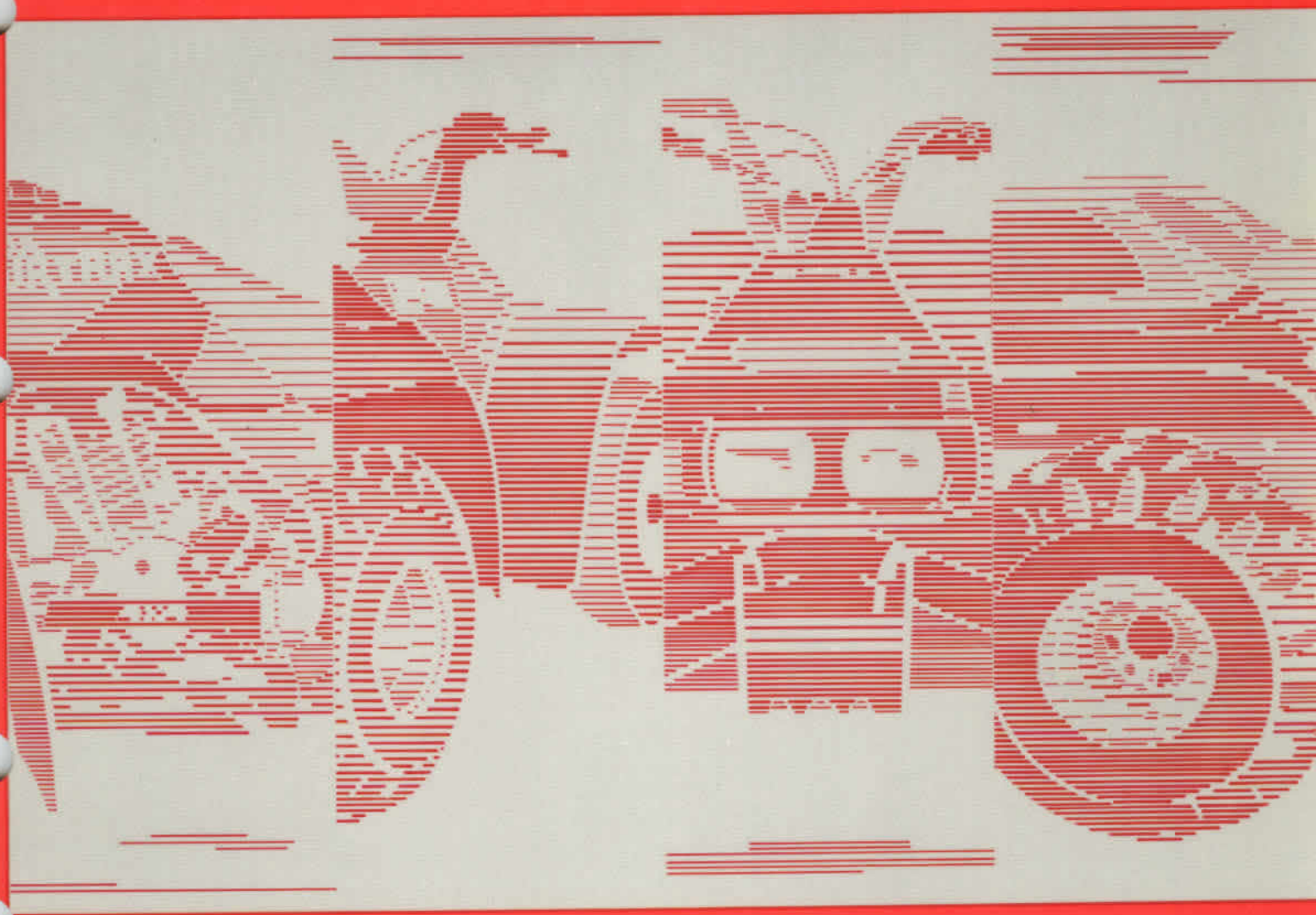
HONDA

SERVICE MANUAL



1993-2005

TRX90

Important Safety Notice

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

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

NOTE: Gives helpful information.

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

Introduction

This service manual describes the service procedures for the TRX90.

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 can be found 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 this ATV.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole ATV. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Sections 4 through 14 describe parts of the ATV, grouped according to locations.

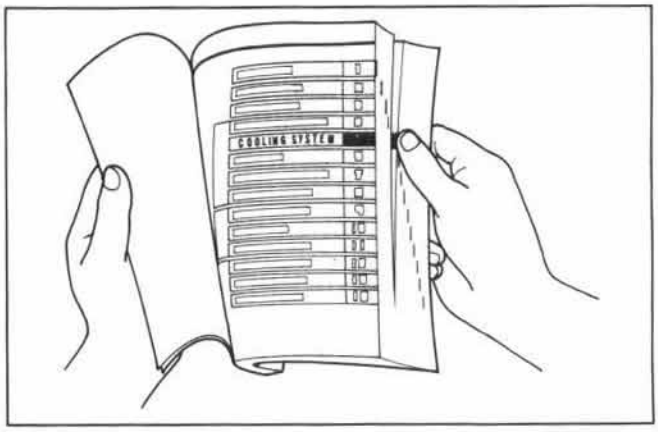
Find the section you want on this page, then turn the table of contents on the first page of the section.

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 15 Troubleshooting.

Contents

How to Use This Manual

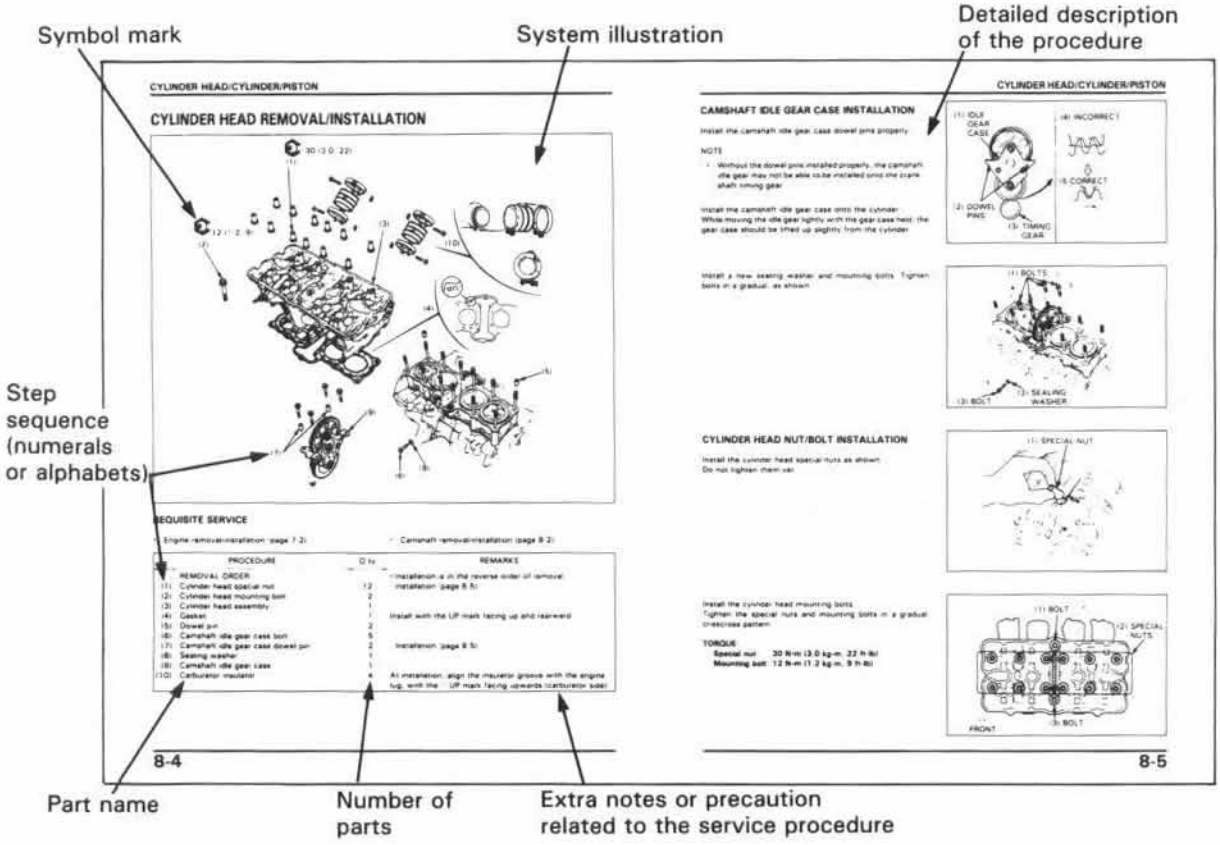


Finding Information You Need

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

Note on the Explanation Method of This Manual

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



Symbols

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

	Replace the part(s) with new one(s) before assembly.
	Use special tool
	Use optional tool. These tools are obtained as you order parts.
 10 (1.0, 7.2)	Torque specification. 10 N·m (1.0 kg-m, 7.2 ft-lb)
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent)
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent) Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil Japan
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent) Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 45 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease
	Apply a locking agent. Use the agent of the middle strength, unless otherwise specified.
	Apply sealant
	Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

1. General Information

General Safety

Carbon Monoxide

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

⚠WARNING

- **The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and 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 may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT OF REACH OF CHILDREN.**

Brake Dust

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

⚠WARNING

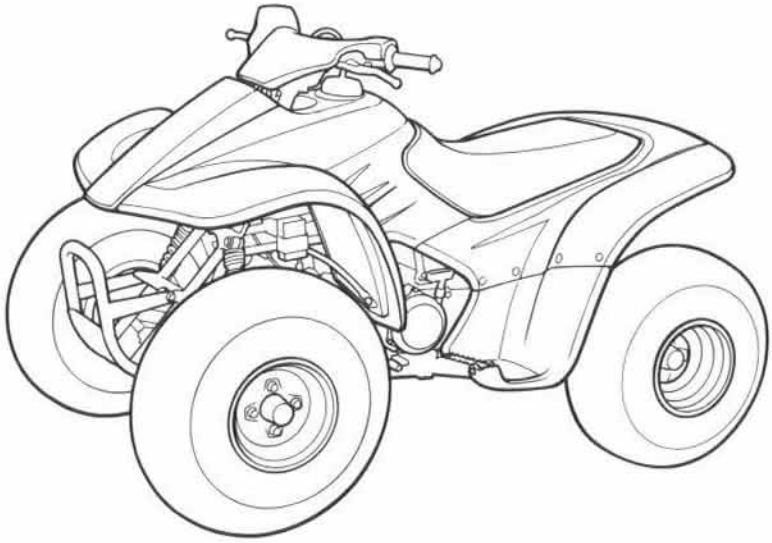
- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer.**

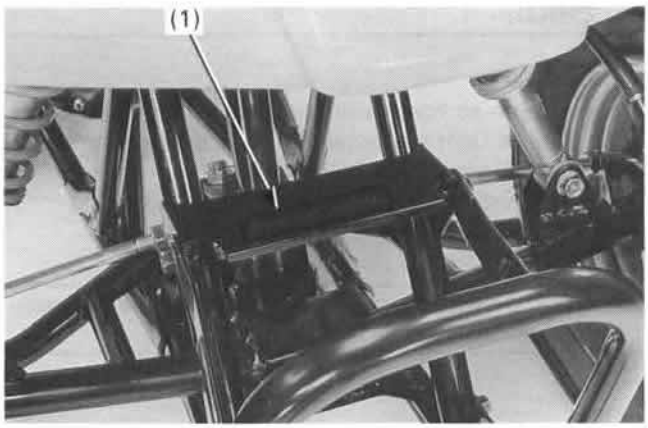
Brake Fluid

CAUTION:

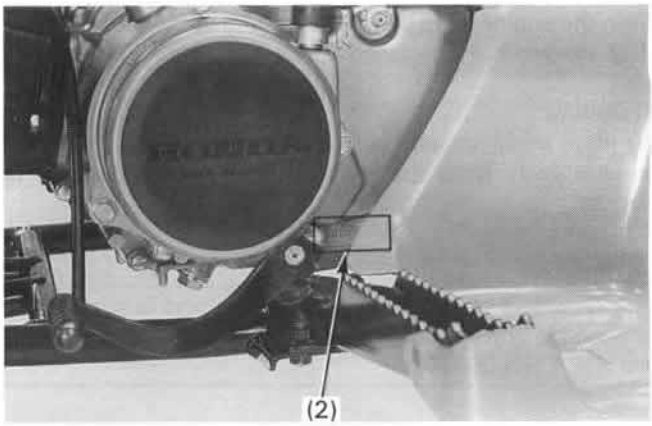
- **Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.**

Model Identification

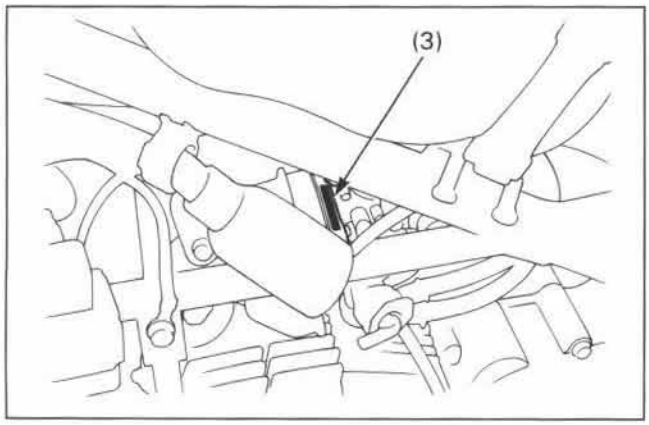




(1) FRAME SERIAL NUMBEM
The frame serial number stamped on the front side of the frame.



(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 on the carburetor body left side.

Specifications

Unit: mm (in)

General

Item		Specifications
Dimensions	Overall length	1,489 (58.6)
	Overall width	895 (35.2)
	Overall height	917 (36.1)
	Wheelbase	985 (38.8)
	Front tread	701 (27.6)
	Rear tread	700 (27.6)
	Seat height	648 (25.5)
	Footpeg height	239 (9.4)
	Ground clearance	102 (4.0)
	Dry weight	110 kg (243 lb)
	Curb weight	115 kg (254 lb)
	Maximum weight capacity	85 kg (187 lb)
Frame	Frame type	Double cradle type
	Front suspension	Swing axle type
	Front wheel travel	65 (2.56)
	Rear suspension	Swingarm
	Rear wheel travel	65 (2.56)
	Front tire size	AT20 × 7-8★
	Rear tire size	AT19 × 8-8★
	Tire brand (Ohtsu) Front/Rear	OHTSU AT101/PU302
	Front brake	Internal expanding shoe
	Rear brake	Internal expanding shoe
	Toe-in	−14 (−9/16)
	Caster angle	4°
	Camber angle	2°
	Trail length	16 (5/8)
	Fuel tank capacity	6.0 liters (1.58 US gal, 1.32 Imp gal)
	Fuel tank reserve capacity	1.3 liters (0.34 US gal, 0.29 Imp gal) NEW
Engine	Bore and stroke	47.0 × 49.5 (1.85 × 1.95)
	Displacement	85.8 cm³ (5.23 cu in)
	Compression ratio	9.2
	Valve train	Overhead camshaft, chain drive
	Intake valve opens (at 1 mm lift)	7° BTDC
	Intake valve closes (at 1 mm lift)	12.5° ABDC NEW
	Exhust valve opens (at 1 mm lift)	22° BBDC
	Exhaust valve closes (at 1 mm lift)	−2.5° BTDC NEW
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Air cooled
	Air filtration	Urethane foam and screen
	Crankshaft type	Assembly type
	Engine weight	19.8 kg (43.7 lb)

General (cont'd)

Unit: mm (in)

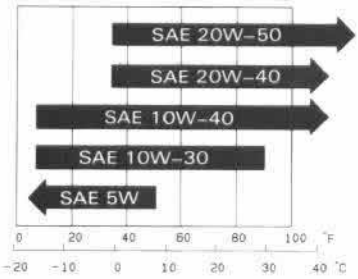
Item		Specifications
Carburetor	Carburetor type	Piston valve
	Venturi dia.	16 (0.63) NEW
Drive train	Clutch system	Wet multi-plate, semi-automatic
	Transmission	4-speed constant mesh
	Primary reduction	4.058 (69/17)
	Final reduction	3.846 (50/13)
	Gear ratio 1st	2.833 (34/12)
	Gear ratio 2nd	1.937 (31/16)
	Gear ratio 3rd	1.300 (26/20)
	Gear ratio 4th	0.958 (23/24)
	Gearshift pattern	Left foot operated return system N–1–2–3–4
Electrical	Ignition system	CDI

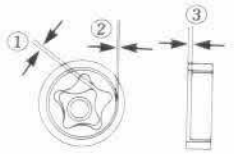
Unit: mm (in)

Lubrication

Item		Standard	Service limit
Engine oil capacity at draining		0.7 liter (0.74 US qt, 0.62 Imp qt)	—
at disassembly		0.9 liter (0.95 US qt, 0.79 Imp qt)	—
Recommended engine oil		Use Honda GN4 4-stroke oil or equivalent API Service Classification: SF or SG Viscosity: SAE 10W-40 Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.	—
Oil pump rotor tip clearance ①		0.15 (0.006)	0.20 (0.008)
body clearance ②		0.02–0.07 (0.001–0.003)	0.12 (0.005)
end clearance ③		0.10–0.15 (0.004–0.006)	0.20 (0.008)

OIL VISCOSITIES





Fuel System

Carburetor identification number		PB1AA	—
Main jet	Standard	#80	—
	High altitude	#78	
Slow jet		#40 NEW	—
Jet needle clip position		3rd groove	—
Air screw initial opening	Standard	1-3/8 turns out NEW	—
Float level		10.7 (0.42)	—
Idle speed		1,600 ± 100 rpm	—
Throttle lever free play		3–8 (0.12–0.31)	—

Unit: mm (in)

Cylinder Head

Item	Standard	Service limit
Cylinder compression	1,226 kPa (12.5 kg/cm², 178 psi)/ 1,000 rpm	—
Valve clearance IN	0.05 ± 0.02 (0.002 ± 0.0008)	—
EX	0.05 ± 0.02 (0.002 ± 0.0008)	—
Cylinder head warpage	—	0.05 (0.002)
Cam lobe height IN	27.865–28.025 (1.0970–1.1033)	27.55 (1.085)
EX	25.996–26.156 (1.0235–1.0298)	25.69 (1.011)
Valve stem O.D. IN	4.975–4.990 (0.1959–0.1965)	4.92 (0.194)
EX	4.955–4.970 (0.1951–0.1957)	4.92 (0.194)
Valve guide I.D. IN	5.000–5.012 (0.1969–0.1973)	5.03 (0.198)
EX	5.000–5.012 (0.1969–0.1973)	5.03 (0.198)
Stem-to-guide clearance IN	0.010–0.037 (0.0004–0.0015)	0.08 (0.003)
EX	0.030–0.057 (0.0012–0.0022)	0.10 (0.04)
Valve seat width	1.0 (0.04)	1.6 (0.06)
Valve spring free length inner IN	32.41 (1.276)	31.2 (1.23)
inner EX	32.41 (1.276)	31.2 (1.23)
outer IN	35.25 (1.388)	34.0 (1.34)
outer EX	35.25 (1.388)	34.0 (1.34)
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)
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)
Rocker arm-to-rocker arm shaft clearance	0.013–0.037 (0.0005–0.0015)	0.08 (0.031)
Cam chain tensioner spring free length	111.7 (4.40)	100.0 (3.94)
push rod O.D.	11.985–12.000 (0.4718–0.4724)	11.94 (0.470)

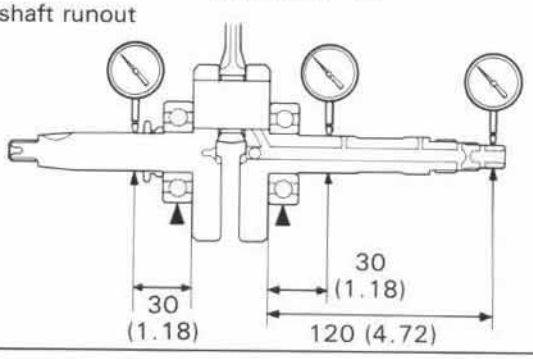
Cylinder/Piston

Cylinder I.D.	47.005–47.015 (1.8506–1.8510)	47.05 (1.852)
out of round	—	0.10 (0.004)
taper	—	0.10 (0.004)
warpage	—	0.05 (0.002)
Piston mark direction	"IN" mark facing intake side	—
Piston O.D. (D)	46.980–46.995 (1.8496–1.8502)	46.90 (1.846)
Piston O.D. measurement point (H)	10 (0.4) from the bottom	—
Piston pin hole I.D. (d)	13.002–13.008 (0.5119–0.5121)	13.055 (0.514) NEW
Cylinder-to-piston clearance	0.010–0.035 (0.0004–0.0014)	0.15 (0.006)
Piston pin O.D.	12.994–13.000 (0.5116–0.5118)	12.98 (0.5110)
Piston-to-piston pin clearance	0.002–0.014 (0.0001–0.0006)	0.075 (0.0030)
Connecting rod-to-piston pin clearance	0.016–0.040 (0.0006–0.0016)	0.07 (0.002)
Top ring-to-ring groove clearance	0.015–0.050 (0.0006–0.0020)	0.12 (0.005)
Second ring-to-ring groove clearance	0.015–0.050 (0.0006–0.0020)	0.12 (0.005)
Top ring end gap	0.10–0.30 (0.004–0.012)	0.50 (0.020)
Second ring end gap	0.10–0.30 (0.004–0.012)	0.50 (0.020)
Oil ring (side rail) end gap	0.20–0.70 (0.008–0.028)	1.0 (0.04)
Top ring mark	"R" mark facing up	—
Second ring mark	"R" mark facing up	—

Crankshaft

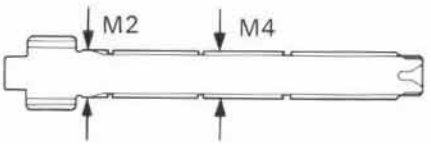
Unit: mm (in)

Item	Standard	Service limit
Connecting rod small end I.D.	13.016–13.034 (0.5124–0.5131)	13.05 (0.513) NEW
Connecting rod big end side clearance	0.10–0.35 (0.004–0.014)	0.60 (0.024)
radial clearance	0–0.008 (0–0.003)	0.05 (0.002)
Crankshaft runout	—	0.10 (0.004)

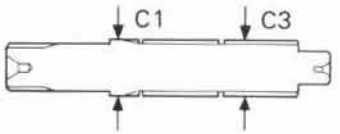


Transmission

Transmission gear I.D. M2	17.032–17.059 (0.6705–0.6716)	17.10 (0.673)
M4	17.016–17.043 (0.6699–0.6710)	17.10 (0.673)
C1	23.020–23.053 (0.9063–0.9076)	23.10 (1.264)
C3	20.020–20.053 (0.7882–0.7895)	20.10 (0.791)
Transmission gear bushing O.D. C1	22.979–23.000 (0.9047–0.9055)	22.93 (0.903)
Transmission gear bushing I.D. C1	20.000–20.021 (0.7874–0.7882)	20.08 (0.791)
Gear-to-bushing clearance at C1 gear	0.020–0.074 (0.0008–0.0029)	0.1 (0.004) NEW
Mainshaft O.D. at M2 gear	16.966–16.984 (0.6680–0.6687)	16.95 (0.667)
at M4 gear	16.966–16.984 (0.6680–0.6687)	16.95 (0.667)



Countershaft O.D. at C1 gear bushing	19.959–19.980 (0.7858–0.7866)	19.94 (0.785)
at C3 gear	19.959–19.980 (0.7858–0.7866)	19.94 (0.785)

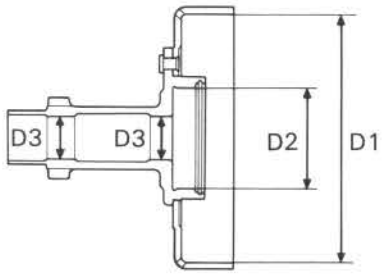


Gear-to-shaft clearance at M2 gear	0.048–0.093 (0.0019–0.0037)	0.1 (0.004)
at M4 gear	0.032–0.077 (0.0013–0.0030)	0.1 (0.004) NEW
at C3 gear	0.040–0.094 (0.0016–0.0037)	0.1 (0.004)
Gear bushing-to-shaft clearance at C1 gear	0.020–0.062 (0.0008–0.0024)	0.1 (0.004)
Shift fork claw thickness	4.86–4.94 (0.191–0.194)	4.6 (0.18)
Shift fork I.D.	34.075–34.100 (1.3415–1.3425)	34.14 (1.344)
Shift drum O.D.	33.950–33.975 (1.3366–1.3376)	33.93 (1.336)

Clutch

Unit: mm (in)

Item	Standard	Service limit
Centrifugal clutch drum I.D. (D1)	104.00–104.02 (4.094–4.095)	104.3 (4.11)
weight lining thickness	1.5 (0.06)	1.0 (0.04)
one-way clutch drum I.D. (D2)	42.00–42.02 (1.6535–1.6543)	42.04 (1.655)
one-way clutch roller O.D.	5.00 (0.197)	4.97 (0.196)
primary drive gear I.D. (D3)	19.030–19.059 (0.7492–0.7504)	19.11 (0.752)
Crankshaft O.D. at primary drive gear	18.967–18.980 (0.7467–0.7472)	18.92 (0.745)
Change clutch disc thickness	2.92–3.08 (0.115–0.121)	2.6 (0.10)
plate warpage	—	0.2 (0.008)
spring free length	25.2 (0.99)	25.5 (1.00)
outer guide O.D.	20.959–20.980 (0.8252–0.8260)	20.91 (0.823)
outer I.D.	21.020–21.041 (0.8276–0.8284)	21.09 (0.830)



Unit: mm (in)

Wheels/Tires

Item	Standard	Service limit
Cold tire pressure (Front)	2.9 ± 0.4 psi (0.2 ± 0.03 kg/cm²)	—
(Rear)	2.9 ± 0.4 psi (0.2 ± 0.03 kg/cm²)	—
Rear axle runout	—	3.0 (0.12)
Drive chain slack	20–30 (3/4–1-1/4)	—
Drive chain size/link (DID)	DID428V2/98	—
(RK)	RK428HMOZ/98	—

Front Suspension

Kingpin O.D.	17.966–17.984 (0.7073–0.7080)	17.90 (0.705)
Kingpin bushing I.D.	18.045–18.075 (0.7104–0.7116)	18.17 (0.715)

Rear Suspension

Shock absorber spring free length	105.9 (4.17)	103.8 (4.09)
Shock absorber spring direction	Small diameter coil end facing down	—

Brakes

Front brake lever free play	10–20 (3/8–3/4)	—
brake drum I.D.	110 (4.3)	111 (4.4)
brake lining thickness	4.0 (0.16)	2.0 (0.08)
Rear brake (parking brake) lever free play	10–20 (3/8–3/4)	—
brake pedal free play	10–20 (3/8–3/4)	—
brake drum I.D.	140 (5.5)	141 (5.6)
brake lining thickness	4.0 (0.16)	2.0 (0.08)

Ignition System

Spark plug (Standard)	CR7HSA (NGK)	—
	U22FSR-U (NIPPONDENSO)	—
(For cold climate/below 5°C/41°F)	CR6HSA (NGK)	—
	U20FSR-U (NIPPONDENSO)	—
(For extended high speed riding)	CR8HSA (NGK)	—
	U24FSR-U (NIPPONDENSO)	—
Spark plug gap	0.6–0.7 (0.024–0.028)	—
Ignition timing "F" mark	7°BTDC/1,600 rpm	—
full advance	30°BTDC/3,050 rpm	—
Alternator exciter coil resistance (at 20°C/68°F)	400–800 Ω	—
Ignition coil resistance (at 20°C/68°F)		
Primary	0.19–0.23 Ω	—
Secondary with plug cap	7.8–8.4 kΩ	—
Secondary without plug cap	2.8–3.4 kΩ	—
Pulse generator resistance (at 20°C/68°F)	50–200 Ω	—

Torque Values

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

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

Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Lubrication system:				
Oil drain bolt	1	12	24 (2.4, 17)	
Oil pump mounting screw	3	6	8 (0.8, 5.8)	
Cylinder head/cylinder/piston:				
Cylinder head cover cap nut	4	7	14 (1.4, 10)	
Cam sprocket bolt	2	5	9 (0.9, 6.5)	
Valve adjusting hole cap	2	30	12 (1.2, 9)	
Valve adjusting nut	2	5	9 (0.9, 6.5)	
Spark plug	1	10	12 (1.2, 9)	
Cam chain tensioner sealing bolt	1	14	24 (2.4, 17)	
Cylinder head bolt	1	6	10 (1.0, 7)	
Cam chain guide roller pin bolt	1	6	10 (1.0, 7)	
Cylinder bolt	1	6	10 (1.0, 7)	
Clutch/gearshift linkage:				
Oil filter rotor cover bolt	3	5	6 (0.6, 4.3)	Apply locking agent to the threads.
Centrifugal clutch lock nut	1	14	40 (4.0, 29)	Apply oil to the threads.
Change clutch lock nut	1	14	40 (4.0, 29)	
Gearshift pedal bolt	1	6	16 (1.6, 12)	
Gearshift drum stopper arm bolt	1	6	10 (1.0, 7)	
Gearshift drum stopper plate bolt	1	6	17 (1.7, 12)	
Gearshift spindle return spring pin	1	8	30 (3.0, 22)	
Others:				
Timing hole cap	1	14	3 (0.3, 2.2) NEW	
Flywheel nut	1	10	40 (4.0, 29)	Apply oil to the threads.
Neutral indicator shaft	1	6	12 (1.2, 9)	
Drive sprocket bolt	2	6	12 (1.2, 9)	

Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Frame/body panels/exhaust system:				
Footpeg bolt	8	8	32 (3.2, 23)	
Muffler mounting bolt	1	10	69 (6.9, 50)	
Muffler band bolt	1	8	23 (2.3, 17)	
Exhaust pipe joint nut	2	6	14 (1.4, 10)	
Engine mount:				
Upper engine mounting bolt	1	8	29 (2.9, 21)	
Rear engine mounting bolt	1	8	49 (4.9, 35)	
Lower engine mounting bolt	1	8	29 (2.9, 21)	
Front wheel/brake/suspension/ steering:				
Throttle housing cover screw	1	4	3.5 (0.35, 2.5)	
Parking brake lever pivot screw	1	6	9 (0.9, 6.5)	
Steering shaft end nut	1	14	70 (7.0, 51)	Self-lock nut
Tie-rod ball joint nut	4	10	35–43 (3.5–4.3, 25–31)	Castle-headed nut*
Tie-rod lock nut	4	10	39 (3.9, 28)	
Steering shaft holder bolt	2	8	33 (3.3, 24)	
Kingpin bolt nut	2	12	60 (6.0, 43)	Self-lock nut Replace the nut with a new one when removed.
Front wheel nut	8	10	55 (5.5, 40)	Self-lock nut
Front axle nut	2	16	70–90 (7.0–9.0, 51–65)	Castle-headed nut*
Front shock absorber mounting bolt	4	10	25 (2.5, 18)	Self-lock nut
Front arm pivot bolt	4	10	45 (4.5, 33)	Replace the nut with a new one when removed.
Front brake arm bolt	1	6	10 (1.0, 7)	
Front brake panel bolt	4	6	12 (1.2, 9)	
Front brake cable stay bolt	2	6	12 (1.2, 9)	
Rear wheel/brake/suspension:				
Rear wheel nut	8	10	55 (5.5, 40)	Self-lock nut
Rear axle nut	2	14	60–80 (6.0–8.0, 43–58)	Castle-headed nut* Apply grease to the threads and seating surface.
Rear axle outer lock nut	1	30	130 (13.0, 94)	Apply locking agent to the threads.
Rear axle inner lock nut	1	30	45 (4.5, 33)	
Rear axle bearing holder bolt	4	12	90 (9.0, 65)	
Swingarm pivot bolt	1	14	90 (9.0, 65)	Self-lock nut
Rear shock absorber mounting bolt	2	10	25 (2.5, 18)	Self-lock nut Replace the nut with a new one when removed.
Final drive sprocket nut	4	10	40 (4.0, 29)	Self-lock nut
Rear brake arm bolt	1	6	10 (1.0, 7)	
Rear brake drain bolt	1	12	25 (2.5, 18)	

* Torque the castle-headed nut to the lower torque specification, then tighten it only far enough to align the slot with the cotter pin hole. Do not align by loosening the nut.

Tools

Description	Tool Number	Alternate Tool	Tool Number	Refer to Section
Camber/caster gauge attachment	07910-MJ30100			3
Valve adjusting wrench, 8×9 mm	07708-0030100			3
Valve adjusting wrench B	07708-0030400	Valve adjusting wrench (U.S.A. only)	07908-KE90200	3
Float level gauge	07401-0010000			5
Valve spring compressor	07757-0010000			7
Valve spring compressor attachment	07959-KM30101			7
Valve guide driver	07942-MA60000			7
Valve guide reamer, 5 mm	07984-MA60001	Valve guide reamer (U.S.A. only)	07984-MA6000C	7
Valve seat cutter, 24 mm (45°)	07780-0010600	Equivalent commercially available in U.S.A.		7
Valve seat cutter, 24 mm (IN 32°)	07780-0012500			7
Valve seat cutter, 21.5 mm (EX 32°)	07780-0012800			7
Valve seat cutter, 22 mm (60°)	07780-0014202			7
Valve seat cutter holder, 5 mm	07781-0010400			7
Clutch holder	07HMB-HB70100	Clutch older	07GMB-HB30100	8
Lock nut wrench, 20×24 mm	07716-0020100	Equivalent commercially available in U.S.A.		8
Extension bar	07716-0020500			8
Gear holder	07724-0010200			8
Lock nut wrench, 18 mm	07HMA-GN80100			8
Tire bead breaker set	07772-0050001	Universal bead breaker (U.S.A. only)	GN-AH-958-BB1	11, 12
–breaker arm	07772-0050200			11, 12
–breaker arm compressor	07772-0050101			11, 12
Tire breaker attachment	07GMF-HB30101			11, 12
Driver	07749-0010000			11, 12
Attachment, 32×35 mm	07746-0010100			11
Lock nut spanner, 41 mm	07916-9580200	Axle nut holder wrench, 41 mm (U.S.A. only)	07916-958020A	12
Lock nut wrench, 41 mm	07916-9580400	Axle nut torque wrench adapter, 41 mm (U.S.A. only)	07916-958010A	12
Shock absorber compressor	07GME-0010000			12
Needle bearing remover	07946-KA50000			12
Attachment, 52×55 mm	07746-0010400			12
Universal holder	07725-0030000			13
Flywheel puller	07733-0010000			13

Lubrication & Seal Points

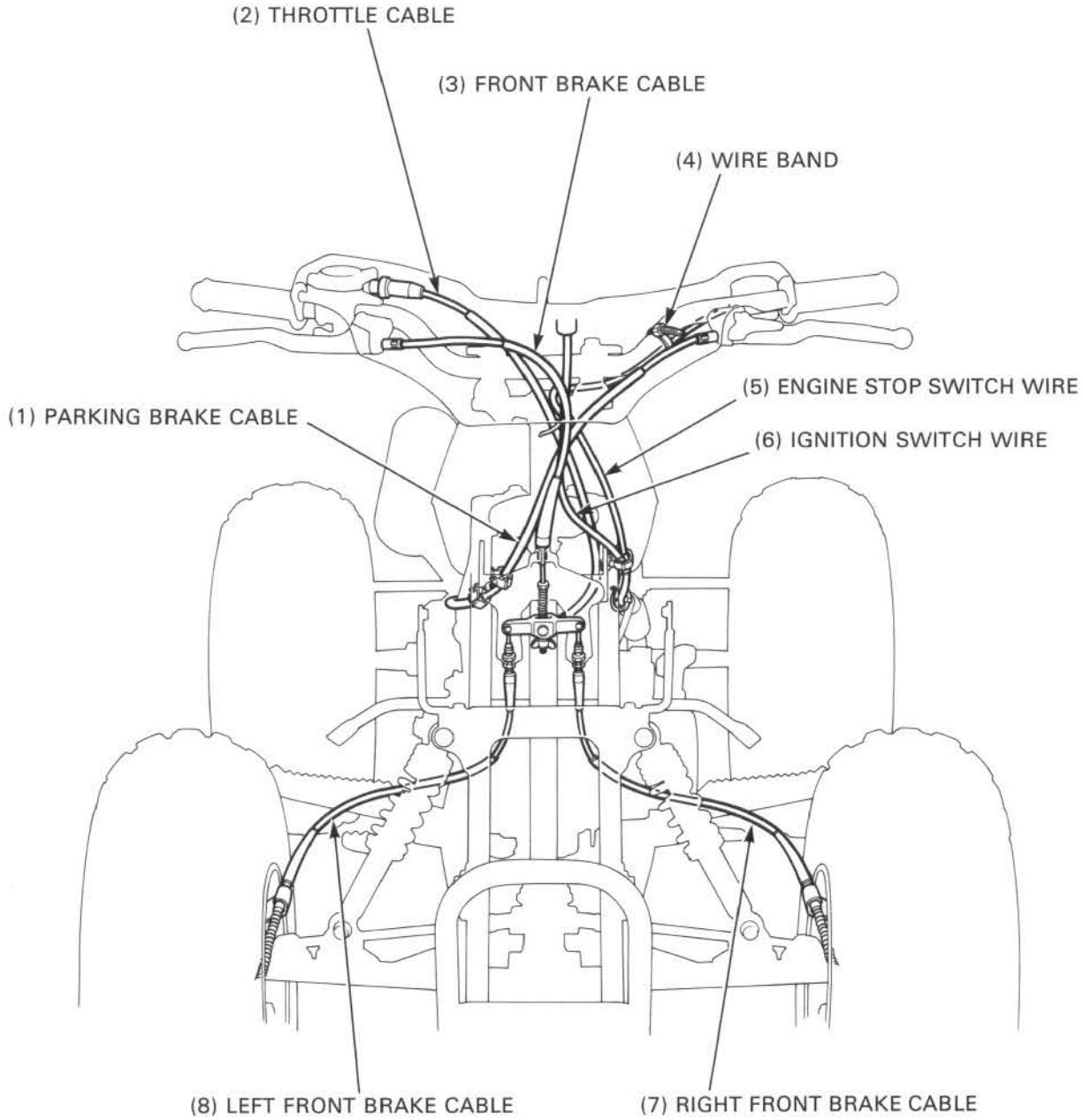
Engine

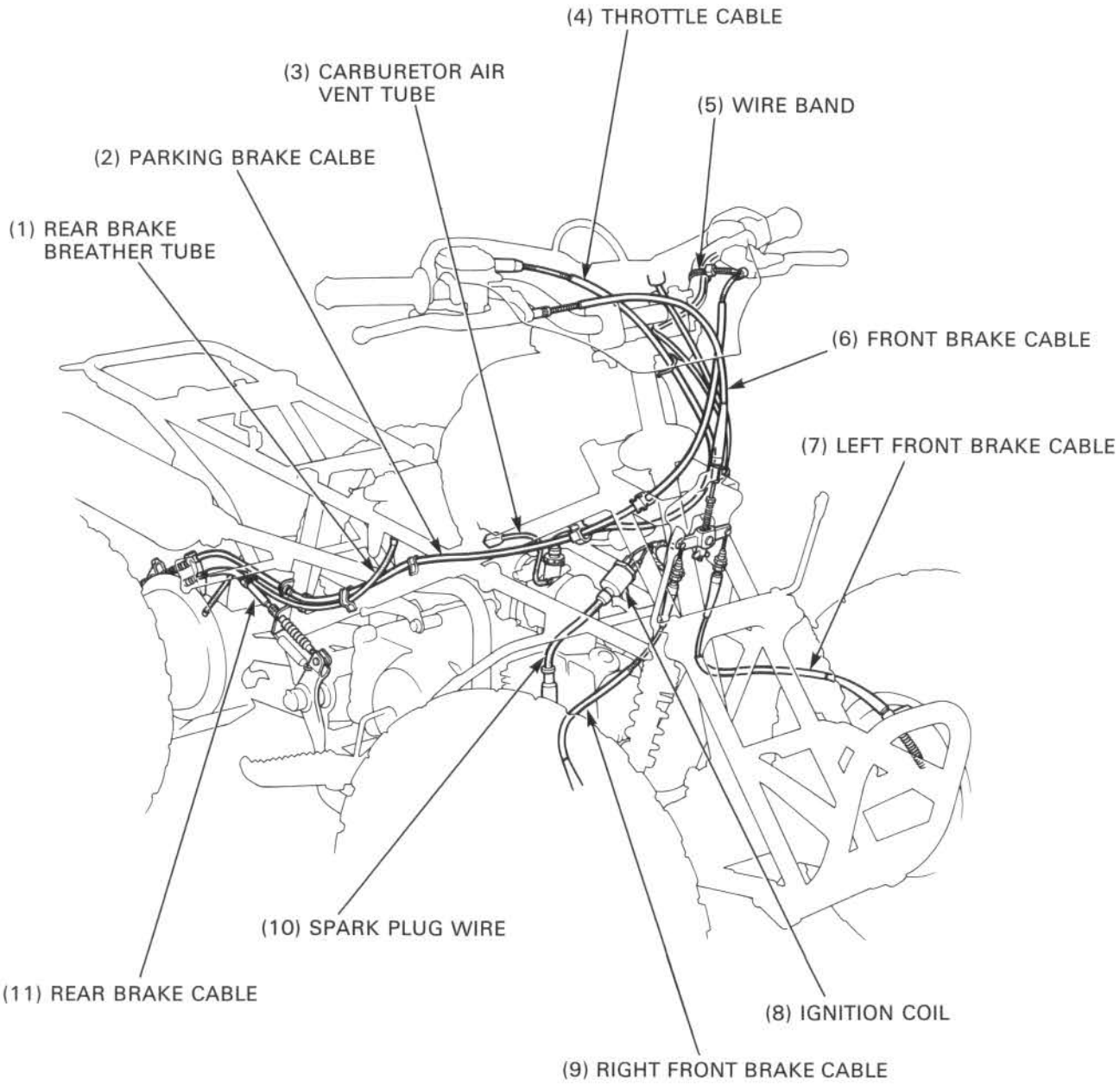
Location	Remarks	Material
Valve stem sliding surfaces Camshaft cam lobes Rocker arm sliding surfaces, slipper surfaces Primary drive gear journal surface Clutch outer guide		Molybdenum disulfide oil solution
Camshaft ball bearing Camshaft decompressor cam journal surface Piston sliding surface, ring grooves, pin hole Piston pin outer surface Piston rings Cylinder sliding surface Cam chain Cam chain guide roller pin journal surface Tensioner pushrod Connecting rod small end hole Connecting rod big end needle bearing Crankshaft journal ball bearing Oil pump rotors Transmission gear teeth, rotating surfaces, gearshift fork grooves Crankcase ball bearings Gearshift fork sliding surfaces, claws, pins Gearshift drum outer surface O-rings Oil seal lips Clutch weight outer surfaces Clutch weight pivots of drive plate One-way clutch in centrifugal clutch drum Clutch lifter lever roller Centrifugal clutch lock nut threads Manual clutch lock nut threads Flywheel nut threads Crankcase	Pour more than 1 cc of oil from the tensioner oil hole. Capacity: 0.9 liter (0.74 US qt, 0.62 Imp qt)	Engine oil
Oil filter rotor cover bolt threads		Locking agent
Recoil starter ratchet reel shaft ratchet guide		Multipurpose grease

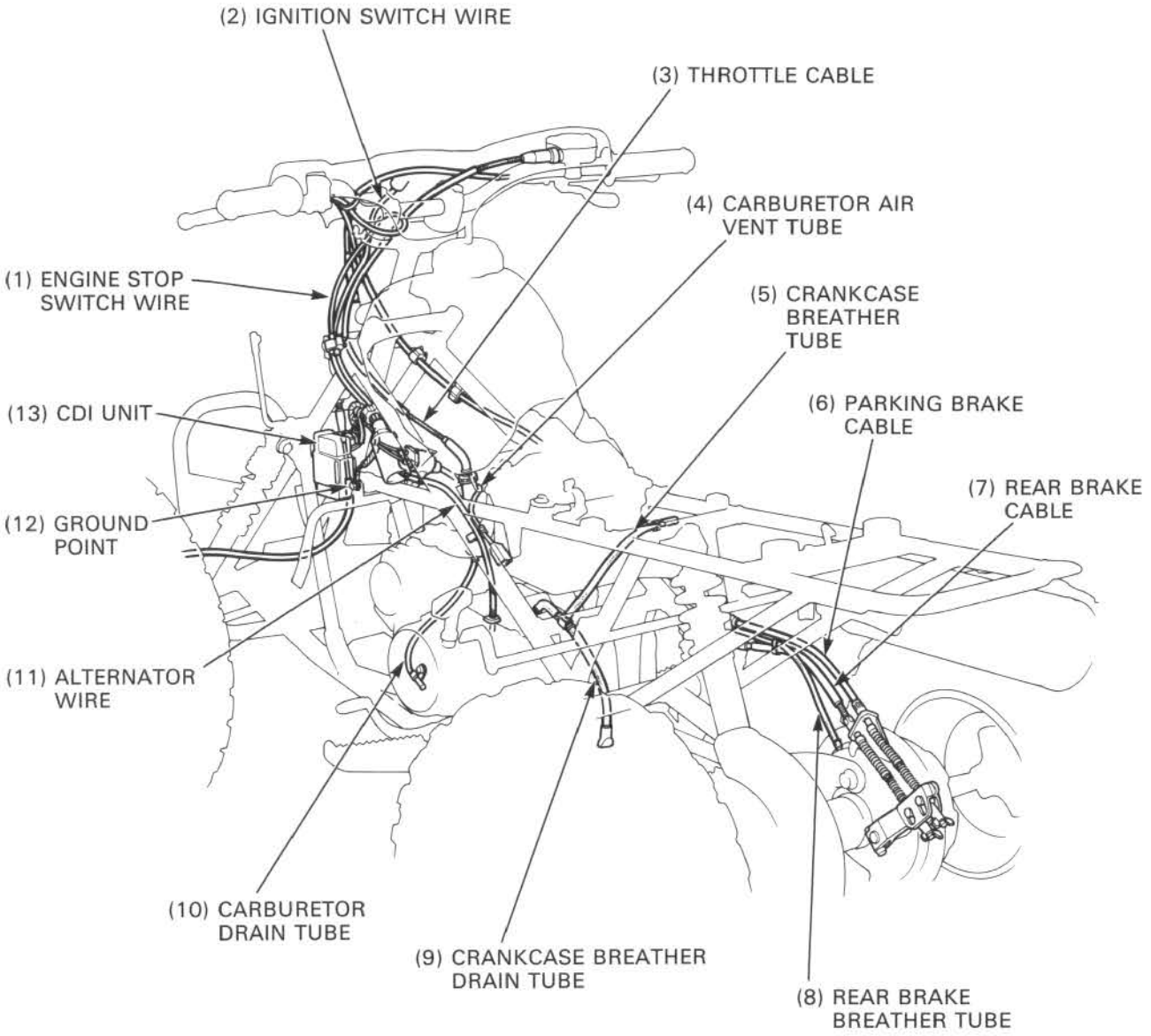
Frame

Location	Remarks	Material
Steering shaft bushing sliding surface Steering shaft dust seal lips Kingpin bushing sliding surfaces Kingpin dust seal lips Kingpin outer surface Swingarm dust seal lips Swingarm pivot bushings	Fill through grease nipple.	Molybdenum disulfide grease
Front wheel hub dust seal lips Brake cam sliding surfaces Brake anchor pin Brake shoe cam contacting areas Brake cable ends Brake pedal shaft sliding surface Brake pedal dust seal lips Rear brake drum cover dust seal lip Rear brake drum seal ring Front brake drum dust seal lips Rear axle splines Throttle cable end Throttle cable adjuster bolt threads Rear axle nut threads and seating surface		Multipurpose grease
Brake lever pivots Throttle inner cable		Light weight oil or cable lubricant
Rear axle lock nut threads Skid plate bolt threads Brake panel guard bolt threads	Apply 0.1-0.2 cc	Locking agent (Medium strength)
Fuel tank cap dust seal Brake cam felt seals		Engine oil
Air cleaner element		Pro Honda Air Fiter Oil or equivalent
Air cleaner case connecting tube joint		Sealant
Handlebar grips		Honda Bond A or Honda Hand Grip Cement (U.S.A. only)

Cable & Harness Routing




(4) THROTTLE CABLE
(3) CARBURETOR AIR VENT TUBE
(5) WIRE BAND
(2) PARKING BRAKE CALBE
(1) REAR BRAKE BREATHER TUBE
(6) FRONT BRAKE CABLE
(7) LEFT FRONT BRAKE CABLE
(10) SPARK PLUG WIRE
(11) REAR BRAKE CABLE
(8) IGNITION COIL
(9) RIGHT FRONT BRAKE CABLE


(2) IGNITION SWITCH WIRE
(3) THROTTLE CABLE
(4) CARBURETOR AIR VENT TUBE
(1) ENGINE STOP SWITCH WIRE
(5) CRANKCASE BREATHER TUBE
(13) CDI UNIT
(6) PARKING BRAKE CABLE
(7) REAR BRAKE CABLE
(12) GROUND POINT
(11) ALTERNATOR WIRE
(10) CARBURETOR DRAIN TUBE
(9) CRANKCASE BREATHER DRAIN TUBE
(8) REAR BRAKE BREATHER TUBE

MEMO

2. Frame/Body Panels/Exhaust System

Service Information

⚠ WARNING

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

NOISE EMISSION CONTROL SYSTEM

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

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

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

- Work in a well ventilated area. Smoking or allowing flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the frame covers, fuel tank and exhaust system.
- Frame cover installation is in the reverse order of removal, unless noted otherwise.
- When removing the cover, be careful not to damage any cover tabs or slots.
- Always inspect the exhaust system for leaks after installation.

Troubleshooting

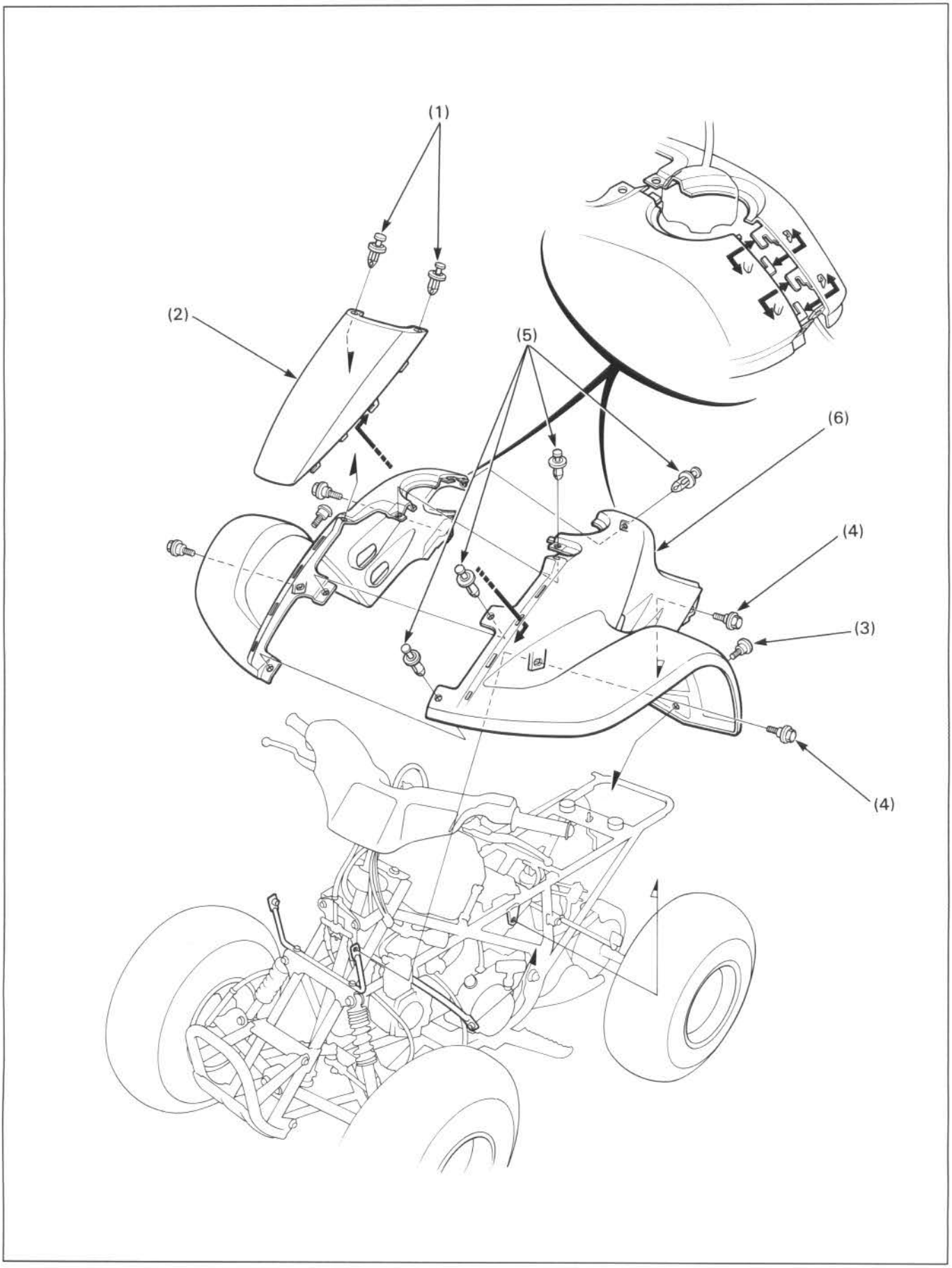
Excessive exhaust noise

- Broken exhaust system
- Exhaust gas leak

Poor performance

- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

Front Fender Removal/Installation

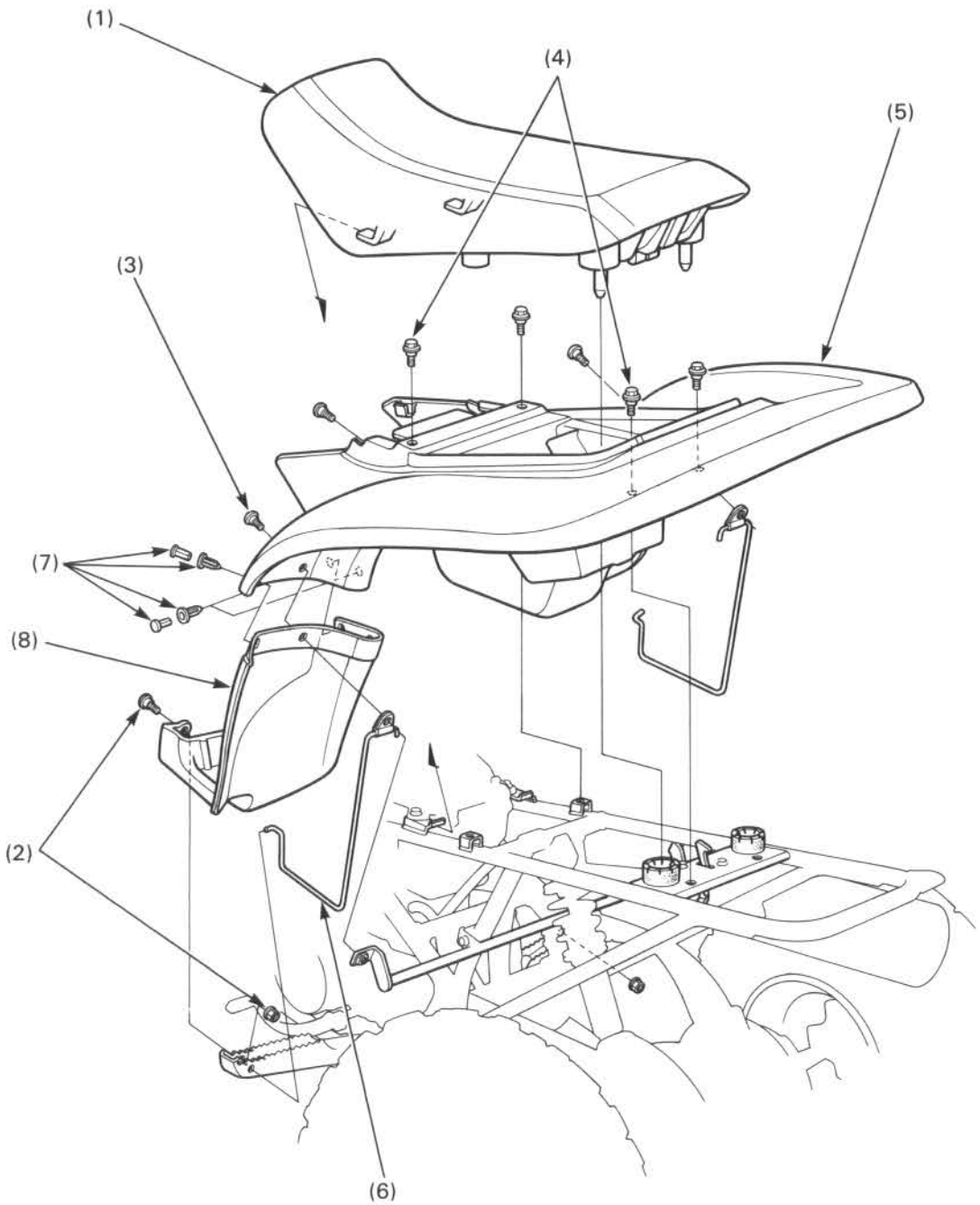


Requisite Service

- Rear fender removal/installation (page 2-4)

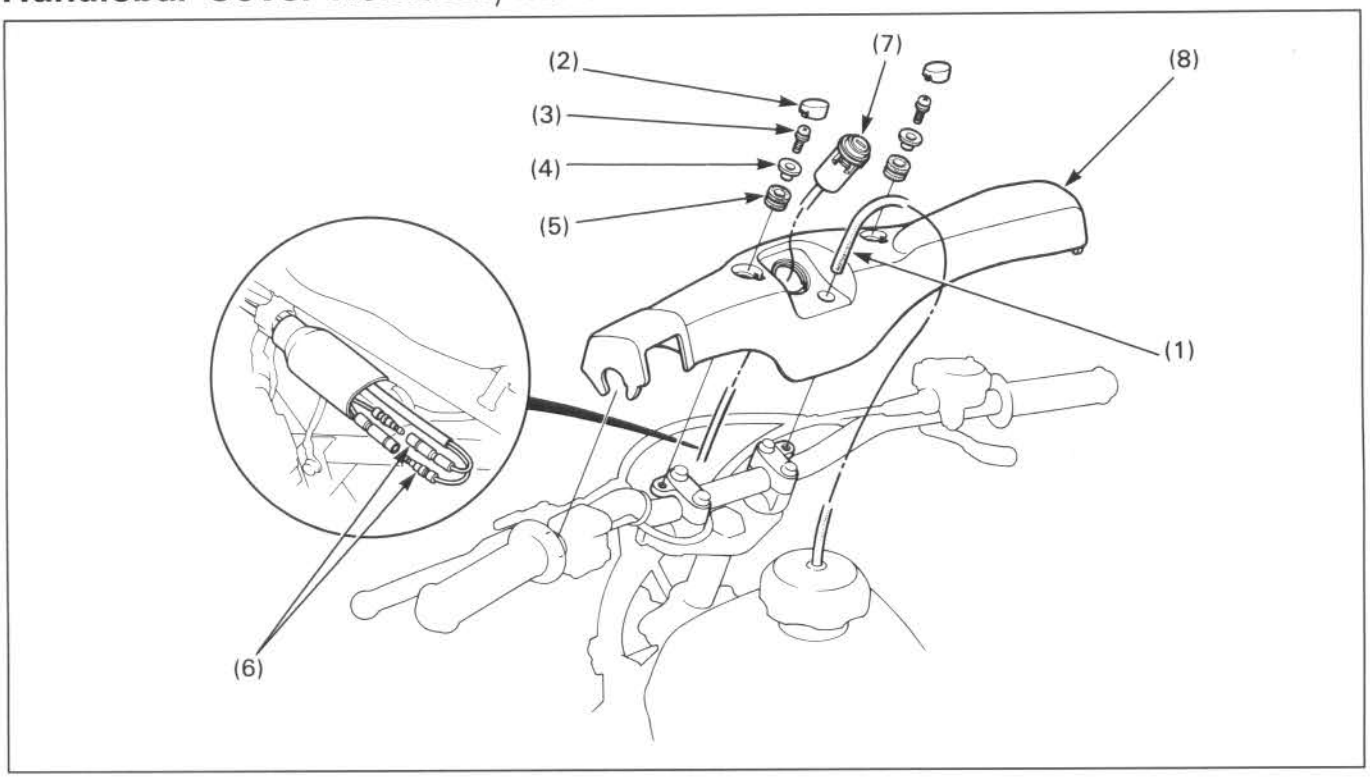
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Trim clip	2	
(2)	Front cover	1	
(3)	Screw	2	
(4)	Bolt	4	
(5)	Trim clip	4	
(6)	Front fender	2	Separate the left and right fenders and remove them.

Rear Fender Removal/Installation



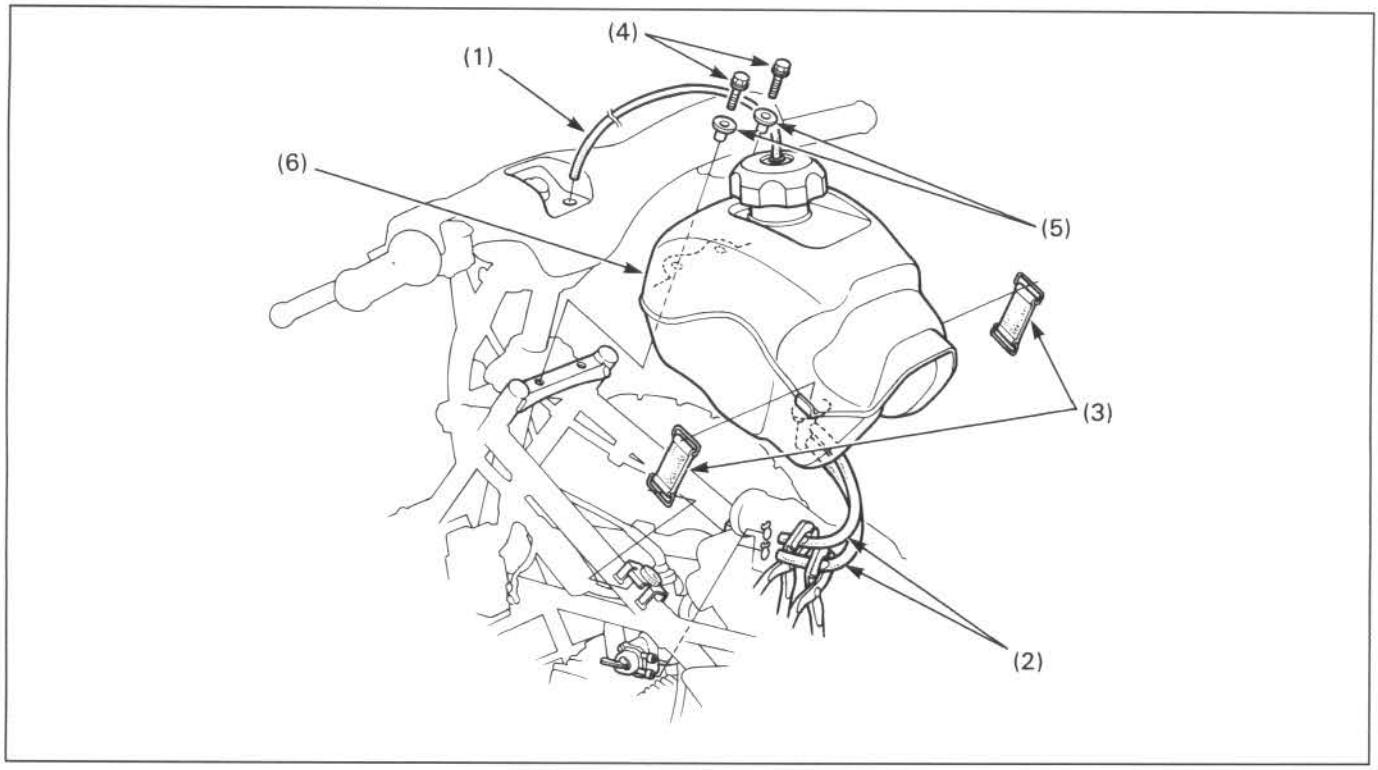
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Seat	1	Release the seat lock by pulling the lever back.
(2)	Screw/nut	2/2	
(3)	Screw	2	
(4)	Bolt	4	
(5)	Rear fender/mudguard assembly	1	
(6)	Mudguard stay	2	
(7)	Trim clip	6	
(8)	Mudguard	2	

Handlebar Cover Removal/Installation



	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuel tank breather tube	1	
(2)	Handlebar cover cap	2	
(3)	Screw	2	
(4)	Collar	2	
(5)	Grommet	2	
(6)	Ignition switch connector	2	NOTE • When installing, route the ignition switch wire properly.
(7)	Ignition switch	1	
(8)	Handlebar cover	1	

Fuel Tank Removal/Installation

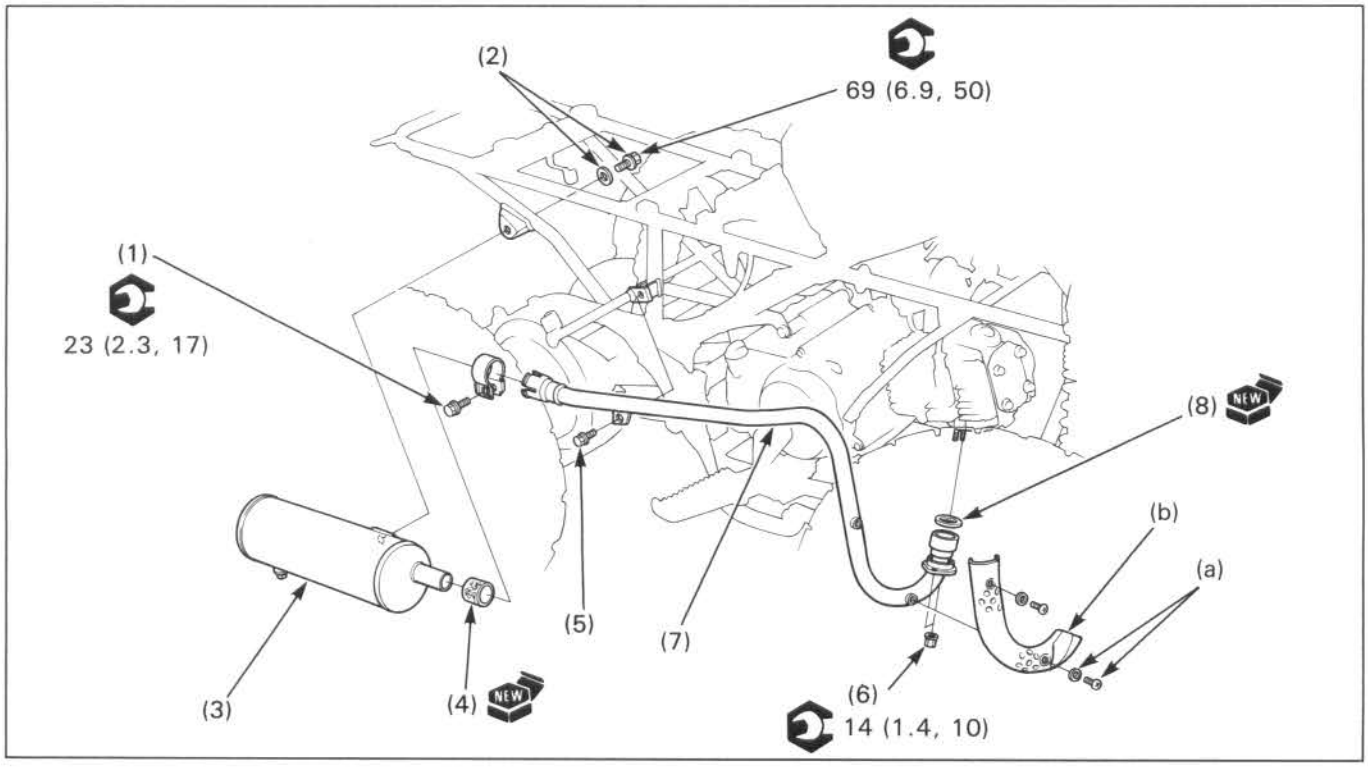


Requisite Service

- Front fender removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuel tank breather tube	1	
(2)	Fuel line	2	NOTE • Clamp off the fuel lines, then disconnect them from the fuel valve.
(3)	Fuel tank holder band	2	
(4)	Fuel tank mounting bolt	2	
(5)	Mounting collar	2	
(6)	Fuel tank	1	

Muffler, Exhaust Pipe Removal/Installation



⚠ WARNING

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

NOTE

- Tighten the exhaust pipe joint nuts first, then tighten the other bolt.

Requisite Service

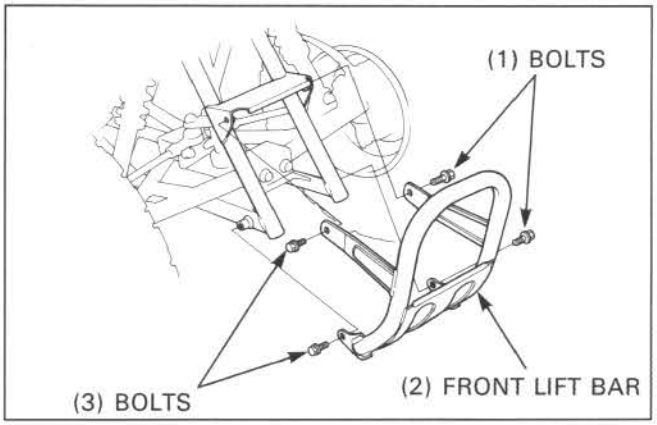
- Rear fender removal/installation (page 2-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Muffler band bolt	1	
(2)	Muffler mounting bolt/washer	1/1	
(3)	Muffler	1	
(4)	Muffler gasket	1	
(5)	Exhaust pipe mounting bolt	1	
(6)	Exhaust pipe joint nut	2	
(7)	Exhaust pipe	1	
(8)	Exhaust pipe gasket	1	
(a)	Screw/washer	2/2	
(b)	Exhaust pipe protector	1	

Front Lift Bar Removal/ Installation

Remove the four bolts and the front lift bar.

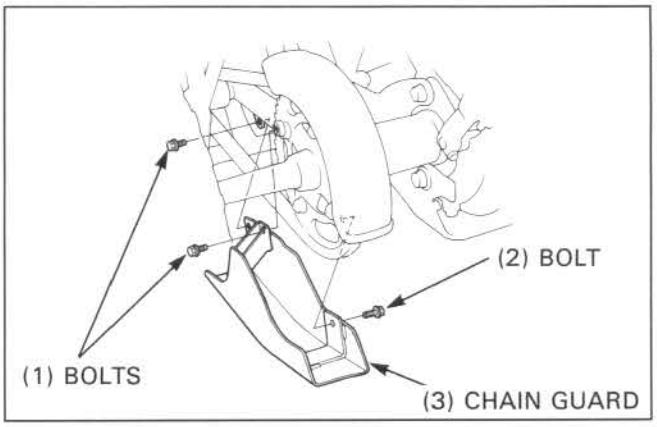
Install the front lift bar and tighten the bolts.



Chain Guard Removal/Installation

Remove the three bolts and the chain guard.

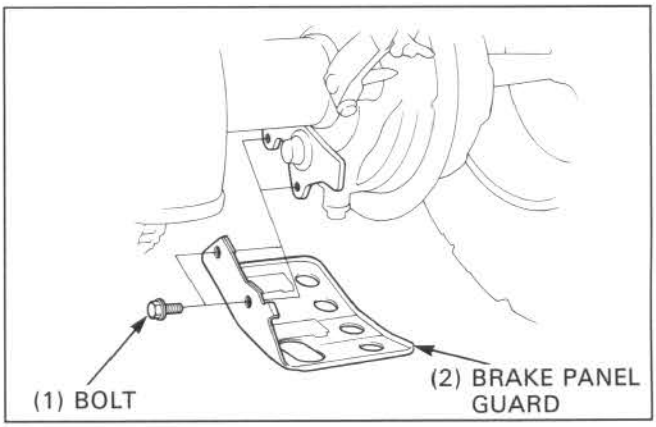
Apply locking agent to the bolt threads, install the chain guard and tighten the bolts.



Brake Panel Guard Removal/ Installation

Remove the two bolts and the brake panel guard.

Apply locking agent to the bolt threads, install the brake panel guard and tighten the bolts.



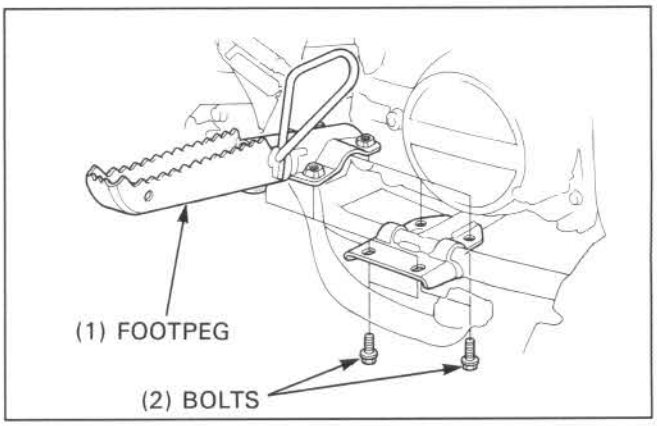
Footpeg Removal/Installation

Remove the rear fender (page 2-4).

Remove the four bolts and the footpeg.

Install the footpeg and tighten the bolts.

Torque: 32 N·m (3.2 kg-m, 23 ft-lb)



MEMO

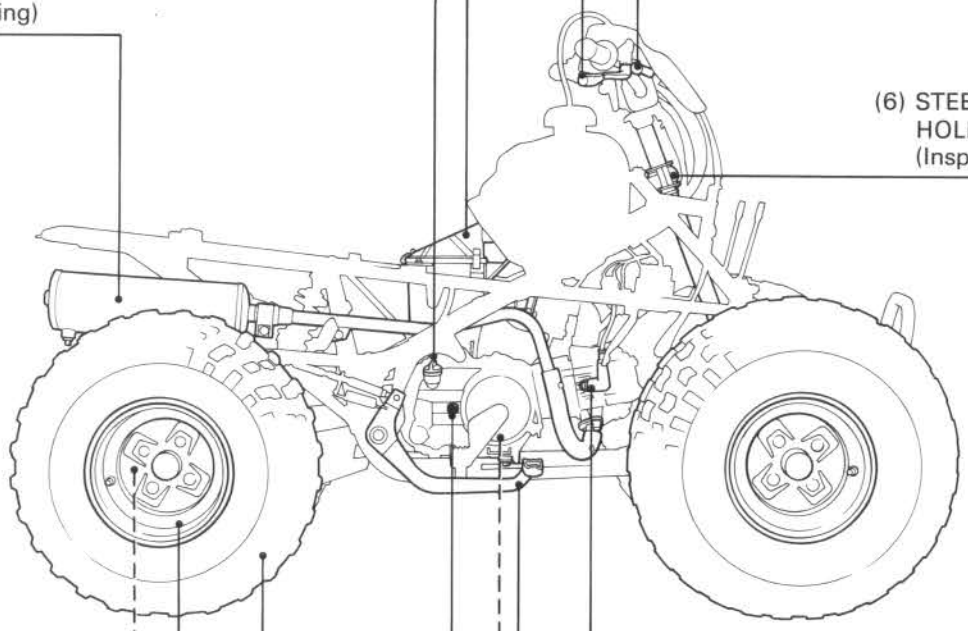
3. Maintenance

Service Information

- Refer to Common Service Manual for service procedures of items not included in this manual.
- Refer to the Specifications (section 1) for maintenance service data.

Service Access Guide

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



(3) AIR CLEANER (Contamination, clogging, cleaning)
- Seat

(4) THROTTLE LEVER (Operation, free play)

(2) OIL FILLER CAP/DIPSTICK (Level check, replacement)

(5) FRONT BRAKE LEVER (Operation, free play)

(1) MUFFLER (Spark arrester cleaning)

(6) STEERING SHAFT HOLDER BEARING (Inspection: page 3-7)

(14) REAR BRAKE WEAR INDICATOR (Lining wear)

(7) SPARK PLUG (Wear, damage, discoloration)

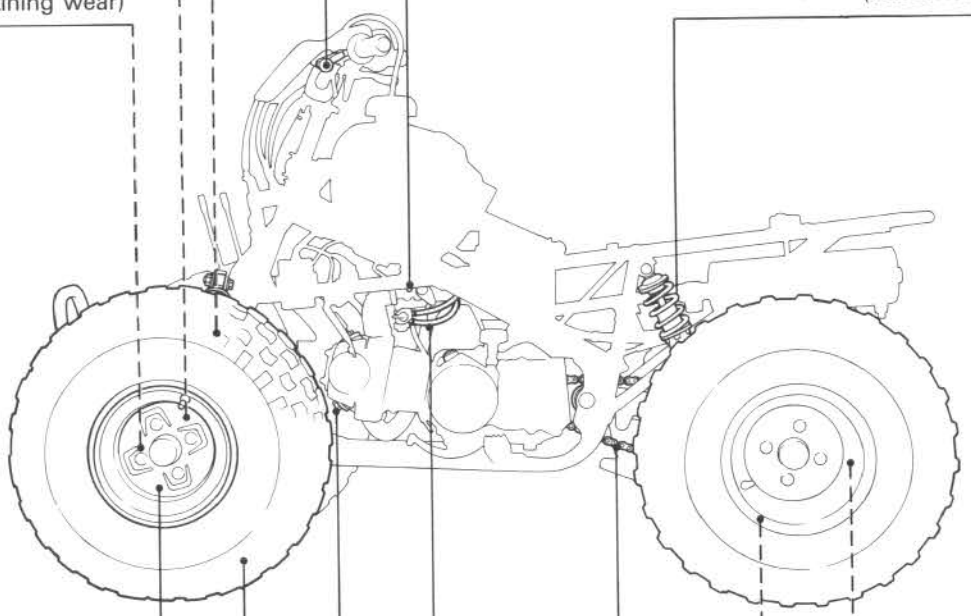
(13) WHEEL (Damage, runout, corrosion)

(8) BRAKE PEDAL (Operation, free play)

(12) TIRE (Wear, damage, pressure)

(9) OIL FILTER SCREEN (Cleaning: page 3-6)
(10) OIL CENTRIFUGAL FILTER (Cleaning: page 3-6)

(11) CLUTCH ADJUSTING SCREW (Clutch free play adjustment)



(5) THROTTLE STOP SCREW (Idle speed adjustment)

(4) PARKING BRAKE LEVER (Operation, free play)

(3) SUSPENSION (Looseness, Wear, damage)

(2) TIE-ROD (Wheel alignment)

(1) FRONT BRAKE WEAR INDICATOR (Lining wear)

(6) SUSPENSION (Looseness, wear damage)

(13) WHEEL (Damage, runout, corrosion)

(12) TIRE (Wear, damage, pressure)

(11) VALVE ADJUSTING HOLE CAP (Valve clearance: page 3-5)

(10) FUEL LINE (Leakage, damage, deterioration)

(7) DRIVE CHAIN ADJUST NUT (Slack adjustment: page 3-6)

(8) CHAIN AND BRAKE GUARDS (Cracks, damage, looseness)

(9) DRIVE CHAIN (Slack inspection: page 3-6)

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.
C: Clean R: Replace A: Adjust L: Lubricate

	Items \ Frequency	Note	Initial service period (First week of operation)	Regular service period (Every 30 operating day)	Refer to page
•	Fuel Line		Every year I		Note 3
•	Throttle Operation		I	I	Note 3
	Air Cleaner	Note 1		C	Note 3
	Spark Plug			I	1-9, Note 3
•	Valve Clearance		I	I	3-6
	Engine Oil		R	R	1-5, Note 3
••	Engine Oil Strainer Screen		Every year C		3-7
••	Engine Oil Centrifugal Filter		Every year C		3-7
•	Carburetor Idle Speed		I	I	1-5, Note 3
	Drive Chain	Note 1, 2	I, L	I, L	3-7
	Drive Chain Slider			I	Note 3
•	Brake Shoe Wear	Note 2	Every year I		Note 3
	Brake System		I	I	Note 3
	Skid Plates			I	3-8
•	Clutch System		I	I	Note 3
•	Suspension			I	Note 3
•	Spark Arrester			C	3-8
••	Nuts, Bolts, Fasteners		I	I	Note 3
••	Wheels/Tires		I	I	Note 3
••	Steering Shaft Holder Bearing		Every year I		3-8
••	Steering System		Every year I		Note 3

• Should be serviced by your 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 your authorized Honda dealer.

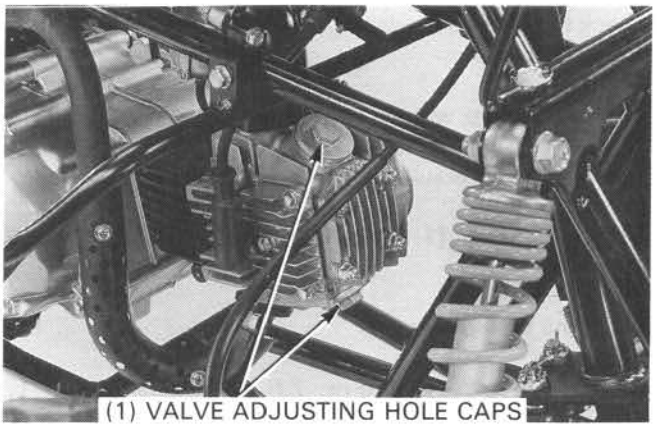
Notes: 1. Service more frequently when riding in dusty areas, sand or snow.
2. Service more frequently after riding in very wet or muddy conditions.
3. Refer to Common Service Manual.

Valve Clearance

NOTE

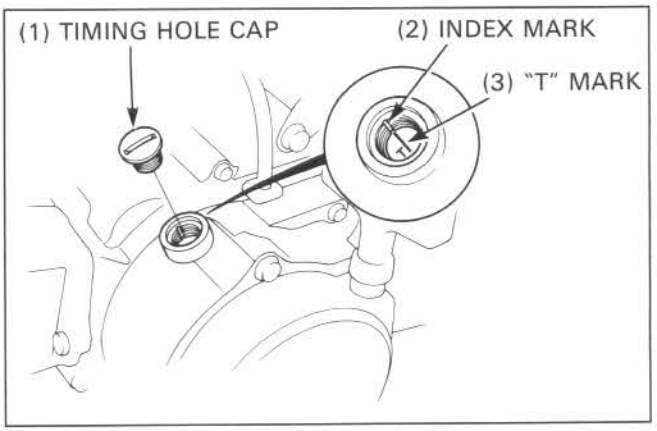
- Check and adjust the valve clearance while the engine is cold (below 35°C/95°F).

Remove the valve adjusting hole caps from the cylinder head.



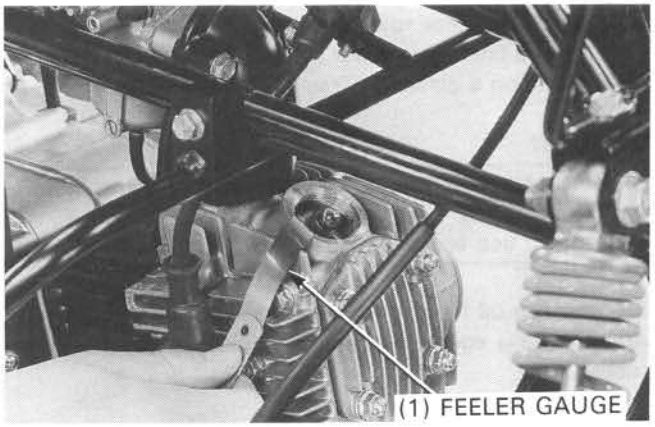
Remove the timing hole cap from the left crankcase cover.

Turn the crankshaft with the recoil starter and align the "T" mark on the flywheel with the index mark on the left crankcase cover.
Make sure the piston is at TDC of the compression stroke by moving the rocker arms. If the rocker arms are tight, turn the crankshaft one full turn and realign the "T" mark with the index mark.



Inspect the intake and exhaust valve clearances by inserting the feeler gauge between the adjusting screw and valve stem.

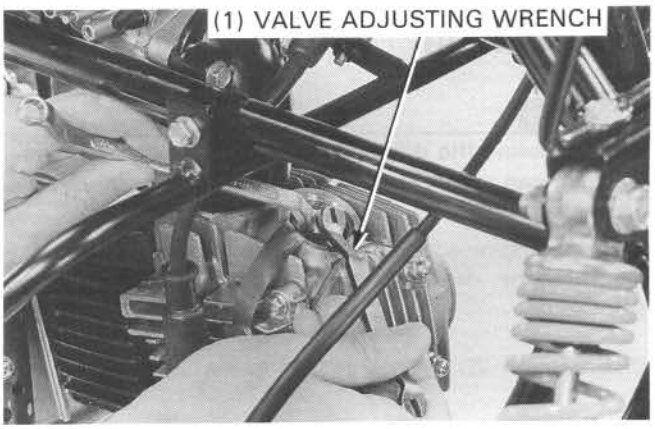
Valve clearances:
Intake: 0.05 ± 0.02 mm (0.002 ± 0.0008 in)
Exhaust: 0.05 ± 0.02 mm (0.002 ± 0.0008 in)



Adjust the valve clearance by loosening the lock nut and turning the adjusting screw until there is slight drag on the feeler gauge.

S. TOOL

Valve adjusting wrench, 8×9 mm	**07708-0030100**
Valve adjusting wrench B	**07708-0030400 or**
Valve adjusting wrench	**07908-KE90200 (U.S.A. only)**



After adjusting the valve clearance, tighten the lock nut while holding the adjusting screw.

Torque: 9 N·m (0.9 kg-m, 6.5 ft-lb)

After tightening the lock nut, recheck the valve clearance.

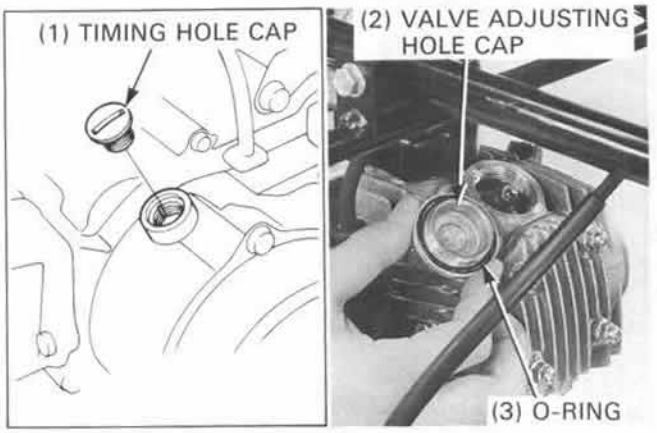
Check the O-rings for damage or deterioration and replace them if necessary.

Coat the O-rings with engine oil and install them onto the valve adjusting hole caps.
Install the valve adjusting hole caps.

Torque: 12 N·m (1.2 kg-m, 9 ft-lb)

Install the timing hole cap.

Torque: 3 N·m (0.3 kg-m, 2.2 ft-lb) NEW



Engine Oil Strainer Screen/ Centrifugal Filter

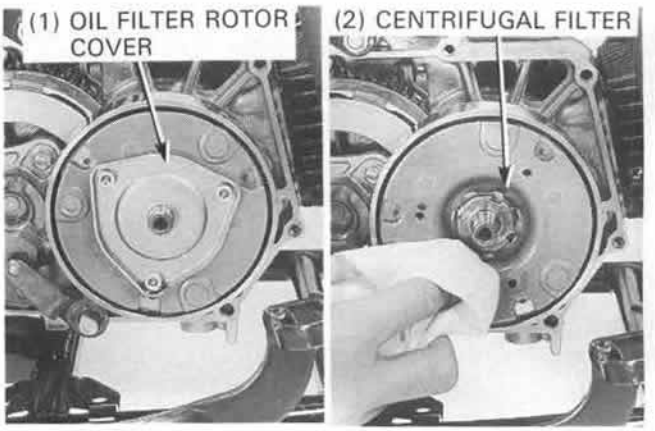
Remove the right crankcase cover (page 8-2).

Remove the oil strainer screen from the right crankcase.
Clean the oil strainer screen in cleaning solvent and blow it dry with compressed air.
Reinstall the oil strainer screen into the right crankcase.

Remove the oil filter rotor cover and gasket.
Clean the oil filter rotor cover and the inside of the centrifugal filter using a clean lint-free shop towel.

CAUTION

- **Do not allow dust and dirt to enter the crankshaft oil passage.**
- **Do not use compressed air to clean the filter.**



Reinstall the oil filter rotor cover with a new gasket.
Apply locking agent to the screw threads and install the screws.

Torque: 6 N·m (0.6 kg-m, 4.3 ft-lb)

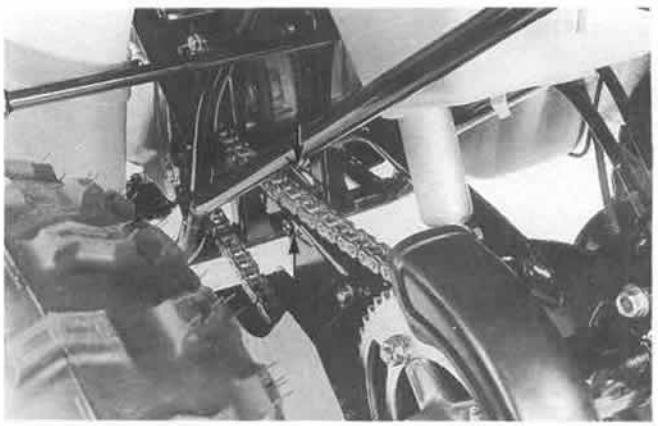
Drive Chain

⚠ WARNING

- **Inspecting the drive chain while the engine is running can result in serious hand or finger injury.**

Stop the engine and shift the transmission into neutral.
Measure the drive chain slack midway between the sprockets.

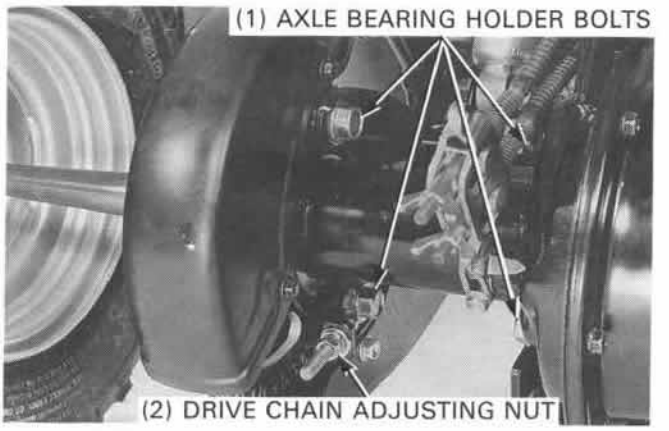
Chain slack: 20–30 mm (3/4–1-1/4 in)



Adjust the chain slack as follows:
Loosen the four axle bearing holder bolts.
Turn the drive chain adjusting nut until the correct drive chain slack is obtained.
Tighten the axle bearing holder bolts.

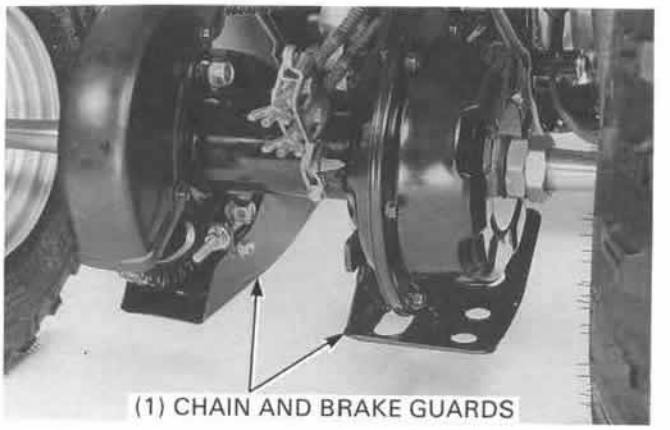
Torque: 90N·m (9.0 kg-m, 65 ft-lb)

Tighten the drive chain adjusting nut securely.



Chain and Brake Guards

Check the guards for cracks, damage or looseness at the intervals shown in the maintenance schedule (page 3-4).
If the guards are cracked or damaged, replace them with new ones.
If the guards are loose, tighten the bolts securely.

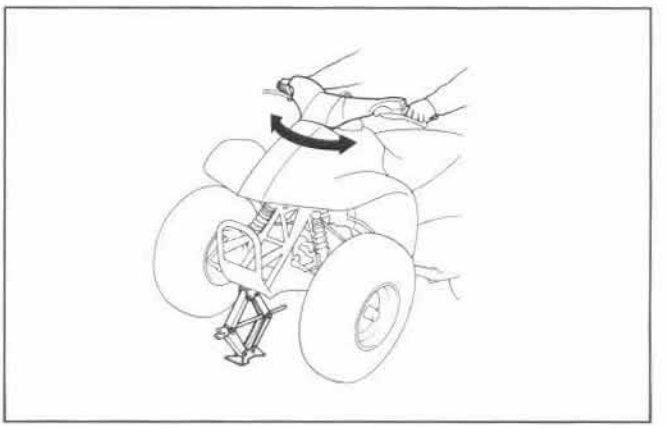


Steering Shaft Holder Bearing

NOTE

- Make sure the control cables do not interfere with the rotation of the steering shaft.

Apply the parking brake.
Raise the front wheels off the ground by placing a jack or other support under the frame and make sure that the handlebar rotates freely.



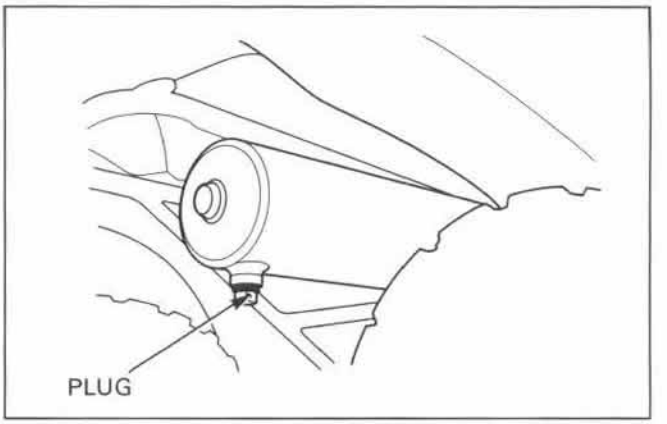
If the handlebar moves unevenly, binds or has vertical or horizontal movement, check the steering shaft holder bushing and steering shaft bearing, and replace them if necessary (page 11-12).

Spark Arrester

⚠ WARNING

- **Wait until the pipe has cooled before removing or installing the muffler plug. Touching the hot exhaust may result in severe burns.**
- **Perform this operation in a well-ventilated area free from combustible materials.**
  Carbon particles may blow out of the clean out hole when performing this service. Wear safety glasses to prevent possible eye injuries.

Remove the muffler plug. Block the end of the muffler with a shop towel.
Start the engine and rev it up to blow accumulated carbon deposits out of the muffler.
Be sure that the muffler plug is in good condition and replace it if necessary.
Install the muffler plug and tighten it securely.



MEMO

4. Lubrication System

Service Information

⚠ WARNING

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

- The oil pump can be service with the engine installed in the frame.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.

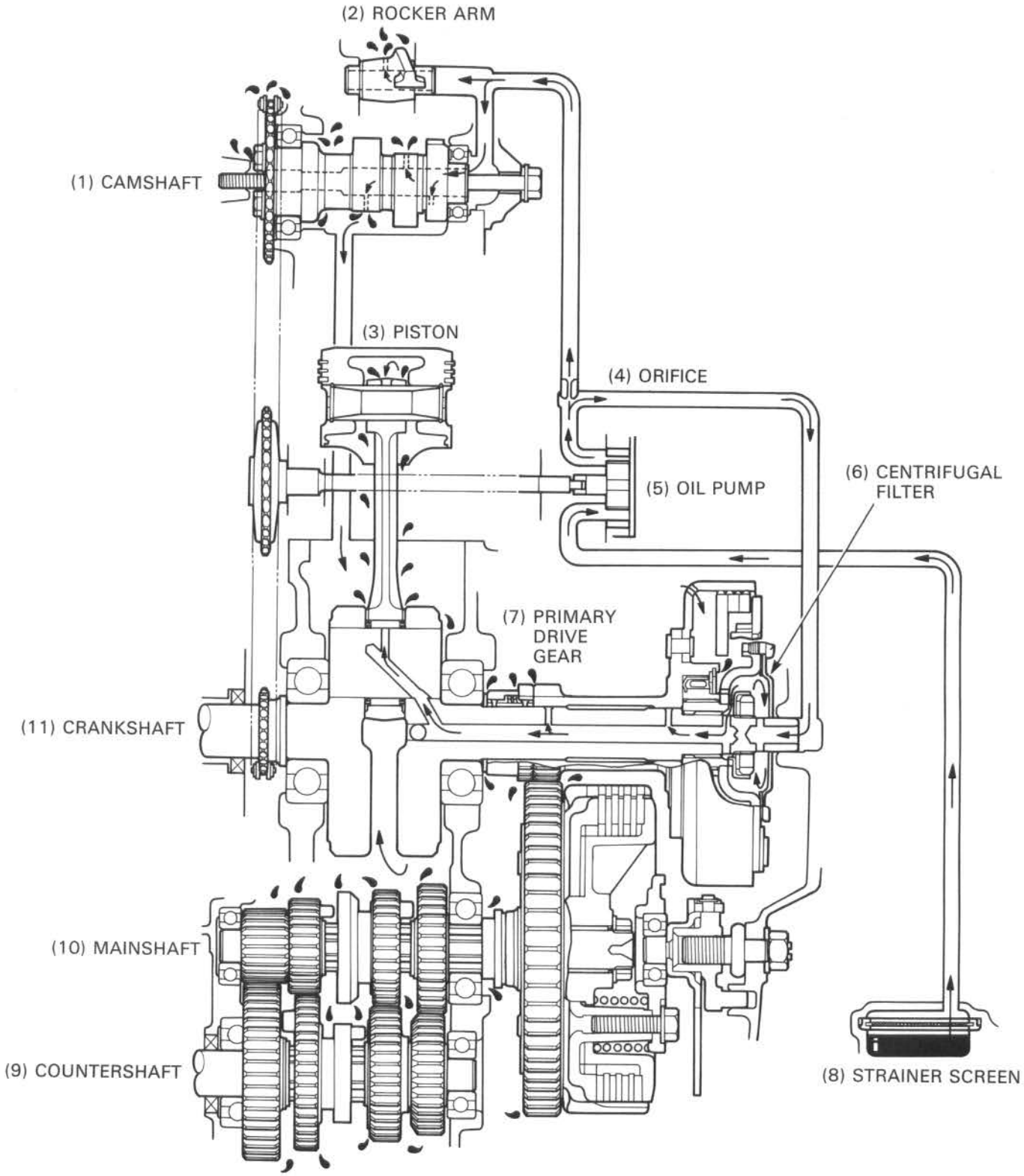
Troubleshooting

Oil level too low
- Normal oil consumption
- External oil leaks
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal

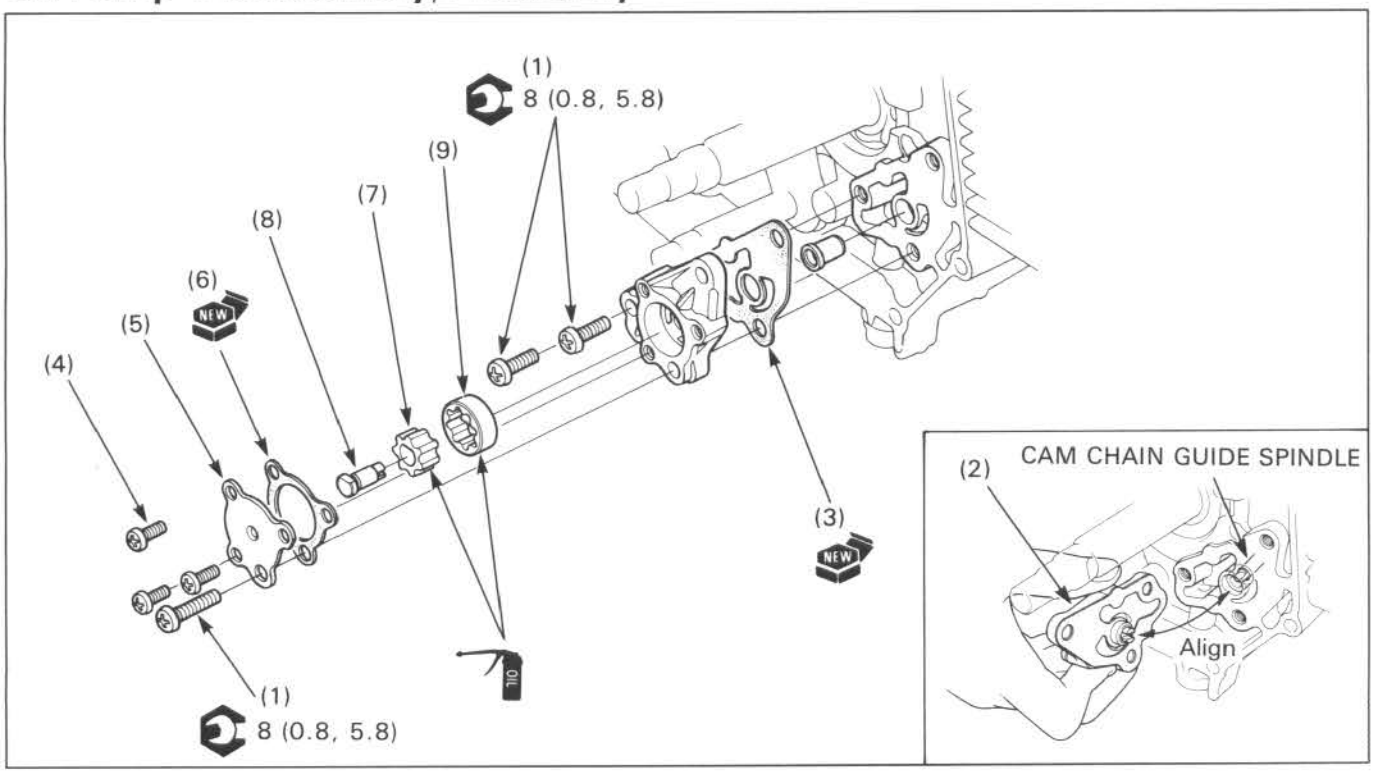
Oil contamination
- Oil not changed or filter not cleaned often enough
- Worn piston rings

Seized engine
- Oil level too low
- Faulty oil pump
- Clogged oil orifice
- Clogged oil filter screen
- Internal oil leaks
- Incorrect oil being used

Lubrication System Diagram



Oil Pump Disassembly/Assembly



Requisite Service

- Clutch removal/installation (page 8-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pump mounting screw	3	
(2)	Oil pump	1	NOTE • When installing, align the recess in the oil pump shaft with the flat end of the cam chain guide spindle properly.
(3)	Pump gasket	1	
(4)	Oil pump cover screw	3	
(5)	Oil pump cover	1	
(6)	Cover gasket	1	
(7)	Inner rotor	1	NOTE • When installing, align the flats of the inner rotor and oil pump shaft.
(8)	Oil pump shaft	1	
(9)	Outer rotor	1	

MEMO

5. Fuel System

Service Information

⚠ WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.**
- **Bending or twisting the contol cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.**

NOTE

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

- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before disassembling the carburetor, place a suitable container under the carburetor drain screw, loosen the screw and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with piece of tape to prevent any foreign material from dropping into the engine.
- For fuel tank removal/installation, see page 2-7.

Troubleshooting

Engine won't start
- No fuel to carburetor
  - —No fuel in fuel tank
  - —Fuel strainer clogged
  - —Fuel line clogged
  - —Float valve stuck
  - —Float level misadjusted
  - —Fuel tank breather tube clogged
- Too much fuel getting to the engine
  - —Air cleaner clogged
  - —Flooded engine
- Intake air leak
- Fuel contaminated/deteriorated
- Slow circuit clogged
- Improper choke operation
- No spark at spark plug (ignition malfunction)

Lean mixture
- Fuel jets clogged
- Float valve faulty
- Float level to low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Throttle valve operation faulty

Rich mixture
- Choke valve stuck closed
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

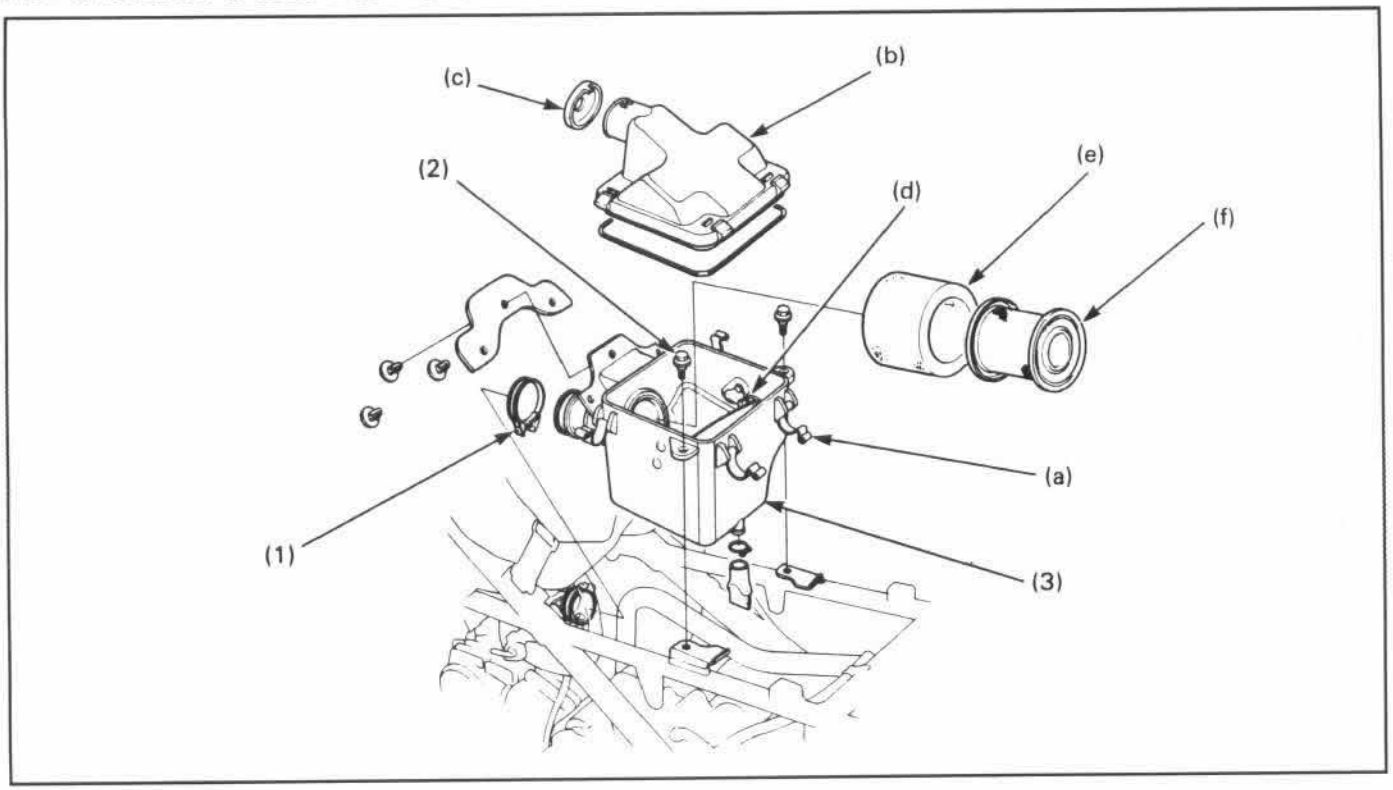
Engine stalls, hard to start, rough idling
- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Air screw misadjusted
- Slow circuit clogged
- Float level misadjusted
- Fuel tank breather tube clogged

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

Air Cleaner Case Removal/Installation



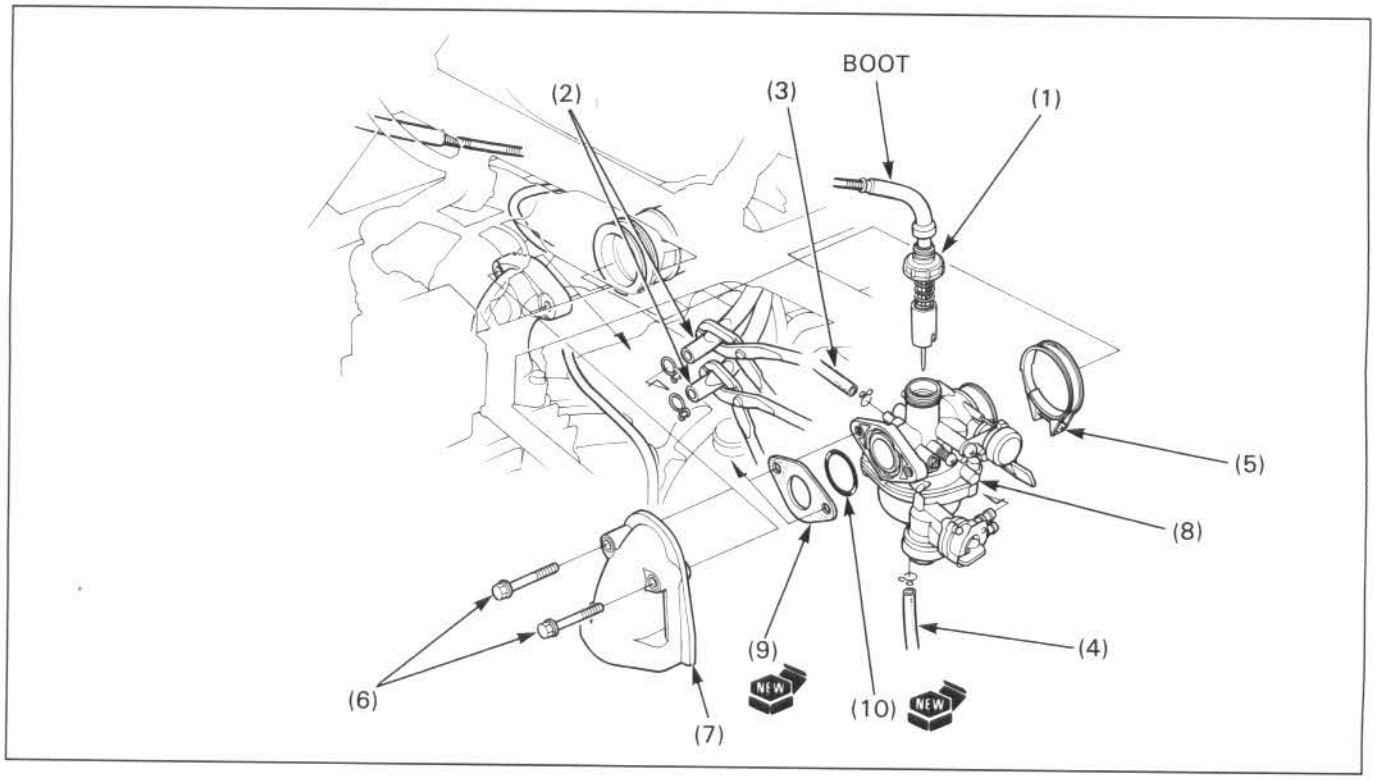
Requisite Service

- Seat removal/installation (page 2–4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Connecting tube band screw	1	Loosen.
(2)	Mounting bolt	2	
(3)	Air cleaner housing	1	
(a)	Clip	4	Release
(b)	Air cleaner case cover	1	
(c)	Air intake restrictor	1	This speed limiting device should only be removed by the customer.
(d)	Air cleaner holder retainer	1	Release
(e)	Air cleaner	1	
(f)	Air cleaner holder	1	

NEW

Carburetor Removal/Installation

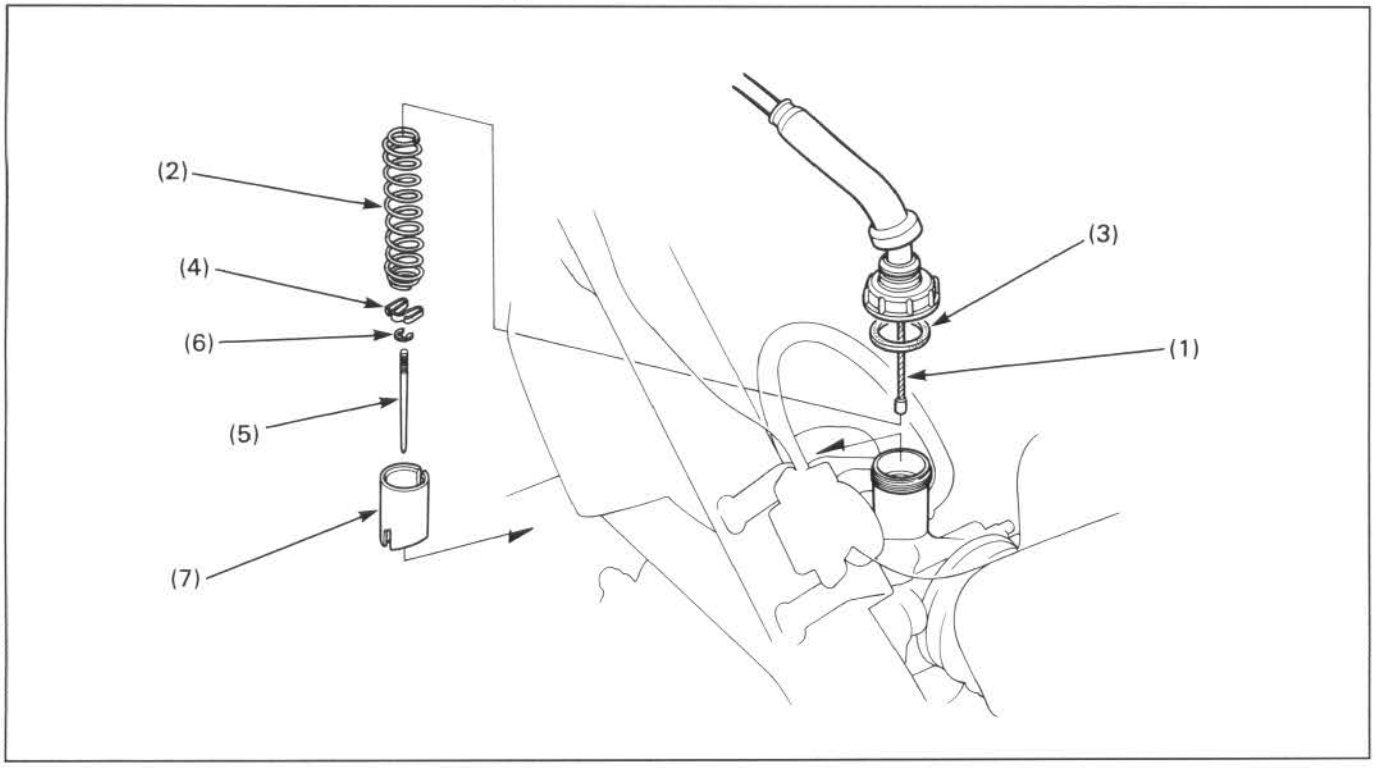


Requisite Service

- Front fender removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Throttle valve assembly	1	Slide the cable boot off the carburetor top and loosen the carburetor top.
(2)	Fuel line	2	NOTE • Clamp off the fuel lines, then disconnect them from the fuel valve.
(3)	Air vent tube	1	
(4)	Carburetor drain tube	1	
(5)	Connecting tube band screw	1	Loosen.
(6)	Carburetor mounting bolt	2	
(7)	Intake manifold cover	1	
(8)	Carburetor	1	
(9)	Gasket	1	
(10)	O-ring	1	

Throttle Valve Disassembly/Assembly



CAUTION

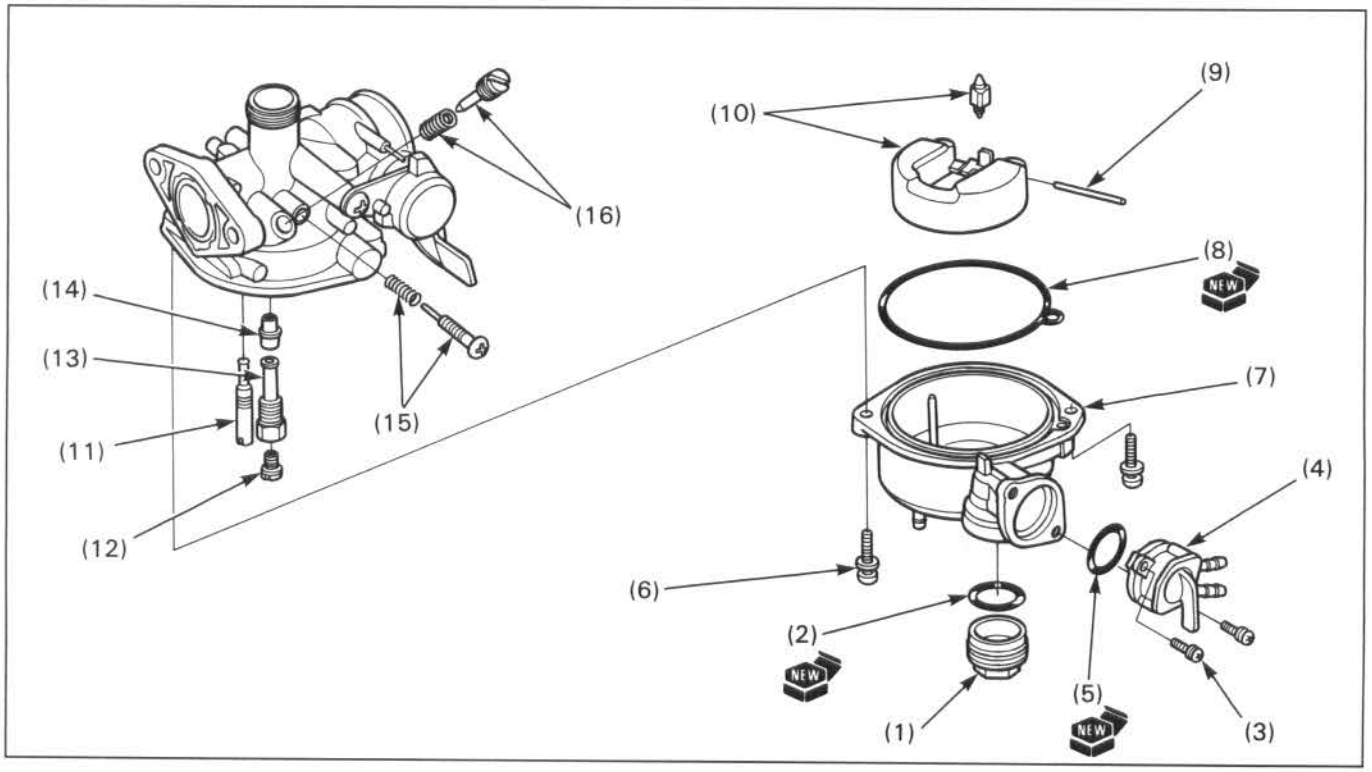
- **The carburetor top is an integral part of the throttle cable assembly. The top cannot be separated from the assembly. Throttle cable and top must be replaced as an assembly.**

Requisite Service

- Throttle valve assembly removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Throttle cable	1	
(2)	Throttle valve spring	1	
(3)	Carburetor top gasket	1	
(4)	Retainer	1	
(5)	Jet needle	1	
(6)	Needle clip	1	Remove from the jet needle. Standard position: 3rd groove
(7)	Throttle valve	1	

Carburetor Disassembly/Assembly



Requisite Service

- Carburetor removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Fuel cup	1	
(2)	O-ring	1	
(3)	Screw	2	
(4)	Fuel valve	1	
(5)	O-ring	1	
(6)	Screw	2	
(7)	Float chamber	1	
(8)	O-ring	1	NOTE • When installing, align the tab of the O-ring with the cut-out in the float chamber.
(9)	Float pin	1	
(10)	Float/float valve	1/1	
(11)	Slow jet	1	
(12)	Main jet	1	
(13)	Needle jet holder	1	
(14)	Needle jet	1	
(15)	Throttle stop screw	1	
(16)	Air screw	1	

Air Screw Adjustment

NOTE

- The air screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new air screw is installed.

CAUTION

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

Turn the air screw clockwise until it seats lightly and back it out 1-3/8 turns. NEW

This is an initial setting prior to the final air screw adjustment.

Warm the engine up to operating temperature.

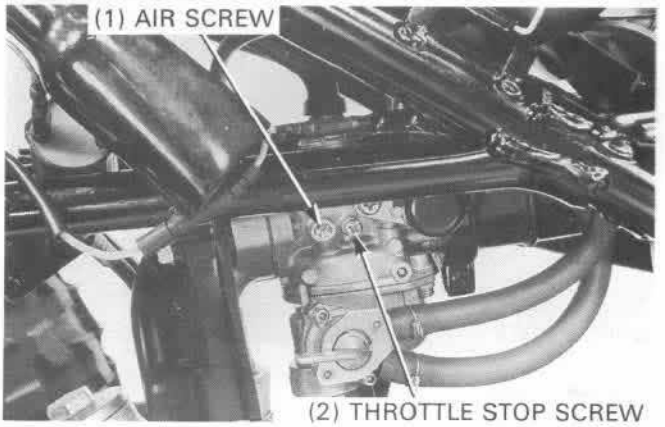
Stop the engine and connect a tachometer.

Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,600 ± 100 rpm

Turn the air screw clockwise until you hear the engine misses or decreases in speed, then counterclockwise until the engine misses or decreases in speed. Center the air screw exactly between these two extreme positions.

Readjust the idle speed with the throttle stop screw, if necessary.



High Altitude Adjustment

Specifications

	Below 5,000 ft (1,500 m)	Above 5,000 ft (1,500 m)
Main jet	#80	#78
Air screw opening	Factory preset	1/8 screw out from factory preset

The carburetor must be adjusted for high altitude riding (above 5,000 ft/1,500 m).

STANDARD SETTING: 5,000 ft (1,500 m) max.
HIGH ALTITUDE SETTING: 5,000 ft (1,500 m) min.

The high altitude carburetor adjustment is performed as follows:

Remove the carburetor (page 5-4).

Remove the float chamber (page 5-6).

Replace the standard main jet with the high altitude type (#78).

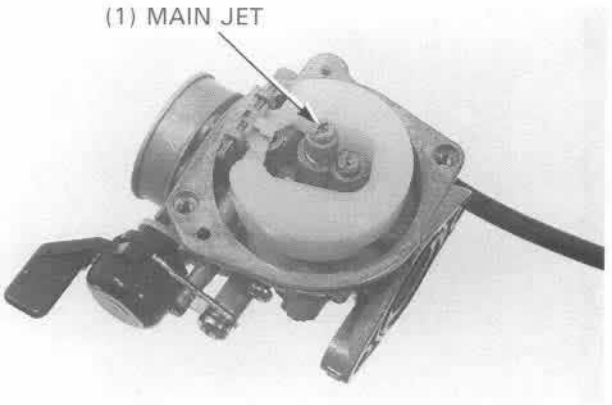
Assemble and install the carburetor.

Turn-out the air screw 1/8 turn.

Start the engine and adjust the idle speed at high altitude to ensure proper high altitude operation.

CAUTION

- **Sustained operation below 5,000 ft (1,500 m) with the high altitude settings may cause engine overheating and damage. Install the #80 main jet and screw in the air screw 1/8 turn, when riding below 5,000 ft (1,500 m).**



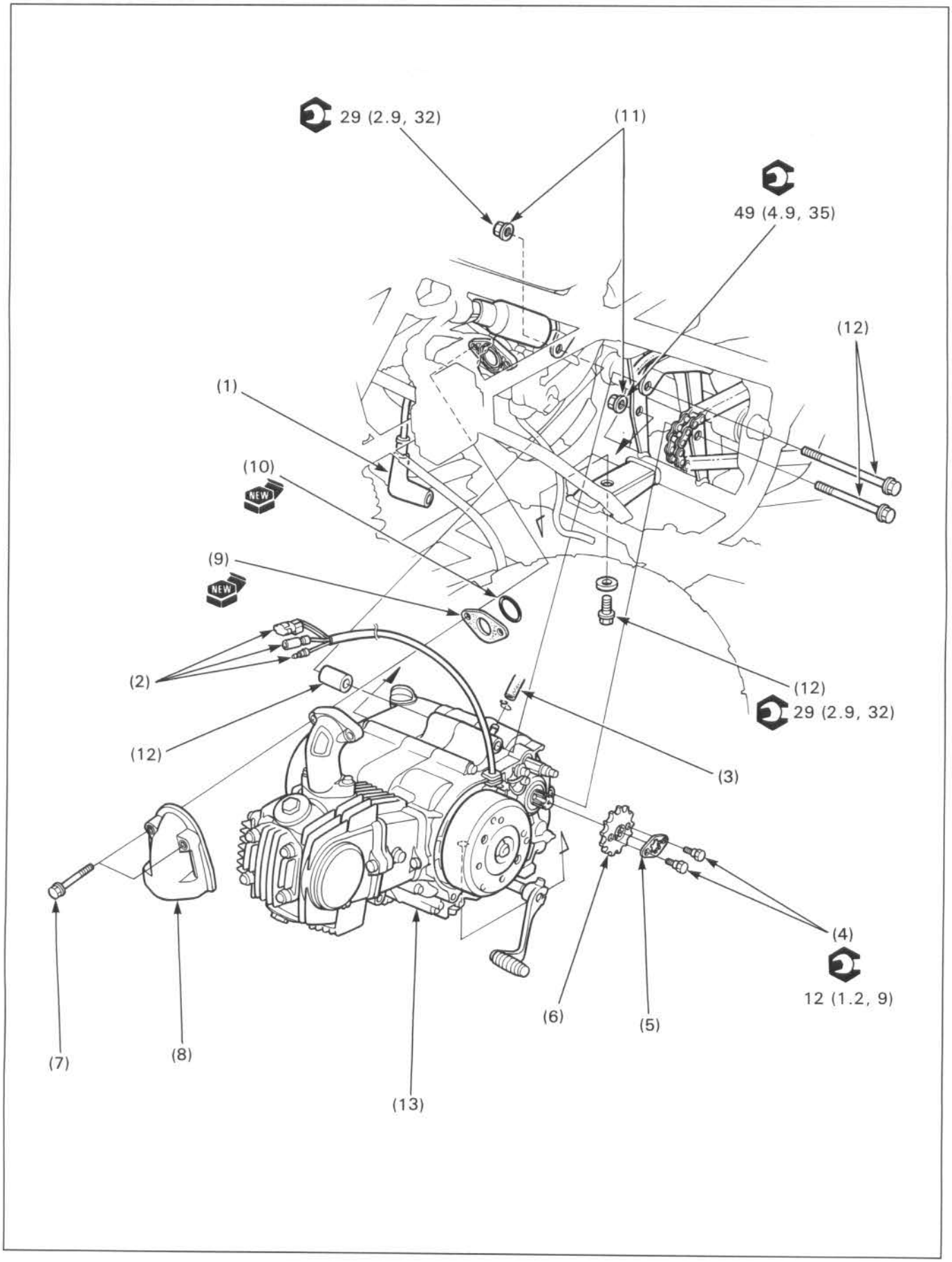
MEMO

6. Engine Removal/Installation

Service Information

- The following components require engine removal for service:
  - —Crankshaft (section 10)
  - —Crankcase (section 10)
  - —Transmission (section 10)
- After installing the engine, adjust the drive chain (page 3-6)

Engine Removal/Installation



Requisite Service

- Exhaust pipe removal/installation (page 2-8)
- Left crankcase cover removal/installation (page 13-6)
- Front fender removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Spark plug cap	1	
(2)	Alternator wire connector	3	NOTE • When installing, route the alternator wire properly.
(3)	Crankcase breather tube	1	
(4)	Drive sprocket bolt	2	
(5)	Drive sprocket retaining plate	1	
(6)	Drive sprocket	1	
(7)	Carburetor mounting bolt	2	
(8)	Intake manifold cover	1	
(9)	Gasket	1	
(10)	O-ring	1	
(11)	Engine mounting nut	2	
(12)	Engine mounting bolt/collar	3/1	
(13)	Engine	1	

MEMO

7. Cylinder Head/Cylinder/Piston

Service Information

- The cylinder head, cylinder and piston can be serviced with the engine in the frame.
- Camshaft and rocker arm lubricating oil is fed through the oil passage in the cylinder and cylinder head. Be sure oil passage is not clogged before installing the cylinder and cylinder head.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with cleaning solvent and dry them by blowing them off with compressed air before inspection.
- Be careful not to damage the mating surfaces by using a screwdriver when removing the cylinder. Do not strike the cylinder too hard during removal, even with a rubber or plastic mallet, to prevent the possibility of damage to the cylinder fins.
- Take care not to damage the cylinder wall and piston.
  Refer to section 10 of the Common Service Manual for piston ring removal/installation.

Troubleshooting

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

Compression too low, hard starting or poor performance at low speed

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

Compression too high

- Excessive carbon built-up on piston or combustion chamber

Excessive smoke

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

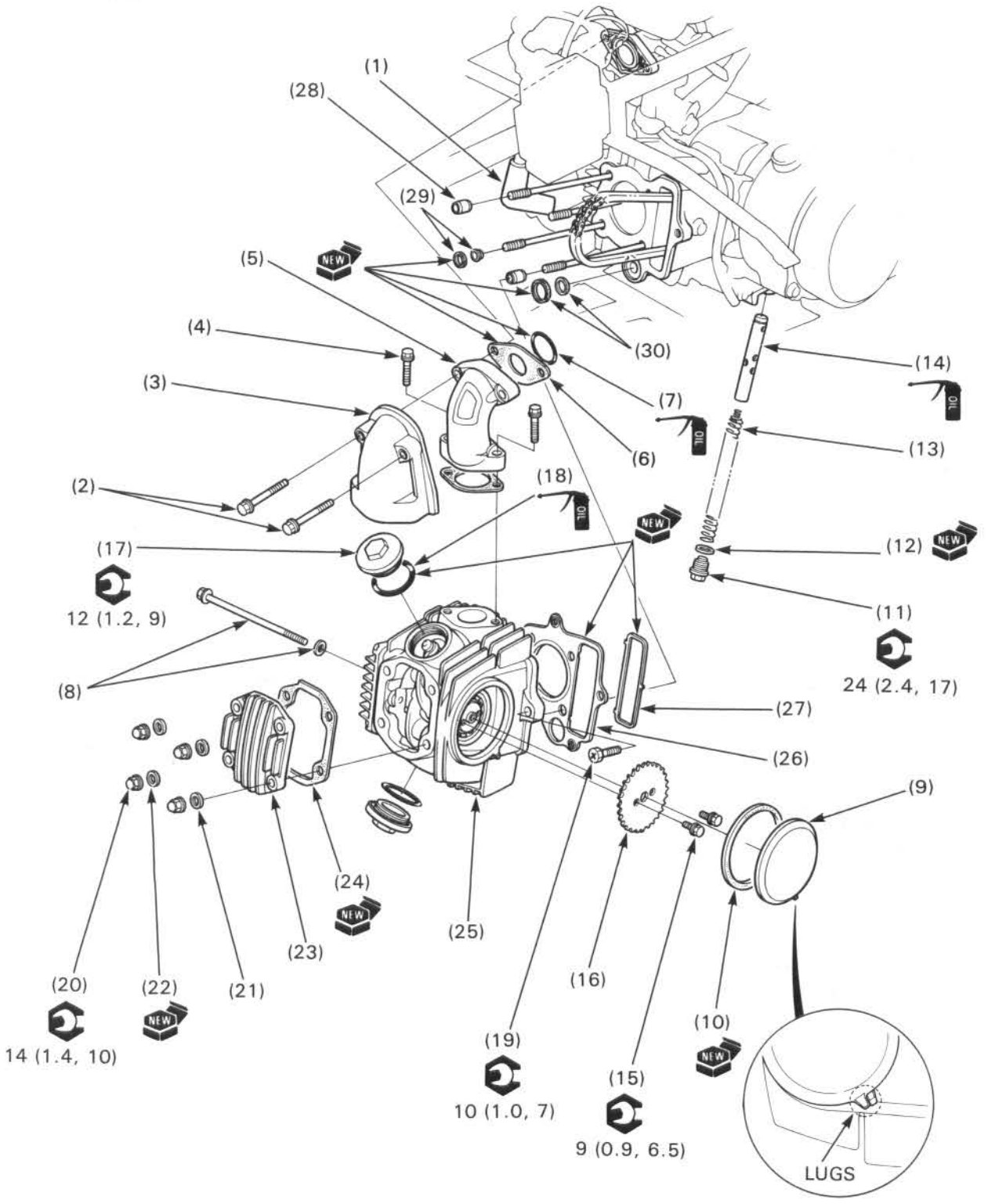
Excessive noise

- Incorrect valve clearance
- Sticking valve or broken valve spring
- Worn or damaged camshaft
- Worn or damaged rocker arm and/or shaft
- Worn or damaged cam sprocket teeth
- Loose or worn cam chain
- Worn or damaged cam chain tensioner
- Loose spark plug

Rough idle

- Low cylinder compression
- Faulty decompressor cam one-way clutch

Cylinder Head Removal/Installation



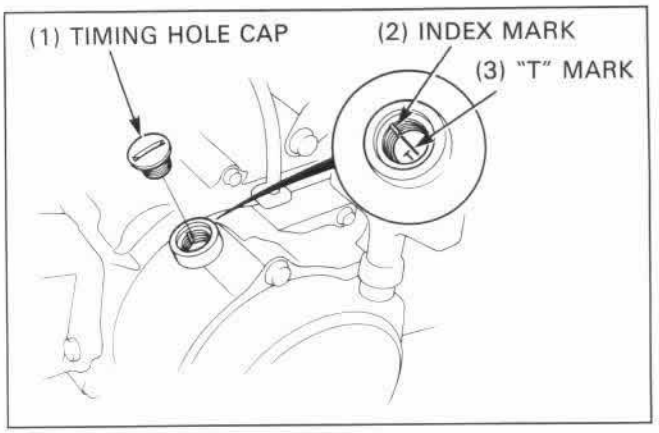
Requisite Service

- Exhaust pipe removal/installation (page 2-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Spark plug cap	1	
(2)	Carburetor mounting bolt	2	
(3)	Intake manifold cover	1	
(4)	Intake mainfold bolt	2	
(5)	Intake manifold	1	
(6)	Gasket	2	
(7)	O-ring	1	
(8)	Through bolt/washer	1/1	
(9)	Cylinder head left side cover	1	NOTE • If it is difficult to remove the cover, loosely install the through bolt and lightly tap it. • When installing, align the lugs of the cover and cylinder head as shown.
(10)	Side cover gasket	1	
(11)	Sealing bolt	1	
(12)	Sealing washer	1	
(13)	Cam chain tensioner spring	1	Inspection (page 7-4) NOTE • Install with the tightly wound coil facing up.
(14)	Cam chain tensioner push rod	1	Inspection (page 7-4) Oil filling (page 7-5)
(15)	Cam sprocket bolt	2	Removal/installation (page 7-4)
(16)	Cam sprocket	1	
(17)	Valve adjusting hole cap	2	
(18)	O-ring	2	
(19)	Cylinder head bolt	1	
(20)	Cylinder head cover cap nut	4	
(21)	Washer	3	
(22)	Sealing (copper) washer	1	NOTE • Note the installation position.
(23)	Cylinder head cover	1	NOTE • Install with the arrow mark facing down.
(24)	Cylinder head cover gasket	1	
(25)	Cylinder head assembly	1	
(26)	Cylinder head gasket	1	
(27)	Seal rubber	1	
(28)	Dowel pin	2	
(29)	O-ring/collar	1/1	
(30)	O-ring/collar	1/1	

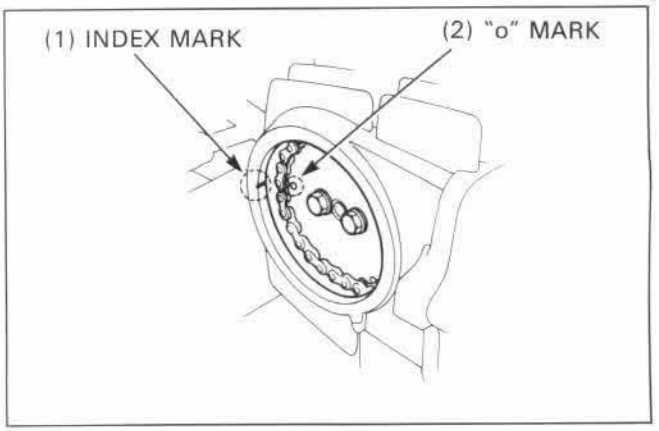
Cam Sprocket Removal/Installation

Remove the timing hole cap from the left crankcase cover. Turn the crankshaft with the recoil starter and align the "T" mark on the flywheel with the index mark on the left crankcase cover. At the same time, align the "o" mark on the cam sprocket with the index mark on the cylinder head. Then remove the cam sprocket bolts and cam sprocket.



CAUTION

- **When turning the crankshaft, be careful not to jam the cam chain on the crankshaft.**

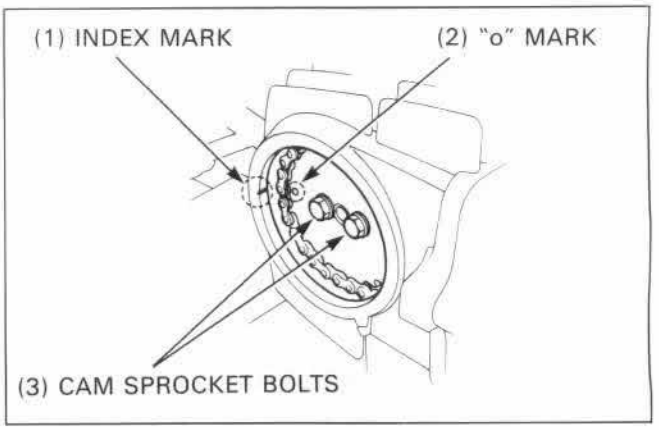


Align the "o" mark on the cam sprocket with the index mark on the cylinder head and install the cam chain over the cam sprocket.
Install the dowel pin in the cam sprocket.
Align the bolt holes in the cam sprocket and camshaft, and install the cam sprocket bolts.

Torque: 9 N·m (0.9 kg-m, 6.5 ft-lb)

NOTE

- Be careful not to drop the cam sprocket bolt into the crankcase.



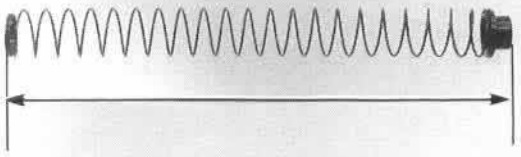
Install the timing hole cap.

Torque: 3 N·m (0.3 kg-m, 2.2 ft-lb) NEW

Cam Chain Tensioner Inspection

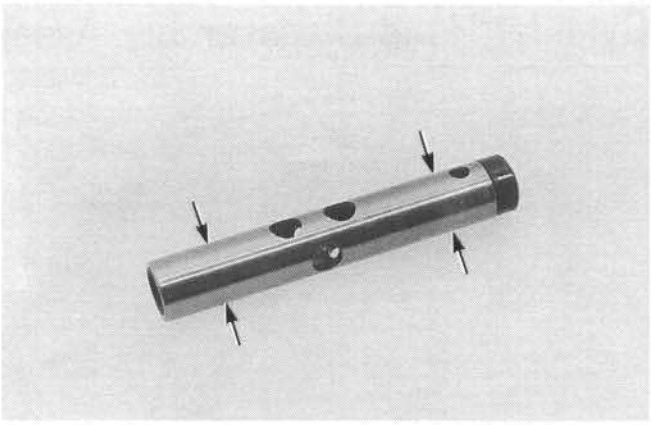
Measure the cam chain tensioner spring free length.

Service limit: 100.0 mm (3.94 in)



Check the cam chain tensioner push rod for clogging or damage.
Measure the push rod O.D.

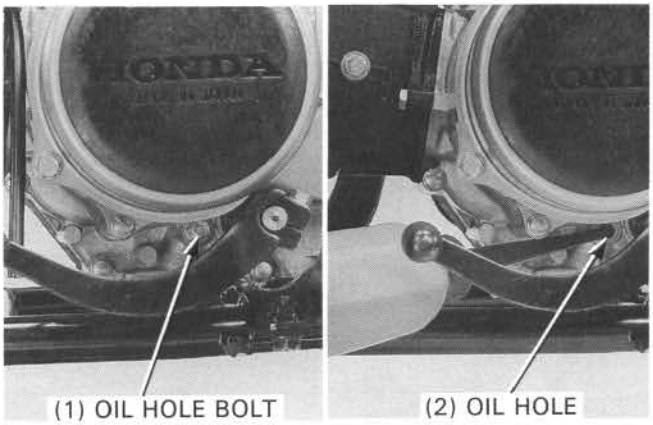
Service limit: 11.94 mm (0.470 in)



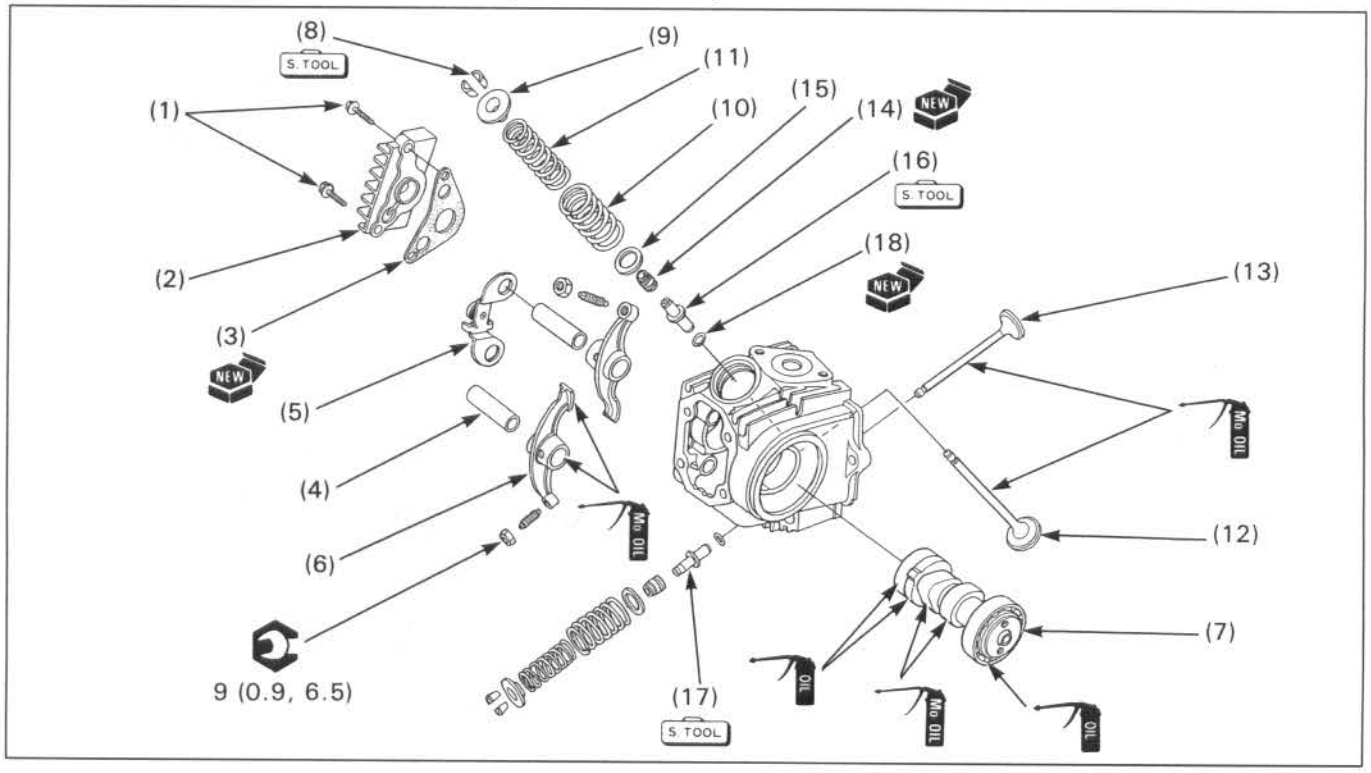
Cam Chain Tensioner Oil Filling

After installing the cam chain tensioner sealing bolt, remove the oil hole bolt and sealing washer.
Pour more than 1 cc of recommended engine oil from the oil hole.

Install the bolt with a new sealing washer.



Cylinder Head Disassembly/Assembly



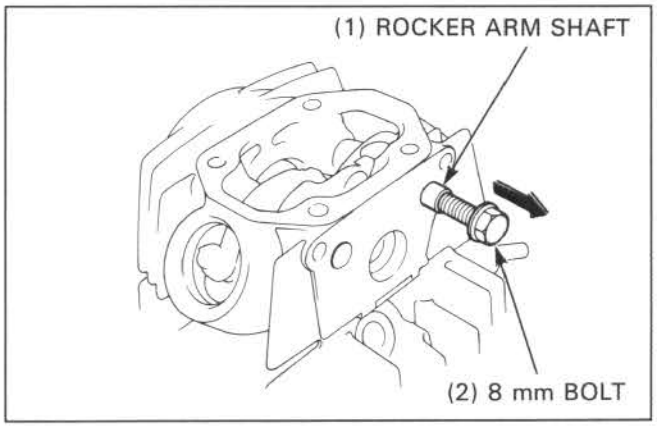
Requisite Service

- Cylinder head removal/installation (page 7-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Bolt	2	
(2)	Cylinder head cover, right side	1	
(3)	Gasket	1	
(4)	Rocker arm shaft	2	Removal (page 7-7)
(5)	Stopper plate	1	
(6)	Rocker arm	2	
(7)	Camshaft	1	Decompressor cam inspection (page 7-7)
(8)	Valve cotter	4	Use the valve spring compressor (07757-0010000) and attachment (07959-KM30101).
(9)	Spring retaier	2	
(10)	Outer valve spring	2	
(11)	Inner valve spring	2	
(12)	Intake valve	1	
(13)	Exhaust valve	1	
(14)	Stem seal	2	
(15)	Spring seat	2	
(16)	Intake valve guide	1	Use the valve guide driver (07942-MA60000) and valve guide reamer, 5 mm (07984-MA60001 or 07984-MA6000C).
(17)	Exhaust valve guide	1	
(18)	O-ring	2	

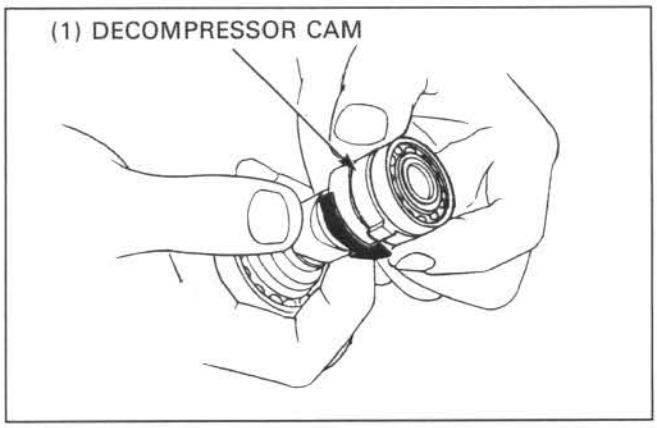
Rocker Arm Shaft Removal

Screw an 8 mm bolt into the rocker arm shaft and pull out the shaft. Do this for both shafts.

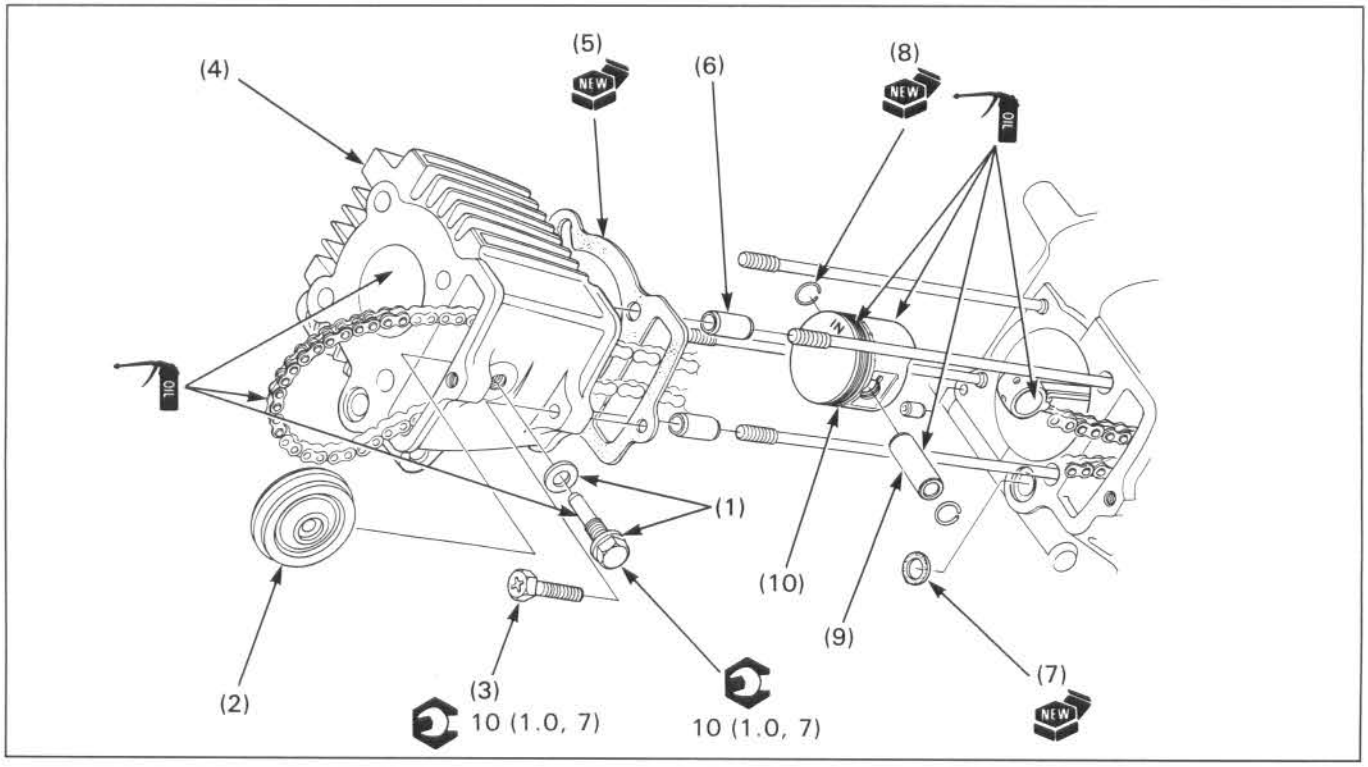


Decompressor Cam Inspection

Check that the decompressor cam turns smoothly in the direction shown by the arrow. Also check that the cam does not turn in the opposite direction.



Cylinder, Piston Removal/Installation



Requisite Service

- Cylinder head removal/installation (page 7-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Guide roller pin bolt/washer	1/1	
(2)	Cam chain guide roller	1	
(3)	Cylinder bolt	1	
(4)	Cylinder	1	NOTE • Do not let the cam chain fall into the crankcase. • When installing, be careful not to damage the piston rings.
(5)	Gasket	1	
(6)	Dowel pin	2	
(7)	O-ring	1	
(8)	Piston pin clip	2	
(9)	Piston pin	1	
(10)	Piston	1	Install with the "IN" mark on the intake side. Refer to section 10 of the Common Service Manual for piston ring installation.

8. Clutch/Gearshift Linkage

Service Information

- This section covers the centrifugal clutch, change clutch and gearshift linkage service. These parts can be serviced with the engine installed in the frame.

Troubleshooting

Clutch slips when accelerating
- Incorrect clutch adjustment
- Faulty clutch lifter mechanism
- Worn clutch discs and/or linings
- Weak clutch springs.

Clutch will not disengage
- Incorrect clutch adjustment
- Faulty clutch lifter mechanism
- Warped clutch plates
- Loose clutch lock nut
- Oil level too high, improper oil viscosity or oil additive used

Vehicle creeps with the engine idling
- Faulty centrifugal clutch
- Broken one-way clutch

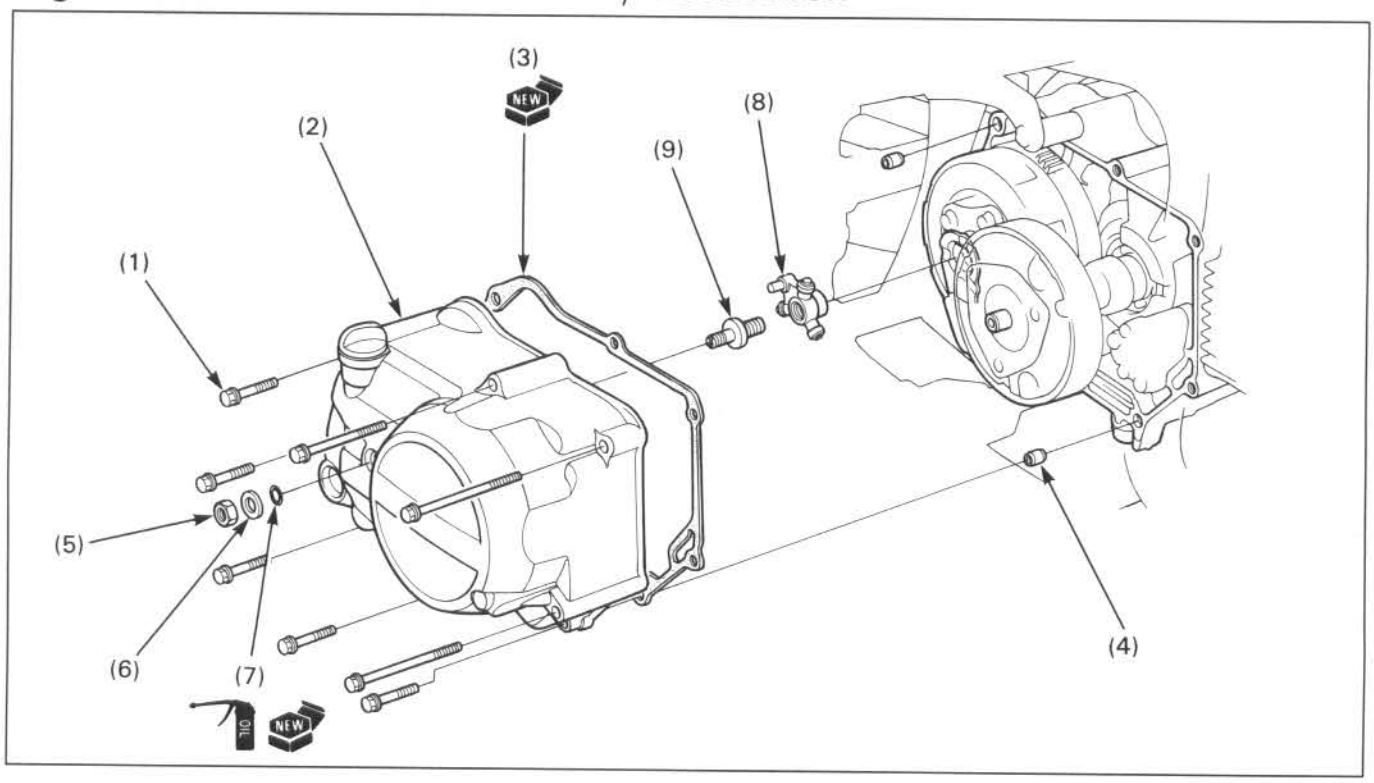
Clutch operation feels rough
- Rough change clutch outer slots

Hard to shift
- Incorrect clutch adjustment
- Faulty clutch lifter mechanism
- Damaged drum stopper plate
- Damaged gearshift spindle

Transmission jumps out of gear
- Weak or damaged drum stopper arm spring
- Damaged drum stopper arm

Gearshift pedal will not return
- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

Right Crankcase Cover Removal/Installation



NOTE

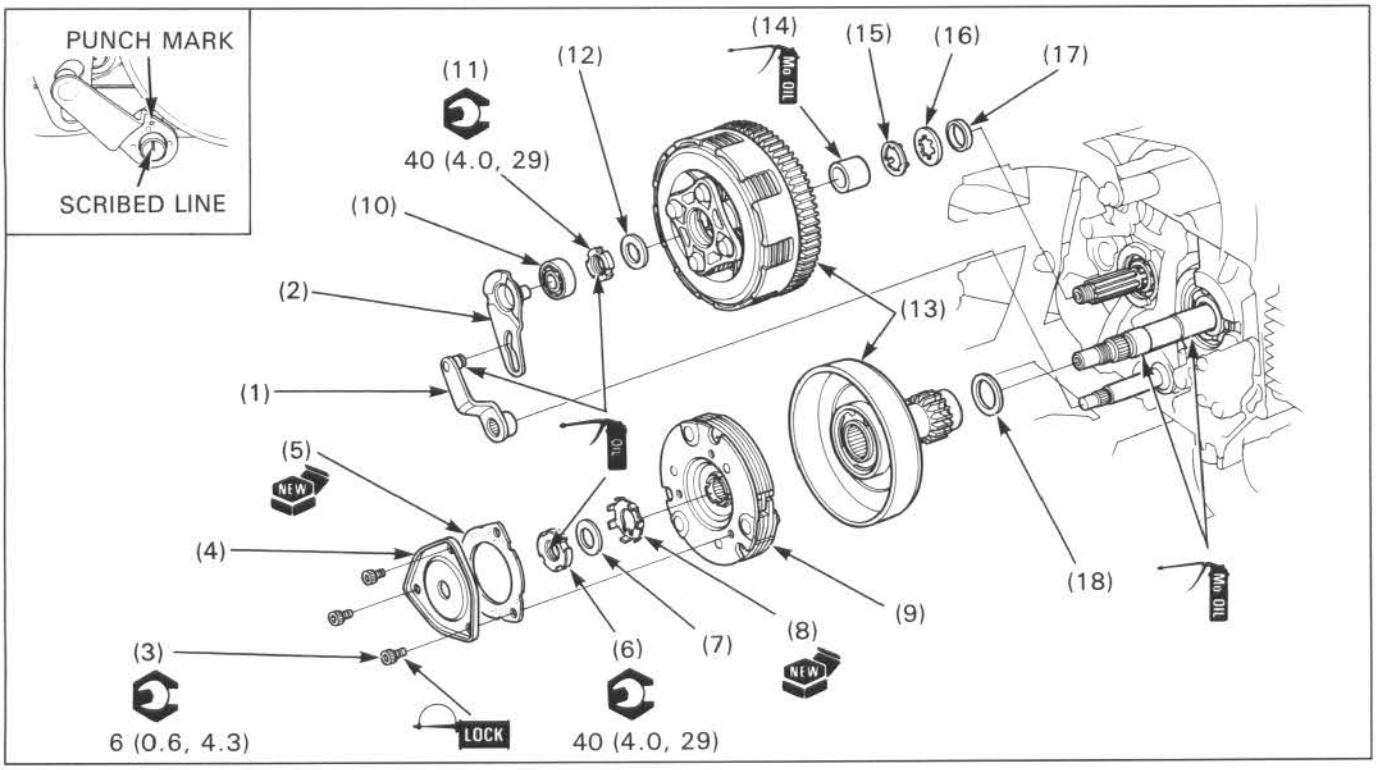
- After installing the right crankcase cover, adjust the clutch free play.

Requisite Service

- Engine oil draining/filling
- Right footpeg removal/installation (page 2-9)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Bolt	8	
(2)	Right crankcase cover	1	
(3)	Gasket	1	
(4)	Dowel pin	2	
(5)	Clutch adjusting bolt lock nut	1	
(6)	Washer	1	
(7)	O-ring	1	
(8)	Clutch lifter	1	NOTE • When installing, align the boss with the hole in right crankcase cover.
(9)	Clutch adjusting bolt	1	Remove from the lifter.

Clutch Removal/Installation



Requisite Service

- Right crankcase cover removal/installation (page 8-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clutch lifter lever	1	NOTE • When installing, align the punch mark with the scribed line on the gearshift spindle.
(2)	Clutch lifter cam	1	
(3)	Socket bolt	3	
(4)	Oil filter rotor cover	1	
(5)	Gasket	1	
(6)	Centrifugal clutch lock nut	1	Removal/installation (page 8-4)
(7)	Lock washer B	1	
(8)	Lock washer A	1	
(9)	Clutch shoe assembly	1	Disassembly/assembly (page 8-6)
(10)	Lifter bearing	1	
(11)	Change clutch lock nut	1	Removal/installation (page 8-4)
(12)	Lock washer	1	
(13)	Change clutch assembly/clutch drum	1/1	Disassembly/assembly (pages 8-6, 8-7)
(14)	Clutch outer guide	1	
(15)	Stopper plate	1	NOTE • When installing, insert the tabs into the spline washer grooves.
(16)	Spline washer	1	
(17)	Collar	1	
(18)	Thrust washer	1	

Centrifugal Clutch Lock Nut Removal/ Installation

Straighten the lock washer tab.
Install the clutch holder onto the drive plate with the oil filter rotor cover screws.

S. TOOL

Clutch holder — **07HMB-HB70100 or 07GMB-HB30100 (U.S.A. only)**

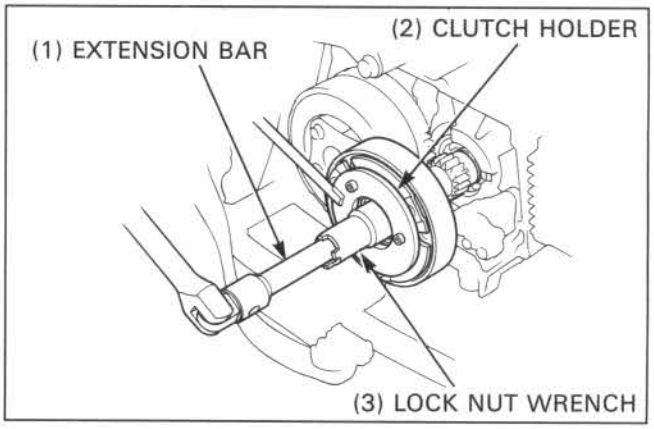
Hold the drive plate with the holder and remove the lock nut using the lock nut wrench and extension bar.

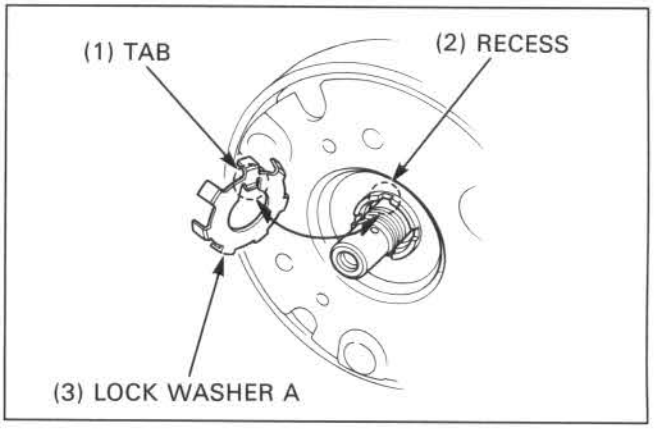
S. TOOL

Lock nut wrench, 20 × 24mm — **07716-0020100**
Extension bar — **07716-0020500**

Remove lock washers B and A.

Install a new lock washer A, aligning the tab with the recess in the drive plate.
Install lock washer B with the "OUT SIDE" mark facing out.
Install the lock nut.





Install the clutch holder onto the drive plate with the oil filter rotor cover screws.

S. TOOL

Clutch holder — **07HMB-HB70100 or 07GMB-HB30100 (U.S.A. only)**

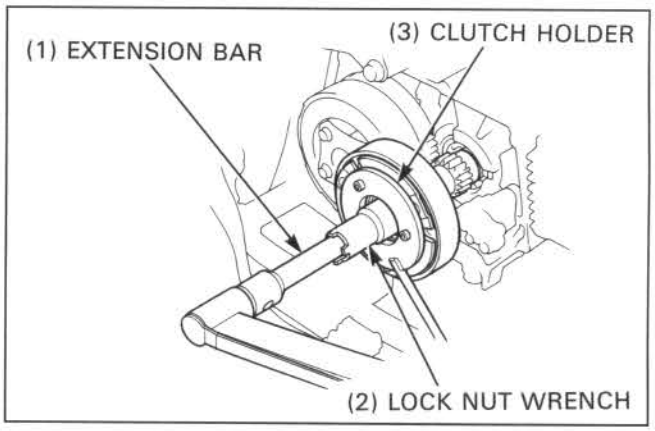
Hold the drive plate with the holder and tighten the lock nut using the lock nut wrench and extension bar.

S. TOOL

Lock nut wrench, 20 × 24 mm — **07716-0020100**
Extension bar — **07716-0020500**

Torque: 40 N·m (4.0 kg-m, 29 ft-lb)

Bend tab of lock washer B up into the lock nut groove.



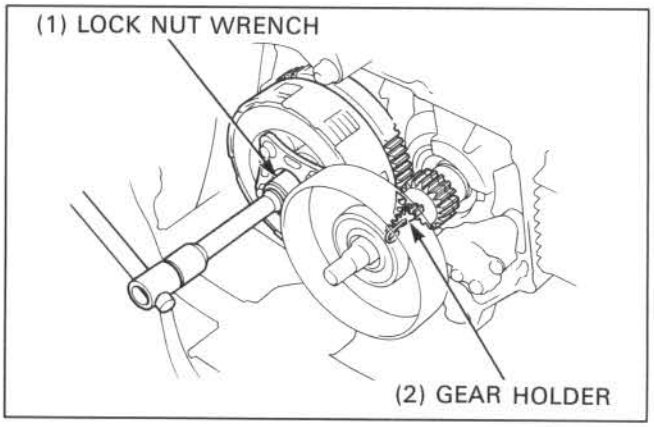
Change Clutch Lock Nut Removal/Installation

Hold the change clutch with the gear holder and remove the lock nut with the lock nut wrench.

S. TOOL

Gear holder — **07724-0010200**
Lock nut wrench, 18 mm — **07HMA-GN80100**

Remove the lock washer.

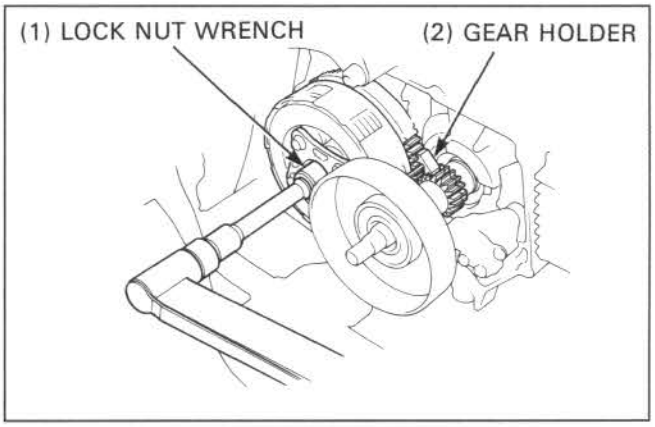


Install the lock washer with the "OUT SIDE" mark facing out.
Install the lock nut.
Hold the change clutch with the gear holder and tighten the lock nut with the lock nut wrench.

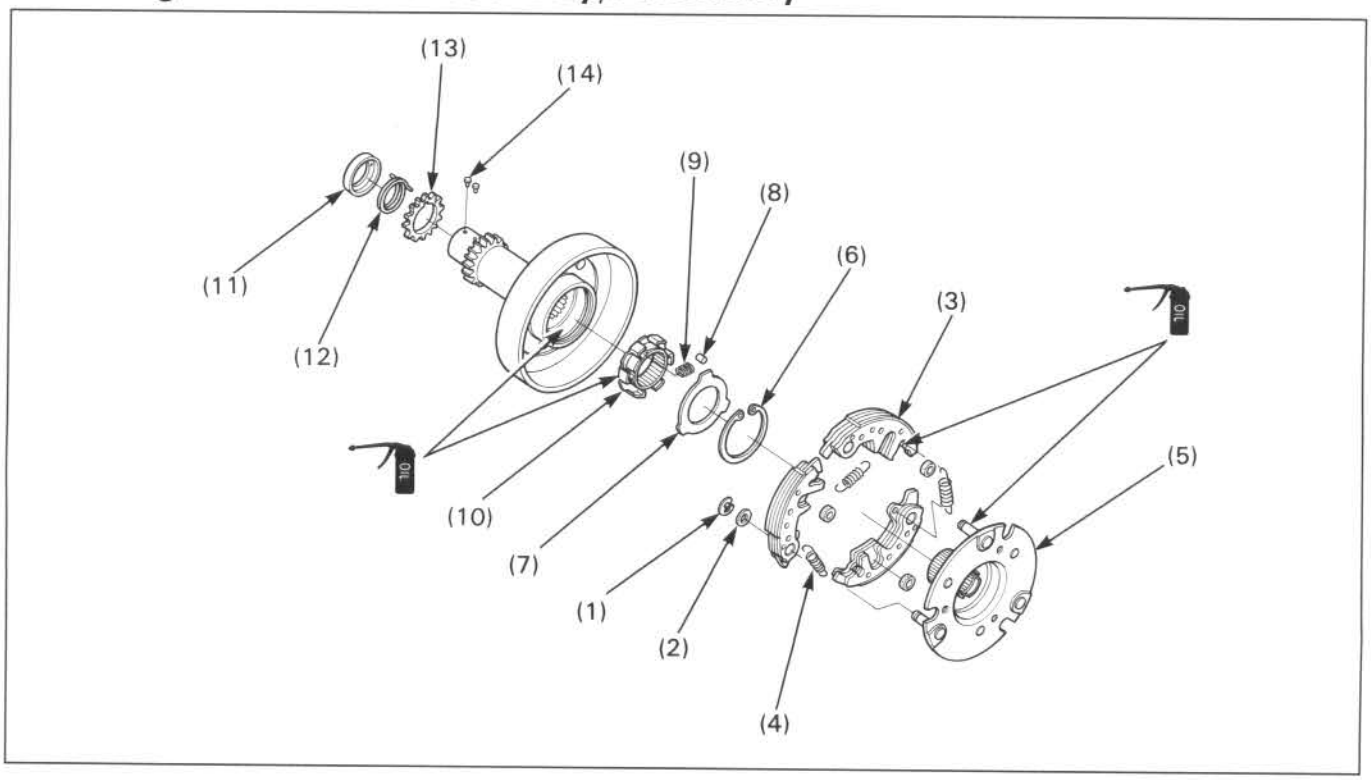
S. TOOL

Gear holder	**07724-0010200**
Lock nut wrench, 18 mm	**07HMA-GN80100**

Torque: 40 N·m (4.0 kg-m, 29 ft-lb)



Centrifugal Clutch Disassembly/Assembly

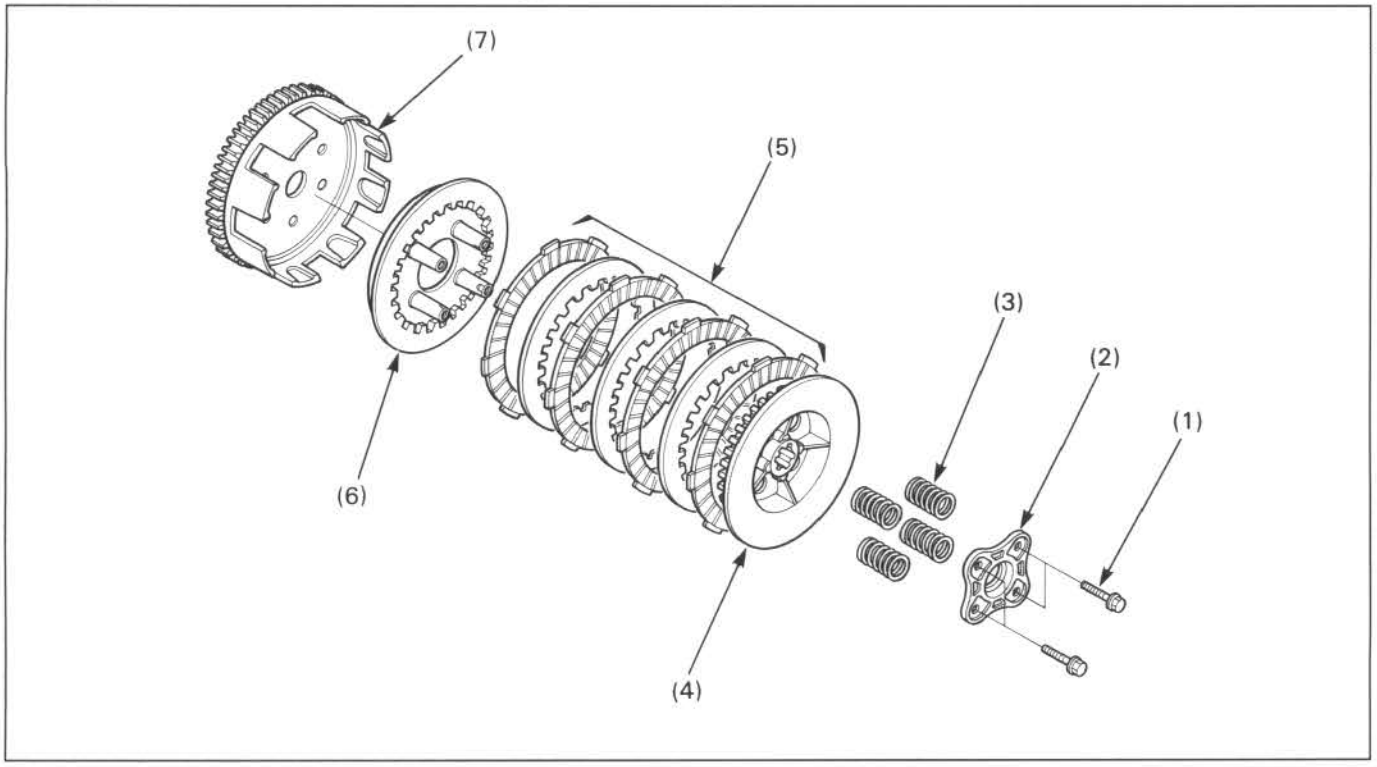


Requisite Service

- Clutch Removal/Installation (page 8-3)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
	Clutch shoe		
(1)	Circlip	3	
(2)	Washer	3	
(3)	Clutch shoe	3	
(4)	Clutch shoe spring	3	
(5)	Drive plate	1	
	One-way clutch		
(6)	Circlip	1	
(7)	Washer	1	
(8)	Roller	6	
(9)	Spring	6	
(10)	One-way clutch inner	1	
	Sub-gear		
(11)	Side collar	1	NOTE • When installing, press in until the end is flush with the primary drive gear end.
(12)	Sub-gear spring	1	
(13)	Sub-gear	1	
(14)	Stopper pin	2	

Change Clutch Disassembly/Assembly

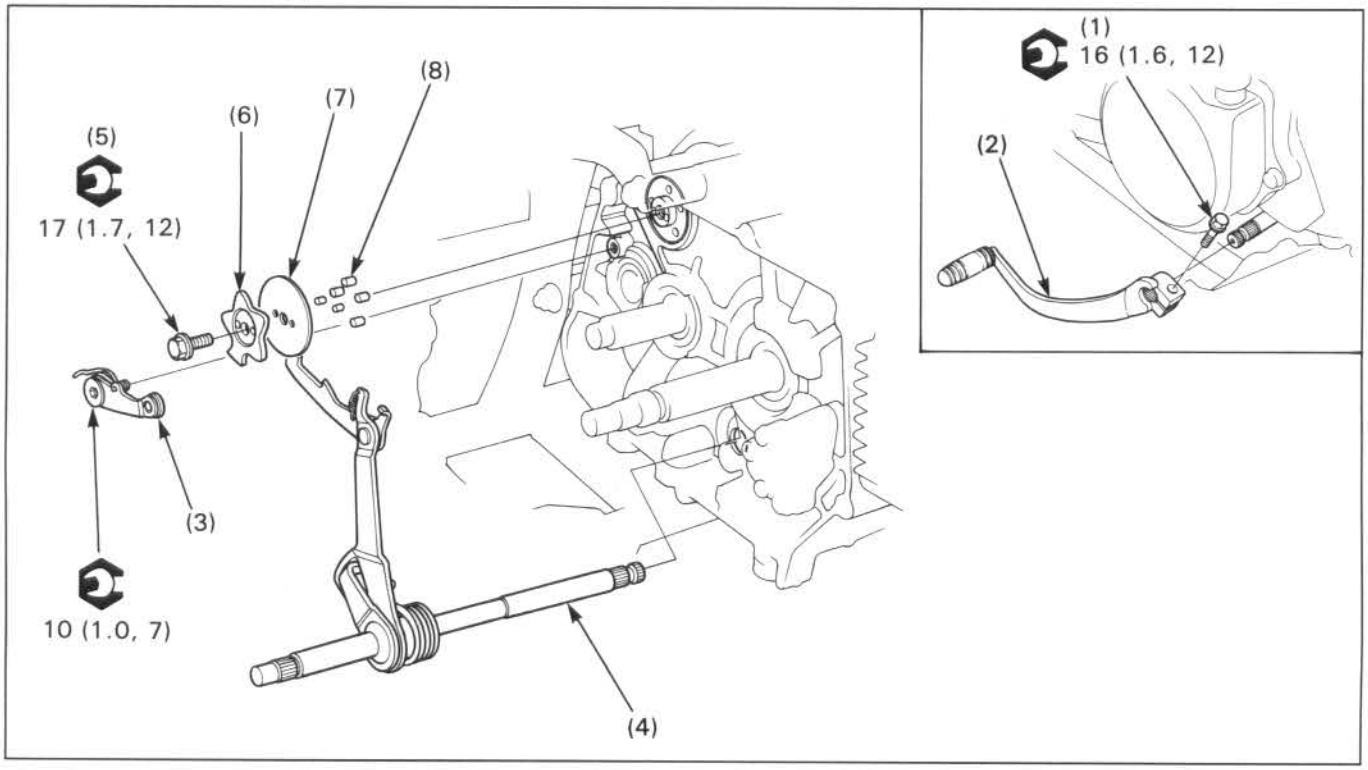


Requisite Service

- Clutch removal/installation (page 8-3)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Bolt	4	
(2)	Clutch lifter plate	1	
(3)	Clutch spring	4	
(4)	Clutch center	1	
(5)	Clutch disc/plate	4/3	
(6)	Clutch pressure plate	1	
(7)	Clutch outer	1	

Gearshift Linkage Removal/Installation



Requisite Service

- Clutch Removal/Installation (page 8-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Gearshift pedal bolt	1	
(2)	Gearshift pedal	1	
(3)	Drum stopper arm	1	Remove by loosening the socket bolt.
(4)	Gearshift spindle	1	
(5)	Stopper plate bolt	1	
(6)	Drum stopper plate	1	
(7)	Shift drum side plate	1	
(8)	Dowel pin	6	

9. Recoil Starter

Service Information

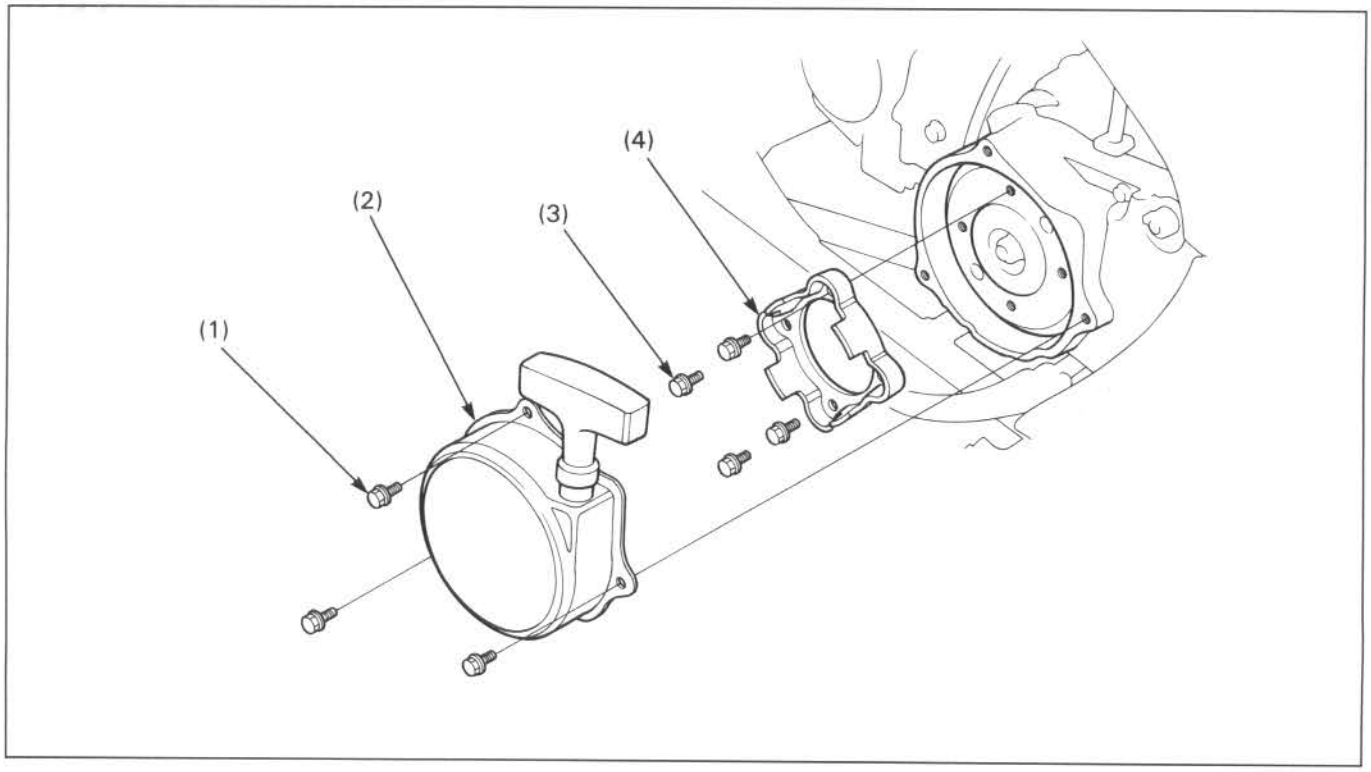
- The recoil starter can be serviced with the engine installed in the frame.

Troubleshooting

Engine does not turn when operating recoil starter
- Faulty recoil starter ratchet
- Faulty recoil starter reel
- Faulty starter driven pulley

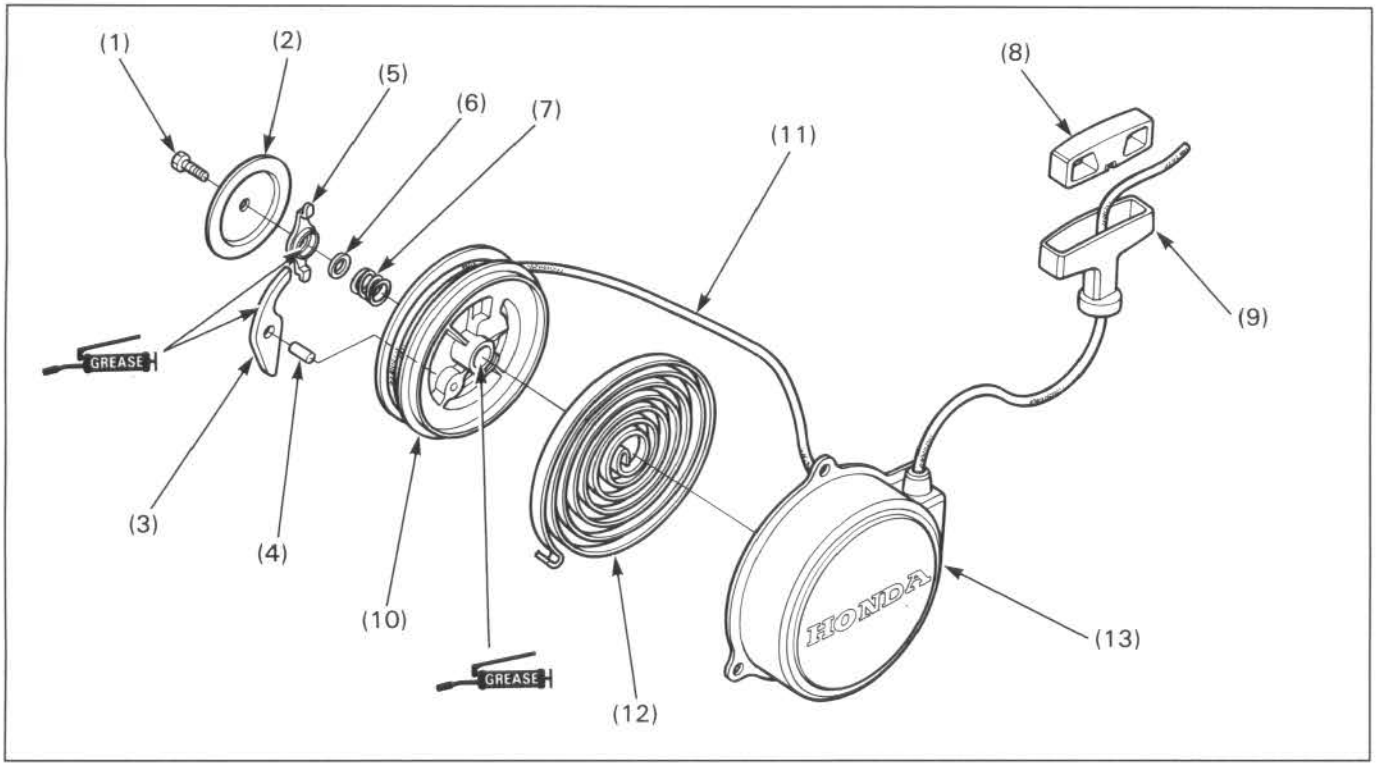
Starter rope does not recoil
- Faulty recoil spring
- Faulty ratchet and ratchet guide

Recoil Starter Removal/Installation



	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Bolt	3	
(2)	Recoil starter	1	
(3)	Bolt	4	
(4)	Starter driven pulley	1	

Recoil Starter Disassembly/Assembly



Requisite Service

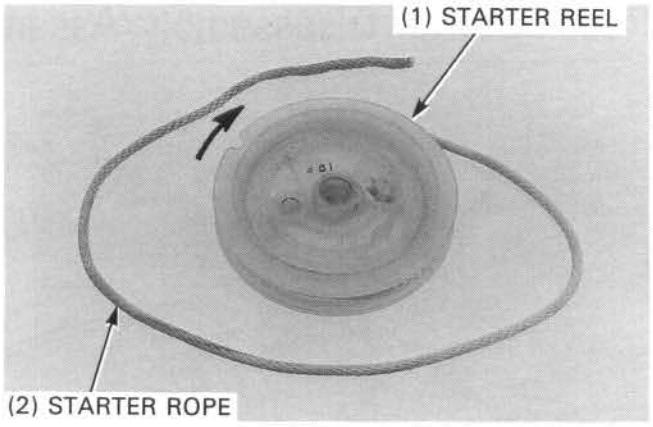
- Recoil starter removal/installation (page 9-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Bolt	1	
(2)	Ratchet cover	1	
(3)	Ratchet	1	
(4)	Ratchet pin	1	
(5)	Ratchet guide	1	
(6)	Spring cover	1	
(7)	Friction spring	1	
(8)	Starter grip	1	Slide the grip cover, untie starter rope end then remove the grip.
(9)	Grip cover	1	Assembly (page 9-4)
(10)	Starter reel	1	
(11)	Starter rope	1	
(12)	Recoil spring	1	NOTE • Do not remove the spring unless necessary. **CAUTION** • **Wear eye protection and use care when removing and installing the spring. The spring can pop out of the housing if care is not used.**
(13)	Recoil starter case	1	

Recoil Starter Reel Assembly

Install the starter rope and tie the rope end.

Wind the rope around the starter reel 3-1/2 turns in a clockwise direction as viewed from the ratchet side as shown.
Rest the rope in the starter reel notch.

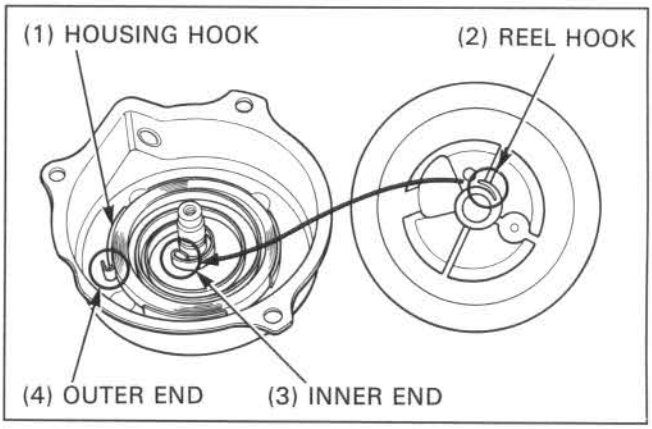


Install the recoil spring by hooking its outer end on the starter housing hook.

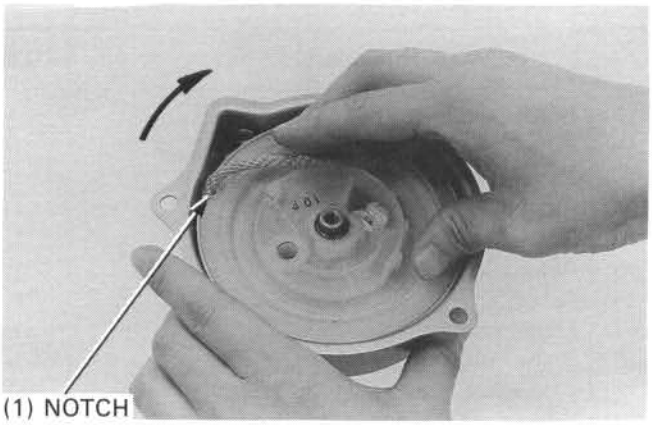
CAUTION

- **Wear eye protection and use care when installing the recoil spring. The spring can pop out of the housing if care is not used.**

Apply grease to the starter reel shaft of the housing and install the starter reel by hooking the recoil spring inner end on the starter reel hook.



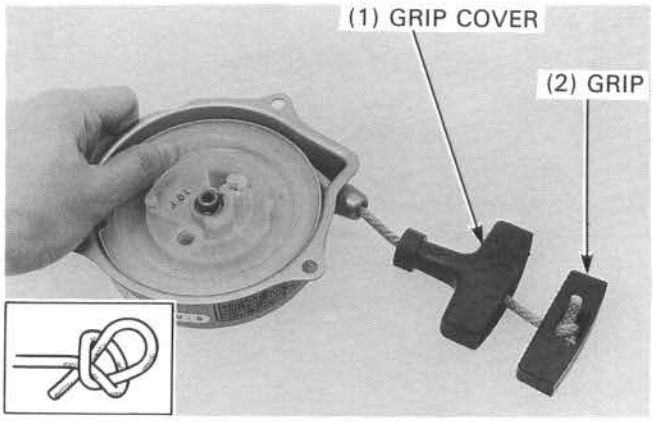
With the rope extending from the starter reel notch, preload the recoil spring by turning the starter reel 4 turns clockwise.



Route the rope end through the starter housing hole and install the starter grip cover and grip.

Tie the rope end as shown.

Install the starter grip cover over the grip.



10. Crankcase/Transmission/Crankshaft

Service Information

- The crankcase halves must be separated to service the crankshaft and transmission. To service these parts, the engine must be removed from the frame.

Troubleshooting

Excessive noise

- Worn connecting rod big end bearing
- Worn connecting rod small end bearing
- Worn crankshaft main journal bearing
- Worn, seized or chipped transmission gear
- Worn or damaged transmission bearing

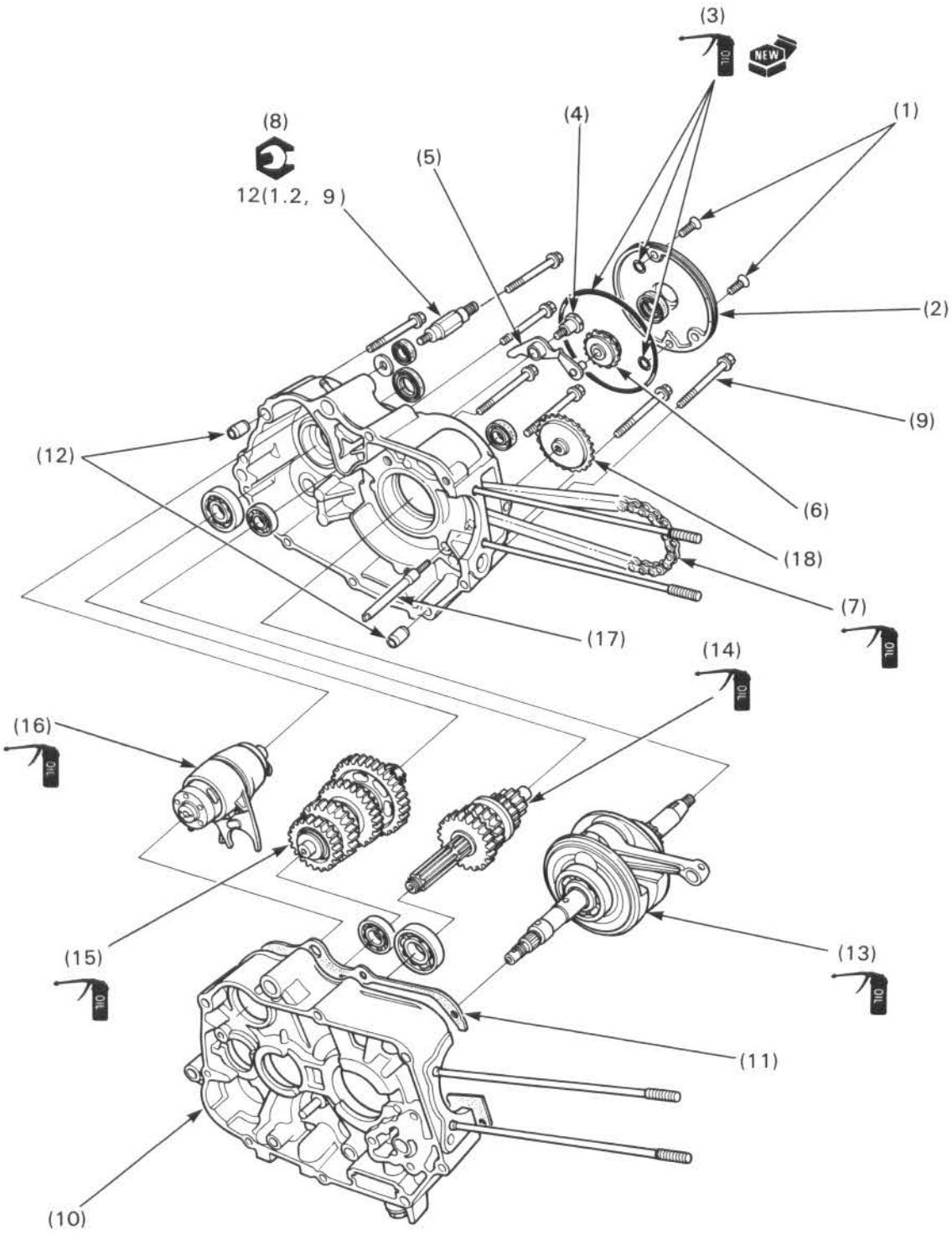
Hard to shift

- Bent shift fork
- Damaged shift drum guide groove
- Damaged shift fork guide pin

Transmission jumps out of gear

- Worn gear dogs or slots
- Worn shift drum guide groove
- Worn shift fork guide pin
- Worn shift fork groove in gear

Crankshaft, Transmission Removal/Installation



CAUTION

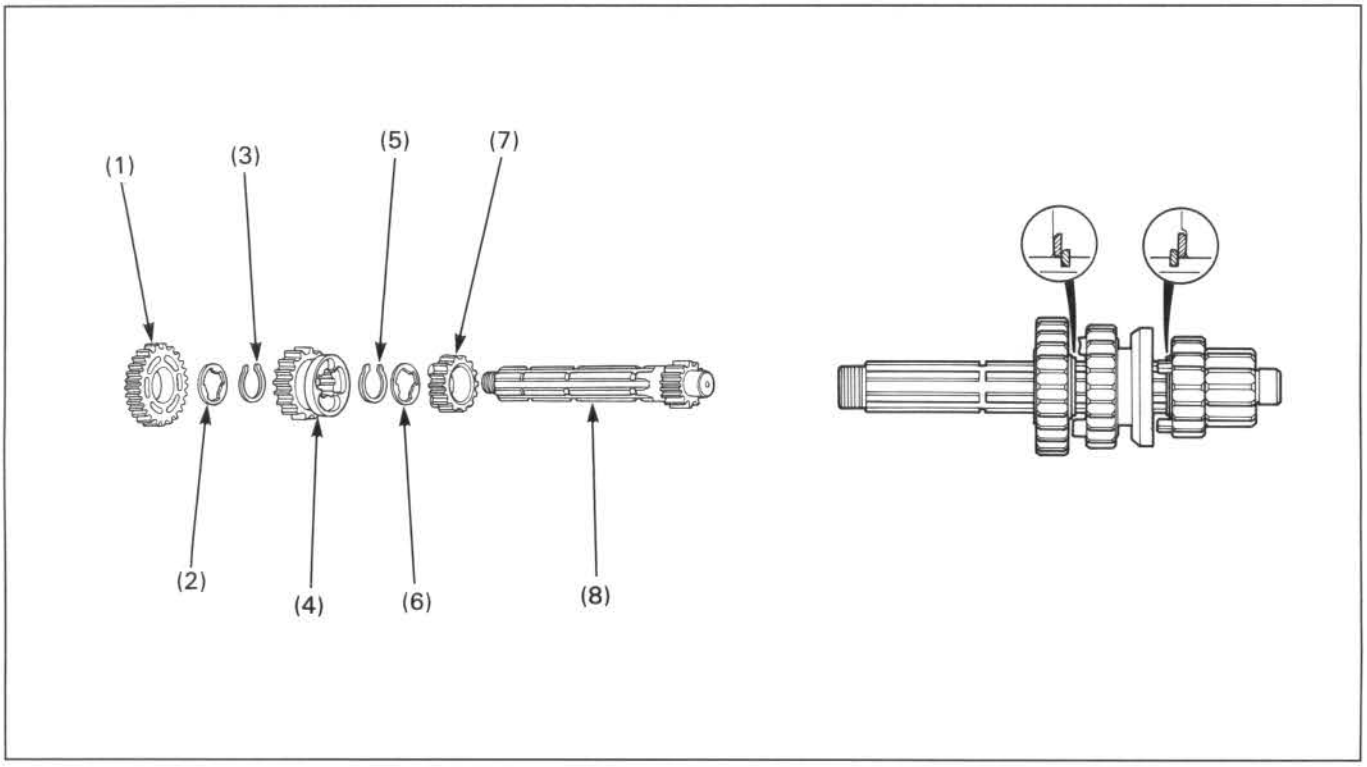
- **Wrap the drive sprocket end of the countershaft with tape to prevent oil seal damage when removing and installing the transmission.**

Requisite Service

- Engine removal/installation (page 6-2)
- Cylinder head removal/installation (page 7-2)
- Cylinder, piston removal/installation (page 7-8)
- Clutch removal/installation (page 8-2)
- Gearshift linkage removal/installation (page 8-8)
- Oil pump removal/installation (page 4-3)
- Recoil starter removal/installation (page 9-2)
- Alternator removal/installation (page 13-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	2	
(2)	Stator base	1	
(3)	O-ring	3	
(4)	Pivot bolt	1	
(5)	Cam chain tensioner arm	1	
(6)	Cam chain tensioner roller	1	
(7)	Cam chain	1	
(8)	Neutral indicator shaft	1	Remove by loosening.
(9)	Crankcase bolt	7	
(10)	Right crankcase	1	Lightly tap the crankcase halves with a soft-faced hammer to facilitate crankcase separation. **CAUTION** **• Do not pry between the left and right crankcases.**
(11)	Gasket	1	
(12)	Dowel pin	2	
(13)	Crankshaft	1	
(14)	Mainshaft	1	Remove and install these parts as an assembly.
(15)	Countershaft	1	NOTE • Check that the thrust washer is in place during installation.
(16)	Shift drum	1	
(17)	Cam chain guide spindle	1	Remove the spindle by holding the sprocket and loosening the spindle.
(18)	Cam chain guide sprocket	1	

Mainshaft Disassembly/Assembly

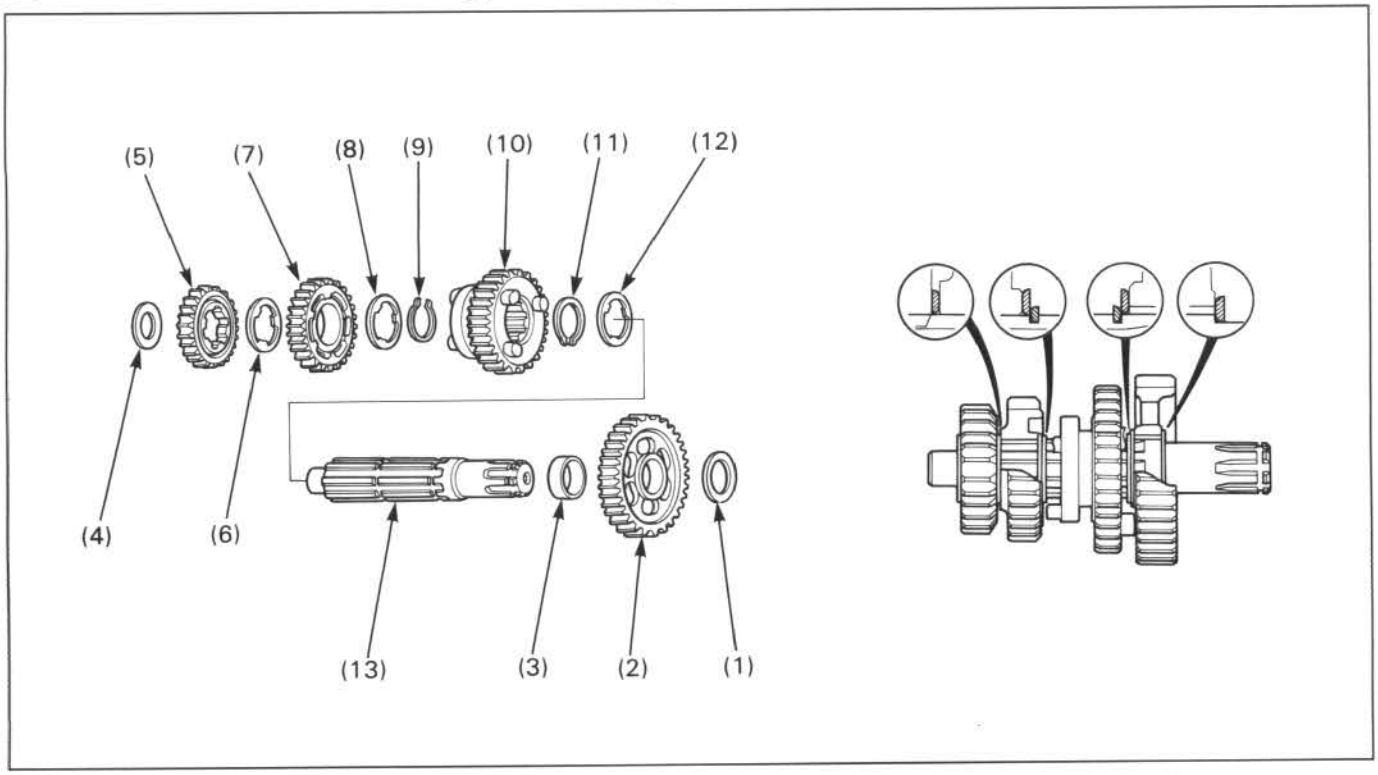


Requisite Service

- Transmission removal/installation (page 10-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	M4 gear (24T)	1	
(2)	Spline washer	1	
(3)	Circlip	1	
(4)	M3 gear (20T)	1	
(5)	Circlip	1	
(6)	Spline washer	1	
(7)	M2 gear (16T)	1	
(8)	Mainshaft (M1 gear: 12T)	1	

Countershaft Disassembly/Assembly

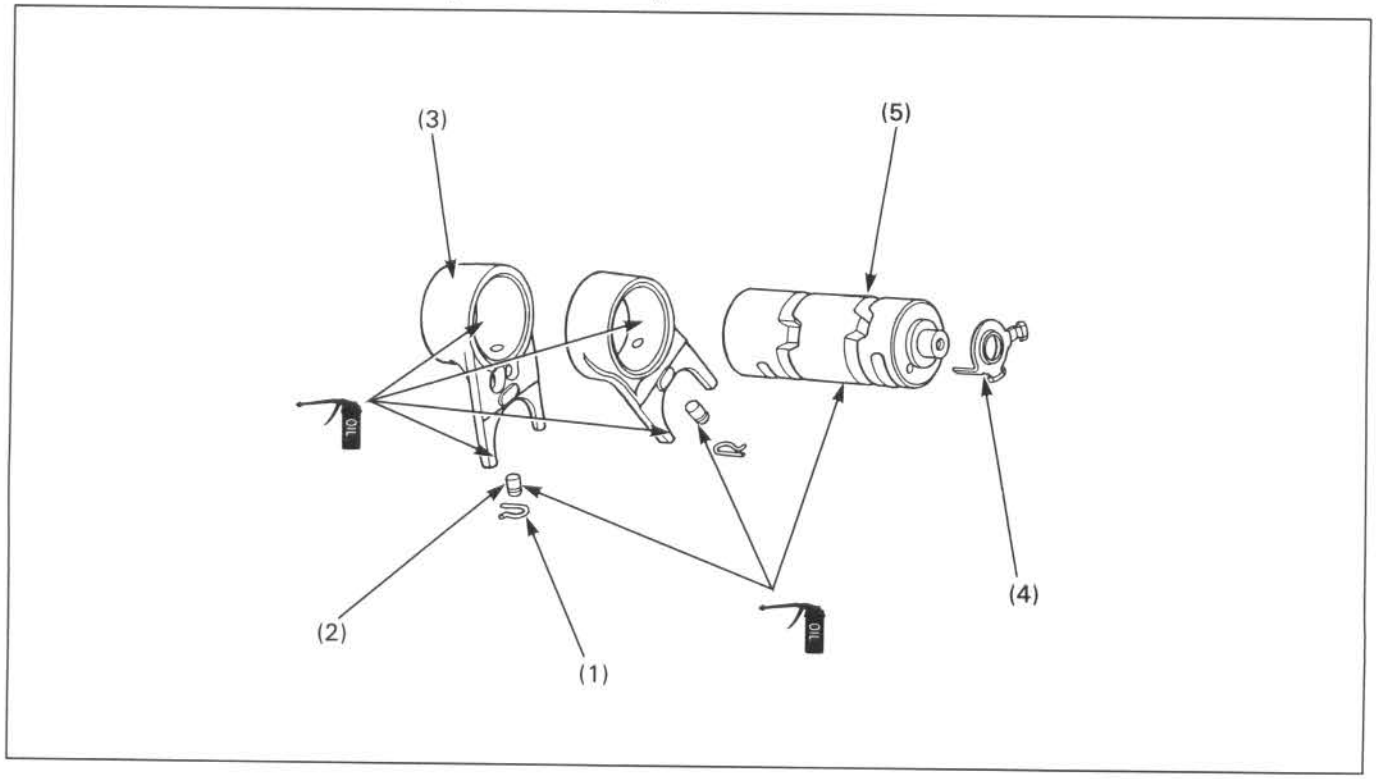


Requisite Service

- Transmission removal/installation (page 10-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Thrust washer	1	
(2)	C1 gear (34T)	1	
(3)	C1 gear bushing	1	
(4)	Thrust washer	1	
(5)	C4 gear (23T)	1	
(6)	Spline washer	1	
(7)	C2 gear (26T)	1	
(8)	Spline washer	1	
(9)	Circlip	1	
(10)	C2 gear (31T)	1	
(11)	Circlip	1	
(12)	Spline washer	1	
(13)	Countershaft	1	

Shift Drum Disassembly/Assembly



Requisite Service

- Transmission removal/installation (page 10-2)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clip	2	
(2)	Guide pin	2	
(3)	Shift fork	2	
(4)	Neutral switch rotor	1	
(5)	Shift drum	1	

11. Front Wheel/Brake/Suspension/Steering

Service Information

⚠ WARNING

- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.**
- **A contaminated brake drum or lining reduces stopping power. Discard contaminated linings and clean a contaminated drum with a high quality brake degreasing agent.**

- When servicing the front wheel and suspension, support the vehicle securely with a jack or other support under the frame.
- Always check the brake operation before riding the vehicle.
- Refer to section 16 of the Common Service Manual for tire removal/installation.
- Refer to section 2 of the Common Service Manual for wheel alignment.

Troubleshooting

Hard steering
- Steering shaft holder too tight
- Faulty steering shaft bushing/bearing
- Faulty tie-rod ball joint
- Insufficient tire pressure
- Faulty tire

Steers to one side or does not track straight
- Bent tie-rod
- Incorrect wheel alignment
- Unequal tire pressure
- Bent frame
- Worn or damaged wheel bearings

Front wheel wobbling
- Bent rim
- Worn or damaged wheel bearings
- Faulty tire

Wheel turns hard
- Misadjusted brake
- Faulty wheel bearings

Soft suspension
- Weak front shock absorber spring
- Worn or damaged front arm bushings
- Faulty front shock absorber damper

Hard Suspension
- Bent front shock absorber damper rod
- Improperly installed front arms
- Faulty front arm bushings

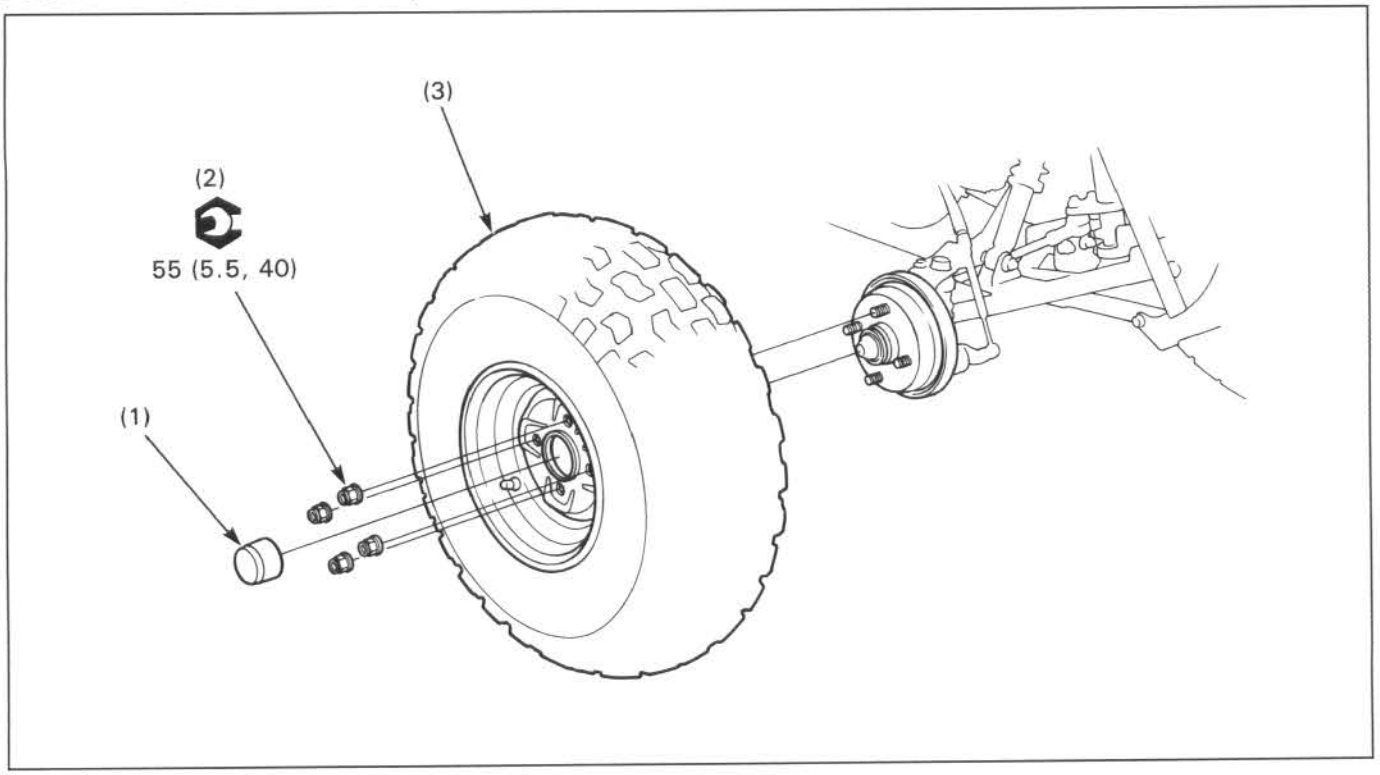
Front suspension noise
- Front shock absorber binding
- Front suspension link binding
- Loose front suspension fasteners

Poor brake performance
- Improperly adjusted brake
- Worn brake linings
- Worn brake drum
- Worn brake cam
- Improperly installed brake shoes
- Brake cable sticking/needs lubrication
- Contaminated brake linings
- Contaminated brake drum
- Worn brake shoes at cam contact areas
- Improper engagement between brake arm and cam serrations

Brake lever hard or slow to return
- Weak or broken return spring
- Improperly adjusted brake
- Sticking brake drum or shoe due to contamination
- Worn brake shoes at cam contact areas
- Brake cable sticking/needs lubrication
- Worn or sticking brake cam
- Improperly installed brake shoes

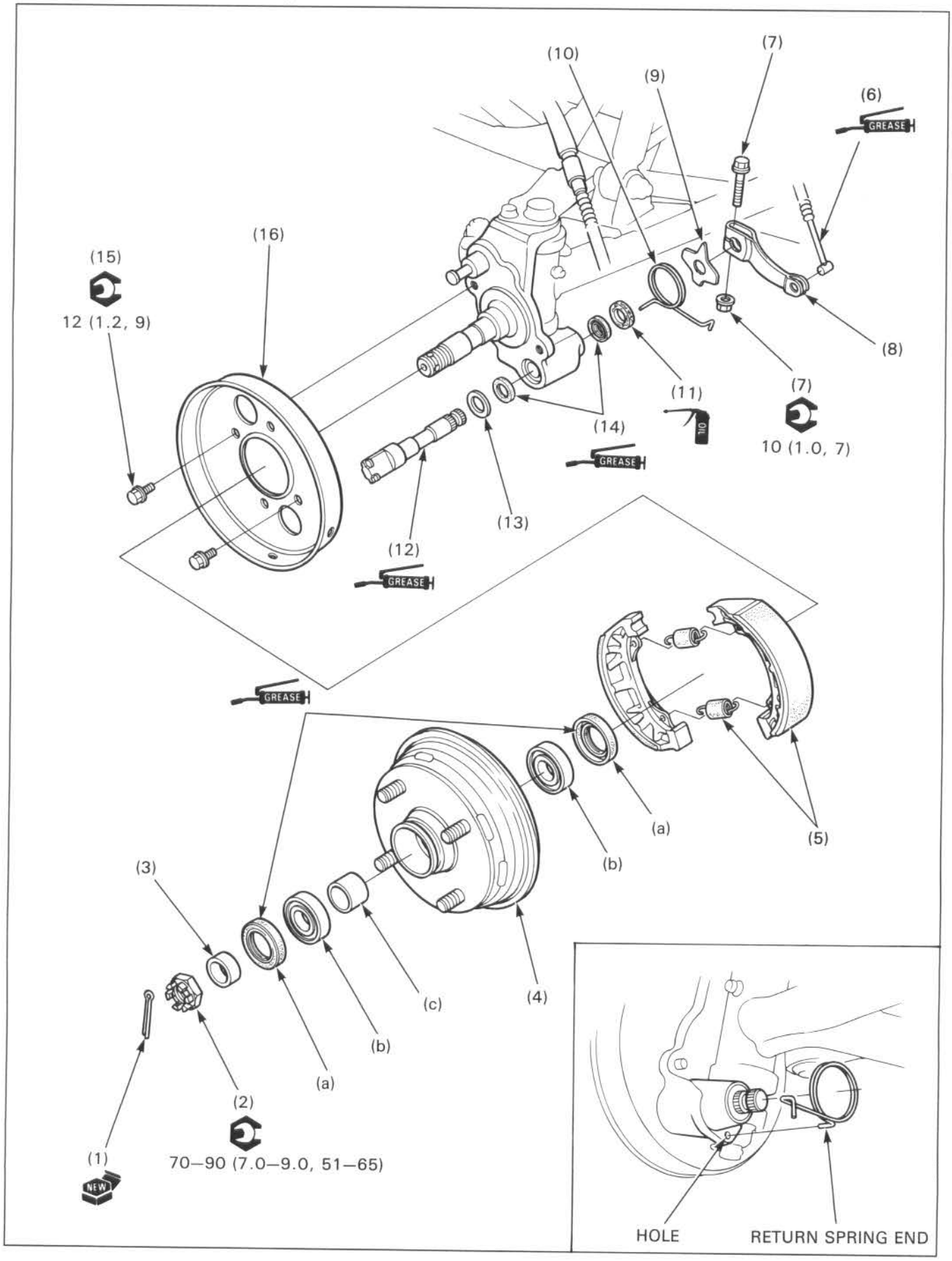
Brake squeaks
- Worn brake linings
- Worn brake drum
- Contaminated brake linings
- Contaminated brake drum

Front Wheel Removal/Installation



	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Wheel center cap	1	
(2)	Wheel nut	4	Loosen the nuts, raise the front wheels off the ground by placing a jack or other support under the frame, then remove the nuts.
(3)	Front wheel	1	

Front Brake Removal/Installation



⚠ WARNING

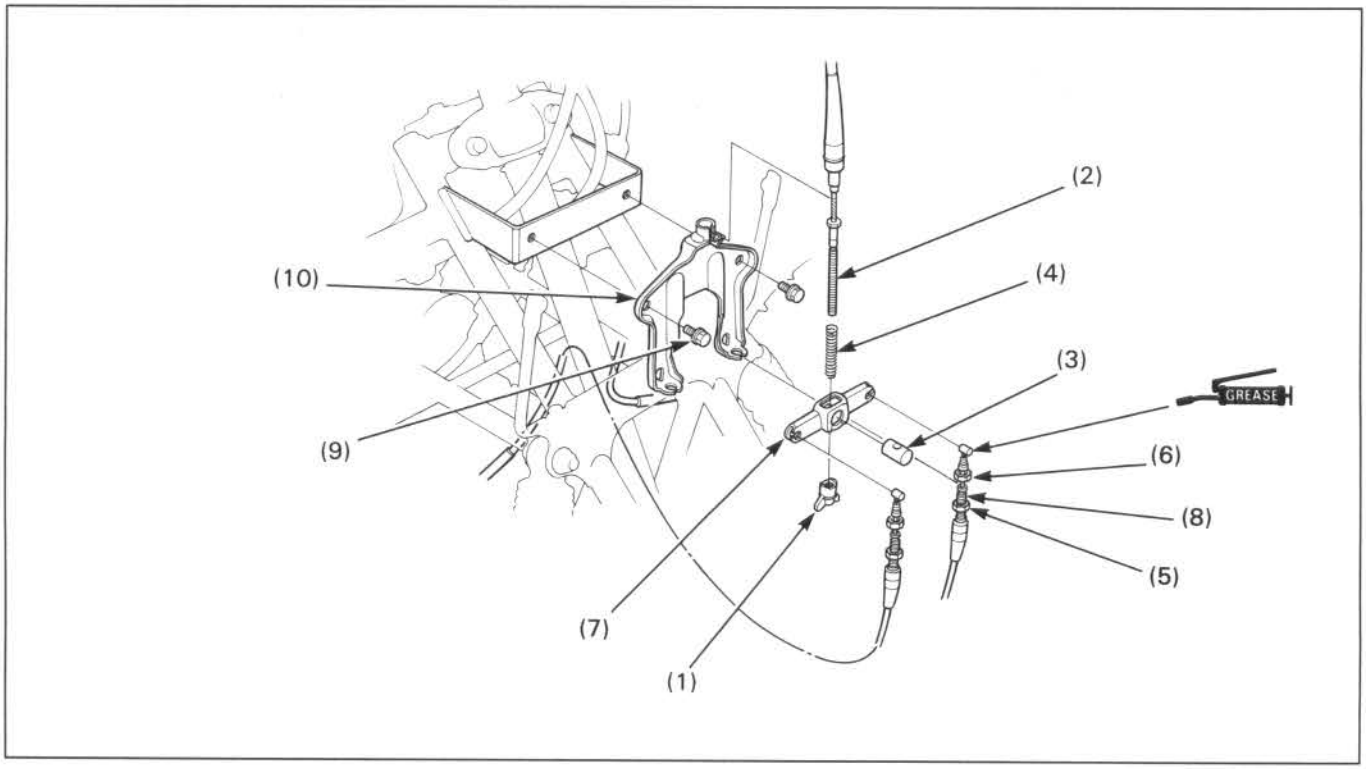
- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.**
- **A contaminated brake drum or lining reduces stopping power. Discard contaminated linings and clean a contaminated drum with a high quality brake degreasing agent.**

Requisite Service

- Front wheel removal/installation (page 11-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cotter pin	1	
(2)	Front axle unt	1	
(3)	Collar	1	
(4)	Front brake drum	1	
(a)	Dust seal	2	
(b)	Wheel bearing (6003)	2	
(c)	Distance collar	1	
(5)	Brake shoe/shoe spring	2/2	
(6)	Brake cable	1	
(7)	Brake arm bolt/nut	1/1	
(8)	Brake arm	1	
(9)	Wear indicator	1	
(10)	Return spring	1	NOTE • When installing, insert the end of the spring into the hole in the knuckle.
(11)	Felt seal	1	
(12)	Brake cam	1	
(13)	Washer	1	
(14)	Dust seal	2	
(15)	Bolt	2	
(16)	Brake panel	1	

Equalizer Removal/Installation

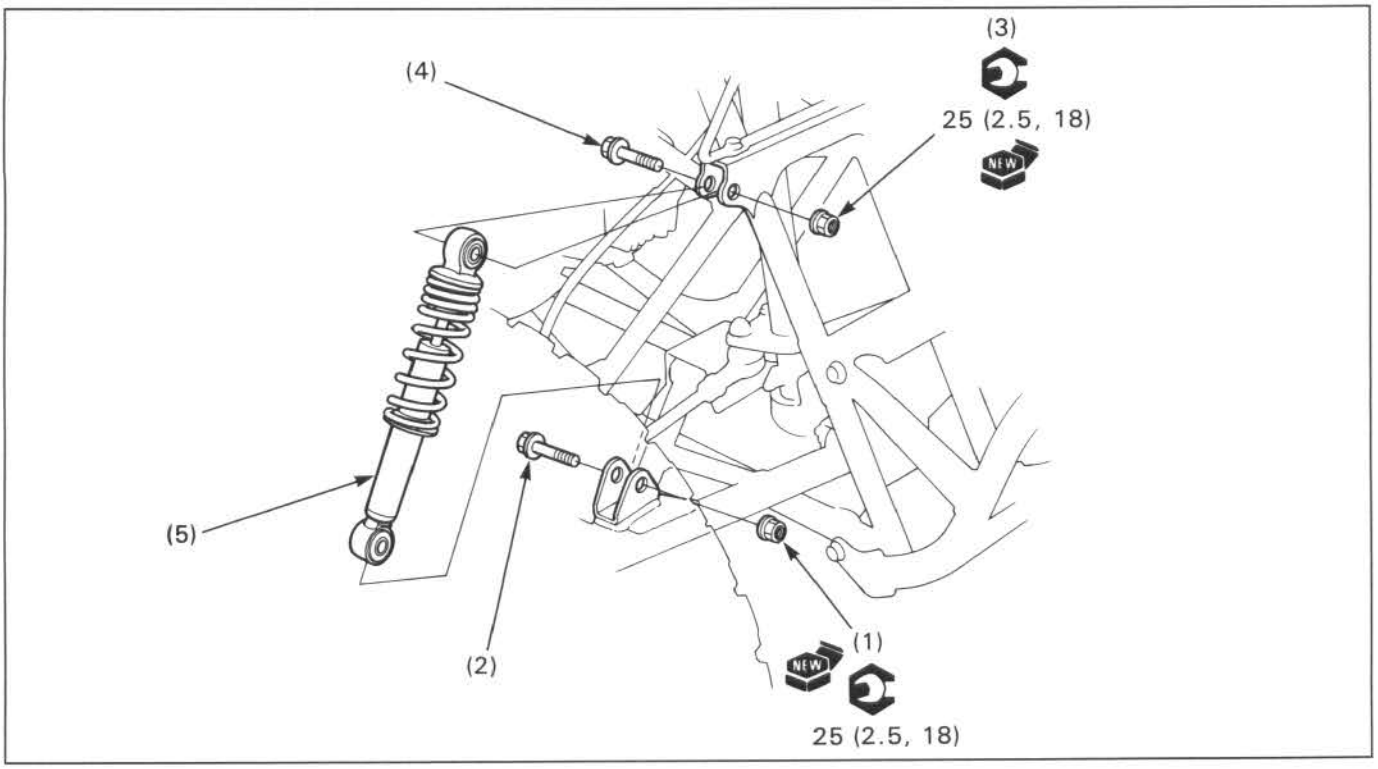


NOTE

- Adjust the front brake lever free play after installation.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Front brake adjusting nut	1	
(2)	Front brake primary cable	1	
(3)	Joint piece	1	
(4)	Spring	1	
(5)	Lock nut	2	Loosen.
(6)	Secondary cable adjusting nut	2	
(7)	Equalizer plate	1	
(8)	Front brake secondary cable	2	
(9)	Bolt	2	
(10)	Equalizer body	1	

Front Shock Absorber Removal/Installation

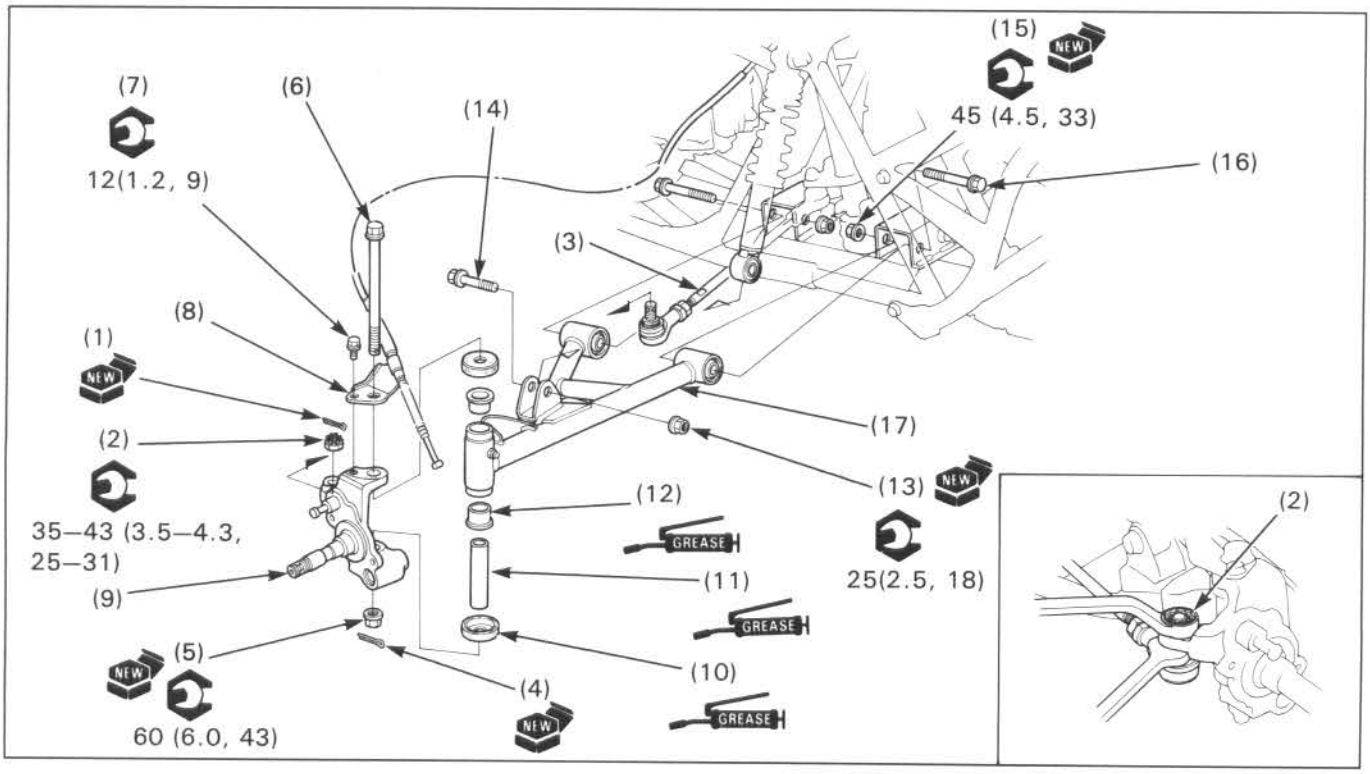


NOTE

- The front shock absorber must be replaced as an assembly.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Shock absorber lower mounting nut	1	
(2)	Shock absorber lower mounting bolt	1	
(3)	Shock absorber upper mounting nut	1	
(4)	Shock absorber upper mounting bolt	1	
(5)	Front shock absorber	1	

Knuckle, Front Arm Removal/Installation

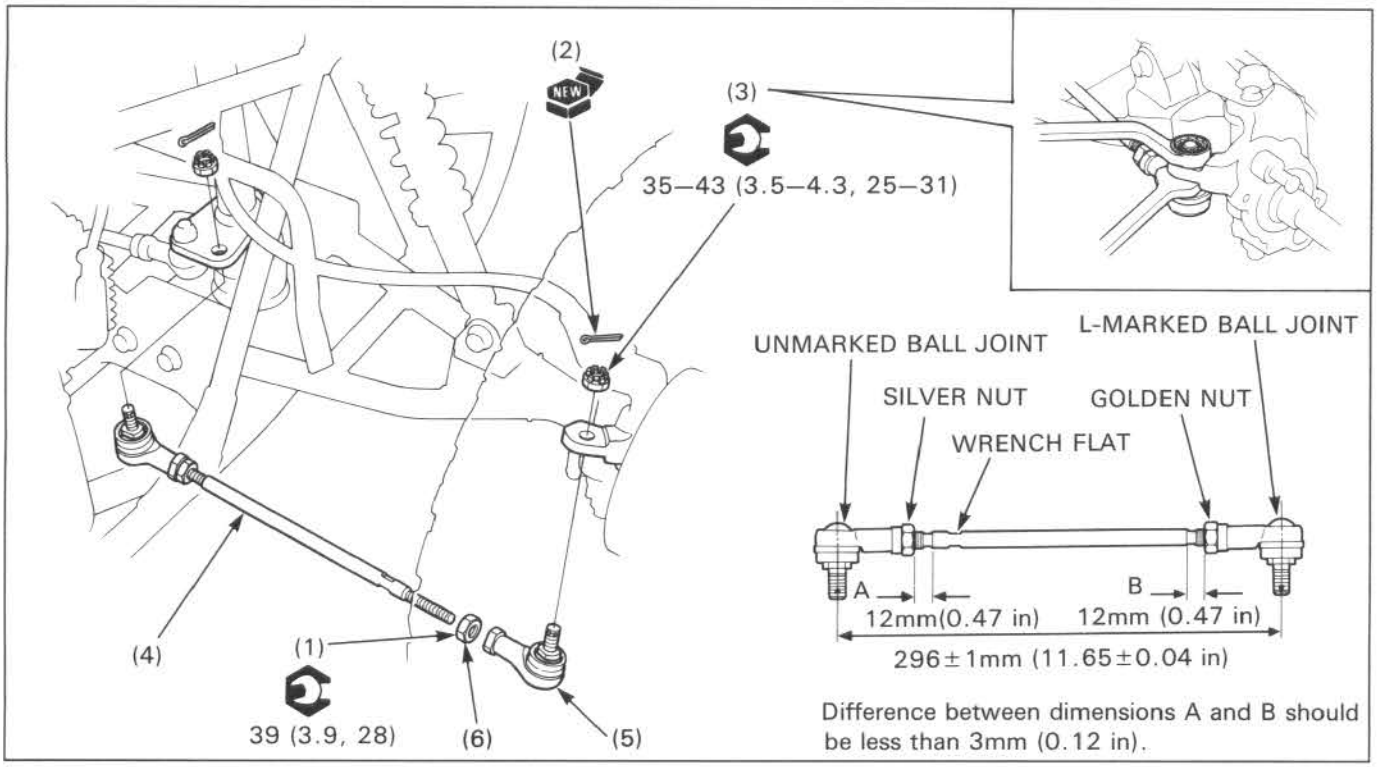


Requisite Service

- Front brake removal/installation (page 11-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cotter pin	1	
(2)	Tie-rod ball joint nut	1	Hold the ball joint with an open end wrench and loosen or tighten the ball joint nut.
(3)	Tie-rod	1	Remove from the knuckle.
(4)	Cotter pin	1	
(5)	Kingpin nut	1	
(6)	Kingpin bolt	1	
(7)	Bolt	1	
(8)	Front brake cable stay	1	
(9)	Knuckle	1	
(10)	Dust seal	2	
(11)	Kingpin	1	
(12)	Kingpin bushing	2	NOTE • When the bushings are removed, drive in new ones using the driver (07749-0010000) and attachment, 32 x 35mm (07746-0010100).
(13)	Shock absorber lower mounting nut	1	
(14)	Shock absorber lower mounting bolt	1	
(15)	Front arm nut	2	
(16)	Front arm bolt	2	
(17)	Front arm	1	

Tie-rod Removal/Installation

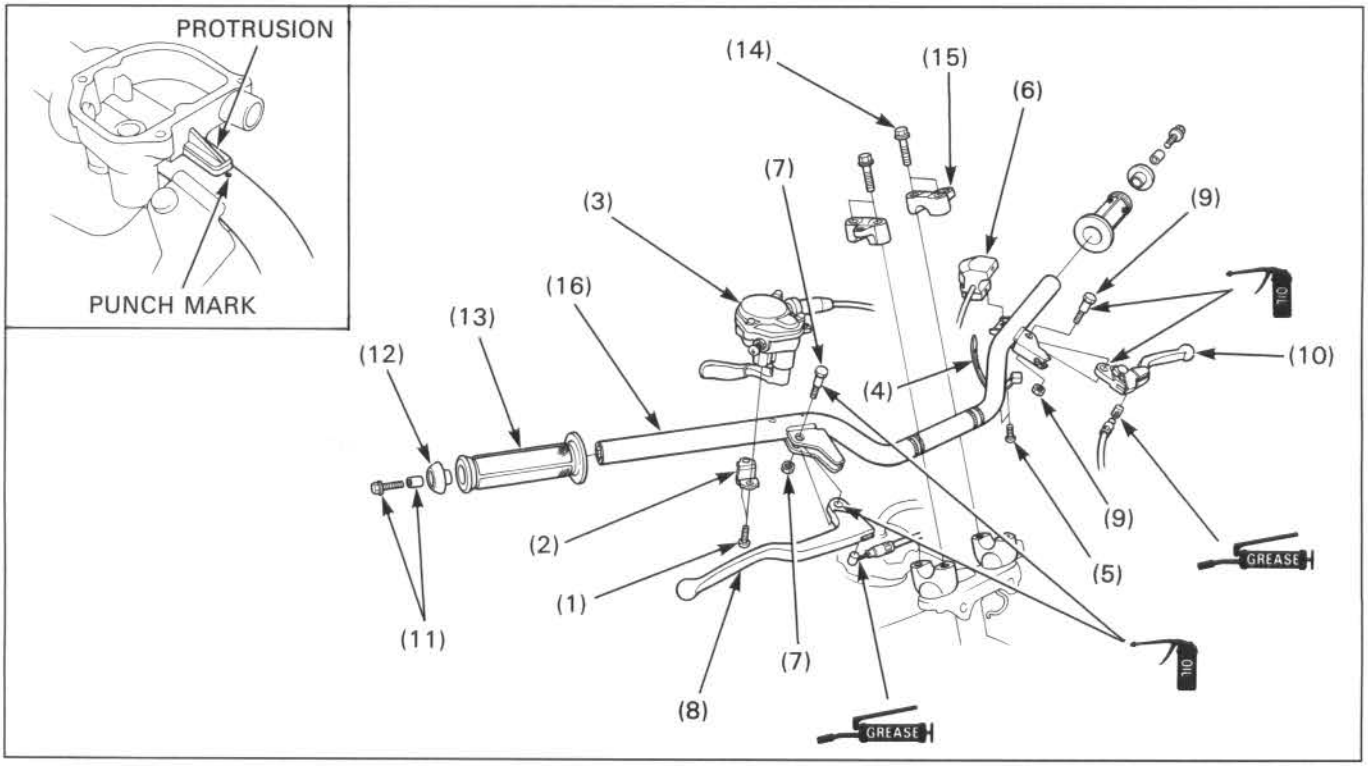


NOTE

- Check and adjust the wheel alignment after installing a tie-rod (see section 2 of the Common Service Manual).

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Tie-rod lock nut	2	Loosen the nuts. NOTE • After adjusting the tie-rod length, rotate both the ball joints in the same direction with the tie-rod axis until they stop against the ball joint studs. Hold them in that position and tighten the tie-rod lock nuts.
(2)	Cotter pin	2	
(3)	Tie-rod ball joint nut	2	Hold the ball joint with an open end wrench and loosen or tighten the ball joint nut.
(4)	Tie-rod assembly	1	NOTE • Install with the L-marked ball joint toward the steering shaft and the unmarked ball joint toward the knuckle side.
(5)	Ball joint	2	NOTE • Install the unmarked ball joint on the end with the wrench flat and the L-marked ball joint on the opposite end. • Adjust the distance between the ball joints to the standard setting as shown.
(6)	Tie-rod lock nut	2	NOTE • Install the silver nut on the side with the wrench flat and the golden nut on the opposite side.

Handleber Removal/Installation



NOTE

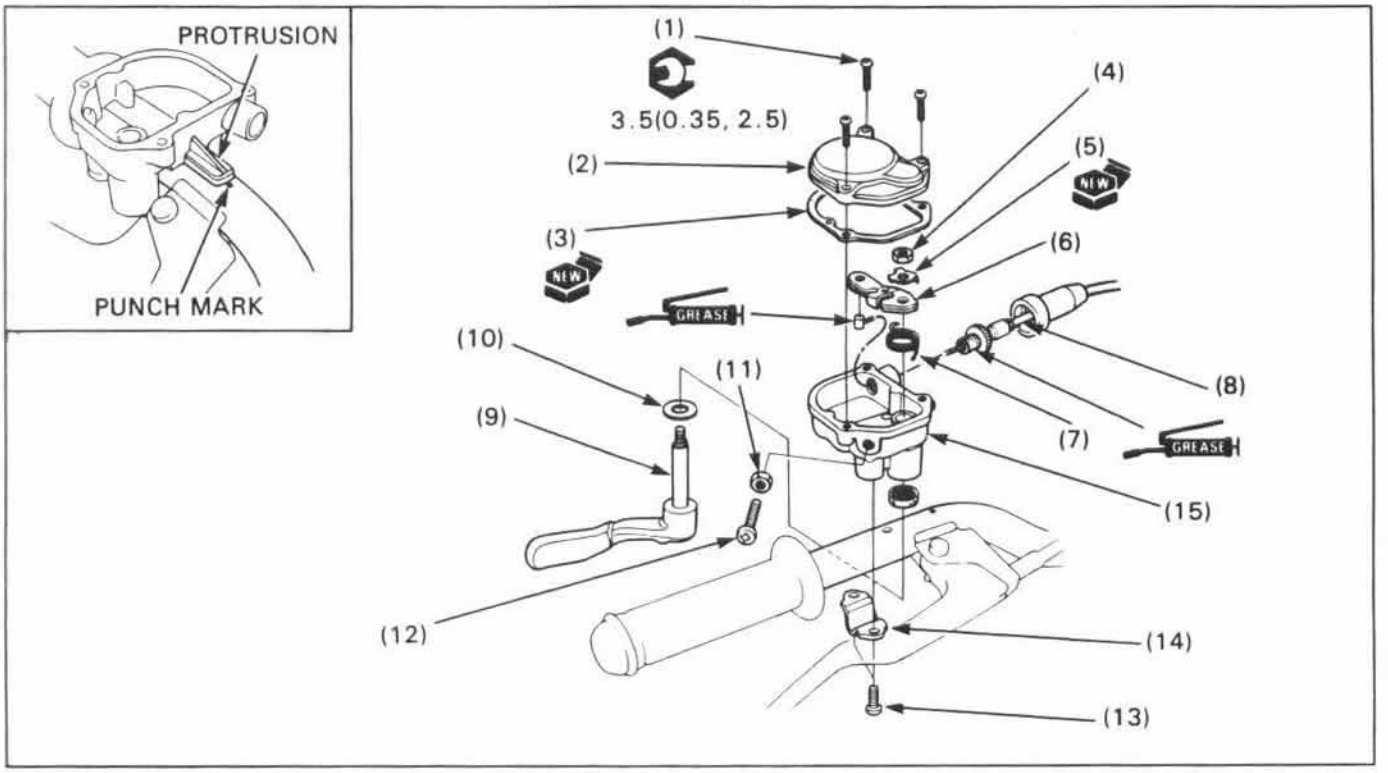
- Adjust the brake lever free play after installation.

Requisite Service

- Handlebar cover removal/installation (page 2-6)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	2	NOTE • Align the protrusion of the throttle housing with the punch mark on the handlebar, then tighten the screws during installation.
(2)	Throttle housing holder	1	
(3)	Throttle housing assembly	1	Disassembly/Assembly (page 11-11)
(4)	Wire band	1	
(5)	Screw	2	
(6)	Engine stop switch	1	
(7)	Front brake lever pivot nut/bolt	1/1	
(8)	Front brake lever	1	Loosen the adjusting nut, then remove the lever.
(9)	Parking brake lever pivot nut/bolt	1/1	
(10)	Parking brake lever assembly	1	Loosen the adjusting nut, then remove the lever.
(11)	Bolt/collar	2/2	
(12)	Handlebar end guard	2	
(13)	Handlebar grip	2	
(14)	Bolt	4	
(15)	Handlebar upper holder	2	
(16)	Handlebar	1	

Throttle Housing Disassembly/Assembly



NOTE

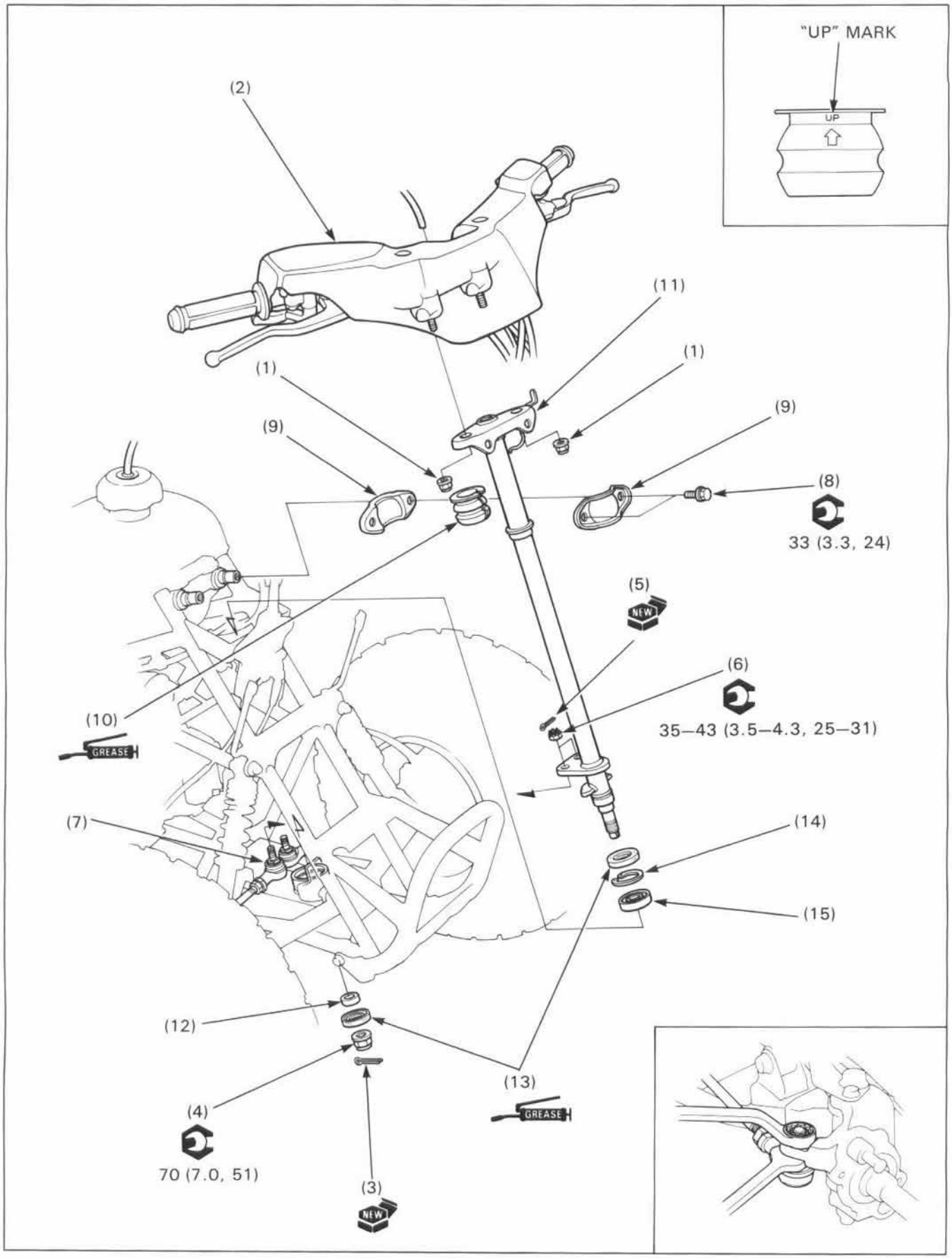
- Adjust the throttle lever free play after assembly.

Requisite Service

- Handlebar cover removal/installation (page 2–6)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Screw	3	
(2)	Throttle housing cover	1	
(3)	Gasket	1	
(4)	Nut	1	
(5)	Lock washer	1	
(6)	Throttle arm	1	
(7)	Return spring	1	
(8)	Throttle cable	1	Disconnect the cable from the throttle arm and remove it from the throttle housing.
(9)	Throttle lever	1	
(10)	Washer	1	
(11)	Lock nut	1	
(12)	Throttle lever limiter screw	1	This speed limiting device should only be adjusted or removed by the customer.
(13)	Screw	2	NOTE • Align the protrusion of the throttle housing with the punch mark on the handlebar, then tighten the screws during installation.
(14)	Throttle housing holder	1	
(15)	Throttle housing	1	

Steering Shaft Removal/Installation



Requisite Service

- Front cover removal installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Handlebar lower holder nut	2	
(2)	Handlebar assembly	1	NOTE · Suspend the handlebar so that the control cables are not kinked.
(3)	Cotter pin	1	
(4)	Steering shaft end nut	1	
(5)	Cotter pin	2	
(6)	Tie-rod ball join nut	2	Hold the ball joint with an open end wrench and loosen or tighten the ball joint nut.
(7)	Tie-rod	2	Remove from the steering shaft.
(8)	Bolt	2	NOTE · Tighten the bolts after tightening the steering shaft end nut during installation.
(9)	Steering shaft holder	2	
(10)	Steering shaft bushing	1	NOTE · Install with the "UP" mark facing up.
(11)	Steering shaft	1	
(12)	Collar	1	
(13)	Dust seal	2	
(14)	Circlip	1	
(15)	Bearing (6203)	1	

MEMO

12. Rear Wheel/Brake/Suspension

Service Information

⚠ WARNING

- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.**
- **A contaminated brake drum or lining reduces stopping power. Discard contaminated linings and clean a contaminated drum with a high quality brake degreasing agent.**

- Always check the brake operation before riding the vehicle.
- Support the vehicle securely with a jack or other support under the frame while servicing the rear wheels and suspension.
- Refer to section 16 of the Common Service Manual for tire removal/installation.
- Refer to section 19 of the Common Service Manual for shock absorber disassembly/assembly.

Troubleshooting

Rear wheel wobbling
- Bent rim
- Loose or worn rear axle bearing(s)
- Faulty tire
- Faulty rear axle bearing holder
- Rear axle not tightened properly
- Faulty swingarm pivot bushing(s)

Wheel turns hard
- Misadjusted brake
- Faulty rear axle bearing(s)
- Bent rear axle
- Drive chain too tight

Soft suspension
- Weak shock absorber spring
- Weak shock absorber damper

Hard suspension
- Damaged shock absorber mount bushing(s)
- Faulty swingarm pivot bushing(s)
- Bent shock absorber damper rod

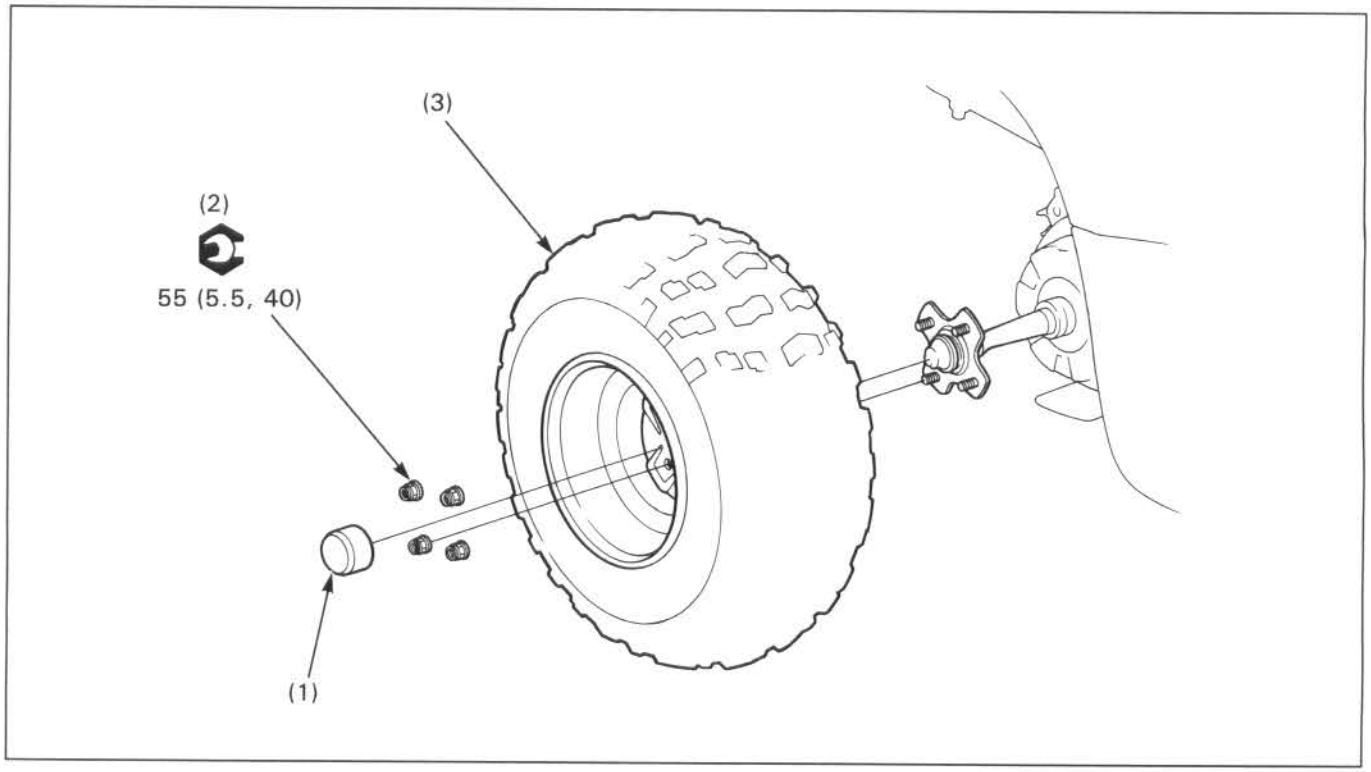
Rear suspension noise
- Shock absorber binding
- Loose suspension fasteners
- Insufficiently lubricated swingarm pivot

Poor brake performance
- Improperly adjusted brake
- Worn brake linings
- Worn brake drum
- Worn brake cam
- Improperly installed brake shoes
- Brake cable sticking/needs lubrication
- Contaminated brake linings
- Contaminated brake drum
- Worn brake shoes at cam contact areas
- Improper engagement between brake arm and cam serrations

Brake lever hard or slow to return
- Worn/broekn return spring
- Improperly adjusted brake
- Sticking brake drum due to contamination
- Worn brake shoes at cam contact areas
- Brake cable sticking/needs lubrication
- Worn brake cam
- Improperly installed brake shoes

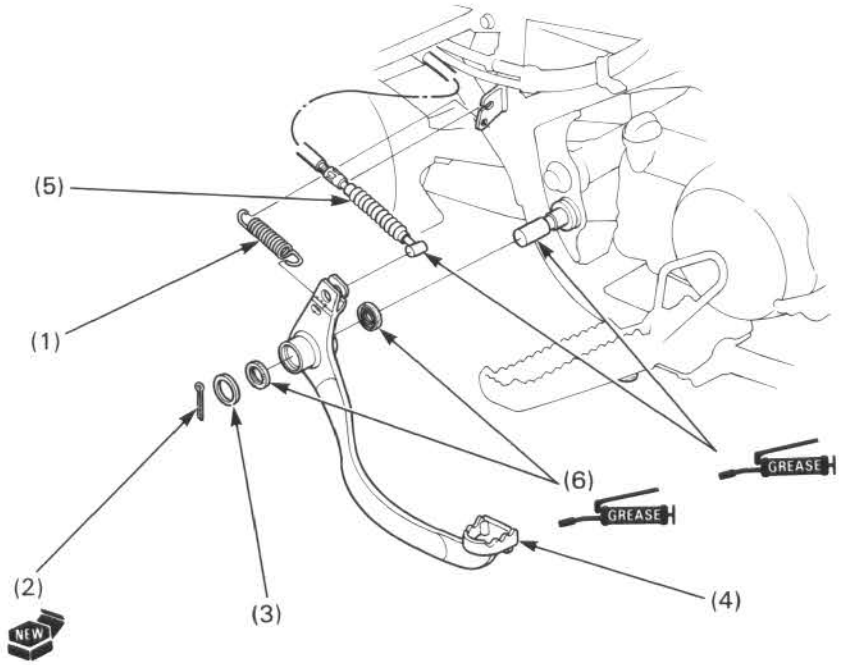
Brake squeaks
- Worn brake linings
- Worn brake drum
- Contaminated brake linings
- Contaminated brake drum

Rear Wheel Removal/Installation



	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Wheel center cap	1	
(2)	Wheel nut	4	Loosen the nuts, raise the rear wheels off the ground by placing a jack or other support under the frame, then remove the nuts.
(3)	Rear wheel	1	

Brake Pedal Removal/Installation



NOTE

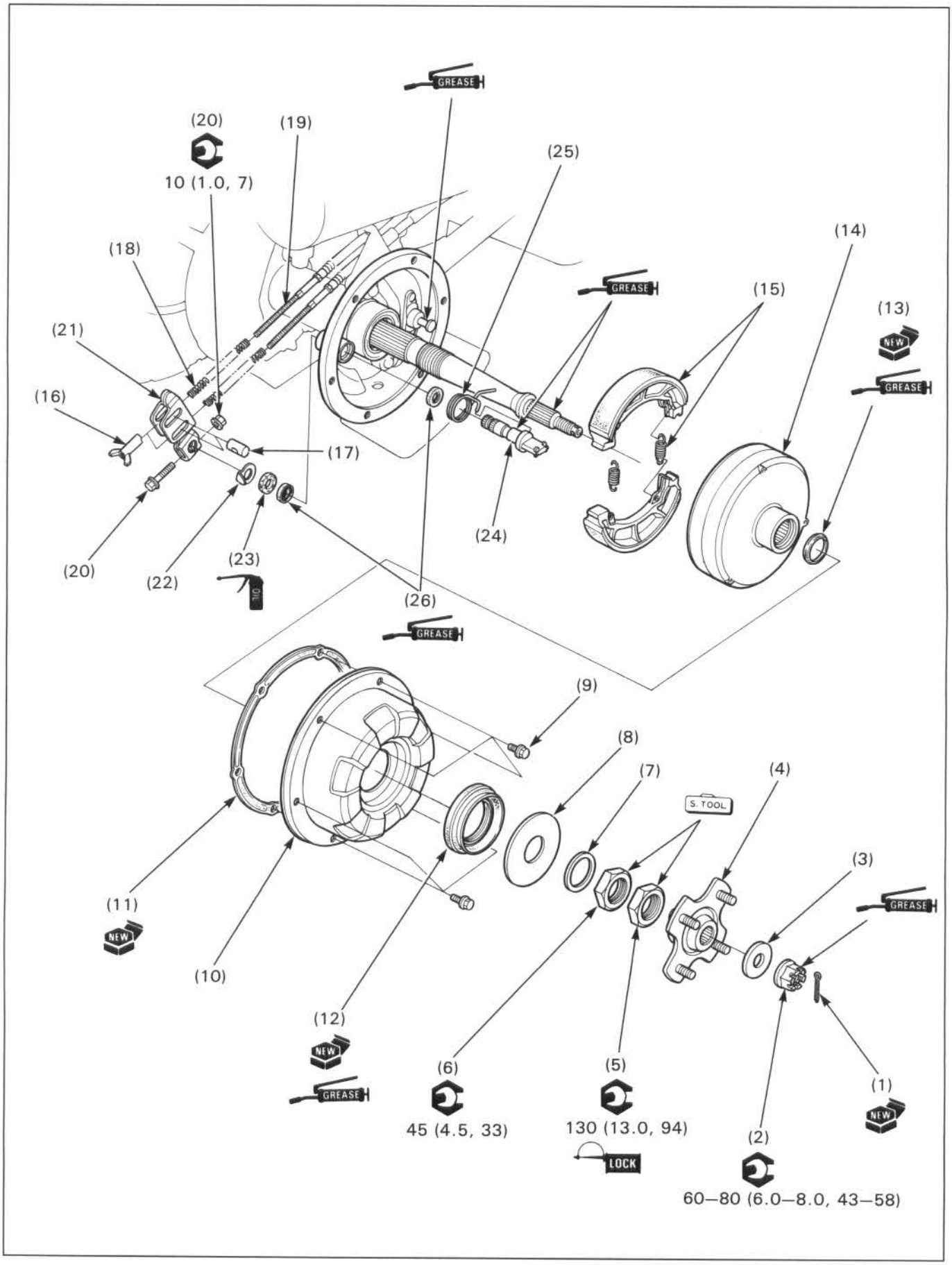
- Adjust the rear brake pedal free play after installation.

Requisite Service

- Rear fender removal/installation (page 2-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Return spring	1	
(2)	Cotter pin	1	
(3)	Washer	1	
(4)	Brake pedal	1	Loosen the rear brake adjusting nut, then remove the brake pedal.
(5)	Rear brake cable	1	
(6)	Dust seal	2	

Rear Brake Removal/Installation



⚠ WARNING

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- **A contaminated brake drum or lining reduces stopping power. Discard contaminated linings and clean a contaminated drum with a high quality brake degreasing agent.**

NOTE

- Adjust the rear brake pedal free play and parking brake lever free play after installation.

Requisite Service

- Right rear wheel removal/installation (page 12-2)

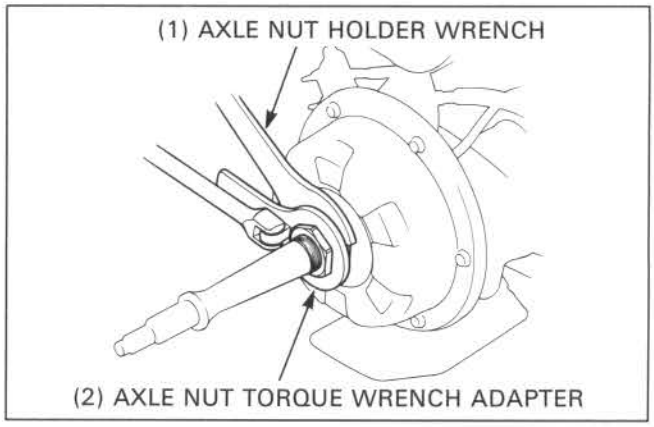
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cotter pin	1	
(2)	Right rear axle nut	1	
(3)	Lock washer	1	
(4)	Right rear wheel hub	1	
(5)	Rear axle outer lock nut	1	Removal/installation (page 12-6)
(6)	Rera axle inner lock nut	1	
(7)	Lock washer		NOTE • Install with the concave side toward the inside.
(8)	Drum cover washer	1	
(9)	Bolt	6	
(10)	Drum cover	1	
(11)	Rubber seal	1	
(12)	Dust seal	1	
(13)	Seal ring	1	
(14)	Rear brake drum	1	
(15)	Brake shoe/shoe spring	1/1	
(16)	Brake adjusting nut	2	
(17)	Joint piece	2	
(18)	Spring	2	
(19)	Brake cable	2	
(20)	Brake arm bolt/nut	1/1	
(21)	Brake arm	1	
(22)	Wear indicator plate	1	
(23)	Felt seal	1	
(24)	Brake cam	1	
(25)	Return spring	1	
(26)	Dust seal	2	

Rear Axle Lock Nut Removal/Installation

Loosen the rear axle outer lock nut while holding the inner lock nut.

S. TOOL

Axle nut holder wrench, 41 mm	**07916-9580200 or 07916-958020A (U.S.A. only)**
Axle nut torque wrench adapter, 41 mm	**07916-9580400 or 07916-958010A (U.S.A. only)**



Remove the inner lock nut.

S. TOOL

Axle nut torque wrench adapter, 41 mm	**07916-9580400 or 07916-958010A (U.S.A. only)**

Clean the rear axle threads.

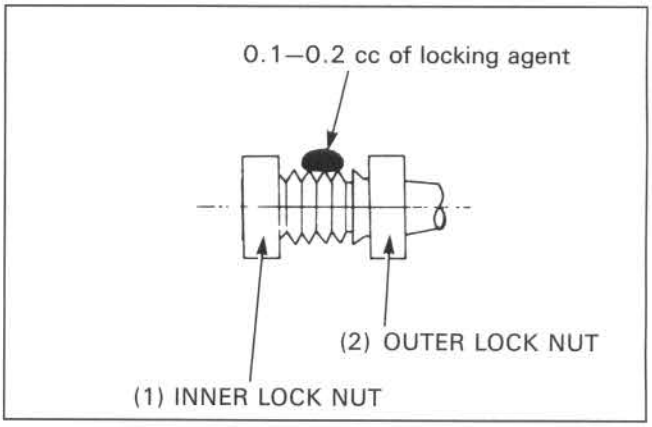
Install and tighten the rear axle inner lock nut.

Torque: 45 N·m (4.5 kg-m, 33 ft-lb)

S. TOOL

Axle nut torque wrench adapter, 41 mm	**07916-9580400 or 07916-958010A (U.S.A. only)**

Wipe grease off the axle threads and apply 0.1—0.2 cc of locking agent to the axle threads.

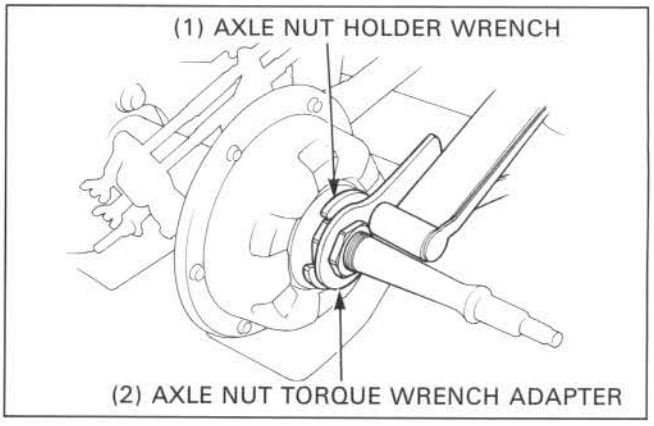


Install and tighten the rear axle outer lock nut while holding the inner lock nut.

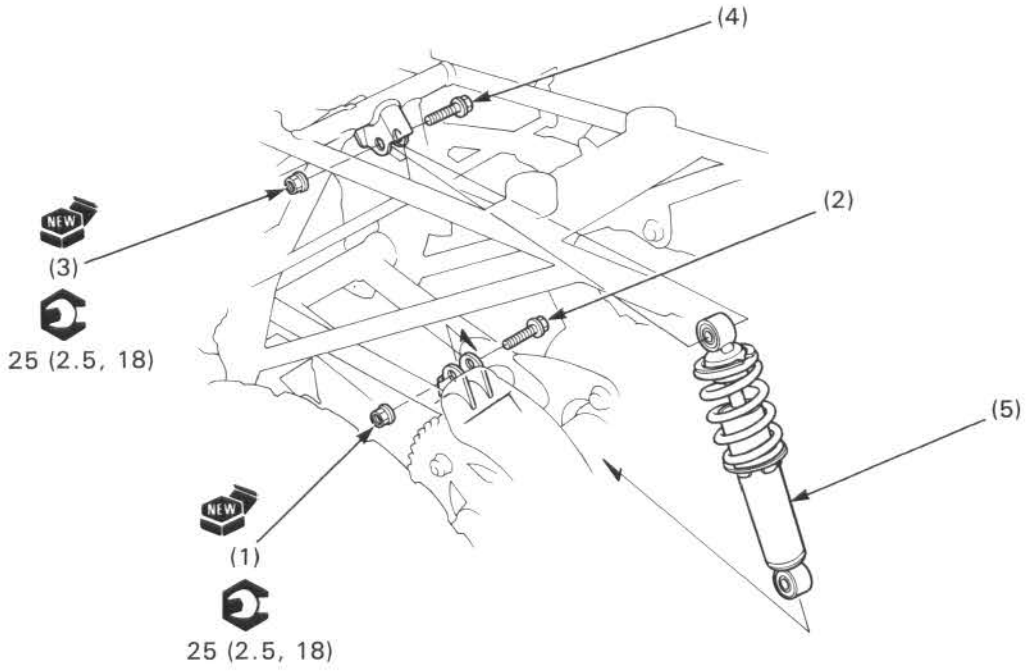
Torque: 130 N·m (13.0 kg-m, 94 ft-lb)

S. TOOL

Axle nut holder wrench, 41 mm	**07916-9580200 or 07916-958020A (U.S.A. only)**
Axle nut torque wrench adapter, 41 mm	**07916-9580400 or 07916-958010A (U.S.A. only)**



Rear Shock Absorber Removal/Installation

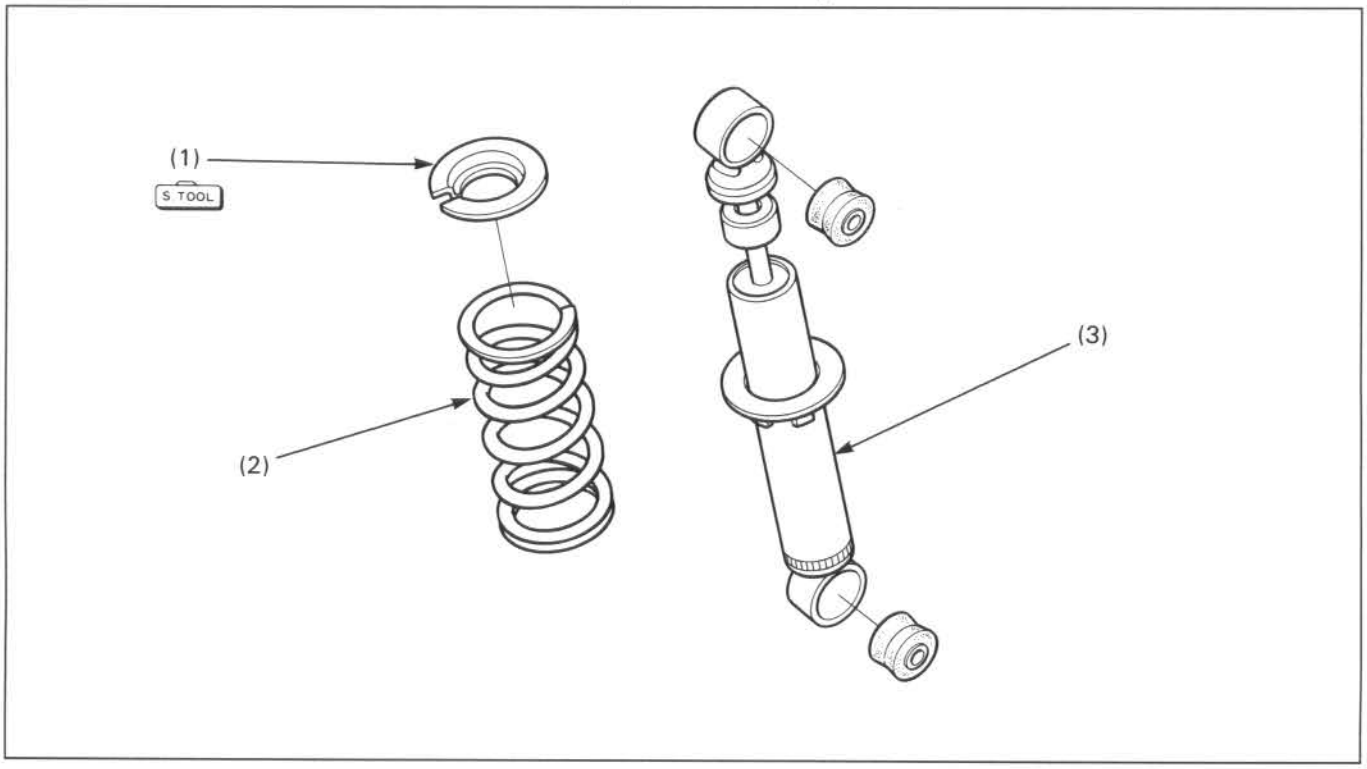


Requisite Service

- Support the rear of the frame

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Rear shock absorber lower mounting nut	1	
(2)	Rear shock absorber lower mounting bolt	1	
(3)	Rear shock absorber upper mounting nut	1	
(4)	Rear shock absorber upper mounting bolt	1	
(5)	Rear shock absorber	1	

Rear Shock Absorber Disassembly/Assembly

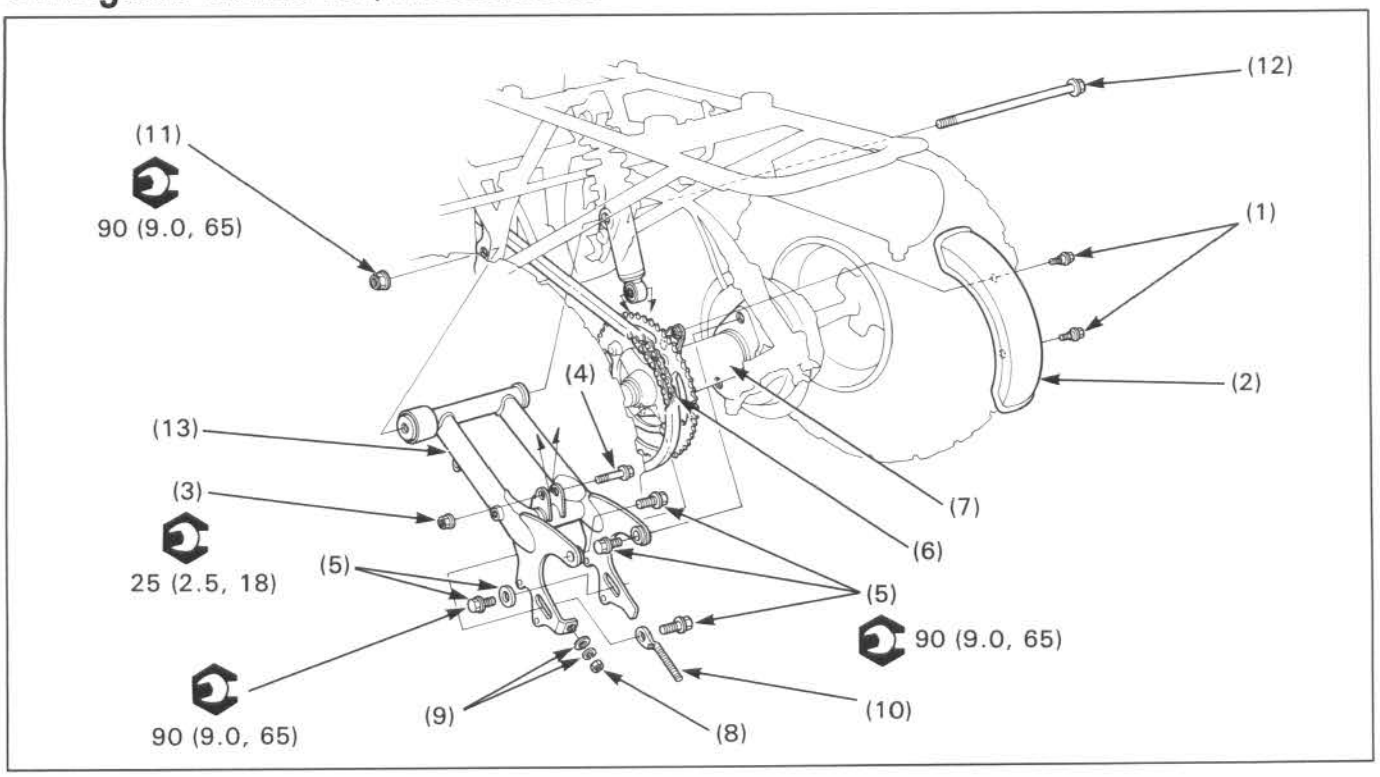


Requisite Service

- Rear shock absorber removal/installation (page 12-7)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Spring seat stopper	1	Use the shock absorber compressor (07GME-0010000).
(2)	Shock absorber spring	1	
(3)	Damper	1	

Swingarm Removal/Installation



NOTE

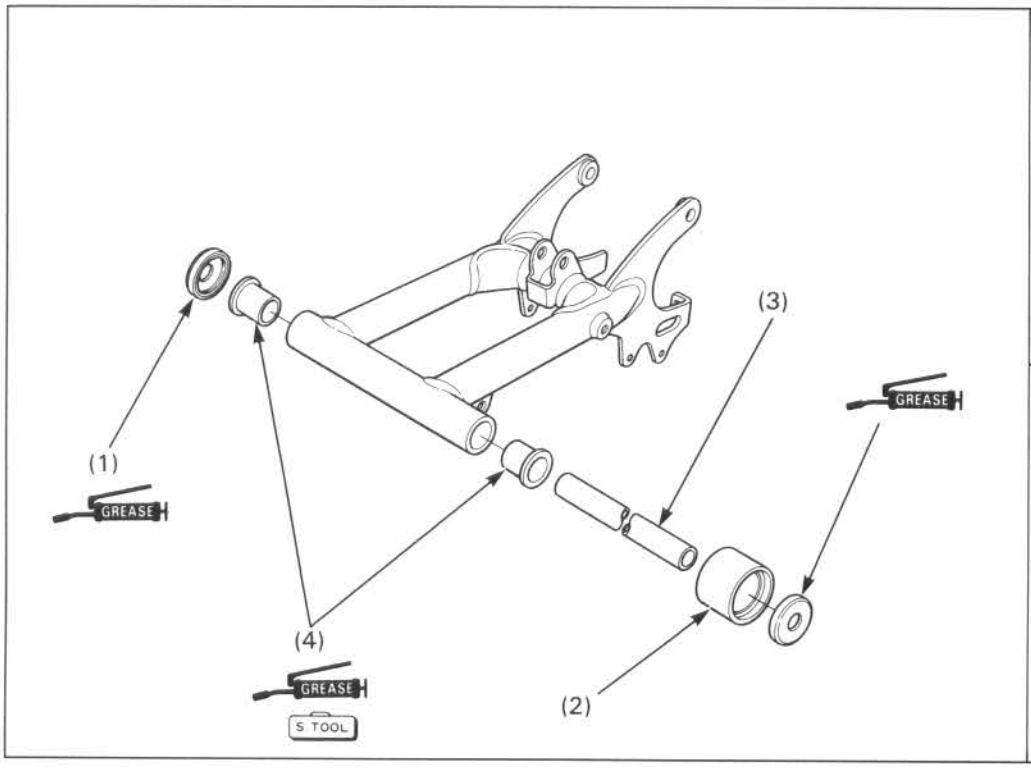
- Adjust the drive chain slack after installation (page 3-6).

Requisite Service

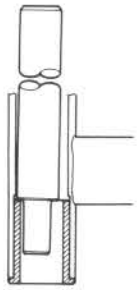
- Chain guard removal/installation (page 2-9)
- Brake pedal removal/installation (page 12-3)
- Brake panel guard removal/installation (page 2-9)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Bolt	2	
(2)	Drive chain cover	1	
(3)	Rear shock absorber lower mounting nut	1	
(4)	Rear shock absorber lower mounting bolt	1	
(5)	Axle bearing holder bolt/washer	4/1	
(6)	Drive chain	1	Remove from the final driven sprocket.
(7)	Axle bearing holder unit	1	Move the axle bearing holder unit rearward out of the swingarm.
(8)	Drive chain adjusting nut	1	
(9)	Spring washer/plain washer	1/1	
(10)	Drive chain adjuster	1	
(11)	Swingarm pivot nut	1	
(12)	Swingarm pivot bolt	1	
(13)	Swingarm	1	

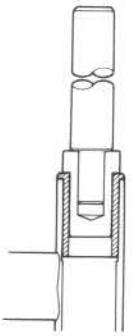
Swingarm Disassembly/Assembly



Bushing removal



Bushing installation

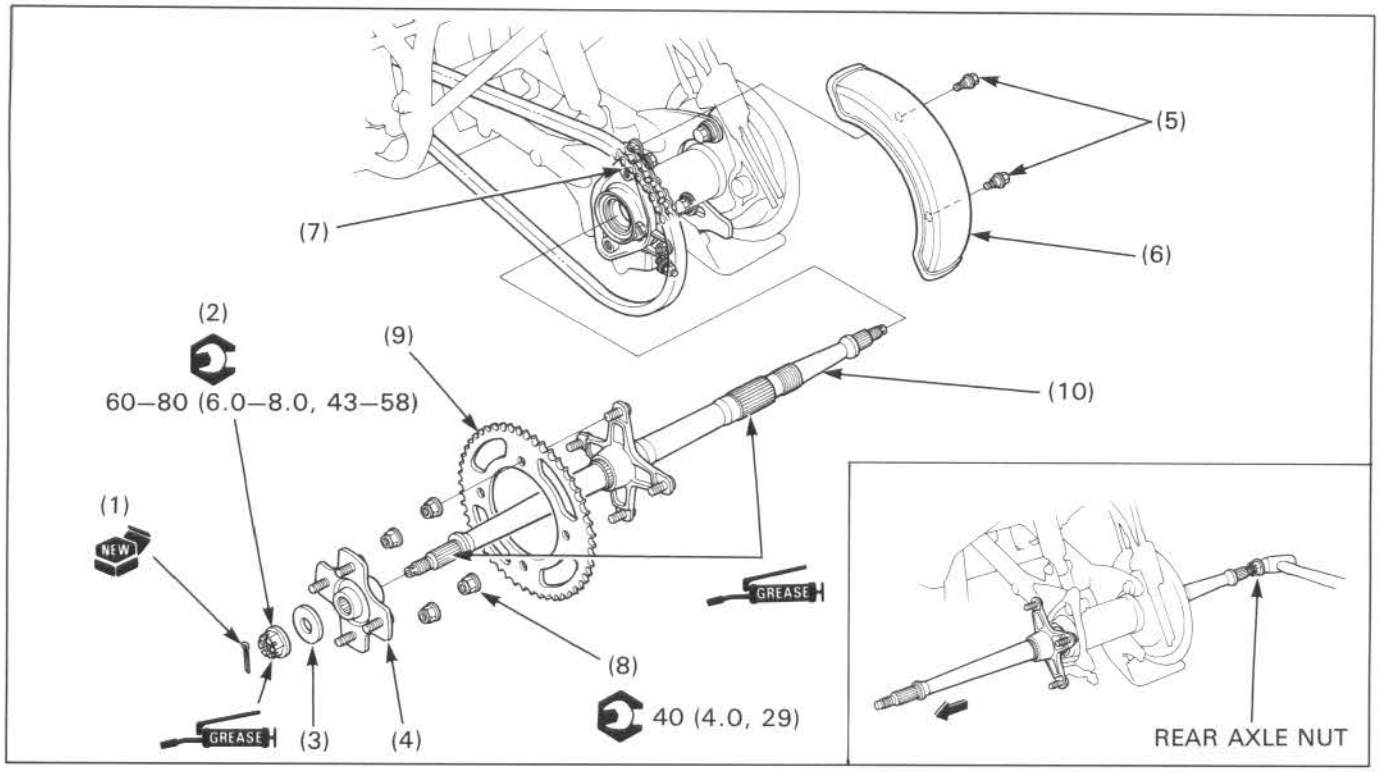


Requisite Service

- Swingarm removal/installation (page 12-9)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Dust seal cap	2	
(2)	Chain slider	1	
(3)	Pivot collar	1	
(4)	Pivot bushing	2	Use the needle bearing driver (07946-KA50000).

Rear Axle Removal/Installation



NOTE

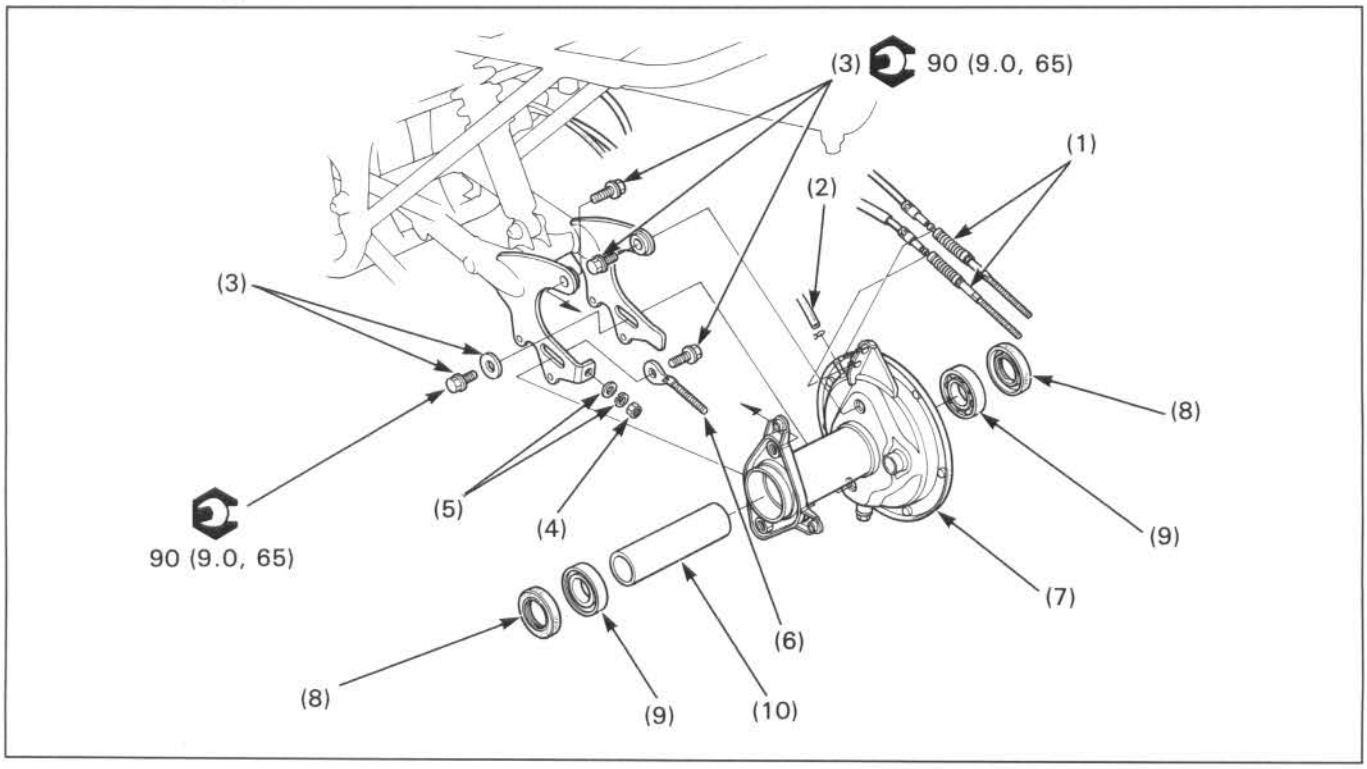
- Adjust the drive chain slack after installation (page 3-6).

Requisite Service

- Chain guard removal/installation (page 2-9)
- Rear brake removal/installation (page 12-4)
- Left rear wheel removal/installation (page 12-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cotter pin	1	
(2)	Left rear axle nut	1	
(3)	Lock washer	1	
(4)	Left rear wheel hub	1	
(5)	Bolt	2	
(6)	Drive chain cover	1	
(7)	Drive chain	1	Loosen the drive chain adjusting nut and axle bearing holder bolts, and remove the chain from the final driven sprocket.
(8)	Final driven sprocket bolt	4	
(9)	Final driven sprocket	1	
(10)	Rear axle	1	Install the rear axle nut onto the right end of the rear axle, and drive the axle out of the axle bearing holder using a soft hammer.

Axle Bearing Holder Removal/Installation



Requisite Service

- Brake panel guard removal/installation (page 2-9)
- Rear axle removal/installation (page 12-11)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake cable	2	
(2)	Rear brake breather tube	1	
(3)	Axle bearing holder bolt/washer	4/1	
(4)	Drive chain adjusting nut	1	
(5)	Spring washer/plain washer	1/1	
(6)	Drive chain adjuster	1	
(7)	Axle bearing holder	1	
(8)	Dust seal	2	NOTE • The inside diameter of the left seal is larger than than the one of the right seal.
(9)	Axle bearing	2	Install with driver (07749-0010000) and attachment (07746-0010400).
(10)	Collar	1	

13. Ignition System

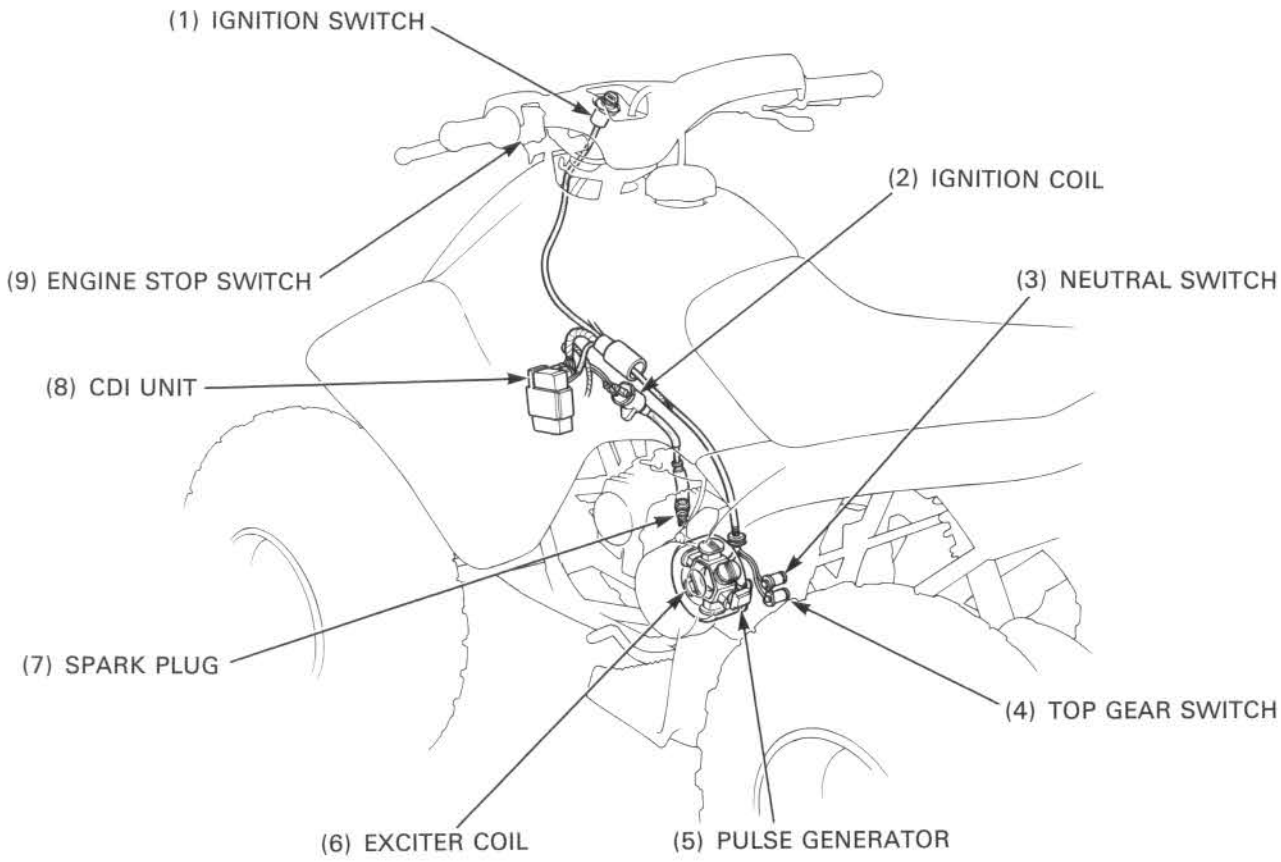
Service Information

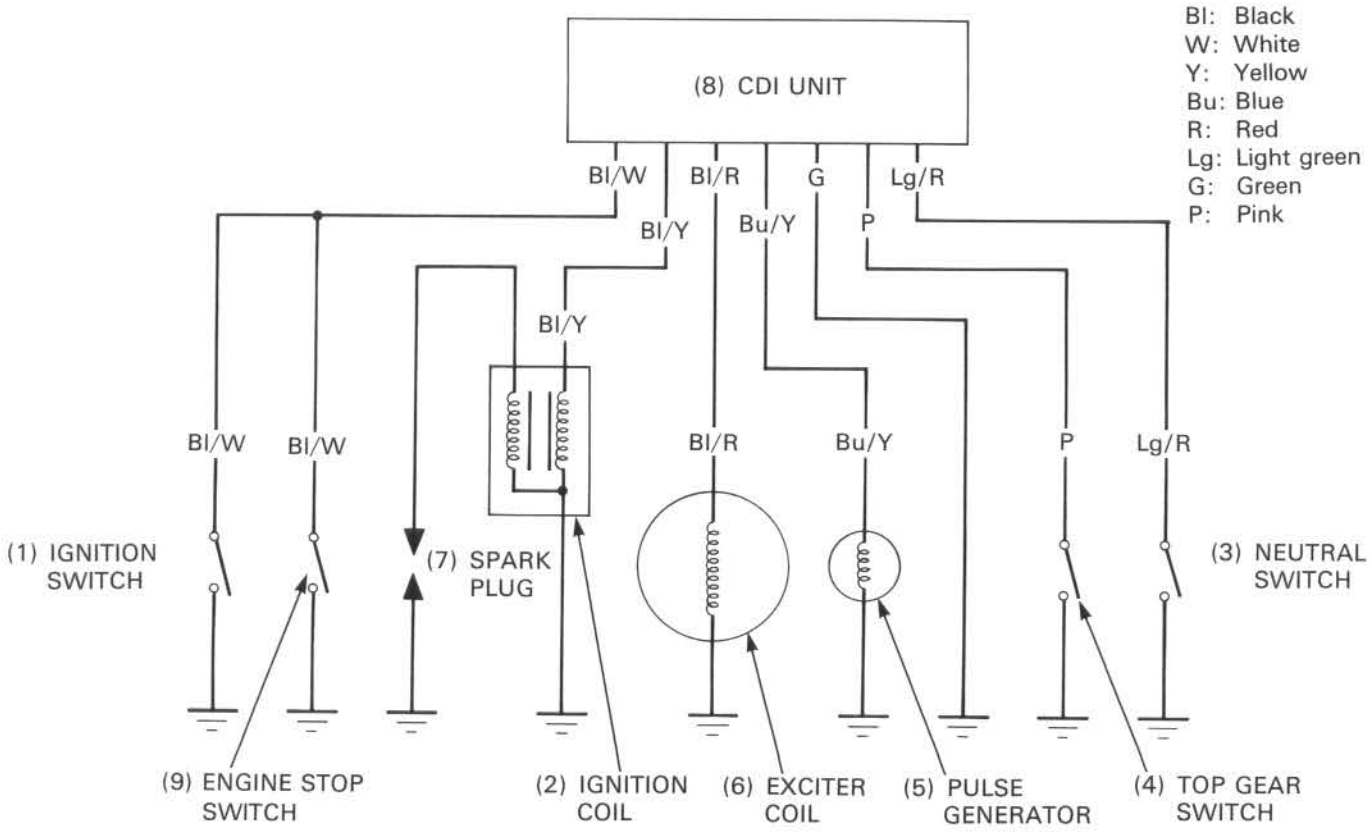
⚠ WARNING

- **If the enging 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 lead to death.**

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 13-3).
- The CDI ignition system uses an electrically controlled ignition timing system. No adjustments can be made to the ignition timing.
- The CDI unit may be damaged if dropped. Also, if the connector is disconnected when current is flowing, the excessive voltage may damage the unit. Always turn off the engine before servicing.
- A faulty ignition system is often related to poorly connected connectors. Check those connections before proceeding.
- Use a spark plug of the correct heat range. Using a spark plug with an incorrect heat range can damage the engine. Refer to section 2 of the Common Service Manual.
- For ignition switch and engine stop switch inspection, check for continuity on the continuity chart of the Wiring Diagram (page 14-1).

System Location





Troubleshooting

No spark at plug

Replace with known good spark plug and conduct the spark test.
- Spark → • Faulty plug
- No spark →

Check for poorly connected or loose spark plug wire. If loose, screw spark plug cap securely into the spark plug wire and conduct the spark test.
- Spark → • Loose spark plug wire
- No spark →

Check for loose or poorly connected ignition coil primary wire connectors. Correct them and conduct the spark test.
- Spark → • Poorly connected ignition coil primary wire connectors
- No spark →

Check for loose or poorly connected CDI unit connectors. Correct them and conduct the spark test.
- Spark → • Poorly connected CDI unit connectors
- No spark →

Disconnect CDI unit connectors and perform the circuit inspection (page 13-4).
Measure the resistance of the secondary coil (page 13-5).
- Normal → • Faulty CDI unit
- Abnormal →

Check the related components individually. Compare result with ones above.
- Abnormal (Same results) →
  - Faulty ignition coil
  - Faulty alternator exciter coil
  - Faulty pulse generator
  - Faulty ignition switch
  - Faulty engine stop switch
  - Faulty neutral switch
  - Faulty top gear switch
- Normal (If results differ) →
  - Poorly connected component connector
  - Broken wire harness between unit and component

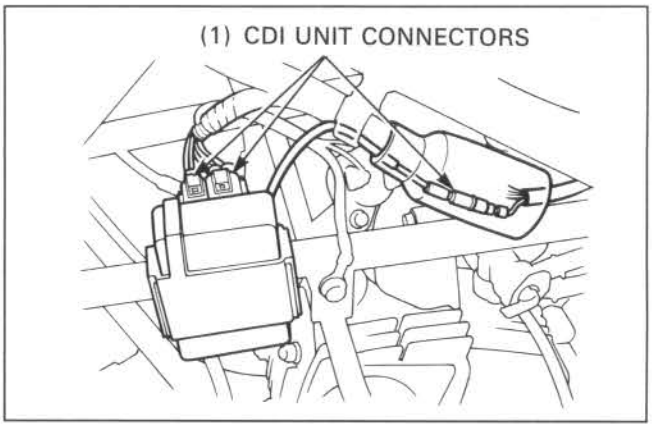
Ignition System Inspection

Circuit Inspection

NOTE

- Follow the steps in the troubleshooting flow chart for servicing.

Disconnect the CDI unit connectors and conduct the following tests at the connectors:

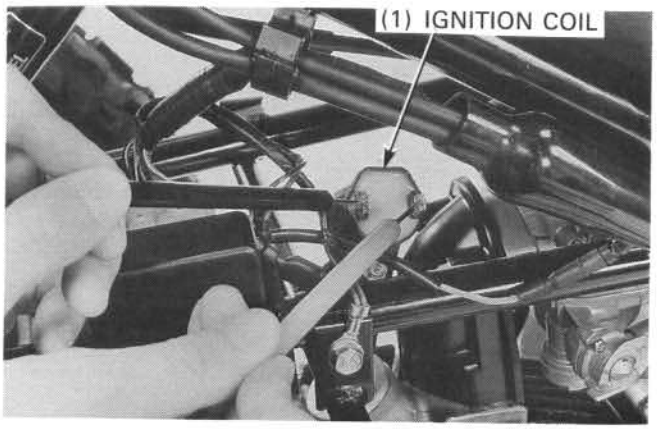


Item	Terminals	Specification
Ignition primary coil	Black/yellow and ground	0.19—0.23Ω (20°C/68°F)
Pulse generator coil	Blue/yellow and ground	50—200Ω (20°C/68°F)
Exciter coil	Black/red and ground	400—800Ω (20°C/68°F)
Ignition switch and engine stop switch line	Black/white and ground	Continuity with the ignition switch OFF and/or engine stop switch OFF
		No continuity with the ignition switch ON and engine stop switch RUN
Neutral switch line	Light green/red and ground	Continuity with the transmission in neutral
		No continuity with the transmission in any gear except neutral
Top gear switch line	Pink and ground	Continuity with the transmission in 4th gear
		No continuity with the transmission in any gear except 4th gear
Ground line	Green and ground	Continuity

Ignition Coil Inspection

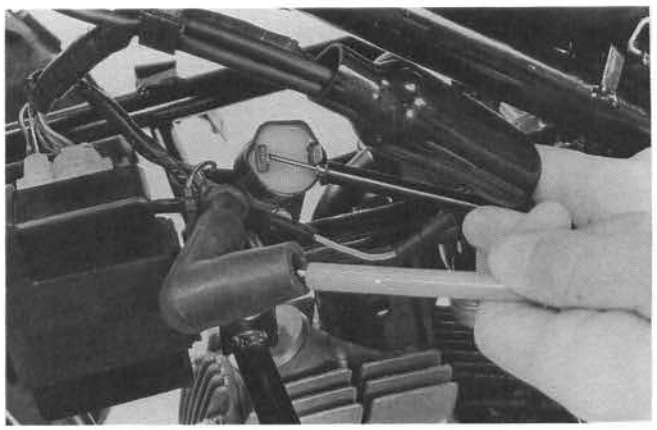
Disconnect the primary wire connectors from the ignition coil and measure the primary coil resistance between the terminals.

Standard: 0.19—0.23Ω (20°C/68°F)



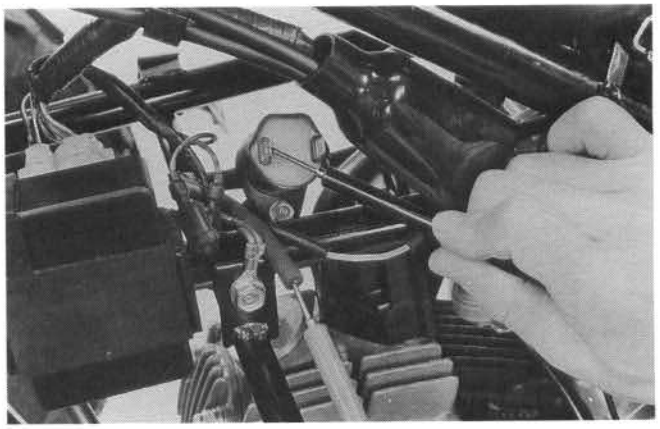
Remove the spark plug cap from the plug and measure the secondary coil resistance between the plug cap and green terminal.

Standard: 7.8—8.4kΩ (20°C/68°F)



If the resistance is out of range, remove the spark plug cap from the spark plug wire and measure the secondary coil resistance between the spark plug wire and green terminal.

Standard: 2.8—3.4kΩ (20°C/68°F)



Alternator Inspection

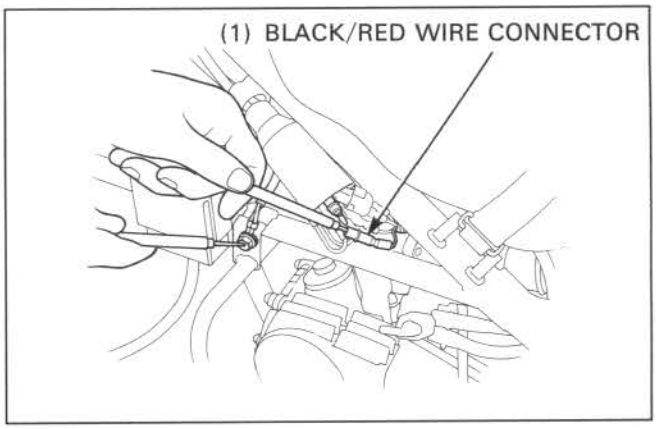
NOTE

- It is not necessary to remove the stator coil and pulse generator to make this inspection.

Exciter Coil

Disconnect the alternator black/red wire connector and measure the exciter coil resistance between the wire terminal and ground.

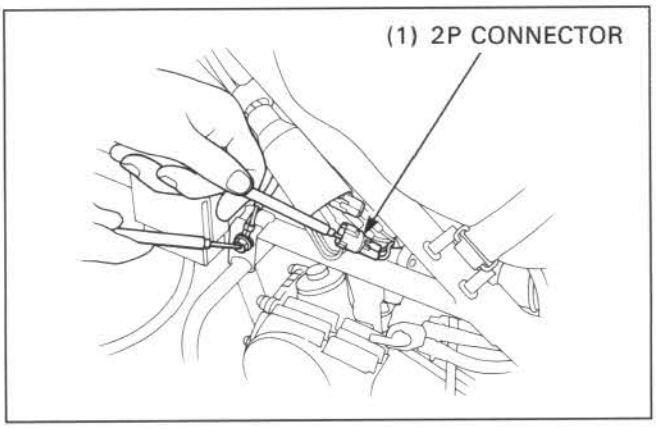
Standard: 400—800Ω (20°C/68°F)



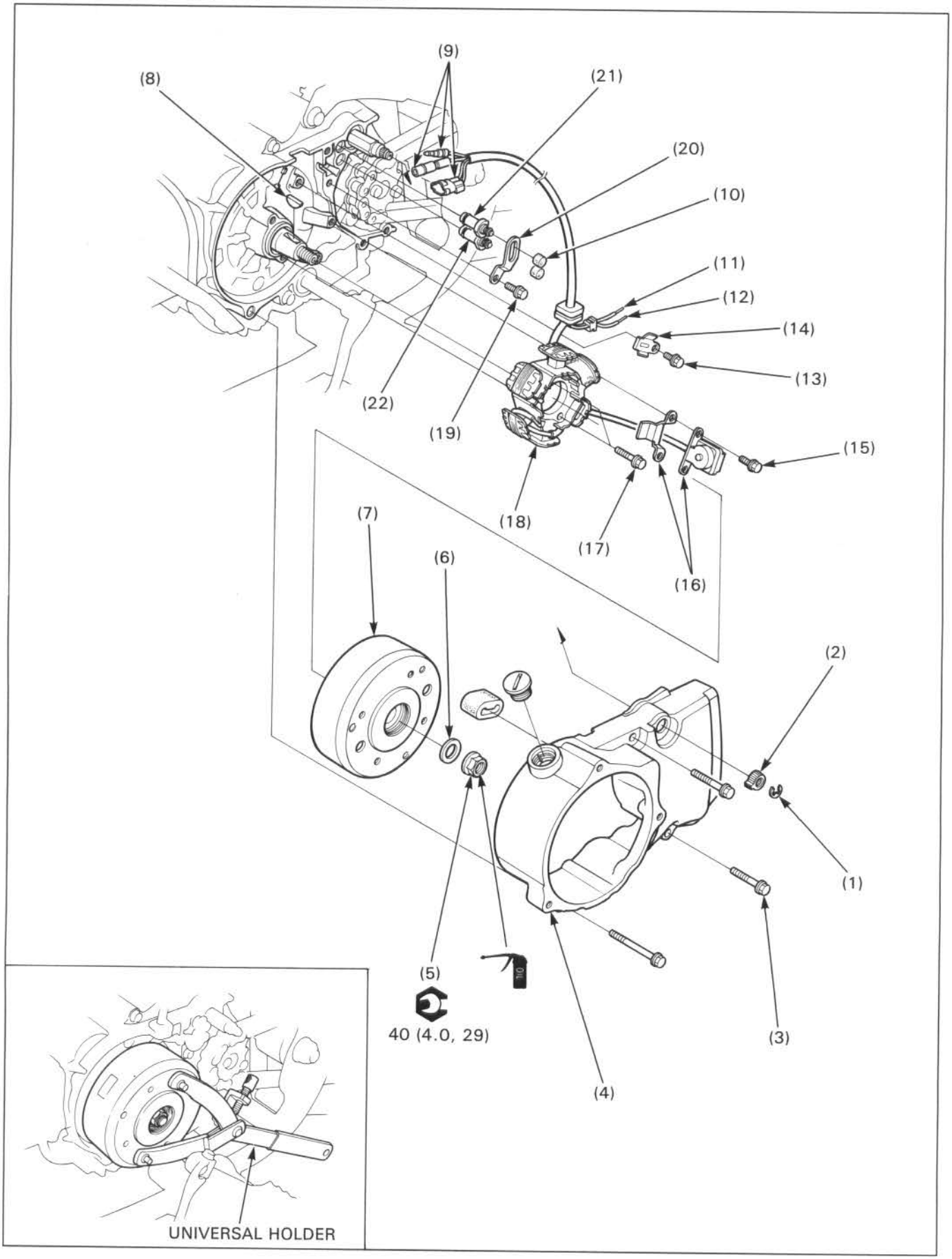
Pulse Generator Coil

Disconnect the alternator 2P connector and measure the pulse generator coil resistance between the blue/yellow wire terminal and ground.

Standard: 50—200Ω (20°C/68°F)



Alternator Removal/Installation



Requisite Service

- Rear fender removal/installation (page 2-4)
- Recoil starter removal/installation (page 9-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Circlip	1	
(2)	Neutral indicator	1	
(3)	Bolt	3	
(4)	Left crankcase cover	1	
(5)	Flywheel nut	1	Use the universal holder (07725-0030000).
(6)	Lock washer	1	
(7)	Flywheel	1	Use the flywheel puller (07733-0010000).
(8)	Woodruff key	1	
(9)	Alternator/neutral switch wire connector	3	
(10)	Rubber cap	2	
(11)	Neutral switch wire	1	Push the retainer washer and disconnect the wire from the switch.
(12)	Top gear switch wire	1	
(13)	Bolt	1	
(14)	Wire clamp	1	
(15)	Bolt	2	
(16)	Pulse generator/wire clamp	1/1	
(17)	Bolt	2	
(18)	Stator	1	NOTE • Install the wire grommets into the left crankcase grooves properly during installation.
(19)	Bolt	1	
(20)	Setting plate	1	
(21)	Neutral switch	1	
(22)	Top gear switch	1	

Ignition Timing

NOTE

- The CDI ignition system is factory pre-set and cannot be adjusted. Ignition timing inspection procedures are given to inspect the function of the ICM components.

Warm up the engine to operating temperature.

⚠WARNING

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

Remove the timing hole cap from the left crankcase cover.
Connect a timing light and tachometer to the spark plug wire.

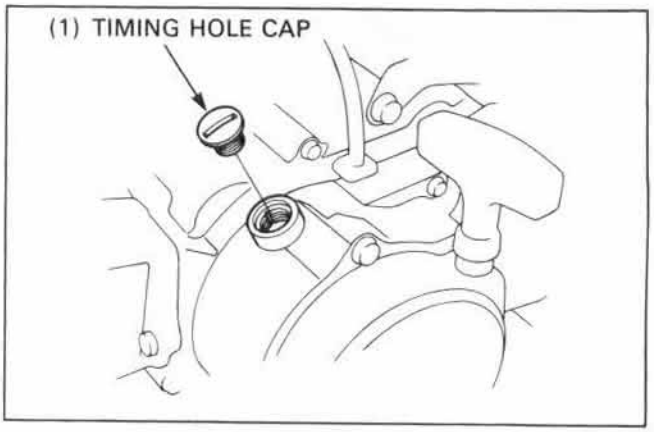
The ignition timing at idle is correct if the "F" mark on the flywheel aligns with the index mark of the left crankcase cover at idle.

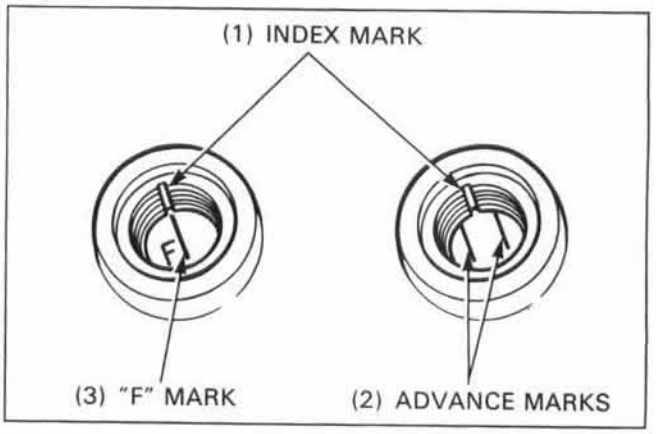
Idle speed: 1,600 ± 100 rpm

To check the advance, increase the engine speed to 3,050 rpm; the index mark should be between the advance marks.

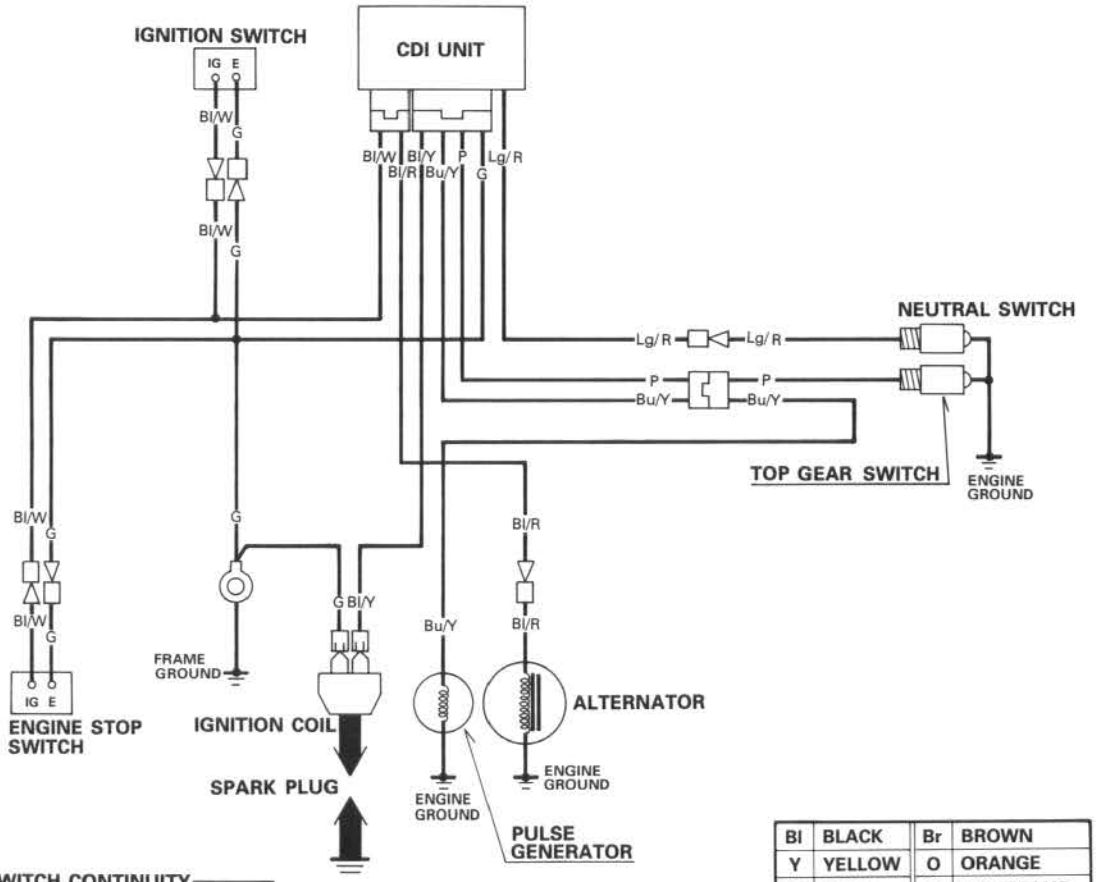
Install the timing hole cap.
Torque the cap.

Torque: 3 N·m (0.3 kg-m, 2.2 ft-lb) NEW





14. Wiring Diagram



SWITCH CONTINUITY

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

IGNITION SWITCH		
	IG	E
●		
OFF	○—○	
COLOR	Bl/W	G

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-HF7-0000

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MEMO

15. Troubleshooting

Engine Does Not Start Or Is Hard To Start

		Possible Cause
1. Check the fuel flow to carburetor	Not Reaching Carburetor	· Clogged fuel tube or fuel stariner screen · Sticking float valve · Clogged fuel tank breather
Reaching Carburetor		
2. Perform a spark test	Weak Or No Spark	· Faulty spark plug · Fouled spark plug · Faulty ICM · Broken or shorted spark plug wire · Broken or shorted ignition coil · Faulty ignition switch · Faulty ignition pulse generator · Faulty engine stop switch · Loose or disconnected ignition system wires · Faulty reverse switch · Faulty neutral switch
Good Spark		
3. Test cylinder compression	Low Compression	· Valve clearance too small · Valve stuck open · Worn cylinder and piston ring · Damaged cylinder head gasket · Seized valve · Improper valve timing
Compression Normal		
4. Start by following normal procedure	Engine Starts But Stops	· Choke valve excessively closed · Carburetor pilot screw excessively closed · Intake pipe leaking · Improper ignition timing (Faulty ignition coil or ignition pulse generator) · Fuel contaminated
Engine Does Not Fire		
5. Remove and inspect spark plug	Wet Plug	· Engine flooded · Choke valve excessively closed · Throttle valve excessively open · Air cleaner dirty

Engine Lacks Power

		Possible Cause
1. Raise wheels off the ground and spin by hand	Wheels Do Not Spin Freely	· Brake dragging · Worn or damaged hub or axle bearing · Drive chain too tight
Wheel Spins Freely		
2. Check tire pressure	Pressure Low	· Faulty tire valve
Pressure Normal		
3. Accelerate rapidly from low to second	Engine Speed Not Changed When clutch Is Released	· Clutch slipping · Worn clutch discs/plates · Warped clutch discs/plates · Weak clutch spring
Engine Speed Lowered When Clutch Is Released		
4. Accelerate lightly	Engine Speed Does Not Increase	· Carburetor choke open · Clogged air cleaner · Restricted fuel flow · Clogged muffler · Pinched fuel tank breather
Engine Speed Increase		
5. Check ignition timing	Incorrect	· Faulty ICM · Faulty ignition pulse generator · Improper flywheel installation
Correct		
6. Check valve clearance	Incorrect	· Improper valve adjustment · Worn valve seat
Correct		
7. Test cylinder compression	Incorrect	· Valve stuck open · Worn cylinder and piston rings · Leaking head gasket · Improper valve timing
Normal		
8. Check carburetor for clogging	Clogged	· Damaged fuel strainer · Carburetor not serviced frequently enough
Not clogging		
9. Remove spark plug	Fouled Or Discolored	· Plug not serviced frequently enough · Spark plug is incorrect heat range
Not fouled Or Discolored		
10. Check oil level and condition	Incorrect	· Oil level too high · Oil level too low · Contaminated oil
Correct		
11. Remove cylinder head cover and inspect lubrication	Valve Train Not Lubricate Properly	· Clogged oil passage · Clogged oil control orifice
Valve Train Lubricate Properly		

12. Check if engine overheats — Overheated →
    - Excessive carbon build-up on the piston head or combustion chamber
    - Use of improper quality fuel
    - Clutch slipping
    - Fuel-air mixture too lean

Not overheated ↓

13. Accelerate or run at high speed — Engine knocks →
    - Worn piston and cylinder
    - Fuel-air mixture too lean
    - Use of improper quality fuel
    - Excessive carbon build-up on the piston head or combustion chamber
    - Ignition timing too advanced (Faulty CDI unit or pulse generator)

Poor Performance at Low and Idle Speeds

1. Check ignition timing and valve clearance — Incorrect →
    - Improper valve clearance
    - Improper ignition timing (Faulty CDI unit or pulse generator)

Correct ↓

2. Check carburetor air screw adjustment — Incorrect →
    - Fuel-air mixture too lean
    - Fuel-air mixture too rich

Correct ↓

3. Check if air is leaking past intake manifold — Leaking →
    - Deteriorated intake manifold O-ring
    - Damaged intake manifold gasket
    - Loose carburetor

Not Leaking ↓

4. Perform a spark test — Weak or intermittent spark →
    - Faulty, carbon or wet fouled spark plug
    - Faulty CDI unit
    - Faulty ignition coil
    - Faulty pulse generator
    - Faulty alternator

Good spark

Poor Performance at High Speed

1. Check ignition timing and valve clearance — Incorrect →
   - Improper valve clearance
   - Faulty CDI unit
   - Faulty pulse generator

   Correct ↓
2. Disconnect fuel tube at carburetor — Fuel flow restricted →
   - Lack of fuel in tank
   - Clogged fuel line
   - Clogged fuel tank cap breather hose
   - Clogged fuel strainer screen

   Fuel flows freely ↓
3. Remove the carburetor and check for clogged jet(s) — Clogged →
   - Clean

   Not clogged ↓
4. Check valve timing — Incorrect →
   - Cam sprocket not installed properly

   Correct ↓
5. Check valve spring — Damaged →
   - Faulty valve spring

Poor Handling

1. If steering is heavy →
   - Steering shaft holder too tight
   - Damaged steering shaft bearing or bushing
   - Front tire pressure too low
2. If either wheel is wobbling →
   - Excessive wheel or axle bearing play
   - Bent rim
   - Improperly installed wheel hub or wheel
   - Damaged swingarm pivot bushing
   - Distorted frame
   - Bent axle
3. If the vehicle pulls to one side →
   - Bent tie-rod
   - Bent swingarm
   - Improper toe-in adjustment
   - Bent front arm

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