

Introduction

This service manual describes the service procedures for the CB250.

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 Motorcycle/Motor Scooter/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)
E	U.K.
U	Australia

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 17 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 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 18 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.

HONDA MOTOR CO., LTD.
SERVICE PUBLICATION OFFICE

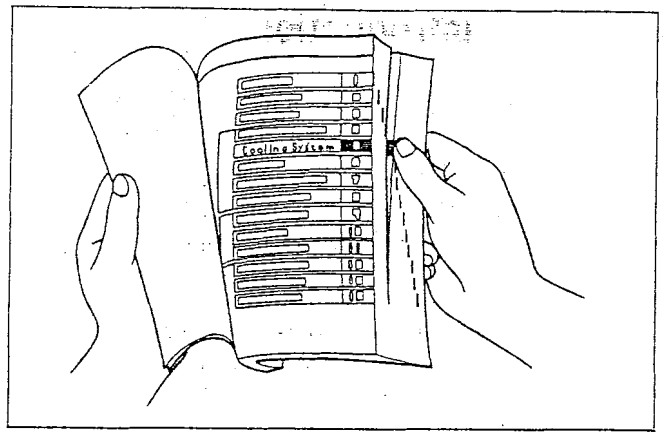
Contents

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

How To Use This Manual

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.



Understanding The Instructions

- 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 removal/installed, the name of the part, and some extra notes that may be needed.
- Step by step instructions are provided to supplement the illustrations when detailed explanation of the procedure is necessary or illustrations alone would not suffice.
- Standard workshop procedures and knowledge covered in the Common Service Manual are abbreviated in this manual.

System illustration

Symbols

Detailed description of the procedure

Remove Lower Joint Removal

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

NOTE:

1. Install the compression support against the spring and between the rear springs.

Tools:

Shock absorber compressor: 87036 - 0018008
 Compression attachment: 87967 - 1189100

Compress the shock spring with the shock absorber compressor. Rotate the back nut and remove the lower joint.

CAUTION:

1. Do not compress the spring more than necessary.

Remove the shock absorber compressor slowly and remove the shock absorber and attachment.

Remove Lower Joint Installation

Hold the spring parts and spring on the damper unit.

Install the shock absorber compressor on the shock absorber with the attachment and compress the shock spring.

Tools:

Shock absorber compressor: 87036 - 0018008
 Compression attachment: 87967 - 1189100

Install the damper nut on the damper rod.

Screw the lock nut on the damper rod. Periodic duty. Apply a locking agent on the damper rod threads.

Screw the lower joint on the damper rod tube.

Torque the lock nut to the specified torque.

Torque: 33 Inch-CLD Lbs-in. 14 Nm

NOTE:

1. Install the compression support against the spring and between the rear springs.

Step sequence (numerals or alphabets)

Assembly Service

1. From which number removal/installation table 11-7

Procedure	Qty	Remarks
(1) Compression Order Shock absorber lower joint	1	Assemble in the reverse order of disassembly. Compress the shock absorber spring with the special lock system (the lock nut and torque the lower joint). At installation, apply a locking agent on the damper rod threads.
(2) Damper rod lock nut	1	At installation, equal the spring with the rear end side spring arms.
(3) Lower joint	1	
(4) Spring	1	
(5) Spring shaft	1	
(6) Damper unit assembly	1	

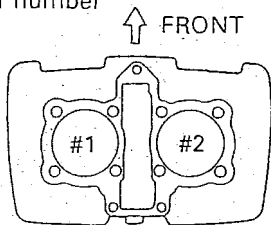
Part name

Number of parts

Extra notes or precautions related to the service procedure

Specifications

General		
	Item	Specifications
Dimensions	Overall length Overall width Overall height Wheel base Seat height Footpeg height Ground clearance Dry weight Curb weight Maximum weight capacity	2,090 mm (82.3 in) 755 mm (29.7 in) 1,090 mm (42.9 in) 1,425 mm (56.1 in) 755 mm (29.7 in) 306 mm (12.0 in) 165 mm (6.5 in) 132 kg (291 lbs) 146 kg (322 lbs) 160 kg (352 lbs)
Frame	Frame type Front suspension Front wheel travel Rear suspension Rear wheel travel Rear damper Front tire size Rear tire size Tire brand (Bridgestone) Tire brand (Dunlop) Tire brand (Yokohama) Tire brand (IRC) Tire brand (Pirelli) Front brake Rear brake Caster angle Trail length Fuel tank capacity Fuel tank reserve capacity	Diamond Telescopic fork 123 mm (4.8 in) Swingarm 110 mm (4.3 in) Conventional type oil damper 90/100 - 18 54S 120/90 - 16 63S FR/RR FR/RR K300MA/K327AG FR/RR FR/RR FR/RR MT65/MT65 Hydraulic single disc Mechanical leading/trailing shoe 28°30' 109 mm (4.3 in) 16 ℓ (4.2 US gal, 3.5 Imp gal) 3 ℓ (0.8 US gal, 0.7 Imp gal)
Engine	Bore and stroke Displacement Compression ratio Valve train Intake valve opens (at 1 mm lift) Intake valve closes (at 1 mm lift) Exhaust valve opens (at 1 mm lift) Exhaust valve closes (at 1 mm lift) Lubrication system Oil pump type Cooling system Air filtration Crankshaft type Engine weight Firing order Cylinder arrangement Cylinder number	53 x 53 mm (2.1 x 2.1 in) 234 cm ³ (14.3 cu-in) 9.2 : 1 Chain drive and OHC with rocker arm - 5° BTDC 35° ABDC 35° BBDC - 5° ATDC Forced pressure and wet sump Trochoid Air cooled Paper filter Assembled type 38.5 kg (84.9 lbs) Vertical twin, parallel

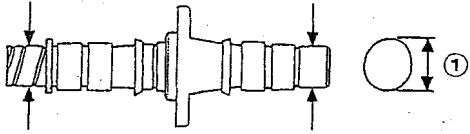


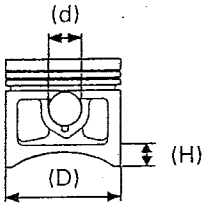
General (Cont'd)

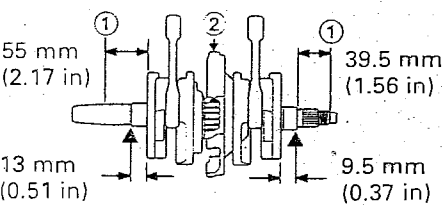
	Item	Specifications
Carburetor	Carburetor type Throttled bore	Constant Velocity single carburetor 26 mm (1.0 in)
Drive Train	Clutch system Clutch operation system Transmission Primary reduction Secondary reduction Third reduction Final reduction Gear ratio 1st Gear ratio 2nd Gear ratio 3rd Gear ratio 4th Gear ratio 5th Gear ratio 6th Gear ratio reverse Gearshift pattern	Multi-plate, wet Mechanical type 5 speeds 3.631 (69/19) _____ 2.214 (31/14) 2.846 (37/13) 1.777 (32/18) 1.333 (28/21) 1.083 (26/24) 0.913 (21/23) _____ _____ Left foot operated, return system, 1 - N - 2 - 3 - 4 - 5
Electrical	Ignition system Starting system Charging system Regulator/rectifier type Lighting system AC regulator type	CDI Electric starter Tripple phase output type SCR shorted tripple phase, full-wave rectification Alternator _____

Unit: mm (in)

Cylinder Head

Item	Standard	Service Limit
Cylinder compression {kPa (kgf/cm ² , psi)/500 – 600 min ⁻¹ (rpm)}	1,373 – 1,471 (14 – 15, 199 – 213)	785 (8, 114)
Cylinder compression difference {kPa (kgf/cm ² , psi)/500 – 600 min ⁻¹ (rpm)}	98 (1, 14)	_____
Valve clearance IN EX	0.06 – 0.10 (0.002 – 0.004) 0.06 – 0.10 (0.002 – 0.004)	_____
Cylinder head warpage	_____	0.10 (0.004)
Cam lobe height ① IN EX	27.383 – 27.543 (1.0781 – 1.0844) 27.209 – 27.369 (1.0712 – 1.0775)	27.2 (1.07) 27.0 (1.06)
Camshaft runout	_____	0.05 (0.002)
Camshaft oil clearance A B	_____	_____
		
Camshaft journal O.D. A B	19.967 – 19.980 (0.7861 – 0.7866)	19.92 (0.784)
Camshaft bushing I.D.	20.063 – 20.083 (0.7899 – 0.7907)	20.20 (0.795)
Camshaft holder I.D. A B	_____	_____
Valve stem O.D. IN EX	5.450 – 5.465 (0.2146 – 0.2152) 5.430 – 5.445 (0.2138 – 0.2144)	5.42 (0.213) 5.40 (0.213)
Valve guide I.D. IN EX	5.475 – 5.485 (0.2156 – 0.2159) 5.475 – 5.485 (0.2156 – 0.2159)	5.50 (0.217) 5.50 (0.217)
Stem-to-guide clearance IN EX	0.010 – 0.035 (0.0004 – 0.0014) 0.030 – 0.055 (0.0012 – 0.0022)	0.08 (0.003) 0.10 (0.004)
Valve guide projection above cylinder head IN EX	_____	_____
Before guide installation:		
1. Chill the valve guides in the freezer section of the refrigerator for about an hour		
2. Heat the cylinder head to 100 – 150°C (212 – 300°F)		
Valve seat width	1.0 – 1.1 (0.039 – 0.043)	1.8 (0.07)
Valve spring free length IN EX	_____	_____
inner IN	29.9 (1.18)	29.0 (1.14)
inner EX	29.9 (1.18)	29.0 (1.14)
outer IN	38.2 (1.50)	37.0 (1.46)
outer EX	38.2 (1.50)	37.0 (1.46)
Rocker arm I.D. IN EX	10.000 – 10.015 (0.3937 – 0.3943) 10.000 – 10.015 (0.3937 – 0.3943)	10.10 (0.398) 10.10 (0.398)
Sub-rocker arm I.D. IN EX	_____	_____
Rocker arm shaft O.D. IN EX	9.978 – 9.987 (0.3928 – 0.3932) 9.978 – 9.987 (0.3928 – 0.3932)	9.91 (0.390) 9.91 (0.390)
Sub-rocker arm shaft O.D. IN EX	_____	_____
Rocker arm-to-rocker arm shaft clearance	0.013 – 0.037 (0.0005 – 0.0015)	0.05 (0.002)
Sub-rocker arm-to-rocker arm shaft clearance	_____	_____
Valve lifter O.D.	_____	_____
Valve lifter bore I.D.	_____	_____
Hydraulic lash adjuster assist spring free length	_____	_____
Hydraulic lash adjuster compression stroke with kerosene	_____	_____

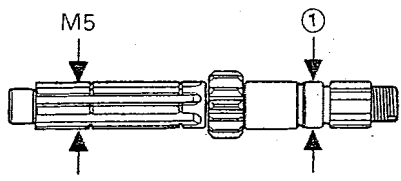
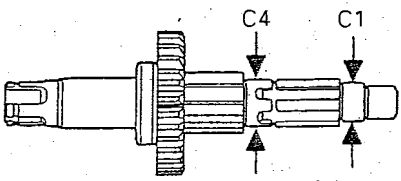
Cylinder/Piston	Item	Standard	Service Limit	
	Cylinder I.D.	53.000 – 53.010 (2.0866 – 2.0870)	53.10 (2.091)	
	out of round	_____	0.05 (0.002)	
	taper	_____	0.05 (0.002)	
	warpage	_____	0.05 (0.002)	
	Piston mark direction	"IN" mark facing toward the intake side	_____	_____
	Piston O.D. (D)	52.970 – 52.990 (2.0854 – 2.0862)	52.90 (2.083)	
	Piston O.D. measurement point (H)	10 mm (0.4 in) from the bottom	_____	_____
	Piston pin hole I.D. (d)	15.002 – 15.008 (0.5906 – 0.5909)	15.05 (0.593)	
	Cylinder-to-piston clearance	0.010 – 0.040 (0.0004 – 0.0016)	0.10 (0.004)	
	Piston pin O.D.	14.994 – 15.000 (0.5903 – 0.5906)	14.98 (0.590)	
Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	0.07 (0.003)		
Connecting rod-to-piston pin clearance	0.016 – 0.040 (0.0006 – 0.0016)	0.10 (0.004)		
Top ring-to-ring groove clearance	0.015 – 0.040 (0.0006 – 0.0016)	0.10 (0.004)		
Second ring-to-ring groove clearance	0.015 – 0.040 (0.0006 – 0.0016)	0.10 (0.004)		
Top ring end gap	0.15 – 0.30 (0.006 – 0.012)	0.45 (0.018)		
Second ring end gap	0.30 – 0.45 (0.012 – 0.018)	0.60 (0.024)		
Oil ring (side rail) end gap	0.2 – 0.7 (0.01 – 0.03)	0.90 (0.036)		
Top ring mark	"N" mark side facing up	_____	_____	
Second ring mark	"N" mark side facing up	_____	_____	

Crankshaft	Item	Standard	Service Limit
	Connecting rod small end I.D.	15.016 – 15.034 (0.5912 – 0.5919)	15.08 (0.594)
	Connecting rod big end side clearance	0.10 – 0.40 (0.004 – 0.016)	0.6 (0.02)
	radial clearance	0.004 – 0.012 (0.0002 – 0.0005)	0.05 (0.002)
	Crankshaft runout (at both ends) ①	_____	0.03 (0.001)
	(at bearing holder) ②	_____	0.05 (0.002)
Crank pin oil clearance	_____	_____	
Crank pin bearing selection	_____	_____	
Main journal oil clearance	_____	_____	
Main journal bearing selection	_____	_____	

Kickstarter	Item	Standard	Service Limit
Kickstarter pinion gear I.D.	_____	_____	_____
Kickstarter spindle O.D.	_____	_____	_____
Kickstarter idle gear I.D.	_____	_____	_____
Countershaft O.D. at kickstarter idle gear	_____	_____	_____
Kickstarter idle gear bushing O.D.	_____	_____	_____
I.D.	_____	_____	_____

Unit: mm (in)

Transmission

Item	Standard	Service Limit
Transmission gear I.D. M5 C1 C4	20.020 - 20.041 (0.7882 - 0.7890) 20.020 - 20.041 (0.7882 - 0.7890) 20.020 - 20.041 (0.7882 - 0.7890)	20.08 (0.791) 20.08 (0.791) 20.08 (0.791)
Transmission gear bushing O.D. C1	19.979 - 20.000 (0.7866 - 0.7874)	19.93 (0.785)
Transmission gear bushing I.D. C1	16.516 - 16.534 (0.6502 - 0.6509)	16.58 (0.653)
Gear-to-bushing clearance at C1 gear	0.020 - 0.062 (0.0008 - 0.0024)	0.10 (0.004)
Mainshaft O.D. at M5 gear at clutch outer guide ①	19.959 - 19.980 (0.7858 - 0.7866) 19.959 - 19.980 (0.7858 - 0.7866)	19.91 (0.784) 19.91 (0.784)
		
Countershaft O.D. at C1 gear at C4 gear	16.446 - 16.484 (0.6475 - 0.6490) 19.959 - 19.980 (0.7858 - 0.7866)	16.41 (0.646) 19.91 (0.784)
		
Gear-to-shaft clearance at M5 gear at C4 gear	0.040 - 0.082 (0.0016 - 0.0032) 0.040 - 0.082 (0.0016 - 0.0032)	0.10 (0.004) 0.10 (0.004)
Gear bushing-to-shaft clearance at C1 gear	0.032 - 0.068 (0.0013 - 0.0027)	0.10 (0.004)
Shift fork claw thickness L C R	4.93 - 5.00 (0.194 - 0.197) 4.93 - 5.00 (0.194 - 0.197) 4.93 - 5.00 (0.194 - 0.197)	4.80 (0.189) 4.80 (0.189) 4.80 (0.189)
Shift fork I.D. L C R	12.000 - 12.018 (0.4724 - 0.4731) 12.000 - 12.018 (0.4724 - 0.4731) 12.000 - 12.018 (0.4724 - 0.4731)	12.05 (0.474) 12.05 (0.474) 12.05 (0.474)
Shift fork shaft O.D. L C R	11.976 - 11.994 (0.4715 - 0.4722) 11.976 - 11.994 (0.4715 - 0.4722) 11.976 - 11.994 (0.4715 - 0.4722)	11.93 (0.470) 11.93 (0.470) 11.93 (0.470)
Shift drum O.D.	11.976 - 11.994 (0.4715 - 0.4722)	11.93 (0.470)

Clutch System	Item	Standard	Service Limit
	Clutch lever free play	10 - 20 (3/8 - 3/4)	_____
	Recommended clutch fluid	_____	_____
	Clutch master cylinder I.D.	_____	_____
	Clutch master piston O.D.	_____	_____
	Clutch outer I.D.	26.000 - 26.012 (1.0236 - 1.0241)	26.04 (1.025)
	Clutch outer guide O.D.	25.959 - 25.980 (1.0220 - 1.0228)	25.90 (1.020)
	I.D.	20.000 - 20.021 (0.7874 - 0.7882)	20.05 (0.789)
	Mainshaft O.D. at clutch outer guide	_____	_____
	Clutch spring free height	_____	_____
	Clutch spring free length	37.8 (1.49)	36.0 (1.42)
	Clutch disc thickness	2.8 - 2.9 (0.11 - 0.15)	2.6 (0.10)
	Clutch disc thickness A	_____	_____
	B	_____	_____
	Clutch plate warpage	_____	0.20 (0.008)
	Centrifugal clutch drum I.D.	_____	_____
	bushing O.D.	_____	_____
	Centrifugal clutch center guide I.D.	_____	_____
	O.D.	_____	_____
	Centrifugal clutch center guide collar height	_____	_____
	Centrifugal clutch weight lining thickness	_____	_____
	Centrifugal clutch spring free length	_____	_____
	Clutch lining thickness	_____	_____
	Crankshaft O.D. at clutch center	_____	_____

Cooling System	Item	Standard	Service Limit
	Coolant capacity (Radiator and engine)	_____	_____
	(Reserve tank)	_____	_____
	Radiator cap relief pressure	_____	_____
	Thermostat begin to open	_____	_____
	Thermostat fully open	_____	_____
	Thermostat valve lift	_____	_____

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

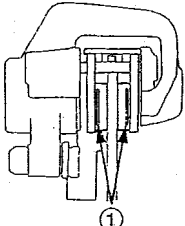
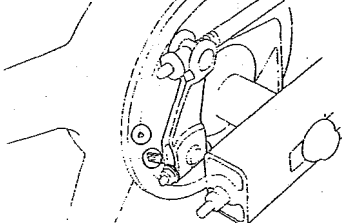
Unit: mm (in)

Wheels/Tires	Item	Standard	Service Limit
Minimum tire thread depth (FR)		_____	1.5 (0.06)
	(RR)	_____	2.0 (0.08)
Cold tire pressure	Up to 90 kg (200 lb) load (FR)	200 kPa (2.00 kgf/cm ² , 29 psi)	_____
	Up to 90 kg (200 lb) load (RR)	200 kPa (2.00 kgf/cm ² , 29 psi)	_____
	Up to maximum weight capacity (FR)	200 kPa (2.00 kgf/cm ² , 29 psi)	_____
	Up to maximum weight capacity (RR)	200 kPa (2.00 kgf/cm ² , 29 psi)	_____
Front and rear axle runout	_____	0.2 (0.01)	
Front and rear wheel rim runout (Radial)		_____	2.0 (0.08)
	(Axial)	_____	2.0 (0.08)
Front wheel hub-to-rim distance	_____	_____	
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	20 - 30 (3/4 - 1-1/4)	_____	
Drive chain size/link (DID)		520VC.6-106LE	_____
	(RK)	520MO-Z9-106LE	_____

Front Suspension	Item	Standard	Service Limit
Fork spring free length	_____	_____	_____
Fork spring free length A		59.7 (2.35)	58 (2.3)
	B	488.7 (19.24)	479 (18.86)
Fork spring direction	Tightly wound coil facing down	_____	_____
Fork tube runout	_____	0.2 (0.01)	
Recommended fork oil	Fork fluid	_____	
Fork oil level	162 (6.4)	_____	
Fork oil level (R)		_____	_____
	(L)	_____	_____
Fork oil capacity	150 cm ³ (5.1 US oz, 5.3 Imp oz)	_____	
Fork oil capacity (R)		_____	_____
	(L)	_____	_____
Fork air pressure	_____	_____	
Steering bearing preload	0.1 - 0.15 kgf-m	_____	

Rear Suspension	Item	Standard	Service Limit
Shock absorber spring free length	_____	_____	_____
Shock absorber spring free length (A)		_____	_____
	(B)	_____	_____
Damper gas pressure	_____	_____	
Damper compressed gas	_____	_____	
Damper rod compressed force at 10 mm (0.4 in) compressed	_____	_____	
Damper drilling point	_____	_____	
Shock absorber spring installed length		_____	_____
	(Standard)	_____	_____
	(Adjustable range)	_____	_____
Shock absorber spring adjuster standard position	2nd groove	_____	
Shock absorber spring direction	_____	_____	
Recommended shock absorber oil	_____	_____	
Shock absorber oil capacity		_____	_____
	air pressure	_____	_____

Brakes

Item	Standard	Service Limit
Front brake fluid brake lever free play brake pad wear indicator	DOT 3 or DOT 4 10 - 20 (3/8 - 3/4)	_____ _____ To the groove ①
		
brake disc thickness	4.0 (0.16)	3.5 (0.14)
brake disc runout	_____	0.30 (0.012)
master cylinder I.D.	11.0 - 11.043 (0.4331 - 0.4348)	11.05 (0.435)
master piston O.D.	10.957 - 10.984 (0.4314 - 0.4324)	10.95 (0.431)
caliper cylinder I.D.	27.000 - 27.050 (1.0630 - 1.0650)	27.06 (1.065)
caliper cylinder I.D. (Upper) (Lower)	_____ _____	_____ _____
caliper piston O.D.	26.918 - 26.968 (1.0598 - 1.0617)	26.91 (1.059)
caliper piston O.D. (Upper) (Lower)	_____ _____	_____ _____
brake drum I.D.	_____	_____
brake lining thickness	_____	_____
Rear brake fluid	_____	_____
brake pedal height	_____	_____
brake pedal free play	20 - 30 (3/4 - 1-1/4)	_____
brake pad wear indicator	_____	_____
		
brake disc thickness	_____	_____
brake disc runout	_____	_____
master cylinder I.D.	_____	_____
master piston O.D.	_____	_____
caliper cylinder I.D.	_____	_____
caliper piston O.D.	_____	_____
brake drum I.D.	130 (5.1)	131 (5.2)
brake lining thickness	4.0 (0.16)	2.0 (0.08)

Battery/Charging System

Alternator charging coil resistance (At 20°C/68°F)	0.2 - 0.6 Ω	_____
Regulator/rectifier regulated voltage/amperage	13.5 - 14.0 V/1 A	_____
Battery capacity	12 V - 6 Ah	_____
Battery specific gravity (Fully charging) (Needs charging)	_____ _____	_____ _____
Battery charging rate (Normal) (Quick)	0.6 A/10 h 3 A/1.0 h	_____ _____
Battery voltage (Fully charged 20°C/68°F) (Needs charging 20°C/68°F)	13 - 13.2 V Below 12.3 V	_____ _____
Alternator lighting coil resistance (At 20°C/68°F)	_____	_____
AC regulator regulated voltage (With analog type) (With digital type)	_____ _____	_____ _____

Unit: mm (in)

Starting System

Item	Standard	Service Limit
Starter driven sprocket I.D.	22.010 – 22.022 (0.8665 – 0.8670)	22.08 (0.869)
Starter driven sprocket boss O.D.	36.975 – 37.000 (1.4557 – 1.4567)	36.90 (1.453)
Starter driven gear I.D.	_____	_____
Starter clutch outer I.D.	_____	_____
Starter motor brush spring tension	780 – 1,060 g	450 g
brush length	12.5 – 13.0 (0.49 – 0.51)	8.5 (0.33)

Ignition System

Spark plug (Standard)	CR6HSA (NGK)	_____
	U20FSR-U (NIPPONDENSO)	_____
(For cold climate/below 5°C/41°F)	CR5HSA (NGK)	_____
	U16FSR-U (NIPPONDENSO)	_____
(For extended high speed riding)	CR7HSA (NGK)	_____
	U22FSR-U (NIPPONDENSO)	_____
Spark plug gap	0.60 – 0.70 (0.024 – 0.028)	_____
Ignition timing "F" mark	10°BTDC/1,500 min ⁻¹ (rpm)	_____
Advance start	10°/1,700 min ⁻¹ (rpm)	_____
stop	25°/3,000 min ⁻¹ (rpm)	_____
Full advance	25°/3,000 min ⁻¹ (rpm)	_____
Peak voltage Ignition coil (Primary side)	100 V minimum	_____
Exciter coil	100 V minimum	_____
Pulse generator coil	0.7 V minimum	_____
Alternator exciter coil resistance (At 20°C/68°F)	50 – 180 Ω	_____
Ignition coil resistance (Primary: at 20°C/68°F)	0.1 – 0.3 Ω	_____
(Secondary with plug cap)	6.5 – 9.7 kΩ	_____
(Secondary without plug cap)	2.8 – 3.4 kΩ	_____
Pulse generator resistance (At 20°C/68°F)	50 – 170 Ω	_____

Lights/Meters/Switches

Main fuse	20 A	_____
Fuse	10 A x 2	_____
Headlight (high/low beam)	12 V – 45/40 W	_____
Tail/brake light	12 V – 5/21 W	_____
License light	_____	_____
Position light	12 V – 4 W (E type only)	_____
Front turn signal/running light	_____	_____
Front turn signal light	12 V – 21 W x 2	_____
Rear turn signal light	12 V – 21 W x 2	_____
Instrument lights	12 V – 3.4 W x 2	_____
Oil pressure warning indicator	_____	_____
Tail/brake light warning indicator	_____	_____
Side stand warning indicator	12 V – 1.7 W	_____
Low fuel indicator	_____	_____
Coolant temperature indicator	_____	_____
Oil temperature indicator	_____	_____
High beam indicator	12 V – 3.4 W	_____
Turn signal indicator	12 V – 3.4 W x 2	_____
Neutral indicator	12 V – 3.4 W	_____
Reverse indicator	_____	_____
Overdrive indicator	_____	_____
Oil temperature sensor resistance	_____	_____
Fuel unit resistance (At full level)	_____	_____
(At low level)	_____	_____
Fuel pump flow capacity (min./minute)	_____	_____
Coolant temperature sensor resistance (At °C/°F)	_____	_____
Fan motor switch starts (ON)	_____	_____
stops (OFF)	_____	_____

Torque Values

Standard			
Fastener Type	Torque N-m (kgf-m, lb-ft)	Fastener Type	Torque N-m (kgf-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	34 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex bolt and nut	54 (5.5, 40)	8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

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

- NOTE
1. Apply sealant to the threads.
 2. Apply a locking agent to the threads.
 3. Apply molybdenum disulfide oil to the threads and flange surface.
 4. Left hand threads.
 5. Stake.
 6. Apply oil to the threads and flange surface.
 7. Apply clean engine oil to the O-ring.
 8. Torque wrench scale reading using a special tool.
 9. Apply grease to the threads and flange surface.
 10. UBS bolt.
 11. U-nut.
 12. Alock bolt. Do not reuse.

Engine				
Item	Q'ty	Thread dia. (mm)	Torque N-m (kgf-m, lb-ft)	Remarks
Lubrication System:				
Oil pump mounting screw	3	6	10 (1.0, 7)	
Cylinder Head/Cylinder:				
Spark plug	2	10	12 (1.2, 9)	
Valve adjusting lock nut	4	5	10 (1.0, 7)	
Cylinder head/camshaft holder nut	8	8	23 (2.3, 17)	
Cylinder head bolt	3	6	12 (1.2, 9)	
Cam sprocket bolt	2	7	20 (2.0, 14)	Note 2
Cylinder head cover bolt	2	6	10 (1.0, 7)	
Clutch/Gearshift Linkage:				
Clutch lifter bolt	4	6	12 (1.2, 9)	
Clutch center lock nut	1	16	74 (7.6, 55)	Note 5, 6
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	
Gearshift return spring pin	1	8	25 (2.5, 18)	Note 2
Primary drive gear lock nut	1	16	53 (5.4, 39)	
Crankcase/Crankshaft:				
Drive sprocket bolt	2	6	12 (1.2, 9)	
Oil drain bolt	1	12	25 (2.5, 18)	
Crankshaft mounting bolt	5	8	23 (2.3, 17)	
Crankshaft mounting nut	1	6	12 (1.2, 9)	
Oil passage plate mounting screw	3	6	10 (1.0, 7)	Note 2
Starter Clutch/Alternator:				
Flywheel bolt	1	10	59 (6.0, 43)	
Starter clutch mounting screw	3	6	9 (0.9, 6.5)	Note 2, 5
Stator mounting screw	3	5	6 (0.6, 4.3)	
Stator wire clamp screw	1	5	6 (0.6, 4.3)	
Pulse generator mounting screw	2	6	10 (1.0, 7)	
Starter motor terminal nut	1	6	6 (0.6, 4.3)	

Frame	Item	Q'ty	Thread dia. (mm)	Torque N-m (kgf-m, lb-ft)	Remarks
Front Suspension:					
	Steering stem nut	1	22	74 (7.5, 54)	
	Steering stem adjustment nut	1	22	3 (0.3, 2.2)	
	Handlebar holder bolt	4	8	24 (2.4, 17)	
	Fork top bridge pinch nut	2	8	22 (2.2, 16)	Note 11
	Fork bottom bridge pinch bolt	2	8	24 (2.4, 17)	
	Steering lock mounting bolt	2	6	9 (0.9, 6.5)	Note 2
	Fork cap	2	27	23 (2.3, 17)	
	Fork socket bolt	2	8	20 (2.0, 14)	Note 2
Rear Suspension:					
	Swingarm pivot nut	1	14	59 (6.0, 43)	Note 11
	Rear shock absorber lower mounting bolt	2	10	42 (4.3, 31)	
Wheels:					
	Front axle nut	1	14	59 (6.0, 43)	Note 11
	Rear axle nut	1	14	59 (6.0, 43)	Note 11
	Brake arm torque link bolt	2	8	22 (2.2, 16)	
	Driven sprocket nut	4	10	44 (4.5, 33)	Note 11
Brake system:					
	Pad pin plug	1	8	3 (0.3, 2.2)	
	Pad pin	1	8	18 (1.8, 13)	
	Caliper pin bolt (bracket side)	1	8	13 (1.3, 9)	Note 2
	(caliper side)	1	8	23 (2.3, 17)	Note 2
	Caliper bleed valve	1	6	6 (0.6, 4.3)	
	Front caliper mounting bolt	2	10	30 (3.1, 22)	
	Brake disc bolt	4	8	42 (4.3, 31)	
	Master cylinder reservoir cap screw	2	4	2 (0.2, 1.4)	
	Brake hose oil bolt	2	10	34 (3.5, 25)	
	Brake lever pivot nut	1	6	6 (0.6, 4.3)	
	Rear brake arm pinch bolt	1	6	10 (1.0, 7)	
Other Fasteners:					
	Engine rear mounting bolt	2	10	83 (8.5, 61)	
	Exhaust pipe joint nut	4	6	14 (1.4, 10)	
	Side stand switch mounting bolt	1	6	29 (3.0, 22)	Note 12
	Side stand bracket bolt	2	8	36 (3.7, 27)	

Lubrication & Seal Points

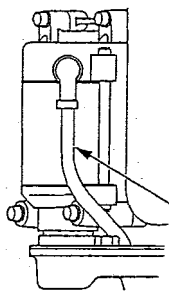
Engine		
Location	Material	Remarks
Rocker arm and shaft sliding surface Cam Chain Transmission gear teeth and bushings Piston pin hole Piston pin surface Connecting rod small end Each bearings Piston ring sliding surface Piston ring and ring groove Crankshaft big end Shift fork claw and pivot inner surface Shift drum Clutch discs Clutch center lock nut threads	Engine oil	
Valve stem (valve guide sliding surface) Valve guide (valve stem sliding surface) Camshaft bushing inner surface Cam lobes M3, 4 gear spline C1 gear, C1 bushing sliding surface M4, C3, C5 shift fork grooves	Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Oil passage plate screw threads	Locking agent	

Frame		
Location	Material	Remarks
Steering stem bearing Wheel bearing Brake lever pivot bolt surface Clutch lever pivot bolt surface Wheel bearing dust seal lips Wheel axle outer surface Handlebar (throttle grip sliding surface) Throttle cable end Side stand pivot surface Center stand pivot surface Dust seal lips	Multi-purpose grease	Apply thin coat of grease
Fork socket bolt	Locking agent	
Fork cap O-ring Fork oil seal lips	Fork fluid	
Handle grip	Honda Bond A or equivalent	

Cable & Harness Routing

(1) CARBURETOR HEATER CONNECTOR

(7) CARBURETOR HEATER WIRE



(6) STARTER MOTOR CABLE

(2) CARBURETOR HEATER WIRE

(3) SIDE STAND SWITCH WIRE

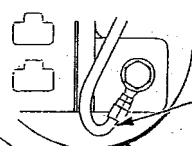
(4) ALTERNATOR WIRE

(5) PULSE GENERATOR WIRE

(15) PULSE GENERATOR CONNECTOR

(14) SIDE STAND SWITCH CONNECTOR

(8) GROUND CABLE



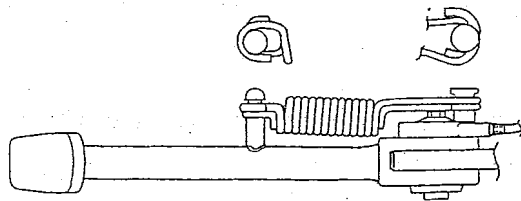
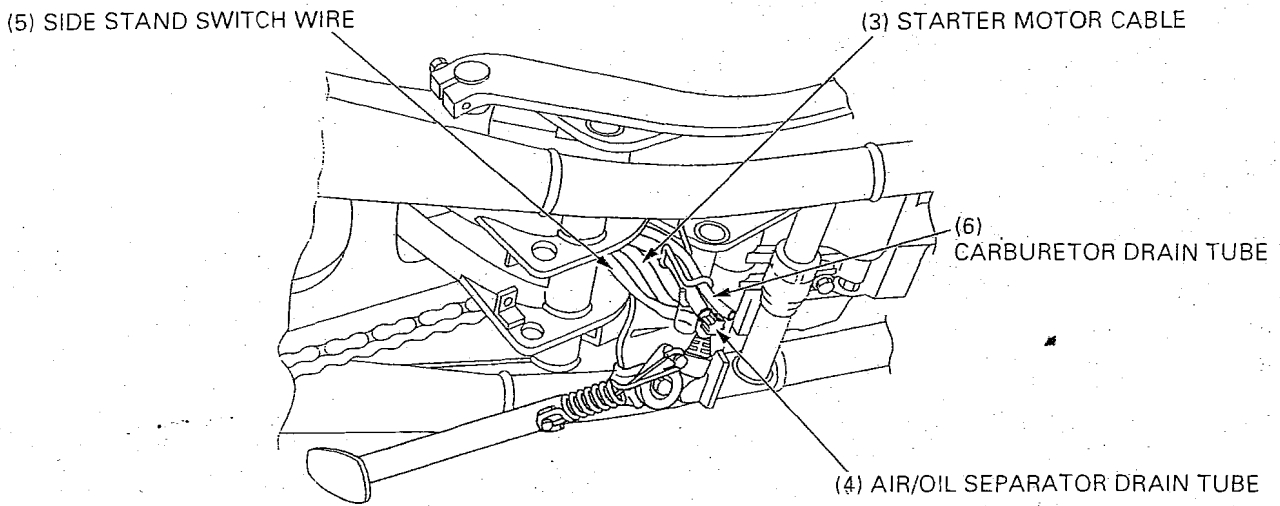
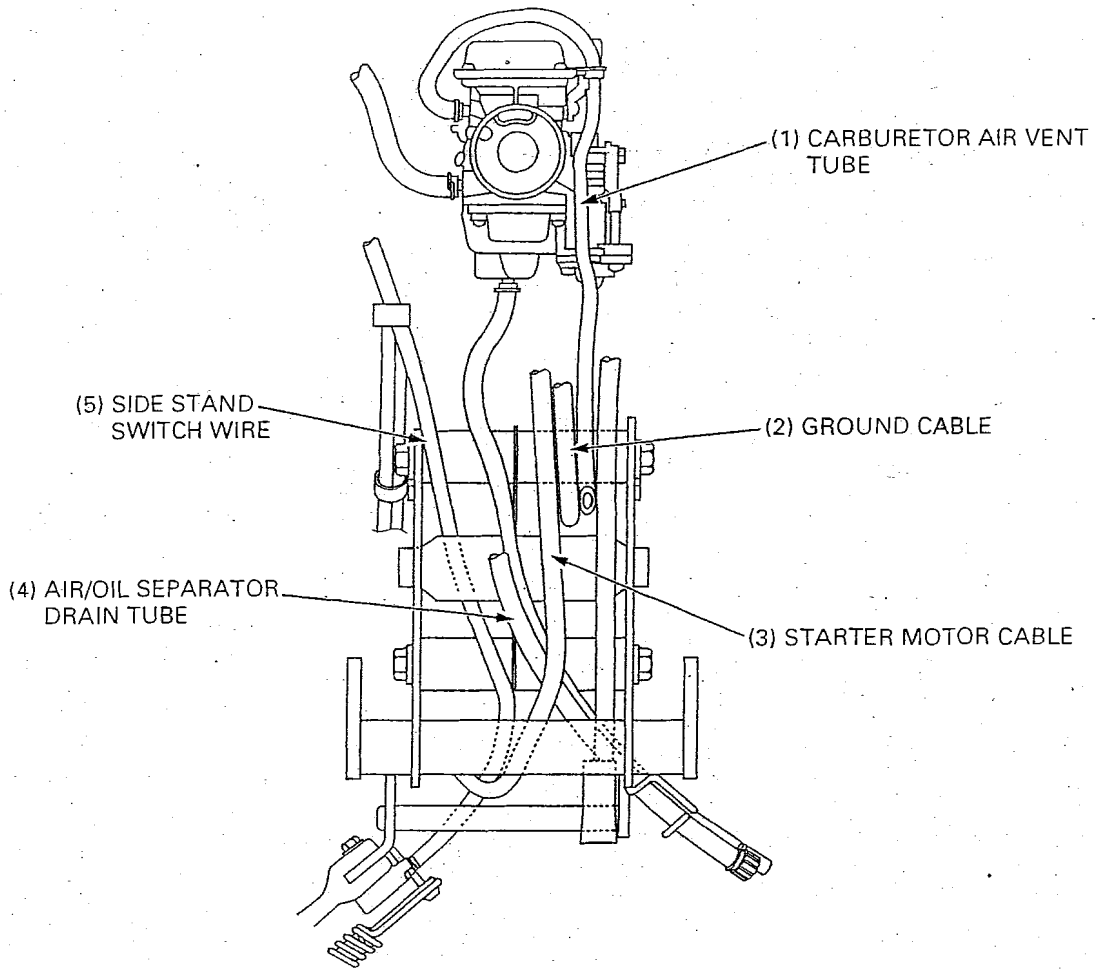
(9) CARBURETOR AIR VENT TUBE

(13) AIR CLEANER DRAIN TUBE

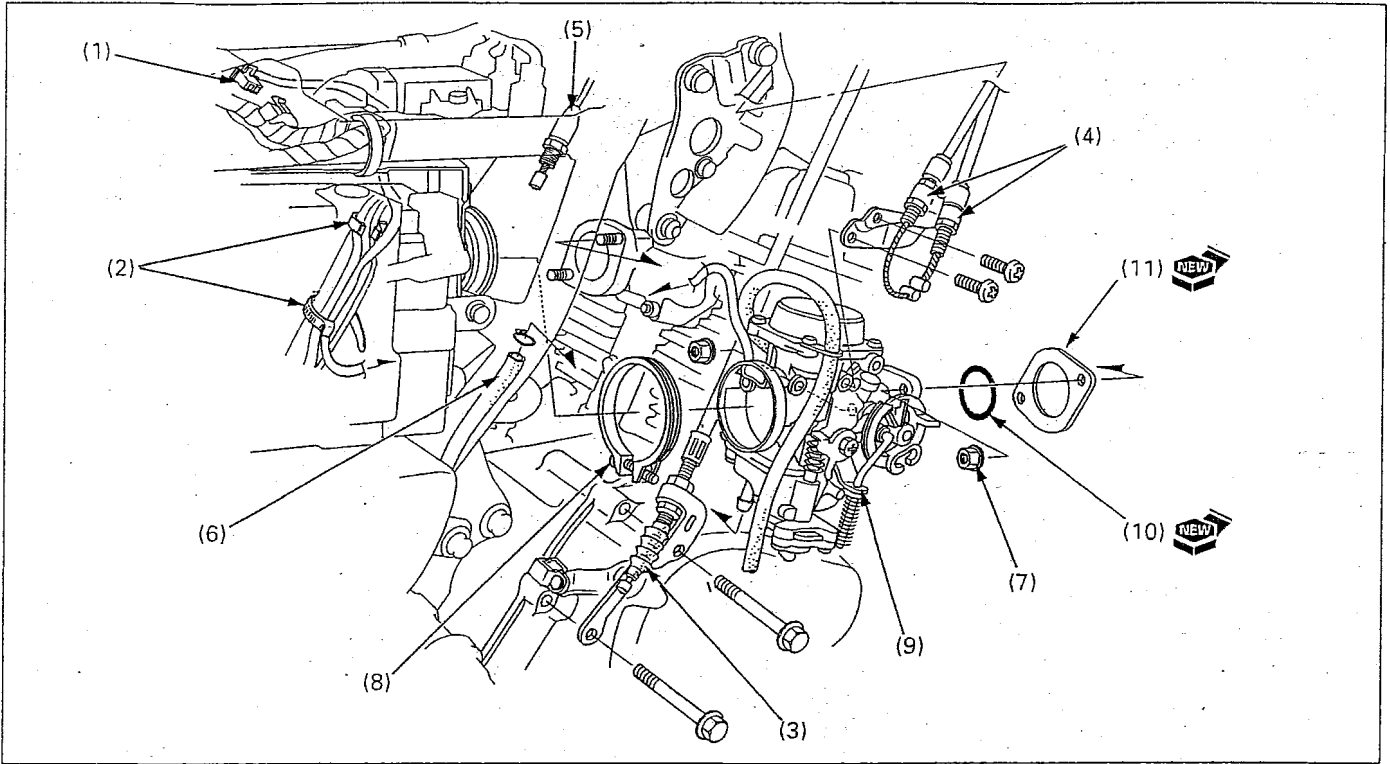
(10) GROUND CABLE

(12) AIR/OIL SEPARATOR DRAIN TUBE

(11) CARBURETOR DRAIN TUBE



Carburetor Removal/Installation



WARNING

• Gasoline is extremely flammable and is explosive under certain conditions.

• Work in well ventilated area. Smoking or allow flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.

NOTE

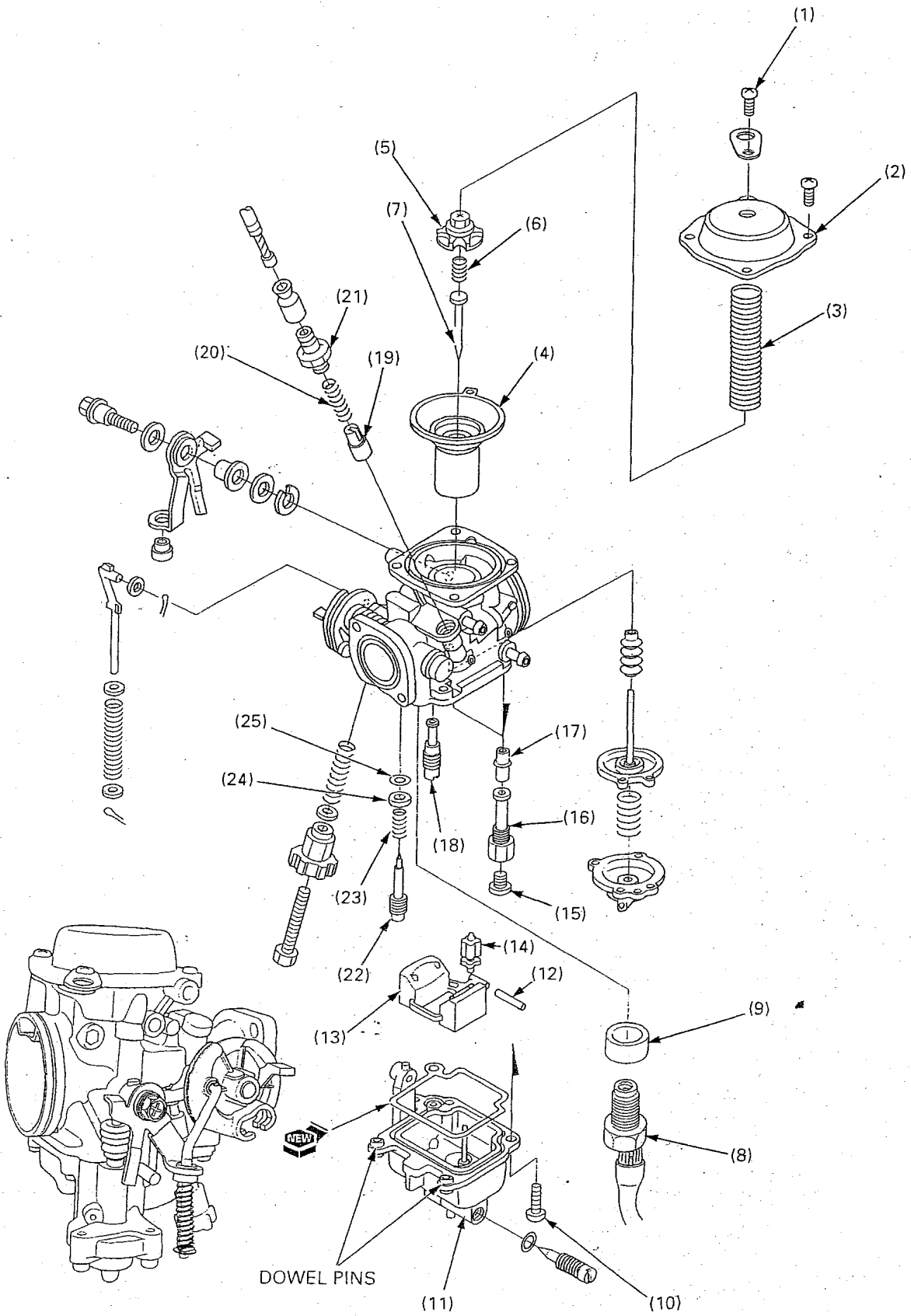
• Before removal, turn the fuel valve OFF.
 • Route the tubes and wires properly (page 19-15).

Requisite Service

- Rear fairing removal/installation (page 2-3)
- Fuel tank removal/installation (page 2-4)
- Carburetor draining

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Carburetor heater 2P connector	1	
(2) Wire band/Clump	1/1	
(3) Clutch cable	1	
(4) Throttle cables	2	
(5) Choke cable	1	
(6) Drain tube	1	
(7) Carburetor mounting nut	2	
(8) Connecting tube band screw	1	Only loosen.
(9) Carburetor assembly	1	
(10) O-ring	1	
(11) Gasket	1	

Carburetor Disassembly/Assembly



NOTE

- The pilot screw is factory pre-set and should not be removed unless the carburetor is overhauled. Turn the pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the pilot screw. If new pilot screw is installed, turn pilot screw out to the initial opening before making a pilot screw adjustment (page 19-20).

Requisite Service

- Carburetor removal/installation (page 19-17)

Procedure		Q'ty	Remarks
Vacuum Chamber Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Vacuum chamber cover screws	4	
(2)	Vacuum chamber cover	1	NOTE • At installation, hold the piston almost full open to avoid pinching the diaphragm with chamber.
(3)	Spring	1	
(4)	Diaphragm/vacuum piston	1	
(5)	Jet needle holder	1	
(6)	Spring	1	
(7)	Jet needle	1	
Float Chamber Disassembly Order			Assembly is in the reverse order of disassembly.
(8)	Carburetor heater	1	
(9)	Collar	1	
(10)	Float chamber cover screws	4	At installation, first tighten the two screws on the dowel pin side.
(11)	Float chamber	1	
(12)	Float pin	1	
(13)	Float	1	For float level of inspection, refer to the section 8 of the Common Service Manual.
(14)	Float valve	1	
(15)	Main jet	1	
(16)	Needle jet holder	1	
(17)	Needle jet	1	
(18)	Slow jet	1	
Bystarter Valve Disassembly Order			Assembly is in the reverse order of disassembly.
(19)	Bystarter valve	1	
(20)	Spring	1	
(21)	Valve nut	1	
Pilot screw Disassembly Order			Assembly is in the reverse order of disassembly.
(22)	Pilot screw	1	
(23)	Spring	1	
(24)	Washer	1	
(25)	O-ring	1	

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

- 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 min^{-1} (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.

CAUTION

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

Initial Opening: $1 - 5/8$ turns out

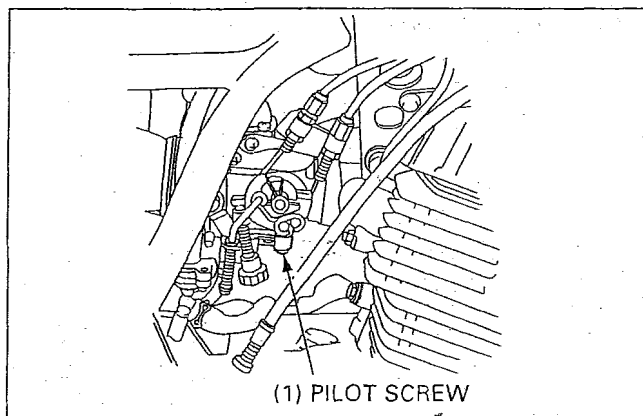
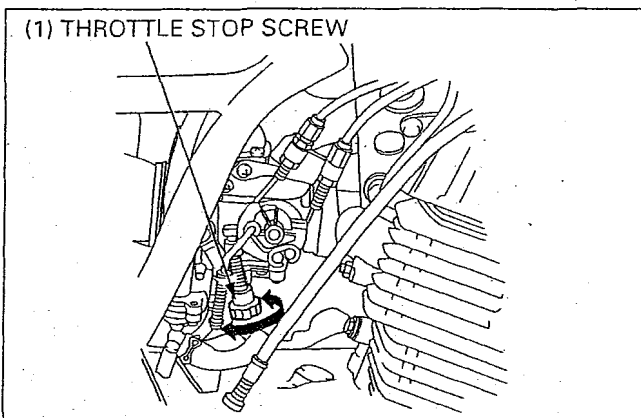
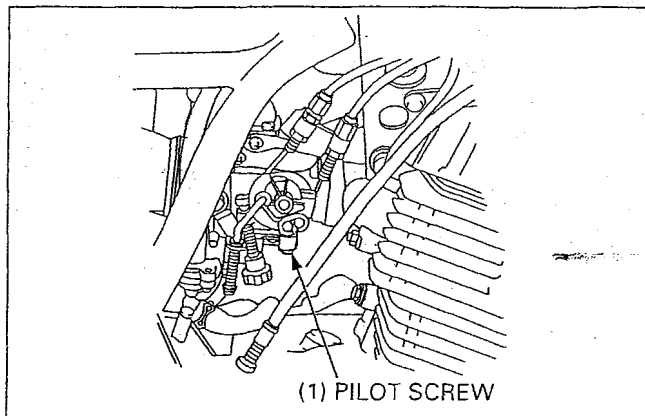
2. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
3. Attach a tachometer according to its manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop screw.

Idle Speed: $1,500 \pm 100 \text{ min}^{-1}$ (rpm)

5. Turn pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the pilot screw in gradually until the engine speed drops 50 min^{-1} (rpm).
8. Turn the pilot screw counterclockwise to the final opening from the position obtained in step 7.

Final Opening: $1/4$ turns out

9. Readjust the idle speed with the throttle stop screw.



Carburetor Heater

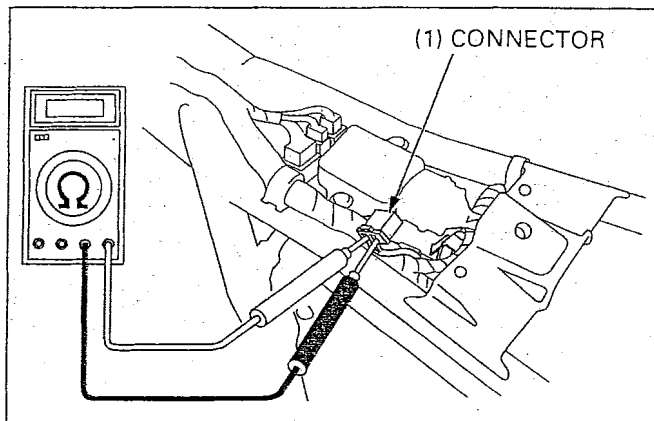
Carburetor Heater Inspection

Remove the fuel tank (page 2-4).

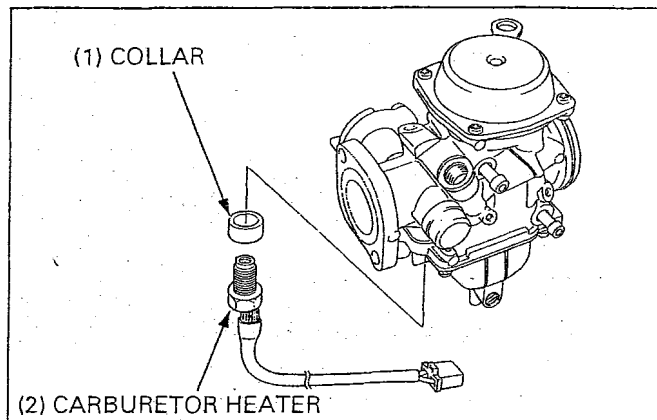
Disconnect the carburetor heater 2P connector.

Measure the resistance between the Brown/Black and Yellow/Brown terminals.

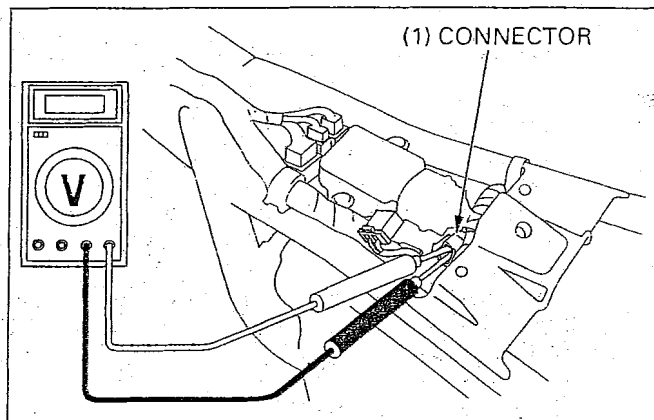
Standard: 13 – 15 Ω (20°C/68°F)



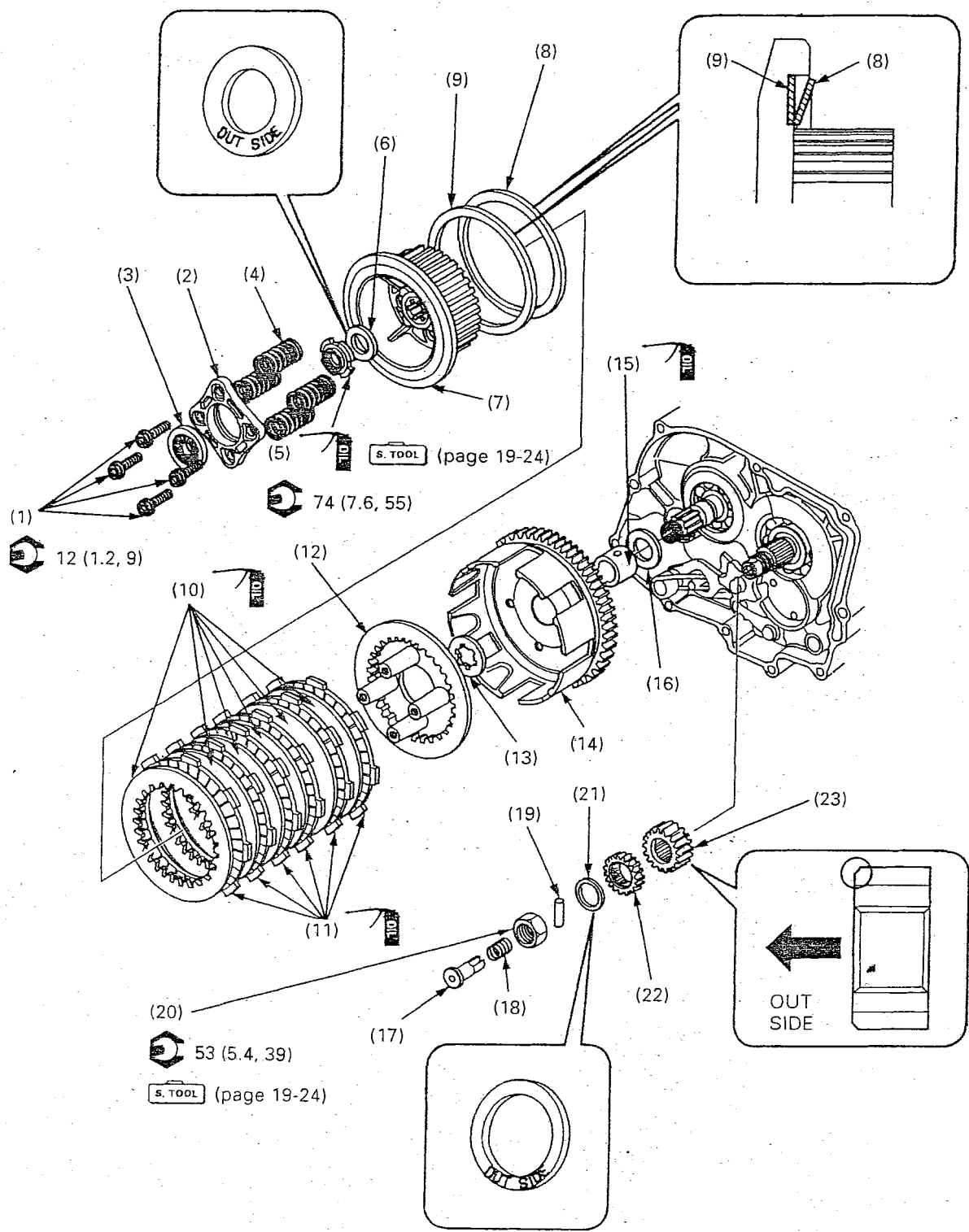
If the carburetor heater resistance is out of specification, remove the carburetor (page 19-17) and replace the carburetor heater.



Check the voltage between the Brown/Blue and Green terminals with the ignition switch is ON. There should be battery voltage.



Clutch, Primary Drive Gear Removal/Installation



NOTE

- It is not necessary to remove the oil pump for clutch assembly removal/installation.

Requisite Service

- Right crankcase cover removal/installation (page 8-2)
- Oil pump removal/installation (page 4-3)

Procedure		Q'ty	Remarks
Clutch Removal Order			Installation is in the reverse order of removal.
(1)	Clutch lifter plate bolt	4	
(2)	Clutch lifter plate	1	
(3)	Clutch lifter plate bearing	1	
(4)	Clutch spring	4	
(5)	Clutch center lock nut	1	Removal/installation (page 19-24).
(6)	Lock washer	1	Install the lock washer with its dished face towards the inside and "OUT SIDE" mark facing out.
(7)	Clutch center	1	
(8)	Judder spring	1	Install as shown on page 19-22.
(9)	Spring seat	1	
(10)	Clutch plate	6	Coat with clean engine oil before assembly.
(11)	Clutch friction disc	6	Coat with clean engine oil before assembly.
(12)	Pressure plate	1	
(13)	Spline washer	1	
(14)	Clutch outer	1	
(15)	Clutch outer guide	1	Coat with clean engine oil before assembly.
(16)	Thrust washer	1	
Primary Drive Gear Removal Order			Installation is in the reverse order of removal.
(17)	Oil orifice collar	1	At installation, align the groove with the drive pin.
(18)	Spring	1	
(19)	Drive pin	1	
(20)	Primary drive gear nut	1	Removal/installation (page 19-24).
(21)	Lock washer	1	With the "OUT SIDE" mark facing out.
(22)	Oil pump drive gear	1	
(23)	Primary drive gear	1	Remove the clutch assembly.

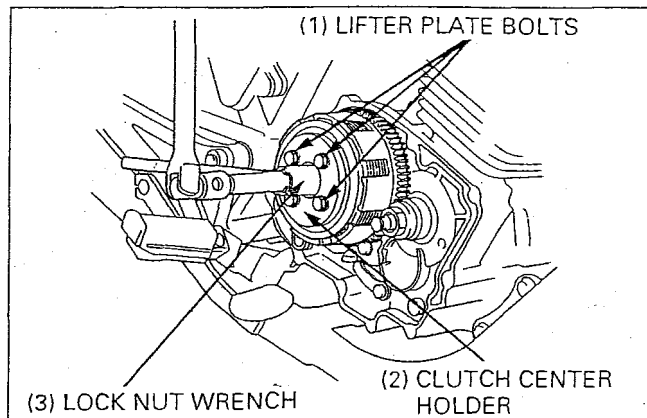
Clutch Center Lock Nut Removal

Unstake the lock nut.

Attach the clutch center holder with the lifter plate bolts. Loosen the lock nut while holding the clutch center as shown.

S. TOOL

Clutch center holder 07GMB - KT70100
 Lock nut wrench, 20 x 24 mm 07716 - 0020100
 Extension bar 07716 - 0020500



Clutch Center Lock Nut Installation

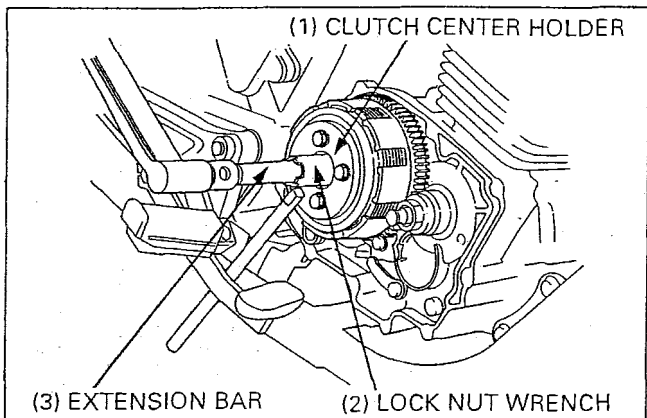
Apply engine oil to the clutch center lock nut threads. Attach the clutch center holder with the lifter plate bolts. Tighten the clutch center lock nut while holding the clutch center as shown.

S. TOOL

Clutch center holder 07GMB - KT70100
 Lock nut wrench, 20 x 24 mm 07716 - 0020100
 Extension bar 07716 - 0020500

Torque: 74 N·m (7.6 kgf·m, 55 lb·ft)

Stake the lock nut.



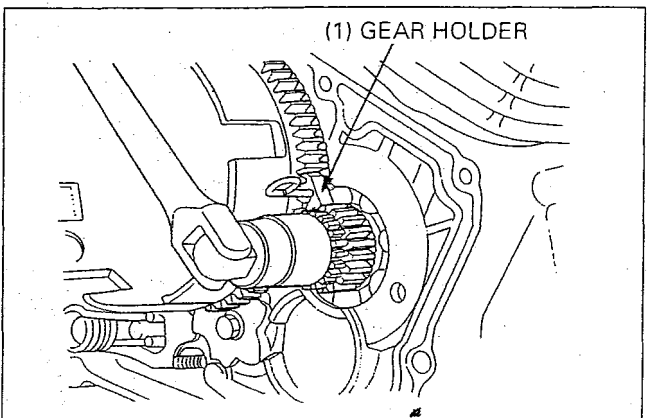
Primary And Oil Pump Drive Gears Removal

Insert the gear holder as shown. Remove the primary drive gear nut and lock washer.

S. TOOL

Gear holder 07724 - 0010100

Remove the clutch assembly (page 19-22).
 Remove the oil pump drive gear and primary drive gear.



Primary And Oil Pump Drive Gears Installation

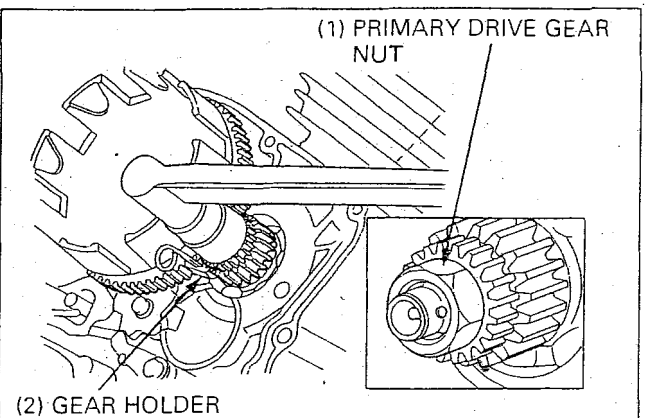
Install the oil pump drive gear and primary drive gear onto crankshaft. Install the clutch assembly (page 19-22). Install the lock washer with the "OUT SIDE" mark facing out.

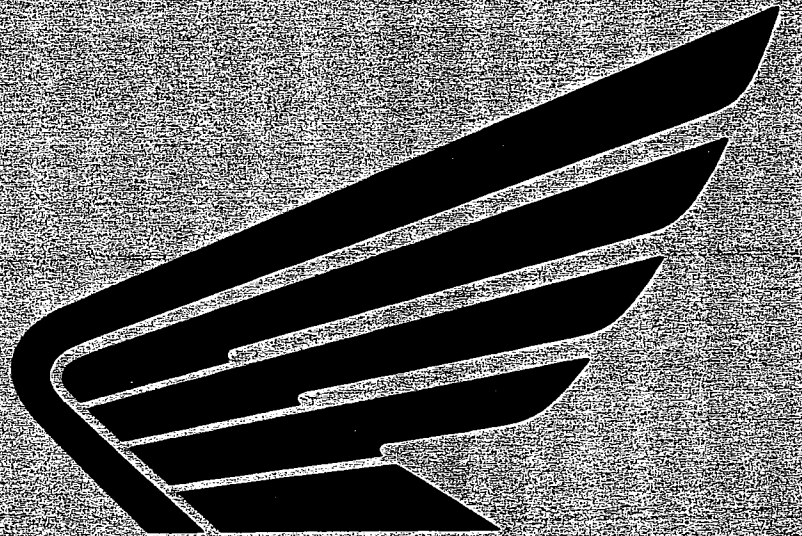
Insert the gear holder as shown. Tighten primary drive gear nut.

S. TOOL

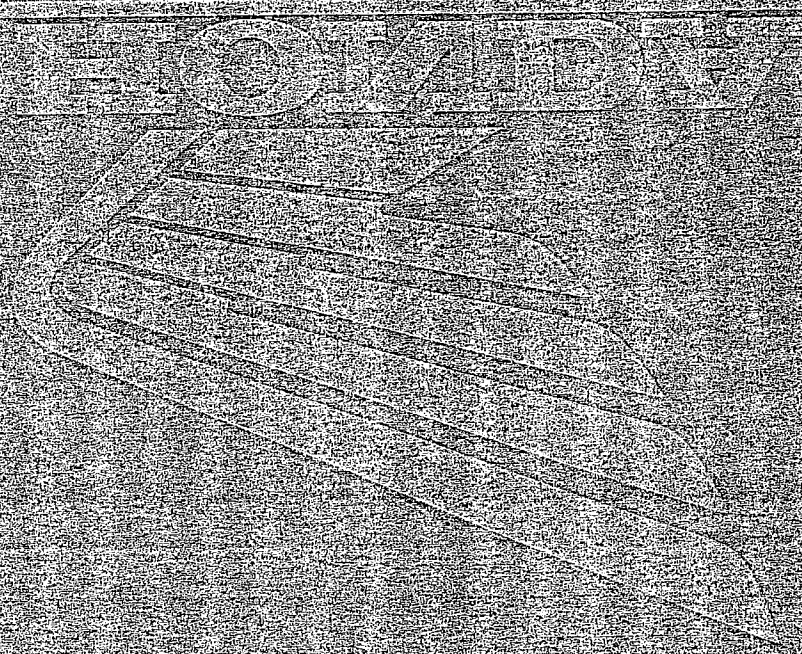
Gear holder 07724 - 0010100

Torque: 53 N·m (5.4 kgf·m, 39 lb·ft)





HONDA



CB250N

Introduction

This service manual describes the service procedures for the CB250.

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 Motorcycle/Motor Scooter/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)
E	U.K.
U	Australia

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 17 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 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 18 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.

HONDA MOTOR CO., LTD.
SERVICE PUBLICATION OFFICE

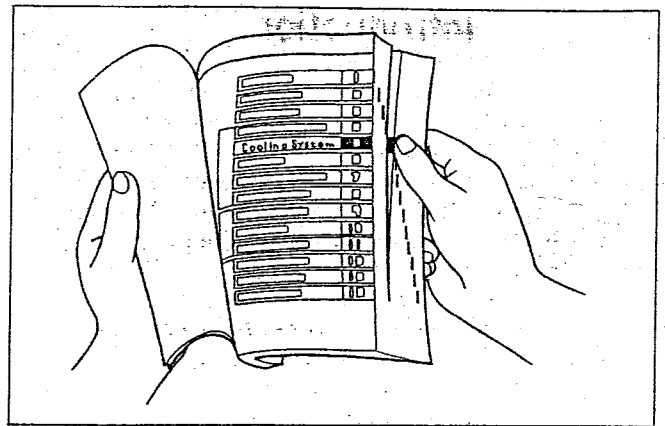
Contents

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

How To Use This Manual

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.



Understanding The Instructions

- 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 removal/installed, the name of the part, and some extra notes that may be needed.
- Step by step instructions are provided to supplement the illustrations when detailed explanation of the procedure is necessary or illustrations alone would not suffice.
- Standard workshop procedures and knowledge covered in the Common Service Manual are abbreviated in this manual.

System illustration

System illustration

Symbols

Disassembled Lower Joint Removal

Insert the stop spacer between the two shock absorber ends with the shock absorber.

NOTE:

Install the stop spacer assembly against the spring and tighten the nut securely.

CAUTION:

Compress the shock spring with the shock absorber compressor. Remove the lock nut and remove the lower joint.

CAUTION:

Do not compress the spring more than necessary.

Remove the shock absorber compressor slowly and remove the shock absorber and installation.

Disassembled Lower Joint Installation

Insert the lower joint and spring on the shock absorber.

Insert the shock absorber attachment on the shock absorber with the stop spacer and compress the spring slowly.

NOTE:

Install the stop spacer on the shock absorber.

Remove the lock nut on the stop spacer and remove the stop spacer. Apply a locking agent to the shock absorber and nut.

Secure the lower joint on the shock absorber and nut.

Tighten the lock nut to the specified torque.

Torque: 30 N-m (22 Lb-ft), 14 0-10

NOTE:

Install the stop spacer assembly against the spring and tighten the nut securely.

Detailed description of the procedure

11-7

Step sequence (numerals or alphabets)

Part name















Number of parts

Extra notes or precautions related to the service procedure

Procedure	Qty	Remarks
(1) Shock absorber lower joint	1	Assemble in the correct order of disassembly.
(2) Stop spacer	1	Compress the shock absorber slowly with the shock absorber compressor. Remove the lock nut and remove the lower joint.
(3) Stop spacer	1	At installation, apply a locking agent to the shock absorber and nut.
(4) Lower joint	1	At installation, insert the spring with the lower joint and the shock absorber.
(5) Lower joint	1	
(6) Lower joint	1	

Symbols

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

	<p>Replace the part(s) with new one(s) before assembly.</p>
	<p>Use special tool.</p>
	<p>Use optional tool. These tools are obtained as you order parts.</p>
 <p>10 (1.0, 7)</p>	<p>Torque specification. 10 N·m (1.0 kg-m, 7 ft-lb)</p>
	<p>Use recommended engine oil, unless otherwise specified.</p>
	<p>Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 1 : 1).</p>
	<p>Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).</p>
	<p>Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil Japan</p>
	<p>Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 45 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan</p>
	<p>Use silicone grease.</p>
	<p>Apply a locking agent. Use the agent of the middle strength, unless otherwise specified.</p>
	<p>Apply sealant.</p>
	<p>Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.</p>
	<p>Use Fork or Suspension Fluid.</p>

1. General Information

General Safety	1-1	Tools	1-16
Model Identification	1-3	Lubrication & Seal Points	1-18
Specifications	1-4	Cable & Harness Routing	1-19
Torque Values	1-14		

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.

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 REACH OF CHILDREN.

Brake Dust

Never use an air hose or dry brush to clean brake assemblies.

⚠ WARNING

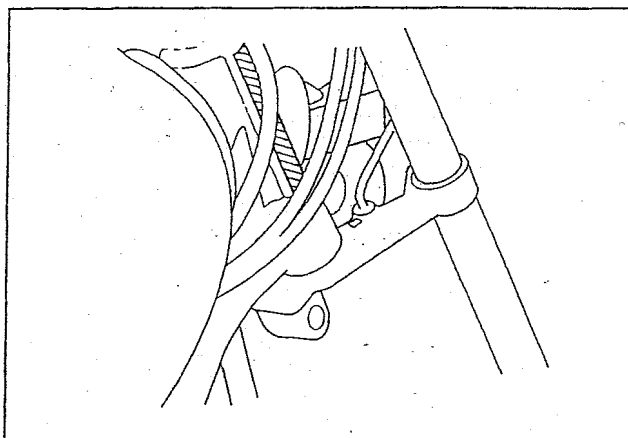
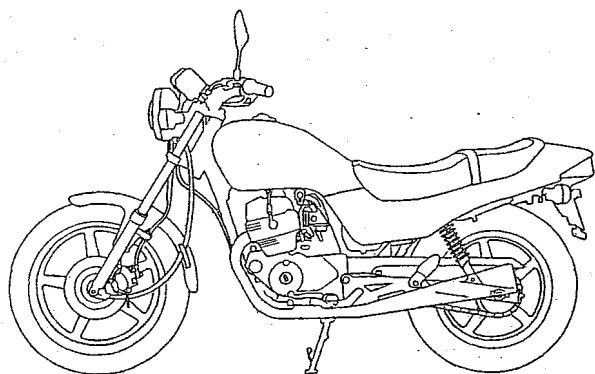
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.

Brake Fluid

CAUTION

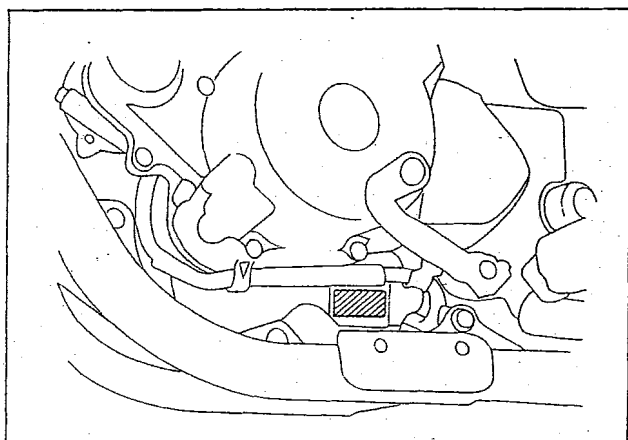
- Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.

Model Identification



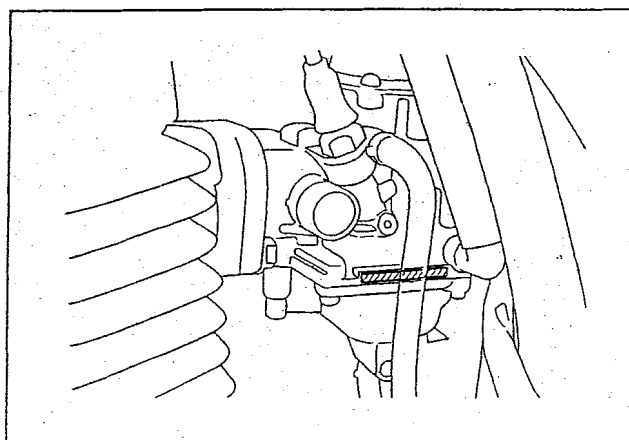
(1) FRAME SERIAL NUMBER

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



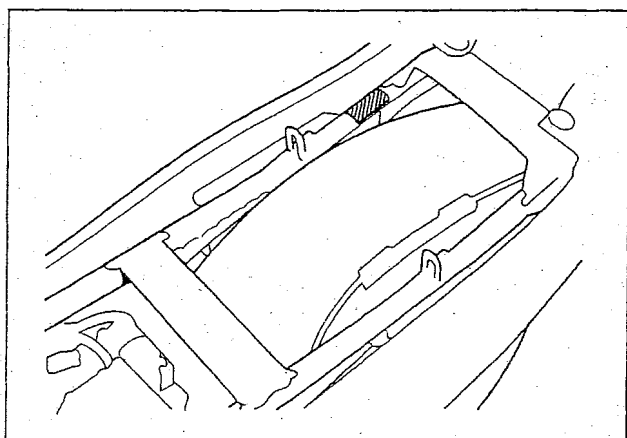
(2) ENGINE SERIAL NUMBER

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



(3) CARBURETOR IDENTIFICATION NUMBER

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

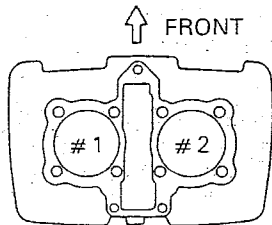


(4) COLOR LABEL

The color label is attached to the upper right rear frame tube as shown. When ordering color-coded parts, always specify the designated color code.

Specifications

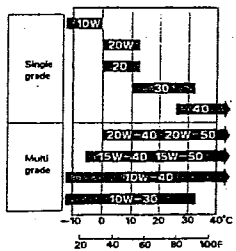
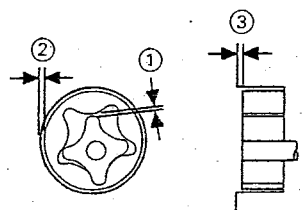
General		
	Item	Specifications
Dimensions	Overall length Overall width Overall height Wheel base Seat height Footpeg height Ground clearance Dry weight Curb weight Maximum weight capacity	2,090 mm (82.3 in) 755 mm (29.7 in) 1,090 mm (42.9 in) 1,425 mm (56.1 in) 745 mm (29.3 in) 306 mm (12.0 in) 165 mm (6.5 in) 132 kg (291 lbs) 146 kg (322 lbs) 160 kg (352 lbs)
Frame	Frame type Front suspension Front wheel travel Rear suspension Rear wheel travel Rear damper Front tire size Rear tire size Tire brand (Bridgestone) FR/RR Tire brand (Dunlop) FR/RR Tire brand (Yokohama) FR/RR Tire brand (IRC) FR/RR Front brake Rear brake Caster angle Trail length Fuel tank capacity Fuel tank reserve capacity	Diamond Telescopic fork 140 mm (5.5 in) Swingarm 110 mm (4.3 in) Conventional type oil damper 90/100-18 54S 120/90-16 63S — K300MA/K327AG — — Hydraulic single disc Internal expanding shoe 28°30' 109 mm (4.3 in) 16 l (4.2 US gal, 3.5 Imp gal) 3 l (0.8 US gal, 0.7 Imp gal)
Engine	Bore and stroke Displacement Compression ratio Valve train Intake valve opens (at 1 mm lift) Intake valve closes (at 1 mm lift) Exhaust valve opens (at 1 mm lift) Exhaust valve closes (at 1 mm lift) Lubrication system Oil pump type Cooling system Air filtration Crankshaft type Engine weight Firing order Cylinder arrangement Cylinder number	53 x 53 mm (2.1 x 2.1 in) 234 cm ³ (14.3 cu-in) 9.2 : 1 Chain drive and OHC with rocker arm - 5° BTDC 35° ABDC 35° BBDC - 5° ATDC Forced pressure and wet sump Trochoid Air cooled Paper filter Assembled type 38.5 kg (84.9 lbs) — Vertical twin, parallel —



General (Cont'd)

Item		Specifications
Carburetor	Carburetor type Throttle bore	Constant Velocity single carburetor 26 mm (1.0 in)
Drive Train	Clutch system Clutch operation system Transmission Primary reduction Secondary reduction Third reduction Final reduction Gear ratio 1st Gear ratio 2nd Gear ratio 3rd Gear ratio 4th Gear ratio 5th Gear ratio 6th Gear ratio reverse Gearshift pattern	Multi-plate, wet Mechanical type 5 speeds 3.632 (69/19) — — 2.214 (31/14) 2.846 (37/13) 1.778 (32/18) 1.333 (28/21) 1.083 (26/24) 0.913 (21/23) — — Left foot operated, return system, 1-N-2-3-4-5
Electrical	Ignition system Starting system Charging system Regulator/rectifier type Lighting system AC regulator type	CDI Electric starter Tripple phase output type SCR shorted tripple phase, full-wave rectification Alternator —

Lubrication

Item	Standard	Service Limit
Engine oil capacity at draining at disassembly at oil filter change	1.5 ℓ (1.6 US qt, 1.3 Imp qt) 1.8 ℓ (1.9 US qt, 1.6 Imp qt)	_____ _____ _____
Recommended engine oil	Use Honda 4-stroke Oil or equivalent API Service Classification: SE, SF or SG Viscosity: SAE 10W-40	_____
	Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.	_____
Oil pressure at oil pressure switch Oil pump rotor tip clearance ① body clearance ② end clearance ③	_____ 0.15 (0.006) 0.15–0.18 (0.006–0.007) 0.03–0.11 (0.001–0.004)	_____ 0.20 (0.008) 0.25 (0.010) 0.14 (0.006)
		

Fuel System

Carburetor identification number	VE37A	_____
Main jet	# 112	_____
(High altitude)	_____	_____
(2, 3)	_____	_____
(1, 4)	_____	_____
(Front)	_____	_____
(Rear)	_____	_____
Slow jet	# 35	_____
Jet needle clip position	_____	_____
Pilot screw initial opening	1-7/8	_____
Pilot screw high altitude adjustment	_____	_____
Pilot screw final opening	1/4 turns out	_____
Air screw initial opening	_____	_____
Air screw high altitude adjustment	_____	_____
Float level	18.5 (0.73)	_____
Carburetor vacuum difference	_____	_____
Base carburetor (For carburetor synchronization)	_____	_____
Idle speed	1,500 ± 100 min ⁻¹ (rpm)	_____
Throttle grip free play	2–6 (1/8–1/4)	_____
Accelerator pump clearance	_____	_____
Secondary air supply system	_____	_____
Air injection control valve vacuum pressure	_____	_____

Unit: mm (in)

Cylinder Head

Item	Standard	Service Limit
Cylinder compression {kPa (kg/cm ² , psi)/500–600 min ⁻¹ (rpm)}	1,400–1,500 (14–15, 199–213)	800 (8, 114)
Cylinder compression difference {kPa (kg/cm ² , psi)/500–600 min ⁻¹ (rpm)}	100 (1, 14)	—
Valve clearance IN	0.06–0.10 (0.002–0.004)	—
EX	0.06–0.10 (0.002–0.004)	—
Cylinder head warpage	—	0.10 (0.004)
Cam lobe height ① IN	27.383–27.543 (1.0781–1.0844)	27.2 (1.07)
EX	27.209–27.369 (1.0712–1.0775)	27.0 (1.06)
Camshaft runout	—	0.05 (0.002)
Camshaft oil clearance A	—	—
B	—	—
Camshaft journal O.D. A	19.967–19.980 (0.7861–0.7866)	19.92 (0.784)
B	—	—
Camshaft bushing I.D.	20.063–20.083 (0.7899–0.7907)	20.20 (0.795)
Camshaft holder I.D. A	—	—
B	—	—
Valve stem O.D. IN	5.450–5.465 (0.2146–0.2152)	5.42 (0.213)
EX	5.430–5.445 (0.2138–0.2144)	5.40 (0.213)
Valve guide I.D. IN	5.475–5.485 (0.2156–0.2159)	5.50 (0.217)
EX	5.475–5.485 (0.2156–0.2159)	5.50 (0.217)
Stem-to-guide clearance IN	0.010–0.035 (0.0004–0.0014)	0.08 (0.003)
EX	0.030–0.055 (0.0012–0.0022)	0.10 (0.004)
Valve guide projection above cylinder head IN	—	—
EX	—	—
Before guide installation: 1. Chill the valve guides in the freezer section of the refrigerator for about an hour 2. Heat the cylinder head to 100–150°C (212–300°F)		
Valve seat width	1.0–1.1 (0.039–0.043)	1.8 (0.07)
Valve spring free length IN	—	—
EX	—	—
inner IN	29.9 (1.18)	29.0 (1.14)
inner EX	29.9 (1.18)	29.0 (1.14)
outer IN	38.2 (1.50)	37.0 (1.46)
outer EX	38.2 (1.50)	37.0 (1.46)
Rocker arm I.D. IN	10.000–10.015 (0.3937–0.3943)	10.10 (0.398)
EX	10.000–10.015 (0.3937–0.3943)	10.10 (0.398)
Sub-rocker arm I.D. IN	—	—
EX	—	—
Rocker arm shaft O.D. IN	9.978–9.987 (0.3928–0.3932)	9.91 (0.390)
EX	9.978–9.987 (0.3928–0.3932)	9.91 (0.390)
Sub-rocker arm shaft O.D. IN	—	—
EX	—	—
Rocker arm-to-rocker arm shaft clearance	0.013–0.037 (0.0005–0.0015)	0.05 (0.002)
Sub-rocker arm-to-rocker arm shaft clearance	—	—
Valve lifter O.D.	—	—
Valve lifter bore I.D.	—	—
Hydraulic lash adjuster assist spring free length	—	—
Hydraulic lash adjuster compression stroke with kerosene	—	—

General Information

Unit: mm (in)

Cylinder/Piston

Item	Standard	Service Limit
Cylinder I.D.	53.000—53.010 (2.0866—2.0870)	53.10 (2.091)
out of round	—	0.05 (0.002)
taper	—	0.05 (0.002)
warpage	—	0.05 (0.002)
Piston mark direction	"IN" mark facing toward the intake side	—
Piston O.D. (D)	52.970—52.990 (2.0854—2.0862)	52.90 (2.083)
Piston O.D. measurement point (H)	10 mm (0.4 in) from the bottom	—
Piston pin hole I.D. (d)	15.002—15.008 (0.5906—0.5909)	15.05 (0.593)

Cylinder-to-piston clearance	0.010—0.040 (0.0004—0.0016)	0.10 (0.004)
Piston pin O.D.	14.994—15.000 (0.5903—0.5906)	14.98 (0.590)
Piston-to-piston pin clearance	0.002—0.014 (0.0001—0.0006)	0.07 (0.003)
Connecting rod-to-piston pin clearance	0.016—0.040 (0.0006—0.0016)	0.10 (0.004)
Top ring-to-ring groove clearance	0.015—0.040 (0.0006—0.0016)	0.10 (0.004)
Second ring-to-ring groove clearance	0.015—0.040 (0.0006—0.0016)	0.10 (0.004)
Top ring end gap	0.15—0.30 (0.006—0.012)	0.45 (0.018)
Second ring end gap	0.30—0.45 (0.012—0.018)	0.60 (0.024)
Oil ring (side rail) end gap	0.2—0.7 (0.01—0.03)	0.90 (0.036)
Top ring mark	"N" mark side facing up	—
Second ring mark	"N" mark side facing up	—

Crankshaft

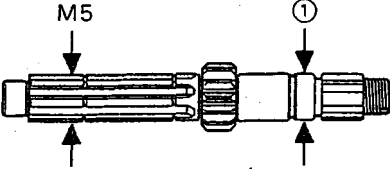
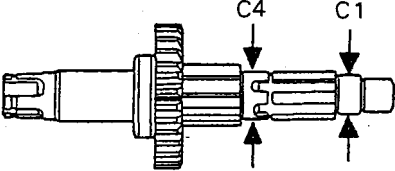
Connecting rod small end I.D.	15.016—15.034 (0.5912—0.5919)	15.08 (0.594)
Connecting rod big end side clearance	0.10—0.40 (0.004—0.016)	0.6 (0.02)
radial clearance	0.004—0.012 (0.0002—0.0005)	0.05 (0.002)
Crankshaft runout (at both ends) ①	—	0.03 (0.001)
(at bearing holder) ②	—	0.05 (0.002)

Crank pin oil clearance	—	—
Crank pin bearing selection	—	—
Main journal oil clearance	—	—
Main journal bearing selection	—	—

Kickstarter

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

Unit: mm (in)

Transmission	Item	Standard	Service Limit
	Transmission gear I.D. M5	20.020–20.041 (0.7882–0.7890)	20.08 (0.791)
	C1	20.020–20.041 (0.7882–0.7890)	20.08 (0.791)
	C4	20.020–20.041 (0.7882–0.7890)	20.08 (0.791)
	Transmission gear bushing O.D. C1	19.979–20.000 (0.7866–0.7874)	19.93 (0.785)
	Transmission gear bushing I.D. C1	16.516–16.534 (0.6502–0.6509)	16.58 (0.653)
	Gear-to-bushing clearance at C1 gear	0.020–0.062 (0.0008–0.0024)	0.10 (0.004)
	Mainshaft O.D. at M5 gear	19.959–19.980 (0.7858–0.7866)	19.91 (0.784)
	at clutch outer guide ①	19.959–19.980 (0.7858–0.7866)	19.91 (0.784)
			
	Countershaft O.D. at C1 gear	16.446–16.484 (0.6475–0.6490)	16.41 (0.646)
	at C4 gear	19.959–19.980 (0.7858–0.7866)	19.91 (0.784)
			
	Gear-to-shaft clearance at M5 gear	0.040–0.082 (0.0016–0.0032)	0.10 (0.004)
	at C4 gear	0.040–0.082 (0.0016–0.0032)	0.10 (0.004)
	Gear bushing-to-shaft clearance at C1 gear	0.032–0.068 (0.0013–0.0027)	0.10 (0.004)
	Shift fork claw thickness L	4.93–5.00 (0.194–0.197)	4.80 (0.189)
	C	4.93–5.00 (0.194–0.197)	4.80 (0.189)
	R	4.93–5.00 (0.194–0.197)	4.80 (0.189)
	Shift fork I.D. L	12.000–12.018 (0.4724–0.4731)	12.05 (0.474)
	C	12.000–12.018 (0.4724–0.4731)	12.05 (0.474)
	R	12.000–12.018 (0.4724–0.4731)	12.05 (0.474)
	Shift fork shaft O.D. L	11.976–11.994 (0.4715–0.4722)	11.93 (0.470)
	C	11.976–11.994 (0.4715–0.4722)	11.93 (0.470)
	R	11.976–11.994 (0.4715–0.4722)	11.93 (0.470)
	Shift drum O.D.		

General Information

Unit: mm (in)

Clutch System	Item	Standard	Service Limit
	Clutch lever free play	10-20 (3/8-3/4)	—
	Recommended clutch fluid	—	—
	Clutch master cylinder I.D.	—	—
	Clutch master piston O.D.	—	—
	Clutch outer I.D.	26.000-26.012 (1.0236-1.0241)	26.04 (1.025)
	Clutch outer guide O.D.	25.959-25.980 (1.0220-1.0228)	25.90 (1.020)
	I.D.	20.000-20.021 (0.7874-0.7882)	20.05 (0.789)
	Mainshaft O.D. at clutch outer guide	—	—
	Clutch spring free height	—	—
	Clutch spring free length	37.8 (1.49)	36.0 (1.42)
	Clutch disc thickness	2.8-2.9 (0.11-0.15)	2.6 (0.10)
	Clutch disc thickness A	—	—
	B	—	—
	Clutch plate warpage	—	0.20 (0.008)
	Centrifugal clutch drum I.D.	—	—
	bushing O.D.	—	—
	Centrifugal clutch center guide I.D.	—	—
	O.D.	—	—
	Centrifugal clutch center guide collar height	—	—
	Centrifugal clutch weight lining thickness	—	—
	Centrifugal clutch spring free length	—	—
	Clutch lining thickness	—	—
	Crankshaft O.D. at clutch center	—	—

Cooling System	Item	Standard	Service Limit
	Coolant capacity (Radiator and engine)	—	—
	(Reserve tank)	—	—
	Radiator cap relief pressure	—	—
	Thermostat begin to open	—	—
	Thermostat fully open	—	—
	Thermostat valve lift	—	—

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

Unit: mm (in)

Wheels/Tires

Item	Standard	Service Limit
Minimum tire thread depth (FR)	—	1.5 (0.06)
(RR)	—	2.0 (0.08)
Cold tire pressure Up to 90 kg (200 lb) load (FR)	200 kPa (2.00 kg/cm ² , 29 psi)	—
Up to 90 kg (200 lb) load (RR)	200 kPa (2.00 kg/cm ² , 29 psi)	—
Up to maximum weight capacity (FR)	200 kPa (2.00 kg/cm ² , 29 psi)	—
Up to maximum weight capacity (RR)	200 kPa (2.00 kg/cm ² , 29 psi)	—
Front and rear axle runout	—	0.2 (0.01)
Front and rear wheel rim runout (Radial)	—	2.0 (0.08)
(Axial)	—	2.0 (0.08)
Front wheel hub-to-rim distance	—	—
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	20–30 (3/4–1-1/4)	—
Drive chain size/link (DID)	520VC.6-106LE	—
(RK)	520MO-Z9-106LE	—

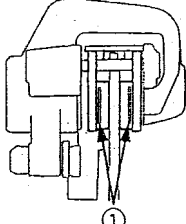
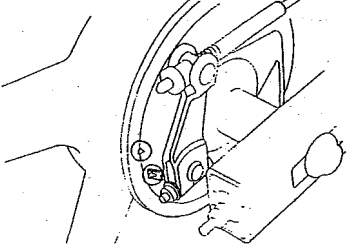
Front Suspension

Fork spring free length	—	—
Fork spring free length A	59.7 (2.35)	58 (2.3)
B	488.7 (19.24)	479 (18.86)
Fork spring direction	Tightly wound coil facing down	—
Fork tube runout	—	0.2 (0.01)
Recommended fork oil	Fork fluid	—
Fork oil level	162 (6.4)	—
Fork oil level (R)	—	—
(L)	—	—
Fork oil capacity	150 cc (5.1 US oz, 5.3 Imp oz)	—
Fork oil capacity (R)	—	—
(L)	—	—
Fork air pressure	—	—
Steering bearing preload	0.1–0.15 kg-m	—

Rear Suspension

Shock absorber spring free length	—	—
Shock absorber spring free length (A)	—	—
(B)	—	—
Damper gas pressure	—	—
Damper compressed gas	—	—
Damper rod compressed force at 10 mm (0.4 in) compressed	—	—
Damper drilling point	—	—
Shock absorber spring installed length	—	—
(Standard)	—	—
(Adjustable range)	—	—
Shock absorber spring adjuster standard position	2nd groove	—
Shock absorber spring direction	—	—
Recommended shock absorber oil	—	—
Shock absorber oil capacity	—	—
air pressure	—	—

Brakes

Item	Standard	Service Limit
Front brake fluid brake lever free play brake pad wear indicator	DOT 3 or DOT 4 10–20 (3/8–3/4)	_____ _____ To the groove ①
		
brake disc thickness	4.0 (0.16)	3.5 (0.14)
brake disc runout	_____	0.30 (0.012)
master cylinder I.D.	11.000–11.043 (0.4331–0.4348)	11.06 (0.435)
master piston O.D.	10.957–10.984 (0.4314–0.4324)	10.88 (0.428)
caliper cylinder I.D.	27.000–27.050 (1.0630–1.0650)	27.06 (1.065)
caliper cylinder I.D. (Upper)	_____	_____
caliper cylinder I.D. (Lower)	_____	_____
caliper piston O.D.	26.935–26.968 (1.0604–1.0617)	26.89 (1.059)
caliper piston O.D. (Upper)	_____	_____
caliper piston O.D. (Lower)	_____	_____
brake drum I.D.	_____	_____
brake lining thickness	_____	_____
Rear brake fluid	_____	_____
brake pedal height	_____	_____
brake pedal free play	20–30 (3/4–1-1/4)	_____
brake pad wear indicator	_____	_____
		
brake disc thickness	_____	_____
brake disc runout	_____	_____
master cylinder I.D.	_____	_____
master piston O.D.	_____	_____
caliper cylinder I.D.	_____	_____
caliper piston O.D.	_____	_____
brake drum I.D.	130 (5.1)	131 (5.2)
brake lining thickness	4.0 (0.16)	2.0 (0.08)

Battery/Charging System

Alternator charging coil resistance (At 20°C/68°F)	0.2–0.6 Ω	_____
Regulator/rectifier regulated voltage/amperage	13.5–14.0 V/1 A	_____
Battery capacity	12 V–6 Ah	_____
Battery specific gravity (Fully charging) (Needs charging)	_____ _____	_____ _____
Battery charging rate (Normal) (Quick)	0.6 A/10 h 3 A/1.0 h	_____ _____
Battery voltage (Fully charged 20°C/68°F) (Needs charging 20°C/68°F)	13–13.2 V Below 12.3 V	_____ _____
Alternator lighting coil resistance (At 20°C/68°F)	_____	_____
AC regulator regulated voltage (With analog type) (With digital type)	_____ _____	_____ _____

Unit: mm (in)

Starting System

Item	Standard	Service Limit
Starter driven sprocket I.D.	22.010–22.022 (0.8665–0.8670)	22.08 (0.869)
Starter driven sprocket boss O.D.	36.975–37.000 (1.4557–1.4567)	36.90 (1.453)
Starter driven gear I.D.	—	—
Starter clutch outer I.D.	—	—
Starter motor brush spring tension	780–1,060 g	450 g
brush length	12.5–13.0 (0.49–0.51)	8.5 (0.33)

Ignition System

Spark plug (Standard)	CR6HSA (NGK)	—
	U20FSR-U (NIPPONDENSO)	—
(For cold climate/below 5°C/41°F)	CR5HSA (NGK)	—
	U16FSR-U (NIPPONDENSO)	—
(For extended high speed riding)	CR7HSA (NGK)	—
	U22FSR-U (NIPPONDENSO)	—
Spark plug gap	0.60–0.70 (0.024–0.028)	—
Ignition timing "F" mark	10°BTDC/1,500 min ⁻¹ (rpm)	—
Advance start	10°/1,700 min ⁻¹ (rpm)	—
stop	25°/3,000 min ⁻¹ (rpm)	—
Full advance	25°/3,000 min ⁻¹ (rpm)	—
Peak voltage Ignition coil (Primary side)	100 V minimum	—
Exciter coil	100 V minimum	—
Pulse generator coil	0.7 V minimum	—
Alternator exciter coil resistance (At 20°C/68°F)	50–180 Ω	—
Ignition coil resistance (Primary: at 20°C/68°F)	0.1–0.3 Ω	—
(Secondary with plug cap)	6.5–9.7 kΩ	—
(Secondary without plug cap)	2.8–3.4 kΩ	—
Pulse generator resistance (At 20°C/68°F)	50–170 Ω	—

Lights/Meters/Switches

Main fuse	20 A	—
Fuse	10 A x 2	—
Headlight (high/low beam)	12 V–50/35 W: U type	—
	12 V–45/40 W: E type	—
Tail/brake light	12 V–5/21 W	—
License light	—	—
Position light	12 V–4 W (E type only)	—
Front turn signal/running light	—	—
Front turn signal light	12 V–21 W x 2	—
Rear turn signal light	12 V–21 W x 2	—
Instrument lights	12 V–3.4 W x 2	—
Oil pressure warning indicator	—	—
Tail/brake light warning indicator	—	—
Side stand warning indicator	12 V–1.7 W	—
Low fuel indicator	—	—
Coolant temperature indicator	—	—
Oil temperature indicator	—	—
High beam indicator	12 V–3.4 W	—
Turn signal indicator	12 V–3.4 W x 2	—
Neutral indicator	12 V–3.4 W	—
Reverse indicator	—	—
Overdrive indicator	—	—
Oil temperature sensor resistance	—	—
Fuel unit resistance (At full level)	—	—
(At low level)	—	—
Fuel pump flow capacity (min./minute)	—	—
Coolant temperature sensor resistance (At °C/°F)	—	—
Fan motor switch starts (ON)	—	—
stops (OFF)	—	—

Torque Values

Standard			
Fastener Type	Torque N·m (kg-m, ft-lb)	Fastener Type	Torque N·m (kg-m, ft-lb)
5 mm hex bolt and nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	9 (0.9, 6.5)
10 mm hex bolt and nut	35 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex bolt and nut	55 (5.5, 40)	8 mm flange bolt and nut	27 (2.7, 20)
		10 mm flange bolt and nut	40 (4.0, 29)

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

- NOTE
1. Apply sealant to the threads.
 2. Apply a locking agent to the threads.
 3. Apply molybdenum disulfide oil to the threads and flange surface.
 4. Left hand threads.
 5. Stake.
 6. Apply oil to the threads and flange surface.
 7. Apply clean engine oil to the O-ring.
 8. Torque wrench scale reading using a special tool.
 9. Apply grease to the threads and flange surface.
 10. UBS bolt.
 11. U-nut.
 12. Alock bolt. Do not reuse.

Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Lubrication System:				
Oil pump mounting screw	3	6	10 (1.0, 7)	
Cylinder Head/Cylinder:				
Spark plug	2	10	12 (1.2, 9)	
Valve adjusting lock nut	4	5	10 (1.0, 7)	
Cylinder head/camshaft holder nut	8	8	23 (2.3, 17)	
Cylinder head bolt	3	6	12 (1.2, 9)	
Cam sprocket bolt	2	7	20 (2.0, 14)	Note 2
Cylinder head cover bolt	2	6	10 (1.0, 7)	
Clutch/Gearshift Linkage:				
Clutch lifter bolt	4	6	12 (1.2, 9)	
Clutch center lock nut	1	16	53 (5.3, 38)	Note 5
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	
Gearshift return spring pin	1	8	25 (2.5, 18)	Note 2
Primary drive gear lock nut	1	16	54 (5.4, 39)	
Crankcase/Crankshaft:				
Drive sprocket bolt	2	6	12 (1.2, 9)	
Oil drain bolt	1	12	25 (2.5, 18)	
Crankshaft mounting bolt	5	8	23 (2.3, 17)	
Crankshaft mounting nut	1	6	12 (1.2, 9)	
Oil passage plate mounting screw	3	6	10 (1.0, 7)	Note 2
Starter Clutch/Alternator:				
Flywheel bolt	1	10	60 (6.0, 43)	
Starter clutch mounting screw	3	6	9 (0.9, 6.5)	Note 2, 5
Stator mounting screw	3	5	6 (0.6, 4.3)	
Stator wire clamp screw	1	5	6 (0.6, 4.3)	
Pulse generator mounting screw	2	6	10 (1.0, 7)	
Starter motor terminal nut	1	6	6 (0.6, 4.3)	

Frame				
Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Front Suspension:				
Steering stem nut	1	22	75 (7.5, 54)	
Steering stem adjustment nut	1	22	3 (0.3, 2.2)	
Handlebar holder bolt	4	8	24 (2.4, 17)	
Fork top bridge pinch nut	2	8	22 (2.2, 16)	Note 11
Fork bottom bridge pinch bolt	2	8	24 (2.4, 17)	
Steering lock mounting bolt	2	6	9 (0.9, 6.5)	Note 2
Fork cap	2	27	23 (2.3, 17)	
Fork socket bolt	2	8	20 (2.0, 14)	Note 2
Rear Suspension:				
Swingarm pivot nut	1	14	60 (6.0, 43)	Note 11
Rear shock absorber lower mounting bolt	2	10	43 (4.3, 31)	
Wheels:				
Front axle nut	1	14	60 (6.0, 43)	Note 11
Rear axle nut	1	14	60 (6.0, 43)	Note 11
Brake arm torque link bolt	2	8	22 (2.2, 16)	
Driven sprocket nut	4	10	45 (4.5, 33)	Note 11
Brake system:				
Pad pin plug	1	8	3 (0.3, 2.2)	
Pad pin	1	8	18 (1.8, 13)	
Caliper pin bolt (bracket side)	1	8	13 (1.3, 9)	Note 2
(caliper side)	1	8	23 (2.3, 17)	Note 2
Caliper bleed valve	1	6	6 (0.6, 4.3)	
Front caliper mounting bolt	2	10	31 (3.1, 22)	
Brake disc bolt	4	8	43 (4.3, 31)	
Master cylinder reservoir cap screw	2	4	2 (0.2, 1.4)	
Brake hose oil bolt	2	10	35 (3.5, 25)	
Brake lever pivot nut	1	6	6 (0.6, 4.3)	
Rear brake arm pinch bolt	1	6	10 (1.0, 7)	
Other Fasteners:				
Engine rear mounting bolt	2	10	85 (8.5, 61)	
Exhaust pipe joint nut	4	6	14 (1.4, 10)	
Side stand switch mounting bolt	1	6	30 (3.0, 22)	Note 12
Side stand bracket bolt	2	8	37 (3.7, 27)	

Tools

Description	Tool Number	Applicability
Maintenance:		
Valve adjusting wrench, 8 x 9 mm	07708-0030100	
Valve adjuster B	07708-0030400	or 07908-KE90200
Timing cap wrench	07709-0010001	
Fuel System:		
Float level gauge	07401-0010000	
Cylinder Head/Cylinder/Piston:		
Valve spring compressor	07757-0010000	or 07957-3290001
Valve guide driver, 5.5 mm	07742-0010100	
Valve guide reamer, 5.5 mm	07984-0980001	
Valve seat cutter		
seat cutter, 24.5 mm (45° IN/EX)	07780-0010100	
flat cutter, 25 mm (32° IN)	07780-0012000	
22 mm (32° EX)	07780-0012601	
interior cutter, 26 mm (60° IN/EX)	07780-0014500	
cutter holder, 5.5 mm	07781-0010101	
Piston ring compressor	07954-4190000	
Piston base	07958-3000000	
Clutch/Kickstarter/Gearshift Linkage:		
Clutch center holder	07GMB-KT70100	
Lock nut wrench, 20 x 24 mm	07716-0020100	
Extension bar	07716-0020500	
Gear holder	07724-0010100	
Crankshaft/Transmission/Balancer:		
Bearing remover set, 15 mm	07936-KC10000	
-Bearing remover, 15 mm	07936-KC10000	
-Remover assembly, 15 mm	07936-KC10500	
-Remover shaft, 15 mm	07936-KC10100	
-Remover head, 15 mm	07936-KC10200	
-Remover weight	07741-0010201	
Attachment, 32 x 35 mm	07746-0010100	
Attachment, 42 x 47 mm	07746-0010300	
Attachment, 52 x 55 mm	07746-0010400	
Attachment, 62 x 68 mm	07746-0010500	
Pilot, 20 mm	07746-0040500	
Pilot, 25 mm	07746-0040600	
Pilot, 22 mm	07746-0041000	
Driver	07749-0010000	
Driver attachment handle	07949-3710001	
Front Wheel/Suspension/Steering:		
Ball race remover	07944-1150001	
Steering stem driver	07946-GC40000	
Driver	07749-0010000	
Attachment, 37 x 40 mm	07746-0010200	
Attachment, 42 x 47 mm	07746-0010300	
Pilot, 15 mm	07746-0040300	
Bearing remover head, 15 mm	07746-0050400	
Bearing remover shaft	07746-0050100	
Fork seal driver	07747-0010100	
Fork seal driver attachment	07747-0010400	
Steering stem nut wrench	07916-3710100	
Rear Wheel/Suspension:		
Driver	07749-0010000	
Attachment, 37 x 40 mm	07746-0010200	
Pilot, 15 mm	07746-0040300	
Bearing remover head, 15 mm	07746-0050400	
Bearing remover shaft	07746-0050100	

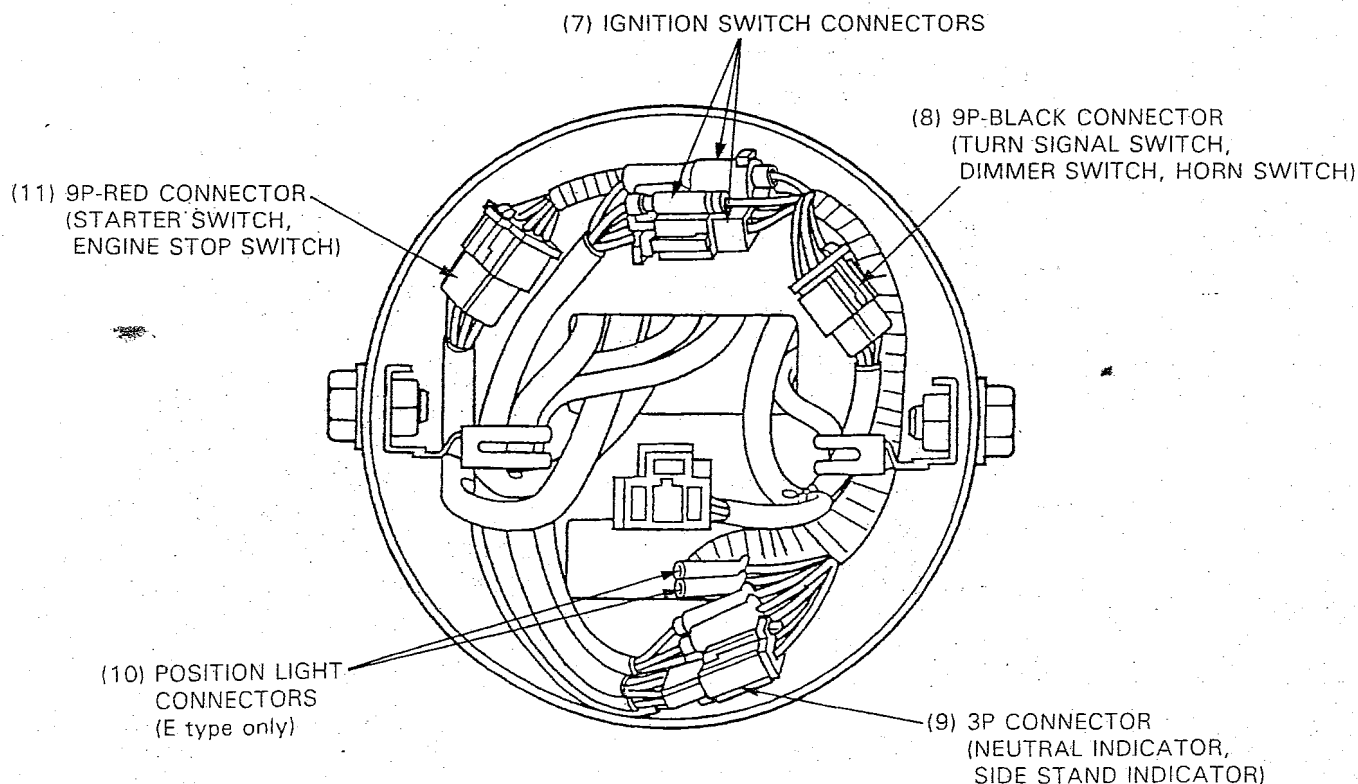
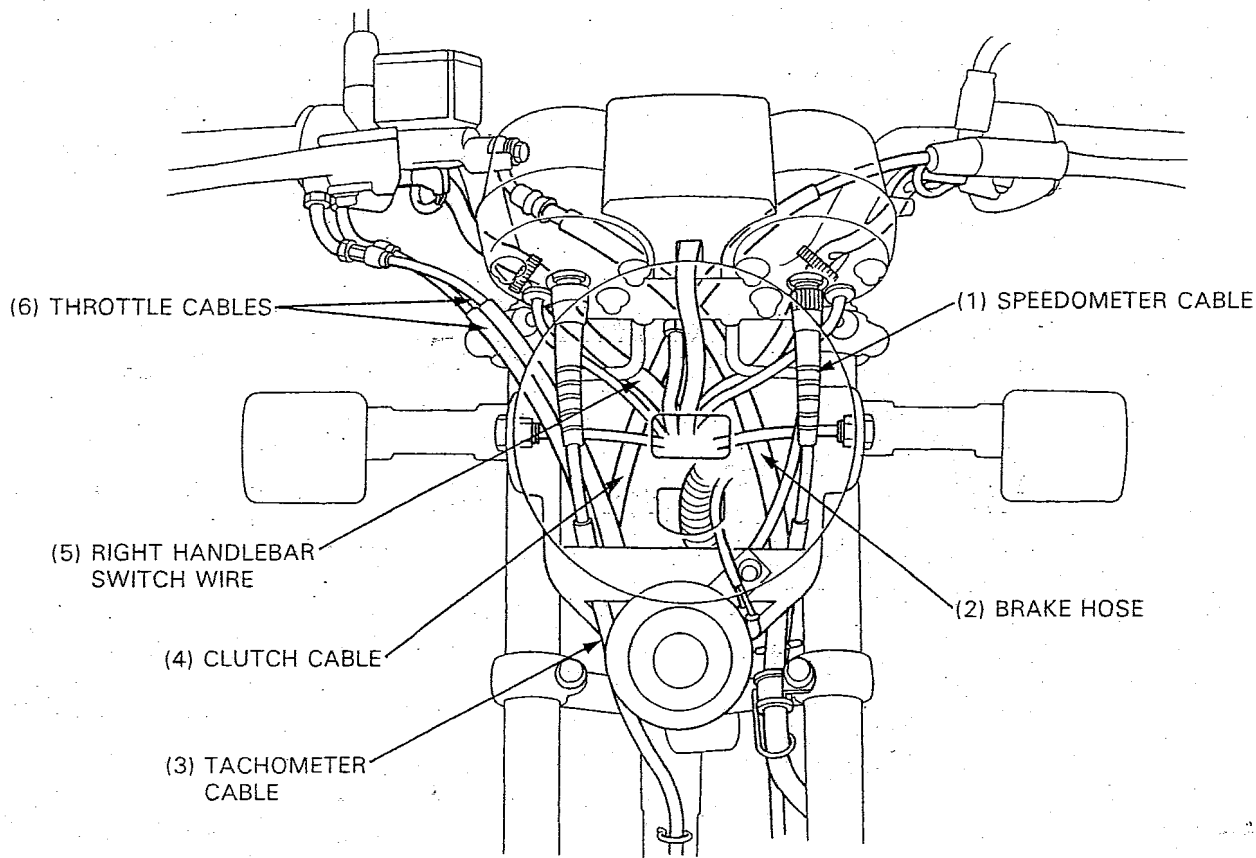
Description	Tool Number	Applicability
Brake system:		
Snap ring pliers	07914-3230001	
Charging System/Alternator:		
Flywheel holder	07725-0040000	
Flywheel puller	07733-0020001	
Electrical Equipment:		
Digital multimeter (KOWA)	07411-0020000	
Peak voltage adaptor	07HGJ-0020100	
or Imrie diagnostic tester	Model 625	
Analog tester	07308-0020001 (SANWA) or TH-5H (KOWA)	

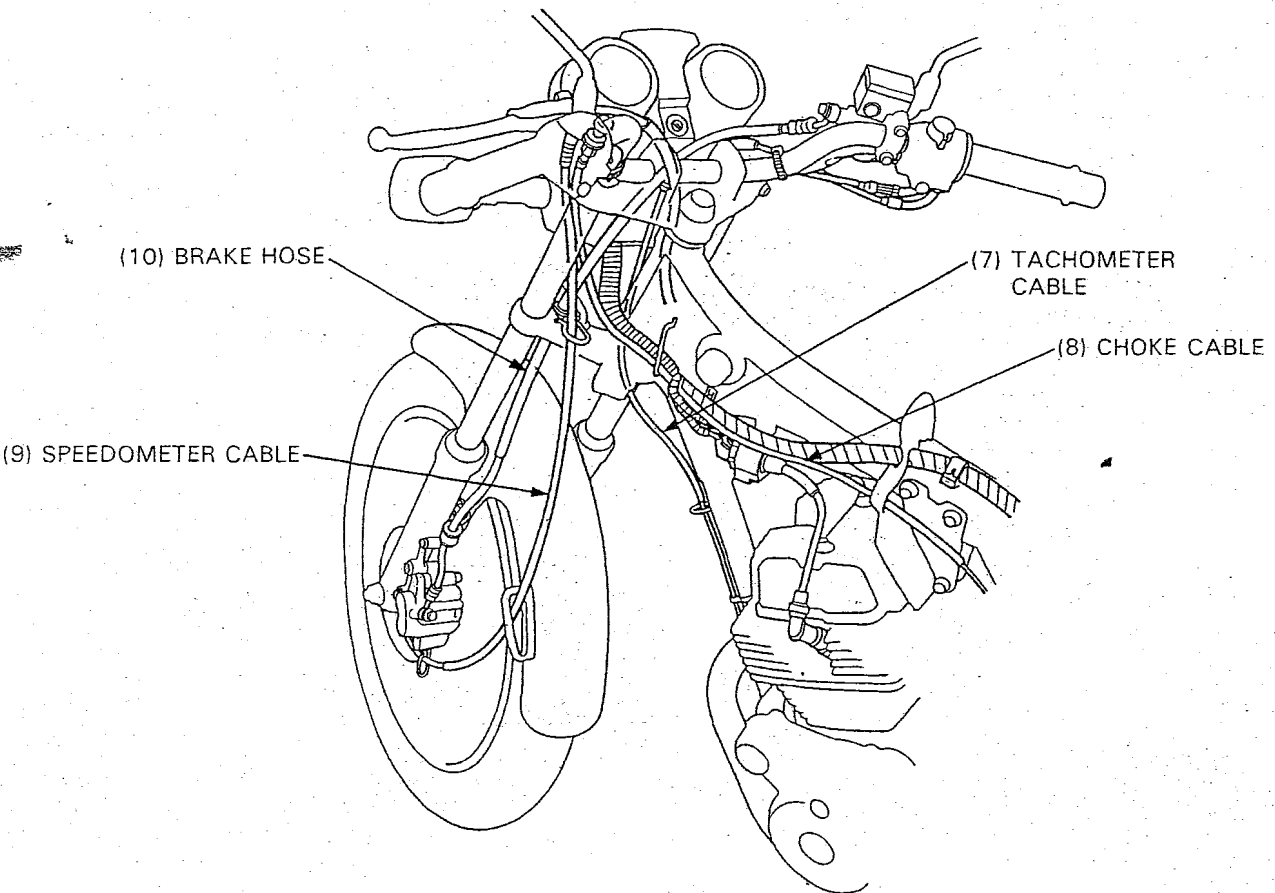
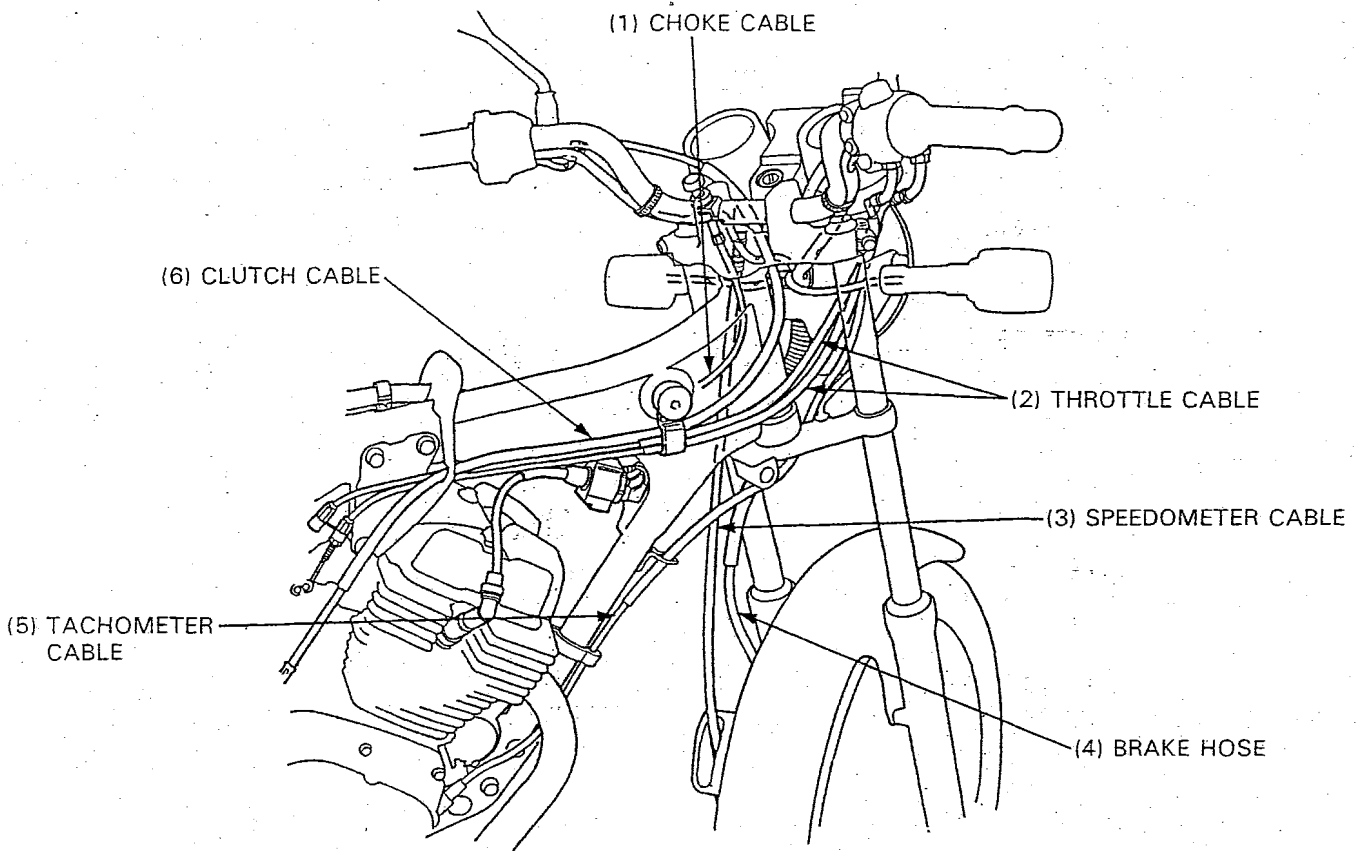
Lubrication & Seal Points

Engine		
Location	Material	Remarks
Rocker arm and shaft sliding surface Cam Chain Transmission gear teeth and bushings Piston pin hole Piston pin surface Connecting rod small end Each bearings Piston ring sliding surface Piston ring and ring groove Crankshaft big end Shift fork claw and pivot inner surface Shift drum Clutch discs	Engine oil	
Valve stem (valve guide sliding surface) Valve guide (valve stem sliding surface) Camshaft bushing inner surface Cam lobes M3, 4 gear spline C1 gear, C1 bushing sliding surface M4, C3, C5 shift fork grooves	Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Oil passage plate screw threads	Locking agent	

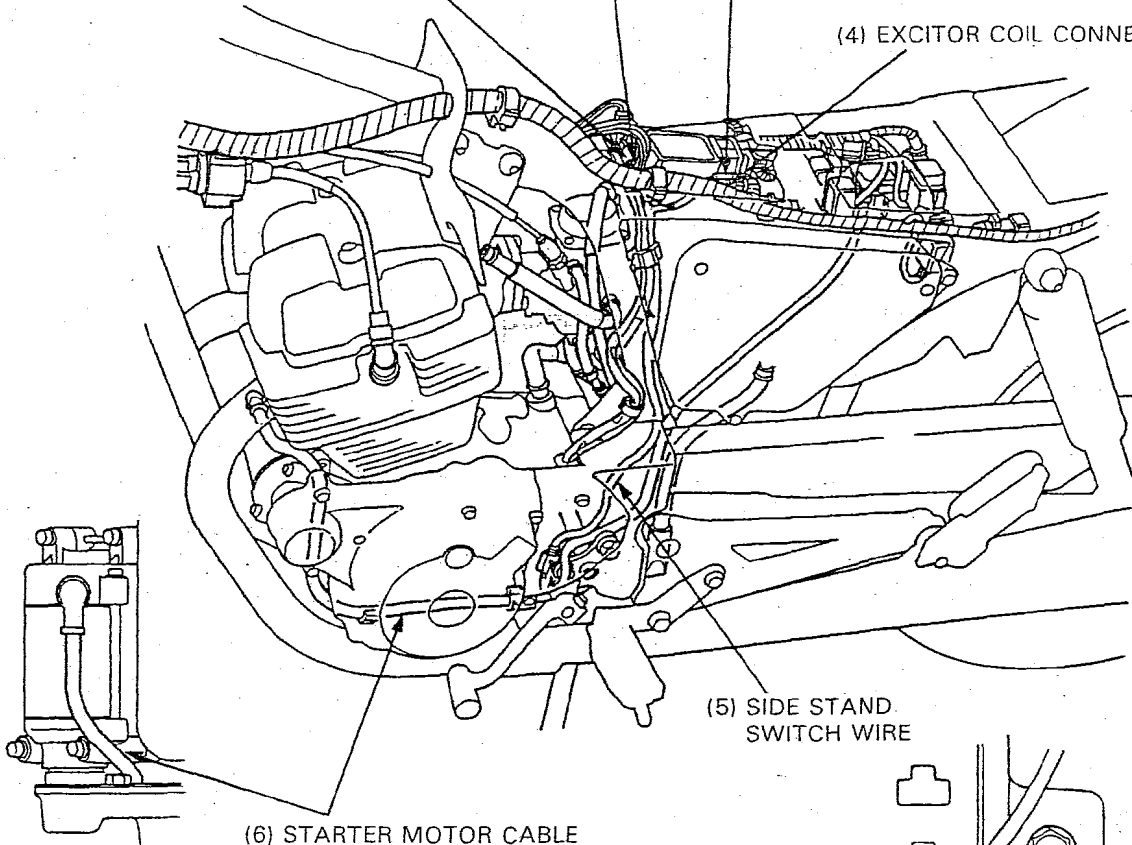
Frame		
Location	Material	Remarks
Steering stem bearing Wheel bearing Brake lever pivot bolt surface Clutch lever pivot bolt surface Wheel bearing dust seal lips Wheel axle outer surface Handlebar (throttle grip sliding surface) Throttle cable end Side stand pivot surface Center stand pivot surface Dust seal lips	Multi-purpose grease	Apply thin coat of grease
Fork socket bolt	Locking agent	
Fork cap O-ring Fork oil seal lips	Fork fluid	
Handle grip	Honda Bond A or equivalent	

Cable & Harness Routing

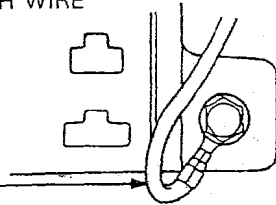




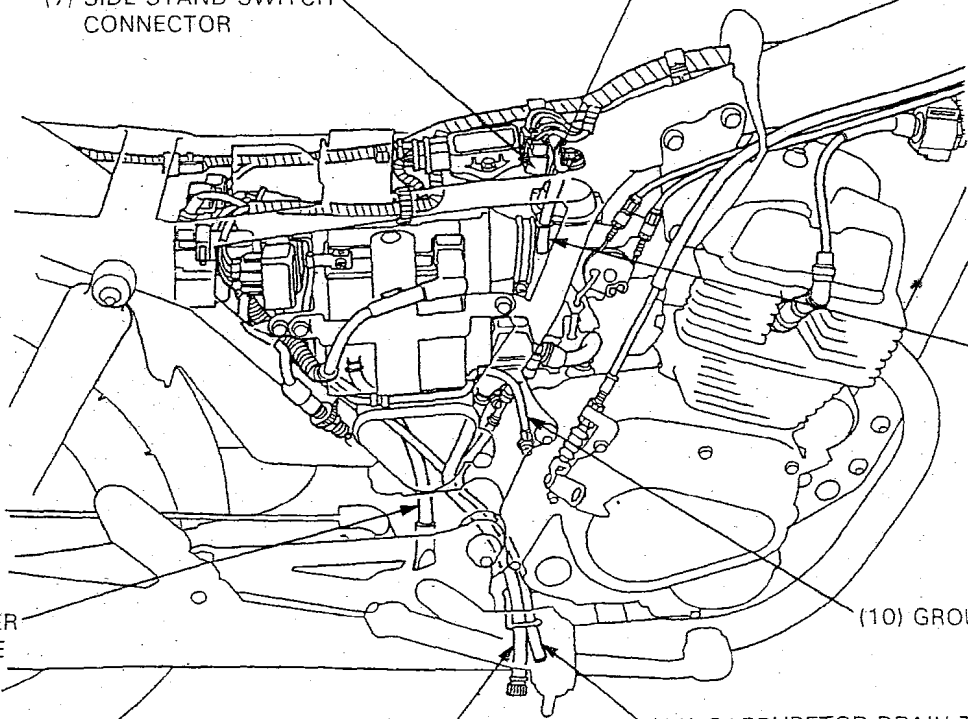
- (1) PULSE GENERATOR CONNECTOR
- (2) ALTERNATOR CONNECTOR
- (3) NEUTRAL SWITCH CONNECTOR
- (4) EXCITOR COIL CONNECTOR



- (8) GROUND CABLE



- (7) SIDE STAND SWITCH CONNECTOR



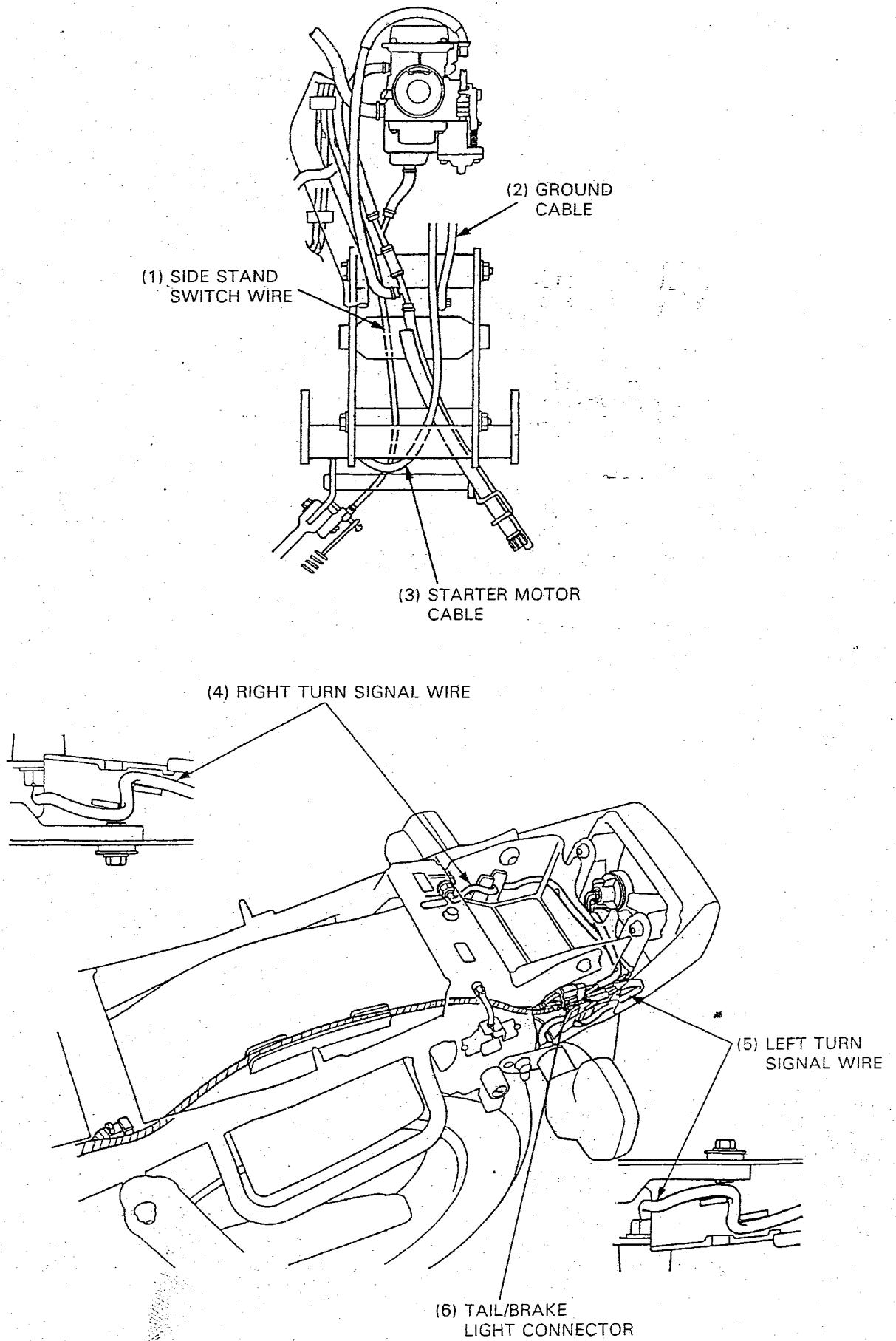
- (9) CARBURETOR AIR VENT TUBE

- (13) AIR CLEANER DRAIN TUBE

- (10) GROUND CABLE

- (12) AIR/OIL SEPARATOR DRAIN TUBE

- (11) CARBURETOR DRAIN TUBE



2. Frame/Body Panels/Exhaust System

Service Information	2-1	Seat Removal/Installation	2-3
Troubleshooting	2-1	Rear Fairing Removal/Installation	2-3
Exhaust System Removal/Installation	2-2	Fuel Tank Removal/Installation	2-4

Service Information

⚠ WARNING

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

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the frame body panels, fuel tank and exhaust system.
- Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
- When installing the exhaust pipe, first install all the fasteners loosely. Next, tighten the exhaust 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

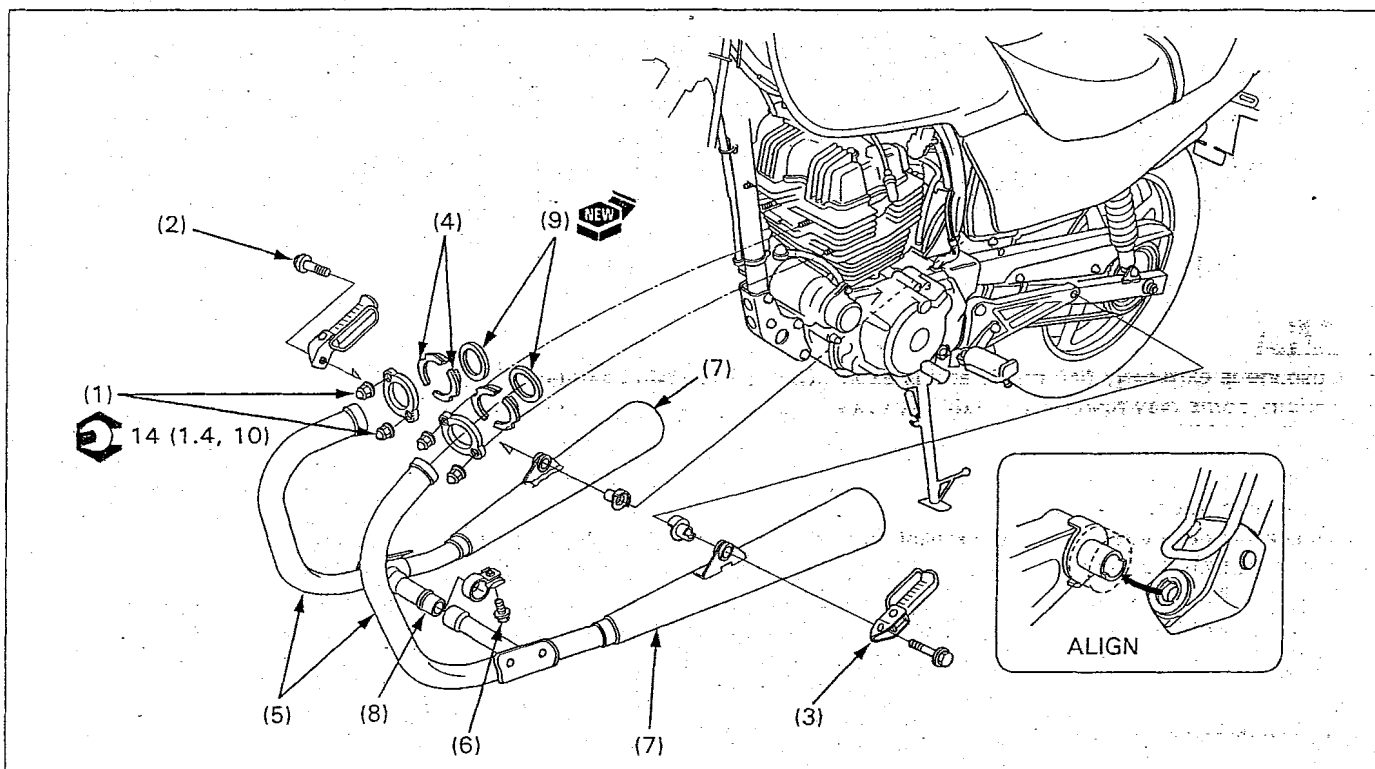
Excessive Exhaust Noise

- Broken exhaust system
- Exhaust gas leak

Poor Performance

- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

Exhaust System Removal/Installation



WARNING

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

NOTE

- When installing the exhaust pipe/muffler, always tighten the exhaust pipe joint nuts first, then tighten the mounting fasteners.
- Left or right mufflers can be removed individually.

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Exhaust pipe joint nut	4	At installation, install all fasteners loosely and tighten the exhaust pipe joint nuts first.
(2) Muffler mounting bolt	2	
(3) Passenger footpeg	2	At installation, align the passenger footpeg groove with the collar as shown.
(4) Collar	2	
(5) Muffler assembly	—	
(6) Joint band bolt	1	Only loosen.
(7) Right/left muffler	2	
(8) Gasket	1	
(9) Gasket	2	

Seat Removal/Installation

Removal

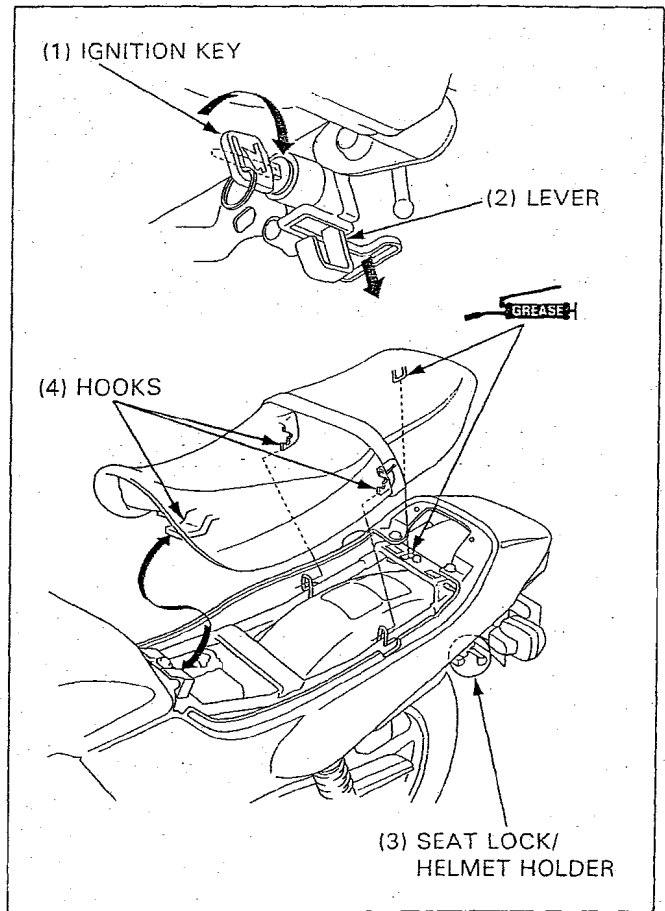
Insert the ignition key into the seat lock/helmet holder and turn the key clockwise. Push down the lever to release the seat lock. Push the seat rearward while lifting up remove.

Installation

Apply grease to the seat locking mechanism. 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.

CAUTION

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



Rear Fairing Removal/Installation

Remove the seat (above).

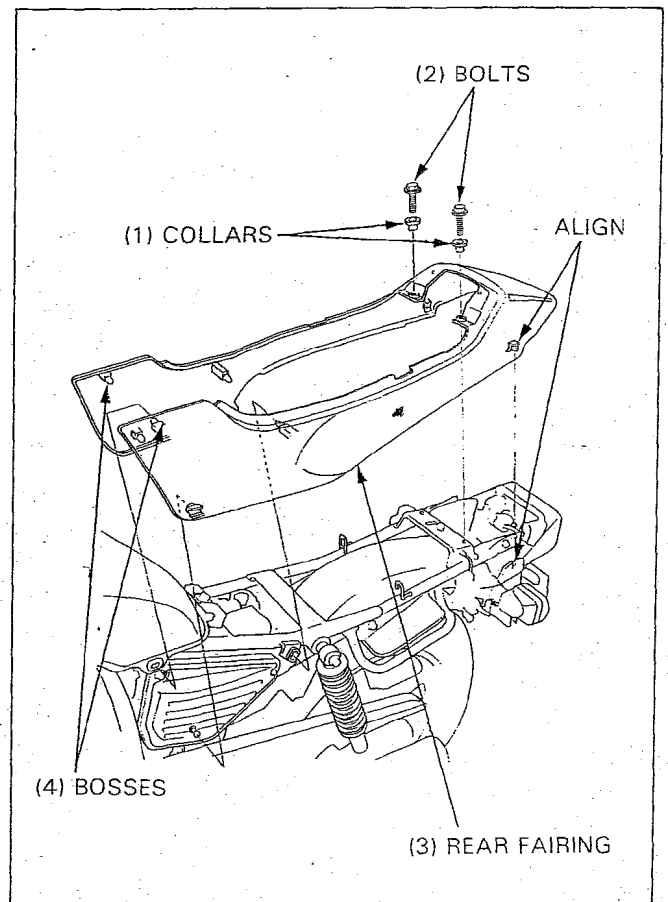
Remove the bolts and collars.

Release the fairing bosses from the grommets.

Remove the rear fairing.

Install the rear fairing in the reverse order of removal.

Install the seat.



Fuel Tank Removal/Installation

WARNING

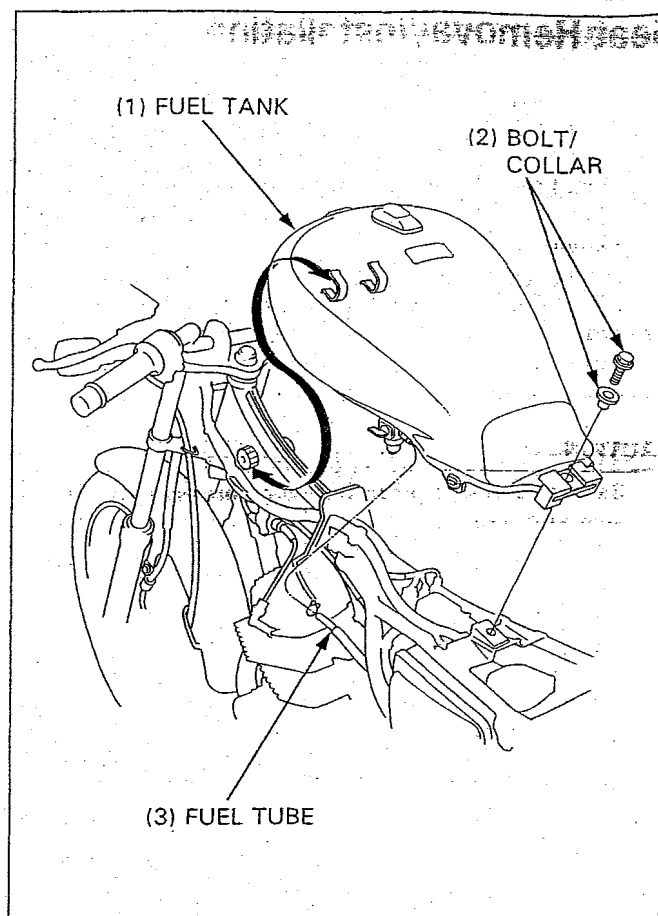
- Gasoline is extremely flammable and is explosive under certain conditions.

Remove the seat (page 2-3).

Turn the fuel valve OFF.
Disconnect the fuel tube.
Remove the mounting bolt and collar.
Remove the fuel tank.

Install the fuel tank in the reverse order of removal.
After installation, turn the fuel valve ON and check the fuel line for leakage.

Install the seat.



3. Maintenance

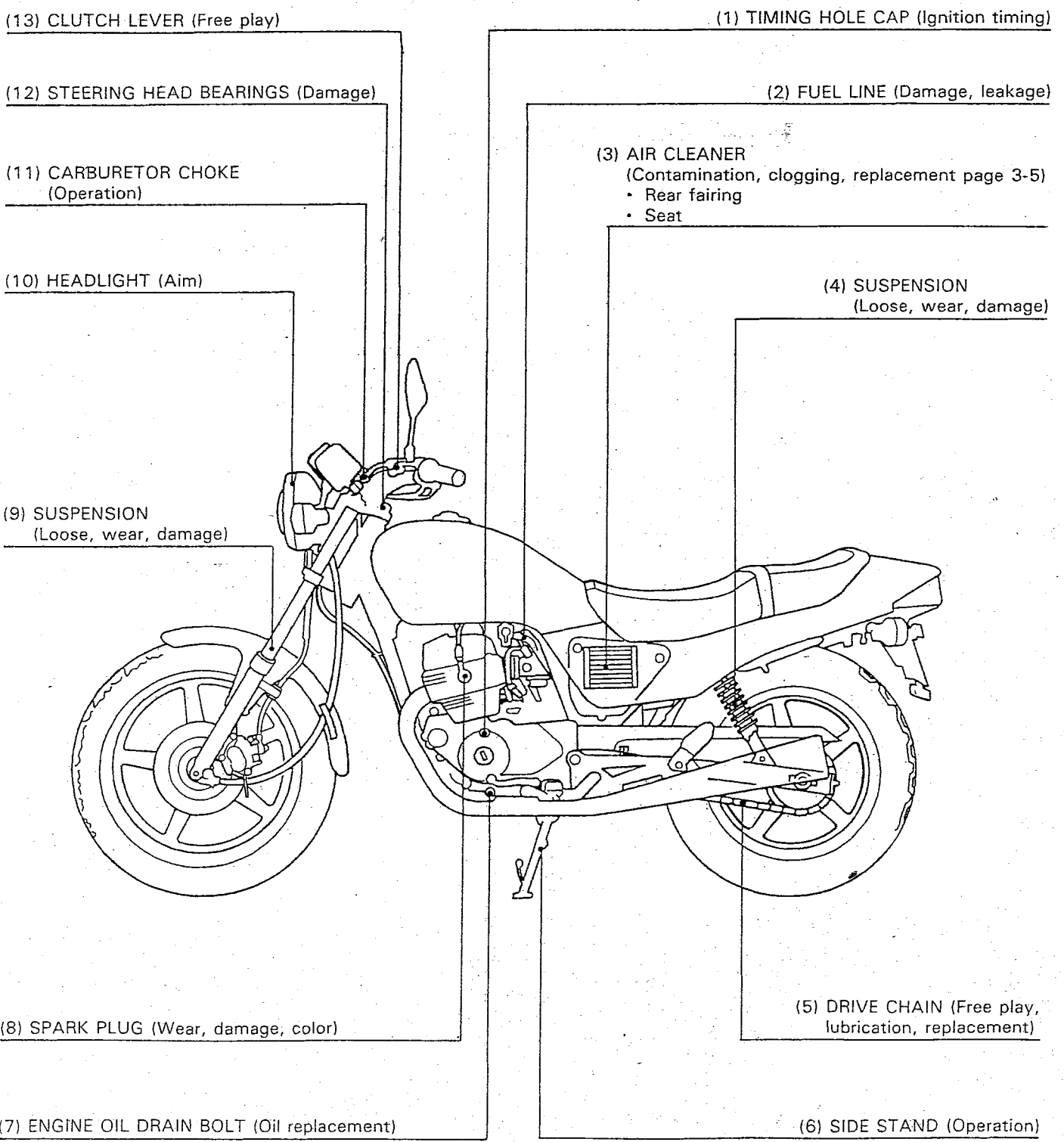
Service Information	3-1	Air Cleaner	3-5
Service Access Guide	3-2	Valve Clearance	3-5
Maintenance Schedule	3-4	Oil Filter Screen Cleaning	3-6

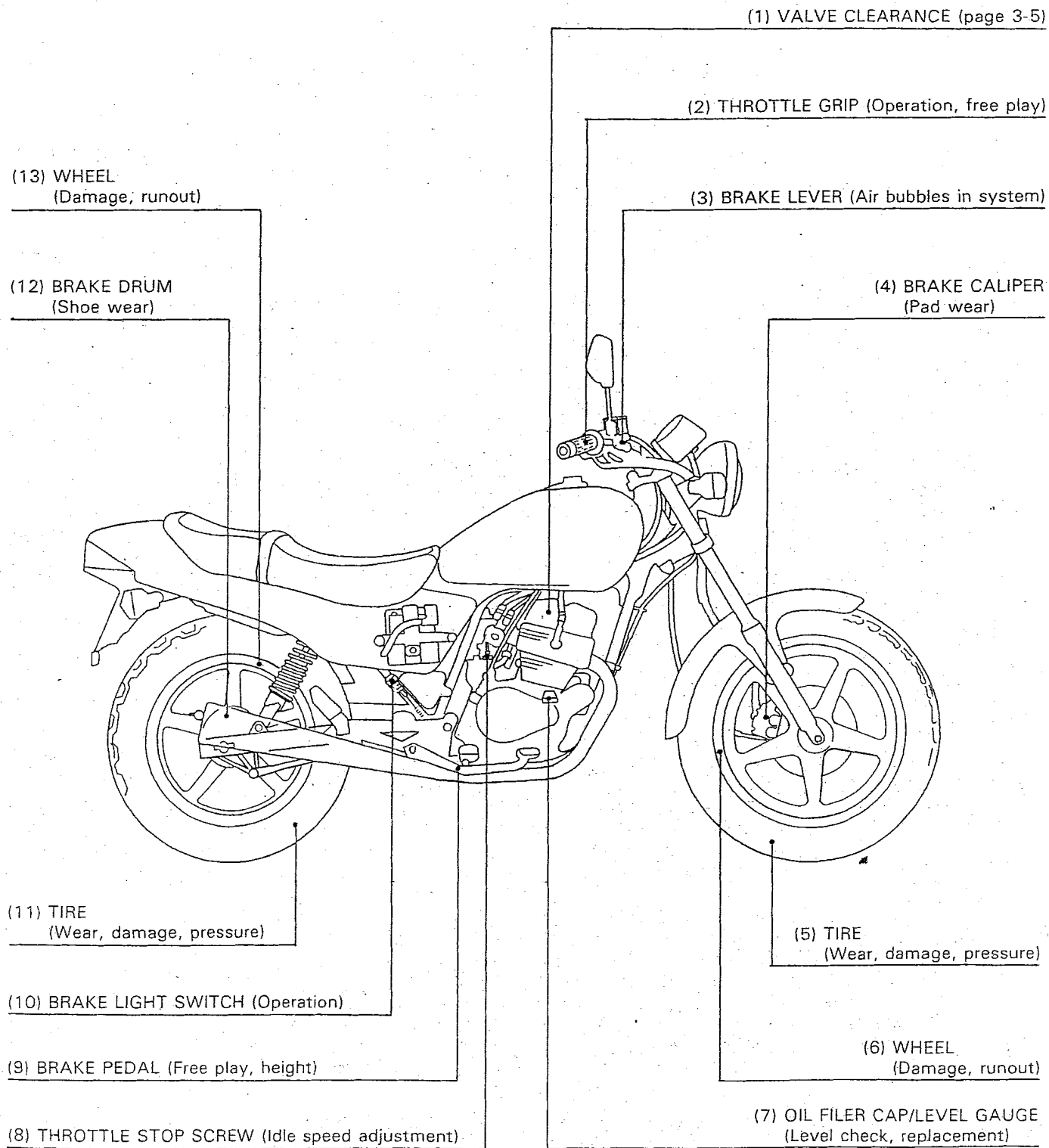
Service Information

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

Service Access Guide

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





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 their authorized Honda dealer.

Item	Frequency	Whichever comes first Note	Odometer Reading (Note 1)						Refer to page		
			x 1,000 km	1	6	12	18	24		30	36
			x 1,000 mi	0.6	4	8	12	16		20	24
			Months		6	12	18	24		30	36
* Fuel Line				I		I		I	Note 5		
* Fuel Strainer Screen				C	C	C	C	C	Note 5		
* Throttle Operation				I		I		I	Note 5		
* Carburetor Choke				I		I		I	Note 5		
Air Cleaner		Note 2				R		R	3-5		
Crankcase Breather		Note 3		C	C	C	C	C	Note 5		
Spark Plug				I	R	I	R	I	Note 6		
* Valve Clearance			I	I	I	I	I	I	3-5		
Engine Oil			R	R	R	R	R	R	Note 6		
** Engine Oil Filter Screen					C		C	C	3-6		
* Carburetor Idle Speed			I	I	I	I	I	I	Note 6		
Drive Chain			EVERY 600 mi (1,000 km) I,L						Note 5		
Brake Fluid		Note 4		I	I	R	I	I	R	Note 5	
Brake Shoe				I	I	I	I	I	Note 5		
Brake System			I		I		I		Note 5		
* Brake Light Switch					I		I		Note 5		
* Headlight Aim					I		I		Note 5		
Clutch System			I	I	I	I	I	I	Note 5		
Side Stand					I		I		Note 5		
* Suspension					I		I		Note 5		
* Nuts, Bolts, Fasteners			I		I		I		1-14		
** Wheels/Tires					I		I		Note 5		
** Steering Head Bearings			I		I		I		Note 5		

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

Notes: 1. At higher odometer readings, repeat at the frequency interval established here.

2. Service more frequently when riding in unusually wet or dusty areas.

3. Service more frequently when riding in rain or at full throttle.

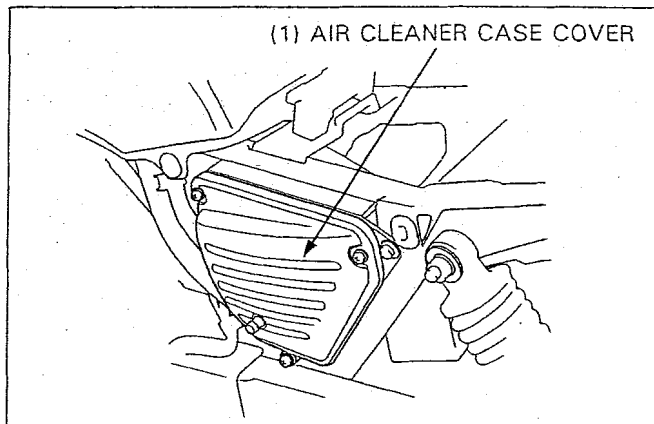
4. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.

5. Refer to the Common Service Manual.

6. Use the specifications in section one and refer to the Common Service Manual.

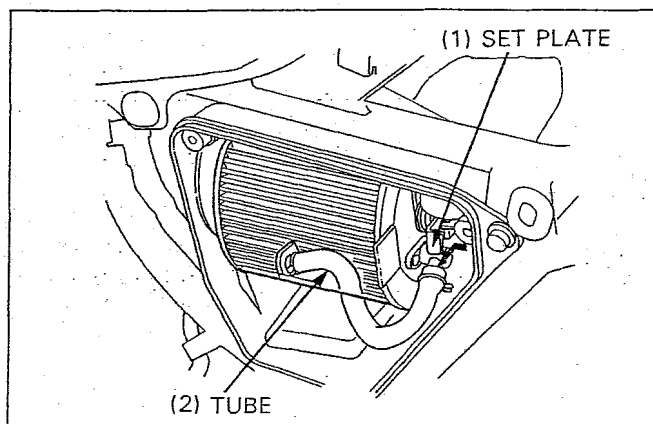
Air Cleaner

Remove the rear fairing (page 2-3).
Remove the air cleaner case cover.



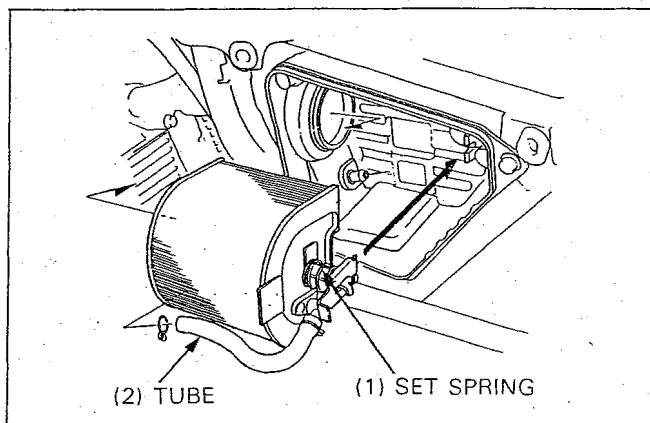
Disconnect the tube.
Pull the air cleaner element set plate and remove the element.

Discard the air cleaner element in accordance with the maintenance schedule.



Install the air cleaner element by compressing the set spring as shown.
Connect the tube.

Install the removed parts in the reverse order of removal.



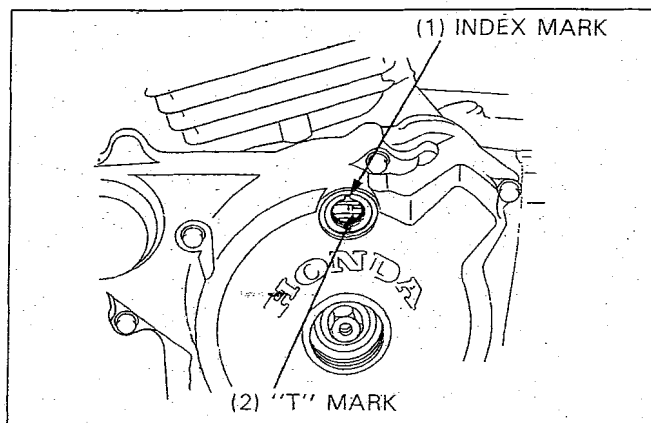
Valve Clearance

NOTE

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

Remove the cylinder head cover (page 7-2).
Remove the crankshaft and timing hole cap.

Turn the crankshaft counterclockwise and align the "T" mark with the index mark of the left crankcase cover.

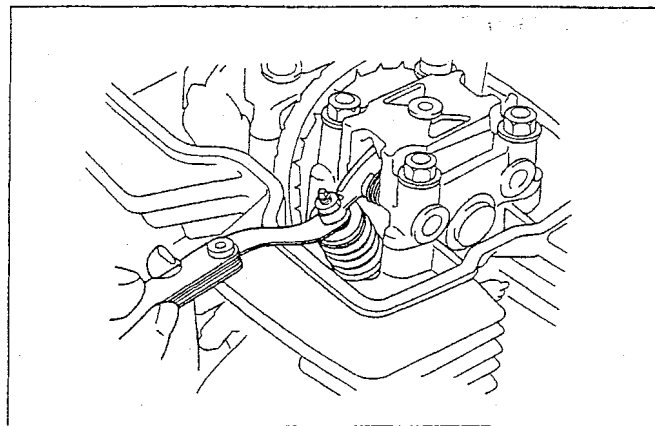


Measure the valve clearances for the right or left cylinder on the compression stroke (both rocker arms for the cylinder being checked should be loose) by inserting a feeler gauge between the adjusting screw and valve stem.

Valve Clearance:

IN: 0.06—0.10 mm (0.002—0.004 in)

EX: 0.06—0.10 mm (0.002—0.004 in)



If adjustment is needed, loosen the lock nut and adjusting screw and insert the proper dimension feeler gauge. Turn the adjusting screw and adjust the clearance until there is a slight drag on the feeler gauge. Hold the adjusting screw and tighten the lock nut.

S. TOOL

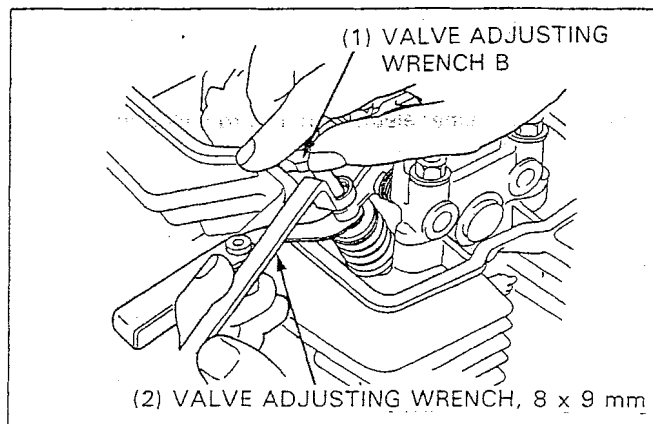
Valve adjusting wrench, 8 x 9 mm	07708-0030100
Valve adjusting wrench B	07708-0030400 or 07908-KE90200

Torque: 10 N·m (1.0 kg-m, 7 ft-lb)

Recheck the valve clearances.

Turn the crankshaft counterclockwise one full turn (360 degrees) and align the "T" mark with the index mark again and check the valve clearances of the other cylinder.

Install the cylinder head cover (page 7-6).
Install the crankshaft and timing hole cap.

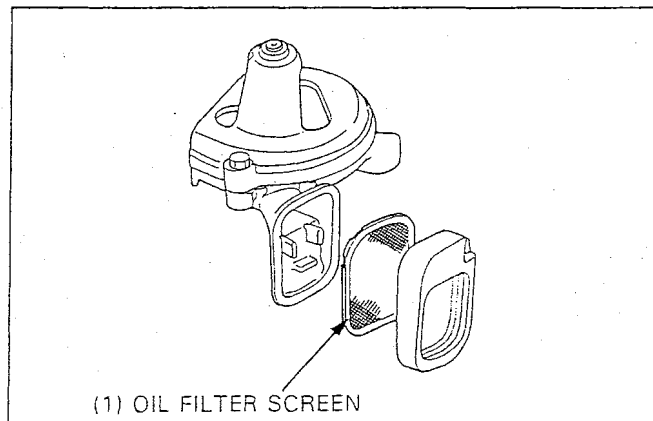


Oil Filter Screen Cleaning

Drain the engine oil.
Remove the oil pump (page 4-3).

Remove the oil filter screen from the oil pump.
Clean the oil filter screen by washing it in clean solvent and blowing it dry with compressed air.
Reinstall the oil filter screen onto the oil pump.

Install the oil pump (page 4-3).
Fill the crankcase to the proper level with the recommended oil.



4. Lubrication System

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

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.

- The oil pump can be serviced with the engine in the frame.
- The service procedures in this section must be performed after the engine oil is drained.
- When removing and installing the oil pump use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

Troubleshooting

Oil Level Low

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

Low Or No Oil Pressure

- Clogged oil filter screen
- Oil orifice collar damaged
- Incorrect oil being used

No Oil Pressure

- Oil level too low
- Oil pump drive gear broken
- Oil pump damaged (pump shaft)
- Internal oil leaks

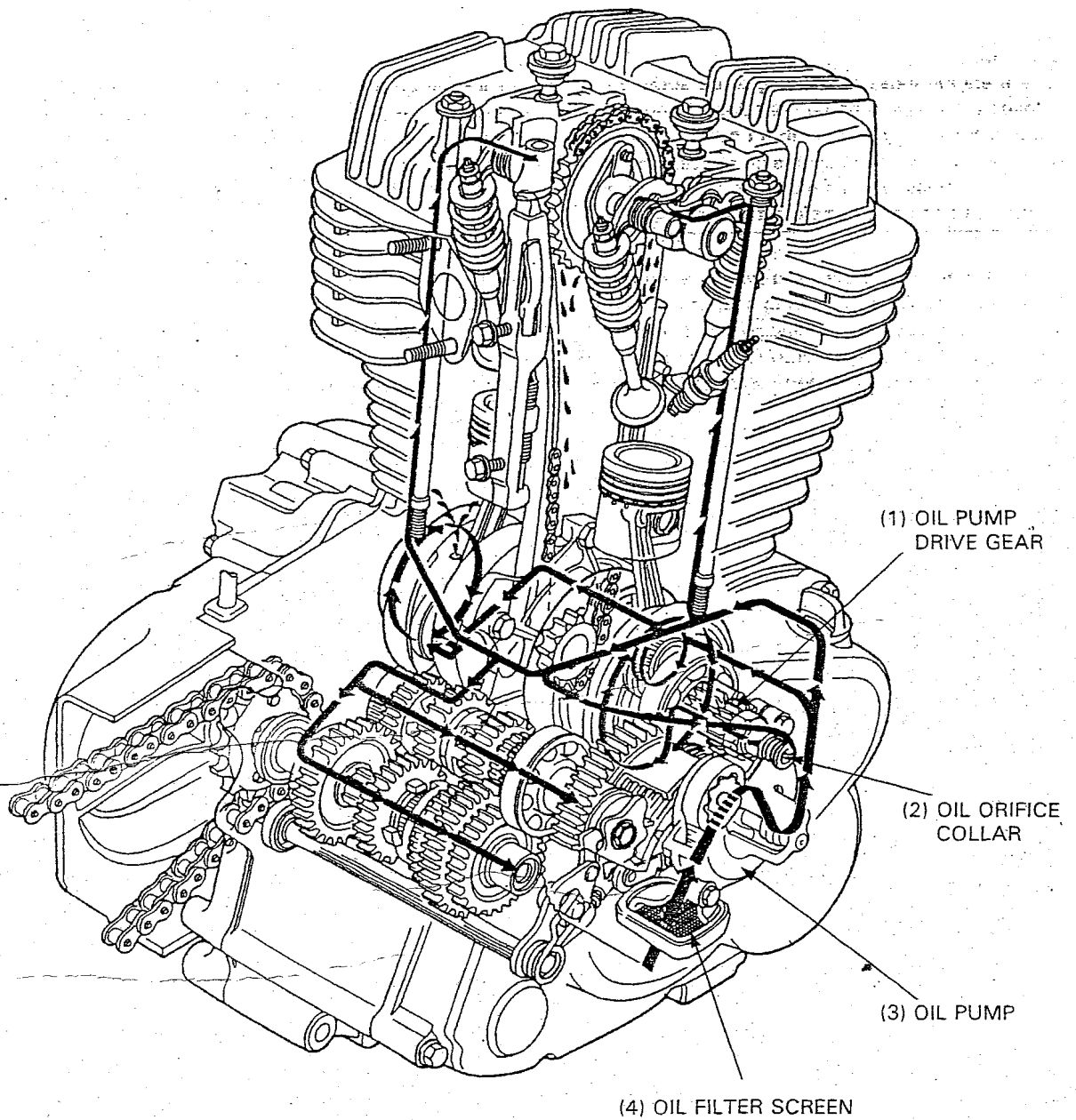
Low Oil Pressure

- Clogged oil filter screen
- Oil pump worn or damaged
- Internal oil leak
- Oil orifice collar damaged
- Incorrect oil being used
- Low oil level

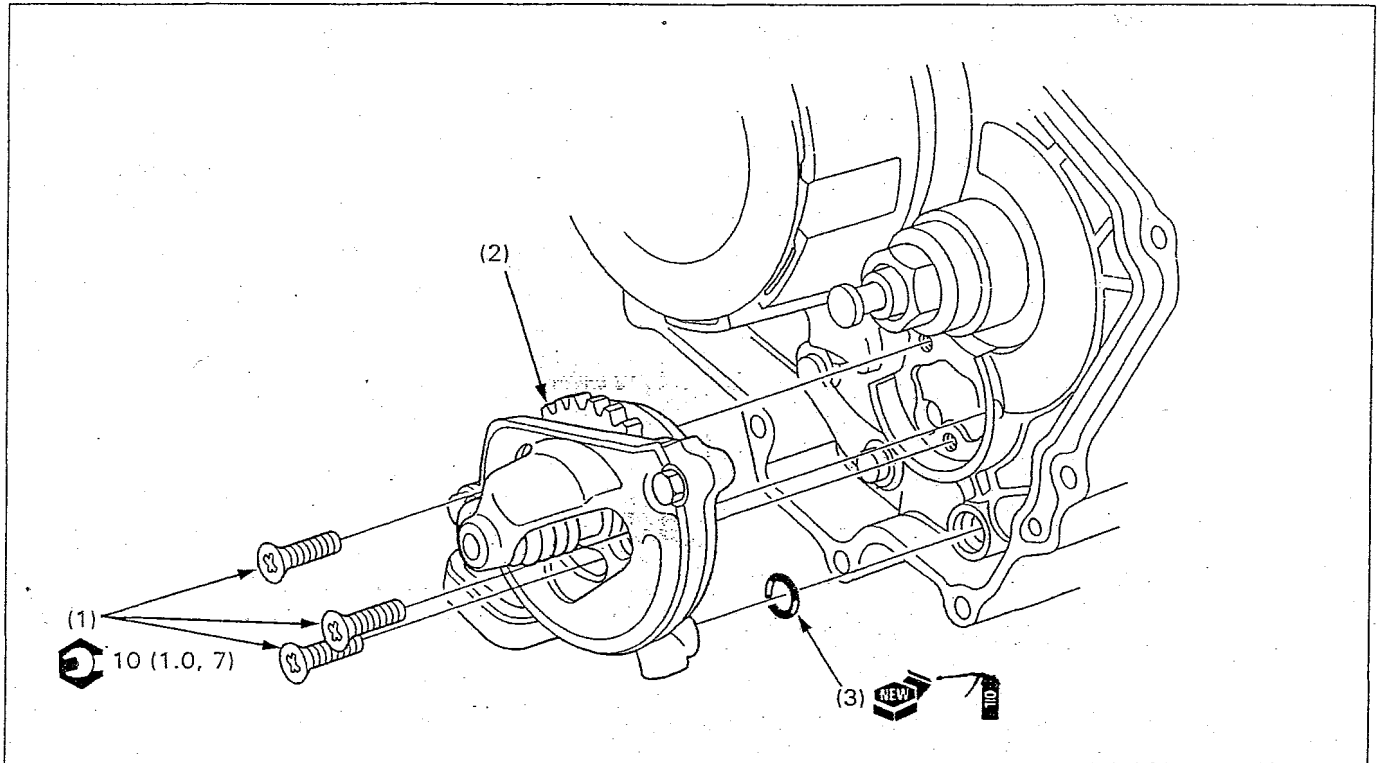
High Oil Pressure

- Pressure relief valve stuck closed
- Incorrect oil being used

Lubrication System Diagram



Oil Pump Removal/Installation



NOTE

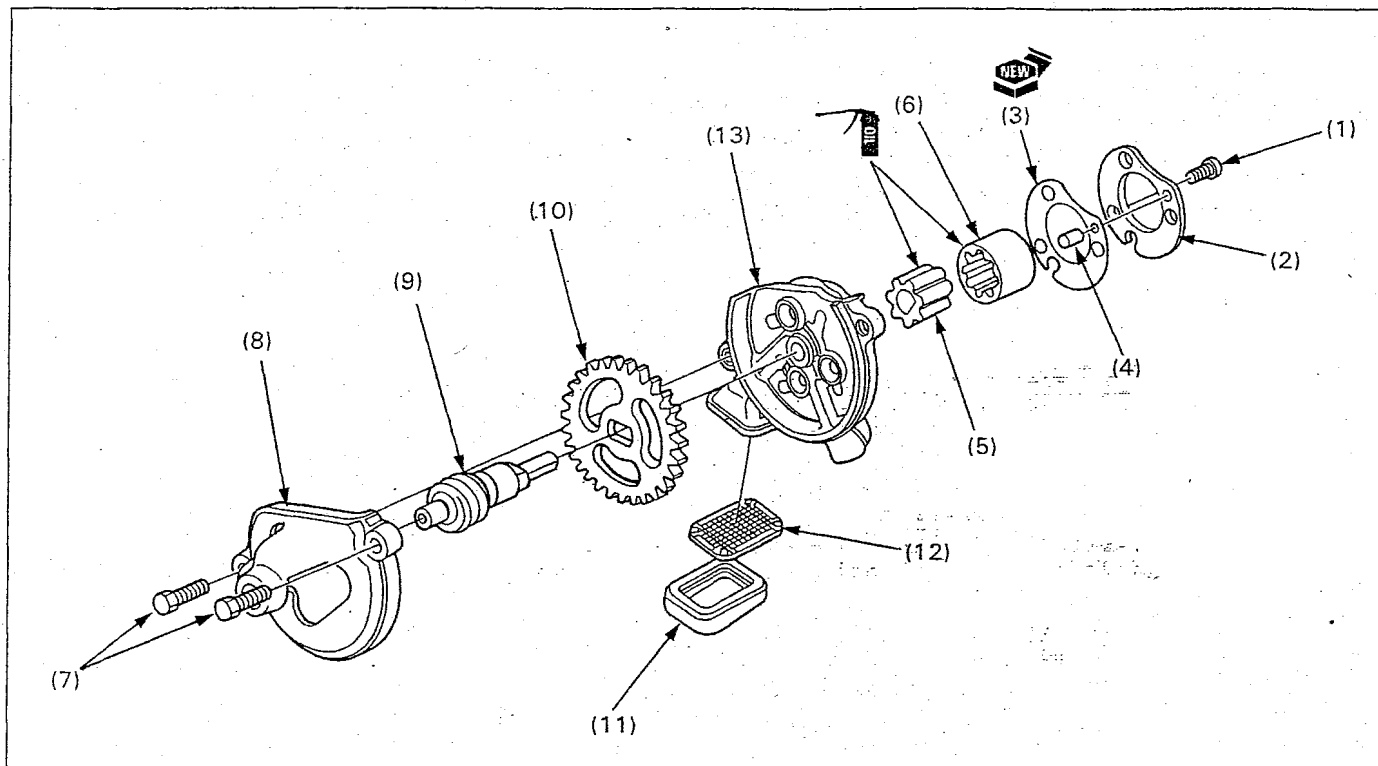
- Use care to prevent dust and dirt from entering the engine.
- After installation, check that there are no oil leaks.

Requisite Service

- Engine oil draining/refill
- Right crankcase cover removal/installation (page 8-2)
- Brake pedal removal/installation (page 12-10)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Oil pump mounting screw	3	
(2)	Oil pump assembly	1	Disassembly/assembly (page 4-4)
(3)	O-ring	1	

Oil Pump Disassembly/Assembly



NOTE

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

Requisite Service

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

Procedure	Q'ty	Remarks
Disassembly Order		
(1) Oil pump plate screw	2	Assembly is in the reverse order of disassembly. Install aligning the cut out with the rotor shaft cut out.
(2) Oil pump plate	1	
(3) Gasket	1	
(4) Dowel pin	1	
(5) Inner rotor	1	
(6) Outer rotor	1	
(7) Oil pump gear cover bolt	2	
(8) Oil pump gear cover	1	
(9) Pump shaft	1	
(10) Oil pump driven gear	1	
(11) Oil filter screen holder	1	
(12) Oil filter screen	1	
(13) Oil pump body	1	

5. Fuel System

Service Information	5-1	Carburetor Disassembly/Assembly	5-4
Troubleshooting	5-2	Air Cleaner Case Removal/Installation	5-6
Carburetor Removal/Installation	5-3	Pilot Screw Adjustment	5-7

Service Information

WARNING

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

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

CAUTION

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

- Refer to section 2 for fuel tank removal and installation.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before removing the carburetor, place an approved gasoline container under the carburetor drain tube, loosen the drain bolt and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with pieces 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 bowl. Fuel left in the float bowl 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
- No fuel to carburetor
 - Fuel strainer clogged
 - Fuel tube clogged
 - Fuel valve stuck
 - Float level misadjusted
 - Fuel tank breather hole clogged

Lean Mixture

- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Throttle valve faulty
- Vacuum piston faulty

Rich Mixture

- Bystarter valve in ON position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

Engine Stalls, Hard To Start, Rough Idling

- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather hole clogged
- Pilot screw misadjusted
- Slow circuit or bystarter circuit clogged

Afterburn When Engine Braking Is Used

- Lean mixture in slow circuit

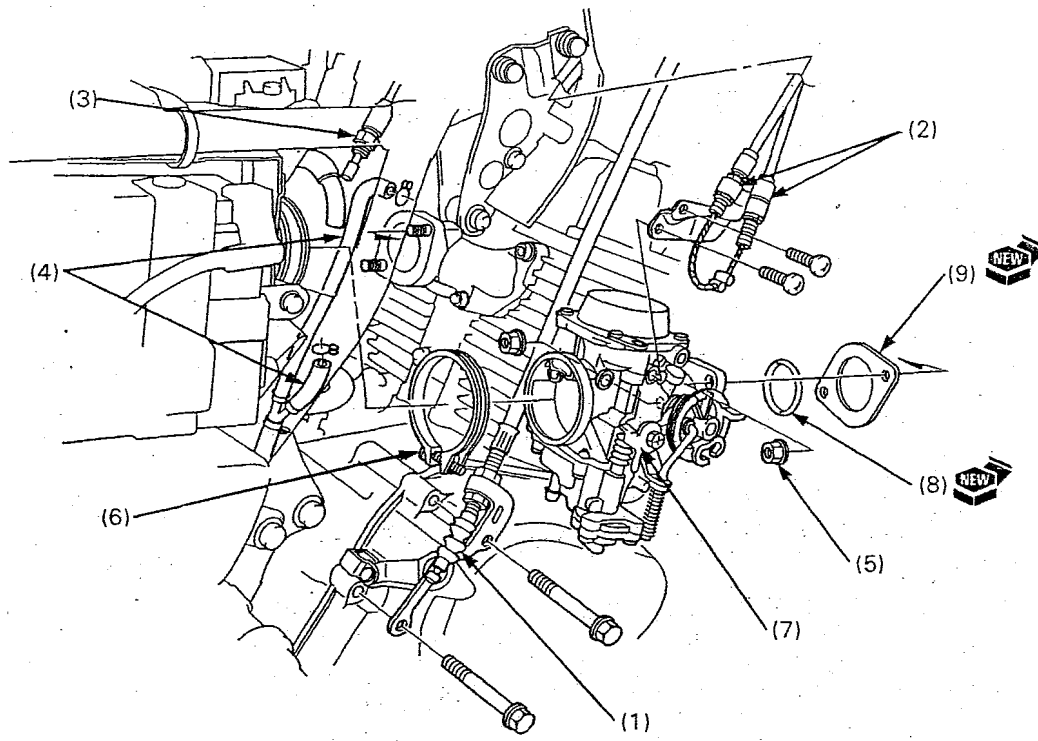
Backfiring Or Misfiring During Acceleration

- Ignition system faulty
- Fuel mixture too lean

Poor Performance (Driveability) And Poor Fuel Economy

- Fuel system clogged
- Ignition malfunction

Carburetor Removal/Installation



WARNING

• Gasoline is extremely flammable and is explosive under certain conditions.

• Work in well ventilated area. Smoking or allow flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.

NOTE

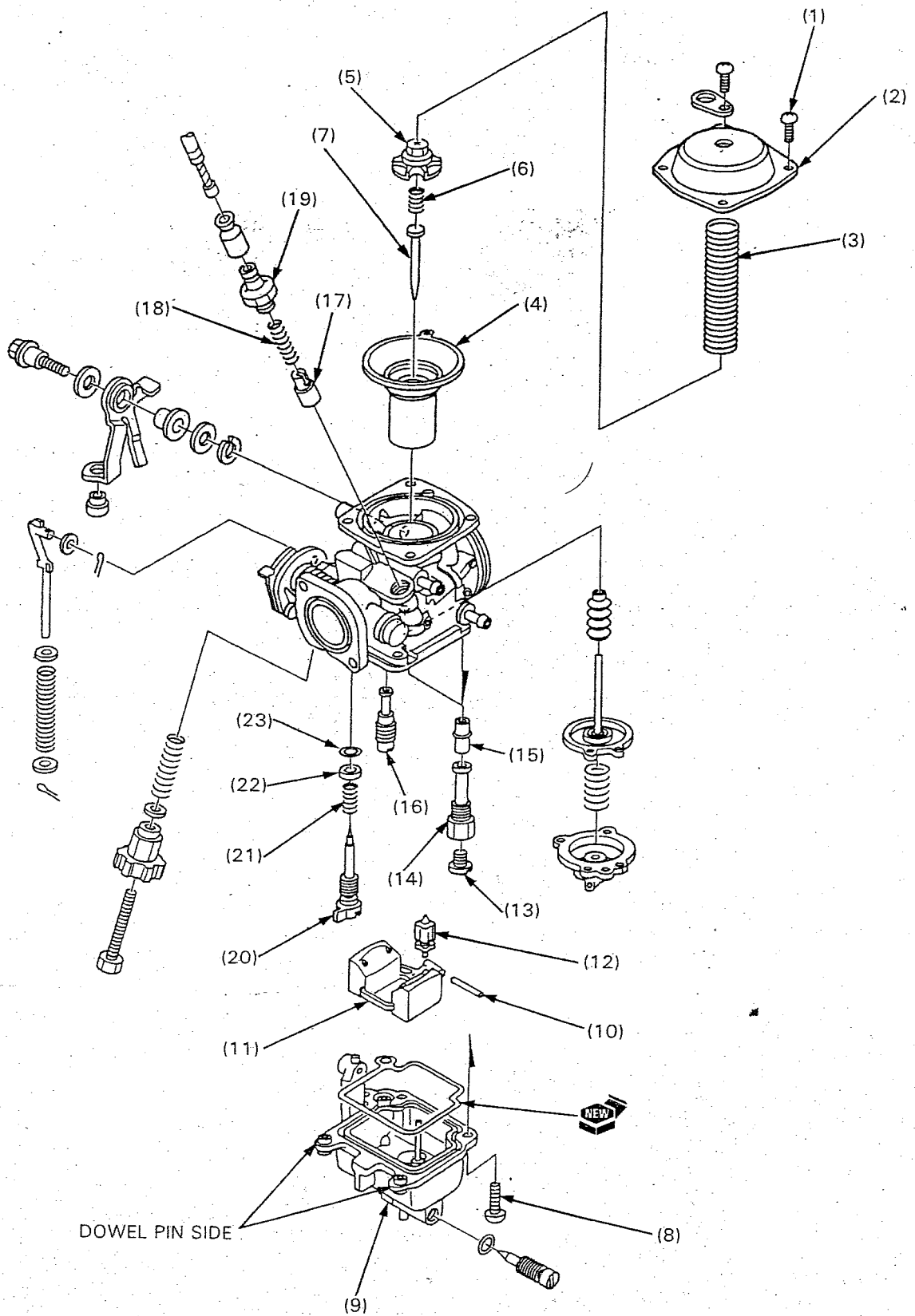
• Before removal, turn the fuel valve OFF.

Requisite Service

- Rear fairing removal/installation (page 2-3)
- Fuel tank removal/installation (page 2-4)
- Carburetor draining

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Clutch cable	1	
(2) Throttle cables	2	
(3) Choke cable	1	
(4) Air vent/drain tube	2	
(5) Carburetor mounting nut	2	
(6) Connecting tube band screw	1	Only loosen.
(7) Carburetor assembly	1	
(8) O-ring	1	
(9) Gasket	1	

Carburetor Disassembly/Assembly



NOTE

- The pilot screw is factory pre-set and should not be removed unless the carburetor is overhauled. Turn the pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the pilot screw. If new pilot screw is installed, turn pilot screw out to the initial opening before making a pilot screw adjustment (page 5-7).

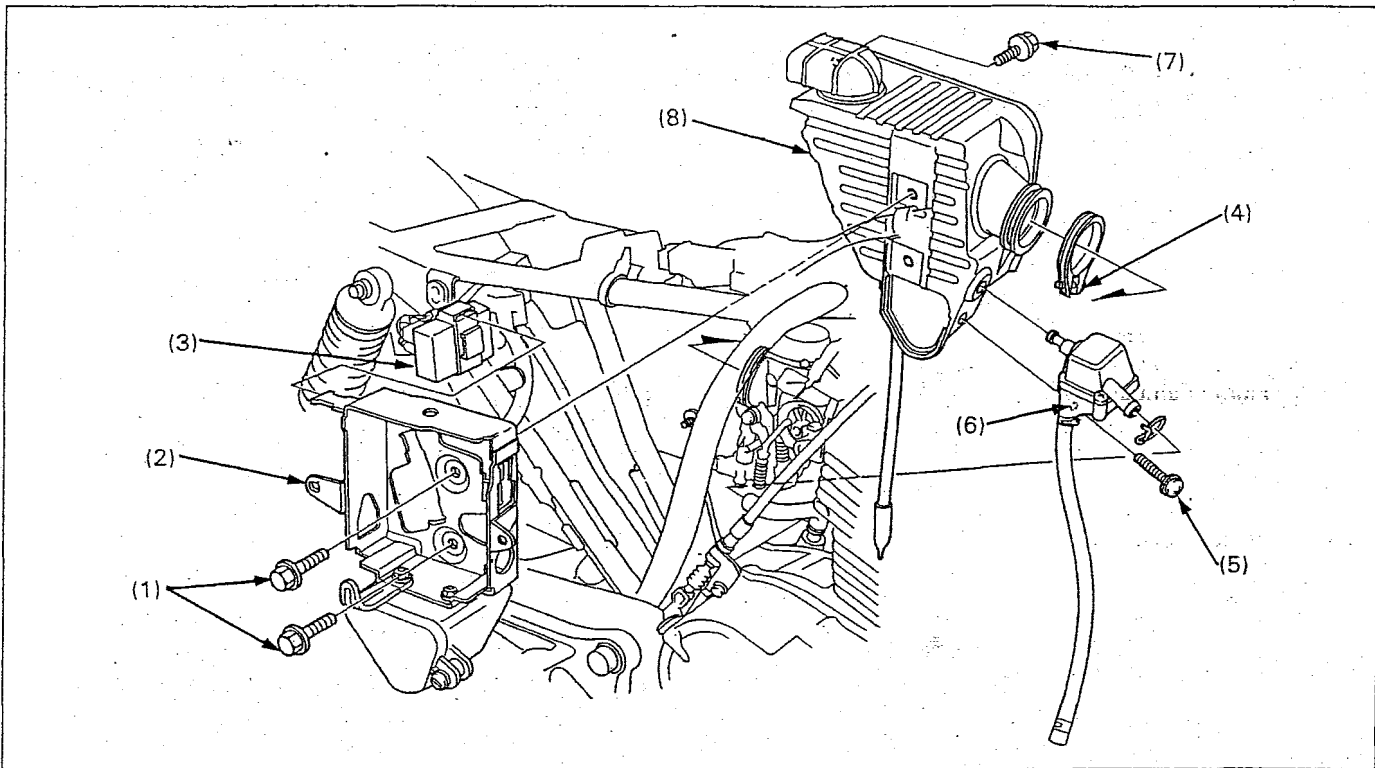
Requisite Service

- Carburetor removal/installation (page 5-3)

Procedure		Q'ty	Remarks
Vacuum Chamber Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Vacuum chamber cover screws	4	NOTE • At installation, hold the piston almost full open to avoid pinching the diaphragm with the chamber.
(2)	Vacuum chamber cover	1	
(3)	Spring	1	
(4)	Diaphragm/vacuum piston	1	
(5)	Jet needle holder	1	
(6)	Spring	1	
(7)	Jet needle	1	
Float Chamber Disassembly Order			Assembly is in the reverse order of disassembly.
(8)	Float chamber cover screws	4	At installation, first tighten the two screws on the dowel pin side.
(9)	Float chamber	1	For float level of inspection, refer to the section 8 of the Common Service Manual.
(10)	Float pin	1	
(11)	Float	1	
(12)	Float valve	1	
(13)	Main jet	1	
(14)	Needle jet holder	1	
(15)	Needle jet	1	
(16)	Slow jet	1	
Bystarter Valve Disassembly Order			Assembly is in the reverse order of disassembly.
(17)	Bystarter valve	1	
(18)	Spring	1	
(19)	Valve nut	1	
Pilot screw Disassembly Order			Assembly is in the reverse order of disassembly.
(20)	Pilot screw	1	
(21)	Spring	1	
(22)	Washer	1	
(23)	O-ring	1	

Air Cleaner Case Removal/Installation

47155



Requisite Service

- Rear fairing removal/installation (page 2-3)
- Battery removal/installation (page 13-4)
- Seat removal/installation (page 2-3)
- Air cleaner removal/installation (page 3-5)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Battery stay mounting bolt	2	
(2) Battery stay	1	
(3) CDI unit	1	
(4) Connecting tube band screw	1	Only loosen.
(5) Air/oil separator mounting screw	1	
(6) Air/oil separator	1	Remove the air/oil separator from the air cleaner case.
(7) Air cleaner case mounting bolt	1	
(8) Air cleaner case assembly	1	Move the air cleaner case out of the frame to the left.

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

- 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 min^{-1} (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.

CAUTION

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

Initial Opening: $1 - 7/8$ turns out

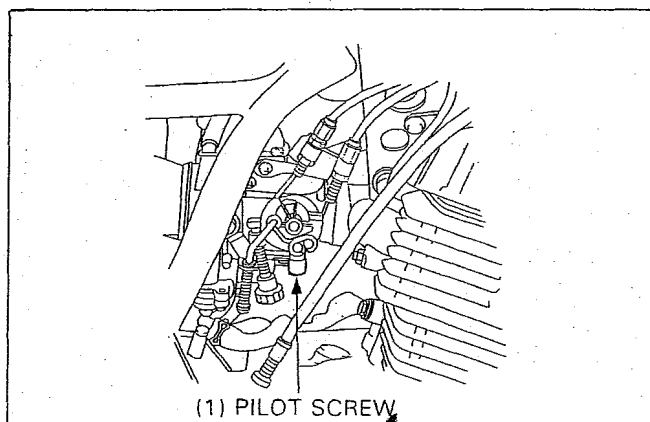
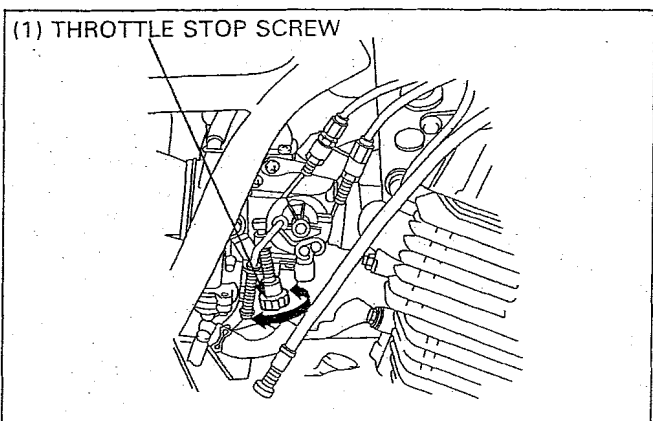
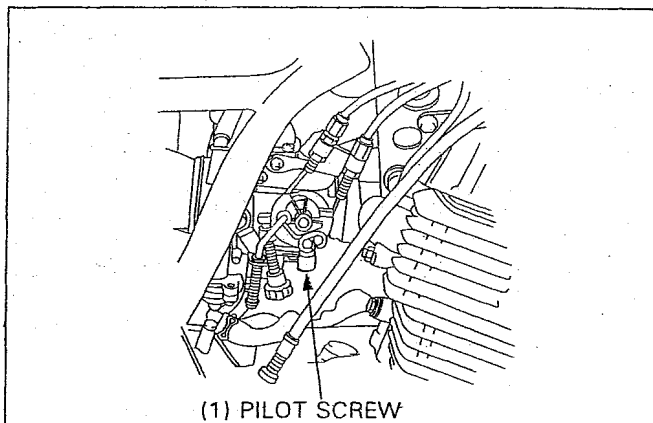
2. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
3. Attach a tachometer according to its manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop screw.

Idle Speed: $1,500 \pm 100 \text{ min}^{-1}$ (rpm)

5. Turn pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the pilot screw in gradually until the engine speed drops 50 min^{-1} (rpm).
8. Turn the pilot screw counterclockwise to the final opening from the position obtained in step 7.

FINAL OPENING: $1/4$ turns out

9. Readjust the idle speed with the throttle stop screw.



6. Engine Removal/Installation

Service Information

6-1 Engine Removal/Installation

6-2

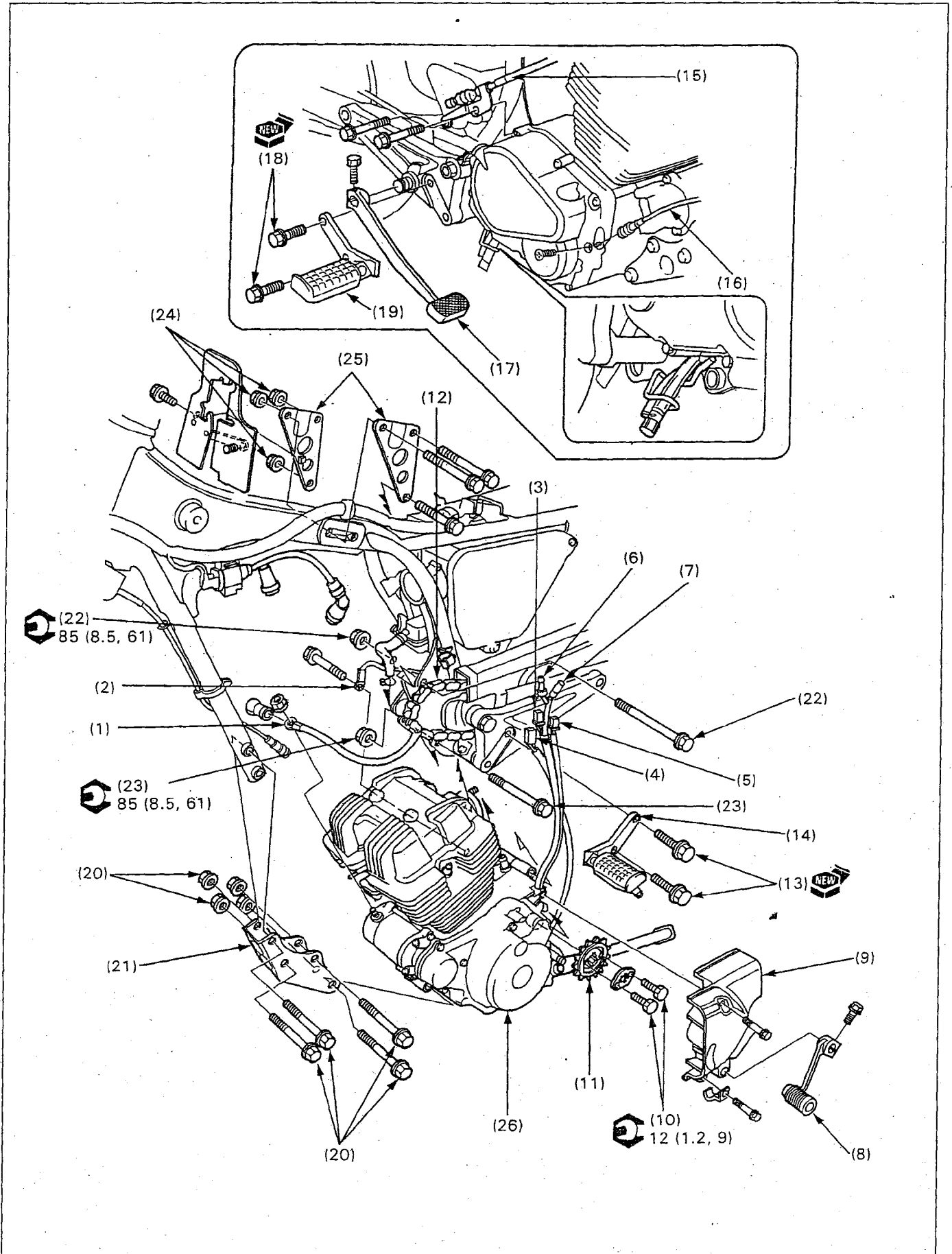
Service Information

- A floor jack or other adjustable support is required to support and maneuver the engine.
- When removing/installing the engine, tape the frame around the engine beforehand for frame protection.
- During engine removal/installation, be careful not to damage the wire harnesses or cables by pinching them between the engine and frame.

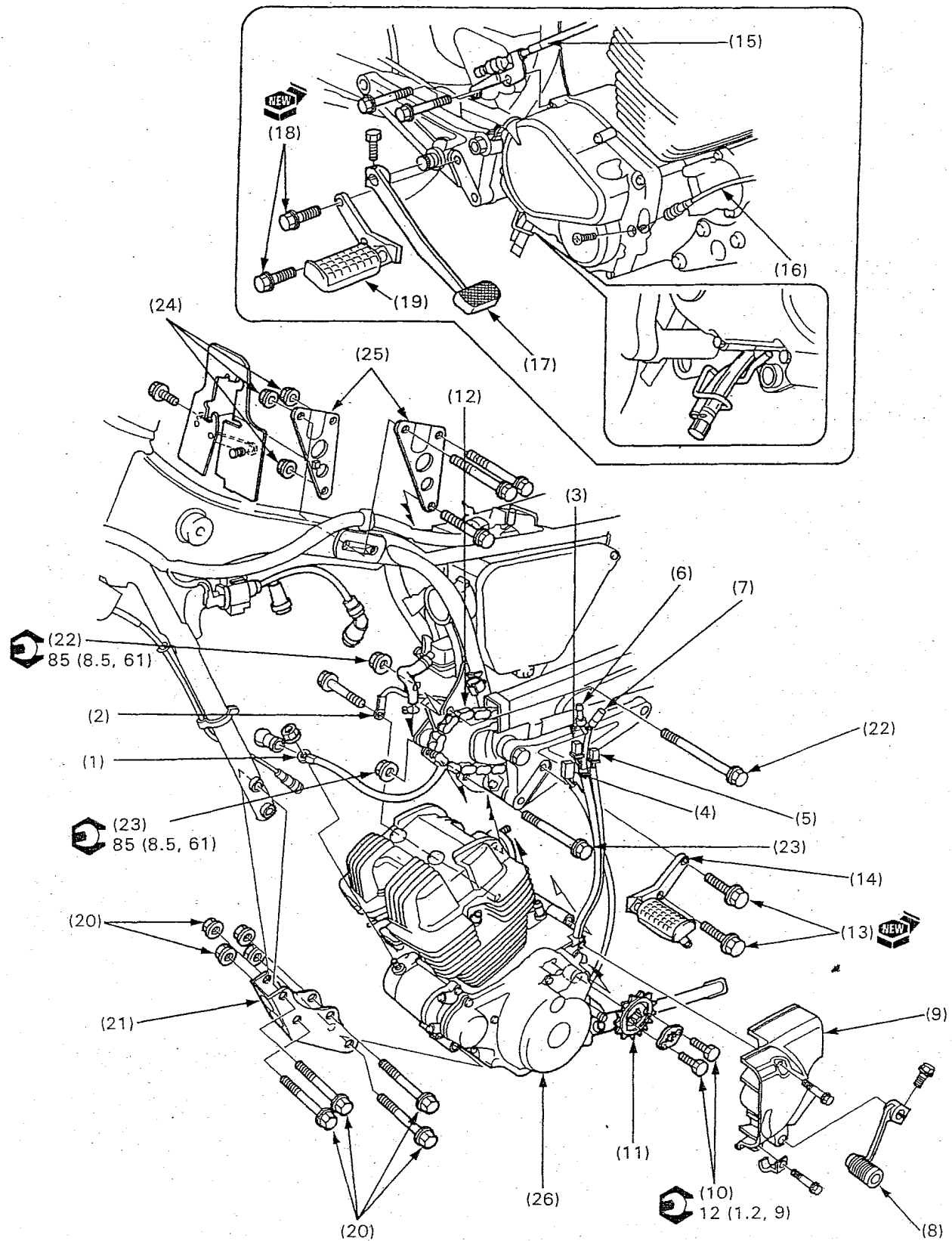
- The following components can be serviced with the engine installed in the frame.
 - Oil pump (Section 4)
 - Camshaft (Section 7)
 - Clutch/gearshift linkage (Section 8)
 - Alternator (Section 13)
 - Starter clutch (Section 15)

- The following components require engine removal for service.
 - Cylinder head/cylinder/piston (Section 7)
 - Transmission/shift forks/shift drum (Section 9)
 - Crankshaft (Section 9)

Engine Removal/Installation



Engine Removal/Installation



NOTE

- Support the motorcycle using safety stand or a hoist.
- Turn the ignition switch OFF and disconnect the battery ground (-) terminal.
- When removing the engine, be careful not to pinch the wire harnesses between the engine and frame.
- Note the direction of the engine mounting bolts.
- Install all engine mounting bolts and nuts loosely, then tighten the nuts to the specified torque.

Requisite Service

- Exhaust system removal/installation (page 2-2)
- Engine oil draining/refill
- Carburetor removal/installation (page 5-3)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Starter motor cable	1	
(2)	Engine ground (-) cable	1	
(3)	Alternator connector	1	
(4)	Side stand switch connector	1	
(5)	Pulse generator connector	1	
(6)	Neutral switch connector	1	
(7)	Excitor coil connector	1	
(8)	Gear shift pedal	1	
(9)	Drive sprocket cover	1	
(10)	Drive sprocket bolt	2	
(11)	Drive sprocket	1	Loosen the drive chain.
(12)	Drive chain	1	
(13)	Left footpeg mounting bolt	2	
(14)	Left footpeg	1	
(15)	Clutch cable	1	
(16)	Tachometer cable	1	
(17)	Brake pedal	1	
(18)	Right footpeg mounting bolt	2	
(19)	Right footpeg	1	
(20)	Engine front mounting bolt/nut	4/4	
(21)	Engine front bracket	1	
(22)	Engine rear upper mounting bolt/nut	1/1	CAUTION • Do not apply oil to the threads and seating surface.
(23)	Engine rear lower mounting bolt/nut	1/1	
(24)	Engine upper mounting bolt/nut	3/3	
(25)	Engine upper brackets	2	
(26)	Engine assembly	1	CAUTION • Carefully align mounting points with the jack to prevent damage to mounting bolt threads, wire harness and cables.

7. Cylinder Head/Cylinder/Piston

Service Information	7-1	Camshaft Installation	7-6
Troubleshooting	7-1	Cylinder Head Removal/Installation	7-10
Camshaft Removal	7-2	Cylinder Head Disassembly/Assembly	7-11
Camshaft Holder Disassembly/Assembly	7-5	Cylinder, Piston Removal/Installation	7-12

Service Information

- Camshaft service can be done with the engine in the frame.
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Clean all disassembled parts with clean solvent and dry them by blowing them off with compressed air before inspection.
- Before reassembly, lubricate the camshaft bushings and cam lobes with a molybdenum solution (half engine oil and half molybdenum grease).
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their proper locations.

Troubleshooting

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

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

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

Compression Too High, Overheating Or Knocking

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

Excessive Smoke

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

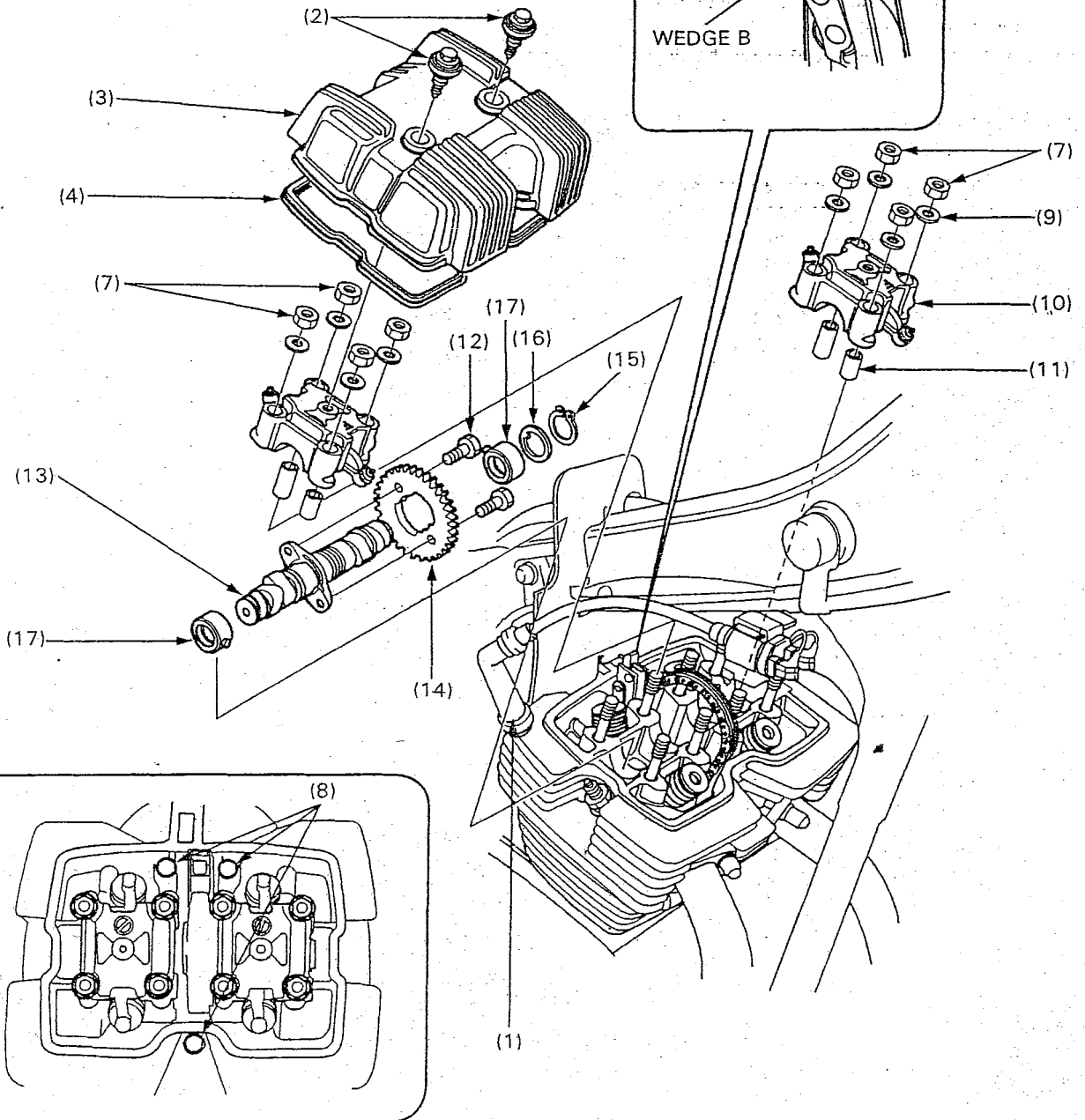
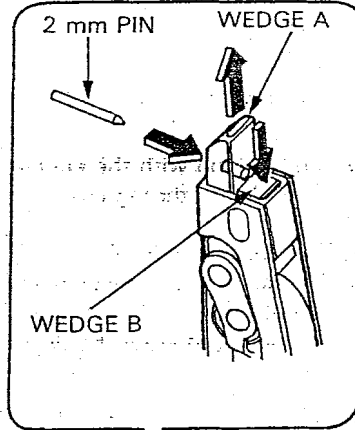
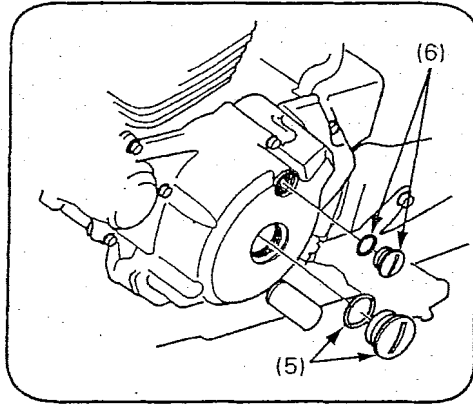
Excessive Noise

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

Rough Idle

- Low cylinder compression

Camshaft Removal



NOTE

- Do not allow the dust and dirt to enter the cylinder while servicing.
- The rocker arm and camshaft servicing can be performed with the engine in the frame.

Requisite Service

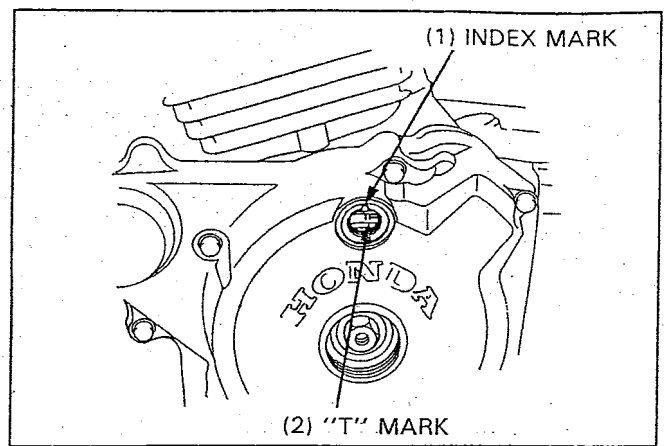
- Fuel tank removal/installation (page 2-4)

Procedure		Q'ty	Remarks
	Removal Order		
(1)	Spark plug cap	2	
(2)	Cylinder head cover bolt	2	
(3)	Cylinder head cover	1	
(4)	Gasket	1	
(5)	Crankshaft hole cap/o-ring	1	
(6)	Timing hole cap/o-ring	1	
(7)	Camshaft holder nut	8	See next page. Only loosen.
(8)	Cylinder head bolt	3	
(9)	Washer	8	
(10)	Camshaft holder	2	Disassembly/assembly (page 7-5).
(11)	Dowel pin	4	
(12)	Cam sprocket bolt	2	NOTE • Release the cam chain tensioner by pulling wedge A straight up while holding wedge B down. Then secure wedge A with a 2 mm pin as shown. • Be careful not to let the bolts and pin fall into the crankcase.
(13)	Camshaft	1	NOTE • Attach the piece of wire to the cam chain ends to prevent them from being dropped into the crankcase.
(14)	Cam sprocket	1	
(15)	Snap ring	1	
(16)	Thrust washer	1	
(17)	Camshaft bushing	2	

Camshaft Holder Removal

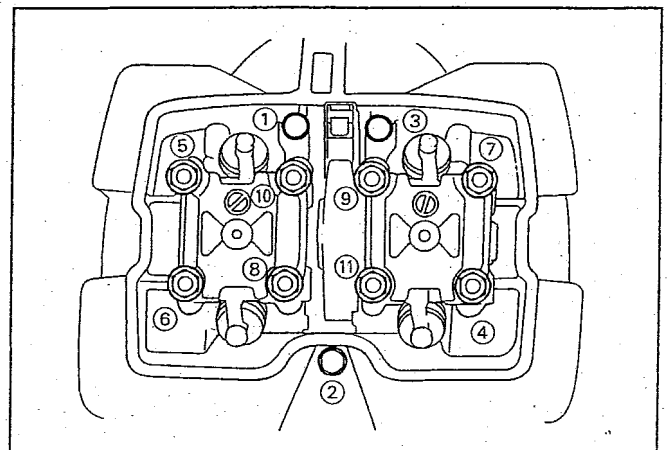
Loosen the valve adjusting screws fully.

Turn the crankshaft counterclockwise and align the "T" mark on the flywheel with the index mark on the left crankcase cover.

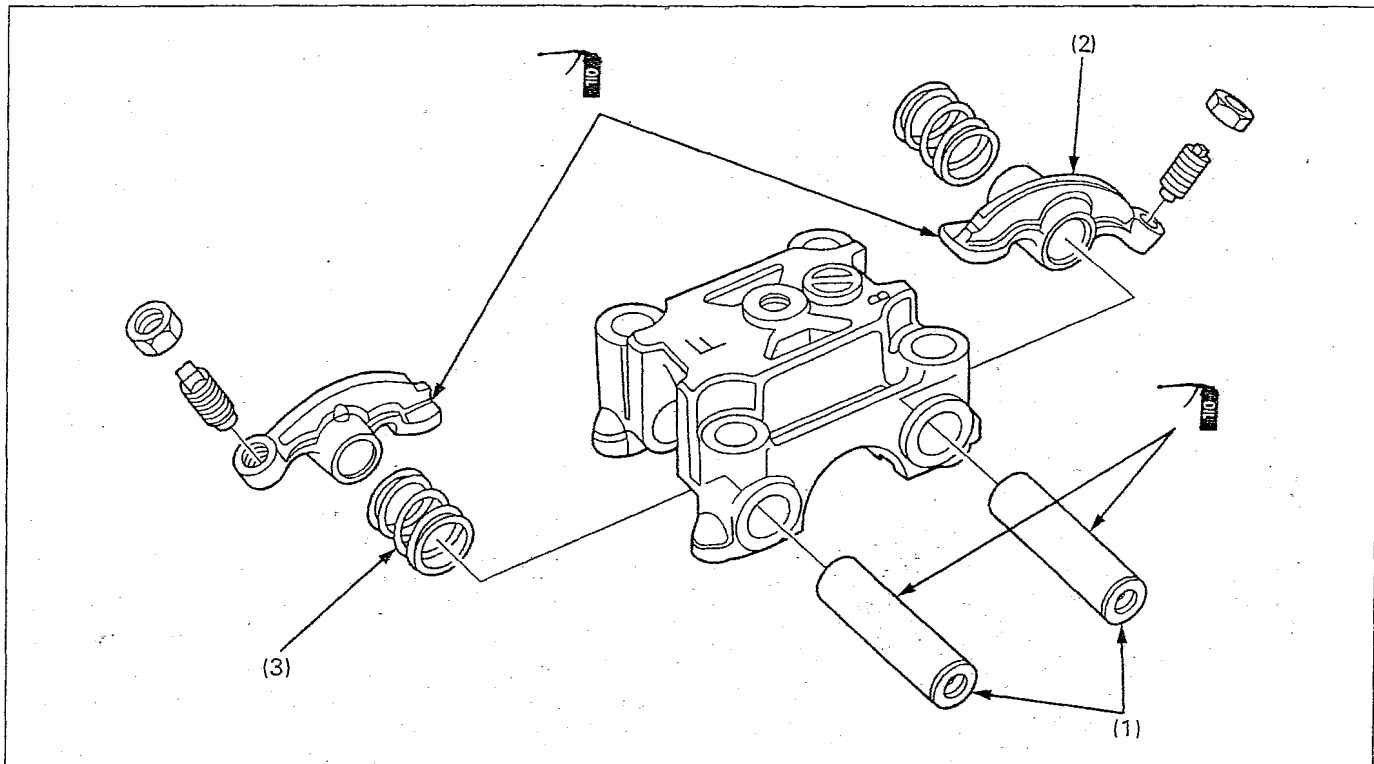


Loosen the camshaft holder nuts and cylinder head bolts in sequence shown in 2-3 steps.

Remove the nuts and camshaft holders.



Camshaft Holder Disassembly/Assembly



NOTE

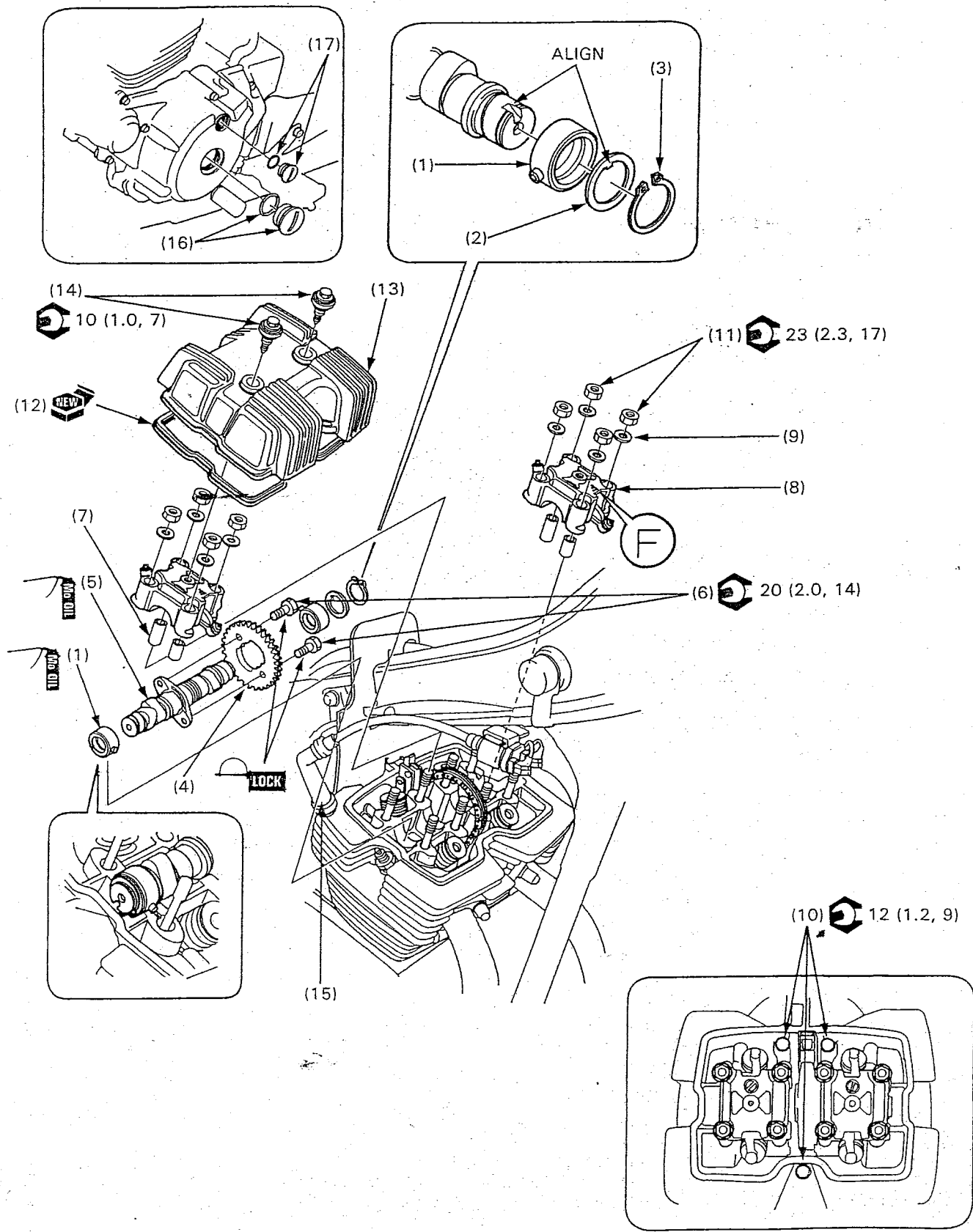
- Make each part to insure they are replaced in their original places.

Requisite Service

- Camshaft removal (page 7-2)

Procedure		Q'ty	Remarks
(1)	Disassembly Order Rocker arm shaft	4	Assembly is in the reverse order of disassembly. • Thread a 5 mm screw into each of the rocker arm shafts and pull the rocker arm shaft out of the camshaft holder. • At installation, insert the rocker arm shafts with the threaded end facing out.
(2)	Rocker arm	4	
(3)	Rocker arm spring	4	

Camshaft Installation



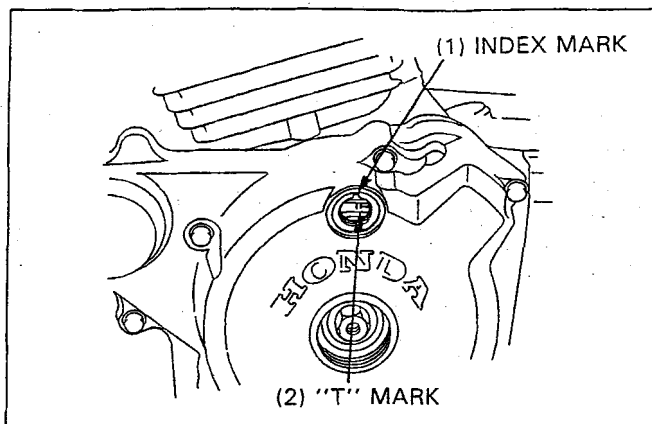
Requisite Service

- Fuel tank removal/installation (page 2-4)

Procedure		Q'ty	Remarks
	Installation Order		
(1)	Camshaft bushing	2	Apply molybdenum disulfide grease to the inside of the camshaft bushings.
(2)	Thrust washer	1	Align the tab with the groove in the camshaft end.
(3)	Snap ring	1	
(4)	Cam sprocket	1	Installation (see next page).
(5)	Camshaft	1	
(6)	Cam sprocket bolt	2	
(7)	Dowel pin	4	
(8)	Camshaft holder	2	
(9)	Washer	8	
(10)	Cylinder head bolt	3	
(11)	Camshaft holder nut	8	
(12)	Gasket	1	
(13)	Cylinder head cover	1	
(14)	Cylinder head cover bolt	2	
(15)	Spark plug cap	2	
(16)	Crankshaft hole cap/o-ring	1	
(17)	Timing hole cap/o-ring	1	

Camshaft/Camshaft Holder Installation

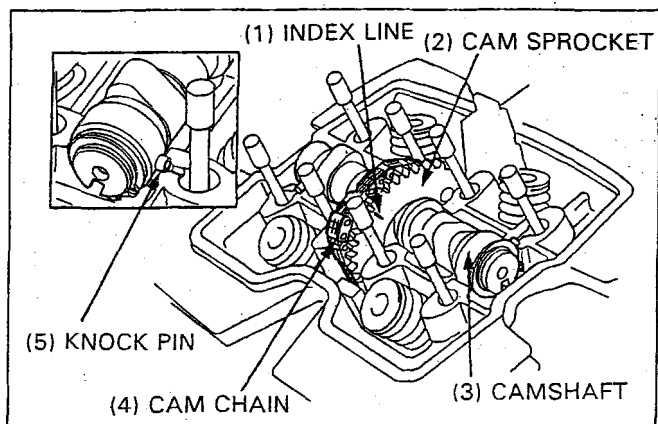
Turn the crankshaft counterclockwise and align the "T" mark on the flywheel with the index mark on the left crankcase cover.



Install the cam sprocket with the timing marks (index lines) facing the left side.

Install the camshaft on the cylinder head through the cam chain and cam sprocket.

Install the knock pins of the camshaft bushings into the grooves in the cylinder head.



Align the timing marks (index lines) on the cam sprocket with the top of the cylinder head and install the cam chain over the sprocket.

Install the cam sprocket on the camshaft flange and align the cam sprocket bolt holes in the sprocket and camshaft.

Apply a locking agent to the threads of one cam sprocket bolt, and install and tighten the sprocket bolt.

Turn the crankshaft counterclockwise 360°. Apply a locking agent to the threads of the other cam sprocket bolt. Install the other cam sprocket bolt and tighten it to the specified torque.

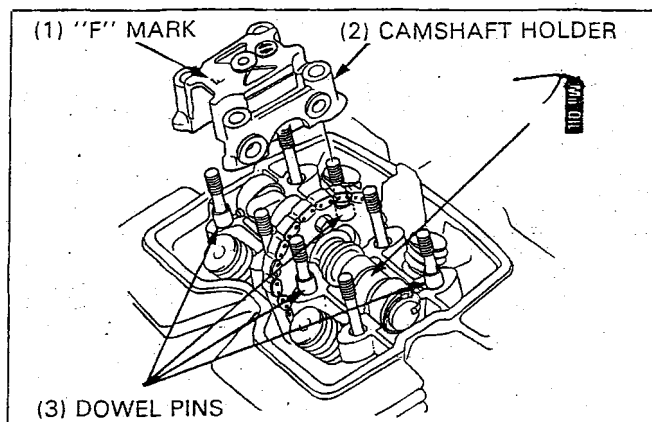
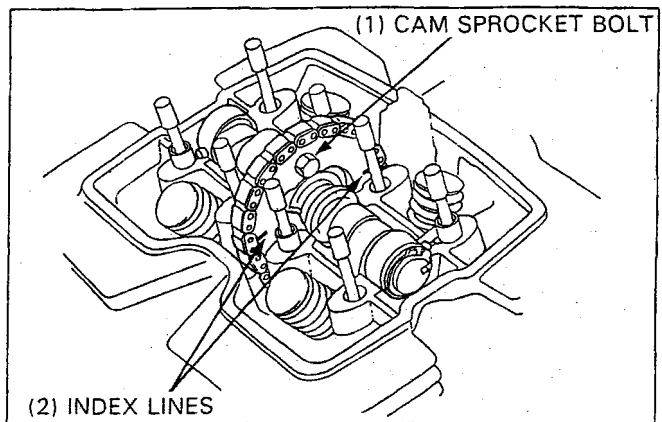
Torque: 20 N·m (2.0 kg·m, 14 ft·lb)

Turn the crankshaft counterclockwise 360° and tighten the other cam sprocket bolt to the specified torque.

Apply a molybdenum oil solution (half engine oil and half molybdenum disulfide grease) to the camshaft lobes.

Install the dowel pins into the cylinder head.

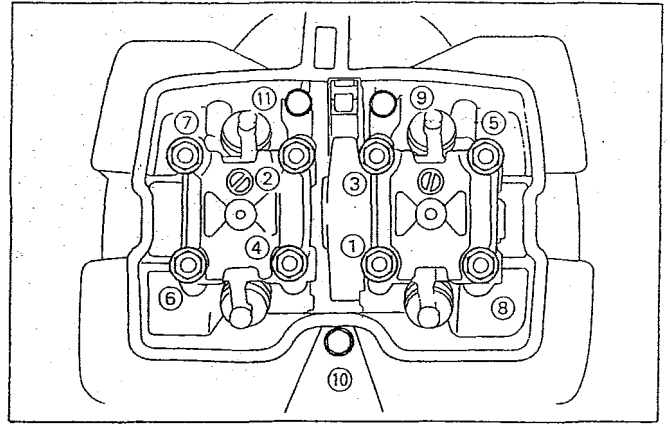
Install the camshaft holders with the "F" mark toward the front.



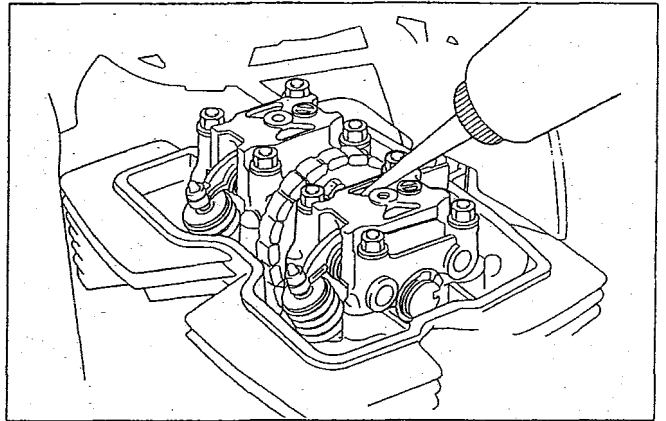
Install the washer and camshaft holder nuts.
Tighten the nuts and bolts in the sequence shown in 2-3 steps.

Torque:
Nut: 23 N·m (2.3 kg-m, 17 ft-lb)
Bolt: 12 N·m (1.2 kg-m, 9 ft-lb)

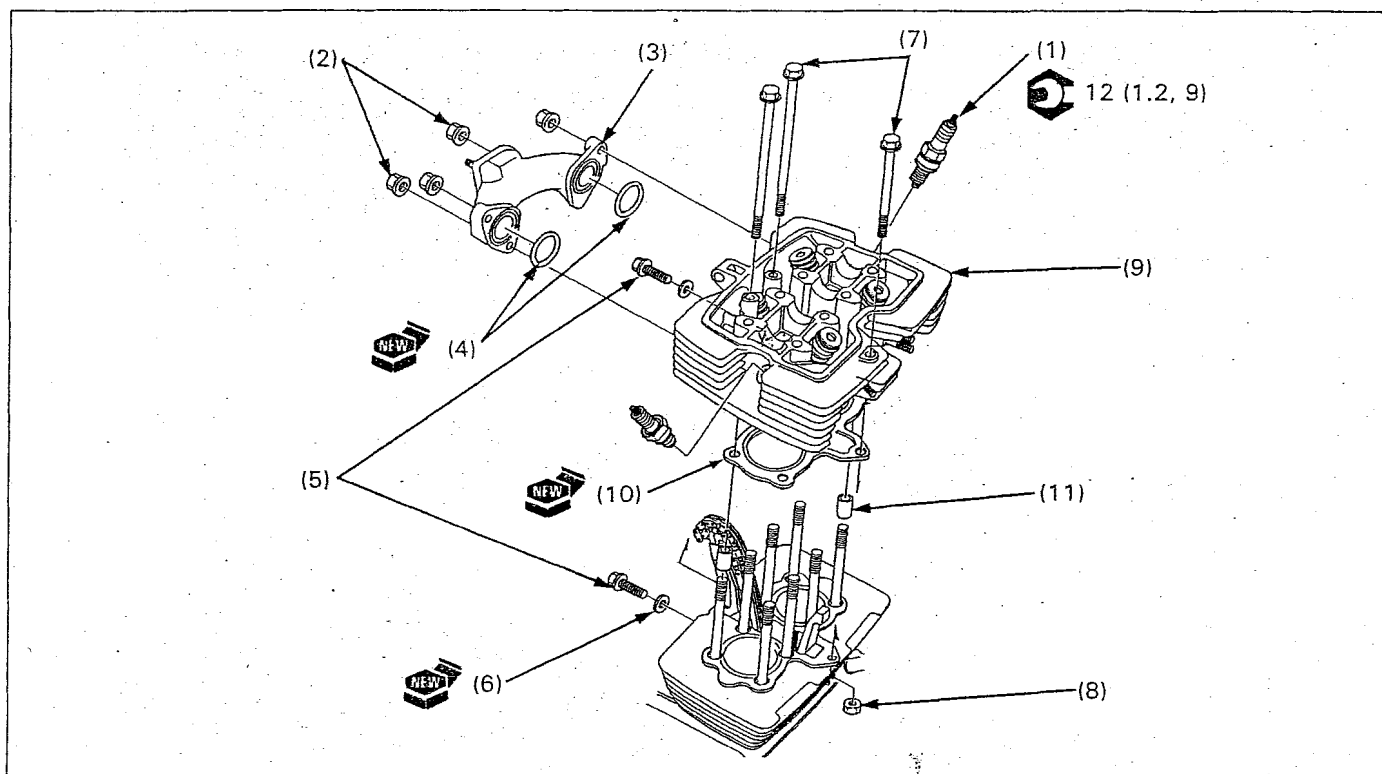
Pour fresh oil into the oil pockets in the cylinder head until the cams are submerged.



Pour fresh oil into the oil pockets in the cylinder head until the cams are submerged.



Cylinder Head Removal/Installation

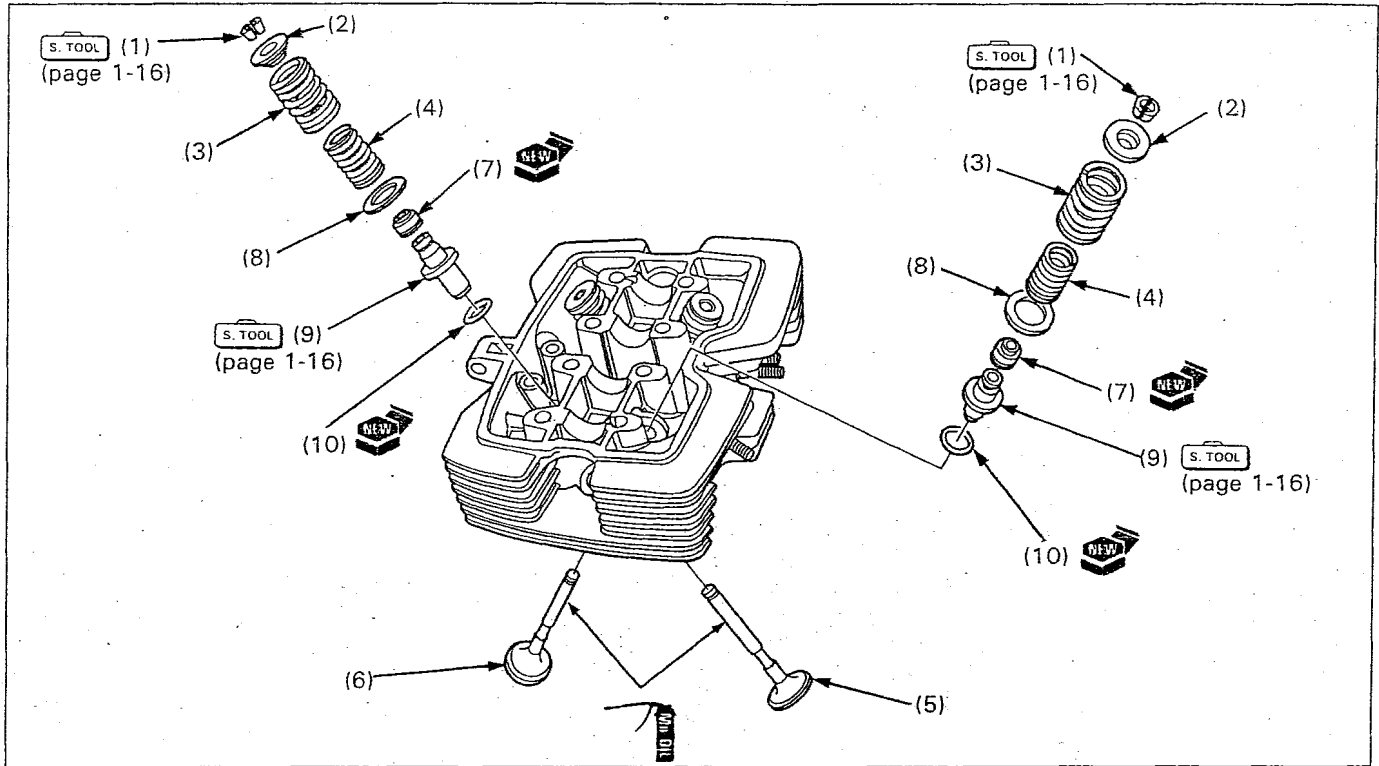


Requisite Service

- Camshaft removal (page 7-2)
- Camshaft Installation (page 7-6)
- Engine removal/installation (page 6-2)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Spark plug	2	
(2)	Intake pipe nut	4	
(3)	Intake pipe	1	
(4)	O-ring	2	
(5)	Cam chain tensioner mounting bolt	2	
(6)	Washer	2	
(7)	Cylinder head bolt	3	Cylinder head bolt tightening (page 7-9).
(8)	Nut	1	
(9)	Cylinder head	1	Disassembly/assembly (page 7-11).
(10)	Gasket	1	
(11)	Dowel pin	2	

Cylinder Head Disassembly/Assembly



CAUTION

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

NOTE

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

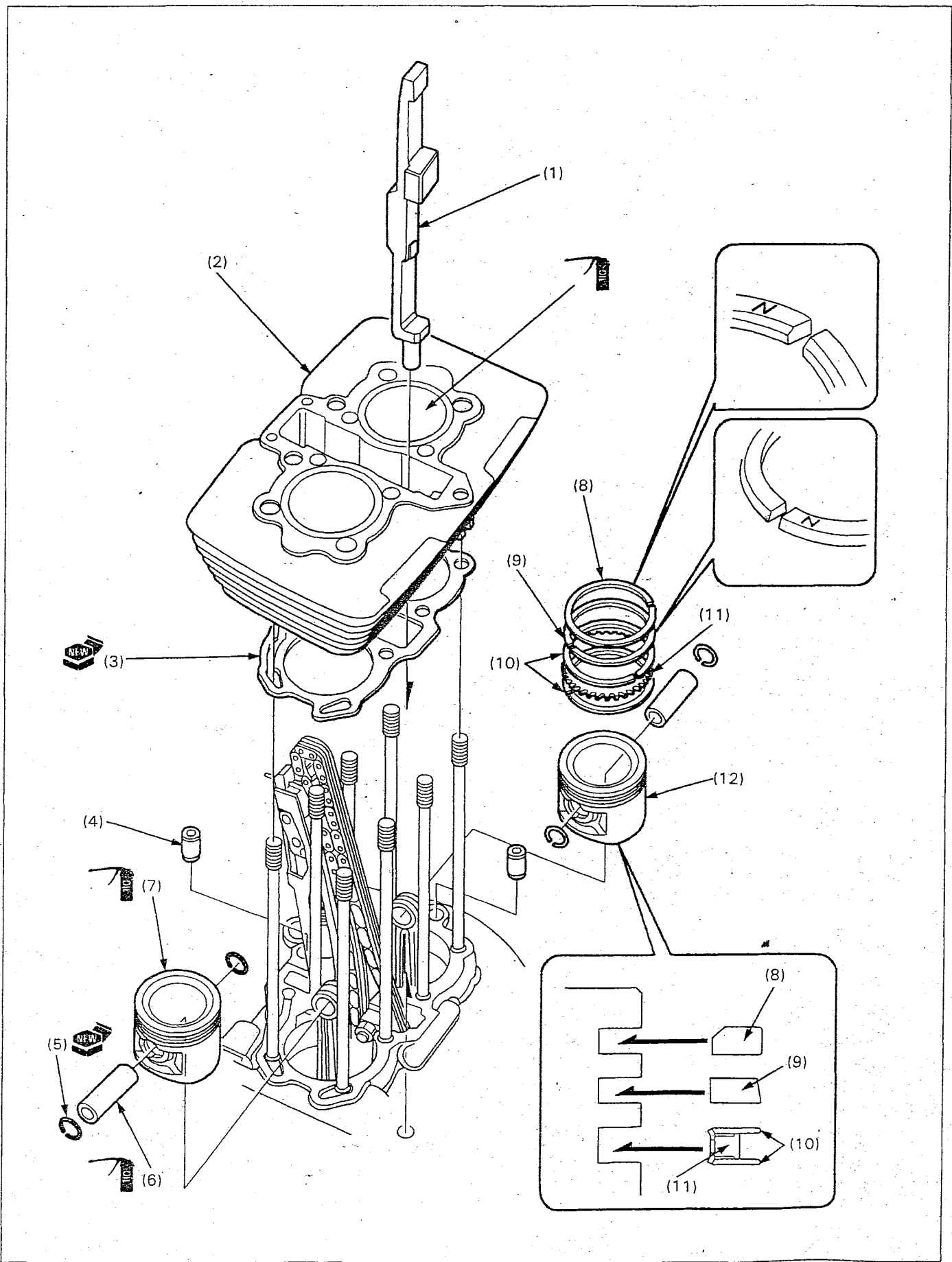
Requisite Service

- Cylinder head removal/installation (page 7-10)

Procedure	Q'ty	Remarks
(1) Disassembly Order Valve spring cotter	8	Assembly is in the reverse order of disassembly. NOTE • To prevent loss of tension, do not compress the valve spring more than necessary.
(2) Retainer	4	Install them with the narrow pitch end facing down.
(3) Outer valve spring	4	
(4) Inner valve spring	4	
(5) Inlet valve	2	
(6) Exhaust valve	2	Apply molybdenum disulfide oil solution to both valve stems before installing.
(7) Valve stem seal	4	NOTE • To avoid damage to stem seal, turn the valve slowly when inserting.
(8) Valve spring seat	4	
(9) Valve guide	4	
(10) O-ring	4	

Cylinder, Piston Removal/Installation

MANITOWOC 1.7L 1700



NOTE

- Do not damage the gasket surface.
- Do not let any gasket material, dirt or dust fall into the crankcase.

Requisite Service

- Cylinder head removal/installation (page 7-10)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Cam chain guide	1	NOTE • At installation, install the piston with the "IN" mark facing towards the intake side.
(2)	Cylinder	1	
(3)	Gasket	1	
(4)	Dowel pin	2	
(5)	Piston pin clip	4	
(6)	Piston pin	2	
(7)	Piston assembly	2	
Piston Ring Removal Order			Installation is in the reverse order of removal.
(8)	Top ring	2	NOTE • Use care when removing or installing the rings. • Insert the outside surface of the ring into the proper ring groove and roll the ring around the groove to make sure that the ring has a free fit around the piston's circumference.
(9)	Second ring	2	
(10)	Side rail	4	
(11)	Spacer	2	
(12)	Piston	2	

8. Clutch/Gearshift Linkage

Service Information	8-1	Clutch, Primary Drive Gear Removal/Installation	8-4
Troubleshooting	8-1	Gearshift Linkage Removal/Installation	8-7
Right Crankcase Cover Removal/Installation	8-2		

Service Information

- Clutch maintenance can be done with the engine in the frame.
- Engine/Transmission oil viscosity and level, and engine/transmission oil additives, have an effect on clutch disengagement. When the clutch does not disengage or the vehicle creeps with the clutch disengaged, inspect the transmission oil level and inspect for oil additives before servicing the clutch system.
- If the shift forks, drum and transmission require servicing, remove the engine and separate the crankcase (Section 9).

Troubleshooting

Clutch Lever Hard To Pull In

- Damaged, kinked or dirty clutch cable
- Improperly routed clutch cable
- Damaged clutch lifter mechanism
- Faulty clutch lifter plate bearing

Clutch Will Not Disengage Or Motorcycle Creeps With Clutch Disengaged

- Too much clutch lever free play
- Clutch plates warped
- Oil level too high, improper oil viscosity, or additive used
- Check for oil additive

Clutch Slips

- Clutch lifter sticking
- Worn clutch discs
- Weak clutch springs
- No clutch lever free play
- Check for oil additive

Hard To Shift

- Misadjusted clutch cable
- Damaged or bent shift fork
- Bent shift fork shaft
- Incorrect engine oil viscosity
- Incorrect gearshift spindle assembly
- Damaged shift drum cam grooves

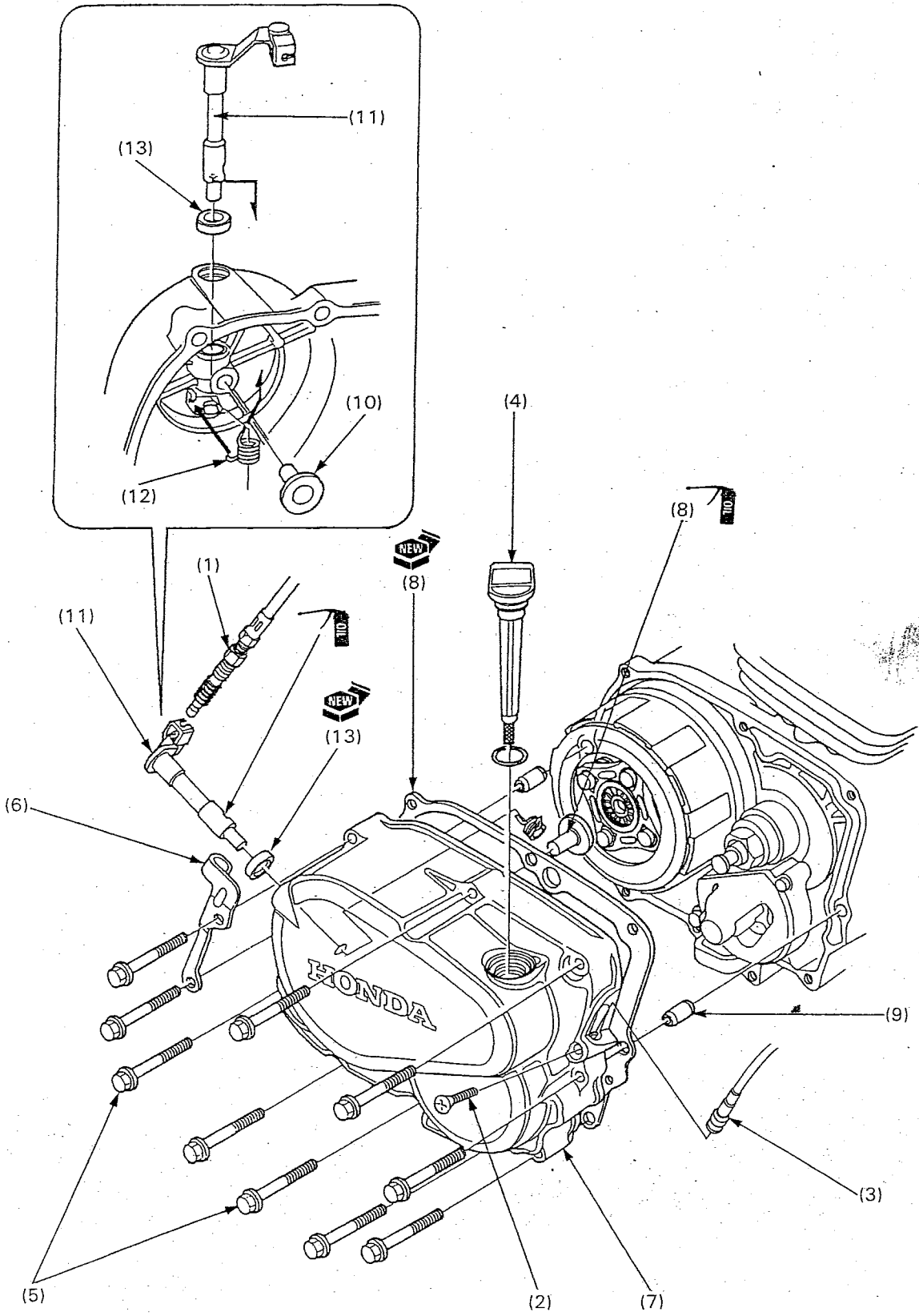
Transmission Jumps Out Of Gear

- Worn shift drum stopper arm
- Weak or broken gearshift spindle return spring
- Bent shift fork shaft
- Damaged shift drum cam grooves
- Worn gear dogs or slots

Gearshift Pedal Will Not Return

- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

Right Crankcase Cover Removal/Installation

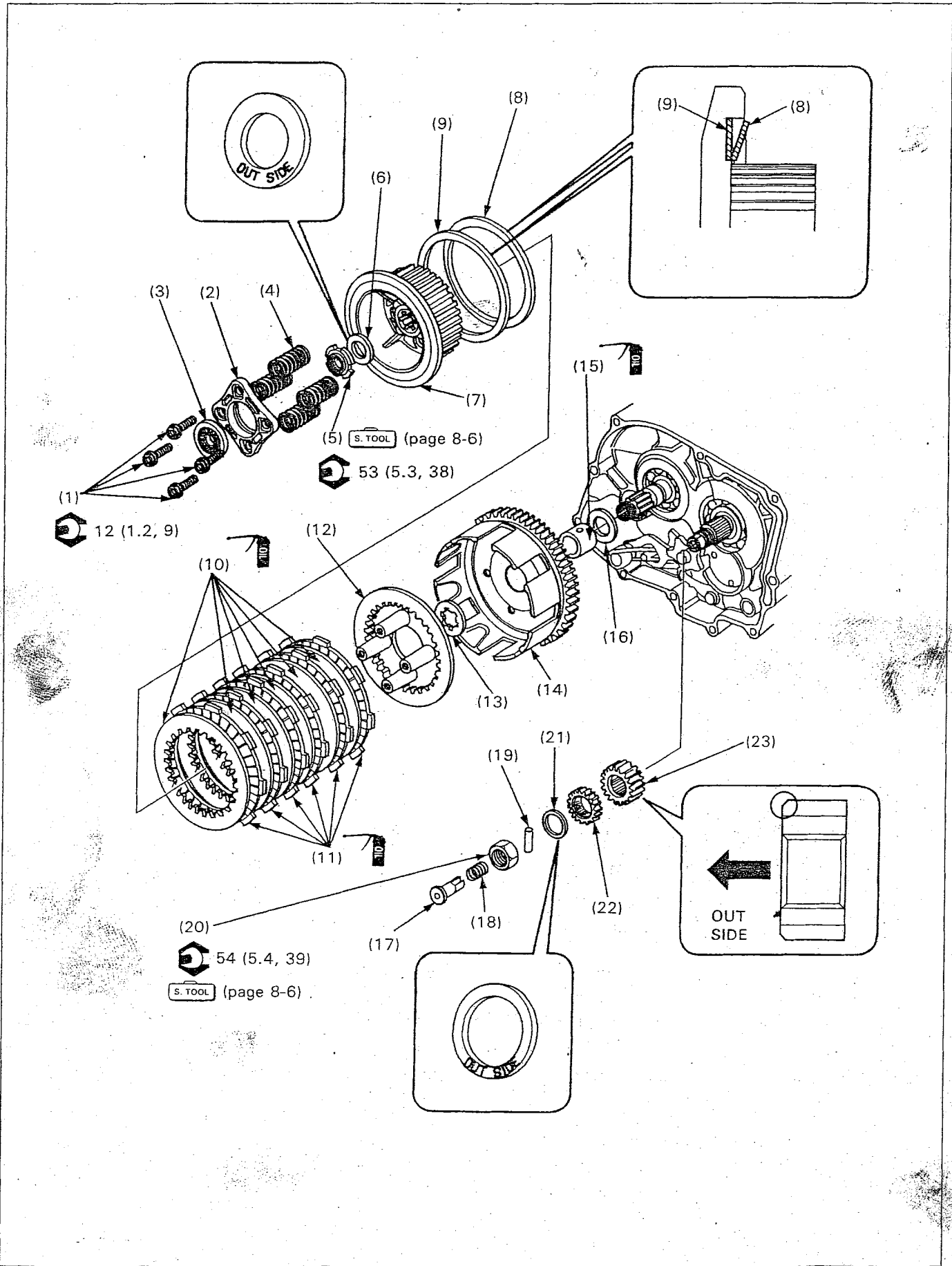


Requisite Service

- Engine oil draining

Procedure		Q'ty	Remarks
	Crankcase Cover Removal Order		Installation is in the reverse order of removal.
(1)	Clutch cable	1	
(2)	Screw	1	
(3)	Tachometer cable	1	
(4)	Oil cap/level gauge	1	
(5)	Crankcase cover bolt	10	
(6)	Clutch cable stay	1	
(7)	Right crankcase cover	1	
(8)	Gasket	1	
(9)	Dowel pin	2	
	Clutch Lifter Arm Removal Order		
(10)	Clutch lifter	1	
(11)	Clutch lifter arm	1	
(12)	Return spring	1	
(13)	Oil seal	1	

Clutch, Primary Drive Gear Removal/Installation



NOTE

- It is not necessary to remove the oil pump for clutch assembly removal/installation.

Requisite Service

- Right crankcase cover removal/installation (page 8-2)
- Oil pump removal/installation (page 4-3)

Procedure		Q'ty	Remarks
Clutch Removal Order			Installation is in the reverse order of removal.
(1)	Clutch lifter plate bolt	4	
(2)	Clutch lifter plate	1	
(3)	Clutch lifter plate bearing	1	
(4)	Clutch spring	4	
(5)	Clutch center lock nut	1	Removal/installation (page 8-6).
(6)	Lock washer	1	Install the lock washer with its dished face towards the inside and "OUT SIDE" mark facing out.
(7)	Clutch center	1	
(8)	Judder spring	1	Install as shown on page 8-4.
(9)	Spring seat	1	
(10)	Clutch plate	6	Coat with clean engine oil before assembly.
(11)	Clutch friction disc	6	Coat with clean engine oil before assembly.
(12)	Pressure plate	1	
(13)	Spline washer	1	
(14)	Clutch outer	1	
(15)	Clutch outer guide	1	Coat with clean engine oil before assembly.
(16)	Thrust washer	1	
Primary Drive Gear Removal Order			Installation is in the reverse order of removal.
(17)	Oil orifice collar	1	At installation, align the groove with the drive pin.
(18)	Spring	1	
(19)	Drive pin	1	
(20)	Primary drive gear nut	1	Removal/installation (page 8-6).
(21)	Lock washer	1	With the "OUT SIDE" mark facing out.
(22)	Oil pump drive gear	1	
(23)	Primary drive gear	1	Remove the clutch assembly.

Clutch/Gearshift Linkage

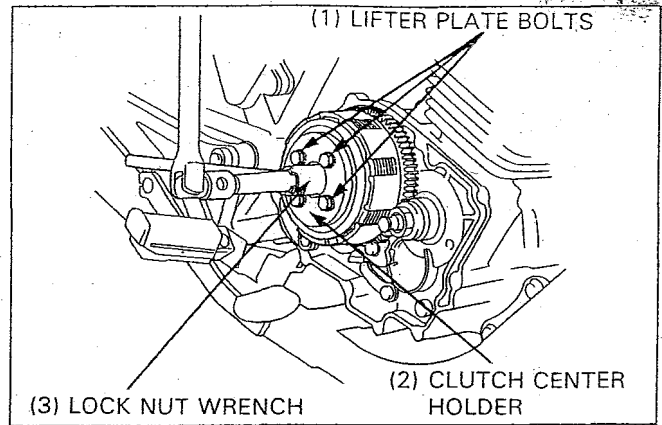
Clutch Center Lock Nut Removal

Unstake the lock nut.

Attach the clutch center holder with the lifter plate bolts. Loosen the lock nut while holding the clutch center as shown.

S. TOOL

Clutch center holder	07GMB-KT70100
Lock nut wrench, 20 x 24 mm	07716-0020100
Extension bar	07716-0020500



Clutch Center Lock Nut Installation

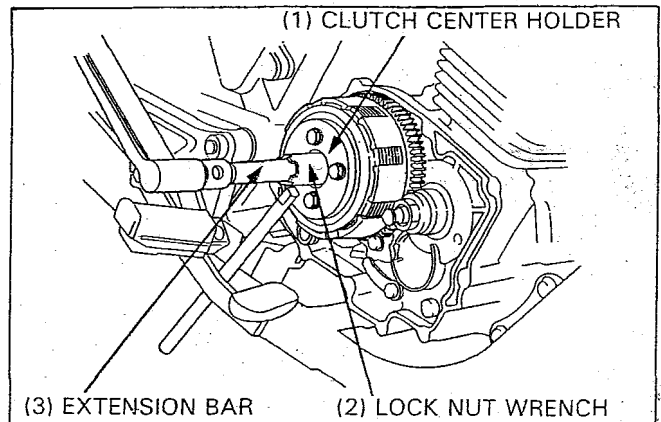
Attach the clutch center holder with the lifter plate bolts. Tighten the clutch center lock nut while holding the clutch center as shown.

S. TOOL

Clutch center holder	07GMB-KT70100
Lock nut wrench, 20 x 24 mm	07716-0020100
Extension bar	07716-0020500

Torque: 53 N·m (5.3 kg-m, 38 ft-lb)

Stake the lock nut.



Primary And Oil Pump Drive Gears Removal

Insert the gear holder as shown.

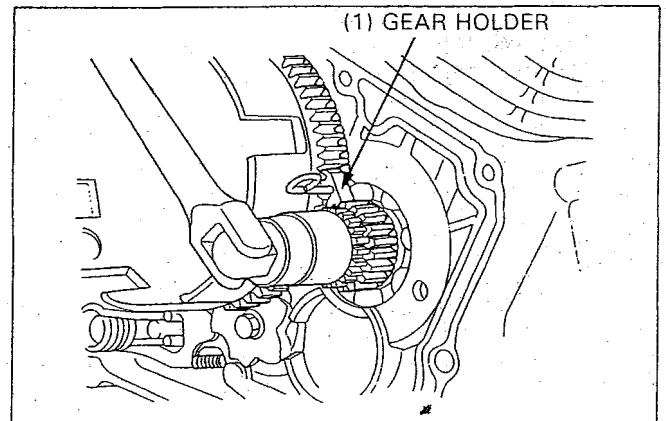
Remove the primary drive gear nut and lock washer.

S. TOOL

Gear holder	07724-0910100
-------------	---------------

Remove the clutch assembly (page 8-4).

Remove the oil pump drive gear and primary drive gear.



Primary And Oil Pump Drive Gears Installation

Install the oil pump drive gear and primary drive gear onto crankshaft.

Install the clutch assembly (page 8-4).

Install the lock washer with the "OUT SIDE" mark facing out.

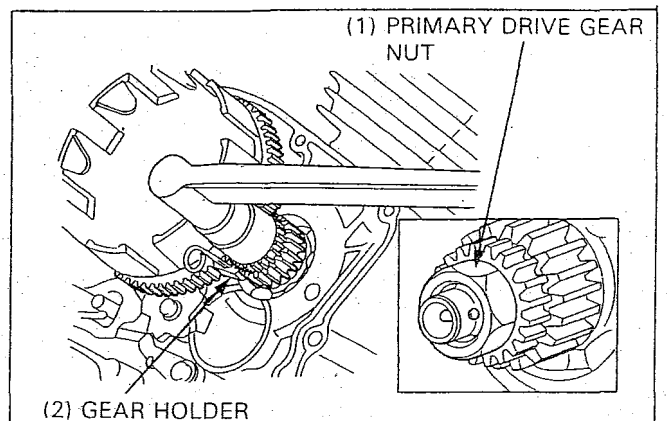
Insert the gear holder as shown.

Tighten primary drive gear nut.

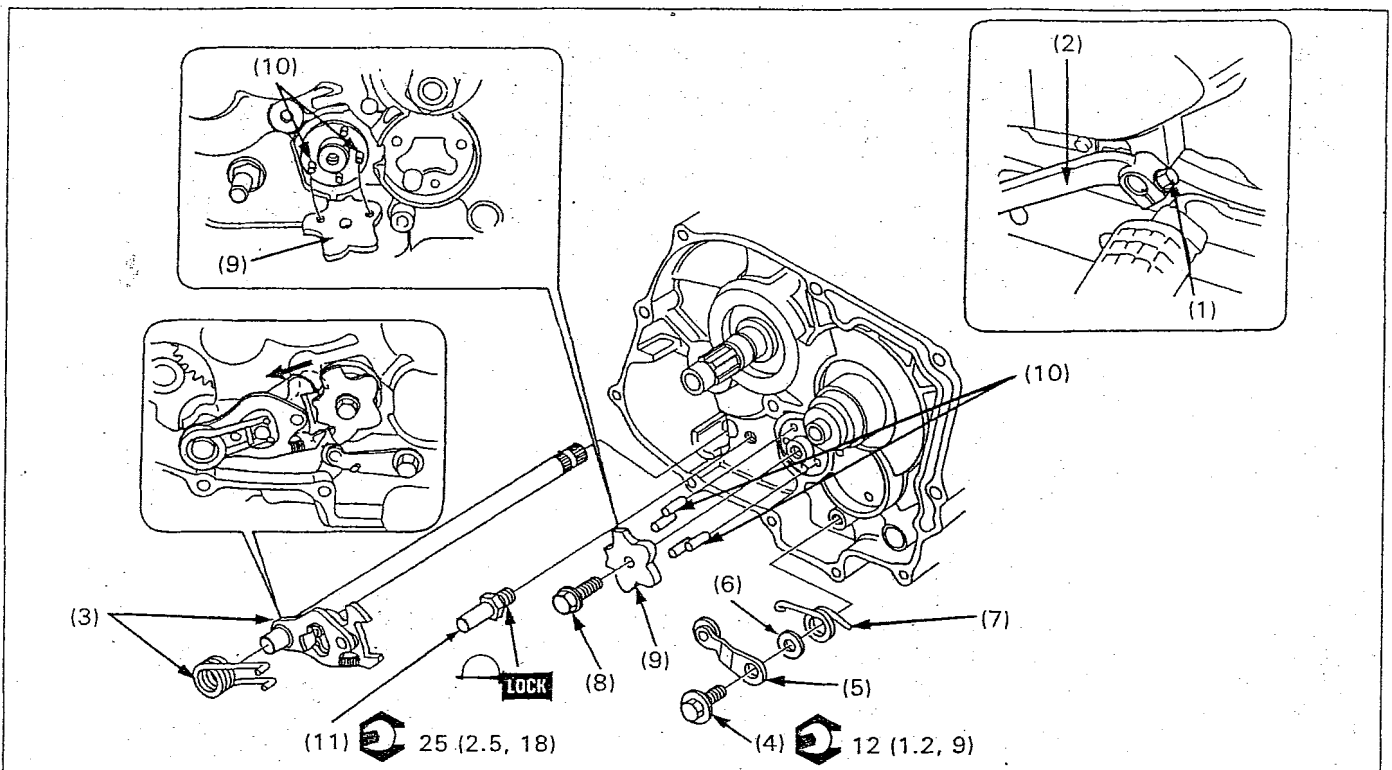
S. TOOL

Gear holder	07724-0010100
-------------	---------------

Torque: 54 N·m (5.4 kg-m, 39 ft-lb)



Gearshift Linkage Removal/Installation



Requisite Service

- Clutch removal/installation (page 8-4)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Gearshift pedal bolt	1	
(2) Gearshift pedal	1	
(3) Gearshift spindle assembly	1	Pull out spindle while pushing the gearshift plate in.
(4) Stopper arm bolt	1	
(5) Stopper arm	1	
(6) Washer	1	
(7) Spring	1	
(8) Shift drum stopper plate bolt	1	
(9) Shift drum stopper plate	1	Align the holes with the dowel pins.
(10) Dowel pin	4	Install into the shift drum.
(11) Spring stopper pin/bolt	1	

9. Crankshaft/Transmission

Service Information	9-1	Transmission Removal/Installation	9-3
Troubleshooting	9-1	Transmission Disassembly/Assembly	9-4
Crankcase Separation/Assembly	9-2	Crankshaft Removal/Installation	9-6

Service Information

- This section covers crankcase separation in order to service the crankshaft and transmission.
- The following parts must be removed before separating the crankcase.
 - Alternator (Section 13)
 - Clutch/gearshift linkage (Section 8)
 - Cylinder head/cylinder/piston (Section 7)
 - Engine (Section 6)
 - Oil pump (Section 4)
 - Starter motor (Section 15)
- Mark and store the bearing inserts to be sure of their correct locations for reassembly. If the inserts are improperly installed they will block the oil holes, causing insufficient lubrication and eventual engine seizure.

Troubleshooting

Excessive Noise

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

Hard To Shift

- Improper clutch operation
- Incorrect engine oil viscosity
- Incorrect clutch adjustment
- Bent shift fork
- Bent fork shaft
- Bent fork claw
- Damaged shift drum cam grooves
- Bent shift spindle

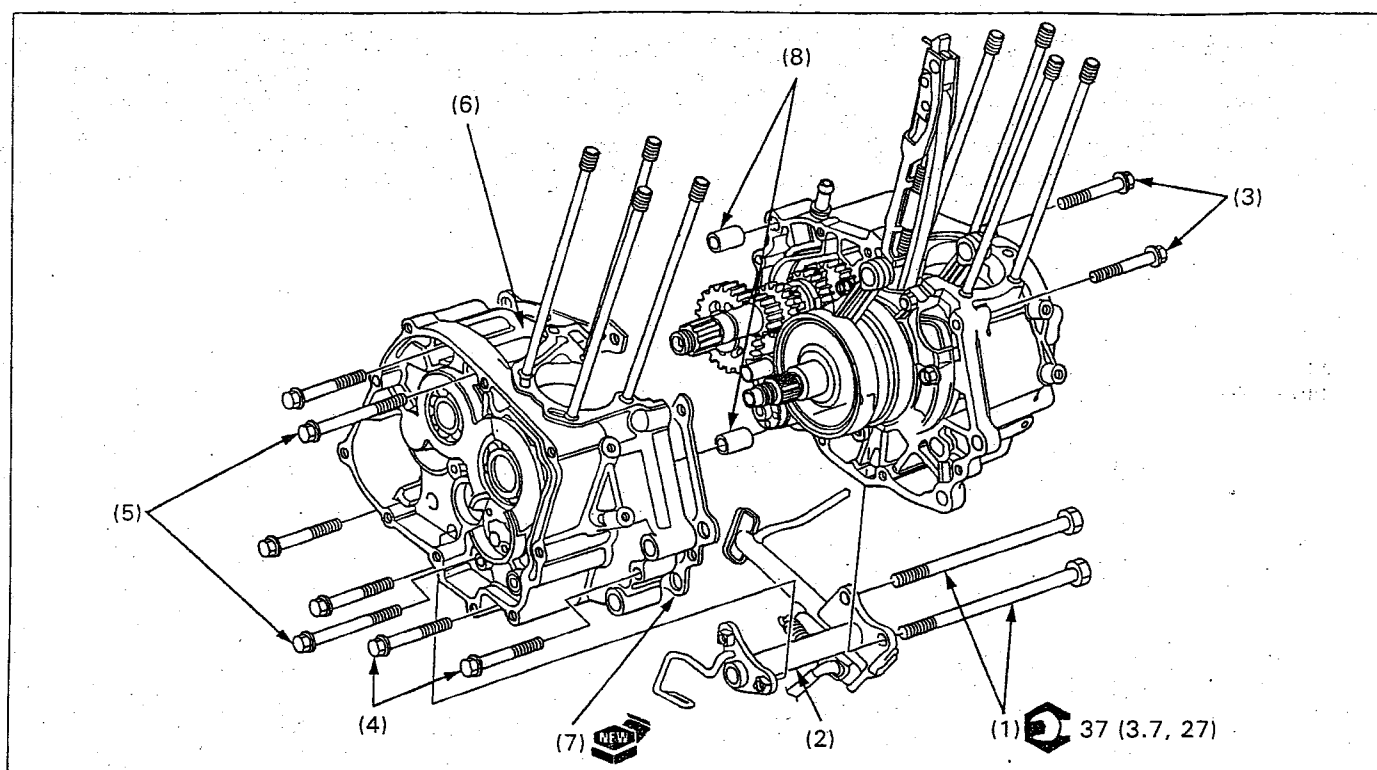
Transmission Jumps Out Of Gear

- Worn gear dogs or slots
- Bent fork shaft
- Broken shift drum stopper
- Worn or bent shift forks
- Broken shift linkage return spring

Engine Vibration

- Excessive crankshaft runout
- Loose engine mount bolts

Crankcase Separation/Assembly

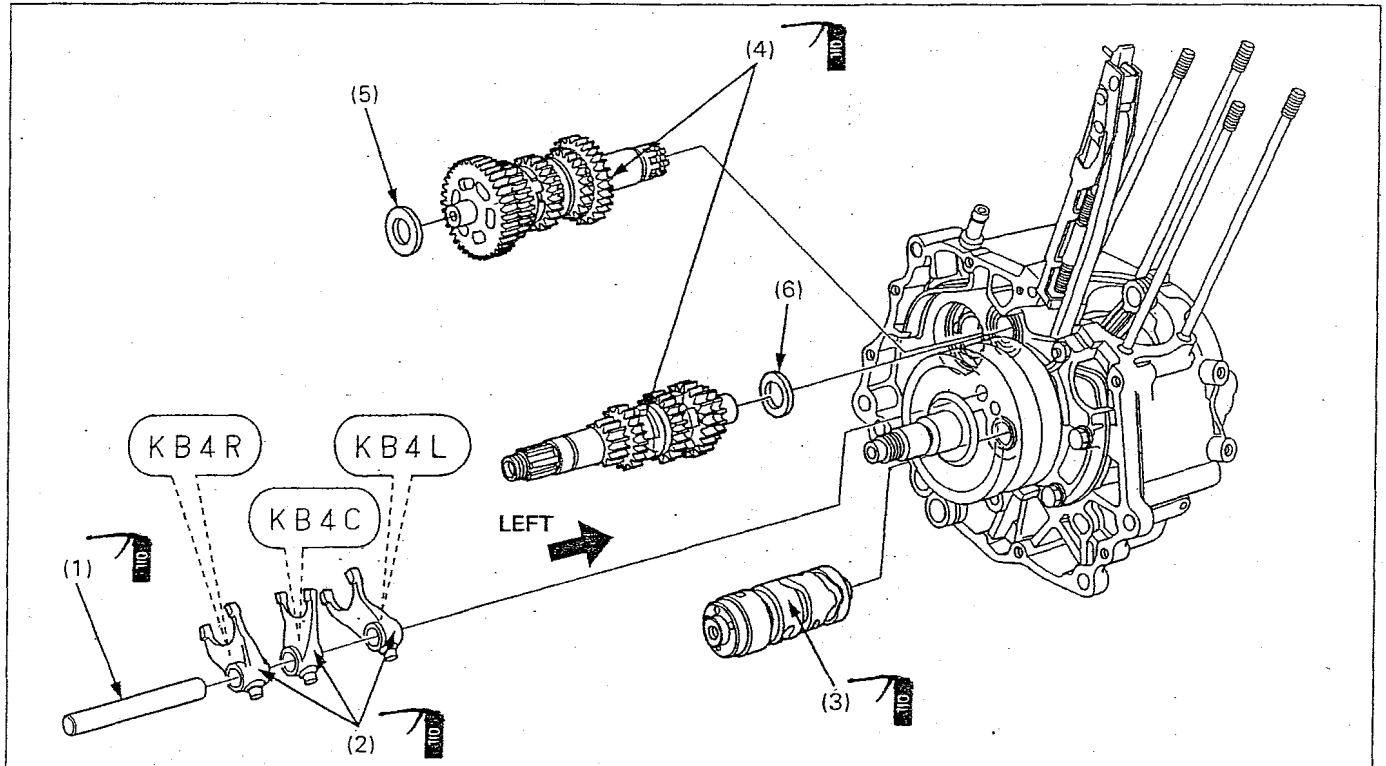


NOTE

- Refer to Service Information (page 9-1) for removal of necessary parts before separating the crankcase.

Procedure		Q'ty	Remarks
Separation order			Assembly is in the reverse order of separation.
(1)	Side stand bracket bolt	2	
(2)	Side stand assembly	1	
(3)	Left crankcase bolt (6 x 40 mm)	2	
(4)	Right crankcase bolt (6 x 40 mm)	6	
(5)	Right crankcase bolt (6 x 65 mm)	2	
(6)	Right crankcase	1	
(7)	Gasket	1	
(8)	Dowel pin	2	

Transmission Removal/Installation



NOTE

- Turn the mainshaft and countershaft to ensure that the gears turn smoothly after reassembly.
- After installation, lubricate gears with clean recommended engine oil while turning the shaft.

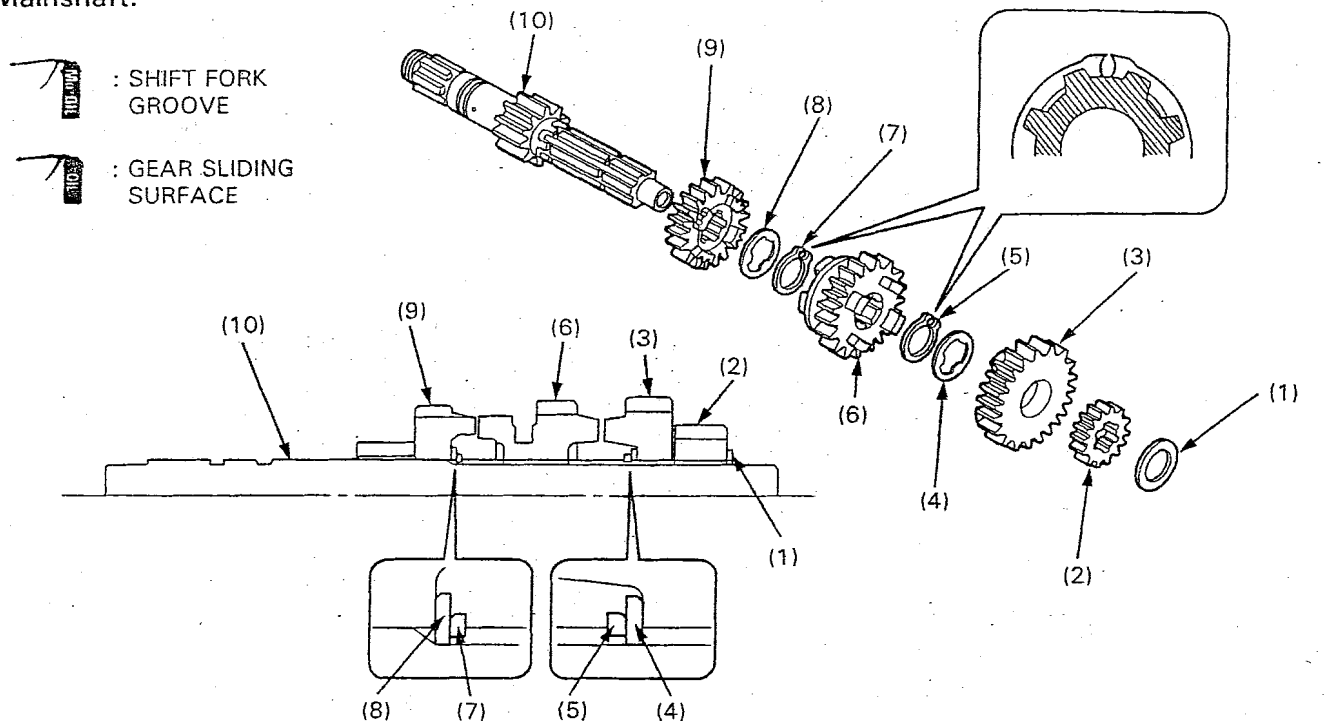
Requisite Service

- Crankcase separation (page 9-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Shift fork shaft	1	Install them with the identification mark (R: Right, C: Center, L: Left) side facing the left side as shown.
(2)	Shift fork	3	
(3)	Shift drum	1	
(4)	Mainshaft/countershaft assembly	1/1	NOTE
(5)	Collar	1	• Do not forget the thrust washer and collar.
(6)	Thrust washer	1	

Transmission Disassembly/Assembly

Mainshaft:



NOTE

- When assembling the transmission, apply molybdenum disulfide oil (a 1 : 1 mixture of engine oil and molybdenum disulfide grease) to the M4, C3 and C5 shift fork grooves.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
- After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
- Do not use worn snap rings which could easily spin in the groove. They may be too loose to properly seat in the groove.
- Align the gap in the snap ring with the groove of spline.

Requisite Service

- Transmission removal/installation (page 9-3)

Procedure	Q'ty	Remarks
Mainshaft Disassembly Order		Assembly is in the reverse order of disassembly.
(1) Thrust washer	1	
(2) M2 gear (18T)	1	
(3) M5 gear (23T)	1	
(4) Spline washer	1	Install with beveled outer edge toward gear as shown above.
(5) Snap ring	1	Align gap with groove of spline as shown above.
(6) M4 gear (24T)	1	
(7) Snap ring	1	Align gap with groove of spline as shown above.
(8) Spline washer	1	Install with beveled outer edge toward gear as shown above.
(9) M3 gear (21T)	1	
(10) Mainshaft (M1 gear/13T)	1	

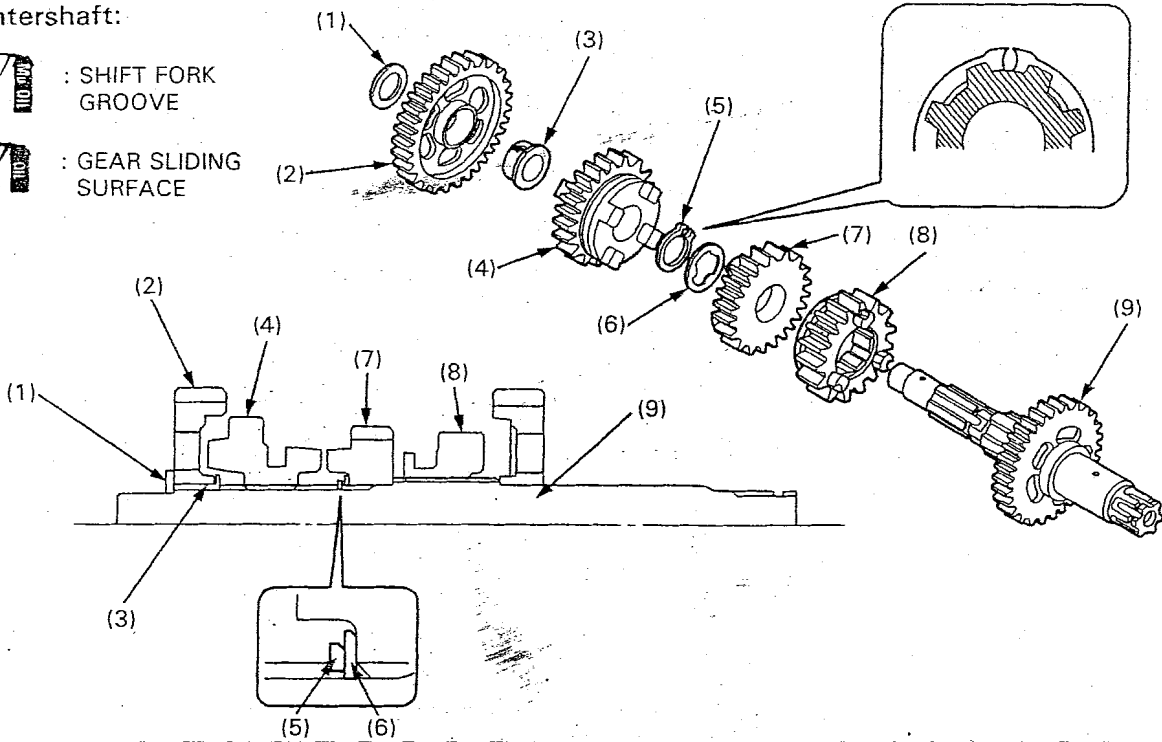
Countershaft:



: SHIFT FORK GROOVE

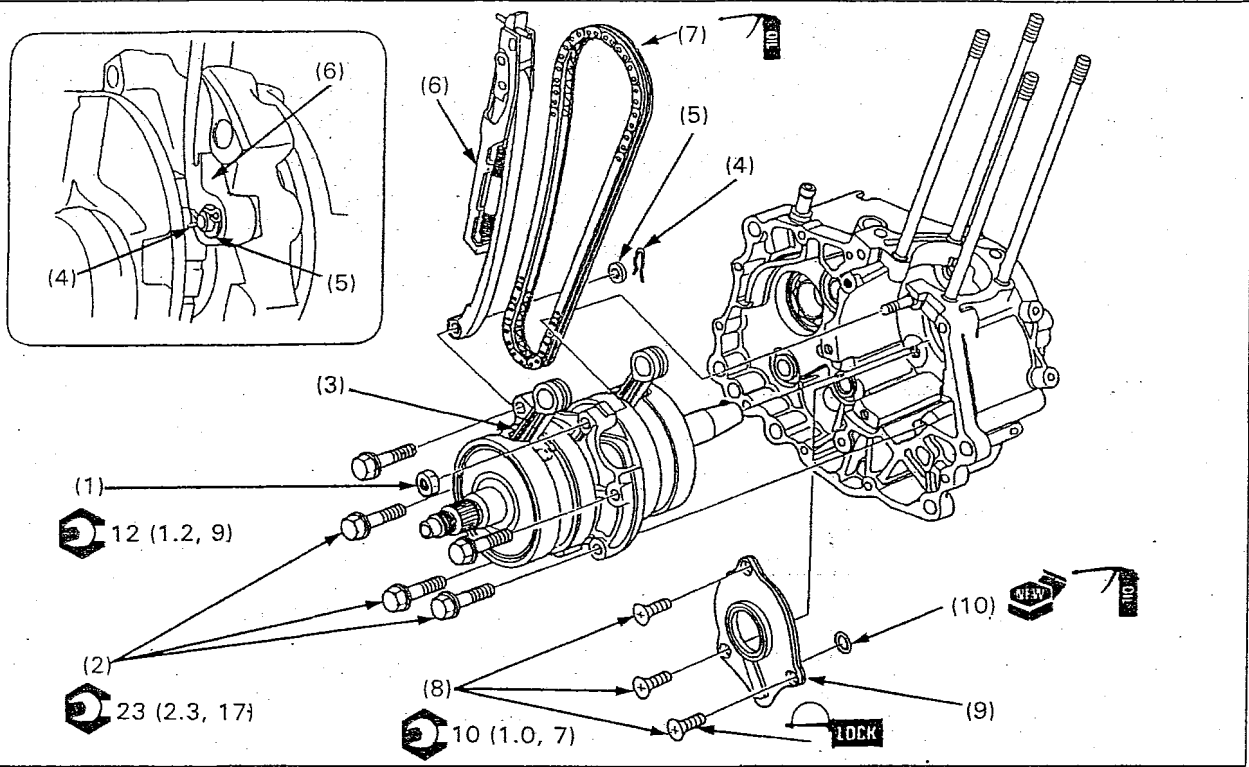


: GEAR SLIDING SURFACE



Procedure	Q'ty	Remarks
Countershaft Disassembly Order		Assembly is in the reverse order of disassembly.
(1) Collar	1	
(2) C1 gear (37T)	1	
(3) C1 bushing	1	
(4) C3 gear (28T)	1	
(5) Snap ring	1	Align gap with groove of spline as shown above.
(6) Spline washer	1	Install with beveled outer edge toward gear as shown above.
(7) C4 gear (26T)	1	
(8) C5 gear (21T)	1	
(9) Countershaft	1	

Crankshaft Removal/Installation



TE

Refer to section 14 of the Common Service Manual for bearing inspection.

Prerequisite Service

Transmission removal/installation (page 9-3)

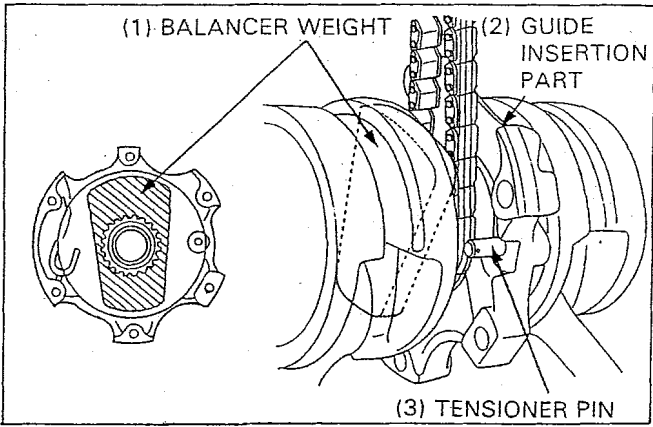
Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
) Crankshaft mounting nut	1	
) Crankshaft mounting bolt	5	
) Crankshaft	1	
) Clip	1	
) Washer	1	
) Cam chain tensioner assembly	1	
) Cam chain	1	Removal/installation (page 9-7).
) Oil passage plate mounting screw	3	
) Oil passage plate	1	
) O-ring	1	

Cam Chain Removal/Installation

Position the crank balancer weight as shown.

Pass the cam chain between the guide insertion part and crank balancer weight, then pass it between the cam chain tensioner pin and crank balancer weight.

Installation is in the reverse order of removal.



10. Front Wheel/Suspension/Steering

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

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.

- Refer to section 12 for brake system information.
- Refer to section 16 for light, meter and switch information.
- 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.
- When servicing the front wheel, fork or steering stem, support the motorcycle securely with a jack or other support under the engine.

Troubleshooting

Hard Steering

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

Steers To One Side Or Does Not Track Straight

- Bent fork
- Bent front axle
- Wheel installed incorrectly
- Faulty steering head bearings
- Bent frame
- Worn wheel bearings
- Worn swingarm pivot components

Front Wheel Wobbling

- Bent rim
- Worn front wheel bearings
- Faulty tire
- Unbalanced tire and wheel

Wheel Turns Hard

- Faulty wheel bearings
- Faulty speedometer gear
- Bent front axle

Soft Suspension

- Weak springs
- Low fork fluid level
- Low tire pressure

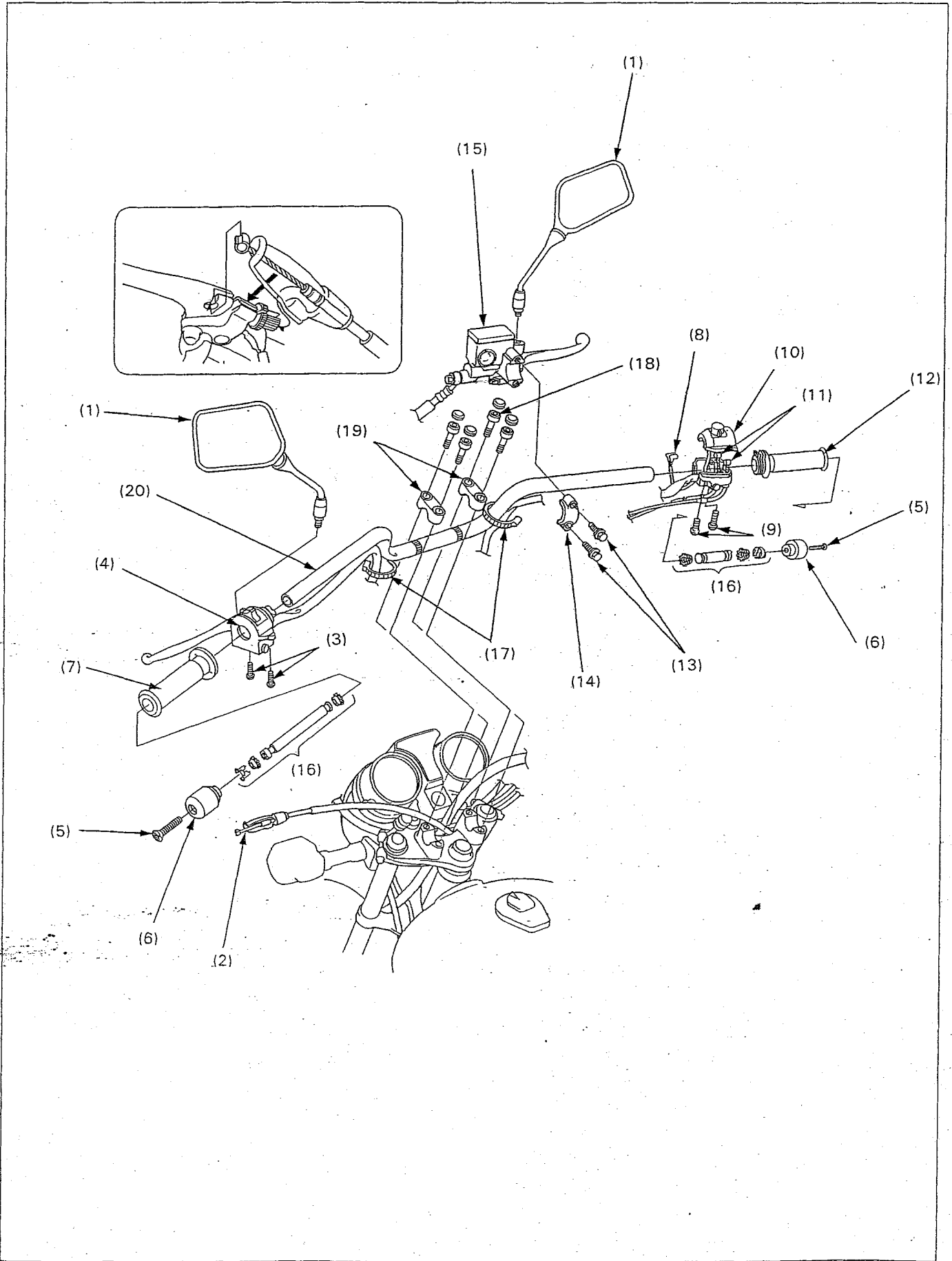
Hard Suspension

- Incorrect fork fluid viscosity
- Bent fork tubes
- Clogged fluid passage
- High tire pressure

Front Suspension Noisy

- Low fork fluid level
- Loose fork fasteners
- Lack of grease in speedometer gear

Handlebar Removal



NOTE

- For handlebar weight removal, refer to section 18 of the Common Service Manual.

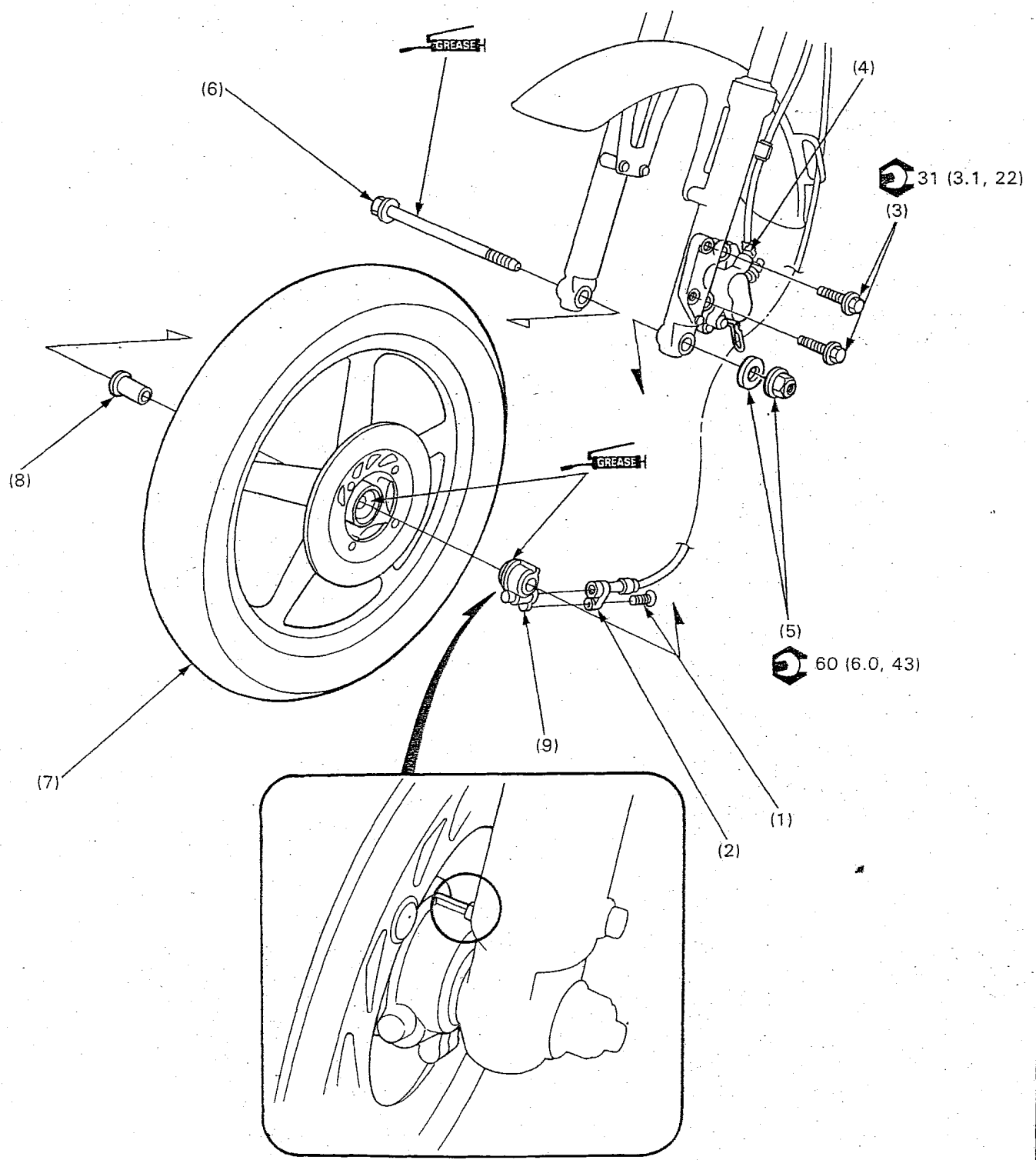
Procedure		Q'ty	Remarks
Removal Order			
(1)	Rear view mirror	2	
(2)	Clutch cable	1	
(3)	Left handlebar switch housing screw	2	
(4)	Left handlebar switch housing	1	
(5)	Handlebar end weight screw	2	
(6)	Handlebar end weight	2	
(7)	Handle grip	1	
(8)	Brake switch wires	2	
(9)	Right handlebar switch housing screw	2	
(10)	Right handlebar switch housing	1	
(11)	Throttle cable end	2	Disconnect from the throttle grip flange.
(12)	Throttle grip	1	
(13)	Master cylinder bolt	2	
(14)	Master cylinder holder	1	
(15)	Front brake master cylinder assembly	1	CAUTION • Keep master cylinder upright, to prevent air from entering the system.
(16)	Handlebar weight assembly	2	
(17)	Wire band	2	
(18)	Handlebar holder bolt	4	
(19)	Handlebar holder	2	
(20)	Handlebar	1	

NOTE

- Route the cables and wire harnesses properly (page 1-19).
- After installation, check and adjust the following items:
 - clutch lever free play.
 - throttle grip free play.
- For handlebar weight installation, refer to section 18 of the Common Service Manual.

Procedure		Q'ty	Remarks
Installation Order			
(1)	Handlebar	1	Place the handlebar onto the lower holders and align the punch marks on the handlebar with upper surface of the lower holders.
(2)	Handlebar holder	2	Install the upper holders with their punch marks facing forward.
(3)	Handlebar holder bolt	4	Tighten the front bolts first, then the rear bolts.
(4)	Handlebar weight assembly	2	
(5)	Front brake master cylinder assembly	1	CAUTION • Keep master cylinder upright, to prevent air from entering the system.
(6)	Master cylinder holder	1	
(7)	Master cylinder bolt	2	
(8)	Throttle grip	1	
(9)	Throttle cable end	2	
(10)	Right handlebar switch housing	1	
(11)	Right handlebar switch housing screw	2	Tighten the front screw first, then the rear screw.
(12)	Brake switch wires	2	
(13)	Left handlebar switch housing	1	
(14)	Left handlebar switch housing screw	2	Tighten the front screw first, then the rear screw.
(15)	Wire band	2	
(16)	Clutch cable	1	
(17)	Handle grip	1	At installation: • Install the grip onto the pipe with the adhesive. • Allow the adhesive to dry an hour before using.
(18)	Handlebar end weight	2	
(19)	Handlebar end weight screw	2	
(20)	Rear view mirror	2	

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

- When servicing the front wheel, support the motorcycle securely with a jack or other support under the engine.
- Do not depress the brake lever when the caliper is removed, or it will be difficult to refit the disc between the brake pads.

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Speedometer cable screw	1	
(2)	Speedometer cable	1	
(3)	Brake caliper mounting bolt	2	
(4)	Front brake caliper	1	CAUTION • Do not hang the caliper from the brake hose.
(5)	Axle nut/washer	1/1	
(6)	Front axle	1	
(7)	Front wheel assembly	1	Disassembly/assembly (page 10-8)
(8)	Side collar	1	
(9)	Speedometer gear box assembly	1	

NOTE

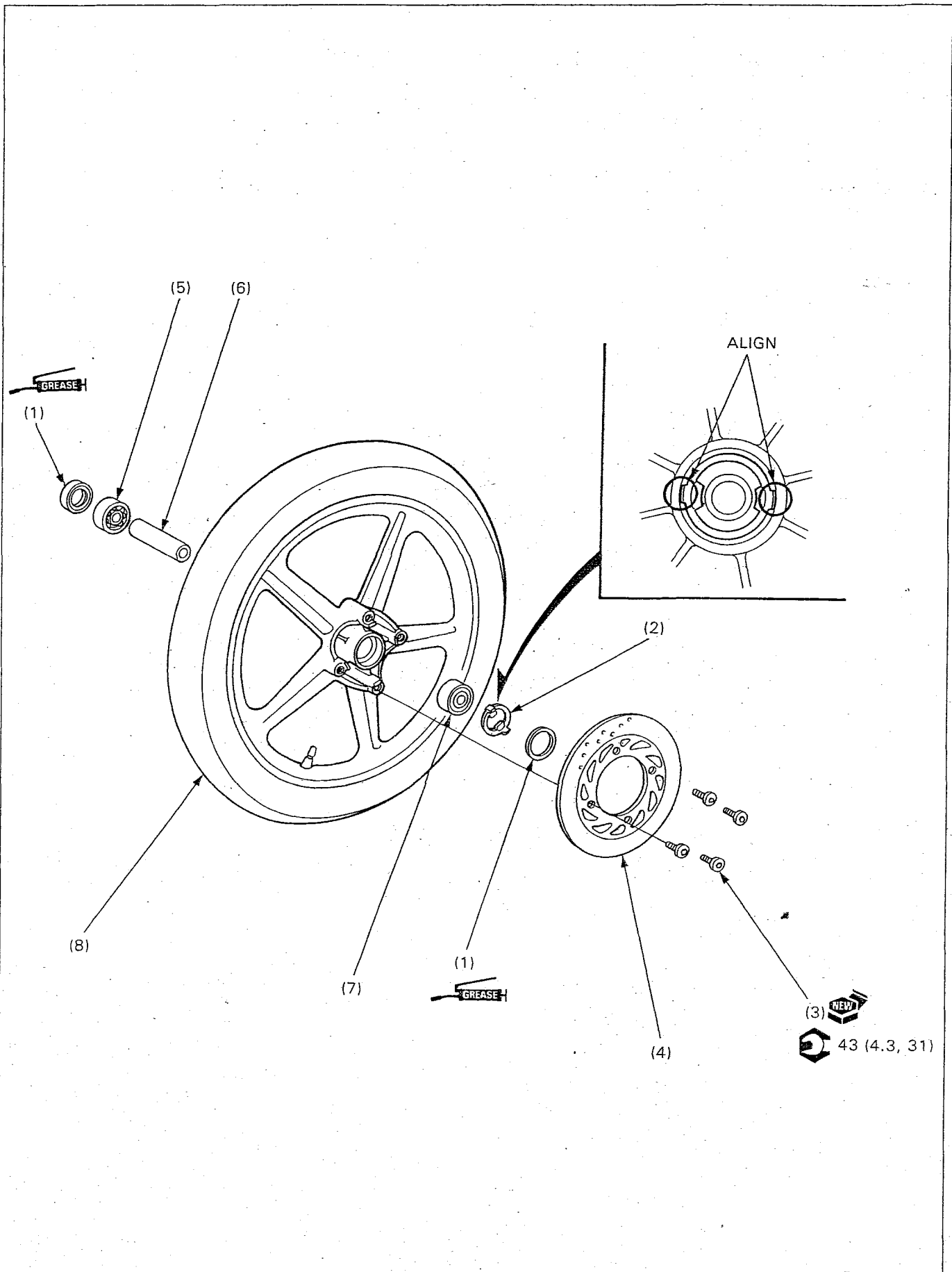
- Always replace wheel bearings as a set.
- For wheel bearing replacement, refer to the section 1 of the Common Service Manual.

Requisite Service

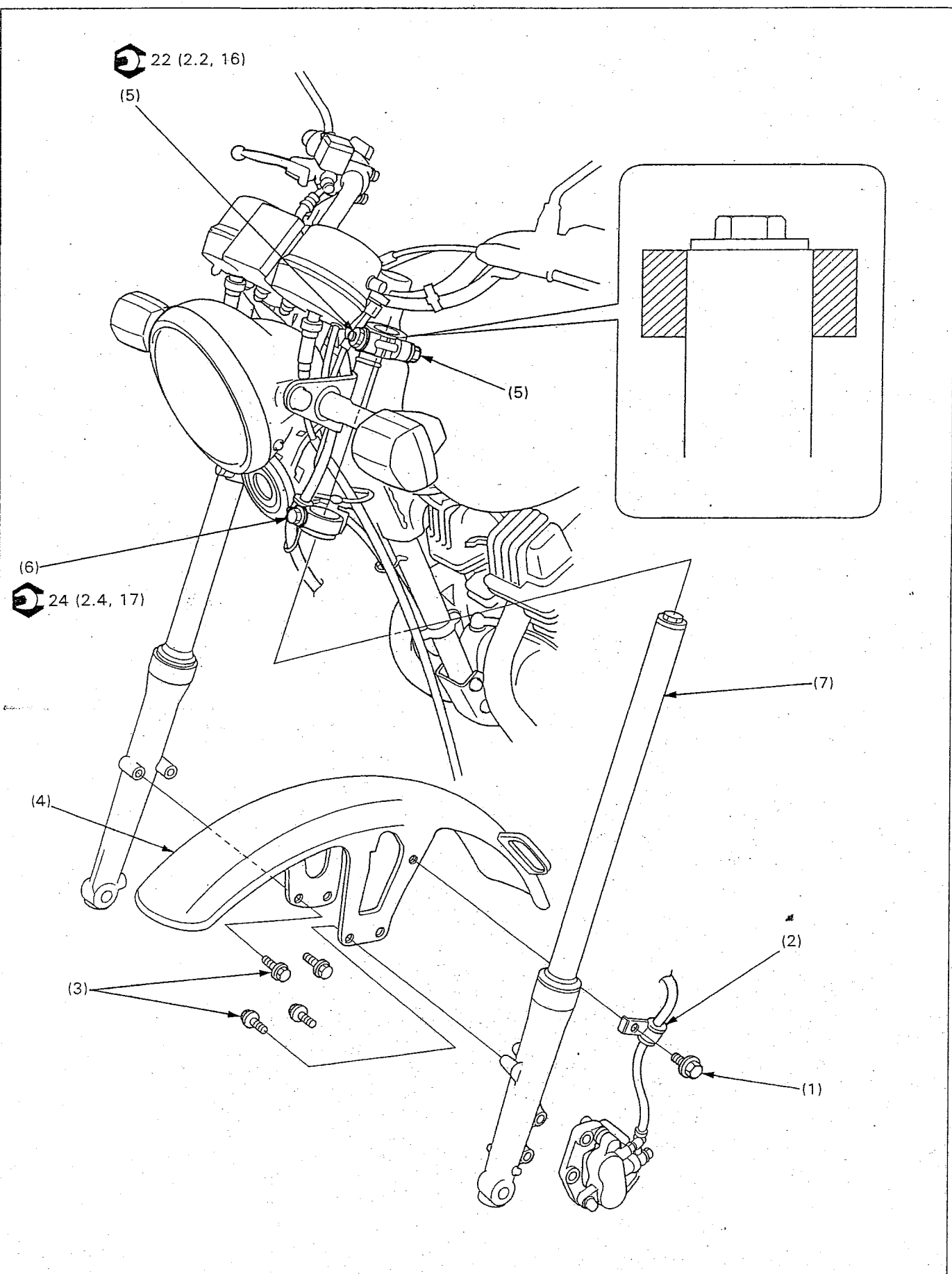
- Front wheel removal/installation (page 10-6)

Procedure		Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Dust seal	2	At installation, apply grease to the dust seal lips.
(2)	Speedometer gear retainer	1	At installation, align the tabs with the slots in the wheel hub.
(3)	Brake disc bolt	4	
(4)	Brake disc	1	
(5)	Right wheel bearing (6302 U)	1	
(6)	Distance collar	1	
(7)	Left wheel bearing (6302 U)	1	NOTE
			• At assembly, drive in the left side bearing first, then the right side bearing.
(8)	Front wheel/tire	1/1	

Front Wheel Disassembly/Assembly



Fork Removal/Installation



NOTE

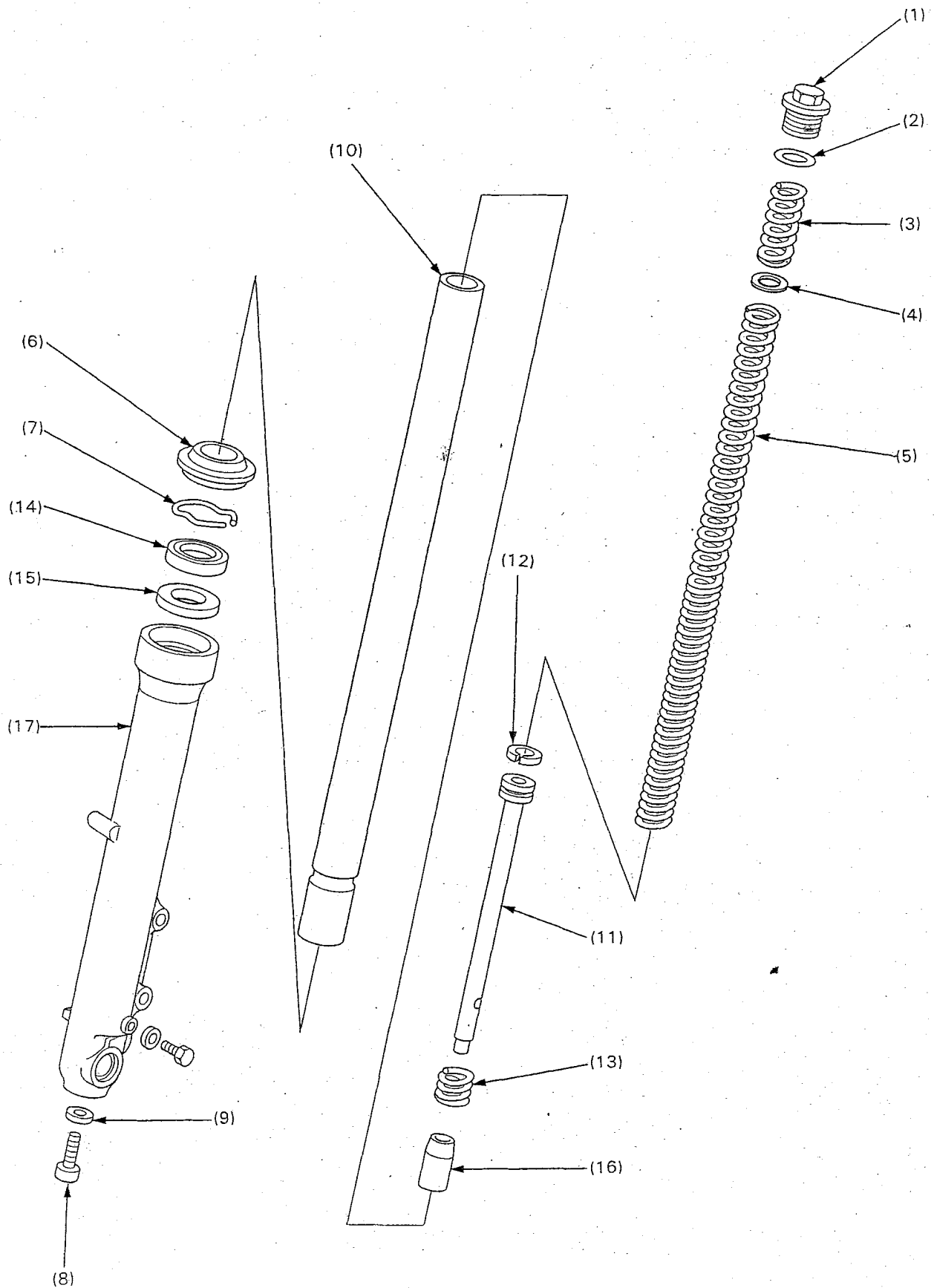
- If you plan to disassemble the fork legs, first loosen the top bridge pinch nuts, then loosen the fork caps but do not remove it.

Requisite Service

- Front wheel removal/installation (page 10-6)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Hose clamp bolt	1	
(2)	Brake hose clamp	1	CAUTION • Do not hang the caliper from the brake hose.
(3)	Front fender bolt	4	
(4)	Front fender	1	
(5)	Fork top bridge pinch bolt/nut	2/2	Only loosen the nuts.
(6)	Fork bottom bridge pinch bolt	2	Only loosen the bolts. NOTE • If the fork legs will be disassembled, temporarily tighten the bottom pinch bolt and tighten the fork cap.
(7)	Fork assembly	2	

Fork Disassembly



WARNING

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

NOTE

- Temporarily install the fork spring and fork cap if the socket bolt turns with the fork piston.
- Always replace oil seals with new ones.

Requisite Service

- Fork removal/installation (page 10-10)

Procedure		Q'ty	Remarks
Disassembly Order			
(1)	Fork cap	1	
(2)	O-ring	1	
(3)	Fork spring A	1	
(4)	Joint plate	1	
(5)	Fork spring B	1	After removing, pour out any remaining fork oil.
(6)	Dust seal	1	When removing them, do not damage the fork tube.
(7)	Stopper ring	1	
(8)	Fork socket bolt	1	
(9)	Sealing washer	1	
(10)	Fork tube	1	
(11)	Fork piston	1	
(12)	Fork piston ring	1	NOTE • Do not remove the piston ring unless must be replaced.
(13)	Rebound spring	1	
(14)	Oil seal	1	
(15)	Back up ring	1	
(16)	Oil lock piece	1	
(17)	Fork slider	1	

NOTE

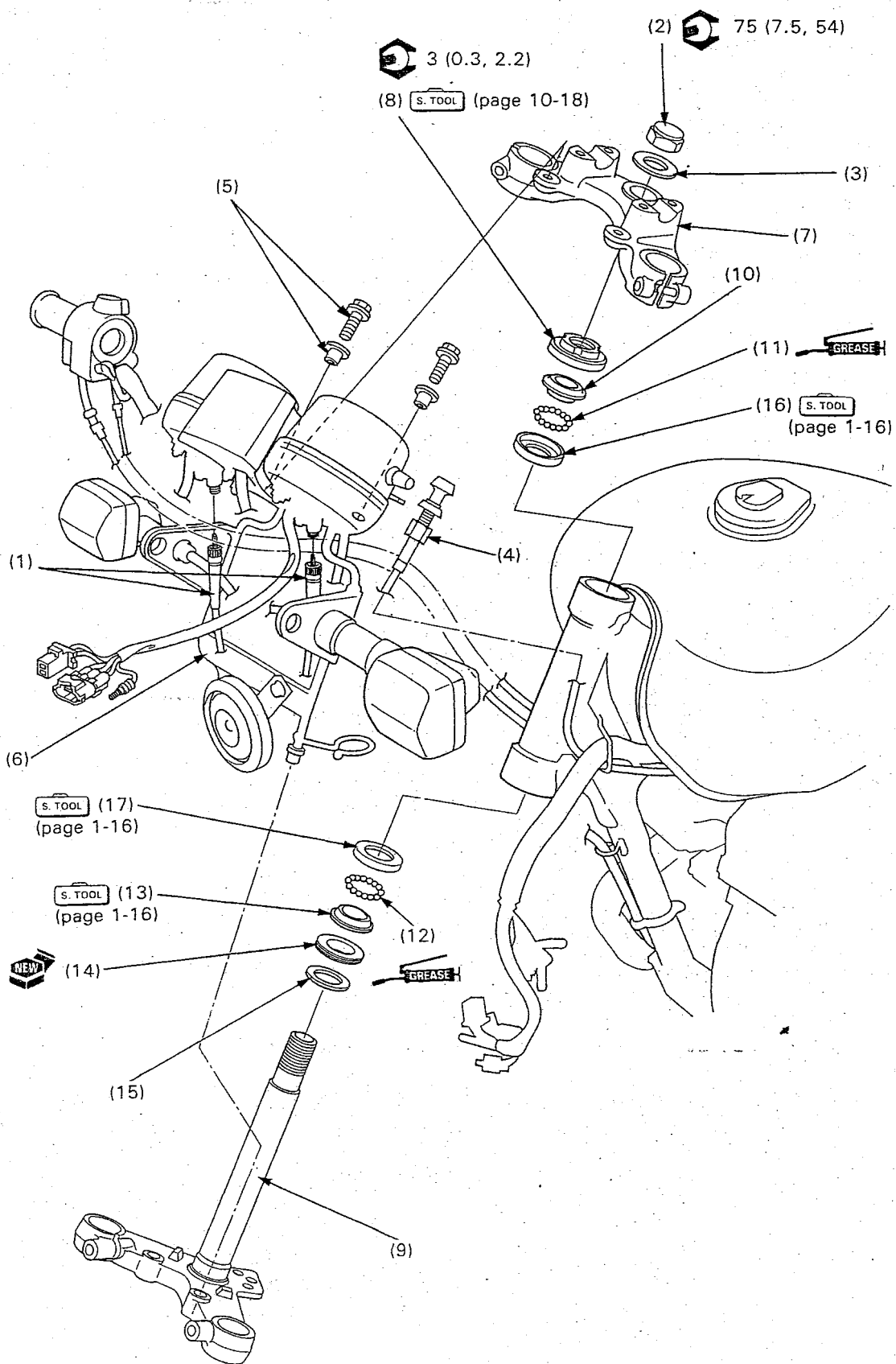
- Always replace the oil seals with a new ones.
- After assembling the fork legs, install each fork leg into the lower fork bridge first, then torque the fork cap.
- Coat a new oil seal with the recommended fork oil and install with seal mark facing up.

Requisite Service

- Fork disassembly (page 10-12)
- Fork installation (page 10-10)

Procedure		Q'ty	Remarks
Assembly Order			
(1)	Fork slider	1	
(2)	Rebound spring	1	
(3)	Fork piston ring	1	Replace piston ring with a new one if it was removed from the piston.
(4)	Fork piston	1	Insert into the fork tube.
(5)	Oil lock piece	1	Insert onto the piston.
(6)	Fork tube	1	
(7)	Sealing washer	1	
(8)	Fork socket bolt	1	NOTE • If the socket bolt turns with the fork piston, temporarily install the fork spring and fork cap and tighten the socket bolt.
(9)	Back up ring	1	
(10)	Oil seal	1	NOTE • Wrap vinyl tape around the fork tube top end to avoid damaging the oil seal during the oil seal installation. • Use fork seal driver (07747-00100100) and attachment (07747-0010400) for fork seal installation.
(11)	Stopper ring	1	
(12)	Dust seal	1	NOTE • After installing it, compress the fork tube fully and pour the specified amount of fork fluid (page 1-11) into the fork tube.
(13)	Fork spring B	1	Wipe all off the spring thoroughly using a clean lint free cloth and install with tightly wound coil end facing down.
(14)	Joint plate	1	
(15)	Fork spring A	1	
(16)	O-ring	1	Apply oil to a new O-ring.
(17)	Fork cap	1	CAUTION • Be careful not to cross-thread the fork cap. Screw in the cap, but do not tighten yet.

Steering Stem Removal/Installation



NOTE

- Replace the bearings and races as a set.
- At installation, apply grease to all bearing areas.
- Check the steering head bearing preload (page 1-11) after torquing the stem nut.
- Route the wire harnesses and wires properly (page 1-19).

Requisite Service

- Fork removal/installation (page 10-10)
- Handlebar removal (page 10-2)
- Headlight removal/installation (page 16-3 or 16-4)
- Handlebar installation (page 10-4)

Procedure		Q'ty	Remarks	
Removal Order				
(1)	Tachometer/speedometer cables	1/1		
(2)	Steering stem nut	1	After removing, remove the fork.	
(3)	Thrust washer	1		
(4)	Choke cable	1		
(5)	Headlight/Meter stay mounting bolt/collar	2/2		
(6)	Headlight/Meter stay assembly	1		
(7)	Top bridge	1		
(8)	Steering head bearing adjustment nut	1		
(9)	Steering stem	1		
(10)	Upper bearing inner race	1		
(11)	Upper bearings	21		
(12)	Lower bearings	21		
(13)	Lower bearing inner race	1	Replace if they were removed. • Use ball race remover (07944—1150001) for upper and lower outer race removal.	
(14)	Dust seal	1		
(15)	Washer	1		
(16)	Upper bearing outer race	1		
(17)	Lower bearing outer race	1		
Installation Order				
(17)	Lower bearing outer race	1	Replace as a set, if necessary. • Use attachment, 37 x 40 mm (07746—0010200) and driver (07749—0010000) for lower and upper race installation. • Use steering stem driver (07946—GC40000) for lower inner race installation.	
(16)	Upper bearing outer race	1		
(15)	Washer	1		
(14)	Dust seal	1		
(13)	Lower bearing inner race	1		
(12)	Lower bearings	21		
(11)	Upper bearings	21		
(10)	Upper bearing inner race	1		
(9)	Steering stem	1		
(8)	Steering head bearing adjustment nut	1		See next page.
(7)	Top bridge	1		
(6)	Headlight/Meter stay assembly	1		
(5)	Headlight/Meter stay mounting bolt/collar	2/2		
(4)	Choke cable	1		
(3)	Thrust washer	1		
(2)	Steering stem nut	1	Temporarily install fork and torque the nut.	
(1)	Tachometer/speedometer cables	1/1		

Front Wheel/Suspension/Steering

Steering Stem Installation

Apply grease to the upper and lower races. Install the bearings onto the upper and lower races making sure you have the correct amount.

Insert the steering stem, taking care not to dislodge the bearings from the grease.

Hold the steering stem in the place and install the upper inner race and bearing adjustment nut.

Tighten the bearing adjustment nut.

S. TOOL

Steering stem nut wrench 07916-3710100

Torque: 18 N·m (1.8 kg-m, 13 ft-lb)

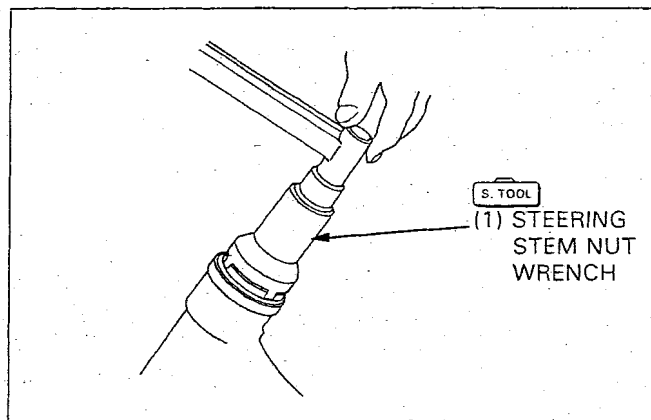
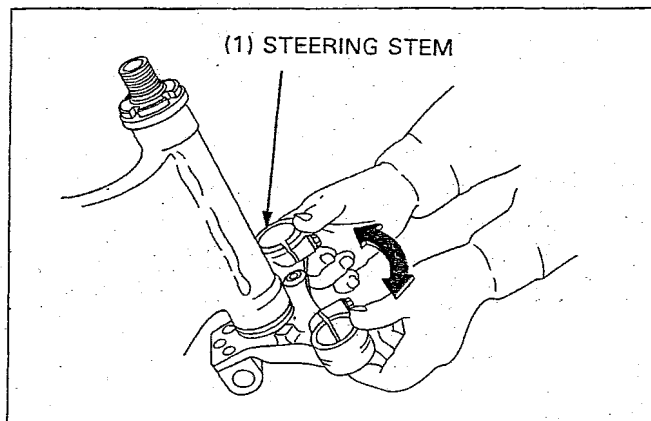
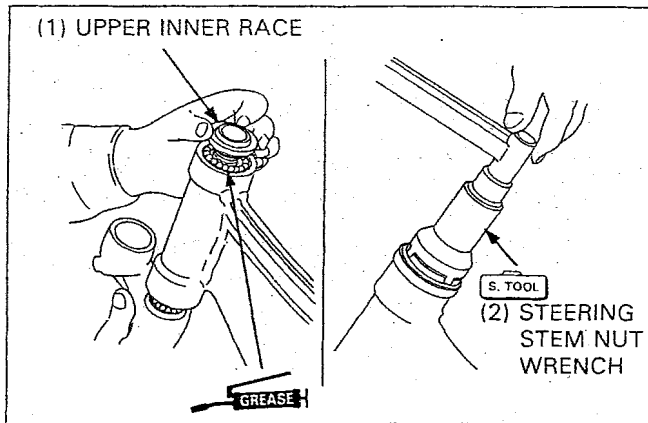
Move the steering stem right and left, lock-to-lock, five times to seat the bearings.

Make sure that the steering stem moves smoothly, without play or binding; then loosen the bearing adjustment nut.

Retighten the bearing adjustment nut to the specified torque.

Torque: 3 N·m (0.3 kg-m, 2.2 ft-lb)

Recheck that the steering stem moves smoothly without play or binding.



11. Rear Wheel/Suspension

Service Information	11-1	Shock Absorber Removal/Installation	11-6
Troubleshooting	11-1	Swingarm Removal/Installation	11-7
Rear Wheel Removal/Installation	11-2	Swingarm Disassembly/Assembly	11-8
Rear Wheel Disassembly/Assembly	11-4		

Service Information

WARNING

- A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.

Keep grease off the brake shoes and drums.

- For rear wheel, shock absorber or swingarm removal, a hoist or other support is required to support the motorcycle.
- 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.
- Refer to the section 12 for brake system information.

Troubleshooting

Soft Suspension

- Weak spring
- Oil leakage from damper unit
- Incorrect suspension adjustment
- Low tire pressure

Hard Suspension

- Incorrectly suspension adjustment
- Bent swingarm pivot
- Damaged swingarm pivot bushings
- Bent damper rod
- High tire pressure

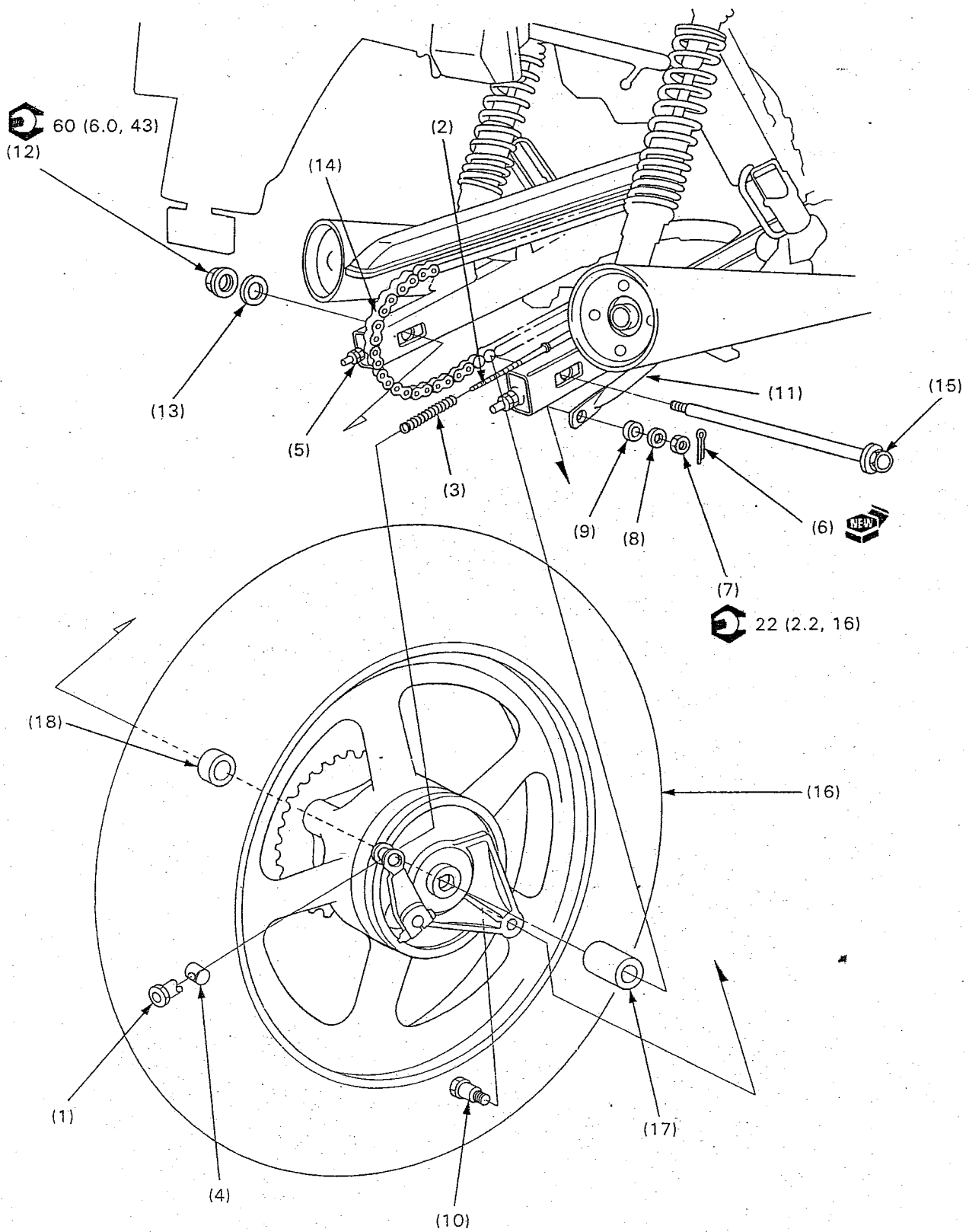
Steers To One Side Or Does Not Track Straight

- Bent rear axle
- Axle alignment/chain adjustment not equal on both sides

Rear Wheel Wobbling

- Bent rim
- Worn rear wheel bearings
- Faulty tire
- Unbalanced tire and wheel
- Low tire pressure
- Faulty swingarm pivot bushings

Rear Wheel Removal/Installation



WARNING

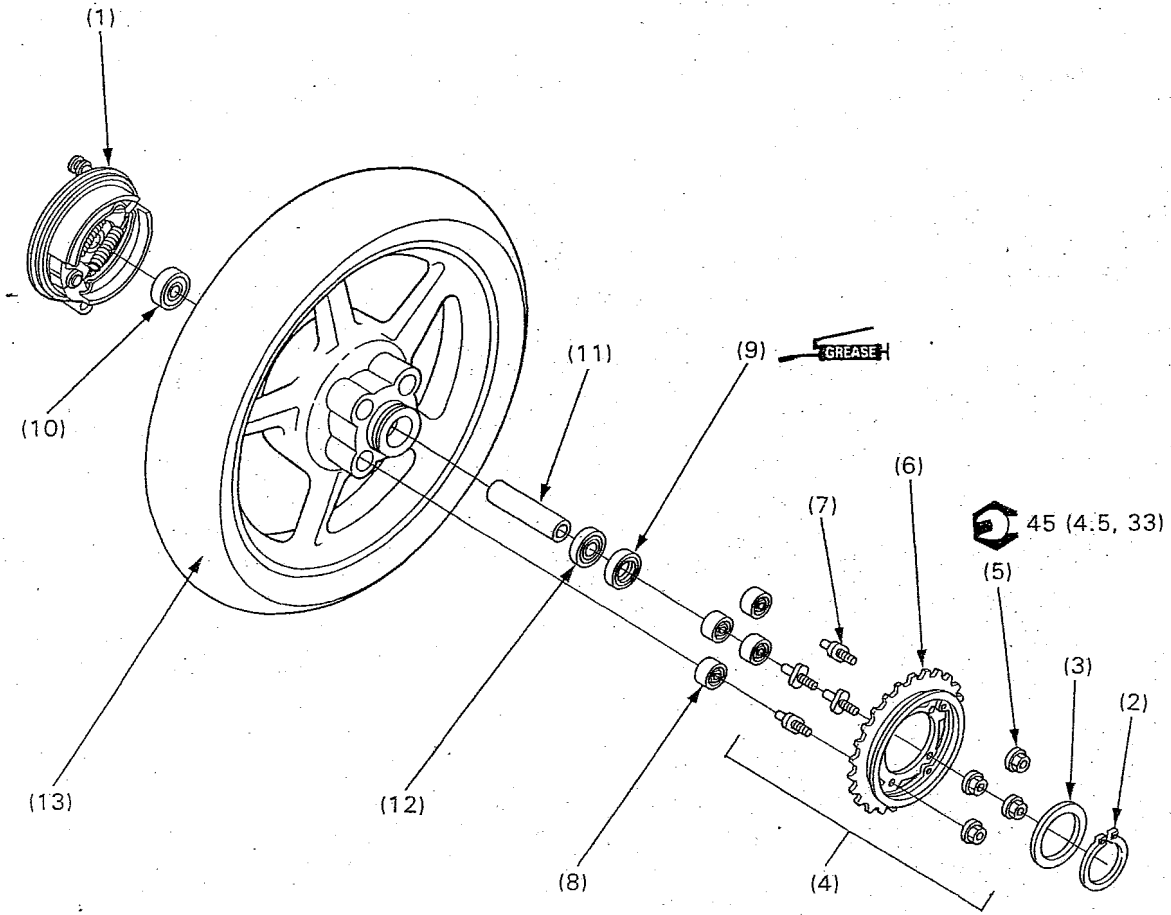
- A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.

NOTE

- For rear wheel removal, a hoist or other support is required to support the motorcycle.
- Adjust the drive chain free play after installing the wheel.

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake adjusting nut	1	
(2)	Brake rod	1	
(3)	Spring	1	
(4)	Brake rod joint piece	1	
(5)	Drive chain adjusting nut	2	Loosen the adjusting nut fully.
(6)	Cotter pin	1	
(7)	Nut	1	
(8)	Washer	1	
(9)	Rubber cushion	1	
(10)	Brake stopper arm pivot bolt	1	
(11)	Brake stopper arm	1	
(12)	Rear axle nut	1	
(13)	Washer	1	
(14)	Drive chain	1	Move the rear wheel forward, and derail the drive chain from the driven sprocket.
(15)	Rear axle	1	
(16)	Rear wheel assembly	1	Disassembly/assembly (page 11-4).
(17)	Right side collar	1	
(18)	Left side collar	1	

Rear Wheel Disassembly/Assembly



WARNING

- A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.

NOTE

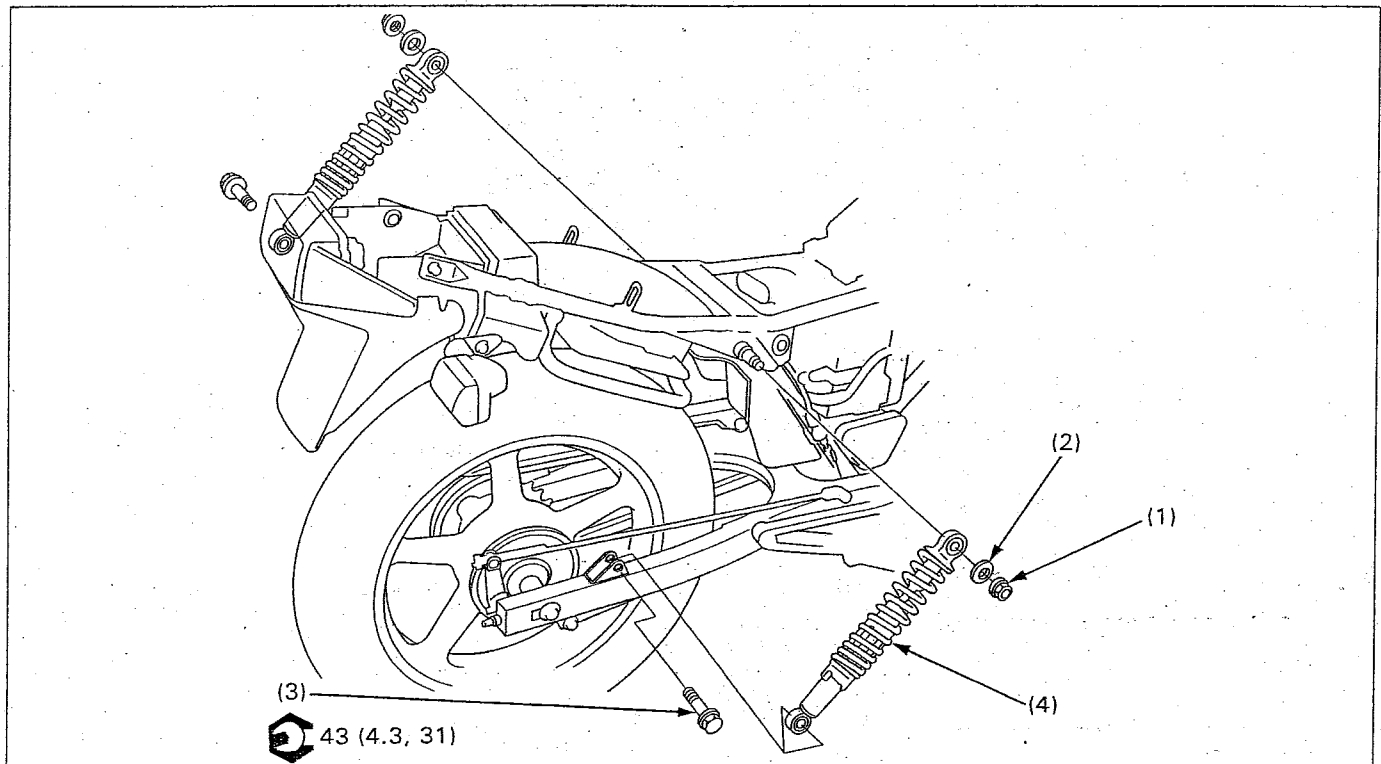
- For driven sprocket removal, loosen the sprocket nuts with the driven sprocket bolt installed in the wheel hub.
- Replace wheel bearings as a set.
- For wheel bearing replacement, refer to the section 1 of the Common Service Manual.

Requisite Service

- Rear wheel removal/installation (page 11-2)

Procedure		Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake panel assembly	1	Disassembly (page 12-8).
(2)	Snap ring	1	
(3)	Washer	1	
(4)	Driven sprocket assembly	1	
(5)	—Driven sprocket nut	4	
(6)	—Driven sprocket	1	
(7)	—Driven sprocket bolt	4	
(8)	Rear wheel damper	4	
(9)	Dust seal	1	At assembly, apply grease to the dust seal lips.
(10)	Right wheel bearing (6302 U)	1	
(11)	Distance collar	1	
(12)	Left wheel bearing (6302 U)	1	NOTE • Drive in the left side bearing first, then the right side bearing.
(13)	Rear wheel/tire	1/1	

Shock Absorber Removal/Installation



NOTE

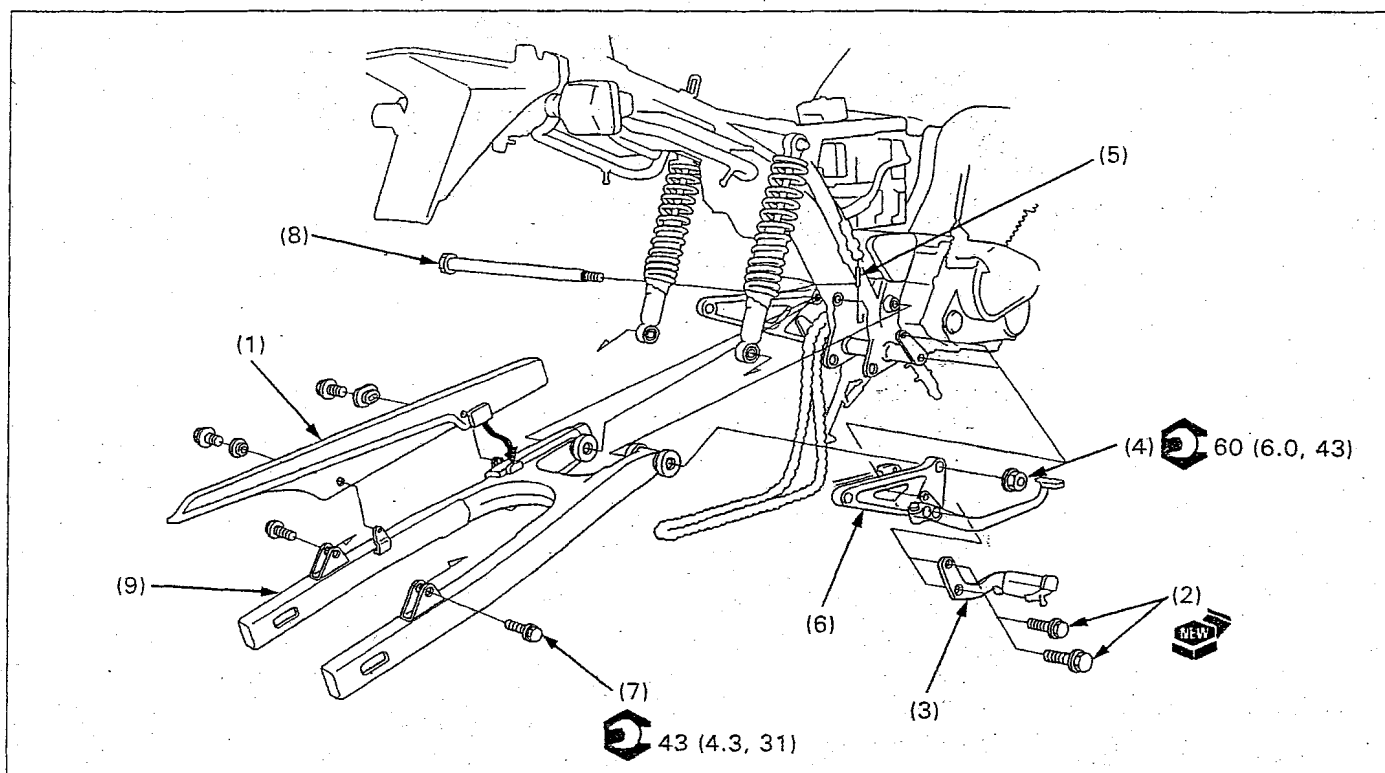
- For shock absorber removal, a hoist or other support is required to support the motorcycle.

Requisite Service

- Rear fairing removal/installation (page 2-3)
- Muffler removal/installation (page 2-2)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Shock absorber mounting nut	2	
(2)	Plain washer	2	
(3)	Shock absorber mounting bolt	2	
(4)	Shock absorber assembly	2	

Swingarm Removal/Installation



NOTE

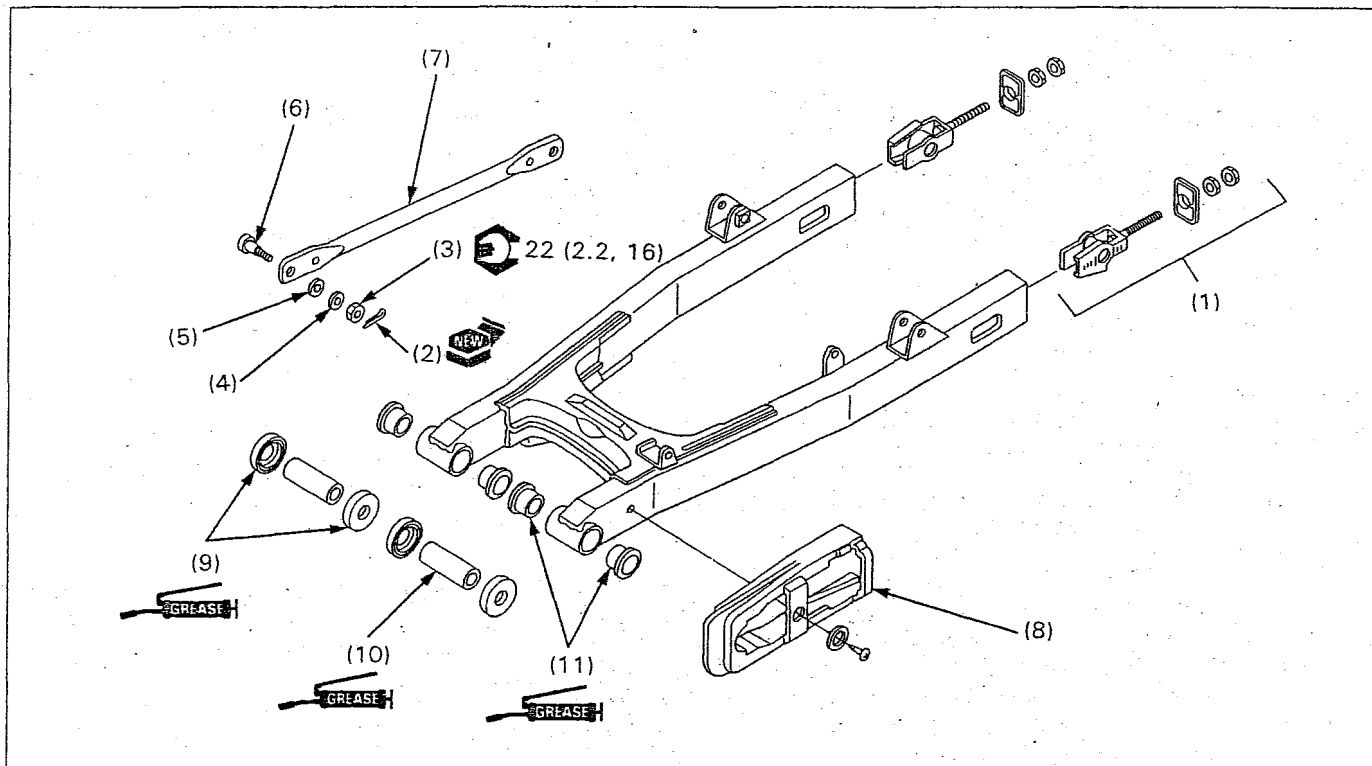
- For swingarm removal, a jack or other support is required to support the motorcycle.

Requisite Service

- Rear wheel removal/installation (page 11-2)
- Muffler removal/installation (page 2-2)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Drive chain cover	1	
(2) Right footpeg mounting bolt	2	
(3) Right footpeg assembly	1	
(4) Swingarm pivot nut	1	
(5) Rear brake light switch spring	1	
(6) Right footpeg bracket	1	
(7) Shock absorber lower mounting bolt	2	
(8) Swingarm pivot bolt	1	
(9) Swingarm assembly	1	Disassembly/assembly (page 11-8).

Swingarm Disassembly/Assembly



Requisite Service

- Swingarm removal/Installation (page 11-7)

Procedure	Q'ty	Remarks
Disassembly Order		Assembly is in reverse order of disassembly.
(1) Drive chain adjuster	2	
(2) Cotter pin	1	
(3) Nut	1	
(4) Plain washer	1	
(5) Rubber cushion	1	
(6) Brake stopper arm bolt	1	
(7) Brake stopper arm	1	
(8) Drive chain slider	1	
(9) Dust seal	4	Apply grease to the lips.
(10) Pivot collar	2	Apply grease to sliding surfaces.
(11) Pivot bushing	4	Apply grease to sliding surfaces.

12. Brake System

Service Information	12-1	Front Master Cylinder Disassembly/ Assembly	12-6
Troubleshooting	12-2	Rear Brake Panel Disassembly/ Assembly	12-8
Brake Pad Replacement	12-3	Brake Pedal Removal/Installation	12-10
Front Brake Caliper Disassembly/ Assembly	12-4		

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.
- A contaminated brake disc/drum or pad/shoe reduces stopping power. Discard contaminated pads/shoes and clean a contaminated disc/drum with a high quality brake degreasing agent.
- Spilled brake fluid will severely damage meter 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 3 or DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid as they may not be compatible.
- Always check brake operation before riding the motorcycle.

Troubleshooting

Front Brake:

Brake Lever 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

Brake Lever 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

Brake Grab or Pull to One Side

- Contaminated brake pad/disc
- Misaligned wheel
- Clogged/restricted brake/hose joints
- Warped/deformed brake disc
- Caliper not sliding properly

Brakes Drag

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

Rear Brake:

Poor Brake Performance

- Improperly adjusted brake
- Worn brake linings
- Worn brake drum
- Worn brake cam
- Improperly installed brake linings
- Brake linkage needs lubrication
- Contaminated brake linings
- Contaminated brake drum
- Worn brake shoes at cam contact area
- Improper engagement between brake arm and cam serrations.

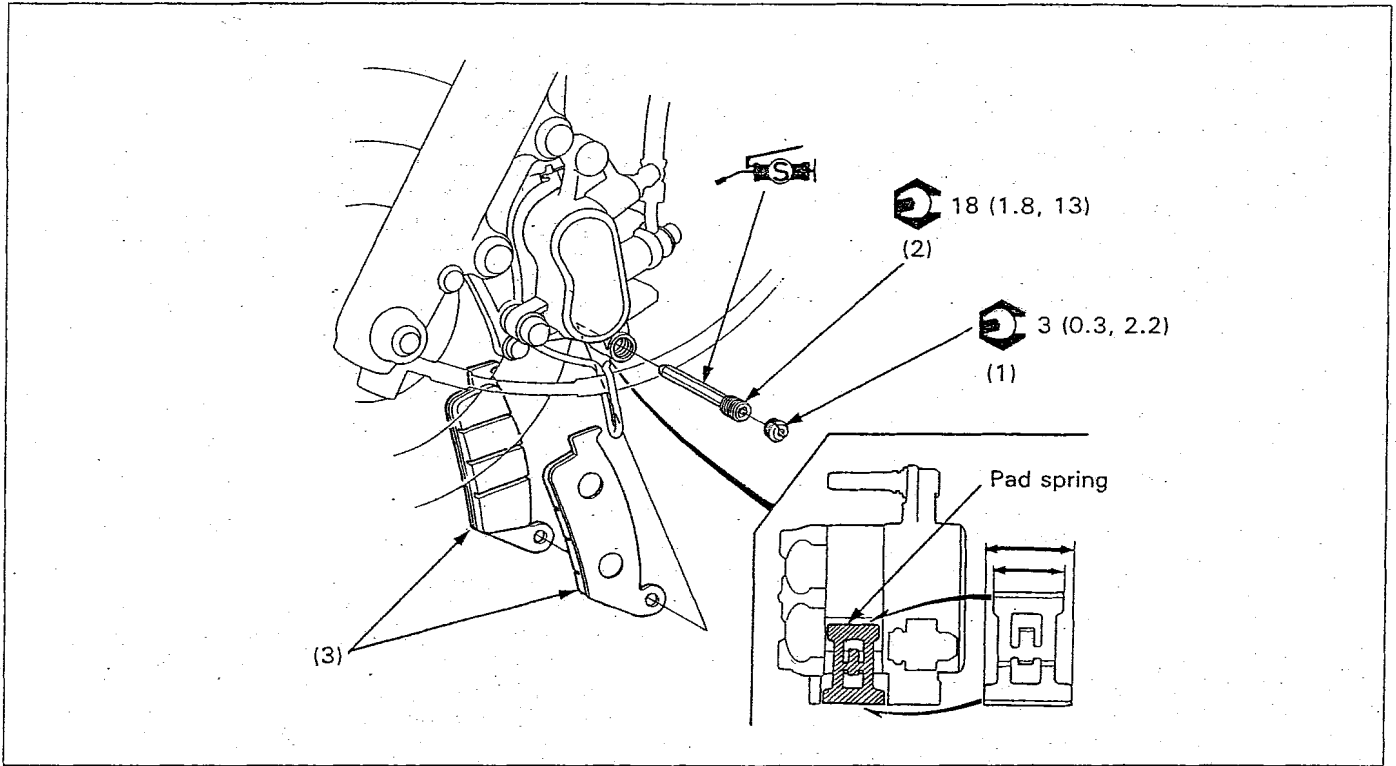
Brake Pedal Hard or Slow to Return

- Worn/broken return spring
- Improperly adjusted brake
- Shoes sticking to brake drum due to contamination
- Worn brake shoes at cam contact areas
- Brake linkage needs lubrication
- Worn brake cam
- Improperly installed brake linings

Brake Squeaks

- Worn brake linings
- Worn brake drum
- Contaminated brake linings
- Contaminated brake drum

Brake Pad Replacement



▲ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.
- After replacement, operate the brake lever to seat the caliper pistons against the pads.

-NOTE

- The brake pads can be replaced without disconnecting the hydraulic system.
- Replace the brake pads as a set.
- Apply a thin coat of grease onto the pad pin and pad pin plug threads so as not to rust it.

Procedure		Q'ty	Remarks
(1)	Removal Order Pad pin plug	1	Installation is in the reverse order of removal. NOTE • Push the pistons all the way in to provide clearance for new pads. • Before installing the pads, make sure that the pad spring is positioned properly as shown.
(2)	Pad pin	1	
(3)	Pad	2	

Troubleshooting

Front Brake:

Brake Lever 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

Brake Lever 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

Brake Grab or Pull to One Side

- Contaminated brake pad/disc
- Misaligned wheel
- Clogged/restricted brake/hose joints
- Warped/deformed brake disc
- Caliper not sliding properly

Brakes Drag

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

Rear Brake:

Poor Brake Performance

- Improperly adjusted brake
- Worn brake linings
- Worn brake drum
- Worn brake cam
- Improperly installed brake linings
- Brake linkage needs lubrication
- Contaminated brake linings
- Contaminated brake drum
- Worn brake shoes at cam contact area
- Improper engagement between brake arm and cam serrations.

Brake Pedal Hard or Slow to Return

- Worn/broken return spring
- Improperly adjusted brake
- Shoes sticking to brake drum due to contamination
- Worn brake shoes at cam contact areas
- Brake linkage needs lubrication
- Worn brake cam
- Improperly installed brake linings

Brake Squeaks

- Worn brake linings
- Worn brake drum
- Contaminated brake linings
- Contaminated brake drum

⚠ WARNING

- Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Check the brake system by applying the brake after the air bleeding.

CAUTION

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

NOTE

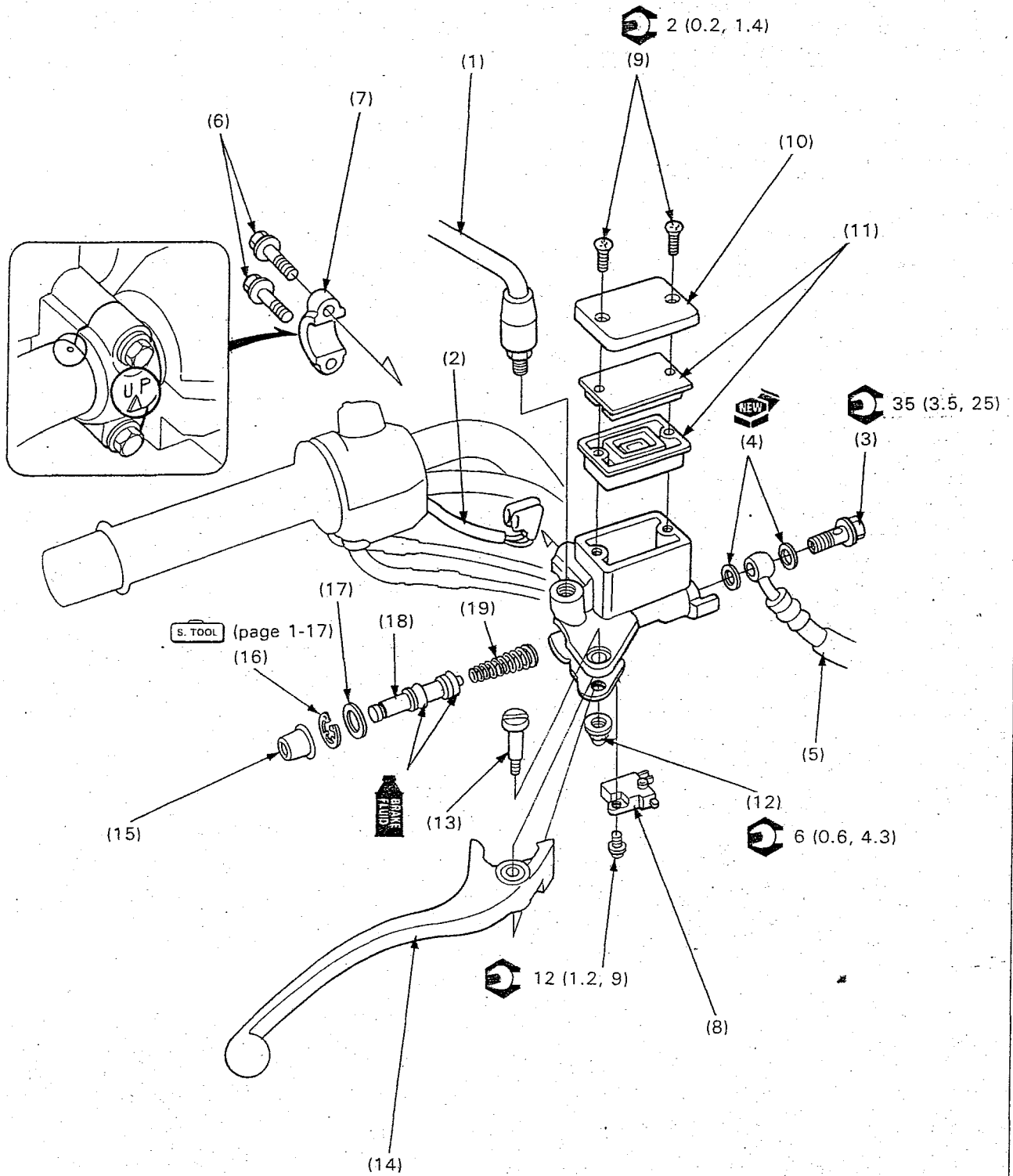
- Do not remove the bleed valve unless it is replaced.

Requisite Service

- Front brake fluid draining/air bleeding

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)	Pad	2	Removal/installation (page 12-3)
(5)	Bolt/clamp	1/1	
(6)	Caliper mounting bolt	2	
(7)	Brake caliper assembly	1	
(8)	Pad spring	1	Install as shown.
(9)	Caliper bracket	1	
(10)	Pad retainer	1	
(11)	Caliper pin bolt boot	2	
(12)	Caliper pin bolt	2	Do not remove unless necessary.
(13)	Caliper piston	2	
(14)	Dust seal	2	CAUTION • Be careful not to damage the piston sliding surface.
(15)	Piston seal	2	

Front Master Cylinder Disassembly/Assembly



WARNING

- Check the brake system by applying the brake after the air bleeding.

CAUTION

- Avoid spilling fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.
- When removing the oil bolt, cover the end of the brake hose to prevent contamination. Do not allow the foreign material to enter the system.
- Do not allow the lips of the cups to turn inside out and be certain the snap ring is firmly seated in the groove.

NOTE

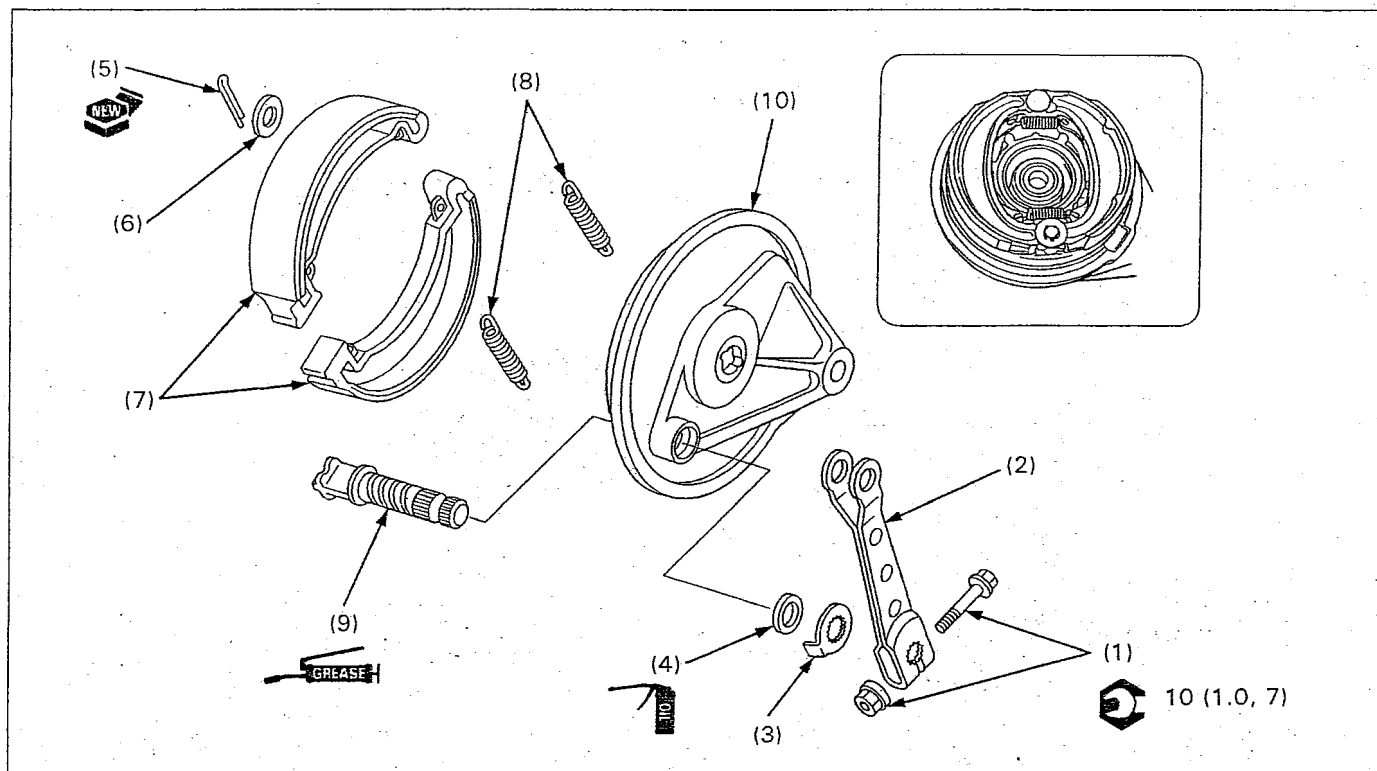
- Use only DOT 4 brake fluid from a sealed container.
- The master cylinder piston, cups and spring must be installed as a set.

Requisite Service

- Front brake fluid draining/air bleeding

Procedure		Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Rear view mirror	1	
(2)	Brake switch wires	2	
(3)	Brake hose bolt	1	
(4)	Sealing washer	2	
(5)	Brake hose	1	
(6)	Master cylinder bolt	2	
(7)	Master cylinder holder	1	Remove the master cylinder assembly from the handlebar.
(8)	Brake switch	1	
(9)	Reservoir cap screw	2	
(10)	Reservoir cap	1	
(11)	Set plate/diaphragm	1/1	
(12)	Brake lever pivot nut	1	
(13)	Brake lever pivot bolt	1	
(14)	Brake lever	1	
(15)	Boot	1	
(16)	Snap ring	1	Use snap ring pliers (07914—3230001).
(17)	Washer	1	
(18)	Master piston/cup	1/2	
(19)	Spring	1	Install the spring with its small coil end toward the piston.

Rear Brake Panel Disassembly/Assembly



WARNING

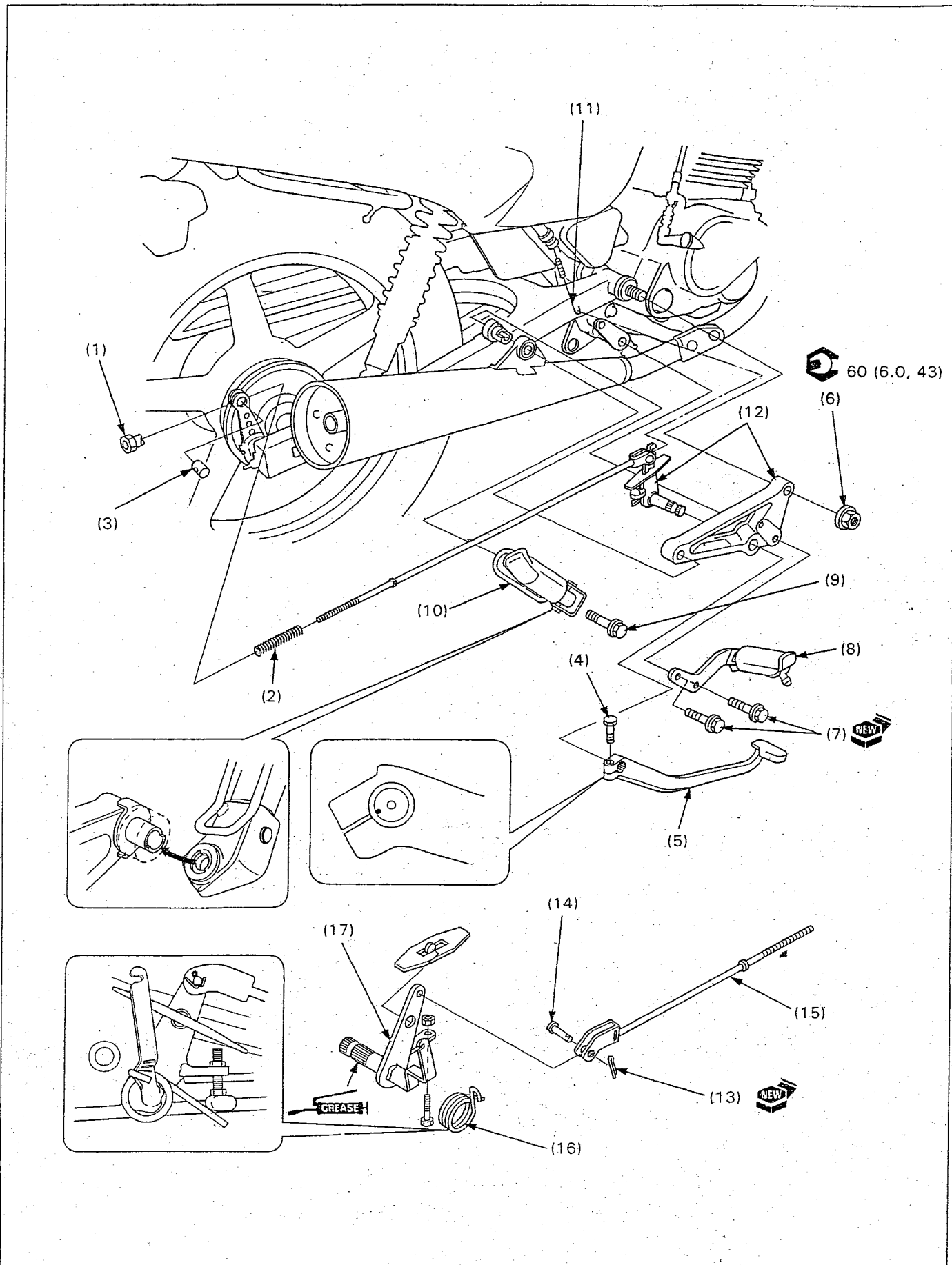
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.
- A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.

Requisite Service

- Rear wheel removal/installation (page 11-2).

Procedure	Q'ty	Remarks
(1) Disassembly Order Brake arm pinch bolt/nut	1/1	Assembly is in the reverse order of disassembly.
(2) Brake arm	1	
(3) Brake wear indicator	1	At installation, align the wide tooth with the wide slot in the brake cam.
(4) Felt seal	1	Install with endless side facing out.
(5) Cotter pin	1	
(6) Washer	1	
(7) Brake shoe	2	
(8) Shoe spring	2	At installation, apply a small amount of grease to the sliding surface and cam portion of the brake cam and install it.
(9) Brake cam	1	
(10) Brake panel	1	

Brake Pedal Removal/Installation



Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake rod adjusting nut	1	
(2)	Brake rod spring	1	
(3)	Brake rod joint piece	1	
(4)	Brake pedal pinch bolt	1	
(5)	Brake pedal	1	Align the punch mark on the shaft with the brake pedal slit.
(6)	Swingarm pivot nut	1	
(7)	Right footpeg mounting bolt	2	
(8)	Right footpeg assembly	1	
(9)	Right passenger footpeg mounting bolt	1	
(10)	Right passenger footpeg	1	
(11)	Brake switch spring	1	
(12)	Right footpeg bracket/brake linkage assembly	1	
(13)	— Cotter pin	1	
(14)	— Clevis pin	1	At assembly, align the cutout of the clevis pin with the boss in the brake rod.
(15)	Brake rod	1	
(16)	Brake pedal return spring	1	
(17)	Brake linkage	1	Apply clean grease to the sliding surface of the shaft.

13. Charging System/Alternator

Service Information	13-1	Regulator/Rectifier	13-6
System Location	13-2	Alternator	13-7
Troubleshooting	13-3	Alternator, Pulse Generator Removal/ Installation	13-8
Battery Removal/Installation	13-4		
Charging System Inspection	13-5		

Service Information

WARNING

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

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

CAUTION

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

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

NOTE

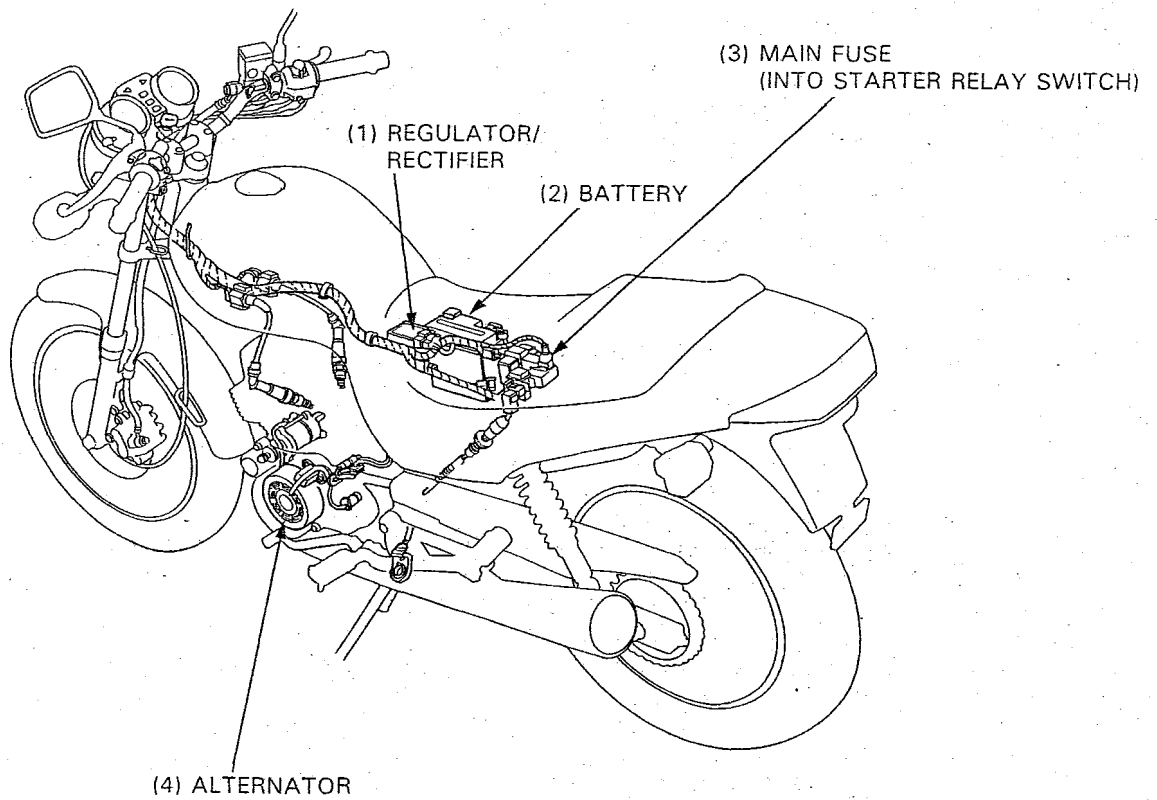
- The maintenance free battery must be replaced when it reaches the end of its service life.

CAUTION

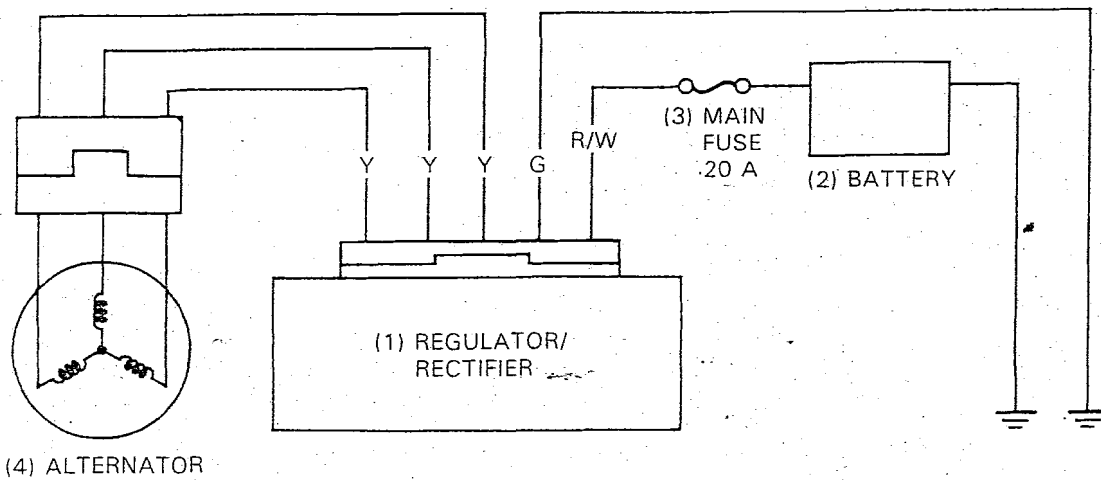
- The battery caps should not be removed. Attempting to remove the sealing caps from the cells may damage the battery.

- The battery can be damaged if over charged or undercharged, or if left to discharge for long periods. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of the 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 13-3).
- For battery testing/charging, refer to section 22 of the Common Service Manual.
- For charging system component locations, see page 13-2.

System Location



System Diagram



Troubleshooting

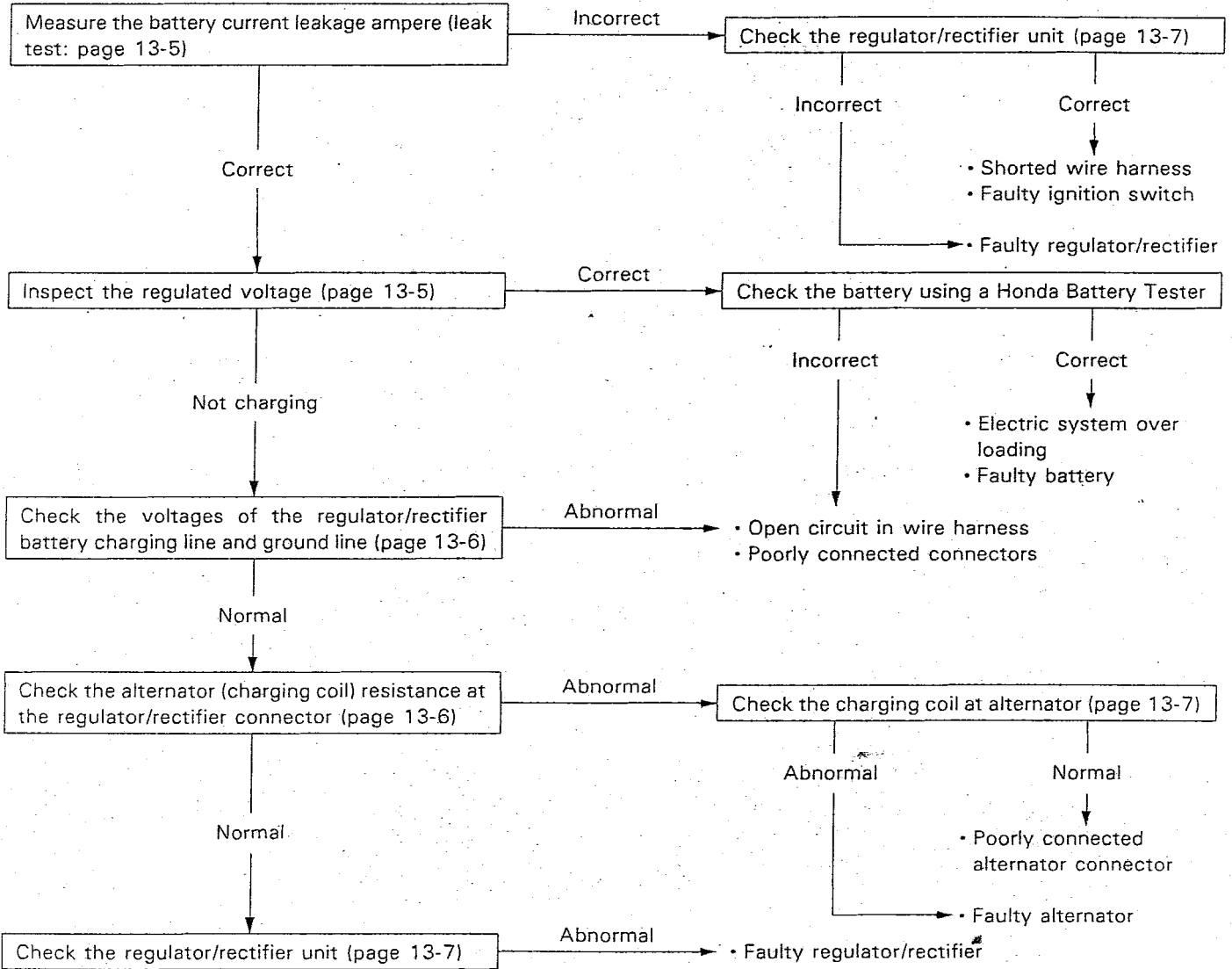
Battery Overcharging

- Faulty regulator/rectifier

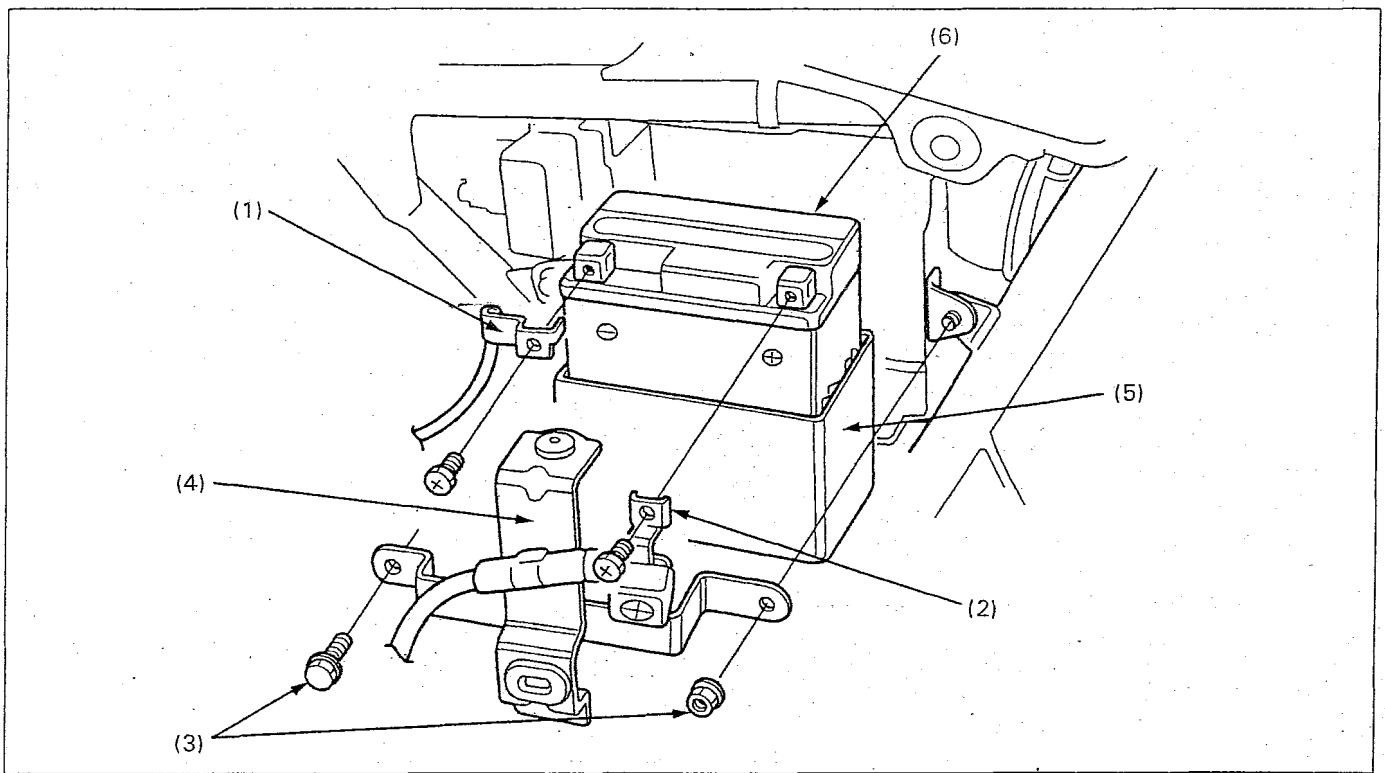
Battery Undercharging

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

• With the ignition switch OFF, remove the negative terminal at the battery first, then remove the positive terminal.

Requisite Service

- Rear fairing removal/installation (page 2-3)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Negative terminal	1	
(2)	Positive terminal	1	
(3)	Battery holder bolt/nut	1/1	
(4)	Battery holder	1	
(5)	Battery case	1	
(6)	Battery	1	

Charging System Inspection

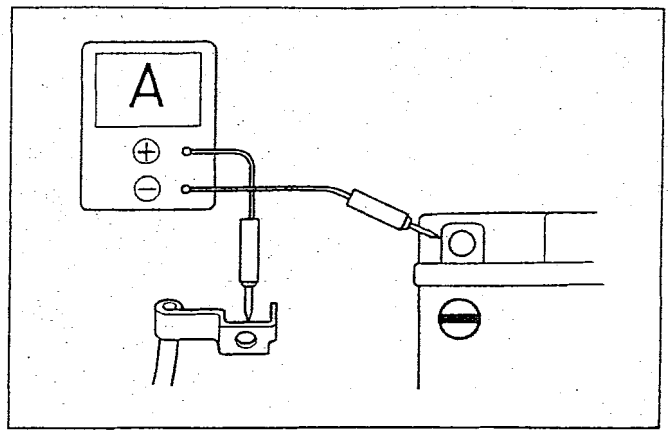
Leakage Test

Turn the ignition switch off, and disconnect the negative (-) cable from the battery.

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

NOTE

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



Specified Current Leakage: 1 mA max

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

Locate the short by disconnecting connectors one by one and measuring the current.

Regulated Voltage/Ampere Inspection

NOTE

- Before performing this test, be sure the battery is fully charged and that the voltage between its terminals is greater than 13.0 V.

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

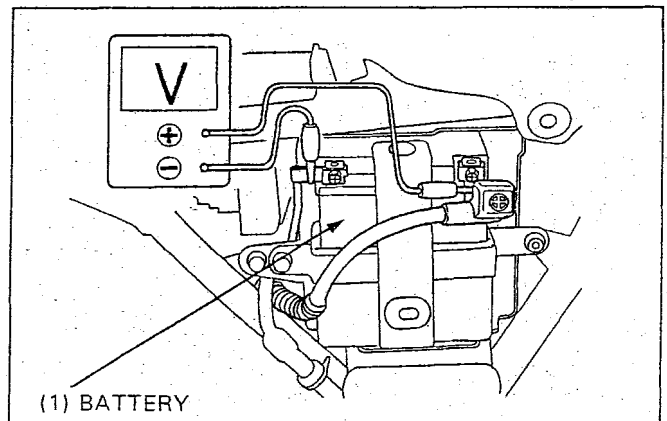
Battery Regulated Voltage

Connect the multimeter between the battery terminals.

S. TOOL

Digital multimeter

07411-002000



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.

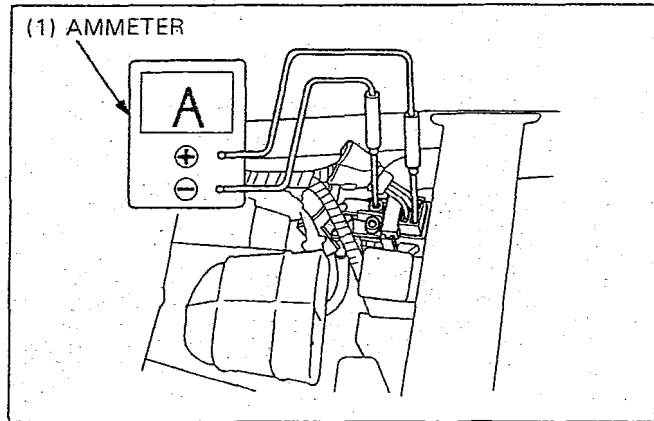
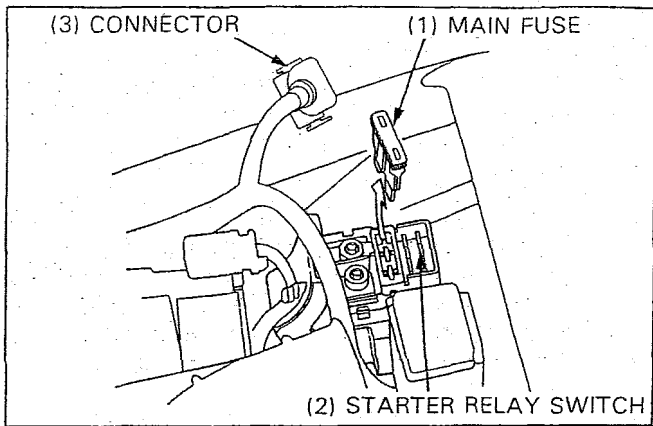
Disconnect the starter relay switch connector remove the main fuse (20 A). Reconnect the connector onto the relay switch. Connect the ammeter as shown.

Start the engine and increase the engine speed gradually.

CAUTION

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

Regulated Voltage: 13.5–14.0 V/1,500 rpm
Charging current : 1 A



Regulator/Rectifier

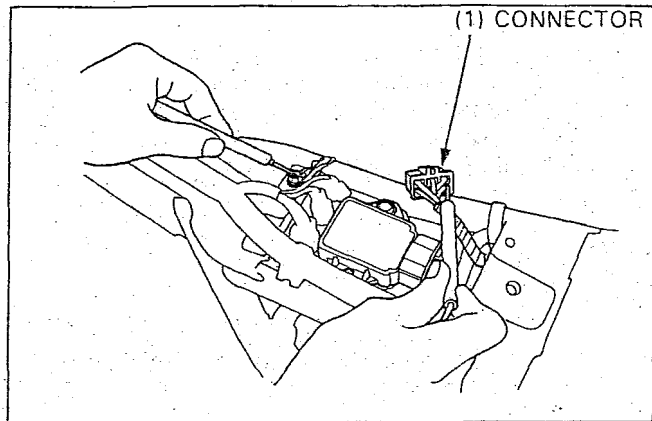
System Inspection

Remove the fuel tank (page 2-4).
Disconnect the regulator/rectifier 5P connector.

Check the connectors for loose or corroded terminals.

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

Item	Terminals	Specification
Battery charging line	Red/White (+) and ground (-)	Battery voltage should register
Charging coil line	Yellow and Yellow	0.2–0.6 Ω (20°C/68°F)



If the charging coil line reading is out of specification, check the alternator (page 13-7).

Unit Inspection

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

NOTE

- You'll get false readings if the probes touch your fingers.
- Use the specified multimeters. Using other equipment may not allow you to obtain the correct results. This is due to the characteristic of semiconductors, which have different values depending on the applied voltage.

Specific Multimeter:

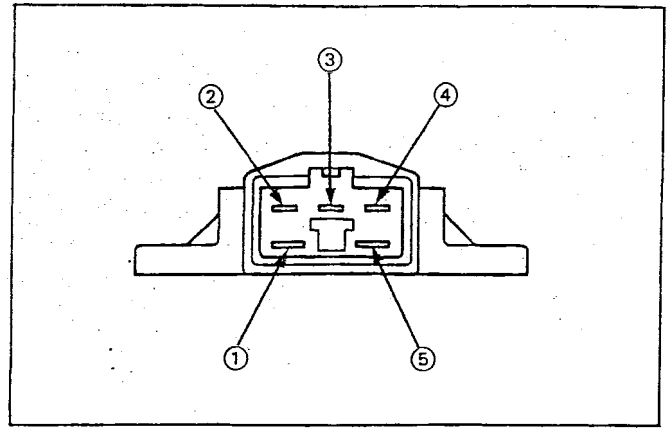
- 07411–0020000 (KOWA Digital type)
- 07308–0020001 (SANWA Analog type)
- TH–5H (KOWA Analog type)

- Select the following range:

SANWA: $k\Omega$

KOWA: $\times 100$

- An old battery stored in the multimeter could cause inaccurate readings. Check the battery if the test results are not as expected.
- When using the KOWA multimeter, remember value that all readings should be multiplied by 100.



Unit: Ω

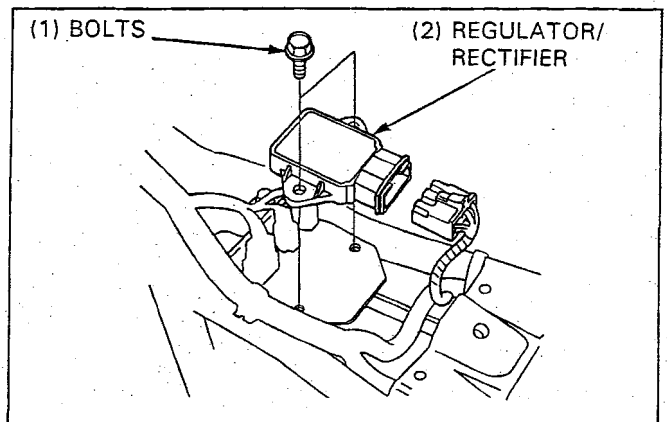
$\ominus \backslash \oplus$	1	2	3	4	5
1		∞	∞	∞	∞
2	500–10K		∞	∞	∞
3	500–10K	∞		∞	∞
4	500–10K	∞	∞		∞
5	700–15K	500–10K	500–10K	500–10K	

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

Removal

Remove the fuel tank (page 2-4).
Disconnect the regulator/rectifier connector.
Remove the mounting bolts and regulator/rectifier unit.

Installation is in the reverse order of removal.



Alternator

NOTE

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

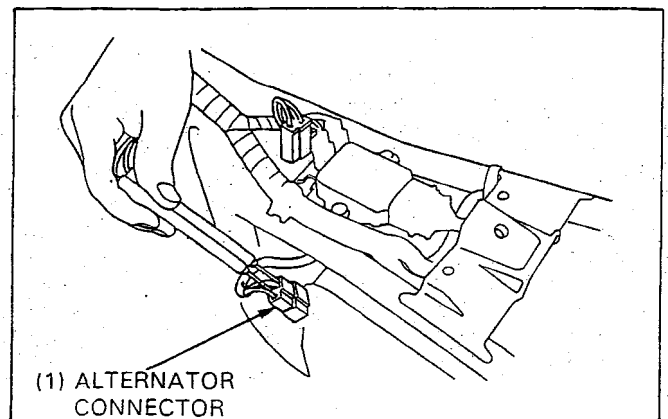
Disconnect the alternator 3P connector.

Measure the resistance between the two Yellow wire terminals.

Standard:

Yellow–Yellow: 0.2–0.6 Ω (20°C/68°F)

Replace the stator if the resistance is out of specification or if there is continuity between the Yellow.



Requisite Service

- Fuel tank removal/installation (page 2-4)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Alternator wire connector	1	
(2)	Pulse generator wire connector	1	
(3)	Neutral switch wire connector	1	
(4)	Exciter coil wire connector	1	
(5)	Gearshift pedal pinch bolt	1	
(6)	Gearshift pedal	1	
(7)	Drive sprocket cover bolt	2	
(8)	Stator motor cable clamp	1	
(9)	Drive sprocket cover	1	
(10)	Neutral switch wire connector	1	
(11)	Left crankcase cover bolt	7	
(12)	Left crankcase cover assembly	1	
(13)	Gasket	1	
	Flywheel Removal Order		Installation is in the reverse order of removal.
(14)	Alternator rotor bolt	1	Use flywheel holder (07725-0040000).
(15)	Washer	1	
(16)	Flywheel	1	Use rotor puller (07733-0020001).
(17)	Woodruff key	1	
	L. Crankcase Cover Disassembly Order		Assembly is in the reverse order of disassembly.
(18)	Wire grommet	1	
(19)	Pulse generator mounting bolt	2	
(20)	Pulse generator	1	
(21)	Wire clamp bolt/clamp	1/1	
(22)	Stator mounting bolt	3	
(23)	Stator assembly	1	

14. Ignition System

Service Information	14-1	Ignition Coil	14-7
System Location	14-2	Pulse Generator	14-8
Troubleshooting	14-3	Exciter Coil	14-8
Ignition System Inspection	14-5	Ignition Timing	14-8

Service Information

⚠ WARNING

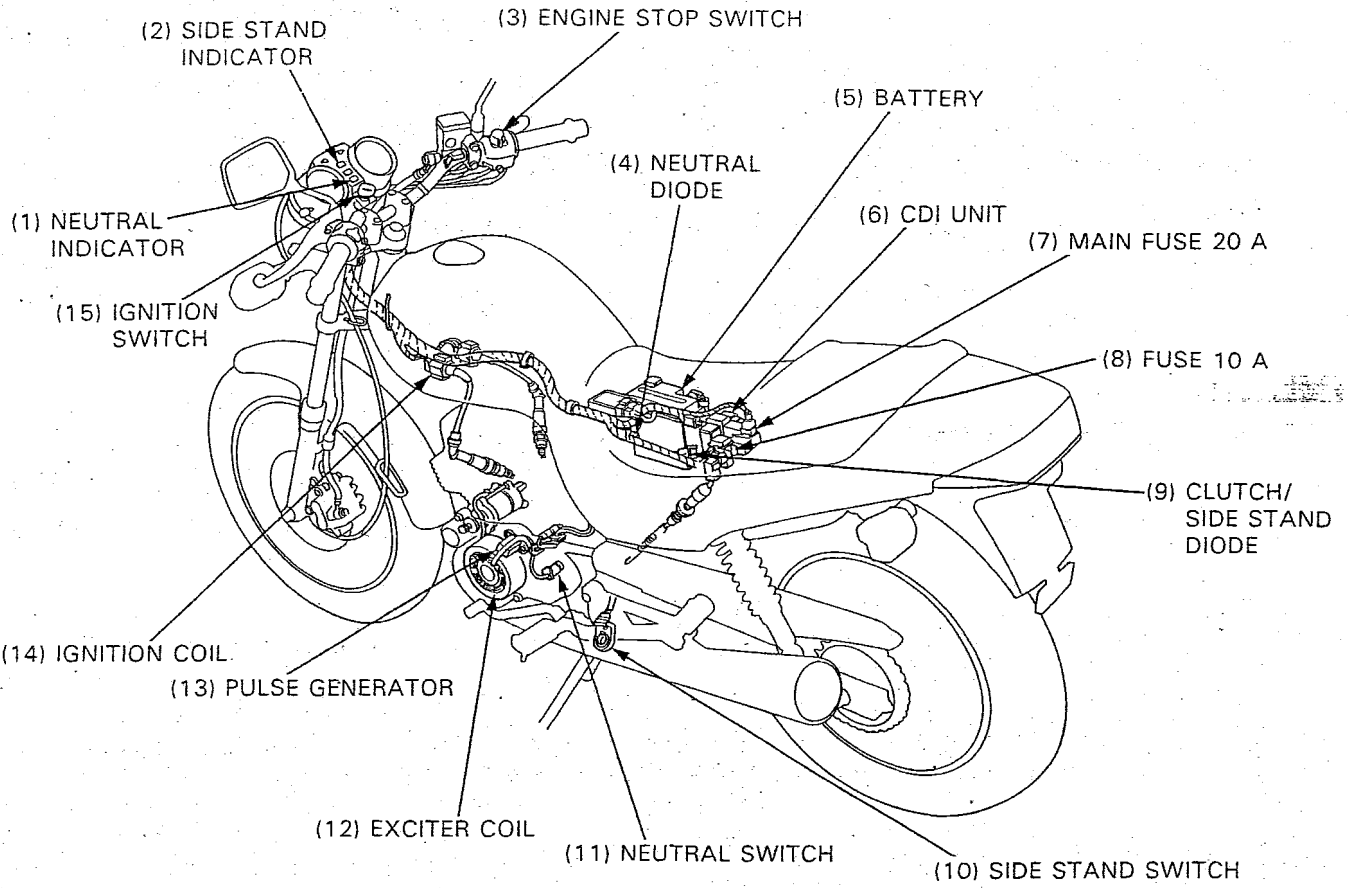
- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

CAUTION

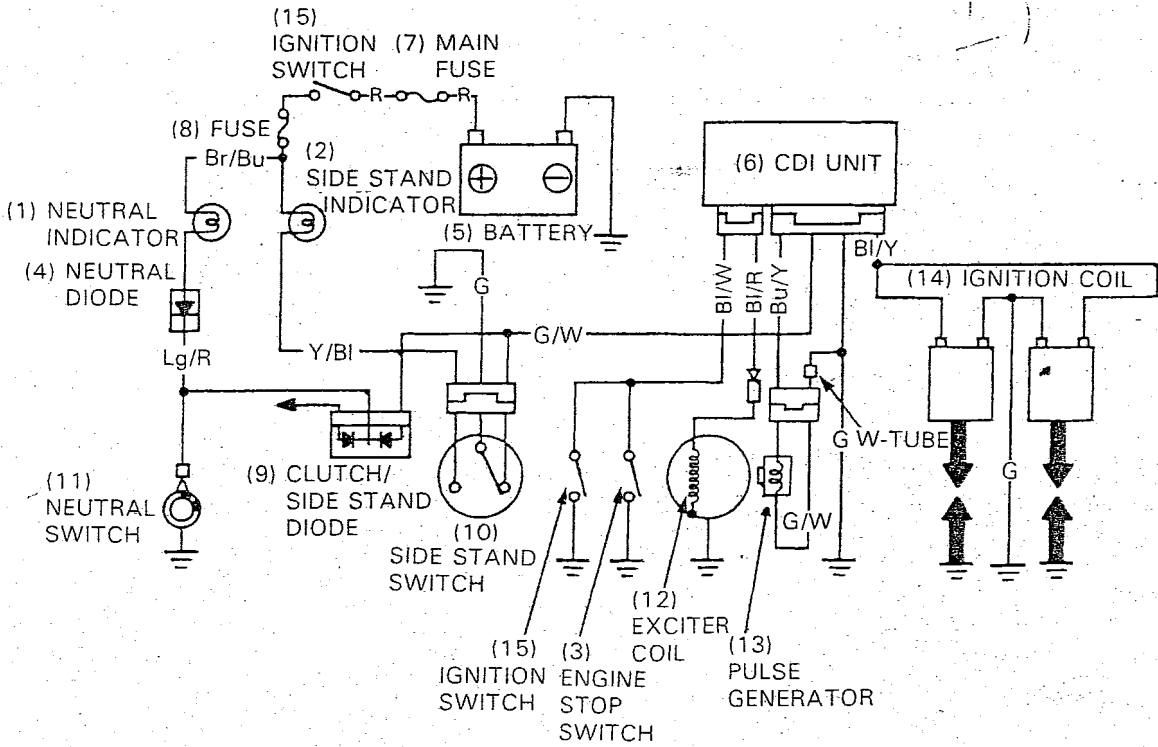
- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 14-3).
- The CDI unit may be damaged if dropped. Also, if the connector is disconnected when current is present, the excessive voltage may damage the unit. Always turn off the ignition switch before servicing.
- Ignition timing cannot be adjusted since the CDI unit is non-adjustable. If ignition timing is incorrect, check the system components and replace any faulty parts.
- A faulty ignition system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Use spark plugs of the correct heat range. Using spark plugs with an incorrect heat range can damage the engine. Refer to section 2 of the Common Service Manual.
- For neutral switch inspection, refer to section 25 of the Common Service Manual. For switch location, see page 14-2 of this manual (System Location).
- For side stand inspection, refer to section 25 of the Common Service manual.
- For alternator removal and installation, see section 13.
- For engine stop switch and ignition switch inspection, check for continuity chart of the Wiring Diagram, page 17-1. Disconnect the ignition and engine stop switch connectors in the headlight case.
- For side stand inhibitor system instructions, see page 14-4 "NOTE" of the troubleshooting.

System Location



System Diagram



Troubleshooting

- Inspect the followings before diagnosing the system.
 - Faulty spark plug.
 - Loose spark plug cap or spark plug wire connections
 - Water got into the spark plug cap (Leaking the ignition coil secondary voltage).
- Temporarily exchange the ignition coil with the other good one and perform the spark test. If there is spark, the exchanged ignition coil is faulty.

No spark at all plugs

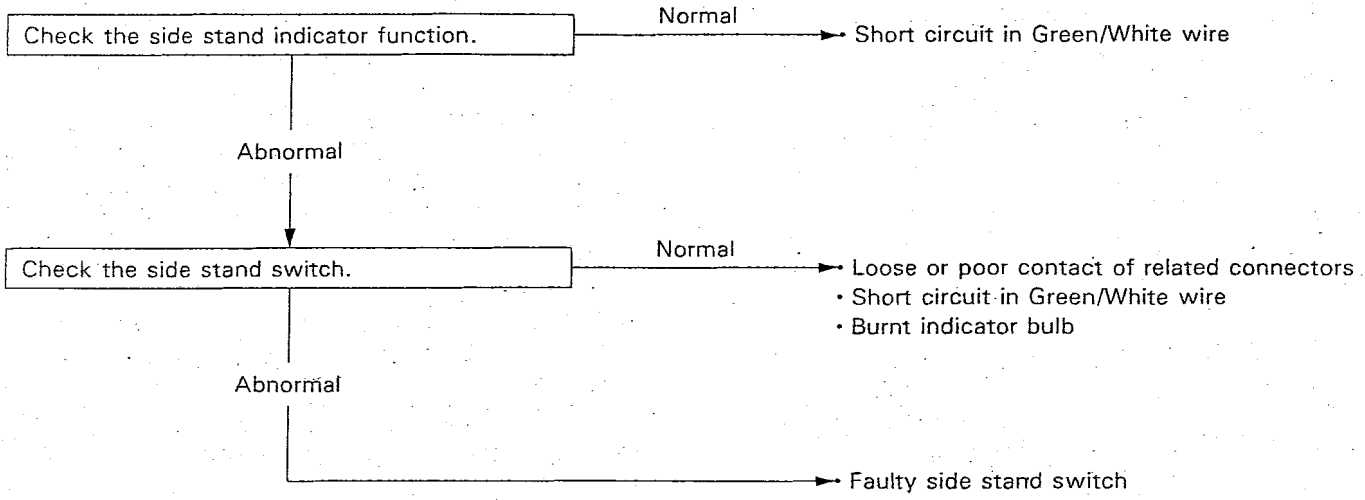
Unusual condition		Probable cause (Check in numerical order)
Ignition coil primary voltage	Low peak voltage.	① The multitester impedance is too low. ② Cranking speed is too low. • Battery is undercharged. ③ The sampling timing of the tester and measured pulse were not synchronized. (System is normal if measured voltage is over the standard voltage at least once). ④ Poorly connected connectors or an open circuit in ignition system. ⑤ Faulty exciter coil. (Measure the peak voltage.) ⑥ Faulty side stand switch circuit. ⑦ Faulty CDI unit (in case when above No. ①—⑥ are normal).
	No peak voltage.	① Incorrect peak voltage adaptor connections. ② Short circuit in engine stop switch wire. ③ Faulty ignition switch or engine stop switch. ④ Loose or poorly connected CDI unit connector. ⑤ Open circuit or poor connection in ground wire of the CDI unit. ⑥ Faulty side stand switch circuit. ⑦ Faulty peak voltage adaptor. ⑧ Faulty exciter coil. (Measure the peak voltage.) ⑨ Faulty pulse generator. (Measure the peak voltage.) ⑩ Faulty CDI unit (in case when above No. ①—⑨ are normal).
	Peak voltage is normal, but no spark jumps at plug.	① Faulty spark plug or leaking ignition coil secondary current. ② Faulty ignition coil.
Exciter coil	Low peak voltage.	① The multitester impedance is too low. ② Cranking speed is too low. • Battery is undercharged. ③ The sampling timing of the tester and measured pulse were not synchronized. (System is normal if measured voltage is over the standard voltage at least once). ④ Faulty exciter coil (in case when above No. ①—③ are normal).
	No peak voltage.	① Faulty peak voltage adaptor. ② Faulty exciter coil.
Pulse generator	Low peak voltage.	① The multitester impedance is too low. ② Cranking speed is too low. • Battery is undercharged. ③ The sampling timing of the tester and measured pulse were not synchronized. (System is normal if measured voltage is over the standard voltage at least once). ④ Faulty pulse generator (in case when above No. ①—③ are normal).
	No peak voltage.	① Faulty peak voltage adaptor. ② Faulty pulse generator.

Engine Starts, But Side Stand Switch Does Not Function

NOTE

The side stand switch should function as follows:

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



Ignition System Inspection

NOTE

- If no spark jumps at all plug, check all connections for loose or poor contact before measuring peak voltage.
- The reading differs depending on the multimeter input impedance. Therefore, use only Honda genuine digital multimeter or commercially available multimeters with the input impedance higher than 10 MΩ/DCV.
- If using Imrie diagnostic tester (model 625), follow the manufacturer's instructions.

Connect the peak voltage adaptor to the digital multimeter.

S. TOOL

Imrie diagnostic tester (model 625) made in Australia or
 Peak voltage adaptor 07HGJ-0020100 with
 Digital multimeter 07411-0020000

Ignition Coil Primary Peak Voltage

NOTE

- Check all system connections before inspection. Poor connected connectors can cause incorrect readings.
- Check that the cylinder compression is normal and the spark plug is installed correctly in all cylinders.

Place the motorcycle on its center stand and shift into neutral. Remove the spark plug caps from the plugs on cylinder head, install a known good spark plugs to the plug caps and ground it to the engine as shown.

Connect the peak voltage adaptor ⊕ probe to the ignition coil primary (black/yellow) wire terminals and the ⊖ probe to the body ground.

Turn the ignition switch ON and engine stop switch is to RUN. Crank the engine with starter motor and read the ignition coil primary peak voltage.

Connection:

Black/yellow wire terminal ⊕—Body ground ⊖

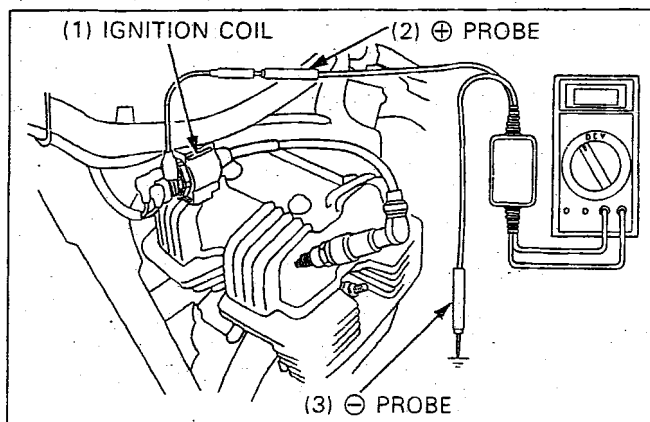
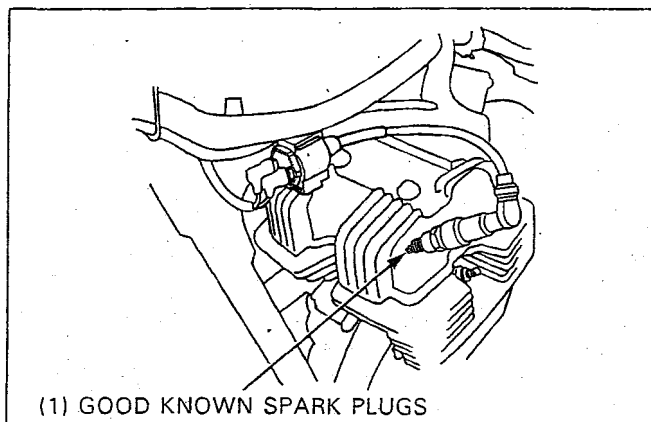
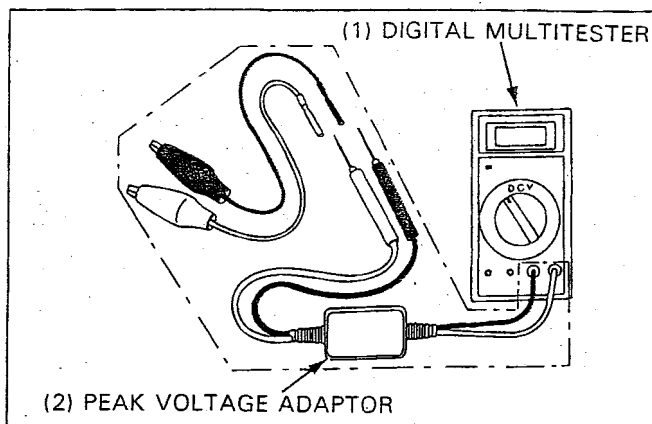
Peak voltage: 100 V minimum

WARNING

- To avoid possible electrical shock during voltage measurements, do not touch test probe metal parts.

If the peak voltage is abnormal, check an open circuit or poorly connected connectors in black/yellow wires.

If no defects are found in the harness, refer to the troubleshooting chart (page 14-3).



Exciter Coil Peak Voltage

NOTE

- Install the spark plug into the cylinder head and measure the peak voltage under normal cylinder compression.

Remove the rear fairing (page 2-3).

Remove the CDI unit disconnect 2P connector from the CDI unit.

Connect the peak voltage adaptor \oplus probe to the exciter coil (black/red) wire terminal of 2P connector, and the \ominus probe to the body ground.

Crank the engine with starter motor and read the exciter coil peak voltage.

Connection:

Black/red wire terminal \oplus —body ground \ominus

Peak voltage: 100 V minimum

WARNING

- To avoid possible electrical shock during voltage measurements, do not touch test probe metal parts.

If the peak voltage measured at the CDI unit connector is abnormal, disconnect the alternator wire connector (black/red) and connect the adaptor probes to the exciter coil terminal and body ground.

In the same manner as at the CDI unit connector, measure the peak voltage and compare it to the voltage measured at the CDI unit connector.

- If the peak voltage measured at the CDI unit is abnormal and the one measured at the exciter coil is normal, the wire harness has an open circuit or loose connections.
- If both peak voltages measured are abnormal, check each item in the troubleshooting chart. If all items are normal, the exciter coil is faulty.

Pulse Generator Peak Voltage

NOTE

- Install the spark plugs into the cylinder head and measure the peak voltage under normal cylinder compression.

Remove the rear fairing (page 2-3).

Remove the CDI unit from the rear fender and disconnect 4P connector from the CDI unit.

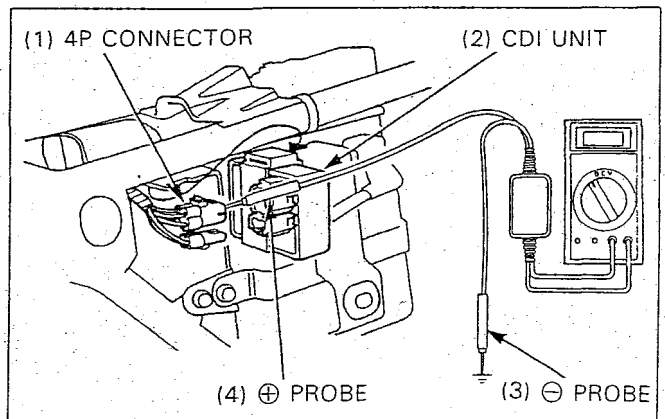
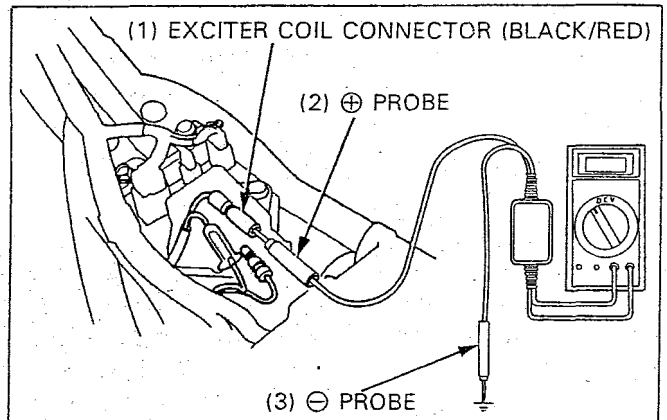
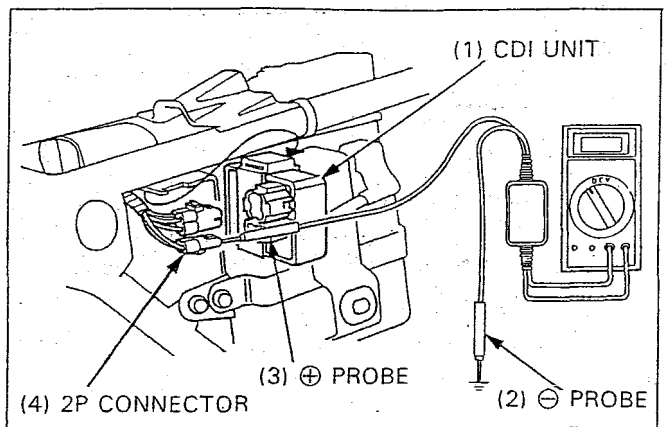
Connect the peak voltage adaptor \oplus probe to the pulse generator (blue/yellow) wire terminal and the \ominus probe to the body ground.

Crank the engine with starter motor and read the pulse generator peak voltage.

Connection:

Blue/yellow wire terminal \oplus —Body ground \ominus

Peak voltage: 0.7 V minimum



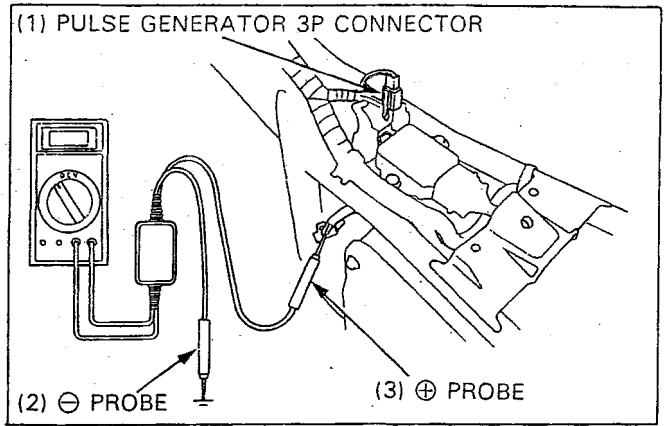
WARNING

- To avoid possible electrical shock during voltage measurements, do not touch test probe metal parts.

If the peak voltage measured at the CDI unit connector is abnormal, disconnect the pulse generator wire 3P connector and connect the adaptor probes to the pulse generator (blue/yellow) wire terminal and body ground.

In the same manner as at the CDI unit connector, measure the peak voltage and compare it to the voltage measured at the CDI unit connector.

- If the peak voltage measured at the CDI unit is abnormal and the one measured at the pulse generator is normal, the wire harness has an open circuit or loose connections.
- If both peak voltages measured are abnormal, check each item in the troubleshooting chart. If all items are normal, the pulse generator is faulty.



Ignition Coil

Inspection

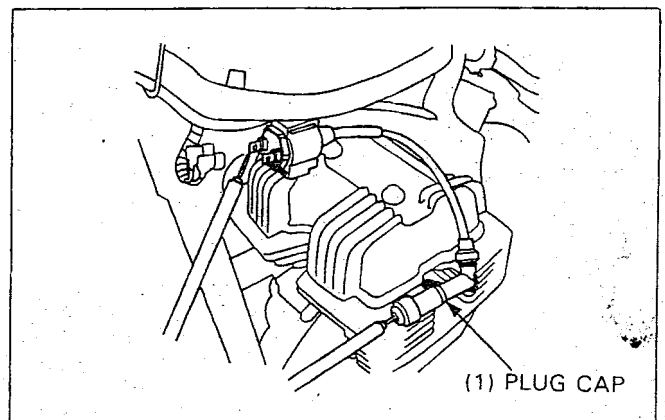
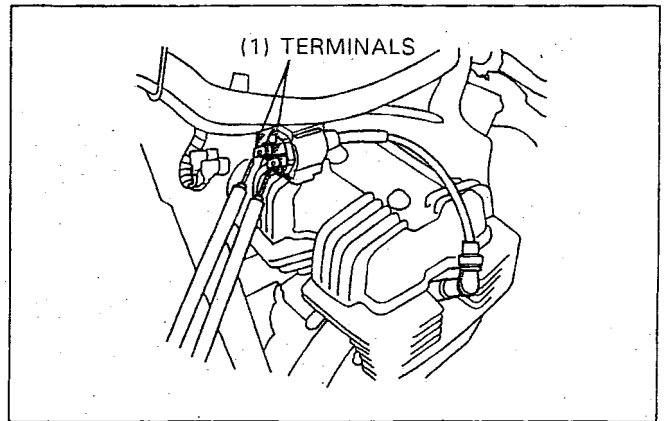
Remove the fuel tank (page 2-4).

Disconnect the ignition coil primary terminals and measure the primary coil resistance of the ignition coil.

Standard: 0.1—0.3 Ω (20°C/68°F)

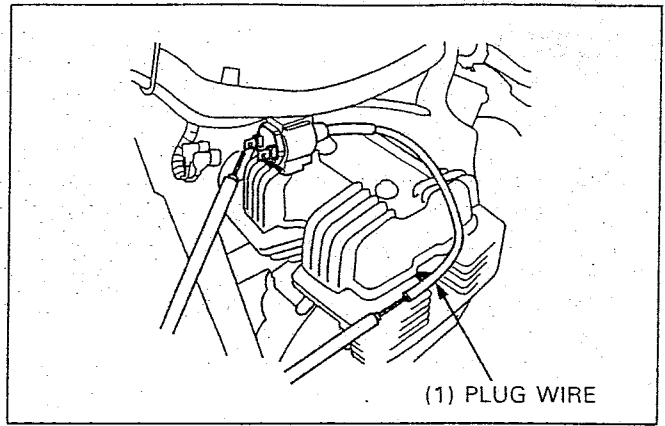
Disconnect the spark plug caps from the spark plug and measure the secondary coil resistance between the ignition coil green wire terminal and spark plug cap.

Standard: 6.5—9.7 kΩ (20°C/68°F)



If the resistance is ∞ (open wire), disconnect the spark plug cap and measure the secondary coil resistance as shown:

Standard: 2.8—3.4 k Ω (20°C/68°F)



Pulse Generator

Inspection

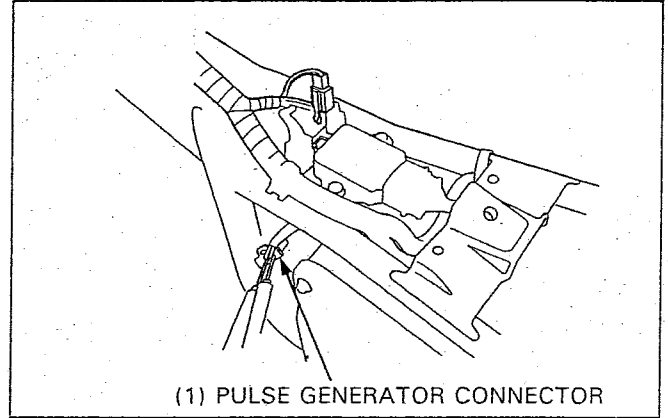
NOTE

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

Remove the fuel tank (page 2-4).
Disconnect the pulse generator 2P connector.

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

Standard: 50—170 Ω (20°C/68°F)



Exciter Coil

Inspection

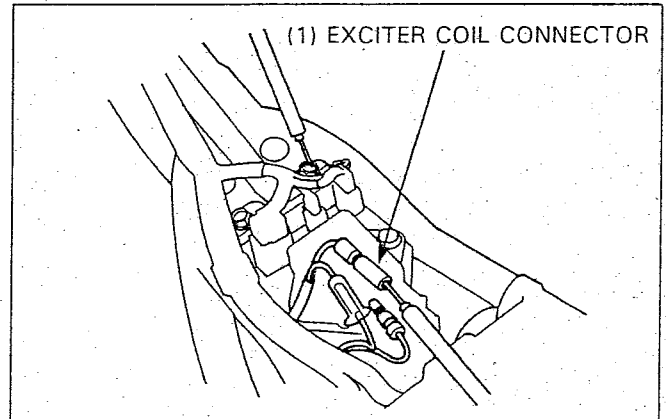
NOTE

- It is not necessary remove the exciter coil from the engine.

Remove the fuel tank (page 2-4).
Disconnect the exciter coil connector.

Measure the resistance between the Black/Red and body ground.

Standard: 50—180 Ω (20°C/68°F)



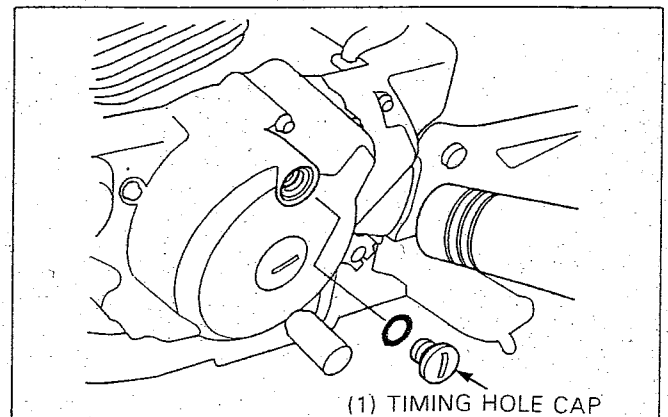
Ignition Timing

Warm up the engine.
Stop the engine and connect a timing light to the No. 1 cylinder spark plug wire.

NOTE

- Read the instructions for timing light for operating.

Remove the timing hole cap on the left crankcase cover.



⚠ 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.

Start the engine and allow it to idle.

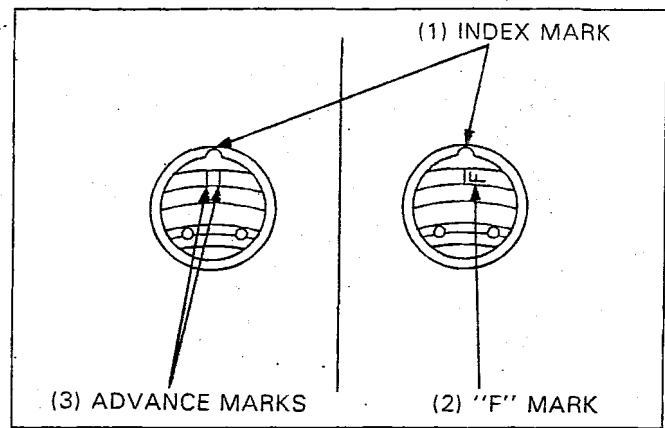
Inspect the ignition timing.

The timing is correct if the "F" mark aligns with the index mark on the crankcase at idle speed.

Idle Speed: $1,500 \pm 100 \text{ min}^{-1} (\text{rpm})$

Check the "F" mark begins to move when the engine speed reaches the advance start rpm.

At $3,000 \text{ min}^{-1} (\text{rpm})$, the ignition timing is correct if the index mark is between the two advance marks.



15. Electric Starter/Starter Clutch

Service Information	15-1	Starter Motor Disassembly/Assembly	15-6
System Location	15-2	Starter Clutch Disassembly/Assembly	15-8
Troubleshooting	15-3	Starter Driven Gear Removal/ Installation	15-9
Starter Motor Removal/Installation	15-5		

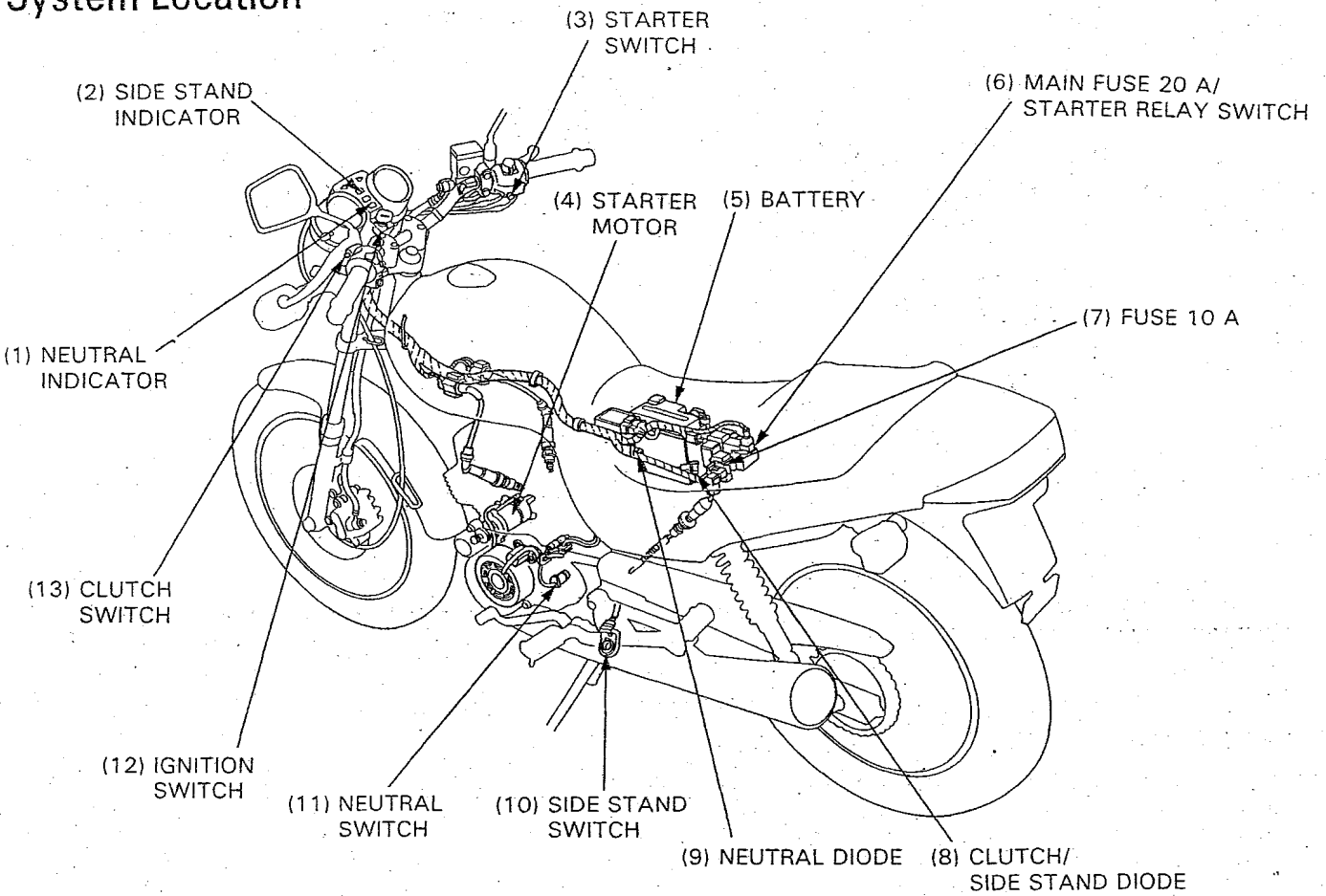
Service Information

⚠ WARNING

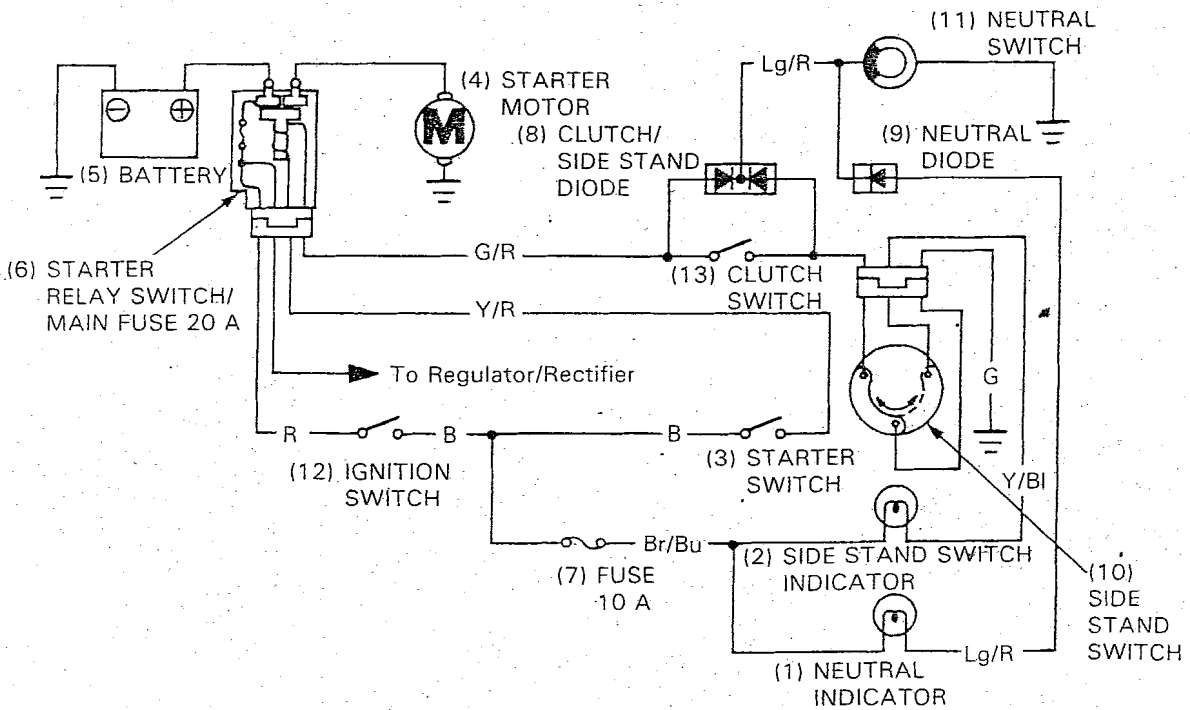
- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor to 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 15-2 or 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 24 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, page 17-1. Disconnect the switch connector inside the headlight case (page 1-19) and check it.
Side stand switch	Section 25 of the Common Service Manual

System Location



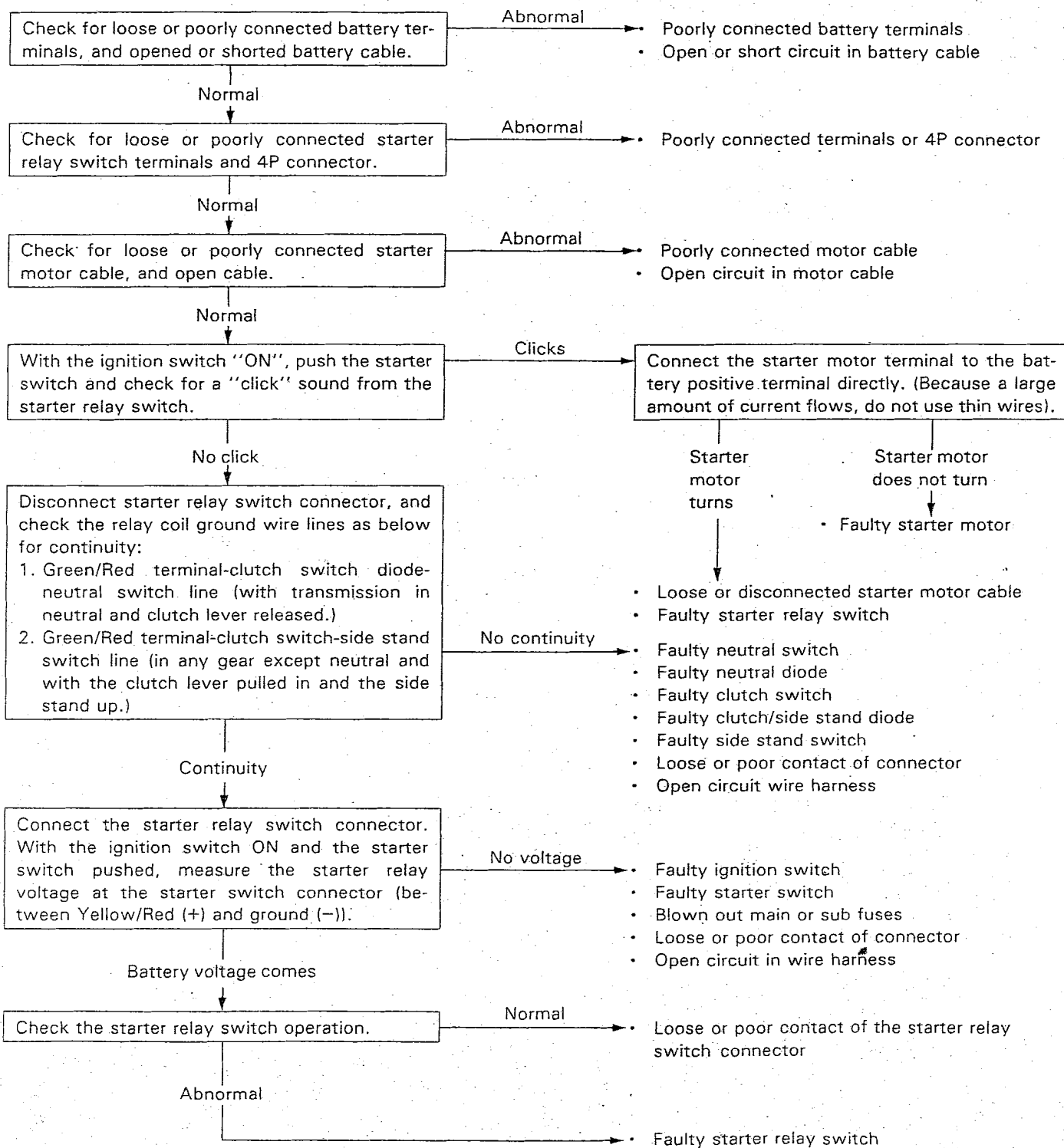
System Diagram



Troubleshooting

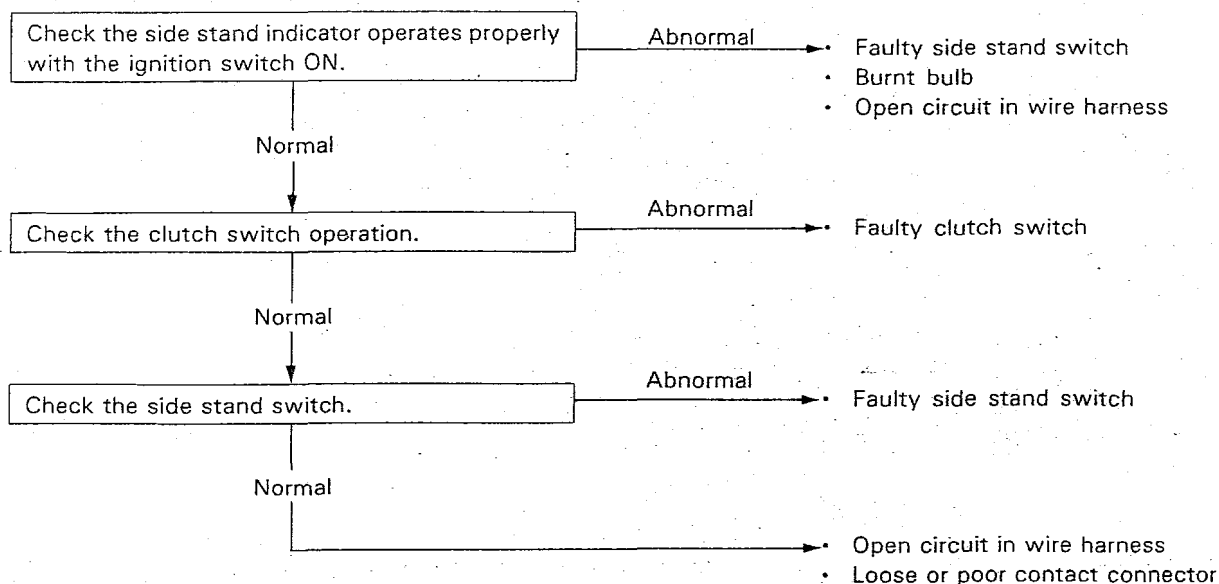
Starter Motor Will Not Turn

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



Electric Starter/Starter Clutch

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

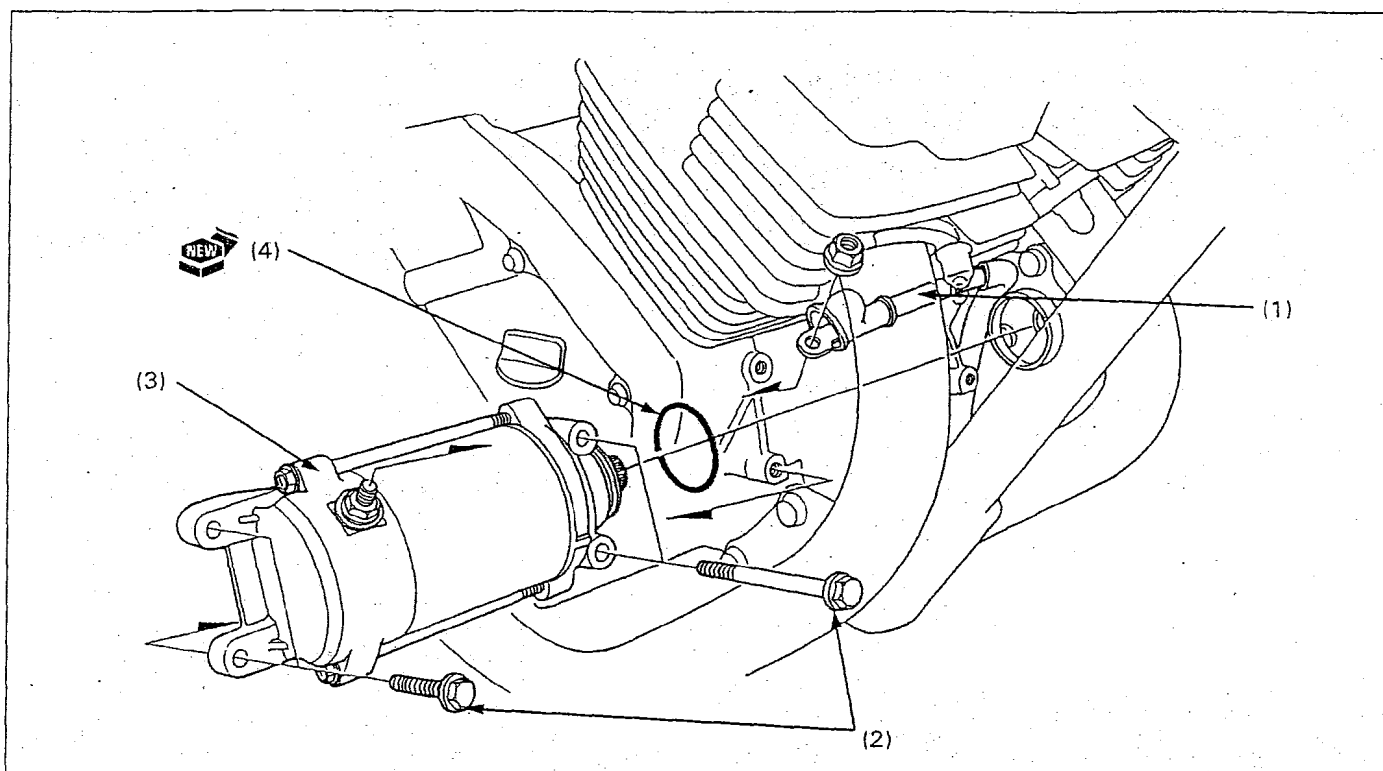
Starter Motor Turns, But Engine Does Not Turn

- Starter motor is running backwards
 - Case assembled improperly
 - Terminals connected improperly
- Faulty starter clutch
- Damaged or faulty starter drive gear
- Damaged or faulty starter drive chain

Starter Relay Switch "Clicks", But Engine Does Not Turn Over

- Crankshaft does not turn due to engine problems.

Starter Motor Removal/Installation

**WARNING**

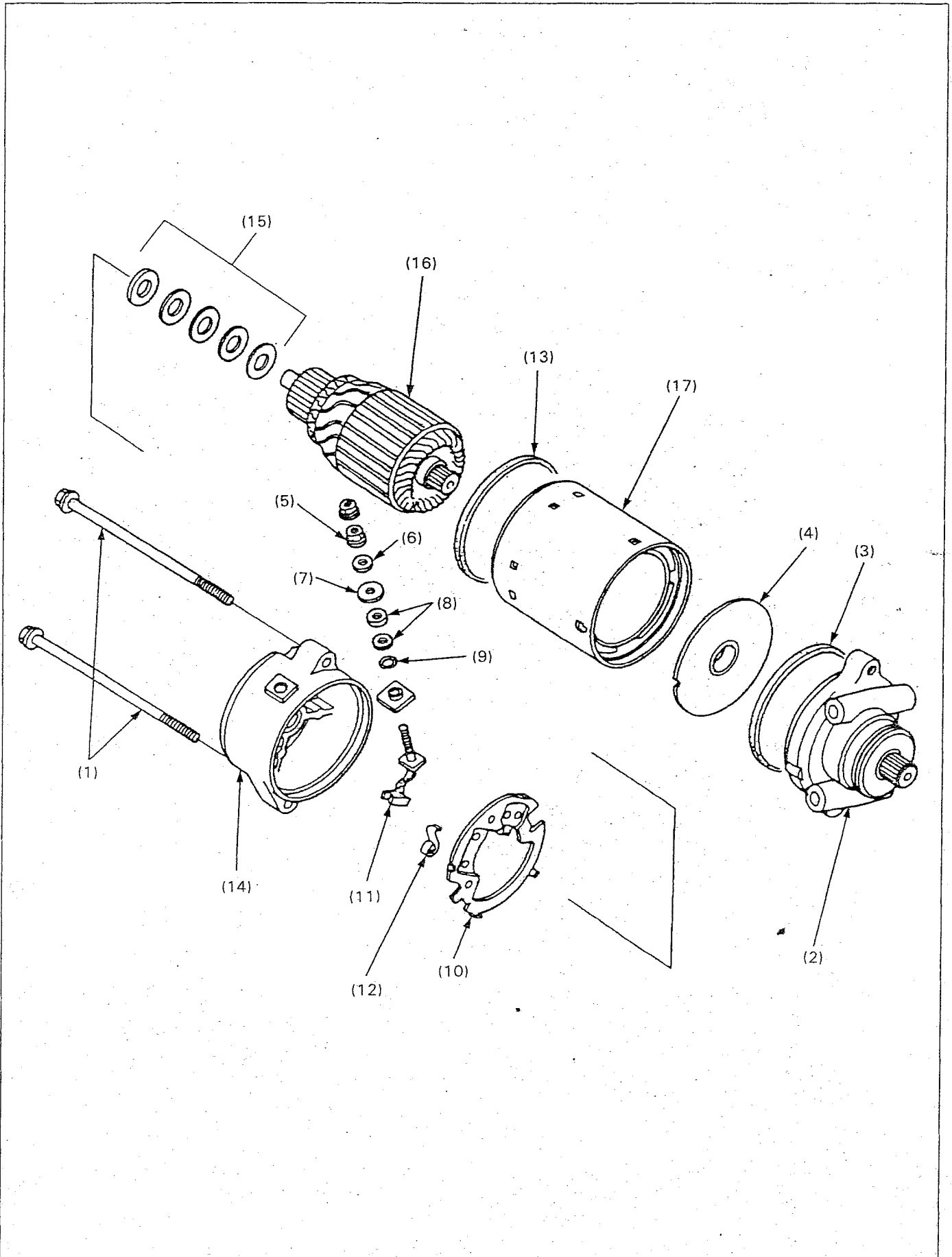
- Turn the ignition switch OFF.

Requisite Service

- Alternator removal/installation (page 13-8)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Starter motor cable	1	
(2) Starter motor mounting bolt	4	
(3) Starter motor	1	
(4) O-ring	1	

Starter Motor Disassembly/Assembly

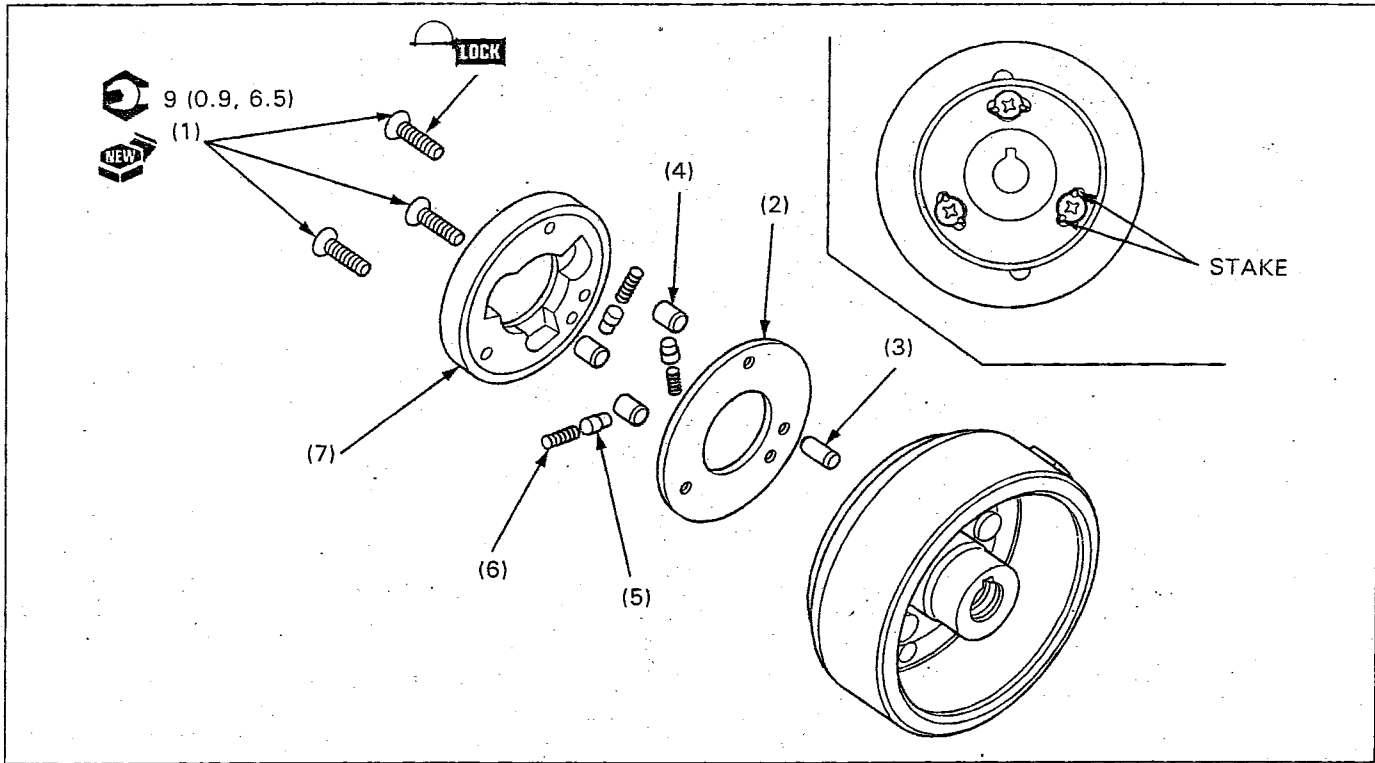


Requisite Service

- Starter motor removal/installation (page 15-5)

Procedure		Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Starter motor cover bolt	2	
(2)	Front cover assembly	1	
(3)	O-ring	1	
(4)	Separator	1	
(5)	Brush terminal holding nut	1	
(6)	Washer	1	
(7)	Insulated washer (larger)	1	
(8)	Insulated washer (smaller)	2	
(9)	O-ring	1	
(10)	Brush holder assembly	—	
(11)	Brush and terminal	1	Align the holder tab with the rear cover groove.
(12)	Spring	2	
(13)	O-ring	1	
(14)	Rear cover	1	
(15)	Shims	—	Record and store the shims in the same order they were installed so they can be reinstalled in the original positions.
(16)	Armature	1	
(17)	Motor case	1	

Starter Clutch Disassembly/Assembly

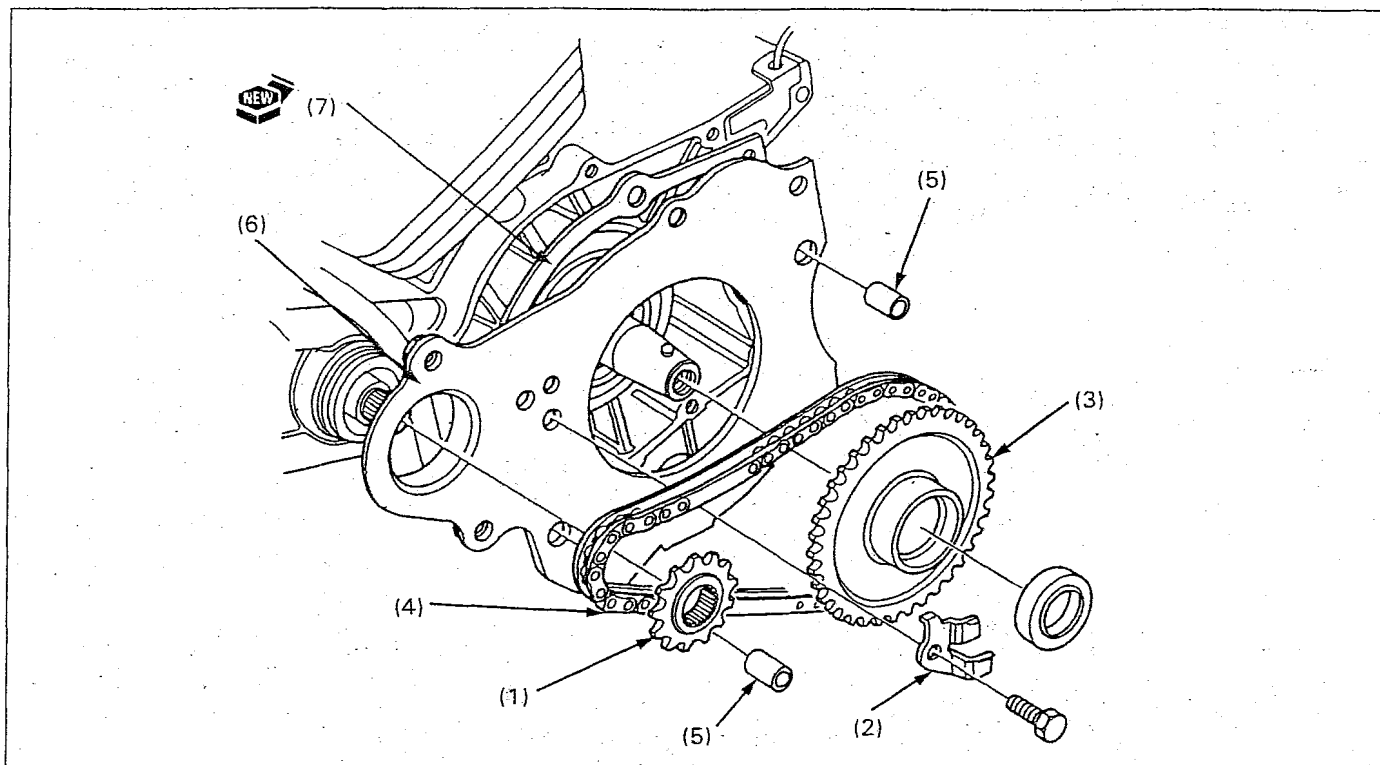


Requisite Service

- Alternator removal/installation (page 13-8)

Procedure		Q'ty	Remarks
(1)	Disassembly Order Starter clutch mounting screw	3	Assembly is in the reverse order of disassembly. NOTE • Remove the clutch mounting screws with a impact driver. • At installation, apply a locking agent to the threads. • Stake the clutch mounting screws.
(2)	Starter clutch side plate	1	
(3)	Dowel pin	1	
(4)	Roller	3	
(5)	Plunger	3	
(6)	Spring	3	
(7)	Starter clutch outer	1	

Starter Driven Gear Removal/Installation



WARNING

- Turn the ignition switch OFF.

Requisite Service

- Alternator removal/installation (page 13-8)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Starter drive gear	1	
(2) Starter driven gear setting plate	1	
(3) Starter driven gear	1	
(4) Starter drive chain	1	
(5) Dowel pin	2	
(6) Side spacer	1	
(7) Gasket	1	

16. Lights/Meters/Switches

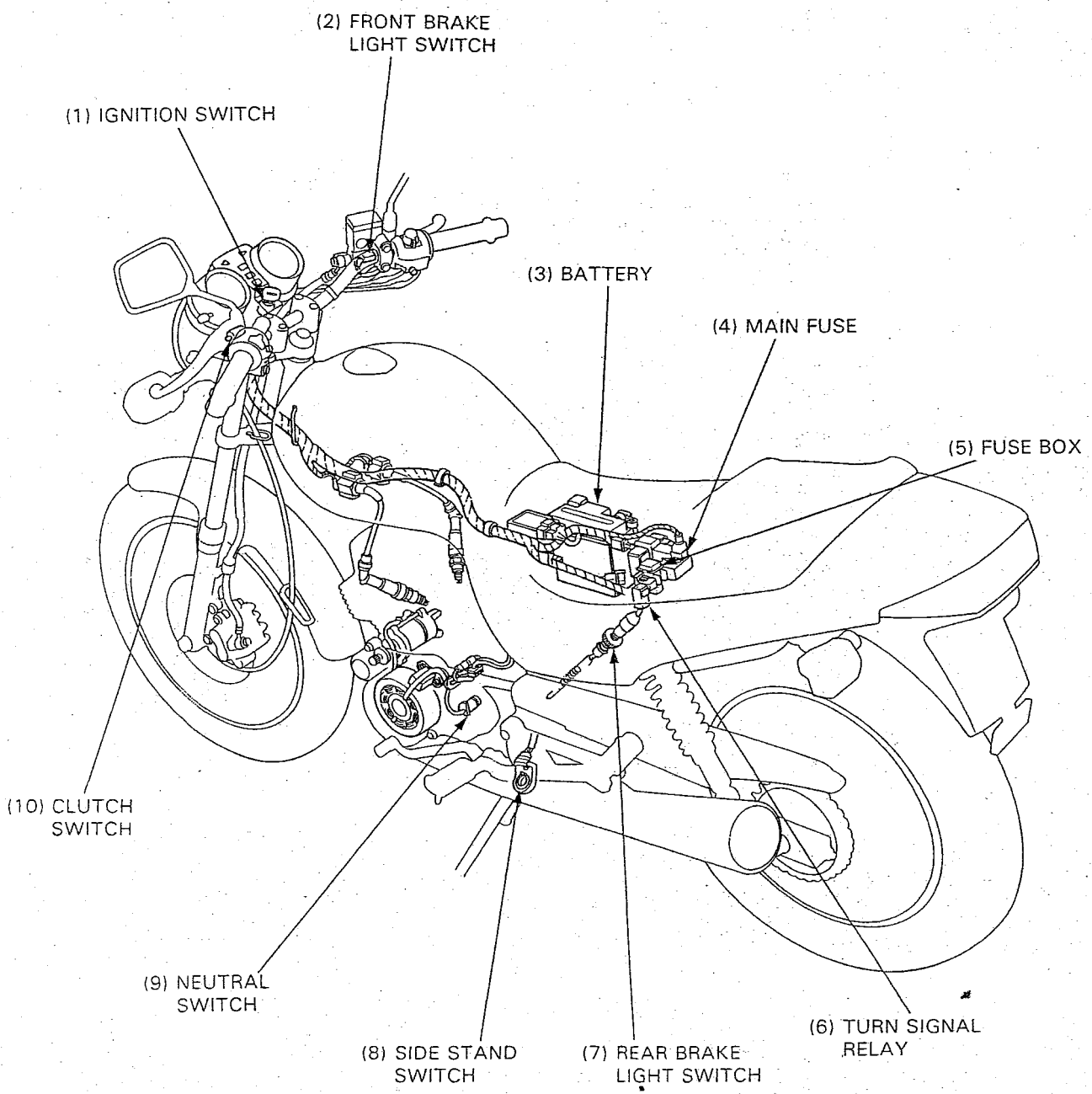
Service Information	16-1	Meter Removal/Installation	16-6
System Location	16-2	Ignition Switch, Indicator Removal/Installation	16-7
Headlight Removal/Installation	16-3	Neutral Switch	16-8
Tail/Brake Light	16-5	Side Stand Switch	16-8
Turn Signal Bulb	16-5		

Service Information

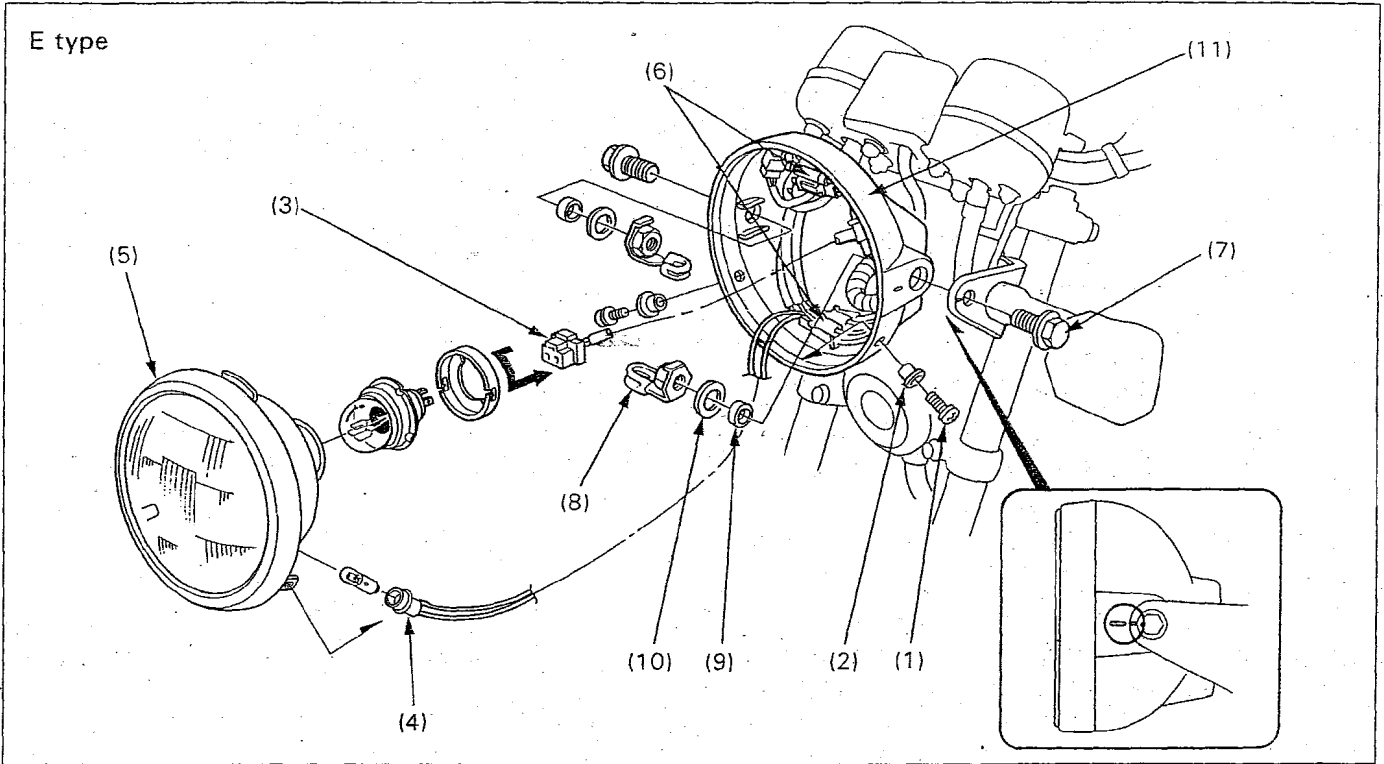
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
- For the following component locations, see page 16-2 of this manual (System Location); for inspections, refer to the applicable pages.

Component	Inspection method	Remarks
Clutch switch	Section 25 of the Common Service Manual	
Front brake light switch	Section 25 of the Common Service Manual	
Horn	Section 25 of the Common Service Manual	
Handlebar switches	Check for continuity on the continuity chart of the Wiring Diagram, page 17-1.	Switch connectors are located inside the headlight case (page 1-19).
Ignition switch		
Neutral switch	Section 25 of the Common Service Manual	
Rear brake light switch	Section 25 of the Common Service Manual	
Turn signal lights	Section 25 of the Common Service Manual	2 terminal relay.

System Location

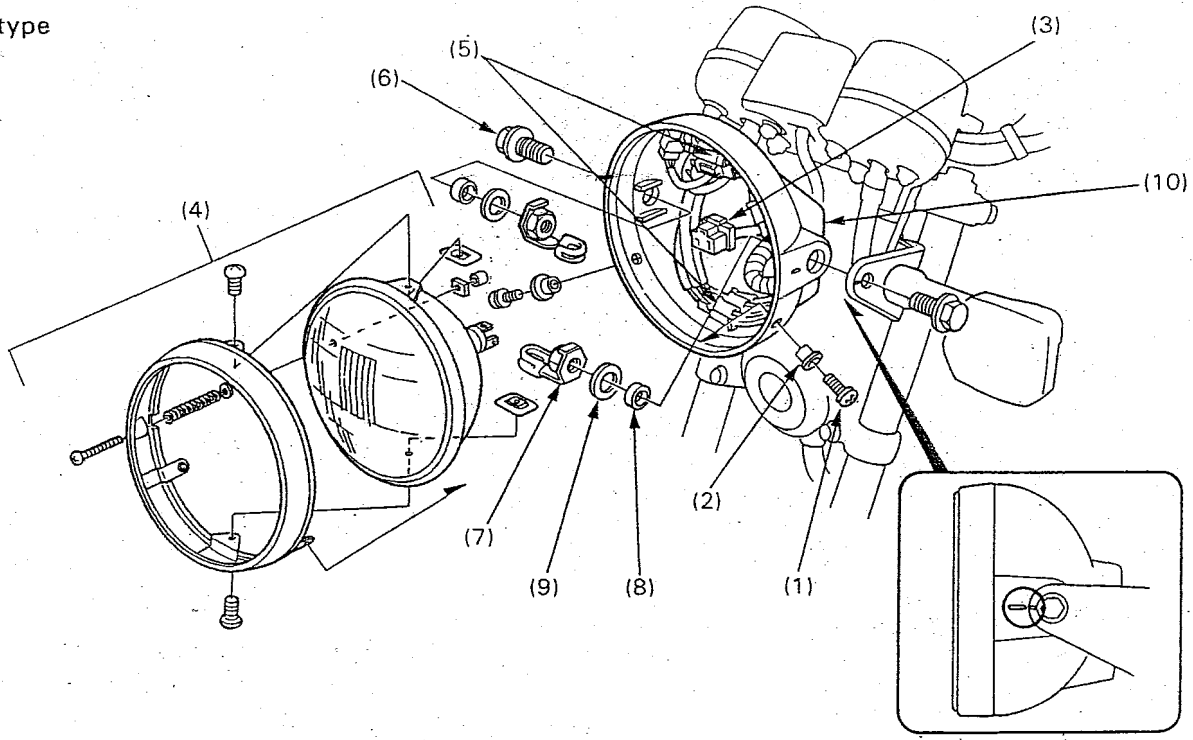


Headlight Removal/Installation



Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Screw	2	
(2)	Setting collar	2	
(3)	Headlight bulb socket	1	
(4)	Position light bulb socket	1	
(5)	Headlight assembly	1	
(6)	Connectors	—	Connection (page 1-19)
(7)	Headlight case bolt	2	
(8)	Headlight case nut	2	
(9)	Collar	2	
(10)	Gasket	2	
(11)	Headlight case	2	Align the index marks on the case and bracket.

U type



Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Screw	2	
(2) Setting collar	2	
(3) Headlight bulb socket	1	
(4) Headlight assembly	1	
(5) Connectors	—	Connection (page 1-19)
(6) Headlight case bolt	2	
(7) Headlight case nut	2	
(8) Collar	2	
(9) Gasket	2	
(10) Headlight case	2	Align the index marks on the case and bracket.

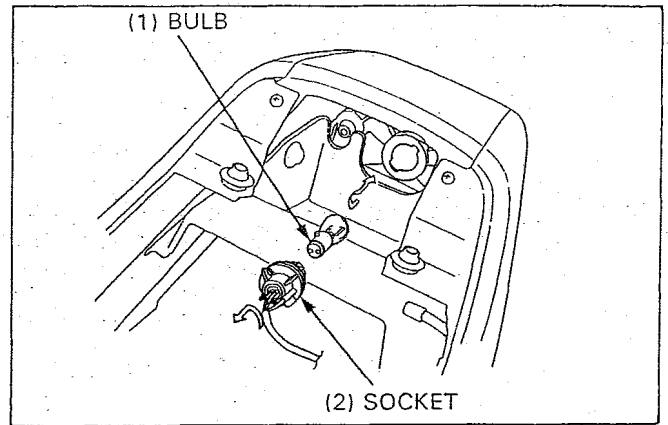
Tail/Brake Light

Remove the seat (page 2-3).

Remove the bulb socket from the tail/brake light body by turning it counterclockwise.

Remove the bulb from the socket by turning it counterclockwise and replace with a new one.

Installation is in the reverse order of removal.

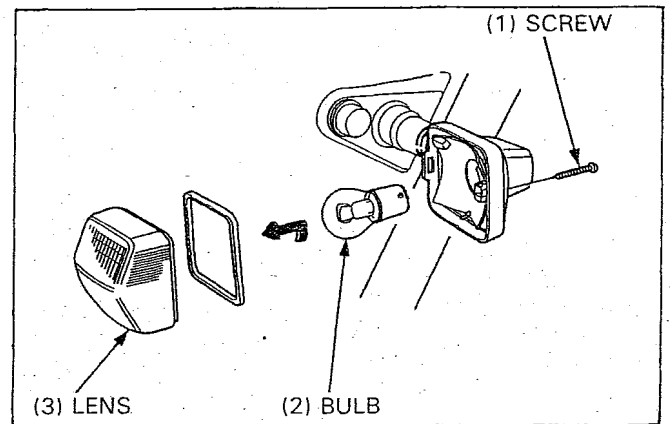


Turn Signal Bulb

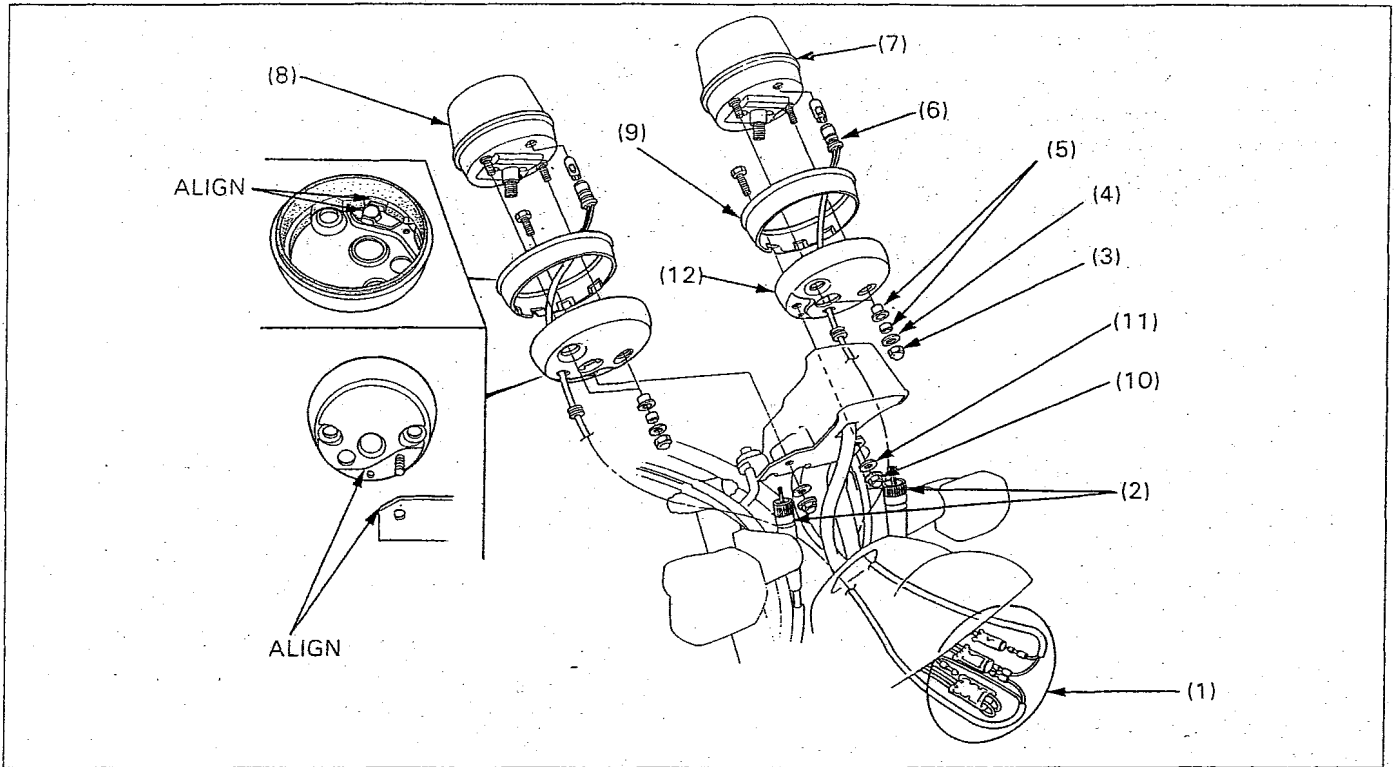
Remove the mounting screw and turn signal lens.

Remove the bulb from the socket by turning it counterclockwise and replace with a new one.

Installation is in the reverse order of removal.



Meter Removal/Installation

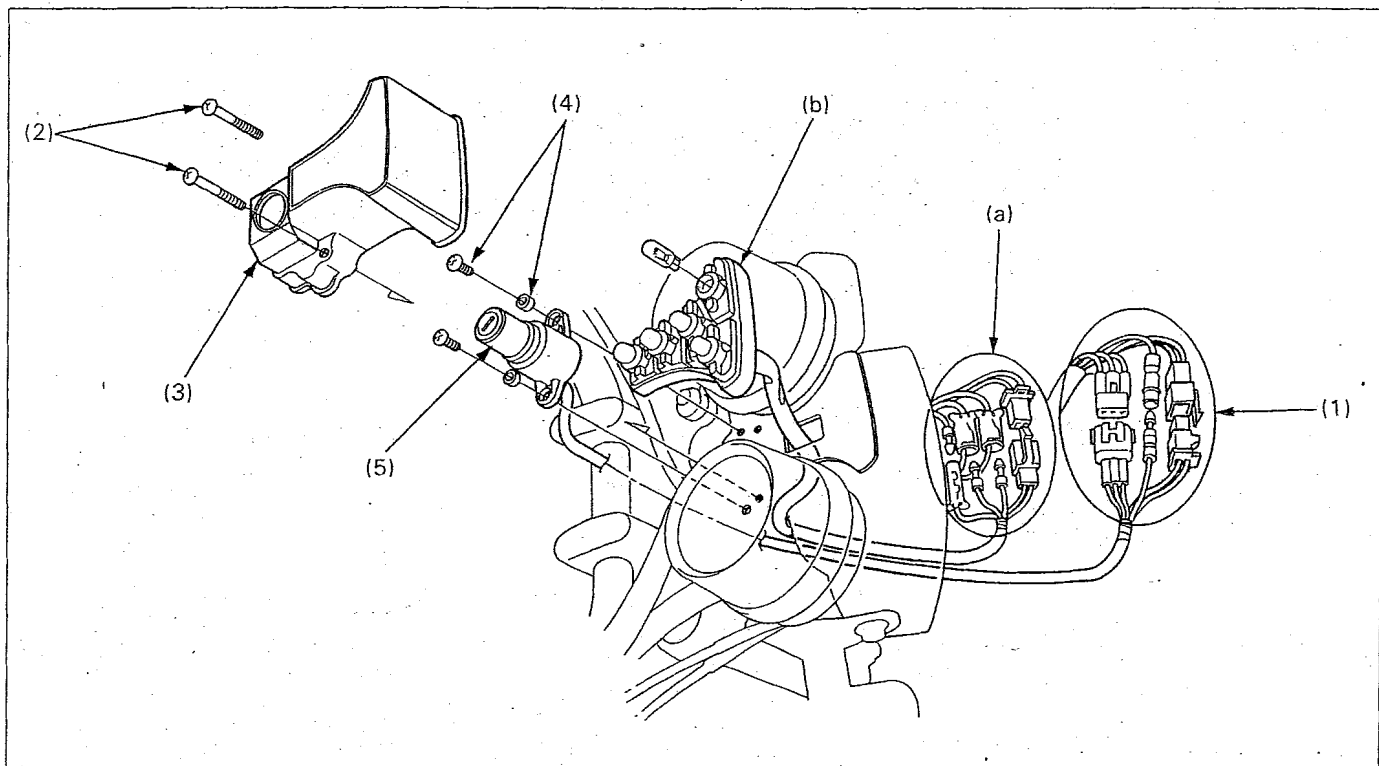


Requisite Service

- Headlight removal/installation (page 16-3 or 16-4)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Meter connector	4	
(2)	Speedometer/tachometer cable	1/1	
(3)	Meter mounting nut	4	
(4)	Washer	4	
(5)	Collar/cushion rubber	4/4	
(6)	Bulb socket	2	
(7)	Speedometer assembly	1	
(8)	Tachometer assembly	1	
(9)	Meter cushion rubber	2	
(10)	Nut	2	
(11)	Washer	2	
(12)	Meter cover	2	

Ignition Switch, Indicator Removal/Installation



Requisite Service

- Headlight removal/installation (page 16-3 or 16-4)

Procedure	Q'ty	Remarks
Removal Order		Installation is in the reverse order of removal.
(1) Ignition switch connector	3	
(2) Indicator cover screw	2	
(3) Indicator cover	1	
(4) Ignition switch mounting screw/collar	2/2	
(5) Ignition switch	1	
(a) Indicator connector	4	
(b) Indicator base	1	

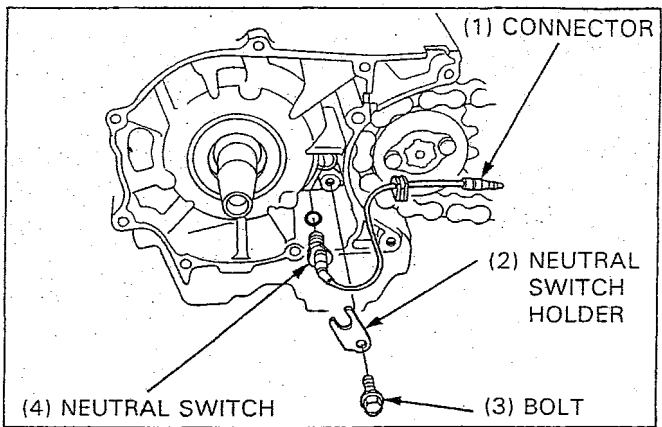
Neutral Switch

Removal/Installation

Remove the starter driven gear (page 15-9).

Disconnect the neutral switch connector.
Remove the neutral switch holder bolt and holder.
Remove the neutral switch.

Installation is in the reverse order of removal.

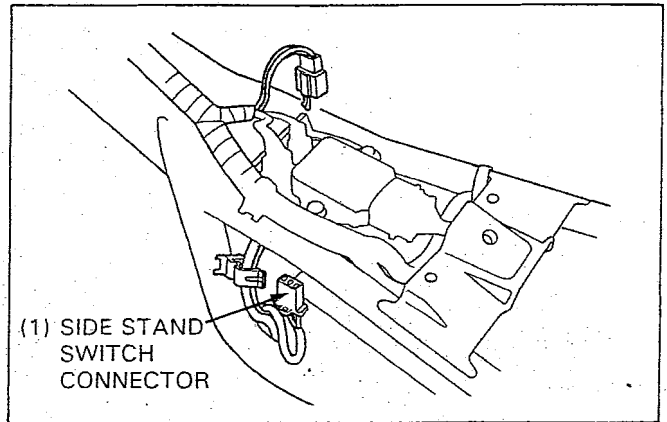


Side Stand Switch

Removal/Installation

Remove the fuel tank (page 2-4).

Disconnect the side stand connector.



Remove the side stand switch mounting bolt and the side stand switch.

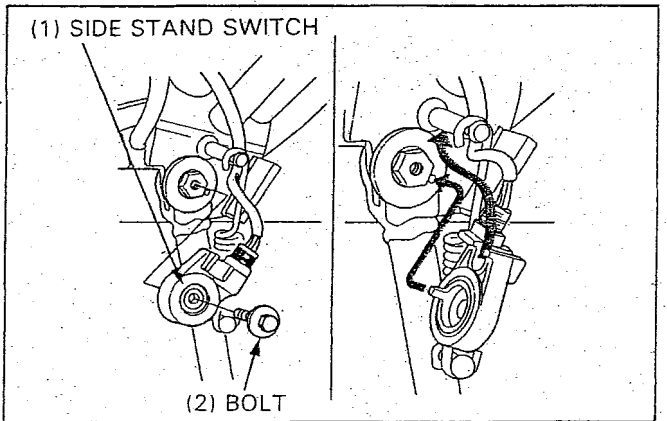
Install the switch in the reverse order of removal.

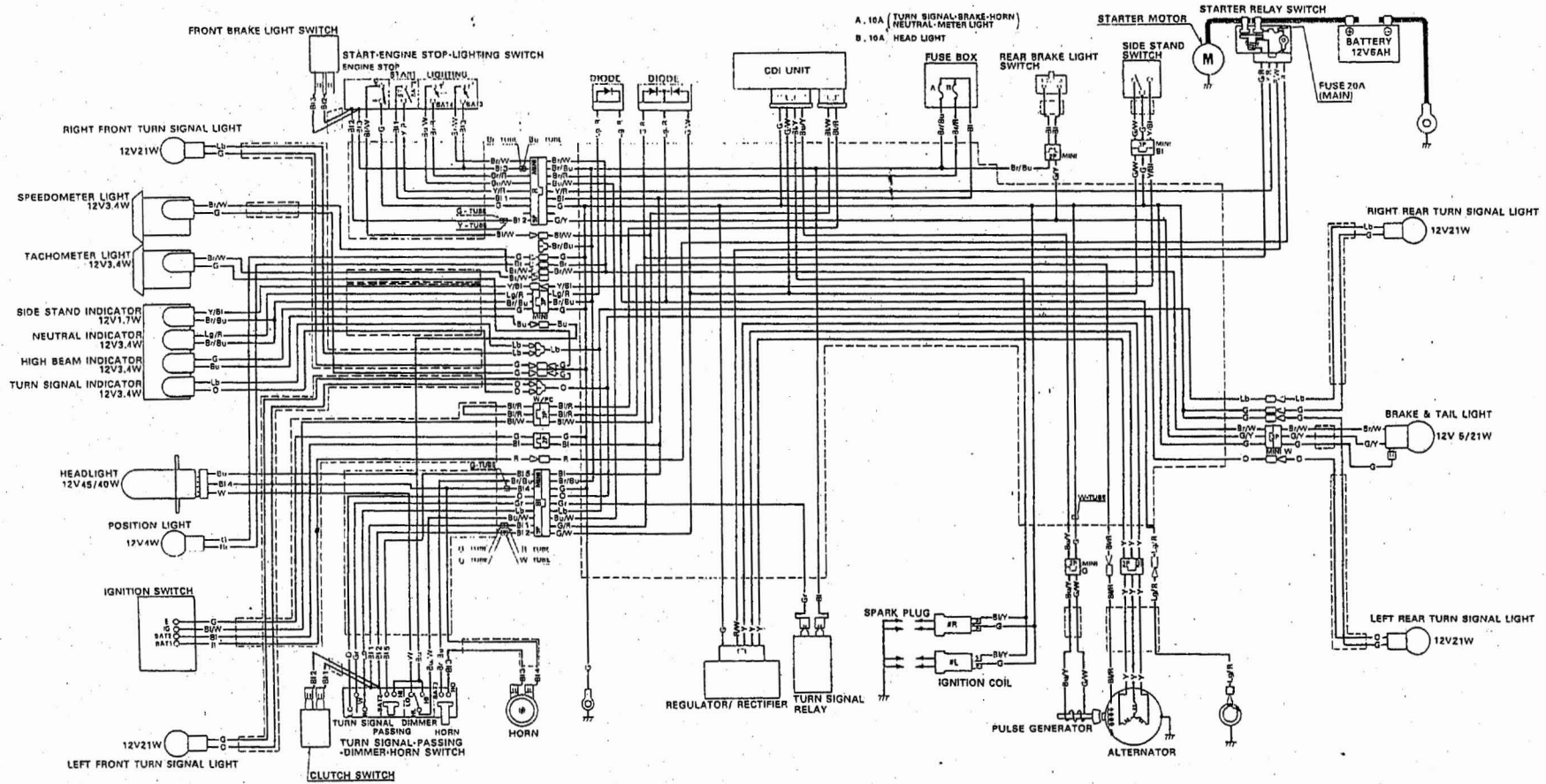
Torque: 30 N·m (3.0 kg·m, 22 ft·lb)

NOTE

- Align the switch pin with the side stand hole and align the switch groove with the side stand return spring holding pin.

Route the side stand switch wire harness properly (page 1-21).





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

SWITCH CONTINUITY

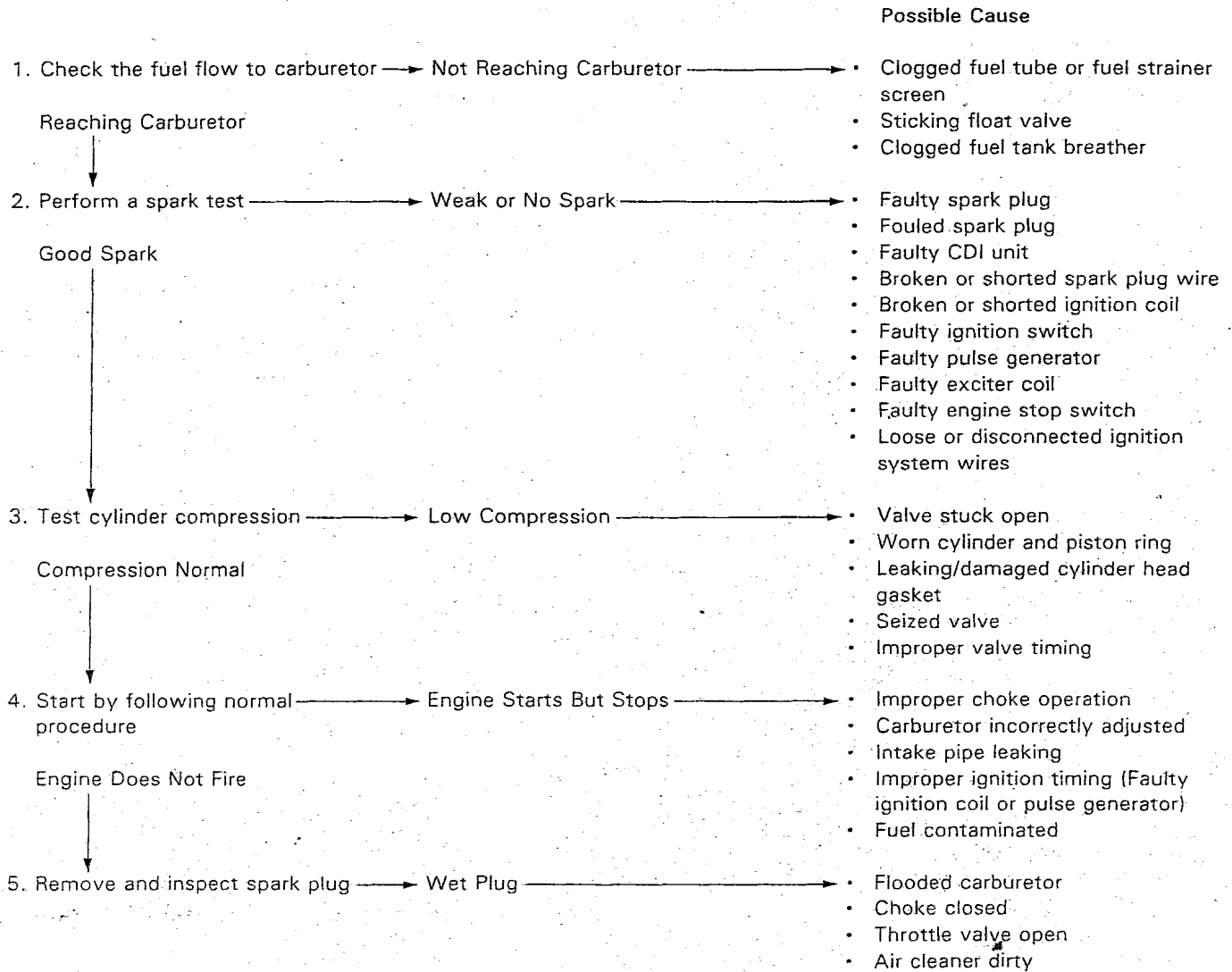
STARTER SWITCH		ENGINE STOP SWITCH		IGNITION SWITCH		TURN SIGNAL SWITCH		DIMMER SWITCH		HORN SWITCH		LIGHTING SWITCH		PASSING SWITCH		
ST	BAT2	IG	E	BAT1	BAT2	IG	E	W	R	L	HL	HI	LO	HI	BAT2	
FREE		OFF		OFF				HI			FREE			FREE		
PUSH		RUN						(N)			PUSH			PUSH		
COLOR	Y/R			COLOR	R	Bl	Bu/W	LO			COLOR	Bl	Bu/Bu	COLOR	Bu	B15

0030Z-KBG-6000

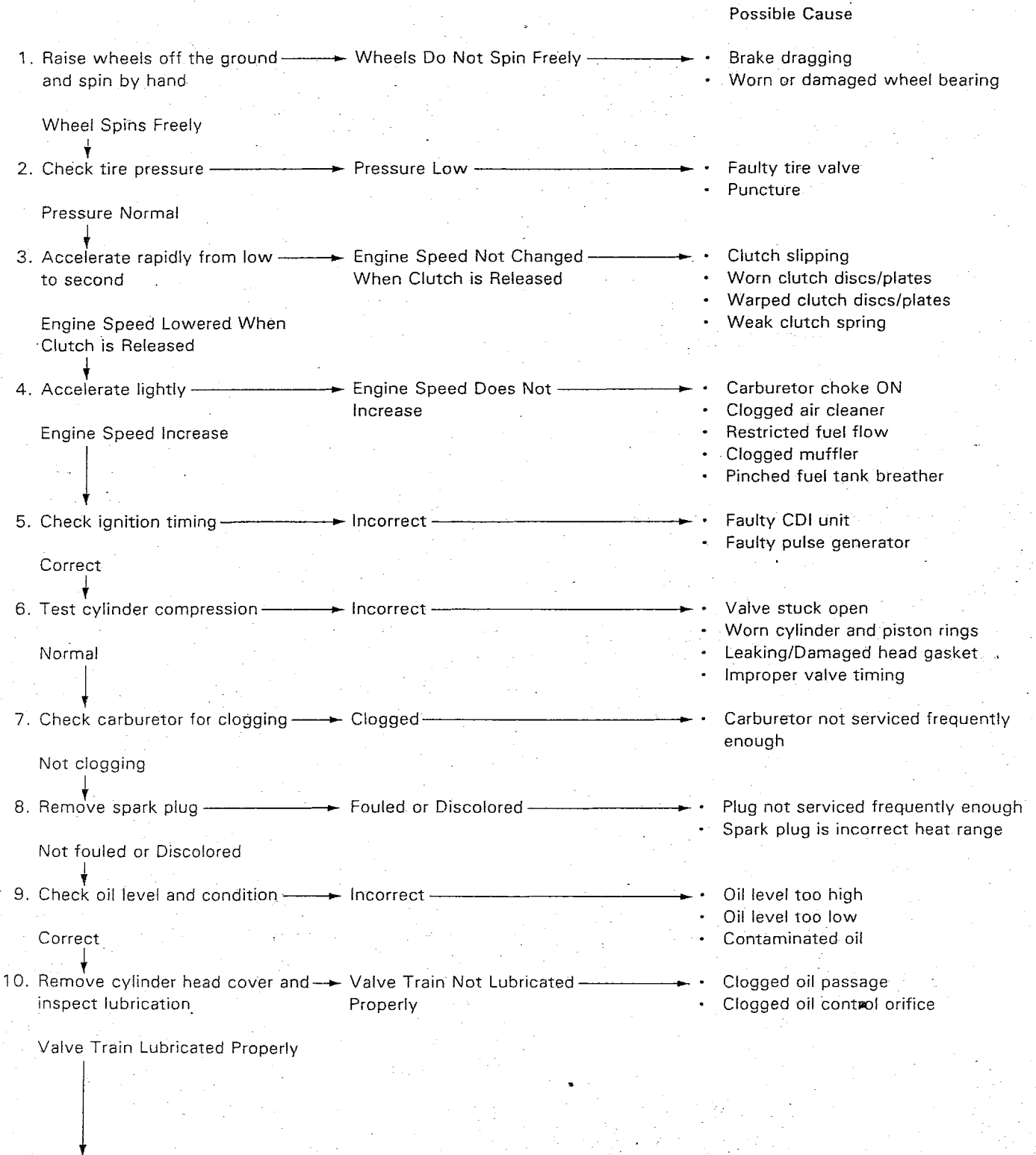
18. Troubleshooting

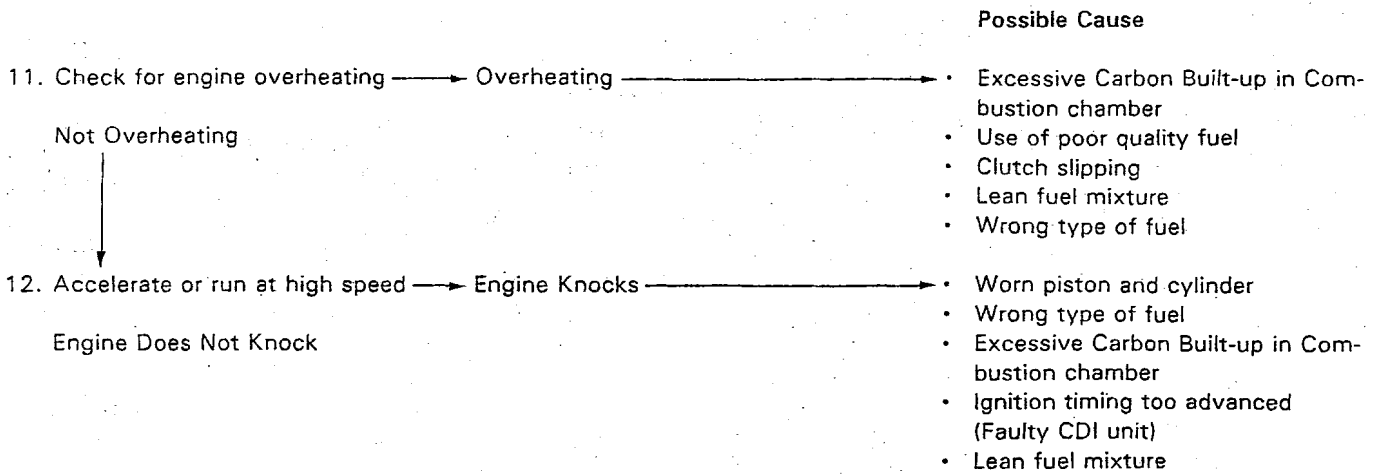
Engine Does Not Start or is Hard to Start	18-1	Poor Performance at High Speed	18-4
Engine Lacks Power	18-2	Poor Handling	18-4
Poor Performance at Low and Idle Speeds	18-3		

Engine Does Not Start or is Hard to Start

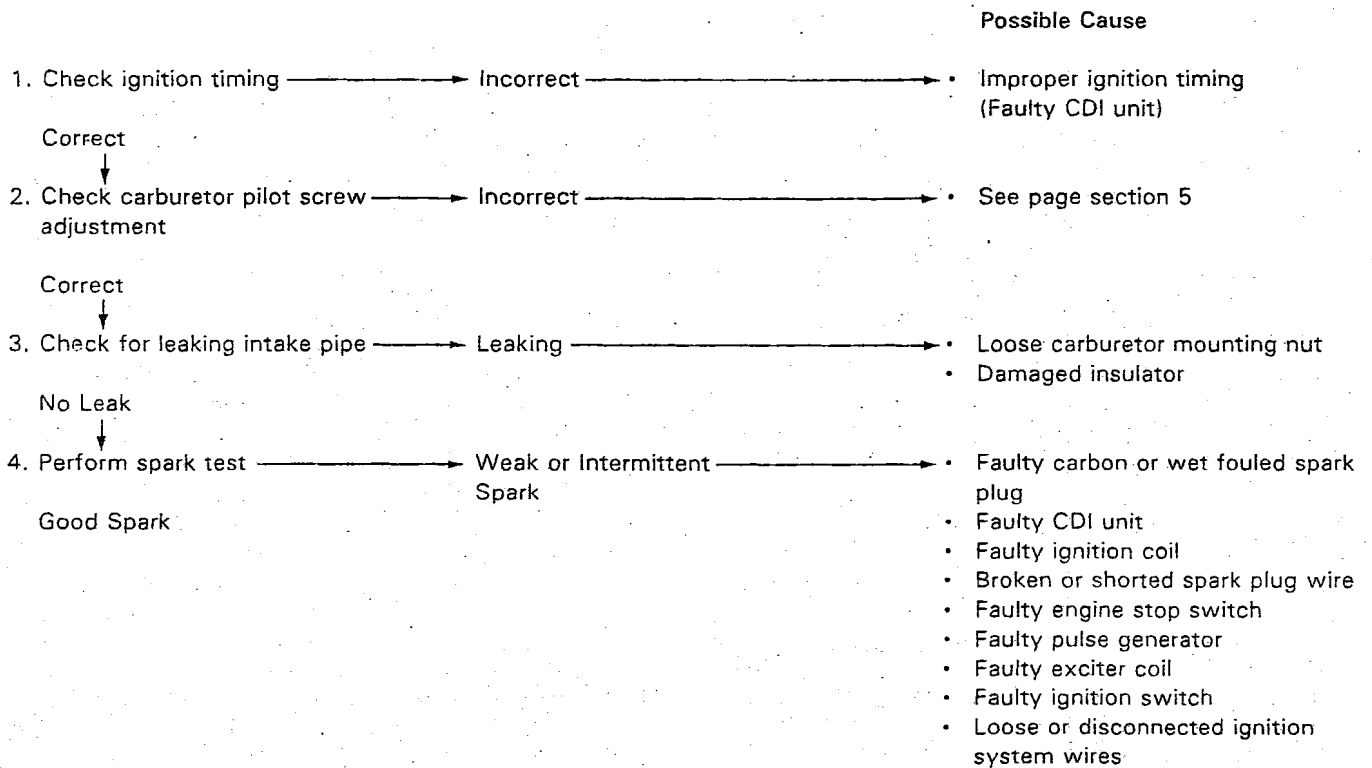


Engine Lacks Power

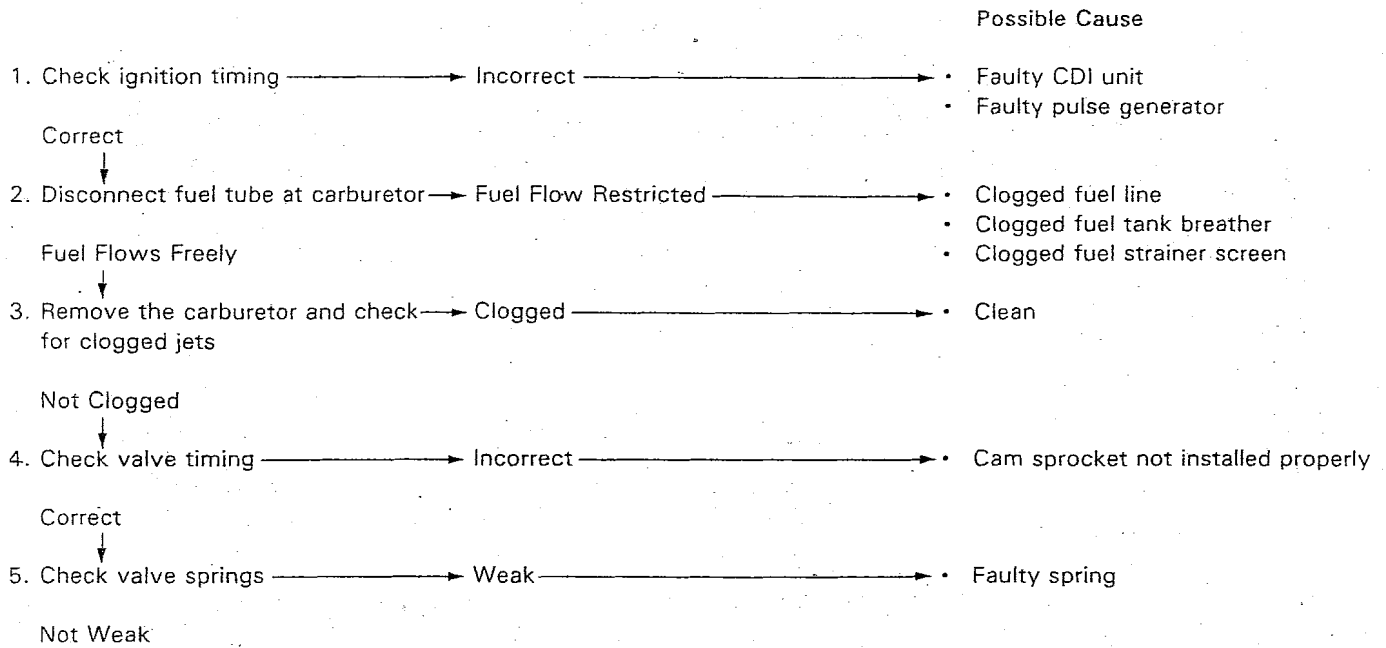




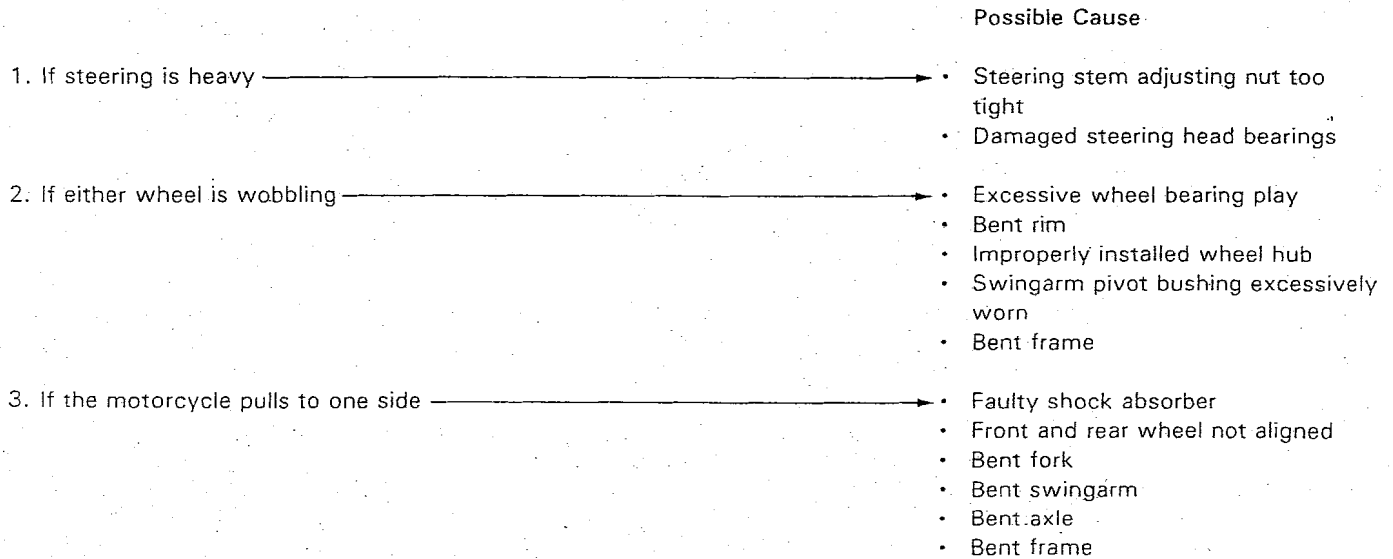
Poor Performance at Low and Idle Speeds



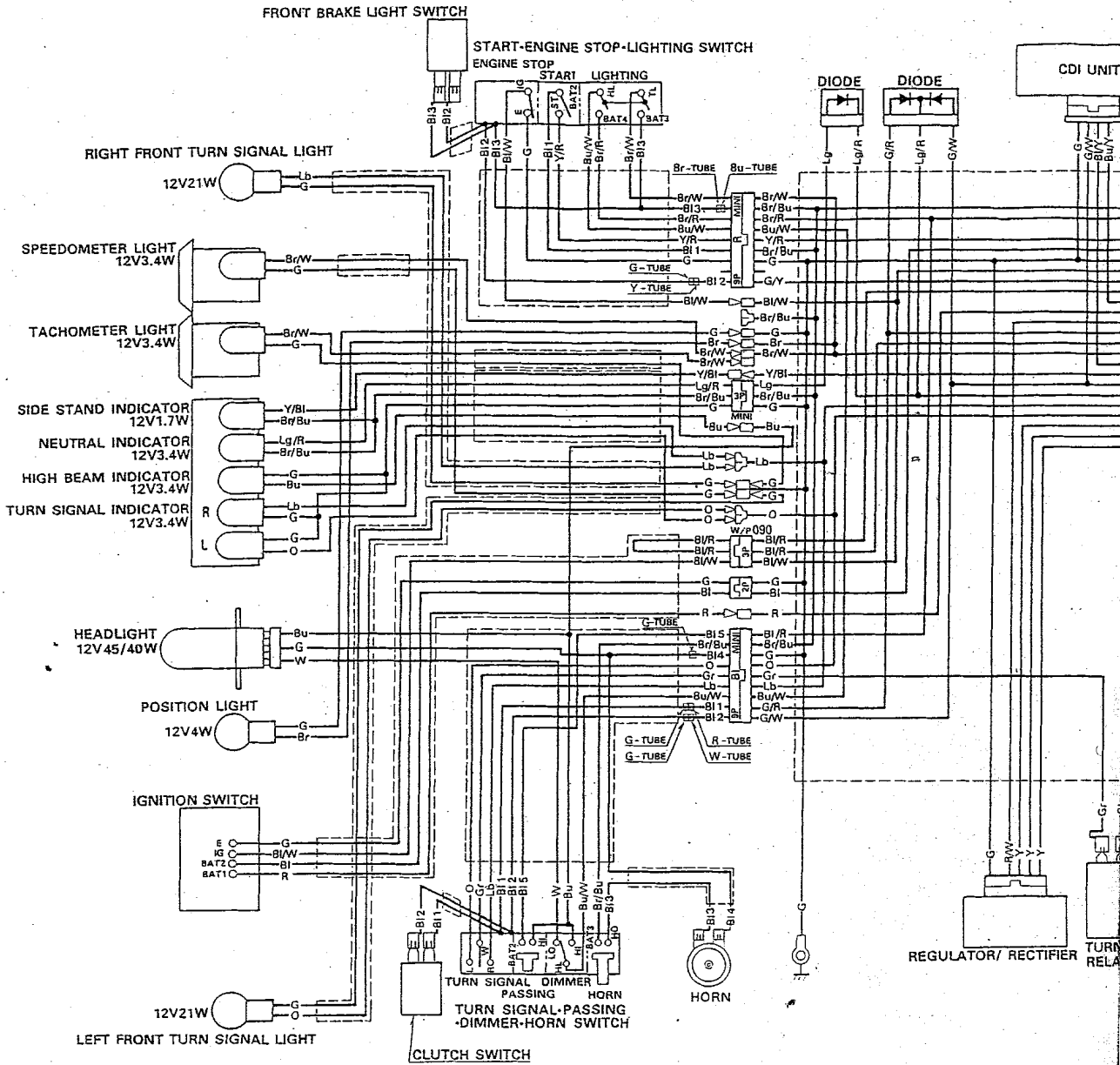
Poor Performance at High Speed



Poor Handling



Wiring Diagram



SWITCH CONTINUITY

STARTER SWITCH		ST	BAT2
FREE			
PUSH	○	○	
COLOR	Y/R	Bl	

ENGINE STOP SWITCH		IG	E
OFF	○	○	
RUN	○	○	
OFF	○	○	
COLOR	Bl/W	G	

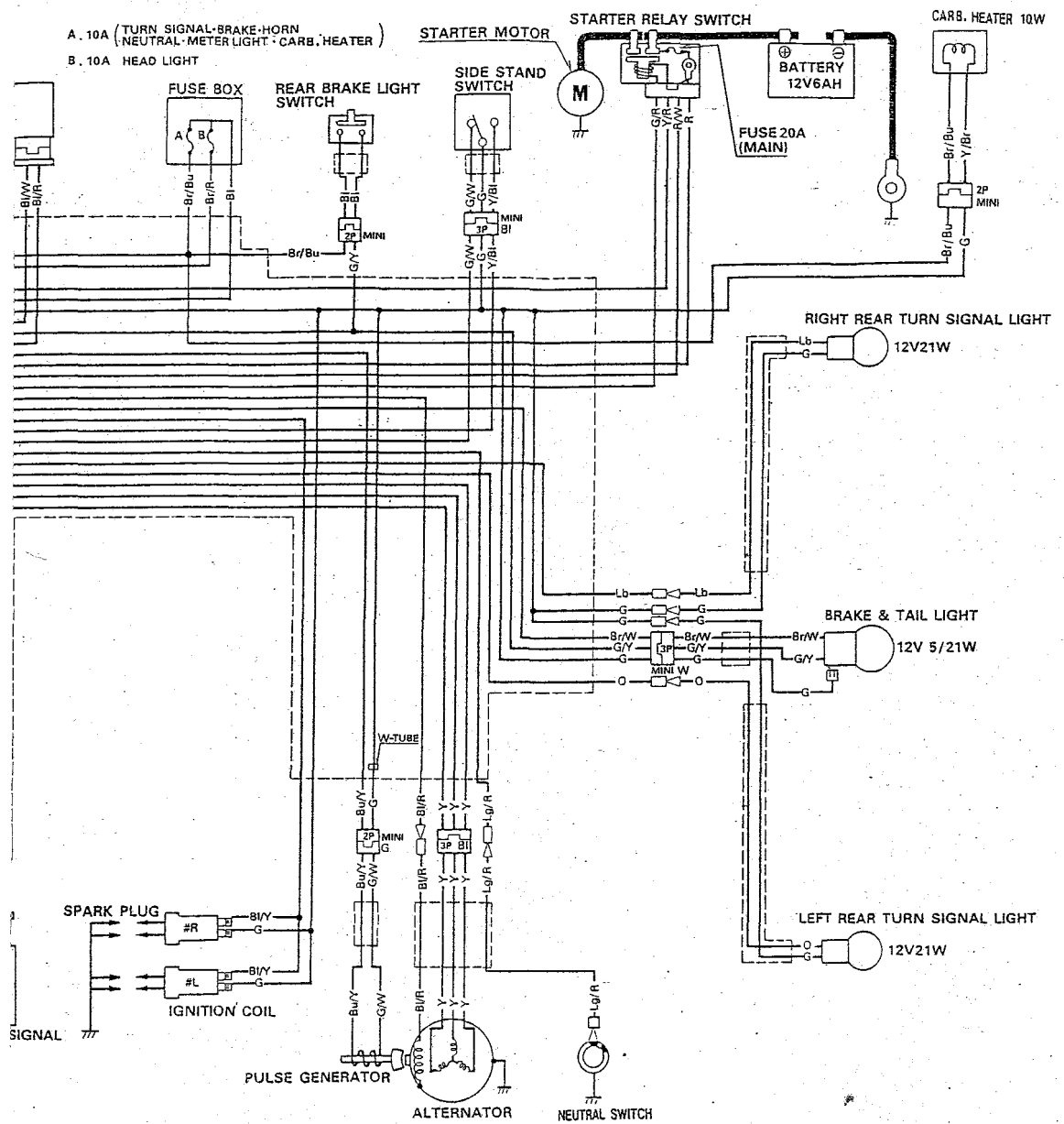
IGNITION SWITCH		BAT1	BAT2	IG	E
OFF	○	○	○	○	
●	○	○	○	○	
COLOR	R	Bl	Bl/W	G	

TURN SIGNAL SWITCH		W	R	L
R	○	○	○	
N	○	○	○	
L	○	○	○	
COLOR	Gr	Lb	O	

DIMMER SWITCH		HL	HI	LO
HI	○	○	○	
(N)	○	○	○	
LO	○	○	○	
COLOR	Su/W	Su	W	

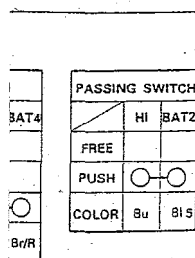
HORN SWITCH		HO	BAT3
FREE	○	○	
PUSH	○	○	
COLOR	Bl	Bl/W	

LIGHTING SWITCH		TL	BAT3	H
●	○	○	○	
P	○	○	○	
H	○	○	○	
COLOR	Br/W	Bl	Bl/W	



A. 10A (TURN SIGNAL-BRAKE-HORN
NEUTRAL-METER LIGHT-CARB. HEATER)
B. 10A HEAD LIGHT

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



0030Z-KBG-6200