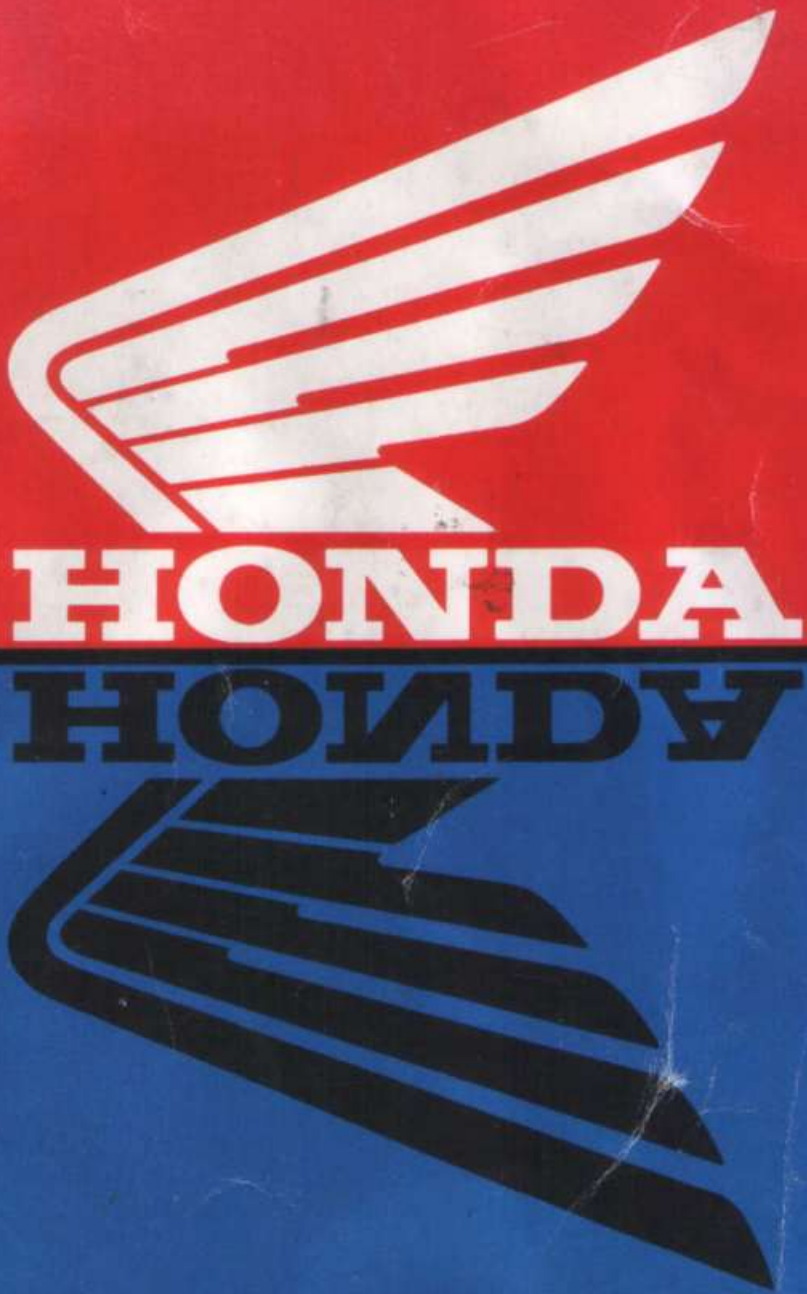
HONDA

SHOP MANUAL



CB1000P

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£30

Introduction

This service manual describes the service procedures for the CB1000.
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.
Throughout the manual, the following abbreviations are used to identify individual models.

CODE	AREA (TYPE)
A	49 state
AC	California

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 19 Troubleshooting.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. HONDA MOTOR CO., LTD. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON HONDA MOTORCYCLES, MOTOR SCOOTERS OR ATVS.

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SERVICE PUBLICATION OFFICE

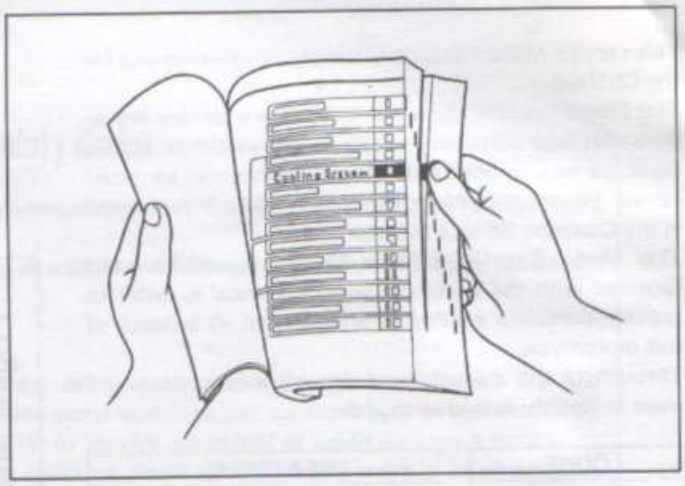
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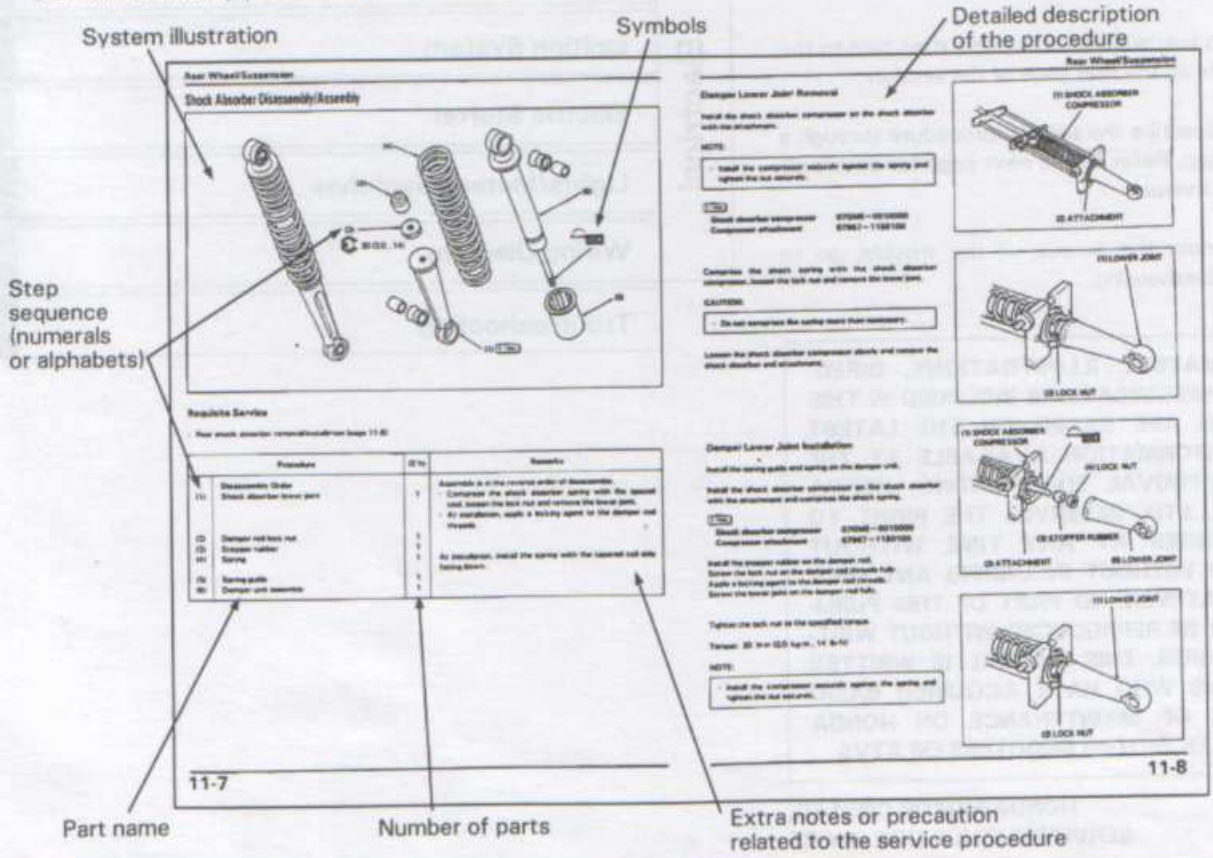
Finding The Information You Need



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

Note On The Explanation Method Of This Manual

- The removal and installation of parts are for the most part illustrated by large and clear illustrations that should provide the reader with visual aid in understanding the major point for servicing.
- The system illustrations are augmented by 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 separately.
  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 removed/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 a middle strength locking agent unless otherwise specified.
	Apply sealant.
	Use brake fluid DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

1. General Information

General Safety	1-1	Lubrication & Seal Points	1-20
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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 may lead to death.**

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

Gasoline

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

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**
  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 coolant contacts your skin, wash the affected areas immediately with soap and water. If it contacts your eyes, flush them thoroughly with fresh water and get immediate medical attention. If it is swallowed, the victim must be forced to vomit, then rinse mouth and throat with fresh water before obtaining medical attention. Because of these dangers, always store coolant in a safe place, away from the reach of children.

Nitrogen Pressure

For shock absorbers with a gas-filled reservoir:

⚠WARNING

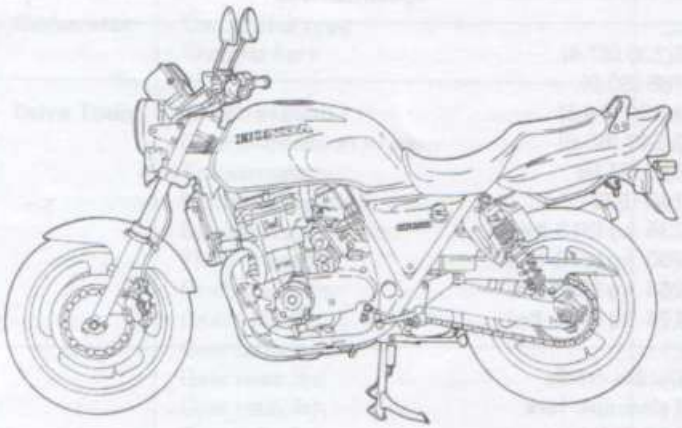
- **The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.**
- **Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury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

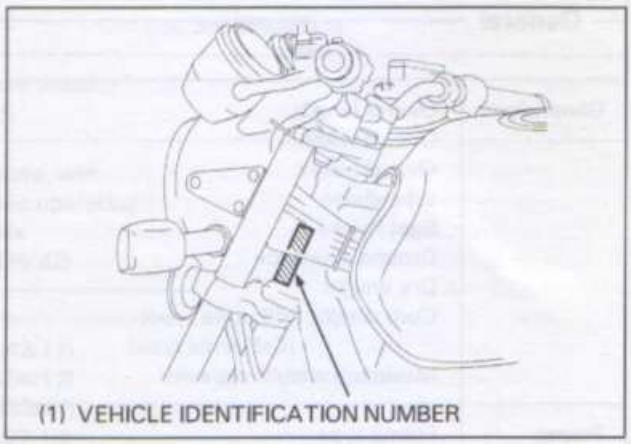
Battery Hydrogen Gas & Electrolyte

⚠WARNING

- **The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.**
- **The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
  - **—If electrolyte gets on your skin, flush with water.**
  - **—If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician 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.**

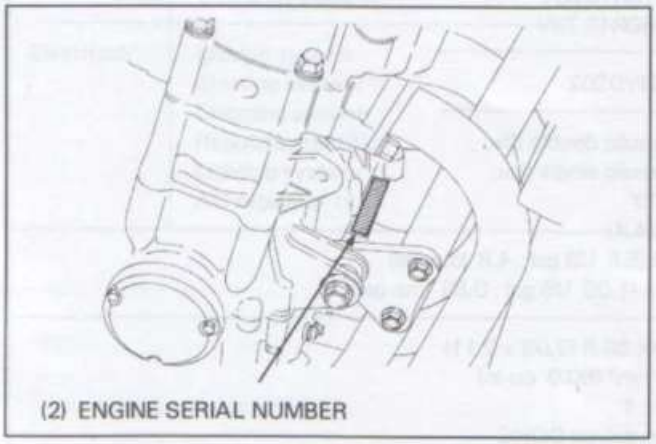
Model Identification





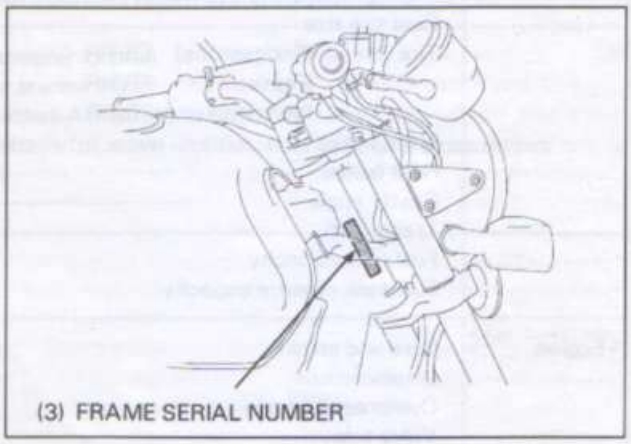
(1) VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) is located on the Safety Certification Label on the left side of the steering head.



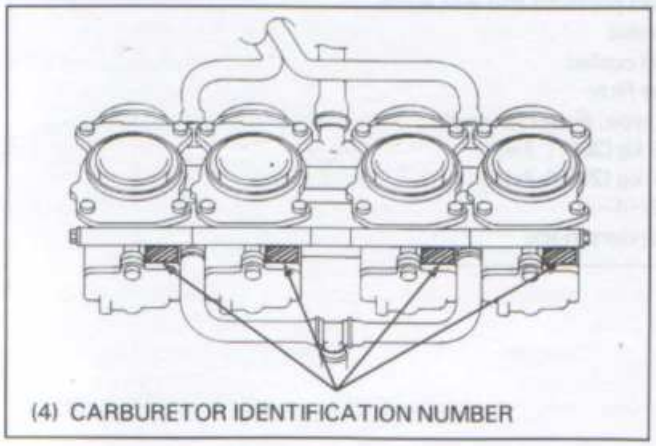
(2) ENGINE SERIAL NUMBER

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



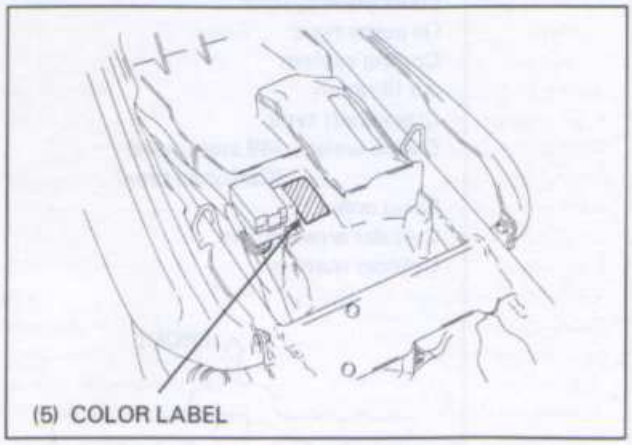
(3) FRAME SERIAL NUMBER

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



(4) CARBURETOR IDENTIFICATION NUMBER

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



(5) COLOR LABEL

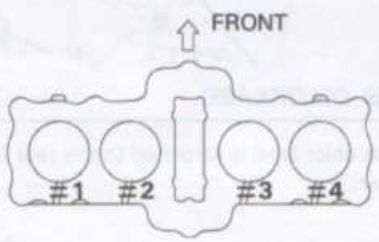
The color label is attached to the rear fender under the seat.

Specifications

Unit : mm (in)

General

Item		Specifications
Dimensions	Overall length	2,220 (87.4)
	Overall width	785 (30.9)
	Overall height	1,130 (44.5)
	Wheelbase	1,540 (60.6)
	Seat height	810 (31.9)
	Ground clearance	140 (5.5)
	Dry weight	235 kg (518 lbs)
	Curb weight (49 state type)	260 kg (573 lbs)
	(California type)	263 kg (580 lbs)
	Maximum weight capacity	174 kg (384 lbs)
Frame	Frame type	Double cradle
	Front suspension	Telescopic fork
	Front wheel travel	130 (5.1)
	Rear suspension	Swingarm
	Rear wheel travel	117 (4.6)
	Front tire size	120/70R18 59V
	Rear tire size	170/60R18 73V
	Tire brand (Bridgestone) FR/RR	D202F/D202
	(Dunlop) FR/RR	
	(Metzeler) FR/RR	
	Front brake	Hydraulic double disc
	Rear brake	Hydraulic single disc
	Caster angle	27°00′
	Trail length	111 (4.4)
	Fuel tank capacity	22 ℓ (5.8 US gal , 4.8 Imp gal)
	Fuel tank reserve capacity	4.0 ℓ (1.06 US gal , 0.88 Imp gal)
Engine	Bore and stroke	77.0 x 53.6 (3.03 x 2.11)
	Displacement	998 cm³ (60.9 cu-in)
	Compression ratio	10.0 : 1
	Valve train	Chain driven DOHC
	Intake valve opens at 1mm lift	0° BTDC
	Intake valve closes at 1mm lift	40° ABDC
	Exhaust valve closes at 1mm lift	40° BBDC
	Exhaust valve opens at 1mm lift	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, 6 main journals
	Engine weight (49 state type)	93.5 kg (206.1 lbs)
	(California type)	94.6 kg (208.6 lbs)
	Firing order	1−2−4−3
	Cylinder arrangement	4 cylinders in-line
	Cylinder number	



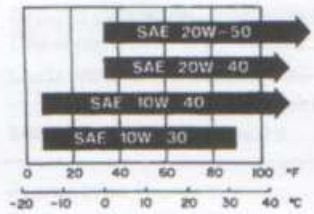
Unit : mm (in)

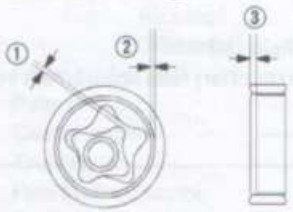
General (Cont'd)

Item		Specifications
Carburetor	Carburetor type	Constant velocity
	Throttle bore	34 (1.3)
Drive Train	Clutch system	Multi-plate, wet
	Clutch operation system	Hydraulic operating
	Transmission	5 speeds
	Primary reduction	1.785 (75/42)
	Secondary reduction	———
	Third reduction	———
	Final reduction	2.470 (42/17)
	Gear ratio 1st	2.833 (34/12)
	Gear ratio 2nd	1.941 (33/17)
	Gear raito 3rd	1.500 (27/18)
	Gear ratio 4th	1.217 (28/23)
	Gear ratio 5th	1.040 (26/25)
	Gear ratio 6th	———
	Gear ratio reverse	———
	Gearshift pattern	Left foot operated return system 1—N—2—3—4—5
Electrical	Ignition system	Full transistor ignition
	Starting system	Electric starter motor
	Charging system	Triple phase AC with field coil
	Regulator/rectifier	Triple phase/full wave rectifier; field coil current regulatator
	Lighting system	Battery
	AC regulator type	———

Unit : mm (in)

Lubrication System

Item	Standard	Service Limit
Engine oil capacity at draining	3.9 ℓ (4.1 US qt , 3.4 Imp qt)	———
at disassembly	4.6 ℓ (4.9 US qt , 4.0 Imp qt)	———
at oil filter change	4.0 ℓ (4.2 US qt , 3.5 Imp qt)	———
Recommended engine oil	Use Honda 4-stroke oil or an equivalent motor oil certified to meet API service classification SF or SG.	———
OIL VISCOSITIES 	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	588—686 kPa (6.0—7.0 kg/cm², 85—100 psi) at 5,000 rpm (80°C/176°F)	———
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)



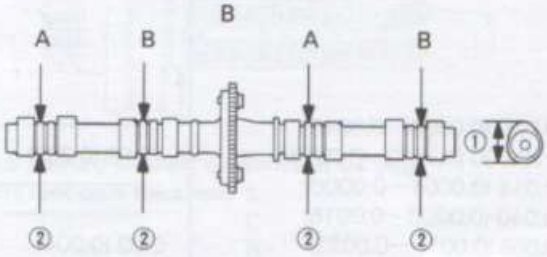
Fuel System

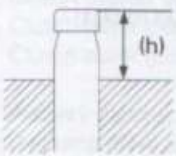
Carburetor identification number	(49 state type)	VP48A	———
	(California type)	VP47A	———
Main jet		#108	———
	(California type)	———	———
	(High altitude)	———	———
	(2, 3)	———	———
	(1, 4)	———	———
	(Front)	———	———
	(Rear)	———	———
Slow jet		#38	———
Jet needle position		———	———
Pilot screw initial opening		See page 6-16	———
Pilot screw high altitude adjustment		See page 6-17	———
Pilot screw final opening		See page 6-16	———
Air screw initial opening		———	———
Air screw high altitude adjustment		———	———
Float level		13.7 (0.54)	———
Carburetor vacuum difference		Within 40 mmHg (1.6 inHg)	———
Base carburetor		No.3 carburetor	———
Idle speed	(49 state type)	1,000 ± 100 rpm	———
	(California type)	1,100 ± 100 rpm	———
Throttle grip free play		2—6 (0.1—0.2)	———
Accelerator pump clearance		———	———
Pulse secondary air injection (RAIR) control valve vacuum pressure		370—380 mmHg (14.6—15.0 inHg)	———

Unit : mm (in)

Cylinder Head

Item	Standard	Service Limit
Cylinder compression	1,350 kPa (13.5 kg/cm², 192 psi) / 250 rpm	———
Cylinder compression difference	———	———
Valve clearance IN	0.10 ± 0.020 (0.004 ± 0.0008)	———
EX	0.16 ± 0.020 (0.006 ± 0.0008)	———
Cylinder head warpage	———	———
Cam lobe height ① IN	35.0249—35.1049 (1.37893—1.38208)	34.97 (1.377)
IN (California type)	———	———
EX	35.1899—35.2699 (1.38543—1.38858)	35.14 (1.383)
EX (California type)	———	———
Camshaft runout ②	———	0.03 (0.001)
Camshaft oil clearance A	0.020—0.062 (0.0008—0.0024)	0.12 (0.005)
B	0.050—0.092 (0.0020—0.0036)	0.14 (0.006)
Camshaft journal O. D. #1, 4	27.959—27.980 (1.1007—1.1016)	———
#2, 3	27.929—27.950 (1.0996—1.1004)	———
Camshaft holder I.D. A	———	———
B	———	———
Valve stem O. D. IN	5.475—5.490 (0.2156—0.2161)	5.47 (0.215)
EX	5.455—5.470 (0.2148—0.2154)	5.45 (0.215)
Valve guide I. D. IN	5.500—5.512 (0.2165—0.2170)	5.55 (0.219)
EX	5.500—5.512 (0.2165—0.2170)	5.55 (0.219)
Stem-to-guide clearance IN	0.010—0.037 (0.0004—0.0015)	———
EX	0.030—0.057 (0.0012—0.0022)	———
Valve guide projection above cylinder head IN (h)	17.8—18.0 (0.70—0.71)	———
EX (h)	17.8—18.0 (0.70—0.71)	———
Valve seat width IN	0.90—1.10 (0.035—0.043)	1.5 (0.06)
EX	0.90—1.10 (0.035—0.043)	1.5 (0.06)
Valve spring free length IN	43.55 (1.715)	42.3 (1.67)
EX	43.55 (1.715)	42.3 (1.67)
Inner IN	———	———
Outer IN	———	———
Inner EX	———	———
Outer EX	———	———
Rocker arm I. D. IN	———	———
EX	———	———
Rocker arm shaft O. D. IN	———	———
EX	———	———
Rocker arm-to-rocker arm shaft clearance	———	———
Valve lifter O. D.	———	———
Valve lifter bore I. D.	———	———
Hydraulic tappet adjuster assist spring free length	———	———
Hydraulic tappet adjuster compression stroke with kerosene	———	———



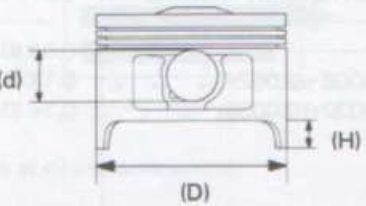


Before guide installation:
1. Chill the valve guide in the freezer section of a refrigerator for about an hour.
2. Heat the cylinder head to 130—140°C (275—290°f)

Unit : mm (in)

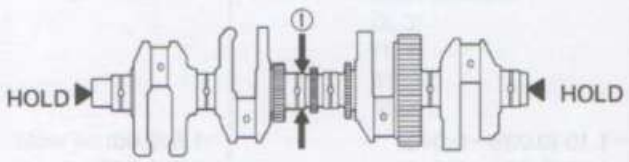
Cylinder/Piston

Item	Standard	Service Limit
Cylinder I. D.	77.000—77.010 (3.0315—3.0319)	77.10 (3.035)
Cylinder out of round	———	0.05 (0.002)
Cylinder taper	———	0.05 (0.002)
Cylinder warpage	———	0.05 (0.002)
Piston mark direction	"IN" mark facing toward the intake side	———
Piston O. D. (D)	76.970—76.990 (3.0303—3.0311)	76.87 (3.026)
Piston O. D. measurement point (H)	15 (0.6) from the bottom	———
Piston pin hole I. D. (d)	20.002—20.008 (0.7875—0.7877)	20.06 (0.790)
Cylinder-to-piston clearance	0.010—0.040 (0.0004—0.0016)	———
Piston pin O. D.	19.994—20.000 (0.7872—0.7874)	19.98 (0.787)
Piston-to-piston pin clearance	0.002—0.014 (0.0001—0.0006)	———
Connecting rod-to-piston pin clearance	0.016—0.040 (0.0006—0.0016)	———
Top ring-to-ring groove clearance	0.025—0.055 (0.0010—0.0022)	0.09 (0.004)
Second ring-to-ring groove clearance	0.015—0.045 (0.0006—0.0018)	0.10 (0.004)
Top ring end gap	0.250—0.400 (0.0098—0.0157)	0.58 (0.023)
Second ring end gap	0.320—0.470 (0.0126—0.0185)	0.65 (0.026)
Oil ring (side rail) end gap	0.300—0.900 (0.0118—0.0354)	1.1 (0.04)
Top ring mark	Marking facing up	———
Second ring mark	Marking facing up	———



Crankshaft

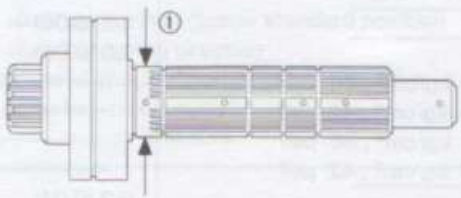
Connecting rod small end I. D.	20.016—20.034 (0.7880—0.7887)	20.08 (0.791)
Connecting rod big end side clearance	0.05—0.20 (0.002—0.008)	0.3 (0.01)
radial clearance	———	———
Crankshaft runout ①	———	0.03 (0.001)
Crankpin oil clearance	0.028—0.052 (0.0011—0.0020)	0.08 (0.003)
Crankpin bearing selection	See page 10-18	———
Main journal oil clearance	0.021—0.045 (0.0008—0.0018)	0.08 (0.003)
Connecting rod bearing selection	See page 10-19	———



Unit : mm (in)

Transmission

Item	Standard	Service Limit
Transmission gear I. D. M5	31.000—31.025 (1.2205—1.2215)	31.05 (1.222)
C2, C3, C4	33.000—33.025 (1.2992—1.3002)	33.05 (1.301)
Transmission gear bushing O. D. M5	30.955—30.980 (1.2187—1.2197)	30.93 (1.218)
C2, C3, C4	32.955—32.980 (1.2974—1.2984)	32.93 (1.296)
Transmission gear bushing I. D. C2	29.985—30.006 (1.1805—1.1813)	30.02 (1.182)
Gear-to-bushing clearance at M5 gear	0.020—0.070 (0.0008—0.0028)	———
at C2, C3, C4 gear	0.020—0.070 (0.0008—0.0028)	———
Mainshaft O. D. at clutch outer guide ①	———	———
Countershaft O. D. at C2 gear bushing ①	29.950—29.975 (1.1791—1.1801)	29.92 (1.178)



Gear bushing-to-shaft clearance at C2 gear	0.010—0.056 (0.0004—0.0022)	———
Shift fork claw thickness L	5.43—5.50 (0.214—0.217)	5.1 (0.20)
C	6.43—6.50 (0.253—0.256)	6.1 (0.24)
R	5.93—6.00 (0.233—0.236)	5.6 (0.22)
Shift fork I. D. L	14.000—14.018 (0.5512—0.5519)	14.04 (0.553)
C	14.000—14.018 (0.5512—0.5519)	14.04 (0.553)
R	14.000—14.021 (0.5512—0.5520)	14.04 (0.553)
Shift fork shaft O. D. at L shift fork	13.957—13.968 (0.5495—0.5499)	13.90 (0.547)
at C shift fork	13.957—13.968 (0.5495—0.5499)	13.90 (0.547)
at R shift fork	13.957—13.968 (0.5495—0.5499)	13.90 (0.547)

Clutch System

Recommended clutch fluid	DOT 4 brake fluid	———
Clutch master cylinder I. D.	14.000—14.043 (0.5512—0.5529)	14.06 (0.554)
Clutch master piston O. D.	13.957—13.984 (0.5495—0.5506)	13.94 (0.549)
Clutch outer I. D.	47.005—47.030 (1.8506—1.8516)	47.10 (1.854)
Clutch outer guide O. D.	———	———
I. D.	27.995—28.012 (1.1022—1.1028)	28.08 (1.106)
Primary damper shaft O. D. at clutch outer guide	———	———
Oil pump drive sprocket I. D.	———	———
Clutch center I. D.	———	———
One way clutch inner O. D.	———	———
Clutch spring free height	———	———
Clutch spring free length	45.60 (1.795)	43.7 (1.72)
Clutch disc thickness A	3.42—3.58 (0.135—0.141)	3.1 (0.12)
B	3.72—3.88 (0.146—0.153)	3.1 (0.12)
Clutch plate warpage	———	0.30 (0.012)
Centrifugal clutch drum I. D.	———	———
bushing O. D.	———	———
Centrifugal clutch center guide I. D.	———	———
O. D.	———	———
Centrifugal clutch center guide collar height	———	———
Centrifugal clutch spring free length	———	———
Clutch lining thickness	———	———
Crankshaft O. D. at clutch center	———	———

Unit : mm (in)

Cooling System

Item	Standard	Service Limit
Coolant capacity (Radiator and engine)	2.8 ℓ (0.74 US gal , 0.62 Imp gal)	———
(Reserve tank)	0.4 ℓ (0.11 US gal , 0.09 Imp gal)	———
Radiator cap relief pressure	108—137 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	8.0 (0.31) min.	———

Wheels/Tires

Minimum tire tread depth (FR)	———	1.5 (0.06)
(RR)	———	2.0 (0.08)
Cold tire pressure Rider only (FR)	250 kPa (2.50 kg/cm² , 36 psi)	———
Rider only (RR)	290 kPa (2.90 kg/cm² , 42 psi)	———
Rider and passenger (FR)	250 kPa (2.50 kg/cm² , 36 psi)	———
Rider and passenger (RR)	290 kPa (2.90 kg/cm² , 42 psi)	———
Front and rear axle runout	———	0.2 (0.01)
Front and rear wheel runout (Radial)	———	2.0 (0.08)
(Axial)	———	2.0 (0.08)
Front wheel hub-to-rim distance	———	———
Front wheel hub standard surface	———	———
Rear wheel hub-to-rim distance	———	———
Rear wheel hub standard surface	———	———
Wheel balance weight (Front)	———	60 g (2.1 oz) max.
(Rear)	———	60 g (2.1 oz) max.
Drive chain slack	25—35 (1—1-3/8)	———
Drive chain size/link (DID)	DID 50VA7-116LE	———
(RK)	RK 50HFO Z3-116LE	———

Front Suspension

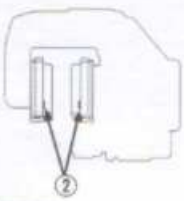
Fork spring free length	381.6 (15.02)	376.9 (14.84)
Fork spring free length A	———	———
B	———	———
Fork spring direction	Tightly wound coil end facing down	———
Fork tube runout	———	0.2 (0.01)
Recommended fork oil	Pro Honda Suspension Fluid SS-8	———
Fork oil level	142 (5.6)	———
Fork oil level (R)	———	———
(L)	———	———
Fork oil capacity	492 cc (16.6 US oz , 17.3 Imp oz)	———
Fork oil capacity (R)	———	———
(L)	———	———
Fork air pressure	———	———
Steering bearing preload	1.10—1.60 kg (2.43—3.53 lbs)	———

Unit : mm (in)

Rear Suspension

Item	Standard	Service Limit
Shock absorber spring free length	251.6 (9.91)	246.6 (9.71)
Shock absorber spring free length (R)		
(L)		
Damper gas pressure		
Damper compressed gas		
Damper rod compressed force at 10 mm (0.4 in) compressed	6.50—6.85 kg (14.33—15.10 lbs)	
Damper drilling point (for disposal purposes)	See page 12-5	
Shock absorber spring installed length (Standard)		
(Adjustable range)		
Shock absorber spring adjuster standard position		
Shock absorber spring direction	Tightly wound coil end facing down	
Recommended shock absorber oil		
Shock absorber oil capacity		
air pressure		

Brakes

Front	brake fluid	DOT 4	
	brake lever free play		
	brake pad indicator	To the groove end ①	
			
	brake disc thickness	4.8—5.2 (0.19—0.20)	4.0 (0.16)
	brake disc runout		0.15 (0.006)
	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.		
	caliper cylinder I. D. (Upper)	30.230—30.280 (1.1902—1.1921)	30.29 (1.193)
	(Lower)	27.000—27.050 (1.0630—1.0650)	27.06 (1.065)
	caliper piston O. D.		
	caliper piston O. D. (Upper)	30.148—30.198 (1.1869—1.1889)	30.14 (1.187)
	(Lower)	26.935—26.968 (1.0604—1.0617)	26.91 (1.059)
	brake drum I. D.		
	brake lining thickness		
Rear	brake fluid	DOT 4	
	brake pedal height		
	brake pedal free play		
	brake pad wear indicator	To the groove ②	
			
	brake disc thickness	5.8—6.2 (0.23—0.24)	5.0 (0.20)
	brake disc runout		0.10 (0.004)
	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.	38.180—38.230 (1.5031—1.5051)	38.24 (1.506)
	caliper piston O. D.	38.115—38.148 (1.5006—1.5019)	38.09 (1.500)
	brake drum I. D.		
	brake lining thickness		

Unit : mm (in)

Battery/Charging System

Item	Standard	Service Limit
Alternator charging coil resistance (At 20°C/68°F)	0.3—0.5Ω	———
field coil resistance (At 20°C/68°F)	2.3—2.9Ω	———
collar spring free length	2.1 (0.08)	1.8 (0.07)
Regulator/rectifier regulated voltage	13.5—15.5V at 5,000 rpm	———
Battery capacity	12V—10AH	———
	(Maintenance free battery: YTX12-BS)	
Specified current leakage	———	20mA max.
Battery specific gravity (Fully charged)	———	———
(Needs charged)	———	———
Battery charging rate (Normal)	1.2A x 5—10h	———
(Quick)	5.0A x 1h	———
Battery voltage (Fully charged at 20°C/68°F)	Over 12.8V	———
(Needs charging at 20°C/68°F)	Below 12.3V	———
AC regulator regulated voltage (With analogue tester)	———	———
(With digital tester)	———	———

Ignition System

Spark plug		
(Standard: NGK)	DPR9EA—9	———
(Standard: NIPPONDENSO)	X27EPR—U9	———
(For cold climate/below5°C/41°F: NGK)	———	———
(For cold climate/below 5°C/41°F: NIPPONDENSO)	———	———
(For extended high speed riding: NGK)	———	———
(For extended high speed riding: NIPPONDENSO)	———	———
Spark plug gap	0.8—0.9 (0.03—0.04)	———
Ignition timing "F" mark (49 state type)	10° BTDC at 1,000 ± 100 rpm	———
(California type)	9° BTDC at 1,100 ± 100 rpm	———
Advance starts	1,500 rpm	———
stops	9,000 rpm	———
Full advance	40° BTDC/9,000 rpm	———
Alternator exciter coil resistance (At 20°C/68°F)	———	———
Ignition coil resistance (Primary; at 20°C/68°F)	2.6—3.2Ω	———
(Secondary with plug cap)	18—22kΩ	———
(Secondary without plug cap)	13—17kΩ	———
Ignition pulse generator resistance (At 20°C/68°F)	460—580Ω	———

Starting System

Starter driven gear O. D.	45.660—45.673 (1.7976—1.7981)	———
Starter clutch outer I. D.	———	———
Starter motor brush length	12.0—13.0 (0.47—0.51)	6.5 (0.26)

Unit : mm (in)

Lights/Meters/Switches

Item	Standard	Service Limit
Main fuse	30A	
Fuse	15A x 1, 10A x 3	
Headlight (high/low beam)	12V 60/55W	
Tail/brake light	12V 32/3cp x 2	
License light	12V 3cp	
Position light		
Front turn signal/running light	12V 32/3cp x 2	
Front turn signal light		
Rear turn signal light	12V 32cp x 2	
Instrument light (Speedometer)	12V 3.4W	
(Tachometer)	12V 1.7W x 2	
(Coolant temperature gauge)	12V 1.4W	
Oil pressure indicator	12V 3.4W	
Tail/brake light indicator		
Side stand indicator	12V 3.4W	
Low fuel indicator		
Coolant temperature indicator		
Oil temperature indicator		
High beam indicator	12V 1.7W	
Turn signal indicator	12V 3.4W	
Neutral indicator	12V 3.4W	
Reverse indicator		
Overdrive indicator		
Oil temperature sensor resistance		
Fuel unit resistance (At full level)		
(At empty)		
Fuel pump flow capacity (min./minute)		
Engine coolant temperature (ECT) sensor resistance		
(80°C/176°F)	47–57Ω	
(120°C/248°F)	14–18Ω	
Fan motor switch Starts to close (ON)	92–102°C (208–216°F)	
Stops opening (OFF)	93–97°C (199–207°F)	

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 the standard torque values listed above.

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

Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Lubrication:				
Oil drain bolt	1	14	30 (3.0 , 22)	
Oil filter	1	20	10 (1.0 , 7)	
Oil pass pipe bolt	2	6	12 (1.2 , 9)	Note 2
Oil pass plate bolt	3	6	12 (1.2 , 9)	Note 2, 6
Oil pump driven sprocket bolt	1	6	15 (1.5 , 11)	Note 2
Cooling System:				
Coolant drain bolt	1	6	13 (1.3 , 9)	
Water pump cover bolt	2	6	13 (1.3 , 9)	
Water pump pipe joint bolt	1	6	13 (1.3 , 9)	
Fuel System:				
Carburetor connecting nut (upper)	2	6	9.8 (0.98 , 7.1)	
(lower)	2	5	5.2 (0.52 , 3.8)	
Cylinder Head:				
Spark plug	4	12	15 (1.5 , 11)	
Cylinder head cover bolt	8	6	10 (1.0 , 7)	
Cylinder head nut	12	10	45 (4.5 , 33)	Note 4
socket bolt	4	10	26 (2.6 , 19)	
Valve adjusting lock nut	16	7	23 (2.3 , 17)	Note 4
Camshaft holder bolt	16	6	14 (1.4 , 10)	
Cam sprocket bolt	4	7	20 (2.0 , 14)	Note 2
Cam chain tensioner bolt	4	6	14 (1.4 , 10)	
Vacuum port plug	2	5	3 (0.3 , 2.2)	
Air injection pipe bolt (California type)	8	6	12 (1.2 , 9)	

Engine (Cont'd)

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Clutch/Gearshift Linkage:				
Clutch center lock nut	1	25	128 (12.8 , 93)	Note 4, 6
Shift fork shaft stopper plate bolt	1	6	12 (1.2 , 9)	Note 2, 6
Shift drum center bolt	1	8	23 (2.3 , 17)	Note 2
Gearshift return spring pin bolt	1	8	22 (2.2 , 16)	Note 2
Clutch slave cylinder bleed valve	1	8	8 (0.8 , 5.8)	
Clutch master cylinder holder bolt	2	6	12 (1.2 , 9)	
Clutch master cylinder reservoir cap screw	2	4	1.5 (0.15 , 1.1)	
Clutch switch screw	1	4	1.2 (0.12 , 0.9)	
Clutch hose bolt	2	10	34 (3.4 , 25)	
Clutch lever pivot bolt	1	6	1 (0.1 , 0.7)	
nut	1	6	6 (0.6 , 4.3)	
Crankcase/Cylinder/Piston:				
Upper crankcase bolt	2	8	24 (2.4 , 17)	
	1	10	39 (3.9 , 28)	
Lower crankcase bolt	3	6	12 (1.2 , 9)	
	15	8	24 (2.4 , 17)	
	12	9	37 (3.7 , 27)	Note 4
Sealing bolt	2	10	12 (1.2 , 9)	Note 1
	2	20	30 (3.0 , 22)	Note 1
Connecting rod bearing cap nut	8	8	35 (3.5 , 25)	Note 4
Neutral switch	1	10	12 (1.2 , 9)	
Oil pressure switch	1	PT1/8	12 (1.2 , 9)	Note 1
Charging System/Alternator:				
Left crankcase side cover bolt	3	6	12 (1.2 , 9)	
Alternator shaft nut	3	12	49 (4.9 , 35)	Note 4
Alternator mounting bolt	3	8	25 (2.5 , 18)	Note 1
Ignition System:				
Timing hole cap	1	45	18 (1.8 , 13)	Note 3
Left crankcase cover bolt	5	6	12 (1.2 , 9)	
Ignition pulse generator rotor bolt	1	10	49 (4.9 , 35)	Note 2

Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Frame/Body Panels/Exhaust System:				
Exhaust pipe joint nut	8	7	12 (1.2 , 9)	
Exhaust pipe mounting nut	2	8	26 (2.6 , 19)	
Muffler joint bolt	3	8	26 (2.6 , 19)	
Muffler mounting bolt	1	8	26 (2.6 , 19)	
Fuel tank cap	7	4	3 (0.3 , 2.2)	
Side stand pivot bolt	1	10	10 (1.0 , 7)	
nut	1	10	39 (3.9 , 28)	
Side stand switch bolt	1	6	10 (1.0 , 7)	
Footpeg holder bolt	4	8	32 (3.2 , 23)	Note 2
Footpeg bolt	2	8	44 (4.4 , 32)	
Footpeg rubber bolt	4	5	5 (0.5 , 3.6)	
Bank sensor bolt	2	8	22 (2.2 , 16)	
Rear footpeg holder bolt	4	8	26 (2.6 , 19)	Note 2
Seat lock hook bolt	1	6	12 (1.2 , 9)	
Grab rail bolt	4	8	26 (2.6 , 19)	
Tail/Brake mounting nut	3	6	8 (0.8 , 5.8)	
Cooling System:				
Fan motor switch	1	16	17 (1.7 , 12)	
Engine coolant temperature (ECT) sensor	1	PT1/8	9 (0.9 , 6.5)	Note 1
Engine Mount:				
Front engine mounting bolt (engine side)	2	10	59 (5.9 , 43)	
(frame side)	4	10	49 (4.9 , 35)	
Rear lower engine mounting nut	1	12	54 (5.4 , 39)	
Rear upper engine mounting bolt/nut	1	12	54 (5.4 , 39)	
Drive sprocket bolt	1	10	54 (5.4 , 39)	
Gearshift pedal arm pinch bolt	1	6	14 (1.4 , 10)	
Front Wheel/Suspension/Steering:				
Front axle holder nut	2	12	59 (5.9 , 43)	
Front axle nut	1	20	79 (7.9 , 57)	
Front brake disc bolt	12	6	20 (2.0 , 14)	Note 5
Ignition switch mounting bolt	2	8	24 (2.4 , 17)	Note 2
Right handlebar switch housing screw	2	5	4 (0.4 , 2.9)	
Left handlebar switch housing screw	2	5	4 (0.4 , 2.9)	
Handlebar upper holder bolt	4	8	24 (2.4 , 17)	
Handlebar lower holder nut	2	8	27 (2.7 , 20)	
Fork cap	2	39	23 (2.3 , 17)	
Fork socket bolt	2	8	20 (2.0 , 14)	Note 2
Fork drain bolt	2	6	8 (0.8 , 5.8)	
Fork damper lock nut	2	10	20 (2.0 , 14)	
Upper fork pinch bolt	2	8	27 (2.7 , 20)	
Lower fork pinch bolt	4	8	27 (2.7 , 20)	
Steering stem nut	1	24	103 (10.3 , 74)	
Steering bearing adjustment nut	1	26	25 (2.5 , 18)	Note 4
Rear Wheel/Suspension:				
Rear axle nut	1	18	93 (9.3 , 67)	
Rear brake disc bolt	6	8	42 (4.2 , 30)	Note 5
Driven sprocket nut	5	12	108 (10.8 , 78)	
Shock absorber upper mounting bolt	2	6	9 (0.9 , 6.5)	
lower mounting bolt	2	10	37 (3.7 , 27)	
Swingarm pivot nut	1	14	89 (8.9 , 64)	
Chain slider bolt	2	6	9 (0.9 , 6.5)	

Frame (Cont'd)

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, lb-ft)	Remarks
Brake System:				
Brake hose oil bolt	7	10	34 (3.4 , 25)	
Caliper bleed valve	3	8	6 (0.6 , 4.3)	
Pad pin	3	10	17 (1.7 , 12)	
Pad pin plug	3	10	2.5 (0.25 , 1.8)	
Front caliper mounting bolt	4	8	31 (3.1 , 22)	Note 5
Front caliper assembly bolt	8	8	32 (3.2 , 23)	Note 2
Front master cylinder holder bolt	2	6	12 (1.2 , 9)	
Front master cylinder reservoir cap screw	2	4	1.5 (0.15 , 1.1)	
Front brake light switch screw	1	4	1.2 (0.12 , 0.9)	
Front brake lever pivot bolt	1	6	1 (0.1 , 0.7)	
nut	1	6	6 (0.6 , 4.3)	
Rear caliper pin bolt	1	8	12 (1.2 , 9)	
	1	12	22 (2.2 , 16)	
Rear brake hose clamp bolt (at caliper)	2	6	10 (1.0 , 7)	Note 2
(at swingarm)	2	6	9 (0.9 , 6.5)	
Rear master cylinder mounting bolt	2	6	12 (1.2 , 9)	Note 2
Rear master cylinder push rod lock nut	1	8	17 (1.7 , 12)	
Rear master cylinder hose joint screw	1	4	1.5 (0.15 , 1.1)	Note 2
Rear brake reservoir mounting nut	1	6	10 (1.0 , 7)	
Rear brake reservoir cap screw	2	4	1.5 (0.15 , 1.1)	

Tools

- Refer to section 1, Ball Bearing Replacement of the Common Service Manual.
- The newly designed tools are indicated with * mark in the list.

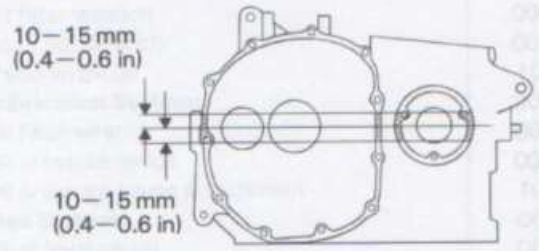
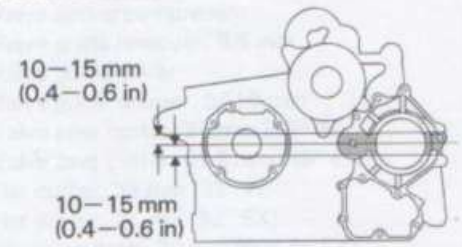
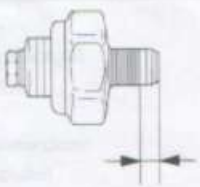
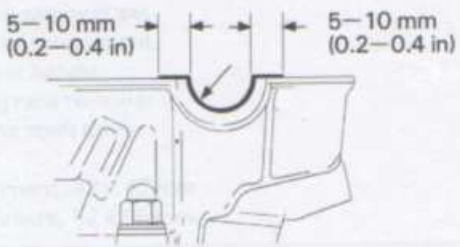
Description	Tool Number	Applicability
Maintenance:		
Oil filter wrench	07HAA—PJ70100	
Lock nut wrench	07GMA—ML70120	
Vacuum gauge	07404—0030000	
Lubrication System:		
Oil filter wrench	07HAA—PJ70100	
Oil pressure gauge	07506—3000000	
Oil pressure gauge attachment	07510—4220100	
Fuel System:		
Float level gauge	07401—0010000	
Pilot screw wrench	07KMA—MN90100	07MMA—MT3010A (U.S.A only)
Cylinder Head/Cylinder/Piston:		
Valve spring compressor	07757—0010000	
Valve guide remover, 5.5 mm	07742—0010100	
Valve guide driver	07743—0020000	
Valve guide reamer, 5.510 mm	07984—2000001	07984—200000B (U.S.A only)
Valve seat cutter, 33 mm (45° IN)	07780—0010800	
Valve seat cutter, 27.5 mm (45° EX)	07780—0010200	
Flat cutter, 33 mm (32° IN)	07780—0012900	
Flat cutter, 28 mm (32° EX)	07780—0012100	
Interior cutter , 30 mm (60° IN, EX)	07780—0014000	
Cutter holder, 5.5 mm	07781—0010101	
* Piston compressor	07PME—MZ20100	
Piston base	07958—2500001	
Clutch Gearshift Linkage:		
Clutch center holder	07724—0050001	
Snap ring pliers	07941—3230001	
Crankshaft Transmission:		
Universal bearing puller	07631—0010000	
Inner driver C	07746—0030100	
Attachment, 25 mm I. D.	07746—0030200	
Front Wheel/Suspension/Steering:		
Fork seal driver	07947—KA50100	
Fork seal driver attachment	07947—KA40200	
Steering stem socket	07916—3710101	
Ball race remover set	07953—MJ10000	
— Driver attachment	07953—MJ10100	
— Driver handle	07953—MJ10200	
Bearing race remover	07946—3710500	
Steering stem driver	07946—MB00000	
Driver	07749—0010000	
Attachment, 42 x 47 mm	07746—0010300	
Attachment, 52 x 55 mm	07746—0010400	

(Cont'd)

Description	Tool Number	Applicability
Rear Wheel/Suspension:		
Shock absorber compressor	07GME−0010000	
− Compressor screw assembly	07GME−0010100	
Snap ring pliers	07941−3230001	
Bearing remover set	07936−KC10000	
− Remover head	07936−KC10200	
− Remover handle	07936−KC10100	
− Sliding weight	07741−0010201	
Driver	07749−0010000	
Attachment, 32 x 35 mm	07746−0010100	
Pilot, 15 mm	07746−0040300	
Driver shaft	07946−MJ00100	
Bearing remover attachment	07LMC−KV30200	
Bearing driver attachment	07946−4250100	
Brake System:		
Snap ring pliers	07941−3230001	
Electrical Equipment:		
Digital multimeter (KOWA)	07411−0020000	
Analogue tester (SANWA)	07308−0020001	
Analogue tester (KOWA)	TH−5H	
Lights/Meters/Switches:		
Torx bit (T40)	07703−0010100	

Lubrication & Seal Points

Engine

Location	Material	Remarks
Upper and lower crankcase mating surface Clutch cover and right crankcase cover gasket surfaces of the crankcase 	Liquid sealant	(See page 10-7) Apply to the area as shown.
Gearshift linkage cover and left crankcase cover gasket surfaces of the crankcase 		Apply to the area as shown.
Oil pressure switch threads 		Do not apply sealant to the thread head as shown.
Alternator mounting bolt threads Drive chain guide plate bolt threads (6 x 35 mm)		(See page 9-8)
Semicircular portions of the cylinder head 	Sealant	
Ignition pulse generator wire grommet seating surface Engine coolant temperature (ECT) sensor threads		Do not apply sealant to the sensor head.

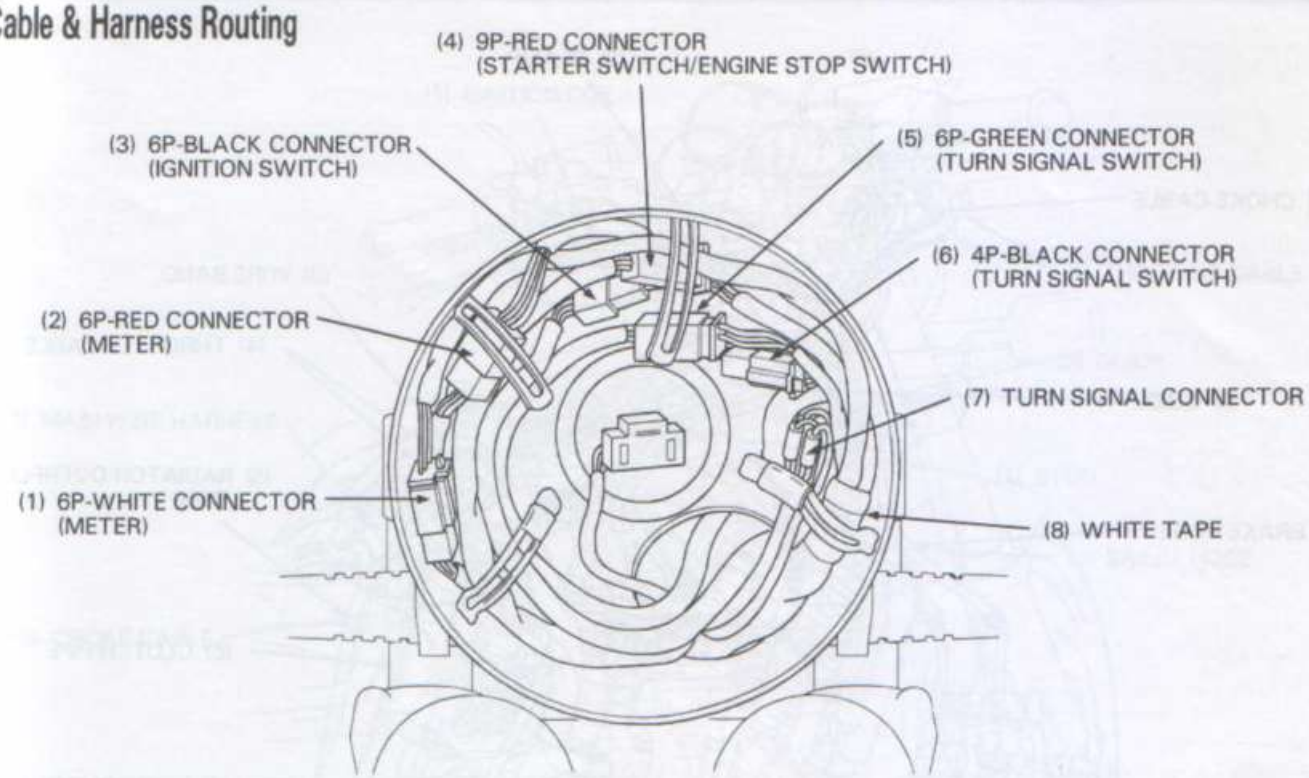
Engine (Cont'd)

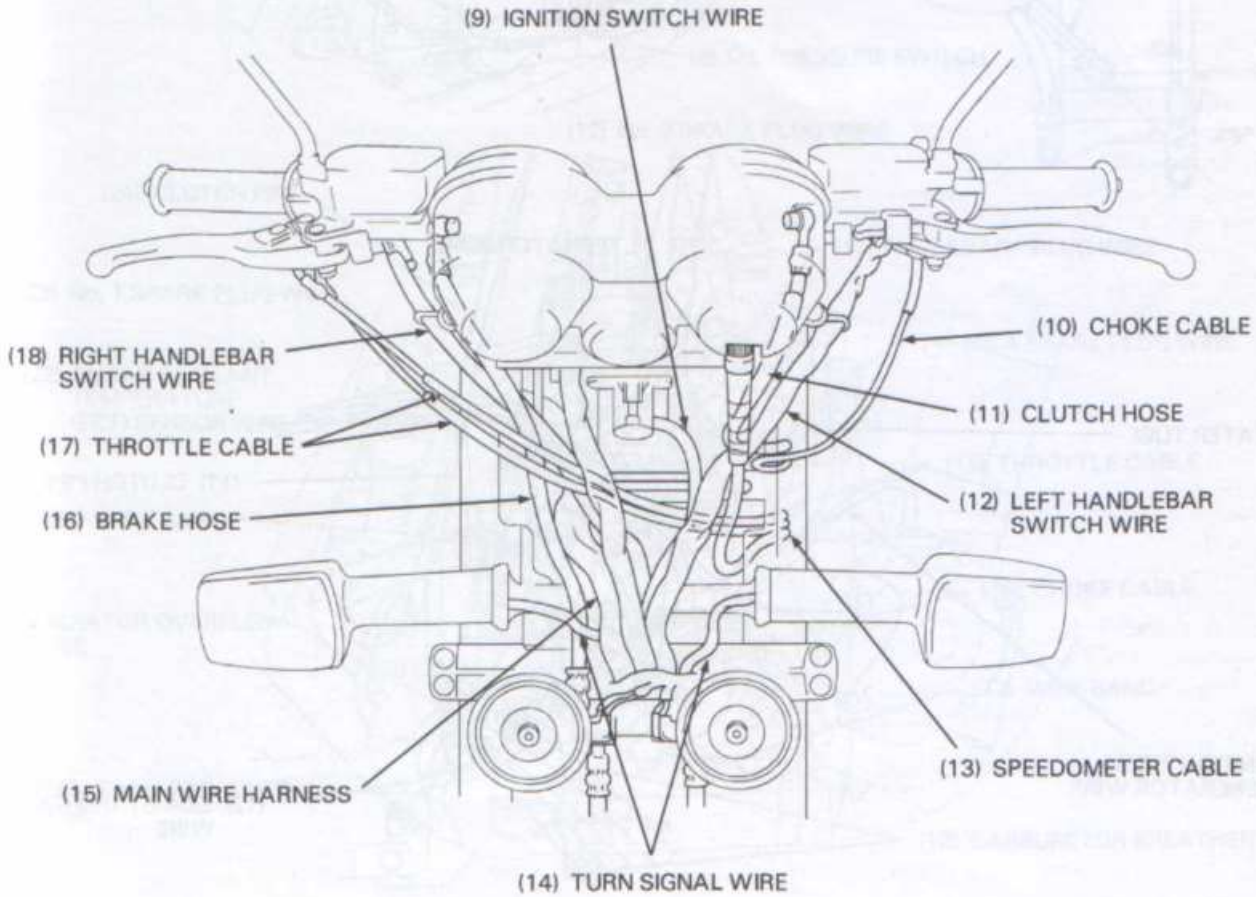
Location	Material	Remarks
Oil filter boss threads (lower crankcase side) Cylinder head cover breather plate bolt threads Cam sprocket bolt threads Lower crankcase 20 mm sealing bolt threads 10 mm sealing bolt threads Alternator stator bolt threads Alternator chain slider bolt threads Alternator chain tensioner bolt threads Oil pump chain slider bolt threads Oil pass plate bolt threads Oil pass pipe bolt threads Oil pump driven sprocket bolt threads Shift drum set plate bolt threads Shift fork shaft stopper plate bolt threads Shift drum center bolt threads Ignition pulse generator rotor bolt threads Drive chain guide plate bolt threads (6 x 40 mm)	Locking agent	(See page 9-8)
Crankshaft main journal bearing thrust surfaces Connecting rod bearing thrust surfaces Connecting rod small end inner surface Camshaft journals and lobes Rocker arm slipper surfaces Rocker arm holder guide surfaces Valve adjusting screw spherical bearing surfaces Transmission gearshift fork grooves Valve stem (valve guide sliding surface) Clutch outer needle bearing inner and outer surfaces Clutch outer gears Starter reduction shaft outer surface	Molybdenum disulfide oil (A mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Cylinder head nut threads and seating surfaces Connecting rod bolt/nut threads and seating surfaces Piston, piston ring and piston pin sliding surfaces 9 mm lower crankcase bolt (UBS bolt) threads and seating surfaces Clutch center lock nut threads and seating surfaces Clutch disc sliding surfaces Clutch lifter outer surface Valve adjusting screw threads Alternator shaft nut threads and seating surface Alternator damper spline Starter one-way clutch sliding surface Oil strainer packing Bearings O-rings Other sliding surfaces	Engine oil	
Clutch lifter rod slave piston side tip portion Carburetor synchronization screw tip portion Balancer gear damper rubber Timing hole cap threads and mating surfaces Oil seal lips	Multi-purpose grease	

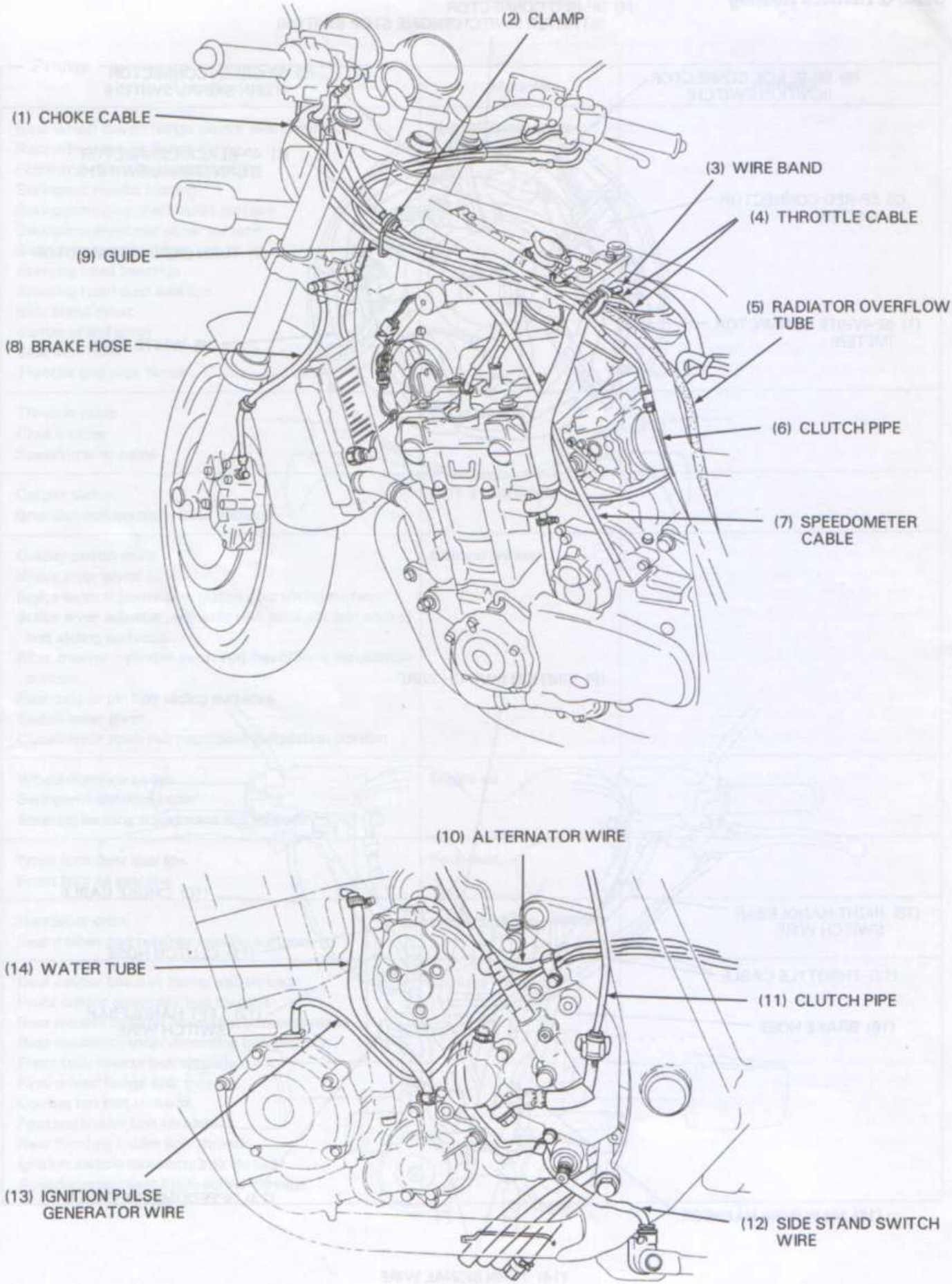
Frame

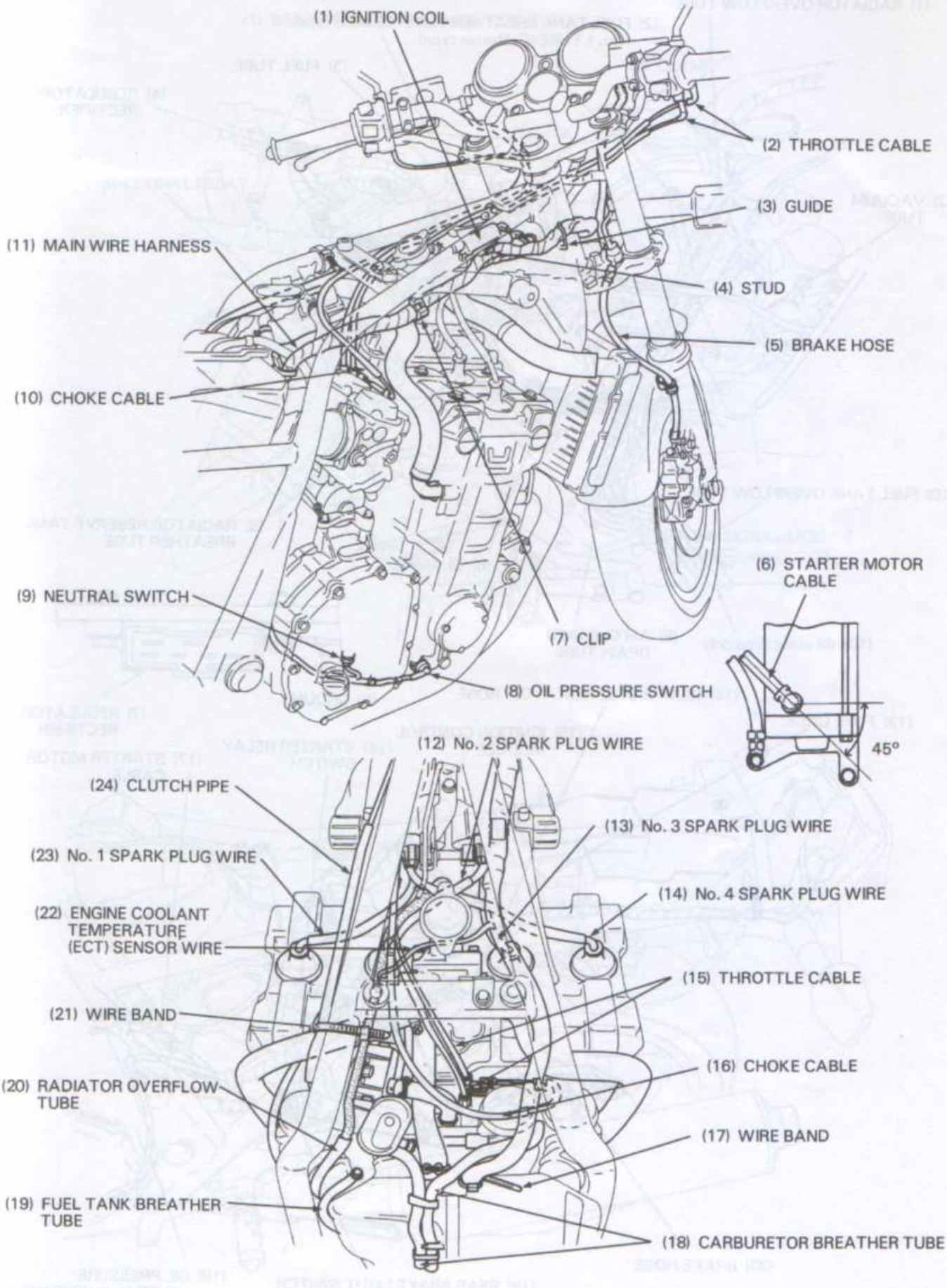
Location	Material	Remarks
Rear wheel driven flange sleeve sliding surface Rear wheel driven flange O-ring Front and rear wheel dust seal lips Swingarm needle bearing Swingarm pivot shaft outer surface Swingarm pivot nut outer surface Swingarm dust seal lips Steering head bearings Steering head dust seal lips Side stand pivot Center stand pivot Seat lock hook Throttle grip pipe flange	Multi-purpose grease	
Throttle cable Choke cable Speedometer cable	Cable lubricant	
Caliper piston Brake/clutch master piston and cup	DOT 4 brake fluid	
Caliper piston seals Brake lever pivot Brake lever adjuster arm piston contacting surface Brake lever adjuster, adjuster rod, joint pin and socket bolt sliding surfaces Rear master cylinder push rod head/boot installation portion Rear caliper pin bolt sliding surfaces Clutch lever pivot Clutch lever push rod head/boot installation portion	Silicone grease	
Wheel distance collar Swingarm distance collar Steering bearing adjustment nut threads	Engine oil	
Front fork dust seal lips Front fork oil seal lips	Fork fluid	
Handlebar grips Rear caliper pad retainer seating surface	Honda bond A or equivalent	
Rear caliper bracket clamp bolt threads Front caliper assembly bolt threads Rear master cylinder hose joint screw threads Rear master cylinder mounting bolt threads Front fork socket bolt threads Final driven flange bolt threads Cooling fan bolt threads Footpeg holder bolt threads Rear footpeg holder bolt threads Ignition switch mounting bolt threads Speedometer reset knob screw threads	Locking agent	

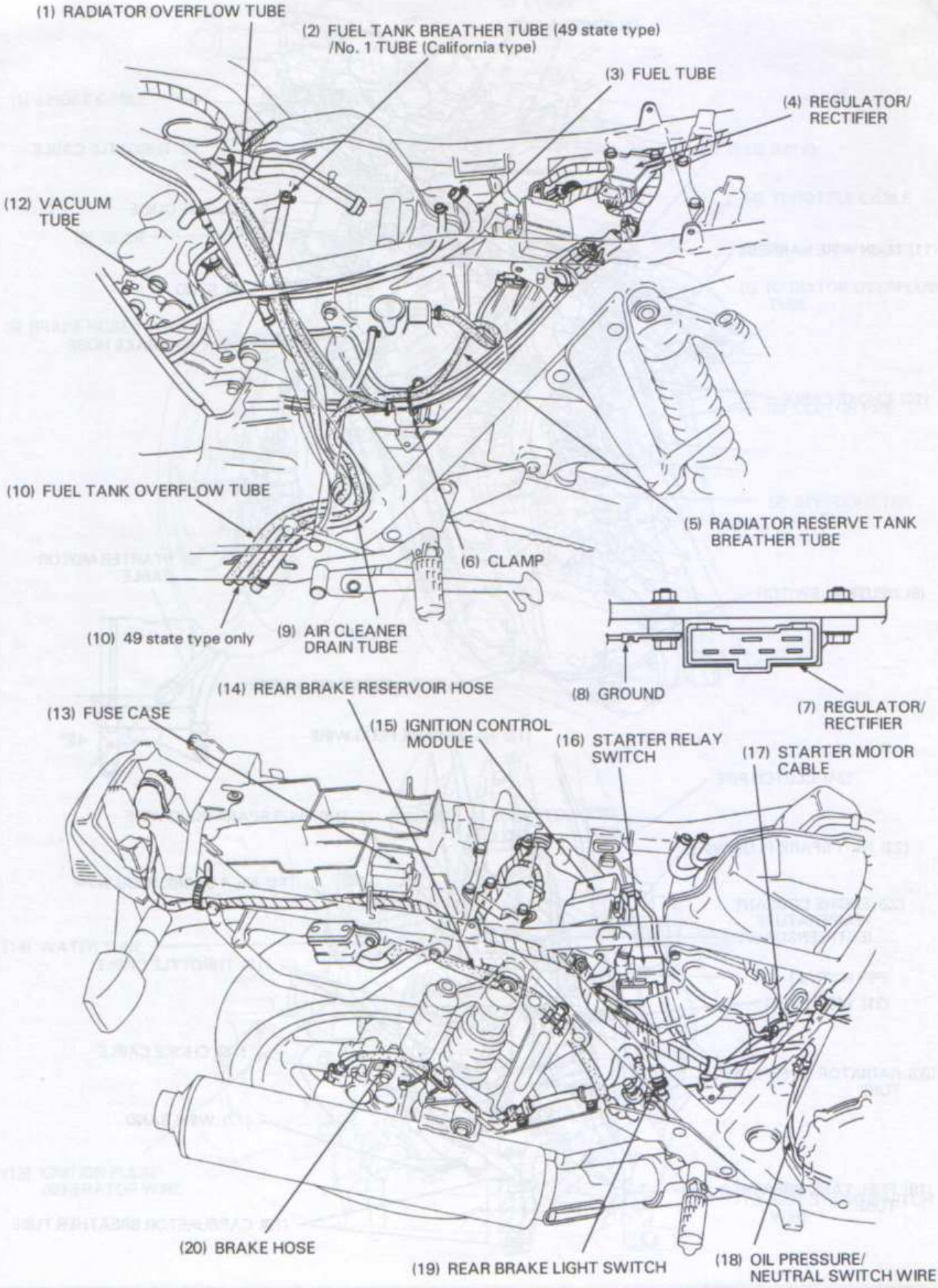
Cable & Harness Routing

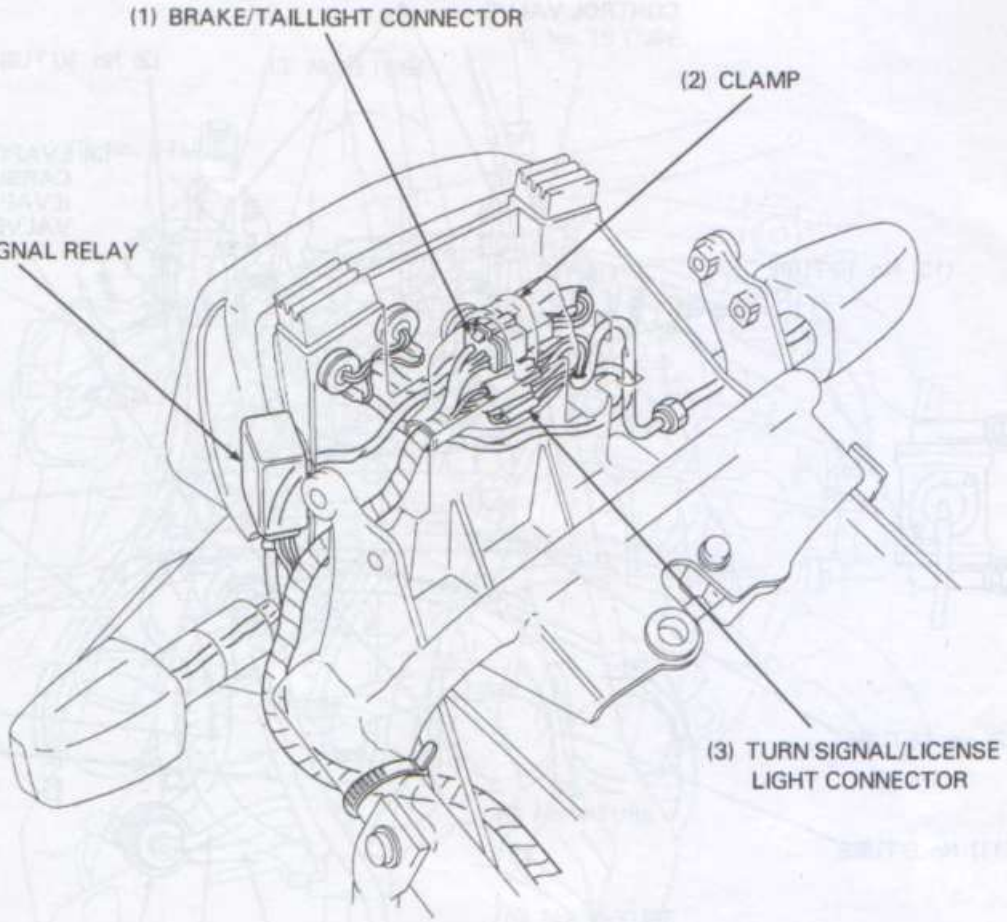




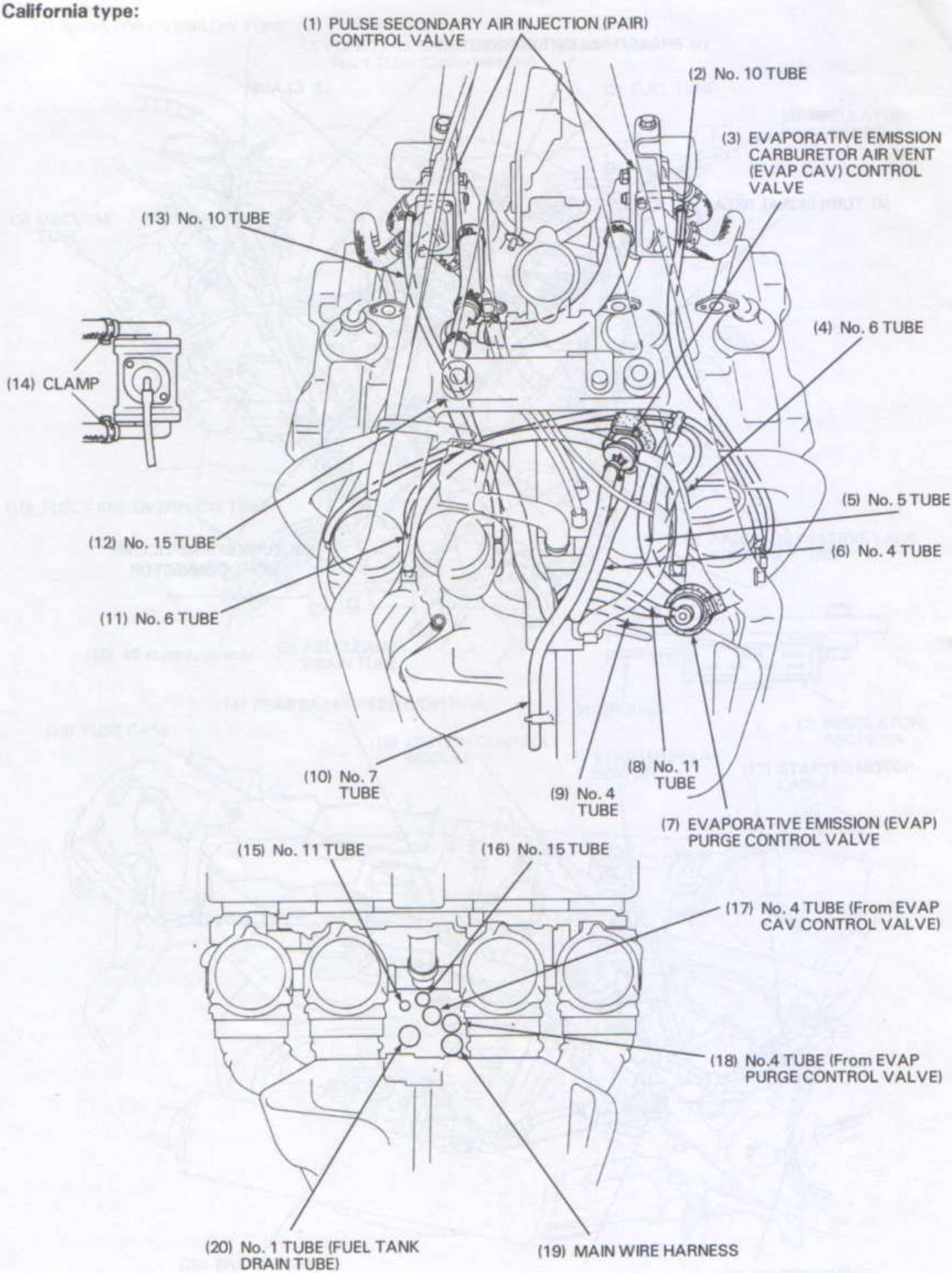

(2) CLAMP
(1) CHOKE CABLE
(3) WIRE BAND
(4) THROTTLE CABLE
(9) GUIDE
(5) RADIATOR OVERFLOW TUBE
(8) BRAKE HOSE
(6) CLUTCH PIPE
(7) SPEEDOMETER CABLE
(10) ALTERNATOR WIRE
(14) WATER TUBE
(11) CLUTCH PIPE
(13) IGNITION PULSE GENERATOR WIRE
(12) SIDE STAND SWITCH WIRE


(1) IGNITION COIL
(2) THROTTLE CABLE
(3) GUIDE
(4) STUD
(5) BRAKE HOSE
(6) STARTER MOTOR CABLE
45°
(7) CLIP
(8) OIL PRESSURE SWITCH
(9) NEUTRAL SWITCH
(10) CHOKE CABLE
(11) MAIN WIRE HARNESS
(12) No. 2 SPARK PLUG WIRE
(13) No. 3 SPARK PLUG WIRE
(14) No. 4 SPARK PLUG WIRE
(15) THROTTLE CABLE
(16) CHOKE CABLE
(17) WIRE BAND
(18) CARBURETOR BREATHER TUBE
(19) FUEL TANK BREATHER TUBE
(20) RADIATOR OVERFLOW TUBE
(21) WIRE BAND
(22) ENGINE COOLANT TEMPERATURE (ECT) SENSOR WIRE
(23) No. 1 SPARK PLUG WIRE
(24) CLUTCH PIPE

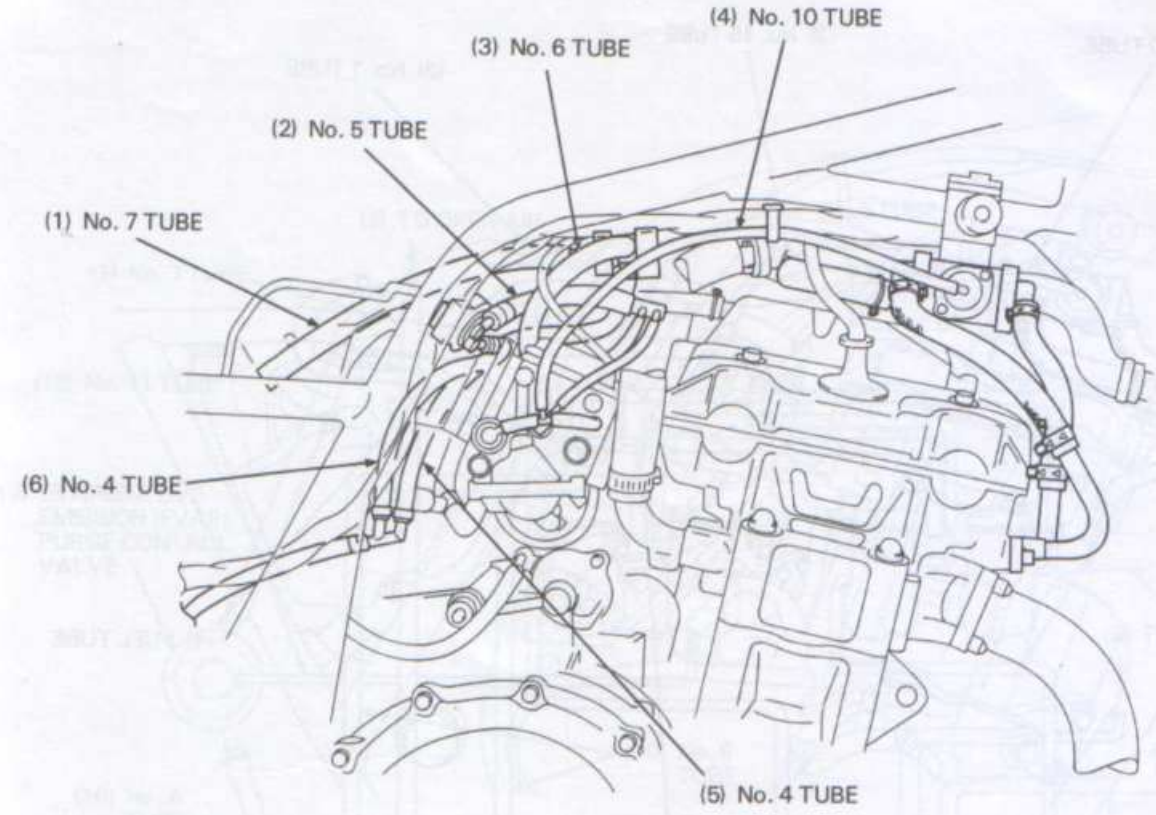

(1) RADIATOR OVERFLOW TUBE
(2) FUEL TANK BREATHER TUBE (49 state type)
/No. 1 TUBE (California type)
(3) FUEL TUBE
(4) REGULATOR/
RECTIFIER
(12) VACUUM
TUBE
(10) FUEL TANK OVERFLOW TUBE
(5) RADIATOR RESERVE TANK
BREATHER TUBE
(6) CLAMP
(10) 49 state type only
(9) AIR CLEANER
DRAIN TUBE
(8) GROUND
(7) REGULATOR/
RECTIFIER
(14) REAR BRAKE RESERVOIR HOSE
(13) FUSE CASE
(15) IGNITION CONTROL
MODULE
(16) STARTER RELAY
SWITCH
(17) STARTER MOTOR
CABLE
(20) BRAKE HOSE
(19) REAR BRAKE LIGHT SWITCH
(18) OIL PRESSURE/
NEUTRAL SWITCH WIRE

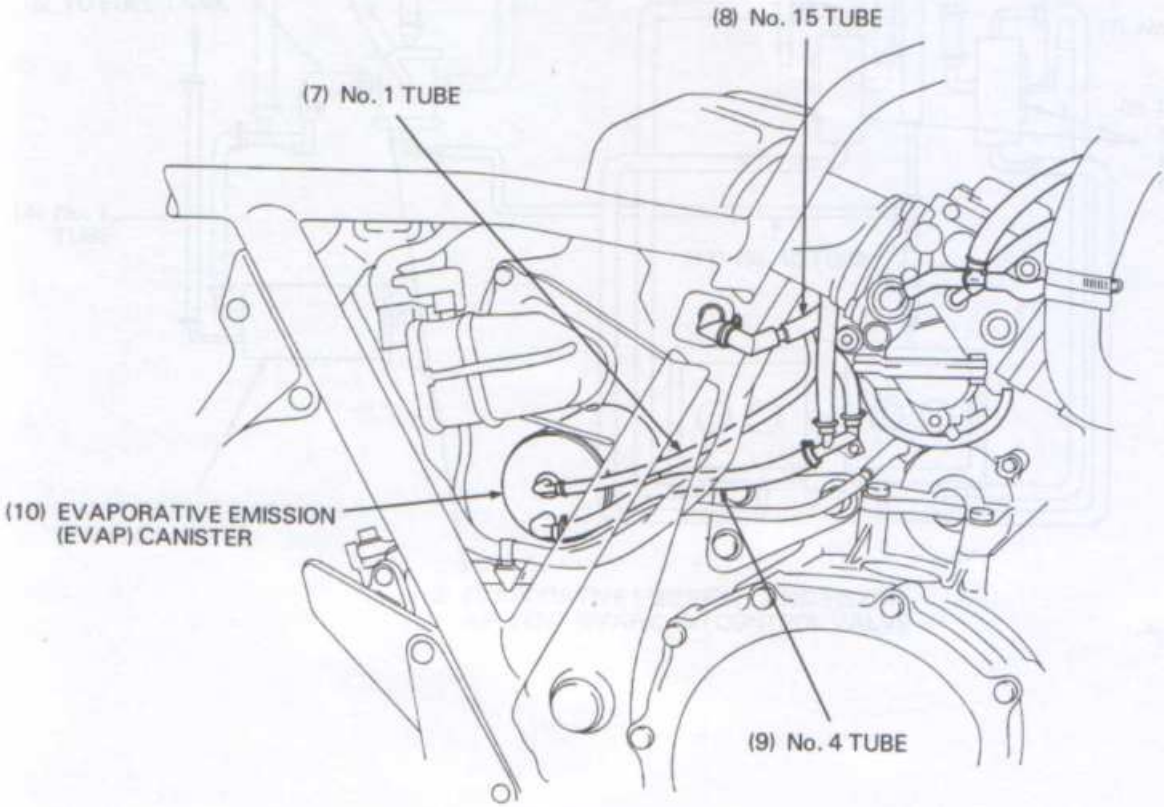

(1) BRAKE/TAILLIGHT CONNECTOR
(2) CLAMP
(4) TURN SIGNAL RELAY
(3) TURN SIGNAL/LICENSE LIGHT CONNECTOR

California type:

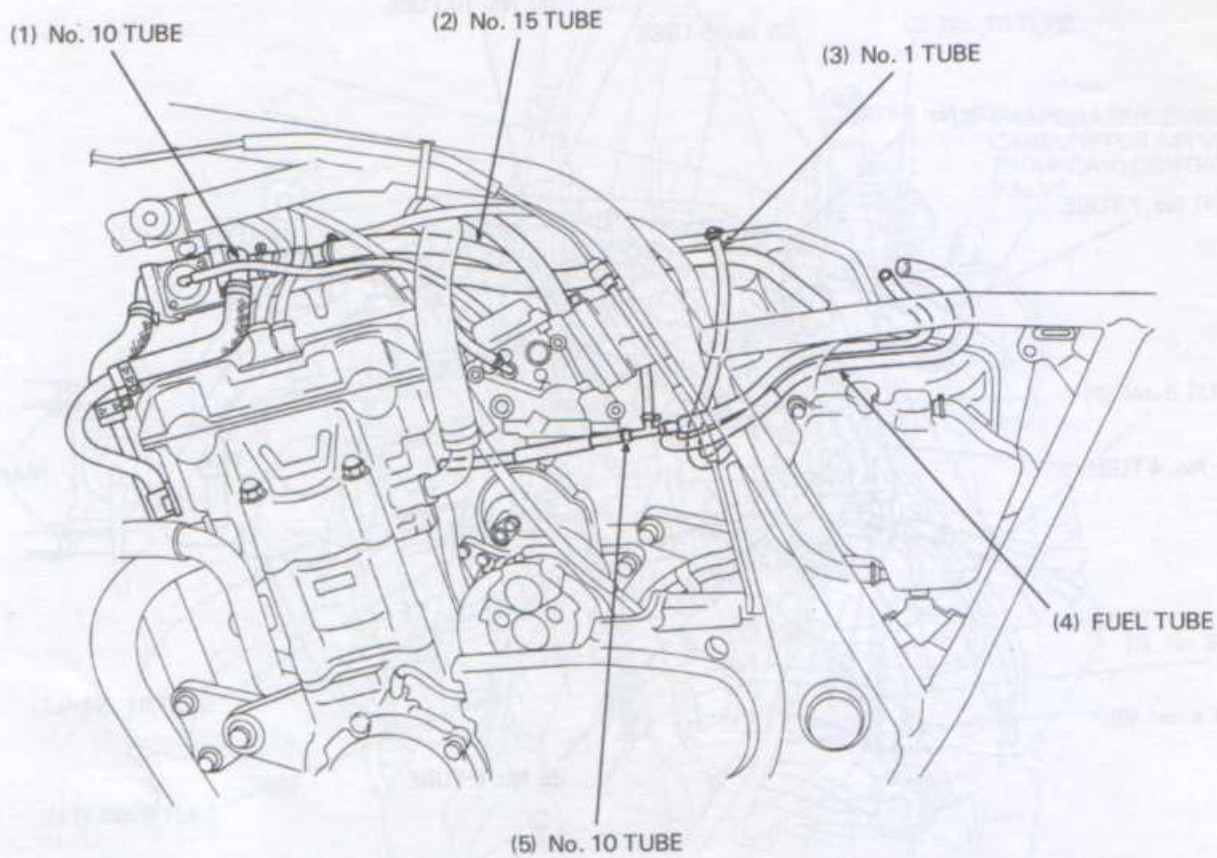


California type:

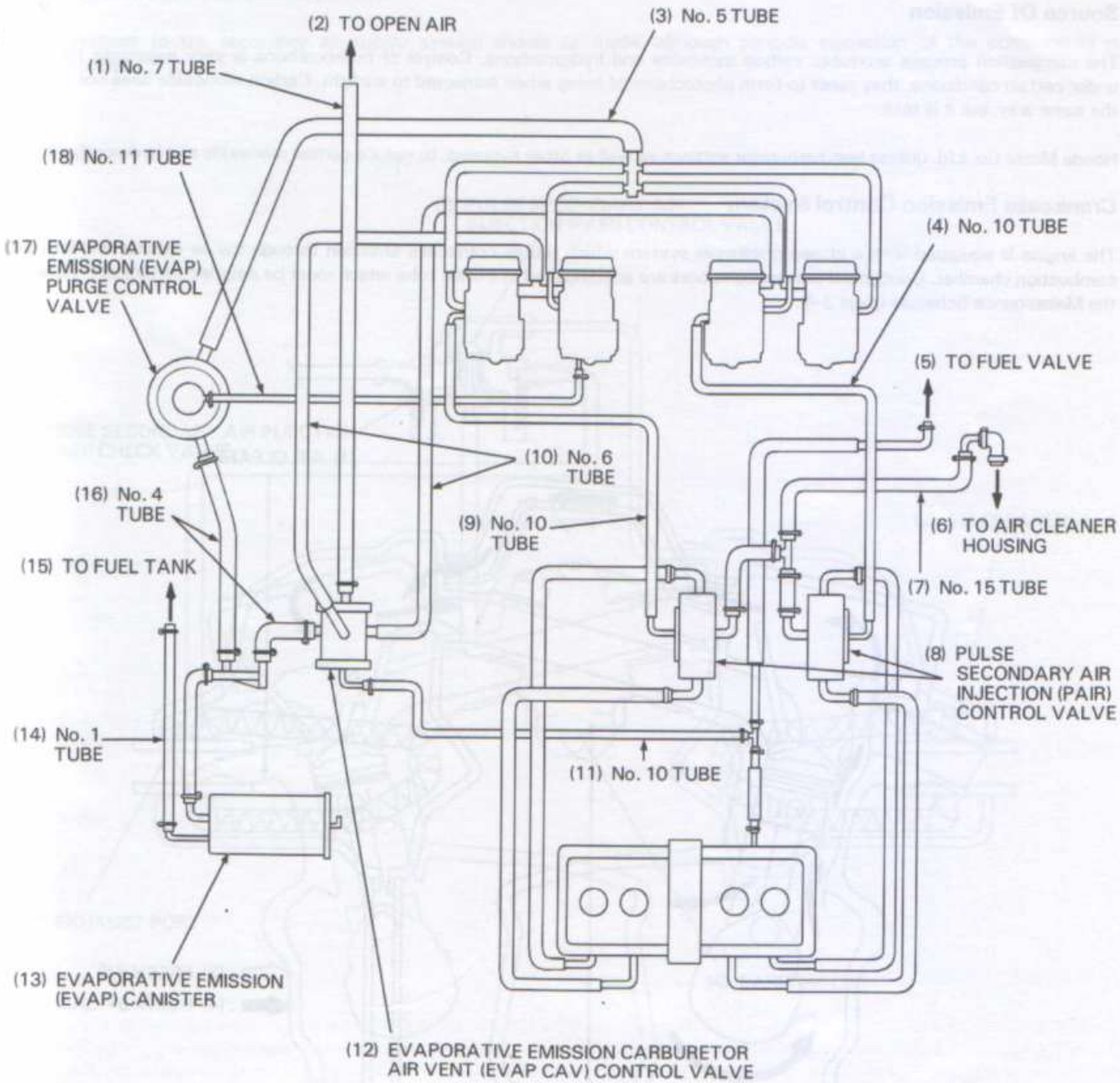




California type:



California type:



Emission Control Systems

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 Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

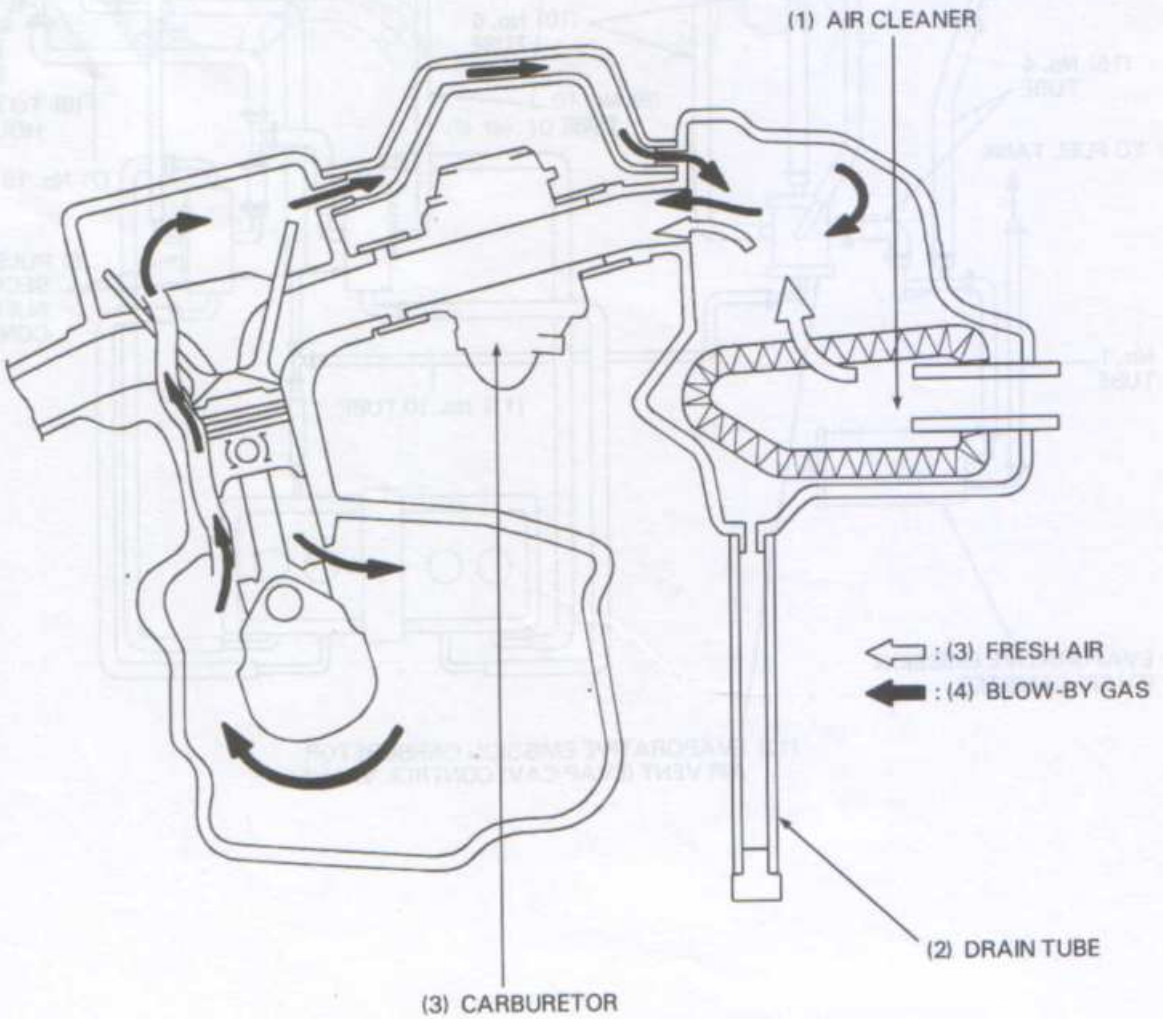
Source Of Emission

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

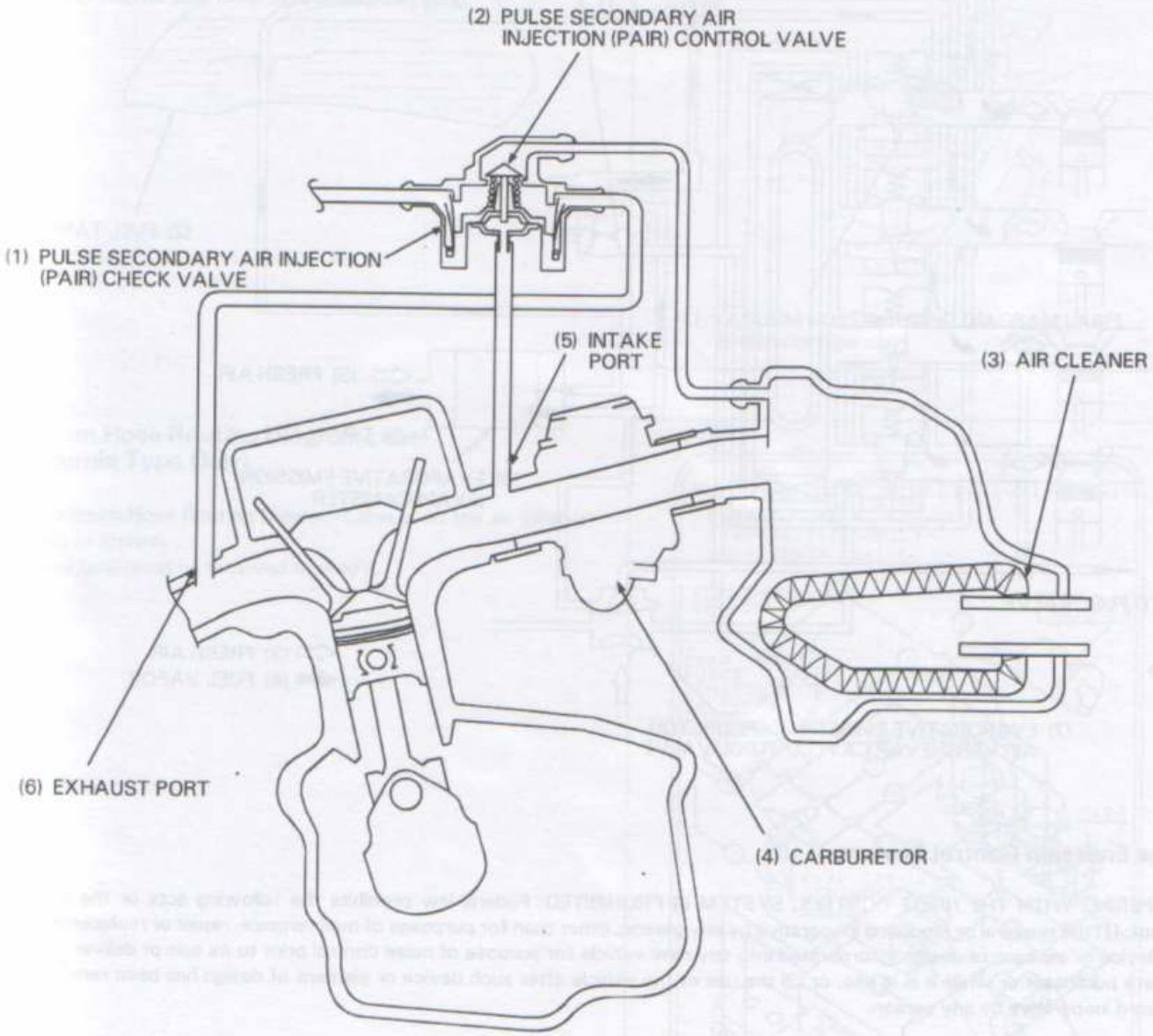
The engine is equipped with a closed crankcase system which routes crankcase emission through the air cleaner and into the combustion chamber. Condensed crankcase vapors are accumulated in a drain tube which must be emptied periodically. Refer to the Maintenance Schedule (page 3-4).



Exhaust Emission Control System (Secondary Air Supply System) (California type)

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.
The pulse secondary air injection check valves prevent reverse air flow through the system. The pulse secondary air injection control valve reacts to high intake manifold vacuum and will cut off the supply of fresh air during engine deceleration, thereby preventing afterburn in the exhaust system.

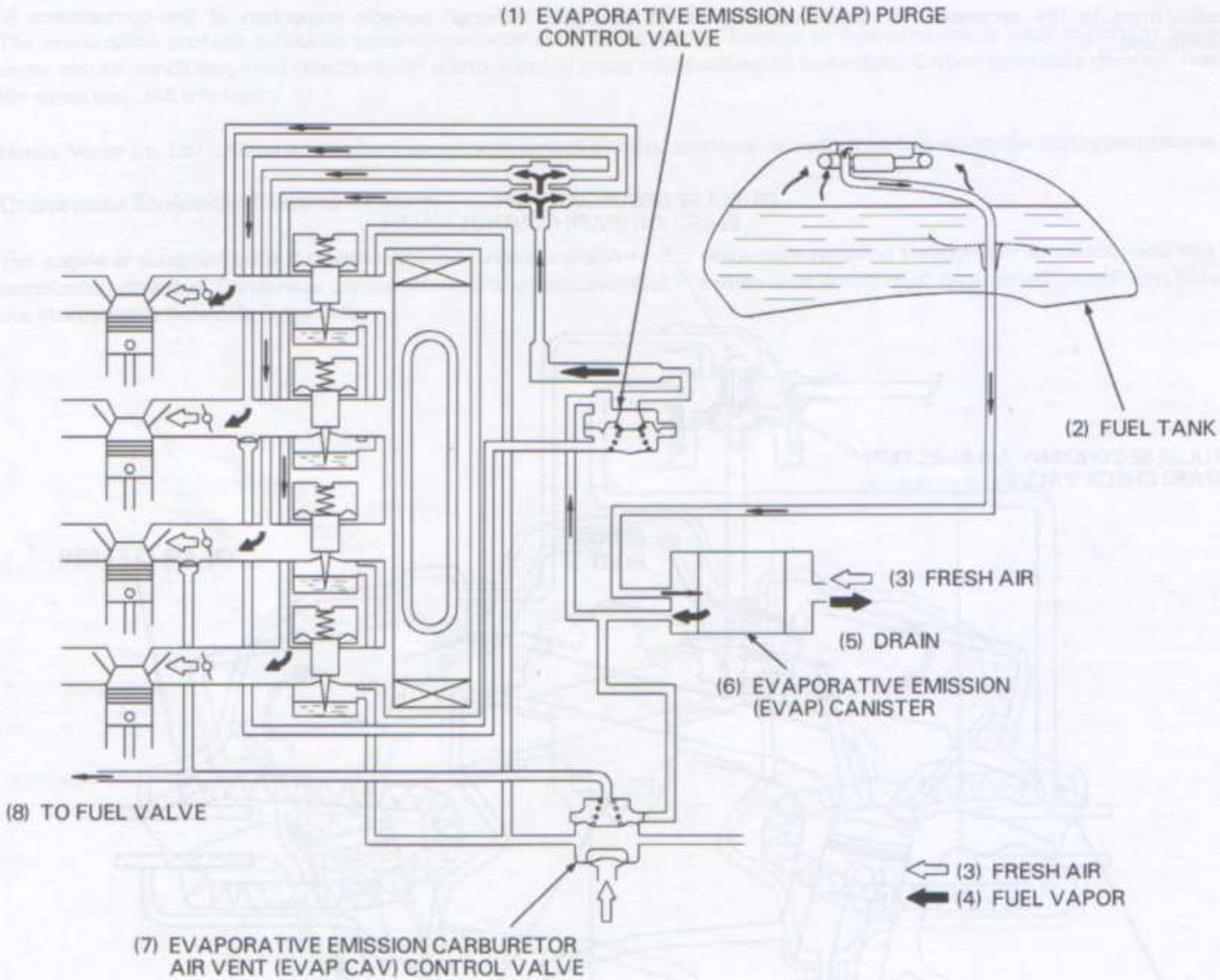
No adjustment to the secondary air supply system should be made, although periodic inspection of the components is recommended.



Evaporative Emission Control System (California Type)

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 adsorbed and stored while the engine is stopped. When the engine is running and the evaporative emission purge control diaphragm 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 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.

Emission Control Information Labels

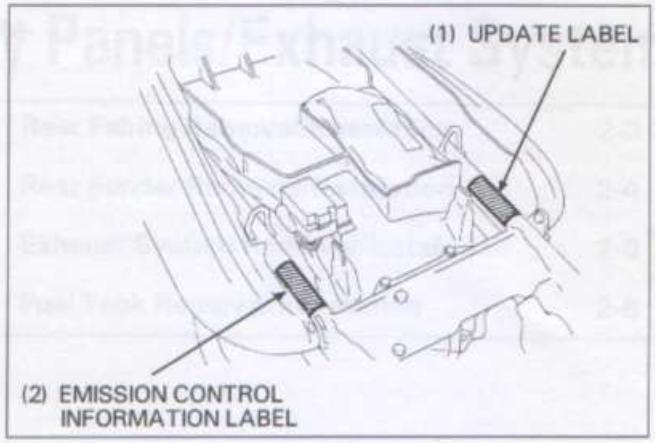
An Emission Control Information Label is located on the right side of the frame as shown. The seat must be removed to read it. It gives basic tune-up specifications.

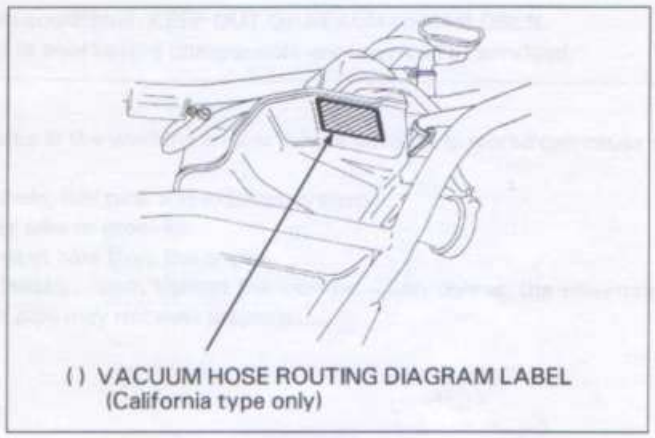
Vehicle Emission Control Information Update Label

After making a high altitude carburetor adjustment, attach an update label on the left side of the frame as shown.

Instructions for obtaining the update label are given in Service Letter No. 132.

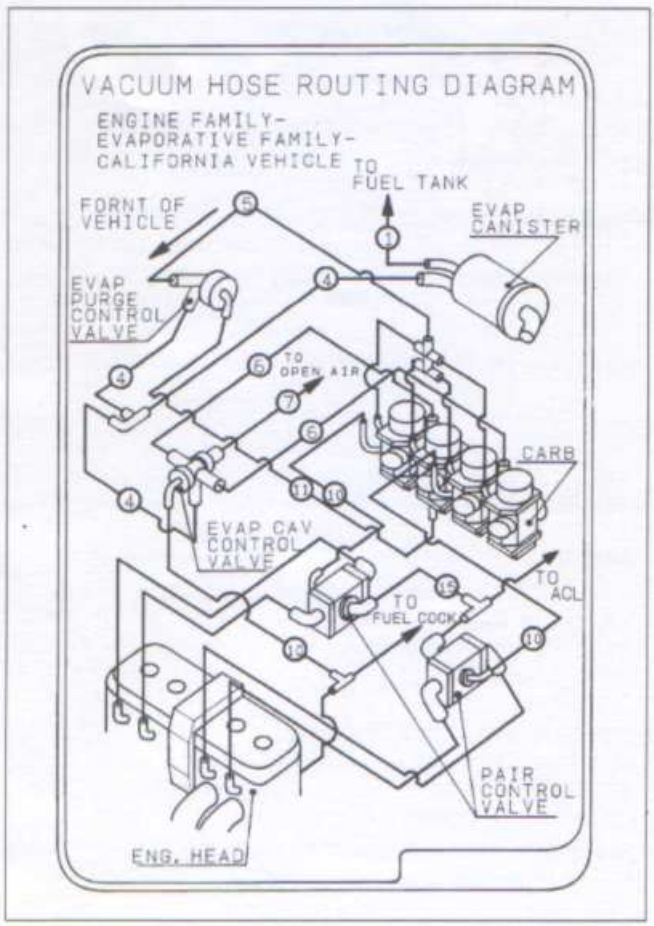
When readjusting the carburetors back to the low altitude specifications, be sure to remove this update label.





Vacuum Hose Routing Diagram Label (California Type Only)

The Vacuum Hose Routing Diagram Label is on the air cleaner housing as shown.
The fuel tank must be removed to read it.



2. Frame/Body Panels/Exhaust System

Service Information	2-1	Rear Fairing Removal/Installation	2-3
Troubleshooting	2-1	Rear Fender Removal/Installation	2-4
Seat Removal/Installation	2-2	Exhaust System Removal/Installation	2-6
Side Cover Removal/Installation	2-2	Fuel Tank Removal/Installation	2-8

Service Information

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**
- **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 working area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the frame body panels, fuel tank and exhaust system.
- When removing frame covers, be careful not to damage any cover tabs or grooves.
- Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
- When installing the exhaust pipe, first install all the fasteners loosely. Next, tighten the clamps. 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 leaks

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

Seat Removal/Installation

Removal

Insert the ignition key into the seat lock/helmet holder and turn the key clockwise. Push down the lever to release the seat lock. Push the seat rearward while lifting up remove.

Installation

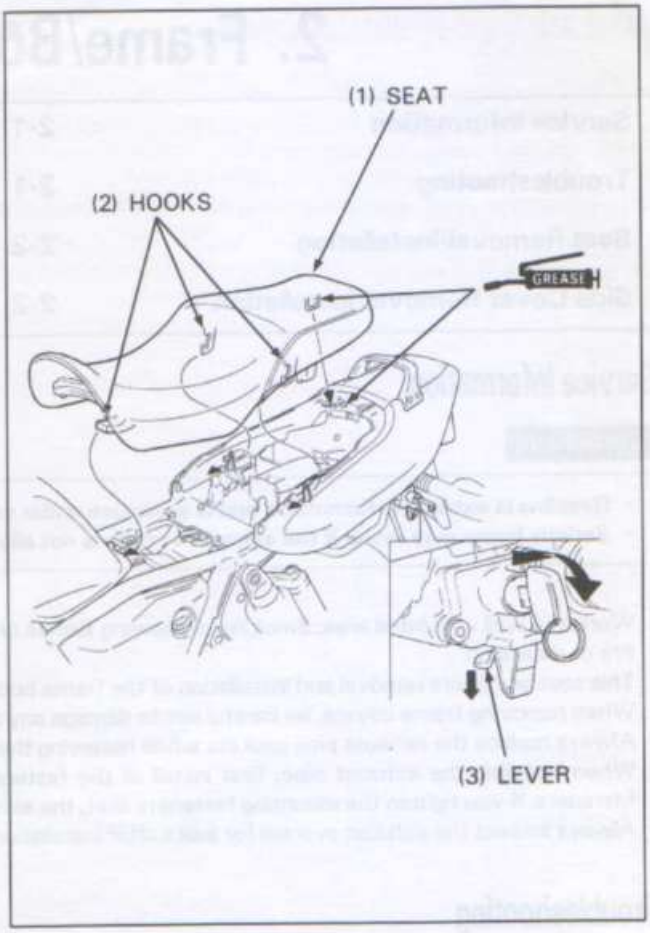
Align the seat hooks with the frame hooks and push the seat forward.
Press the rear of the seat down firmly and be sure the seat is locked on securely.

NOTE:

- Be careful not to pinch the wire harness between the seat and frame.

CAUTION:

- **After installation, make sure the seat is securely installed.**



Side Cover Removal/Installation

Remove the bolt.
Release the side cover tabs from the grommets.
Remove the side cover.

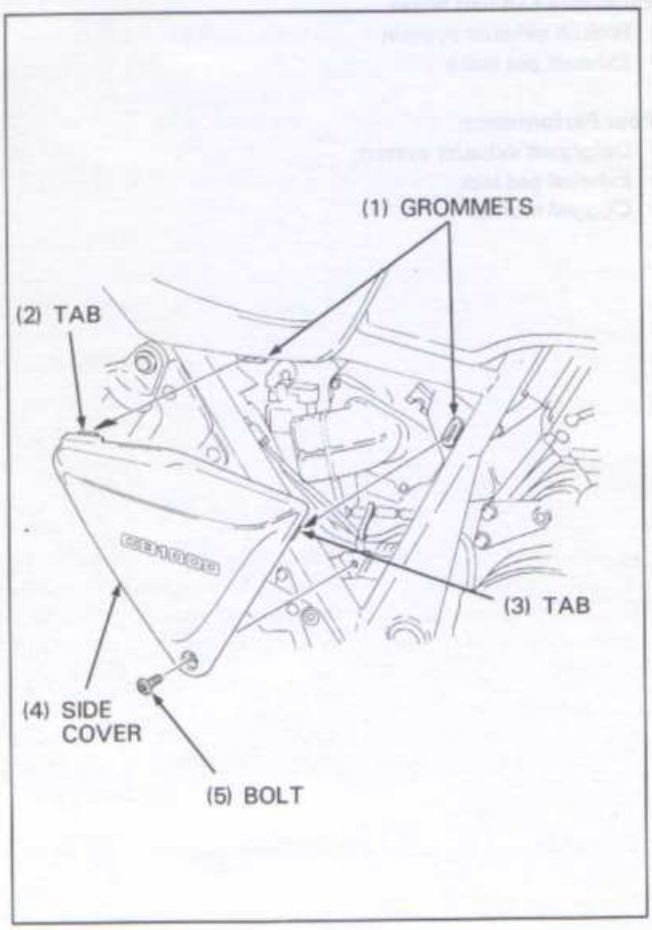
CAUTION:

- **Be careful not to break the side cover tabs.**

Install the side cover in the reverse order of removal.

NOTE:

- Be careful not to dislodge the grommet on the frame.



Rear Fairing Removal/Installation

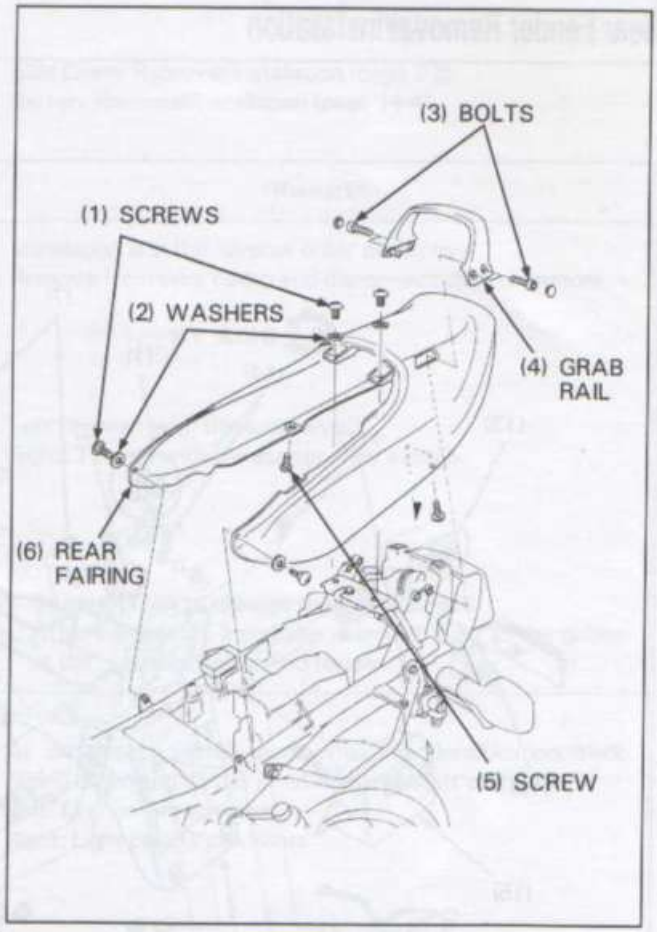
Remove the seat (page 2-2).

Remove the bolt caps, bolts and grab rail.
Remove the six screws and four washers.
Remove the fairing rearward while carefully spreading open the front end.

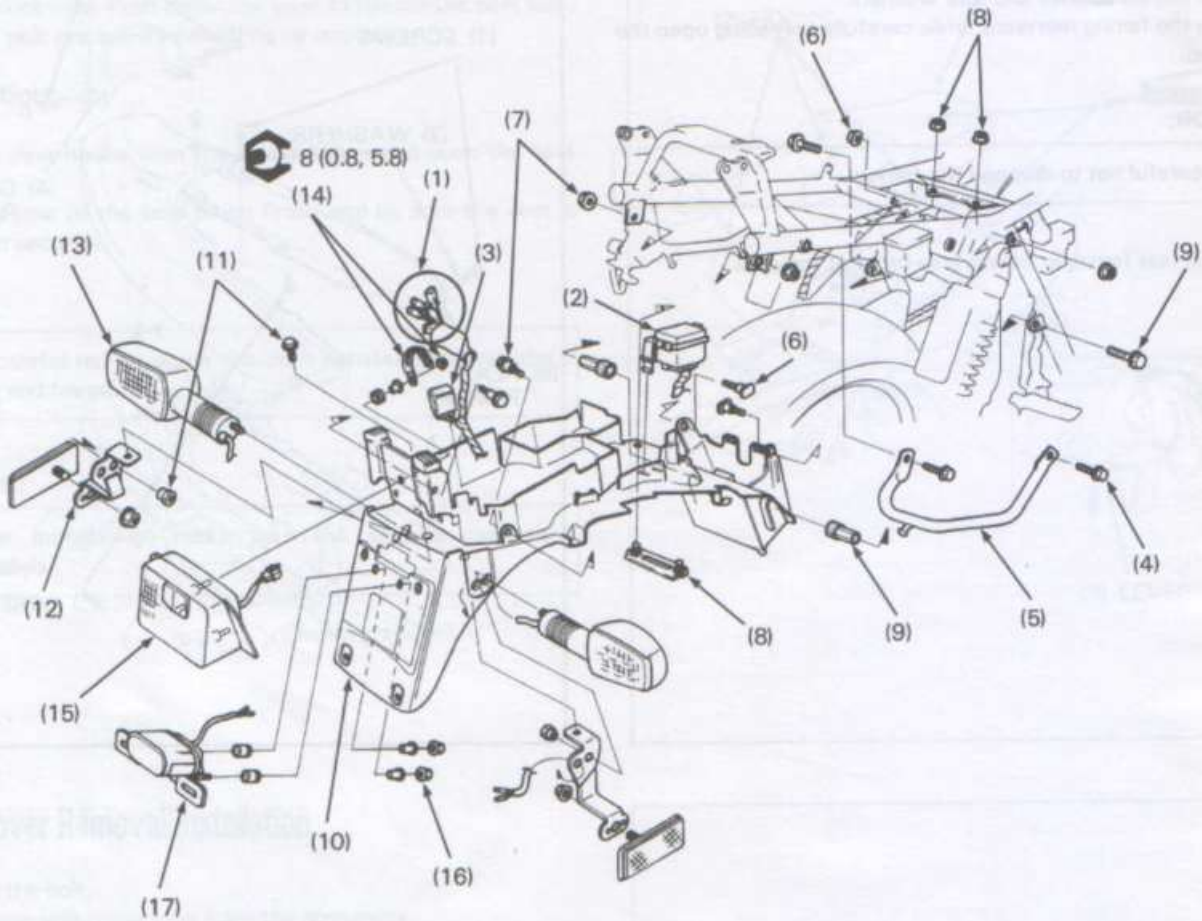
CAUTION:

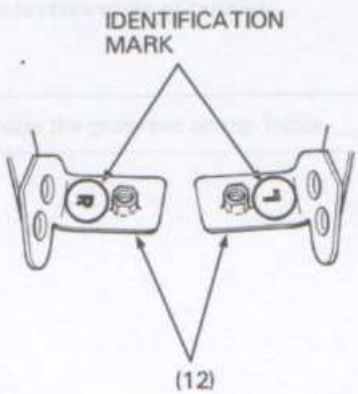
- **Be careful not to damage the fairing.**

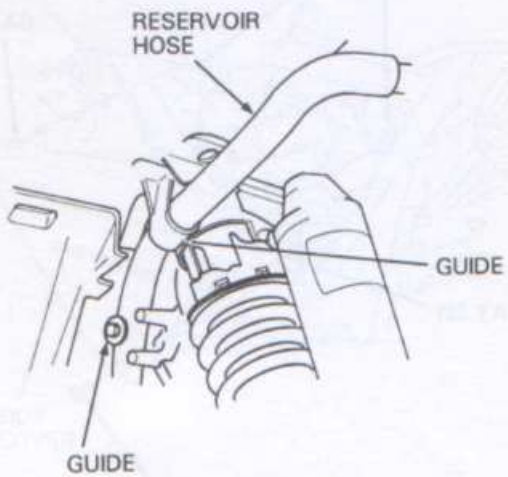
Install the rear fairing in the reverse order of removal.



Rear Fender Removal/Installation





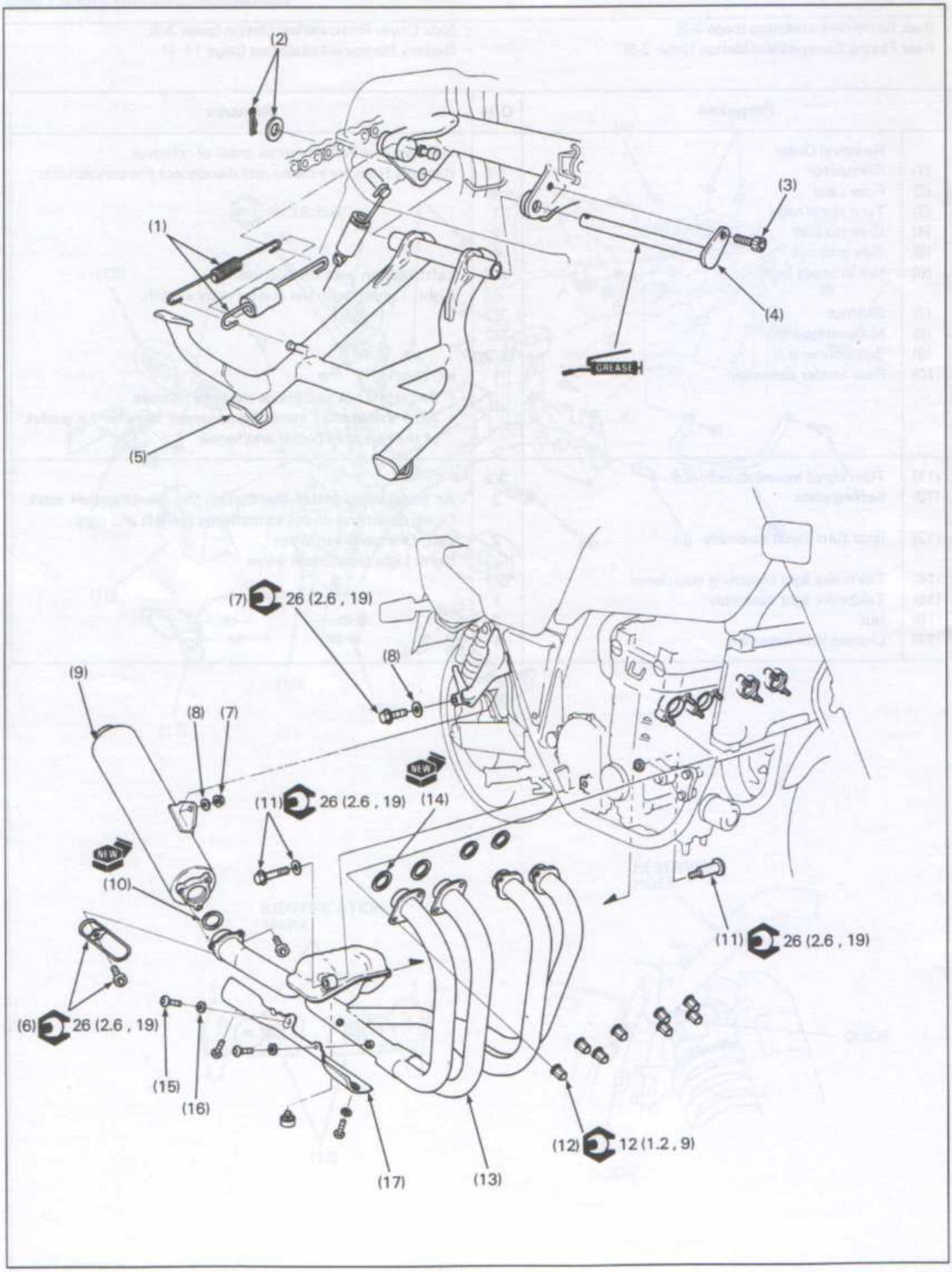


Requisite Service

- Seat Removal/Installation (page 2-2)
- Rear Fairing Removal/Installation (page 2-3)
- Side Cover Removal/Installation (page 2-2)
- Battery Removal/Installation (page 14-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Connector	1/6	Remove from wire clamp and disconnect the connectors.
(2)	Fuse case	1	
(3)	Turn signal relay	1	
(4)	Grab rail bolt	2	
(5)	Side grab rail	1	
(6)	Nut/stopper bolt	2/2	Left: Tighten with the fuel valve. Right: Tighten with the starter relay switch.
(7)	Bolt/nut	2/2	
(8)	Nut/setting plate	2/2	
(9)	Bolt/spacer nut	2/2	
(10)	Rear fender assembly	1	NOTE: · Be careful not to damage the wire harness. · After installation, install the reservoir hose to the guides of the rear step holder and fender.
(11)	Turn signal mounting bolt/nut	2/2	
(12)	Setting plate	2	At installation, install them with the identification mark facing down and do not interchange the left and right.
(13)	Rear turn signal assembly	2	Left: Orange/Green wires Right: Light blue/Green wires
(14)	Tail/brake light mounting nut/clamp	3/1	
(15)	Tail/brake light assembly	1	
(16)	Nut	2	
(17)	License light assembly	1	

Exhaust System Removal/Installation

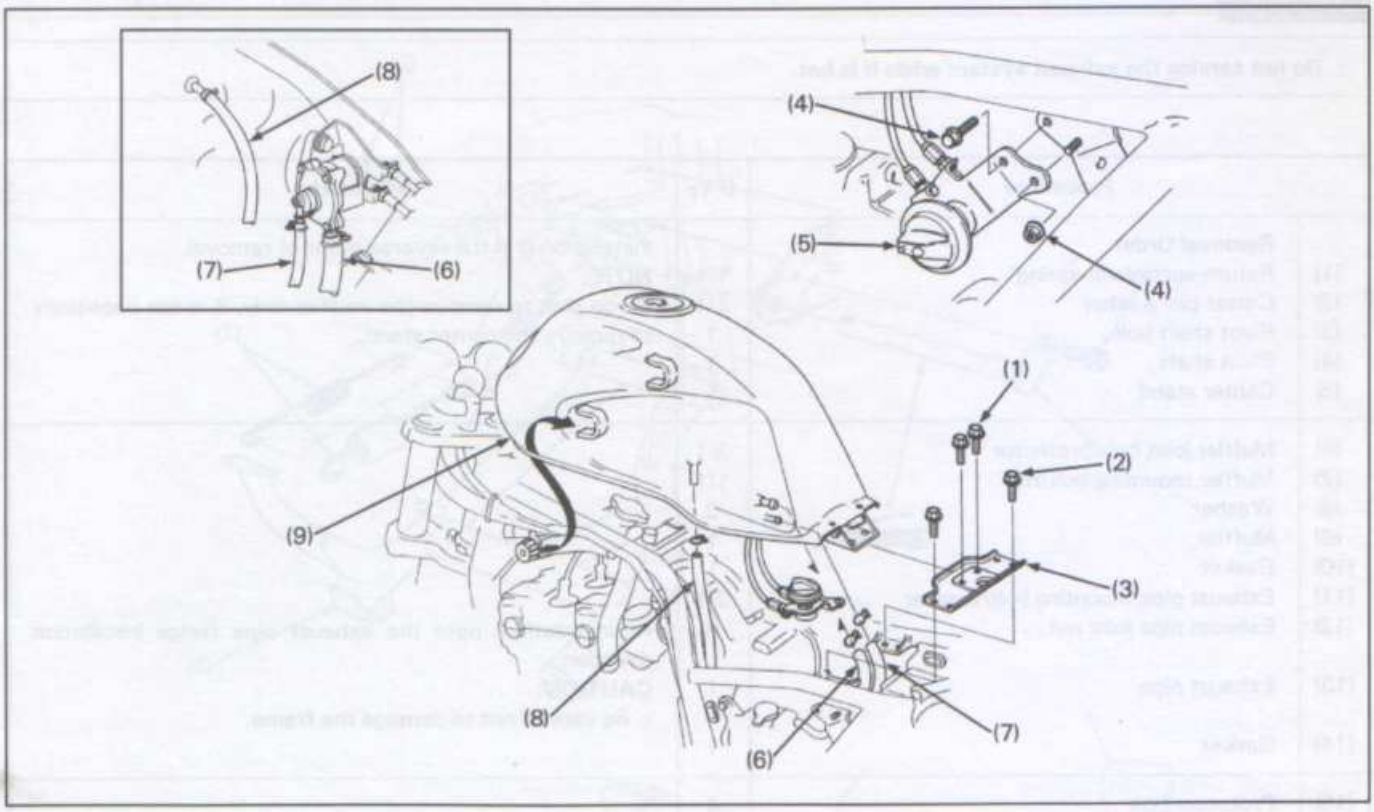


⚠WARNING

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

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Return spring/sub-spring	1/1	NOTE:
(2)	Cotter pin/washer	1/1	If you plan to remove the muffler only, it is not necessary to remove the center stand.
(3)	Pivot shaft bolt	1	
(4)	Pivot shaft	1	
(5)	Center stand	1	
(6)	Muffler joint bolt/protector	3/1	
(7)	Muffler mounting bolt/nut	1/1	
(8)	Washer	2	
(9)	Muffler	1	
(10)	Gasket	1	
(11)	Exhaust pipe mounting bolt/washer	2/1	
(12)	Exhaust pipe joint nut	8	At installation, note the exhaust pipe flange installation direction.
(13)	Exhaust pipe	1	**CAUTION:** - **Be careful not to damage the frame.**
(14)	Gasket	1	
(15)	Protector bolt	4	
(16)	Washer	4	
(17)	Exhaust pipe protector	1	

Fuel Tank 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 or where gasoline is stored can cause a fire or explosion.**

NOTE:

- Before removal, turn the fuel valve OFF.
- After installation, start the engine and check the fuel line for leakage.

Requisite Service

- Seat removal/installation (page 2-2)
- Left side cover removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuel tank bolt	2	
(2)	Cross plate bolt	4	
(3)	Tank cross plate	1	
(4)	Fuel valve bolt/nut	1/1	
(5)	Fuel valve	1	After removing the bolt and nut, move the fuel valve to inside of the frame.
(6)	Fuel tube	1	Raise the rear of the fuel tank by supporting the front mounting portion of the tank and disconnect the tubes.
(7)	Vacuum tube	1	
(8)	Breather tube (49 state type)	1	
	No. 1 tube (California type)	1	
(9)	Fuel tank	1	Slide the fuel tank rearward and remove it.

3. Maintenance

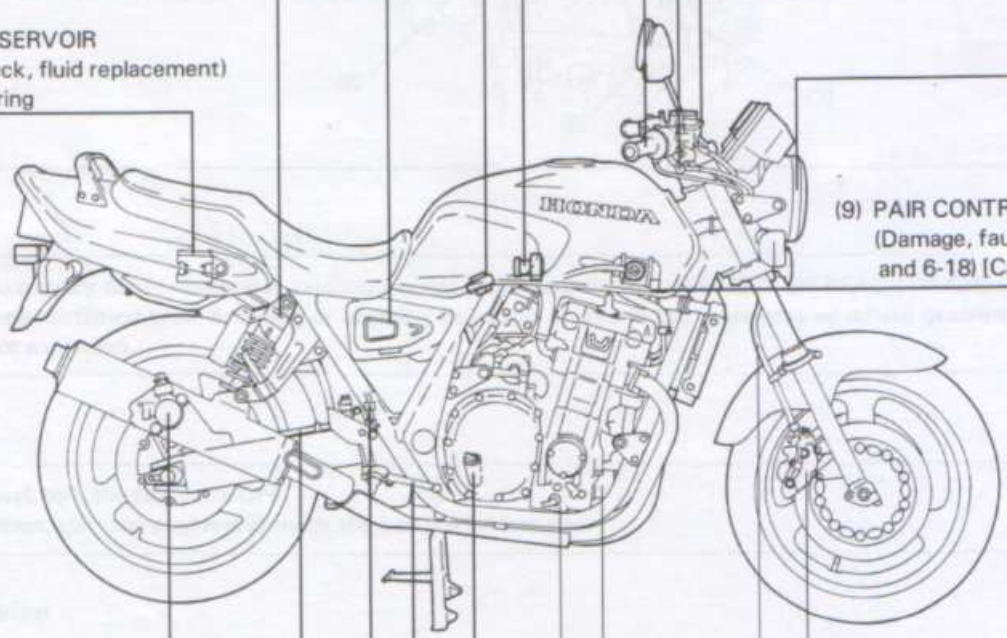
Service Information	3-1	Spark Plugs	3-5
Service Access Guide	3-2	Valve Clearance	3-6
Maintenance Schedule	3-4	Drive Chain Slider	3-9
Air Cleaner	3-5	Carburetor Synchronization	3-10

Service Information

- Refer to Common Service Manual for service procedures on items not included in this manual.
- Refer to specifications (Section 1) for maintenance service 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
  - Side cover ——— The part that must be removed for service.



(4) EVAP PURGE CONTROL VALVE and EVAP CAV CONTROL VALVE (Damage, faulty hose) [California type]

(3) AIR CLEANER (Contamination, clogging, replacement: page 3-5)

(2) SUSPENSION (Looseness, wear, damage)

(1) BRAKE RESERVOIR (Level check, fluid replacement)
- Rear fairing

(18) BRAKE CALIPER (Pad wear)

(17) BRAKE HOSE (Leakage, degradation, damage)

(16) BRAKE LIGHT SWITCH (Operation)

(15) BRAKE PEDAL (Air in system)

(14) OIL FILLER CAP/LEVEL GAUGE (Level check, replacement)

(5) THROTTLE GRIP (Operation, free play)

(6) BRAKE LEVER (Air in system)

(7) BRAKE MASTER CYLINDER (Level check, fluid replacement)

(8) HEADLIGHT (Aim)

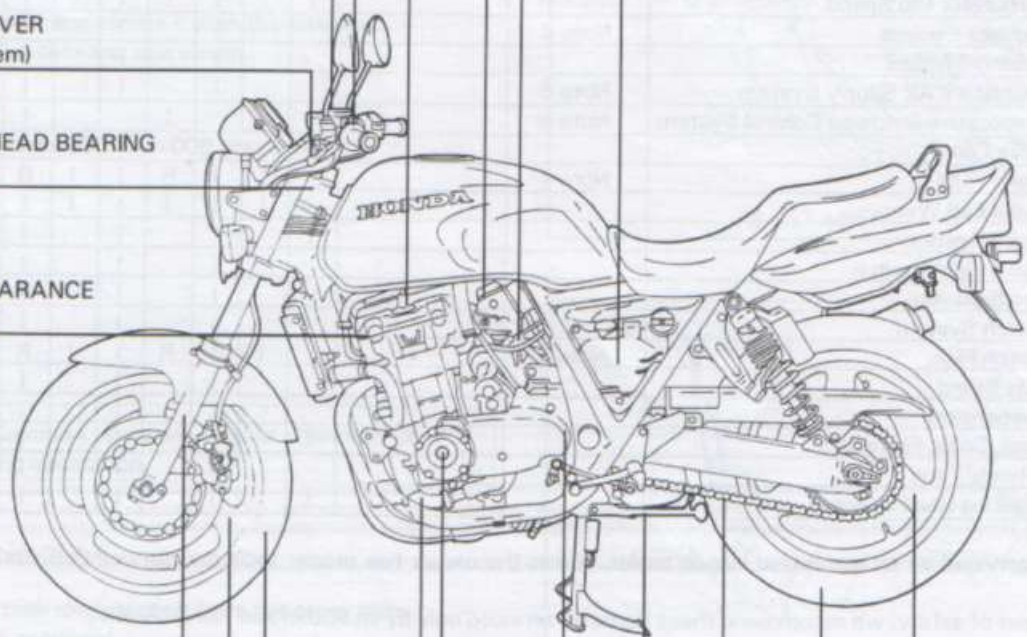
(9) PAIR CONTROL VALVE (Damage, faulty hose: page 6-15 and 6-18) [California type]

(10) BRAKE CALIPER (Pad wear)

(11) BRAKE HOSE (Leakage, degradation, damage)

(12) OIL FILTER (Replacement)

(13) OIL DRAIN BOLT (Oil replacement)



(6) SPARK PLUG
(Wear, damage, color: page 3-5)

(5) CARBURETOR CHOKE
(Operation)

(4) CLUTCH MASTER CYLINDER
(Level check, fluid replacement)

(3) CLUTCH LEVER
(Air in system)

(2) STEERING HEAD BEARING
(Damage)

(1) VALVE CLEARANCE
(page 3-6)

(19) SUSPENSION
(Looseness, wear, damage)

(18) WHEEL
(Damage, runout, corrosion)

(17) TIRE
(Wear, damage, pressure)

(16) RADIATOR HOSE
(Leakage, deterioration, damage)

(15) TIMING HOLE CAP
(Ignition timing)

(7) SYNCHRONIZATION ADJUSTING SCREW
(Synchronization: page 3-10)

(8) THROTTLE STOP CONTROL KNOB
(Idle speed adjustment)

(9) RESERVE TANK
(Coolant level)
· Side cover

(10) WHEEL (Damage, runout, corrosion)

(11) TIRE
(Wear, damage, pressure)

(12) DRIVE CHAIN (Slack, lubrication, replacement)

(13) SIDE STAND (Operation)

(14) DRIVE CHAIN SLIDER
(Wear, damage: page 3-9)

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	Whichever Comes First → ↓	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 6
	*	Throttle Operation					I		I		I	Note 6
	*	Carburetor Choke					I		I		I	Note 6
		Air Cleaner	Note 2					R			R	3-5
		Crankcase Breather	Note 3			C	C	C	C	C	C	Note 6
		Spark Plug				I	R	I	R	I	R	3-5
	*	Valve Clearance			I		I		I		I	3-6
		Engine Oil			R		R		R		R	Note 6
		Engine Oil Filter			R		R		R		R	Note 6
	*	Carburetor Synchronization					I		I		I	3-10
	*	Carburetor Idle Speed			I	I	I	I	I	I	I	Note 6
		Radiator Coolant	Note 4				I		I		R	Note 6
	*	Cooling System					I		I		I	Note 6
	*	Secondary Air Supply System	Note 5				I		I		I	Note 6
	*	Evaporative Emission Control System	Note 5					I			I	Note 6
NON-EMISSION RELATED ITEMS		Drive Chain			I, L Every 600 mi (1,000 km)							Note 6
		Brake Fluid	Note 4			I	I	R	I	I	R	Note 6
		Brake Pad Wear				I	I	I	I	I	I	Note 6
		Brake System			I		I		I		I	Note 6
	*	Brake Light Switch					I		I		I	Note 6
	*	Headlight Aim					I		I		I	Note 6
		Clutch System					I		I		I	Note 6
		Clutch Fluid	Note 4			I	I	R	I	I	R	Note 6
		Side Stand					I		I		I	Note 6
	*	Suspension					I		I		I	Note 6
	*	Nuts, Bolts, Fasteners			I		I		I		I	Note 6
	* *	Wheels/Tires					I		I		I	Note 6
	* *	Steering Head Bearings			I		I		I		I	Note 6

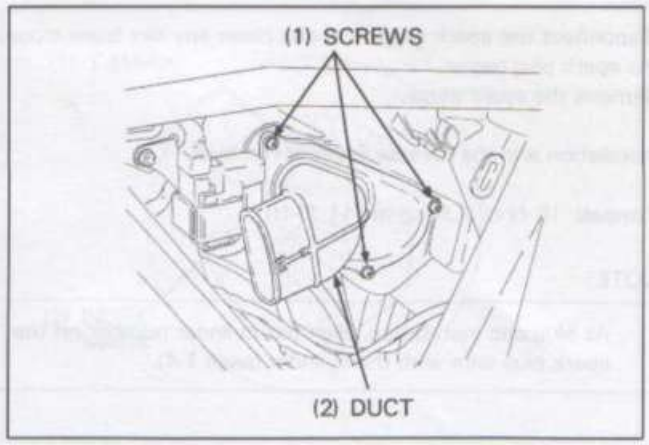
* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.
* * In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

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. Service more frequently when riding in rain or at full throttle.
4. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.
5. California type only.
6. Refer to the Common Service Manual.

Air Cleaner

Remove the side cover (page 2-2).

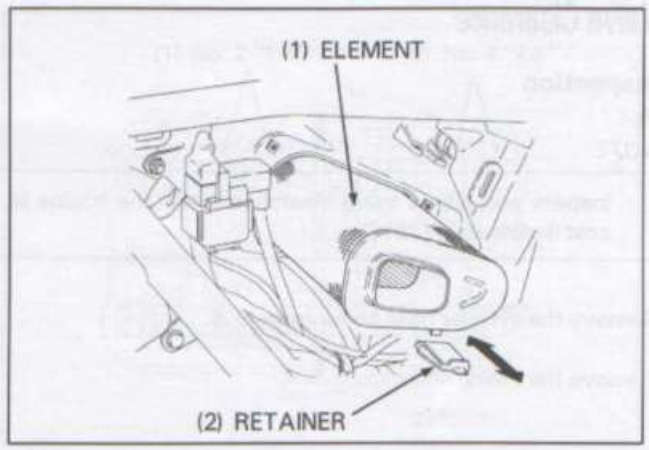
Remove the screws and air intake duct.



Remove the retainer and the air cleaner element.
Discard the element in accordance with the maintenance schedule.

Also, replace the element any time it is excessively dirty or damaged.

Install a new element and secure it with the retainer.
Install the air intake duct and side cover.



Spark Plugs

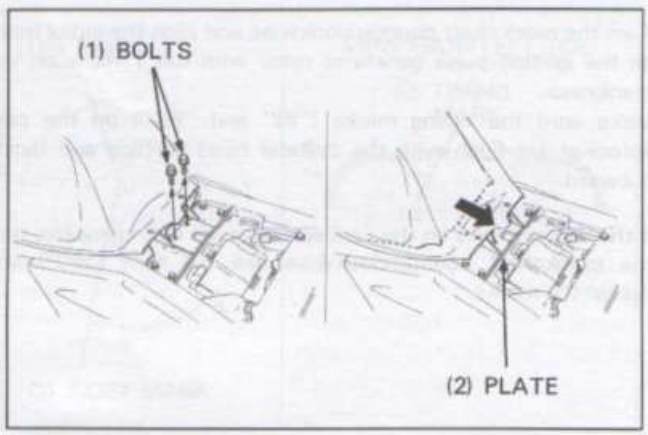
NOTE:

- Refer to Common Service Manual (Section 2) for inspection and installation.

Remove the seat (page 2-2).

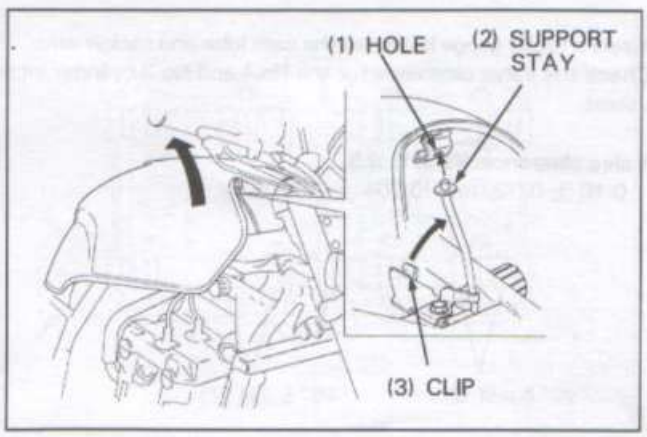
Remove the fuel tank retaining bolt from the cross plate.
Slide the fuel tank rearward.

Raise the front side of the fuel tank and release the tank support stay from the clip.
Insert the stay end to the hole of the fuel tank and hold it securely.



CAUTION:

- **Do not raise the fuel tank more than necessary to avoid deforming the cross plate and fuel tank.**



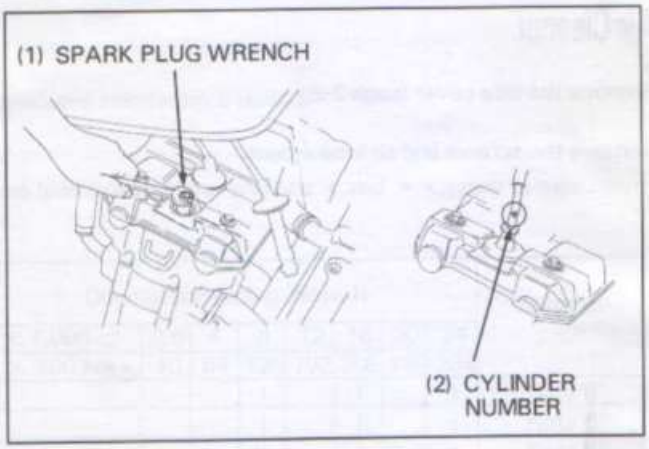
Disconnect the spark plug caps and clean any dirt from around the spark plug bases.
Remove the spark plugs.

Installation is in the reverse order of removal.

Torque: 15 N·m (1.5 kg-m , 11 lb-ft)

NOTE:

- At plug cap installation, align the cylinder number on the spark plug wire with the cylinder (page 1-4).



Valve Clearance

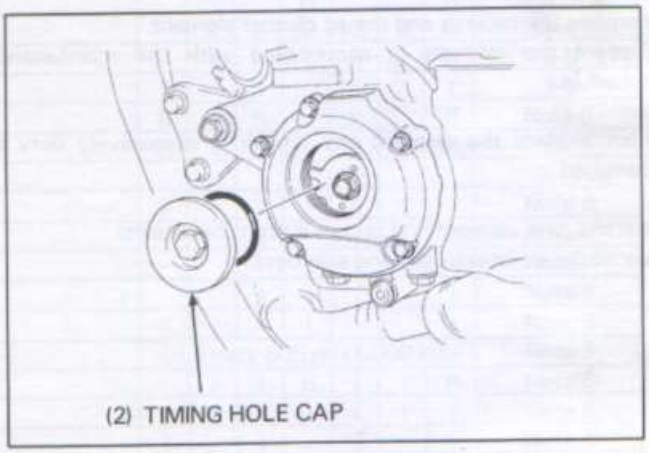
Inspection

NOTE:

- Inspect and adjust valve clearance while the engine is cold (below 95°F/35°C).

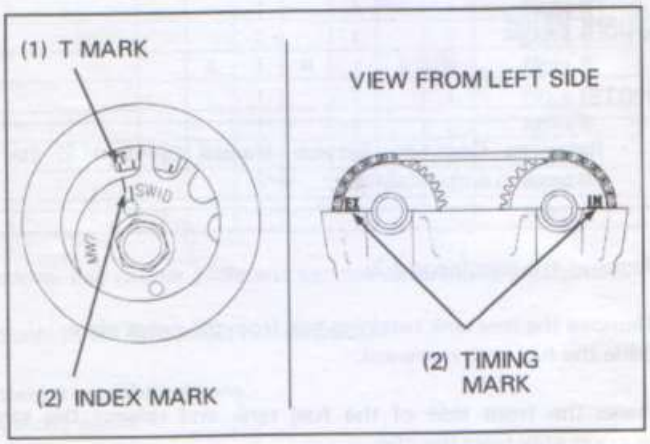
Remove the cylinder head cover (page 8-2).

Remove the timing hole cap.



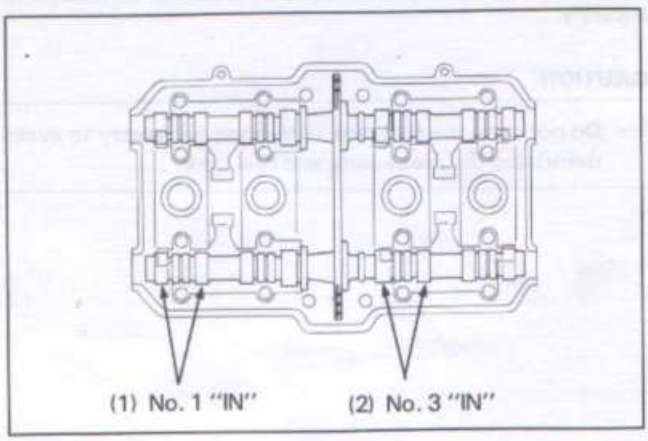
Turn the crankshaft counterclockwise and align the index mark on the ignition pulse generator rotor with the T mark on the crankcase.
Make sure the timing marks ("IN" and "EX") on the cam sprocket are flush with the cylinder head surface and facing outward.

If the timing marks on the cam sprocket are facing inward, turn the crankshaft counterclockwise one full turn (360°) and realign the marks.

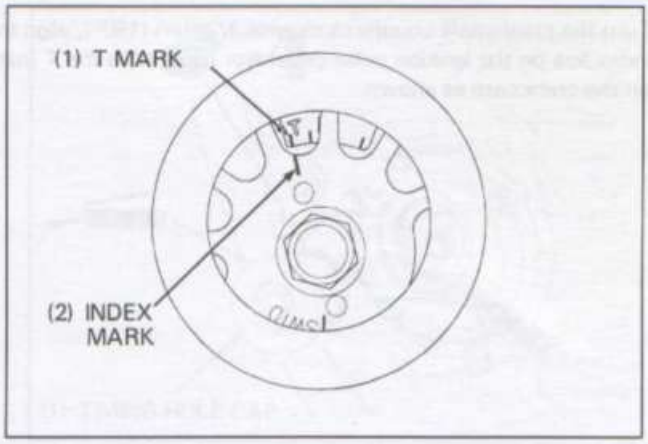


Insert a feeler gauge between the cam lobe and rocker arm.
Check the valve clearance for the No.1 and No.3 cylinder intake valves.

Valve clearance: IN-#1, #3
0.10 ± 0.020 mm (0.004 ± 0.0008 in)

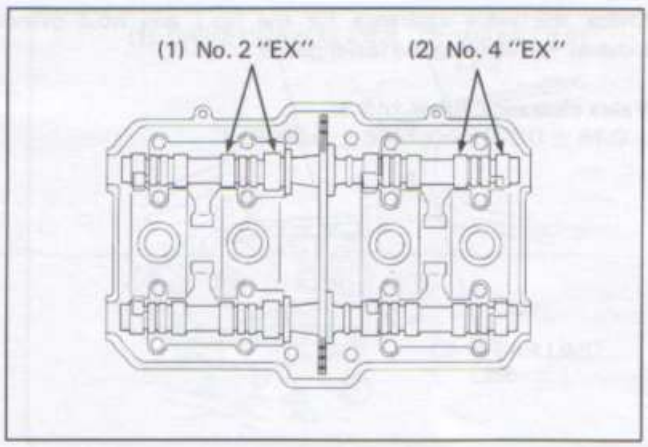


Turn the crankshaft counterclockwise 1/2 turn (180°), align the index line on the ignition pulse generator rotor with the T mark on the crankcase as shown.

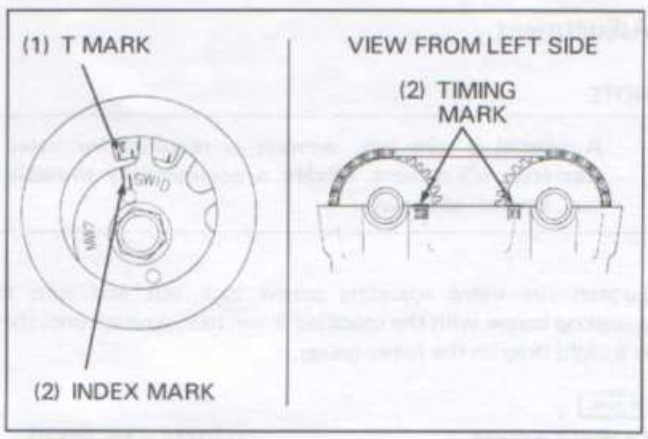


Check the valve clearance for the No.2 and No.4 cylinder exhaust valves using the feeler gauge.

Valve clearance: EX-#2, #4:
0.16 ± 0.020 mm (0.006 ± 0.0008 in)

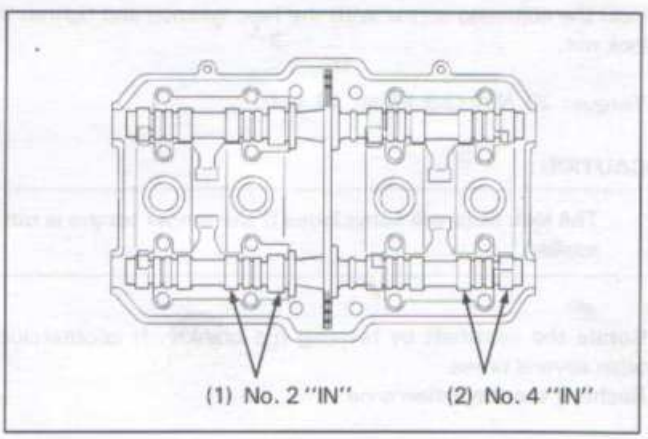


Turn the crankshaft counterclockwise 1/2 turn (180°) and align the index line on the ignition pulse generator rotor with the T mark on the crankcase.
Make sure the timing marks ("IN" and "EX") on the cam sprocket are flush with the cylinder head surface and facing inward.

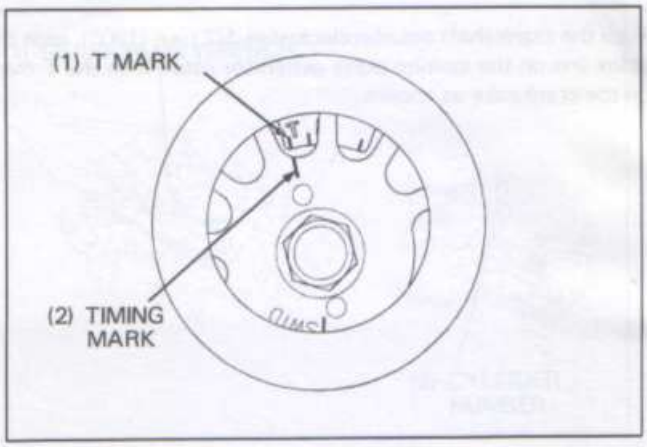


Check the valve clearance for the No.2 and No.4 cylinder intake valves using the feeler gauge.

Valve clearance: IN-#2, #4:
0.10 ± 0.020 mm (0.004 ± 0.0008 in)

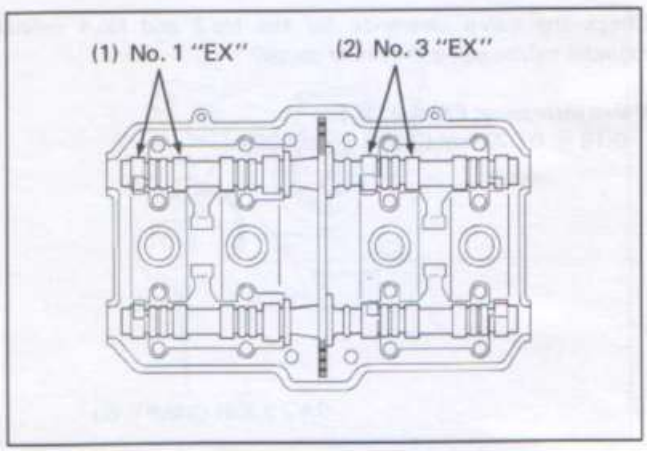


Turn the crankshaft counterclockwise 1/2 turn (180°), align the index line on the ignition pulse generator rotor with the T mark on the crankcase as shown.



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

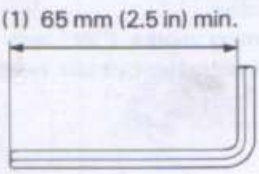
Valve clearance: EX-# 1, # 3:
0.16 ± 0.020 mm (0.006 ± 0.0008 in)



Adjustment

NOTE:

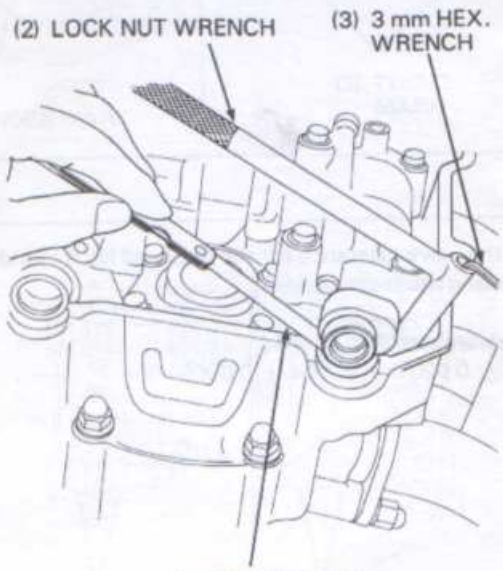
- A special 3 mm hex. wrench is required for valve clearance adjustment. Modify a commercially available hex. wrench as shown.



Loosen the valve adjusting screw lock nut and turn the adjusting screw with the modified 3 mm hex. wrench until there is a slight drag on the feeler gauge.

5 TOOL

Lock nut wrench **07GMA – ML70120**



Hold the adjusting screw with the hex. wrench and tighten the lock nut.

Torque: 23 N·m (2.3 kg-m, 17 lb-ft)

CAUTION:

- **The lock nuts will come loose if the proper torque is not applied.**

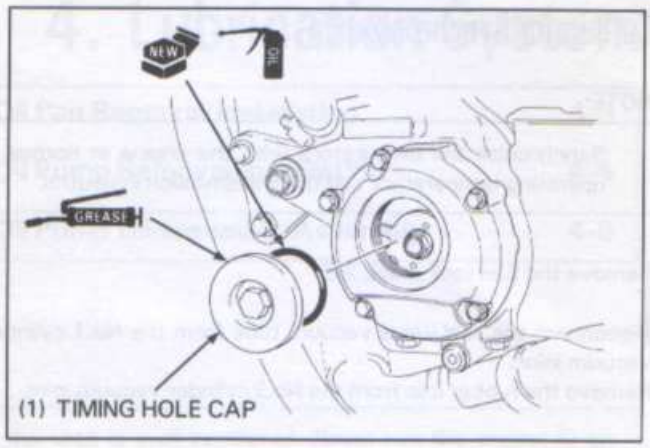
Rotate the camshaft by rotating the crankshaft counterclockwise several times.
Recheck the valve clearance.

Apply engine oil to the O-ring.
Apply grease to the cap threads and mating surfaces.

Install and tighten the timing hole cap.

Torque: 18 N·m (1.8 kg-m , 13 lb-ft)

Install the following:
– Cylinder head cover (page 8-2)
– Fuel tank (page 2-8)
– Seat (page 2-2).

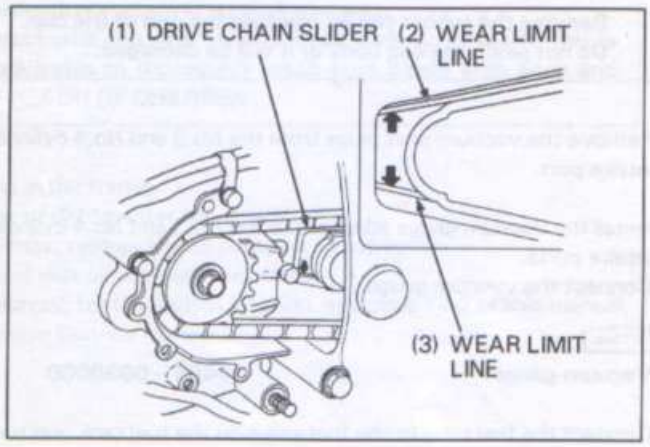


Drive Chain Slider

Remove the drive sprocket cover (page 7-4).

Check the drive chain slider for wear or damage.
The chain slider must be replaced if it is worn to the wear limit line.

Refer to page 12-7 for replacement.



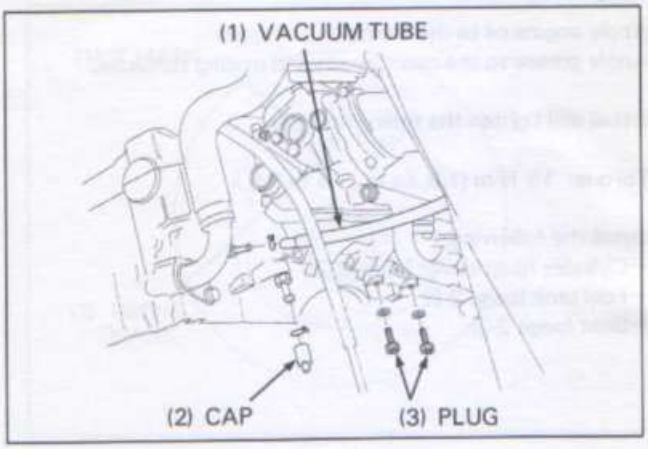
Carburetor Synchronization

NOTE:

- Synchronize the carburetors with the engine at normal operating temperature and the transmission in neutral.

Remove the fuel tank (page 2-8).

Disconnect the fuel valve vacuum tube from the No.1 cylinder vacuum joint.
Remove the rubber cap from the No.2 cylinder vacuum joint.



CAUTION:

- **Remove the rubber cap by pinching the end of the cap. Do not pinch the cap body or it will be damaged.**

Remove the vacuum port plugs from the No.3 and No.4 cylinder intake port.

Install the vacuum gauge adaptors to the No.3 and No.4 cylinder intake ports.
Connect the vacuum gauge.

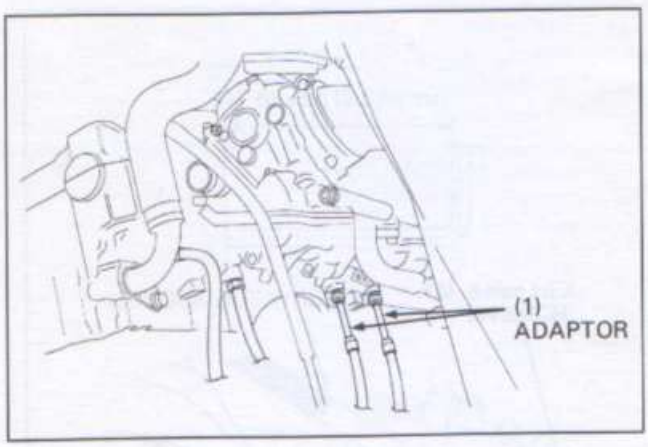
S TOOL

Vacuum gauge **07404−0030000**

Connect the fuel tube to the fuel valve on the fuel tank and turn the fuel valve ON.
Connect the vacuum tube to the fuel valve on the fuel tank and draw vacuum, then pinch the tube with a clip.

1. Start the engine and adjust the idle rpm to the specified idle speed.

Idle speed: 49 state type: 1,000 ± 100 rpm
California type: 1,100 ± 100 rpm

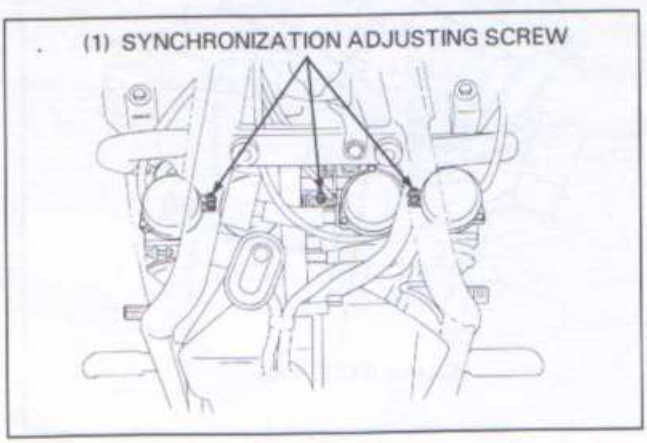


NOTE:

- The base carburetor is the No.3 carburetor.

2. Check that the difference in vacuum between No. 1, 2 and 4 carburetors and No. 3 is 40 mmHg (1.6 inHg) or less.

Carburetor vacuum difference: Within 40 mmHg (1.6 inHg)



3. Adjust the carburetor synchronization by turning the synchronization adjusting screw.

4. Snap the throttle grip several times and recheck the idle speed and difference in vacuum between each carburetor.

Disconnect the vacuum gauge and install the removed parts.

Torque: Vacuum port plug: 3 N·m (0.3 kg-m , 2.2 lb-ft)

4. Lubrication System

Service Information	4-1	Oil Pan Removal/Installation	4-3
Troubleshooting	4-1	Oil Pump Removal/Installation	4-4
Lubrication System Diagram	4-2	Oil Pump Disassembly/Assembly	4-6

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 service procedures in this section can be performed with engine in the frame.
- 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 oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.
- For oil pressure check, refer to section 4 of the Common Service Manual; for the switch location, see page 17-2 of this manual.
- For oil pressure indicator inspection, refer to section 25 of the Common Service Manual.

Troubleshooting

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

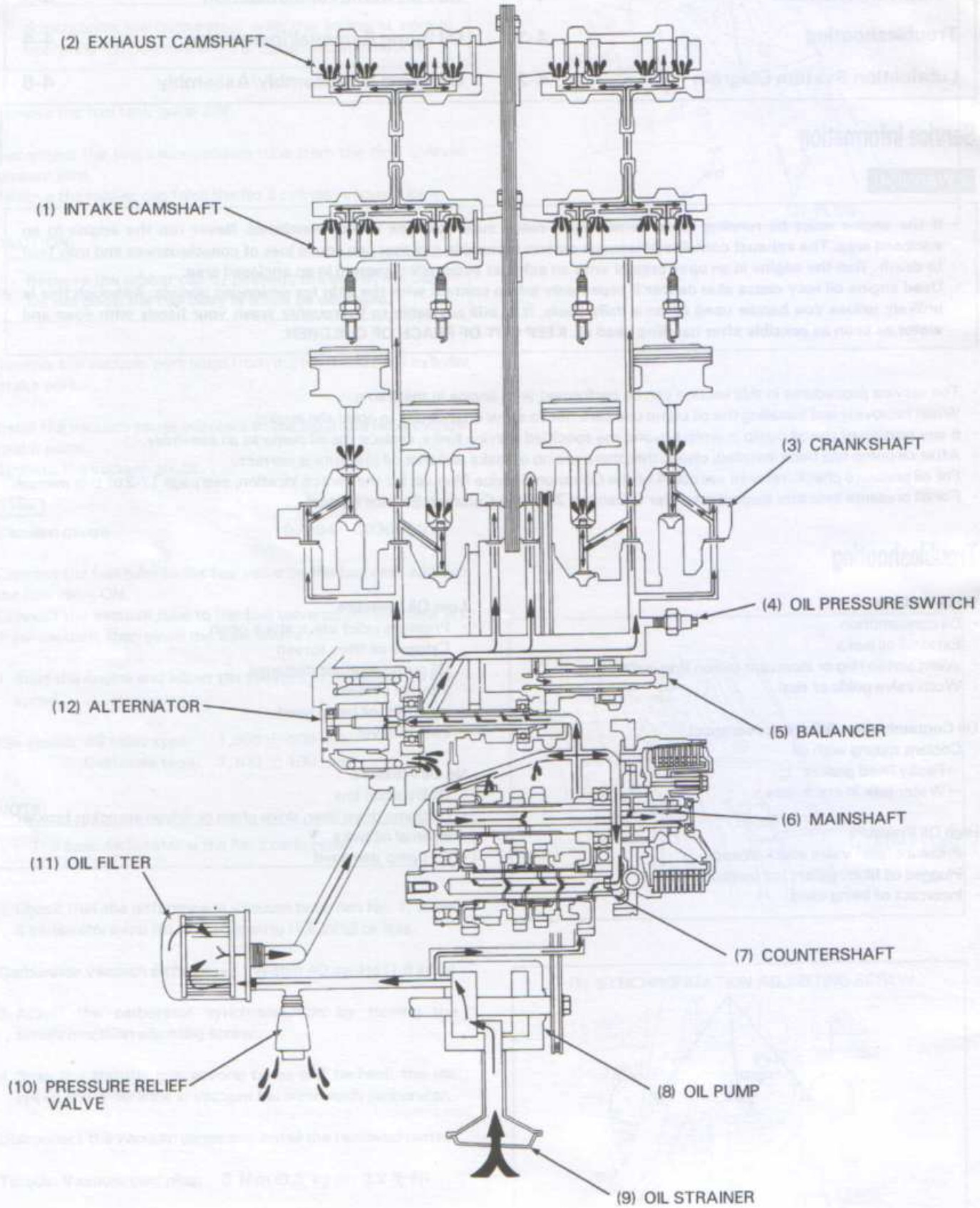
Oil Contamination (White appearance)
- Coolant mixing with oil
  - —Faulty head gasket
  - —Water leak in crankcase

High Oil Pressure
- Pressure relief valve stuck closed
- Plugged oil filter, gallery, or metering orifice
- Incorrect oil being used

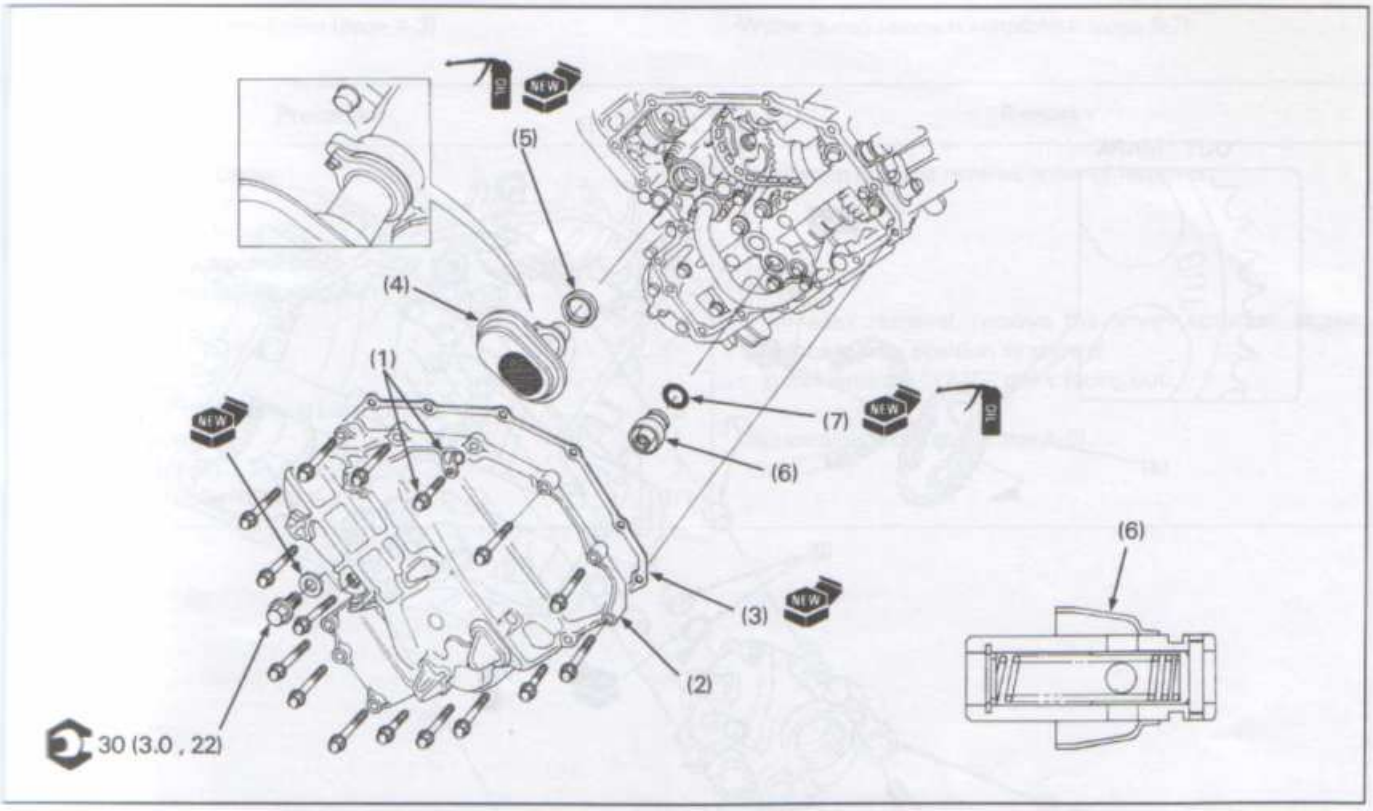
Low Oil Pressure
- Pressure relief valve stuck open
- Clogged oil filter screen
- Oil pump worn or damaged
- Internal oil leaks
- Incorrect oil being used
- Low oil level

No Oil Pressure
- Oil level too low
- Oil pump drive gear, drive chain or driven sprocket broken
- Internal oil leaks
- Oil pump damaged

Lubrication System Diagram



Oil Pan Removal/Installation

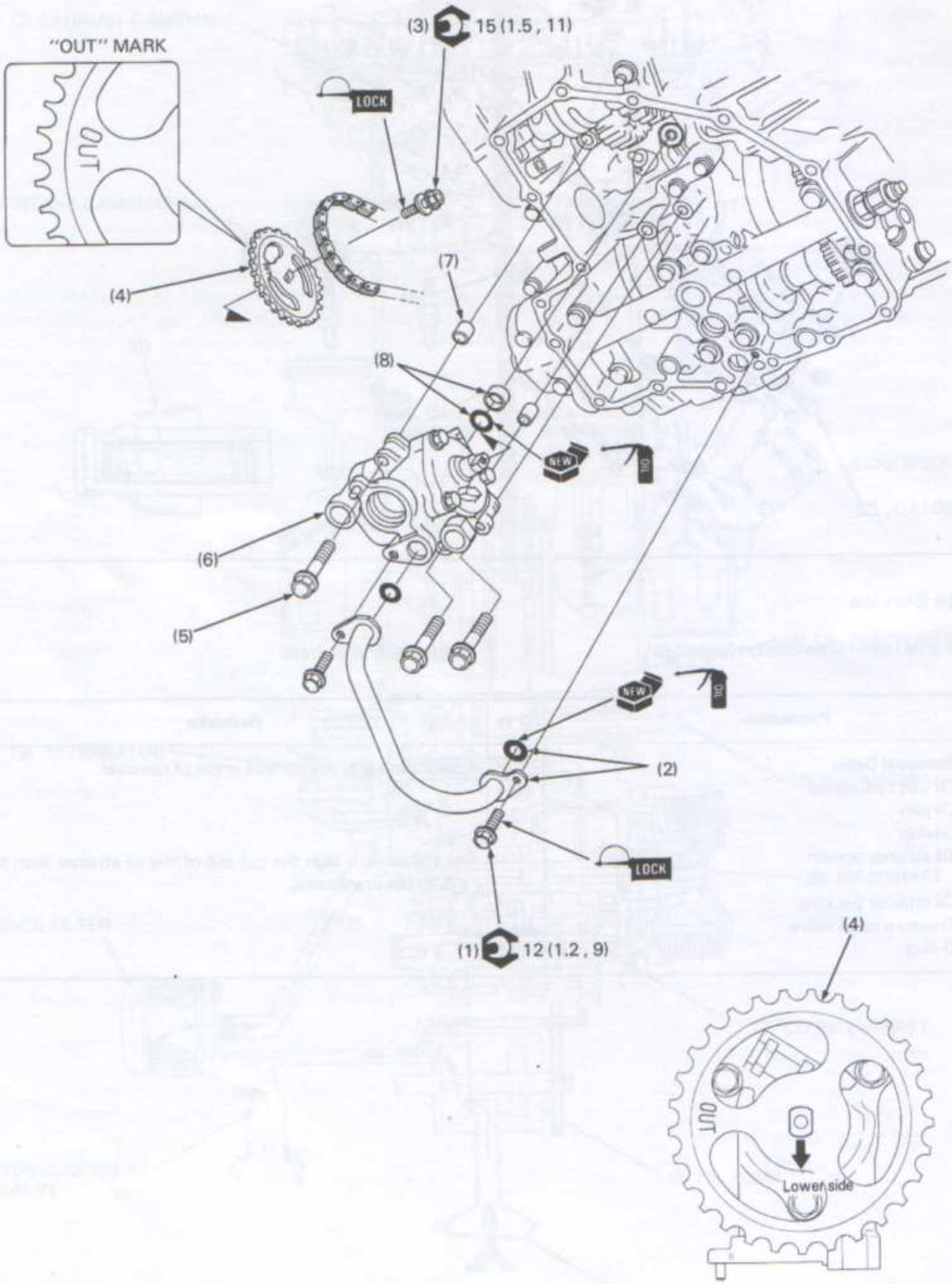


Requisite Service

- Exhaust pipe removal/installation (page 2-6)
- Engine oil draining/refill

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pan bolt/clamp	16/1	
(2)	Oil pan	1	
(3)	Gasket	1	
(4)	Oil strainer screen	1	At installation, align the cut out of the oil strainer with the pin on the crankcase.
(5)	Oil strainer packing	1	
(6)	Pressure relief valve	1	
(7)	O-ring	1	

Oil Pump Removal/Installation

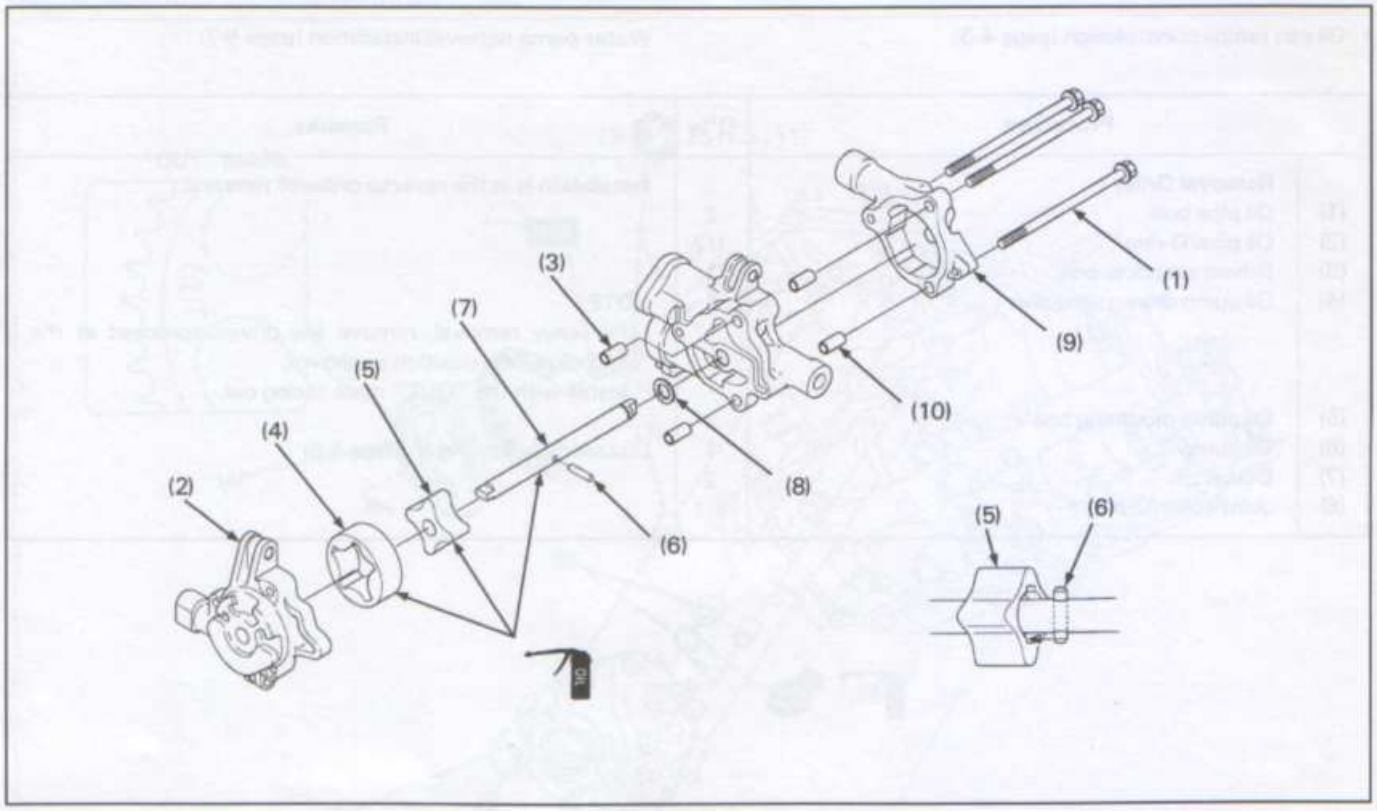


Requisite Service

- Oil pan removal/installation (page 4-3)
- Water pump removal/installation (page 5-7)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pipe bolt	2	
(2)	Oil pipe/O-ring	1/2	
(3)	Driven sprocket bolt	1	
(4)	Oil pump driven sprocket	1	NOTE: · For easy removal, remove the driven sprocket at the sprocket hole position as shown. · Install with the "OUT" mark facing out.
(5)	Oil pump mounting bolt	3	
(6)	Oil pump	1	Disassembly/assembly (page 4-6)
(7)	Dowel pin	2	
(8)	Joint collar/O-ring	1/1	

Oil Pump Disassembly/Assembly



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	3	
(2)	Oil pump cover B	1	
(3)	Dowel pin	2	
(4)	Outer rotor	1	
(5)	Inner rotor	1	At installation, align the drive pin with the groove in the inner rotor.
(6)	Drive pin	1	
(7)	Oil pump shaft	1	
(8)	Thrust washer	1	
(9)	Oil pump cover A	1	
(10)	Dowel pin	2	

5. Cooling System

Service Information	5-1	Radiator Removal/Installation	5-5
Troubleshooting	5-1	Radiator Disassembly/Assembly	5-6
System Flow Pattern	5-2	Water Pump Removal/Installation	5-7
Coolant Draining	5-3	Radiator Reserve Tank Removal/Installation	5-8
Thermostat Removal/Installation	5-4		

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 service 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.
- For fan motor switch and thermo sensor inspections, refer to section 25 of the Common Service Manual. For the switch and sensor locations, see page 17-2 of this manual.

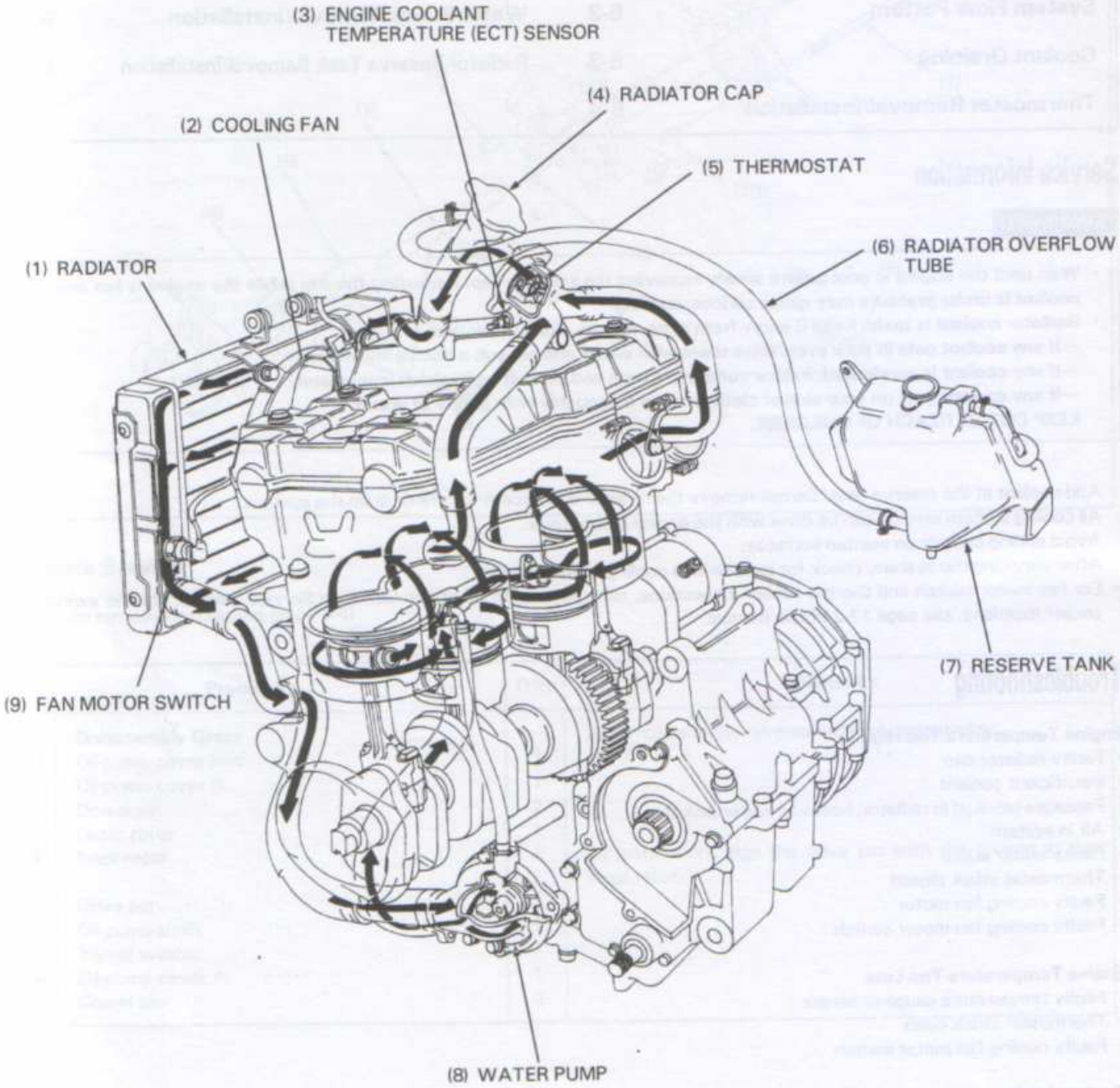
Troubleshooting

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 cooling fan motor
- Faulty cooling fan motor switch

Engine Temperature Too Low
- Faulty temperature gauge or sensor
- Thermostat stuck open
- Faulty cooling fan motor switch

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

System Flow Pattern



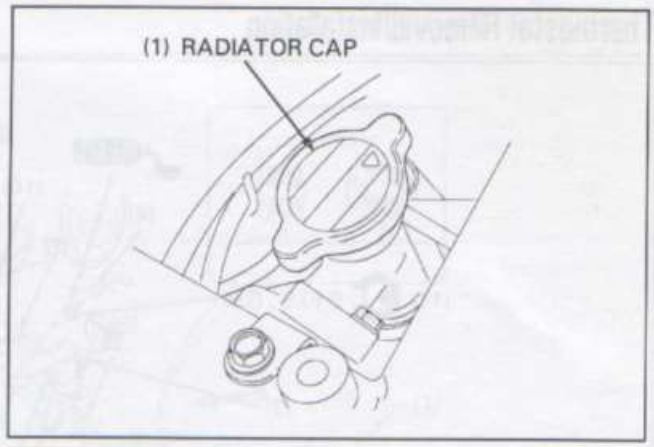
Coolant Draining

⚠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.**

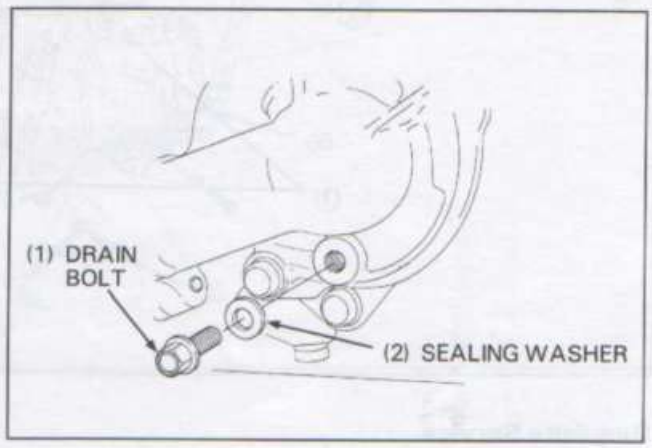
NOTE:

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

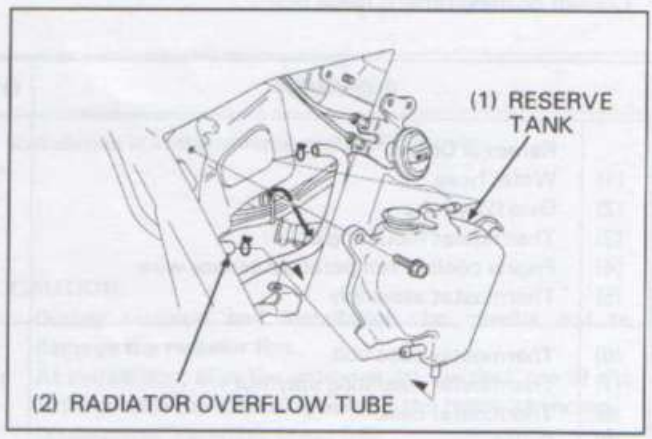


Remove the fuel tank (page 2-8).

Remove the radiator cap.
Remove the radiator drain bolt and sealing washer from the water pump, and drain the coolant from the engine.



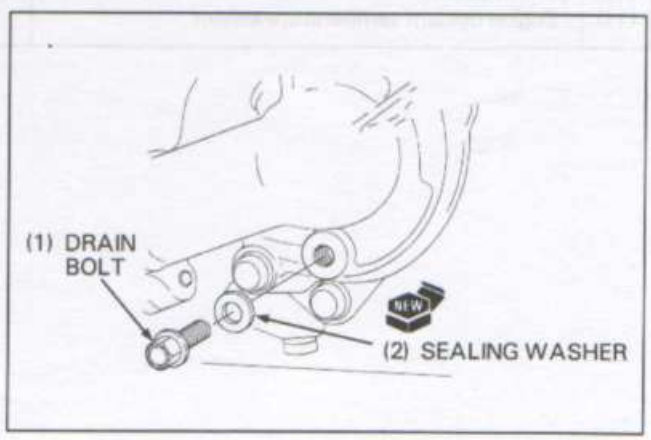
Remove the reserve tank from the frame (page 5-8).
Place a suitable container under the radiator overflow tube joint of the reserve tank, disconnect the overflow tube from the tank, and drain the coolant from the tank.



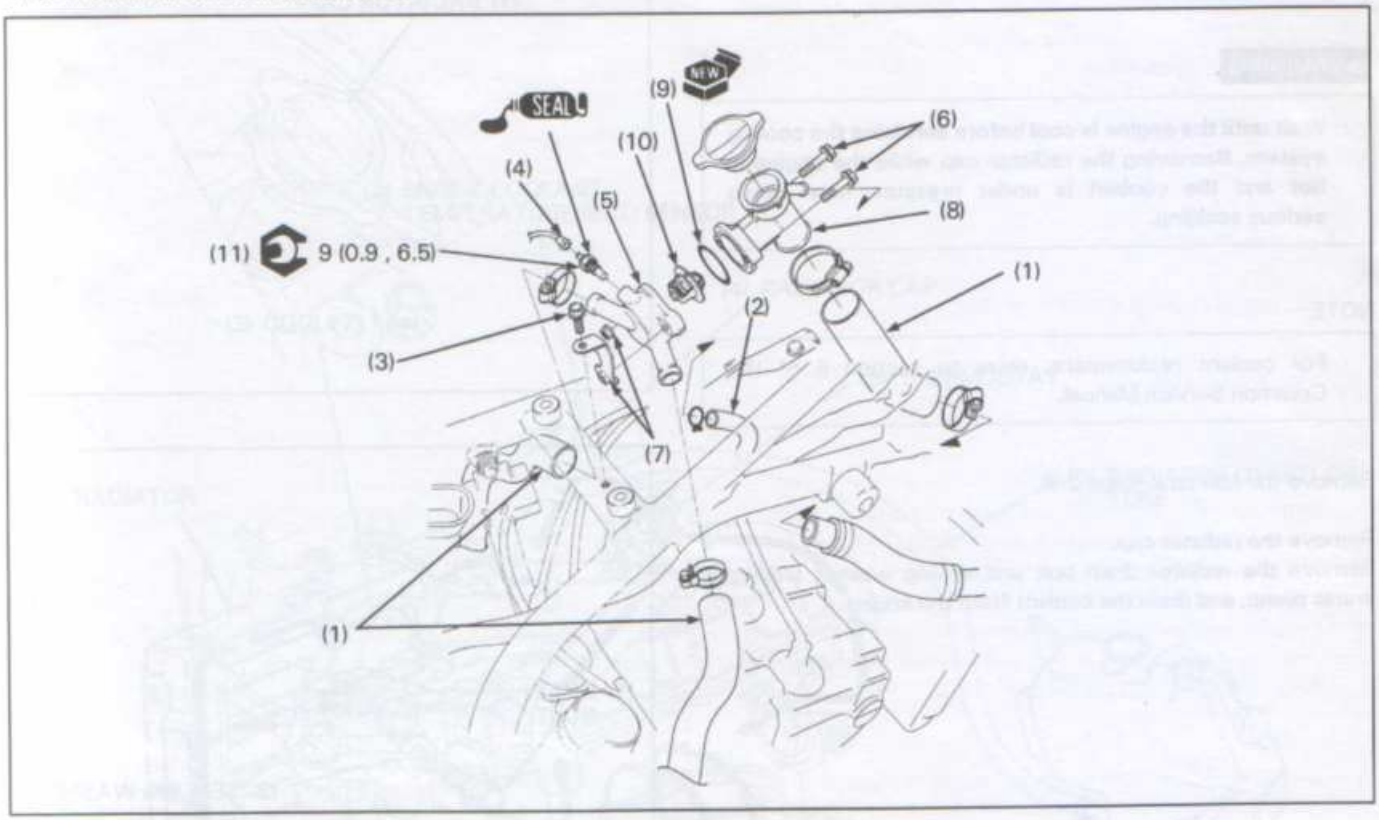
Install the drain bolt with a new sealing washer.

Torque: 13 N·m (1.3 kg-m , 9 lb-ft)

Connect the overflow tube to the reserve tank.
Install the reserve tank (page 5-8).



Thermostat Removal/Installation

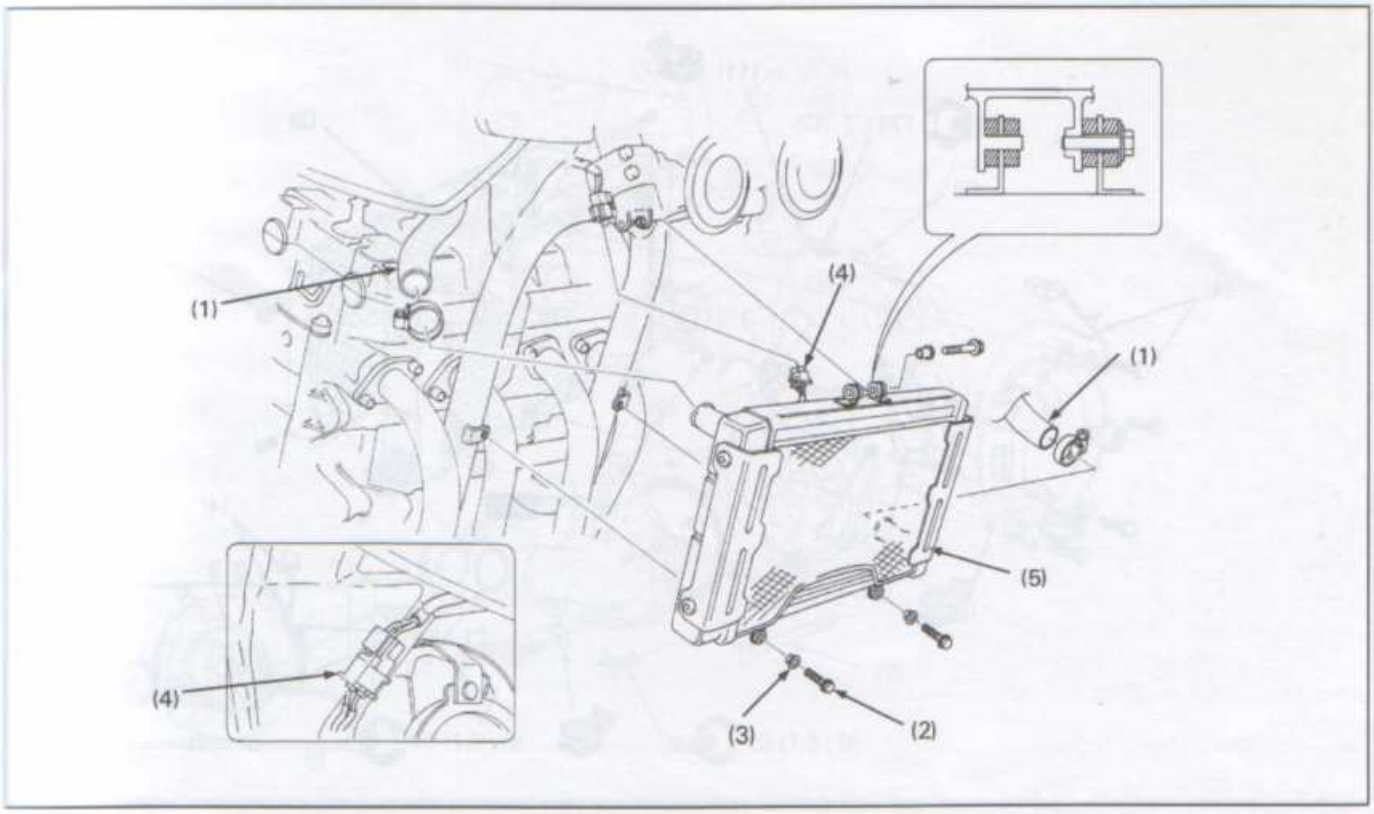


Requisite Service

- Coolant draining/refilling (page 5-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Water hose	3	
(2)	Overflow tube	1	
(3)	Thermostat mounting bolt	1	
(4)	Engine coolant temperature sensor wire	1	
(5)	Thermostat assembly	1	
(6)	Thermostat case bolt	2	
(7)	Thermostat mounting stay/nut	1/1	
(8)	Thermostat case	1	
(9)	O-ring	1	
(10)	Thermostat	1	At installation, install with its hole facing up.
(11)	Engine coolant temperature sensor	1	

Radiator Removal/Installation

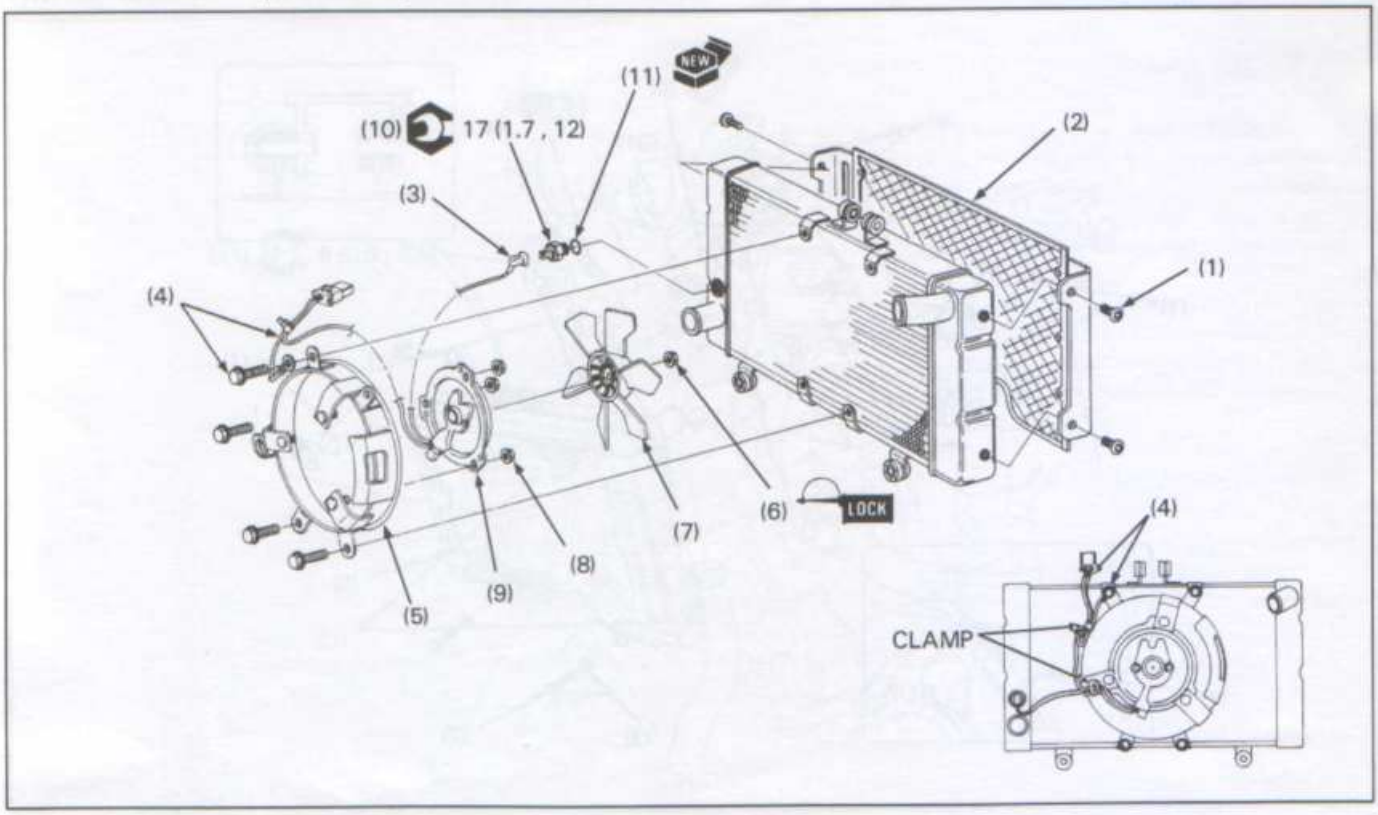


Requisite Service

- Coolant draining/refilling (page 5-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Water hose	2	
(2)	Radiator mounting bolt	3	
(3)	Collar	3	
(4)	Fan motor wire connector	1	
(5)	Radiator assembly	1	**CAUTION:** · **During removal and installation, be careful not to damage the radiator fins.** · At installation, align the grommet on the right top of the radiator with the mounting boss of the frame as shown. · Disassembly/assembly (page 5-6)

Radiator Disassembly/Assembly

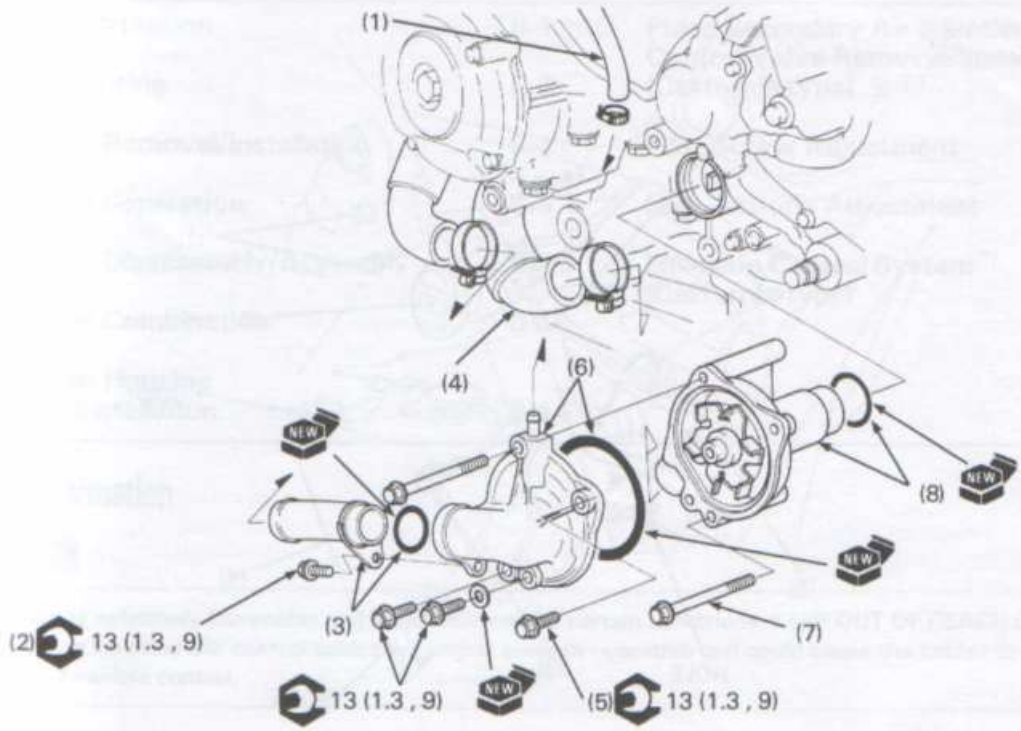


Requisite Service

- Radiator removal/installation (page 5-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Radiator grill bolt	4	
(2)	Radiator grill	1	
(3)	Fan motor switch connector	1	
(4)	Shroud bolt/fan motor wire	4/1	At assembly, route the wire as shown.
(5)	Fan motor assembly	1	
(6)	Cooling fan nut	1	
(7)	Cooling fan	1	At assembly, align the fan groove with the motor shaft securely.
(8)	Fan motor nut	3	
(9)	Fan motor	1	
(10)	Fan motor switch	1	
(11)	O-ring	1	

Water Pump Disassembly/Assembly

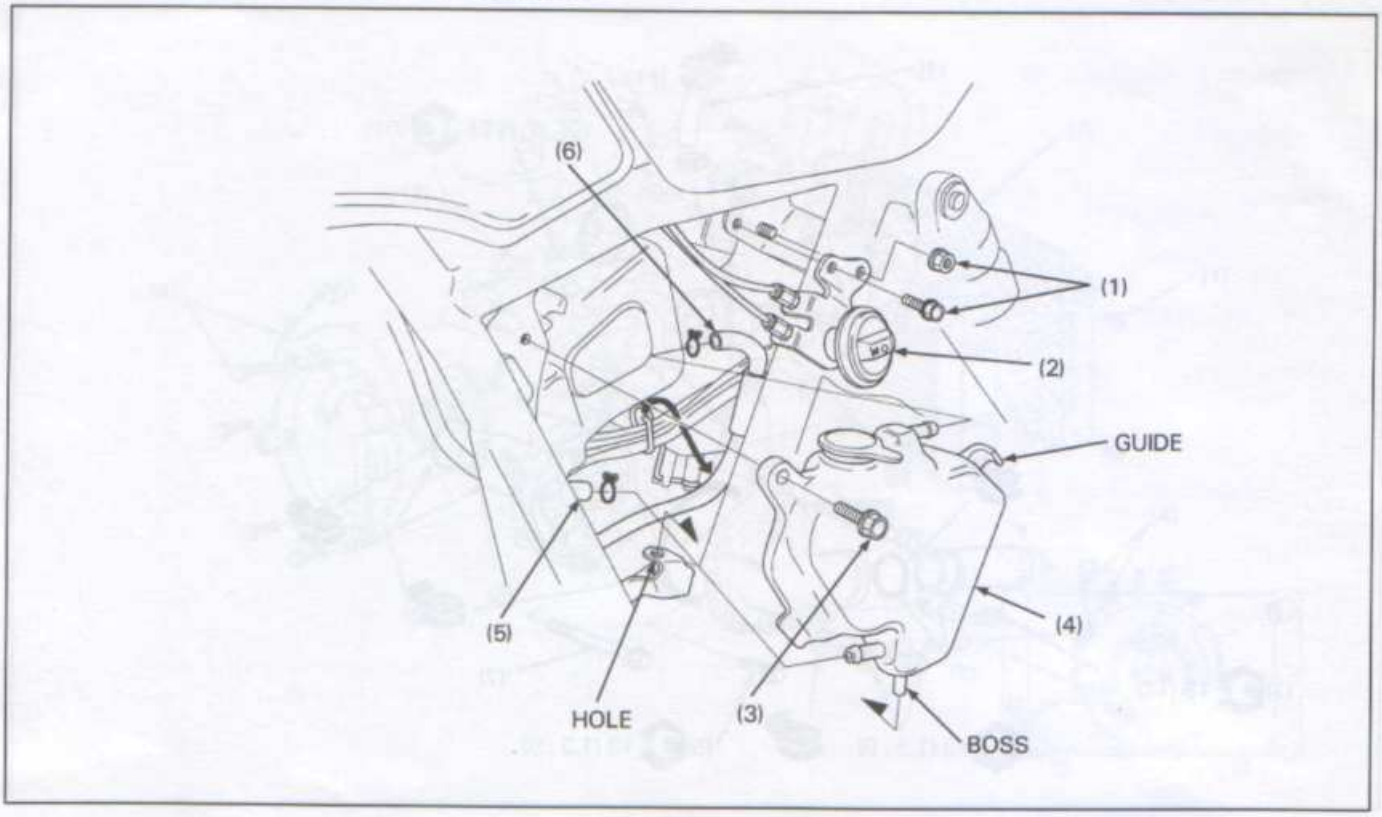


Requisite Service

- Left crankcase side cover removal/installation (page 14-8)
- Coolant draining/refilling (page 5-3)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Water tube	1	
(2)	Joint bolt	1	
(3)	Water pipe/O-ring	1/1	
(4)	Water hose	1	
(5)	Water pump cover bolt	3	
(6)	Water pump cover/O-ring	1/1	
(7)	Water pump mounting bolt	1	
(8)	Water pump/O-ring	1/1	At installation, align the oil pump shaft slot with the oil pump shaft end.

Radiator Reservoir Tank Removal/Installation



Requisite Service

- Right side cover removal/installation (page 2-2)
- Coolant draining/refilling (page 5-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuel valve bolt/nut	1/1	
(2)	Fuel valve	1	
(3)	Reserve tank mounting bolt	1	
(4)	Radiator reserve tank	1	· Release the overflow tube from the clamp and guide. · At installation, align the boss of the tank with the hole of the frame.
(5)	Overflow tube	1	
(6)	Breather tube	1	

6. Fuel System

Service Information	6-1	Pulse Secondary Air Injection (PAIR) Control Valve Removal/Installation (California type)	6-15
Troubleshooting	6-2	Pilot Screw Adjustment	6-16
Carburetor Removal/Installation	6-4	High Altitude Adjustment	6-17
Carburetor Separation	6-8	Emission Control System (California type)	6-18
Carburetor Disassembly/Assembly	6-10		
Carburetor Combination	6-12		
Air Cleaner Housing Removal/Installation	6-14		

Service Information

▲WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**
- **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 an approved fuel container under the carburetor drain bolt, loosen the bolt and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with a piece of tape to prevent any foreign material from dropping into the engine.

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 carburetor
- Intake air leak
- Fuel contaminated/deteriorated
  - —Jets clogged
- Starting enrichment valve circuit clogged
- No fuel to carburetor
  - —Fuel filter clogged
  - —Fuel line clogged
  - —Fuel level misadjusted
  - —Fuel tank breather tube clogged
  - —Auto fuel valve malfunction
- Emission control system malfunction (California type only)
  - —Evaporative emission carburetor air vent control valve faulty
  - —Evaporative emission purge control valve faulty
  - —Loose, disconnected or deteriorated hose of the emission control system

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

Rich Mixture
- Starting enrichment valve open
- Float valve faulty
- Float level too high
- Air jets clogged
- Flooded carburetor
- Vacuum piston faulty

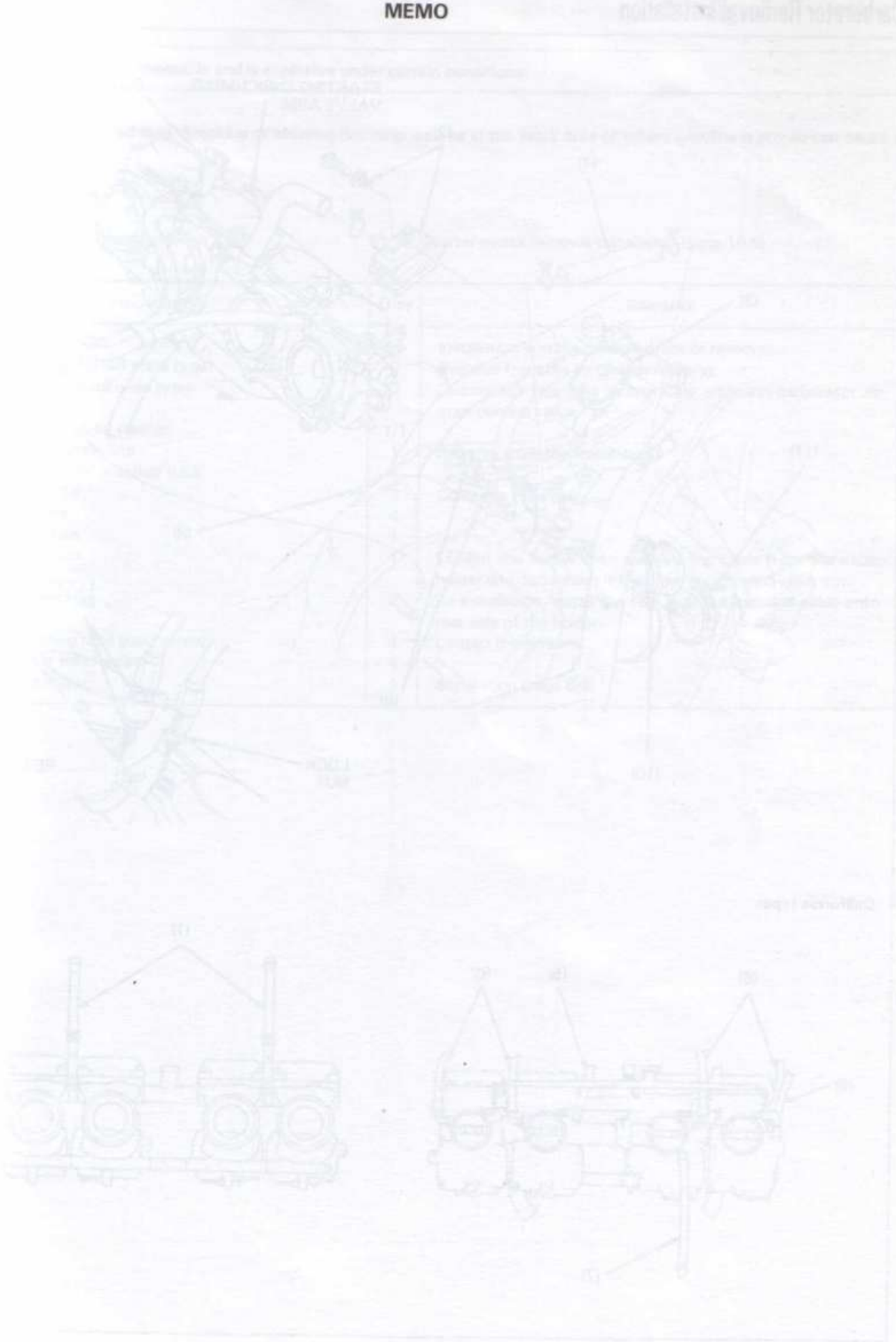
Engine Stalls, Hard to Start, Rough Idling
- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
  - —jets clogged
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather tube clogged
- Pilot screw misadjusted
- Starting enrichment valve circuit clogged
- Auto fuel valve malfunction

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

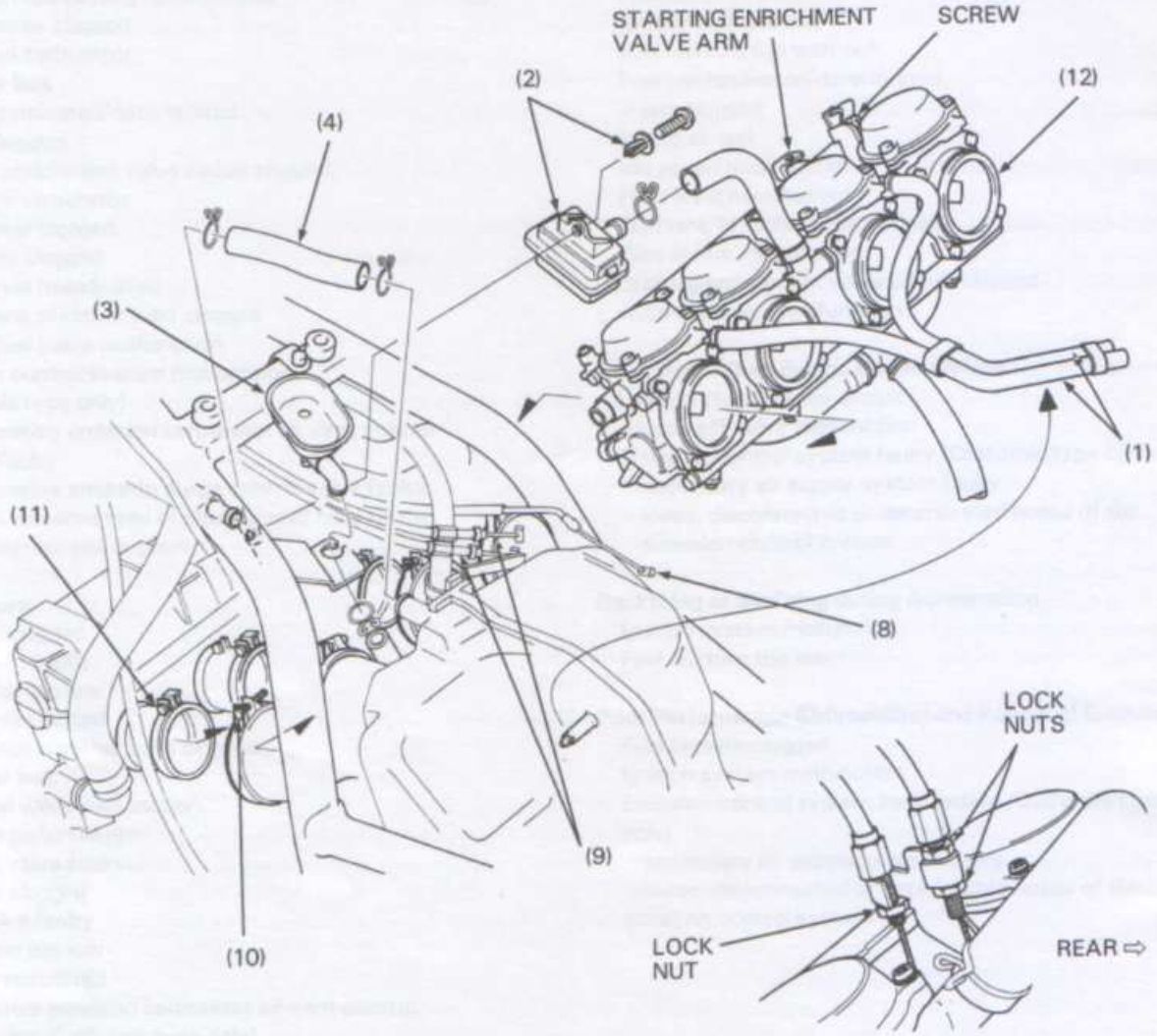
Backfiring or Misfiring during Acceleration
- Ignition system malfunction
- Fuel mixture too learn

Poor Performance (Driveability) and Poor Fuel Economy
- Fuel system clogged
- Ignition system malfunction
- Emission control system malfunction (California type only)
  - —secondary air supply system faulty
  - —loose, disconnected or deteriorated hoses of the emission control system

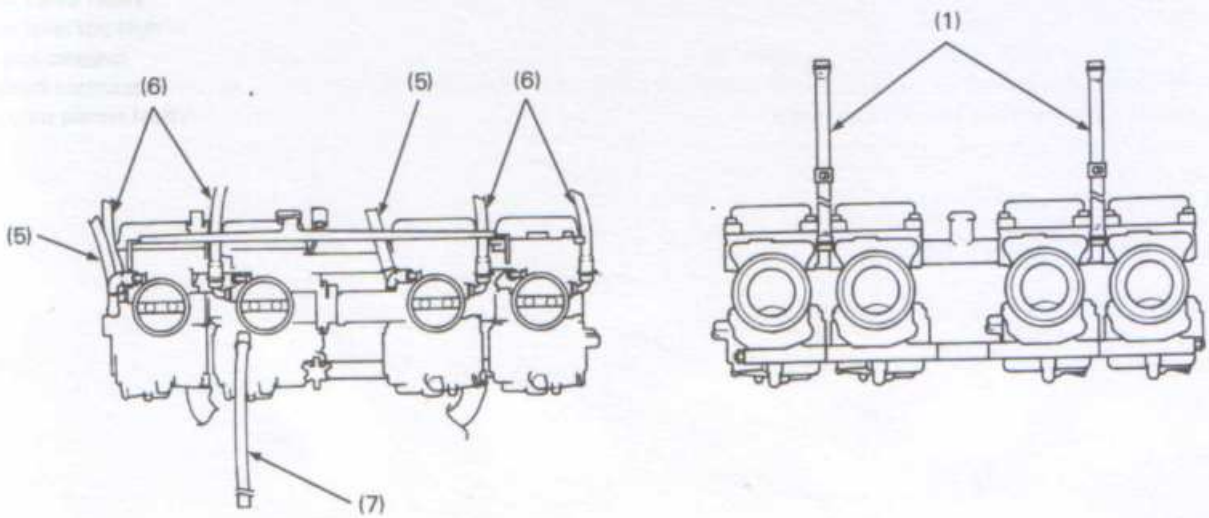
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Carburetor Removal/Installation



California type:



⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**

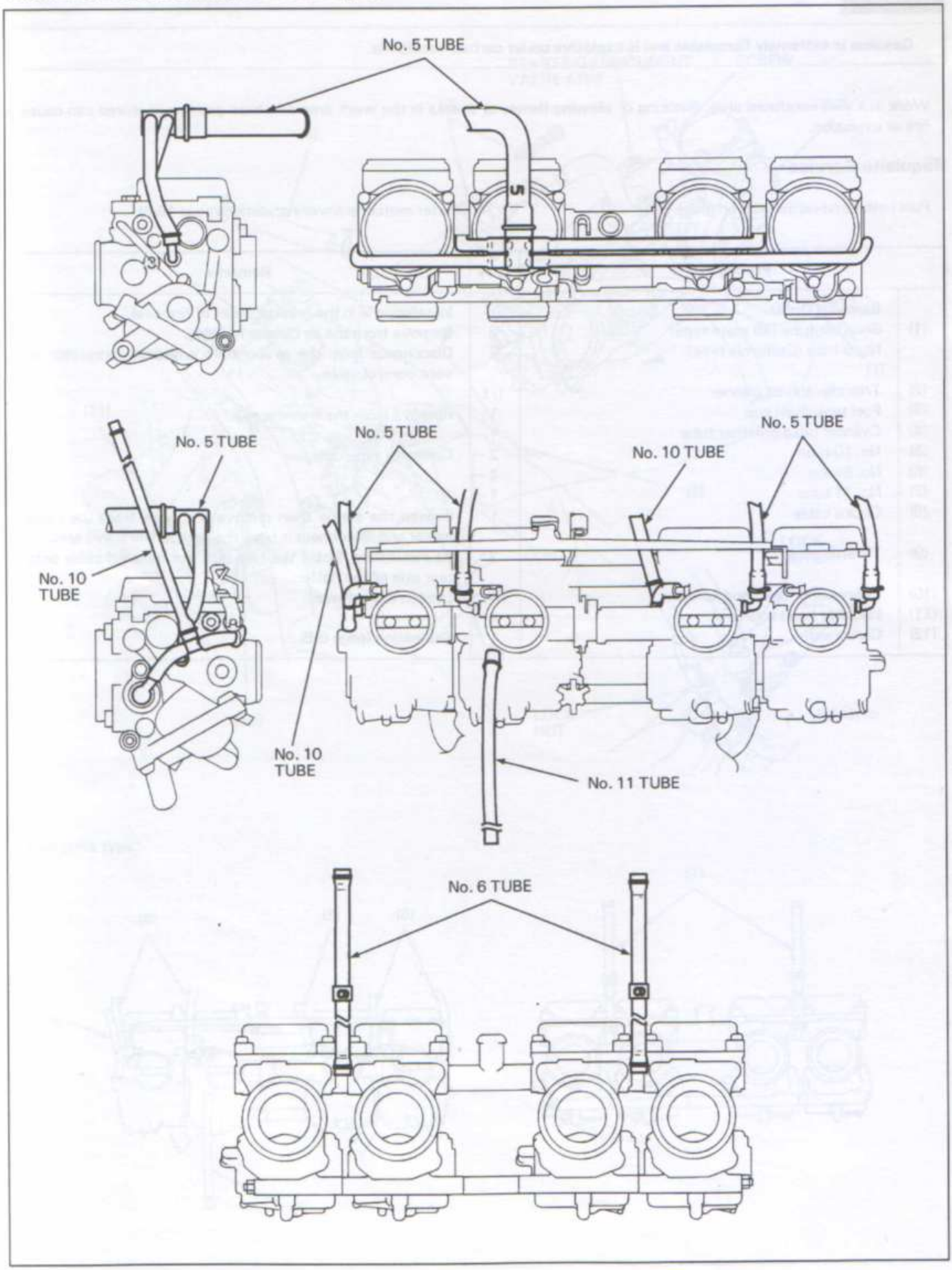
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

Requisite Service

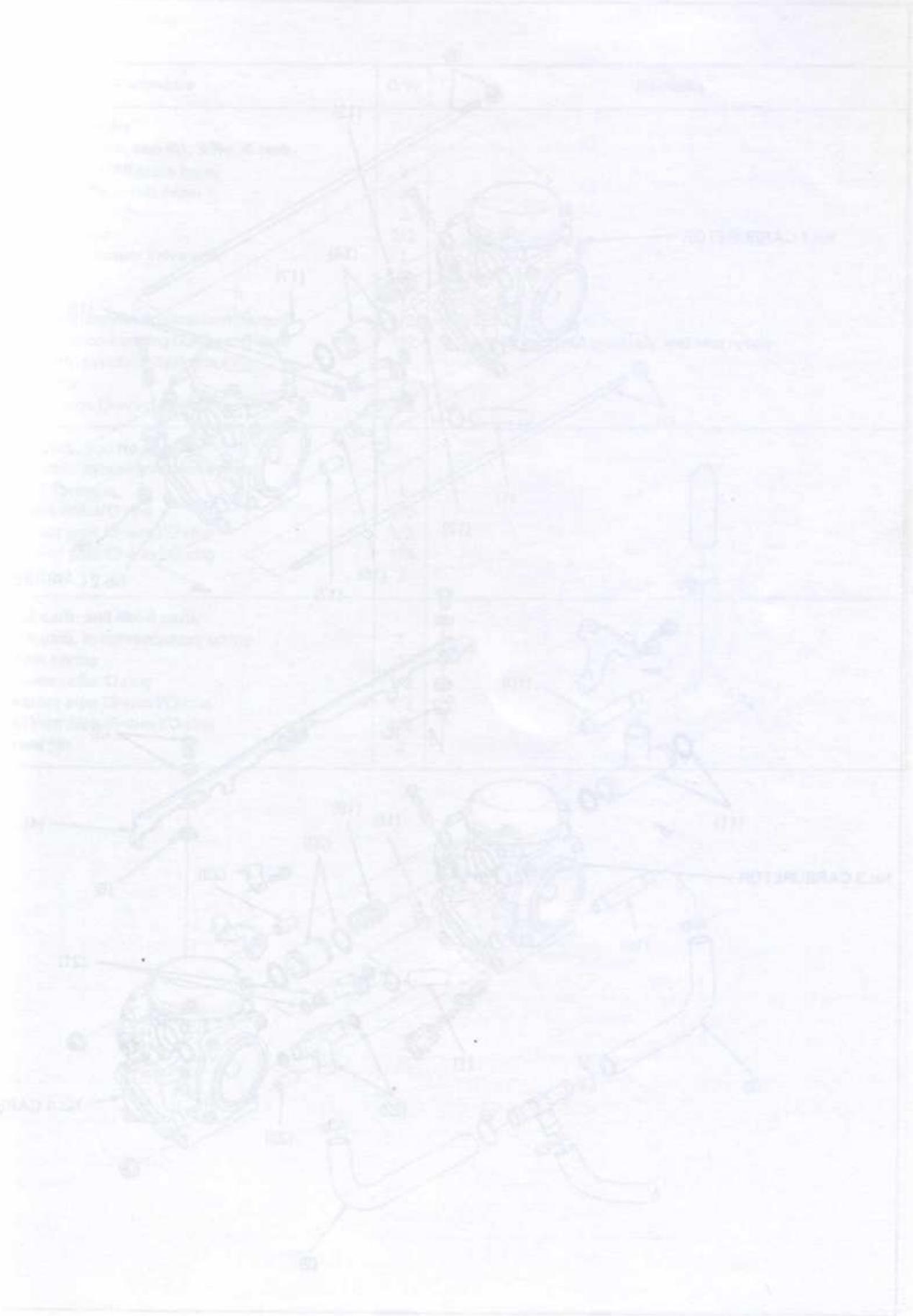
- Fuel tank removal/installation (page 2-8)
- Starter motor removal/installation (page 16-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Breather tube (49 state type)	2	Remove from the air cleaner housing.
	No. 6 tube (California type)	2	Disconnect from the evaporative emission carburetor air vent control valve.
(2)	Trim clip/sub air cleaner	1/1	
(3)	Fuel tank drain cup	1	Remove from the frame stay.
(4)	Cylinder head breather tube	1	
(5)	No. 10 tube	2	California type only
(6)	No. 5 tube	4	
(7)	No. 11 tube	1	
(8)	Choke cable	1	Loosen the screw then remove the cable from the cable holder and disconnect it from the enrichment valve arm.
(9)	Throttle cable	2	At installation, install the two lock nut installed cable onto rear side of the holder.
(10)	Connecting tube band screw	4	Loosen the screws.
(11)	Insulator band screw	4	
(12)	Carburetor	1	Separation (page 6-8)

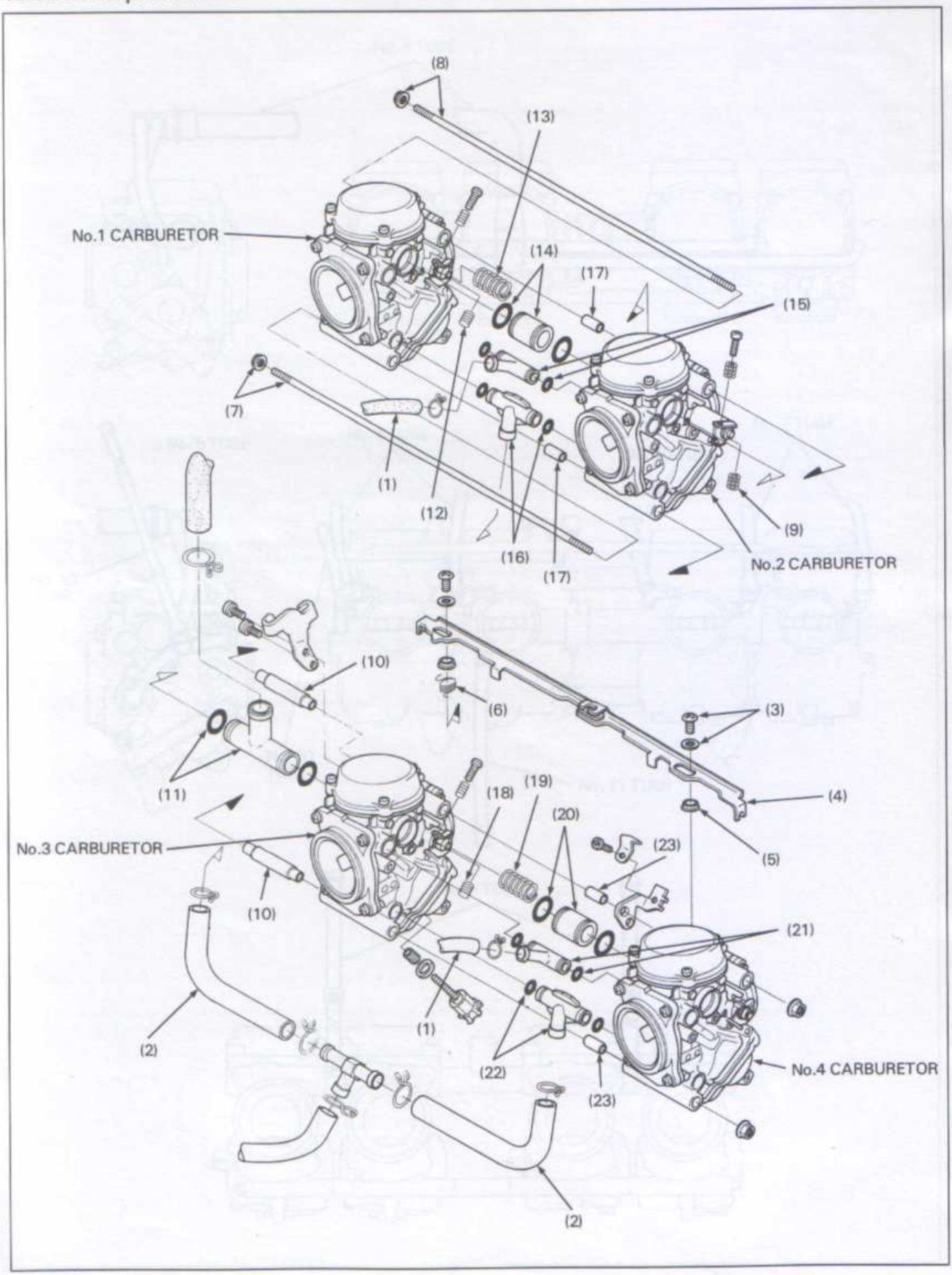
Carburetor Tube Routing (California type)



MEMO



Carburetor Separation

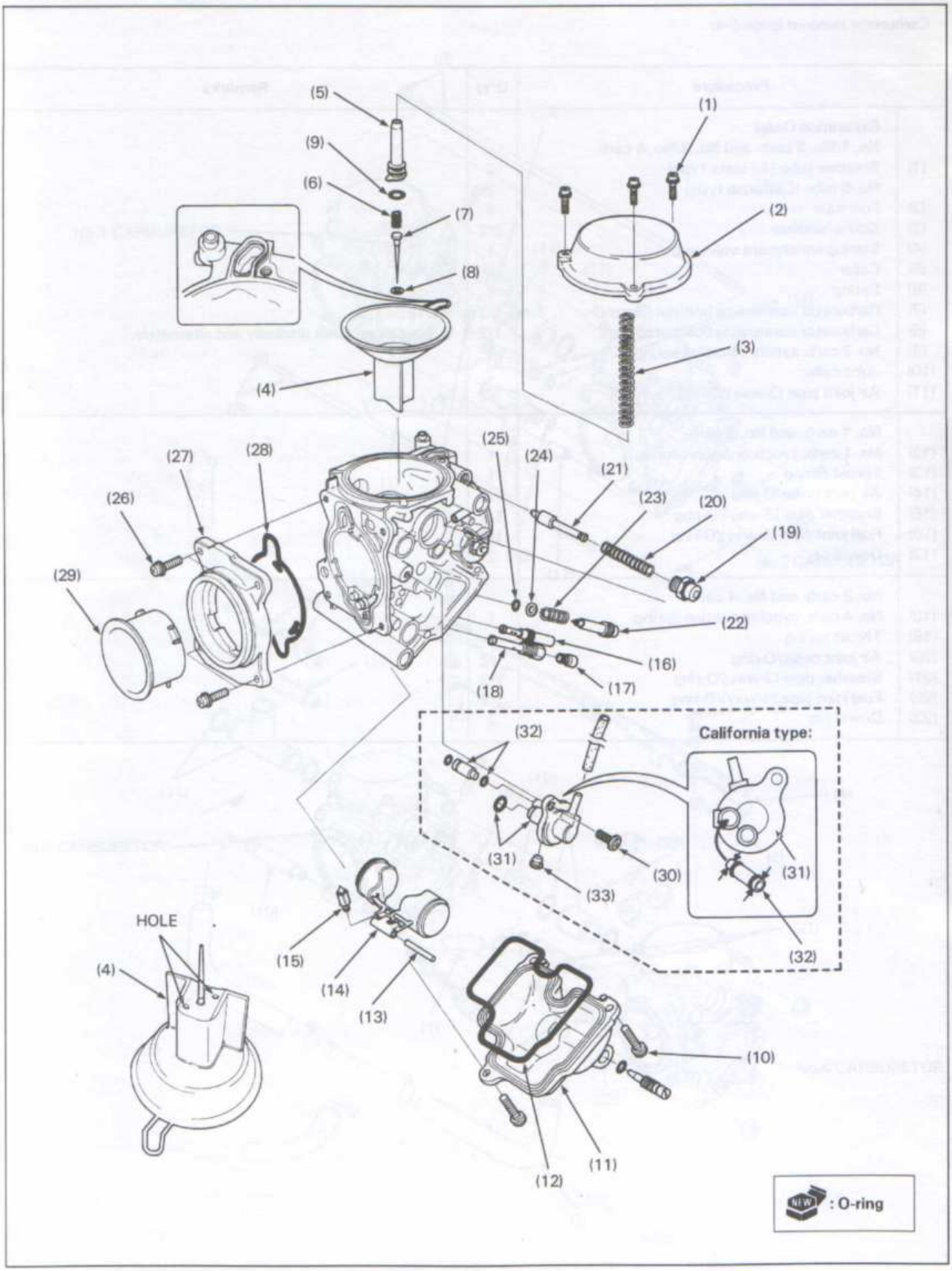


Requisite Service

- Carburetor removal (page 6-4)

	Procedure	Q'ty	Remarks
	Separation Order		
	No. 1/No. 2 carb. and No. 3/No. 4 carb.		
(1)	Breather tube (49 state type)	2	
	No. 6 tube (California type)	2	
(2)	Fuel tube	2	
(3)	Screw/washer	2/2	
(4)	Staring enrichment valve arm	1	
(5)	Collar	2	
(6)	Spring	1	
(7)	Carburetor connecting bolt/nut (5 mm)	1/2	NOTE:
(8)	Carburetor connecting bolt/nut (6 mm)	1/2	· Loosen each nut gradually and alternately.
(9)	No. 2 carb. synchronization spring	1	
(10)	Joint collar	2	
(11)	Air joint pipe (3-way)/O-ring	1/2	
	No. 1 carb. and No. 2 carb.		
(12)	No. 1 carb. synchronization spring	1	
(13)	Thrust spring	1	
(14)	Air joint collar/O-ring	1/2	
(15)	Breather pipe (3-way)/O-ring	1/2	
(16)	Fuel joint pipe (3-way)/O-ring	1/2	
(17)	Dowel pin	2	
	No. 3 carb. and No. 4 carb.		
(18)	No. 4 carb. synchronization spring	1	
(19)	Thrust spring	1	
(20)	Air joint collar/O-ring	1/2	
(21)	Breather pipe (3-way)/O-ring	1/2	
(22)	Fuel joint pipe (3-way)/O-ring	1/2	
(23)	Dowel pin	2	

Carburetor Disassembly/Assembly



NOTE:

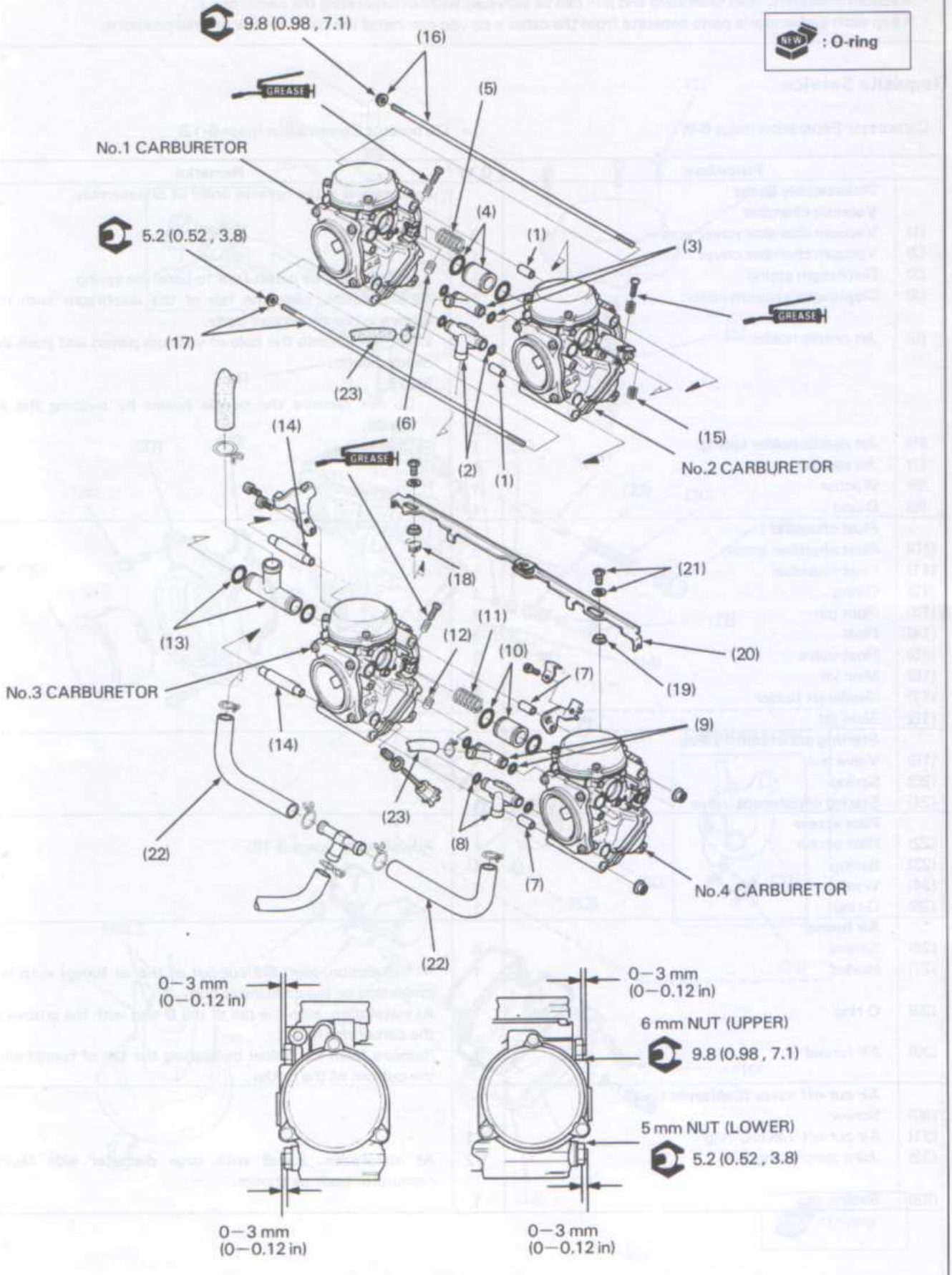
- Vacuum chambers, float chambers and jets can be serviced without separating the carburetors.
- Keep each carburetor's parts separate from the other's so you can install the parts in their original positions.

Requisite Service

- Carburetor Separation (page 6-8)
- Carburetor Combination (page 6-12)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
	Vacuum chamber		
(1)	Vacuum chamber cover screw	3	
(2)	Vacuum chamber cover	1	
(3)	Diaphragm spring	1	At installation, be careful not to bend the spring.
(4)	Diaphragm/vacuum piston	1	At installation, align the tab of the diaphragm with the groove in the carburetor body.
(5)	Jet needle holder	1	Insert the pin into the hole of vacuum piston and push the needle holder. NOTE: · Do not remove the needle holder by pushing the jet needle.
(6)	Jet needle holder spring	1	
(7)	Jet needle	1	
(8)	Washer	1	
(9)	O-ring	1	
	Float chamber		
(10)	Float chamber screw	3	
(11)	Float chamber	1	
(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	
	Starting enrichment valve		
(19)	Valve nut	1	
(20)	Spring	1	
(21)	Staring enrichment valve	1	
	Pilot screw		
(22)	Pilot screw	1	Adjustment: (page 6-16)
(23)	Spring	1	
(24)	Washer	1	
(25)	O-ring	1	
	Air funnel		
(26)	Screw	4	
(27)	Holder	1	At installation, align the cut-out of the air funnel with the projection on the carburetor body.
(28)	O-ring	1	At installation, align the tab of the O-ring with the groove in the carburetor body.
(29)	Air funnel	1	Remove from the holder by aligning the tab of funnel with the cut-out of the holder.
	Air cut-off valve (California type)		
(30)	Screw	1	
(31)	Air cut-off valve/O-ring	1/1	
(32)	Joint pipe/O-ring	1/2	At installation, install with large diameter side facing carburetor body as shown.
(33)	Sealing cap	1	

Carburetor Combination



NOTE:

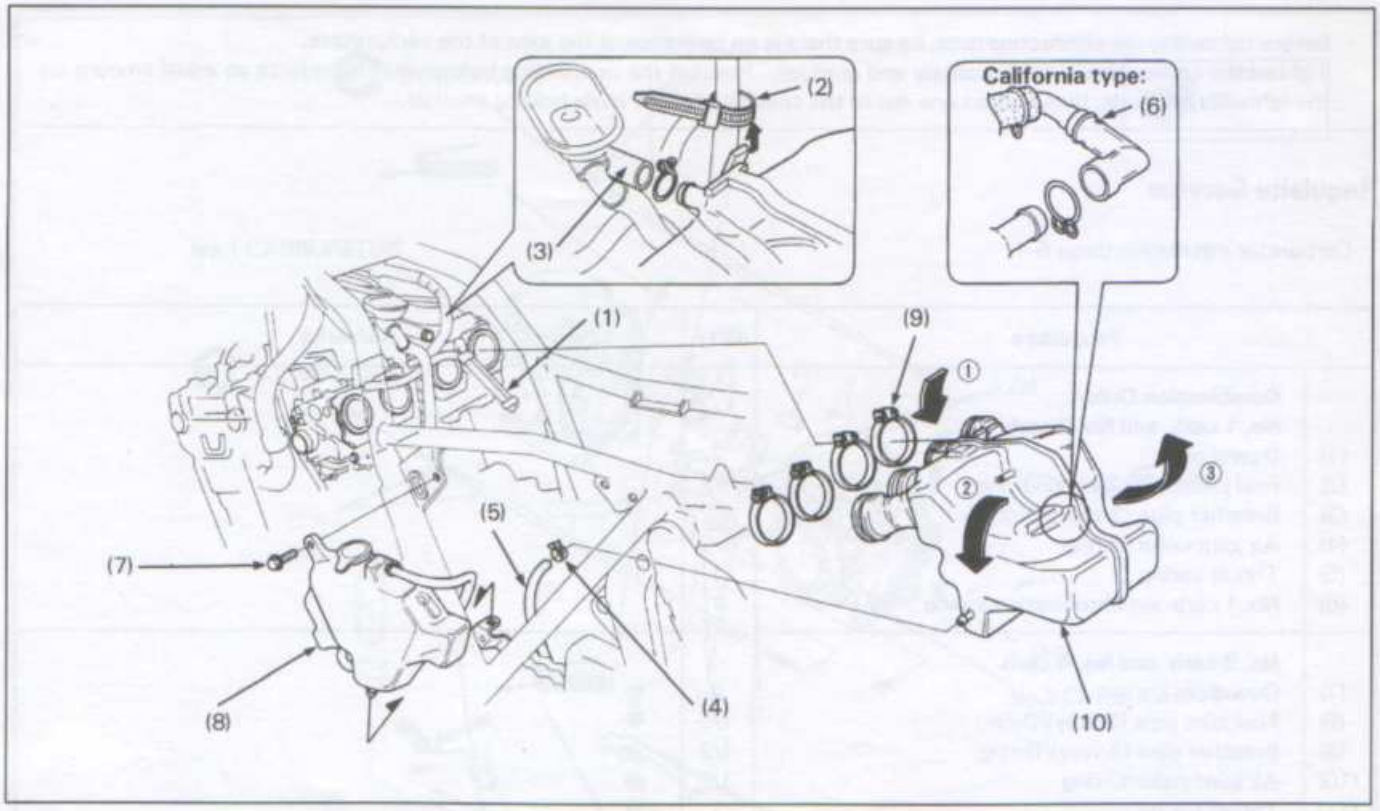
- Before tightening the connecting nuts, be sure there is no clearance at the joint of the carburetors.
- Tighten the connecting nuts alternately and gradually. Position the connecting bolt so that it projects an equal amount on the left and right ends, then tighten one nut to the specified torque while holding another.

Requisite Service

- Carburetor installation (page 6-4)

	Procedure	Q'ty	Remarks
	Combination Order		
	No. 1 carb. and No. 2 carb.		
(1)	Dowel pin	2	
(2)	Fuel joint pipe (3-way)/O-ring	1/2	
(3)	Breather pipe (3-way)/O-ring	1/2	
(4)	Air joint collar/O-ring	1/2	
(5)	Thrust spring	1	
(6)	No. 1 carb. synchronization spring	1	
	No. 3 carb. and No. 4 carb.		
(7)	Dowel pin	2	
(8)	Fuel joint pipe (3-way)/O-ring	1/2	
(9)	Breather pipe (3-way)/O-ring	1/2	
(10)	Air joint collar/O-ring	1/2	
(11)	Thrust spring	1	
(12)	No. 4 carb. synchronization spring	1	
	No. 1/No. 2 carb. and No. 3/No. 4 carb.		
(13)	Air joint pipe (3-way)/O-ring	1/2	
(14)	Joint collar	2	
(15)	No. 2 carb. synchronization spring	1	
(16)	Carburetor connecting bolt/nut (6 mm)	1/2	**CAUTION:**
(17)	Carburetor connecting bolt/nut (5 mm)	1/2	**· Do not overtighten the nuts.**
(18)	Spring	1	
(19)	Collar	2	
(20)	Starting enrichment valve arm	1	
(21)	Screw/washer	2/2	
(22)	Fuel tube	2	
(23)	Breather tube (49 state type)	2	
	No. 10 tube (California type)	2	

Air Cleaner Housing Removal/Installation



CAUTION:

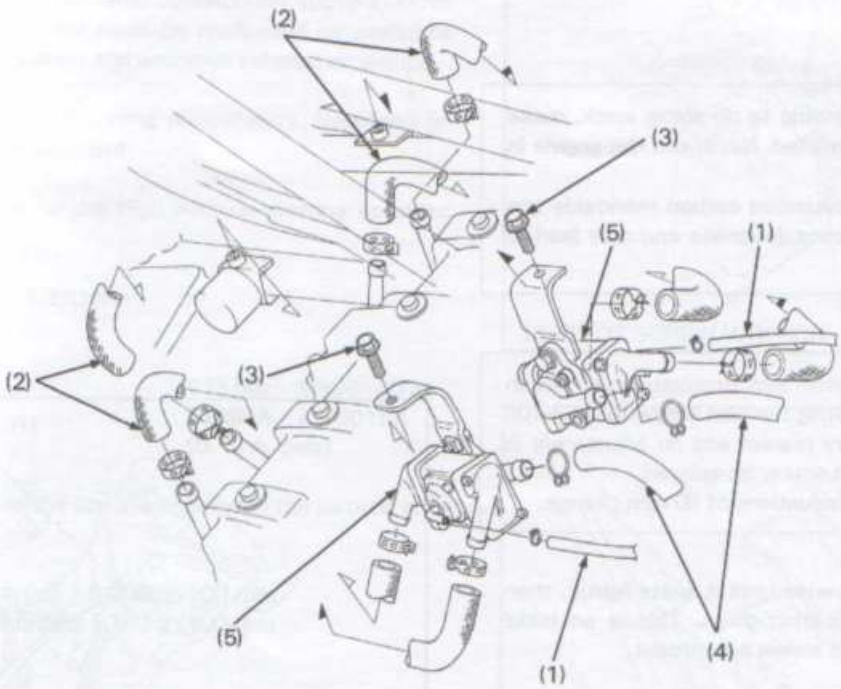
- **Be careful not to damage the wire harness and connecting portion of the connecting tube.**

Requisite Service

- Fuel tank removal/installation (page 2-8)
- Rear fender removal/installation (page 2-4)
- Drive chain cover removal/installation (page 12-6)
- Side cover removal/installation (page 2-2)
- Rear wheel removal/installation (page 12-2)
- Air cleaner element removal/installation (page 3-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Carburetor breather tube (49 state type)	2	Remove from the air cleaner housing.
	No. 7 tube (California type)	1	
(2)	Wire band	1	
(3)	Cylinder head breather tube	1	
(4)	Tube band	1	
(5)	Air cleaner drain tube	1	
(6)	No. 15 tube	1	California type only.
(7)	Reserve tank bolt	1	
(8)	Radiator reserve tank	1	Installation (page 5-8)
(9)	Connecting tube band screw	4	Loosen the screws.
(10)	Air cleaner housing	1	Move the air cleaner housing in the direction shown by the arrow and remove it out of the frame to the rear.

Pulse Secondary Air Injection (PAIR) Control Valve Removal/Installation (California type)



Requisite Service

Fuel tank removal/installation (page 2-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	No. 10 tube	2	
(2)	Air injection hose	4	
(3)	Bolt	2	
(4)	No. 15 hose	2	
(5)	Pulse secondary air injection control valve	2	

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:

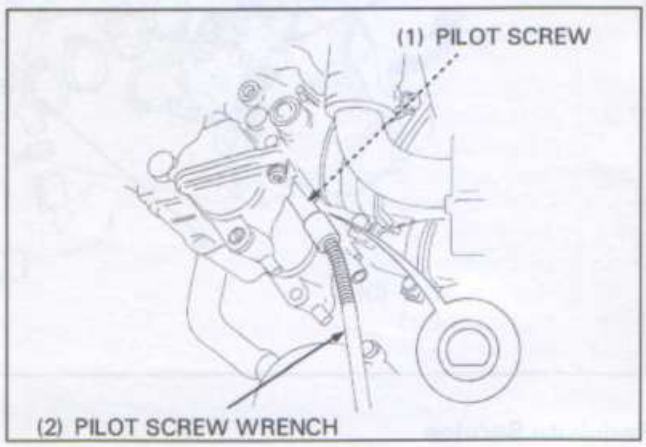
- Make sure the carburetor synchronization is within specification before adjusting the pilot screw (page 3-10).
- The pilot screw is factory pre-set and no adjustment is necessary unless the pilot screw is replaced.
- Use a tachometer with graduations of 50 rpm change.

1. Turn the pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

S TOOL

Pilot screw wrench — **07KMA—MN90100 or 07KMA—MT3010A (U. S. A. only)**

Initial Opening: 49 state type: 2 turns out
California type: 2-3/4 turns out

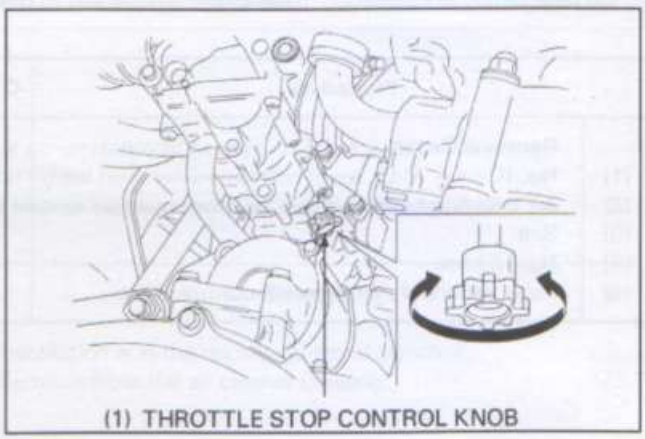


CAUTION:

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

2. Warm up the engine to operating temperature.
3. Attach the tachometer according to the tachometer manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop control knob.

Idle Speed: 49 state type: 1,000 ± 100 rpm
California type: 1,100 ± 100 rpm



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

High Altitude Adjustment

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetor must be readjusted as described below 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 to the High Altitude Setting specified below.

High Altitude Setting: 1/2 turn in

Pilot screw wrench — **07KMA—MN90100 or 07MMA—MT3010A (U. S. A. only)**

Adjust the idle speed to the specified rpm with the throttle stop control knob.

Idle Speed: **49 state type:** 1,000 ± 100 rpm
California type: 1,100 ± 100 rpm

NOTE:

- These adjustments must be made at high altitude to ensure proper high altitude operation.

Attach the Vehicle Emission Control Information Update Label on the left side of the frame as shown. See Service Letter No. 132 for information on obtaining the label.

NOTE:

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

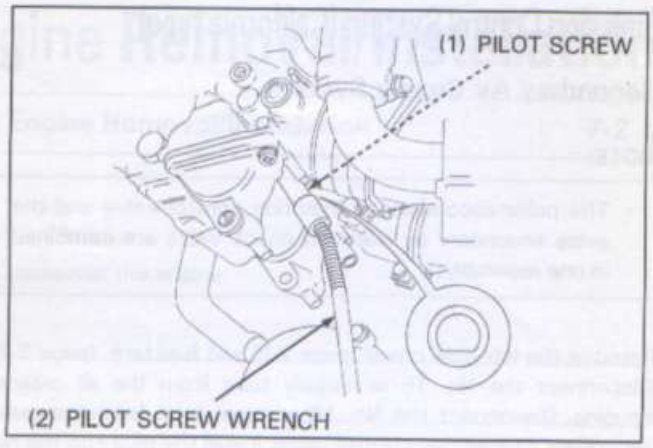
⚠WARNING

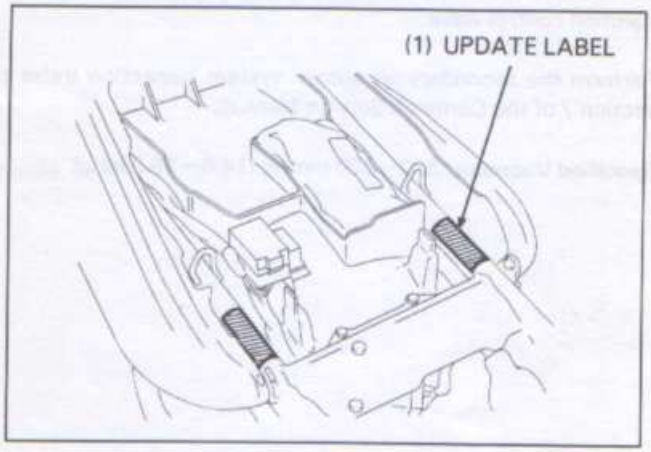
Sustained operation at an altitude lower than 1,500 m (5,000 feet) with the carburetor adjusted for high altitude may cause the engine to idle roughly and the engine stall in traffic. It may also cause engine damage due to overheating.

When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw to the Low Altitude Setting specified below (its original position).

Low Altitude Setting: 1/2 turn out

Adjust the idle speed to the specified rpm. Remove the Vehicle Emission Control Update Label. Be sure to do these adjustments at low altitude with the engine at normal operating temperature.





VEHICLE EMISSION CONTROL INFORMATION UPDATE
· HONDA MOTOR CO., LTD

THIS VEHICLE HAS BEEN ADJUSTED TO IMPROVE EMISSION CONTROL PERFORMANCE WHEN OPERATED AT HIGH ALTITUDE.

ALTITUDE PERFORMANCE ADJUSTMENT INSTRUCTIONS ARE AVAILABLE AT YOUR AUTHORIZED HONDA DEALER.

Emission Control System (California type)

Secondary Air Supply System

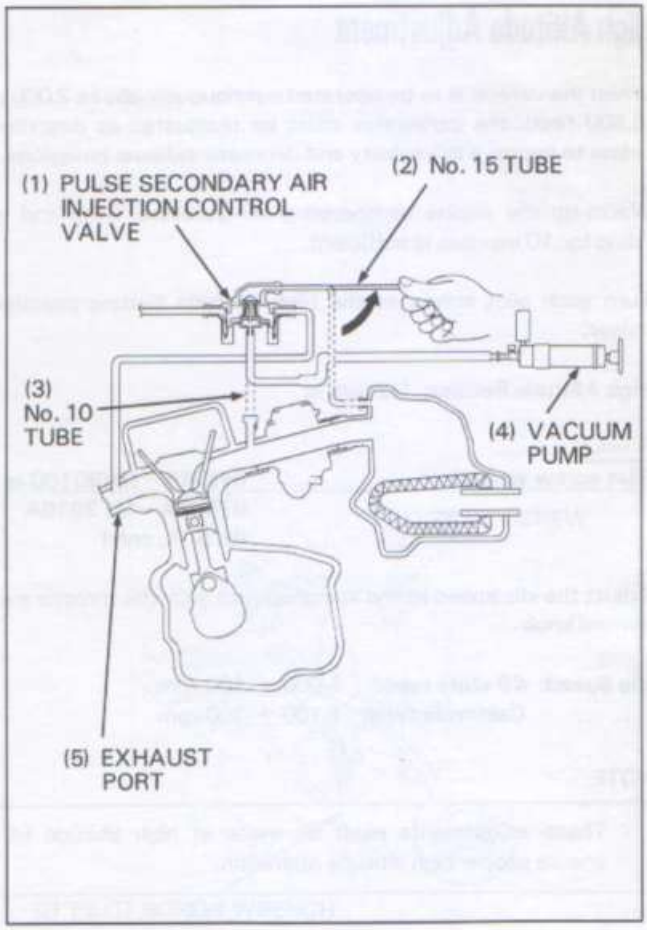
NOTE:

- The pulse secondary air injection control valve and the pulse secondary air injection check valve are combined in one assembly.

Remove the left side cover (page 2-2) and fuel tank (page 2-8). Disconnect the No. 15 air supply tube from the air cleaner housing. Disconnect the No. 10 vacuum tube from the pulse secondary air injection control valve. Install the plug into the No. 10 vacuum tube and connect the vacuum pump to the air injection control valve.

Perform the secondary air supply system inspection (refer to section 7 of the Common Service Manual).

Specified Vacuum: 370—380 mmHg (14.6—15.0 inHg)



7. Engine Removal/Installation

Service Information	7-1	Engine Removal/Installation	7-2

Service Information

A floor jack or other adjustable support is required to support and maneuver the engine.

CAUTION:

- **Do not support the engine using the oil filter.**

When removing/installing the engine, tape the frame around the engine beforehand for frame protection.

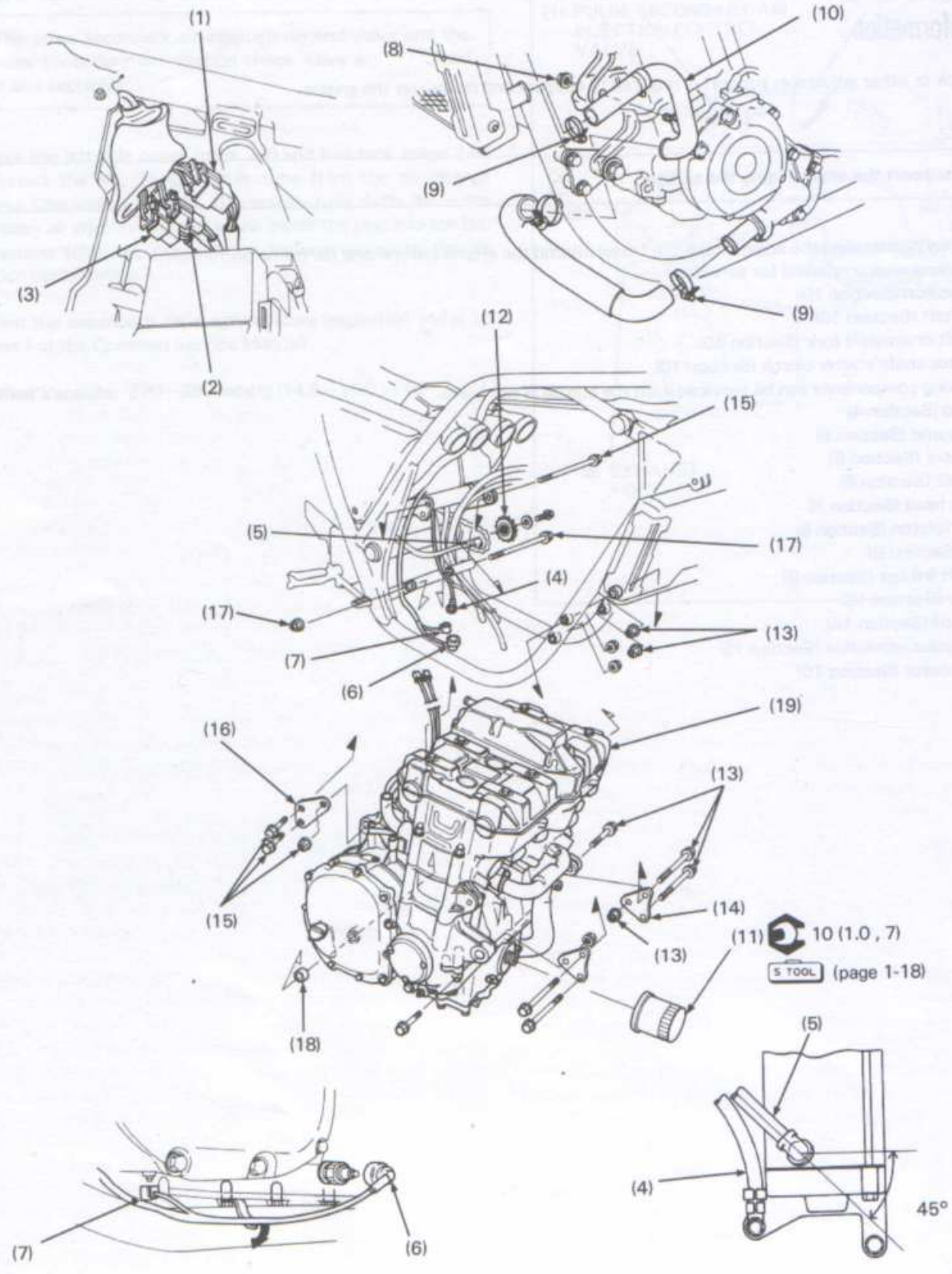
Parts requiring engine removal for servicing:

- —Transmission (Section 10)
- —Crankshaft (Section 10)
- —Gearshift drum/shift fork (Section 10)
- —Alternator shaft/starter clutch (Section 10)

The following components can be serviced with the engine in the frame.

- —Oil pump (Section 4)
- —Water pump (Section 5)
- —Carburetor (Section 6)
- —Camshaft (Section 8)
- —Cylinder head (Section 8)
- —Cylinder/piston (Section 8)
- —Clutch (Section 9)
- —Gearshift linkage (Section 9)
- —Balancer (Section 10)
- —Stator coil (Section 14)
- —Ignition pulse generator (Section 15)
- —Starter motor (Section 16)

Engine Removal/Installation



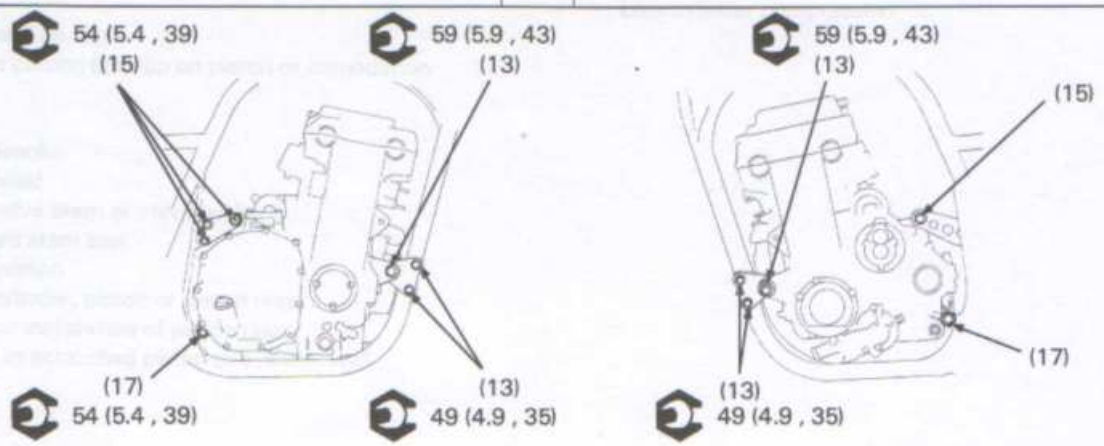
NOTE:

- Turn the ignition switch OFF and disconnect the battery ground cable.
- 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.

Requisite Service

- Thermostat removal/installation (page 5-4)
- Exhaust pipe removal/installation (page 2-6)
- Engine oil draining/refilling
- Carburetor removal/installation (page 6-4)
- Pulse secondary air injection control valve removal/installation (California type) (page 6-15)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Alternator connector	1	
(2)	Ignition pulse generator connector	1	
(3)	Side stand switch connector	1	
(4)	Ground cable	1	
(5)	Starter motor wire	1	
(6)	Oil pressure switch wire terminal	1	Disconnect the terminal and release the wire from the clamp.
(7)	Neutral switch wire terminal	1	
(8)	Water pipe nut	1	
(9)	Water hose band screw	2	Loosen the screw.
(10)	Water hose assembly	1	
(11)	Oil filter	1	Use oil filter wrench (07HAA—PJ70100). **CAUTION:** · **When removing and installing the engine assembly, be careful not to damage the sealing surface of the crankcase.**
(12)	Drive sprocket	1	Removal/installation (page 7-4)
(13)	Front engine mounting bolt/nut		
	(Engine side)	2/2	NOTE: · When tightening the bolts, tighten the rear upper engine mounting bolts/nut first.
	(Frame side)	4/4	
(14)	Front engine hanger plate	2	
(15)	Rear upper engine mounting bolt/nut	3/1	
(16)	Rear engine hanger plate	1	
(17)	Rear lower engine mounting bolt/nut	1/1	
(18)	Spacer	1	Install the spacer to the right side of the engine.
(19)	Engine assembly	1	Move the engine assembly out of the frame to the right. **CAUTION:** · **When placing the engine assembly on the floor, be careful to set the engine down gently on the floor to prevent bending or breaking the support fins on the oil pan.**



Drive Sprocket Removal/Installation

Removal

Remove the following:
- left crankcase side cover (page 14-8)
- sprocket cover bolts, clamp and sprocket cover
- dowl pins
- sprocket bolt and washer
- drive sprocket.

Installation

Install the drive sprocket onto the countershaft with its "OUT SIDE" mark facing out.
Install the washer and tighten the sprocket bolt.

Torque: 54 N·m (5.4 kg-m , 39 lb-ft)

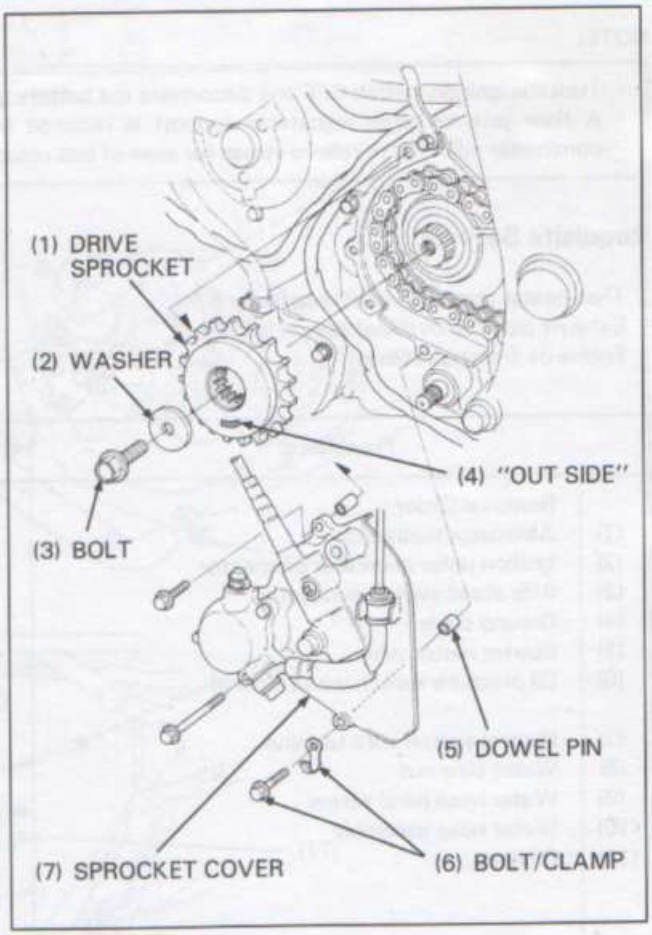
Install the removed parts in the reverse order of removal.

NOTE:

- When installing the sprocket cover, align the sprocket bolt head with the speedometer joint recess inside the sprocket cover.

After installation, adjust the drive chain slack.

Drive chain slack
(on the center stand): 25—35 mm (1—1-3/8 in)



8. Cylinder Head/Cylinder/Piston

Service Information	8-1	Rocker Arm, Cam Chain Tensioner Removal/Installation	8-8
Troubleshooting	8-1	Cylinder Head Removal/Installation	8-12
Cylinder Head Cover Removal/Installation	8-2	Cylinder Head Disassembly/Assembly	8-14
Camshaft Removal/Installation	8-4	Cylinder, Piston Removal/Installation	8-16

Service Information

- The camshafts, cylinder head, cylinder and pistons can be serviced with the engine in the frame.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with cleaning solvent and dry them by blowing them off with compressed air before inspection.
- Camshaft and rocker arm lubricating oil is fed through oil the passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Pour clean engine oil into the oil pockets in the cylinder head during assembly to lubricate the camshafts.
- Apply molybdenum disulfide oil (a 50/50 mixture of engine oil and molybdenum disulfide grease) to the camshaft journals and cam lobes for initial lubrication when assembling.
- Be careful not to damage the mating surfaces by using a screwdriver when removing the cylinder. Do not strike the cylinder too hard during removal.
- Take care not to damage the cylinder wall and piston.

Troubleshooting

Engine top-end problems usually affect engine performance. These can be diagnosed by a compression test, or by tracing top-end noise with a sounding rod or stethoscope. (See section 3 of the Common Service Manual for engine compression testing.)

Compression Too Low, Hard Starting or Poor Performance at Low Speed

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

Compression Too High

- Excessive carbon built-up on piston or combustion chamber

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

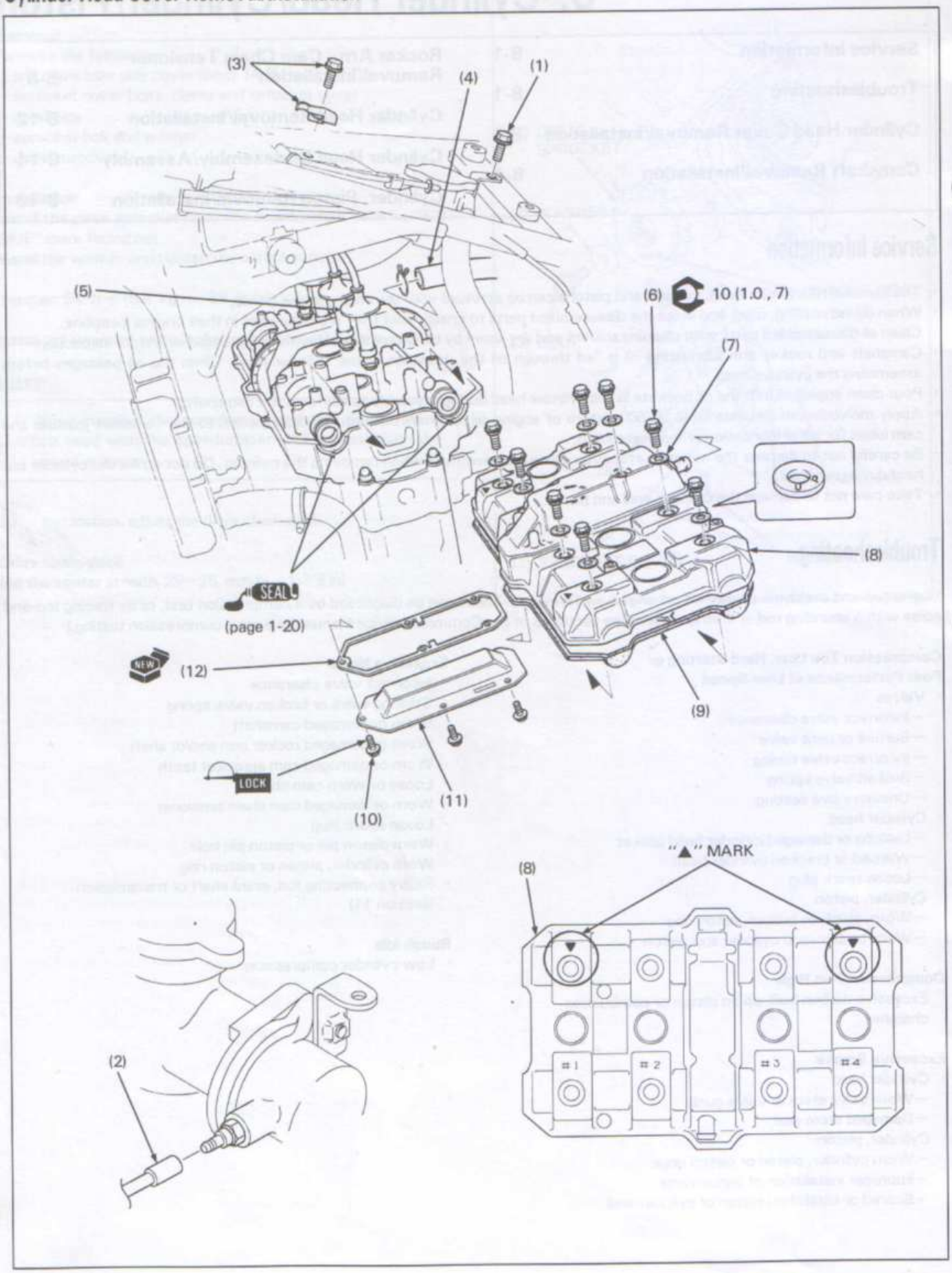
Excessive Noise

- Incorrect valve clearance
- Sticking valve or broken valve spring
- Worn or damaged camshaft
- Worn or damaged rocker arm and/or shaft
- Worn or damaged cam sprocket teeth
- Loose or worn cam chain
- Worn or damaged cam chain tensioner
- Loose spark plug
- Worn piston pin or piston pin hole
- Worn cylinder, piston or piston ring
- Faulty connecting rod, crankshaft or transmission (section 11)

Rough Idle

- Low cylinder compression

Cylinder Head Cover Removal/Installation

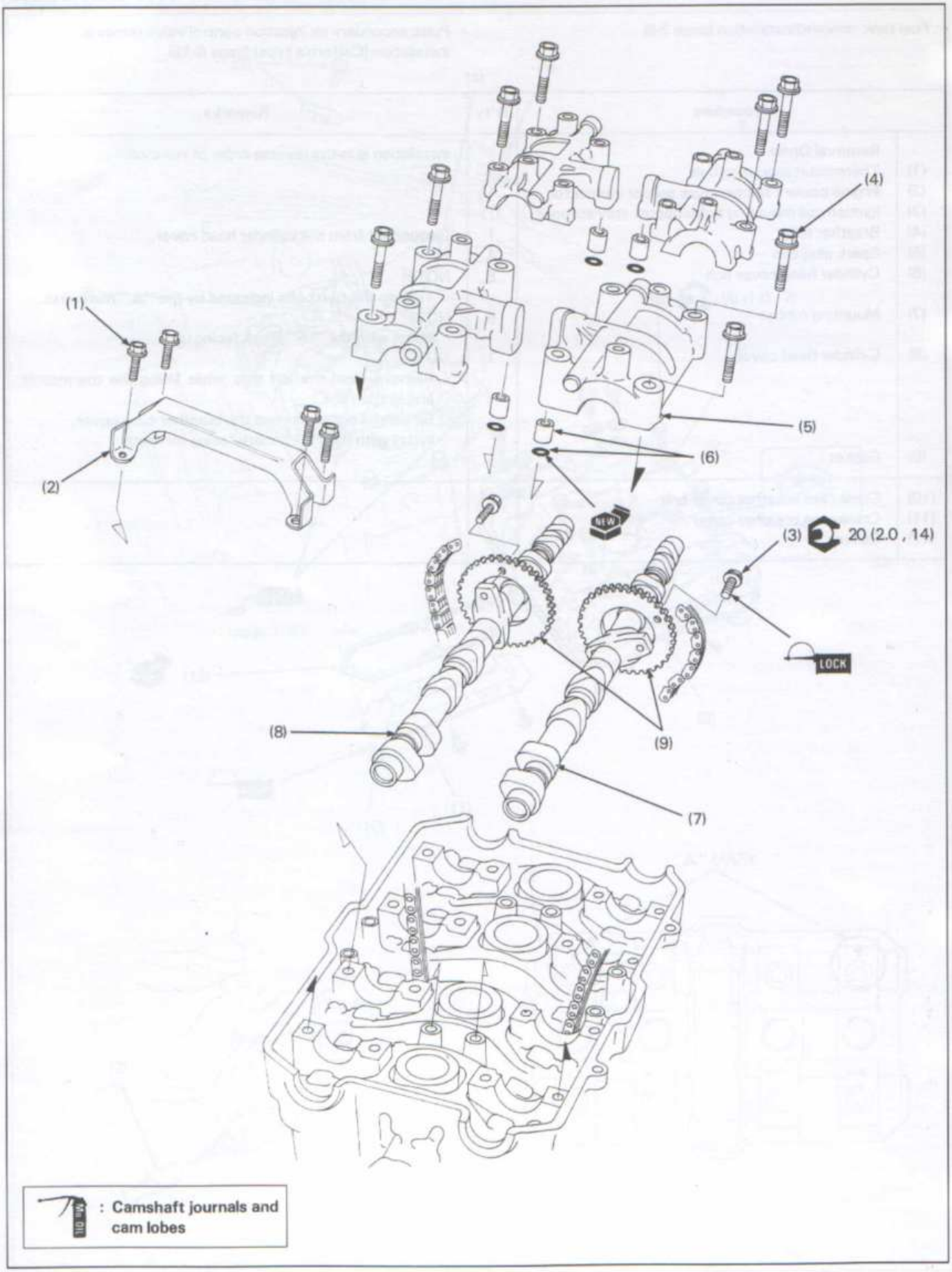


Requisite Service

- Fuel tank removal/installation (page 2-8)
- Pulse secondary air injection control valve removal/installation (California type) (page 6-15)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Thermostat mounting bolt	1	
(2)	Engine coolant temperature sensor connector	1	
(3)	Ignition coil mounting bolt/support stay stopper	1/1	
(4)	Breather tube	1	Disconnect from the cylinder head cover.
(5)	Spark plug cap	4	
(6)	Cylinder head cover bolt	8	NOTE: · Tighten the two bolts indicated by the "▲" mark first.
(7)	Mounting rubber	8	NOTE: · Install with the "UP" mark facing up.
(8)	Cylinder head cover	1	NOTE: · Remove from the left side while lifting the thermostat and ignition coil. · Be careful not to damage the breather case cover. · Install with the "F↑" mark facing forward.
(9)	Gasket	1	
(10)	Crankcase breather cover bolt	5	
(11)	Crankcase breather cover	1	
(12)	Gasket	1	

Camshaft Removal/Installation



Requisite Service

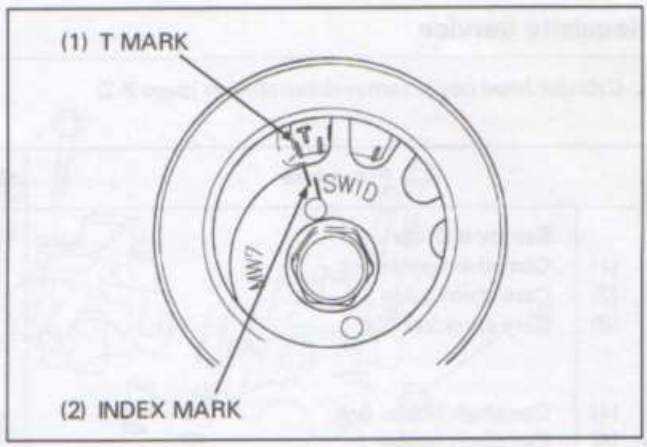
- Cylinder head cover removal/installation (page 8-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cam chain guide bolt	4	
(2)	Cam chain guide	1	
(3)	Cam sprocker bolt	4	Installation (page 8-6) NOTE: · Be careful not to drop the bolts into the crankcase.
(4)	Camshaft holder bolt	16	
(5)	Camshaft holder	4	
(6)	Dowel pin/O-ring	4/4	
(7)	Exhaust camshaft	1	
(8)	Intake camshaft	1	
(9)	Cam sprocket	2	

Camshaft Installation

Remove the timing hole cap (page 3-6).

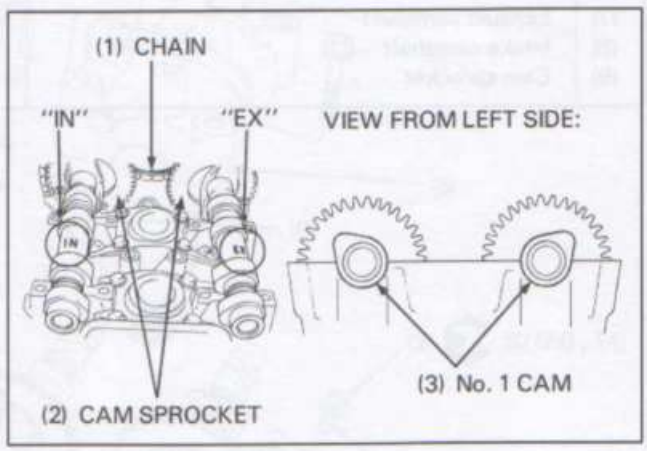
Turn the crankshaft counterclockwise and align the index mark on the ignition pulse generator rotor with the T mark on the crankcase.



Apply molybdenum disulfide oil to the camshaft journals and cam lobes.
Position the cam sprockets onto the camshafts with the timing marks facing the left side.
Place the intake and exhaust camshafts onto the cylinder head with the No. 1 cylinder cam lobes diagonally facing up as shown.

NOTE:

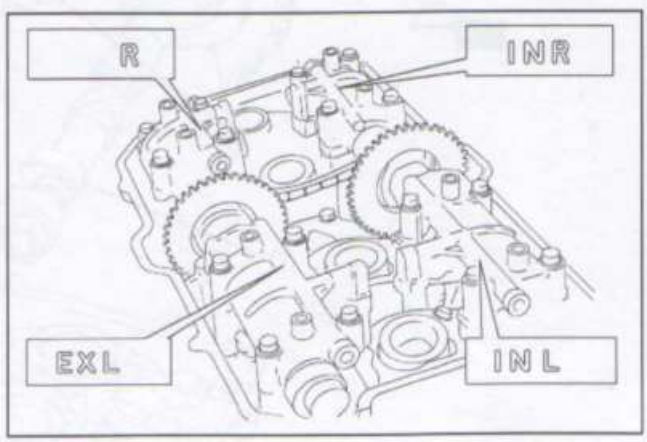
- The camshafts are marked IN for intake, and EX for exhaust.



Install the four dowel pins and new O-rings.
Apply molybdenum disulfide oil to the journal surfaces of the camshaft holders.
Install each camshaft holder in its original location.

NOTE:

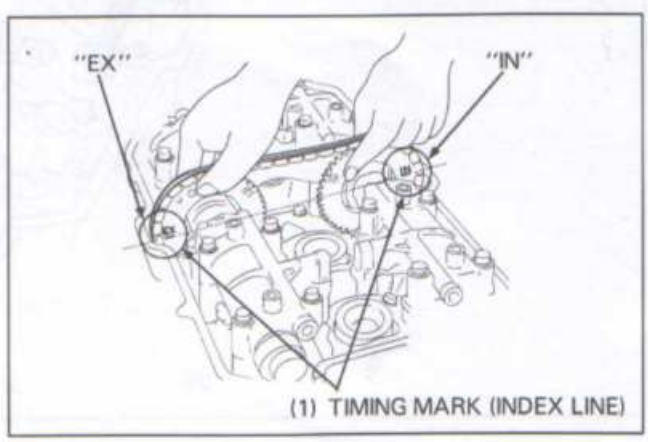
- Each camshaft holder has its location mark as shown below:
  IN R: Intake right
  IN L: Intake left
  R: Exhaust right
  EX L: Exhaust left



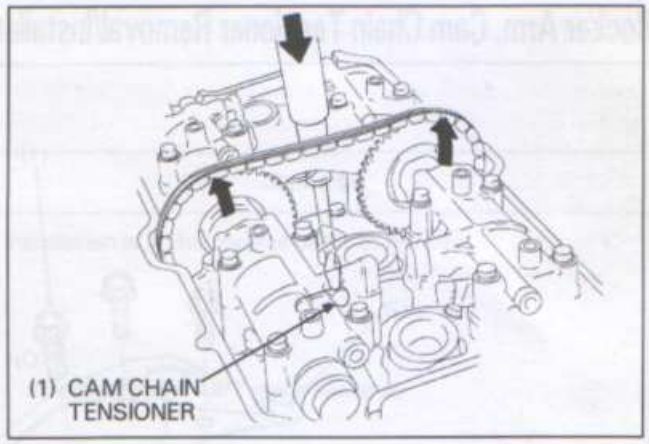
Tighten the camshaft holder bolts in a crisscross pattern in 2 or 3 steps.

Torque: 14 N·m (1.4 kg-m , 10 lb-ft)

Make sure that the index mark on the ignition pulse generator rotor aligns with the T mark on the crankcase.
Align the IN mark (index line) on the intake cam sprocket and the EX mark (index line) on the exhaust cam sprocket with the cylinder head upper surface as shown.
Install the cam chain over the cam sprockets.



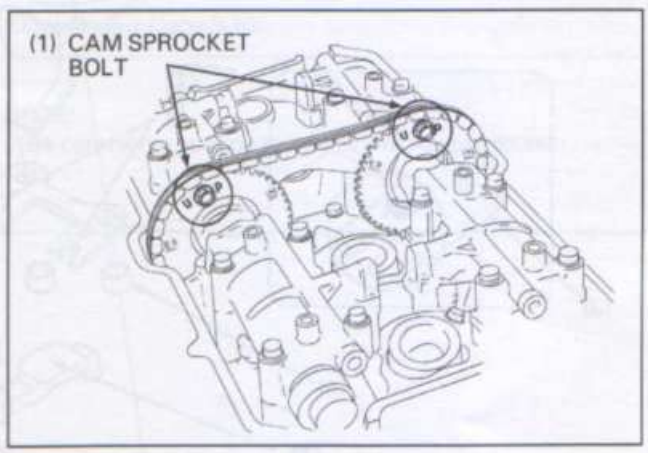
Push down on the cam chain tensioner arm with a screwdriver and install the cam sprockets onto the camshaft flanges.
Make sure that the timing marks (index lines) on the cam sprockets align with the cylinder head upper surface.



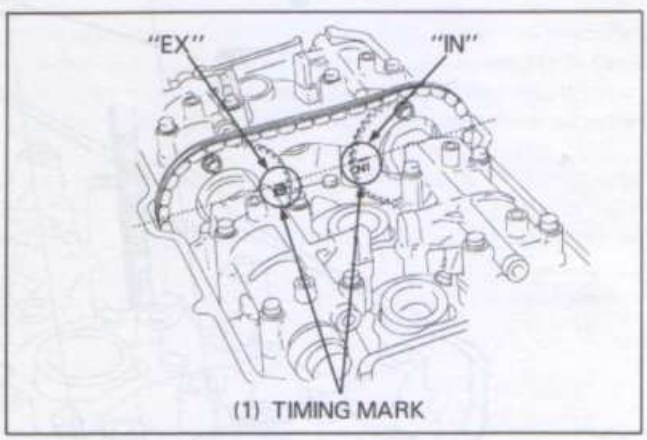
Apply locking agent to the cam sprocket bolt threads.
Align the bolt holes in the cam sprocket and camshaft by turning the crankshaft slightly and install the cam sprocket bolts.
Turn the crankshaft counterclockwise one revolution, install the two remaining cam sprocket bolts and tighten them.

Torque: 20 N·m (2.0 kg-m , 14 lb-ft)

Turn the crankshaft counterclockwise one revolution and tighten the two cam sprocket bolts to the same torque.

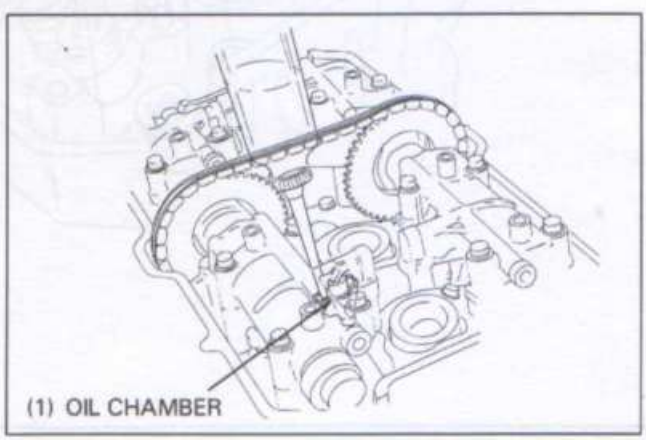


Turn the crankshaft counterclockwise and align the index mark on the ignition pulse generator rotor with the T mark on the crankcase.
Make sure that the timing marks on the cam sprockets are facing inward and align with the cylinder head upper surface as shown.

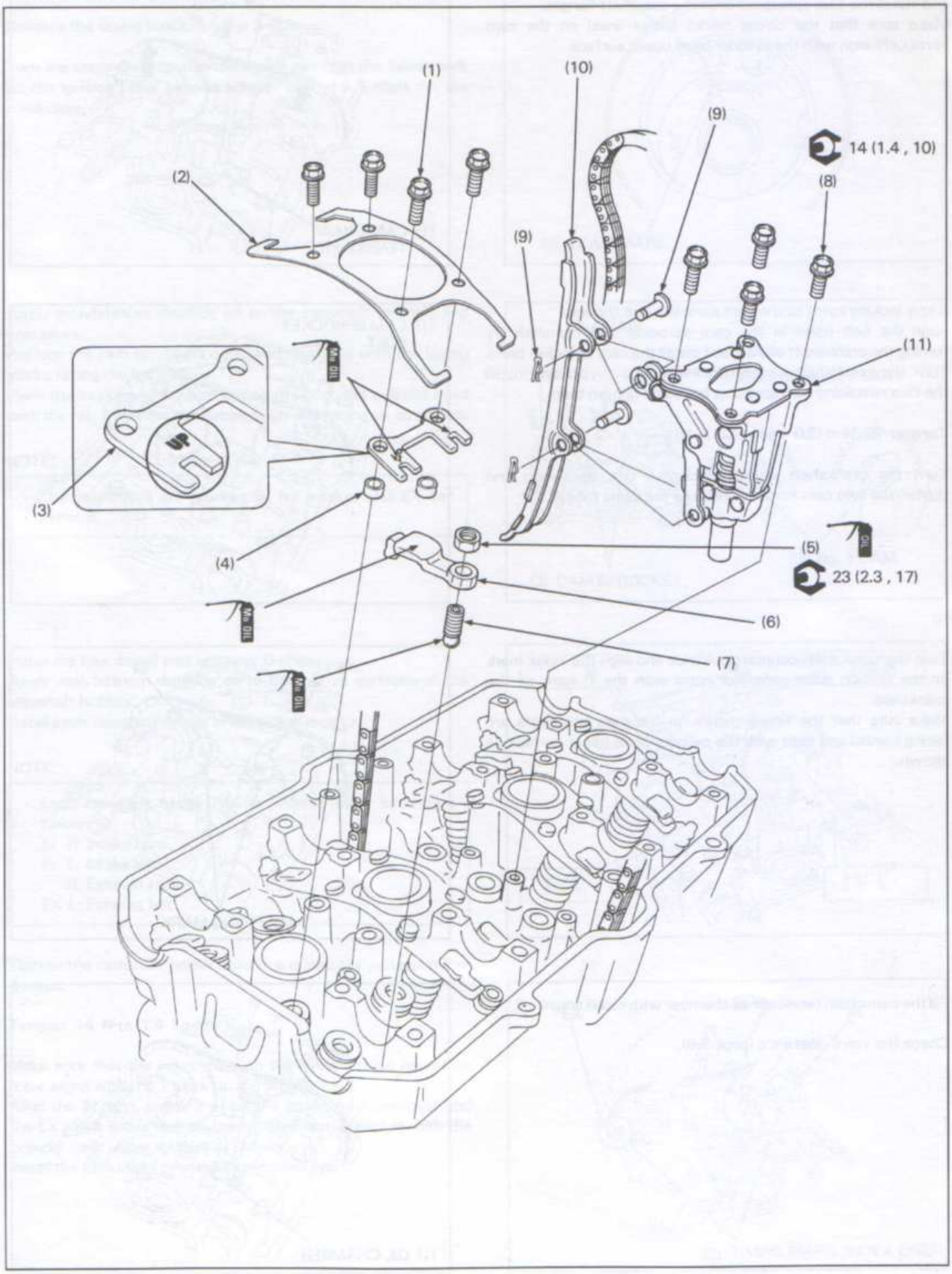


Fill the cam chain tensioner oil chamber with clean engine oil.

Check the valve clearance (page 3-6).



Rocker Arm, Cam Chain Tensioner Removal/Installation



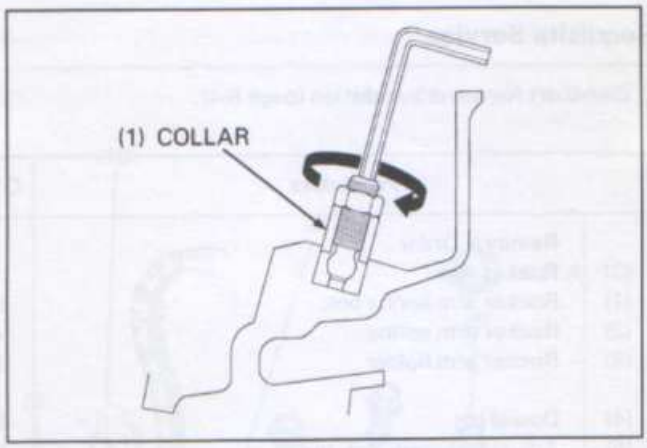
Requisite Service

- Camshaft Removal/Installation (page 8-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
	Rocker arm		
(1)	Rocker arm spring bolt	16	
(2)	Rocker arm spring	4	
(3)	Rocker arm holder	8	NOTE: · Install with the "UP" mark facing up.
(4)	Dowel pin	16	
(5)	Adjusting screw lock nut	16	
(6)	Rocker arm	16	
(7)	Adjusting screw	16	Replacement (page 8-10)
	Cam chain tensioner		
(8)	Cam chain tensioner bolt	4	NOTE: · Be careful not to drop the parts into the crankcase.
(9)	Joint pin/clip	2/2	
(10)	Cam chain slider	1	
(11)	Cam chain tensioner	1	

Adjustment Screw Replacement

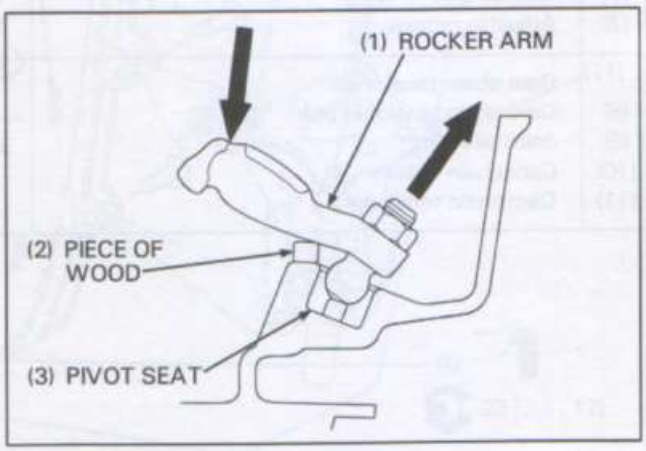
Remove the lock nut and rocker arm from the adjusting screw.
Install a 8 x 16 mm collar and the lock nut onto the adjusting screw.
Hold the adjusting screw with a 3 mm hex. wrench and gradually tighten the lock nut to pull the screw out of the cylinder head, being careful not to damage the pivot seat.



If the adjusting screw threads are damaged, place a piece of wood between the rocker arm and cylinder head, and remove the screw by tapping the rocker arm end with a plastic hammer.

NOTE:

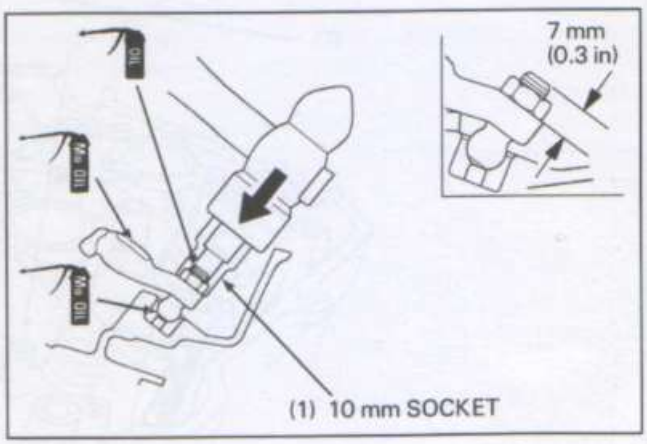
- Make sure that the pivot seat is firmly fitted into the cylinder head after removing the adjusting screw.



Install the rocker arm and lock nut onto a new adjusting screw.
Install a 10 mm socket onto the rocker arm and install the adjusting screw into the pivot seat by gently tapping it with a plastic hammer while keeping it vertical against the pivot seat.

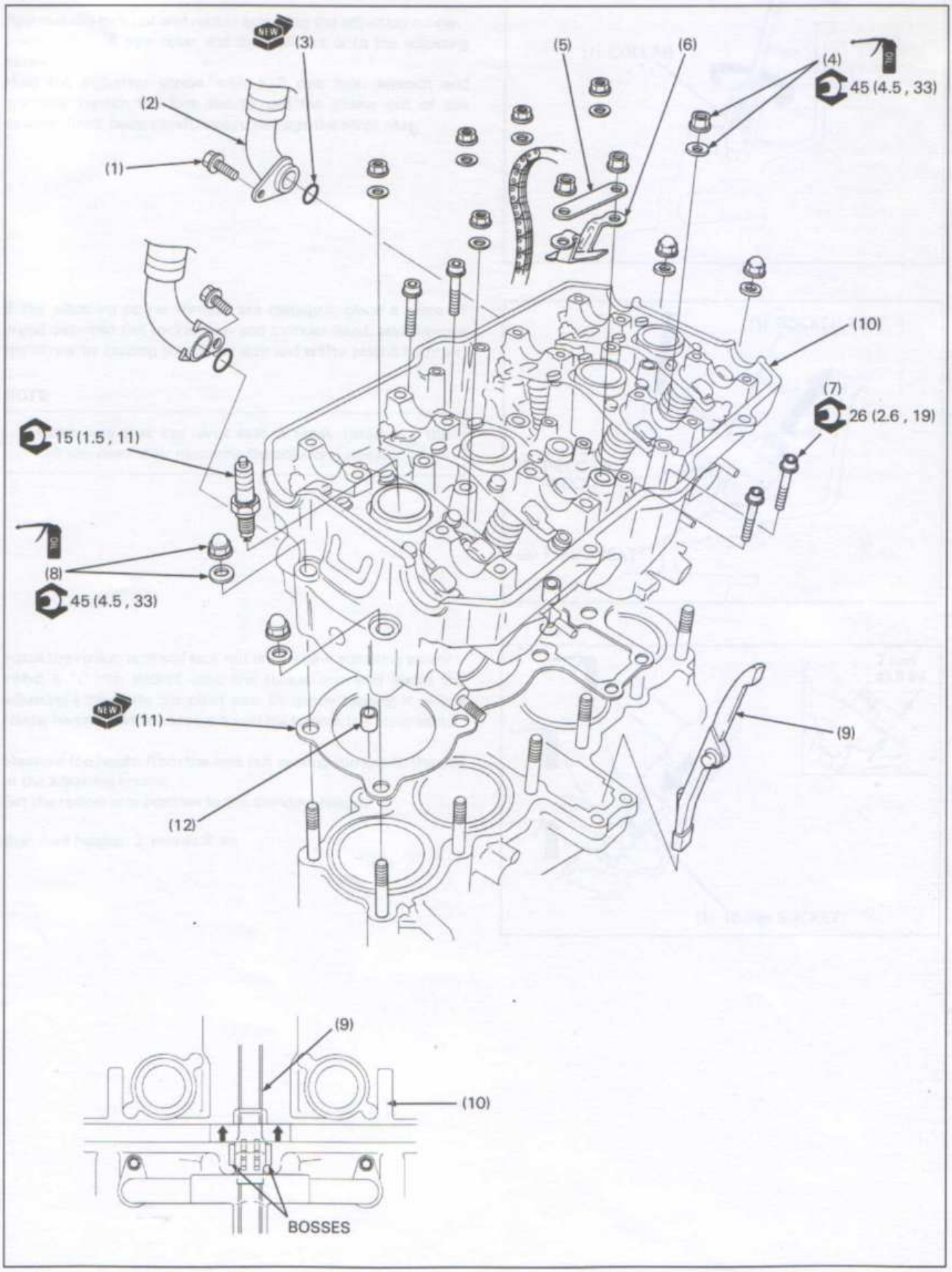
Measure the height from the lock nut seating surface to the top of the adjusting screw.
Set the rocker arm position to the standard height.

Standard height: 7 mm (0.3 in)



MEMO

Cylinder Head Removal/Installation

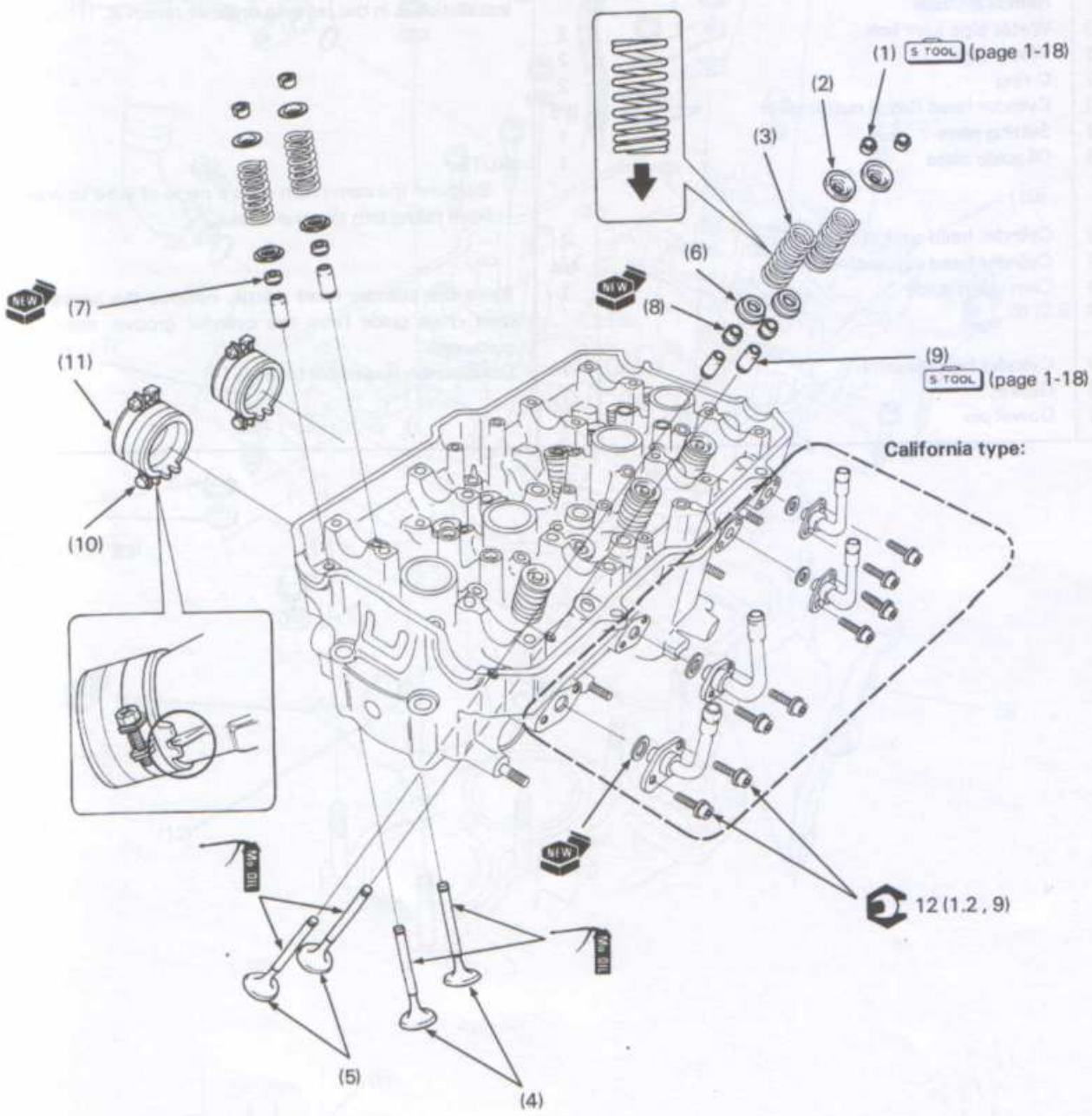


Requisite Service

- Muffler, exhaust pipe removal/installation (page 2-6)
- Thermostat removal/installation (page 5-4)
- Cam chain tensioner removal/installation (page 8-8)
- Carburetor removal/installation (page 6-4)
- Camshaft removal/installation (page 8-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Water pipe joint bolt	2	
(2)	Water pipe	2	
(3)	O-ring	2	
(4)	Cylinder head flange nut/washer	8/6	
(5)	Setting plate	1	
(6)	Oil guide plate	1	NOTE: · Suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.
(7)	Cylinder head socket bolt	4	
(8)	Cylinder head cap nut/washer	4/4	
(9)	Cam chain guide	1	Raise the cylinder head a little, remove the bosses of the cam chain guide from the cylinder groove, then pull the guide up.
(10)	Cylinder head assembly	1	Disassembly/assembly (page 8-14)
(11)	Gasket	1	
(12)	Dowel pin	2	

Cylinder Head Disassembly/Assembly



NOTE:

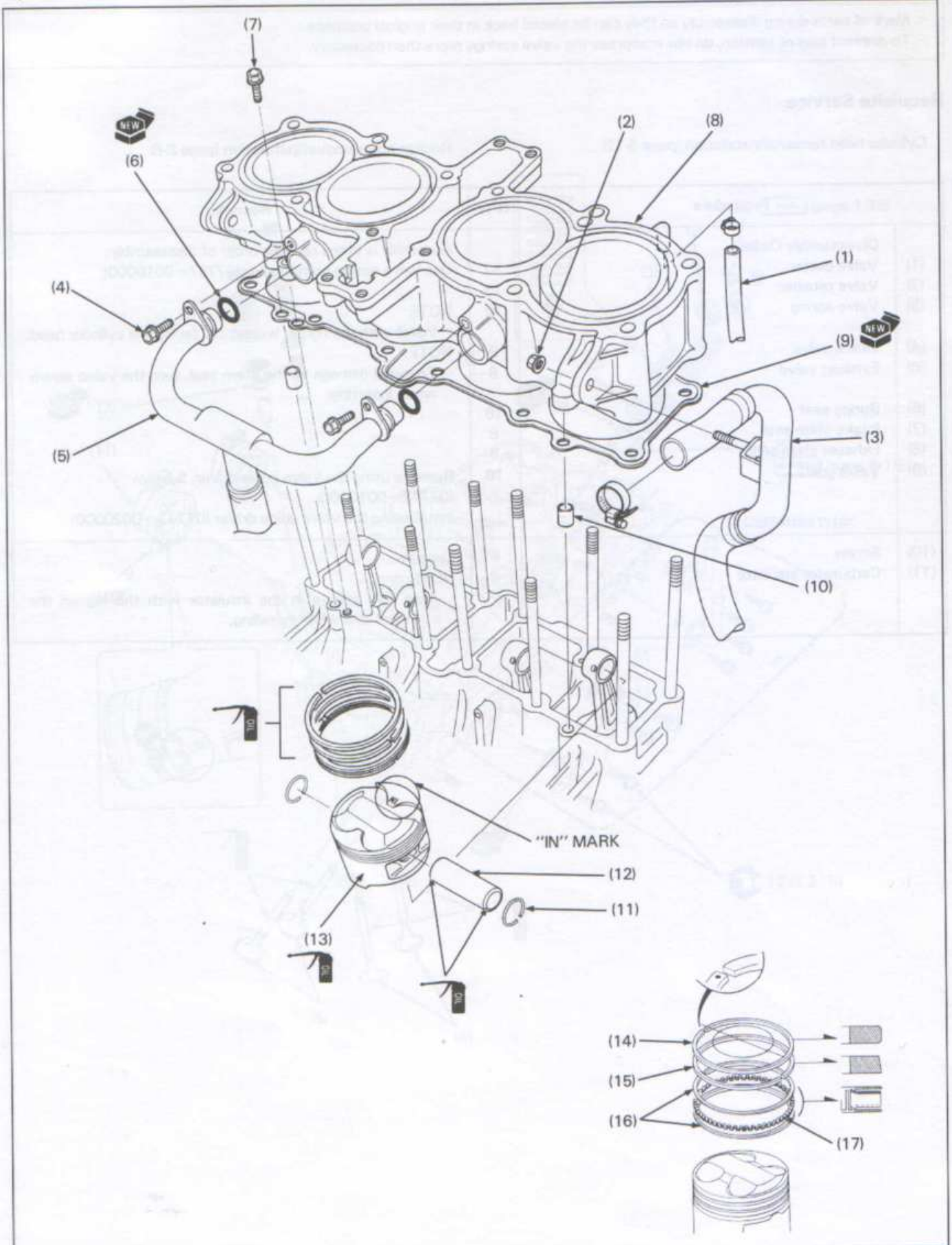
- Mark all parts during disasembly so they can be placed back in their original positions.
- To prevent loss of tension, do not compress the valve springs more than necessary.

Requisite Service

- Cylinder head removal/installation (page 8-12)
- Rocker arm removal/installation (page 8-8)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Valve cotter	32	Use valve spring compressor (07757—0010000).
(2)	Valve retainer	16	
(3)	Valve spring	16	NOTE: · Install with the tightly wound coil facing the cylinder head.
(4)	Intake valve	8	NOTE: · To avoid damage to the stem seal, turn the valve slowly when inserting.
(5)	Exhaust valve	8	
(6)	Spring seat	16	
(7)	Intake stem seal	8	
(8)	Exhaust stem seal	8	
(9)	Valve guide	16	Remove using the valve guide driver, 5.5 mm (07742—0010100). Install using the valve guide driver (07743—0020000).
(10)	Screw	4	Loosen.
(11)	Carburetor insulator	4	NOTE: · Align the groove in the insulator with the lug on the cylinder head when installing.

Cylinder, Piston Removal/Installation



Requisite Service

- Cylinder head removal/installation (page 8-12)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
	Cylinder		
(1)	Water tube	1	
(2)	Water pipe mounting nut	1	
(3)	Water pipe	1	Disconnect the water hose from the radiator.
(4)	Water pipe joint bolt	2	
(5)	Water pipe	1	
(6)	O-ring	2	
(7)	Cylinder bolt	1	
(8)	Cylinder	1	
(9)	Gasket	1	
(10)	Dowel pin	2	
	Piston		
(11)	Piston pin clip	4	NOTE: · Be careful not to drop into the crankcase.
(12)	Piston pin	4	
(13)	Piston assembly	4	Install with the "IN" mark the intake side.
(14)	Top ring	4	Install with the marking facing up.
(15)	Second ring	4	
(16)	Side rail	8	
(17)	Spacer	4	

MEMO

9. Clutch/Gearshift Linkage

Service Information	9-1	Slave Cylinder Removal/Installation	9-4
Troubleshooting	9-1	Clutch Removal/Installation	9-6
Master Cylinder Disassembly/Assembly	9-2	Gearshift Linkage Removal/Installation	9-8

Service Information

- The clutch and gearshift linkage parts can be serviced with the engine installed in the frame.
- Engine oil viscosity and level and the use of oil additives have an effect on clutch disengagement. Oil additives of any kind are specifically not recommended. When the clutch does not disengage or the motorcycle creeps with the clutch disengaged, inspect the engine oil viscosity and level before servicing the clutch system.
- DOT 4 brake fluid is used for the hydraulic clutch and is referred to as clutch fluid in this section. 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.
- Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts. Be very careful whenever you remove the reservoir cap: make sure the reservoir is horizontal first.
- Never allow contaminants (dirt, water, etc.) to get into an open reservoir.
- Once the hydraulic system has been opened, or if the clutch lever feels spongy, the system must be bled.
- Be careful not to damage the mating surfaces when servicing.
- The crankcase must be separated when the transmission, shift drum and shift forks requir service.

Troubleshooting

Clutch Lever Too Hard
- Sticking master piston
- Sticking slave cylinder piston
- Clogged hydraulic system

Clutch Lever Soft or Spongy
- Air bubbles in hydraulic system
- Low fluid level
- Hydraulic system leaking

Clutch will Not Disengage, or Motorcycle Creeps with Clutch Disengaged
- Warped clutch plates
- Loose clutch lock nut
- Oil level too high, improper oil viscosity or oil additive used.
- Air bubbles in hydraulic system
- Low fluid level
- Leaking or sticking hydraulic system
- Damaged clutch lifter bearing
- Bent clutch push rod

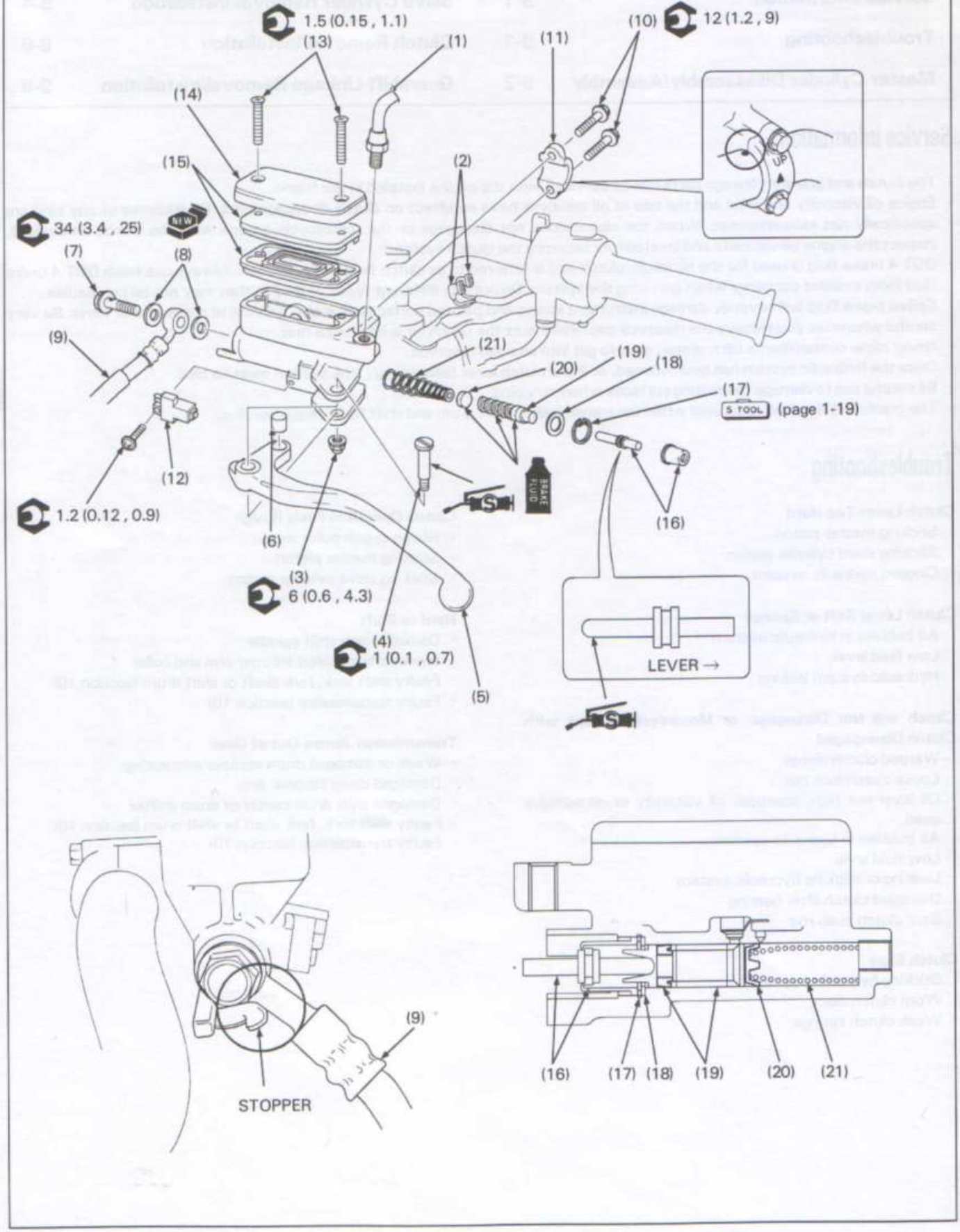
Clutch Slips
- Sticking hydraulic system
- Worn clutch discs
- Weak clutch springs

Clutch Operation Feels Rough
- Rough clutch outer slots
- Sticking master piston
- Sticking slave cylinder piston

Hard to Shift
- Damaged gearshift spindle
- Improperly installed stopper arm and collar
- Faulty shift fork, fork shaft or shift drum (section 10)
- Faulty transmission (section 10)

Transmission Jumps Out of Gear
- Weak or damaged drum stopper arm spring
- Damaged drum stopper arm
- Damaged shift drum center or drum shifter
- Faulty shift fork, fork shaft or shift drum (section 10)
- Faulty transmission (section 10)

Master Cylinder Disassembly/Assembly



NOTE:

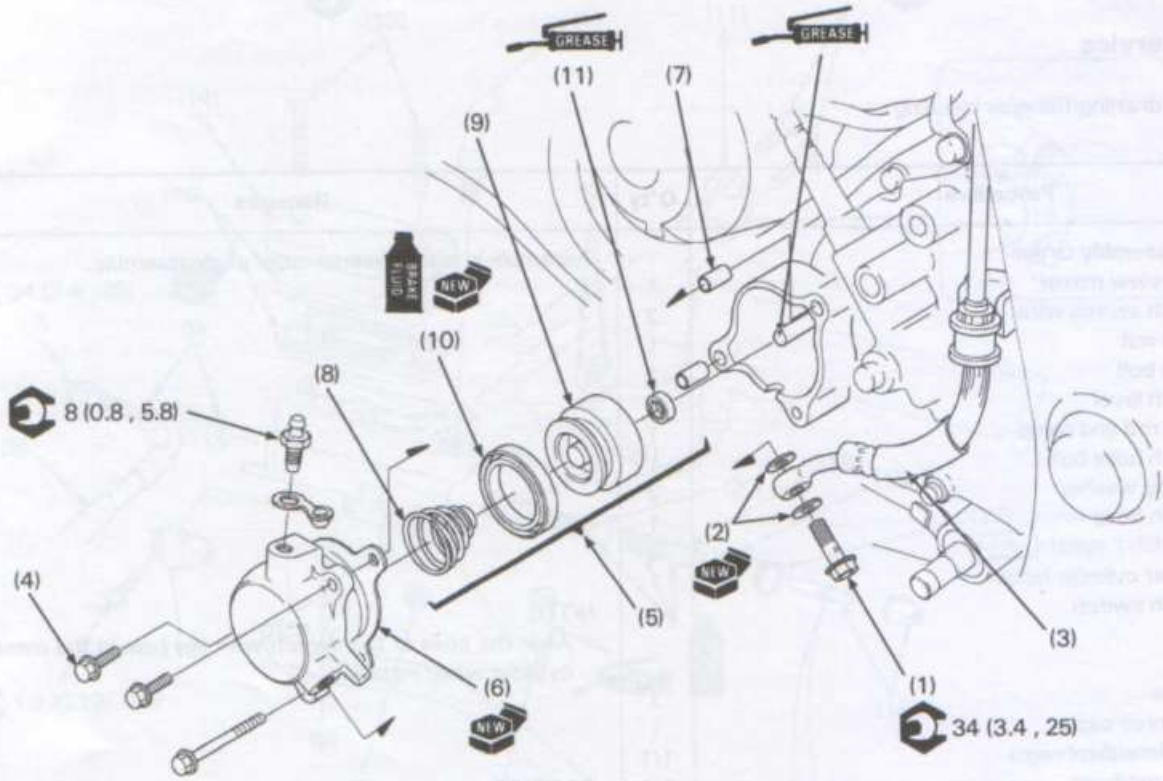
- Replace the master piston, spring, cups, snap ring and boot as a set.
- Install the master piston, spring and cups into the master cylinder as a set.

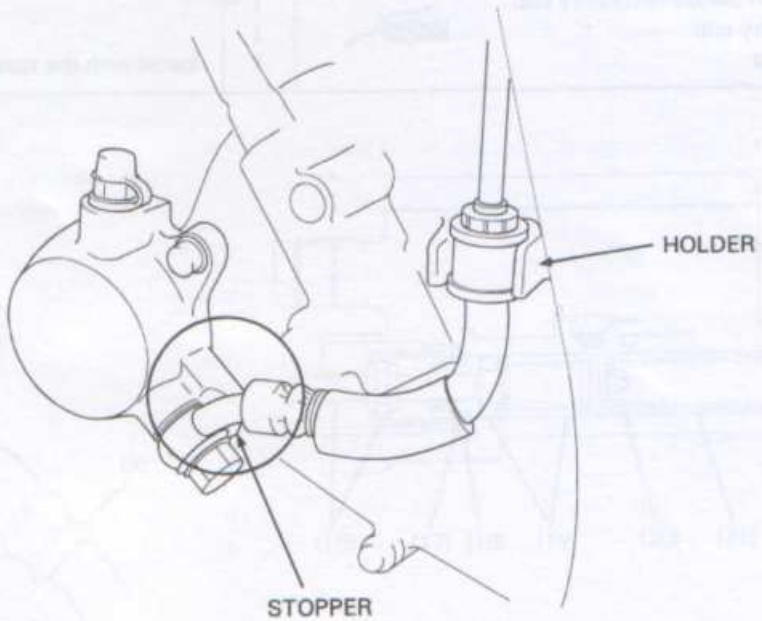
Requisite Service

- Clutch fluid draining/filling/air bleeding

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Rear view mirror	1	
(2)	Clutch switch wire	2	
(3)	Pivot nut	1	
(4)	Pivot bolt	1	
(5)	Clutch lever	1	
(6)	Push rod end piece	1	
(7)	Clutch hose bolt	1	
(8)	Sealing washer	2	
(9)	Clutch hose	1	
(10)	Bolt	2	
(11)	Master cylinder holder	1	
(12)	Clutch switch	1	NOTE: · Align the boss of the switch with the hole in the master cylinder when installing.
(13)	Screw	2	
(14)	Reservoir cap	1	
(15)	Set plate/diaphragm	1/1	
(16)	Push rod/boot	1/1	**CAUTION:** · **Be careful not to damage the boot.** NOTE: · Install the push rod with the flat end facing the lever side.
(17)	Snap ring	1	Use snap ring pliers (07941—3230001).
(18)	Washer	1	
(19)	Master piston/secondary cup	1	
(20)	Primary cup	1	
(21)	Spring	1	Install with the tapered side facing the master piston.

Slave Cylinder Removal/Installation



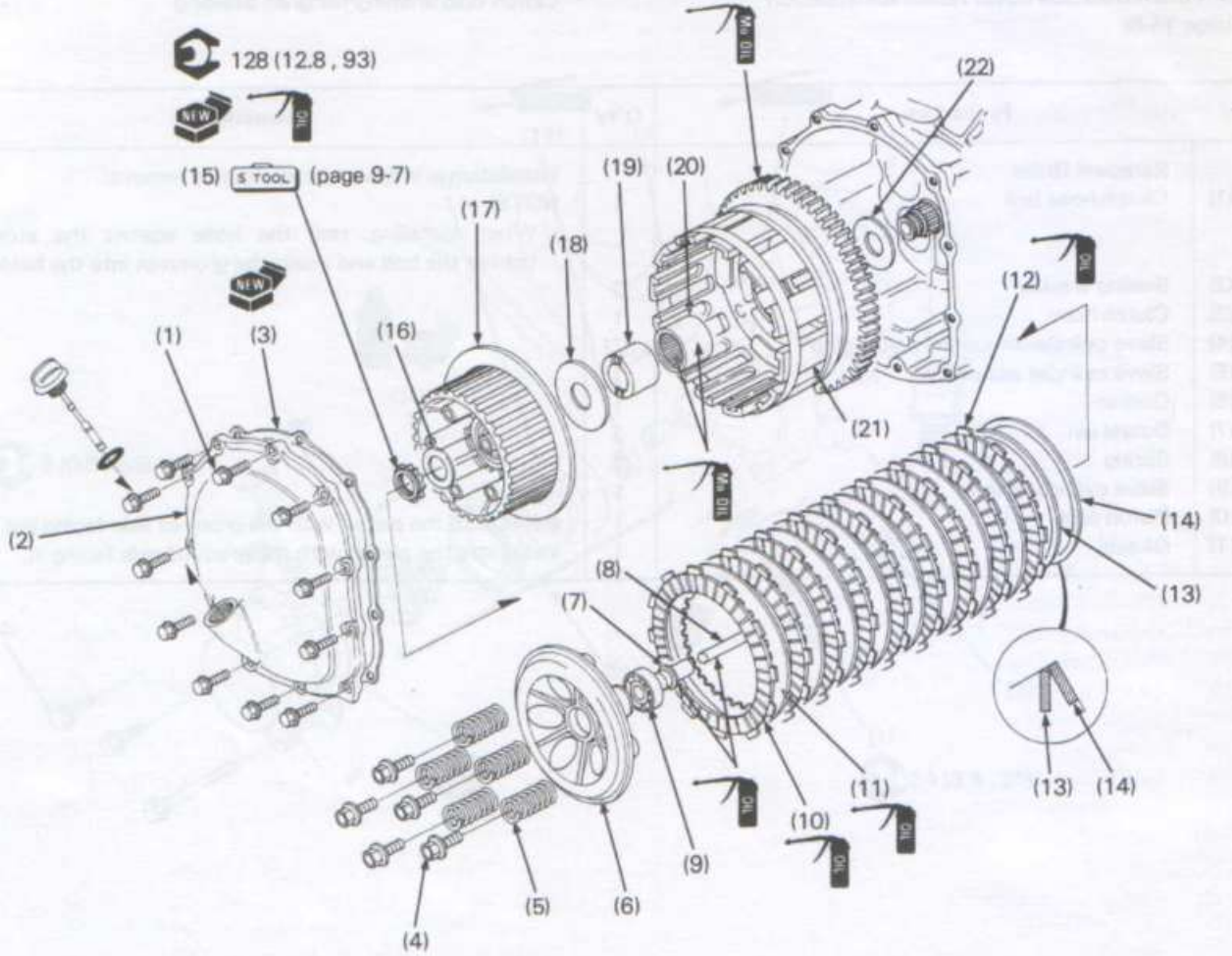


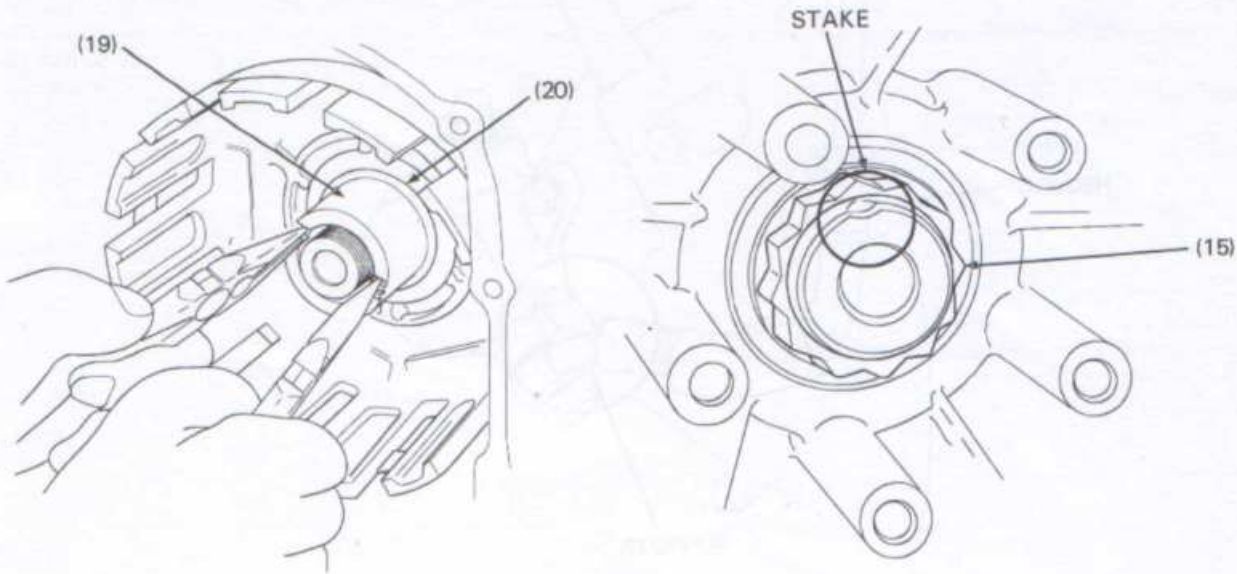
Requisite Service

- Left crankcase side cover removal/installation (page 14-8)
- Clutch fluid draining/filling/air bleeding

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clutch hose bolt	1	NOTE: · When installing, rest the hose against the stopper, tighten the bolt and insert the grommet into the holder.
(2)	Sealing washer	2	
(3)	Clutch hose	1	
(4)	Slave cylinder mounting bolt/clamp	3/1	
(5)	Slave cylinder assembly	1	
(6)	Gasket	1	
(7)	Dowel pin	2	
(8)	Spring	1	
(9)	Slave cylinder piston	1	
(10)	Piston seal	1	Install onto the piston with the grooved side facing out.
(11)	Oil seal	1	Install into the piston with the grooved side facing in.

Clutch Removal/Installation





NOTE:

- When installing and removing the clutch outer, position the balancer weight so that it does not interfere with the primary driven gear by turning the crankshaft counterclockwise.

Requisite Service

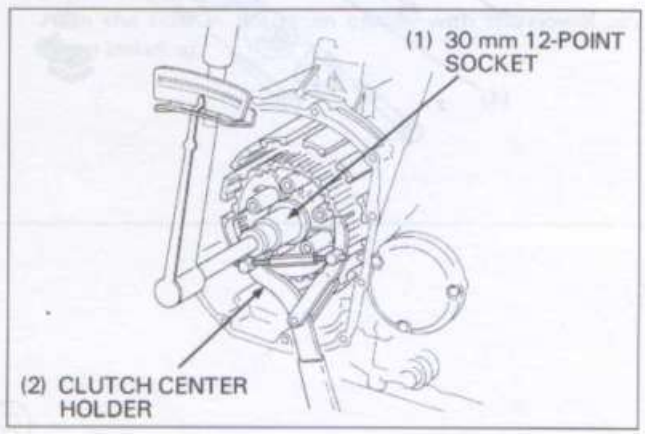
- Engine oil draining/filling

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clutch cover bolt	11	
(2)	Clutch cover	1	
(3)	Gasket	1	NOTE: · Apply liquid sealant to the crankcase mating surface area before installing the gasket (page 1-20).
(4)	Clutch lifter plate bolt	5	
(5)	Clutch spring	5	
(6)	Clutch lifter plate	1	
(7)	Clutch lifter	1	
(8)	Lifter rod	1	
(9)	Lifter bearing	1	
(10)	Clutch disc A	8	
(11)	Clutch plate	8	
(12)	Clutch disc B	1	
(13)	Judder spring	1	
(14)	Spring seat	1	
(15)	Clutch center lock nut	1	Removal/installation (see below).
(16)	Lock washer	1	Install with the "OUT" mark facing out.
(17)	Clutch center	1	
(18)	Washer	1	
(19)	Clutch outer guide	1	Pull out by pinching the tabs with needle nose pliers.
(20)	Needle bearing	1	
(21)	Clutch outer	1	At installation, align the primary driven gear and sub-gear teeth with the screwdriver and install the clutch outer.
(22)	Washer	1	

Clutch Center Lock Nut Removal/Installation

CAUTION:

- **Be careful not to damage the mainshaft threads.**



Removal

Unstake the lock nut.
Hold the clutch center with the clutch center holder and remove the lock nut with a commercially available 30 mm 12-point socket.

S TOOL

Clutch center holder **07724—0050001**

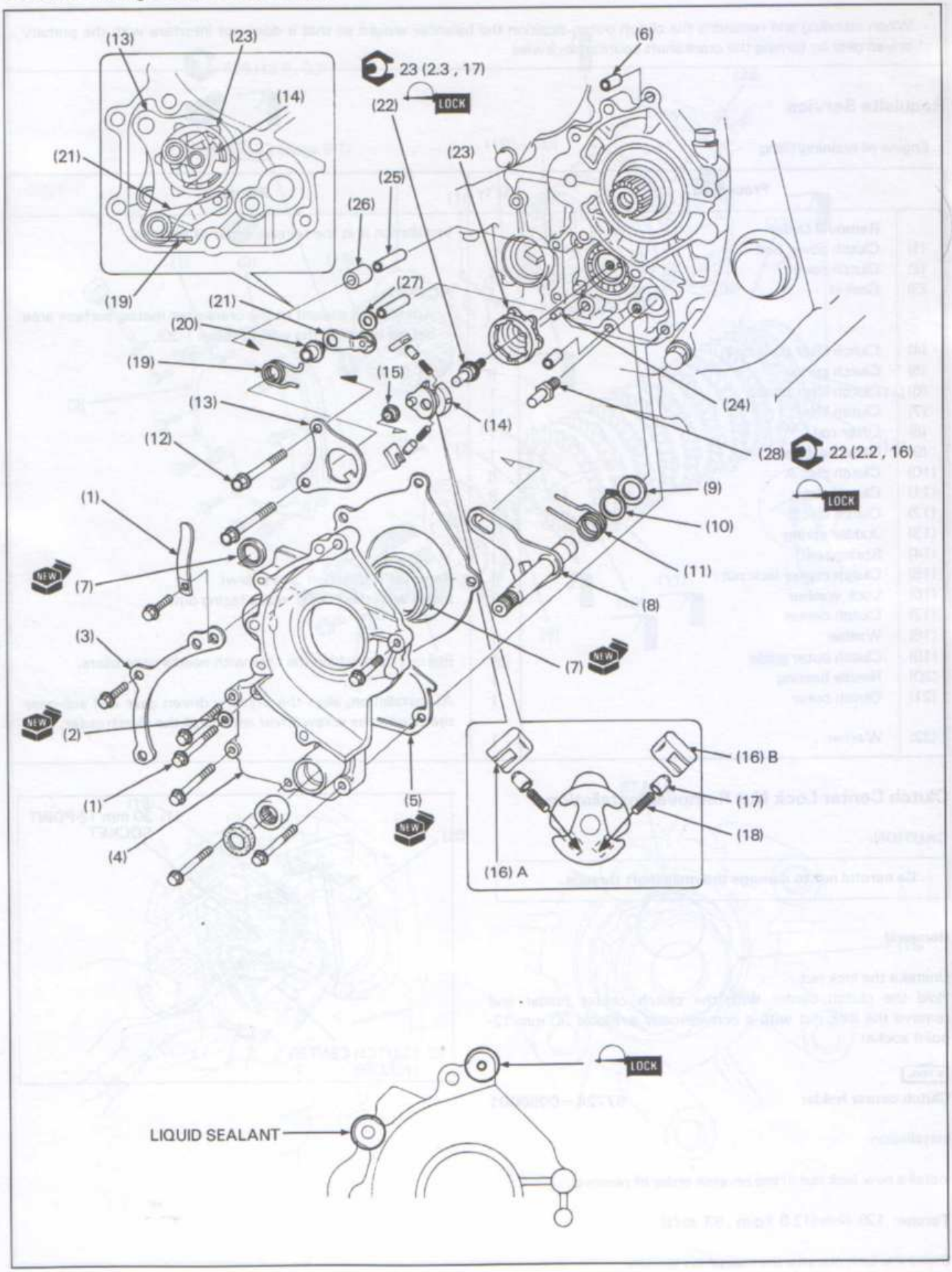
Installation

Install a new lock nut in the reverse order of removal.

Torque: 128 N·m (12.8 kg-m , 93 lb-ft)

Stake the lock nut into the mainshaft groove.

Gearshift Linkage Removal/Installation



Requisite Service

- Engine oil draining/filling
- Water pump removal/installation (page 5-7)
- Drive sprocket removal/installation (page 7-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Gearshift linkage cover bolt/clamp	8/1	
(2)	Washer	1	
(3)	Chain guide	1	
(4)	Gearshift linkage cover	1	
(5)	Gasket	1	NOTE: · Apply liquid sealant to the crankcase mating surface area before installing.
(6)	Dowel pin	2	
(7)	Oil seal	2	
(8)	Gearshift spindle	1	
(9)	Washer	1	
(10)	Snap ring	1	
(11)	Return spring	1	NOTE: · Position the tab of the spindle between the spring ends when installing.
(12)	Guide plate bolt	2	
(13)	Guide plate	1	NOTE: · Make sure that the dowel pins are in position before installing.
(14)	Drum shifter assembly	1	
(15)	—Shifter collar	1	
(16)	—Ratchet pawl A B	1 1	NOTE: · Do not interchange ratchet pawls A and B. Install them correctly as shown in the illustration.
(17)	—Plunger	2	
(18)	—Spring	2	
(19)	Stopper spring	1	
(20)	Stopper collar	1	
(21)	Stopper arm	1	
(22)	Shift drum center bolt	1	
(23)	Shift drum center	1	NOTE: · Align the hole in the drum center with the dowel pin when installing.
(24)	Drum center dowel pin	1	
(25)	Guide plate dowel pin	2	
(26)	Collar	1	
(27)	Washer	1	
(28)	Pin bolt	1	

10. Crankshaft/Transmission

Service Information	10-1	Transmission Removal/Installation	10-9
Troubleshooting	10-1	Mainshaft Disassembly/Assembly	10-10
Balancer Weight Removal/Installation	10-2	Countershaft Disassembly/Assembly	10-12
Crankcase Separation	10-4	Alternator Shaft Removal/Installation	10-14
Crankcase Assembly	10-6	Crankshaft Removal/Installation	10-16
Shift Fork, Shift Drum Removal/Installation	10-8	Crankshaft Bearing Replacement	10-18

Service Information

- The crankcase halves must be separated to service the crankshaft, transmission (including the shift fork and shift drum) and alternator shaft. To service these parts, the engine must be removed from the frame.
- Be careful not to damage the crankcase mating surfaces when servicing.
- Mark and store the connecting rod bearings to be sure of their correct locations. If the connecting rod bearings are improperly installed they will block the oil holes, causing insufficient lubrication and eventual engine seizure.
- Be careful not to damage the main journal bearing inserts during crankshaft removal and installation.
- All bearing inserts are select fitted and are identified by color code. Select replacement bearings from the code tables. Check the oil clearance using a plastigauge after replacing the bearing inserts. Refer to section 14 for oil clearance inspection.
- Store the piston components in the same order they were removed so they can be reinstalled in their original locations.
- Prior to assembling the crankcase halves, apply sealant to their mating surfaces. Wipe off excess sealant thoroughly.

Troubleshooting

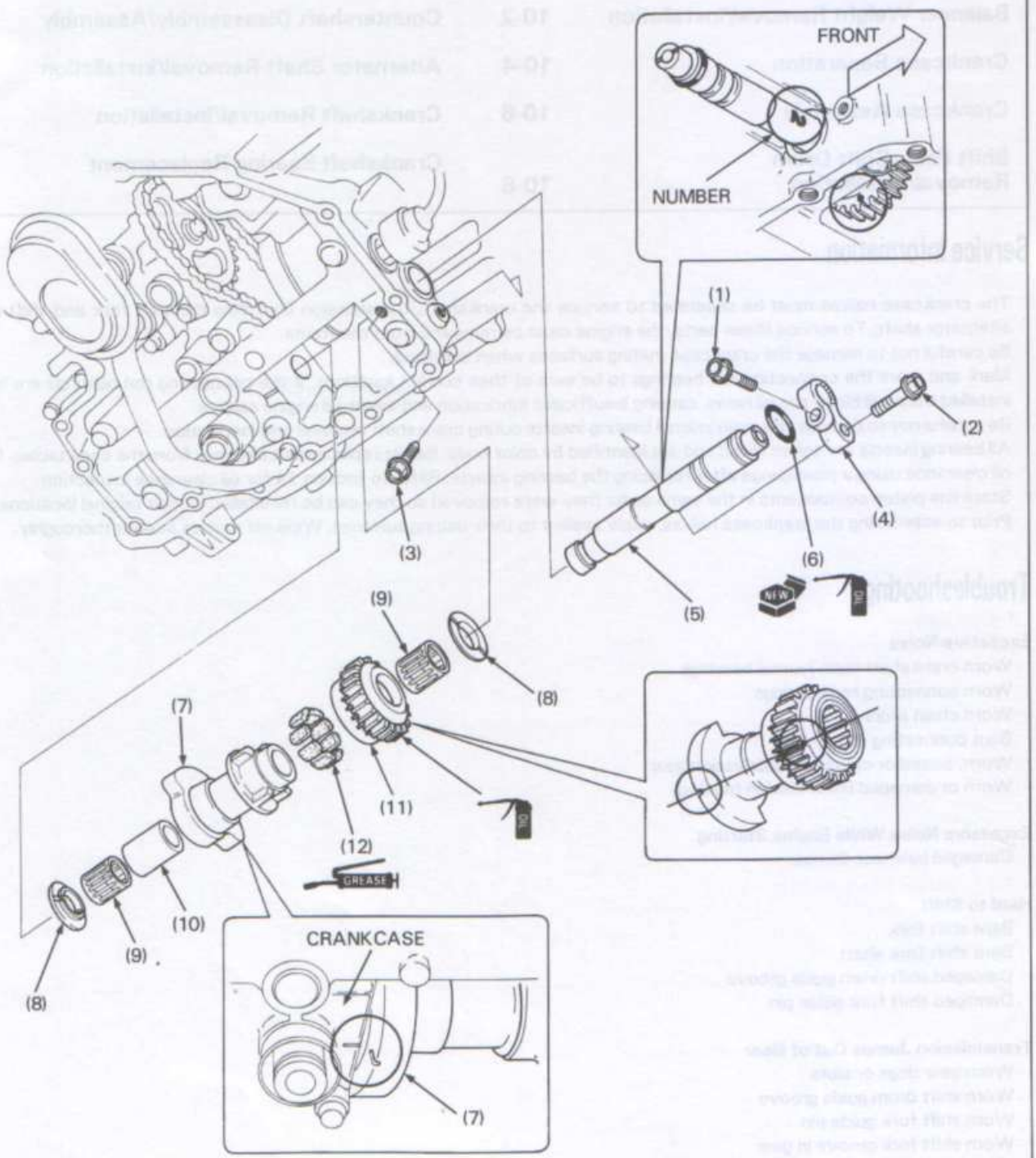
Excessive Noise
- Worn crankshaft main journal bearings
- Worn connecting rod bearings
- Worn chain slider
- Bent connecting rod
- Worn, seized or chipped transmission gear
- Worn or damaged transmission bearing

Excessive Noise While Engine Starting
- Damaged balancer damper

Hard to Shift
- Bent shift fork
- Bent shift fork shaft
- Damaged shift drum guide groove
- Damaged shift fork guide pin

Transmission Jumps Out of Gear
- Worn gear dogs or slots
- Worn shift drum guide groove
- Worn shift fork guide pin
- Worn shift fork groove in gear

Balancer Weight Removal/Installation



CAUTION:

- **Replace the balancer weight, shaft and needle bearings as a set.**
- **Adjust backlash after installing the balancer weight assembly.**

Requisite Service

- Oil pan removal/installation (page 4-3)

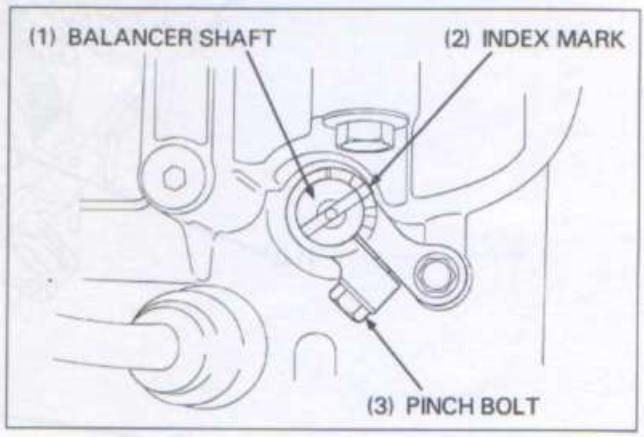
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pinch bolt	1	
(2)	Holder bolt	1	
(3)	Shaft stopper bolt	1	
(4)	Shaft holder	1	
(5)	Balancer shaft	1	NOTE: · Install the balancer shaft with the code number on the shaft facing forward, and with the punch mark on the balancer gear facing down.
(6)	O-ring	1	
(7)	Balancer weight assembly	1	NOTE: · Rotate the balancer assembly until it comes out easily; do not force it out. · Before installation, align the index mark on the pulse generator rotor with the T mark on the crankcase (page 3-6) · Align the index lines on the weight and crankcase when installing.
(8)	Washer	2	
(9)	Needle bearing	2	
(10)	Collar	1	
(11)	Balancer gear	1	NOTE: · Align the punch mark on the gear with the index line on the weight when installing.
(12)	Damper	8	

Backlash Adjustment

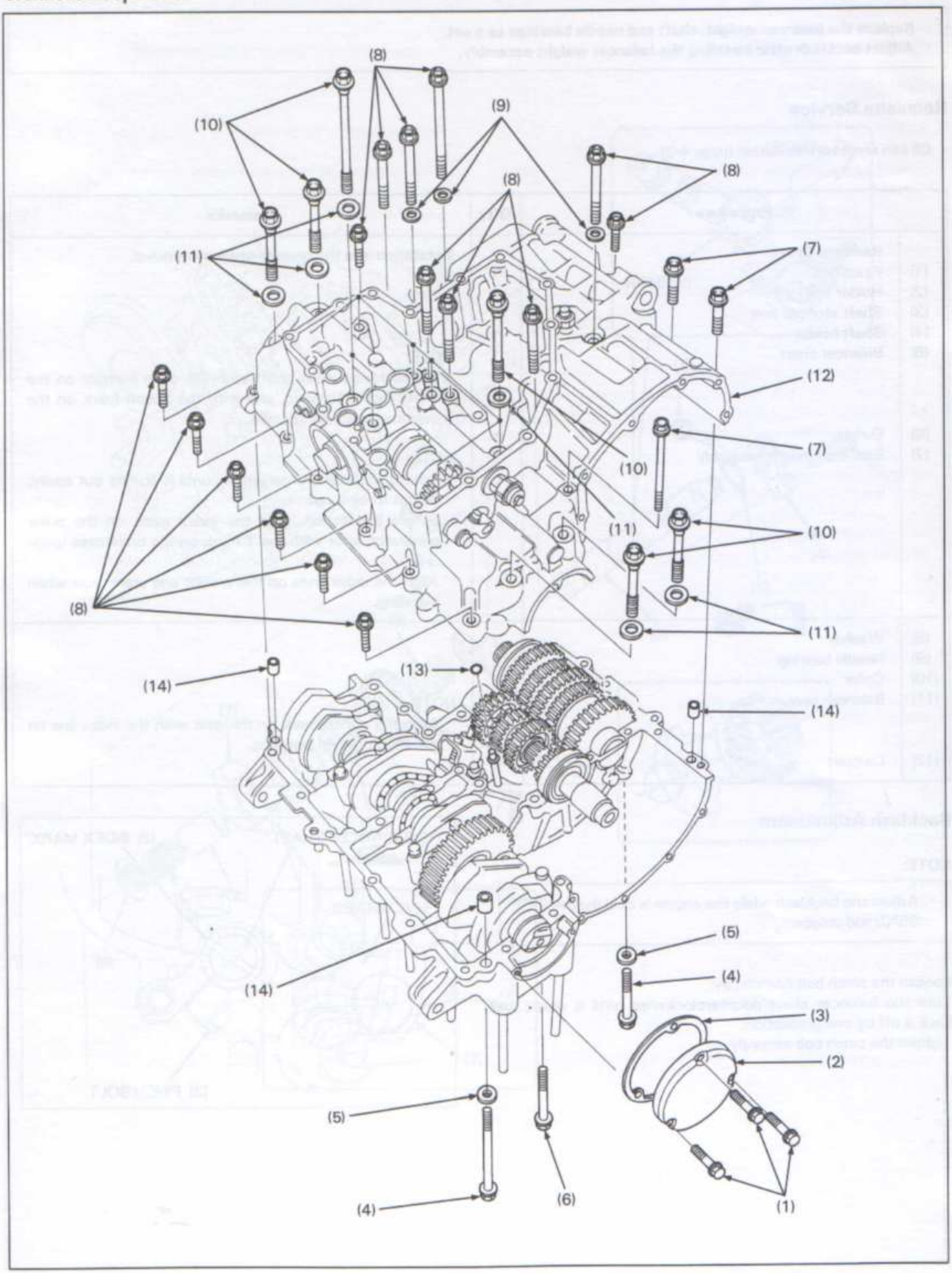
NOTE:

- Adjust the backlash while the engine is cold (below 95°F/35°C) and stopped.

Loosen the pinch bolt completely.
Turn the balancer shaft counterclockwise until it stops and back it off by one graduation.
Tighten the pinch bolt securely.



Crankcase Separation



NOTE:

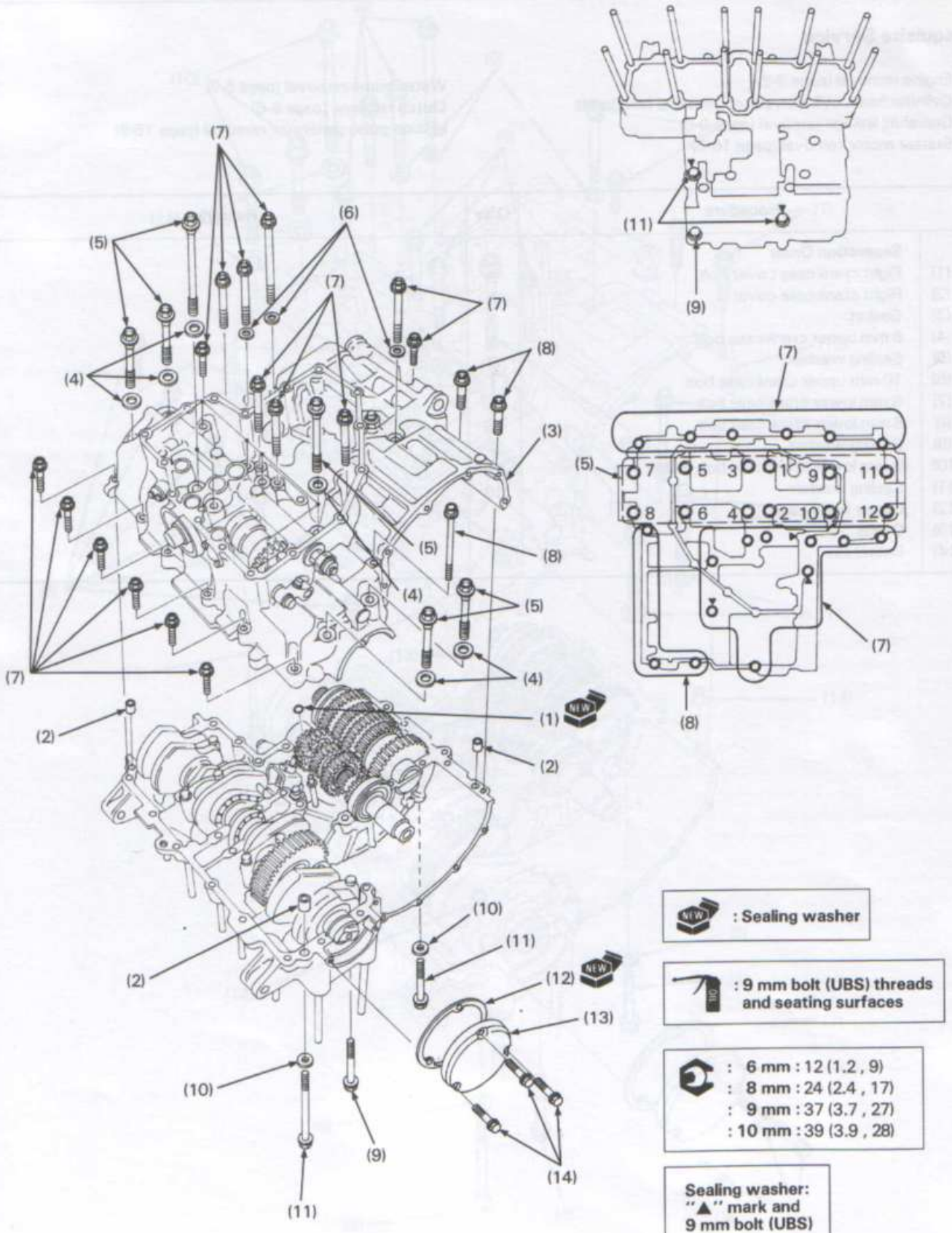
- After separating the crankcase, clean the mating surfaces thoroughly.

Requisite Service

- Engine removal (page 7-2)
- Cylinder head, cylinder, piston removal (section 8)
- Gearshift linkage removal (page 9-8)
- Starter motor removal (page 16-5)
- Water pump removal (page 5-7)
- Clutch removal (page 9-6)
- Ignition pulse generator removal (page 15-9)

	Procedure	Q'ty	Remarks
	Separation Order		
(1)	Right crankcase cover bolt	3	
(2)	Right crankcase cover	1	
(3)	Gasket	1	
(4)	8 mm upper crankcase bolt	2	
(5)	Sealing washer	2	
(6)	10 mm upper crankcase bolt	1	
(7)	6 mm lower crankcase bolt	3	
(8)	8 mm lower crankcase bolt	15	
(9)	Sealing washer	3	
(10)	9 mm lower crankcase bolt (UBS)	12	
(11)	Sealing washer	12	
(12)	Lower crankcase	1	
(13)	O-ring	1	
(14)	Dowel pin	3	

Crankcase Assembly



Requisite Service

- Engine installation (page 7-2)
- Cylinder head, cylinder, piston installation (section 8)
- Gearshift linkage installation (page 9-8)
- Starter motor installation (page 16-5)
- Water pump installation (page 5-7)
- Clutch installation (page 9-6)
- Ignition pulse generator installation (page 15-9)

	Procedure	Q'ty	Remarks
	Installation Order		
(1)	O-ring	1	Install onto the pipe end of the oil pass plate.
(2)	Dowel pin	3	
(3)	Lower crankcase	1	Installation (see below).
(4)	Sealing washer	12	
(5)	9 mm lower crankcase bolt (UBS)	12	NOTE: · Tighten in the order shown in the illustration in 2 or 3 steps.
(6)	Sealing washer	3	NOTE: · Install onto bolts indicated by the "▲" marks.
(7)	8 mm lower crankcase bolt	15	
(8)	6 mm lower crankcase bolt	3	
(9)	10 mm upper crankcase bolt	1	
(10)	Sealing washer	2	NOTE: · Install onto bolts indicated by the "▲" marks.
(11)	8 mm upper crankcase bolt	2	
(12)	Gasket	1	NOTE: · Apply liquid sealant to the crankcase mating surface area before installing the gasket (page 1-19).
(13)	Right crankcase cover	1	
(14)	Right crankcase cover bolt	3	

Lower Crankcase Installation

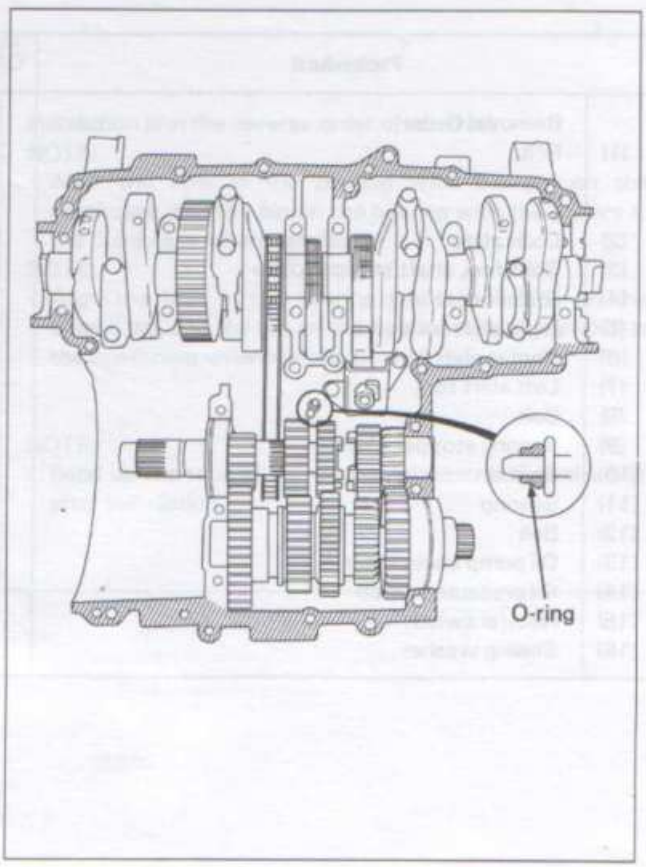
Apply liquid sealant to the mating surface of the upper crankcase as shown (shaded areas).

CAUTION:

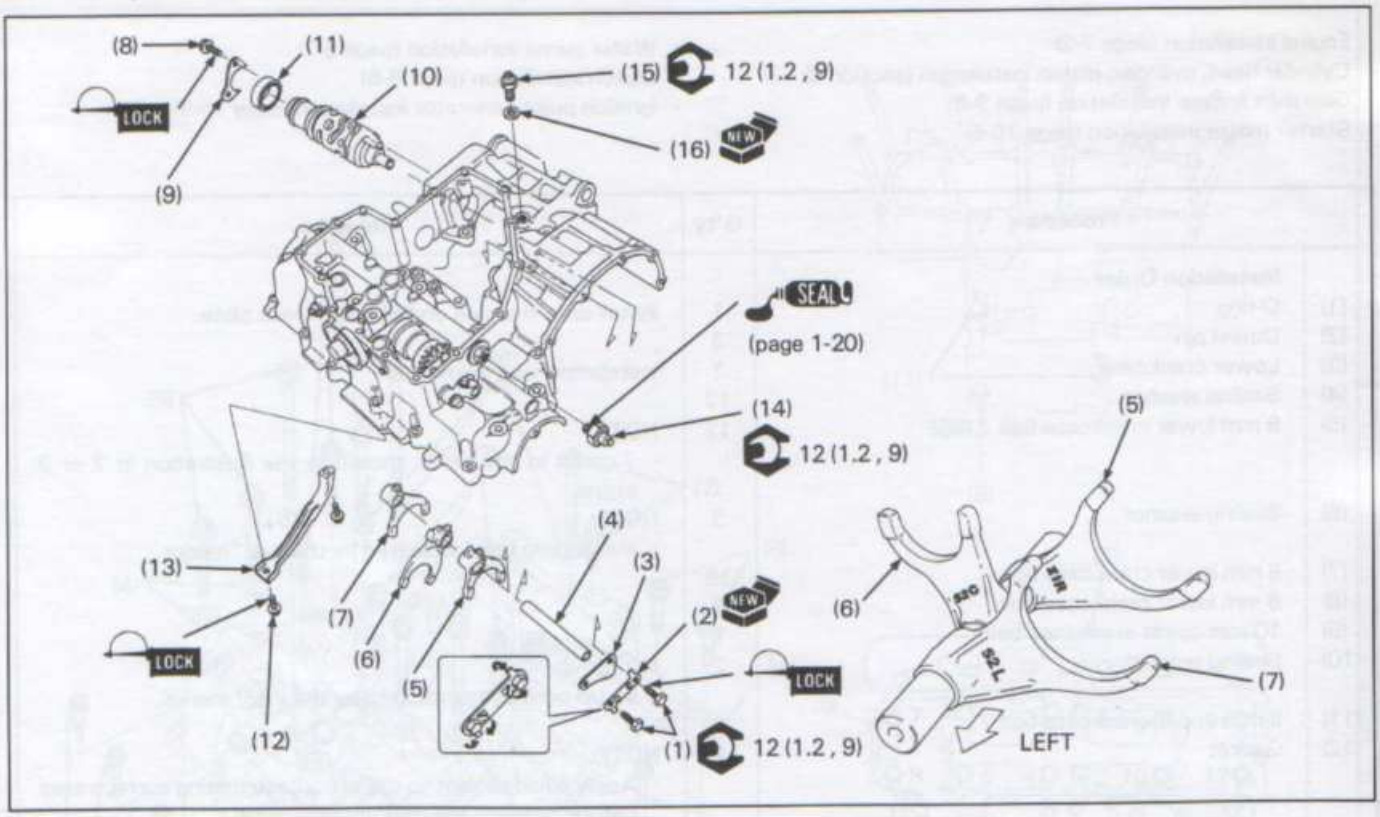
- **Do not apply liquid sealant to the areas near the main journal bearings and oil passages.**

Make sure that a new O-ring is installed onto the pipe end of the oil pass plate properly.

Install the three dowel pins and the lower crankcase.



Shift Fork, Shift Drum Removal/Installation

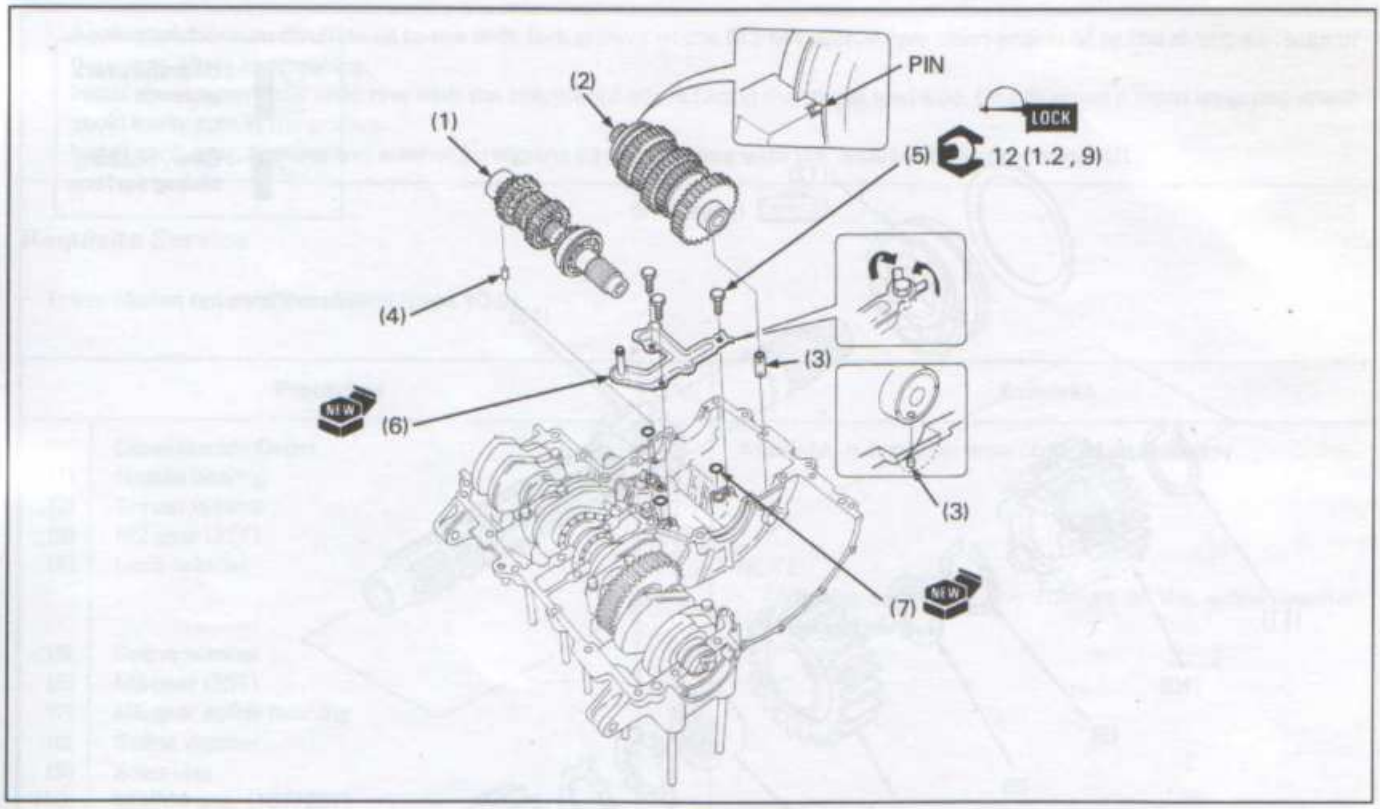


Requisite Service

- Crankcase separation (page 10-4)
- Crankcase assembly (page 10-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Bolt	2	NOTE: · Bend up the tabs of the lock plate to secure the bolts after installation.
(2)	Lock plate	1	
(3)	Shift fork shaft stopper plate	1	
(4)	Shift fork shaft	1	
(5)	Right shift fork	1	NOTE: · Install with the markings facing the left side.
(6)	Center shift fork	1	
(7)	Left shift fork	1	
(8)	Bolt	1	
(9)	Bearing stopper plate	1	
(10)	Shift drum	1	
(11)	Bearing	1	
(12)	Bolt	2	
(13)	Oil pump chain slider	1	
(14)	Oil pressure switch	1	
(15)	Neutral switch	1	
(16)	Sealing washer	1	

Transmission Removal/Installation

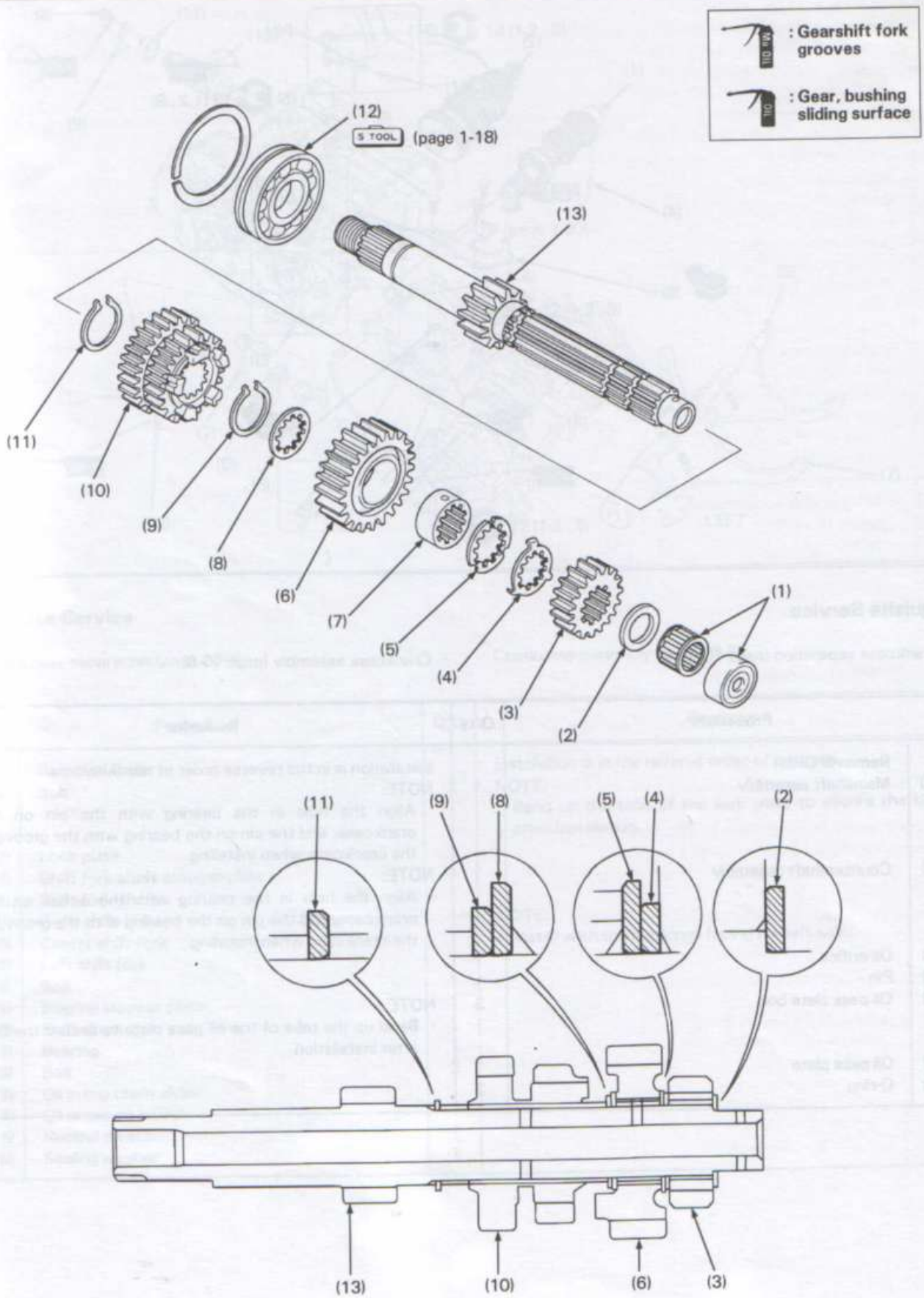


Requisite Service

- Crankcase separation (page 10-4)
- Crankcase assembly (page 10-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Mainshaft assembly	1	NOTE: · Align the hole in the bearing with the pin on the crankcase, and the pin on the bearing with the groove in the crankcase when installing.
(2)	Countershaft assembly	1	NOTE: · Align the hole in the bearing with the orifice on the crankcase, and the pin on the bearing with the groove in the crankcase when installing.
(3)	Oil orifice	1	
(4)	Pin	1	
(5)	Oil pass plate bolt	3	NOTE: · Bend up the tabs of the oil pass plate to secure the bolt after installation.
(6)	Oil pass plate	1	
(7)	O-ring	3	

Mainshaft Disassembly/Assembly



NOTE:

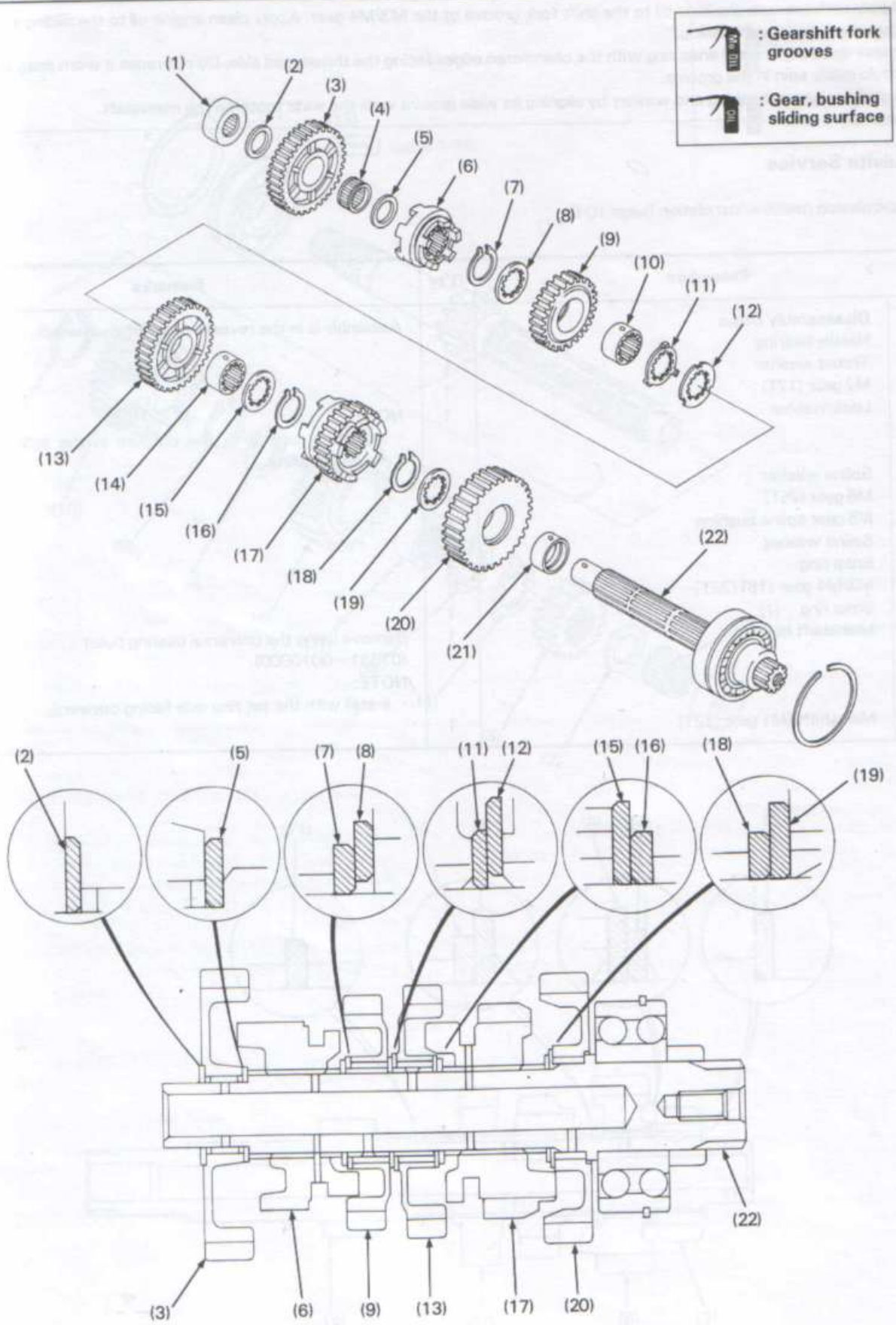
- Apply molybdenum disulfide oil to the shift fork groove of the M3/M4 gear. Apply clean engine oil to the sliding surfaces of the gears, shaft and bushing.
- Install the washers and snap ring with the chamfered edges facing the thrust load side. Do not reuse a worn snap ring which could easily spin in the groove.
- Install each gear, bushing and washer by aligning its wide groove with the wide tooth on the mainshaft.

Requisite Service

- Transmission removal/installation (page 10-9)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Needle bearing	1	
(2)	Thrust washer	1	
(3)	M2 gear (17T)	1	
(4)	Lock washer	1	NOTE: · Align the tabs with the cutouts in the spline washer when installing.
(5)	Spline washer	1	
(6)	M5 gear (25T)	1	
(7)	M5 gear spline bushing	1	
(8)	Spline washer	1	
(9)	Snap ring	1	
(10)	M3/M4 gear (18T/23T)	1	
(11)	Snap ring	1	
(12)	Mainshaft bearing	1	Remove using the universal bearing puller (07631—0010000). NOTE: · Install with the set ring side facing outward.
(13)	Mainshaft (M1 gear: 12T)	1	

Countershaft Disassembly/Assembly



NOTE:

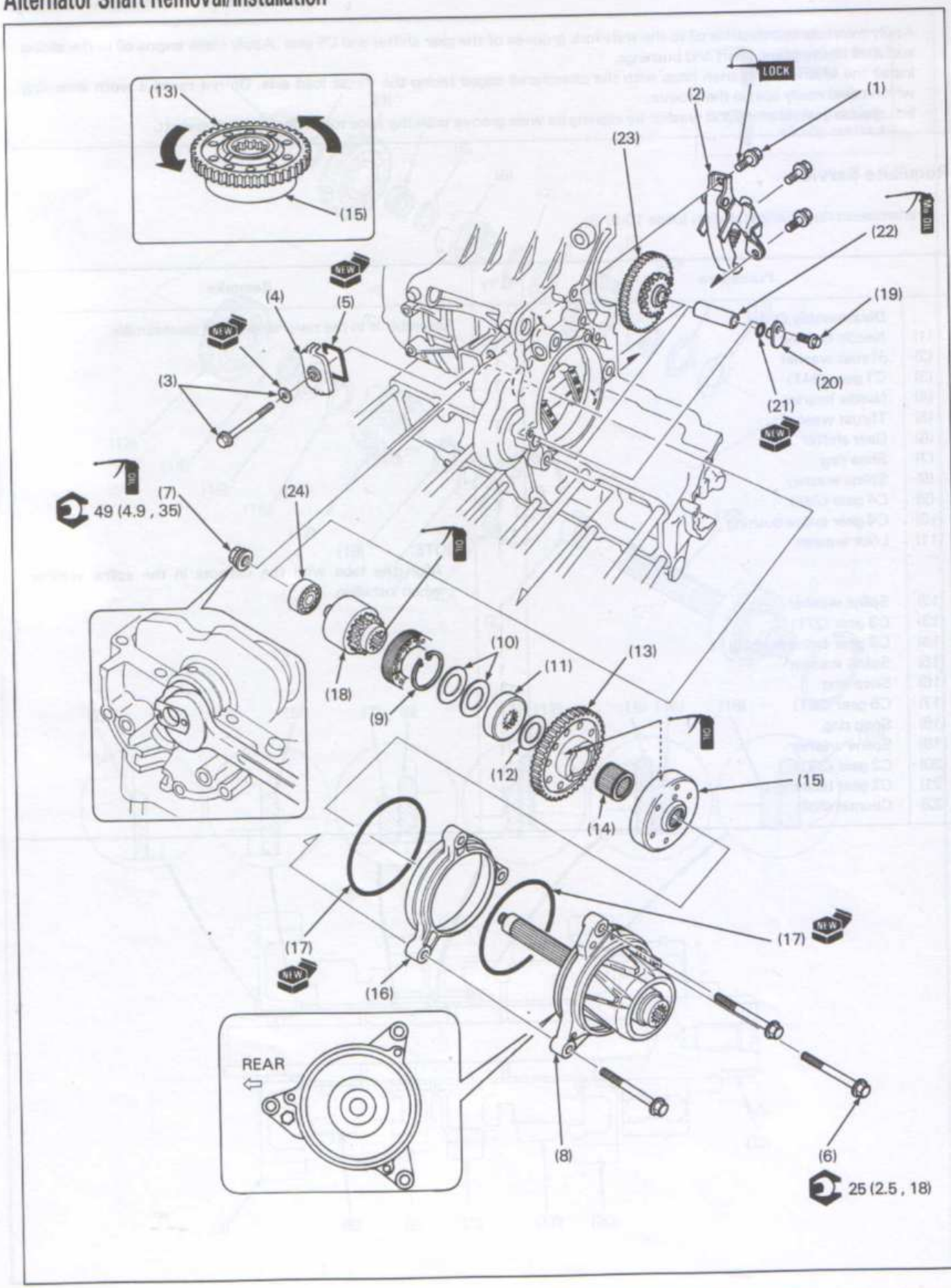
- Apply molybdenum disulfide oil to the shift fork grooves of the gear shifter and C5 gear. Apply clean engine oil to the sliding surfaces of the gears, shaft and bushings.
- Install the washers and snap rings with the chamfered edges facing the thrust load side. Do not reuse a worn snap ring which could easily spin in the groove.
- Install each gear, bushing and washer by aligning its wide groove with the wide tooth on the countershaft.

Requisite Service

- Transmission removal/installation (page 10-9)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Needle bearing	1	
(2)	Thrust washer	1	
(3)	C1 gear (34T)	1	
(4)	Needle bearing	1	
(5)	Thrust washer	1	
(6)	Gear shifter	1	
(7)	Snap ring	1	
(8)	Spline washer	1	
(9)	C4 gear (28T)	1	
(10)	C4 gear spline bushing	1	
(11)	Lock washer	1	NOTE: · Align the tabs with the cutouts in the spline washer when installing.
(12)	Spline washer	1	
(13)	C3 gear (27T)	1	
(14)	C3 gear spline bushing	1	
(15)	Spline washer	1	
(16)	Snap ring	1	
(17)	C5 gear (26T)	1	
(18)	Snap ring	1	
(19)	Spline washer	1	
(20)	C2 gear (33T)	1	
(21)	C2 gear bushing	1	
(22)	Countershaft	1	

Alternator Shaft Removal/Installation



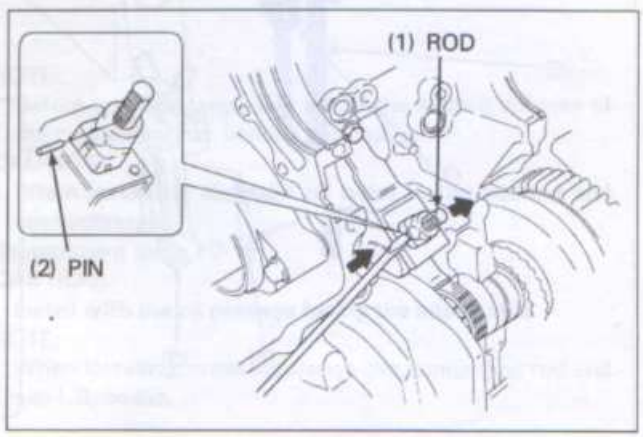
Requisite Service

- Transmission removal/installation (page 10-9)
- Stator coil removal/installation (page 14-8)

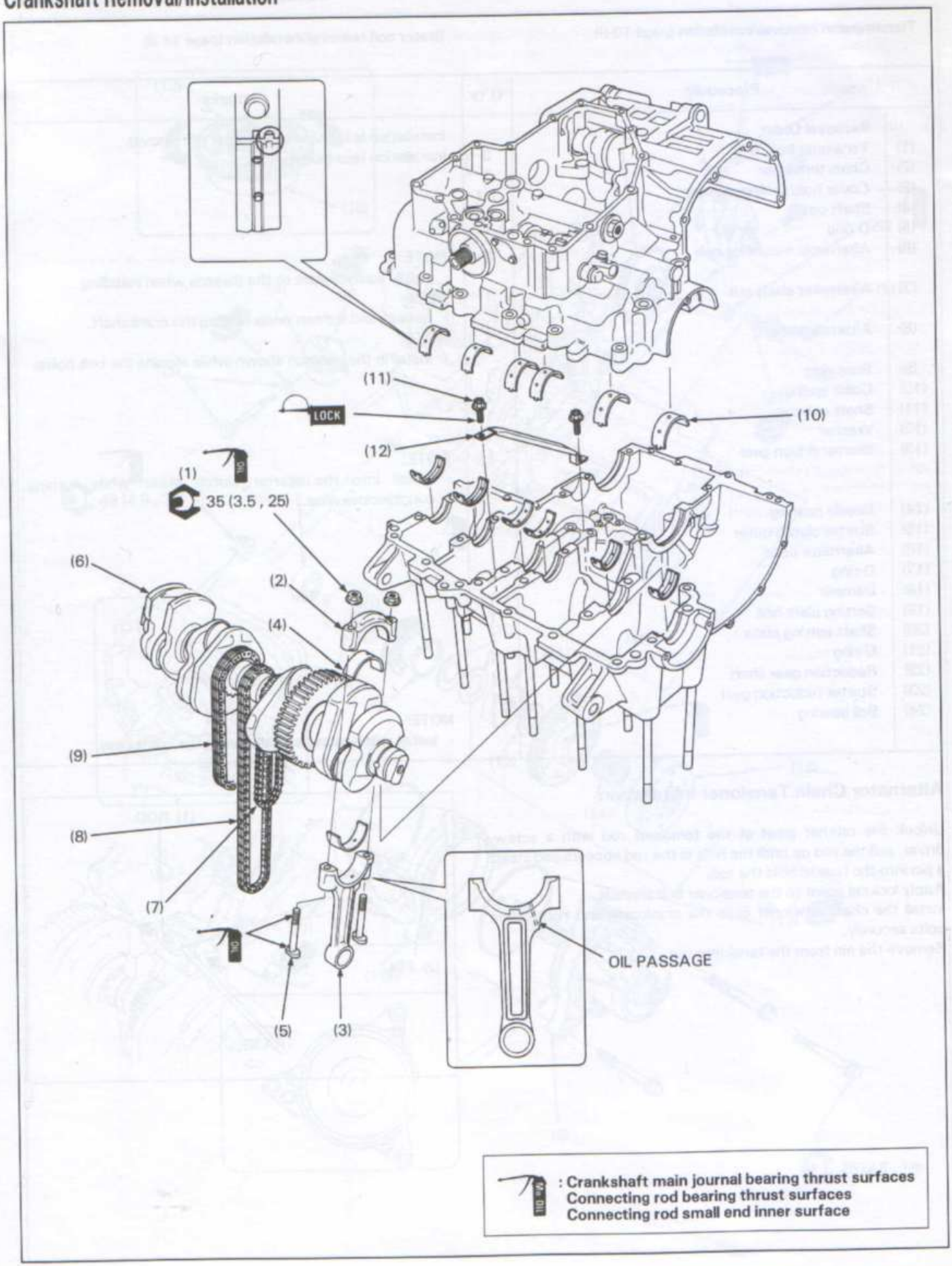
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Tensioner bolt	3	Installation (see below).
(2)	Chain tensioner	1	
(3)	Cover bolt/sealing washer	1/1	
(4)	Shaft cover	1	
(5)	O-ring	1	
(6)	Alternator mounting bolt	3	NOTE: · Apply liquid sealant to the threads when installing.
(7)	Alternator shaft nut	1	NOTE: · Loosen and tighten while holding the crankshaft.
(8)	Alternator shaft	1	NOTE: · Install in the position shown while aligning the bolt holes.
(9)	Snap ring	1	
(10)	Collar spring	2	
(11)	Shaft collar	1	
(12)	Washer	1	
(13)	Starter driven gear	1	NOTE: · Install into the starter clutch outer while turning counterclockwise.
(14)	Needle bearing	1	
(15)	Starter clutch outer	1	
(16)	Alternator base	1	
(17)	O-ring	2	
(18)	Damper	1	
(19)	Setting plate bolt	1	
(20)	Shaft setting plate	1	
(21)	O-ring	1	
(22)	Reduction gear shaft	1	
(23)	Starter reduction gear	1	
(24)	Ball bearing	1	NOTE: · Install with the sealed side facing the crankcase.

Alternator Chain Tensioner Installation

Unlock the ratchet pawl of the tensioner rod with a screwdriver, pull the rod up until the hole in the rod appears and insert a pin into the hole to hold the rod.
Apply locking agent to the tensioner bolt threads.
Install the chain tensioner onto the crankcase and tighten the bolts securely.
Remove the pin from the tensioner rod.



Crankshaft Removal/Installation



NOTE:

- Be careful not to damage the main journal bearing inserts during crankshaft removal and installation.
- Mark and store the connecting rods, bearings and bearing caps during removal so they can be reinstalled in their original locations.

Requisite Service

- Transmission removal/installation (page 10-9)
- Alternator shaft removal/installation (page 10-14)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Bearing cap nut	8	
(2)	Connecting rod bearing cap	4	
(3)	Connecting rod	4	
(4)	Connecting rod bearing	8	
(5)	Connecting rod bolt	8	Do not remove unless necessary.
(6)	Crankshaft	1	
(7)	Oil pump drive chain	1	
(8)	Cam chain	1	
(9)	Alternator drive chain	1	
(10)	Crankshaft main journal bearing	12	
(11)	Slider bolt	2	
(12)	Alternator chain slider	1	
	Installation Order		
(12)	Alternator chain slider	1	
(11)	Slider bolt	2	
(10)	Crankshaft main journal bearing	12	NOTE: · Before installing, wipe any oil off the seating surfaces of the bearing and crankcase. · When installing, align the tab with the groove in the crankcase. Replacement (page 10-18)
(9)	Alternator drive chain	1	
(8)	Cam chain	1	
(7)	Oil pump drive chain	1	
(6)	Crankshaft	1	
(5)	Connecting rod bolt	8	
(4)	Connecting rod bearing	8	NOTE: · Before installing, wipe any oil off the seating sufaces of the connecting rod, bearing and cap. **CAUTION:** · **When installing, align the oil holes in the bearing and connecting rod.** Replacement (page 10-19)
(3)	Connecting rod	4	**CAUTION:** · **Install with the oil passage facing the intake side.**
(2)	Connecting rod bearing cap	4	NOTE: · When installing, cross reference the connecting rod and cap I. D. codes.
(1)	Bearing cap nut	8	

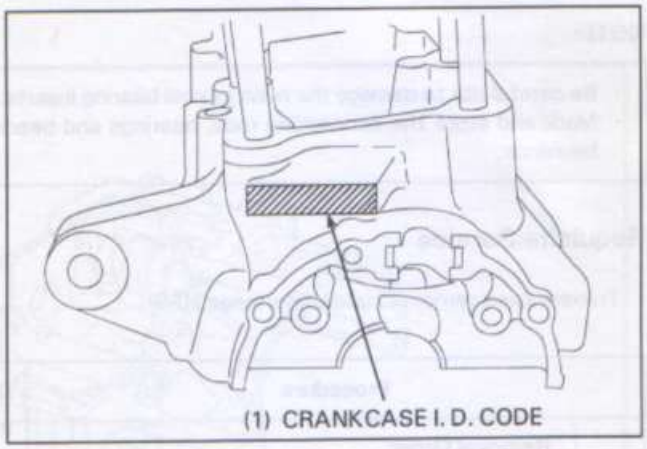
Crankshaft Bearing Replacement

Main Journal Bearing

Record the crankcase I. D. code letters.

NOTE:

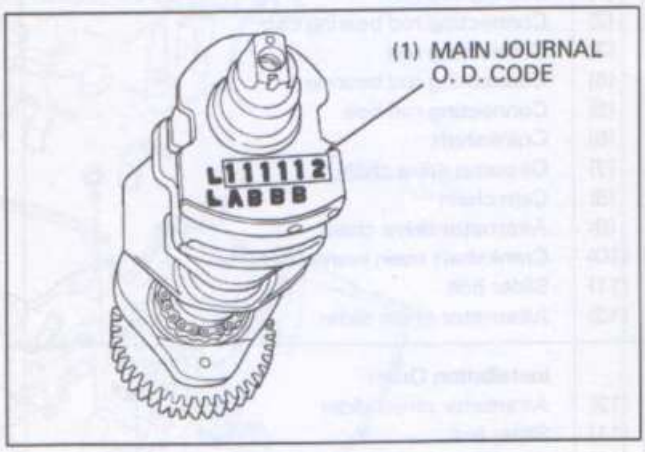
- Letters (A, B or C) on the left side of the upper crankcase are the codes for the main journal I. D. s.
- The No. 1—No. 6 journal codes are stamped in order from the left. The left end journal is No. 1.



Record the main journal O. D. code numbers.

NOTE:

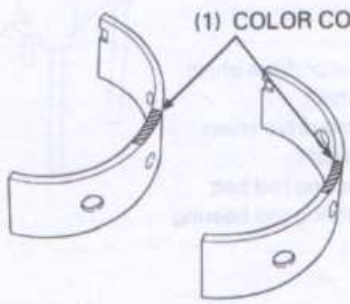
- Numbers (1 or 2) on the left side of the crank weight are the codes for the main journal O. D. s.
- The No. 1—No. 6 journal codes are stamped in order from the L letter. The left end journal is No. 1.



Cross reference the crankcase and crankshaft journal codes to determine the replacement bearing color code.

Main journal O. D. code		Crankcase I. D. code A: 39.000—39.007 mm (1.5354—1.5357 in)	B: 39.008—39.015 mm (1.5357—1.5360 in)	C: 39.016—39.024 mm (1.5361—1.5357 in)
1	35.992—36.000 mm (1.4170—1.4173 in)	Pink	Yellow	Green
2	35.984—35.991 mm (1.4167—1.4170 in)	Yellow	Green	Brown

MAIN JOURNAL BEARINGS:



Main bearing thickness

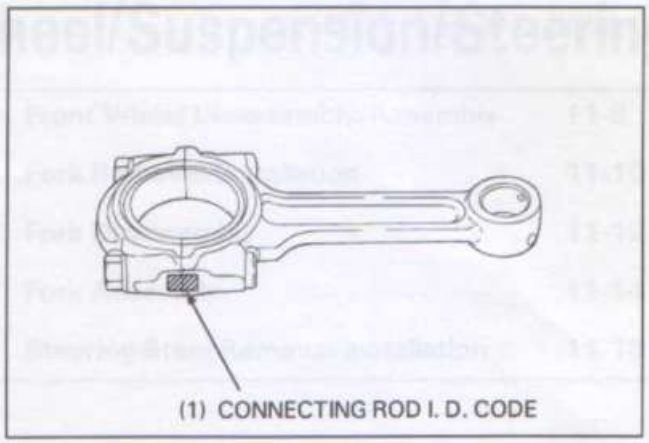
Brown: 1.508—1.512 mm (0.0594—0.0595 in)
Green: 1.504—1.507 mm (0.0592—0.0593 in)
Yellow: 1.500—1.503 mm (0.0591—0.0592 in)
Pink: 1.496—1.499 mm (0.0589—0.0590 in)

Connecting Rod Bearing

Main Journal Bearing

NOTE:

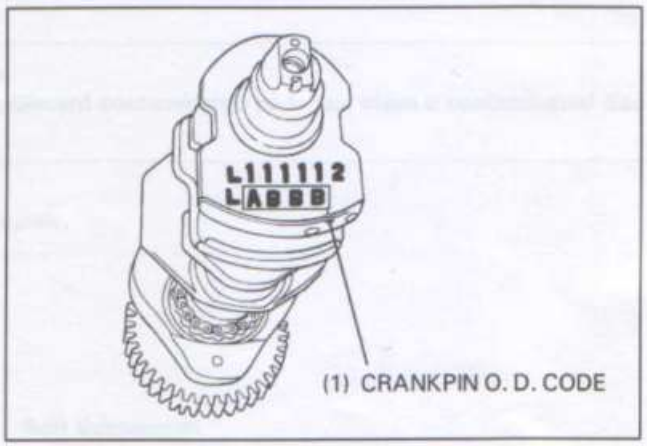
- Number 1, 2 or 3 on the connecting rod is the code for the conecting rod I. D.



Record the crankpin O. D. code letters.

NOTE:

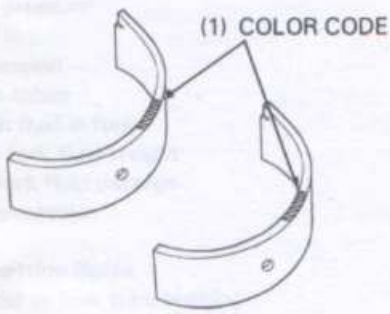
- Letters (A or B) on the left side of the crank weight are the codes for the crankpin O. D. s.
- The No. 1—No. 4 crankpin codes are stamped in order from the L letter. The left end crankpin is No. 1.



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

Connecting rod I. D. code / Crankpin O. D. code		A	B
		39.995—40.003 mm (1.5746—1.5749 in)	39.987—39.994 mm (1.5743—1.5746 in)
1	43.000—43.007 mm (1.6929—1.6932 in)	Yellow	Green
2	43.008—43.016 mm (1.6932—1.6935 in)	Green	Brown

CONNECTING ROD BEARINGS:



Connecting rod bearing thickness

Brown: 1.492—1.496 mm (0.0587—0.0589 in)
Green: 1.488—1.491 mm (0.0586—0.0587 in)
Yellow: 1.484—1.487 mm (0.0584—0.0585 in)

11. Front Wheel/Suspension/Steering

Service Information	11-1	Front Wheel Disassembly/Assembly	11-8
Troubleshooting	11-1	Fork Removal/Installation	11-10
Handlebar Removal/Installation	11-2	Fork Disassembly	11-12
Handlebar Disassembly/Assembly	11-4	Fork Assembly	11-14
Front Wheel Removal/Installation	11-6	Steering Stem Removal/Installation	11-16

Service Information

⚠WARNING

- **Riding on damaged rims impairs safe operation of the vehicle.**
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

- Raise the front wheel off the ground by supporting the frame securely.
- Refer to section 13 for brake system information.
- Refer to section 17 for light, meter and switch information.

Troubleshooting

Hard Steering
- Steering head bearing adjustment nut too tight
- Worn or damaged steering head bearings
- Worn or damaged steering head bearing races
- Bent steering stem
- Insufficient tire pressure
- Faulty front tire

Steers to One Side or Does Not Track Straight
- Damaged or loose steering head bearings
- Bent fork
- Bent front axle: wheel installed incorrectly
- Bent frame
- Faulty front tire
- Worn or damaged front wheel bearings
- Worn or damaged swingarm pivot bearings

Front Wheel Wobbling
- Bent rim
- Worn or damaged front wheel bearings
- Faulty front tire
- Unbalanced tire and wheel
- Loose front axle fasteners

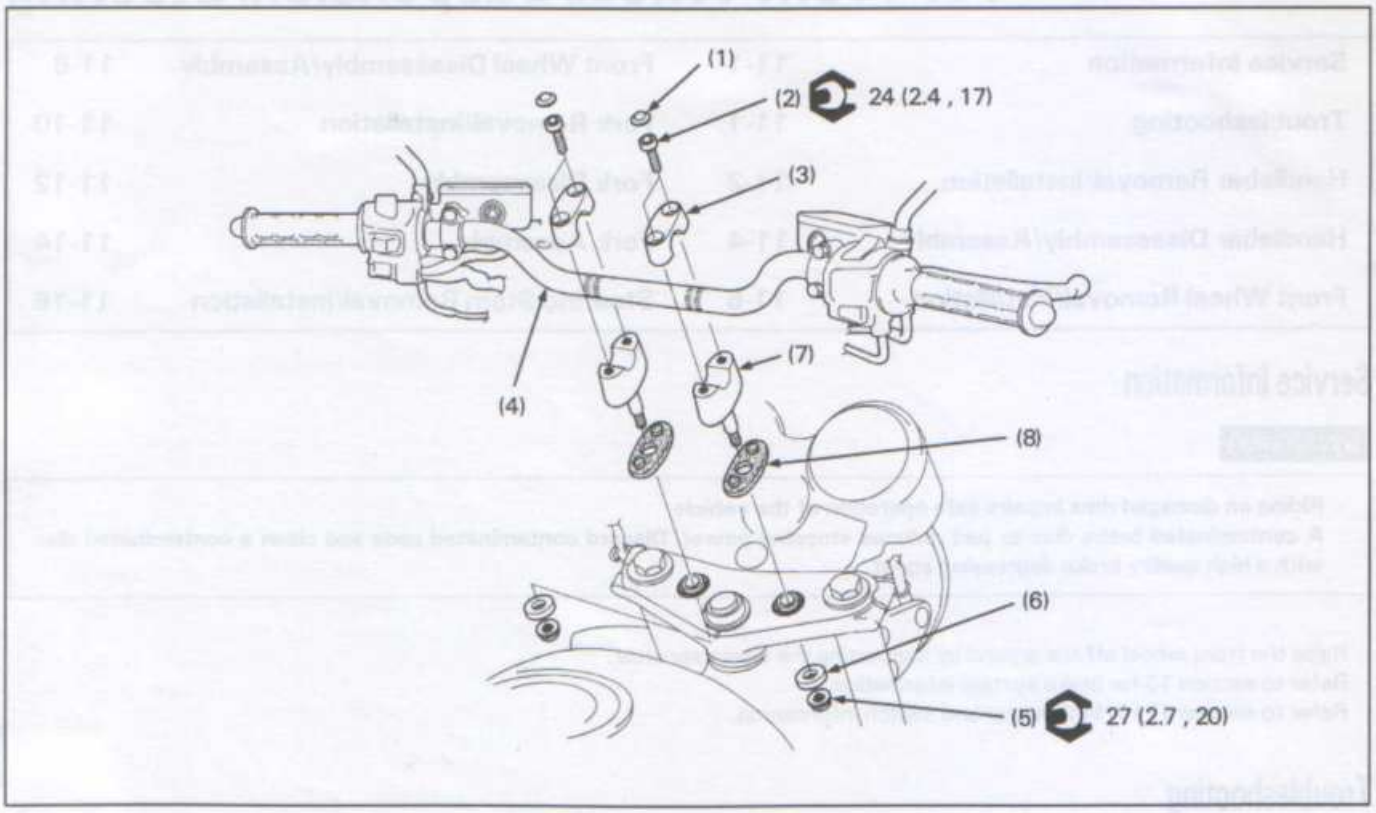
Wheel Turns Hard
- Faulty front wheel bearings
- Bent front axle
- Brake drag

Soft Suspension
- Weak fork springs
- Insufficient fluid in fork
- Deteriorated fork fluid
- Incorrect fork fluid weight
- Low tire pressure

Hard Suspension
- Bent fork tubes
- Too much fluid in fork
- Incorrect fork fluid weight
- Clogged fork fluid passage
- High tire pressure

Front Suspension Noise
- Worn slider or fork tube bushing
- Insufficient fluid in fork
- Loose fork fasteners

Handlebar Removal/Installation



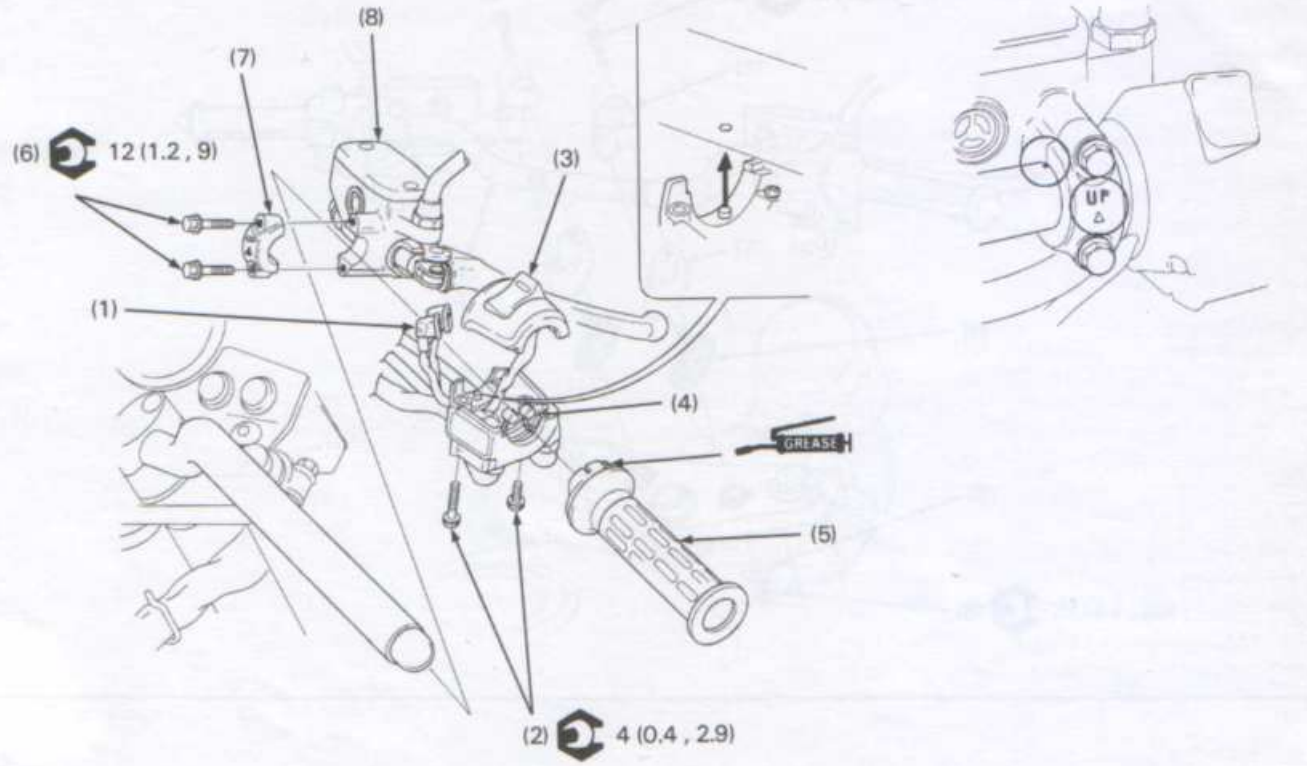
NOTE:

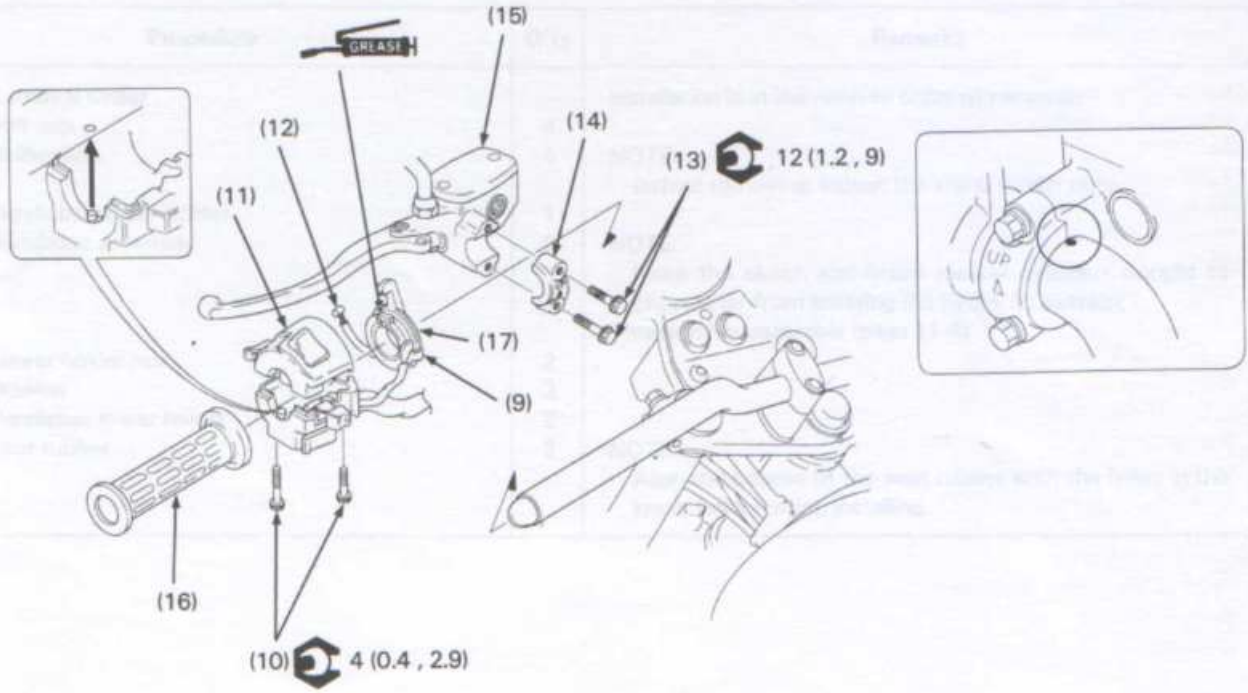
- When replacing the handlebar with a new one, disassemble it before removing (page 11-4).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Bolt cap	4	
(2)	Holder bolt	4	NOTE: · Before removing, loosen the lower holder nuts.
(3)	Handlebar upper holder	1	
(4)	Handlebar assembly	2	NOTE: · Keep the clutch and brake master cylinders upright to prevent air from entering the hydraulic system. Disassembly/assembly (page 11-4)
(5)	Lower holder nut	2	
(6)	Washer	2	
(7)	Handlebar lower holder	2	
(8)	Seat rubber	2	NOTE: · Align the bosses of the seat rubber with the holes in the lower holder when installing.

MEMO

Handlebar Disassembly/Assembly



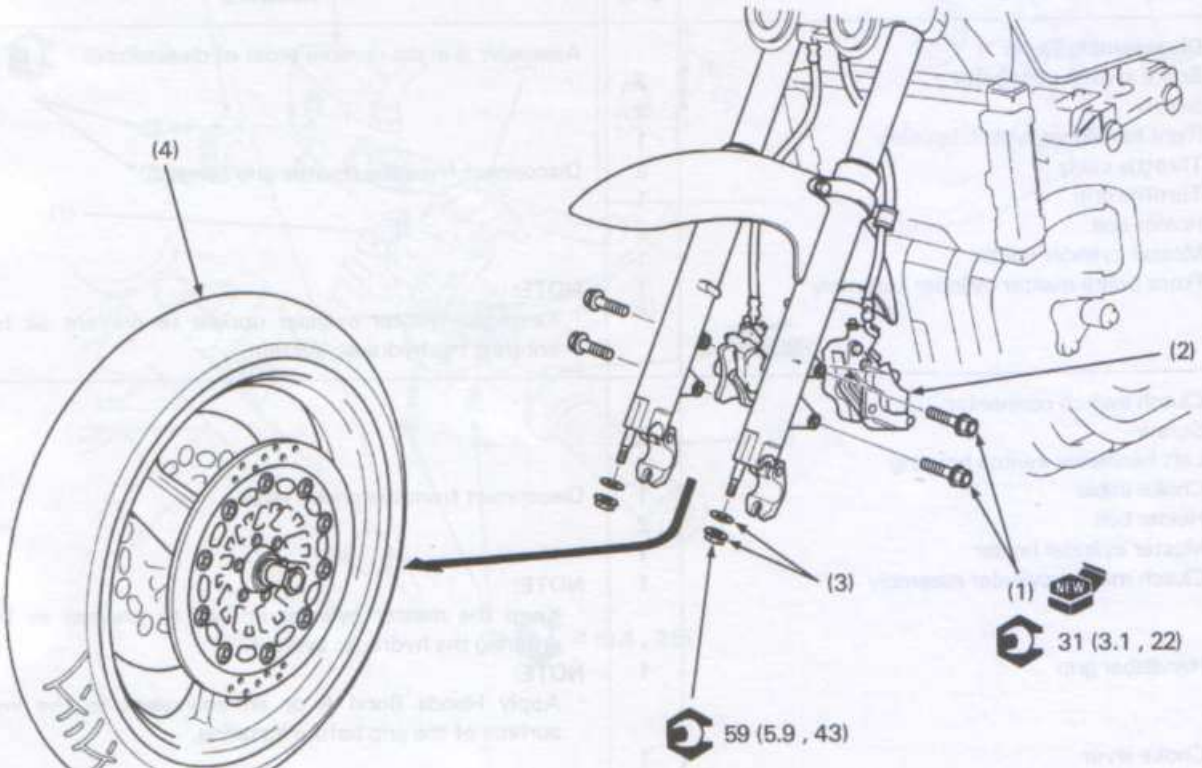


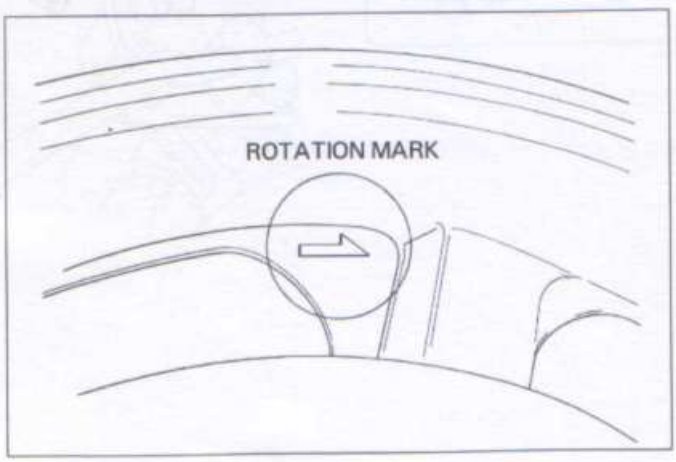
NOTE:

- After assembly, make sure that each control component operates properly.

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake switch connector	2	
(2)	Screw	2	
(3)	Right handlebar switch housing	1	
(4)	Throttle cable	2	Disconnect from the throttle grip flange.
(5)	Throttle grip	1	
(6)	Holder bolt	2	
(7)	Master cylinder holder	1	
(8)	Front brake master cylinder assembly	1	NOTE: · Keep the master cylinder upright to prevent air from entering the hydraulic system.
(9)	Clutch switch connector	2	
(10)	Screw	2	
(11)	Left handlebar switch housing	1	
(12)	Choke cable	1	Disconnect from the choke lever.
(13)	Holder bolt	2	
(14)	Master cylinder holder	1	
(15)	Clutch master cylinder assembly	1	NOTE: · Keep the master cylinder upright to prevent air from entering the hydraulic system.
(16)	Handlebar grip	1	NOTE: · Apply Honda Bond A or an equivalent to the inside surface of the grip before installing.
(17)	Choke lever	1	

Front 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:

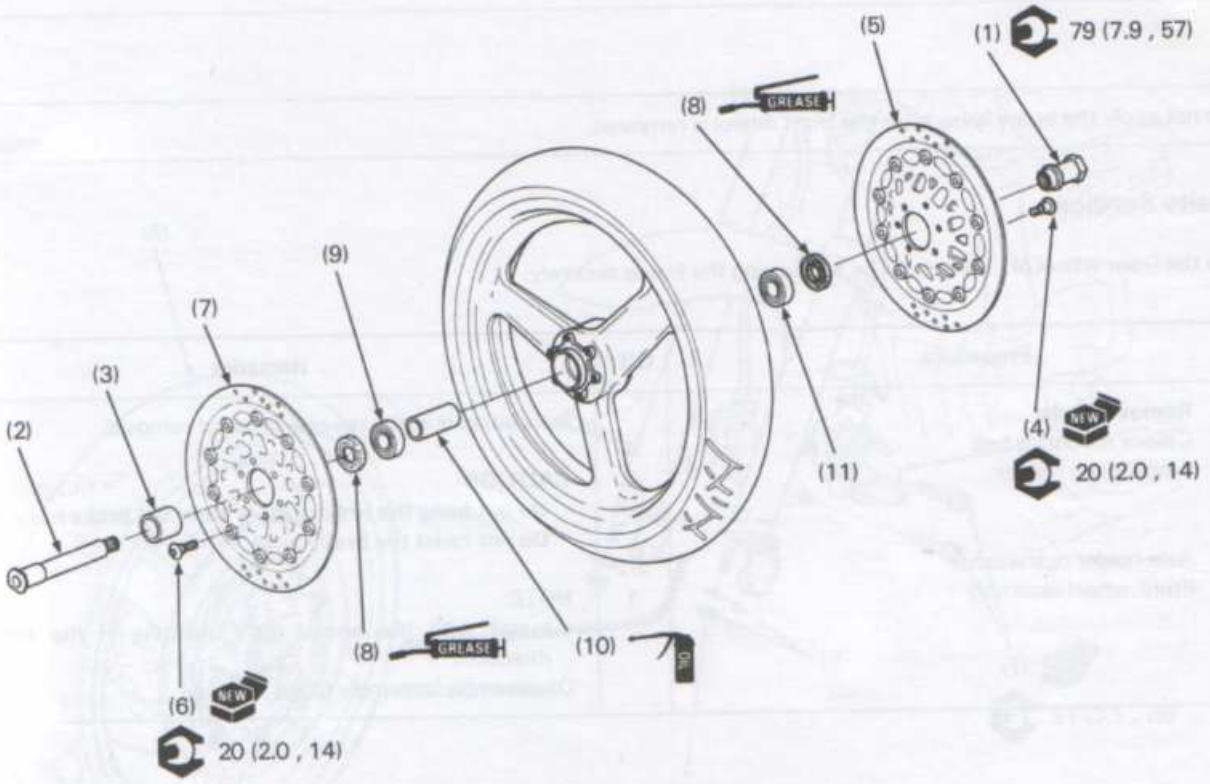
- Do not apply the brake lever after the front wheel is removed.

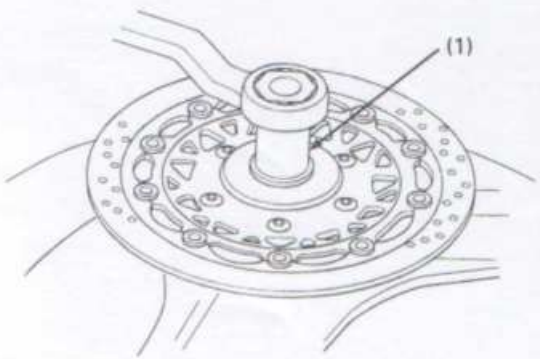
Requisite Service

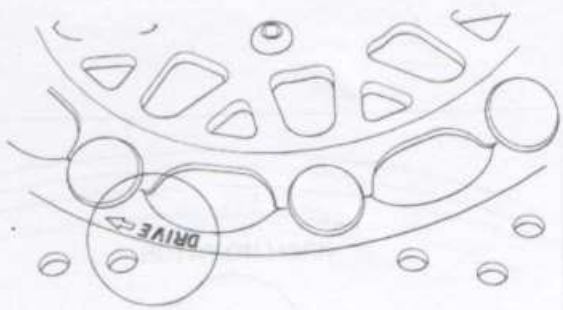
- Raise the front wheel off the ground by supporting the frame securely.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Caliper mounting bolt	4	
(2)	Front brake caliper	2	**CAUTION:** · **Do not hang the brake caliper from the brake hose. Do not twist the brake hose.**
(3)	Axle holder nut/washer	2/2	
(4)	Front wheel assembly	1	NOTE: · Install with the arrow mark pointing in the rotating direction. Disassembly/assembly (page 11-8)

Front Wheel Disassembly/Assembly







ROTATION MARK

⚠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:

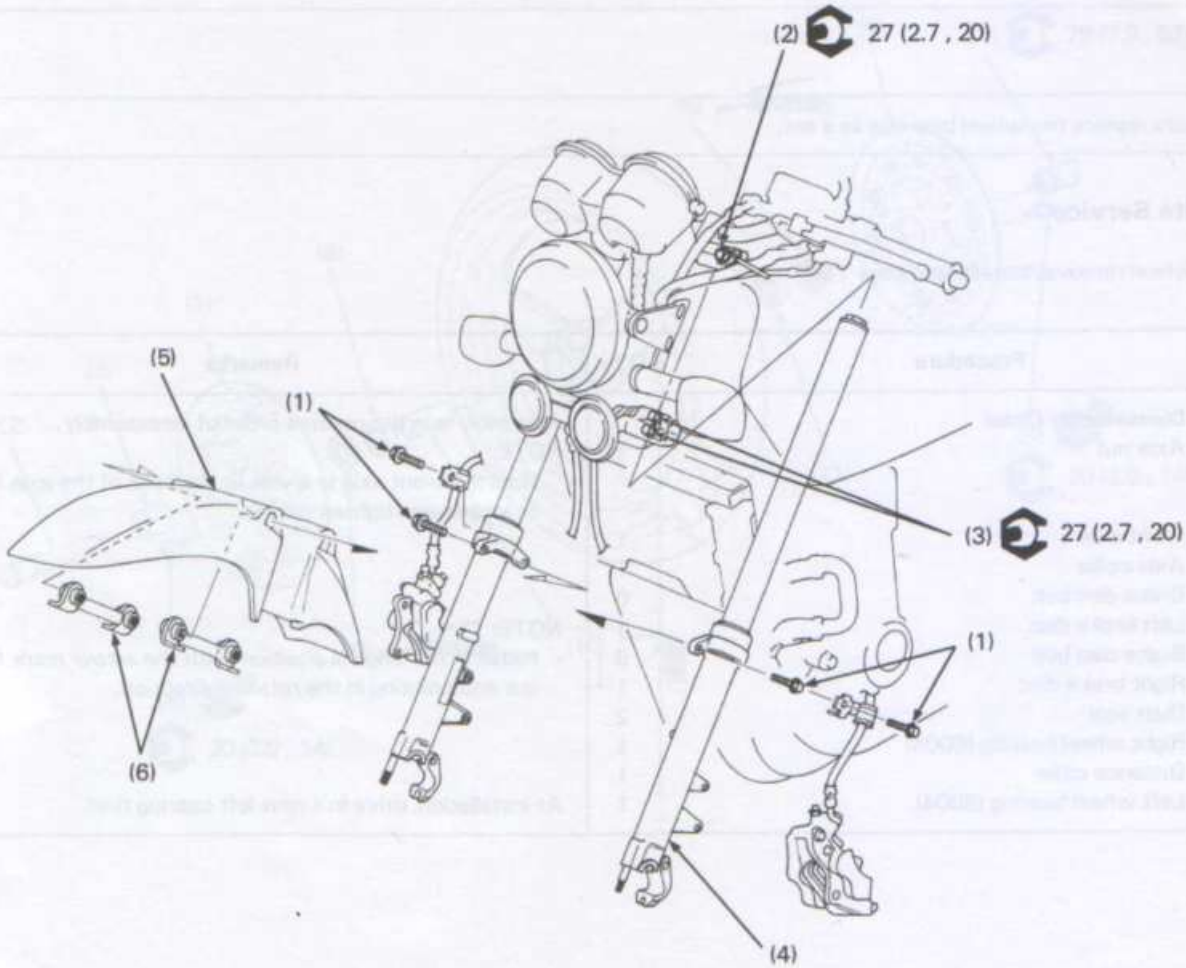
- Always replace the wheel bearings as a set.

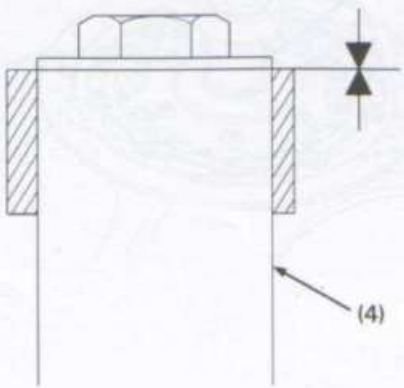
Requisite Service

- Front wheel removal/installation (page 11-6)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Axle nut	1	NOTE: · Hold the front axle in a vise at the flats of the axle flange to loosen and tighten the nut.
(2)	Front axle	1	
(3)	Axle collar	1	
(4)	Brake disc bolt	6	
(5)	Left brake disc	1	NOTE: · Install in the original position with the arrow mark facing out and pointing in the rotating direction.
(6)	Brake disc bolt	6	
(7)	Right brake disc	1	
(8)	Dust seal	2	
(9)	Right wheel bearing (6004)	1	
(10)	Distance collar	1	
(11)	Left wheel bearing (6004)	1	At installation, drive in a new left bearing first.

Fork Removal/Installation





NOTE:

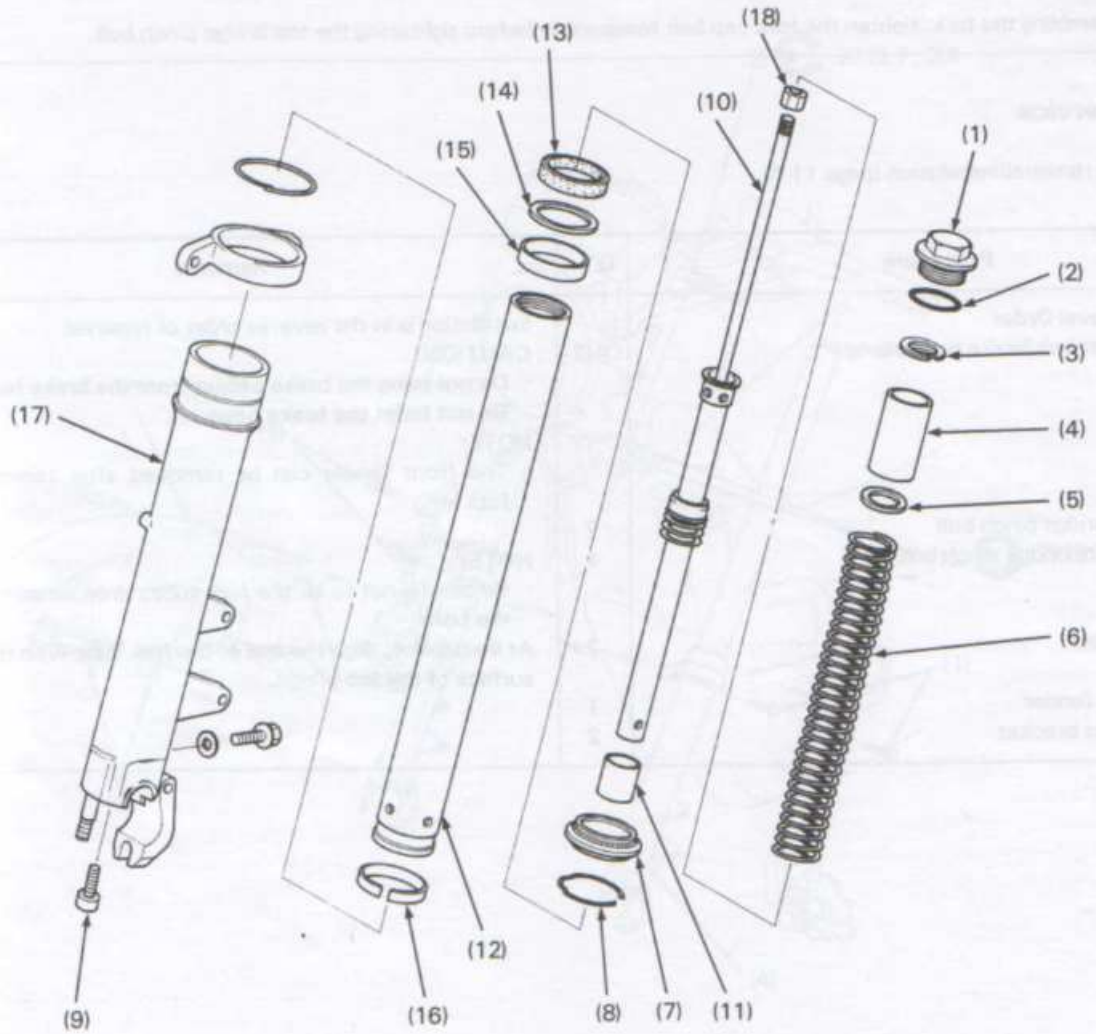
- When the fork is to be disassembled, loosen the fork cap bolt after loosening the top bridge pinch bolt, but do not remove it yet.
- After assembling the fork, tighten the fork cap bolt temporarily before tightening the top bridge pinch bolt.

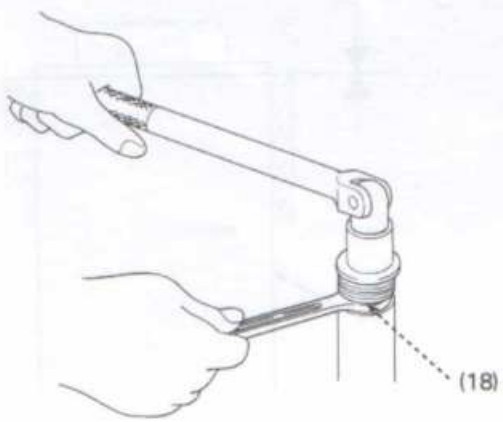
Requisite Service

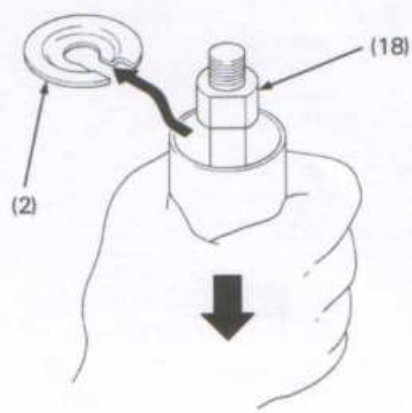
- Front wheel removal/installation (page 11-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fender bolt/brake hose clamp	4/2	**CAUTION:** · **Do not hang the brake caliper from the brake hose. Do not twist the brake hose.** NOTE: · The front fender can be removed after removing the fork leg.
(2)	Top bridge pinch bolt	2	
(3)	Bottom bridge pinch bolt	4	NOTE: · Be careful not to let the fork tubes drop when loosening the bolts.
(4)	Fork leg	2	At installation, align the end of the fork tube with the upper surface of the top bridge.
(5)	Front fender	1	
(6)	Fender bracket	2	

Fork Disassembly







NOTE:

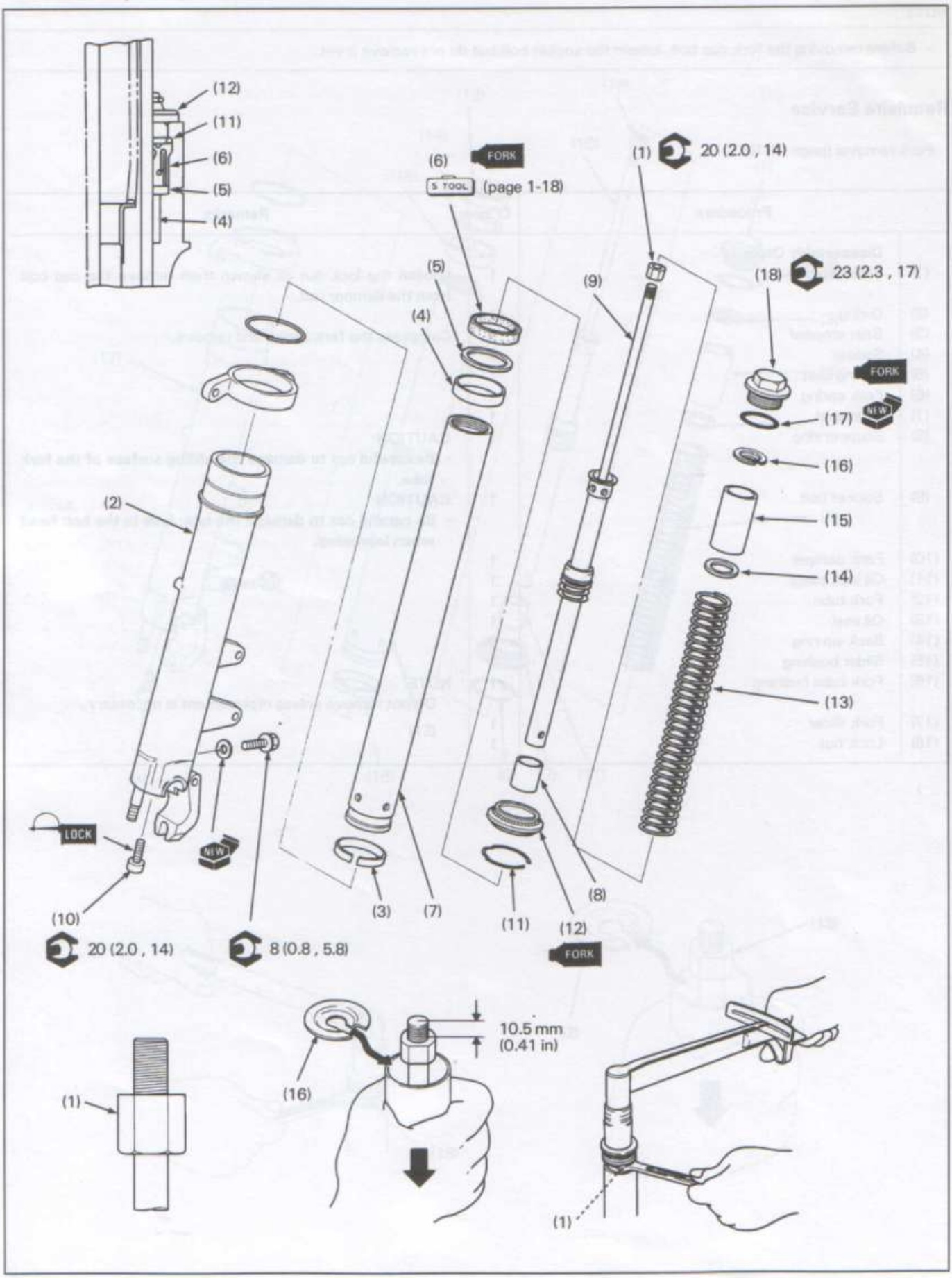
- Before removing the fork cap bolt, loosen the socket bolt but do not remove it yet.

Requisite Service

- Fork removal (page 11-10)

	Procedure	Q'ty	Remarks
	Disassembly Order		
(1)	Fork cap bolt	1	Loosen the lock nut as shown then remove the cap bolt from the damper rod.
(2)	O-ring	1	
(3)	Seat stopper	1	Compress the fork spring and remove.
(4)	Spacer	1	
(5)	Spring seat	1	
(6)	Fork spring	1	
(7)	Dust seal	1	
(8)	Stopper ring	1	**CAUTION:** **· Be careful not to damage the sliding surface of the fork tube.**
(9)	Socket bolt	1	**CAUTION:** **· Be careful not to damage the hex. hole in the bolt head when loosening.**
(10)	Fork damper	1	
(11)	Oil lock piece	1	
(12)	Fork tube	1	
(13)	Oil seal	1	
(14)	Back-up ring	1	
(15)	Slider bushing	1	
(16)	Fork tube bushing	1	NOTE: · Do not remove unless replacement is necessary.
(17)	Fork slider	1	
(18)	Lock nut	1	

Fork Assembly

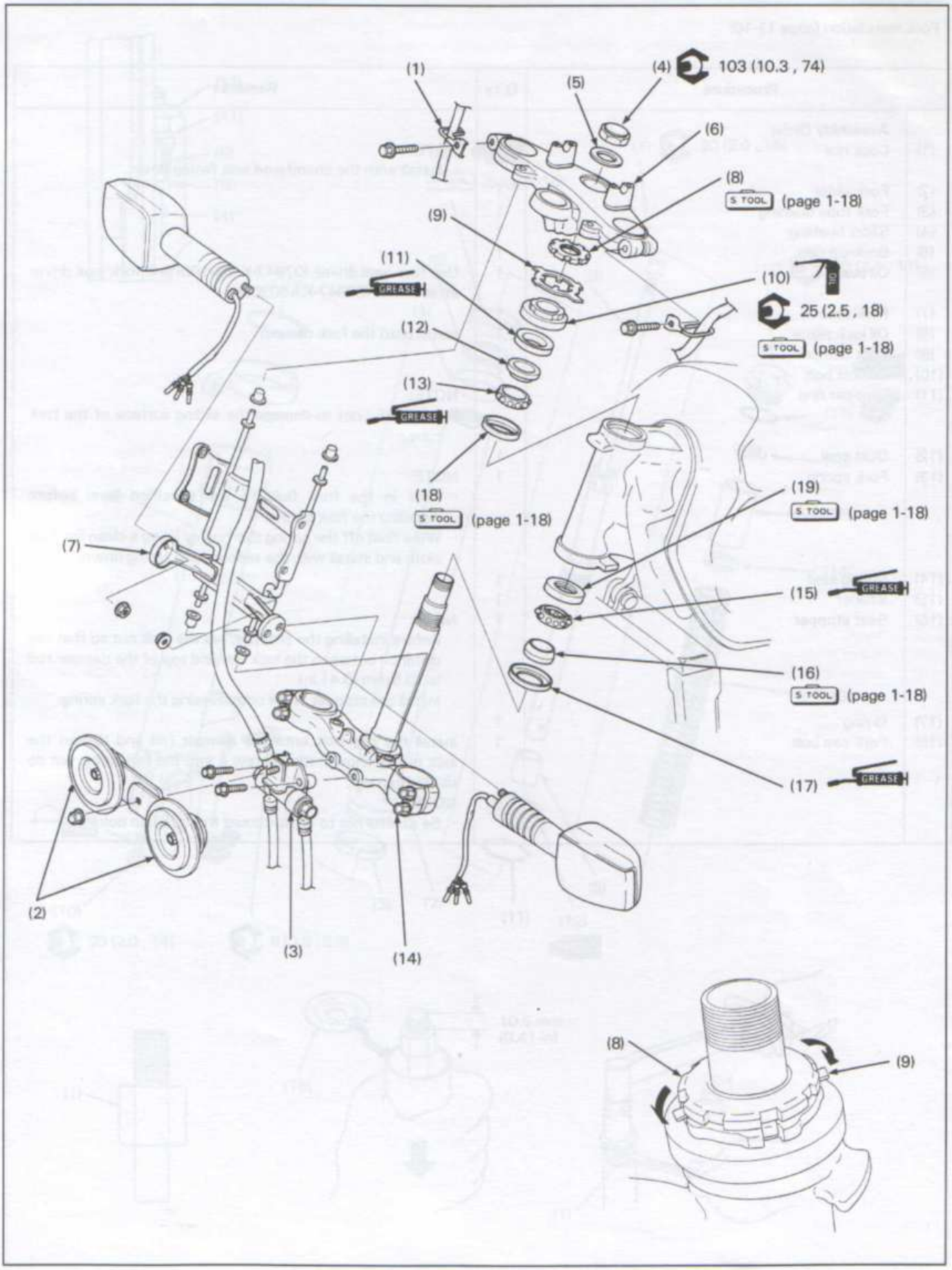


Requisite Service

- Fork installation (page 11-10)

	Procedure	Q'ty	Remarks
	Assembly Order		
(1)	Lock nut	1	NOTE: · Install with the chamfered side facing down.
(2)	Fork slider	1	
(3)	Fork tube bushing	1	
(4)	Slider bushing	1	
(5)	Back-up ring	1	
(6)	Oil seal	1	Use fork seal driver (07947-KA50100) and fork seal driver attachment (07947-KA40200).
(7)	Fork tube	1	
(8)	Oil lock piece	1	Install onto the fork damper.
(9)	Fork damper	1	
(10)	Socket bolt	1	
(11)	Stopper ring	1	NOTE: · Be careful not to damage the sliding surface of the fork tube.
(12)	Dust seal	1	
(13)	Fork spring	1	NOTE: · Pour in the fork fluid to the specified level before installing the fork spring. · Wipe fluid off the spring thoroughly using a clean lint free cloth and install with the tapered end facing down.
(14)	Spring seat	1	
(15)	Spacer	1	
(16)	Seat stopper	1	NOTE: · Before installing the stopper, set the lock nut so that the distance between the lock nut and top of the damper rod is 10.5 mm (0.41 in). · Install the stopper while compressing the fork spring.
(17)	O-ring	1	
(18)	Fork cap bolt	1	Install the cap bolt onto the damper rod and tighten the lock nut as shown, then screw it into the fork tube, but do not tighten yet. NOTE: · Be careful not to cross-thread the fork cap bolt.

Steering Stem Removal/Installation



NOTE:

- Replace the steering head bearings and races as a set.
- When loosening and tightening the steering stem nut, temporarily install the fork legs.

Requisite Service

- Fork removal/installation (page 11-10)
- Meter removal/installation (page 17-5)
- Headlight case removal/installation (page 17-3)
- Ignition switch removal/installation (page 17-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clamp	2	
(2)	Horn	2	
(3)	Brake hose joint	1	
(4)	Steering stem nut	1	
(5)	Washer	1	
(6)	Top bridge	1	
(7)	Headlight/turn-signal stay	1	
(8)	Lock nut	1	· Use steering stem socket (07916-3710101). · Straighten the lock washer tabs and remove the nut.
(9)	Lock washer	1	
(10)	Steering head bearing adjustment nut	1	NOTE: · Remove the nut while holding the steering stem to prevent it from falling.
(11)	Dust seal	1	
(12)	Upper inner race	1	
(13)	Upper bearing	1	
(14)	Steering stem	1	
(15)	Lower bearing	1	
(16)	Lower inner race	1	Install using the steering stem driver (07946-MB00000).
(17)	Dust seal	1	
(18)	Upper outer race	1	Remove using the ball race remover set (07953-MJ10000). Install using the driver (07749-0010000) and attachment, 42 x 47 mm (07746-0010300).
(19)	Lower outer race	1	Remove using the bearing race remover (07946-3710500). Install using the driver (07749-0010000) and attachment, 52 x 55 mm (07746-0010400).

12. Rear Wheel/Suspension

Service Information	12-1	Shock Absorber Removal/Installation	12-4
Troubleshooting	12-1	Shock Absorber Disassembly/Assembly	12-5
Rear Wheel Removal/Installation	12-2	Swingarm Removal/Installation	12-6
Rear Wheel Disassembly/Assembly	12-3	Swingarm Disassembly/Assembly	12-7

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 (see page 12-5).**

- Tubeless tire removal, repair, and remounting procedures are covered in the section 16 of the Common Service Manual. When remounting the tire, note the normal rotating direction indicated by the arrow.
- Refer to section 13 for brake system information.
- Use only genuine Honda replacement bolts and nuts for all suspension pivot and mounting points.

Troubleshooting

Rear Wheel Wobbling
- Bent rim
- Worn rear wheel bearing(s)
- Faulty tire
- Unbalanced tire and wheel
- Low tire pressure
- Faulty swingarm pivot bearing(s)
- Loose rear axle

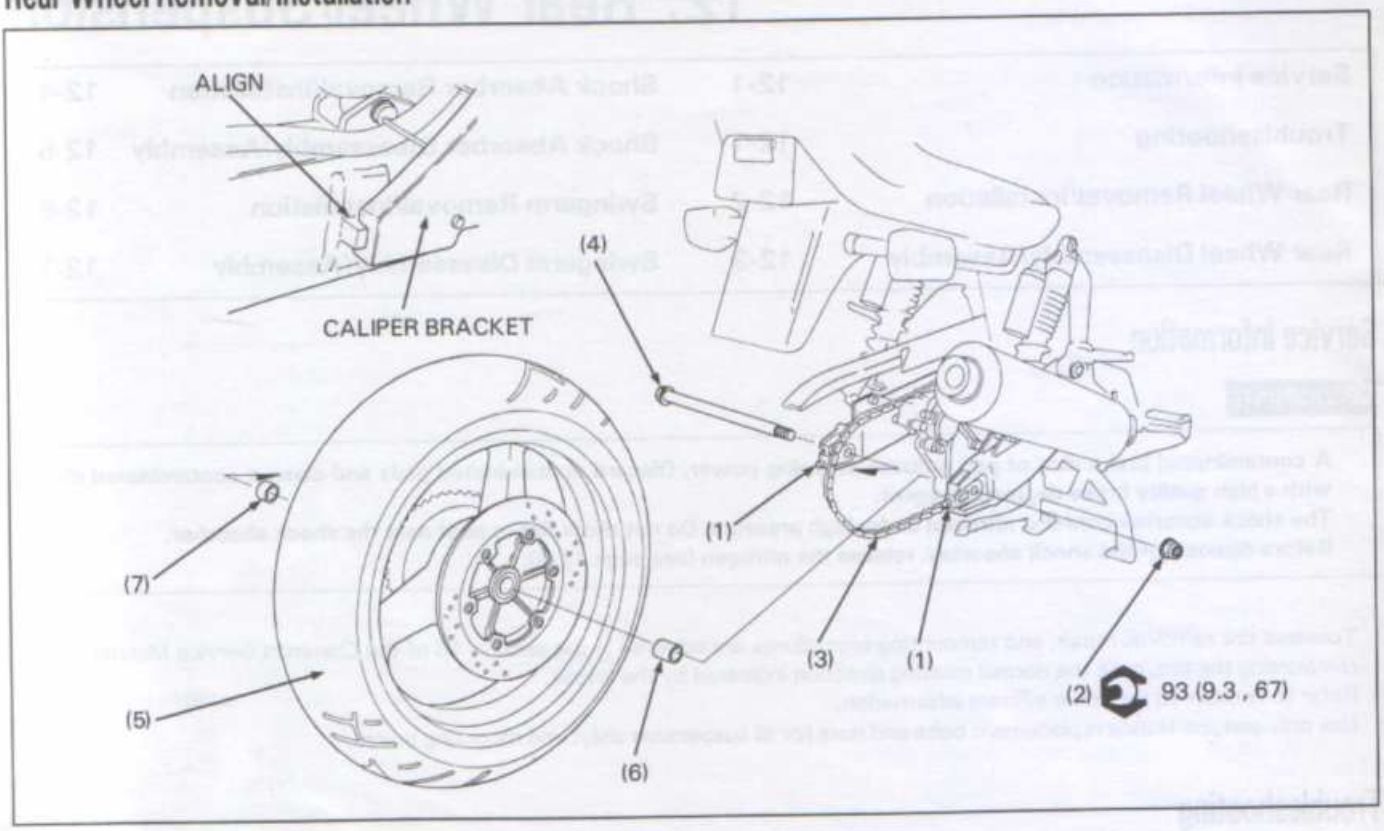
Wheel Turns Hard
- Faulty wheel bearing(s)
- Bent rear axle
- Brake drag (section 13)

Soft Suspension
- Weak shock absorber spring
- Incorrect suspension adjustment
- Oil leakage from damper unit
- Low tire pressure

Hard Suspension
- Incorrectly mounted suspension component
- Bent damper rod
- Damaged swingarm pivot bearing(s)
- Faulty swingarm pivot
- Incorrect suspension adjustment
- High tire pressure

Shock Absorber Noisy
- Loose fasteners

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:

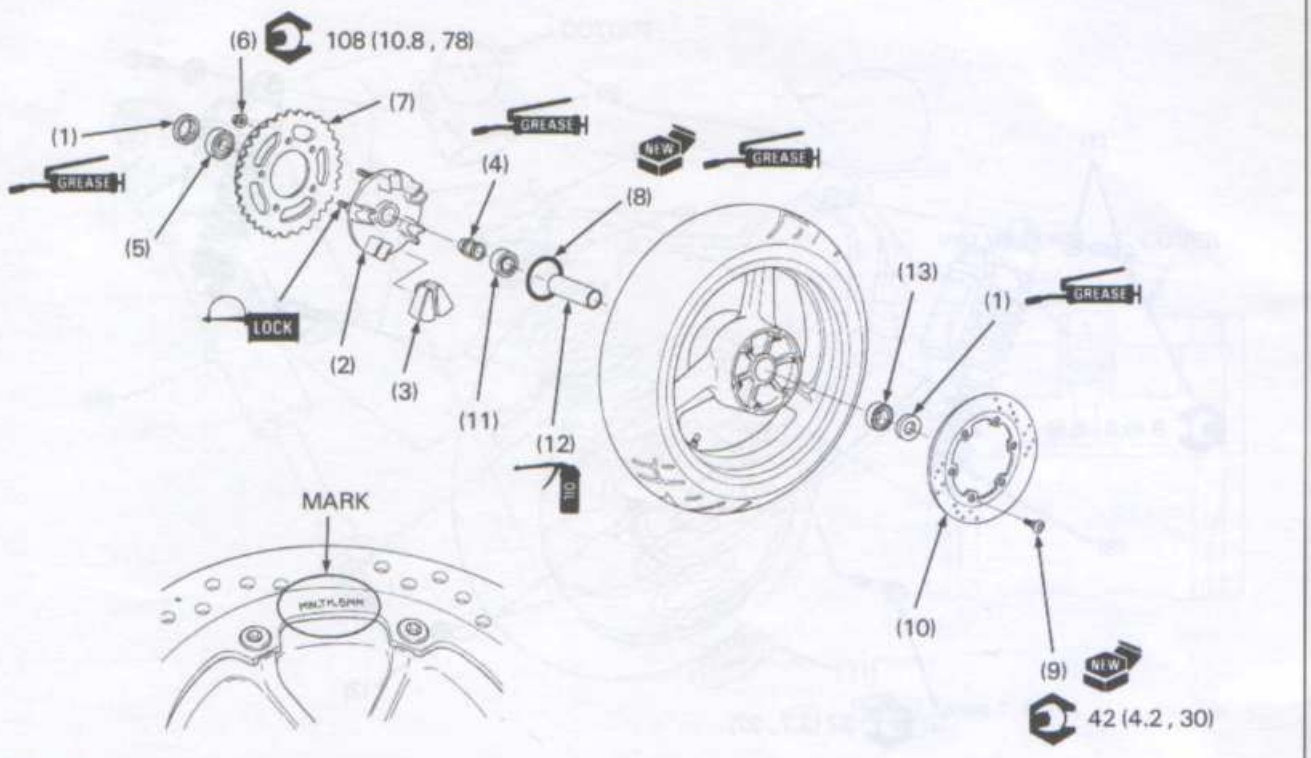
- Do not depress the brake pedal when the caliper is removed, or it will be difficult to refit the disc between the brake pads.
- Adjust the drive chain slack after installing the wheel. (See page 1-10 for slack specification.)

Requisite Service

- Place the motorcycle on its center stand.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Drive chain adjusting bolt	2	Loosen the axle nut and slacken the drive chain by turning the adjusting bolts clockwise.
(2)	Axle nut	1	
(3)	Drive chain	1	Move the rear wheel forward, and derail the drive chain from the sprocket.
(4)	Rear axle	1	
(5)	Rear wheel assembly	1	**CAUTION:** · **Do not hang the brake caliper from the brake hose.** Disassembly/assembly (page 12-3)
(6)	Right side collar	1	
(7)	Left side collar	1	

Rear Wheel Disassembly/Assembly



NOTE:

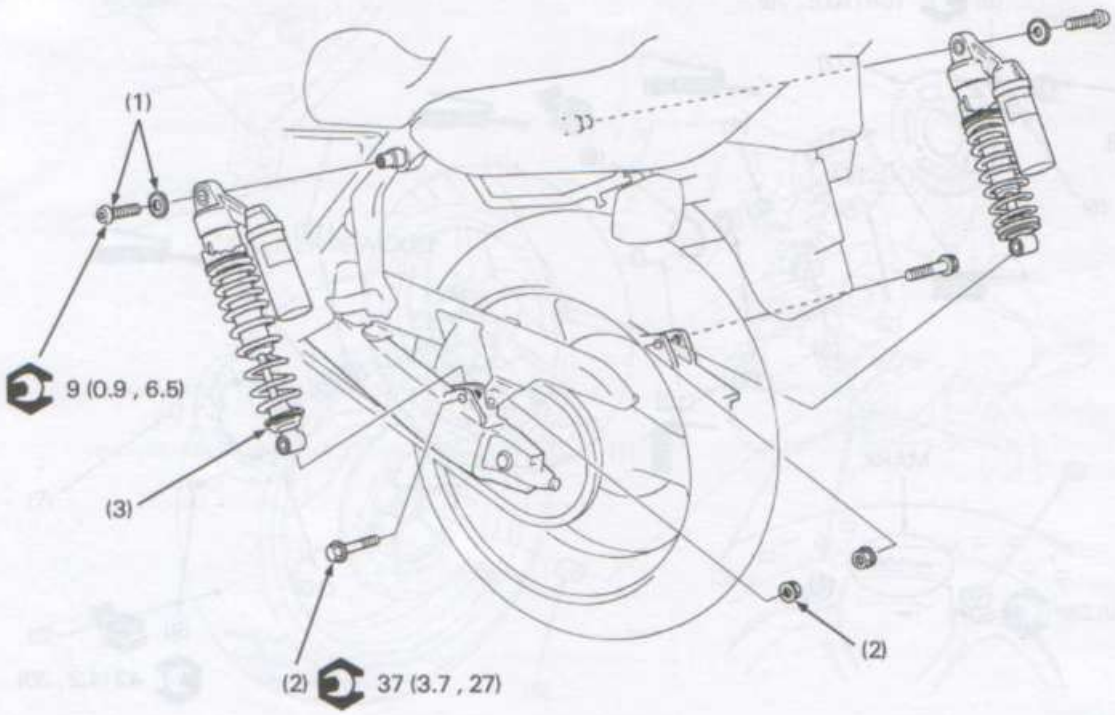
- Replace the damper rubbers and wheel bearings as a set.

Requisite Service

- Rear wheel removal/installation (page 12-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Dust seal	2	
(2)	Drive flange assembly	1	If the driven sprocket will be removed, loosen the sprocket nuts before removing the driven flange assembly from the wheel hub.
(3)	—damper rubber	5	
(4)	—sleeve	1	
(5)	—bearing (6305)	1	
(6)	—sprocket nut	6	
(7)	—driven sprocket	1	
(8)	O-ring	1	
(9)	Brake disc bolt	6	
(10)	Brake disc	1	At installation, install with the marking facing out.
(11)	Left wheel bearing (6304)	1	
(12)	Distance collar	1	
(13)	Right wheel bearing (6304)	1	At installation, drive in a new left bearing first.

Shock Absorber Removal/Installation



NOTE:

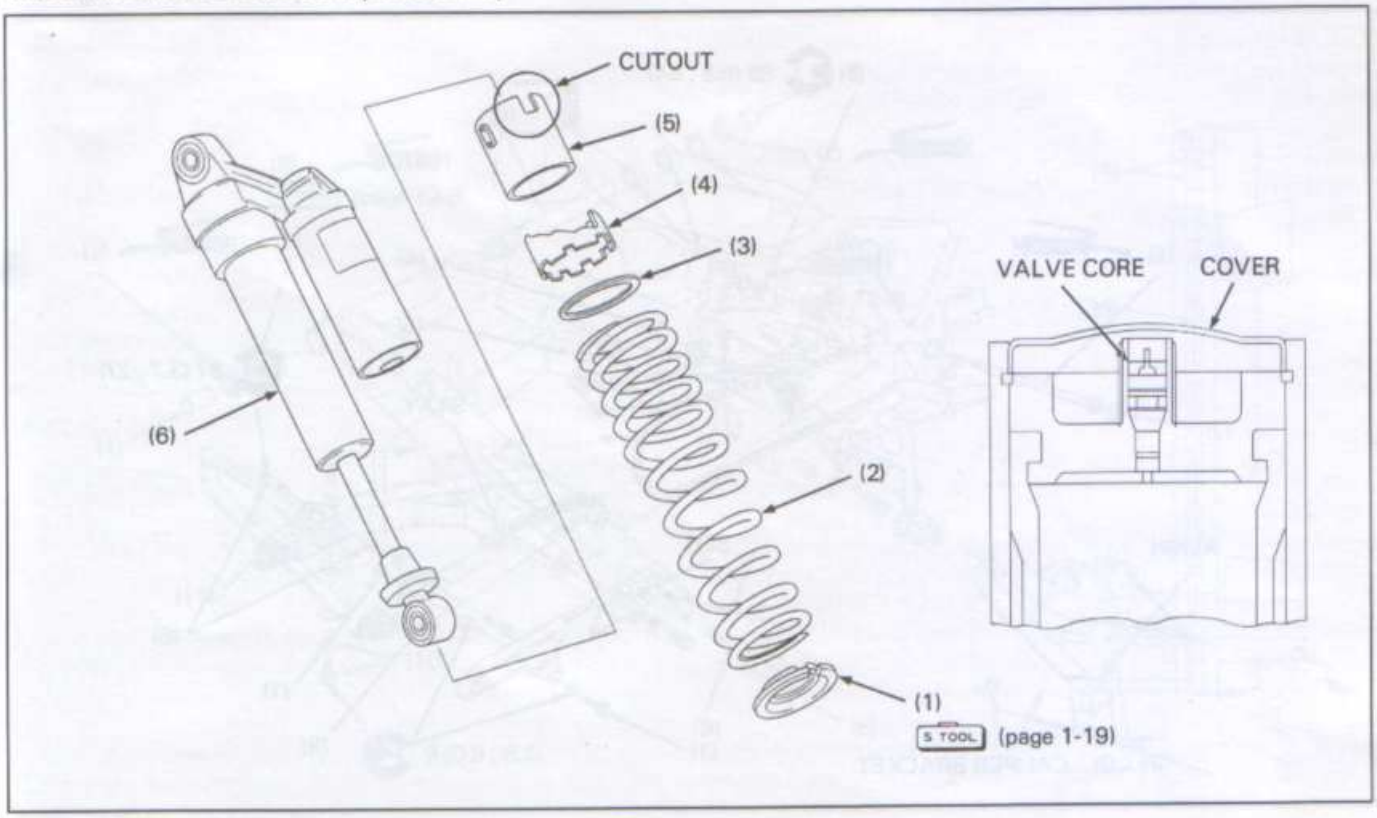
- If you plan to disassemble the shock absorber, adjust the shock absorber to lightest load position before removing the shock absorber from the frame.

Requisite Service

- Place the motorcycle on its center stand.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Upper mounting bolt/washer	2/2	
(2)	Lower mounting bolt/nut	2/2	
(3)	Shock absorber assembly	2	Disassembly/assembly (page 12-5)

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, remove the valve cover using a flat screwdriver and release the nitrogen by pressing the valve core. Then remove the valve from the shock absorber.**

CAUTION:

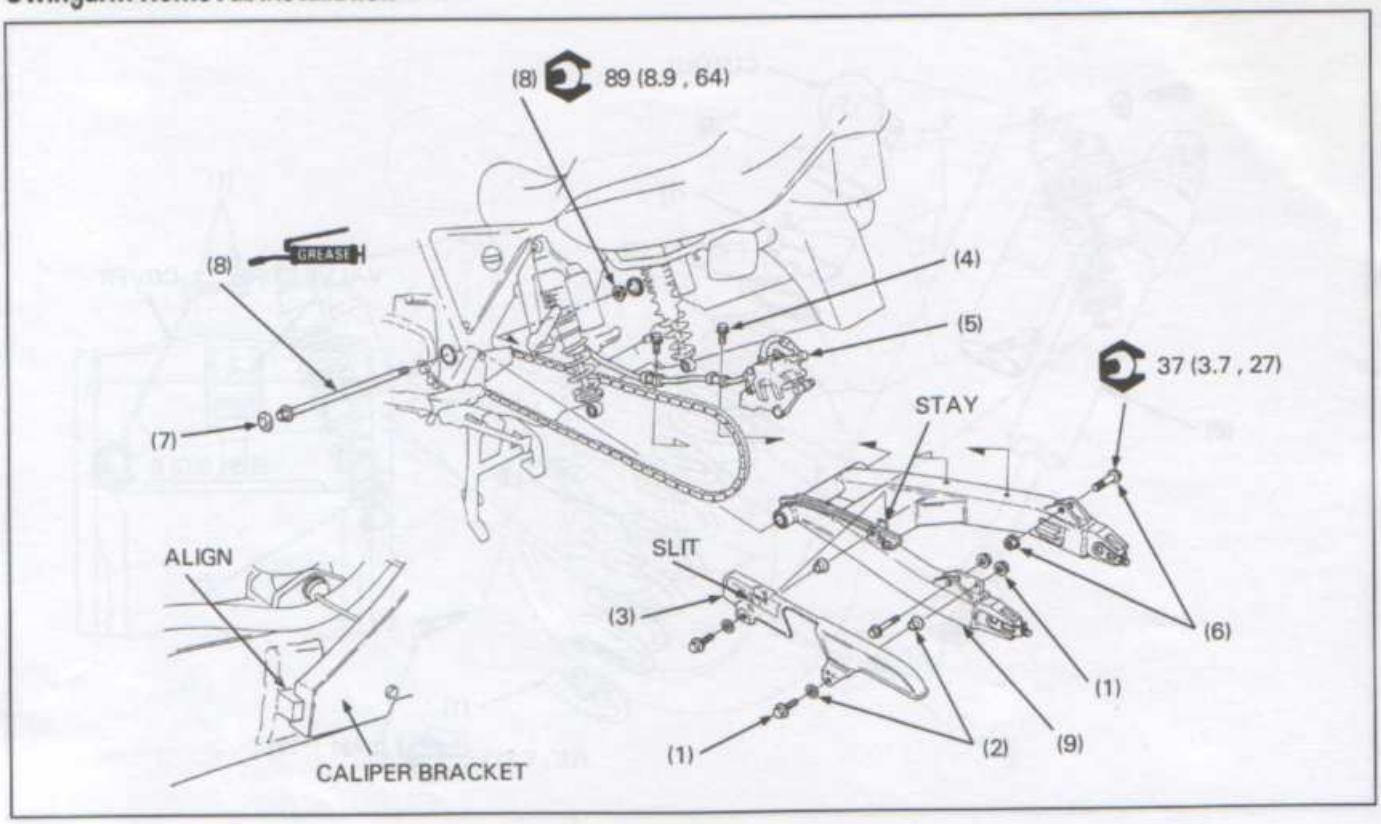
- **Do not release the nitrogen unless disposal is necessary.**

Requisite Service

- Shock absorber removal/installation (page 12-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Stopper ring	1	Use shock absorber compressor (07GME-0010000).
(2)	Spring	1	At installation, install with the narrow wound coil facing down.
(3)	Spring seat	1	
(4)	Spring preload adjuster	1	
(5)	Spring guide	1	At installation, align the cutout in the guide with the reservoir stay.
(6)	Damper unit assembly	1	

Swingarm Removal/Installation

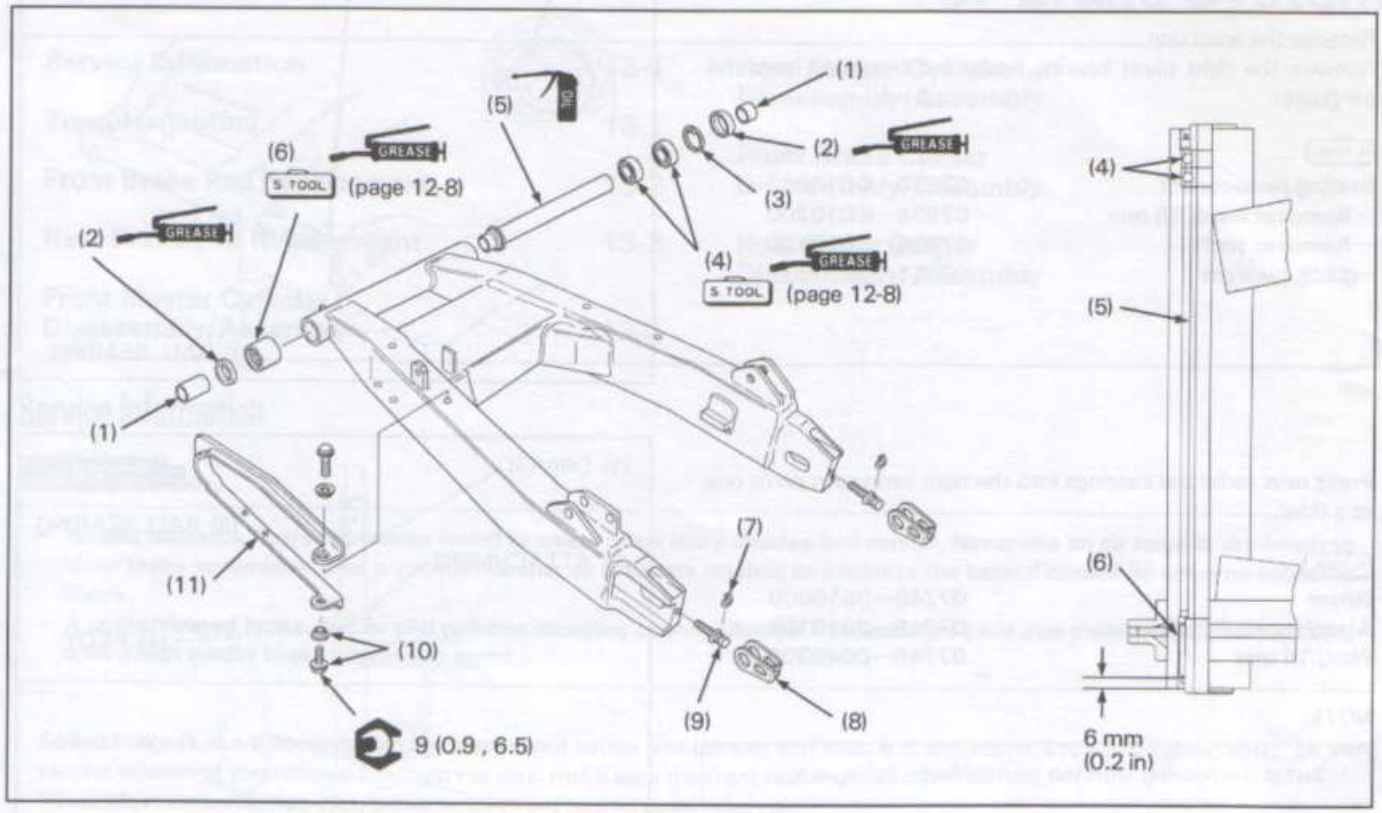


Requisite Service

- Rear wheel removal/installation (page 12-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Chain cover bolt/nut	2/1	
(2)	Collar/washer	2/2	
(3)	Chain cover	1	At installation, insert the stay on the swingarm into the slit in the chain cover.
(4)	Brake hose clamp bolt	2	
(5)	Rear bake caliper	1	
(6)	Shock absorber lower mounting bolt/nut	2/2	
(7)	Pivot cap	2	
(8)	Swingarm pivot bolt/nut	1/1	
(9)	Swingarm assembly	1	Disassembly/assembly (page 12-7)

Swingarm Disassembly/Assembly



Requisite Service

- Swingarm removal/installation (page 12-6)

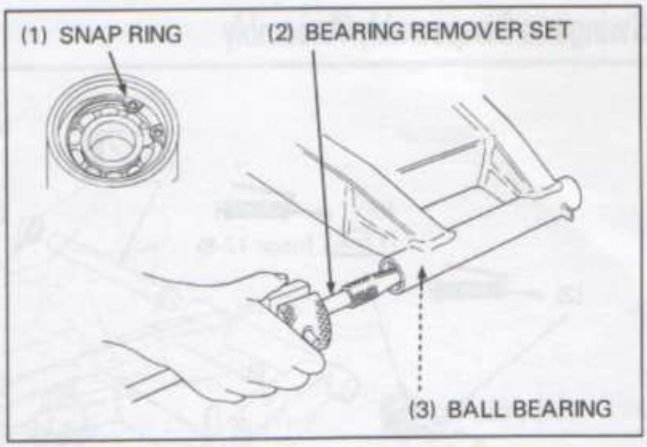
	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Pivot collar	2	
(2)	Dust seal	2	
(3)	Snap ring	1	
(4)	Right pivot bearing	2	Replacement (page 12-8)
(5)	Distance collar	1	At installation, install with the flanged side facing left.
(6)	Left pivot bearing	1	Replacement (page 12-8)
(7)	Snap ring	2	
(8)	Drive chain adjuster	1	
(9)	Adjusting bolt	1	
(10)	Bolt/collar	2/2	
(11)	Drive chain slider	1	At installation, align the slider pins with the swingarm holes.

Swingarm Pivot Bearing Replacement

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

S TOOL

Bearing remover set	**07936—KC10000**
—Remover head, 15 mm	**07936—KC10200**
—Remover shaft	**07936—KC10100**
—Sliding weight	**07741—0010201**



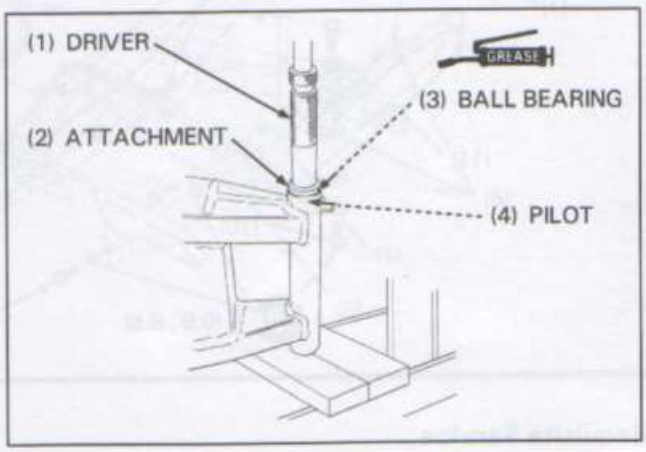
Press new radial ball bearings into the right swingarm pivot one at a time.

S TOOL

Driver	**07749—0010000**
Attachment, 32 x 35 mm	**07746—0010100**
Pilot, 15 mm	**07746—0040300**

NOTE:

- Install the bearing with the stamped side facing out.

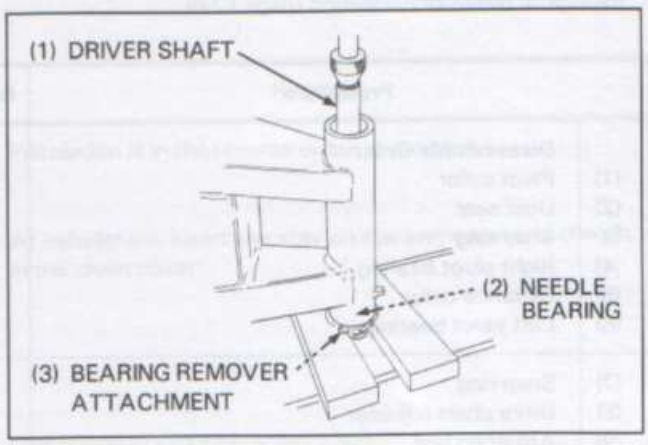


Install the snap ring with the chamfered side facing in.

Press the needle bearing out of the left swingarm pivot.

S TOOL

Driver shaft	**07946—MJ00100**
Bearing remover attachment	**07LMC—KV30200**



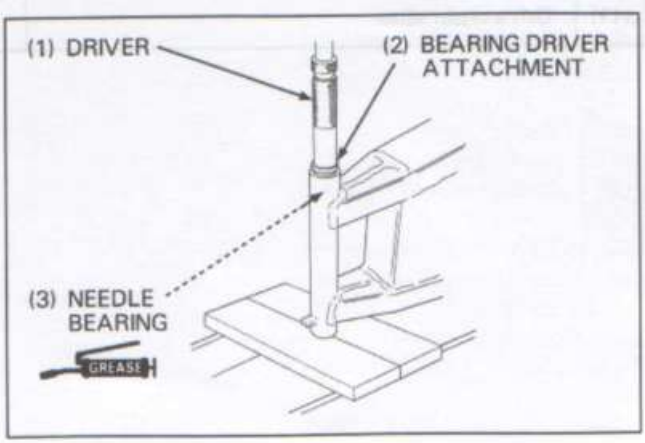
Press the needle bearing into the left swingarm pivot.

S TOOL

Driver	**07749—0010000**
Bearing driver attachment	**07946—4250100**

NOTE:

- Install the bearing with the stamped side facing out.



13. Brake System

Service Information	13-1	Rear Master Cylinder Disassembly/Assembly	13-6
Troubleshooting	13-1	Front Brake Caliper Disassembly/Assembly	13-8
Front Brake Pad Replacement	13-2	Rear Brake Caliper Disassembly/Assembly	13-10
Rear Brake Pad Replacement	13-3		
Front Master Cylinder Disassembly/Assembly	13-4		

Service Information

⚠WARNING

- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use a vacuum cleaner or alternate method to minimize the hazard caused by airborne asbestos fibers.**
- **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 very careful whenever you remove the reservoir cap: make sure the front reservoir is horizontal first.
- Never allow contaminants (dirt, water, etc.) to get into an open reservoir.
- Once the hydraulic system has been opened, or if the brakes feel 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 the brake operation before riding the motorcycle.

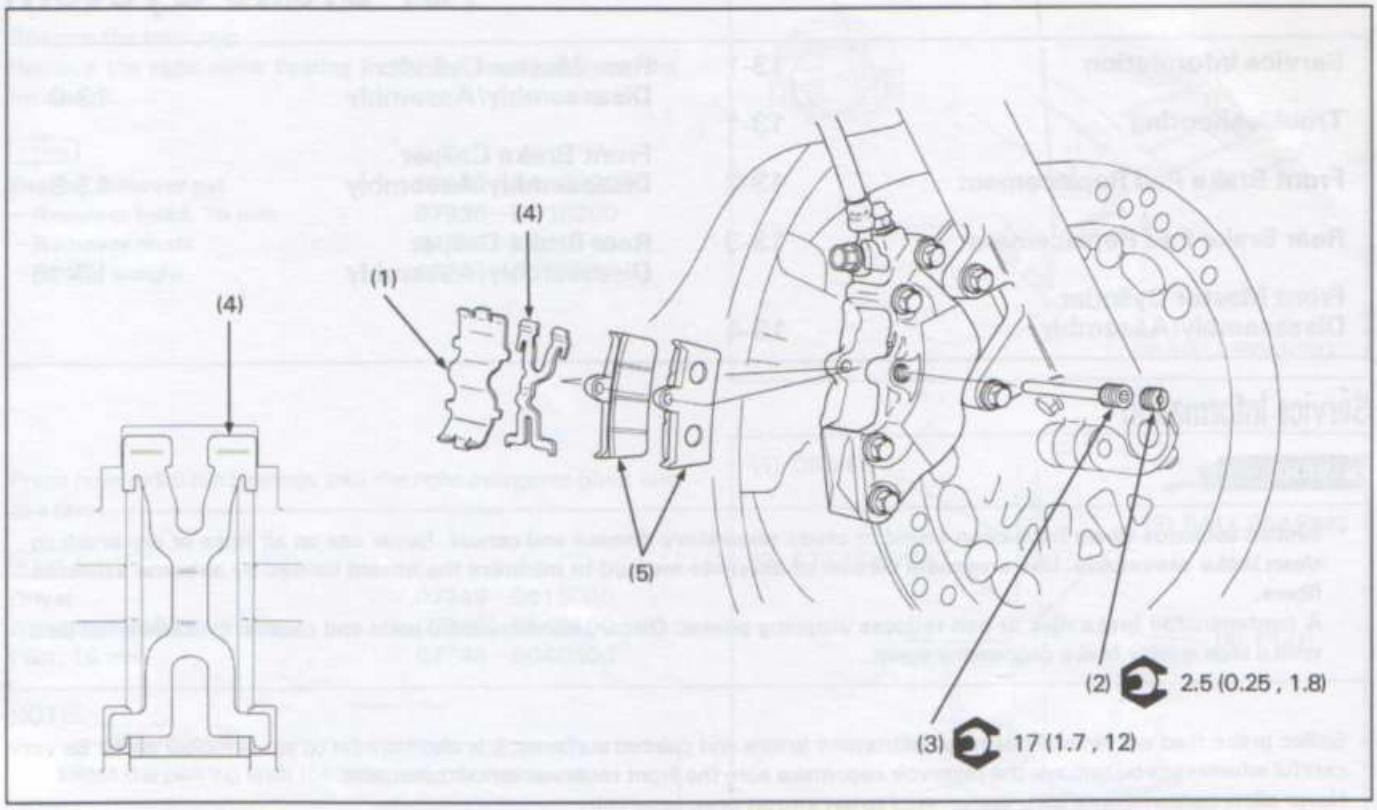
Troubleshooting

Brake Lever/Pedal Soft or Spongy
- Air bubbles in the hydraulic system
- Leaking hydraulic system
- Contaminated brake pad/disc
- Worn caliper piston seal
- Worn master cylinder piston cups
- Worn brake pad/disc
- Contaminated caliper
- Caliper not sliding properly
- Low brake fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worn caliper piston
- Sticking/worn master cylinder piston
- 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 Drag
- Contaminated brake pad/disc
- Misaligned wheel
- Badly worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Sticking/worn caliper piston

Front Brake Pad Replacement



⚠WARNING

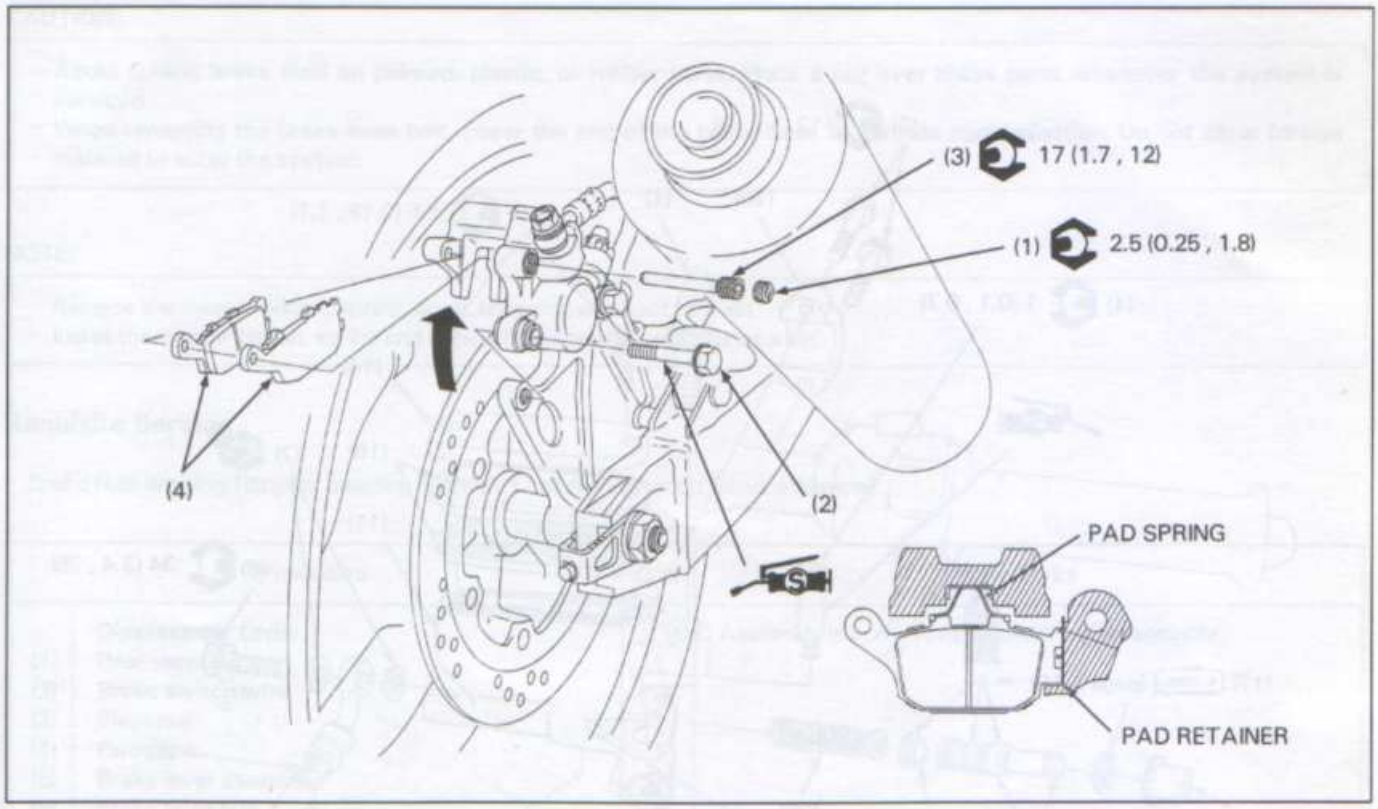
- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer.**
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Operate the brake lever to seat the pistons against the pads after replacing the pads.**

NOTE:

- Replace the pads as a set.
- Do not operate the brake lever when the pads are removed.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pad cover	1	
(2)	Pad pin plug	1	
(3)	Pad pin	1	**CAUTION:** · **Remove with care as the pad spring may pop out.**
(4)	Pad spring	1	NOTE: · At installation, align the tabs of the spring with the grooves in the caliper body as shown.
(5)	Brake pad	2	Remove rearward.

Rear Brake Pad Replacement



⚠WARNING

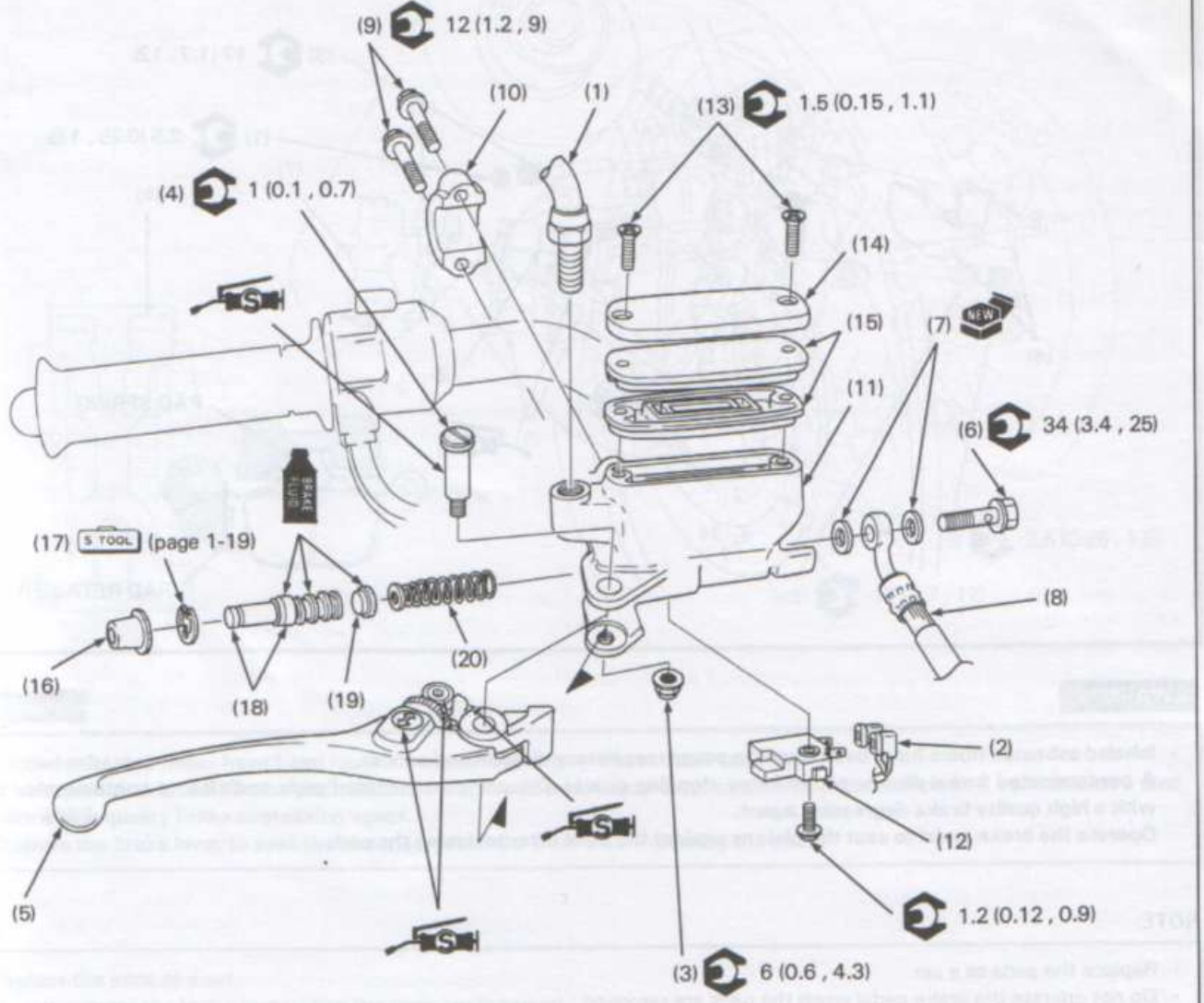
- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer.**
- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Operate the brake pedal to seat the pistons against the pads after replacing the pads.**

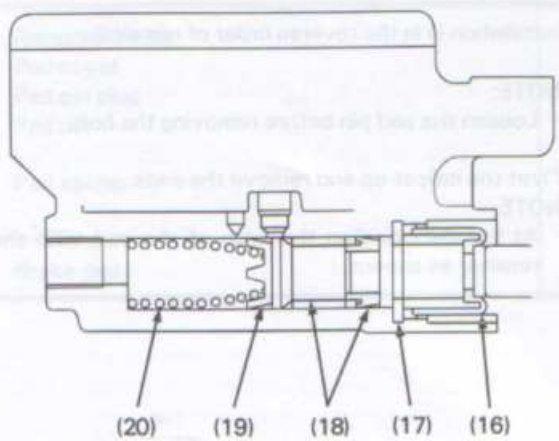
NOTE:

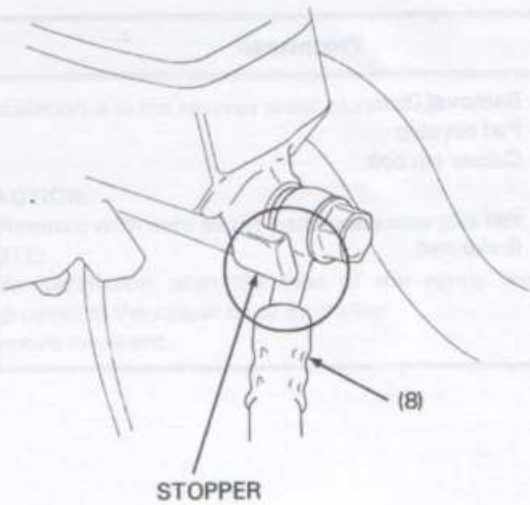
- Replace the pads as a set.
- Do not operate the brake pedal when the pads are removed.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pad pin plug	1	
(2)	Caliper pin bolt	1	NOTE: · Loosen the pad pin before removing the bolt.
(3)	Pad pin	1	
(4)	Brake pad	2	Pivot the caliper up and remove the pads. NOTE: · At installation, align the edge of the pad with the pad retainer as shown.

Front Master Cylinder Disassembly/Assembly







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 brake hose bolt, cover the end of the brake hose to prevent contamination. Do not allow foreign material to enter the system.**

NOTE:

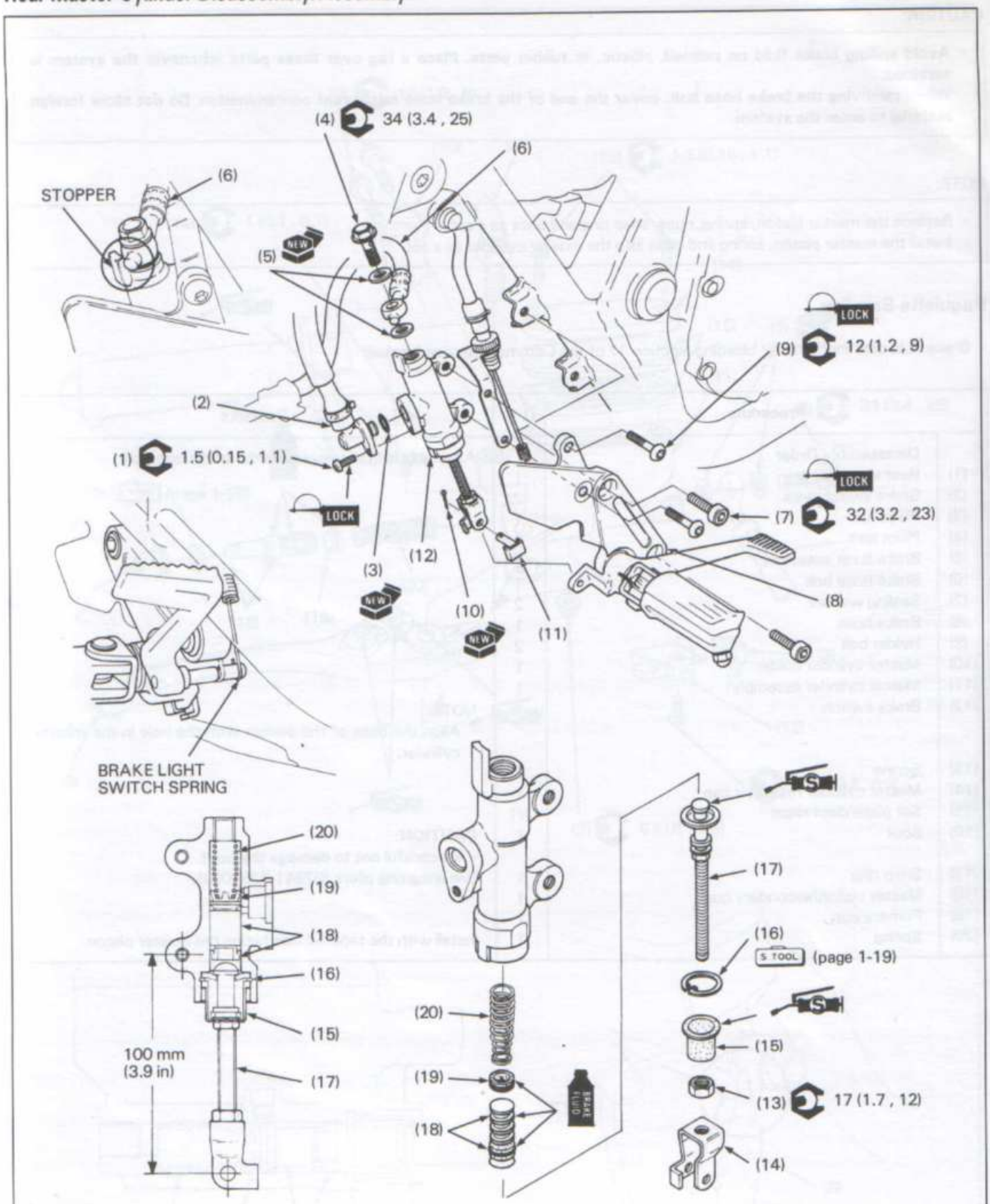
- Replace the master piston, spring, cups, snap ring and boot as a set.
- Install the master piston, spring and cups into the master cylinder as a set.

Requisite Service

- Brake fluid draining/filling/air bleeding (section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Rear view mirror	1	
(2)	Brake switch wire	2	
(3)	Pivot nut	1	
(4)	Pivot bolt	1	
(5)	Brake lever assembly	1	
(6)	Brake hose bolt	1	
(7)	Sealing washer	2	
(8)	Brake hose	1	
(9)	Holder bolt	2	
(10)	Master cylinder holder	1	
(11)	Master cylinder assembly	1	
(12)	Brake switch	1	NOTE: · Align the boss of the switch with the hole in the master cylinder.
(13)	Screw	2	
(14)	Master cylinder reservoir cap	1	
(15)	Set plate/diaphragm	1/1	
(16)	Boot	1	**CAUTION:** · **Be careful not to damage the boot.**
(17)	Snap ring	1	Use snap ring pliers (07941-3230001).
(18)	Master piston/secondary cup	1	
(19)	Primary cup	1	
(20)	Spring	1	Install with the tapered side facing the master piston.

Rear Master Cylinder Disassembly/Assembly



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 brake hose bolt, cover the end of the brake hose to prevent contamination. Do not allow foreign material to enter the system.**

NOTE:

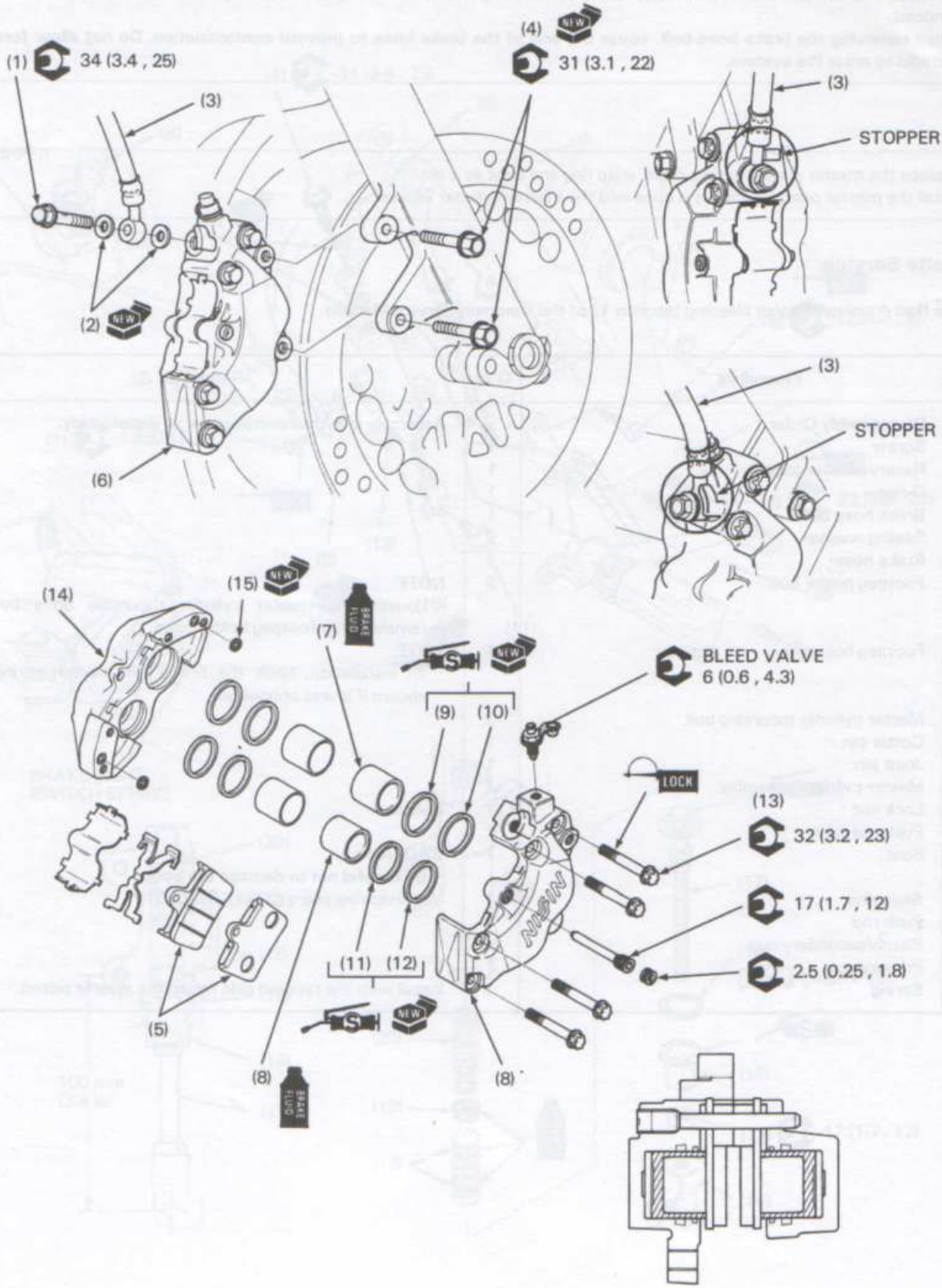
- Replace the master piston, spring, cups, snap ring and boot as a set.
- Install the master piston, spring and cups into the master cylinder as a set.

Requisite Service

- Brake fluid draining/filling/air bleeding (section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Screw	1	
(2)	Reservoir hose joint	1	
(3)	O-ring	1	
(4)	Brake hose bolt	1	
(5)	Sealing washer	2	
(6)	Brake hose	1	
(7)	Footpeg holder bolt	2	NOTE: · Loosen the master cylinder mounting bolts before removing the footpeg holder bolts.
(8)	Footpeg holder	1	NOTE: · At installation, hook the brake light switch spring as shown if it was unhooked.
(9)	Master cylinder mounting bolt	2	
(10)	Cotter pin	1	
(11)	Joint pin	1	
(12)	Master cylinder assembly	1	
(13)	Lock nut	1	Loosen.
(14)	Push rod joint	1	
(15)	Boot	1	**CAUTION:** · **Be careful not to damage the boot.**
(16)	Snap ring	1	Use snap ring pliers (07941-3230001).
(17)	Push rod	1	
(18)	Piston/secondary cup	1	
(19)	Primary cup	1	
(20)	Spring	1	Install with the tapered side facing the master piston.

Front Brake Caliper Disassembly/Assembly



⚠WARNING

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

- **Avoid spilling brake fluid on painted, plastic, or rubber parts.**

NOTE:

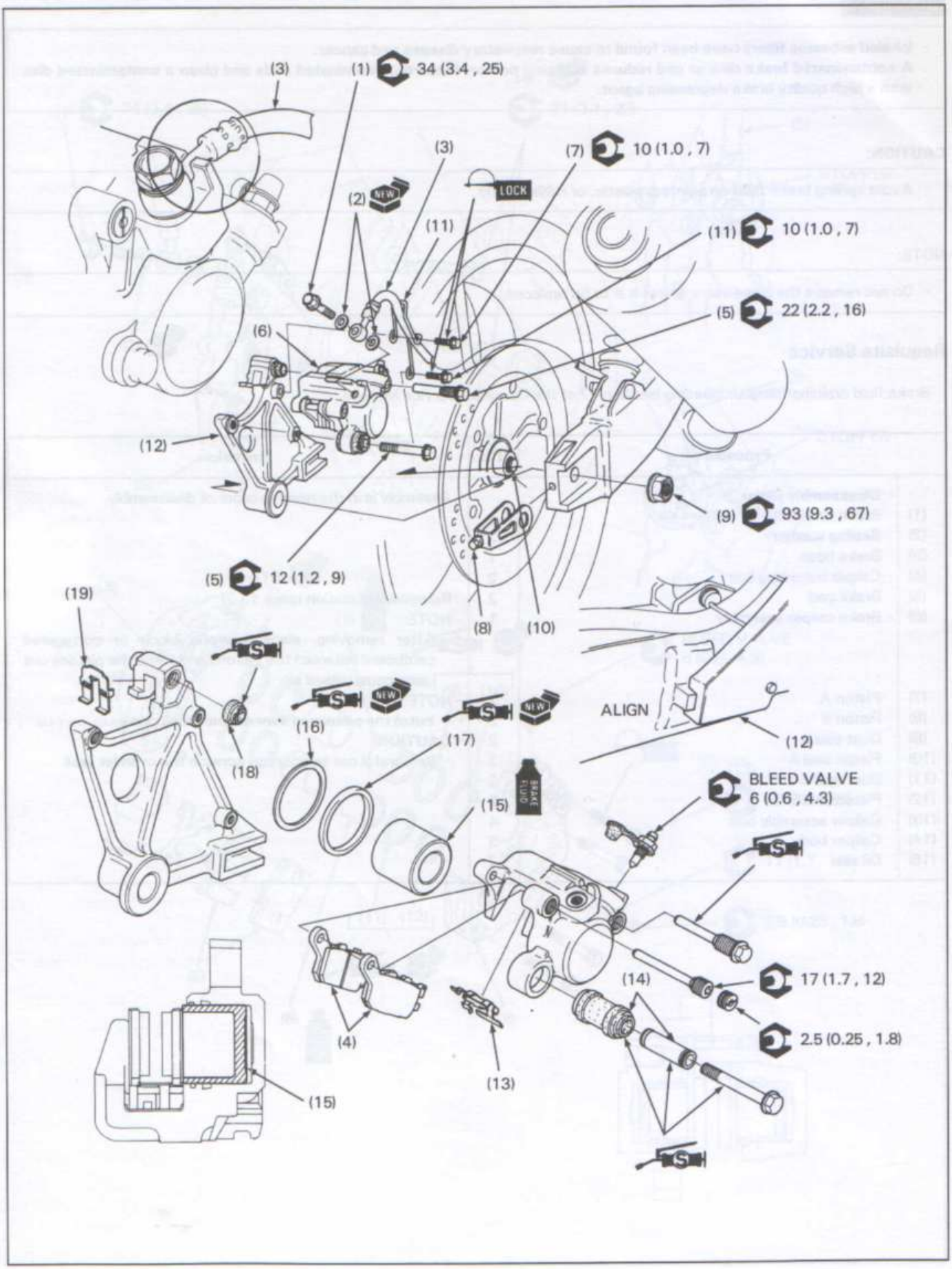
- Do not remove the bleed valve unless it is to be replaced.

Requisite Service

- Brake fluid draining/filling/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 hose bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	
(4)	Caliper mounting bolt	2	
(5)	Brake pad	2	Removal/installation (page 13-2)
(6)	Brake caliper assembly	1	NOTE: · After removing, place a wood block or corrugated cardboard between the pistons and force the pistons out using compressed air.
(7)	Piston A	2	NOTE: · Install the pistons in their original positions. **CAUTION:** · **Be careful not to score or scratch the cylinder wall.**
(8)	Piston B	2	
(9)	Dust seal A	2	
(10)	Piston seal A	2	
(11)	Dust seal B	2	
(12)	Piston seal B	2	
(13)	Caliper assembly bolt	4	
(14)	Caliper body	2	
(15)	Oil seal	2	

Rear Brake Caliper Disassembly/Assembly



⚠WARNING

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

- **Avoid spilling brake fluid on painted, plastic, or rubber parts.**

NOTE:

- Do not remove the bleed valve unless it is to be replaced.

Requisite Service

- Brake fluid draining/filling/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 hose bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	
(4)	Brake pad	2	Removal/installation (page 13-3)
(5)	Caliper pin bolt	2	
(6)	Brake caliper assembly	1	
(7)	Upper clamp bolt	1	
(8)	Drive chain adjuster bolt	2	Turn the bolt clockwise to loosen the drive chain.
(9)	Rear axle nut	1	
(10)	Rear axle	1	Pull out to the position where the caliper bracket can be removed.
(11)	Lower clamp bolt/brake hose clamp	1/1	
(12)	Caliper bracket	1	
(13)	Pad spring	1	
(14)	Boot/collar	1/1	
(15)	Piston	1	
(16)	Dust seal	1	**CAUTION:**
(17)	Piston seal	1	**· Be careful not to score or scratch the cylinder wall.**
(18)	Boot	1	
(19)	Pad retainer	1	NOTE: · Apply Honda Bond A to the seating surface of the retainer when installing.

14. Charging System/Alternator

Service Information	14-1	Charging System Inspection	14-5
System Location	14-2	Regulator/Rectifier	14-6
Troubleshooting	14-3	Alternator Inspection	14-7
Battery Removal/Installation	14-4	Stator Coil Removal/Installation	14-8

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 place.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.

NOTE:

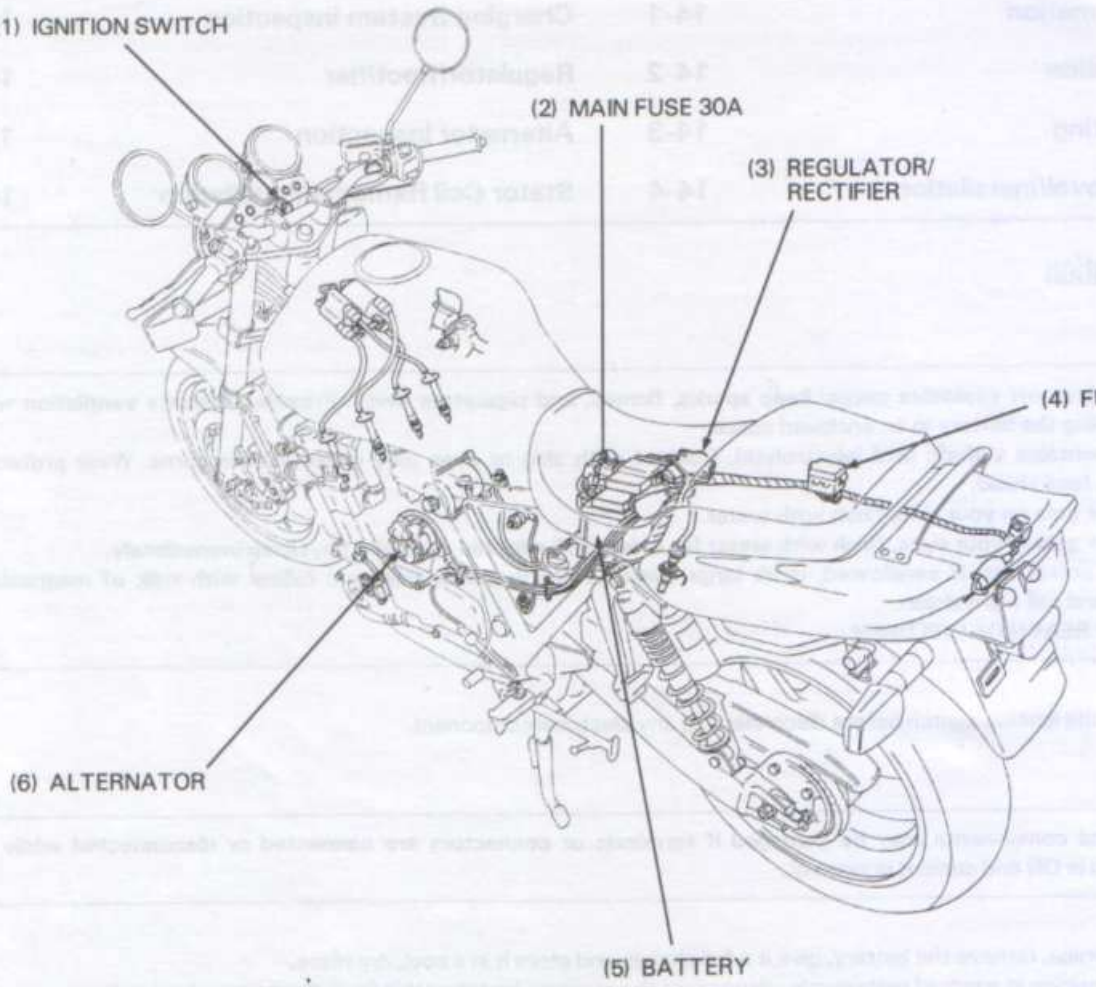
- The maintenance free battery (MF) must be replaced when it reaches the end of its service life.

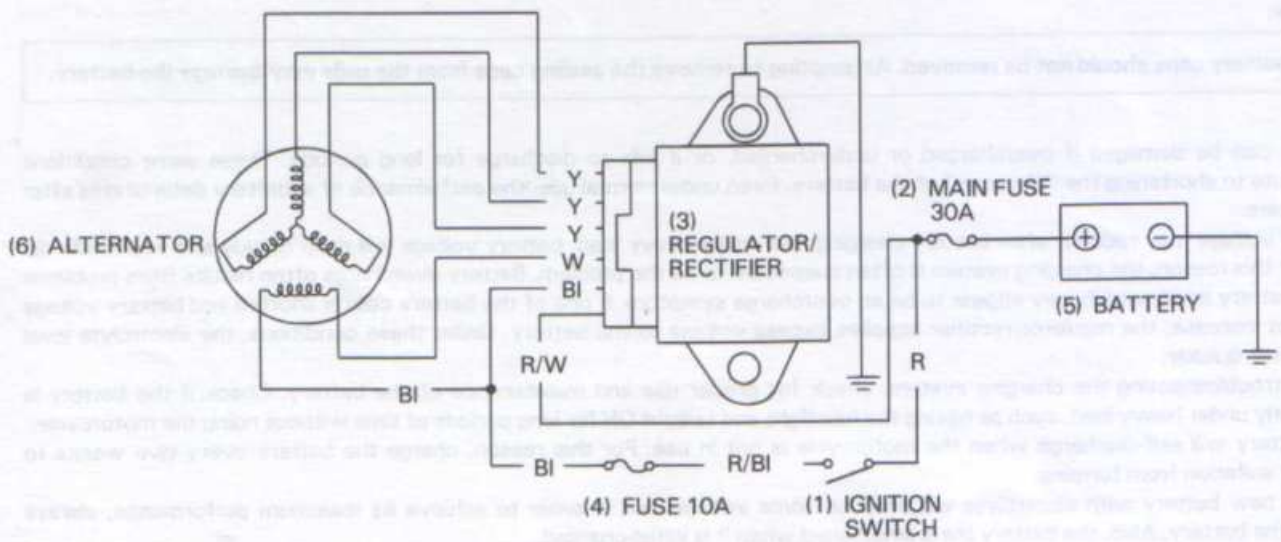
CAUTION:

- **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 overcharged 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, the performance of a battery 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. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharge symptom. 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 for 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 in 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 14-3).
- For charging system location, see page 14-2
- Refer to section 10 for alternator shaft removal and installation.

System Location





Troubleshooting

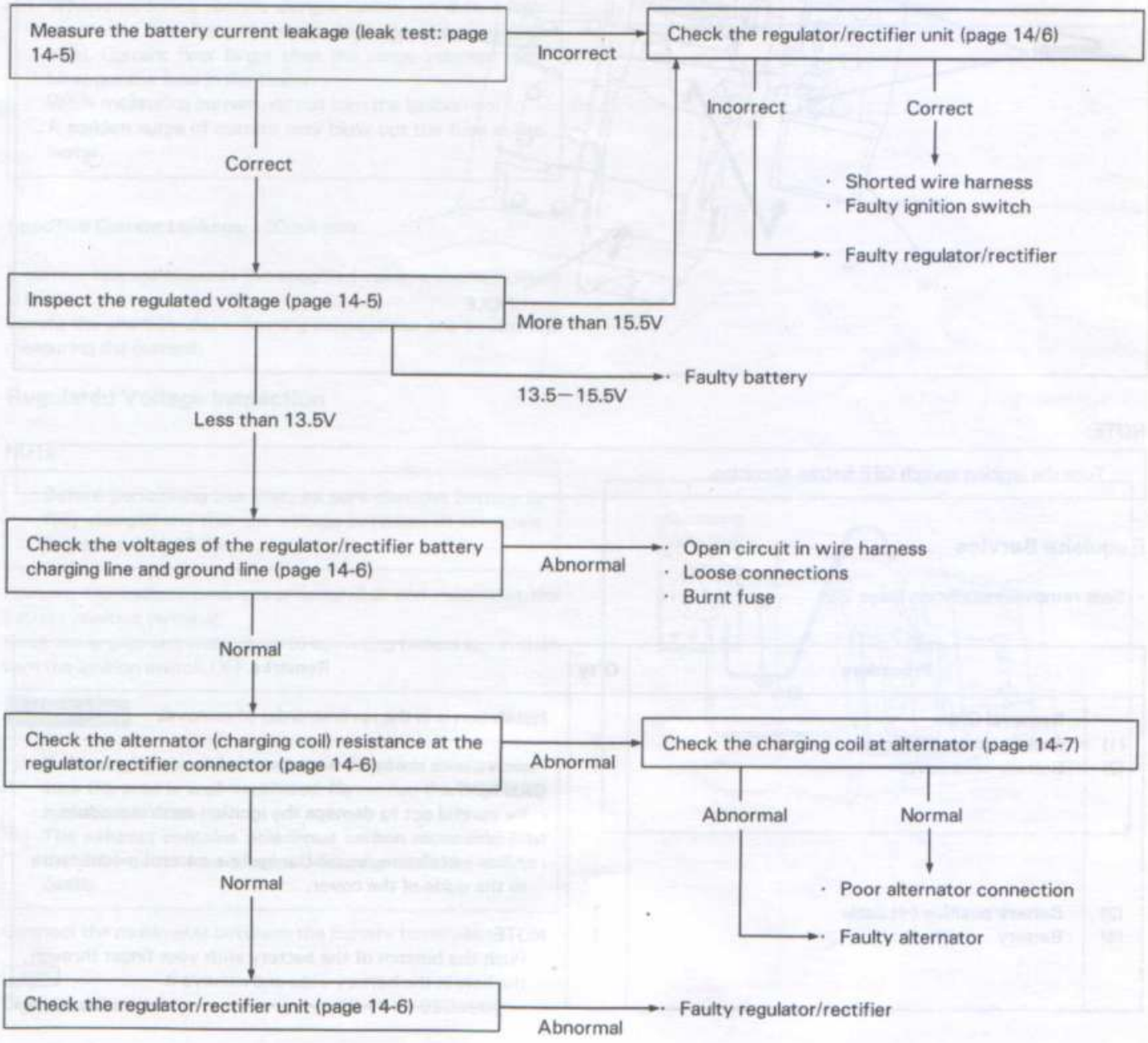
Battery Overcharging

- Faulty regulator/rectifier

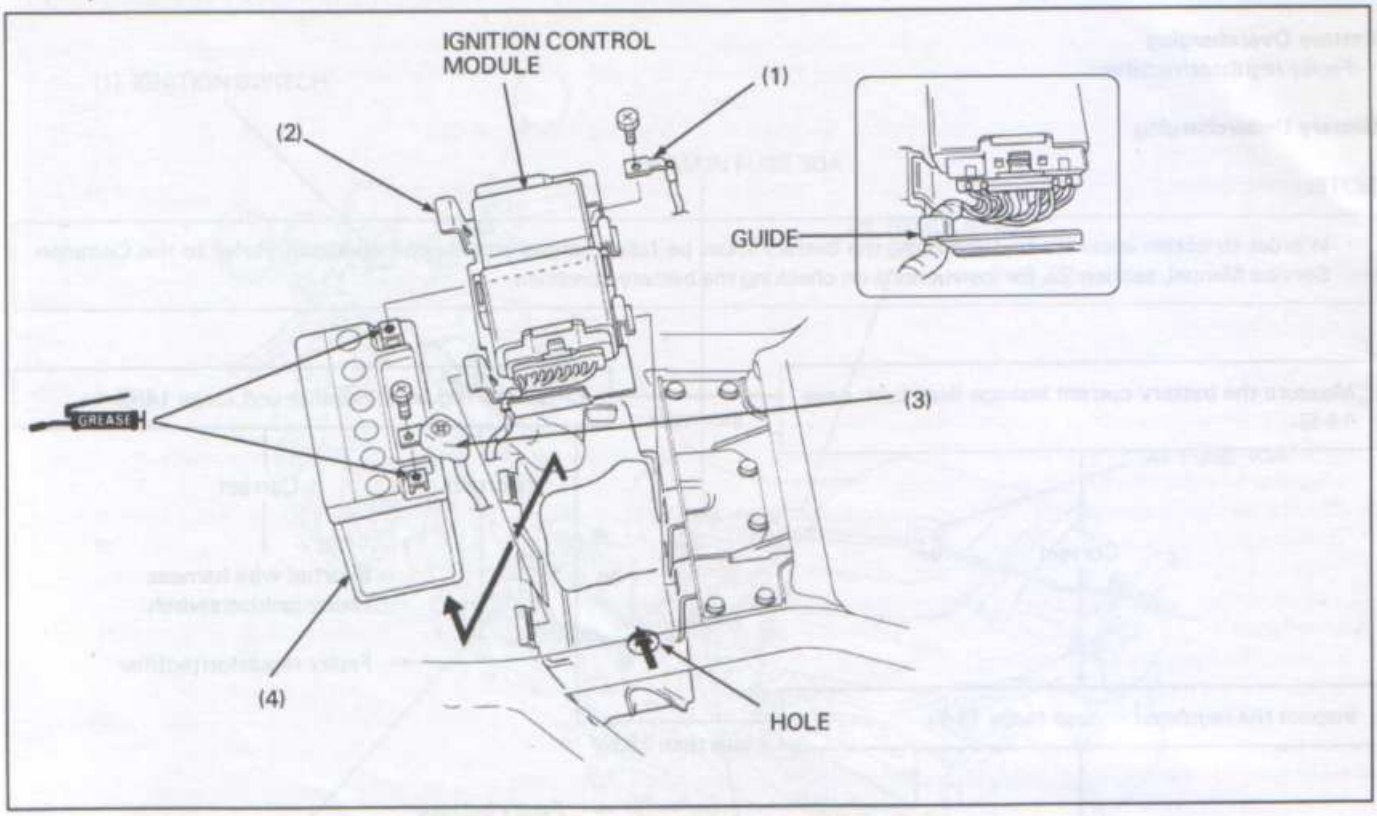
Battery Undercharging

NOTE:

- In order to obtain accurate test readings, the battery must be fully charged and in good condition. Refer to the Common Service Manual, section 22, for instructions on checking the battery condition.



Battery Removal/Installation



NOTE:

- Turn the ignition switch OFF before servicing.

Requisite Service

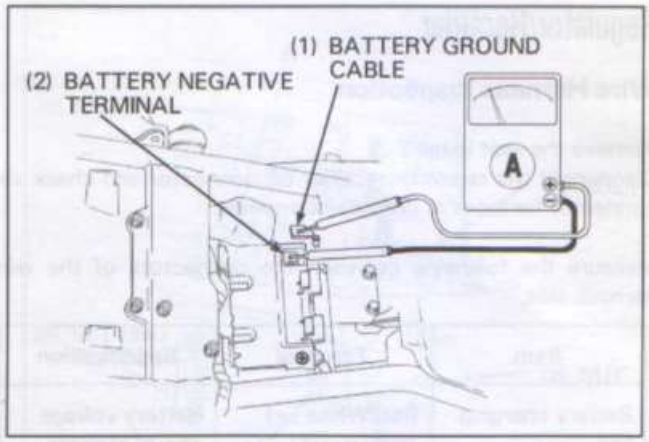
- Seat removal/installation (page 2-2)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Battery ground (—) cable	1	
(2)	Battery case cover	1	Remove with the ignition control module. **CAUTION:** **· Be careful not to damage the ignition control module.** NOTE: · After installation, install the ignition control module wire to the guide of the cover.
(3)	Battery positive (+) cable	1	
(4)	Battery	1	NOTE: · Push the bottom of the battery with your finger through the hole in the battery case and remove it.

Charging System Inspection

Current Leakage Test

Remove the seat (page 2-2).
Turn off the ignition switch, 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 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 on. A sudden surge of current may blow out the fuse in the tester.

Specified Current Leakage: 20mA max.

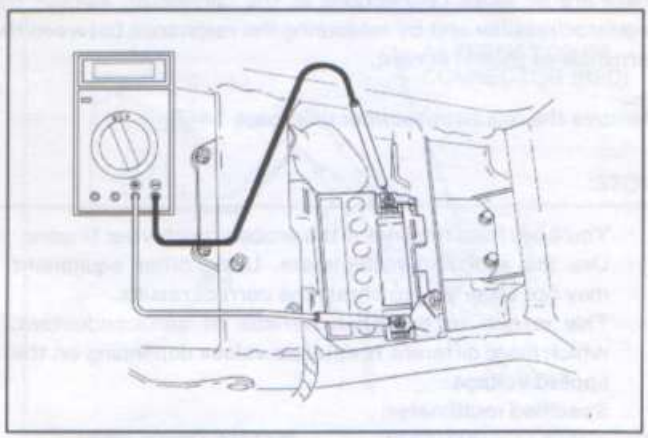
If current leakage exceeds the specified value, a shorted circuit is likely.
Locate the short by disconnecting connections one by one and measuring the current.

Regulated Voltage Inspection

NOTE:

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

Remove the battery case cover (page 2-2) and reconnect the battery positive terminal.
Start the engine and warm it up to operating temperature, then turn the ignition switch OFF.



⚠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.**

Connect the multimeter between the battery terminals.

S TOOL

Digital multimeter 07411−0020000

CAUTION:

- **Be careful not to short any tester probes.**

Turn the headlight on Hi beam and start the engine.
Gradually increase the engine speed.

Regulated Voltage: 13.5−15.5V at 5,000 rpm

Regulator/Rectifier

Wire Harness Inspection

Remove the seat (page 2-2).
Disconnect the regulator/rectifier 6P connector and check the connector for loose or corroded terminals.

Measure the following between the connectors of the wire harness side.

Item	Terminal	Specification
Battery charging line	Red/White (+) and ground (−)	Battery voltage should register
Voltage feedback line	Black (+) and ground (−)	* Voltage must be 1.5V or less than the battery voltage.
Field coil line	White and Black	2.3−2.9Ω (68°F/20°C)
Charging coil line	Yellow and Yellow	0.3−0.5Ω (68°F/20°C)

* When the ignition switch is on.

Unit Inspection

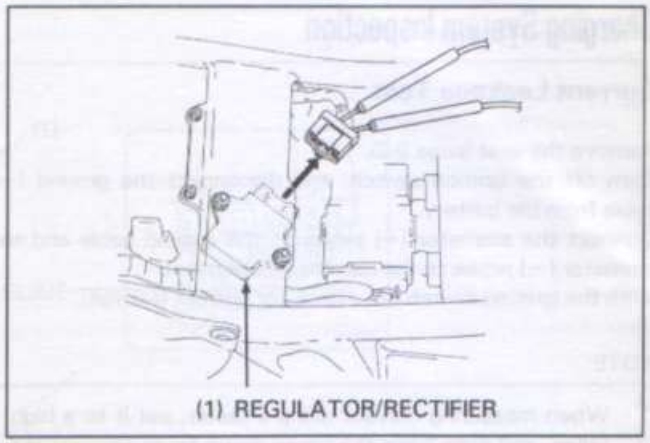
Provided the circuits on the wire harness side are normal and there are no loose connections at the connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals as shown at right.

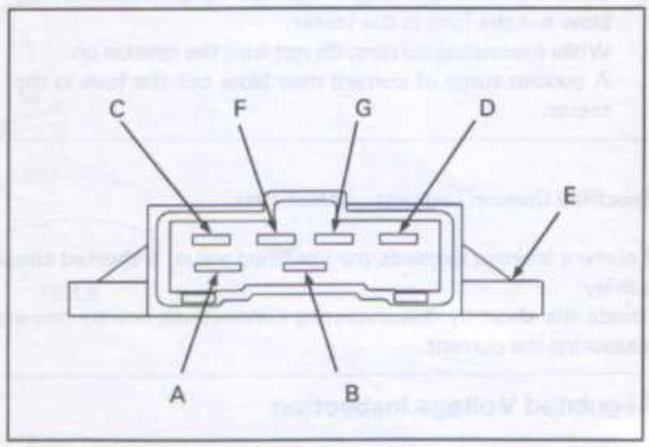
Remove the regulator/rectifier unit (page 14-7).

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 resistance values depending on the applied voltage.
  Specified multimeter:
  −07411−0020000 (KOWA Digital type)
  −07308−0020001 (SANWA Analogue type)
  −TH−5H (KOWA Analogue type)
- Select the following range:
  SANWA: kΩ
  KOWA: x 100
- An old battery stored in the multimeter could cause inaccurate readings. Check the battery if the multimeter resistance is incorrect.
- 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.





Rectifier:

Unit: kΩ

⊖ \ ⊕	A	B	C	D	E
A		∞	∞	∞	∞
B	0.5−50		∞	∞	∞
C	0.5−50	∞		∞	∞
D	0.5−50	∞	∞		∞
E	0.5−50	0.5−50	0.5−50	0.5−50	

Regulator:

Unit: kΩ

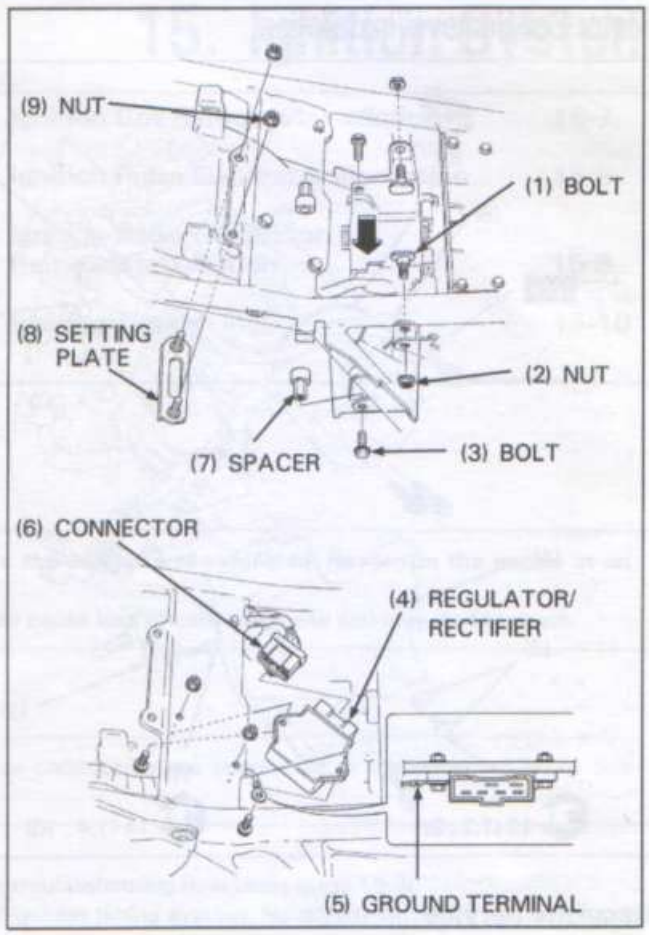
⊖ \ ⊕	F	G	E
F		1−30	0.5−20
G	0.5−30		1−50
E	0.5−20	0.5−30	

Removal/Installation

Remove the seat (page 2-2).
Remove the rear fender mounting nuts, bolts, spacer and setting plate, and push down the front portion of the rear fender slowly until the regulator/rectifier can be removed.

Disconnect the regulator/rectifier connector and remove the bolts, nuts and regulator/rectifier.

Installation is in the reverse order of removal.



Alternator Inspection

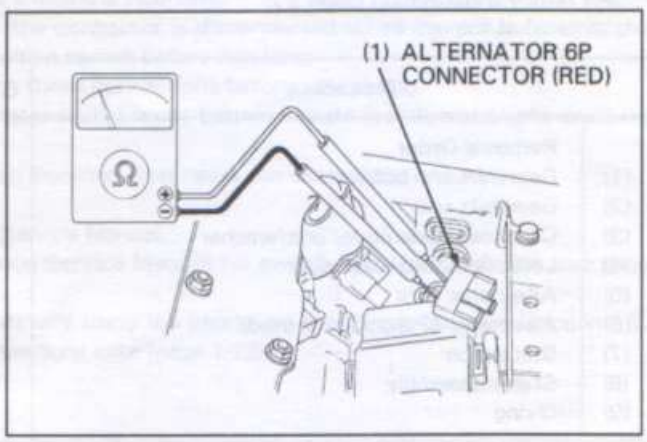
NOTE:

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

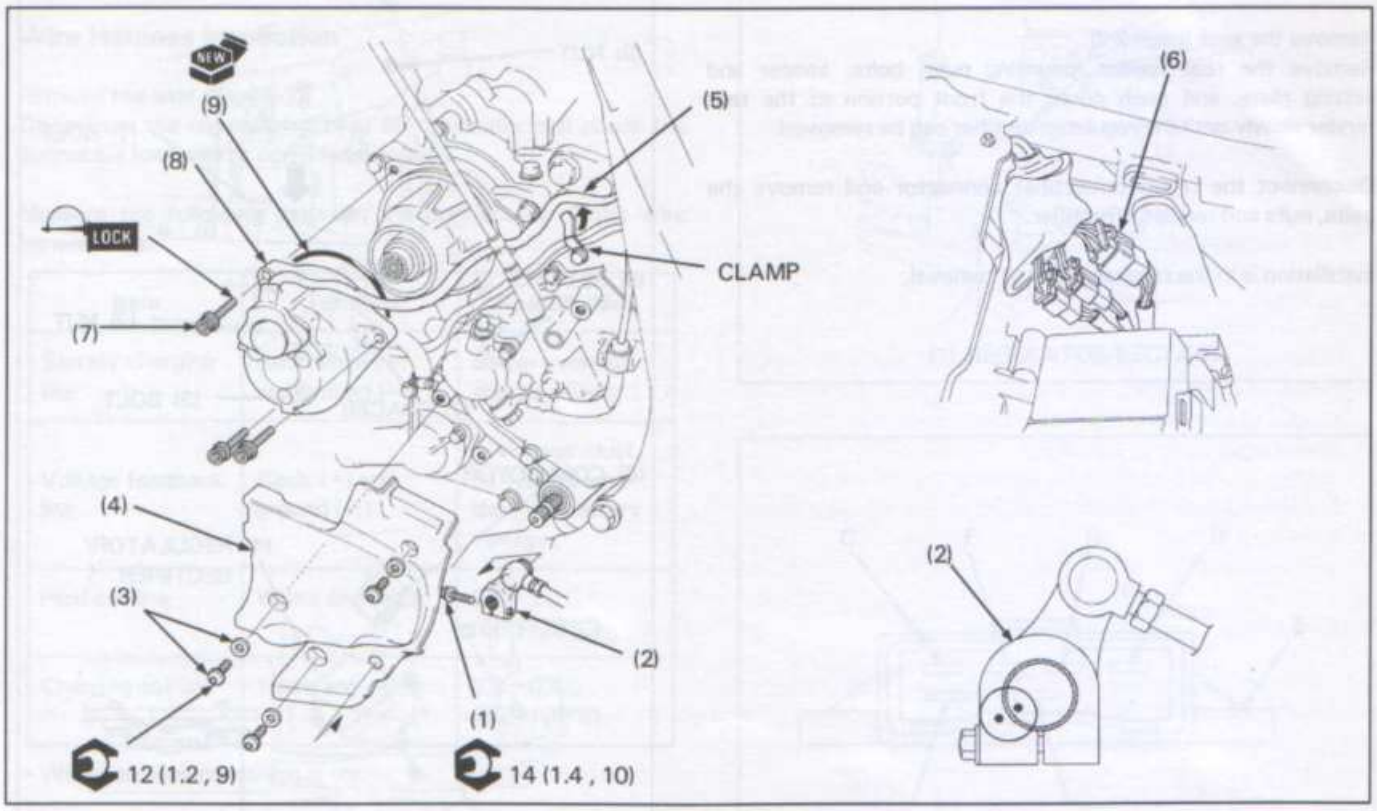
Remove the seat (page 2-2) and disconnect the alternator 6P (Red) connector.
Measure the resistance between the connector terminals (Yellow and Yellow).

Standard: 0.3—0.5Ω (68°F/20°C)

Check for continuity between the yellow wire terminal and ground.
There should be no continuity.



Stator Coil Removal/Installation



Requisite Service

- Seat removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Gearshift arm bolt	1	
(2)	Gearshift arm	1	At installation, align the punch marks.
(3)	Crankcase side cover bolt/washer	3/3	
(4)	Left crankcase side cover	1	
(5)	Alternator wire	1	Release from the clamp.
(6)	Alternator 6P connector (Red)	1	
(7)	Stator bolt	3	
(8)	Stator assembly	1	
(9)	O-ring	1	

15. Ignition System

Service Information	15-1	Ignition Coil Removal/Installation	15-7
System Location	15-2	Ignition Pulse Generator Inspection	15-8
Troubleshooting	15-3	Ignition Pulse Generator Removal/Installation	15-9
Ignition System Inspection	15-5	Ignition Timing	15-10
Ignition Coil Inspection	15-6		

Service Information

⚠WARNING

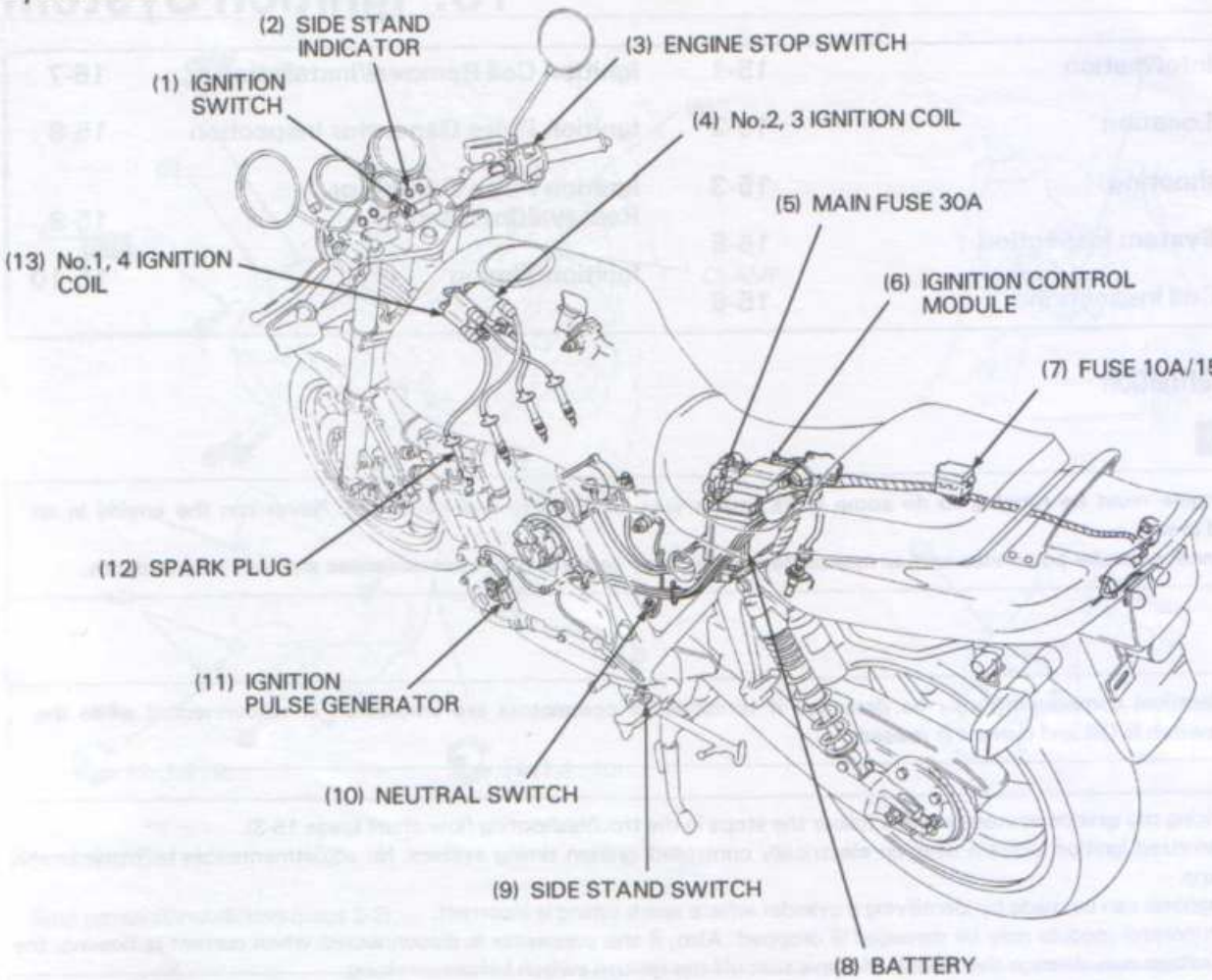
- **If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.**
- **The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.**

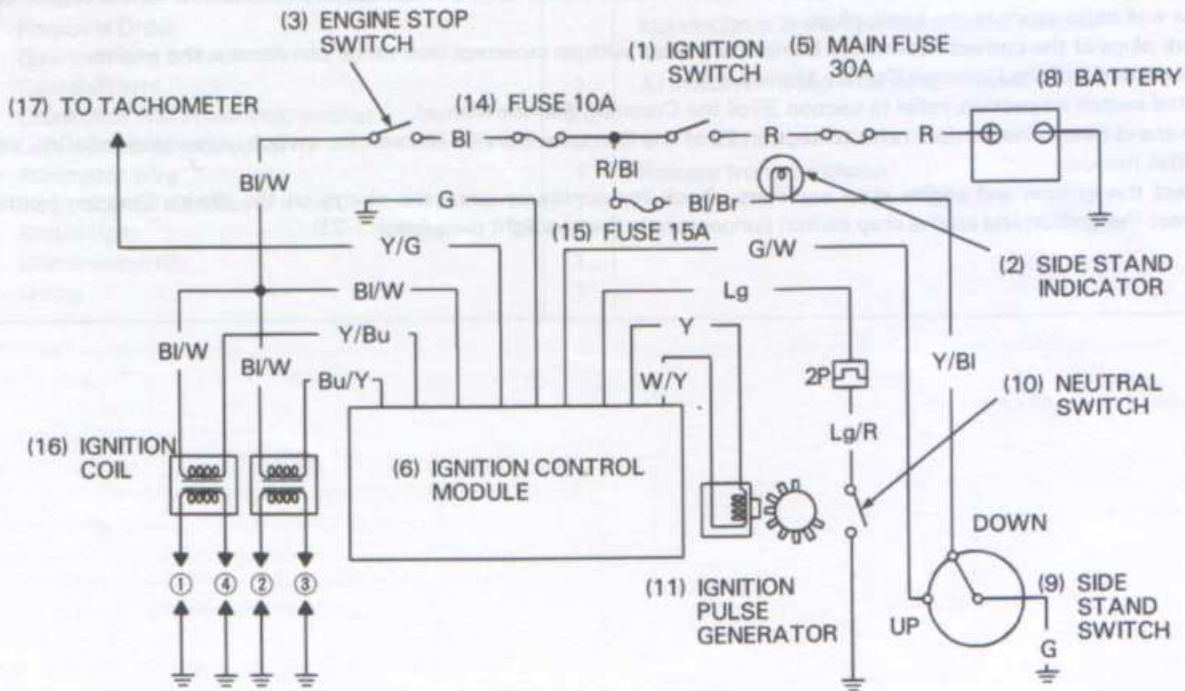
CAUTION:

- **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 servicing the ignition system, always follow the steps in the troubleshooting flow chart (page 15-3).
- The transistorized ignition system uses an electrically controlled ignition timing system. No adjustments can be made to the ignition timing.
- A rough diagnosis can be made by identifying a cylinder where spark timing is incorrect.
- The ignition control module may be damaged if dropped. Also, if the connector is disconnected when current is flowing, the excessive voltage may damage the module. Always turn off the ignition switch before servicing.
- A faulty ignition system is often related to poor connections. Check those connections before proceeding.
- Make sure the battery is adequately charged. Using the starter motor with a weak battery results in a slower engine cranking speed as well as no spark at the spark plugs.
- 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 side stand switch inspection, refer to section 25 of the Common Service Manual; for switch removal/installation, see page 17-9 of this manual.
- To inspect the ignition and engine stop switches, check for continuity using the charts on the Wiring Diagram (section 18). Disconnect the ignition and engine stop switch connectors in the headlight case (page 1-23).

System Location





Troubleshooting

No spark at all plugs (Faulty input system)

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

Check for loose or poorly connected ignition control module connector.
- Abnormal → Poorly connected connector
- Normal ↓

Check for loose or poorly connected ignition coil connectors.
- Abnormal → Poorly connected connector
- Normal ↓

Check for battery voltage between the power input line (Black/White) and ground (Green) at the ignition control module connector with the ignition switch ON and the engine stop switch at RUN (page 15-5).
- Abnormal →
  - Faulty ignition or engine stop switch
  - Open circuit in wire harness
  - Loose or poor contact of related circuit connectors
- Normal ↓

Measure the ignition pulse generator resistance at the ignition control module connector (page 15-5).
- Abnormal → Check the ignition pulse generator (page 15-8).
  - Abnormal → Faulty ignition pulse generator
  - Normal →
    - Open circuit between the unit and ignition pulse generataor
    - Loose or poor contact of the ignition pulse generator connector (2P mini/White)
- Normal ↓

Check the neutral switch for continuty at the ignition control module connector (page 15-5).
- Abnormal → Check the neutral switch.
  - Abnormal → Faulty neutral swich
  - Normal →
    - Open circuit between the module and neutral swich
    - Loose or poor contact of the neutral switch connector
- Normal ↓

Check the side stand switch at the ignition control module connector (page 15-5).
- Abnormal → Check the side stand switch.
  - Abnormal → Faulty side stand swich
  - Normal →
    - Open circuit between the module and side stand swich
    - Loose or poor contact of the side stand swich connector
- Normal ↓
  - Faulty ignition control module

No spark at either ignition group

- If there is no spark at either group, the problem is suspected in the primary coil side of the ignition system (ignition coil, or ignition control module 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 faulty pair → Remove the faulty pair ignition coil and check the ignition coil resistance (page 15-6).

- Faulty ignition coil
- Faulty spark pulg wire

"No Spark" condition shifts to other pair

Measure resistance of the ignition primary coil at ignition control module connector (page 15-6).

→ Abnormal → Open circuit between the module and ignition coil

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.

→ Normal → Original spark plug no good.

Abnormal

Put the spark plug wire on and measure resistance of ignition secondary coil (page 15-6).

→ Normal → Conduct spark test on good ignition coil.

Normal

Abnormal

Remove the spark plug wire, and measure the resistance of the ignition secondary coil (page 15-6).

→ Abnormal → Faulty ignition coil

Normal

- Poor contact of spark plug wire
- Faulty spark plug wire

Side stand switch does not function at all.

Side Stand Indicator: Check the side stand indicator for function.

→ Normal

- Faulty side stand switch
- Open circuit in Green/White or Green wire

Abnormal

Side Stand Switch: Check the side stand switch for continuity.

→ Normal

- Loose or poor contact of related connectors
- Open or short circuit in wire harness
- Burnt indicator bulb

Abnormal → Faulty side stand switch

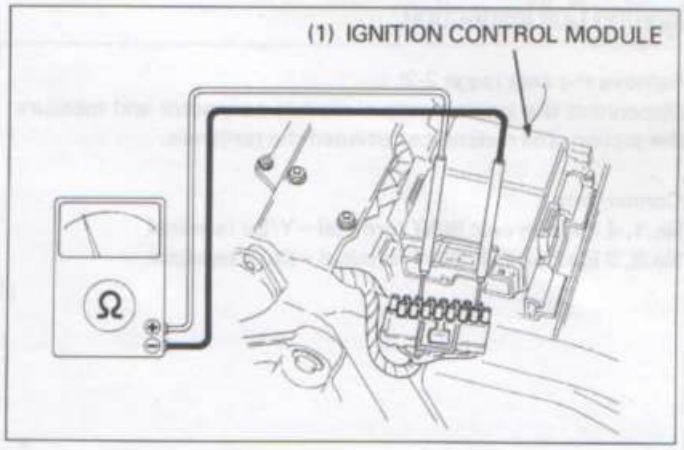
Ignition System Inspection

NOTE:

- Check the system components and lines step-by-step according to the troubleshooting chart on page 15-3.

Remove the seat (page 2-2).
Remove the ignition control module from the battery cover stay, disconnect the ignition control module connector and check it for loose or corroded terminals.

Measure the data between the connector terminals using the following chart.

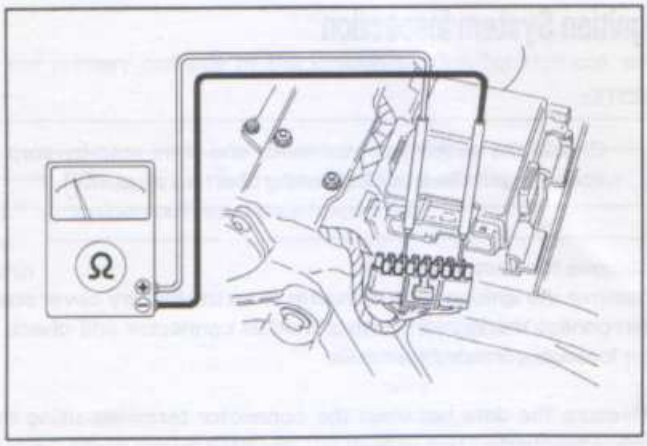


Item		Terminals	Standards (20°C/68°F)
Battery voltage input line		Black/White (+) and ground (−) with the ignition switch ON and the engine stop switch at RUN.	Battery voltage should register
Ignition pulse generator line		Yellow and White/Yellow	460−580Ω
Ignition primary coil line	No. 1, 4	Yellow/Blue and Black/White	2.6−3.2Ω
	No. 2, 3	Blue/Yellow and Black/White	
Neutral switch line		Light green and Ground	Continuity in neutral No continuity in any gear
Side stand switch line		Green/White and Ground	Continuity with the stand up No continuity with the stand down
Ground line		Green and Ground	Continuity

Ignition Coil Inspection

Remove the seat (page 2-2).
Disconnect the ignition control module connector and measure the primary coil resistance between the terminals.

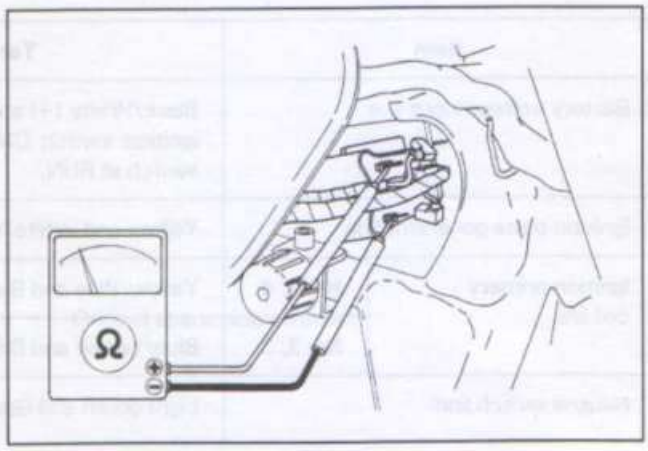
Connection:
No.1, 4 ignition coil: Bl/W terminal—Y/Bu terminal
No.2, 3 ignition coil: Bl/W terminal—Bu/Y terminal



Raise the fuel tank and support it (page 3-3).

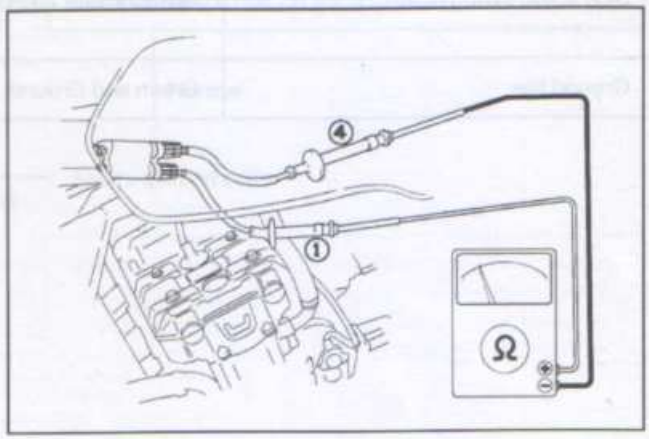
Disconnect the ignition coil wires and measure the primary coil resistance.

Standard: 2.6—3.2Ω (68°F/20°C)



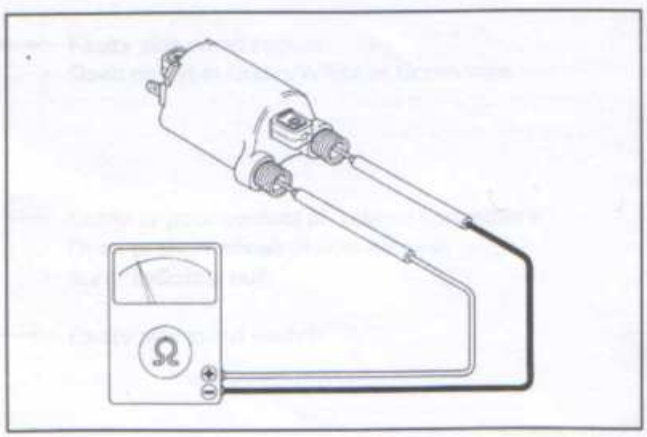
Disconnect the spark plug caps from the plugs and measure the secondary coil resistance with the spark plug caps.

Standard: 18—22kΩ (68°F/20°C)

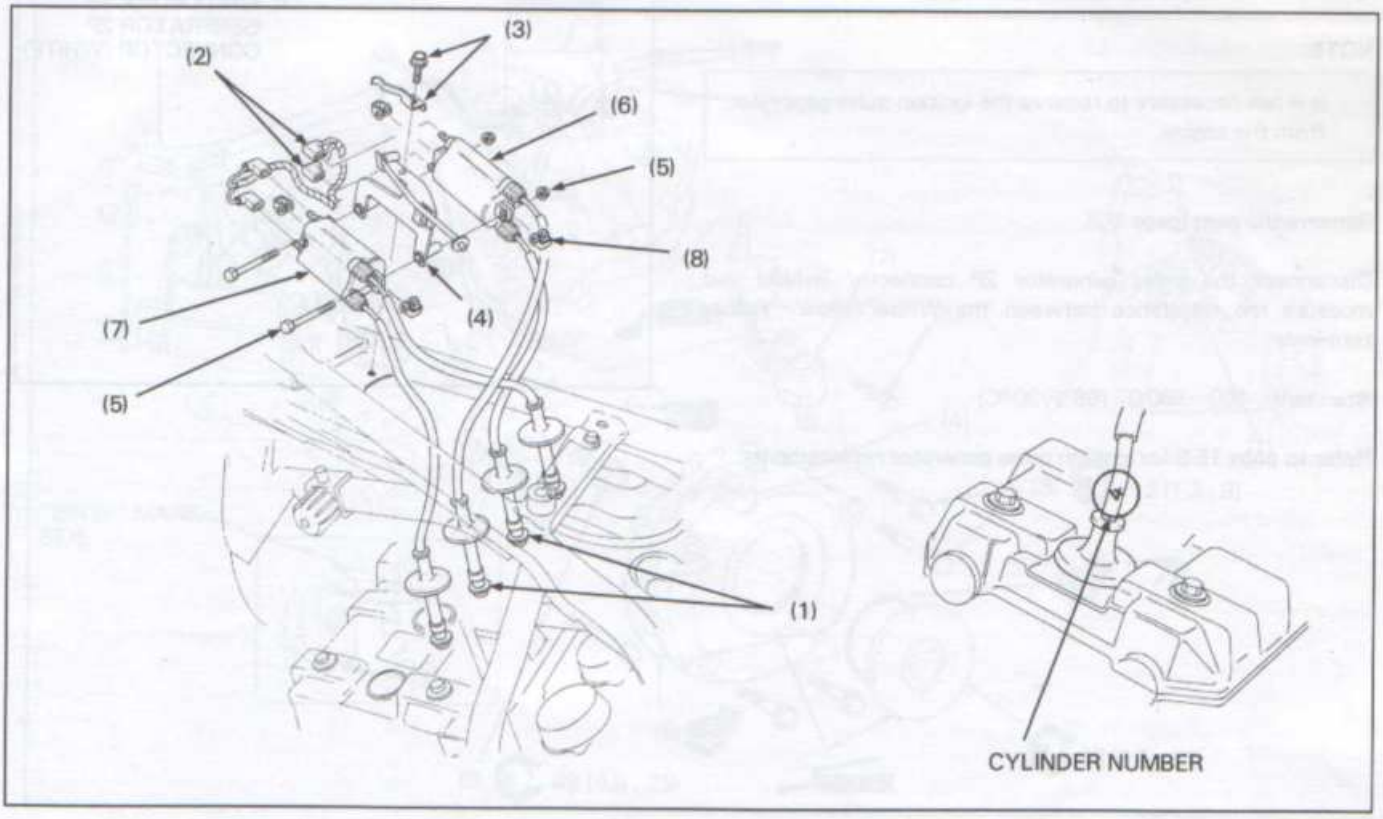


If the resistance is out of the range, remove the ignition coils (page 15-7) and disconnect the spark plug wires. Measure the resistance between the secondary coil terminals.

Standard: 13—17kΩ (68°F/20°C)



Ignition Coil Removal/Installation



NOTE:

- The cylinder numbers are printed on each spark plug wire. Be sure to install each spark plug caps on the correct cylinder (page 1-25).

Requisite Service

- Fuel tank removal/Installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Spark plug cap	4	
(2)	Ignition coil connector	4	
(3)	Bolt/support stay stopper	1/1	
(4)	Mounting stay assembly	1	
(5)	Ignition coil mounting bolt/nut	2/2	
(6)	No.2, 3 ignition coil	1	
(7)	No.1, 4 ignition coil	1	
(8)	Guide	4	

Ignition Pulse Generator Inspection

NOTE:

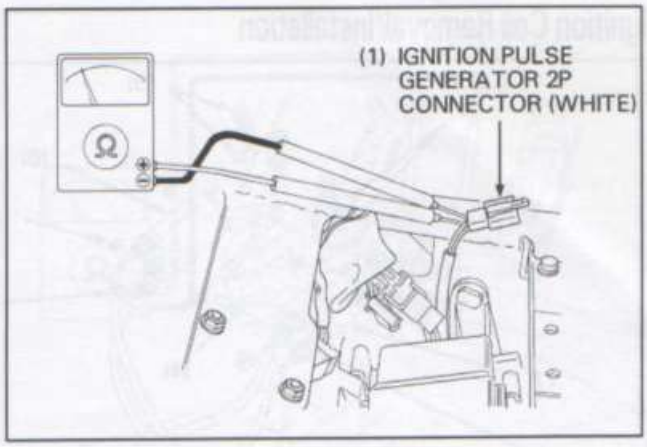
- It is not necessary to remove the ignition pulse generator from the engine.

Remove the seat (page 2-2).

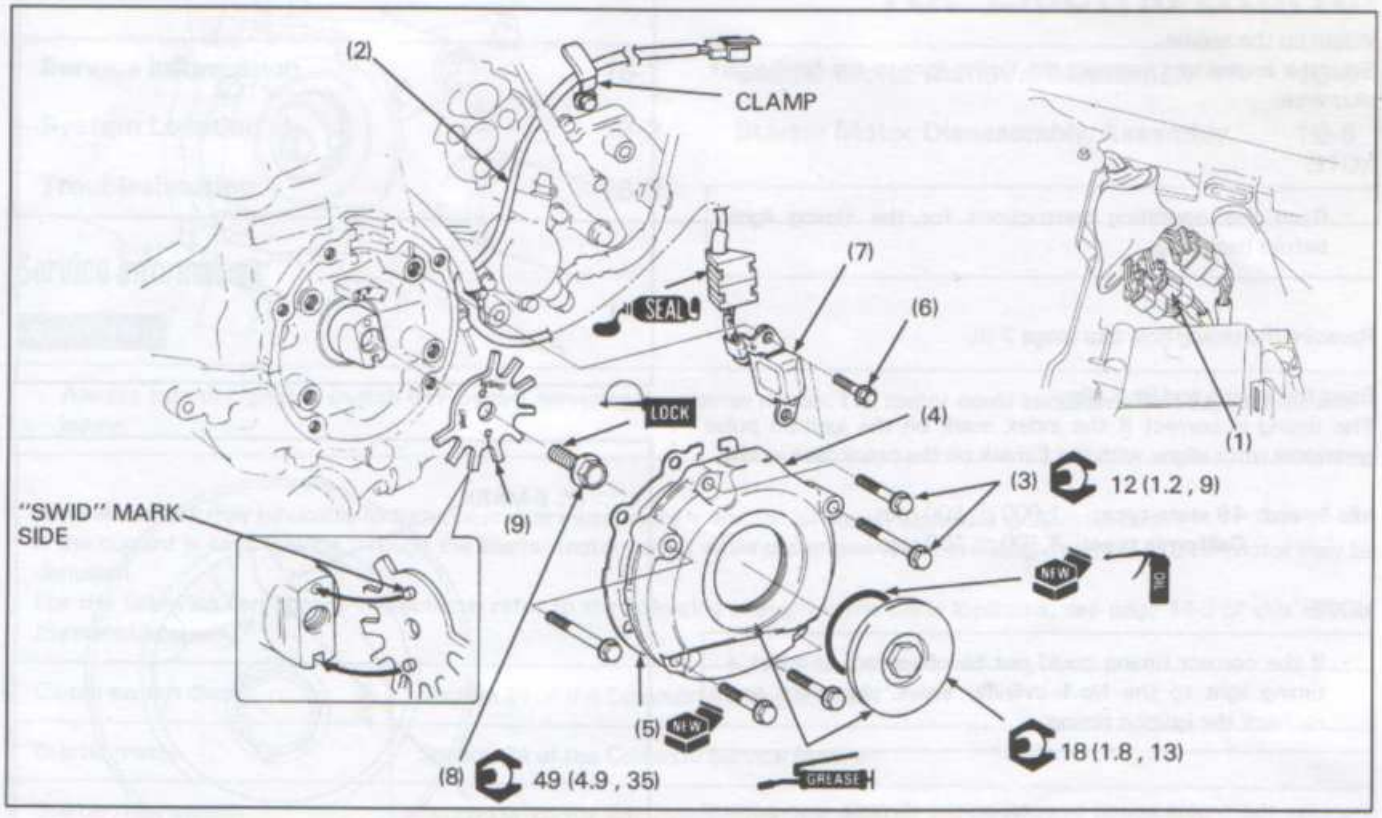
Disconnect the pulse generator 2P connector (white) and measure the resistance between the White/Yellow—Yellow terminals.

Standard: 460—580Ω (68°F/20°C)

Refer to page 15-9 for ignition pulse generator replacement.



Ignition Pulse Generator Removal/Installation



Requisite Service

- Left crankcase side cover removal/installation (page 14-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Ignition pulse generator 2P connector (White)	1	
(2)	Ignition pulse generator wire	1	Remove from the clamp.
(3)	Crankcase cover bolt	5	
(4)	Left crankcase cover	1	
(5)	Gasket	1	NOTE: · Apply liquid sealant to the crankcase mating surface area before installing (page 1-20).
(6)	Ignition pulse generator bolt	2	
(7)	Ignition pulse generator	1	Remove the grommet from the crankcase.
(8)	Rotor bolt	1	
(9)	Ignition pulse generator rotor	1	NOTE: · At installation, align the pin on the "SWID" mark side with the crankshaft hole and align the other pin with the crankshaft cutout.

Ignition Timing

Warm up the engine.
Stop the engine and connect the timing light to the No.4 spark plug wire.

NOTE:

- Read the operating instructions for the timing light before beginning.

Remove the timing hole cap (page 3-6).

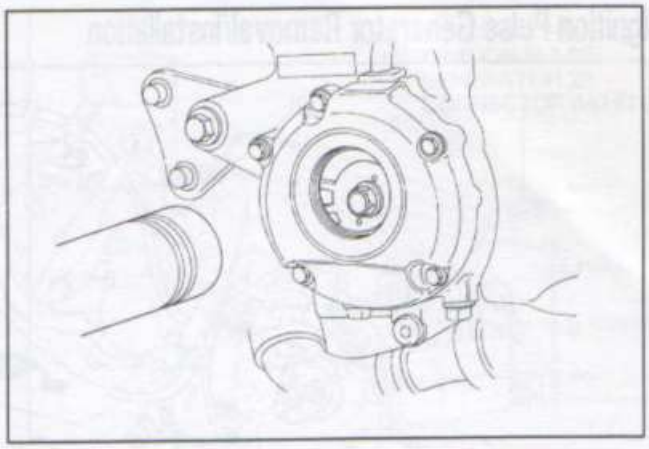
Start the engine and let it idle.
The timing is correct if the index mark on the ignition pulse generator rotor aligns with the F mark on the crankcase at idle.

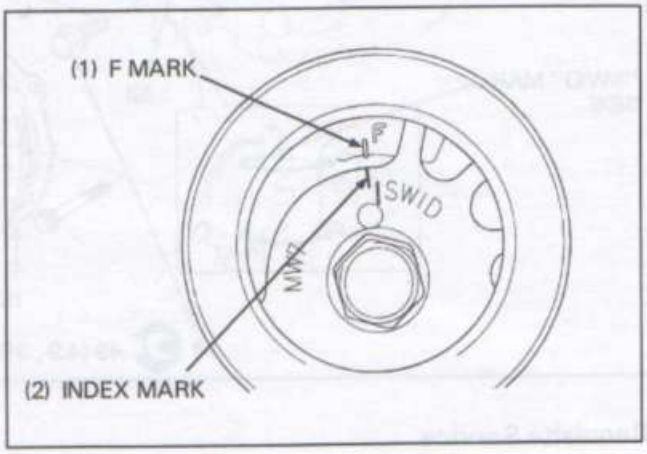
Idle Speed: 49 state type: 1,000 ± 100 rpm
California type: 1,100 ± 100 rpm

NOTE:

- If the correct timing could not be observed, connect a timing light to the No.1 cylinder spark plug wire and recheck the ignition timing.

Increase the engine speed by rotating the throttle stop control knob on the carburetor. Make sure the index mark begins to move counterclockwise at approximately 1,500 rpm.





16. Electric Starter

Service Information	16-1	Starter Motor Removal/Installation	16-5
System Location	16-2	Starter Motor Disassembly/Assembly	16-6
Troubleshooting	16-3		

Service Information

⚠WARNING

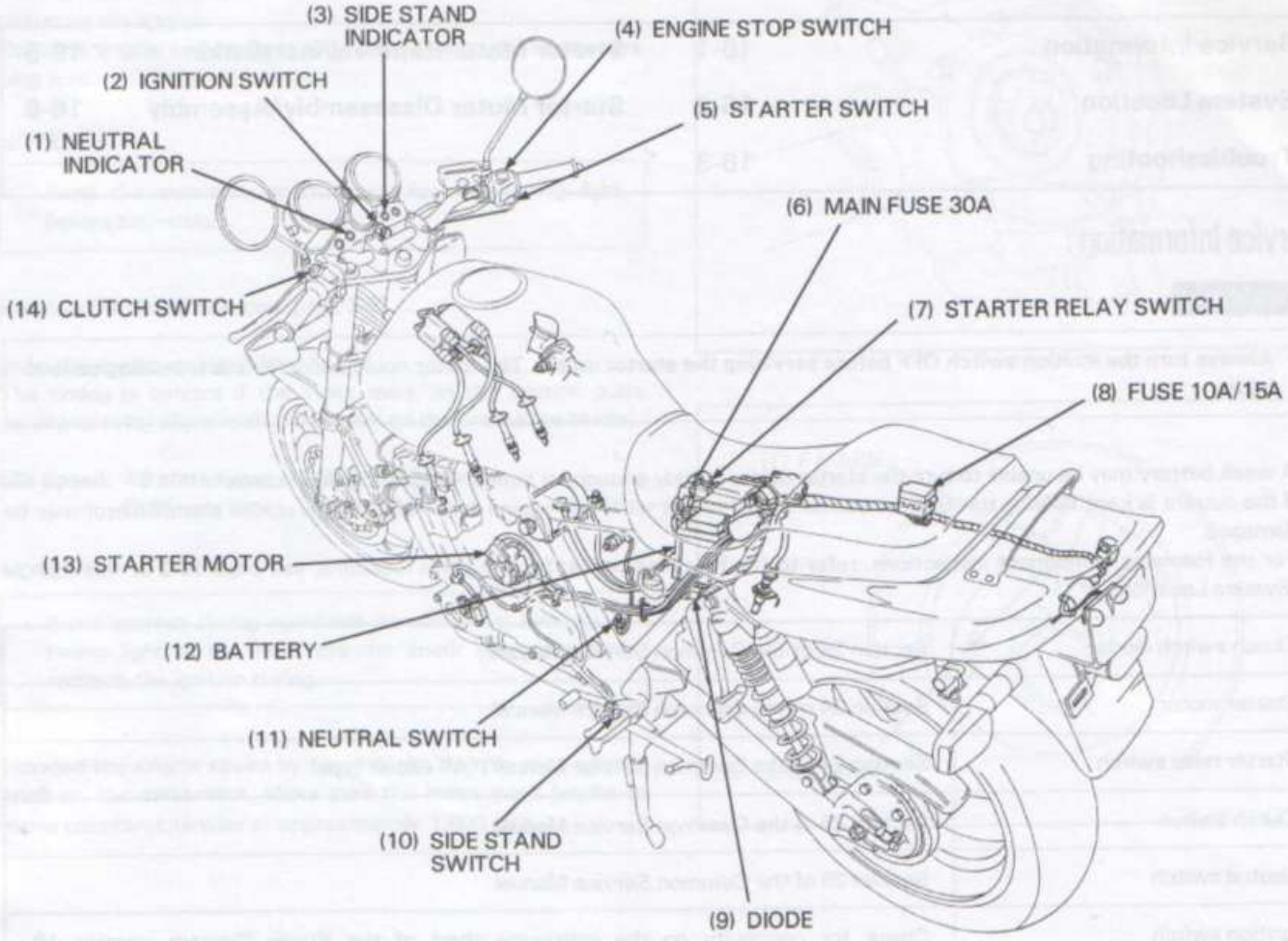
- **Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.**

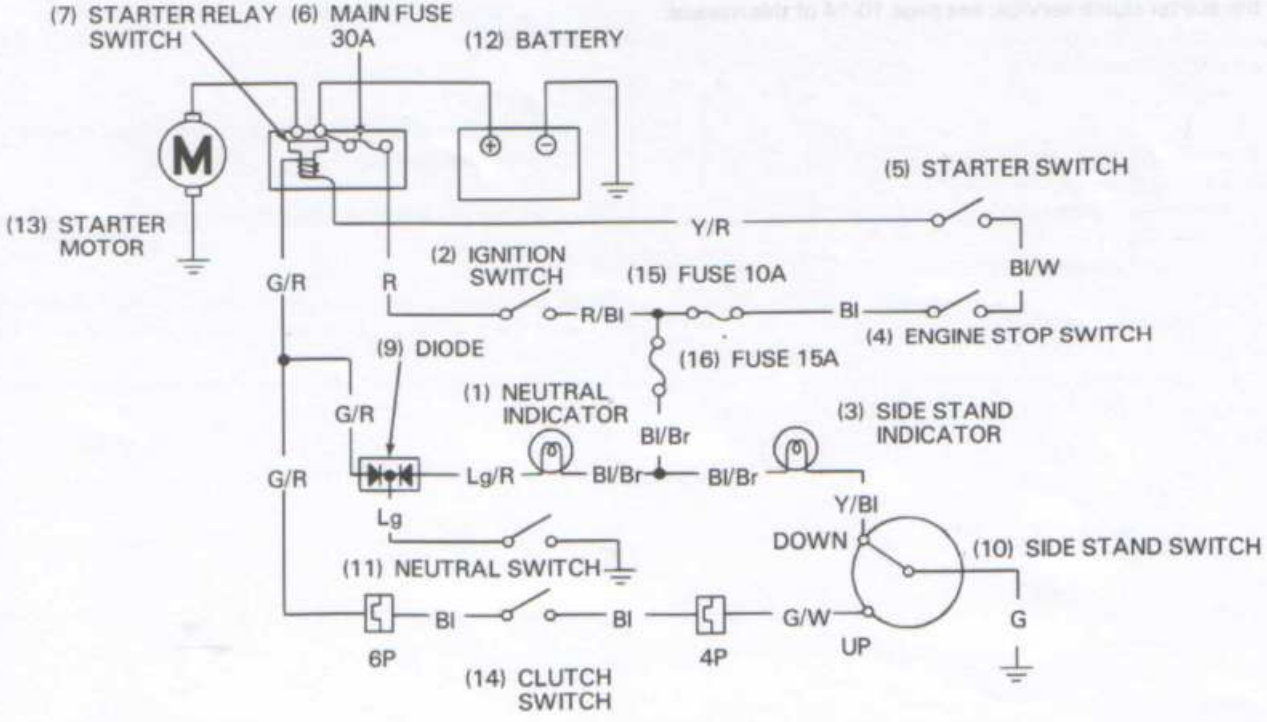
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor turn it while the engine is not cranking over, the starter motor may be damaged.
- For the following component inspections, refer to the following pages; for the parts locations, see page 16-2 of this manual (System Location).

Clutch switch diode	Section 24 of the Common Service Manual
Starter motor	Section 24 of the Common Service Manual
Starter relay switch	Section 24 of the Common Service Manual ("A" circuit type)
Clutch switch	Section 25 of the Common Service Manual
Neutral switch	Section 25 of the Common Service Manual
Ignition switch	Check for continuity on the continuity chart of the Wiring Diagram, section 18. Disconnect the switch connector inside the headlight case (page 1-23) and check it.
Side stand switch	Section 25 of the Common Service Manual

- For the starter clutch service, see page 10-14 of this manual.

System Location





Troubleshooting

Starter Motor Will Not Turn

- Check for a blown main or sub fuse before servicing.
- Make sure the battery is fully charged and in good condition.

NOTE:

- The starter motor does not turn when the engine stop switch is OFF.

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 or 4P connector
- Normal ↓

Check for loose or poorly connected starter motor cable, and opened cable.
- Abnormal →
  - Poorly connected motor cable
  - Open circuit in motor cable
- Normal ↓

With the ignition switch ON and the engine stop switch at RUN, push the starter switch 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 ↓

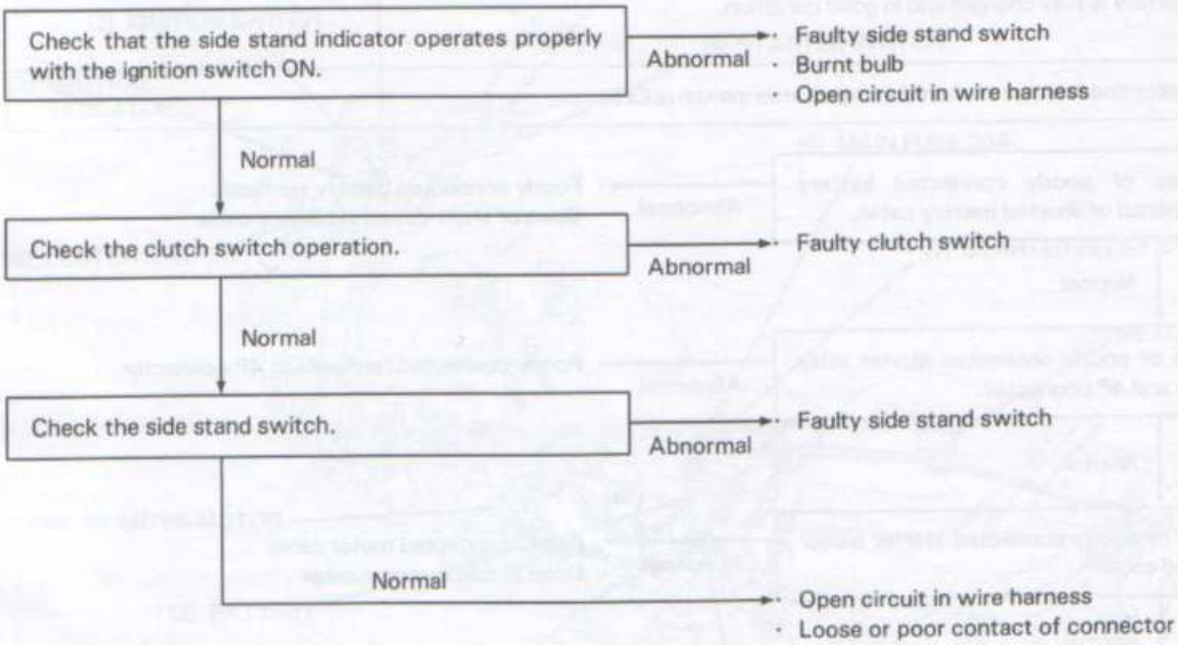
Disconnect starter relay switch connector, and check the relay coil ground wire lines as follows for continuity:
1. Green/Red terminal-clutch switch diode-neutral switch line (with transmission in neutral and clutch lever released.)
2. Green/Red terminal-clutch switch-side stand switch line (in any gear except neutral, and with the clutch lever pulled in and the side stand up.)

- No continuity →
  - Faulty neutral switch
  - Faulty clutch switch diode
  - 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, engine stop switch RUN and the starter switch pushed, measure the starter relay voltage at the starter switch connector (between Yellow/Red (+) and ground (−)).
- No voltage →
  - Faulty ingition switch
  - Faulty starter switch
  - Faulty engine stop switch
  - Blown out main or sub fuses
  - Loose or poor contact or connector
  - Open circuit in wire harness
- Voltage Appeared ↓

Check the starter relay switch operation.
- Normal → Loose or poor contact of the starter relay switch connector
- Abnormal → Faulty starter relay switch

The starter motor turns when the transmission is in neutral, but does not turn with the transmission in any position except neutral, with the side stand up and the clutch lever pulled in.

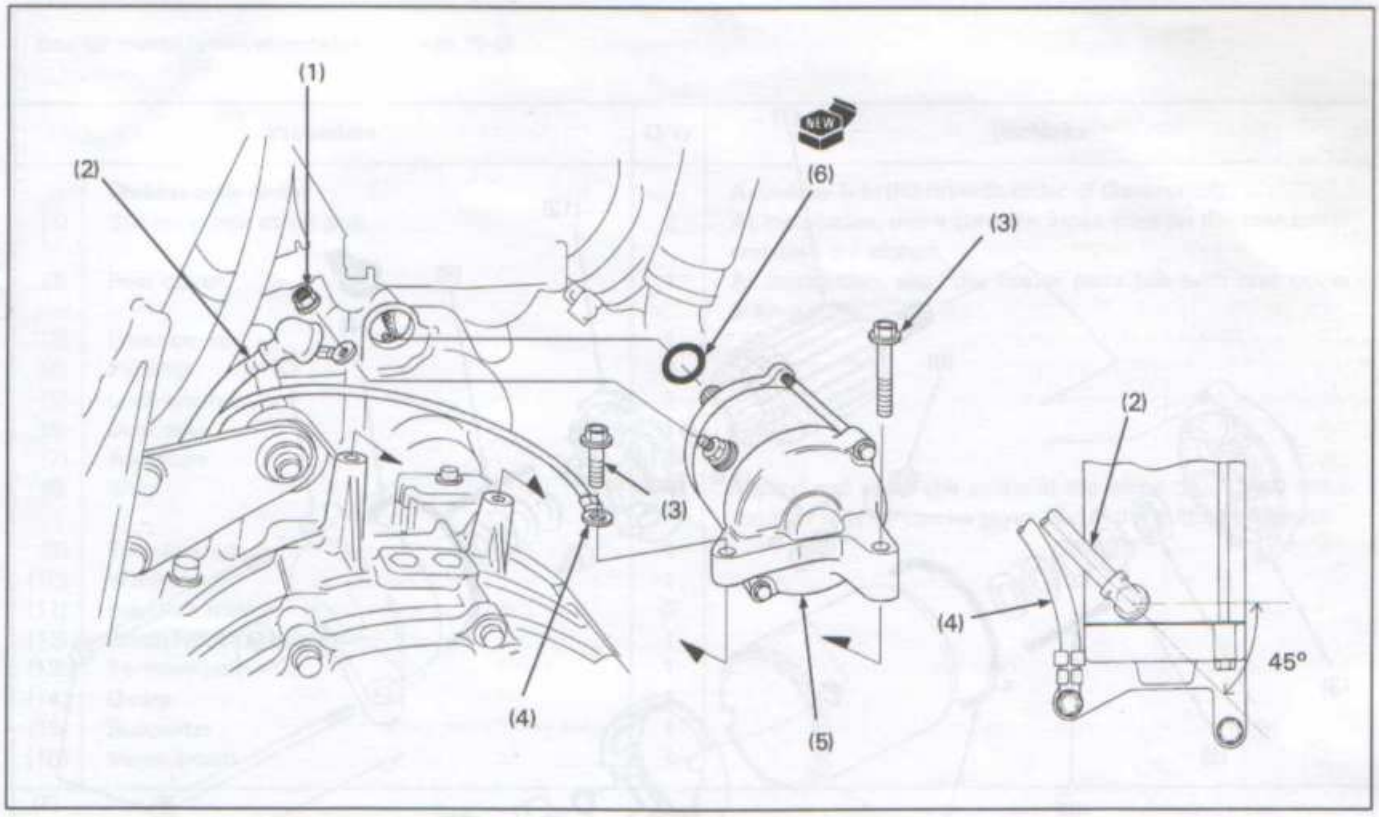


Starter Motor Turns Slowly
- Low specific gravity in battery (or Dead battery)
- Poorly connected battery terminal cable
- Poorly connected starter motor cable
- Faulty starter motor
- Poorly connected battery ground cable

Starter Motor Turns, but Engine Does Not Turn
- Starter motor is running backwards
  - — Case assembled improperly
  - — Terminals connected improperly
- Faulty starter clutch
- Damaged or faulty starter pinion
- Damaged reduction gears

Starter Relay Switch "Clicks", but Engine Does Not Turn Over
- Crankshaft does not turn due to engine problems
- Excessive reduction gear friction

Starter Motor Removal/Installation

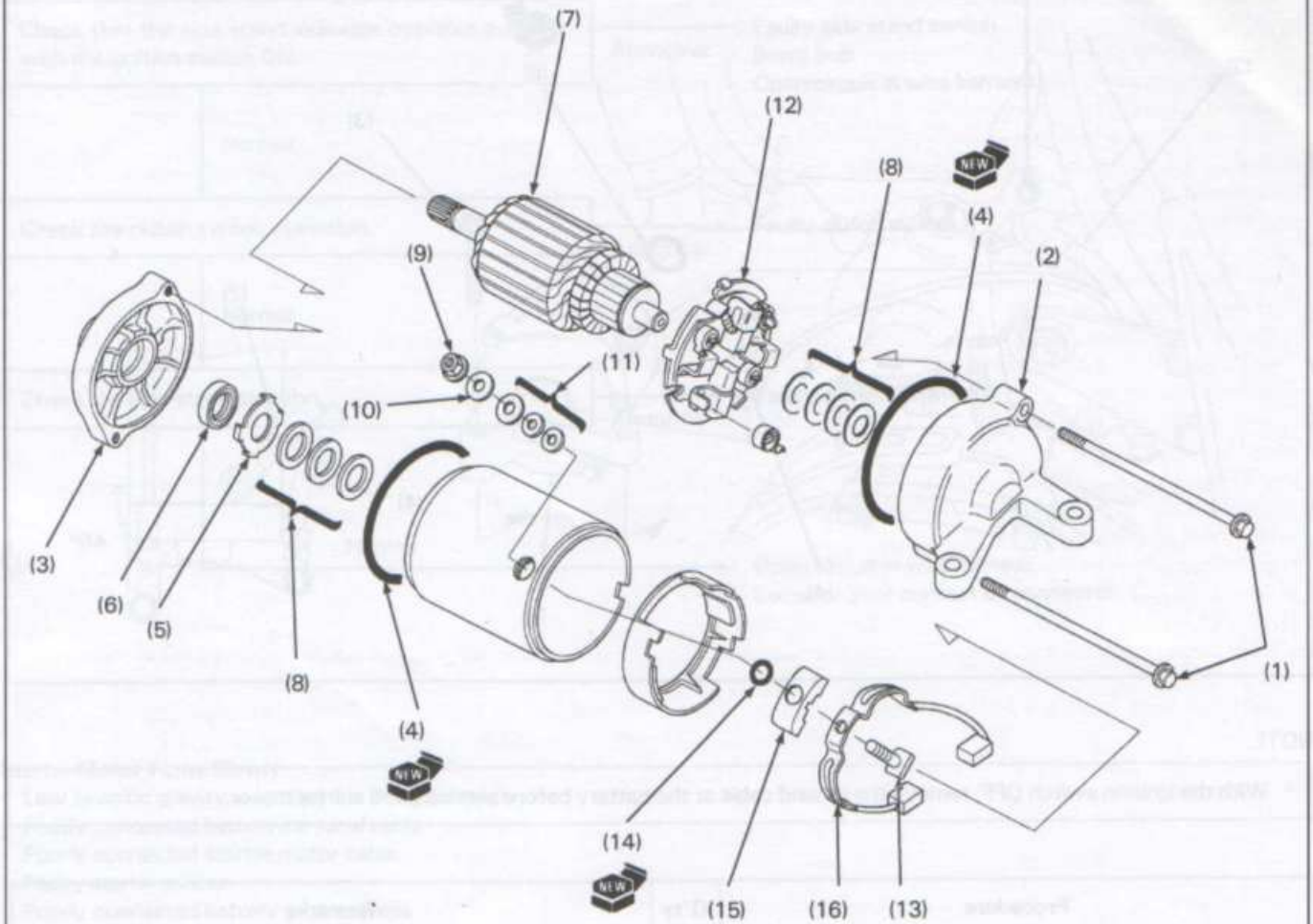


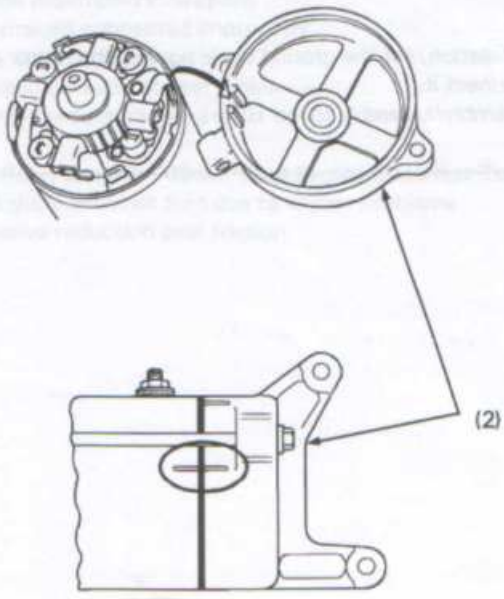
NOTE:

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

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Terminal nut	1	
(2)	Starter motor cable	1	
(3)	Starter motor mounting bolt	2	
(4)	Ground cable	1	At installation, set the ground cable against the motor case and connect it.
(5)	Starter motor assembly	1	Disassembly/assembly (page 16-6)
(6)	O-ring	1	

Starter Motor Disassembly/Assembly





Requisite Service

- Starter motor removal/installation (page 16-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Starter motor cover bolt	2	At installation, make sure the index lines on the rear cover and case are aligned.
(2)	Rear cover	1	At installation, align the holder plate tab with rear cover groove.
(3)	Front cover	1	
(4)	Packing	2	
(5)	Lock washer	1	
(6)	Dust seal	1	
(7)	Armature	1	
(8)	Shim	—	Record and store the shims in the same order they were installed so they can be reinstalled in the original positions.
(9)	Terminal nut	1	
(10)	Washer	1	
(11)	Insulator washer	3	
(12)	Brush holder assembly	1	
(13)	Terminal bolt	1	
(14)	O-ring	1	
(15)	Supporter	1	
(16)	Motor brush	1	

17. Lights/Meters/Switches

Service Information	17-1	Meter Removal/Installation	17-5
System Location	17-2	Meter Disassembly/Assembly	17-6
Headlight Removal/Installation	17-3	Tachometer Inspection	17-8
Turn Signal	17-4	Ignition Switch	17-8
Tail/Brake Light	17-4	Side Stand Switch	17-9
License Light	17-4		

Service Information

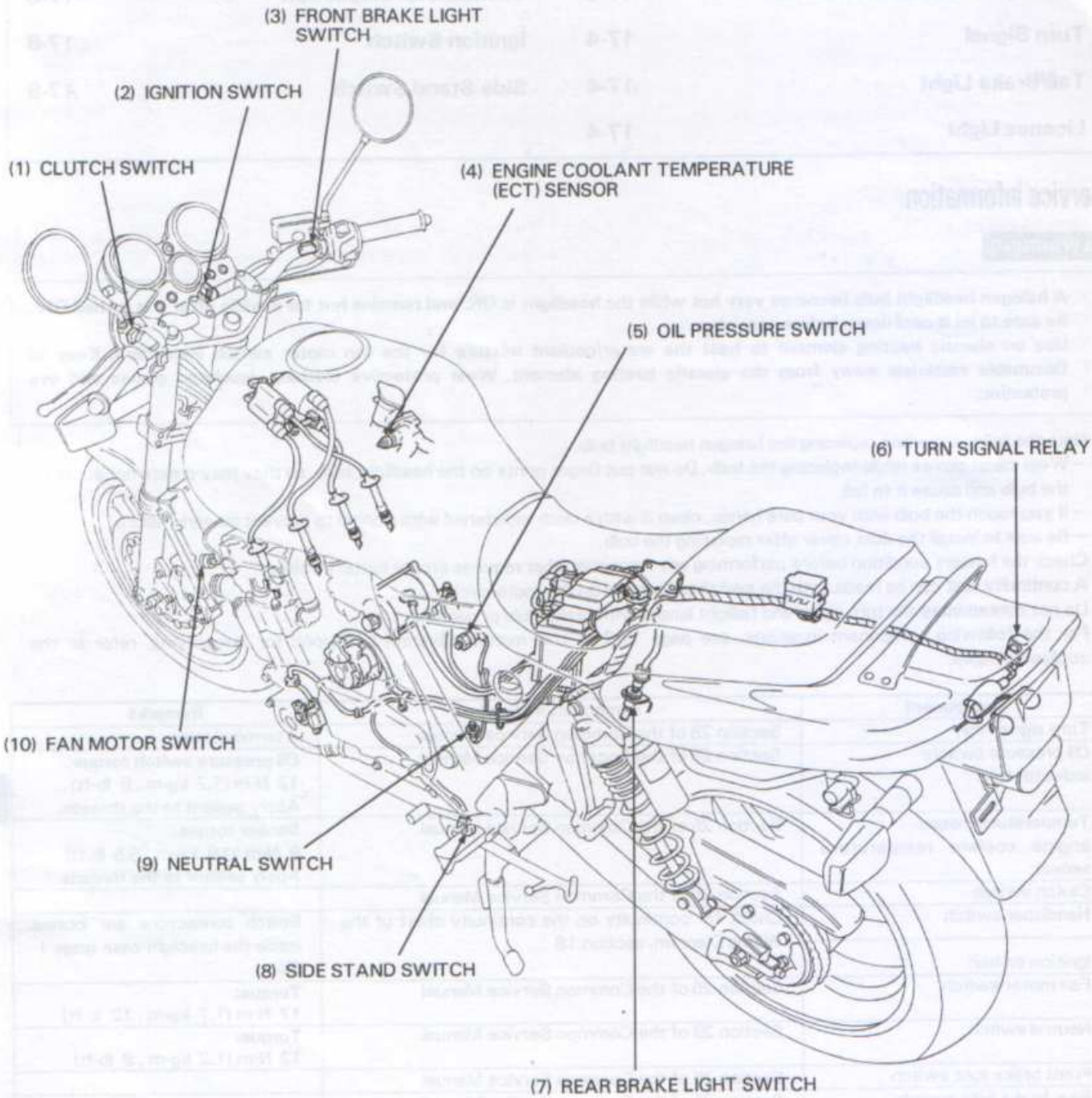
⚠WARNING

- **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 to heat the water/coolant mixture for the fan motor switch inspection. Keep all flammable materials away from the electric heating element. Wear protective clothing, insulated gloves and eye protection.**

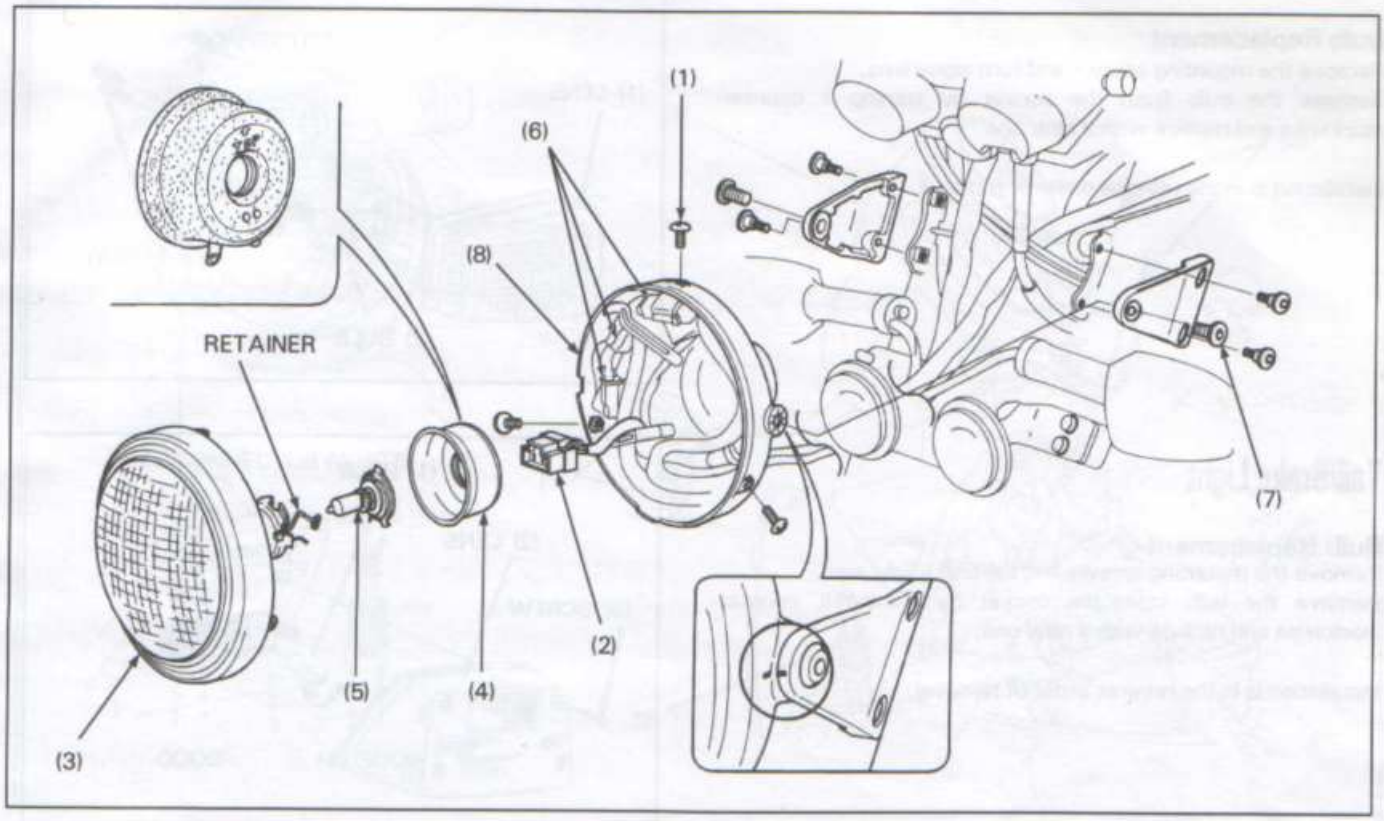
- Note the following when replacing the halogen headlight bulb.
  - —Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to fail.
  - —If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
  - —Be sure to install the dust cover after replacing the bulb.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
- Do not contaminate the turn signal and taillight lenses with brake fluid or gasoline.
- For the following component locations, see page 17-2 of this manual (System Location); for inspections, refer to the applicable pages.

Component	Inspection method	Remarks
Turn signal relay	Section 25 of the Common Service Manual	3 terminal relay
Oil pressure switch/ indicator light	Section 25 of the Common Service Manual	**Oil pressure switch torque:** 12 N·m (1.2 kg-m , 9 lb-ft) Apply sealant to the threads.
Temperature meter/ engine coolant temperature sensor	Section 25 of the Common Service Manual	**Sensor torque:** 9 N·m (0.9 kg-m , 6.5 lb-ft) Apply sealant to the threads.
Clutch switch	Section 25 of the Common Service Manual	
Handlebar switch	Check for continuity on the continuity chart of the Wiring Diagram, section 18	Switch connections are located inside the headlight case (page 1-23).
Ignition switch		
Fan motor switch	Section 25 of the Common Service Manual	**Torque:** 17 N·m (1.7 kg-m , 12 lb-ft)
Neutral switch	Section 25 of the Common Service Manual	**Torque:** 12 N·m (1.2 kg-m , 9 lb-ft)
Front brake light switch	Section 25 of the Common Service Manual	
Rear brake light switch	Section 25 of the Common Service Manual	
Horn	Section 25 of the Common Service Manual	
Side stand switch/indicator	Section 25 of the Common Service Manual	

System Location



Headlight Removal/Installation



⚠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.**

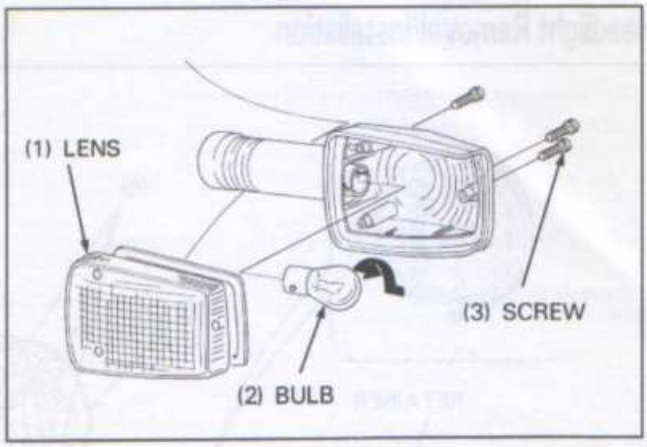
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	3	
(2)	Headlight bulb socket	1	
(3)	Headlight assembly	1	
(4)	Dust cover	1	At installation, install with the "TOP" mark facing up.
(5)	Headlight bulb	1	Release the bulb retainer.
(6)	Connector	—	Connection (page 1-23)
(7)	Headlight case bolt	2	
(8)	Headlight case	1	At installation, align the index marks on the case and headlight stay.

Turn Signal

Bulb Replacement

Remove the mounting screws and turn signal lens.
Remove the bulb from the socket by turning it counter-clockwise and replace with a new one.

Installation is in the reverse order of removal.

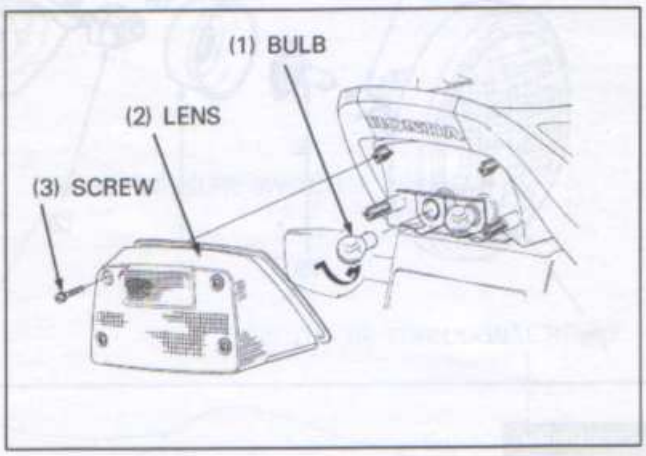


Tail/Brake Light

Bulb Replacement

Remove the mounting screws and tail/brake light lens.
Remove the bulb from the socket by turning it counter-clockwise and replace with a new one.

Installation is in the reverse order of removal.

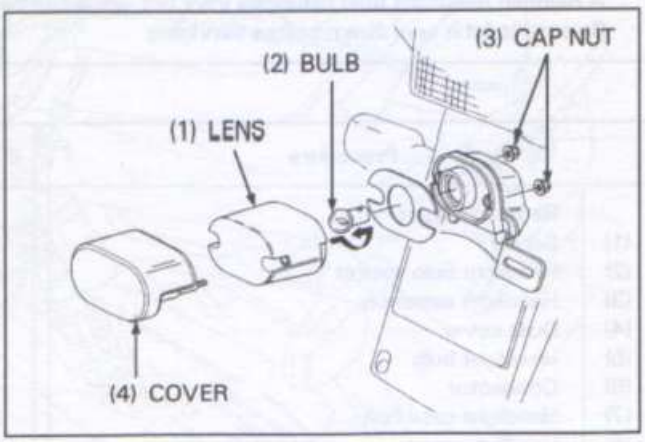


License Light

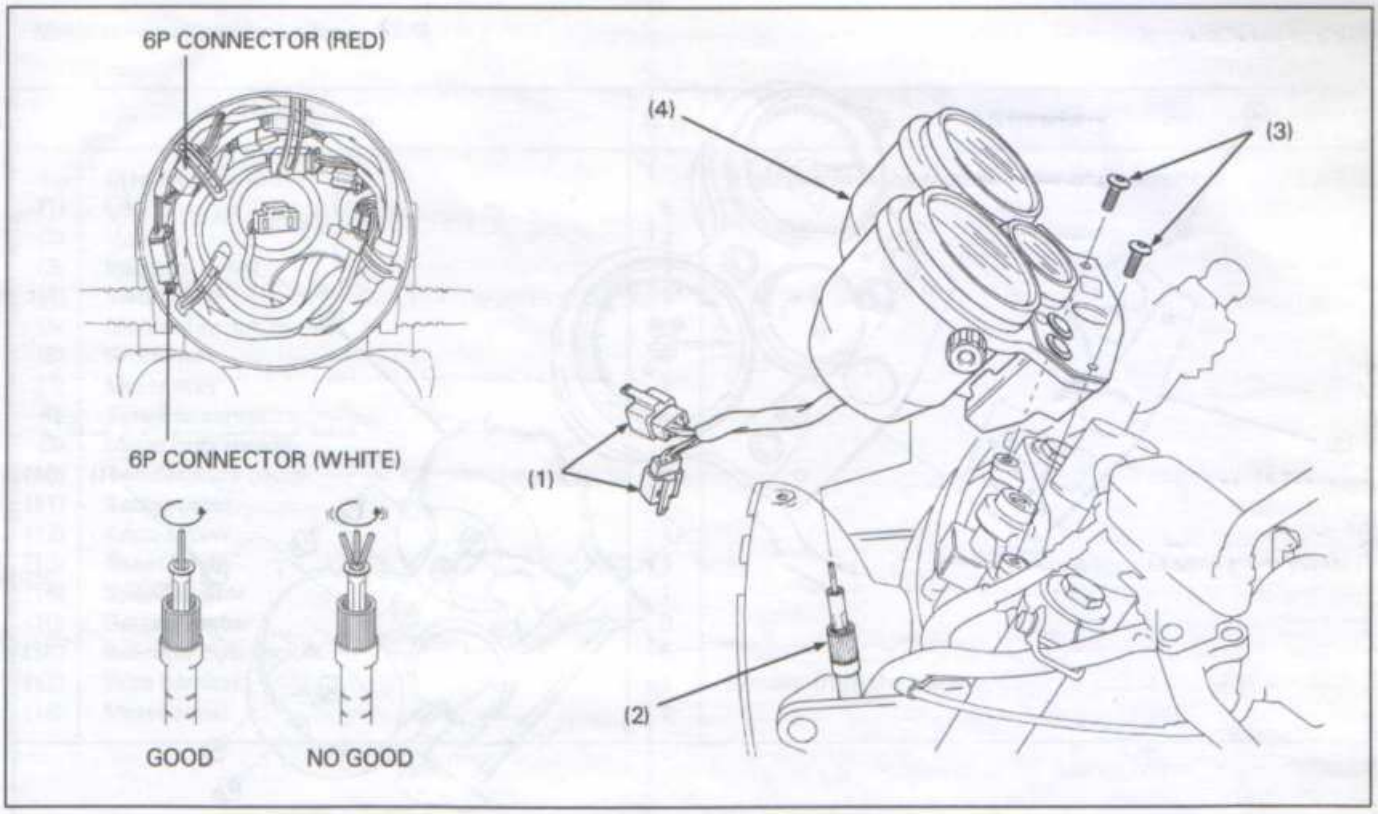
Bulb Replacement

Remove the cap nuts, cover and license light lens.
Remove the bulb from the socket by turning it counter-clockwise and replace with a new one.

Installation is in the reverse order of removal



Meter Removal/Installation

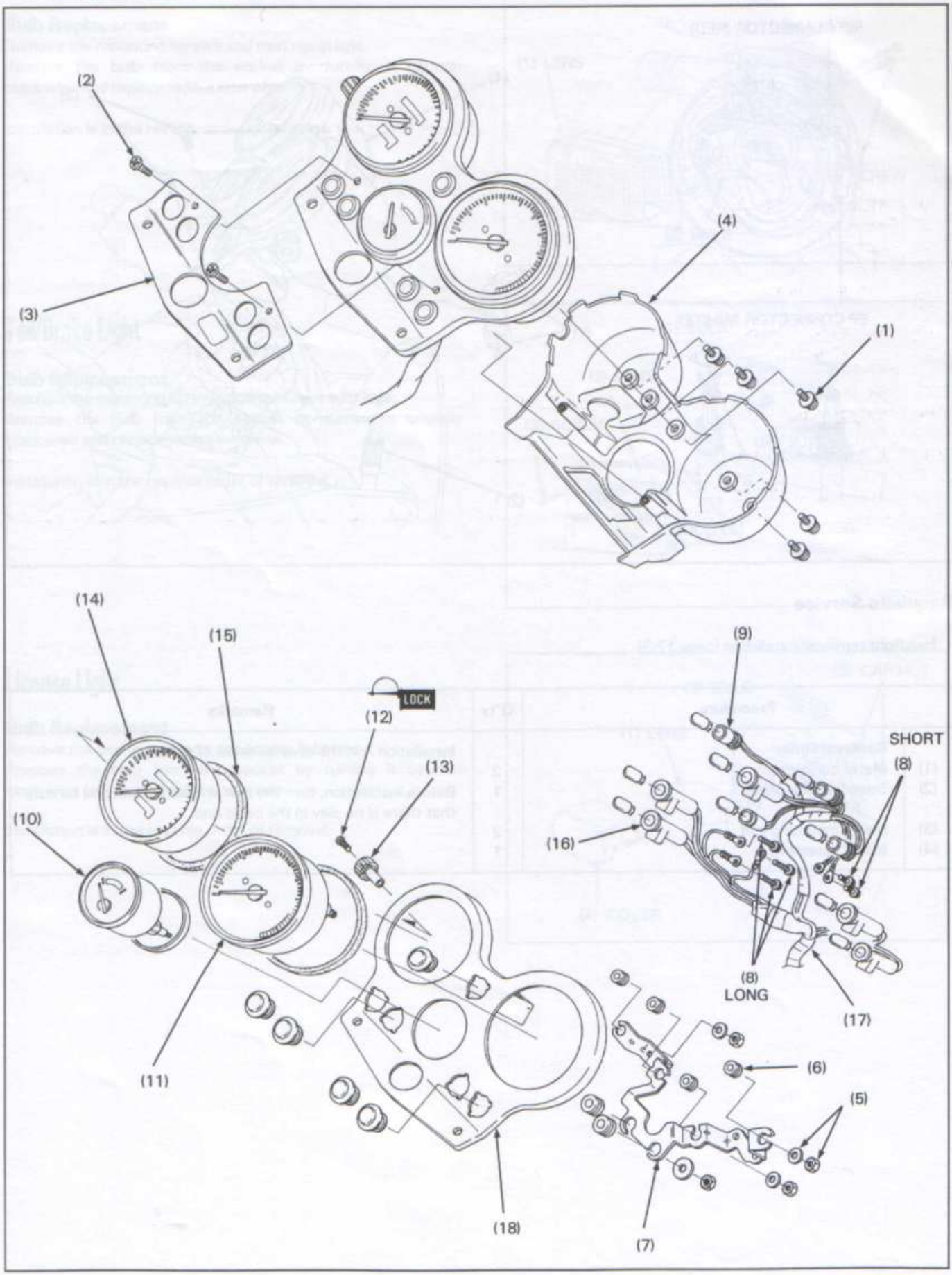


Requisite Service

- Headlight removal/installation (page 17-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Meter connector	2	
(2)	Speedometer cable	1	Before installation, turn the rear wheel by hand and be sure that there is no play in the cable end.
(3)	Meter mounting bolt	2	
(4)	Meter assembly	1	

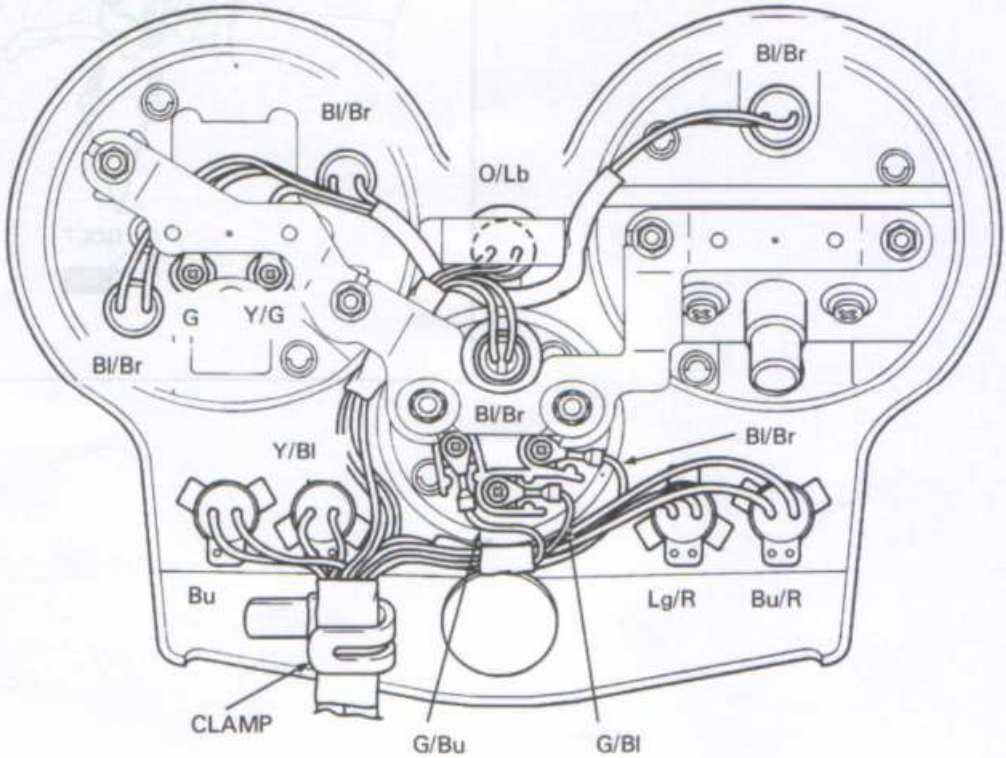
Meter Disassembly/Assembly



Requisite Service

- Meter removal/installation (page 17-5)

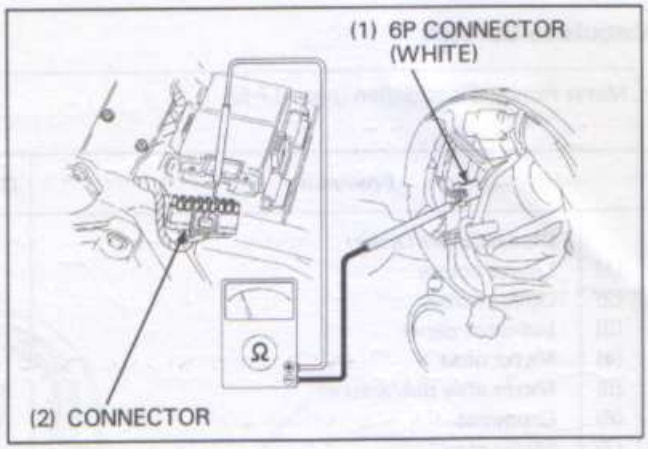
	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Lower screw	5	
(2)	Upper screw	2	
(3)	Indicator panel	1	
(4)	Meter case	1	
(5)	Meter stay nut/washer	6/6	
(6)	Grommet	6	
(7)	Meter stay	1	
(8)	Terminal screw	5	
(9)	Meter bulb socket	4	
(10)	Temperature gauge	1	
(11)	Tachometer	1	
(12)	Knob screw	1	
(13)	Reset knob	1	
(14)	Speedometer	1	
(15)	Setting rubber	3	
(16)	Indicator bulb socket	5	
(17)	Wire harness	1	Release from the clamp.
(18)	Meter panel	1	



Tachometer Inspection

Remove the seat (page 2-2) and headlight (page 17-3).
Disconnect the ignition control module connector and 6P meter connector (white).

Check for continuity between the Yellow/Green wire terminals of the connectors.
Continuity exists at all times.
If there is no continuity, replace the wire harness.
If there is continuity, replace the tachometer.



Ignition Switch

Removal

Remove the headlight case (page 17-3).
Remove the bolts and ignition switch.

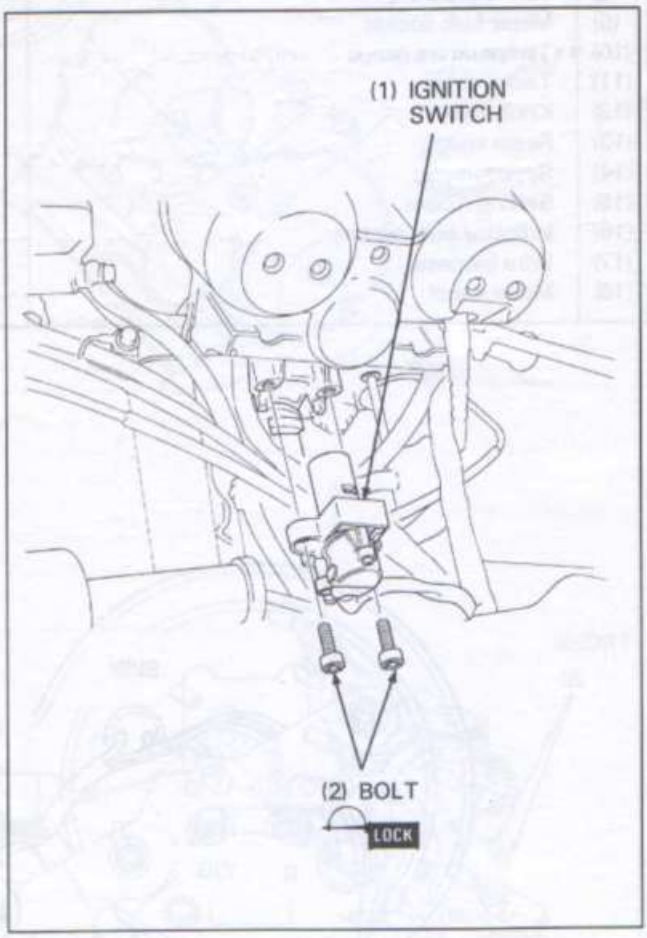
5 TOOL

Torx bit (T40) **07703—0010100**

Installation

Apply a locking agent to the threads and install the ignition switch in the reverse order of removal.

Torque: 24 N·m (2.4 kg-m , 17 lb-ft)



Side Stand Switch

Removal

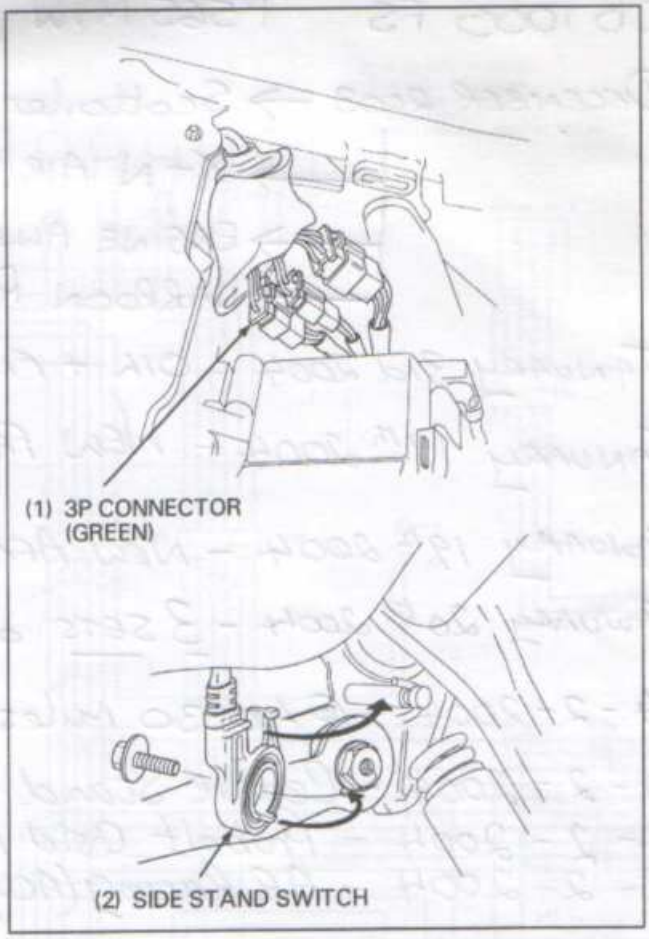
Remove the seat (page 2-2) and disconnect the side stand switch 3P connector (green).
Place the motorcycle on its center stand and retract the side stand.
Remove the bolt and side stand switch.

Installation

Install the side stand switch aligning the switch pin with the side stand hole and aligning the switch groove with the side stand return spring holding pin.
Secure the side stand switch with the bolt.

Torque: 10 N·m (1.0 kg-m , 7 lb-ft)

Install the removed parts in the reverse order of removal.



18. Wiring Diagram

1. SIDE STAND INDICATOR 12V3.4W
2. HIGH BEAM INDICATOR 12V1.7W
3. NEUTRAL INDICATOR 12V3.4W
4. OIL PRESSURE INDICATOR 12V3.4W
5. RIGHT/LEFT TURN SIGNAL INDICATOR 12V3.4W

A. 10A FAN MOTOR
B. 10A HEADLIGHT
C. 15A TURN,STOP,HORN, LICENSE ,METER, TAILLIGHT
D. 10A IGNITION,STARTER

METER LIGHT
12V1.7Wx2
TACHOMETER
UNIT
12V1.4Wx1
COOLANT TEMPERATURE GAUGE
SPEEDOMETER
12V3.4Wx1
INDICATOR
IGNITION SWITCH
FUSE BOX
STARTER RELAY SWITCH
STARTER MOTOR
MAIN FUSE 30A
BATTERY 12V10AH
THERMO SENSOR
REAR BRAKE LIGHT SWITCH
TURN SIGNAL RELAY
RIGHT REAR TURN SIGNAL 12V32CP
BRAKE AND TAILLIGHT 12V32/3CPx2
LEFT REAR TURN SIGNAL 12V32CP
LICENSE LIGHT 12V3CP
RIGHT FRONT TURN SIGNAL 12V32/3CP
LEFT FRONT TURN SIGNAL 12V32/3CP
HEADLIGHT 12V60/55W
HORN
FAN MOTOR
THERMOSTATIC SWITCH
FRONT BRAKE LIGHT SWITCH
DIODE
SIDE STAND SWITCH
REGULATOR/RECTIFIER
ALTERNATOR
CLUTCH SWITCH
TURN SIGNAL DIMMER HORN SWITCH
ENGINE STOP/STARTER SWITCH
IGNITION COIL
IGNITION CONTROL MODULE
IGNITION PULSE GENERATOR
NEUTRAL SWITCH
OIL PRESSURE SWITCH

B ..... BLACK
Y ..... YELLOW
Bu ..... BLUE
G ..... GREEN
R ..... RED
W ..... WHITE
Br ..... BROWN
O ..... ORANGE
Lb ..... LIGHT BLUE
Lg ..... LIGHT GREEN
P ..... PINK
Gr ..... GRAY

SWITCH CONTINUITY

TURN SIGNAL SWITCH

	W	R	L	BAT3	PR	PL
R	○				○	
N					○	○
L	○		○		○	

HORN SWITCH

	HO	BAT3
FREE		
PUSH	○	○

DIMMER SWITCH

	HL	LO	HI
LO	○		
IN	○	○	
HI		○	

ENGINE STOP SWITCH

	IG	BAT2
OFF		
RUN	○	○

STARTER SWITCH

	ST	IG	HL	BAT2
FREE			○	○
PUSH	○	○		

IGNITION SWITCH

	BAT	IG	FAN
ON	○	○	○
OFF			
LOCK			

0030Z–MZ1–7700

19. Troubleshooting

Engine Does Not Start Or Is Hard To Start	19-1	Poor Performance At High Speed	19-4
Engine Lacks Power	19-2	Poor Handling	19-4
Poor Performance At Low And Idle Speeds	19-3		

Engine Does Not Start Or Is Hard To Start

		Possible Cause
1. Check fuel flow to carburetors	Not Reaching Carburetors	· Clogged fuel tube or fuel strainer · Sticking float valve · Clogged fuel tank breather · Disconnected or faulty auto fuel valve vacuum tube
Reaching Carburetors ↓		
2. Perform a spark test	Weak or No Spark	· Faulty spark plugs · Fouled spark plugs · Faulty ignition control module · Broken or shorted spark plug wires · 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. Test cylinder compression	Low Compression	· Improper valve clearance · Valve stuck open · Worn cylinder and piston rings · Damaged cylinder head gasket · Seized valve · Improper valve timing · Improper valve and seat contact
Compression Normal ↓		
4. Start by following normal procedure	Engine Starts But Stops	· Improper choke operation · Carburetor incorrectly adjusted · Intake pipe leaking · Improper ignition timing (Faulty ignition control module or ignition pulse generator) · Fuel contaminated
Engine Does Not Fire ↓		
5. Remove and inspect spark plug	Wet Plug	· Carburetor flooded · Choke closed · Throttle valve open · Air cleaner dirty

Engine Lacks Power

		Possible Cause
1. Raise wheels off ground and spin by hand	Wheels Do Not Spin Freely	· Brake dragging · Worn or damaged wheel bearings · Wheel bearings need lubrication · Drive chain too tight · Axle nut excessively tight
Wheels Spin Freely		
2. Check tire pressure	Pressure Low	· Faulty tire valve
Pressure Normal		
3. Accelerate rapidly from low to second	Engine Speed Not Changed When Clutch is Released	· Clutch slipping · Worn clutch discs/plates · Warped clutch discs/plates · Weak clutch spring · Sticking clutch hydraulic system
Engine Speed Lowered When Clutch is Released		
4. Accelerate lightly	Engine Speed Does Not Increase	· Carburetor choke closed · Clogged air cleaner · Restricted fuel flow · Clogged muffler · Clogged fuel tank breather
Engine Speed Increases		
5. Check ignition timing	Incorrect	· Faulty ignition control module · Faulty ignition pulse generator
Correct		
6. Check valve clearance	Incorrect	· Improper valve adjustment · Worn valve seat
Correct		
7. Test cylinder compression	Too Low	· Valve stuck open · Worn cylinder and piston rings · Leaking head gasket · Improper valve timing · Seized valve · Improper valve and seat contact
Normal		
8. Check carburetor for clogging	Clogged	· Carburetor not serviced frequently enough
Not Clogged		
9. Remove spark plug	Fouled or Discolored	· Plugs not serviced frequently enough · Spark plugs are incorrect heat range
Not Fouled or Discolored		
10. Check oil level and condition	Incorrect	· Oil level too high · Oil level too low · Contaminated oil
Correct		
11. Remove cylinder head cover and inspect lubrication	Valve Train Not Lubricated Properly	· Clogged oil passage · Clogged oil control orifice · Faulty oil pump
Valve Train Lubricated Properly		

		Possible Cause
12. Check for engine overheating	Overheating	· Coolant level low · Fan motor not working (Faulty fan motor switch) · Thermostat stuck closed · Excessive carbon build-up in combustion chamber · Use of poor quality fuel · Clutch slipping · Lean fuel mixture
Not Overheating		
13. 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 ignition timing and valve clearance	Incorrect	· Improper valve clearance · Improper ignition timing — Faulty ignition control module — Faulty ignition pulse generator
Correct		
2. Check carburetor pilot screw adjustment	Incorrect	· See Fuel System Section
Correct		
3. Check for leaking intake pipe	Leaking	· Loose insulator clamps · Damaged insulator
No Leak		
4. 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 wires · Faulty engine stop switch · Faulty ignition pulse generator · Faulty ignition switch · Loose or disconnected ignition system wires
Good Spark		

Poor Performance At High Speed

		Possible Cause
1. Check ignition timing and valve clearance	Incorrect	· Improper valve clearance · Faulty ignition control module · Faulty ignition pulse generator
Correct ↓		
2. Disconnect fuel tube at carburetor	Fuel Flow Restricted	· Clogged fuel line · Clogged fuel tank breather · Clogged fuel filter · Fuel tank empty · Clogged fuel valve
Fuel Flows Freely ↓		
3. Remove carburetor and check for clogged jets	Clogged	· Clean
Not Clogged ↓		
4. Check valve timing	Incorrect	· Cam sprocket not installed properly
Correct ↓		
5. Check valve spring	Weak	· Faulty spring
Not weakened		

Poor Handling → · Check tire pressure

	Possible Cause
1. If steering is heavy	· Steering head bearing adjustment nut too tight · Damaged steering head bearings · Bent steering stem
2. If either wheel is wobbling	· Excessive wheel bearing play · Bent rim · Swingarm pivot bearing excessively worn · Bent frame
3. If the motorcycle pulls to one side	· Incorrect drive chain adjustment · Front and rear wheels not aligned · Bent fork legs · Bent swingarm · Bent frame

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