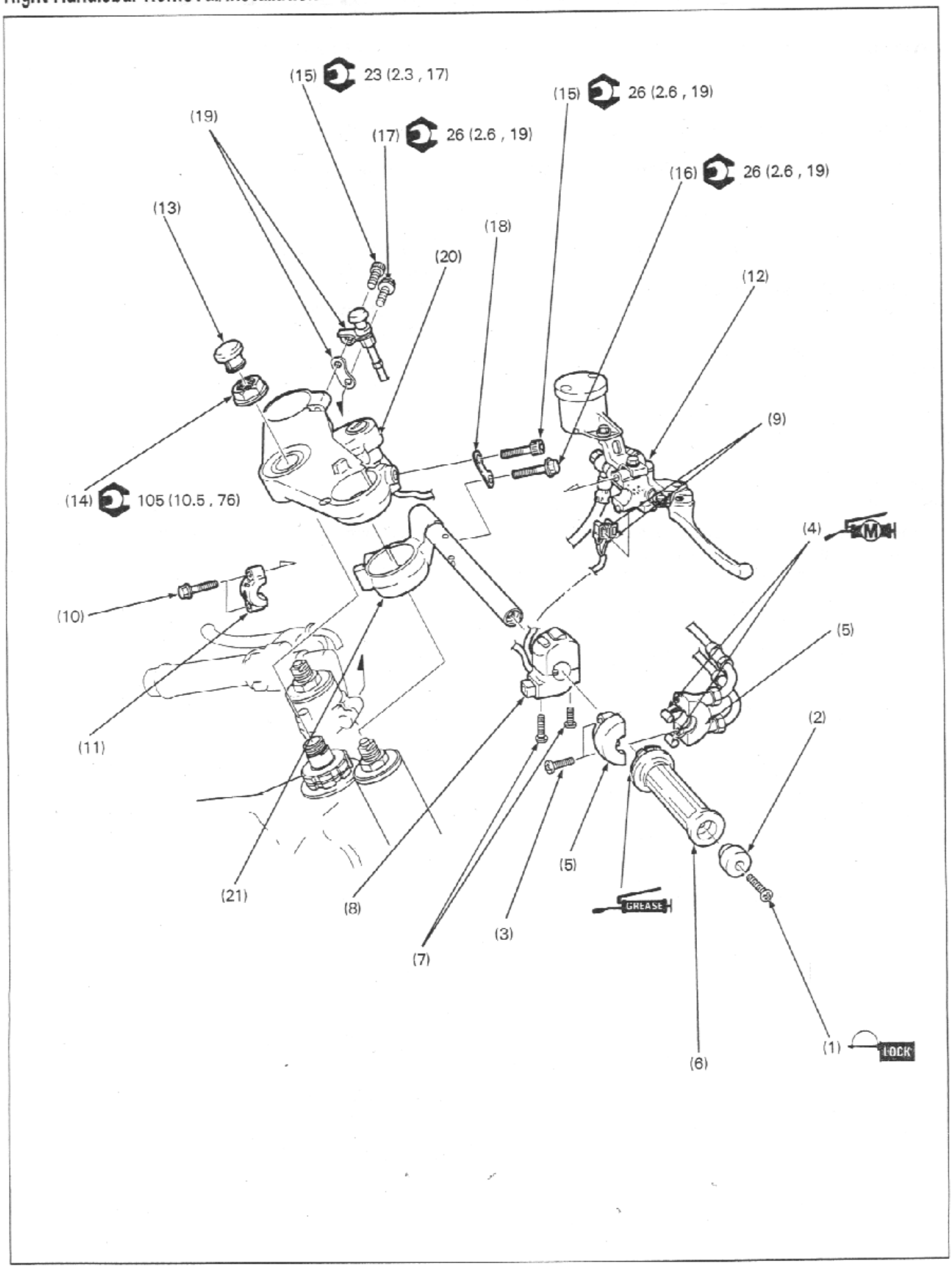
Wheel Turns Hard
- Faulty wheel bearing
- Faulty speedometer gear
- Bent front axle
- Brake drag

Soft Suspension
- Insufficient fluid in fork
- Weak fork springs
- Tire pressure too low

Hard Suspension
- Incorrect fluid weight
- Bent fork tubes
- Clogged fork fluid passage
- Tire pressure too high

Front Suspension Noisy
- Insufficient fluid in fork
- Loose fork fasteners
- Lack of grease in speedometer gear

Right Handlebar Removal/Installation



⚠WARNING

- **Contaminants in the system may cause a reduction or loss of braking ability.**

CAUTION:

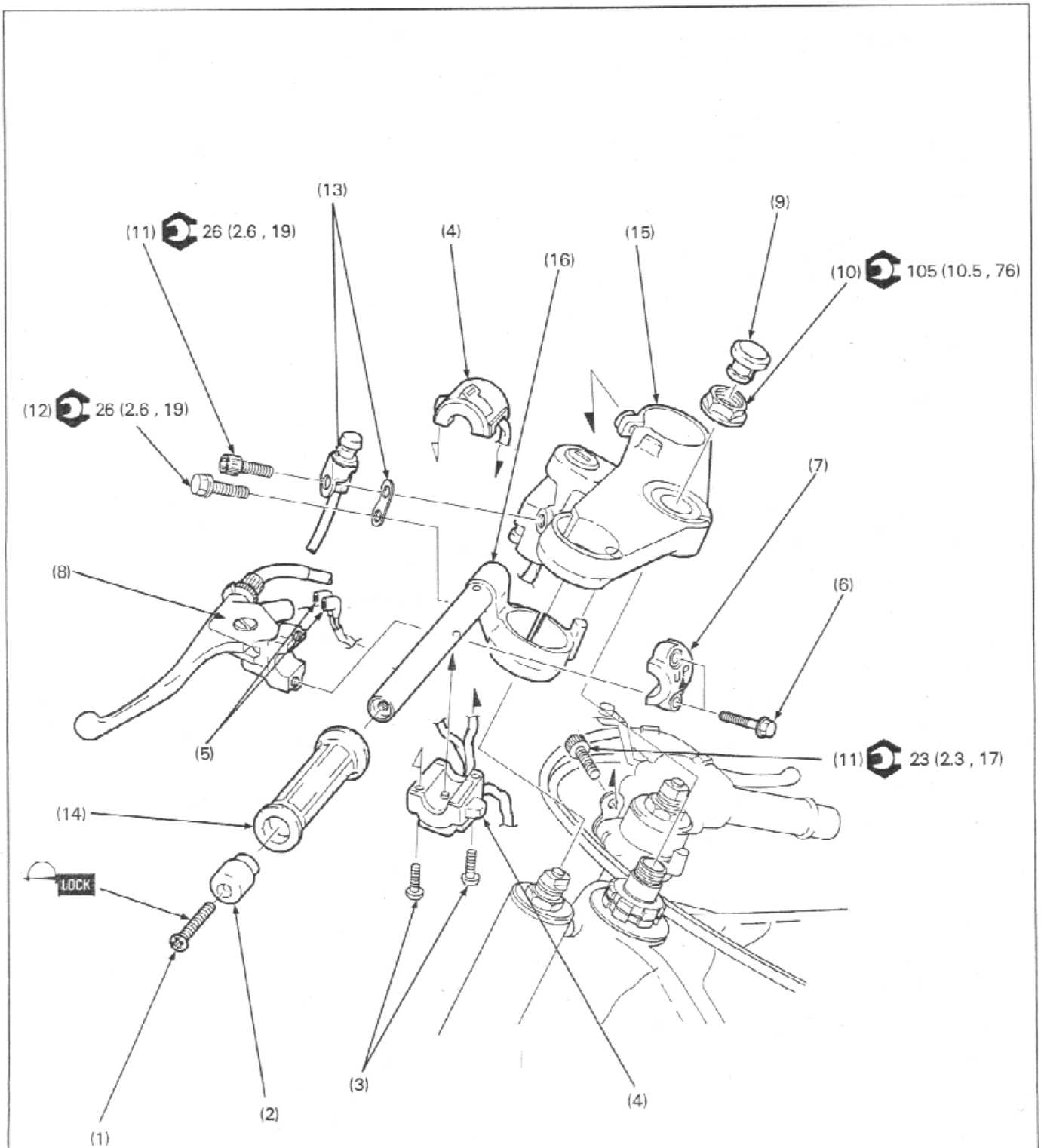
- **Spilling brake fluid will damage painted, plastic, or rubber parts.**

Requisite Service

- Throttle grip free play adjustment (Section 2 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Handlebar weight mounting screw	1	
(2)	Handlebar weight	1	
(3)	Throttle housing screw	2	
(4)	Throttle cable	2	
(5)	Throttle housing	1	
(6)	Throttle grip	1	
(7)	Right handlebar switch screw	2	
(8)	Right handlebar switch	1	
(9)	Brake switch connector	2	
(10)	Master cylinder holder bolt	2	
(11)	Master cylinder holder	1	
(12)	Master cylinder assembly	1	**CAUTION:** **• Keep master cylinder upright.**
(13)	Stem nut cap	1	
(14)	Steering stem nut	1	
(15)	Top bridge pinch socket bolt	2	
(16)	Right handlebar pinch flange bolt	1	
(17)	Left handlebar pinch flange bolt	1	
(18)	Holder bracket	1	
(19)	Choke lever holder/holder bracket	1/1	
(20)	Top bridge	1	
(21)	Right handlebar	1	
	Installation Order		
(21)	Right handlebar	1	
(20)	Top bridge	1	
(14)	Steering stem nut	1	
(13)	Stem nut cap	1	
(19)	Choke lever holder/holder bracket	1/1	
(17)	Left handlebar pinch flange bolt	1	
(18)	Holder bracket	1	
(16)	Right handlebar pinch flange bolt	1	Align the stopper on the left handlebar with the groove in the top bridge.
(15)	Top bridge pinch socket bolt	2	
(12)	Master cylinder assembly	1	
(11)	Master cylinder holder	1	· Align the mating surface of the master cylinder and holder with the punch mark on the handlebar. · Install the holder with its "UP" mark facing up.
(10)	Master cylinder holder bolt	2	Tighten the upper bolt first.
(9)	Brake switch connector	2	
(8)	Right handlebar switch	1	Align the locating pin in the right handlebar switch with the hole in the handlebar.
(7)	Right handlebar switch screw	2	
(6)	Throttle grip	1	
(5)	Throttle housing	1	Align the locating pin in the throttle housing with the hole in the handlebar.
(4)	Throttle cable	2	
(3)	Throttle housing screw	2	Tighten the upper screw first, then tighten the lower screw.
(2)	Handlebar weight	1	
(1)	Handlebar weight mounting screw	1	Clean and apply a locking agent to the threads.

Left Handlebar Removal/Installation



CAUTION:

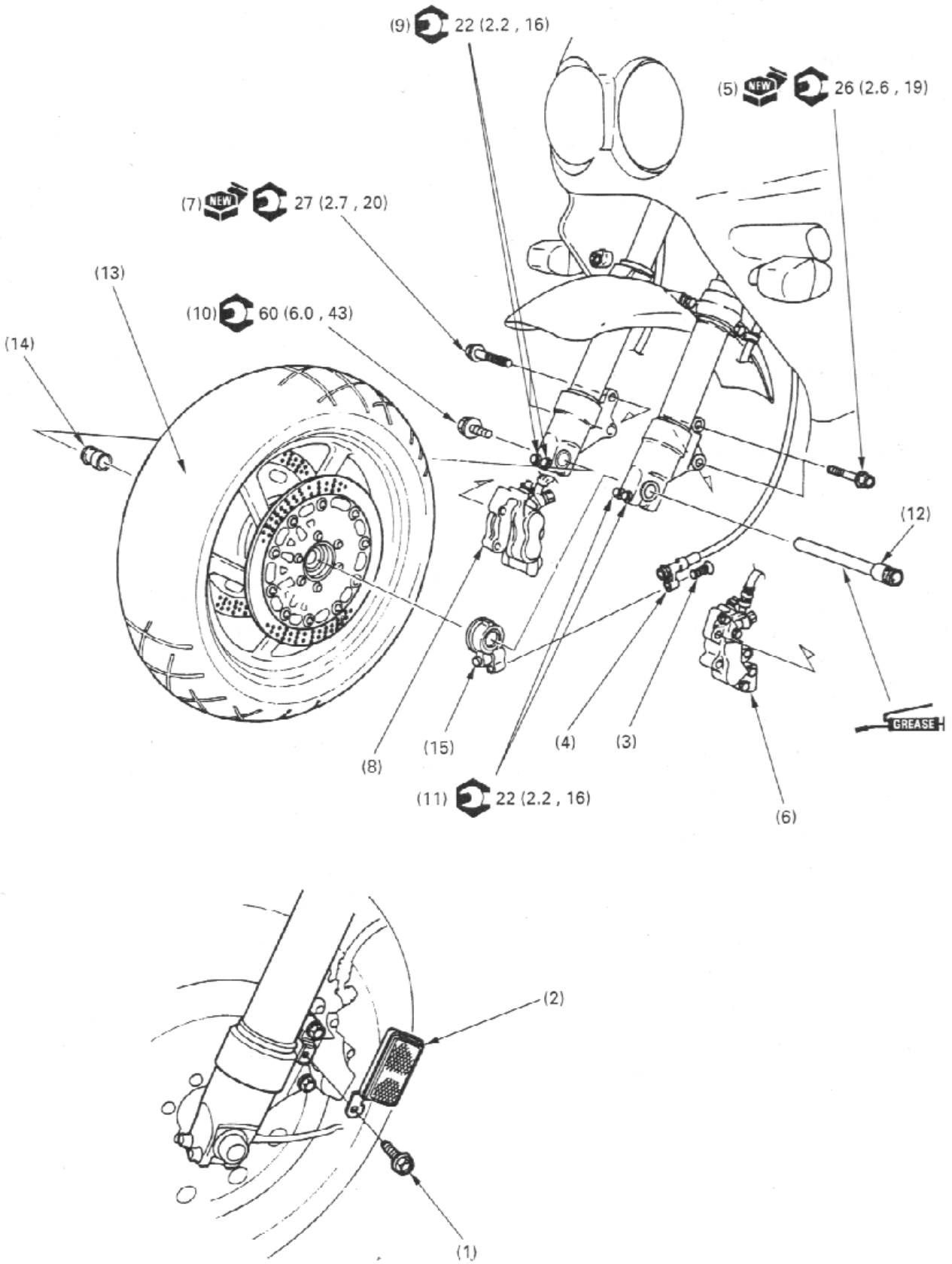
- Spilling brake fluid will damage painted, plastic, or rubber parts.

Requisite Service

- Clutch lever free play adjustment (Section 2 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Handlebar weight mounting screw	1	
(2)	Handlebar weight	1	
(3)	Left handlebar switch screw	2	
(4)	Left handlebar switch	1	
(5)	Clutch switch connector	2	
(6)	Clutch lever holder bolt	2	
(7)	Clutch lever holder	1	
(8)	Clutch lever assembly	1	
(9)	Stem nut cap	1	
(10)	Steering stem nut	1	
(11)	Top bridge pinch socket bolt	2	
(12)	Left handlebar pinch flange bolt	1	
(13)	Choke lever holder/holder bracket	1/1	
(14)	Left handle grip	1	
(15)	Top bridge	1	
(16)	Left handlebar	1	
	Installation Order		
(14)	Left handlebar grip	1	Apply Honda bond A to the inner surface.
(16)	Left handlebar	1	
(15)	Top bridge	1	
(10)	Steering stem nut	1	
(9)	Stem nut cap	1	
(13)	Choke lever holder/holder bracket	1/1	Align the stopper on the handlebar with the groove in the top bridge.
(12)	Left handlebar pinch flange bolt	1	
(11)	Top bridge pinch socket bolt	2	
(8)	Clutch lever assembly	1	
(7)	Clutch lever holder	1	· Align the mating surface of the clutch lever bracket and holder with the punch mark on the handlebar. · Install the holder with its "UP" mark facing up.
(6)	Clutch lever holder bolt	2	Tighten the upper bolt first, then the lower bolt.
(5)	Clutch switch connector	2	
(4)	Left handlebar switch	1	Align the locating pin in the left handlebar switch with the hole in the handlebar.
(3)	Left handlebar switch screw	2	
(2)	Handlebar weight	1	
(1)	Handlebar weight mounting screw	1	Clean and apply a locking agent to the threads.

Front Wheel Removal/Installation ('93-'94)



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

CAUTION:

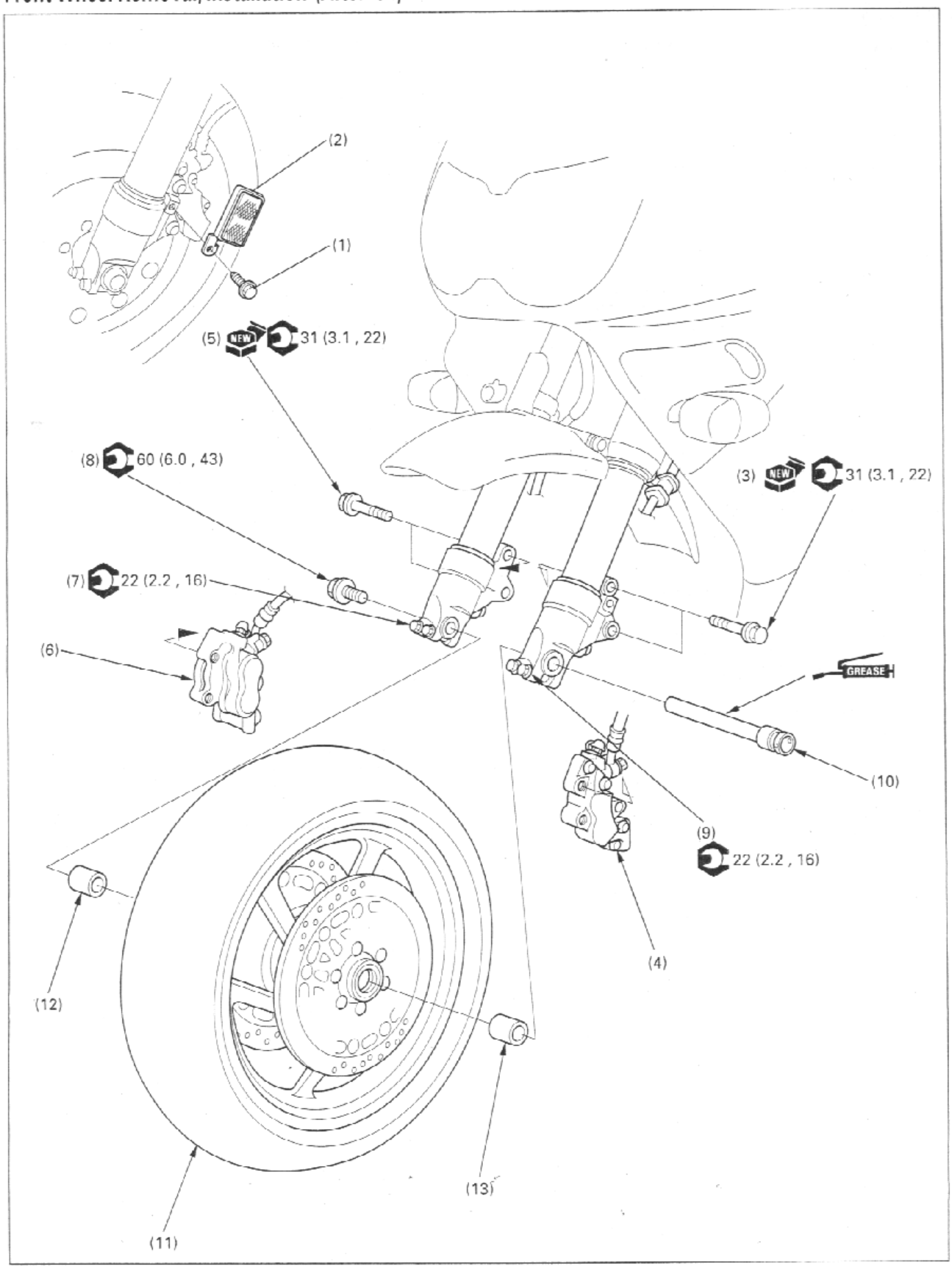
- **Support the brake caliper with a piece of wire so that it does not hang from the brake hose. Do not twist the brake hose.**

NOTE:

- When servicing the front wheel, support the motorcycle using a safety stand or hoist.
- Do not operate the brake lever after the front wheel is removed.
- Apply thin layer of grease to the front axle surface.
- Check the clearance between the brake disc and caliper bracket on each side after installation. The clearance should be at least 0.7 mm (0.03 in).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Reflector mounting bolt	2	
(2)	Reflector	2	
(3)	Speedometer cable screw	1	
(4)	Speedometer cable	1	
(5)	Left brake caliper mounting bolt	2	
(6)	Left brake caliper	1	
(7)	Right brake caliper mounting bolt	2	
(8)	Right brake caliper	1	
(9)	Right axle pinch bolt	2	Only loosen the bolts.
(10)	Axle bolt	1	
(11)	Left axle pinch bolt	2	Only loosen the bolts.
(12)	Front axle	1	
(13)	Front wheel assembly	1	· Disassembly/assembly(page 12-10) · At installation, align the stopper on the speedometer gear box with the boss on the left fork slider.
(14)	Side collar	1	
(15)	Speedometer gear box	1	At installation, align the tangs on the gear box with the slots on the retainer.

Front Wheel Removal/Installation (After '94)



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

CAUTION:

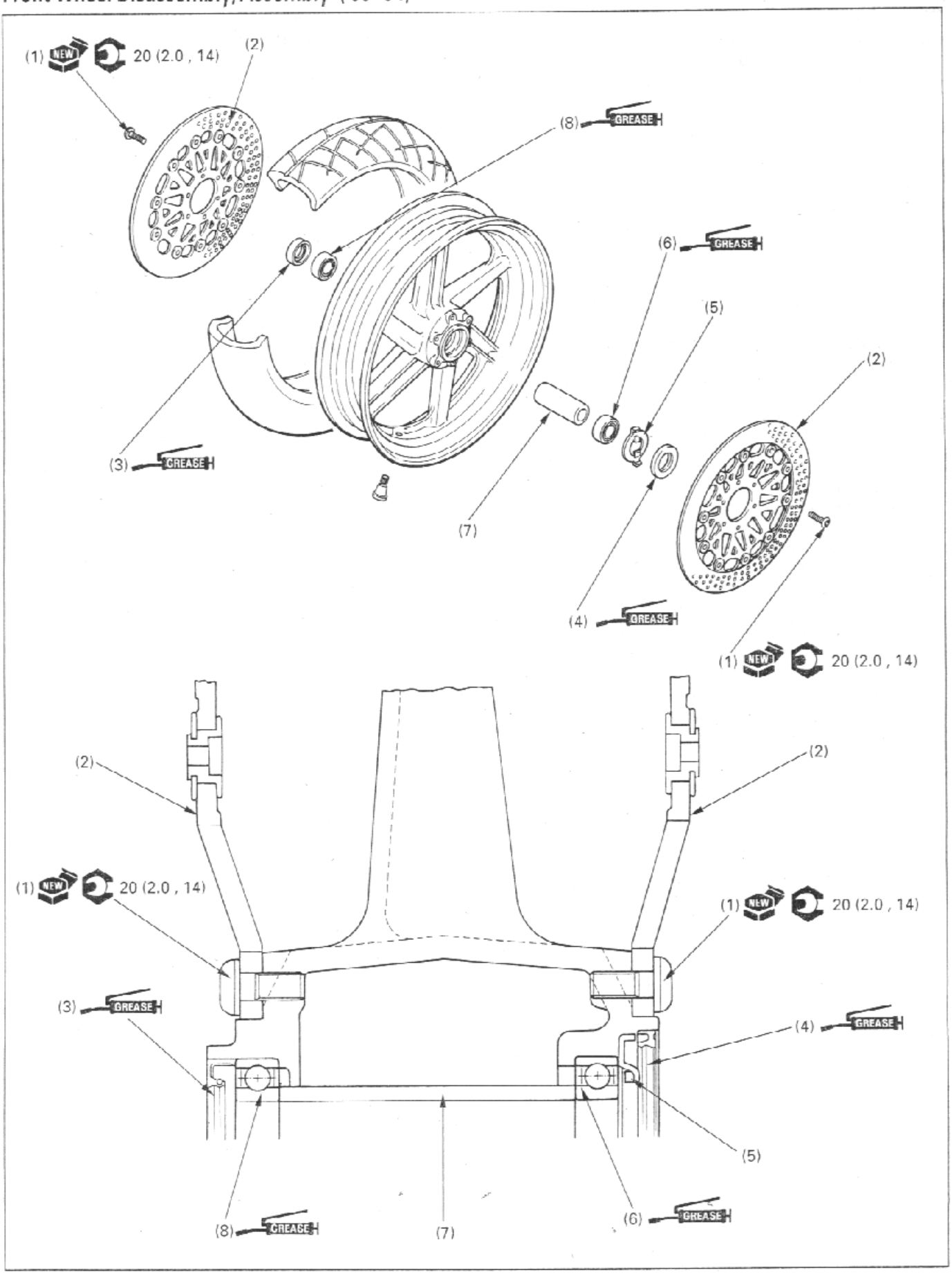
- **Support the brake caliper with a piece of wire so that it does not hang from the brake hose. Do not twist the brake hose.**

NOTE:

- When servicing the front wheel, support the motorcycle using a safety stand or hoist.
- Do not operate the brake lever after the front wheel is removed.
- Apply thin layer of grease to the front axle surface.
- Check the clearance between the brake disc and caliper bracket on each side after installation. The clearance should be at least 0.7 mm (0.03 in).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Reflector mounting bolt	2	
(2)	Reflector	2	
(3)	Left brake caliper mounting bolt	2	
(4)	Left brake caliper	1	
(5)	Right brake caliper mounting bolt	2	
(6)	Right brake caliper	1	
(7)	Right axle pinch bolt	2	Only loosening the bolts.
(8)	Axle bolt	1	
(9)	Left axle pinch bolt	2	Only loosening the bolts.
(10)	Front axle	1	
(11)	Front wheel assembly	1	Disassembly/assembly (page 12-12)
(12)	Right side collar	1	
(13)	Left side collar	1	

Front Wheel Disassembly/Assembly ('93-'94)



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE:

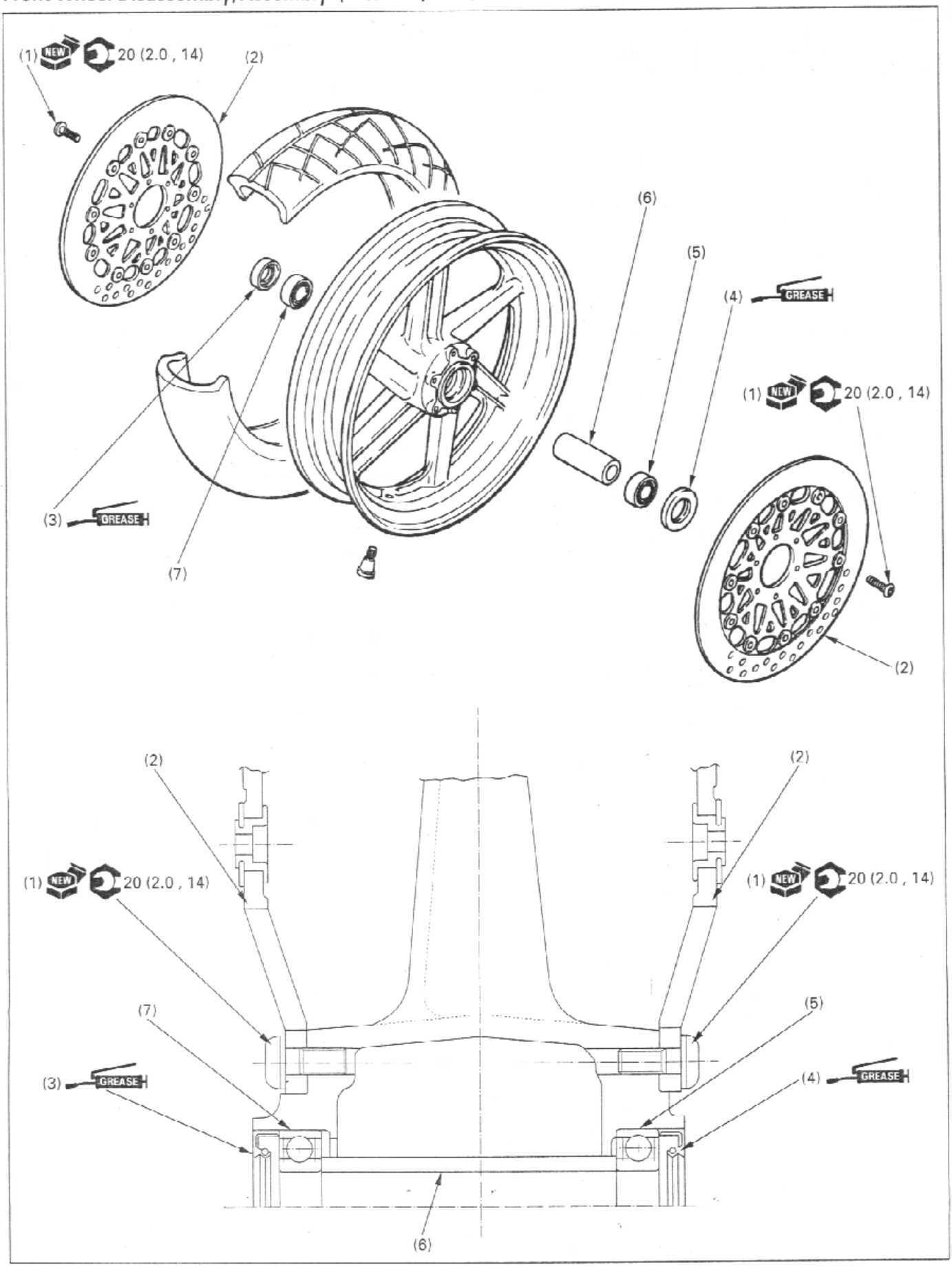
- Replace the wheel bearings in pairs.
- Do not add more than 60 grams of balance weight to the wheel.

Requisite Service

- Front wheel removal/installation (page 12-6)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake disc mounting bolt	12	
(2)	Brake disc	2	NOTE: • At installation, install each disc with their stamped side facing out as shown on page 12-10.
(3)	Right dust seal	1	
(4)	Left dust seal	1	
(5)	Speedometer gear retainer	1	At installation, align the tangs of the speedometer gear retainer with the groove in the wheel hub.
(6)	Left wheel bearing (6004)	1	
(7)	Distance collar	1	
(8)	Right wheel bearing (6004)	1	NOTE: • At assembly, drive in the right side bearing first, then the left side bearing.

Front Wheel Disassembly/Assembly (After '94)



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE:

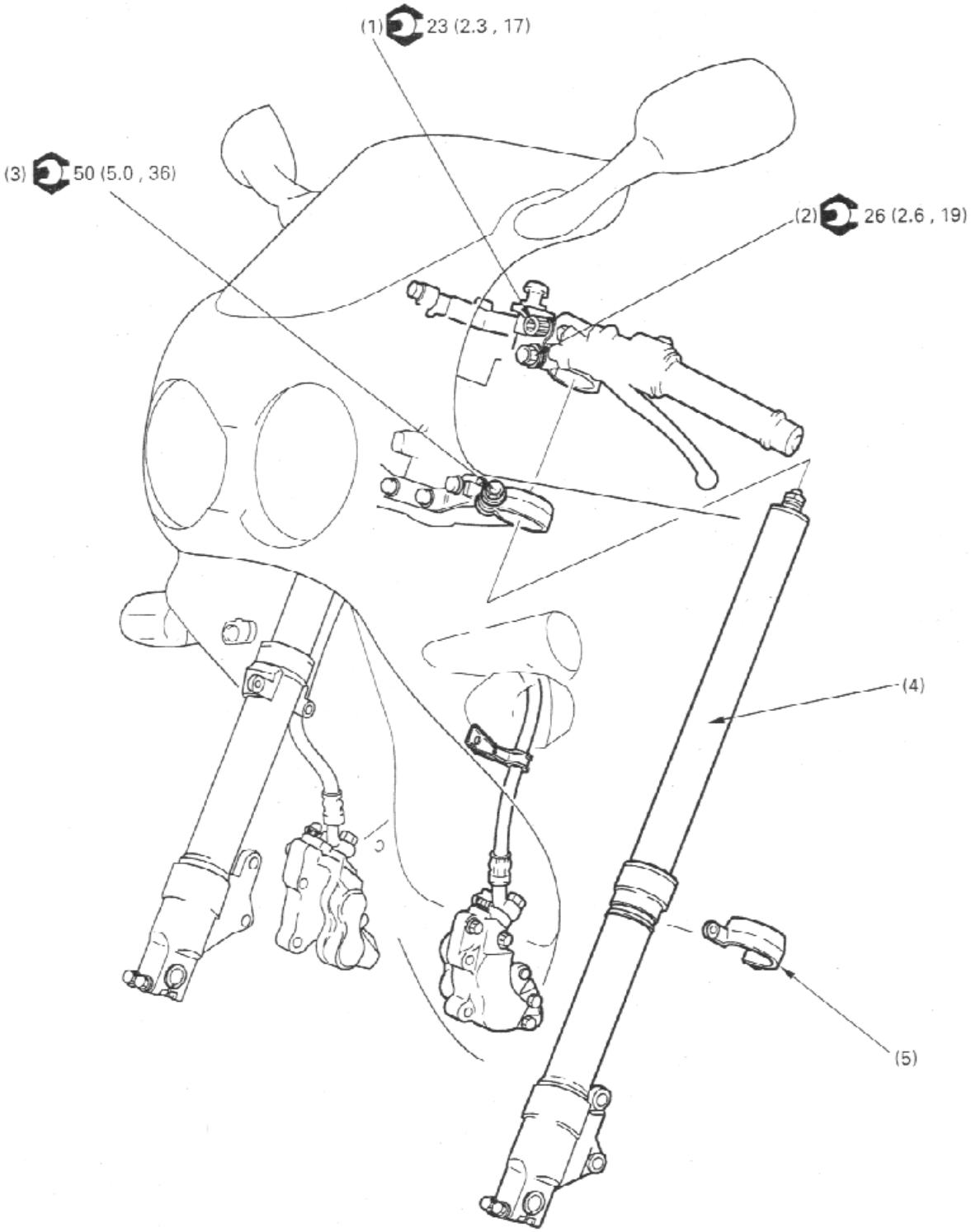
- Replace the bearings in pairs.
- Do not add more than 60 grams of the balance weight to the wheel.

Requisite Service

- Front wheel removal/installation (page 12-8)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake disc mounting bolt	12	
(2)	Brake disc	2	NOTE: • At installation, install each disc with their stamped side facing out.
(3)	Right dust seal	1	
(4)	Left dust seal	1	
(5)	Left wheel bearing (6004)	1	
(6)	Distance collar	1	
(7)	Right wheel bearing (6004)	1	NOTE: • At assembly, drive in the right side bearing first, then the left side bearing.

Fork Removal/Installation



NOTE:

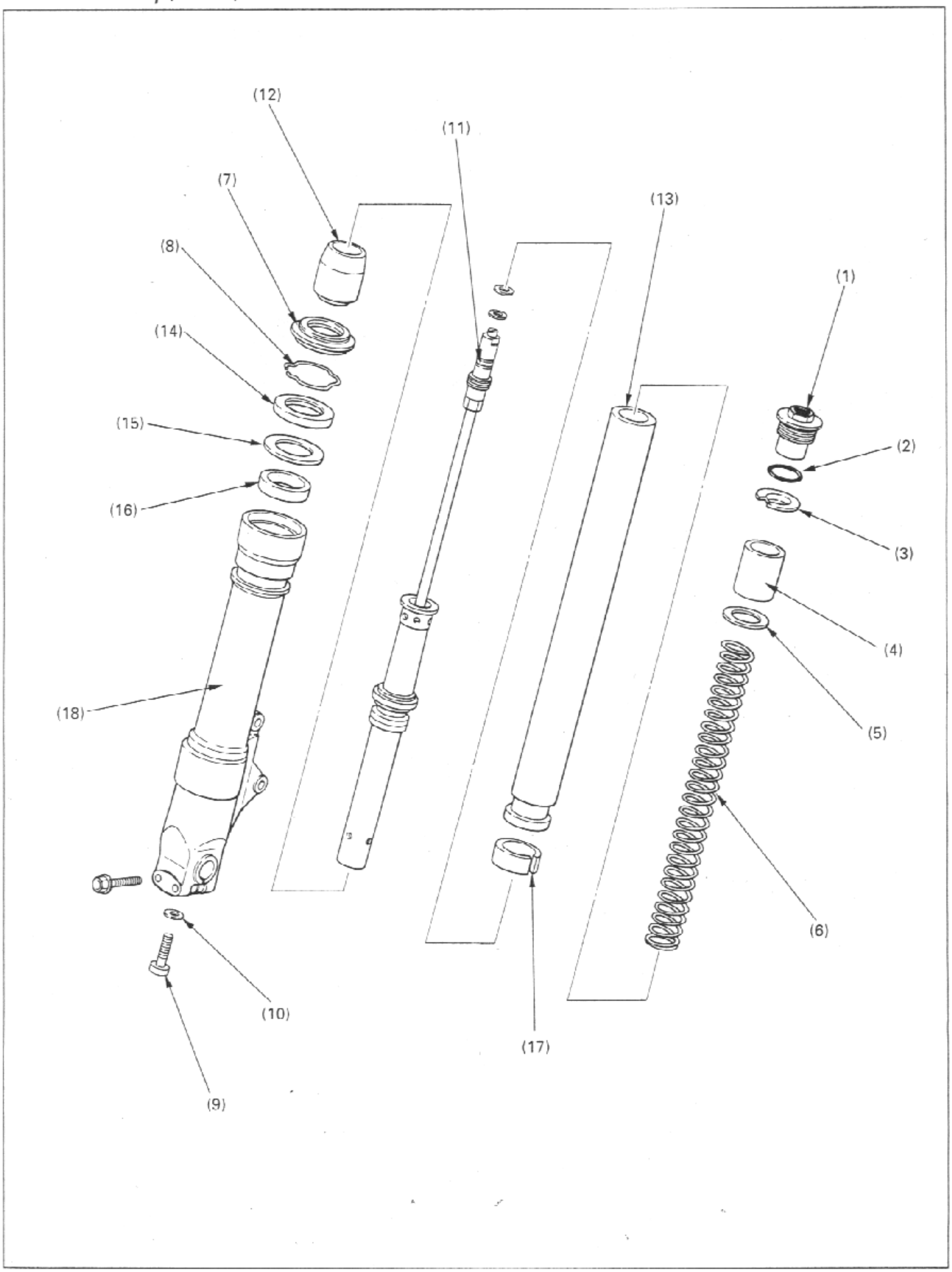
- If the fork legs will be disassembled, temporarily tighten the bottom bridge pinch bolt and loosen the fork cap.

Requisite Service

- Front wheel removal/installation (page 12-6, 8)
- Front fender removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Top bridge pinch socket bolt	2	Only loosen.
(2)	Handlebar pinch flange bolt	2	Only loosen.
(3)	Bottom bridge pinch bolt	2	· Only loosen. · If the fork leg will be disassembled, temporarily tighten the bottom pinch bolt and loosen the fork cap.
(4)	Fork leg	2	At installation, align the tops of fork tubes with the upper surface of the top bridge.
(5)	Front fender bracket	2	

Fork Disassembly ('93-'94)



⚠WARNING

- **The fork cap is under spring pressure. Use care when removing it and wear eye and face protection.**

NOTE:

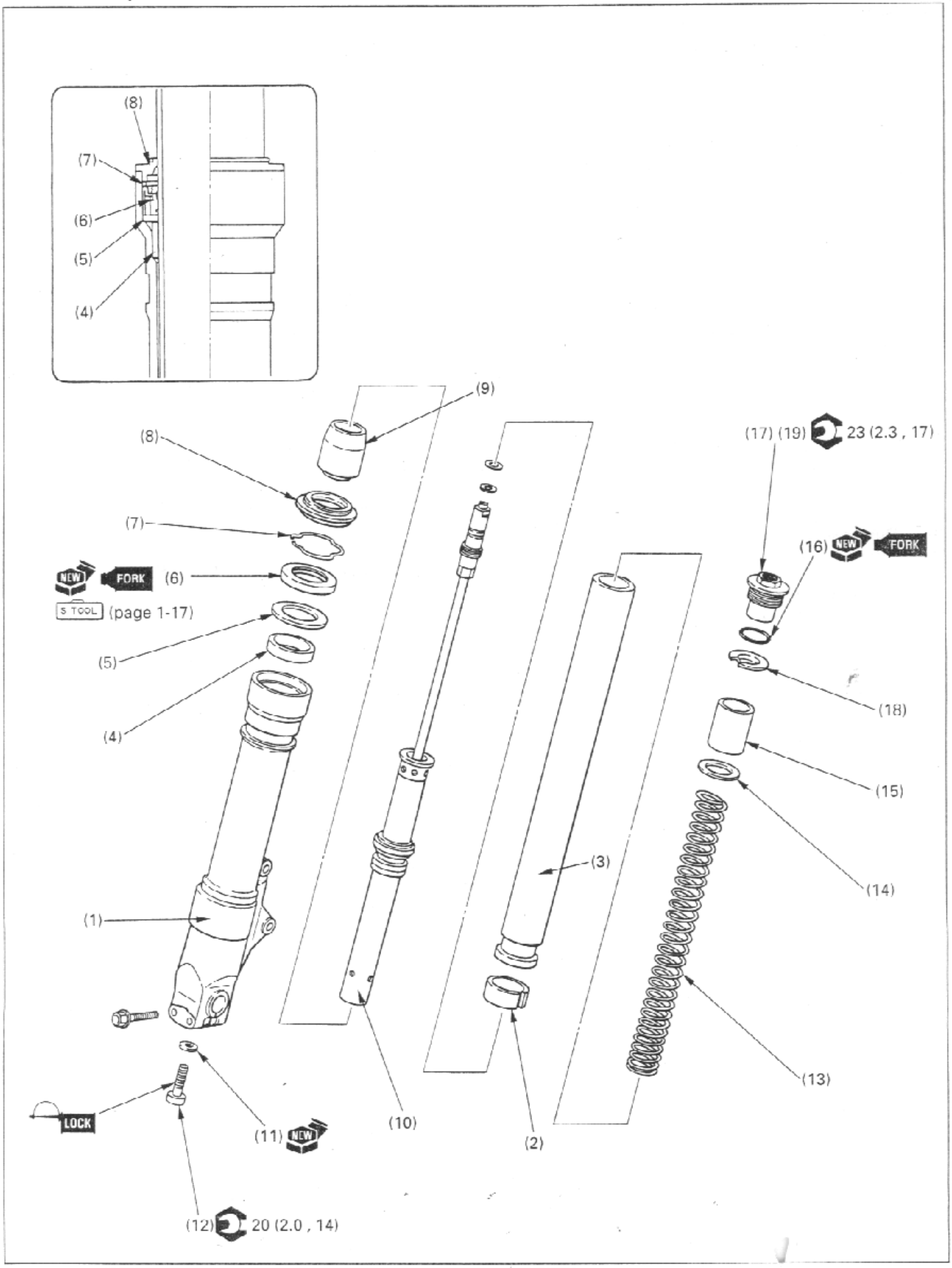
- If the socket bolt turns together with the fork piston, temporarily install the fork spring and fork cap.
- Always replace the oil seal and sealing washer with new ones.

Requisite Service

- Fork removal (page 12-14)

	Procedure	Q'ty	Remarks
	Disassembly Order		
(1)	Fork cap	1	Before removing the fork cap, turn the preload adjuster counterclockwise fully to loosen spring pressure.
(2)	O-ring	1	
(3)	Seat stopper	1	
(4)	Spacer	1	
(5)	Spring seat	1	
(6)	Fork spring	1	Pour out the fork fluid after removing the fork spring.
(7)	Dust seal	1	
(8)	Stopper ring	1	**CAUTION:** **• Do not scratch the fork tube sliding surface.**
(9)	Fork socket bolt	1	
(10)	Sealing washer	1	
(11)	Fork piston	1	
(12)	Oil lock piece	1	
(13)	Fork tube	1	
(14)	Oil seal	1	Remove them from the fork tube.
(15)	Back-up ring	1	
(16)	Slider bushing	1	
(17)	Fork tube bushing	1	Do not remove it, unless it is necessary to replace with a new one.
(18)	Fork slider	1	

Fork Assembly ('93-'94)



NOTE:

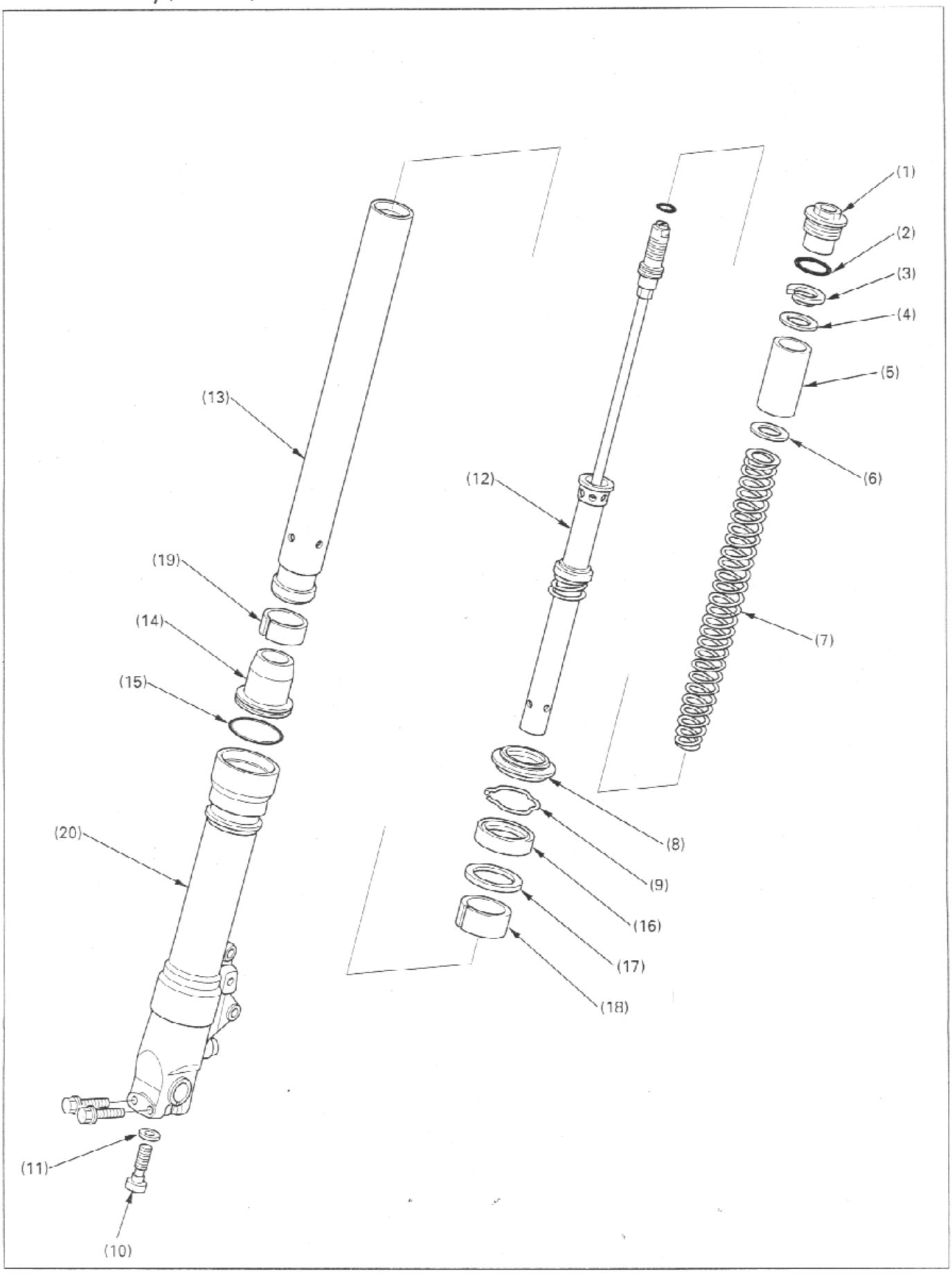
- Always replace the oil seal and sealing washer with new one.
- After assembling the fork legs, install each fork leg into the lower fork bridge first, then torque the fork cap.
- Coat a new oil seal with the recommended fork fluid (SS−8) and install with seal mark facing up.

Requisite Service

- Fork disassembly (page 12-16)
- Fork installation (page 12-14)

	Procedure	Q'ty	Remarks
	Assembly Order		
(1)	Fork slider	1	
(2)	Fork tube bushing	1	· Install them on the fork tube.
(3)	Fork tube	1	· Drive the oil seal using special tools.
(4)	Slider bushing	1	· Use fork seal driver (07KMD−KZ30100 or 07KMD−KZ3010A: U.S.A. only) for oil seal installation.
(5)	Back-up ring	1	
(6)	Oil seal	1	
(7)	Stopper ring	1	
(8)	Dust seal	1	
(9)	Oil lock piece	1	
(10)	Fork piston	1	
(11)	Sealing washer	1	
(12)	Fork socket bolt	1	· Apply a locking agent to the threads. · If the fork socket bolt turns together with the fork piston, temporarily install the fork spring, spring seat, spacer, seat stopper, O-ring and fork cap and tighten the socket bolt.
(13)	Fork spring	1	Install the fork spring with the tapered end facing down.
(14)	Spring seat	1	
(15)	Spacer	1	
(16)	O-ring	1	Apply fork fluid (SS−8) to the new O-ring.
(17)	Fork cap	1	Install it onto the adjuster.
(18)	Seat stopper	1	
(19)	Fork cap	1	**CAUTION:** **• Be careful not to cross-thread the fork cap.** **• Screw in the fork cap, but do not tighten yet.**

Fork Disassembly (After '94)



NOTE:

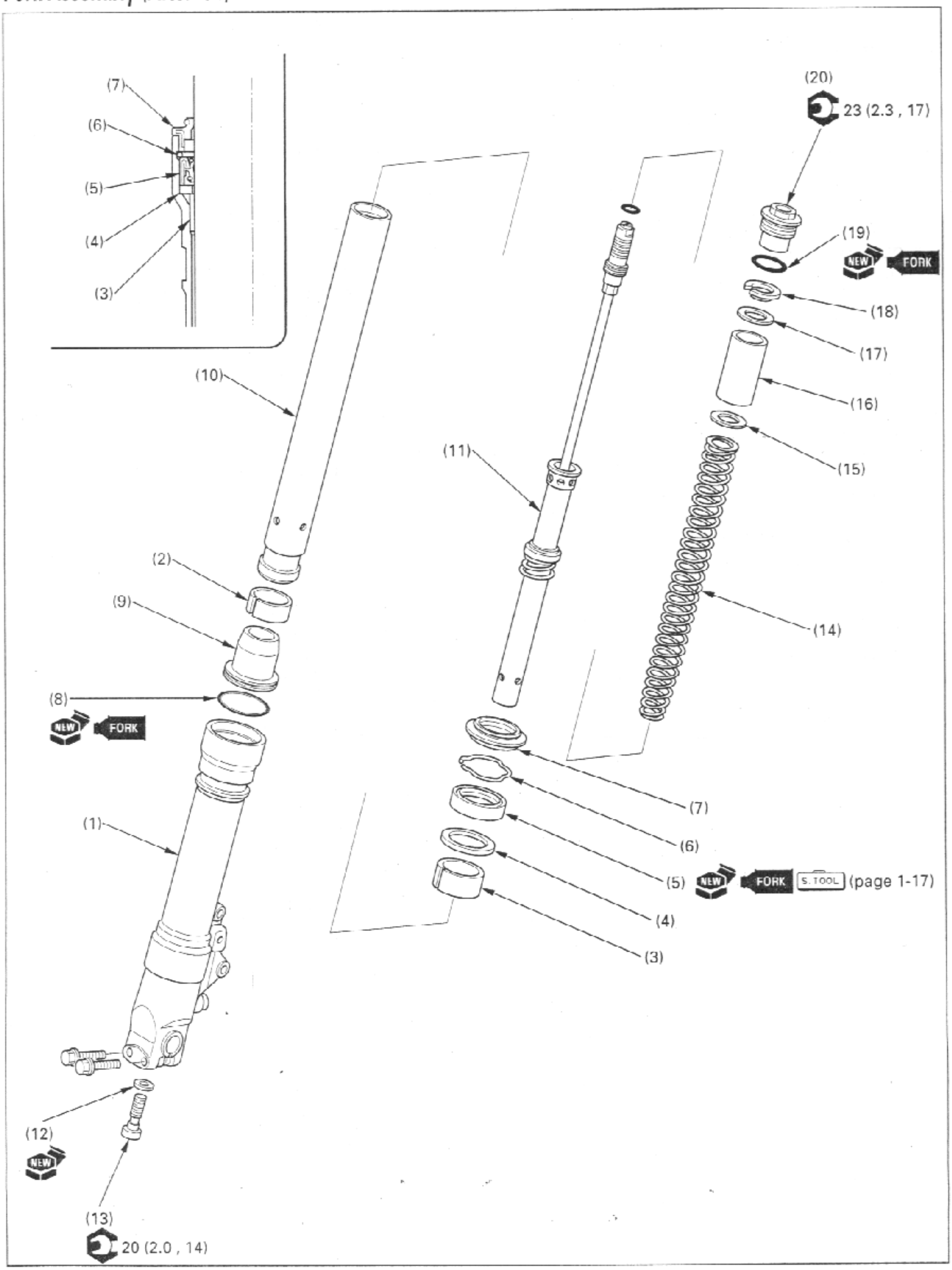
- Temporarily install the fork spring and fork cap, if the socket bolt turns together with the fork damper.
- Always replace the oil seal and sealing washer with new ones.

Requisite Service

- Fork removal (page 12-14)
- Fork assembly (page 12-22)

	Procedure	Q'ty	Remarks
	Disassembly Order		
(1)	Fork cap	1	Before removing the fork cap, turn the preload adjuster counterclockwise fully to loosen the spring pressure.
(2)	O-ring	1	
(3)	Spring seat	1	
(4)	Spring joint plate	1	
(5)	Spacer	1	
(6)	Spring joint plate	1	
(7)	Fork spring	1	Pour out the fork fluid after removing the fork spring.
(8)	Dust seal	1	
(9)	Stopper ring	1	**CAUTION:** **• Do not scratch the fork tube sliding surface.**
(10)	Fork socket bolt	1	
(11)	Sealing washer	1	
(12)	Fork damper assembly	1	
(13)	Fork tube	1	
(14)	Oil lock piece	1	
(15)	O-ring	1	
(16)	Oil seal	1	Remove them from the fork tube.
(17)	Back-up ring	1	
(18)	Slider bushing	1	
(19)	Fork tube bushing	1	Do not remove it, unless it is necessary to replace with a new one.
(20)	Fork slider	1	

Fork Assembly (After '94)



NOTE:

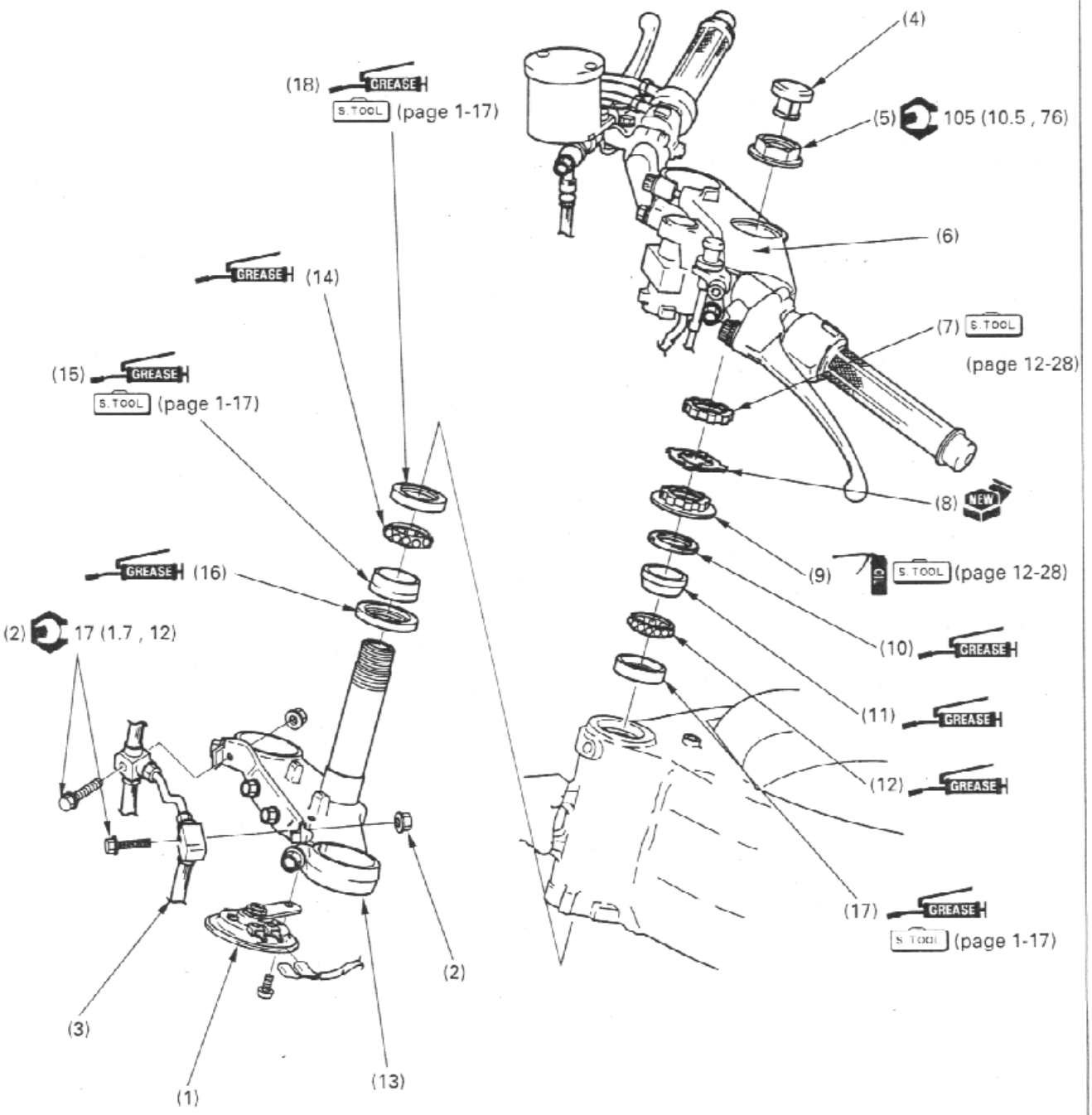
- Always replace the oil seal and sealing washer with new ones.
- After assembling the fork legs, install each fork leg into the lower fork bridge first, then torque the fork cap.
- Coat a new oil seal with recommended fork fluid and install with seal mark facing up.

Requisite Service

- Fork disassembly (page 12-20)
- Fork installation (page 12-14)

	Procedure	Q'ty	Remarks
	Assembly Order		
(1)	Fork slider	1	
(2)	Fork tube bushing	1	· Install them onto the fork tube.
(3)	Slider bushing	1	· Drive the oil seal using the special tool.
(4)	Back-up ring	1	· Use fork seal driver (07KMD KZ30100 or 07KMD-KZ3010A: U.S.A. only) for oil seal installation.
(5)	Oil seal	1	
(6)	Stopper ring	1	
(7)	Dust seal	1	
(8)	O-ring	1	
(9)	Oil lock piece	1	
(10)	Fork tube	1	
(11)	Fork damper assembly	1	
(12)	Sealing washer	1	
(13)	Fork socket bolt	1	· Apply a locking agent to the threads. · If the fork socket bolt turns together with the fork damper, temporarily install the fork spring, spring joint plates, spacer, spring seat and fork cap and tighten the socket bolt.
(14)	Fork spring	1	Install the fork spring with the tapered end facing down.
(15)	Spring joint plate	1	
(16)	Spacer	1	
(17)	Spring joint plate	1	
(18)	Spring seat	1	
(19)	O-ring	1	Apply fork fluid to the new O-ring.
(20)	Fork cap	1	**CAUTION:** **• Be careful not to cross-thread the fork cap.** **• Screw in the fork cap, but do not tighten yet.**

Steering Stem Removal/Installation ('93-'94)



NOTE:

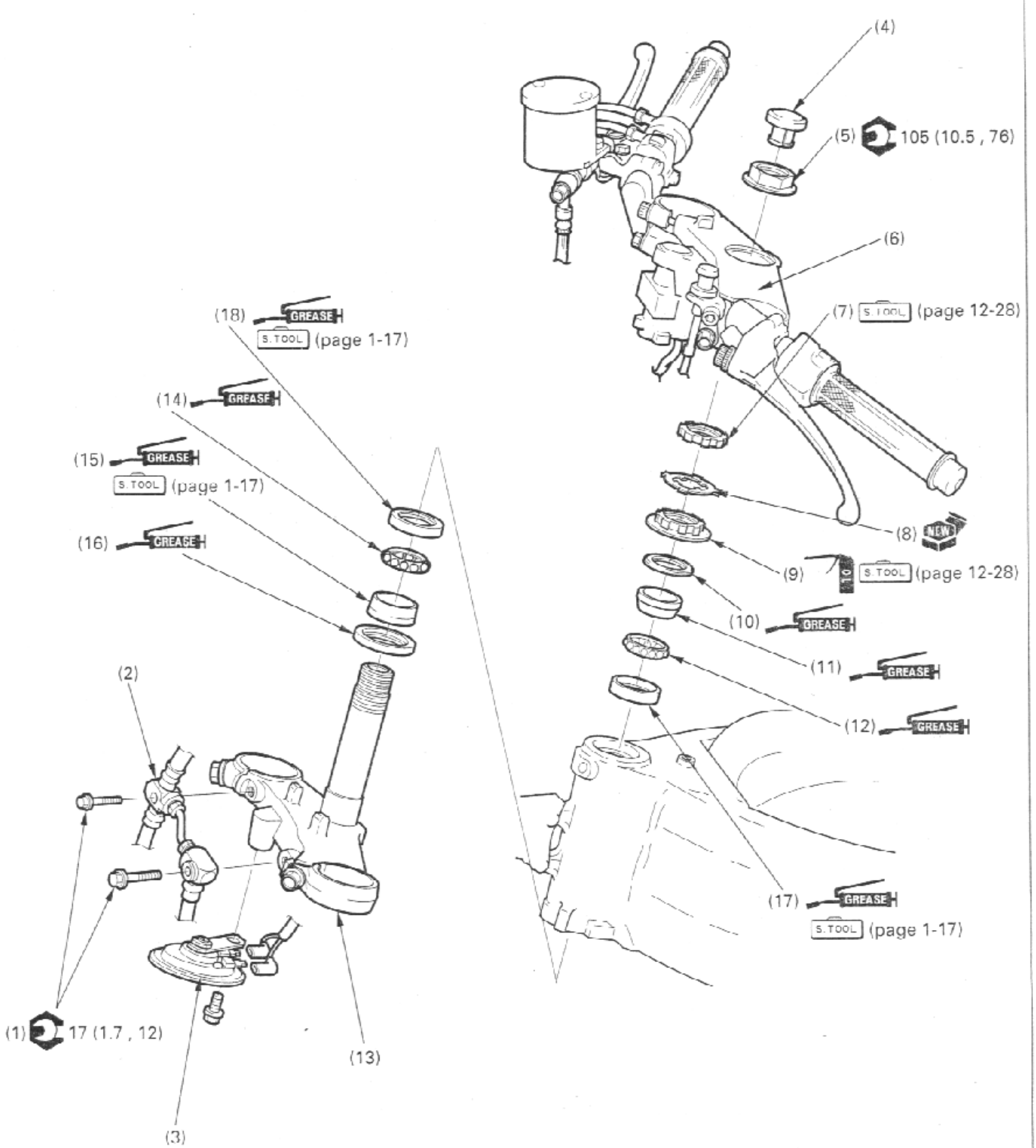
- Replace the bearings and races as a set.
- At installation, apply grease to all bearing areas.

Requisite Service

- Fork removal/installation (page 12-14)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Horn	1	
(2)	Brake pipe mounting bolt/nut	2/2	
(3)	Brake hose assembly	1	
(4)	Stem nut cap	1	
(5)	Steering stem nut	1	
(6)	Top bridge	1	
(7)	Lock nut	1	Bend the tabs of the lock washer straight, then remove (page 12-28).
(8)	Lock washer	1	
(9)	Adjustment nut	1	
(10)	Dust seal	1	
(11)	Upper bearing inner race	1	
(12)	Upper bearing	1	
(13)	Steering stem	1	
(14)	Lower bearing	1	
(15)	Lower bearing inner race	1	
(16)	Dust seal	1	
(17)	Upper bearing outer race	1	Use ball race remover set (07946—KM90001), or adjustable bearing puller, 25—40 mm (07736—A01000A) with commercially available 3/8 x 16 slide hammer (U.S.A. only)
(18)	Lower bearing outer race	1	
	Installation Order		
(18)	Lower bearing outer race	1	Use ball race remover set (07946—KM90001), or Driver 07749—0010000 Attachment, 42 x 47 mm 07746—0010300 Attachment, 52 x 55 mm 07746—0010400
(17)	Upper bearing outer race	1	
(16)	Dust seal	1	
(15)	Lower bearing inner race	1	Use steering stem driver (07946—MB00000) for installation.
(14)	Lower bearing	1	
(13)	Steering stem	1	
(12)	Upper bearing	1	
(11)	Upper bearing inner race	1	
(10)	Dust seal	1	
(9)	Adjustment nut	1	Installation (page 12-28)
(8)	Lock washer	1	
(7)	Lock nut	1	
(6)	Top bridge	1	
(5)	Steering stem nut	1	Temporarily install fork and torque the nut.
(4)	Stem nut cap	1	
(3)	Brake hose assembly	1	
(2)	Brake hose joint mounting bolt/nut	2/2	
(1)	Horn	1	

Steering Stem Removal/Installation (After '94)



NOTE:

- Replace the bearings and races as a set.
- At installation, apply grease to all bearing area.

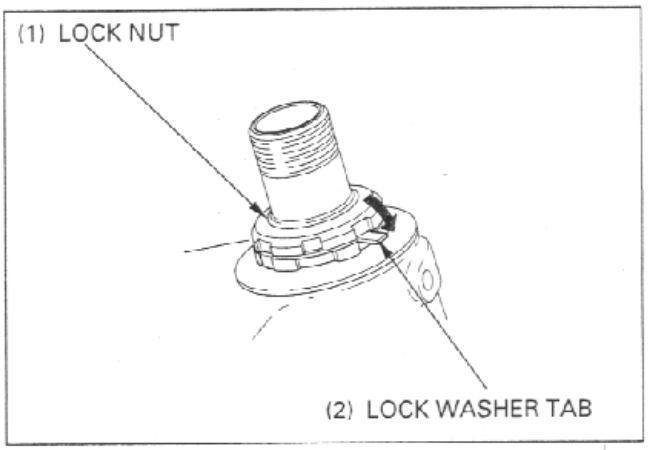
Requisite Service

- Fork removal/installation (page 12-14)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Brake pipe mounting bolt	2	
(2)	Brake hose assembly	1	
(3)	Horn unit	1	
(4)	Stem nut cap	1	
(5)	Steering stem nut	1	
(6)	Top bridge	1	
(7)	Lock nut	1	Bend straight the tabs of the lock washer, then remove (page 12-28).
(8)	Lock washer	1	
(9)	Adjustment nut	1	
(10)	Dust seal	1	
(11)	Upper bearing inner race	1	
(12)	Upper bearing	1	
(13)	Steering stem	1	
(14)	Lower bearing	1	
(15)	Lower bearing inner race	1	
(16)	Dust seal	1	
(17)	Upper bearing outer race	1	Use ball race remover set (07946—KM90001), or adjustable bearing puller, 25—40 mm (07736—A01000A) with commercially available 3/8 x 16 slide hammer (U.S.A. only)
(18)	Lower bearing outer race	1	
	Installation Order		
(18)	Lower bearing outer race	1	Use ball race remover set (07946—KM90001), or Driver 07749—0010000 Attachment, 42 x 47 mm 07746—0010300 Attachment, 52 x 55 mm 07746—0010400
(17)	Upper bearing outer race	1	
(16)	Dust seal	1	
(15)	Lower bearing inner race	1	Use steering stem driver (07946—MB00000) for installation.
(14)	Lower bearing	1	
(13)	Steering stem	1	
(12)	Upper bearing	1	
(11)	Upper bearing inner race	1	
(10)	Dust seal	1	
(9)	Adjustment nut	1	Installation (page 12-28)
(8)	Lock washer	1	
(7)	Lock nut	1	
(6)	Top bridge	1	
(5)	Steering stem nut	1	Temporarily install fork and torque the nut.
(4)	Stem nut cap	1	
(3)	Horn unit	1	
(2)	Brake hose assembly	1	
(1)	Brake hose joint mounting bolt	2	

Bearing Adjustment Nut Removal

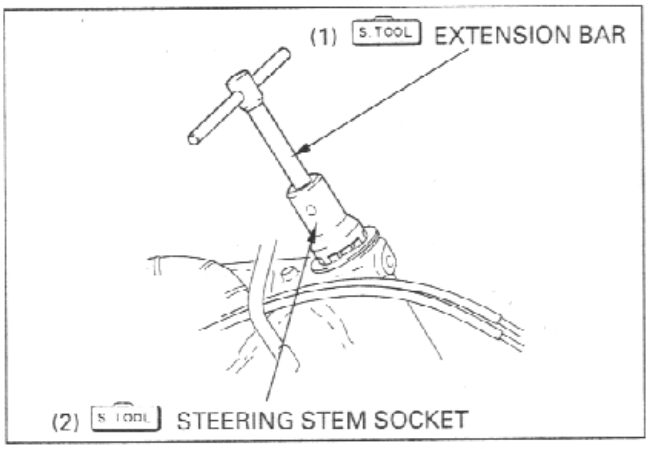
Bend the tabs of the lock washer straight. Then remove the lock nut and lock washer.



Remove the steering stem adjustment nut.

S.TOOL

Steering stem socket	**07916—3710101 or 07916—3710100 (U.S.A. only)**
Extension bar	**07716—0020500 or Equivalent commercially available in U.S.A.**



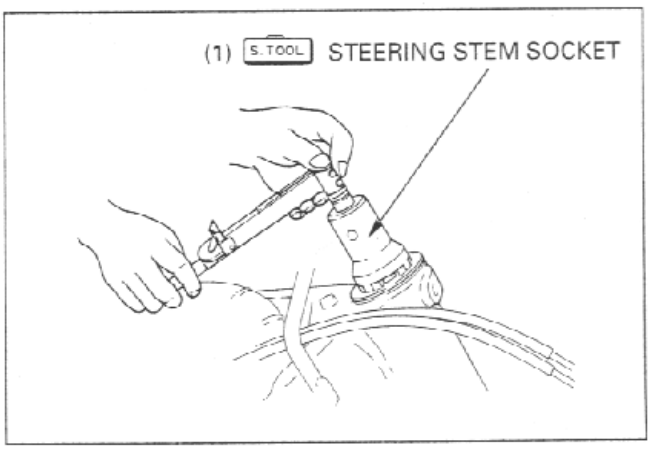
Bearing Adjustment Nut Installation

Apply clean engine oil to the bearing adjustment nut threads.
Install and tighten the adjustment nut to the specified torque.

S.TOOL

Steering stem socket	**07916—3710101 or 07916—3710100 (U.S.A. only)**

Torque: 31 N·m (3.1 kg-m , 22 lb-ft)

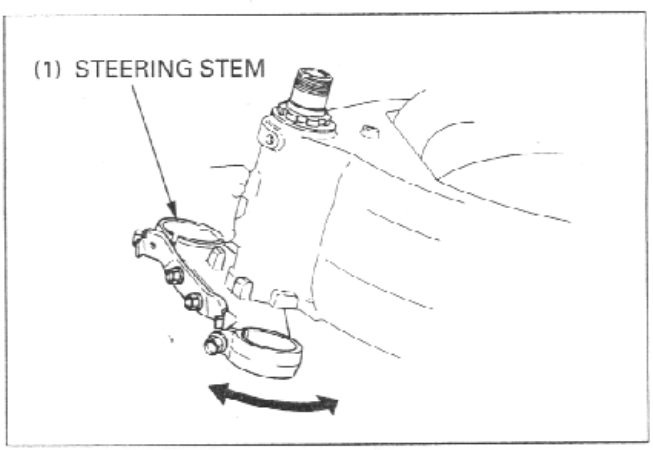


Turn the steering stem lock to lock at least five times, then retighten the steering adjustment nut to the specified torque.

S.TOOL

Steering stem socket	**07916—3710101 or 07916—3710100 (U.S.A. only)**

Torque: 31 N·m (3.1 kg-m , 22 lb-ft)

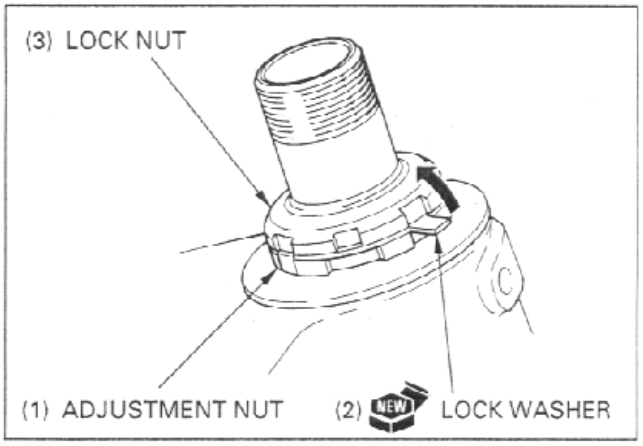


Install the new lock washer on to the steering stem.

Align the tabs of the lock washer with the grooves in the adjustment nut and bend two opposite tabs (shorter) down into the adjustment nut groove.

Install and finger tighten the lock nut.
Hold the lock nut and further tighten the lock nut within 1/4 turn (90°) enough to align its grooves with the lock washer tabs.

Bend the lock washer tabs up into the lock nut grooves.



MEMO

13. Rear Wheel/Suspension

Service Information

⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.**
- **Before disposal of the shock absorber, release the nitrogen (Step : Section 19 of the Common Service Manual ; Drilling point : page 1-11).**

- When servicing the rear wheel, support the motorcycle using a safety stand or hoist.
- Refer to section 14 for brake system information.
- Use only tires marked "TUBELESS" and tubeless valves on rims marked "TUBELESS TIRE APPLICABLE".
- Use only genuine Honda replacement bolts and nuts for all suspension pivot and mounting points.

Troubleshooting

13

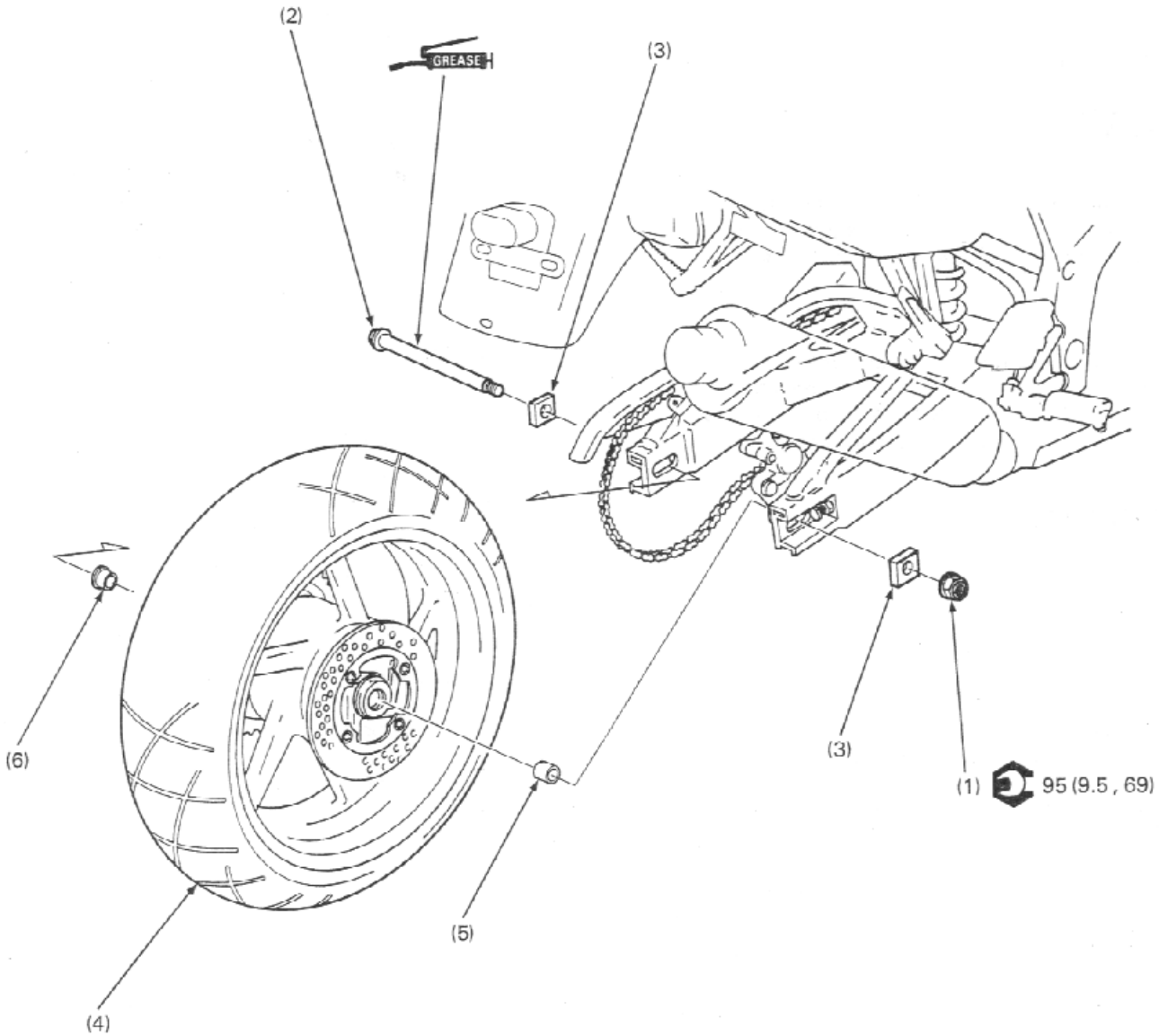
Soft Suspension
- Weak shock absorber spring
- Incorrect suspension adjustment
- Oil leakage from damper unit
- Tire pressure too low

Hard Suspension
- Damaged shock absorber mount bearing
- Bent damper rod
- Damaged swingarm pivot bearings
- Bent swingarm pivot
- Incorrectly suspension adjustment
- Tire pressure too high

Steers To One Side Or Does Not Track Straight
- Bent rear axle
- Axle alignment/chain adjustment not equal on both sides

Rear Wheel Wobbling
- Bent rim
- Worn rear wheel bearings
- Faulty tire
- Unbalanced tire and wheel
- Tire pressure too low
- Faulty swingarm pivot bearing(s)

Rear Wheel Removal/Installation



⚠WARNING

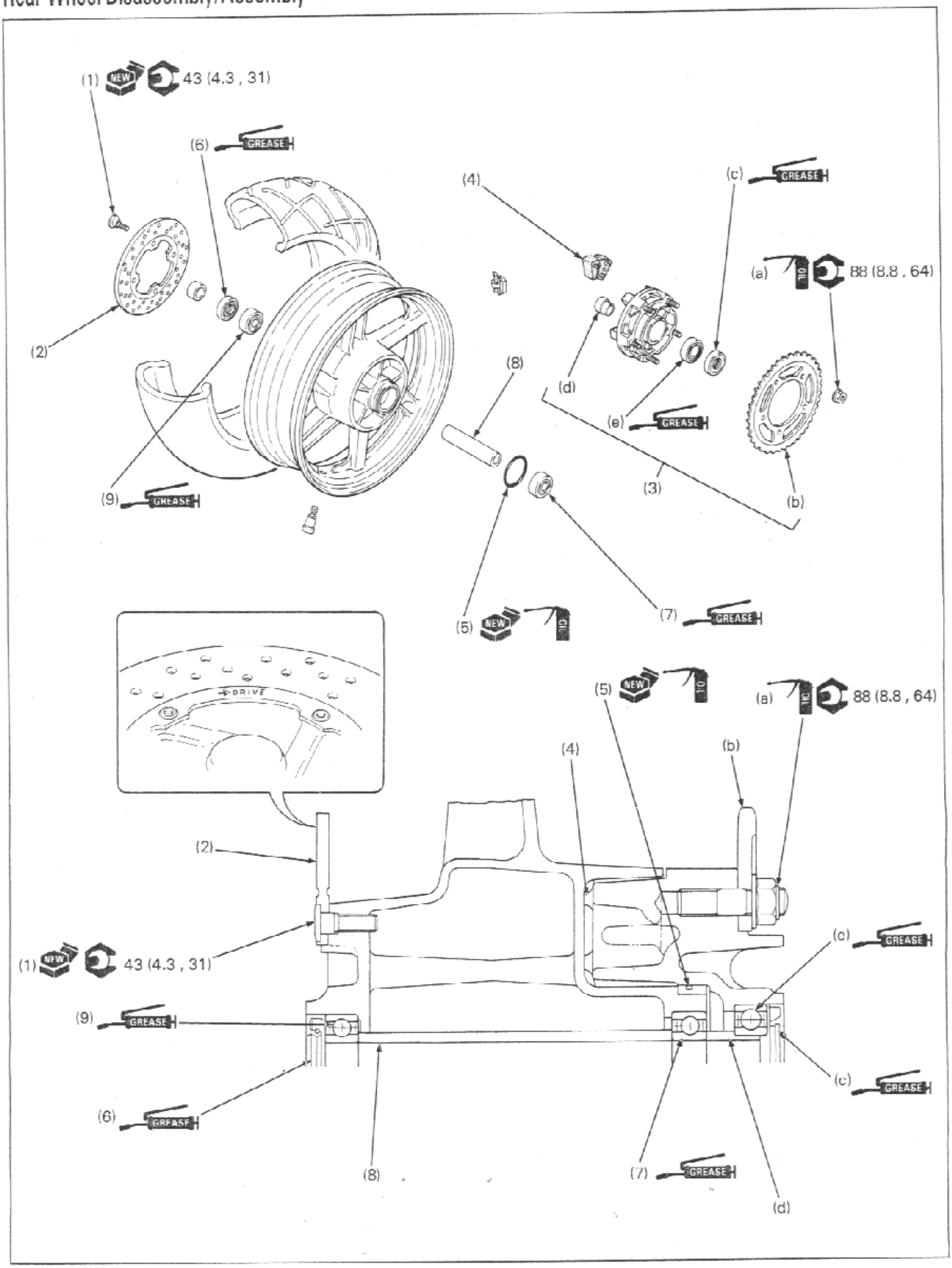
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE:

- When servicing the rear wheel, support the motorcycle using a safety stand or hoist.
- Adjust the drive chain free play after installing the wheel.
- Apply thin layer of grease to the rear axle surface.
- Do not operate the brake pedal while the rear wheel is removed.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Rear axle nut	1	· Loosen the drive chain adjuster fully, then remove the axle nut. · Move the rear wheel forward, and derail the drive chain from the driven sprocket.
(2)	Rear axle	1	
(3)	Drive chain indicator plate	2	
(4)	Rear wheel	1	
(5)	Right side collar	1	
(6)	Left side collar	1	

Rear Wheel Disassembly/Assembly



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE:

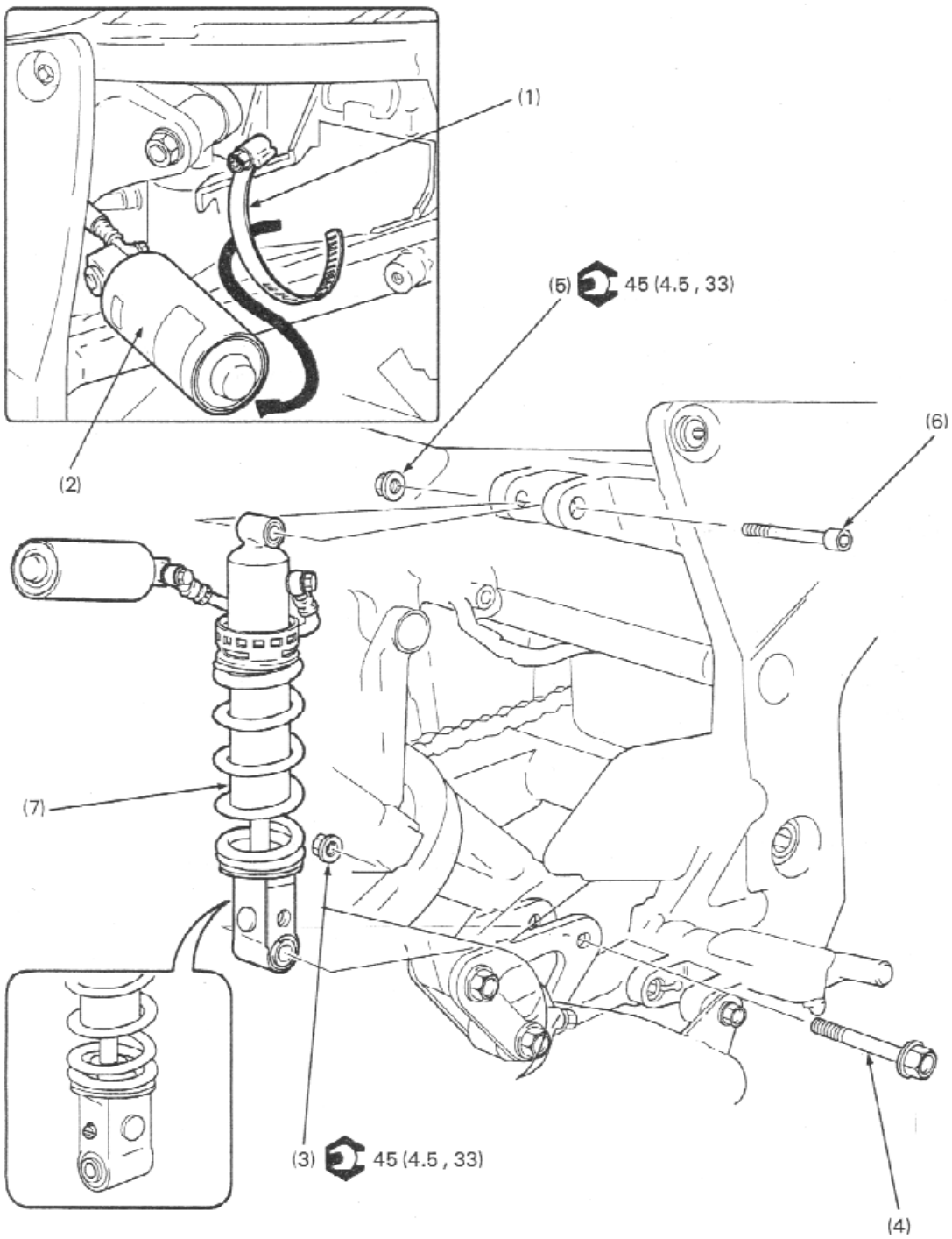
- Replace wheel bearings in pairs.
- Do not add more than 60 grams of balance weight to the wheel.

Requisite Service

- Rear wheel removal/installation (page 13-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake disc mounting bolt	4	
(2)	Brake disc	1	At installation, install the disc with its "⇨DRIVE" mark facing out.
(3)	Driven flange assembly	—	
	Driven Flange Disassembly Order		
(a)	Driven sprocket nut	5	
(b)	Driven sprocket	1	
(c)	Dust seal	1	
(d)	Driven flange distance collar	1	
(e)	Driven flange bearing (62/22)	1	
(4)	Damper rubber	5	
(5)	O-ring	1	
(6)	Right dust seal	1	
(7)	Left wheel bearing (6204 UU)	1	
(8)	Distance collar	1	
(9)	Right wheel bearing (6204 UU)	1	NOTE: • Drive in the right side bearing first, then the left side bearing.

Shock Absorber Removal/Installation



⚠WARNING

- **The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.**
- **Before disposal of the shock absorber, release the nitrogen (Step : Section 19 of the Common Service Manual ; Drilling point : page 1-11).**

NOTE:

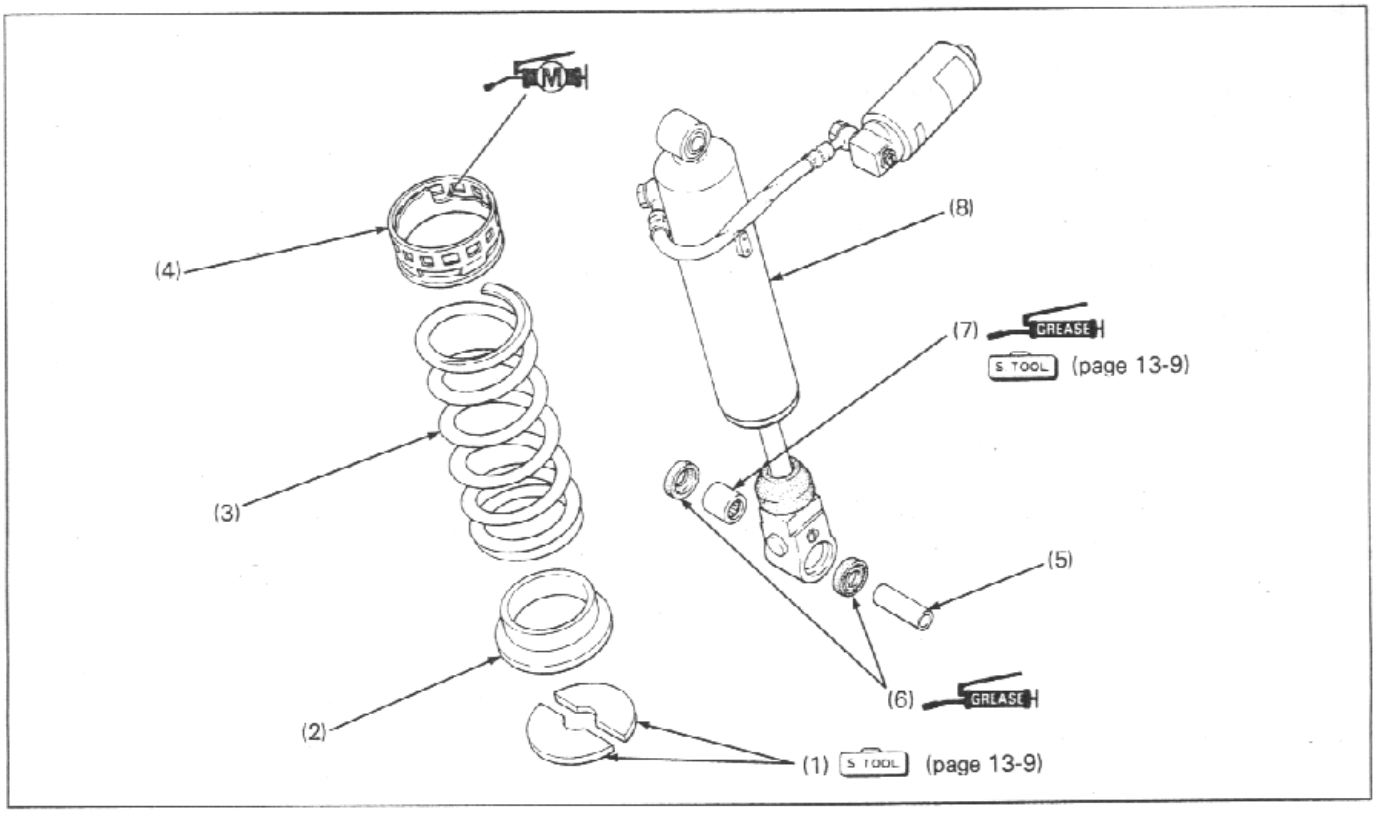
- Before removal, support the motorcycle using a safety stand or hoist.

Requisite Service

- Side cover removal/installation (page 2-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Reservoir tank band	1	
(2)	Reservoir tank	1	
(3)	Lower mounting nut	1	
(4)	Lower mounting bolt	1	
(5)	Upper mounting nut	1	
(6)	Upper mounting bolt	1	
(7)	Shock absorber assembly	1	· Remove the shock absorber out of the frame from the right. · Install the shock absorber with the rebound damping adjuster facing to the left.

Shock Absorber Disassembly/Assembly



⚠WARNING

- **The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.**
- **Before disposal of the shock absorber, release the nitrogen (Step : Section 19 of the Common Service Manual ; Drilling point : page 1-11).**

Requisite Service

- Shock absorber removal/installation (page 13-6)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Spring seat stopper	2	Removal/Installation (page 13-9)
(2)	Spring seat	1	
(3)	Spring	1	At installation, install the spring with the tapered coil facing up.
(4)	Spring pre-load adjuster	1	
(5)	Pivot collar	1	
(6)	Dust seal	2	
(7)	Needle bearing	1	
(8)	Damper assembly	1	

Lower Joint Needle Bearing Removal

Remove the pivot collar and dust seals.

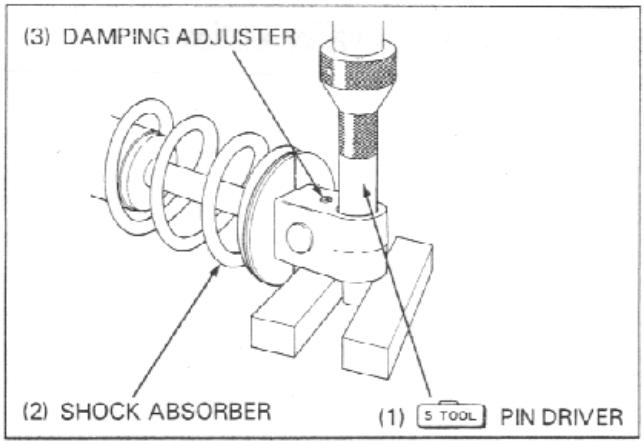
CAUTION:

- **Place the damper with the rebound damping adjuster facing up.**

Press the needle bearing out from the lower joint.

S TOOL

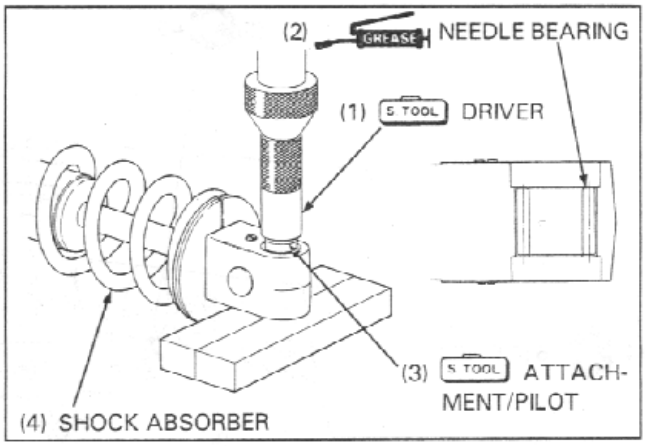
Pin driver	**07GMD—KT80100 or**
Driver	**07749—0010000**
Pilot, 17 mm	**07746—0040400**



Pack a new needle bearing with multi-purpose grease.
Press the needle bearing into the lower joint until the bearing casing is flush with the lower joint surface as shown.

S TOOL

Driver	**07749—0010000**
Attachment, 24 x 26 mm	**07746—0010700**
Pilot, 17 mm	**07746—0040400**



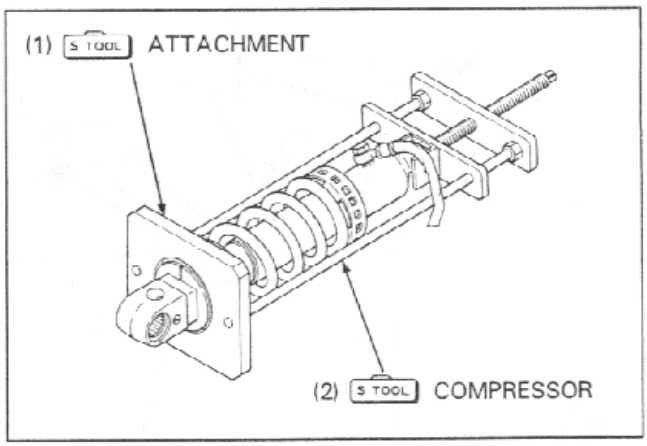
Stopper Plate Removal/Installation

Install the shock absorber compressor and attachment on the shock absorber as shown.

S TOOL

Shock absorber compressor	**07GME—0010000**
Attachment	**07NME—MY70100**

Turn the compressor handle and slowly, compress the spring.

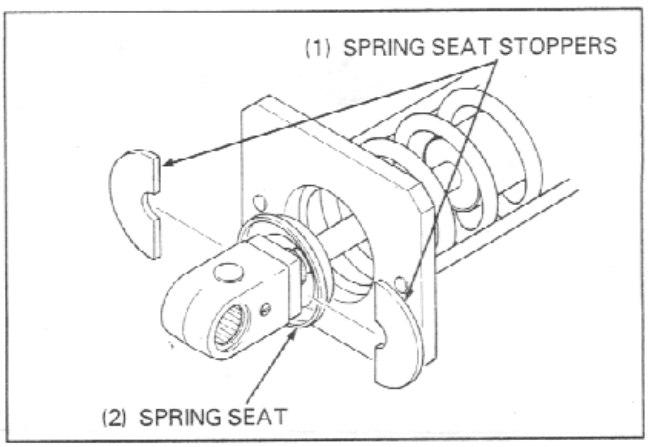


Remove the spring seat stoppers from the spring seat.
Remove the shock absorber spring.

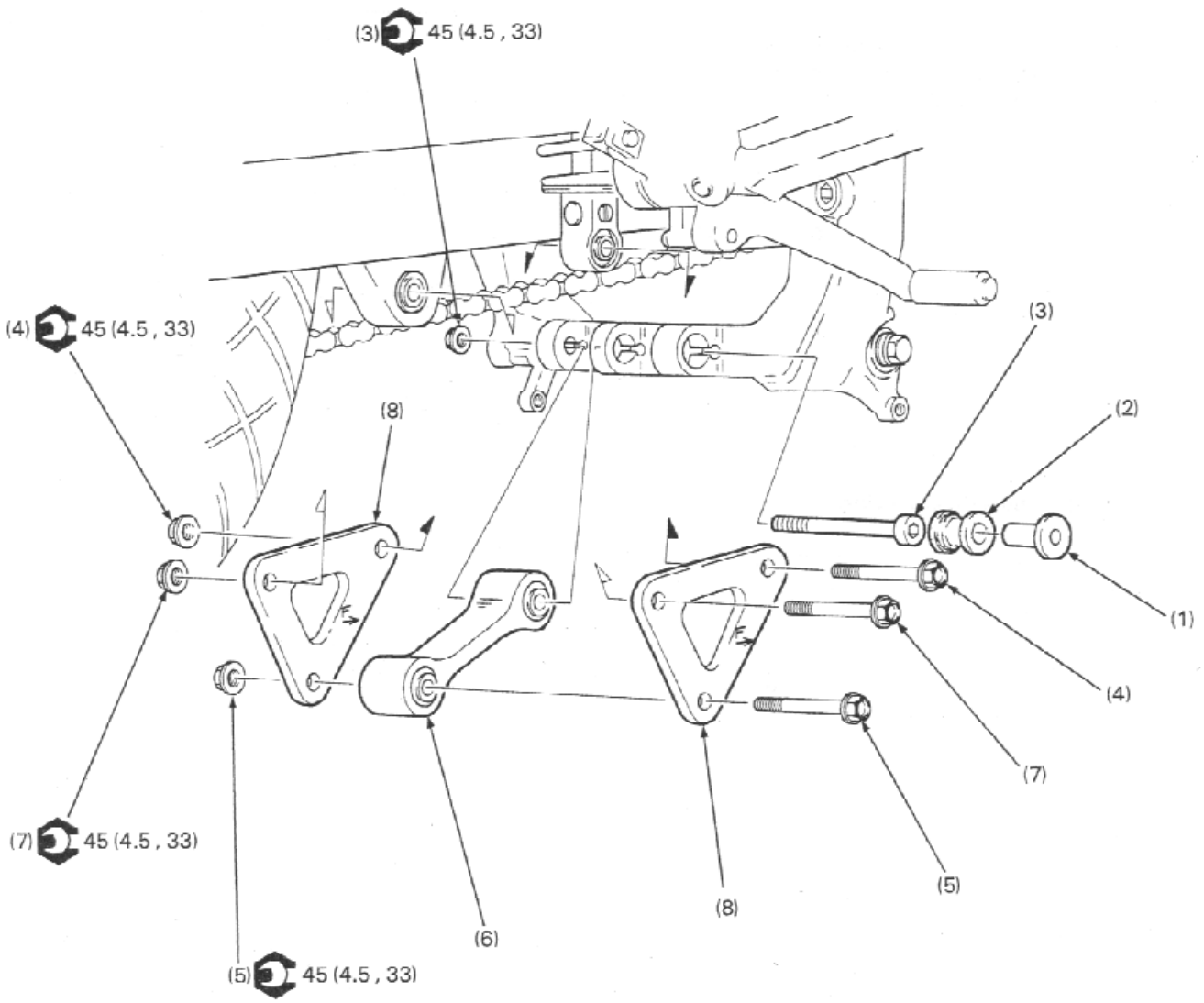
Installation is in the reverse order of removal.

NOTE:

- Install the shock absorber spring with the tapered coil facing up.
- Install the spring seat stopper securely.



Suspension Linkage Removal/Installation



NOTE:

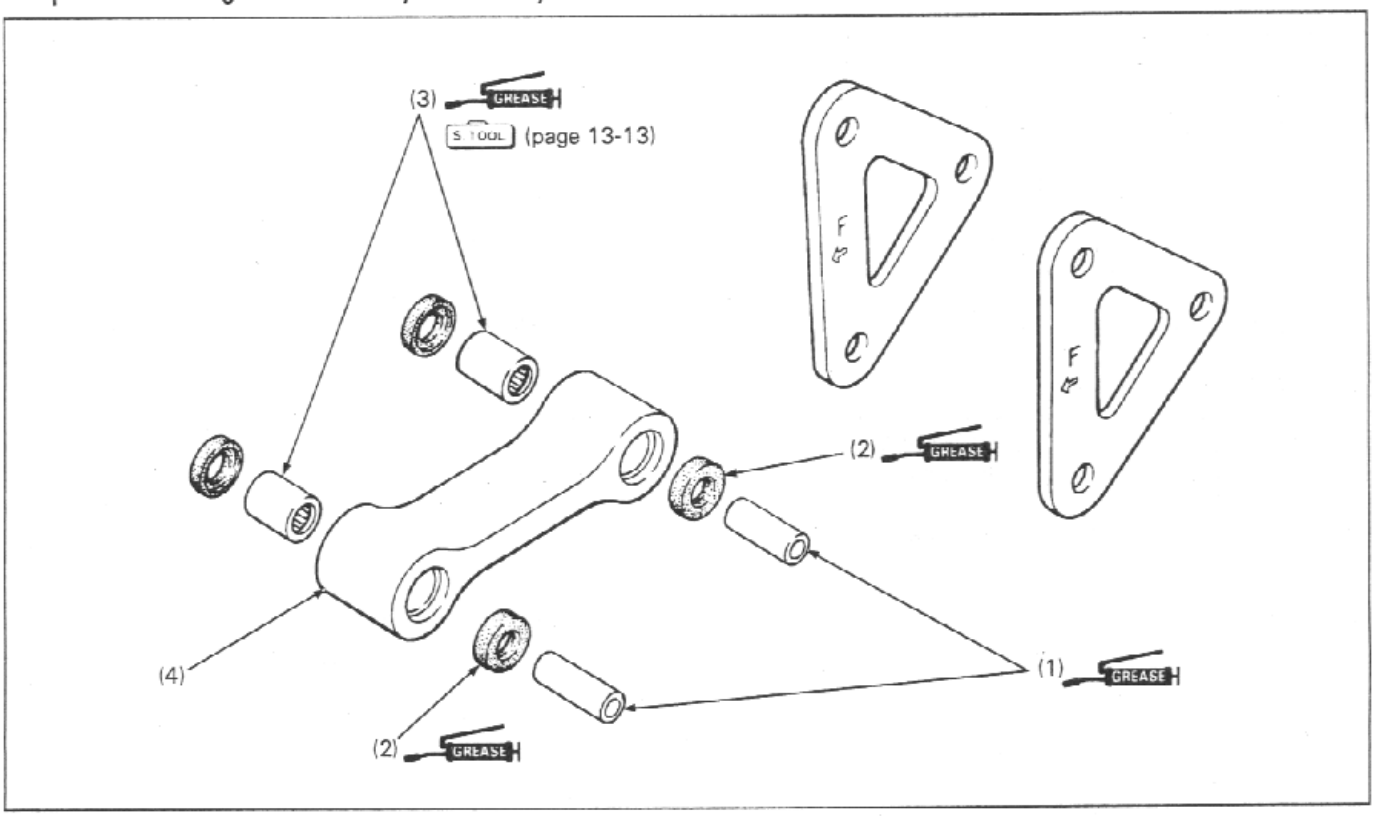
- Before removal, support the motorcycle using a safety stand or hoist.

Requisite Service

- Muffler removal/installation (page 2-19)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Muffler mounting collar	1	
(2)	Muffler mounting rubber	1	
(3)	Shock link bolt/nut (Frame side)	1/1	
(4)	Shock absorber lower mounting bolt/nut	1/1	
(5)	Shock arm bolt/nut (Shock link side)	1/1	
(6)	Shock link	1	
(7)	Shock arm bolt/nut (Swingarm side)	1/1	
(8)	Shock arm plate	2	Install the shock arm plate with its "F" mark facing forward.

Suspension Linkage Disassembly/Assembly



Requisite Service

- Suspension linkage removal/installation (page 13-10)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Pivot collar	2	
(2)	Dust seal	4	
(3)	Needle bearing	2	Removal/Installation (page 13-13)
(4)	Shock link	1	

Shock Link Needle Bearing Replacement

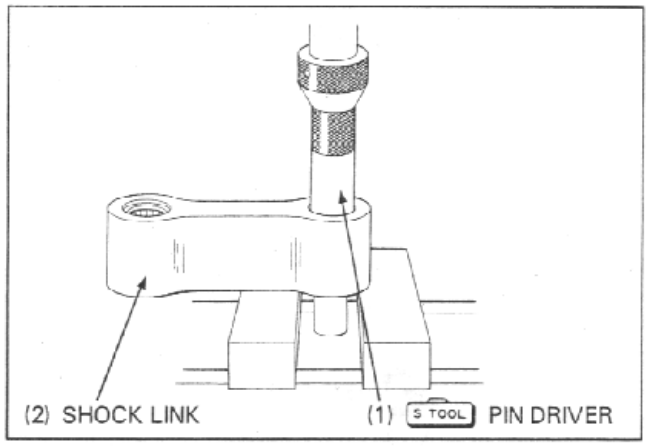
Removal

Remove the pivot collars and dust seals.

Press the needle bearing out of the shock link using the special tool.

S TOOL

Pin driver	07GMD—KT80100 or
Driver	07749—0010000
Pilot, 17 mm	07746—0040400



Installation

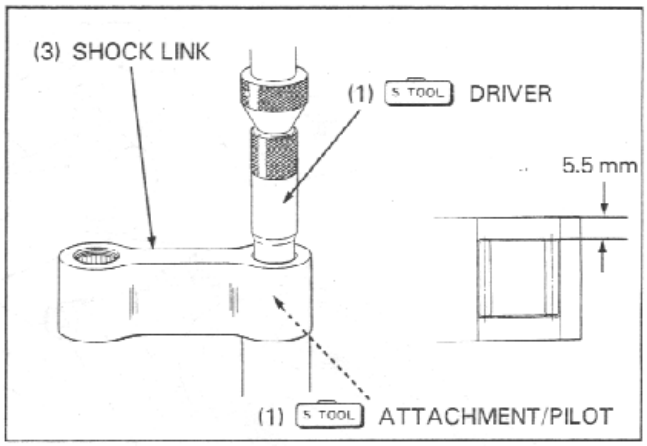
Press a new needle bearing into the shock link so that the needle bearing surface is lower 5.5 mm (0.22 in) from the end of the shock link.

S TOOL

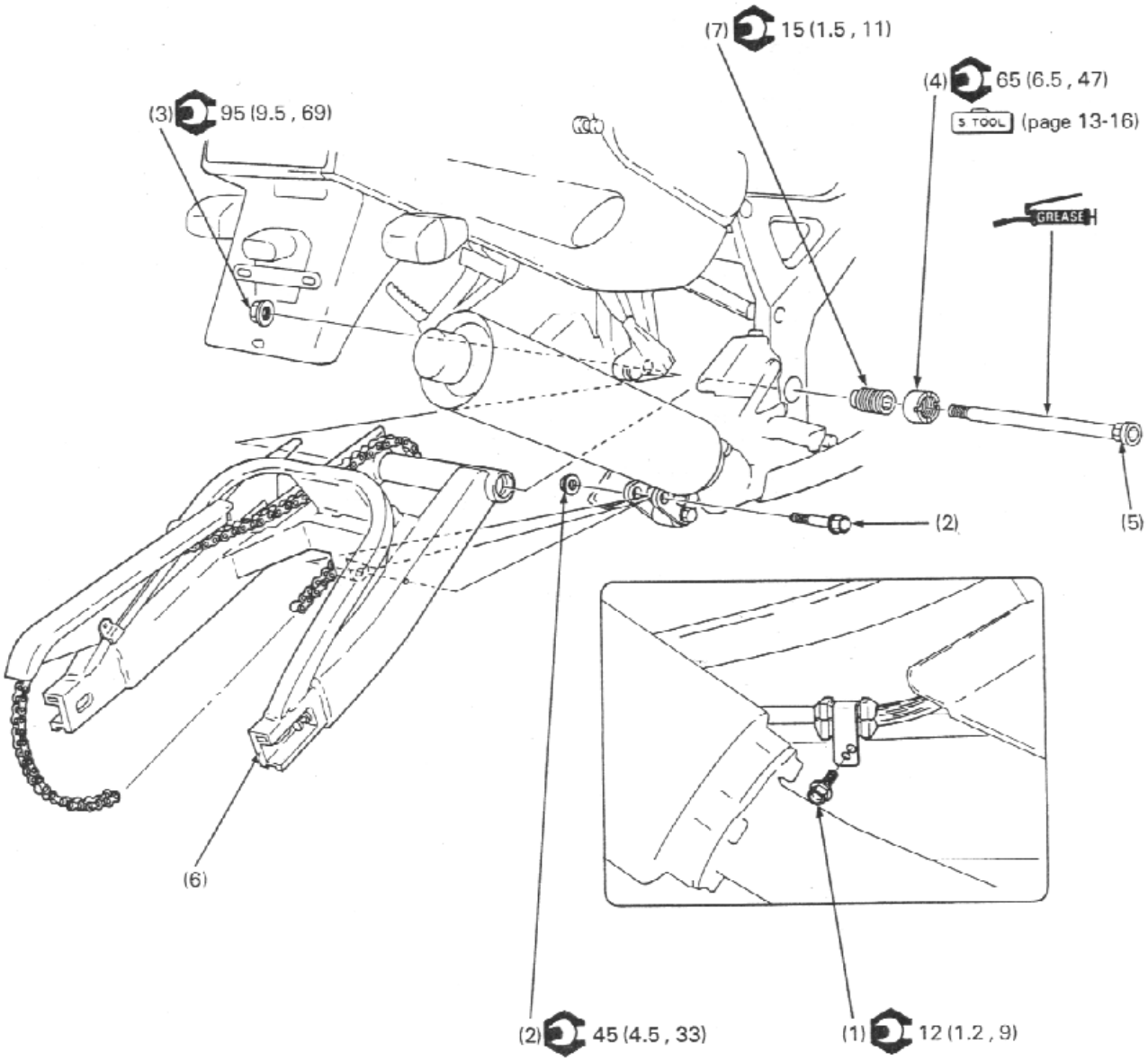
Driver	07749—0010000
Attachment, 24 x 26 mm	07746—0010700
Pilot, 17 mm	07746—0040400

NOTE:

- Press the needle bearing into the shock link with the marked side facing out.



Swingarm Removal/Installation



CAUTION:

- **Support the brake caliper with a piece of wire so that it does not hang from the brake hose. Do not twist the brake hose.**

Requisite Service

- Rear wheel removal/installation (page 13-2)
- Shock absorber removal/installation (page 13-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake hose guide bolt	1	
(2)	Shock arm-to-swingarm bolt/nut	1/1	
(3)	Swingarm pivot nut	1	
(4)	Swingarm pivot lock nut	1	Removal/Installation (page 13-16)
(5)	Swingarm pivot bolt	1	
(6)	Swingarm	1	
(7)	Swingarm pivot adjusting bolt	1	

Swingarm Pivot Bolt Removal/Installation

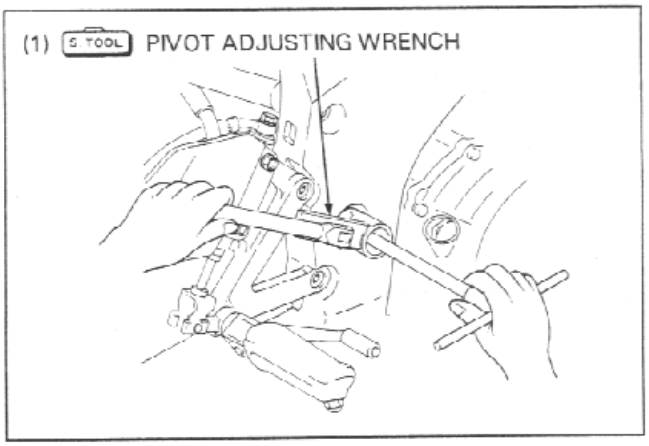
Removal

Remove the swingarm pivot nut.

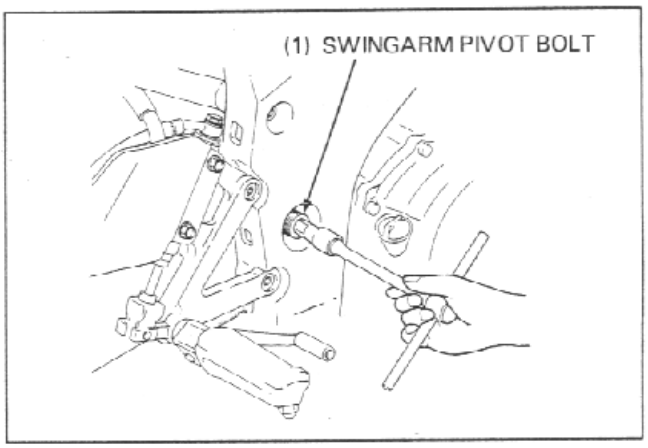
Remove the swingarm pivot lock nut while holding the swingarm pivot bolt.

S TOOL

Pivot adjusting wrench **07908—4690002**



Loosen the swingarm adjusting bolt, then remove the pivot bolt.

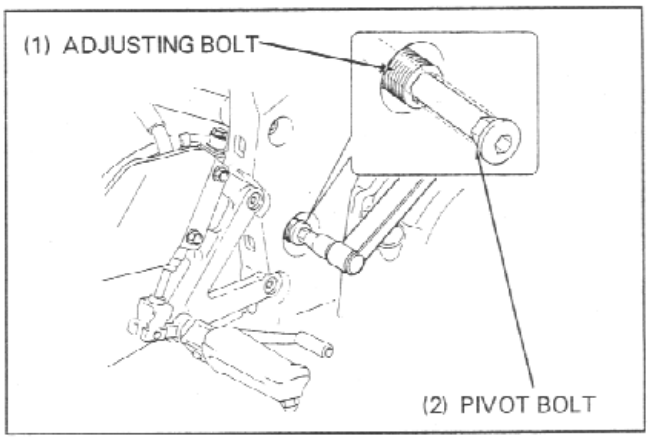


Installation

Apply thin layer of grease to the swingarm pivot surface.
Turn the swingarm pivot adjusting bolt completely in by hand.
Push the pivot bolts hex shank into the adjusting bolts socket head.

Tighten the swingarm pivot adjusting bolt with the swingarm pivot bolt.

Torque: 15 N·m (1.5 kg·m , 11 lb·ft)

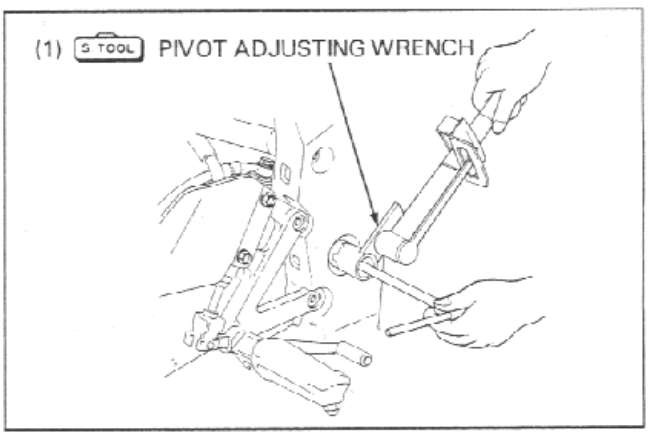


Tighten the swingarm pivot lock nut fully by hand, then tighten the swingarm pivot lock nut to the specified torque while holding the swingarm pivot bolt.

S TOOL

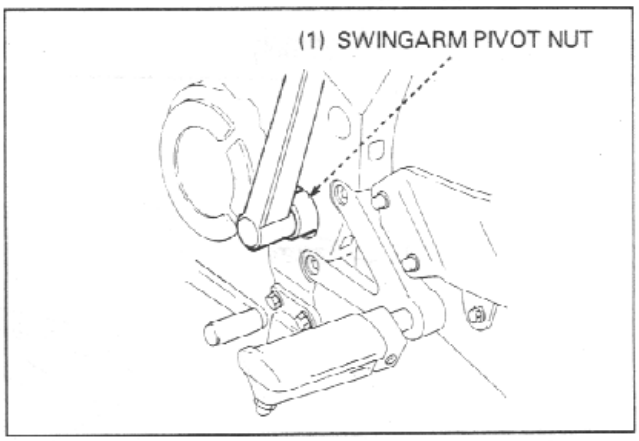
Pivot adjusting wrench **07908—4690002**

Torque: 65 N·m (6.5 kg·m , 47 lb·ft)

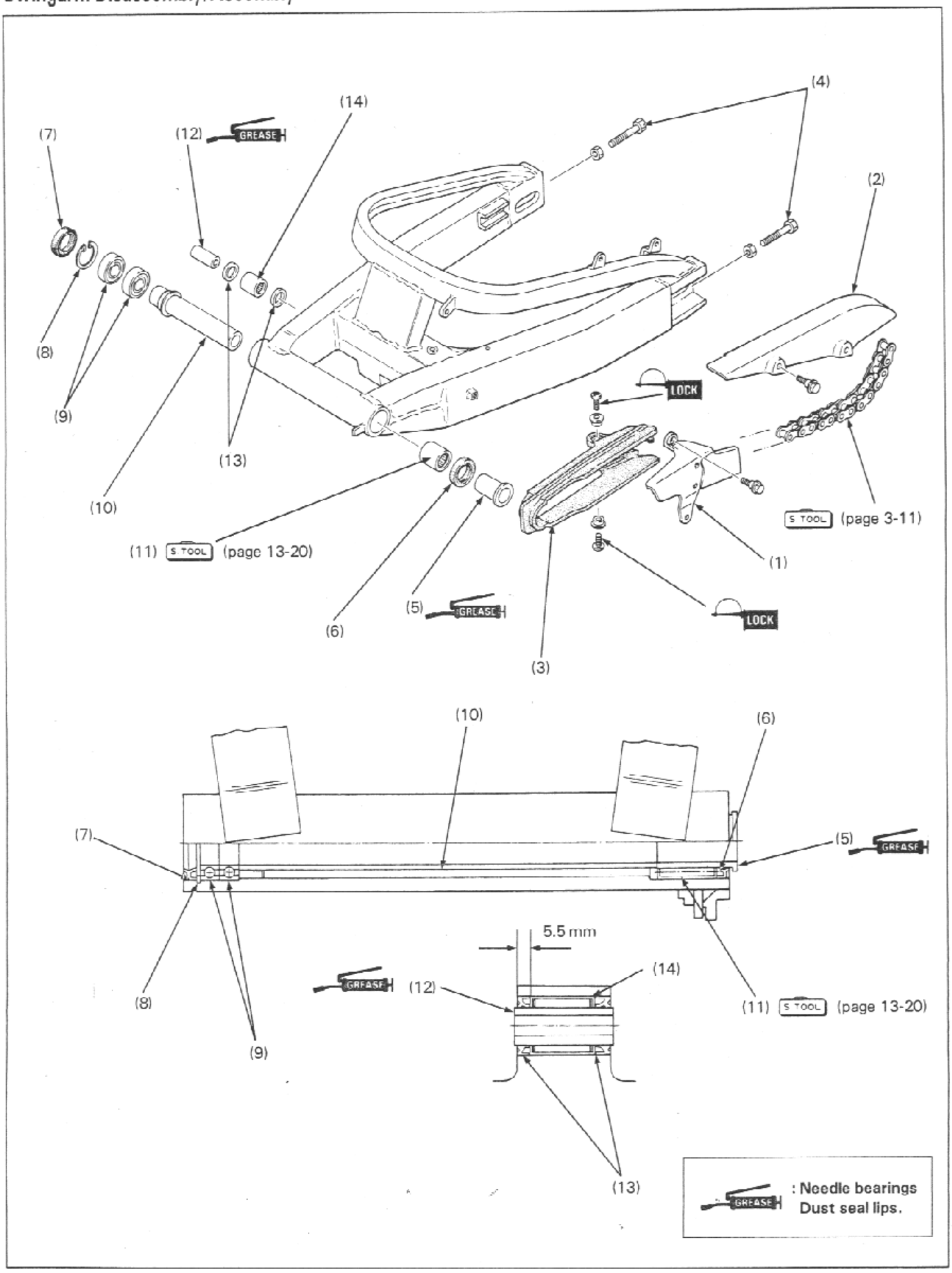


Tighten the swingarm pivot nut to the specified torque.

Torque: 95 N·m (9.5 kg-m , 69 lb-ft)



Swingarm Disassembly/Assembly



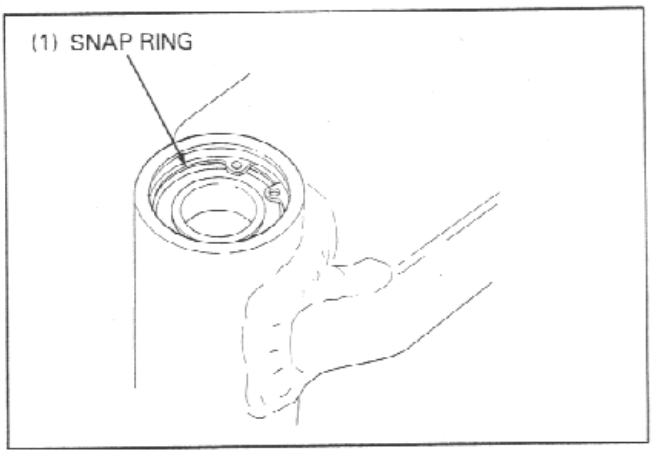
Requisite Service

- Swingarm removal/installation (page 13-14)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Front drive chain cover	1	
(2)	Drive chain cover	1	
(3)	Drive chain slider	1	
(4)	Drive chain adjusting bolt	2	
(5)	Pivot collar	1	
(6)	Dust seal, 28 x 37 x 4 mm	1	
(7)	Dust seal, 26 x 37 x 5 mm	1	
(8)	Snap ring	1	Install into the groove securely.
(9)	Radial ball bearing (20 x 37 x 9 mm)	2	
(10)	Distance collar	1	
(11)	Needle bearing	1	
(12)	Shock arm pivot collar	1	
(13)	Dust seal, 17 x 24 x 5 mm	2	
(14)	Needle bearing	1	

Swingarm Pivot Bearing Replacement

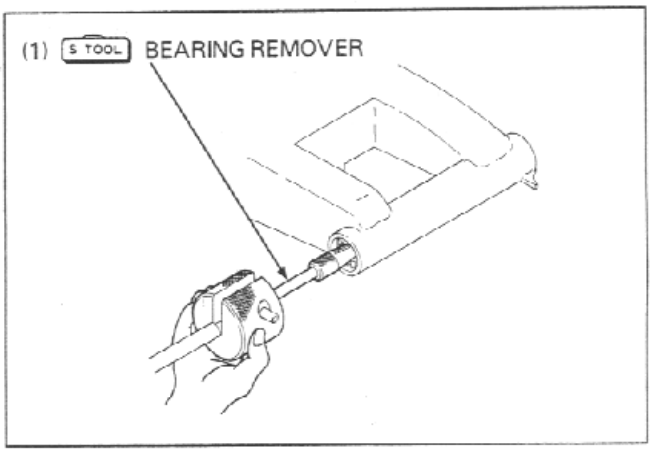
Install into the groove securely.



Remove the right pivot bearings (radial ball bearings) from the swingarm.

S TOOL

Bearing remover set	**07936—3710001**
—Bearing remover	**07936—3710600**
—Remover handle	**07936—3710100**
—Sliding weight	**07741—0010201**

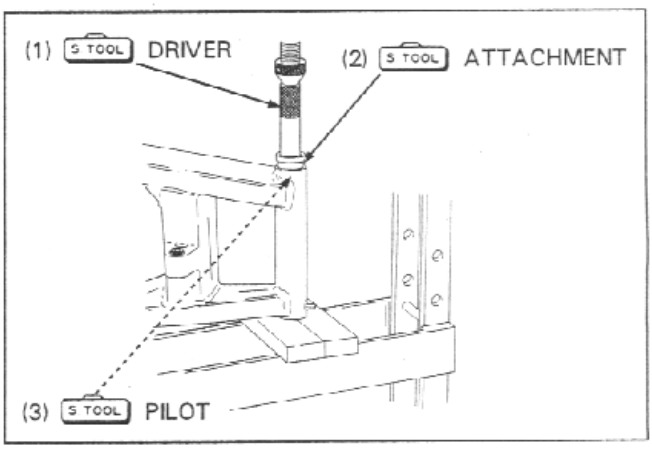


Press new right pivot bearings (radial ball bearings) into right swingarm pivot one at a time.

S TOOL

Driver	**07749—0010000**
Attachment, 37 x 40 mm	**07746—0010200**
Pilot, 20 mm	**07746—0040500**

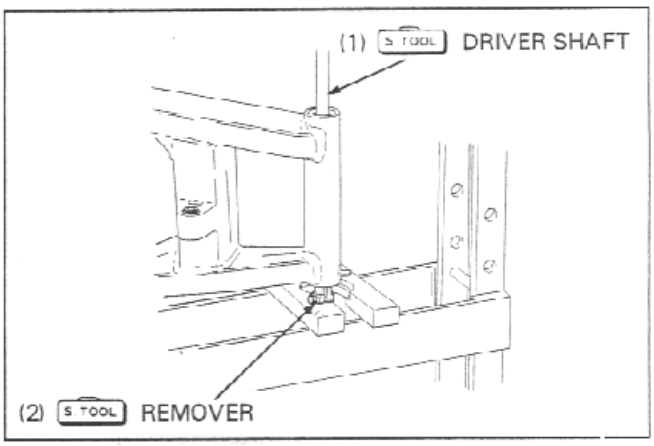
Install the snap ring.



Press the needle bearing out of the left swingarm pivot.

S TOOL

Needle bearing remover	**07HMC—MR70100**
Driver shaft	**07946—MJ00100**



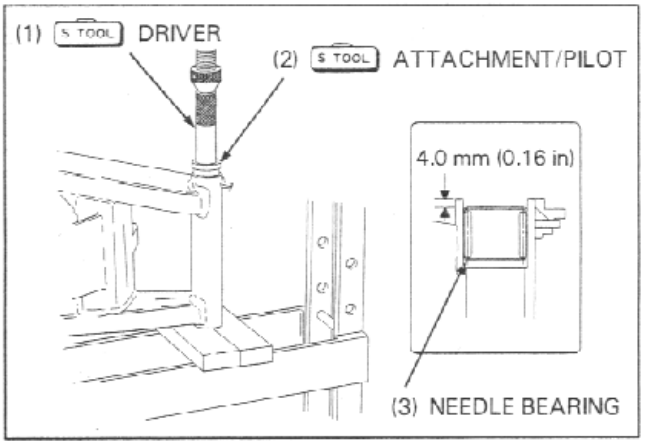
Press a new needle bearing into the swingarm so that the needle bearing surface is lower 4.0 mm (0.16 in) from the end of the swingarm pivot surface.

S TOOL

Driver	**07749—0010000**
Attachment, 37x 40 mm	**07746—0010200**
Pilot, 28 mm	**07746—0041100**

NOTE:

- Press the needle bearing with the marked side facing out.



MEMO

14. Brake System

Service Information

⚠WARNING

• A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.

- Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cap: make sure the front reservoir is horizontal first.
- Never allow contaminates (dirt, water, etc.) to get into an open reservoir.
- Once the hydraulic system has been opened, or if the brake feels spongy, the system must be bled.
- Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid as they may not be compatible.
- Always check brake operation before riding the motorcycle.

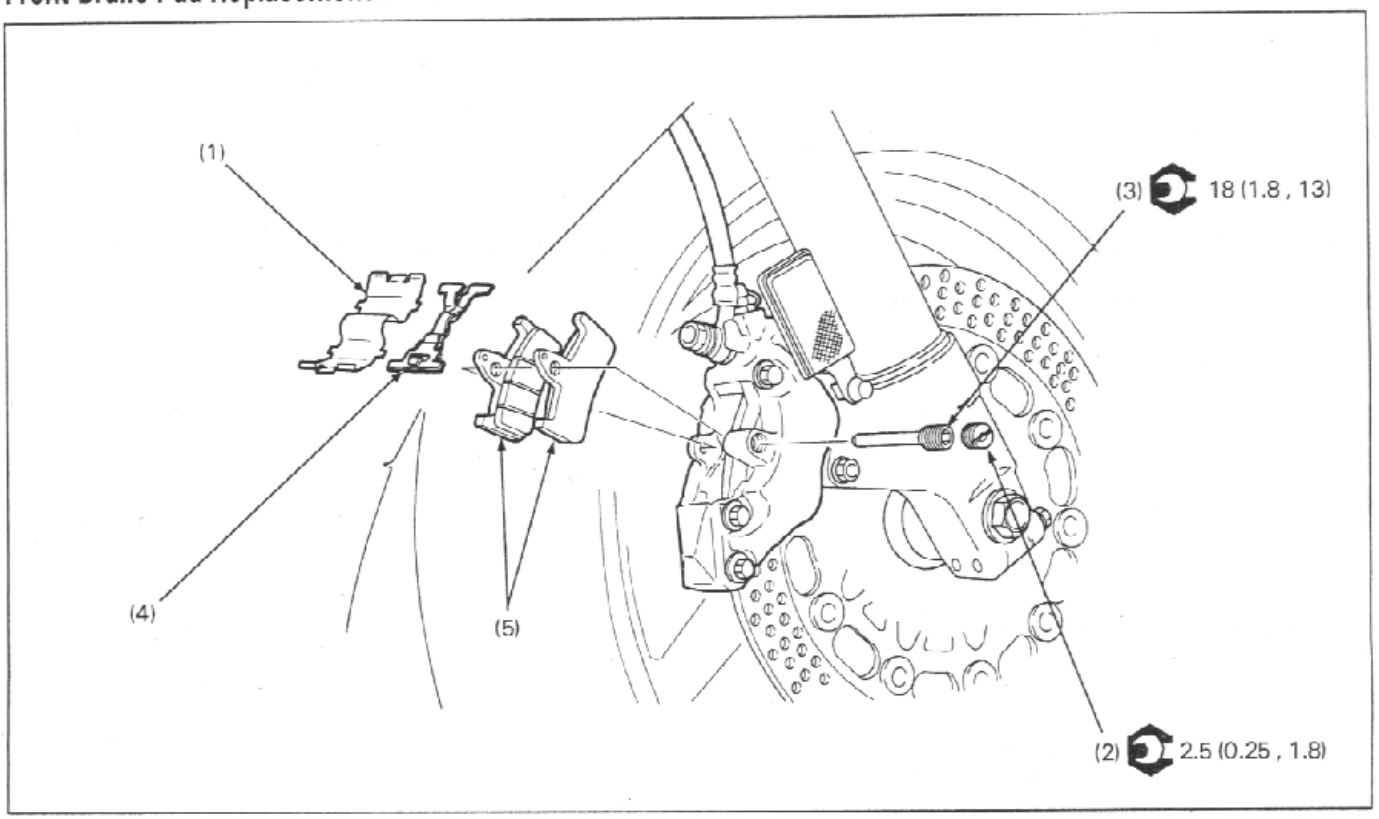
Troubleshooting

Brake Lever/Pedal Soft Or Spongy
- Air bubbles in the hydraulic system
- Leaking hydraulic system
- Contaminated brake disc/pad
- Worn caliper piston seal
- Worn master cylinder piston cups
- Worn brake pad
- Contaminated caliper
- Caliper not sliding properly
- Worn brake pad/disc
- Low fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worn caliper piston
- Sticking/worn master cylinder piston
- Worn brake disc
- Contaminated master cylinder
- Bent brake lever/pedal

Brake Lever/Pedal Hard
- Clogged/restricted brake system
- Sticking/worn caliper piston
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Worn caliper piston seal
- Sticking/worn master cylinder piston
- Bent brake lever/pedal

Brake Drags
- Contaminated brake pad/disc
- Misaligned wheel
- Worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly

Front Brake Pad Replacement



⚠WARNING

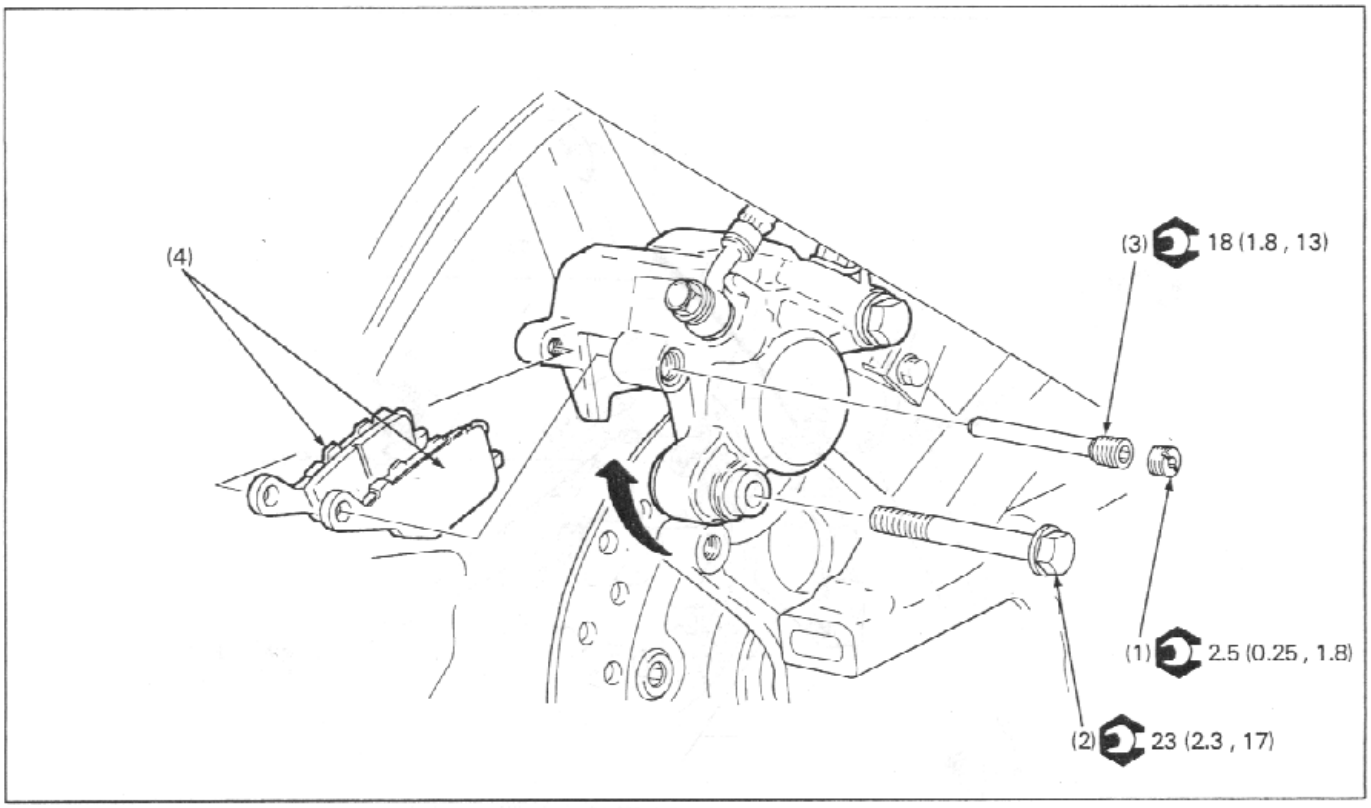
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Check the brake system by applying the brake after the pad replacement.**

NOTE:

- Operate the brake lever to seat the caliper pistons against the pads after the pad replacement.
- The brake pad replacement can be serviced without disconnecting the hydraulic system.
- Always replace the brake pads in pairs to assure even disc pressure.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake pad cover	1	
(2)	Pad pin plug	1	
(3)	Pad pin	1	
(4)	Pad spring	1	
(5)	Brake pad	2	NOTE: • Push the pistons all the way in to provide clearance for the new pads.

Rear Brake Pad Replacement



⚠WARNING

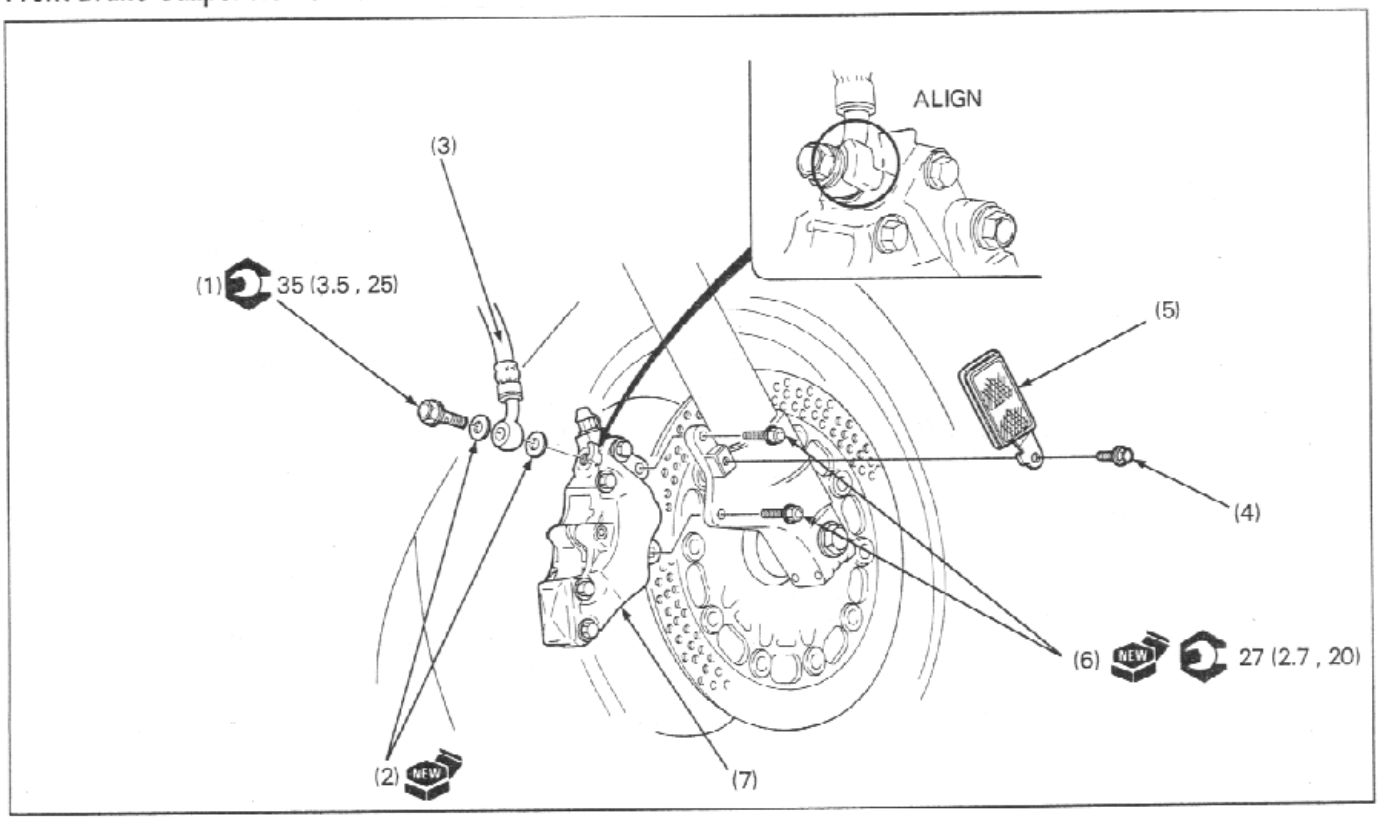
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Check the brake system by applying the brake after the pad replacement.**

NOTE:

- Operate the brake pedal to seat the caliper piston against the pads after the pad replacement.
- The brake pad replacement can be serviced without disconnecting the hydraulic system.
- Always replace the brake pads in pairs to assure even disc pressure.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pad pin plug	1	
(2)	Rear caliper bolt	1	Remove the bolt and swing the rear caliper upward.
(3)	Pad pin	1	
(4)	Brake pad	2	NOTE: • Push the piston all the way in to provide clearance for new pads.

Front Brake Caliper Removal/Installation



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Check the brake system by applying the brake after bleeding air from the system.**

CAUTION:

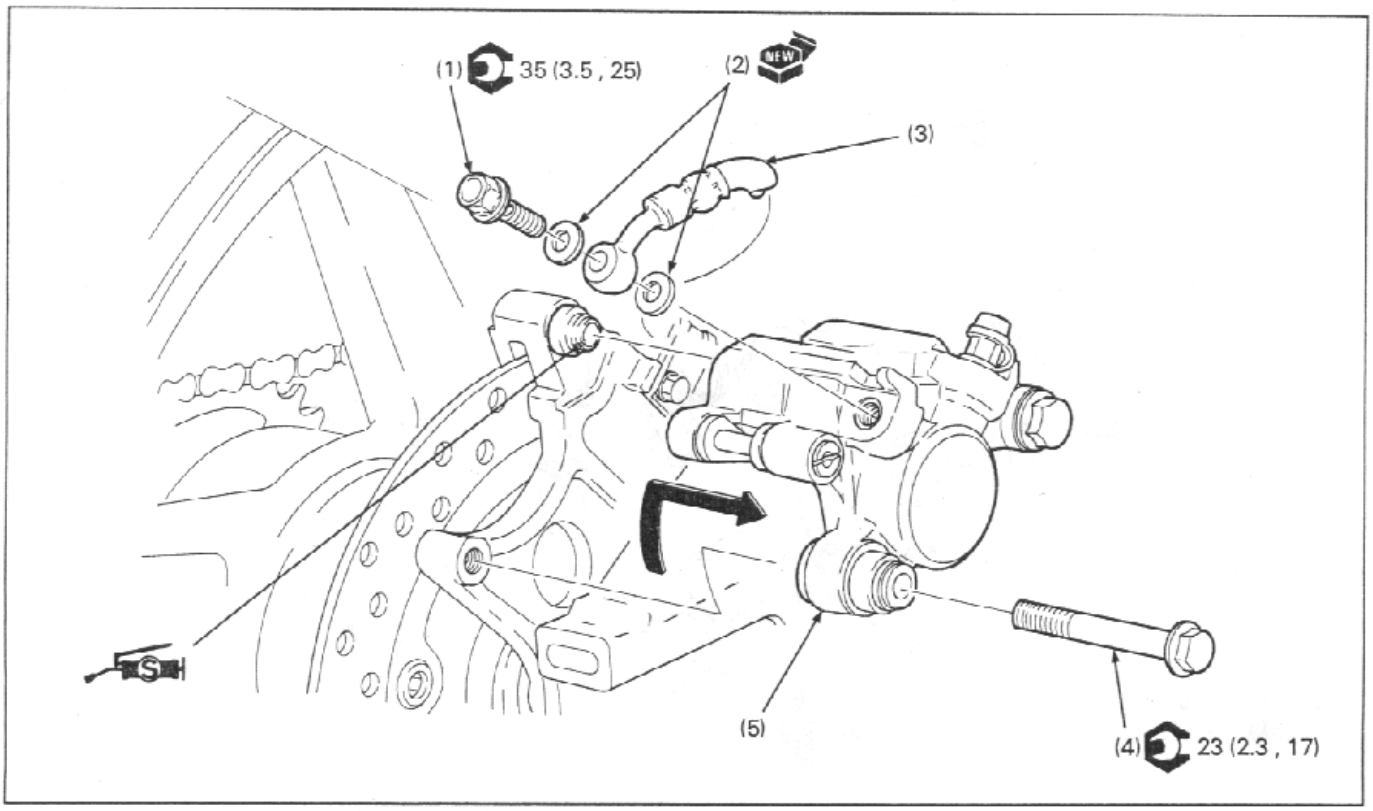
- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**

Requisite Service

- Front brake pad replacement (page 14-2)
- Brake fluid replacement/air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	At installation, press the brake hose end against the stopper while tightening the oil bolt.
(4)	Reflector mounting bolt	1	
(5)	Reflector	1	
(6)	Caliper bracket mounting bolt	2	
(7)	Front brake caliper assembly	1	

Rear Brake Caliper Removal/Installation



⚠WARNING

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Check the brake system by applying the brake after bleeding air from the system.**

CAUTION:

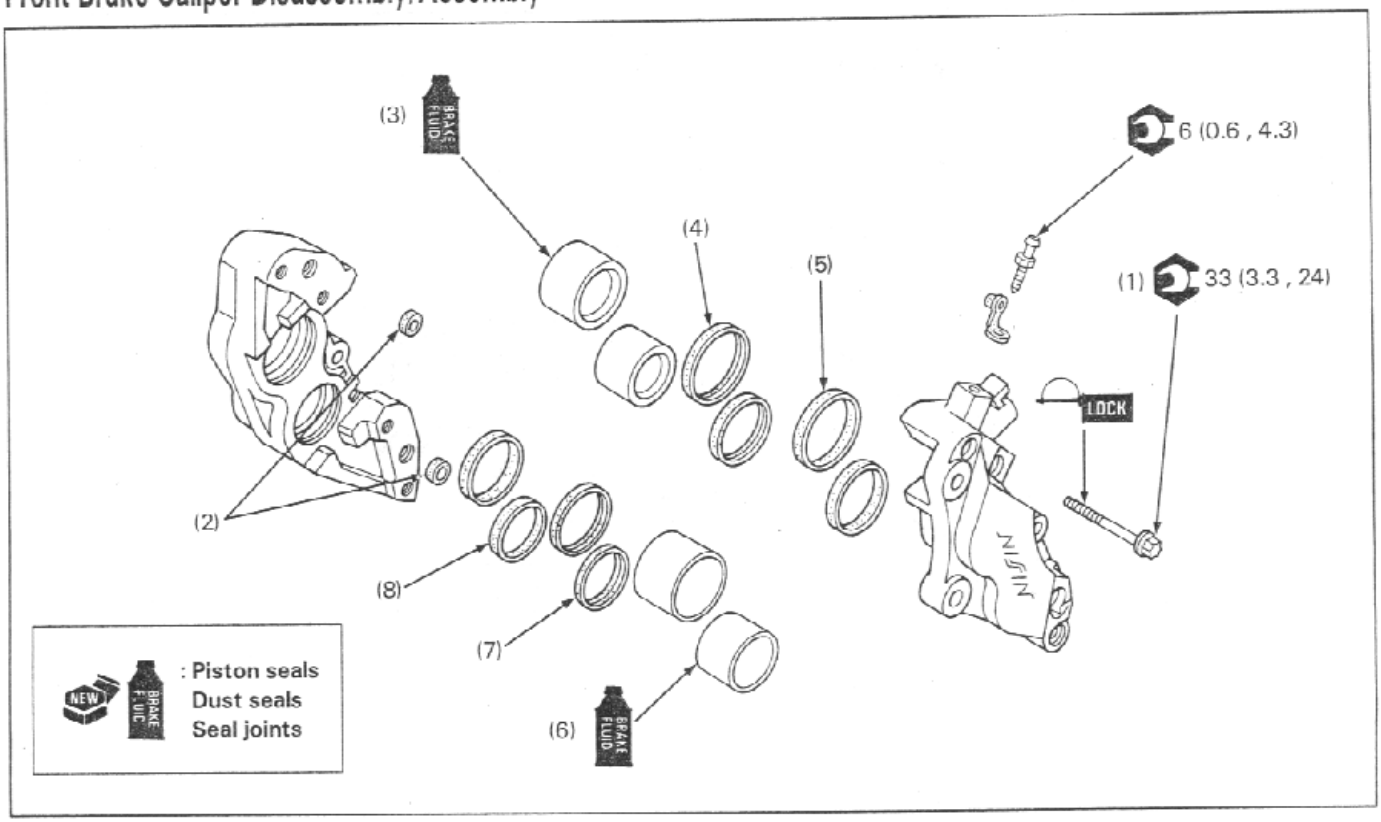
- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**

Requisite Service

- Rear brake pad replacement (page 14-3)
- Brake fluid replacement/air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	At installation, install the hose end into the stopper groove.
(4)	Rear caliper bolt	1	
(5)	Rear brake caliper assembly	1	

Front Brake Caliper Disassembly/Assembly



CAUTION:

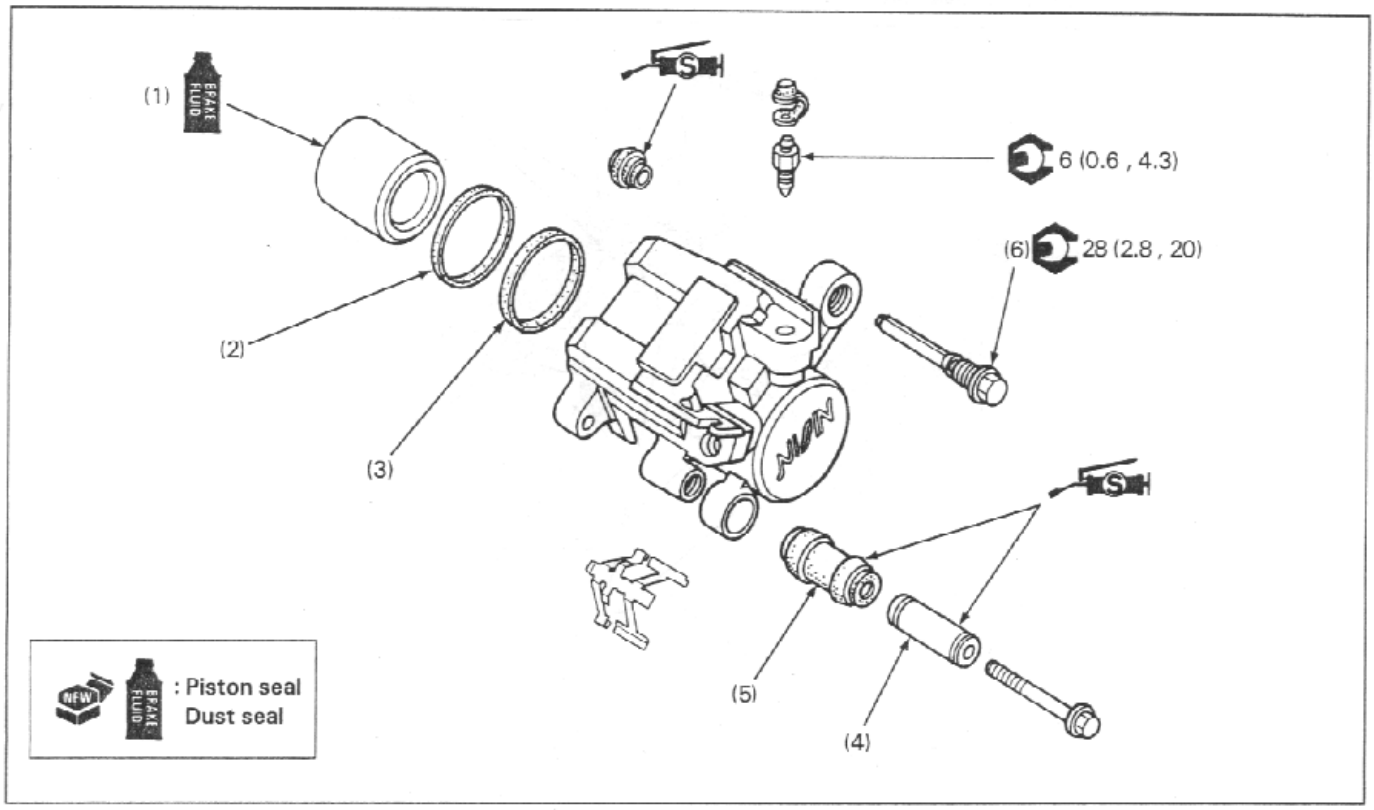
- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**

Requisite Service

- Front brake caliper removal/installaiton (page 14-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Caliper assembly bolt (Torx E12)	4	At installation, apply a locking agent to the threads.
(2)	Seal joint	2	
(3)	Caliper piston A	2	At installation, install the piston with the dished end toward the caliper.
(4)	Dust seal A	2	**CAUTION:**
(5)	Piston seal A	2	• **Be careful not to damage the piston sliding surface when removing the seals.**
(6)	Caliper piston B	2	At installation, install the piston with the dished end toward the caliper.
(7)	Dust seal B	2	**CAUTION:**
(8)	Piston seal B	2	• **Be careful not to damage the piston sliding surface when removing the seals.**

Rear Brake Caliper Disassembly/Assembly



CAUTION:

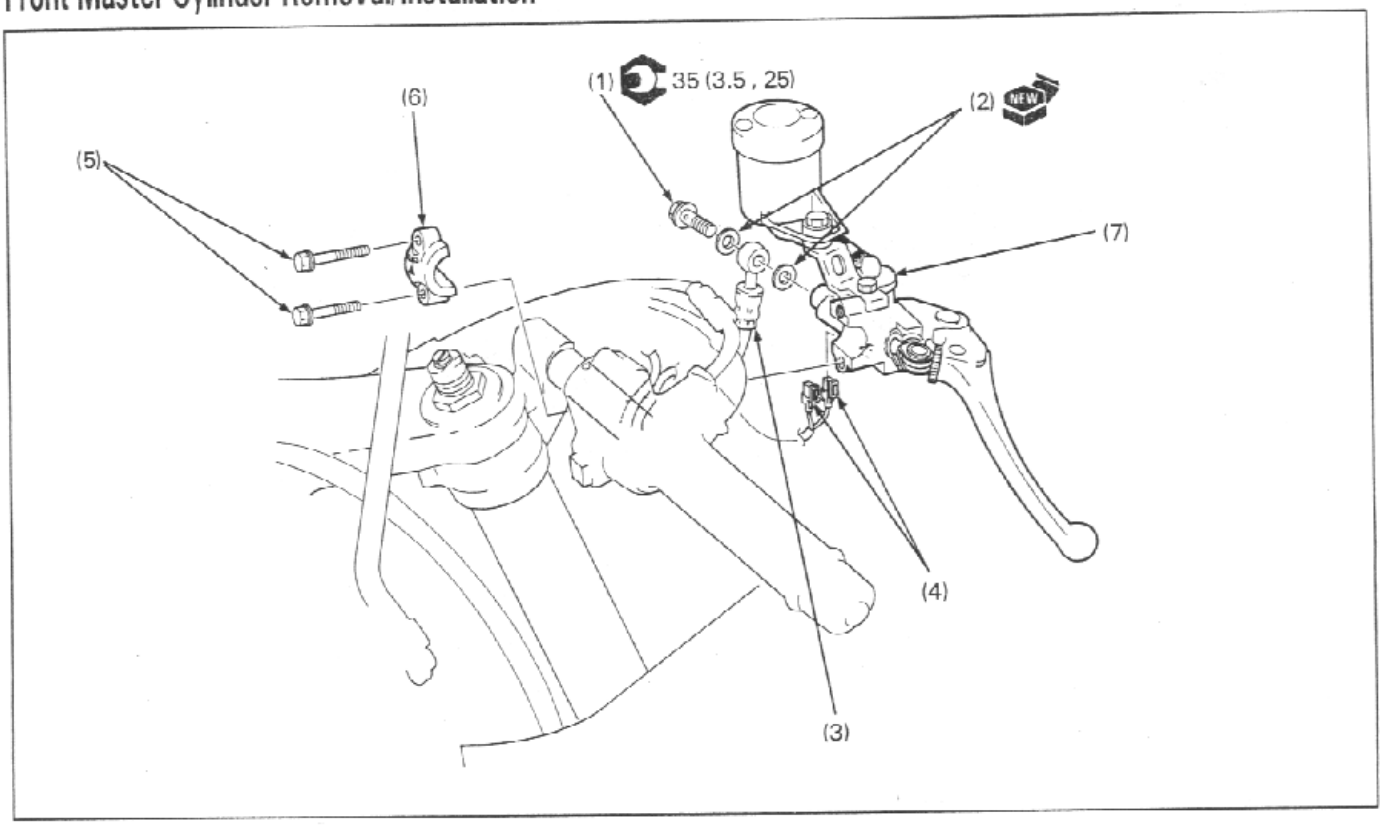
- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**

Requisite Service

- Rear brake caliper removal/installation (page 14-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Caliper piston	1	At installation, install the piston with the dished end toward the caliper.
(2)	Dust seal	1	**CAUTION:**
(3)	Piston seal	1	• **Be careful not to damage the piston sliding surface when removing the seals.**
(4)	Collar	1	
(5)	Bracket pin boot	1	
(6)	Rear drake caliper pin bolt	1	

Front Master Cylinder Removal/Installation



CAUTION:

- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**
- **When removing the oil bolt, cover the end of the brake hose to prevent contamination.**
- **Do not allow foreign material to enter the system.**

NOTE:

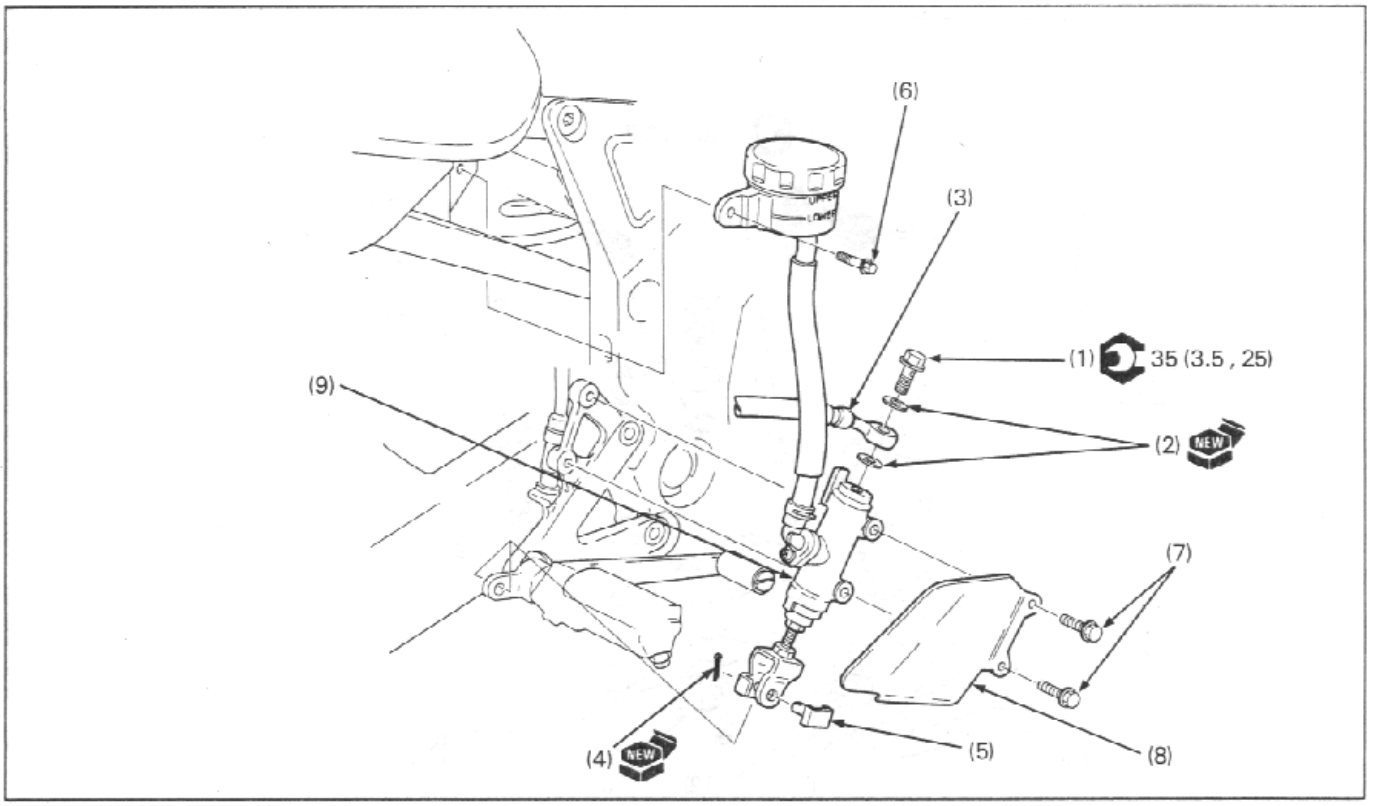
- Use DOT 4 brake fluid from a sealed container.

Requisite Service

- Brake system air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil bolt	1	At installation, press the brake hose end against the stopper while tightening the oil bolt.
(2)	Sealing washer	2	
(3)	Brake hose	1	
(4)	Brake light switch connector	2	
(5)	Master cylinder holder bolt	2	At installation, tighten the upper bolt first, then the lower bolt.
(6)	Master cylinder holder	1	Install the holder with its "UP" mark facing up.
(7)	Master cylinder assembly	1	At installation, align the mating surface with the punch mark on the handlebar.

Rear Master Cylinder Removal/Installation



CAUTION:

- **Avoid spilling brake fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.**
- **When removing the oil bolt, cover the end of the brake hose to prevent contamination.**

NOTE:

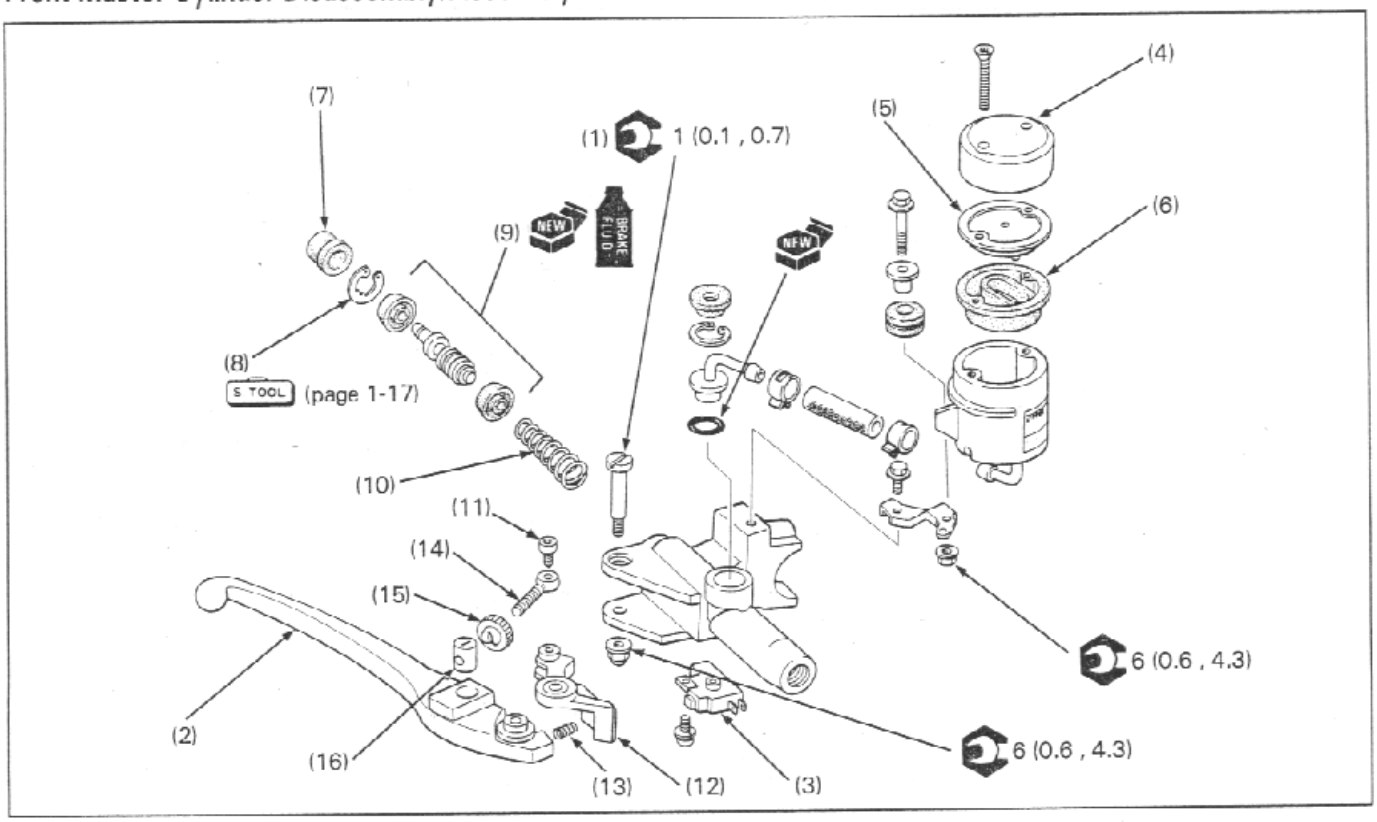
- Use DOT 4 brake fluid from a sealed container.

Requisite Service

- Brake system air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	At installation, press the brake hose end against the stopper while tightening the oil bolt.
(4)	Cotter pin	1	
(5)	Lower joint	1	
(6)	Reservoir mounting bolt	1	
(7)	Master cylinder mounting bolt	2	
(8)	Step guard	1	
(9)	Master cylinder assembly	1	

Front Master Cylinder Disassembly/Assembly



NOTE:

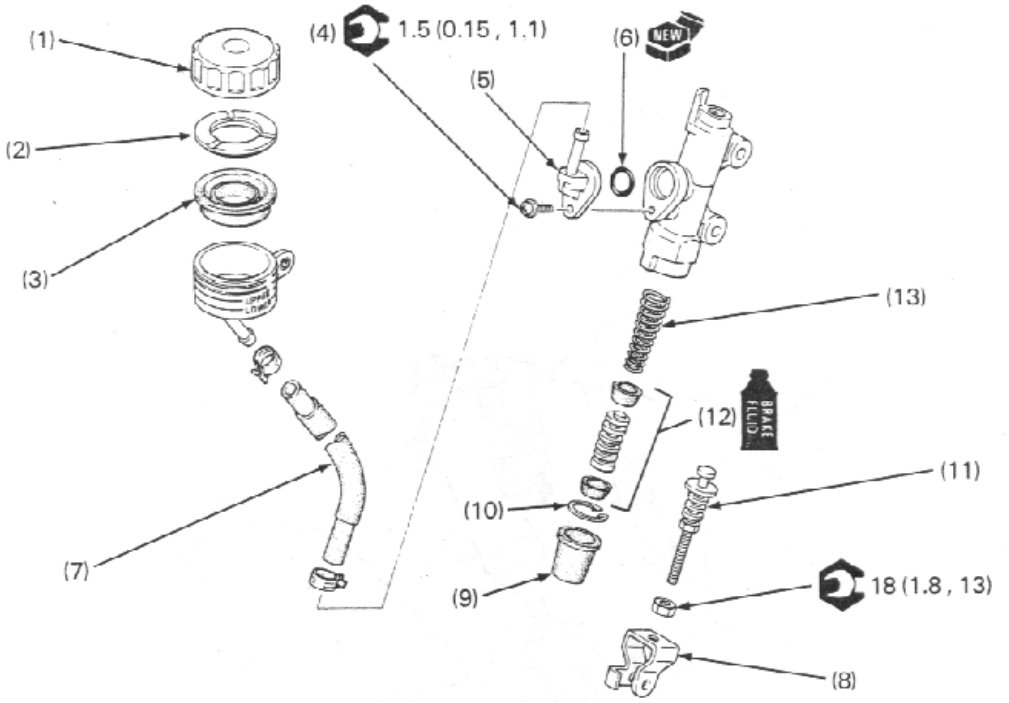
- Replace the master piston, spring, cups, snap ring and boot as a set.
- The master piston, cups and spring must be installed as a set.

Requisite Service

- Brake system air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake lever pivot bolt/nut	1/1	
(2)	Brake lever	1	
(3)	Brake light switch	1	
(4)	Reservoir cover	1	
(5)	Diaphragm plate	1	
(6)	Diaphragm	1	
(7)	Boot	1	
(8)	Snap ring	1	**CAUTION:** **• Be certain the snap ring is fully seated in the groove.**
(9)	Master piston assembly	1	
(10)	Spring	1	Install the spring with the small coil end facing the piston.
(11)	Socket bolt	1	
(12)	Adjuster arm	1	
(13)	Brake lever spring	1	
(14)	Adjuster rod	1	
(15)	Adjuster	1	
(16)	Joint pin	1	

Rear Master Cylinder Disassembly/Assembly



NOTE:

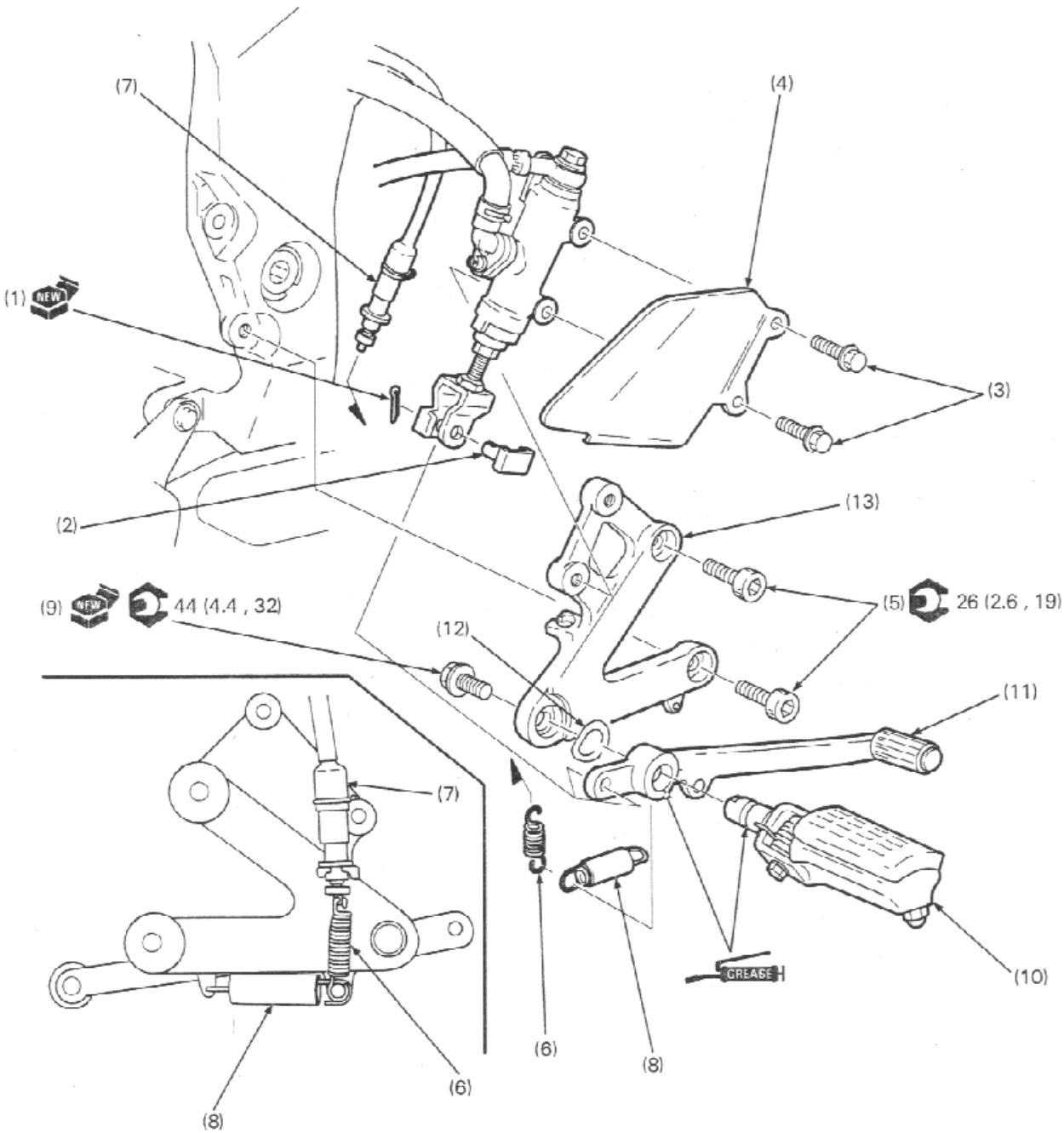
- Replace the master piston, spring, cups, snap ring and boot as a set.
- The master piston, cups and spring must be installed as a set.

Requisite Service

- Brake system air bleeding (Section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Reservoir cover	1	
(2)	Diaphragm plate	1	
(3)	Diaphragm	1	
(4)	Screw	1	
(5)	Reservoir hose joint	1	
(6)	O-ring	1	
(7)	Reservoir hose	1	
(8)	Push rod joint	1	
(9)	Boot	1	
(10)	Snap ring	1	**CAUTION:** **• Be certain the snap ring is fully seated in the groove.**
(11)	Push rod	1	
(12)	Master piston	1	
(13)	Spring	1	Install the spring with the small coil end facing the piston.

Brake Pedal Removal/Installation



NOTE:

- The pedal height can be adjusted by turning the pedal joint on the master cylinder push rod.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cotter pin	1	
(2)	Lower joint	1	
(3)	Rear master cylinder mounting bolt	2	
(4)	Step guard	1	
(5)	Right step holder mounting bolt	2	
(6)	Brake light switch return spring	1	
(7)	Brake light switch	1	
(8)	Brake pedal return spring	1	
(9)	Right step mounting bolt	1	
(10)	Right step	1	At installation, align the cut out of right step with the step holder.
(11)	Brake pedal	1	
(12)	Wave washer	1	
(13)	Right step holder	1	

MEMO

15. Charging System/Alternator

Service Information

⚠WARNING

- **The battery gives off explosive gases; keep sparks, flames, and cigarettes away. Provide adequate ventilation when charging or using the battery in an enclosed space.**
- **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 immediately.
- **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.**

· Always turn off the ignition switch before disconnecting any electrical component.

CAUTION:

- **Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.**

· For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
· For battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.

15

NOTE:

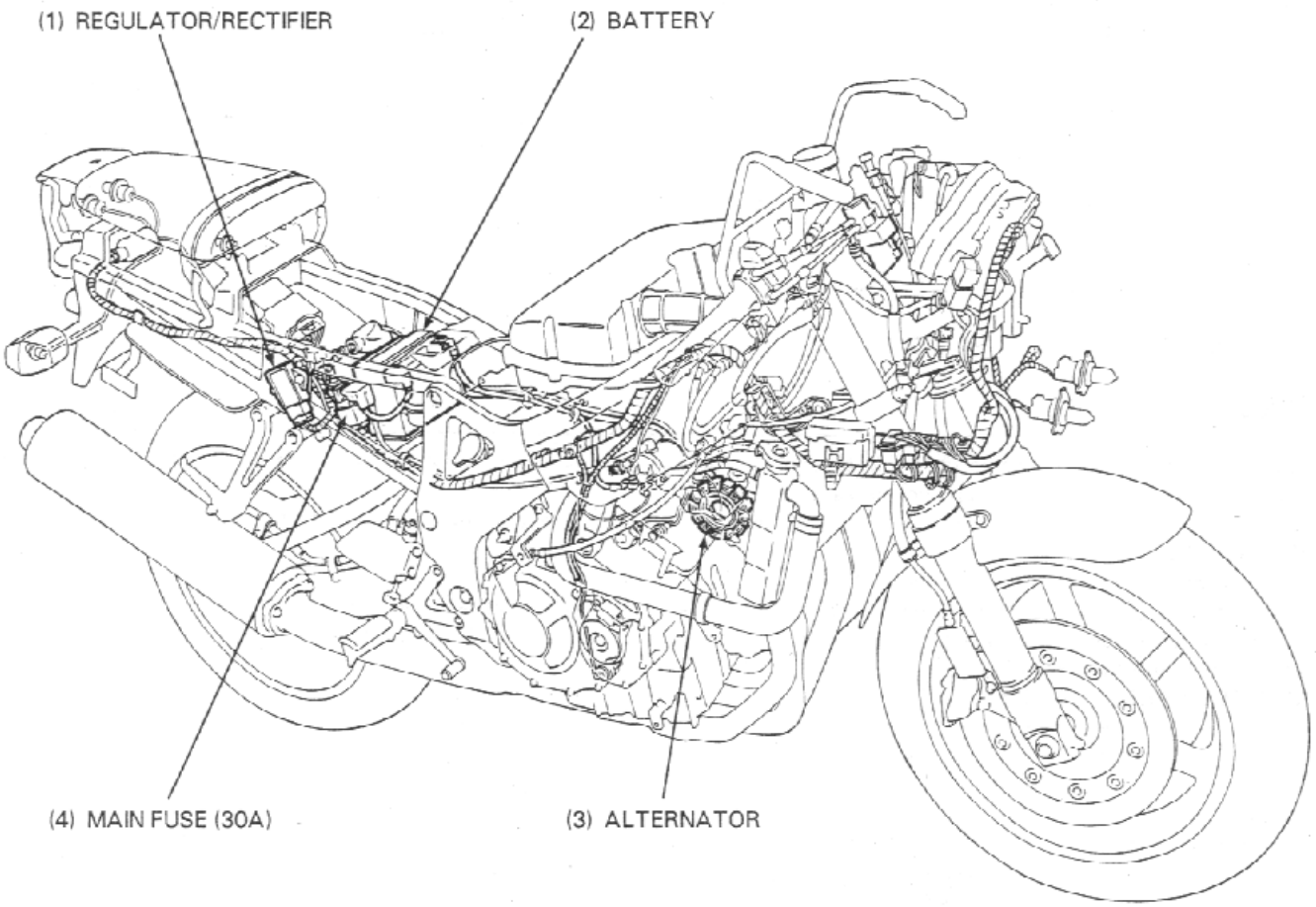
- The maintenance free battery must be replaced when it reaches the end of its service life.

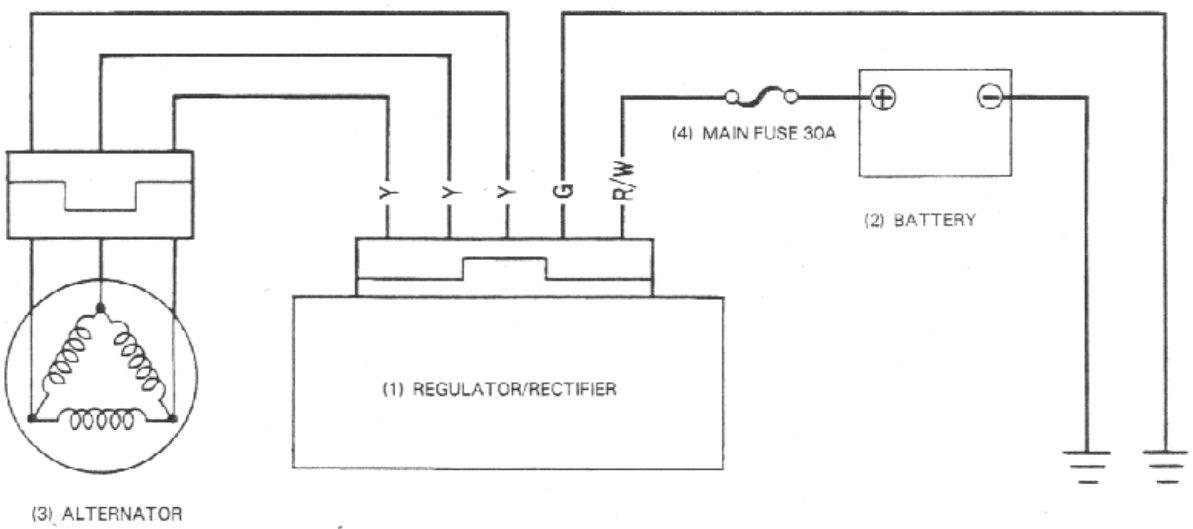
CAUTION:

- **The battery caps should not be removed. Attempting to remove the sealing caps from the cells may damage the battery.**

· Battery can be damaged if over charged or undercharged, or if left to discharge for long periods. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, battery performance deteriorates after 2—3 years.
· Battery voltage may recover after battery charging, but under heavy load, battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected to be the problem. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions the electrolyte level goes down quickly.
· Before troubleshooting the charging system, check the proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight ON for long periods of time without riding the motorcycle.
· The battery will self-discharge when the motorcycle is not is use. For this reason, charge the battery every two weeks to prevent sulfation from forming.
· Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initial-charged.
· When checking the charging system, always follow the steps in the troubleshooting flow chart (page 15-3).
· For battery testing/charging, refer to Section 22 of the Common Service Manual.
· For charging system location, see page 15-2.

System Location





Bl · · · BLACK
Y · · · YELLOW
Bu · · · BLUE
G · · · GREEN
R · · · RED
W · · · WHITE

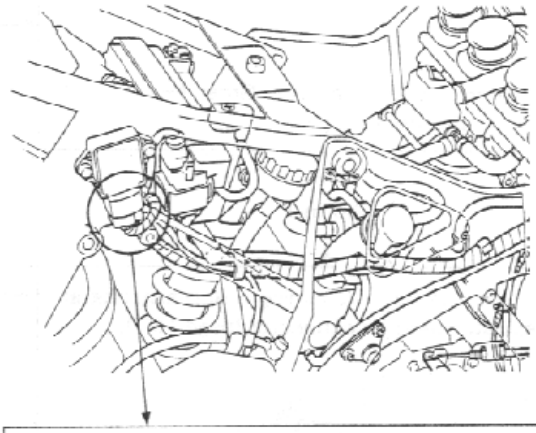
Troubleshooting

Battery Overcharging
- Faulty regulator/rectifier

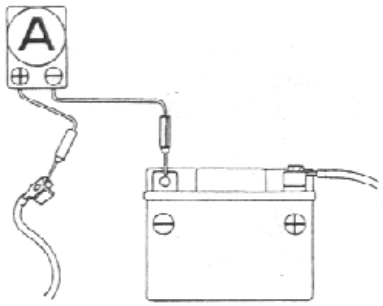
Battery Undercharging

NOTE:

- In order to obtain an accurate test reading when charging the system, the battery must be fully charged and in good condition. See Common Service Manual Section 22 for check the battery condition.



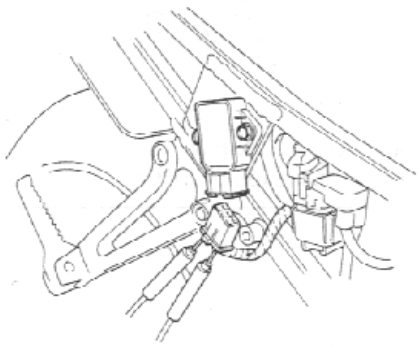
Measure the battery current leakage ampere (leak test: page 15-6).



Standard : 0.1 mA max.

Incorrect

Check the regulator/rectifier (page 15-7).



Incorrect

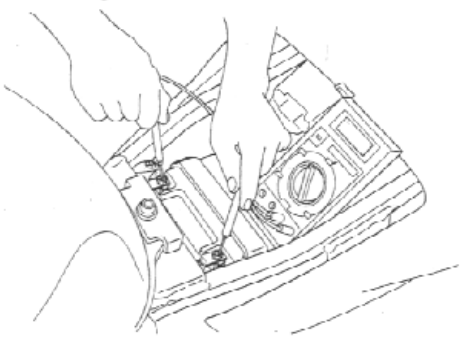
Correct

- Shorted wire harness
- Faulty ignition switch

- Faulty regulator/rectifier

Correct

Inspect the regulated voltage (page 15-6).



Standard : 13.0—15.5V / 5,000 rpm

Correct

Check the battery using the battery tester.

Incorrect

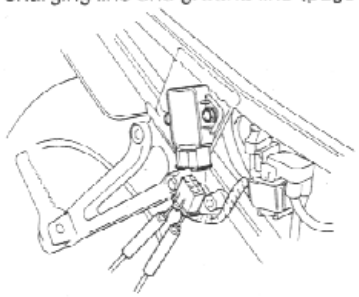
Correct

- Open circuit in wire harness
- Poorly connected connectors

- Electric system over-loading
- Faulty battery

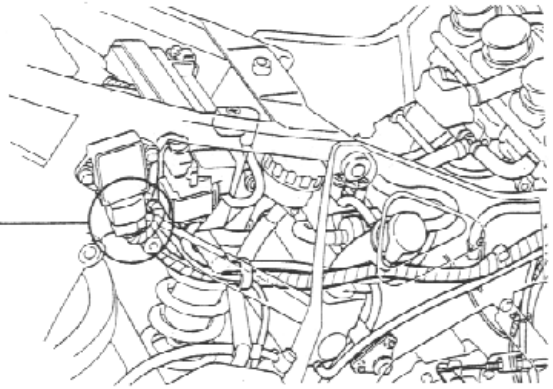
Not charging

Check the voltage between the regulator/rectifier battery charging line and ground line (page 15-7).



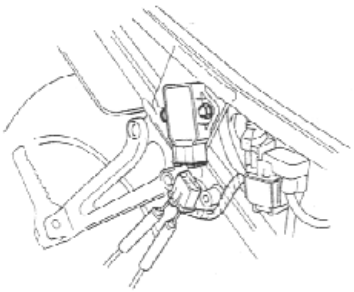
Connection : Red/White (+) — Green (−)
Standard : Battery voltage

Abnormal →
- Open circuit in wire harness
- Poorly connected connectors



Normal ↓

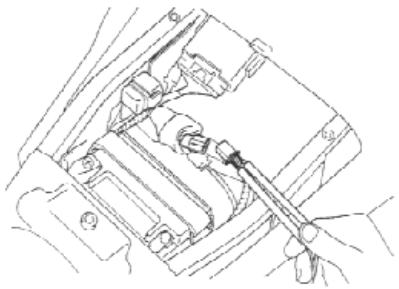
Check the alternator (charging coil) resistance at the regulator/rectifier connector (page 15-7).



Connection : Yellow — Yellow
Standard : 0.1—0.3 Ω (68°F/20°C)

Abnormal →

Check the charging coil resistance at the alternator connector (page 15-8).



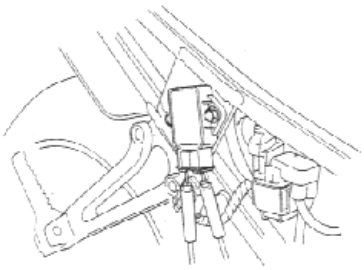
Connection : Yellow — Yellow
Standard : 0.1—0.3 Ω (68°F/20°C)

Abnormal →
- Faulty alternator

Normal →
- Poorly connected alternator connector
- Open or Short circuit in Yellow wire

Normal ↓

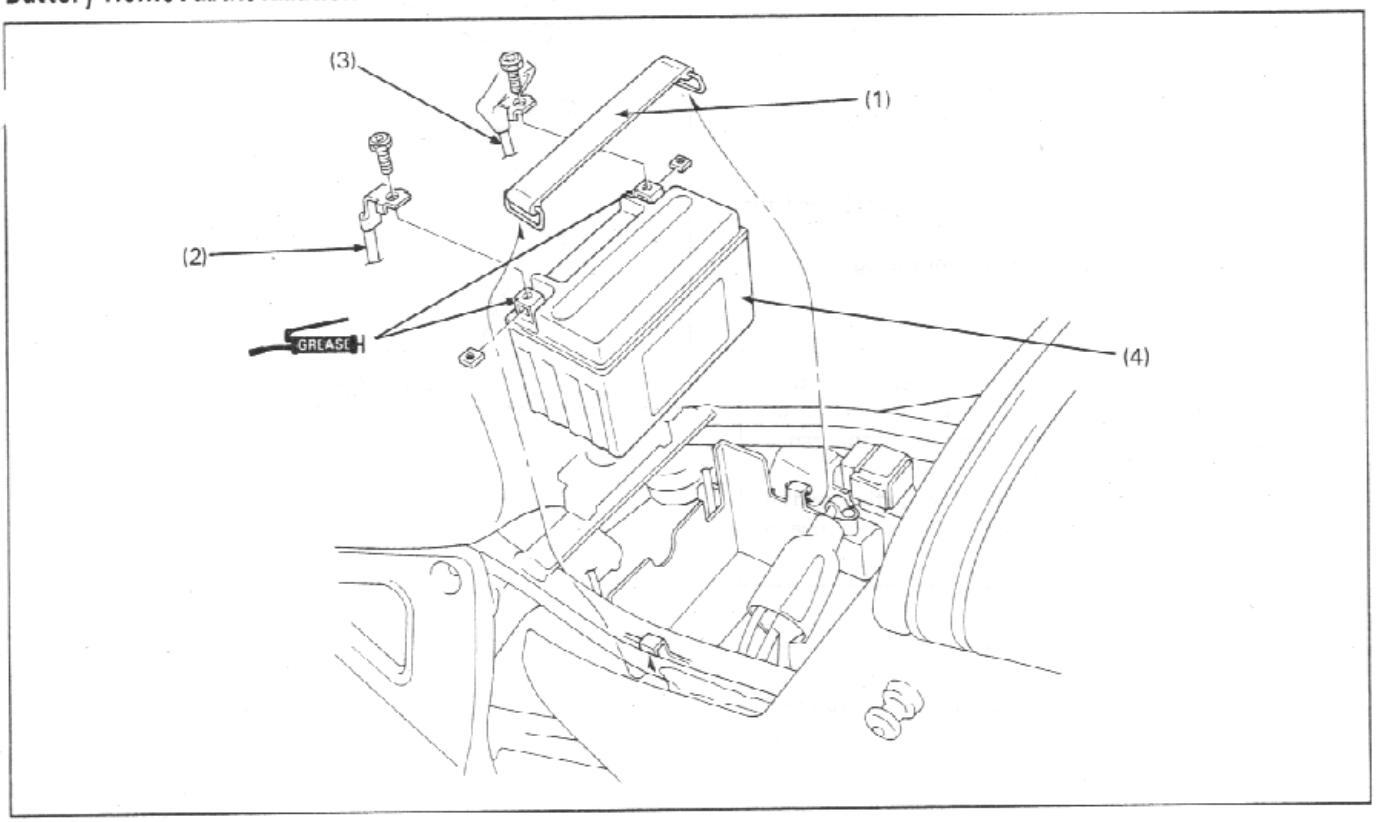
Check the regulator/rectifier unit (page 15-8).



Abnormal →
- Faulty regulator/rectifier

Normal →
- Faulty battery

Battery Removal/Installation



NOTE:

- Always turn the ignition switch OFF before removing or installing the battery.

Requisite Service

- Seat removal/installation (page 2-3)

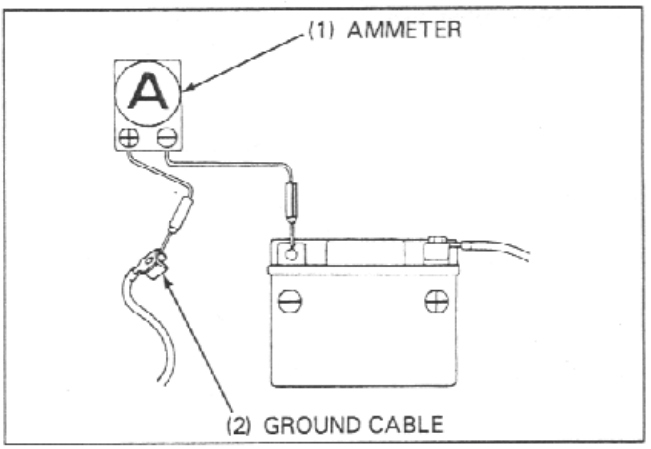
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Battery holder band	1	
(2)	Negative terminal	1	After installation, apply clean grease to the cable end, battery terminals and bolts.
(3)	Positive terminal	1	At installtion, pull the cover over the positive terminal.
(4)	Battery	1	

System Inspection

Leakage Test

Turn the ignition switch off, and disconnect the ground (−) cable from the battery.

Connect the ammeter (+) probe to the ground cable and the ammeter (−) probe to the battery (−) terminal.
With the ignition switch off, check for current leakage.



NOTE:

- When measuring the current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow larger than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow out the fuse in the tester.

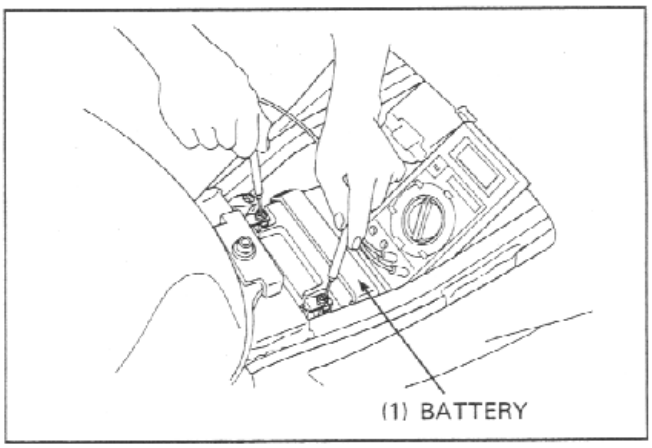
Specified Current Leakage : 0.1 mA max.

If current leakage exceeds the specified value, a shorted circuit is likely.

Regulated Voltage/Ampere Inspection

⚠WARNING

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



NOTE:

- Before performing this test, be sure the battery is fully charged and that the voltage between its terminals is greater than 12.8 V.

Start the engine and warm it to operating temperature, then turn the ignition switch OFF.

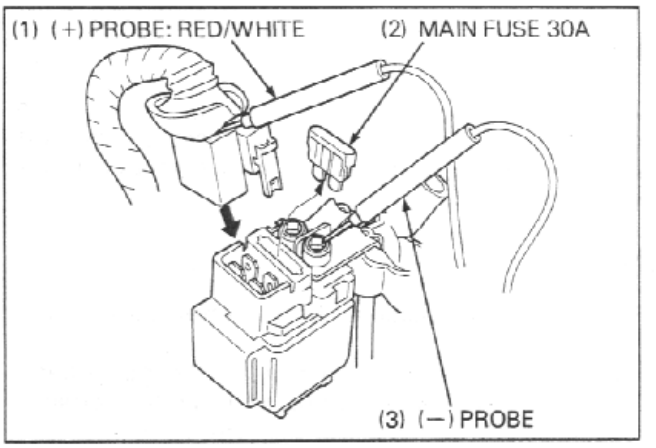
Connect the multimeter between the battery terminals.

S TOOL

Digital multimeter	07411−0020000
Analogue tester	07308−0020001

Disconnect the starter relay switch connector and remove the main fuse (30A).
Reconnect the connector onto the relay switch.

Connect the ammeter between the fuse holder terminals as shown.
Start the engine and increase the engine speed gradually and check that the voltage and ampere are regulated.



CAUTION:

- **Be careful not to short any tester probes.**
- **Although the current could be measured when the ammeter is connected between the battery positive terminal and the positive cable, a sudden surge of current to the starter motor could damage the ammeter.**
- **Always turn the ignition OFF when conducting the test. Disconnecting the ammeter or wires when current is flowing may damage the ammeter.**

NOTE:

- Before making this test, all the lights and the other electrical equipment should be OFF.
- Use fully charged battery to make this test in order to get a correct measurement.

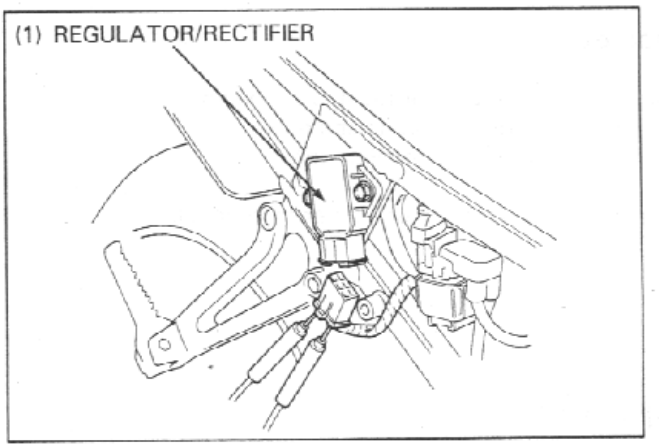
Regulated :
Battery terminals : 13.0—15.5V / 5,000 rpm
Charging current : 0—1.0A / 5,000 rpm

Regulator/Rectifier

System Inspection

Remove the side cover (page 2-4).

Disconnect the regulator/rectifier 6P connector.
Check the connectors for loose or corroded terminals.



Measure the following between connector terminals of the wire harness side.

Item	Terminals	Specification
Battery charging line	Red/White (+) and Green (−)	Battery voltage should register.
Ground line	Green and battery negative terminal	Continuity exist.
Charging coil line	Yellow and Yellow	0.1—0.3 Ω (68°F/20°C)

If the charging coil line reading is out of specification, check the alternator (page 15-8).

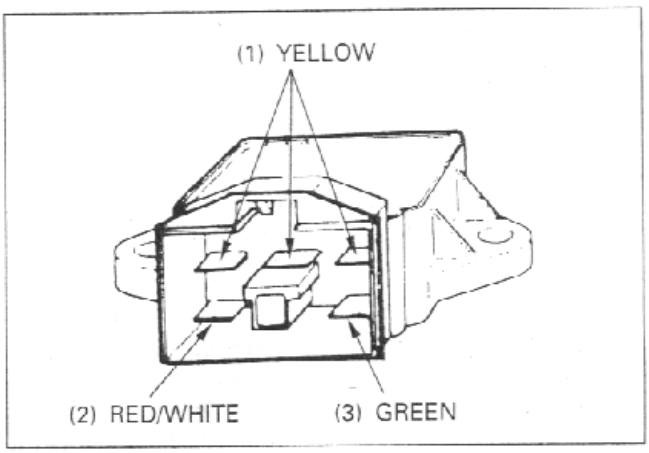
Unit Inspection

Provided the circuit on the wire harness side is normal and there are no loose connections at the connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE:

- You'll get false readings if the probes touch your fingers.
- Use the specified multimeters. Using other equipment may not allow you to obtain the correct results. This is due to the characteristic of semiconductors, which have different values depending on the applied voltage.
  Specific Multimeter:
  –07308–0020001 (SANWA Analogue type)
  –TH–5H (KOWA Analogue type)
- Select the following range:
  SANWA: × kΩ
  KOWA: × 100
- Using an old battery stored in the multimeter can cause inaccurate readings. Check the battery if the multimeter resistance is in correct.
- When using the KOWA multimeter, remember that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if the resistance value between the terminals is abnormal.



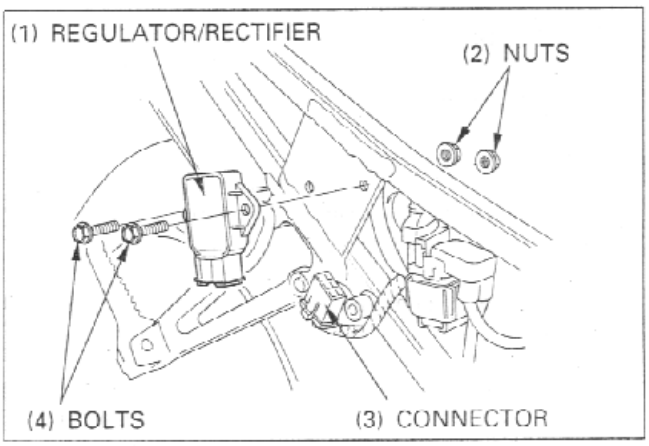
Unit : kΩ

⊖ \ ⊕	Red/ White	Yellow 1	Yellow 2	Yellow 3	Green
Red/ White		∞	∞	∞	∞
Yellow 1	0.5–10		∞	∞	∞
Yellow 2	0.5–10	∞		∞	∞
Yellow 3	0.5–10	∞	∞		∞
Green	1–20	0.5–10	0.5–10	0.5–10	

Removal

Disconnect the regulator/rectifier connector.
Remove the mounting bolts and nuts.
Remove the regulator/rectifier unit.

Installation is in the reverse order of removal.



Alternator

NOTE:

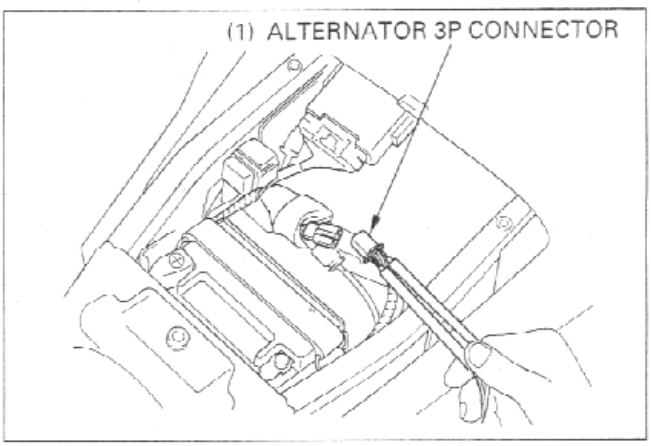
- It is not necessary to remove the stator to make this test.

Remove the seat (page 2-3).
Disconnect the alternator 3P connector.

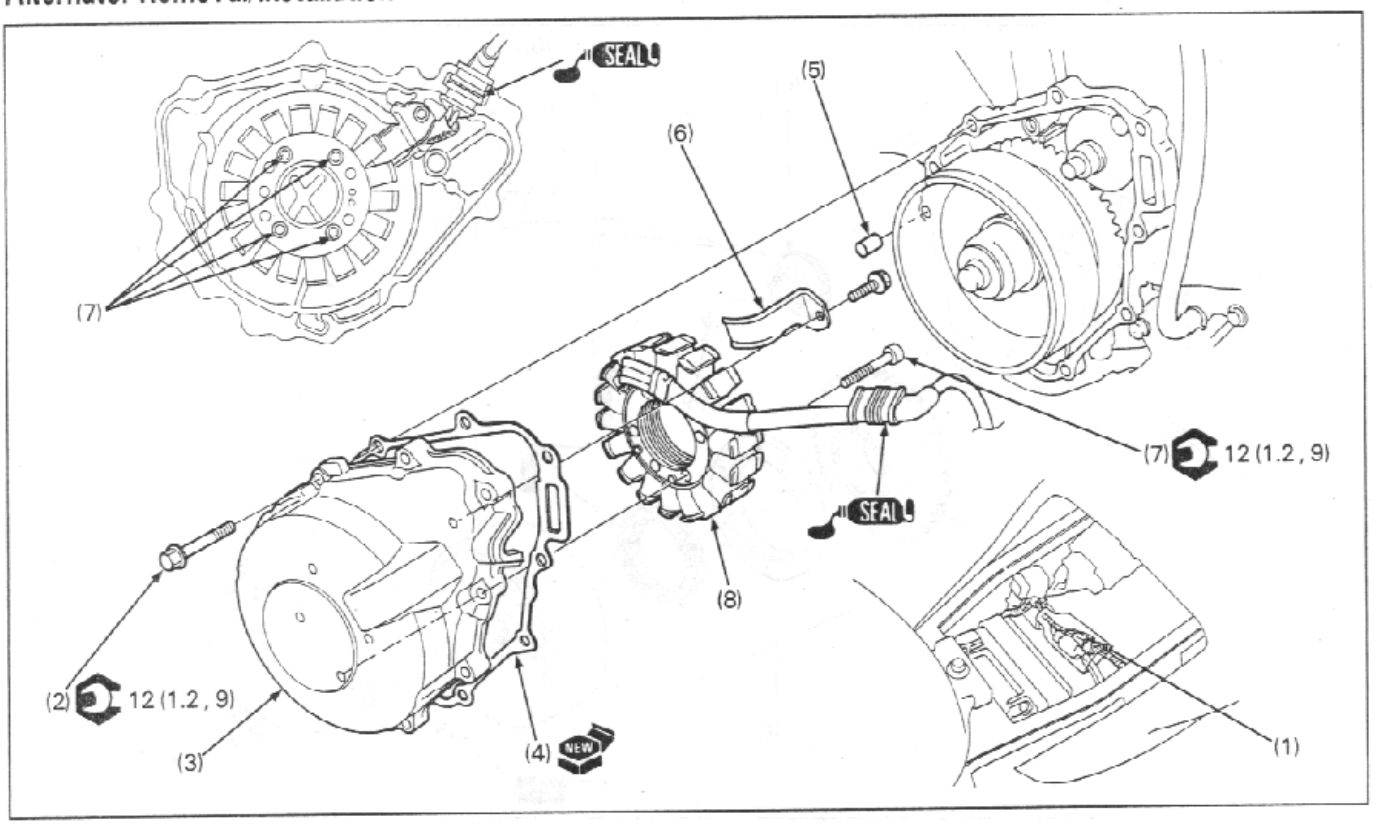
Measure the resistance between the Yellow wire terminals and check for no continuity between each terminal and ground.

Standard : 0.1–0.3 Ω (68°F/20°C)

Replace the stator if the resistance is out of specification or if there is continuity between Yellow wire terminal and ground.



Alternator Removal/Installation



NOTE:

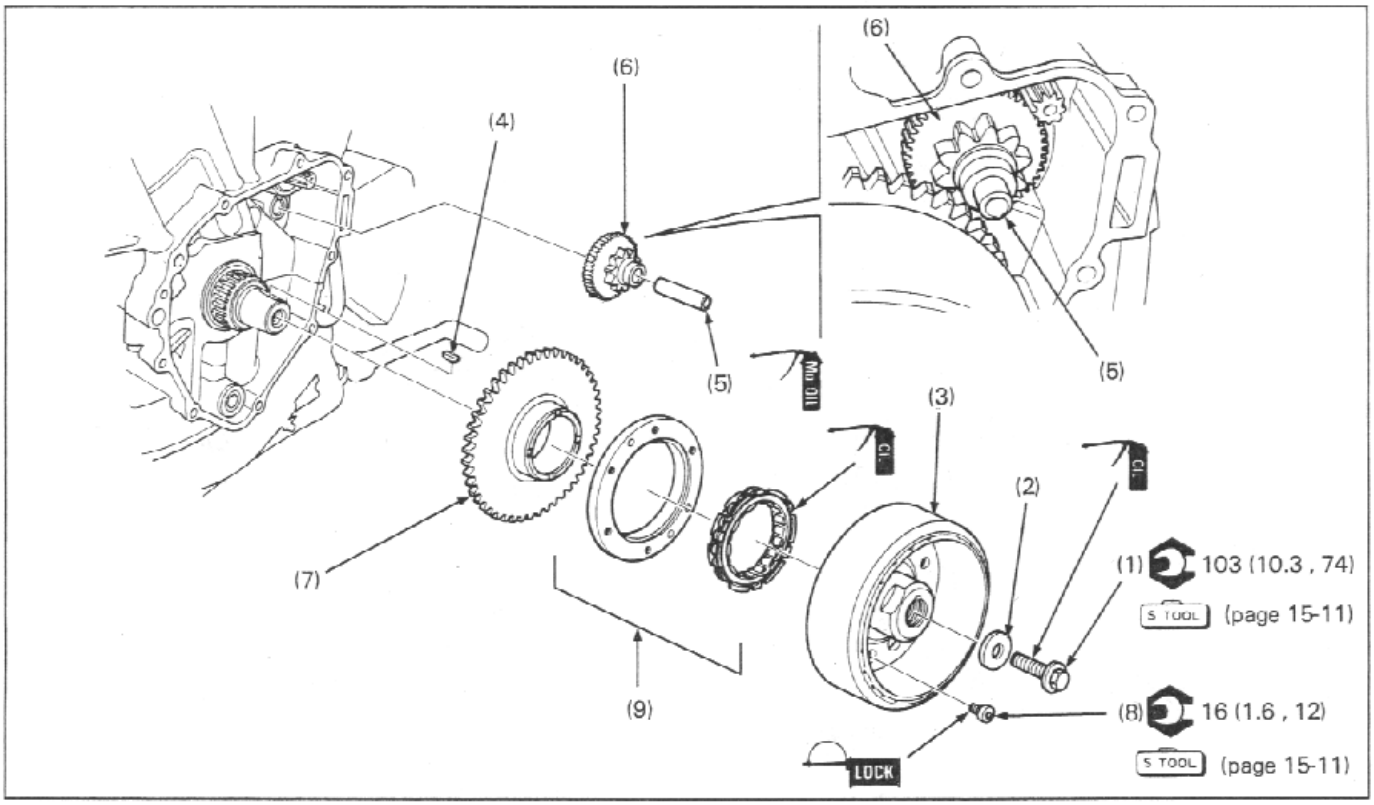
- The engine oil will run out when the left crankcase cover is removed. Set a clean oil pan under the engine and add the recommended oil to the specified level after the installation.
- The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during removal/installation.

Requisite Service

· Lower cowl removal/installation (page 2-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Alternator connector	1	
(2)	Left crankcase cover SH bolt	10	
(3)	Left crankcase cover	1	
(4)	Gasket	1	
(5)	Dowel pin	1	
(6)	Stator wire holder	1	
(7)	Stator mounting bolt	4	
(8)	Stator assembly	1	At installation, apply sealant to the grommet and install the grommet securely into the groove in the left crankcase cover.

Flywheel Removal/Installation



NOTE:

- The engine oil will run out when the left crankcase cover is removed. Set a clean oil pan under the engine and add the recommended oil to the specified level after the installation.
- The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during removal/installation.

Requisite Service

- Lower cowl removal/installation (page 2-5)
- Left crankcase cover removal/installation (page 15-9)

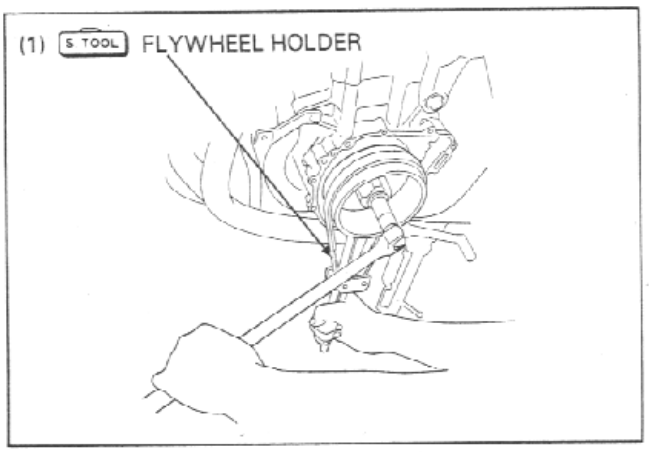
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Flywheel bolt	1	
(2)	Washer	1	
(3)	Flywheel	1	Before installation, wipe any oil off the mating surface of the crankshaft and flywheel.
(4)	Woodruff key	1	
(5)	Starter idle gear shaft	1	
(6)	Starter idle gear	1	
	Starter One-way Clutch Removal		Installation is in the reverse order of removal.
(7)	Starter driven gear	1	Remove or install the starter driven gear by turning it counterclockwise.
(8)	Starter clutch mounting bolt	6	Removal/installation (page 15-11).
(9)	Starter clutch	1	

Flywheel Bolt Removal/Installation

Removal

Hold the flywheel with a flywheel holder and remove the flywheel bolt.

S TOOL
Flywheel holder **07925—ME90000**

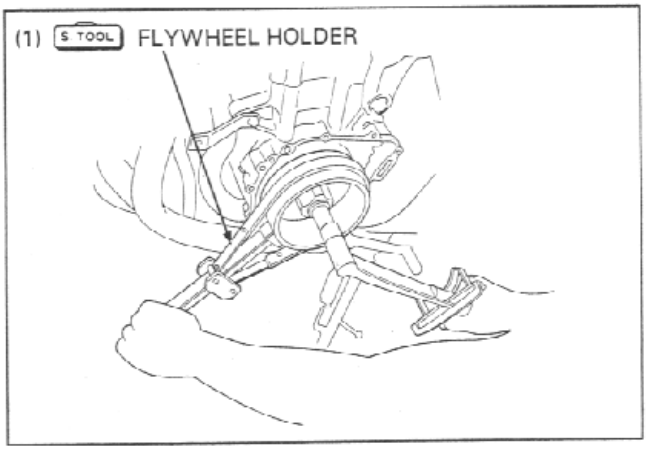


Installation

Hold the flywheel with a flywheel holder and tighten the flywheel bolt to the specified torque.

S TOOL
Flywheel holder **07925—ME90000**

Torque : 103 N·m (10.3 kg-m , 74 lb-ft)

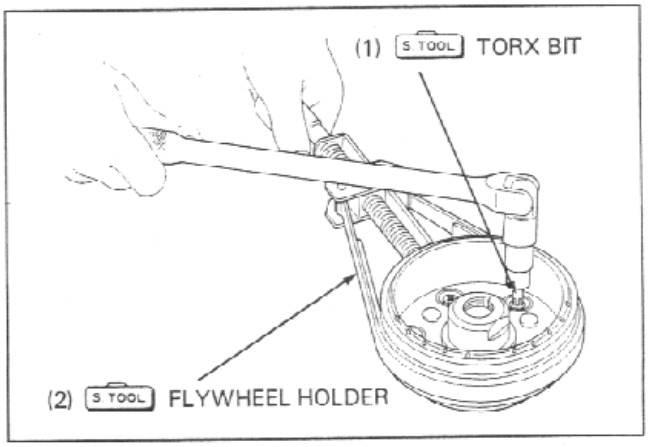


Starter Clutch Mounting Bolt Removal/Installation

Hold the flywheel with a flywheel holder, and remove the starter clutch mounting bolts.

S TOOL
Flywheel holder **07925—ME90000**
Torx bit, T30 **07703—0010200 or equivalent commercially available**

Remove the starter clutch.

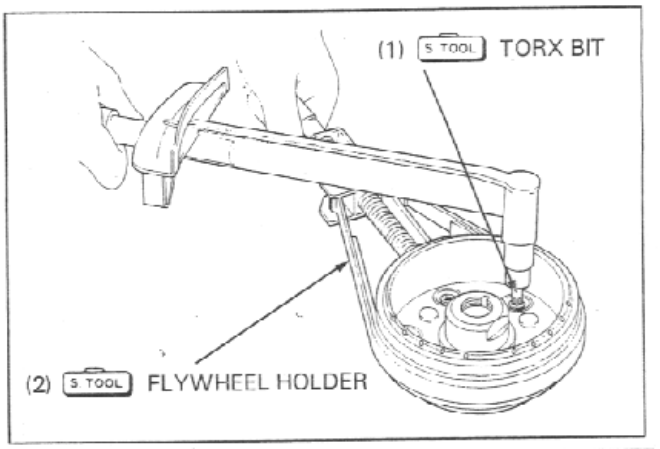


Clean and apply a locking agent to the starter clutch mounting bolt threads.

Hold the flywheel with a flywheel holder, and tighten the starter clutch mounting bolts to the specified torque.

S TOOL
Flywheel holder **07925—ME90000**
Torx bit, T30 **07703—0010200 or equivalent commercially available**

Torque : 16 N·m (1.6 kg-m , 12 lb-ft)



MEMO

16. Ignition System

Service Information

⚠WARNING

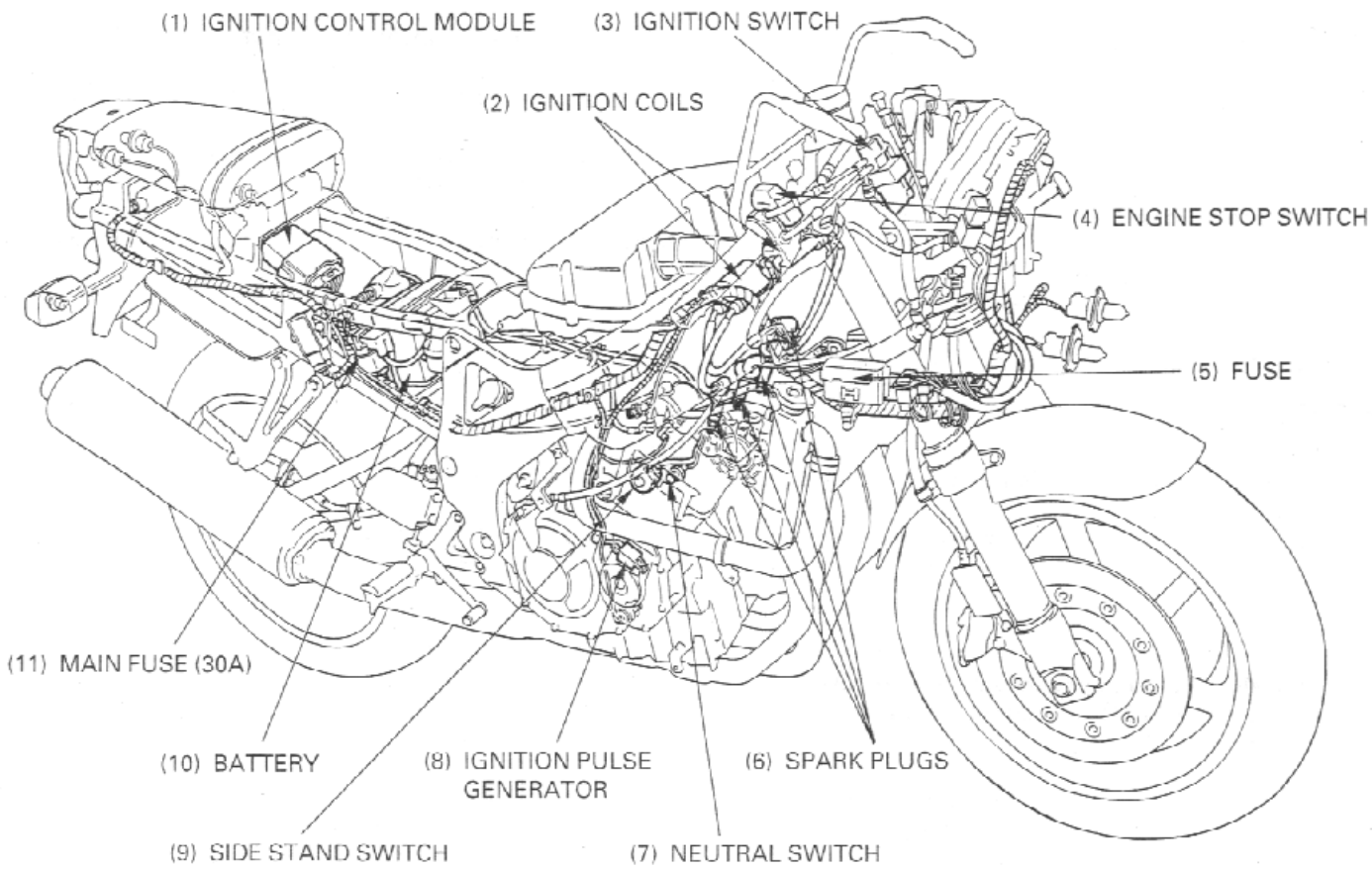
- **If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.**
- **The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and can lead to death.**

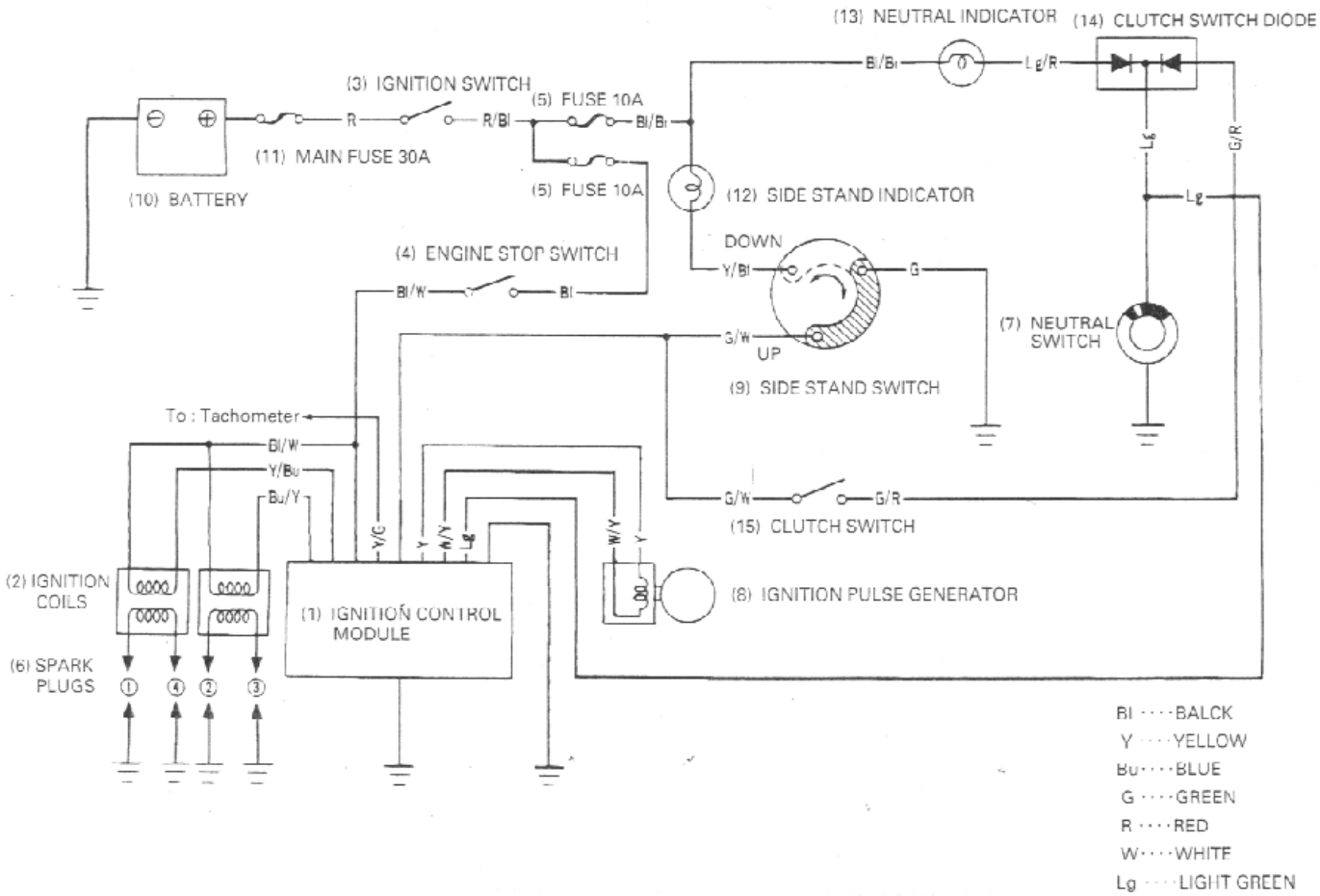
CAUTION:

- **Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.**

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 16-3).
- The ignition control module may be damaged if dropped. Also, if the connector is disconnected when current is present, the excessive voltage may damage the unit. Always turn off the ignition switch before servicing.
- Ignition timing cannot be adjusted since the ignition control module is non-adjustable. If ignition timing is incorrect, check the system components and replace any faulty parts.
- A faulty ignition system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Use spark plugs of the correct heat range. Using spark plugs with an incorrect heat range can damage the engine. Refer to Section 2 of the Common Service Manual.
- For neutral switch inspection, refer to Section 25 of the Common Service Manual. For switch location, see page 16-2 of this manual (System Location).
- For side stand switch, engine stop switch and ignition switch inspection, check for continuity chart of the Wiring Diagram, page 19-1. Disconnect the ignition and engine stop switch connectors in the upper cowl (page 2-6), side stand switch connector under the seat and check it.

System Location





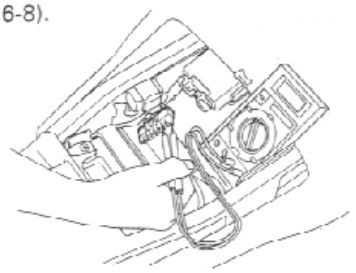
Troubleshooting

- Inspect the following before diagnosing the system.
  - Loose spark plug caps or spark plug wire connections.
  - Water in the spark plug cap.
  - Loose or poor contact of ignition system connectors.

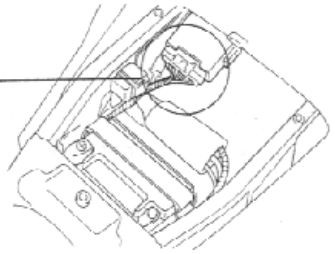
No Spark At All Plugs (Faulty Input System)

- If there is no spark to the plugs, the problem could be the input to the ignition system (ignition pulse generator, power input circuit of the ignition control module, neutral switch, or side stand switch because if controls the ignition control module).

Check if the battery voltage is measured between power source input line at the ignition control module connector with the ignition switch ON and the engine stop switch at RUN (page 16-8).

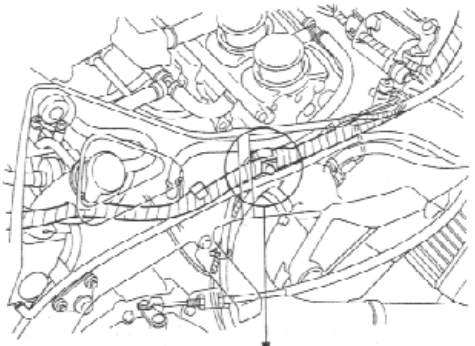


Connection : Black/White (+) — Green ( )
Standard : Battery voltage



No voltage →
- Faulty ignition switch or engine stop switch
- Open circuit in wire harness
- Loose or poor connector contact

Battery voltage measured ↓

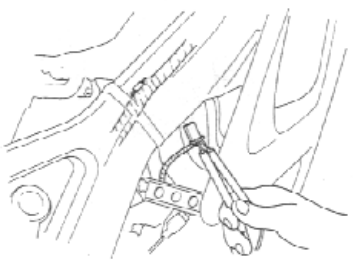


Measure the ignition pulse generator resistance at the ignition control module connector (page 16-8).

Connection : Yellow — White/Yellow
Standard : 460—580 Ω

Abnormal →

Check the ignition pulse generator (page 16-9).



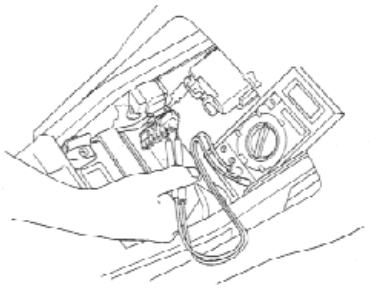
Connection : Yellow — White/Yellow
Standard : 460 — 580 Ω

Normal ↓

Abnormal →
- Faulty ignition pulse generator

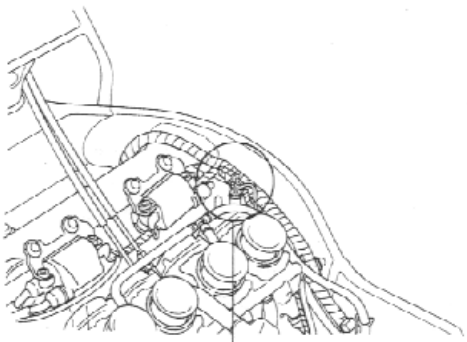
Normal ↓
- Open circuit in yellow wire
- Open circuit in white/yellow wire
- Loosen or poor ignition pulse generator connector contacts

Check the neutral switch at the ignition control module connector (page 16-8).

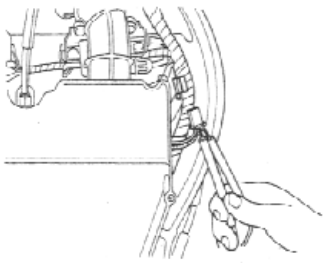


Connection : Light green — Ground
Standard :
Continuity in neutral
No continuity in any gear except neutral

Abnormal



Check the neutral switch .



Connection : Light green — Ground
Standard : Continuity in neutral
No continuity in any gear

Normal

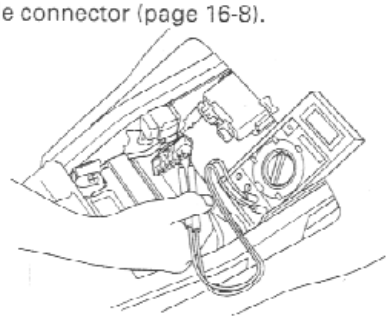
Abnormal

· Faulty neutral switch

· Open circuit in light green wire
· Loose or poor neutral switch connector contacts

Normal

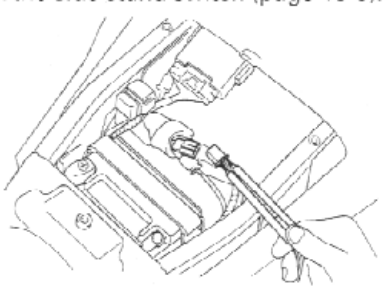
Check the side stand switch at ignition control module connector (page 16-8).



Side stand up :
Green/White — Green : Continuity
Side stand down :
Yellow/Black — Green : Continuity

Abnormal

Check the side stand switch (page 18-3).



Side stand up :
Green/White — Green : Continuity
Side stand down :
Yellow/Black — Green : Continuity

Normal

Abnormal

· Faulty side stand switch

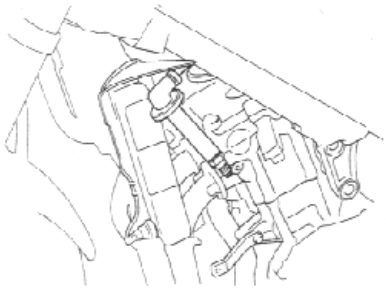
· Open circuit in green/white wire
· Open circuit in yellow/black wire
· Loose or poor side stand switch connector contacts

· Faulty ignition control module

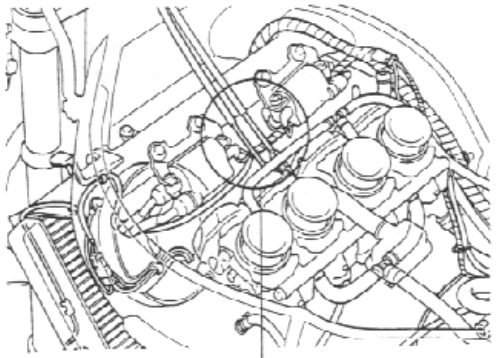
No Spark At Either Ignition Group

- If there is no spark at either group, the problem is probably in the primary coil side of the ignition system (ignition coil, or unit and ignition coil circuit).

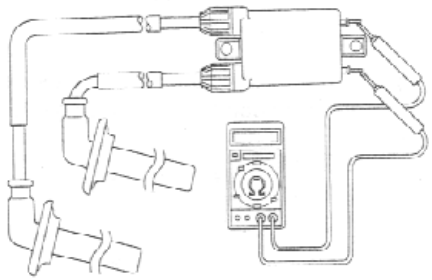
Switch the ignition coil primary terminal connection between the faulty pair and good pair. Try spark test again.



"No spark" condition remains with the faulty pair



Remove the faulty ignition coils and check the ignition coil resistance (page 16-8).



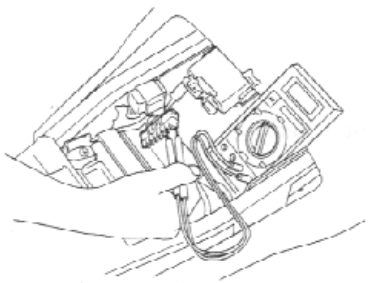
Standard :
Primary : 2.5—3.2 Ω
Between the plug caps : 21—27 kΩ
Between the spark plug wire : 11—17 kΩ

Abnormal

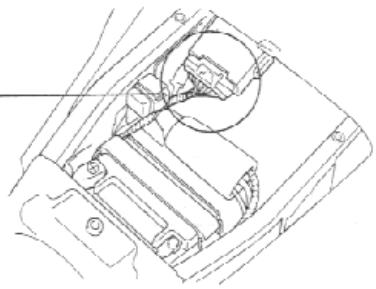
- Faulty ignition coil
- Faulty spark plug wire
- Faulty spark plugs

"No spark" condition shift to other pair

Measure resistance of the ignition primary coil at ignition control module connector.



Connection : No. 1—4 : Black — Yellow/Blue
: No. 2—3 : Black — Blue/Yellow
Standard : 2.5—3.2 Ω



Abnormal

- Poor or loose ignition coil connector contacts
- Open circuit in black wire
- Open circuit in yellow/blue wire
- Open circuit in blue/yellow wire

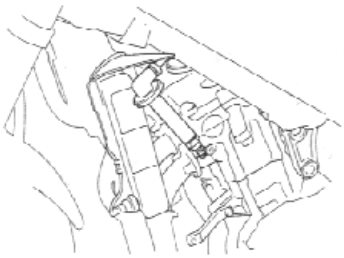
Normal

- Faulty ignition control module

No Spark At One Plug (Trouble In Secondary Coil Side)

- Faulty spark plug is most likely.

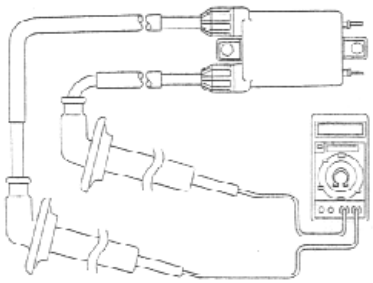
Replace (suspected bad spark plug) with known good spark plug and conduct spark test.



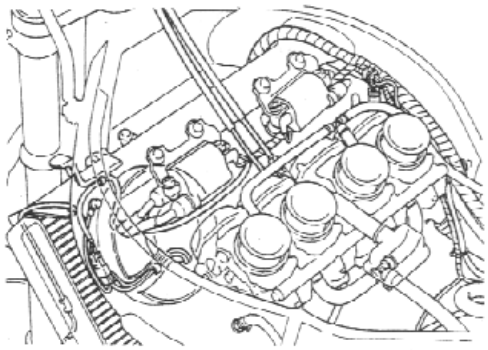
Spark → · Original spark plug faulty

No spark ↓

Put the spark plug cap on and measure resistance of ignition secondary coil (page 16-8).

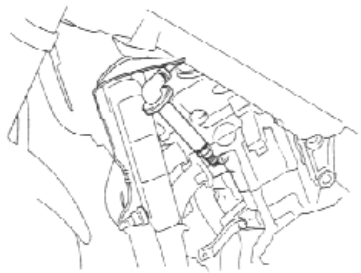


Standard : 21 – 27 kΩ



Normal →

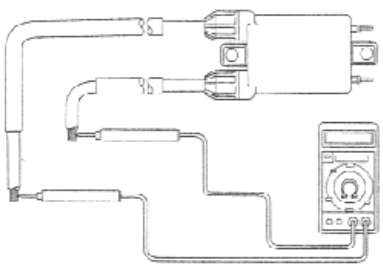
Condact spark test on good ignition coil.



Spark ↓

Abnormal ↓

Remove the spark plug cap, and measure resistance of the ignition coil (page 16-9).



Standard : 11 – 17 kΩ

Abnormal → · Faulty ignition coil

Normal ↓

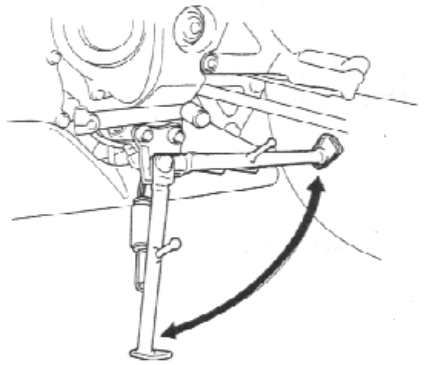
- Poor contact of spark plug cap
- Faulty spark plug cap
- Faulty spark plugs

Engine Starts, But Side Stand Switch Does Not Function At All

NOTE:

The side stand switch should function as follows:
- When the transmission is shifted into a gear from neutral with the side stand down, the ignition shuts off and the engine stops.
- When in neutral, the neutral switch line (a) of the ignition control module is connected to ground via the side stand switch.
  When the side stand is up, the side stand switch line (b) of the ignition control module passes to ground via the side stand switch. The ignition control module monitors lines (a) and (b), and provides spark only when one or both of those lines is connected to ground via the neutral switch or the side stand switch.

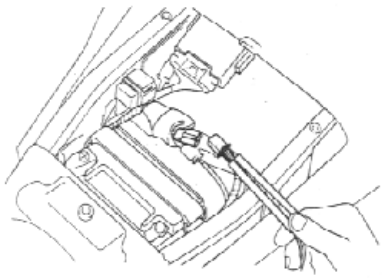
Check the side stand indicator function.



Normal → · Open circuit in Green/White wire

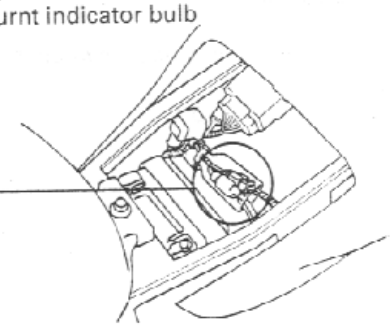
Abnormal ↓

Check for continuity between each terminal of side stand switch as follows.



Side stand up : Green/White – Green
Side stand down : Yellow/Black – Green

Normal → · Loose or poor contact of related connectors
· Open circuit in Green/White wire
· Burnt indicator bulb



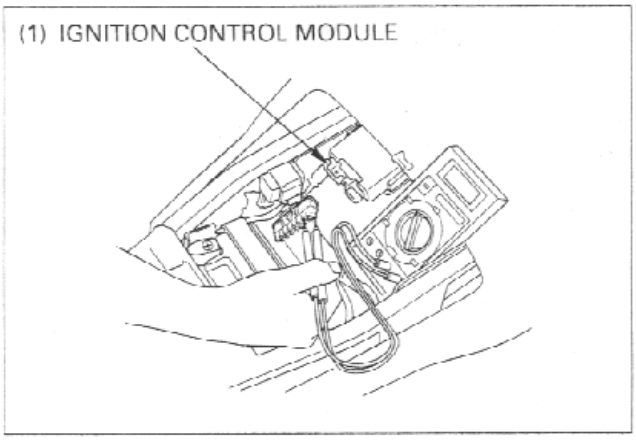
Abnormal → · Faulty side stand switch

System Inspection

NOTE:

- Check the system components and wires step-by-step according to the troubleshooting chart on pages.

Remove the seat (page 2-3).
Disconnect the connector from the ignition control module and conduct these tests at the connector.

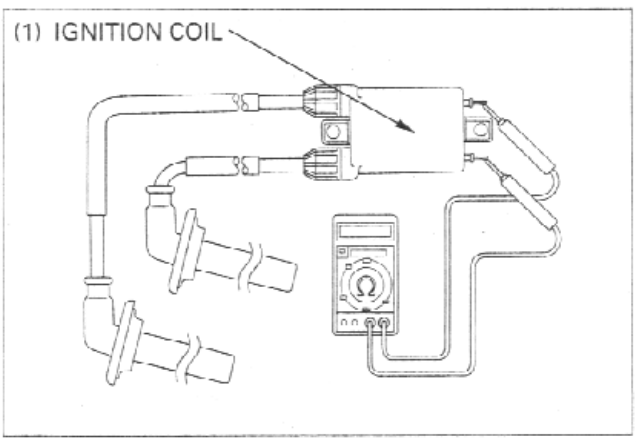


Item	Terminals	Standard (68°F/20°C)
Power source input line	Black/White (+) and Green (−)	Battery voltage should register with the ignition switch ON and the engine stop switch at RUN.
Ignition primary coil	No.1−4 : Black and Yellow/Blue No.2 3 : Black and Blue/Yellow	2.5−3.2 Ω
Ignition pulse generator coil	Yellow and White/Yellow	460−580 Ω
Neutral switch line	Light Green and Ground	Continuity in neutral No continuity in any gear except neutral
Side stand switch line	Green/White and Ground	Continuity with the side stand up No continuity with the side stand down
Ground line	Green and body ground	Continuity.

Ignition Coil Inspection

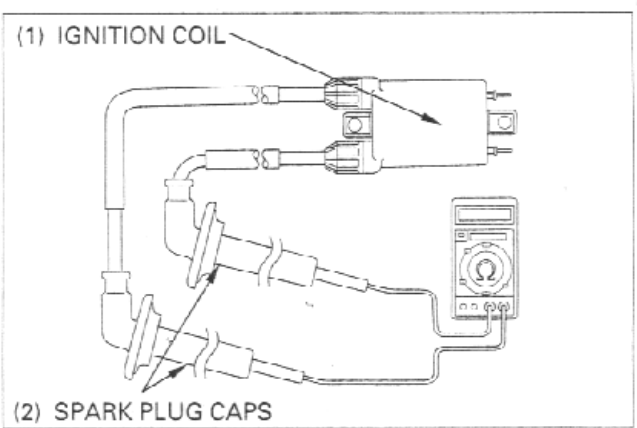
Measure the primary coil resistance between the terminals.

Standard : 2.5−3.2 Ω (68°F/20°C)



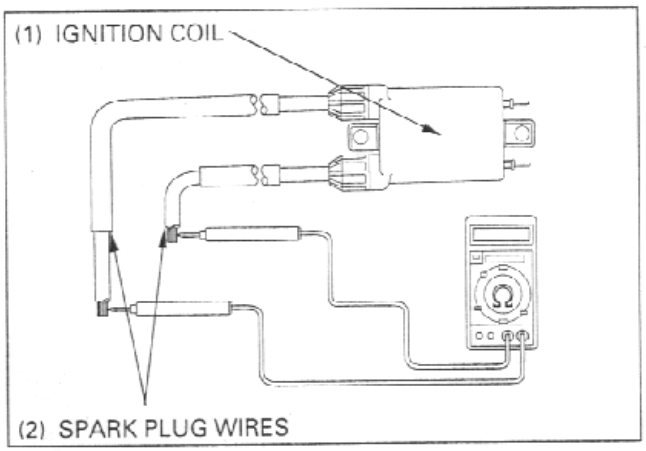
Measure the resistance between the spark plug caps.

Standard : 21−27 kΩ (68°F/20°C)



If the measured value out of the specification, remove the spark plug caps from the spark plug wires and measure the resistance between the spark plug wires.

Standard : 11 — 17 kΩ (68°F/20°C)



Ignition Pulse Generator Inspection

NOTE:

- It is not necessary to remove the ignition pulse generator from the engine.

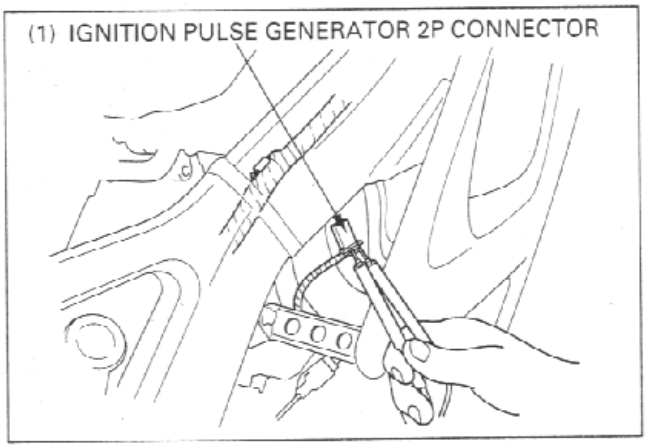
Remove the fuel tank (page 2-12).

Disconnect the ignition pulse generator 2P (Red) connector.

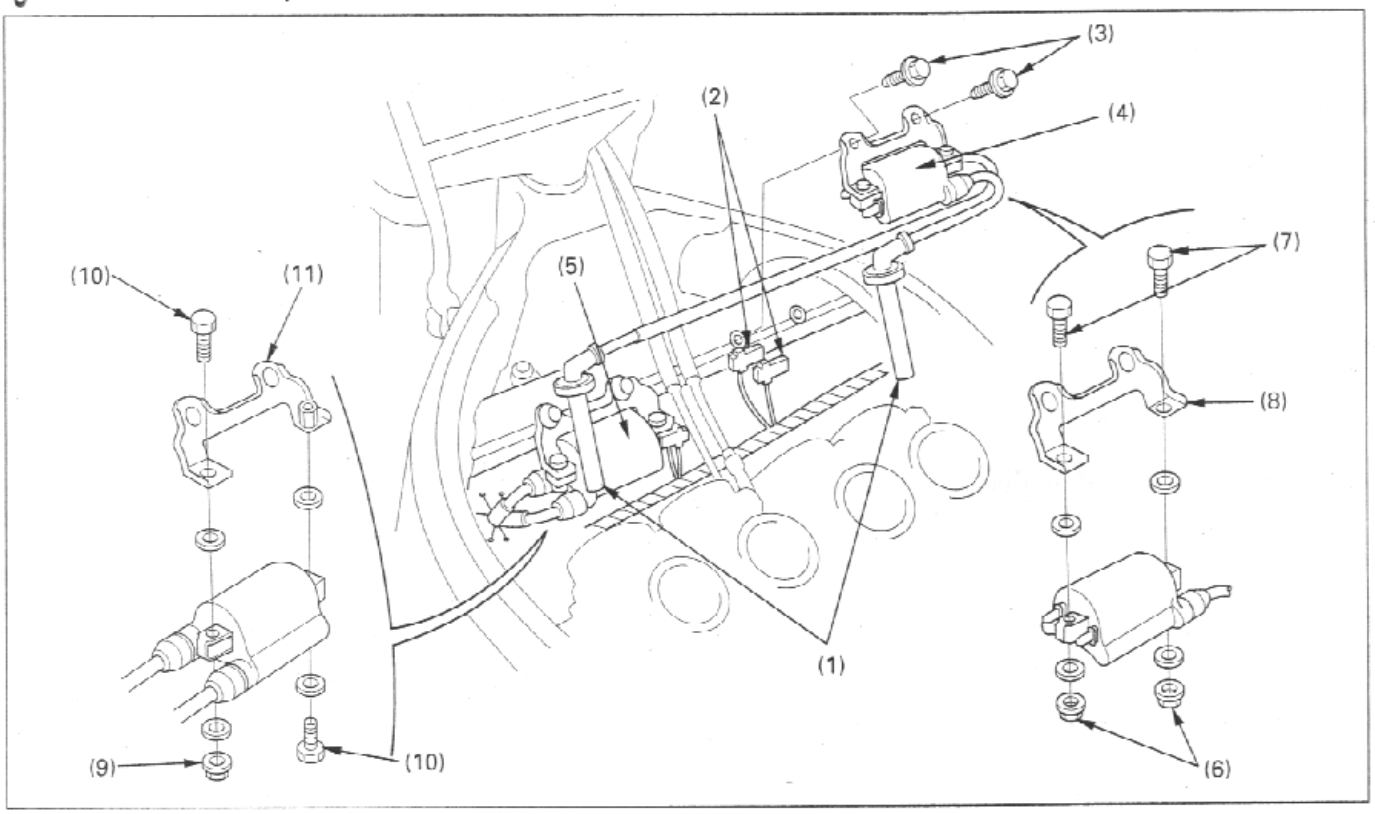
Measure the resistance between the White/Yellow and Yellow terminals.

Standard : 460 — 580 Ω (68°F/20°C)

Refer to page 16-11 for ignition pulse generator replacement.



Ignition Coil Removal/Installation

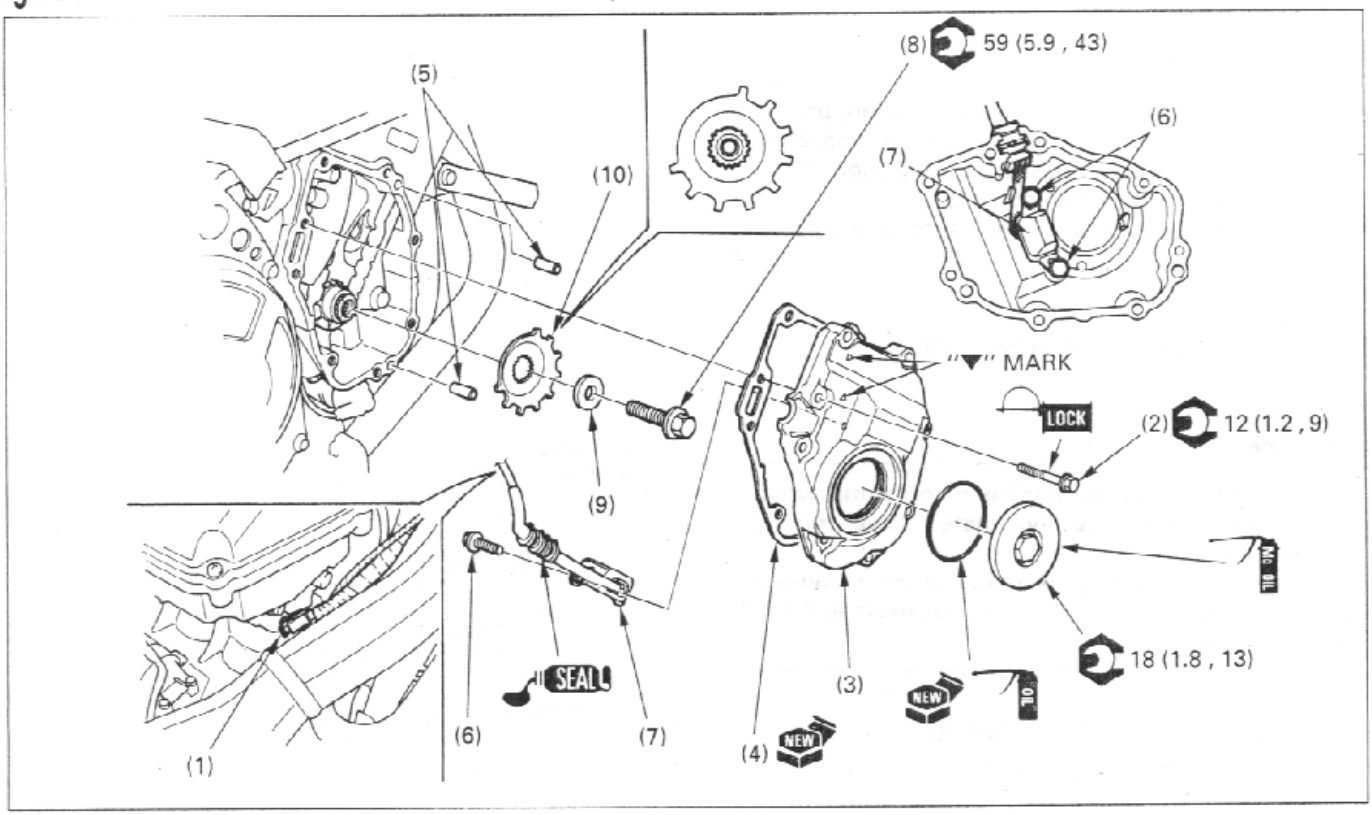


Requisite Service

- Air cleaner housing removal/installation (page 5-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Spark plug cap	4	The cylinder numbers are printed on each spark plug wire. At installation, install the spark plug cap onto the correct cylinder.
(2)	Ignition coil primary wire	4	
(3)	Ignition coil bracket bolt	4	
(4)	No. 1/4 ignition coil assembly	1	
(5)	No. 2/3 ignition coil assembly	1	
(6)	No. 1/4 ignition coil mounting nut	2	
(7)	No. 1/4 ignition coil mounting bolt	2	
(8)	No. 1/4 ignition coil bracket	1	
(9)	No. 2/3 ignition coil mounting nut	1	
(10)	No. 2/3 ignition coil mounting bolt	2	
(11)	No. 2/3 ignition coil bracket	1	

Ignition Pulse Generator Rotor Cover Removal/Installation



NOTE:

- To remove the ignition pulse generator rotor, remove the left crankcase cover (page 15-9) and hold the flywheel with the flywheel holder.

Requisite Service

- Lower cowl removal/installation (page 2-5)
- Left crankcase cover removal/installation (page 15-9)
- Fuel tank removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Ignition pulse generator 2P (Red) connector	1	
(2)	Ignition pulse generator rotor cover SH bolt	8	At installation, apply a locking agent to the bolt threads indicated by "▼" mark on the cover.
(3)	Ignition pulse generator rotor cover	1	At installation, make sure the sealing plug is installed securely into the crankcase.
(4)	Gasket	1	
(5)	Dowel pin	2	
(6)	Ignition pulse generator mounting bolt	2	
(7)	Ignition pulse generator	1	At installation, apply sealant to the wire grommet, and install into the rotor cover groove securely.
(8)	Ignition pulse generator rotor bolt	1	· Hold the flywheel with the flywheel holder. · During removal/installation, be careful not to damage the ignition pulse generator rotor reluctors.
(9)	Washer	1	
(10)	Ignition pulse generator rotor	1	At installation, align the wide groove in the ignition pulse generator rotor with the wide tooth on the crankshaft.

Ignition Timing

NOTE:

- The ignition control module system is factory pre-set and cannot be adjusted. Ignition timing inspection procedures are given to inspect the function of the ignition control module components.
- If the timing appears wrong, check another spark plug wire for confirmation.

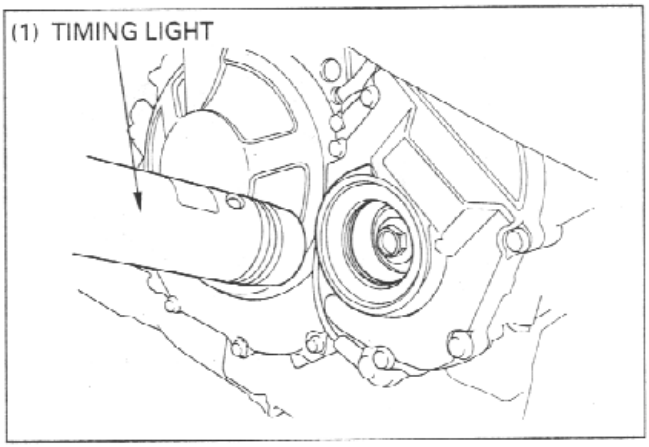
Warm up the engine to operating temperature.

⚠WARNING

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

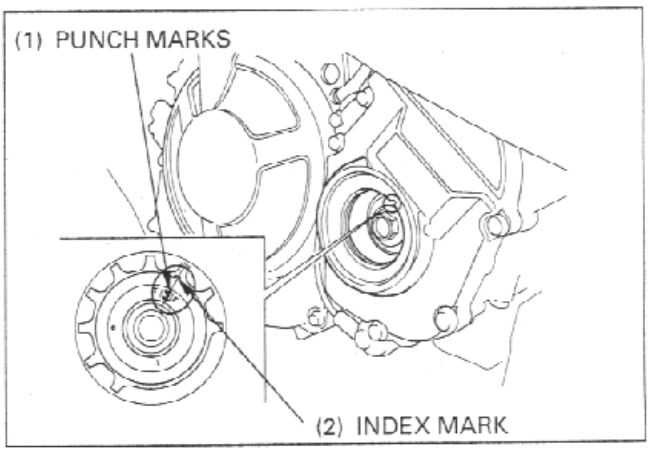
Stop the engine and remove the following:
– Lower cowl (page 2-5)
– Crankshaft hole cap (page 3-6)

Connect a timing light to the spark plug wire.
Start the engine and let it idle.



The timing is correct if the "F" mark (three punch marks) on the ignition pulse generator rotor aligns with the index mark on the ignition pulse generator rotor cover.

Increase the engine speed by rotating the throttle stop screw and make sure the "F" mark (three punch marks) begins to move counterclockwise at approximately 1,600 rpm.



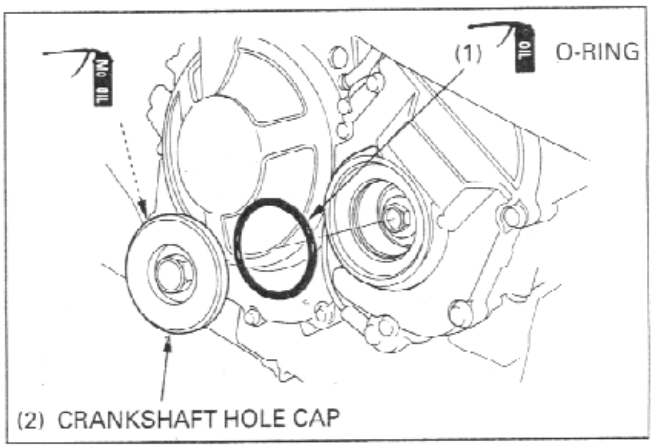
Replace the O-ring with a new one.

Apply engine oil to the O-ring.

Apply molybdenum disulfide oil to the cap threads.

Installation and tighten the crankshaft hole cap.

Torque : 18 N·m (1.8 kg-m , 13 lb-ft)



17. Electric Starter/Starter Clutch

Service Information

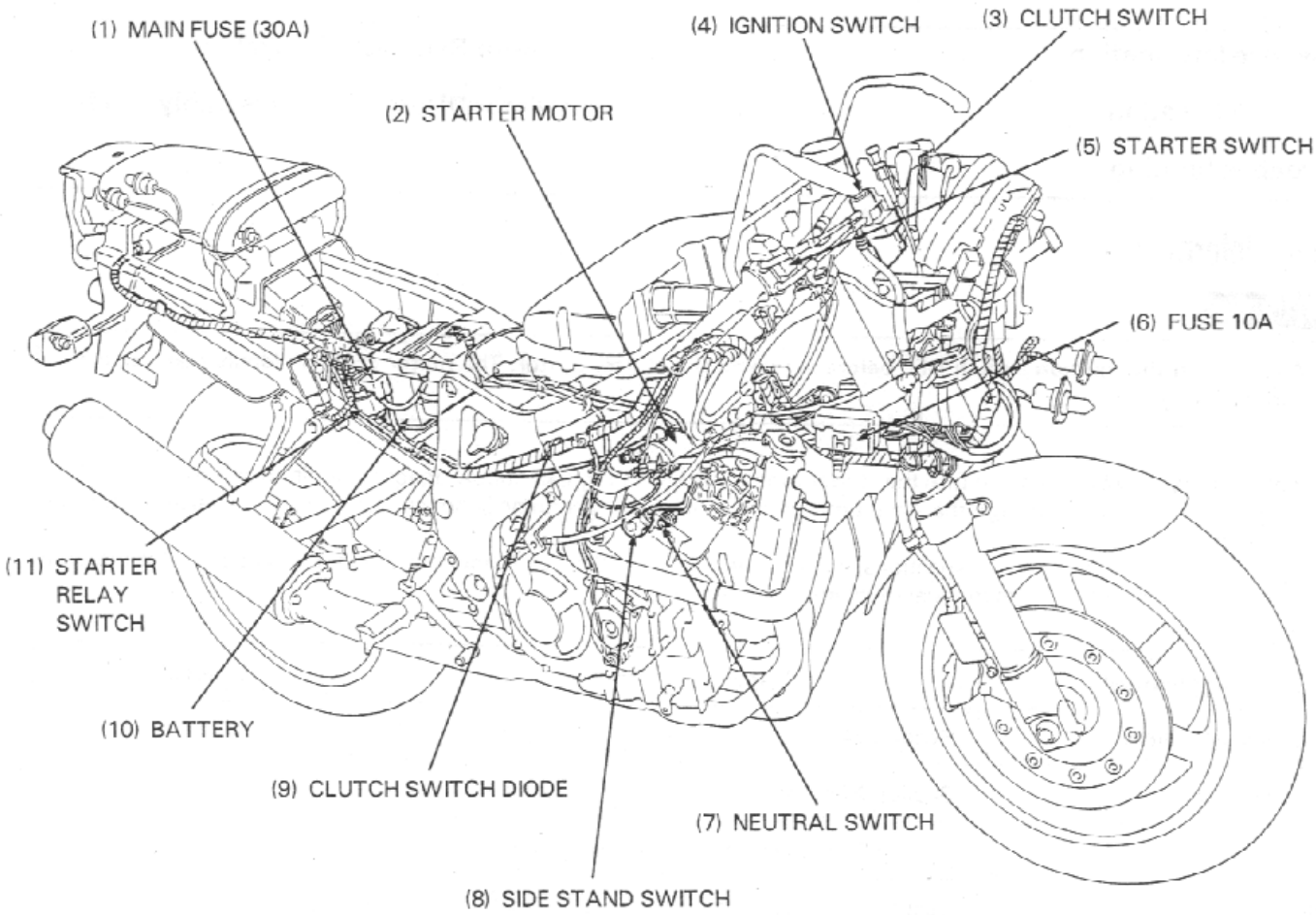
⚠WARNING

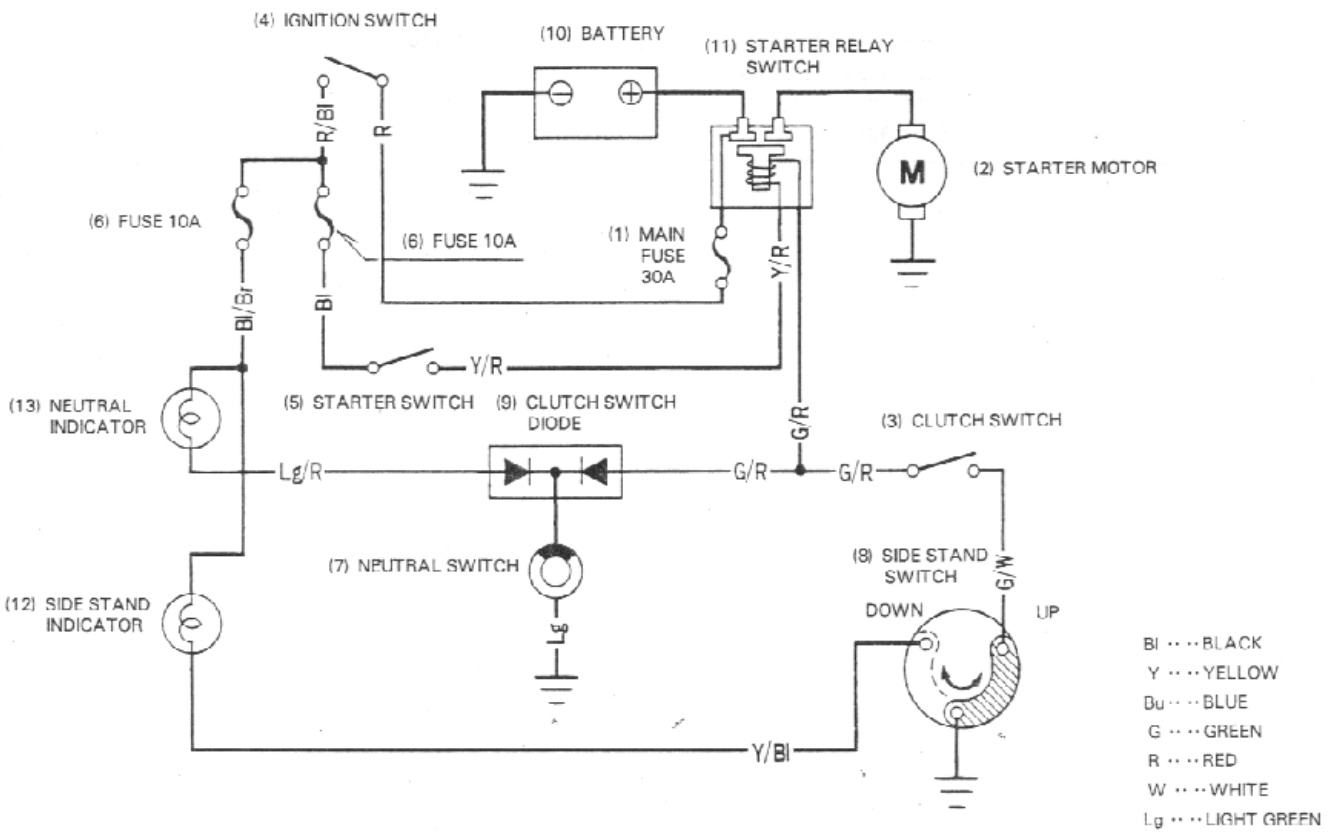
- **Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.**

- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If current is kept flowing through the starter motor to turn it while the engine is not cranking over, the starter motor may be damaged.
- For the following components inspections, refer to the Common Service Manual or the following pages; for the parts locations, see page 17-2 of this manual (System Location).

Component	Inspection method	Remarks
Clutch switch diode	Section 24 of the Common Service Manual	
Starter motor	Section 24 of the Common Service Manual	
Clutch switch	Section 25 of the Common Service Manual	
Neutral switch	Section 25 of the Common Service Manual	**Torque:** 12 N·m (1.2 kg m , 9 lb-ft)
Ignition switch	Check for continuity on the continuity chart of the Wiring Diagram, page 19-1.	
Side stand switch	See page 18-6.	

System Location





Troubleshooting

NOTE:

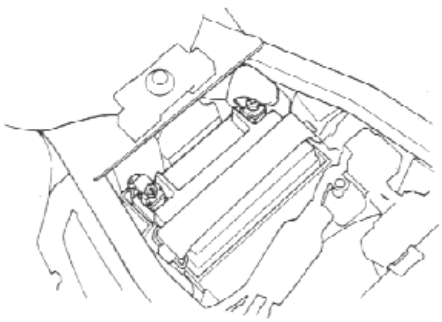
- Check for the following before troubleshooting the system.
  - —Blown main fuse (30A) or sub fuse (10A).
  - —Loose battery and starter motor cable.
  - —Discharged battery.

- The starter motor should turn when the transmission is in neutral.
- The starter motor should turn when the transmission is in any gear as indicated in the chart below.

Gear Position	Side Stand	Clutch Lever	Starter Motor
In Any Gear	Up	Pulled in	Turn
		Released	Does Not Turn
	Down	Pulled in	Does Not Turn
		Released	Does Not Turn

Starter motor will not turn

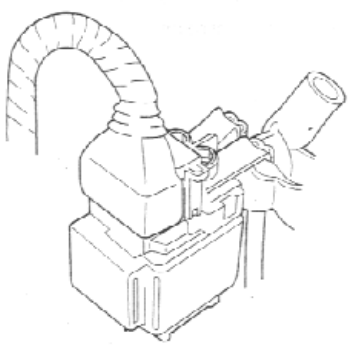
Check for loose or poorly connected battery terminals and opened or shorted battery cable.



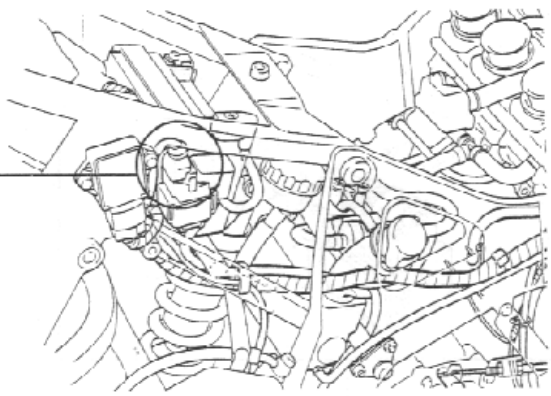
Abnormal →
- Poorly connected battery terminals
- Open or short circuit in battery cable

Normal ↓

Check for loose or poorly connected starter relay switch terminals and 4P connector.

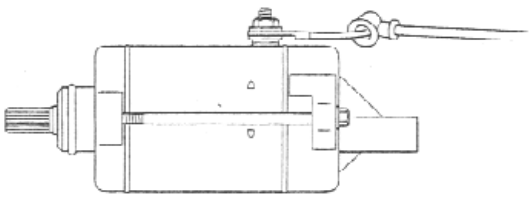


Abnormal →
- Poorly connected terminals of 4P connector



Normal ↓

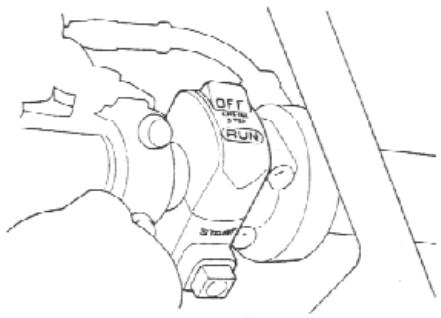
Check for loose or poorly connected starter motor cable, and open cable.



Abnormal →
- Poorly connected battery terminals
- Open circuit in motor cable

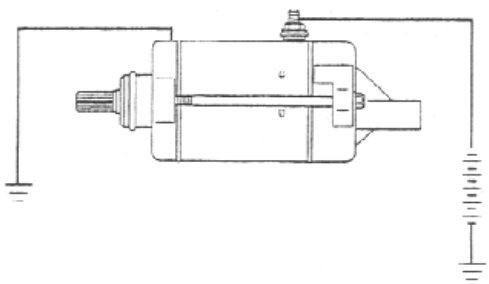
Normal ↓

With the ignition switch "ON" push the starter button and check for a "Click" sound from the starter relay switch.



Clicks →

Connect the starter motor terminal to the battery positive terminal directly.
(Because a large amount of current flows, do not use thin wires)



Starter motor turns ↓

- Loose or disconnected starter motor cable
- Faulty starter relay switch

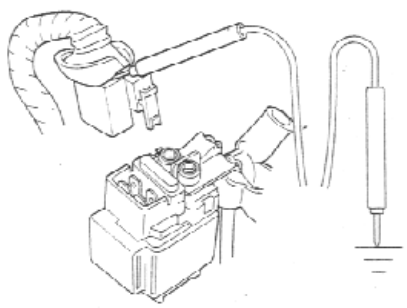
Starter motor does not turn ↓

- Faulty starter motor

No click ↓

Disconnect starter relay switch connector, and check the relay coil ground line as below for continuity:

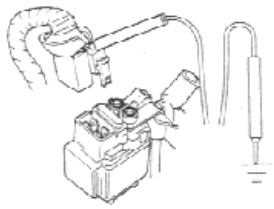
1. Green/Red terminal-to-clutch switch diode-to-neutral switch line (with transmission into neutral and clutch lever released).
2. Green/Red terminal-to-clutch switch-to-side stand switch line (in any gear except neutral, and with the clutch lever pulled in and the side stand up).



No Continuity →
- Faulty neutral switch
- Faulty clutch switch
- Faulty side stand switch
- Loose or poor contact of connector
- Open circuit in wire harness

Continuity ↓

Connect the starter relay switch connector. With the ignition switch ON and the starter button pushed, measure the starter relay voltage at the starter switch connector.

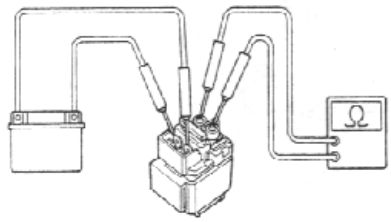


Connection : Yellow/Red (+) — ground (—)
Standard : Battery voltage

No Voltage →
- Faulty ignition switch
- Faulty starter switch
- Blown out main or sub fuses
- Loose or poor contact of connector
- Open circuit in wire harness

Battery voltage registers

Remove the starter relay switch.
Connect a fully charged 12V battery to the starter relay switch.
Check the continuity between the switch large terminal.



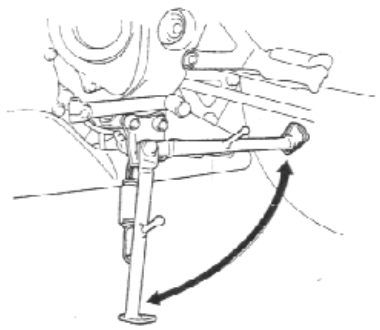
Battery Connection :
Yellow/Red (+) — Green/Red (—)
Standard : Continuity

Normal →
- Loose or poor contact of the starter relay switch connector

Abnormal →
- Faulty starter relay switch

Starter motor turns when the transmission is in neutral, but does not turn with transmission in any gear with the side stand up, and the clutch lever pulled in.

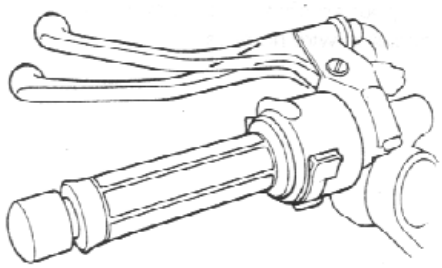
Check that the side stand switch is operating properly with the ignition ON.



Abnormal →
- Faulty side stand switch
- Burnt bulb
- Open circuit in wire harness

Normal

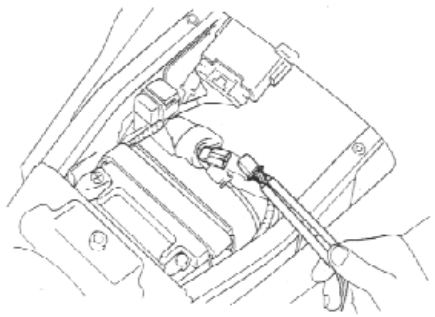
Check the clutch switch operation (Section 19).



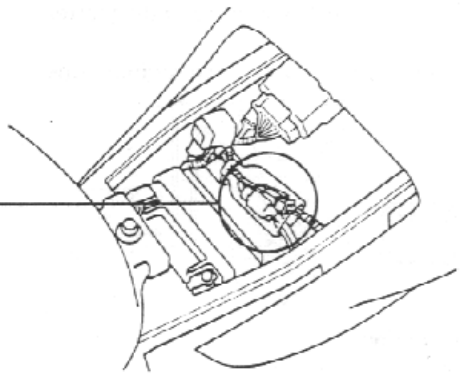
Abnormal → · Faulty clutch switch

Normal ↓

Check the side stand switch (page 18-3).



Abnormal → · Faulty side stand switch



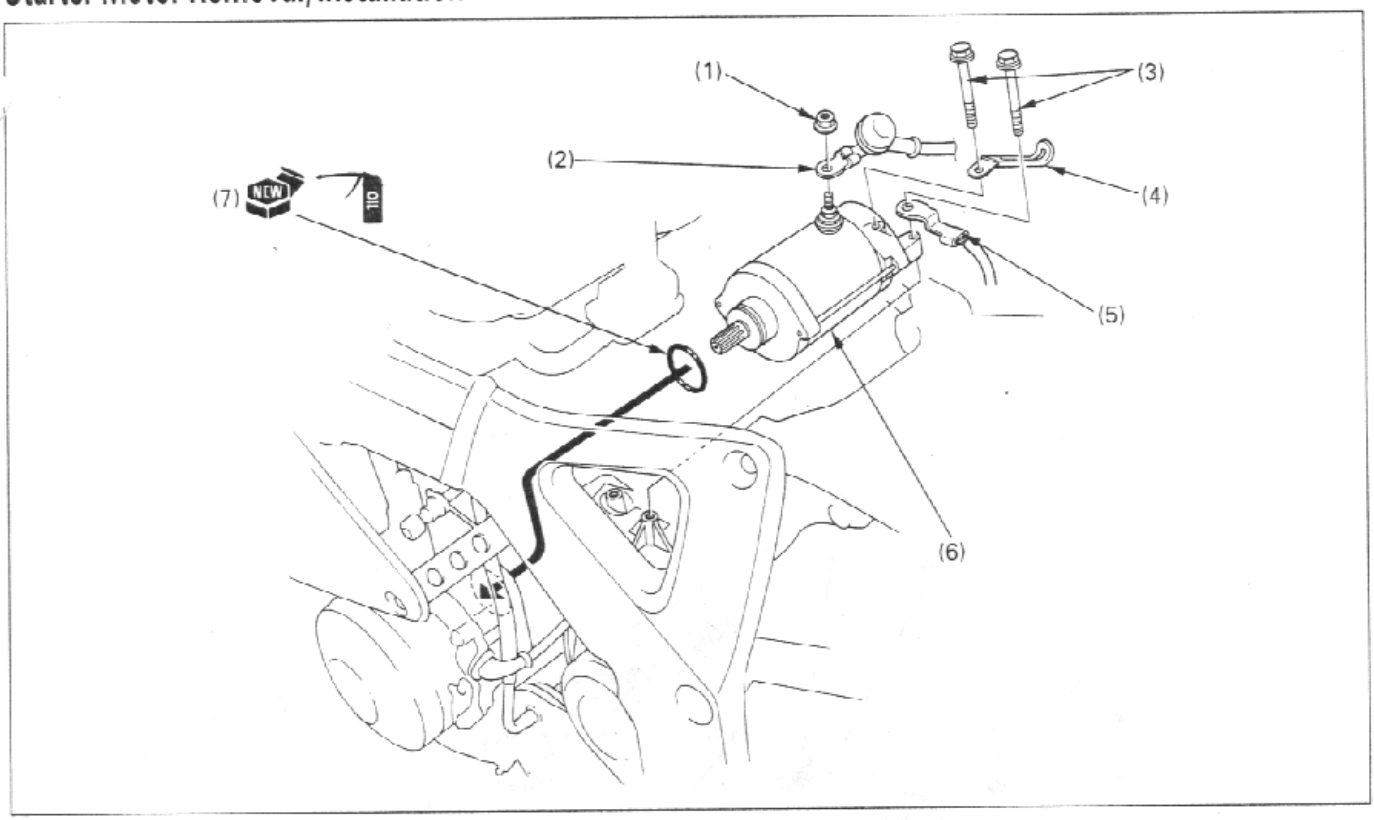
Normal → · Open circuit in wire harness
· Loose or poor contact of connector

Starter motor turns slowly
- Low specific gravity in battery (or dead battery)
- Poorly connected battery terminal cable
- Poorly connected starter motor cable
- Faulty starter motor

Starter motor turns, but engine does not turn
- Starter motor is running backward
  - —Case assembled improperly
  - —terminals connected improperly
- Faulty starter clutch
- Damaged reduction gear
- Damaged starter idle gear

Starter relay switch "clicks", but engine does not turn over
- Crankshaft does not turn due to internal mechanical engine problem
- Excessive reduction gear friction

Starter Motor Removal/Installation



⚠WARNING

- **With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.**

NOTE:

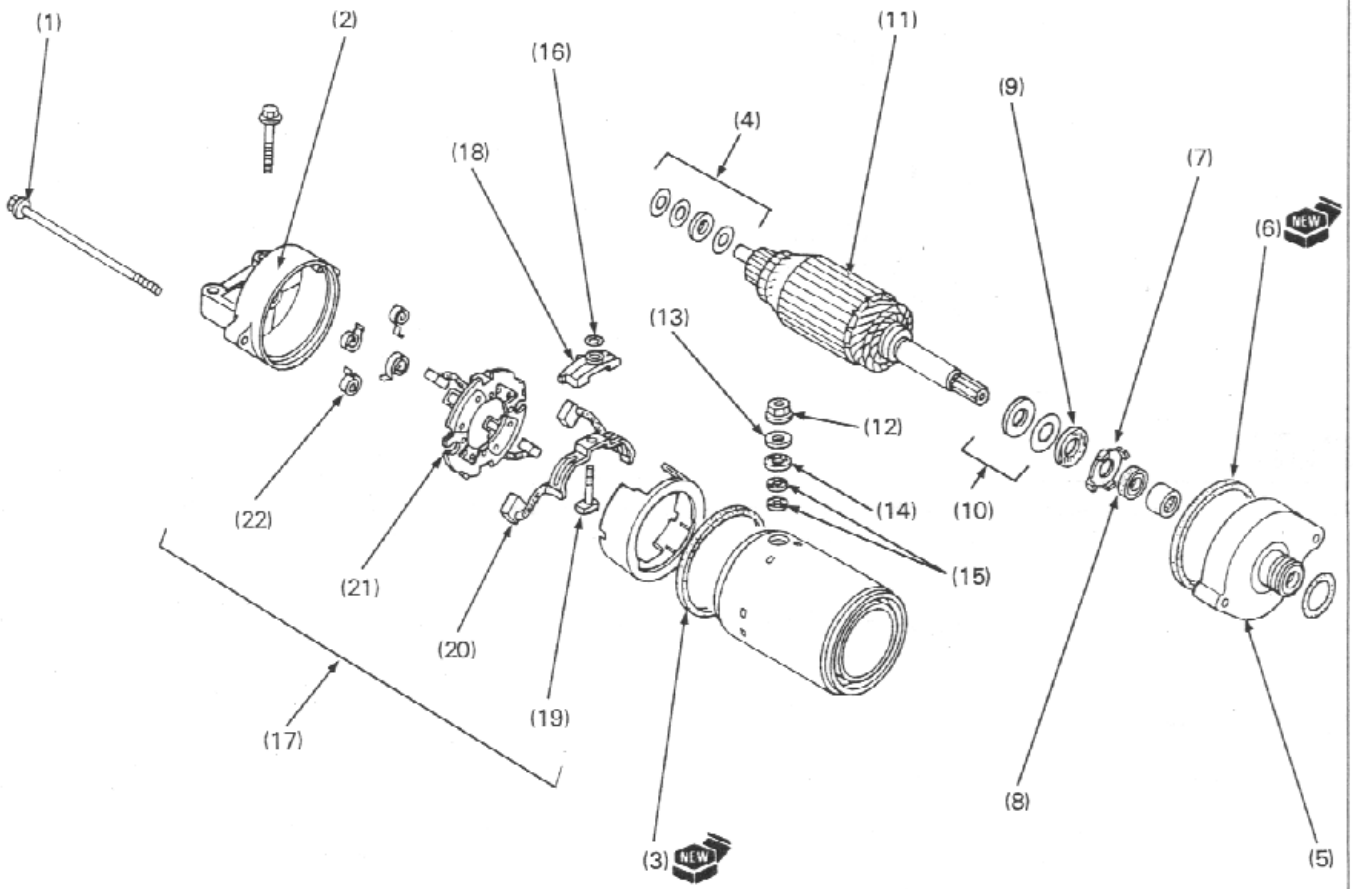
- Route the wire and cables properly (page 1-21).

Requisite Service

- Fuel tank removal/installation (page 2-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Flange nut	1	
(2)	Starter motor cable eyelet	1	
(3)	Starter motor mounting bolt	2	
(4)	Wire clamp	1	
(5)	Ground cable eyelet	1	
(6)	Starter motor	1	
(7)	O ring	1	

Starter Motor Disassembly/Assembly



NOTE:

- Note the location and number of thrust washers when disassembling so they can be reinstalled in their original positions.

Requisite Service

· Starter motor removal/installation (page 17-7)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Flange bolt	2	
(2)	Rear cover	1	At installation, align tabs in the rear cover with the projection of the brush holder plate.
(3)	O-ring	1	
(4)	Shim	—	Note the location and number of shims.
(5)	Front cover	1	
(6)	O-ring	1	
(7)	Lock washer	1	
(8)	Dust seal	1	
(9)	Insulated washer	1	
(10)	Washer	—	Note the location and number of washers.
(11)	Armature	1	
(12)	Terminal nut	1	
(13)	Washer	1	
(14)	Insulated washer (Large)	1	
(15)	Insulated washer (Small)	2	
(16)	O-ring	1	
(17)	Brush holder assembly	1	
	Brush Holder Disassembly Order		Assembly is in the reverse order of disassembly.
(18)	Terminal bolt supporter	1	At installation, install the supporter with its tab facing the blush holder.
(19)	Terminal bolt	1	
(20)	Motor brush	1	
(21)	Brush holder	1	
(22)	Brush spring	4	

MEMO

18. Lights/Meters/Switches

Service Information

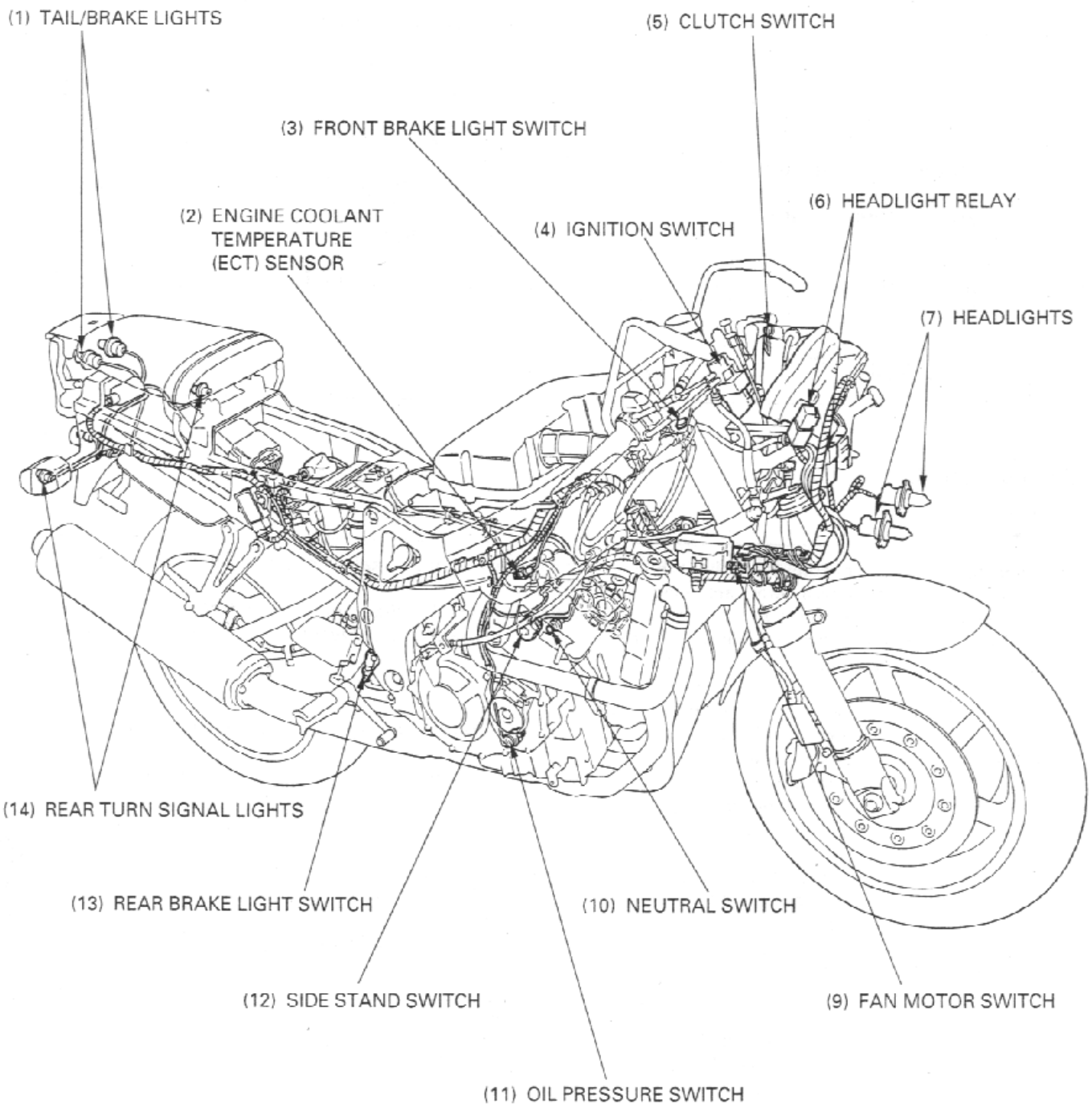
⚠WARNING

- **A halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.**
- **Use an electric heating element and heated water/coolant mixture for the engine coolant temperature (ECT) sensor inspection. Keep all flammable materials away from the burner. Wear protective clothing, insulated gloves and adequate eye protection.**

- Note the following when replacing the halogen headlight bulb.
  - —Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to break.
  - —If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
  - —Be sure to install the dust cover after replacing the bulb.
- All plastic connectors have locking tabs that must be released before disconnecting, and must be aligned and engaged fully when reconnecting.
- Always turn off the ignition switch before disconnecting any electrical component.
- A continuity test can be made with switches installed on the motorcycle.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- For the following component locations see the Common Service Manual or page 18-2 of this manual (System Location); for inspections, refer to the applicable pages.

Component	Inspection method	Remarks
Front brake light switch	Section 25 of the Common Service Manual	
Horn	Section 25 of the Common Service Manual	
Handlebar switch	Check for continuity on the continuity chart of the Wiring Diagram, page 19-1	
Ignition switch		
Neutral switch	Section 25 of the Common Service Manual	**Torque :** 12 N·m (1.2 kg-m , 9 lb-ft) Apply sealant to the threads.
Oil pressure switch/warning light	Section 25 of the Common Service Manual	Oil pressure check: Section 4 of the Common Service Manual. **Oil pressure switch torque :** 12 N·m (1.2 kg-m , 9 lb-ft)
Rear brake light switch	Section 25 of the Common Service Manual	
Turn signal lights	Section 25 of the Common Service Manual	

System Location



Troubleshooting

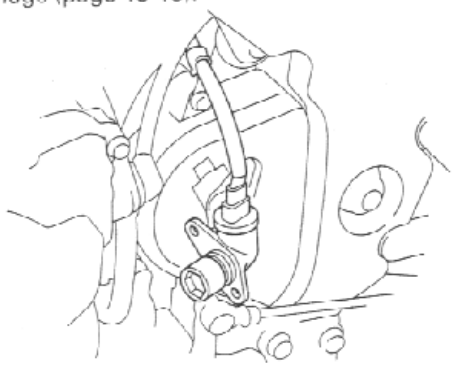
Speed Sensor / Speedometer (After '94)

The odometer/trip meter operate normally, but the speedometer does not operate
- Faulty speedometer

The speedometer operate normally, but the odometer/trip meter does not operate
- Faulty odometer/trip meter

The speedometer operate is abnormal
- Check for the following before diagnosing.
  - —blown main or sub fuses
  - loose or corroded terminals of the connectors
  - —discharged battery

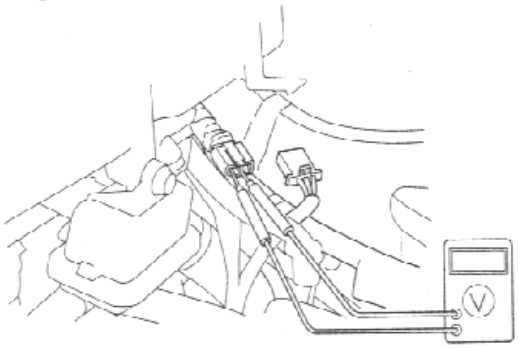
Remove the speed sensor and check for damage (page 18-18).



Abnormal → · Faulty speed sensor

Normal ↓

Remove the fuel tank (page 2-12).
Check for loose or poor contact of the speed sensor 3P (Black) connector.
With the ignition switch ON and measure the voltage at the speed sensor connector.



Connection: Green/Black and Black/Brown
Standard: Bettery voltage

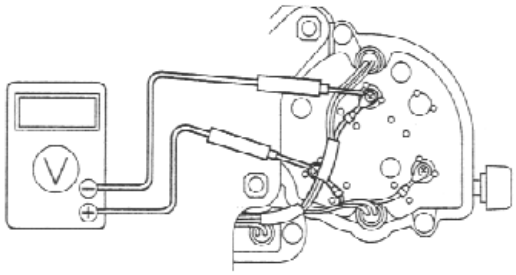
Abnormal →
- Loosen or poor contact of related terminals.
- Open circuit in Black or Green/Black wires between the battery and speed sensor.

Normal ↓

(Continue to the following page)

(From the previous page)

Remove the upper cowl (page 2-9).
Check for loose or poor contact of the combination meter 6P and 9P (Black) connectors.
With the ignition switch ON and measure the voltage at the bottom of the speedometer terminals.

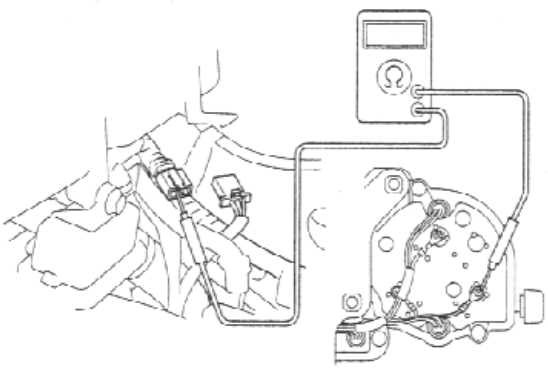


Connection: Green/Black and Black/Brown
Standard: Bettery voltage

Abnormal →
- Loosen or poor contact of related terminals.
- Open circuit in Black/Brown or Green/Black wires between the battery and speedometer.

Normal ↓

With the ignition switch OFF, check for continuity between the Pink wire of the speed sensor and Black/Red terminal of the speedometer.



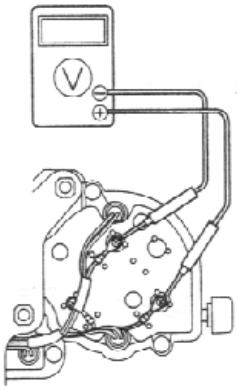
Standard: Continuity

Abnormal →
- Open circuit or loose connection in Pink wire and Black/Red wires.

(Continue to the following page)

(From the previous page)

Support the motorcycle using the hoist or other support to rise the rear wheel off the ground. Measure the output voltage (sensor signal) at the speedometer with the ignition switch is ON while slowly turning the rear wheel by your hand.



Connection: Black/Red and Green/Black
Standard: Repeat 0 to 5 V

Abnormal
(No input voltage) → Faulty speed sensor.

Normal
(Sensor signal is input the speedometer)

Faulty speedometer

Bulb Replacement

Headlight Bulb

⚠WARNING

- **A halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.**

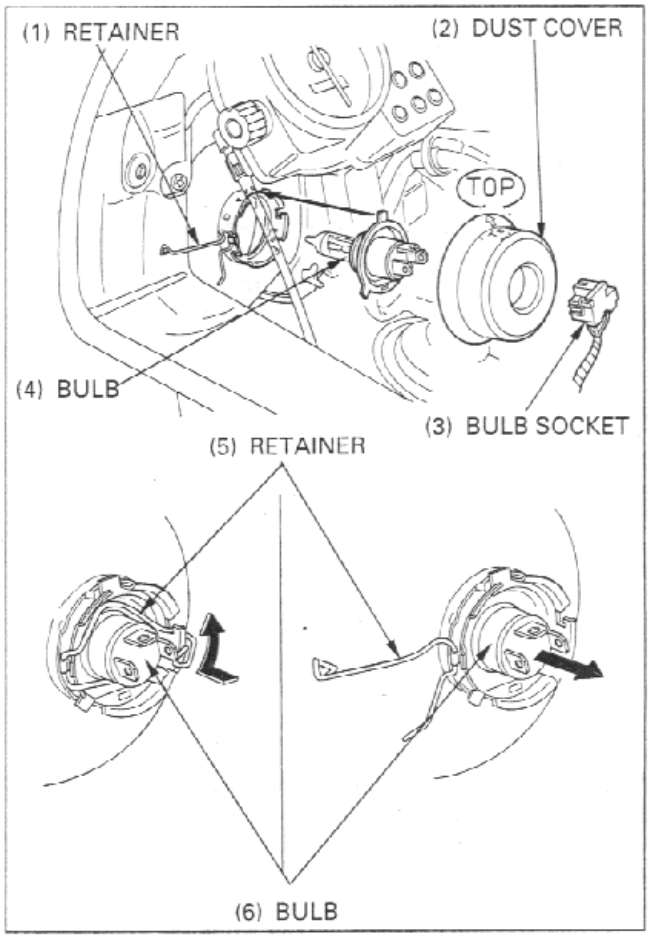
Push the retaining tabs and remove the the headlight bulb socket.
Remove the dust cover.

Unhook the bulb retainer and remove the headlight bulb.

Installation is in the reverse order of removal.

NOTE:

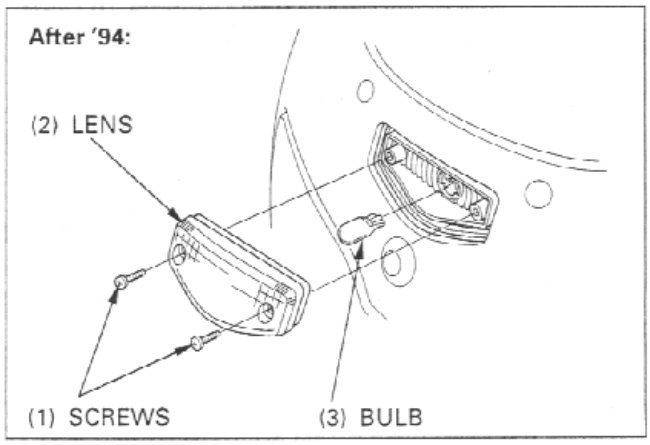
- Install the dust cover with its "TOP" mark facing up.



Position Light Bulb (After '94)

Remove the screws and position light bulb lens.
Remove the bulb from the socket and replace it.

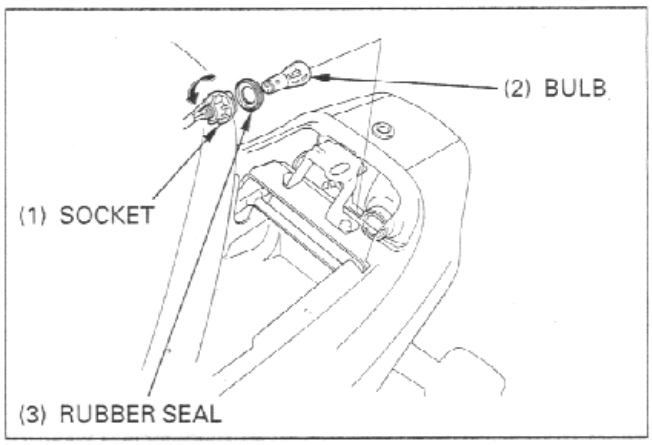
Install the removed parts in the reverse order of removal.



Tail/Brake Light Bulb

Raise the pillion seat using the ignition key.

Remove the tail/brake light bulb and socket as an assembly by turning it counterclockwise.
Remove the bulb by turning it counterclockwise.
Replace the faulty bulb with a new bulb and install it in the reverse order of removal.

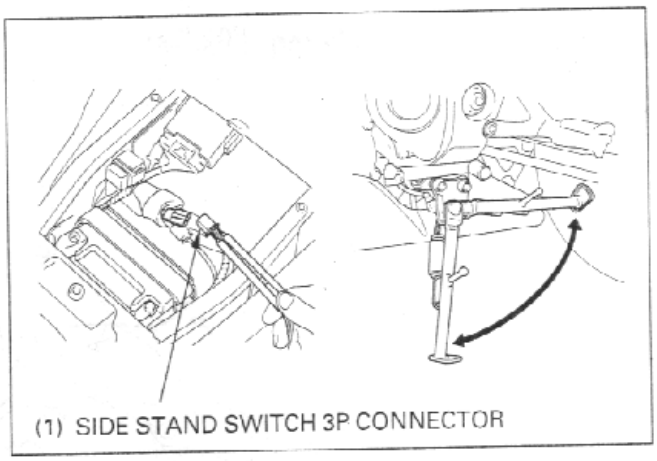


Side Stand Switch Inspection

Disconnect the side stand 3P (green) connector and check for continuity between each color of wire terminal as shown in the chart below.

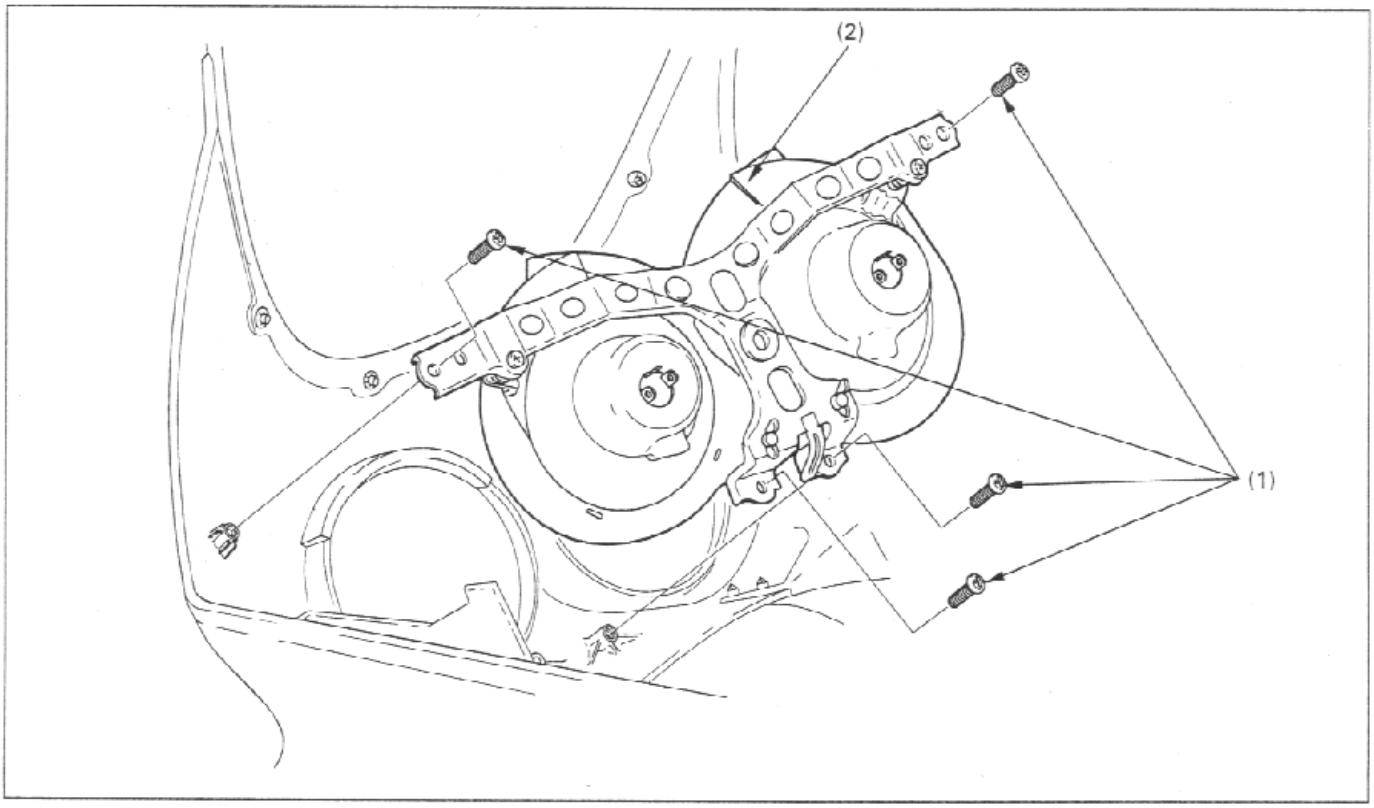
There should be continuity between the ○—○ positions on the following chart under the conditions shown here.

	Green/White	Yellow/Black	Green
Side stand up	○		○
Side stand down		○	○



(1) SIDE STAND SWITCH 3P CONNECTOR

Headlight Removal/Installation ('93-'94)



⚠WARNING

- **An improperly adjusted headlight may blind on-coming drivers, or it may fail to light the road for a safe distance.**

NOTE:

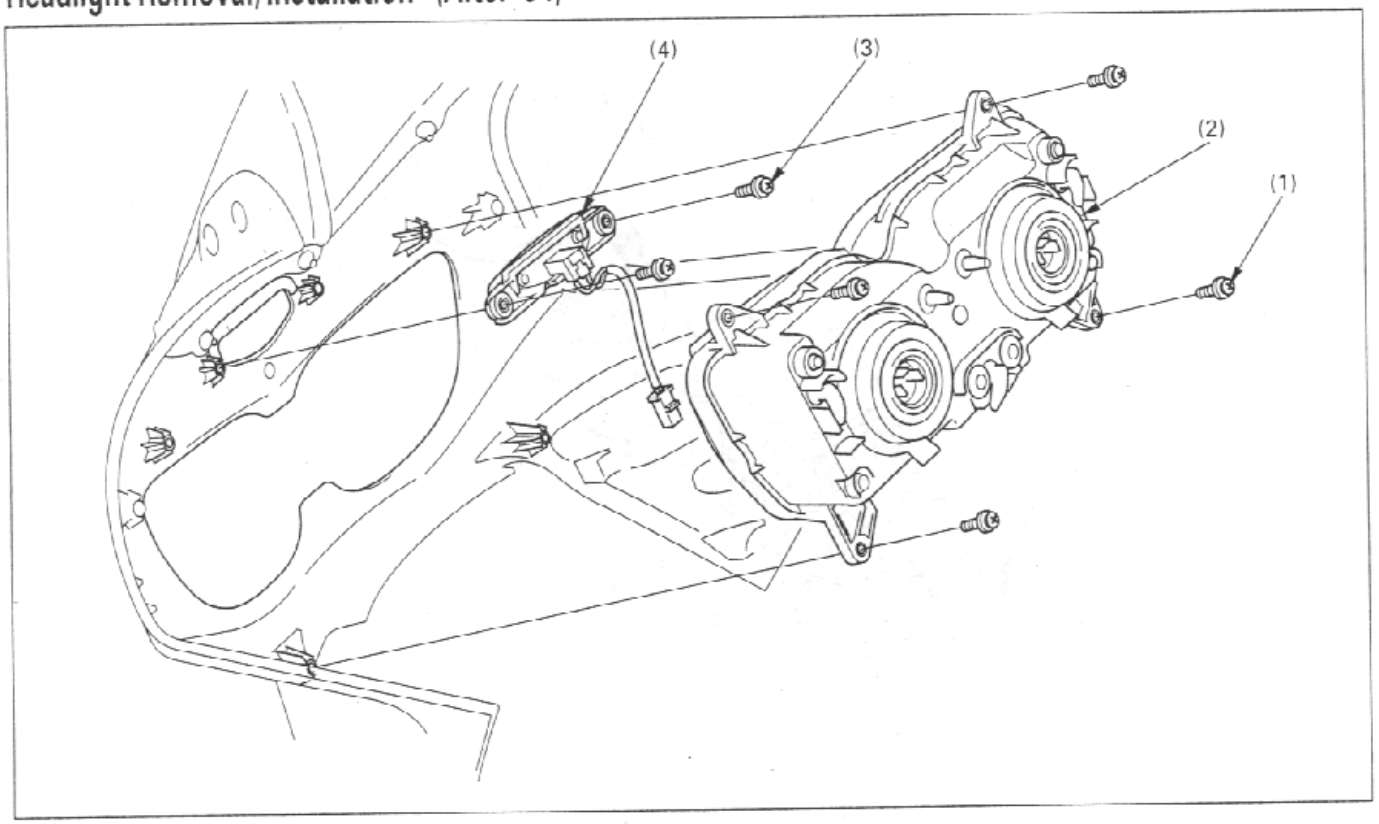
- Adjust the headlight beam as specified by local laws and regulations.
- After installation, route the wires and cable properly (page 1-21).

Requisite Service

- Upper cowl removal/installation (page 2-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	4	
(2)	Headlight assembly	1	At installation, install the headlight rubber seal securely.

Headlight Removal/Installation (After '94)



⚠WARNING

- **An improperly adjusted headlight may blind on-coming drivers, or it may fail to light the road for a safe distance.**

NOTE:

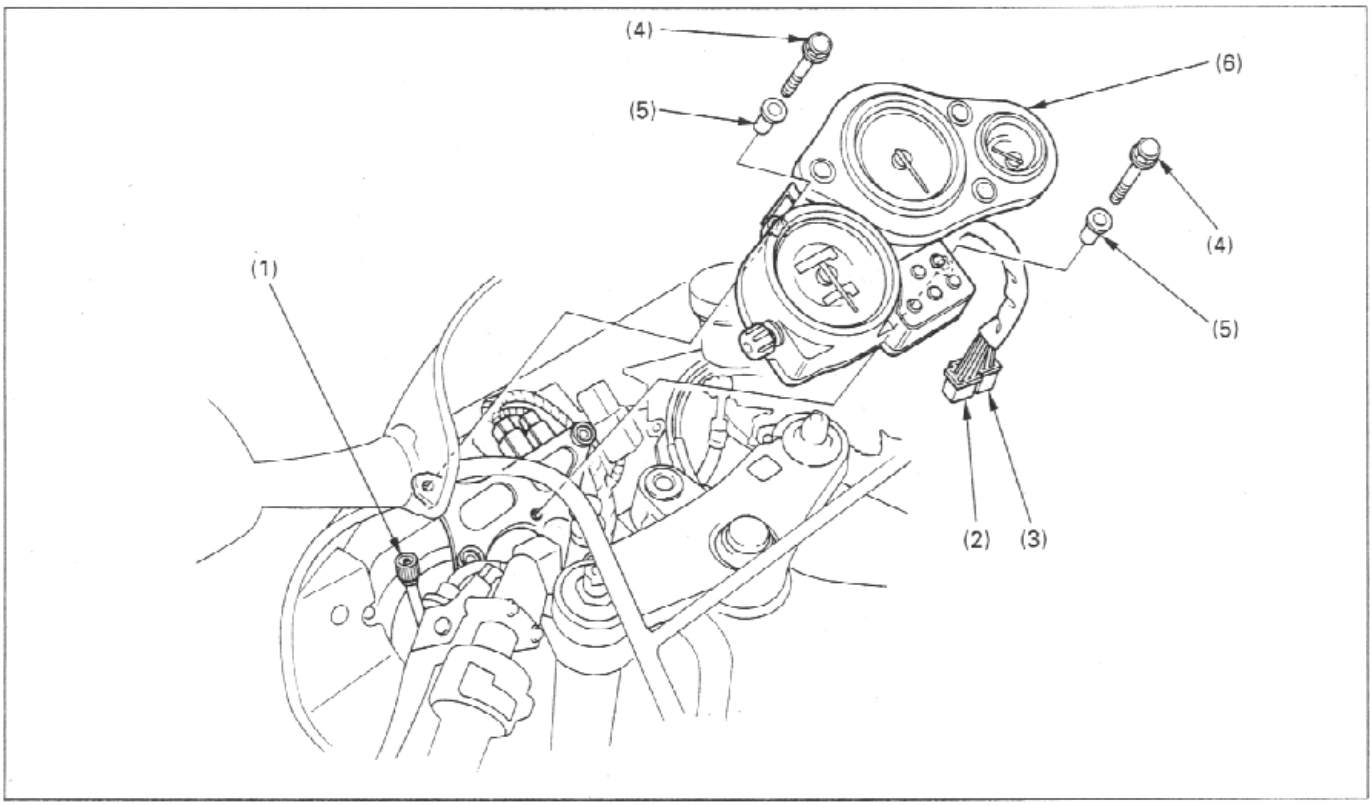
- Adjust the headlight beam as specified by local laws and regulations.
- Be careful not to pinch the position light unit wire and connector.
- After installation, route the wires and cable properly (page 1-21).

Requisite Service

- Upper cowl removal/installation (page 2-9)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	4	
(2)	Headlight unit assembly	1	
(3)	Screw	2	
(4)	Position light unit	1	

Combination Meter Removal/Installation ('93-'94)

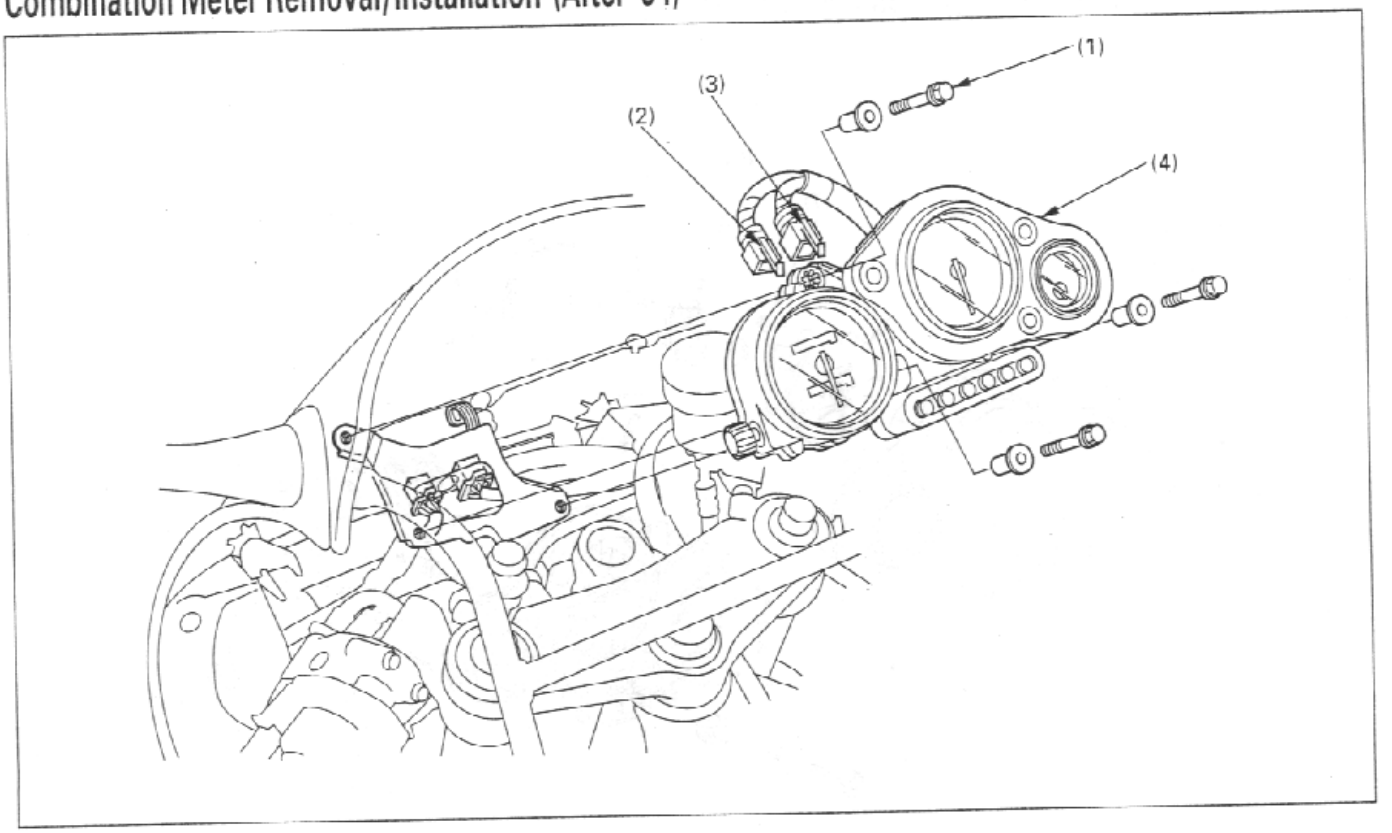


NOTE:

- Route the wires and cable properly (page 1-21).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Speedometer cable	1	
(2)	Combination meter 9P (Black) connector	1	
(3)	Combination meter 3P (Black) connector	1	
(4)	Combination meter mounting bolt	2	
(5)	Collar	2	
(6)	Combination meter assembly	1	· Disassembly (page 18-10) · At installation, align the boss on the combination meter with the rubber grommets.

Combination Meter Removal/Installation (After '94)

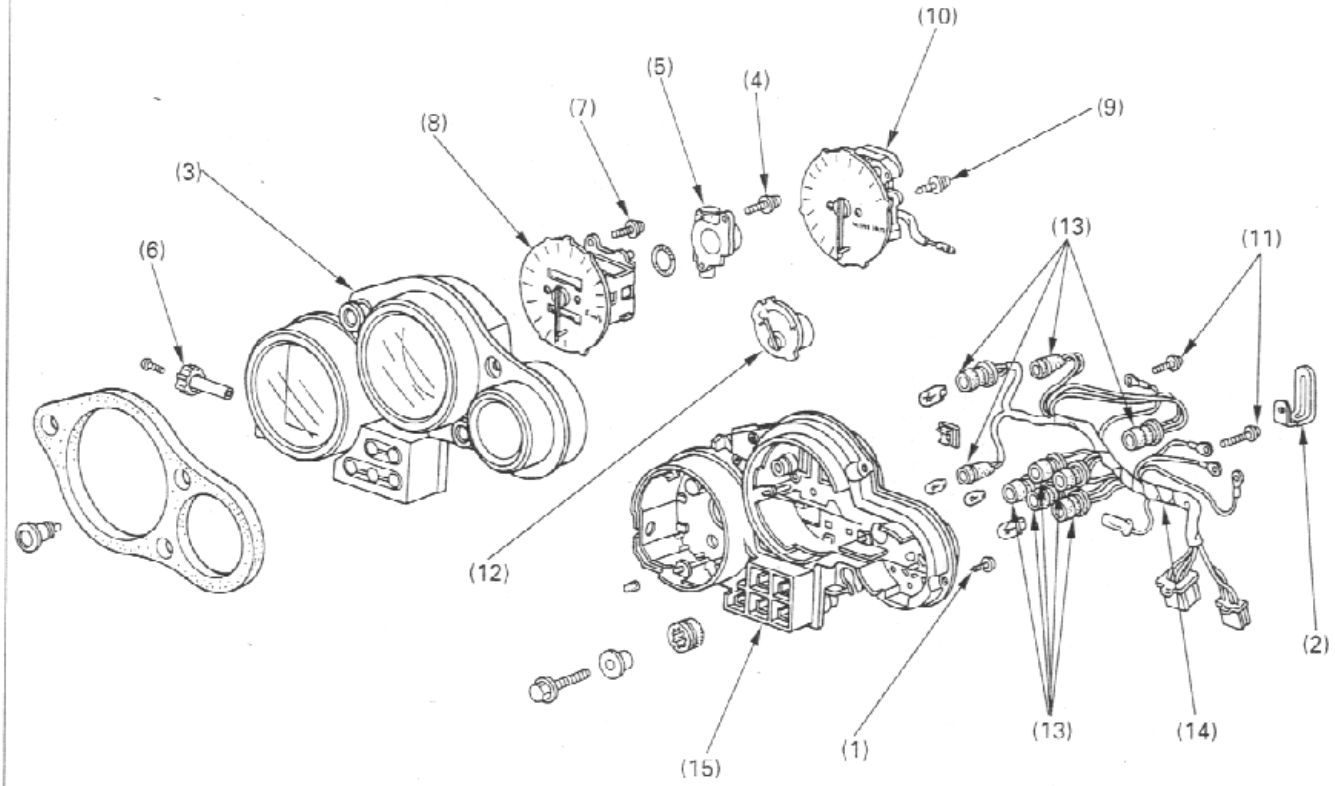


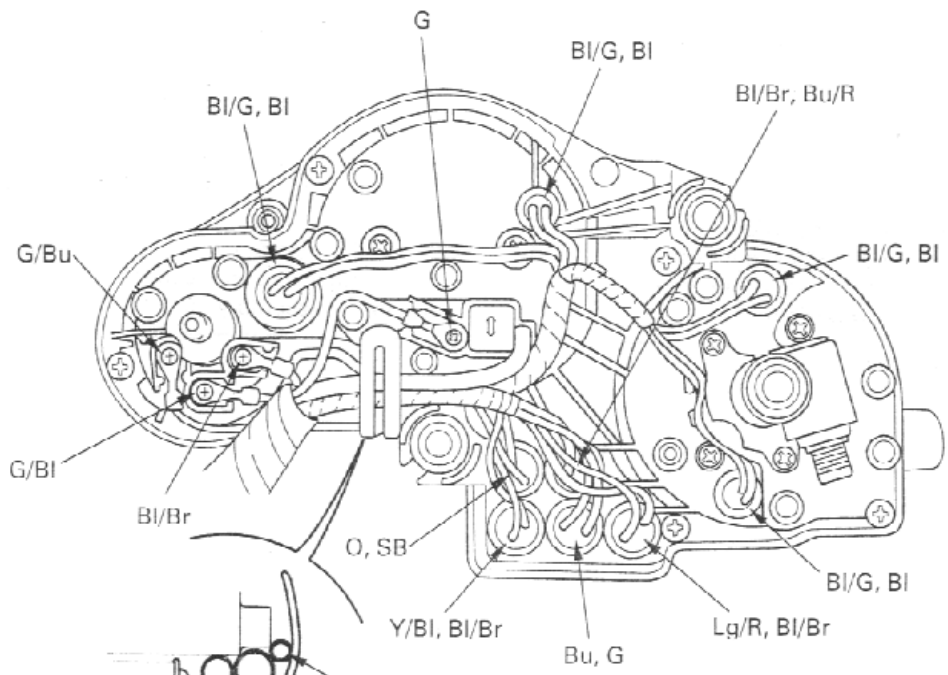
NOTE:

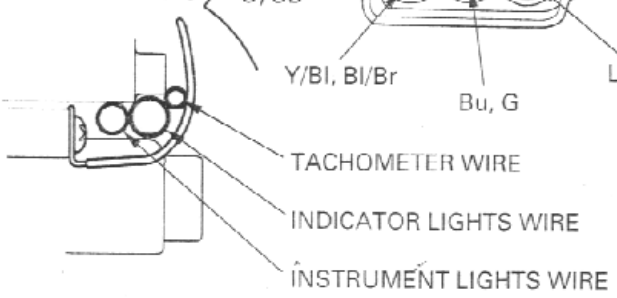
- Route the wires properly (page 1-21).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Combination meter mounting bolt	3	
(2)	Combination meter 3P (Black) connector	1	Remove the combination meter from the bracket, then disconnect the connectors.
(3)	Combination meter 9P (Black) connector	1	
(4)	Combination meter assembly	1	Disassembly/assembly (page 18-14)

Combination Meter Disassembly/Assembly ('93-'94)







Bl...Black
G...Green
Bu...Blue
R...Red
Br...Brown
Lg...Light green
O...Orange
SB...Sky blue
Y...Yellow

NOTE:

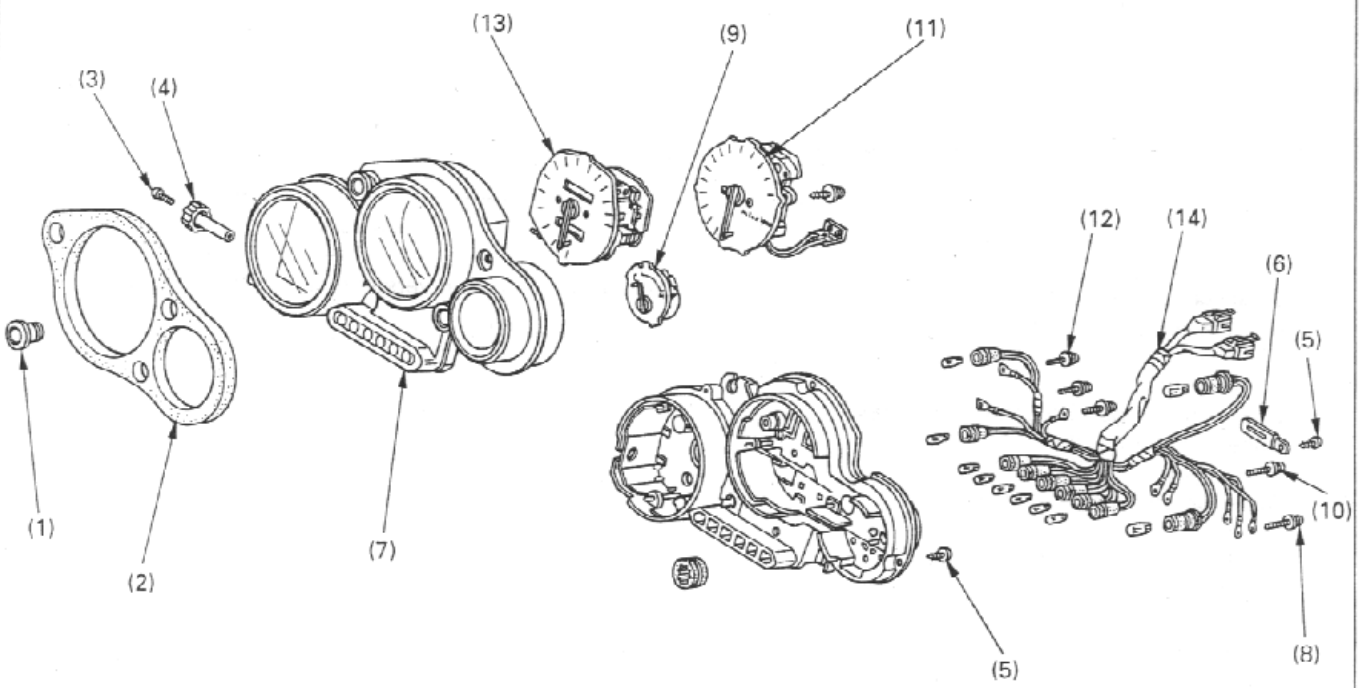
- Connect the terminals and install the sockets according to the color codes indicated on the lower case.
- Route the sub-harness as shown in the illustration.

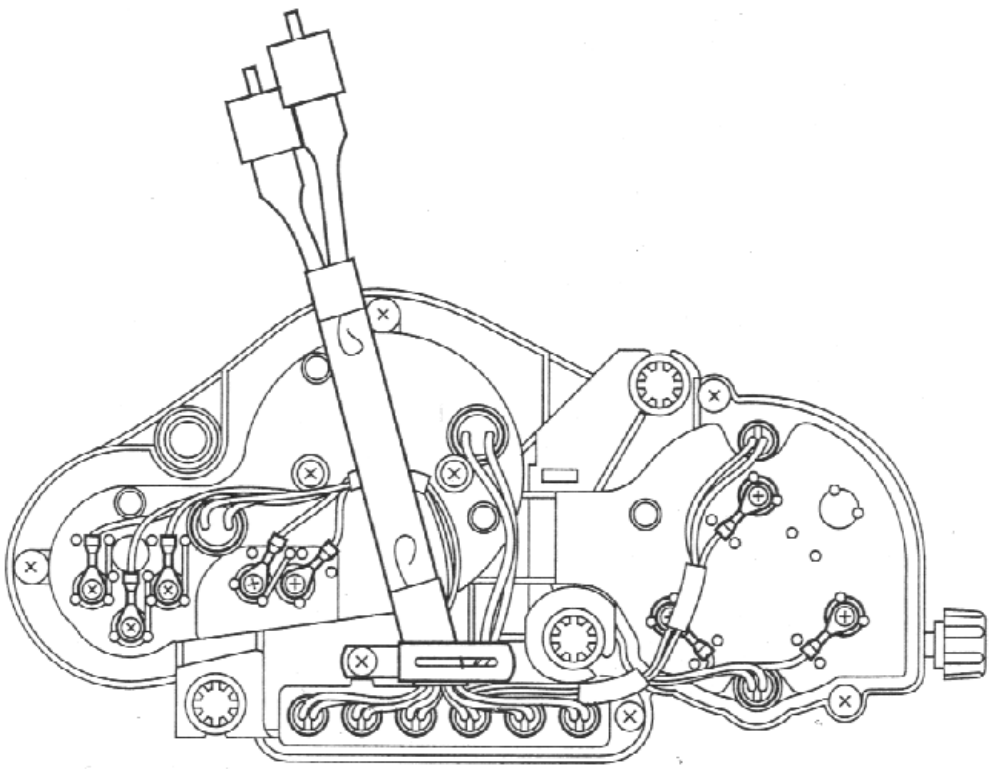
Requisite Service

- Combination meter removal/installation (page 18-8)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Front cover mounting screw	8	
(2)	Wire clamp	1	
(3)	Front cover	1	
(4)	Speedometer gearbox mounting screw	3	
(5)	Speedometer gearbox	1	
(6)	Reset knob	1	
(7)	Speedometer mounting screw	1	
(8)	Speedometer	1	
(9)	Tachometer mounting screw	2	
(10)	Tachometer	1	
(11)	Wire eyelet screw	3	
(12)	Coolant temperature gauge	1	
(13)	Indicator socket	9	
(14)	Combination meter sub-harness	1	
(15)	Lower case assembly	1	

Combination Meter Disassembly/Assembly (After '94)





NOTE:

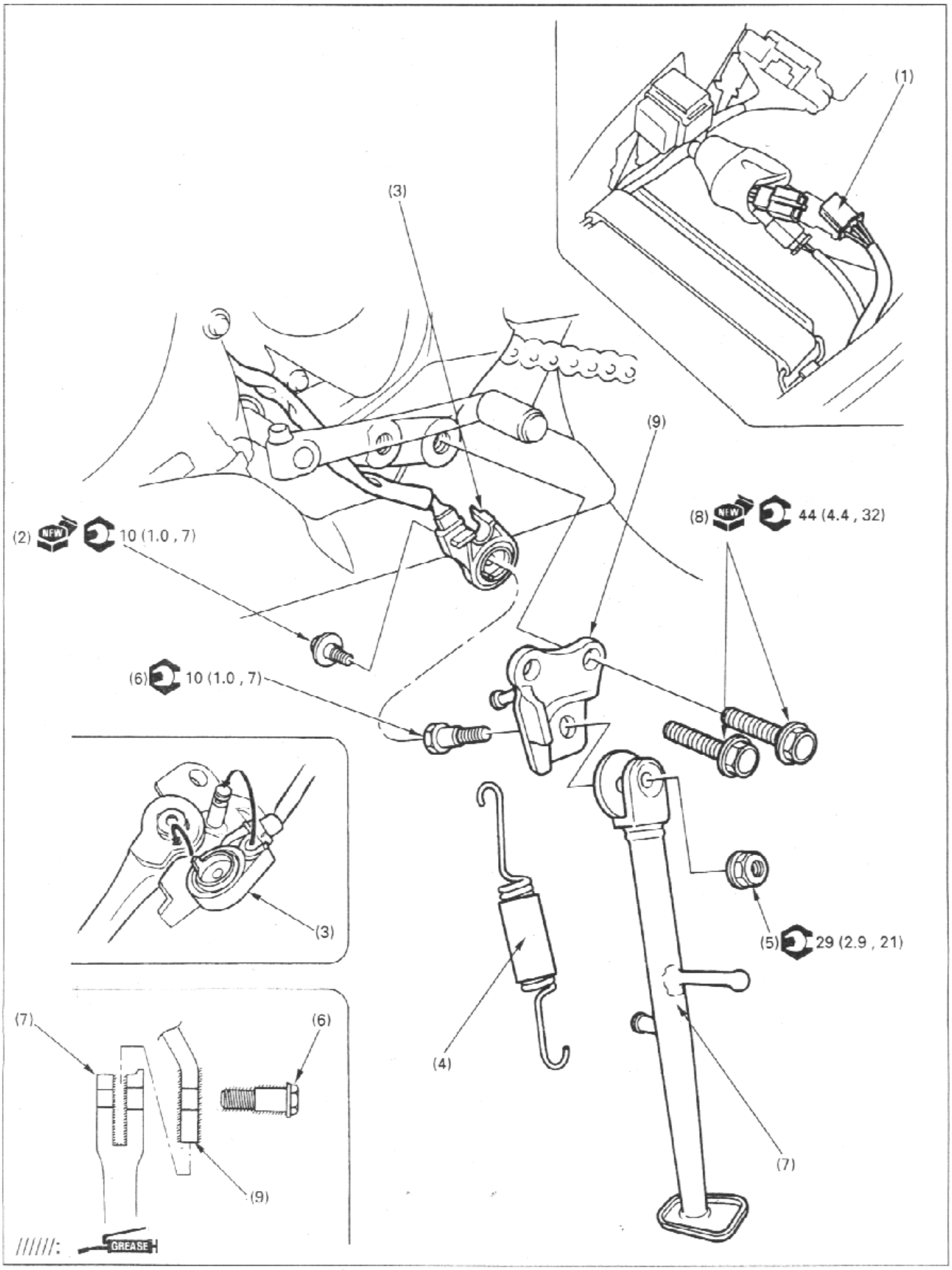
- Connect the terminals and install the sockets are according to the color codes indicated on the lower case.
- Route the sub-harness as shown in the illustration.

Requisite Service

- Combination meter removal/installation (page 18-9)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Front panel mounting screw	3	
(2)	Front panel	1	
(3)	Screw	1	
(4)	Trip meter knob	1	
(5)	Tapping screw	6	
(6)	Wire clamp	1	
(7)	Upper case	1	
(8)	Screw/washer, 3 x 22 mm	3	
(9)	Temperature meter	1	
(10)	Screw/washer, 3 x 22 mm	2	
(11)	Tachometer	1	
(12)	Screw/washer, 3 x 22 mm	3	
(13)	Speedometer	1	
(14)	Combination meter sub-harness	1	

Side Stand Switch Removal/Installation



NOTE:

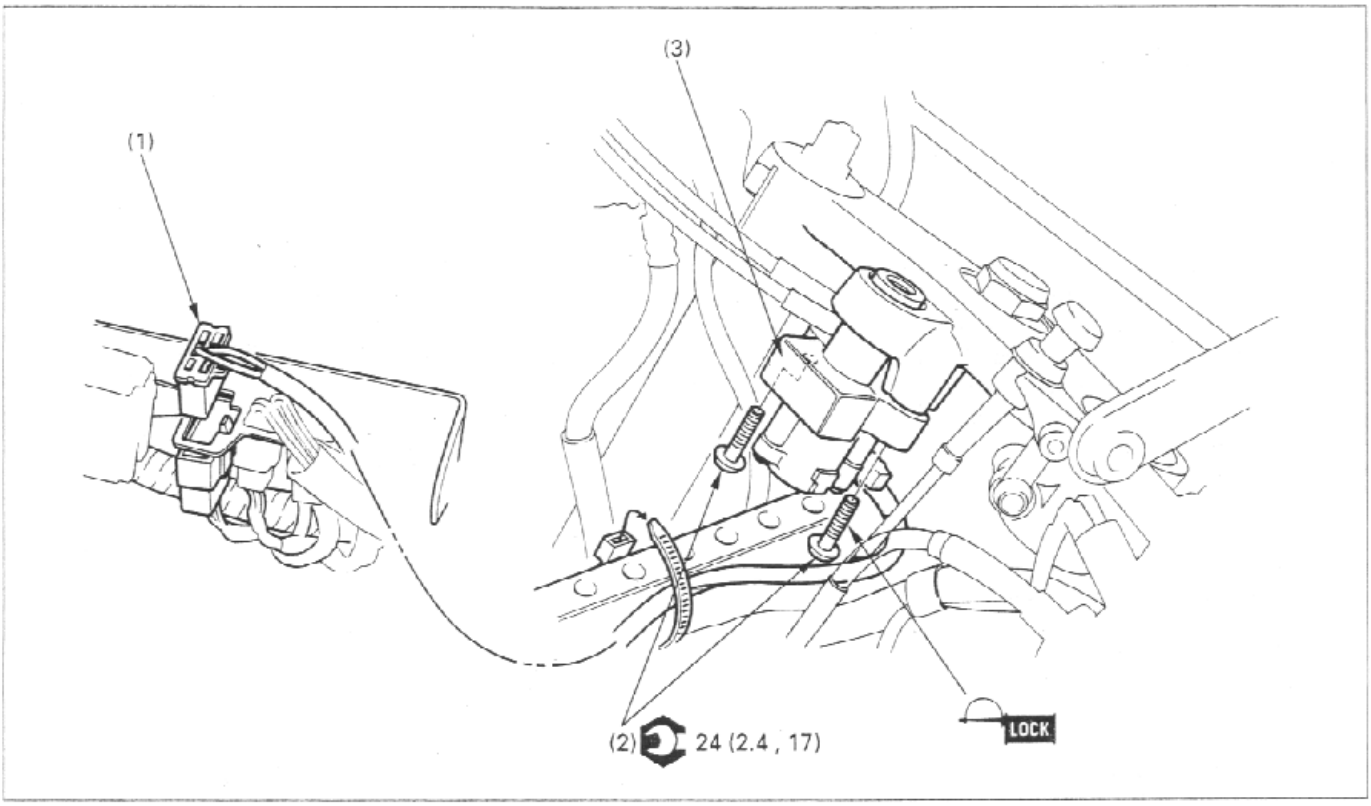
- Support the motorcycle securely using the hoist or other support.
- Route the wires properly (page 1-21).

Requisite Service

- Seat removal/installation (page 2-3)

	Procedure	Q'ty	Remarks
	Side Stand Switch Removal Order		Installation is in the reverse order of removal.
(1)	Side stand switch 3P (Green) connector	1	
(2)	Side stand switch mounting bolt	1	
(3)	Side stand switch	1	· At installation, align the side stand switch groove with the side stand bracket pin. · At installation, align the side stand switch pin with the side stand hole.
	Side Stand Removal Order		
(4)	Return spring	1	
(5)	Side stand pivot nut	1	
(6)	Side stand pivot bolt	1	At installation, tighten the pivot bolt to the specified torque, then tighten the pivot nut to the specified torque.
(7)	Side stand	1	
(8)	Side stand bracket bolt	2	
(9)	Side stand bracket	1	

Ignition Switch Removal/Installation



NOTE:

- Route the ignition switch wire properly (page 1-21).

Requisite Service

- Right upper cowl inner cover removal/installation (page 2-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Ignition switch 6P (Black) connector	1	Disconnect it at the connector holder.
(2)	Ignition switch mounting bolt	2	At installation, apply a locking agent to the threads.
(3)	Ignition switch	1	

Tachometer Inspection

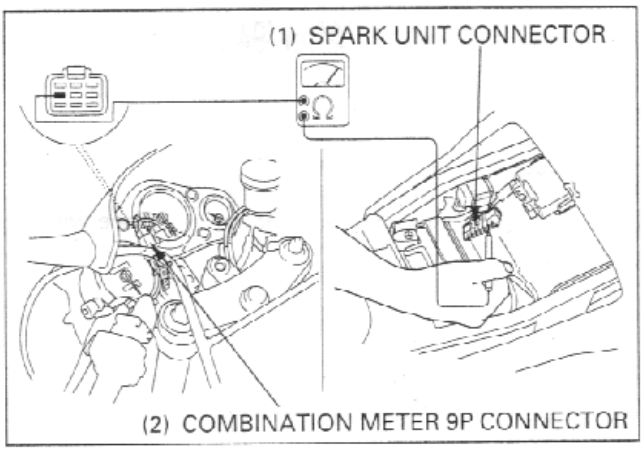
Disconnect the combination meter 9P (Black) connector.

Remove the seat and disconnect the spark unit multi-connector.

Check for continuity between the 9P (Black) and the spark unit multi-connector Yellow/Green terminals.

If there is no continuity, check the wire harness for an open circuit.

If there is continuity, replace the tachometer.



Fuel Cut Relay

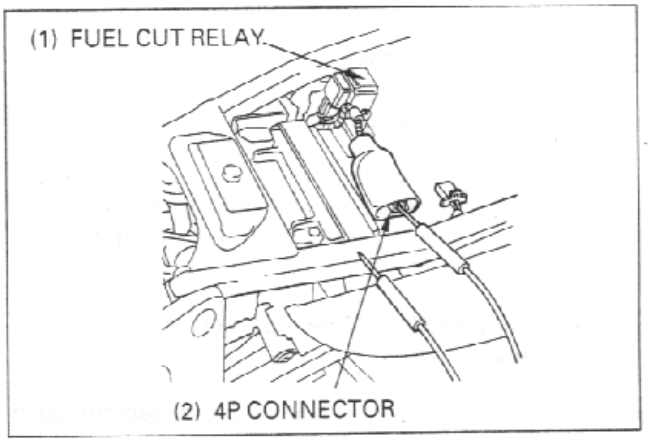
⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area.**
  Do not smoke or allow flames or sparks in your work area or where gasoline is stored.

Remove the seat (page 2-3).
Check the sub fuse (10A: IGN).
Check the relay 4P connector (white) for looseness and corrosion.

Disconnect the relay connector and test the wires on the main harness side.

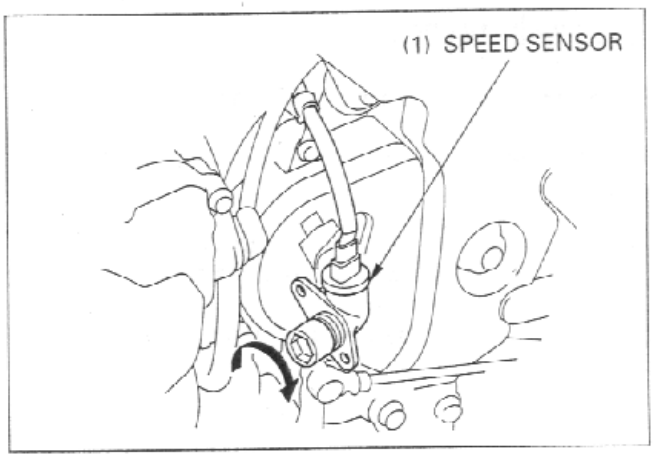
Item	Standard
Between the Black wire (+) and body ground (−) with the ignition switch "ON".	Battery voltage should exist.
Black/Blue wire between the pump relay and fuel pump.	Continuity
Blue/Yellow wire between the pump relay and spark unit.	Continuity
Yellow/Blue wire between the pump relay and spark unit.	Continuity



Speed Sensor Inspection (After '94)

Remove the speed sensor.

Check the speed sensor for damage.
Check the speed sensor for smooth operation.
If the speed sensor does not turn smoothly, replace with a new one.



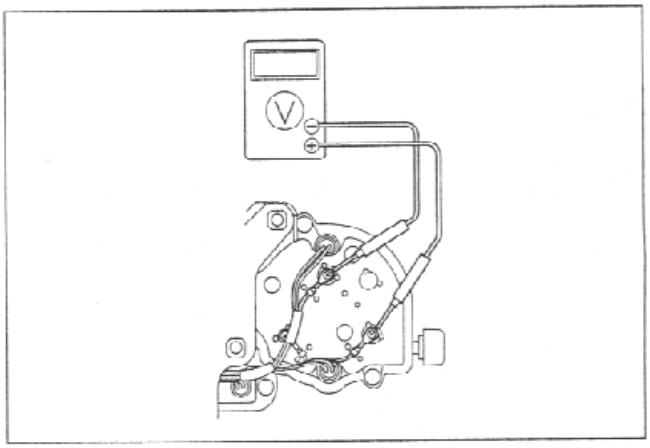
Output Signal Inspection

Remove the upper cowl (page 2-9).

Turn the ignition switch is ON.
Measure the voltage at the combination meter terminals with the ignition switch is ON while slowly turning the rear wheel by your hand.

Connection: Black/Red (+) – Green/Black ( )
Standard: Repeat 0 to 5V

If the measurement is out of specification, inspect the open circuit in wire harness.



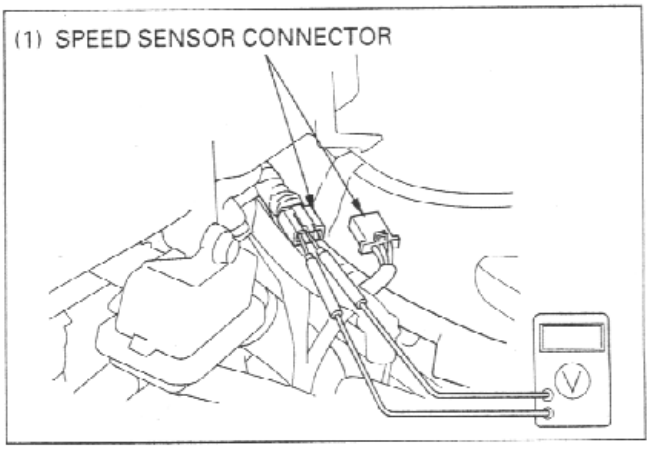
Wire Harness Inspection

Remove the fuel tank (page 2-12)

Disconnect the speed sensor 3P connector.
Turn the ignition switch is ON and measure the voltage at the 3P connector wire harness side.

Connection: Black/Brown (+) – Green/Black (–)
Standard: Battery voltage

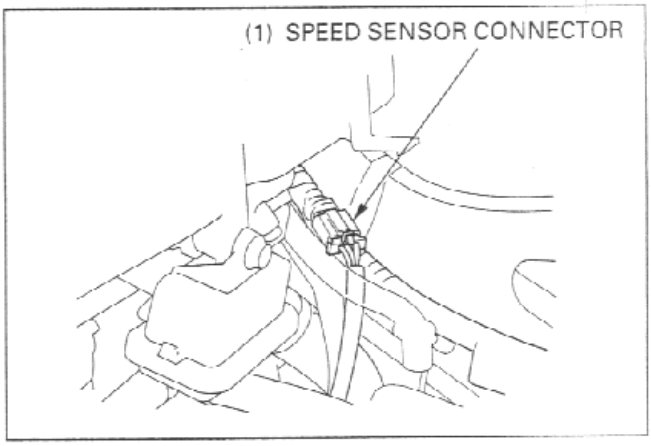
If there is no voltage, replace or repair the wire harness.



Removal/Installation

Remove the fuel tank (page 2-12).

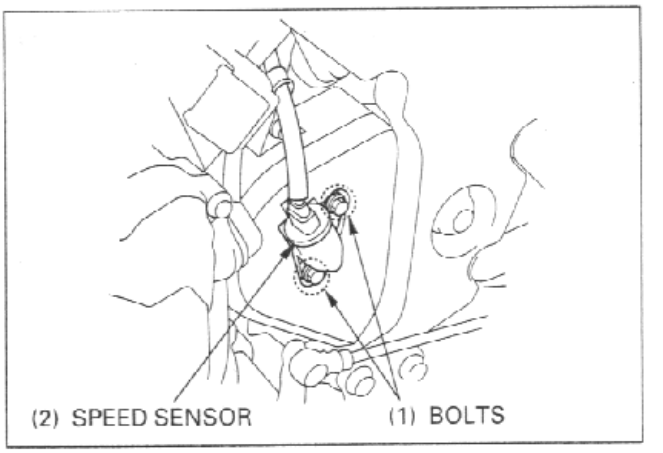
Disconnect the speed sensor 3P connector.



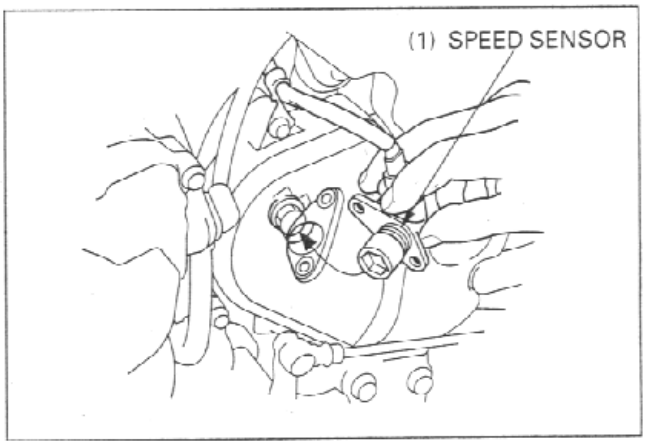
Remove the socket bolts and speed sensor.

NOTE:

- Release the sensor wire from the wire clamp.



Install the speed sensor in the reverse order of removal.



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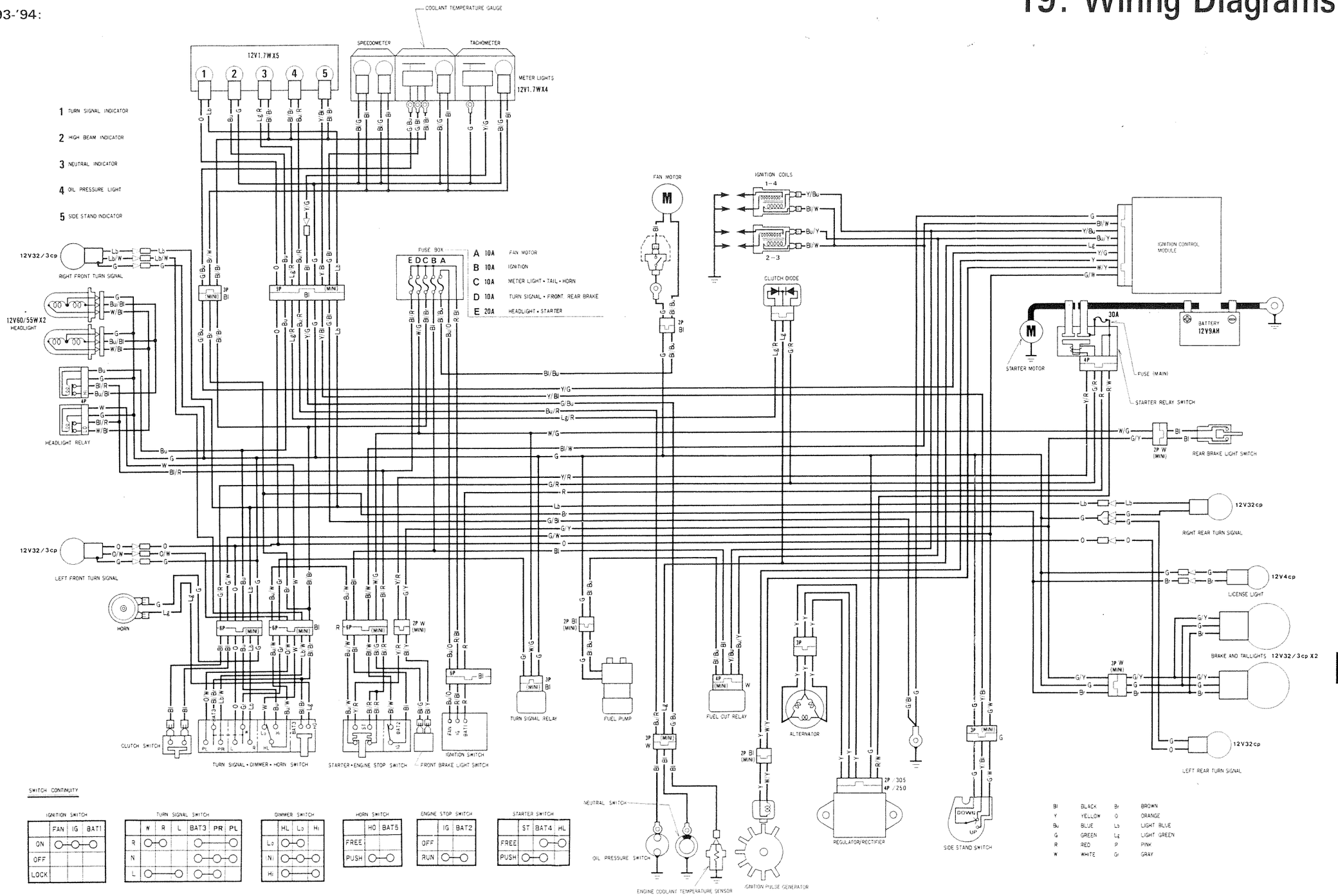

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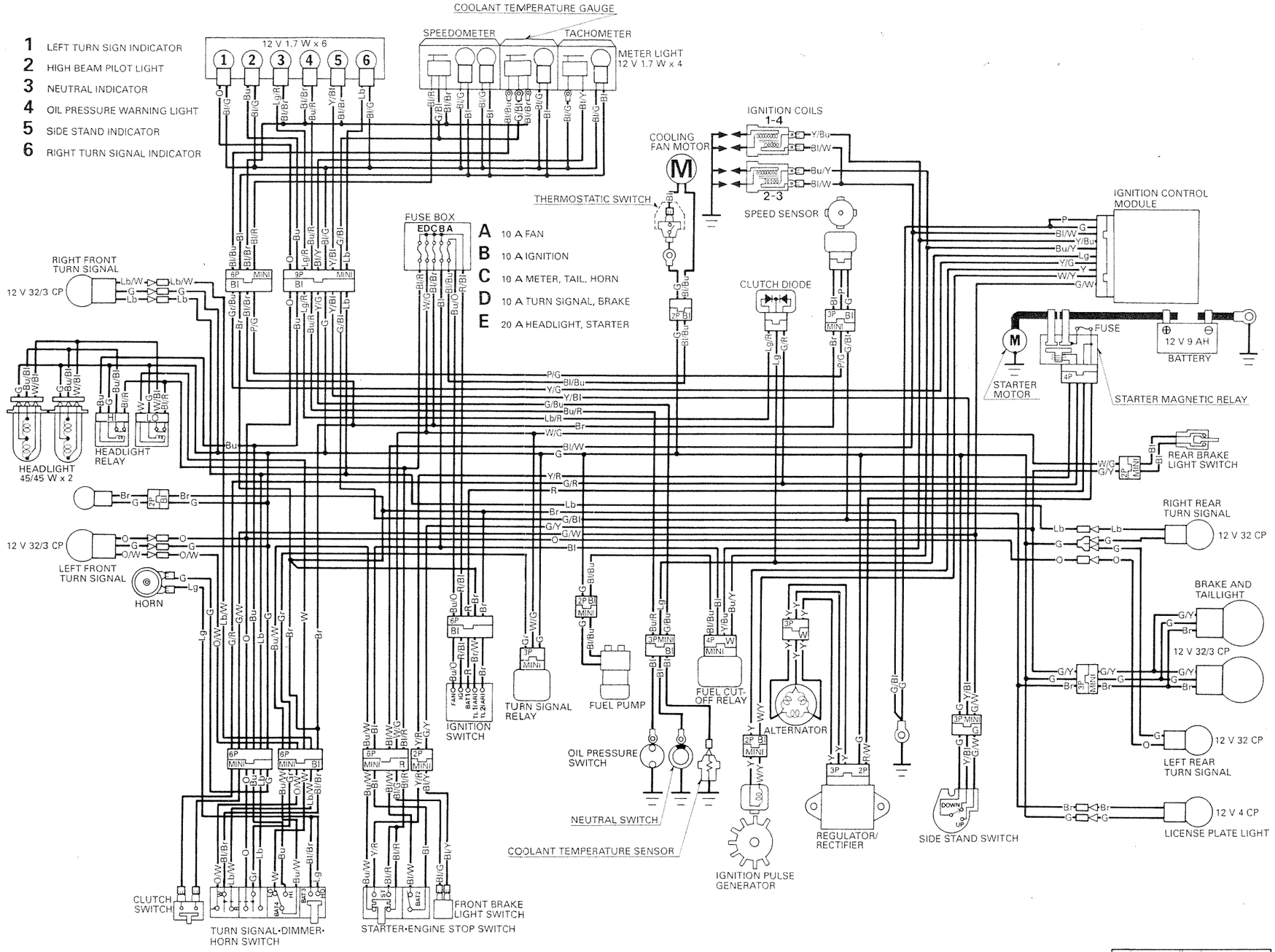
After '94:



Bl	BLACK	Br	BROWN
Y	YELLOW	O	ORANGE
Bu	BLUE	Lb	LIGHT BLUE
G	GREEN	Lg	LIGHT GREEN
R	RED	P	PINK
W	WHITE	Gr	GRAY

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20. Troubleshooting

Engine Does Not Start Or Is Hard To Start

		Possible Cause
1. Check the fuel flow to carburetor	Not Reaching Carburetor	· Clogged fuel line or filter · Sticking float valve · Clogged fuel tank breather · Faulty fuel pump · Faulty fuel cut relay · Loose or disconnected fuel pump lelay wire
Reaching Carburetor		
2. Perform a spark test	Weak Or No Spark	· Faulty spark plug · Fouled spark plug · Faulty ignition control module · Broken or shorted spark plug wire · Broken or shorted ignition coil · Faulty ignition switch · Faulty ignition pulse generator · Faulty engine stop switch · Loose or disconnected ignition system wires
Good Spark		
3. Remove and inspect spark plugs	Wet Plug	· Flooded carburetor · Choke closed · Throttle valve open · Air cleaner dirty
Good		
4. Start by following normal procedure	Engine Starts But Stops	· Improper choke operation · Carburetor incorrectly adjusted · Intake pipe leaking · Improper ignition timing (Faulty ignition coil or ignition pulse generator) · Fuel contaminated
Engine Does Not Fire		
5. Test cylinder compression	Low Compression	· Valve clearance too small · Valve stuck open · Worn cylinder and piston ring · Damaged cylinder head gasket · Seized valve · Improper valve timing

Engine Lacks Power

		Possible Cause
1. Raise wheels off the ground and spin by hand	Wheels Do Not Spin Freely	· Brake dragging · Worn or damaged wheel bearing
Wheel Spins Freely		
2. Check tire pressure	Pressure Low	· Faulty tire valve · Punctured tire
Pressure Normal		
3. Accelerate rapidly from low to second	Engine Speed Doesn't Change Accordingly When clutch Is Released	· Clutch slipping · Worn clutch discs/plates · Warped clutch discs/plates · Weak clutch spring · Additive in engine oil
Engine Speed Reduced When Clutch Is Released		
4. Accelerate lightly	Engine Speed Does Not Increase	· Carburetor choke closed · Clogged air cleaner · Restricted fuel flow · Clogged muffler · Pinched fuel tank breather
Engine Speed Increase		
5. Check ignition timing	Incorrect	· Faulty ignition control module · Faulty ignition pulse generator
Correct		
6. Test cylinder compression	Incorrect	· Valve stuck open · Worn cylinder and piston rings · Leaking head gasket · Improper valve timing
Normal		
7. Check carburetor for clogging	Clogged	· Carburetor not serviced frequently enough
Not clogged		
8. Remove spark plugs	Fouled Or Discolored	· Plugs not serviced frequently enough · Spark plugs are the incorrect heat range
Not fouled Or Discolored		
9. Check oil level and condition	Incorrect	· Oil level too high · Oil level too low · Contaminated oil
Correct		
10. Remove cylinder head cover and inspect lubrication	Valve Train Not Lubricated Properly	· Clogged oil passage · Clogged oil control orifice
Valve Train Lubricated Properly		

		Possible Cause
11. Check for engine overheating	Overheating →	· Coolant level low · Fan motor not working (faulty fan motor switch) · Thermostat stuck close · Excessive Carbon Build-up in Combustion chamber · Use of poor quality fuel · Clutch slipping · Lean fuel mixture · Wrong type of fuel
Not Overheating		
12. Accelerate or run at high speed	Engine Knocks →	· Worn piston and cylinder · Wrong type of fuel · Excessive Carbon Build-up in Combustion chamber · Ignition timing too advanced (Faulty ignition control module) · Lean fuel mixture
Engine Does Not Knock		

Poor Performance At Low And Idle Speed

		Possible Cause
1. Check carburetor pilot screw adjustment	Incorrect →	· See page section 5
Correct		
2. Check for leaking intake pipe	Leaking →	· Loose insulator clamp · Damaged insulator
No Leak		
3. Perform spark test	Weak Or Intermittent Spark →	· Faulty carbon or wet fouled spark plug · Faulty ignition control module · Faulty ignition coil · Broken or shorted spark plug wire · Faulty engine stop switch · Faulty ignition pulse generator · Faulty ignition switch · Loose or disconnected ignition system wires
Good Spark		
4. Check ignition timing	Incorrect →	· Improper ignition timing (Faulty ignition control module)

Poor Performance At High Speed

		Possible Cause
1. Disconnect fuel tube at carburetor	Fuel Flow Restricted	· Clogged fuel line · Clogged fuel tank breather · Clogged fuel filter · Faulty fuel pump or relay
Fuel Flows Freely		
2. Remove the the carburetor and check for clogged jets	Clogged	· Clean
Not Clogged		
3. Check valve timing	Incorrect	· Cam sprocket not installed properly
Correct		
4. Check ignition timing	Incorrect	· Faulty ignition control module · Faulty ignition pulse generator
Correct		
5. Check valve spring	Weak	· Faulty spring
Not Weak		

Poor Handling

	Possible Cause
1. If steering is heavy	· Steering stem adjusting nut too tight · Damaged steering head bearings
2. If either wheel is wobbling	· Excessive wheel bearing play · Bent rim · Improperly installed wheel hub · Swingarm pivot bearing excessively worn · Bent frame
3. If the motorcycle pulls to one side	· Faulty shock absorber · Front and rear wheel not aligned · Bent fork · Bent swingarm · Bent axle

21. Index