montesa

HRC

TRIAL TEAM

WORLD CHAMPION

COTA 315R

'04

MANUAL DE PROPIETARIO

OWNER'S MANUAL

MANUEL DU CONDUCTEUR

World Champion

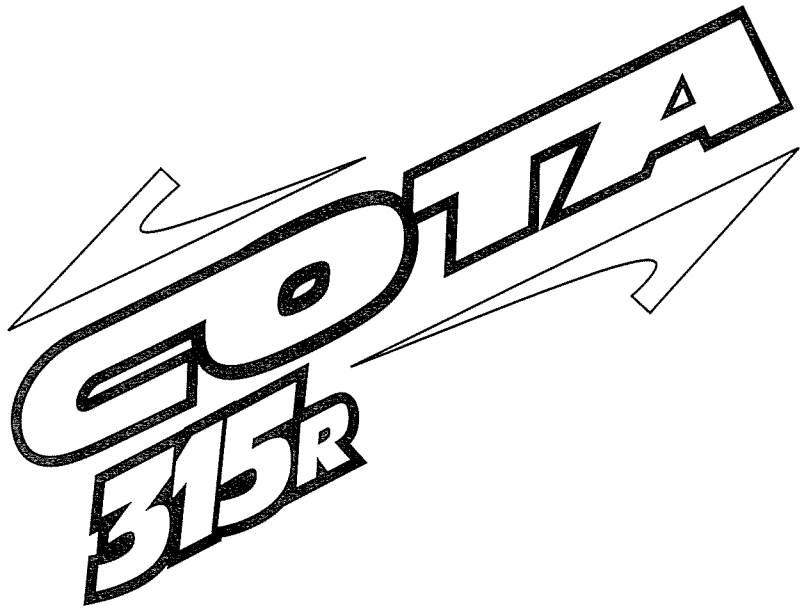
montesa

31-96-00-01-02-03

ORLD CHAMPION

MONTESA COTA 315R

Owner's Manual



Contents

To the New Owner

By selecting a MONTESA COTA 315R as your new machine, you have placed yourself in a distinguished family of owners and riders.

The COTA is a high performance trial motorcycle utilizing the latest trial technology. This motorcycle is intended for competition use by experienced riders only.

This new trialer was designed to be as competitive as possible. But motorcycle trial is a physically demanding sport that requires more than just a fine racing machine. To do well, you must be in excellent physical condition and be a skillful rider. For the best possible results, work diligently on your physical conditioning and practice frequently.

The purpose of this Manual is to help ensure that you obtain the greatest possible satisfaction from your new COTA trialer.

Importance Of Proper Preparation

Proper pre-competition preparation and regular service is essential to rider safety and the reliability of the motorcycle. Any error or oversight made by the technician during preparation or servicing can easily result in faulty operation, damage to the machine, or injury to the rider.

Parts Availability

Orders for the parts tend to be concentrated during the season, so you need to plan your parts orders carefully. To prevent delays in shipment, place orders on regularly replaced and fast-wearing parts well ahead of the season (see page 3-2).

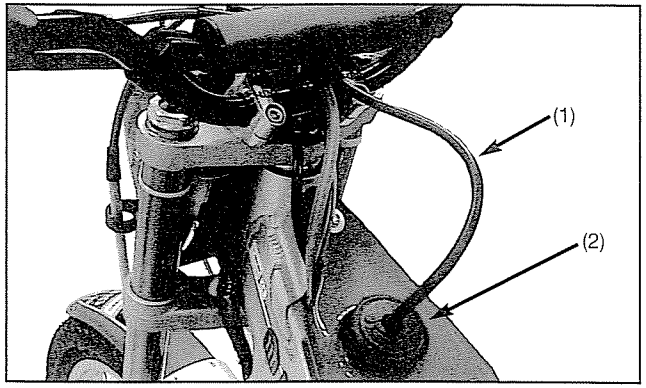
How To Use This Manual

The purpose of this Owner's Manual is to help ensure that you obtain the greatest possible satisfaction from your new COTA trialer; satisfaction with the performance of the motorcycle, and through success in competition.

If you plan to do any service on your COTA, section 3 describes standard maintenance and sections 4 through 6 contain in information on repair, disassembly, assembly and special tools.

Follow the Maintenance Schedule recommendation (page 3-1) to ensure that your COTA is always in peak operating condition.

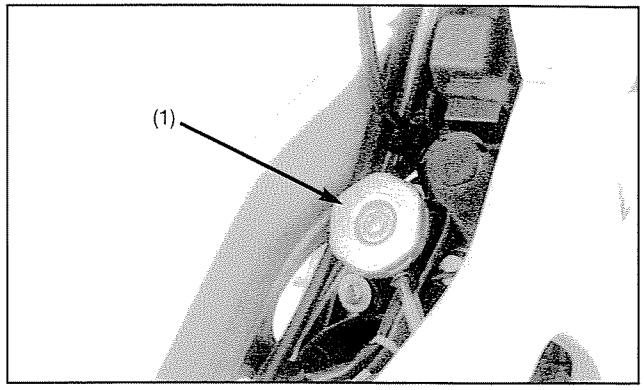
Memo



(1) BREATHER TUBE (2) FUEL TANK CAP

Gasoline	Oil
liter	cm^3
0.5	6.25
1.0	12.5
1.5	18.75
2.0	25
2.5	31.25
3.0	37.5
3.5	43.75
4.0	50
4.5	56.25
5.0	62.5

80:1 FUEL OIL MIXING CHART



(1) RADIATOR CAP

Fuel

Your COTA 315R has a two stroke engine that requires a gasoline-oil mixture as described below.

Gasoline: Unleaded gasoline (Commercially available unleaded; research octane number between 92 and 100).
Oil: ELF HTX976
Fuel/oil mixing ratio: 80:1
Fuel tank capacity: 2.3 liter (0.60 US gal, 0.50 Imp gal)

To open the fuel tank cap, remove the breather tube from the clamp. Then turn the tank cap counterclockwise.

⚠ WARNING

Gasoline is highly flammable and is explosive.
You can be burned or seriously injured.
When refueling:
- **Stop engine and keep heat, sparks, and flame away.**
- **Refuel only outdoors.**
- **Wipe up spills immediately.**

- Pre-mix gasoline and oil in a ratio of 80:1. Prepare the fuel mixture in clean container, and shake until thoroughly mixed before filling the fuel tank. USE ELF HTX976.
- Too much oil will cause excessive smoking and spark plug fouling. Too little oil will cause engine damage or premature wear.
- Do not mix vegetable and mineral based oils.
- Vegetable oils separate from gasoline more easily than mineral oils, especially in cold weather. It is advisable to use mineral oil when ambient temperatures below 0 °C (32 °F) are expected.
- If the gasoline-oil mixture is left standing in a container for a long period of time, lubricity will deteriorate. Use the mixture within 24 hours.
- Once an oil container is opened, the oil must be used within one month, since oxidation may occur.

Install the fuel tank cap by turning in clockwise. Install the breather tube into the clamp.

Coolant

The engine of COTA 315R is a water-cooled type. In order to provide adequate cooling, it is essential that the radiator be filled with coolant up the proper level.

Coolant: 50/50 Mixture of Coolant and Distilled Water

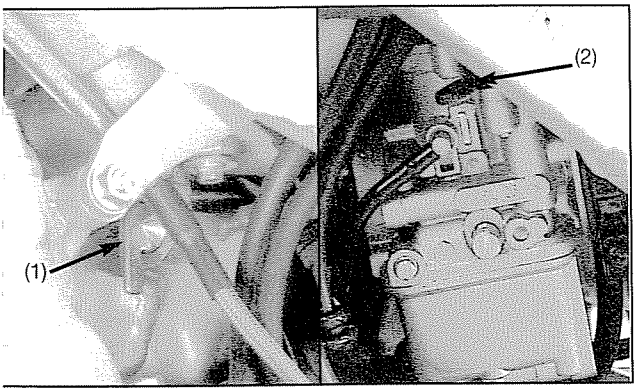
⚠ WARNING

Removing the radiator cap while the engine is hot will allow the coolant to spray out, seriously scalding you.

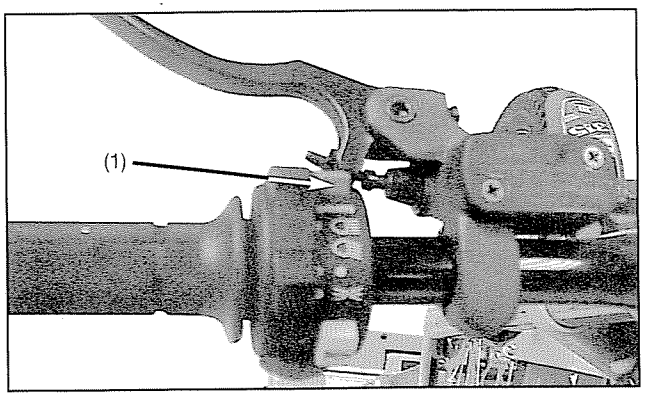
Always let the engine and radiator cool down before removing the radiator cap.

NOTICE

When filling the coolant system, be sure to bleed air completely by loosing the cylinder head air bleeder bolt. If not, the system cannot be sufficiently filled and will cause overheating.



(1) FUEL VALVE (2) CHOKE LEVER



(1) ENGINE STOP SWITCH

Basic Operation

Starting The Engine

Your COTA 315R exhaust contains poisonous carbon monoxide gas. High levels of carbon monoxide can collect rapidly in enclosed areas such as a garage. Do not run the engine with the garage door closed. Even with the door open, run the engine only long enough to move your COTA out of the garage.

Cold Engine Starting

1. Turn the fuel valve ON.
2. Pull the "CHOKE" lever up (open position).
3. Shift the transmission into neutral.
4. With the throttle closed, operate the kickstarter. Starting from the top of the kickstarter stroke, kick through to the bottom with a rapid, continuous motion.
5. After the engine starts, run it for a few minutes, "blipping" the throttle, until it warms up enough to idle with the "CHOKE" lever up (open position). The "CHOKE" lever should be returned down (close position), as soon as possible to prevent spark plug fouling.

Warm Engine Starting

Follow the cold engine starting procedure without operating the "CHOKE" lever.

Stopping The Engine

1. Shift the transmission into neutral.
2. Turn the fuel valve OFF.
3. Lightly open the throttle 2-3 times, and then close it.
4. When the engine slows down, push the engine stop switch until the engine stops completely.

NOTICE

If the fuel valve is not closed, the fuel could overflow through the carburetor, into the crankcase, causing hard starting.

Break-in Procedure

New Motorcycle

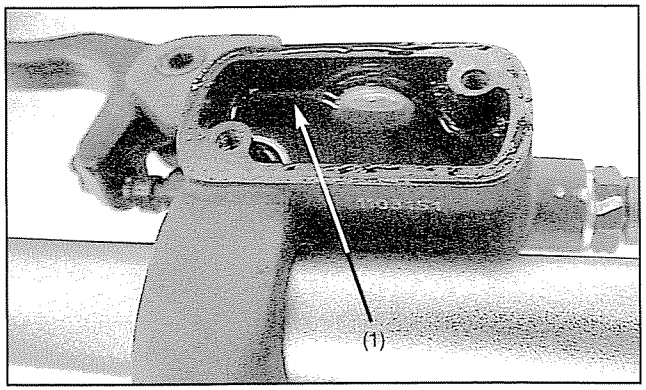
Following proper break-in procedure helps ensure that the most important and expensive components on your new motorcycle will provide maximum performance and service life. (Also follow proper break-in procedure for a newly rebuilt engine.)

When riding a new motorcycle, operate the motorcycle for the first 20 minutes using not more than half (1/2) throttle and shifting gears so that the engine does not lug.
Next 20 minutes using not more than three quarter (3/4) throttle and shifting gears so that the engine does not lug:

- When refueling, be sure to use a pre-mixed gasoline-oil mixture.
- Raise the main jet number by 2 ranks to enrich the mixture during breaking-in the motorcycle.

Reconditioned Motorcycle

- After replacing the cylinder and/or crankshaft, operate the motorcycle 20 minutes observing the same cautions as for a new motorcycle.
- When the piston, piston ring, gears, etc. are replaced, they must be broken in observing the first 30 minutes using not more than half throttle and shifting gears so that the engine does not lug.

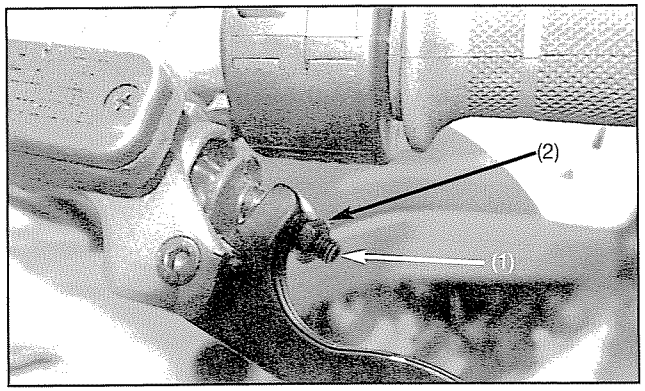


(1) UPPER LEVEL LINE

Controls

Clutch

Your COTA has a hydraulically actuated clutch. There are no adjustments to perform but the clutch system must be inspected periodically for fluid level and leakage.
If the control lever free play becomes excessive and the motorcycle creeps or stalls when shifted into gear, or if the clutch slips, causing acceleration to lag behind engine speed, there is probably air in the clutch hydraulic system and it must be bled out.



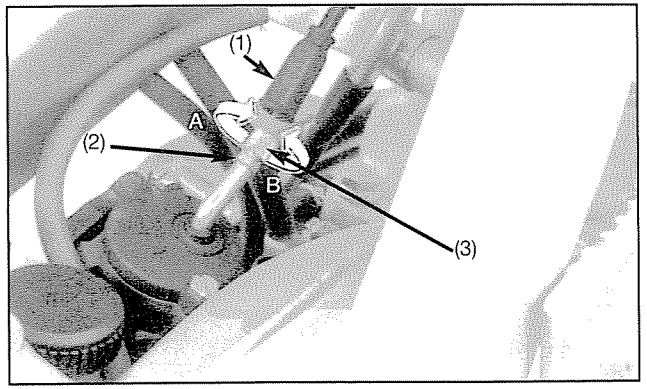
(1) ADJUSTER (2) LOCK NUT

Clutch Lever

The clutch lever free play can be adjusted by turning the adjuster.
Free play must be adjusted to provide 0.1 - 1.4 mm (0.004 - 0.055 in) clearance between the end of the adjuster and the clutch master cylinder piston.
To increase free play, turn the adjuster clockwise, then tighten the lock nut securely.
If the clutch lever free play exceeds 30 mm (1.2 in) even though the end of the adjuster and the clutch master cylinder piston is adjusted to the minimum of 0.1 mm (0.004 in), there is probably air in the clutch system and it must be bled.

NOTICE

Do not adjust the end of the adjuster and the clutch master cylinder piston below 0.1 mm (0.004 in).

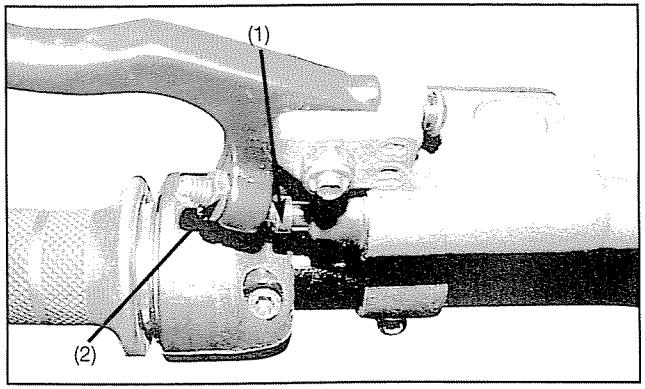


(1) DUST COVER (2) LOCK NUT (3) ADJUSTER
(A) DECREASE (B) INCREASE

Throttle Grip

Throttle Grip Free Play
Remove the fuel tank.
Standard throttle grip free play is approximately 3 mm (0.12 in) of grip rotation.
Adjustment is made with the carburetor upper adjuster.
Remove the dust cover and loosen the lock nut.
Turning the adjuster in direction "A" will decrease free play and turning it in direction "B" will increase free play. Tighten the lock nut after adjustment.

Operate the throttle grip to ensure that it functions smoothly and returns completely in all steering position.



(1) ADJUSTER (2) LOCK NUT

Front Brake Lever

The front brake lever free play can be adjusted by turning the adjuster.

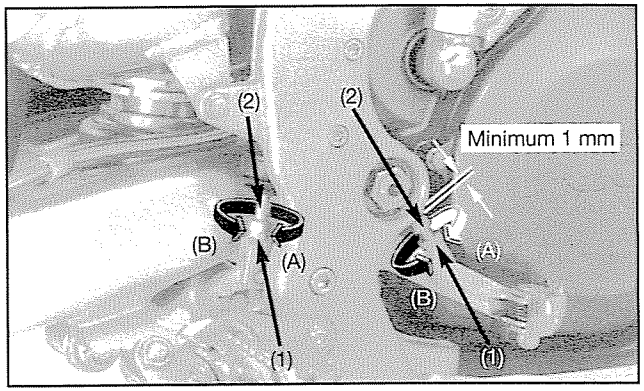
Free play must be adjusted to provide 0.1 - 1.4 mm (0.004 - 0.055 in) clearance between the end of the adjuster and the front brake master cylinder piston.

To increase free play, turn the adjuster clockwise, then tighten the lock nut securely.

If the brake lever free play exceeds 30 mm (1.2 in) even though the end of the adjuster and the front brake master cylinder piston is adjusted to the minimum of 0.1 mm (0.004 in), there is probably air in the brake system and it must be bled.

NOTICE

Do not adjust the end of the adjuster and the front brake master cylinder piston below 0.1 mm (0.004 in).



(1) LOCK NUT (2) ADJUSTING BOLT
(A) RAISE THE PEDAL HEIGHT
(B) LOWER THE PEDAL HEIGHT

Brake Pedal Height

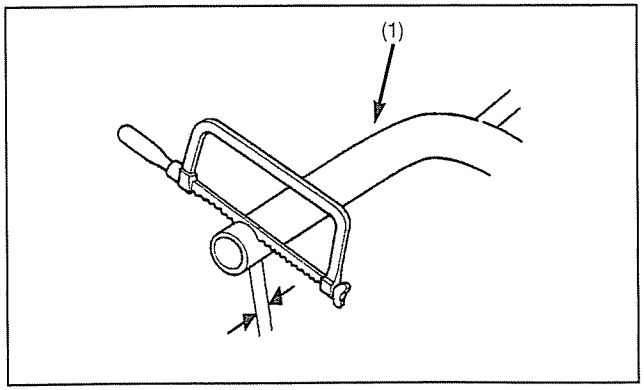
The brake pedal height can be adjusted to the rider's preference.

NOTICE

No brake pedal free play can cause a rear brake lock.
Must be check the brake pedal free play, after the adjustment.

To adjust the rear brake pedal height:

1. Loosen the push rod lock nut and brake pedal adjusting bolt lock nut. Then turn the both adjusting bolts in direction "A" to raise the pedal, or in direction "B" to lower it.
2. Tighten the lock nuts at the desired pedal height.
3. After adjustment, check the brake pedal free play at the tip of the pedal.
   Make sure that the clearance between the front adjusting bolt and frame is at least 1 mm (0.04 in).



(1) HANDLEBAR

Handlebar Position, Width And Shape

Position the handlebar so that gripping the bar and operating the controls is comfortable while both seated and standing, while riding straight ahead and turning.

Handlebar width can be trimmed with a hacksaw to better your particular shoulder width and riding preference. Think this through carefully and cut off just a small amount at a time from both sides equally. It is obviously much easier to make the handlebar narrower than it is to add material.

NOTICE

Chamfer the edges to remove burrs and other irregularities or roughness after shaping.

An alternate handlebar shape, through varying rise or rearward sweep dimensions, will provide further adjustment to riding position and may better suit your particular body size or riding style. Each of the ergonomic dimensions of the motorcycle were determined to suit the greatest possible number of riders based on an average size rider.

Specifications

Item	Specifications
Dimensions	
Overall length	2.015 mm (79.3 in)
Overall width	830 mm (32.7 in)
Overall height	1.130 mm (44.5 in)
Wheelbase	1.320 mm (52.7 in)
Seat height	650 mm (25.6 in)
Ground clearance	340 mm (13.4 in)
Frame	
Type	Aluminum twin tube
Front suspension	Telescopic
Rear suspension	Swingarm
Front tire	MICHELIN TRIAL 2.75-21 TT
Rear tire	MICHELIN TRIAL 4.00 R18 TL (Tubeless)
Front brake, diameter	Single disc, 185 mm
Rear brake, diameter	Single disc, 150mm
Fuel capacity	2.3 liter (0.60 US gal, 0.50 Imp. gal)
Caster angle	23° 18'
Trail length	65 mm (2.6 in)
Engine	
Type	Liquid cooled 2-stroke engine with crankcase reed valve
Cylinder arrangement	Single cylinder, 15° inclined from vertical
Bore and stroke	72.2 x 61.0 mm (2.84 x 2.40 in)
Displacement	249 cm^3 (15.2 cu-in)
Compression ratio	8.2 : 1
Starting system	Primary kickstarter

Item	Specifications
Carburetor	
Type	Piston valve
Main bore (oval)	26 mm (1.0 in)
Drive Train	
Clutch operating system	Hydraulic operated
Clutch type	Wet, multi-plate
Transmission	5 speed constant mesh
Primary reduction	3.211 (61/19T)
Gear ratio 1st	2.533 (38/15T)
2nd	2.133 (32/15T)
3rd	1.813 (29/16T)
4th	1.080 (27/25T)
5th	0.643 (18/28T)
Final reduction	4.000 (40/10T)
Gearshift pattern	1-N-2-3-4-5
Electrical	
Ignition system	CDI (Capacitive Discharged Ignition)
Regulator type	DC regulator

Service Data

Item	Specifications
Lubrication	
Specified engine oil	ELF HTX976
Fuel/oil mixing ratio	80:1
Transmission oil capacity	
at draining	0.52 liter (0.55 US gal, 0.46 Imp gal)
at disassembly	0.55 liter (0.58 US gal, 0.48 Imp gal)
Specified transmission oil	ELF HTX740
Fuel System	
Carburetor identification No.	PHBL26BS PHBL26BS
Main jet (standard)	#110 . . . . . .#108
Slow jet (standard)	#35 (lower) . . . . . .#36 (lower)
Jet needle clip position	3nd groove from top
Air screw initial opening	1 turn out . . . . . .3 to 4 turn out
Float level	18.5 mm (0.73 in)
Throttle grip free play	3 mm (0.1 in)
Cooling System	
Recommended coolant	50/50 mixture coolant and distilled water
Radiator cap relief pressure	118 kPa (1.2 kgf/cm², 17 psi)

Unit: mm (in)

Item		Standard	Service Limit
Cylinder Head/Cylinder/Piston			
Cylinder head warpage		—	0.05 (0.002)
Cylinder I.D.	A	72.215-72.223 (2.8431-2.8434)	—
	B	72.208-72.215 (2.8428-2.8431)	—
	C	72.200-72.208 (2.8425-2.8428)	—
	Taper	—	0.05 (0.002)
	Out-of-round	—	0.05 (0.002)
	Warpage	—	0.05 (0.002)
Piston O.D.	A	72.172-72.180 (2.8414-2.8417)	—
	B	72.165-72.172 (2.8411-2.8414)	—
	C	72.158-72.165 (2.8409-2.8411)	—
	Measurement point	15 (0.6) from bottom of skirt	—
	Pin bore I.D.	18.007-18.013 (0.7089-0.7092)	18.02 (0.709)
Piston pin O.D.		17.994-18.000 (0.7084-0.7087)	17.98 (0.708)
Cylinder-to-piston clearance		0.035-0.050 (0.0014-0.0020)	—
Piston-to-piston pin clearance		0.007-0.019 (0.0003-0.0007)	0.04 (0.0016)
Connecting rod small end I.D.		21.997-22.009 (0.8660-0.8665)	22.02 (0.867)
Clutch/Gearshift Linkage			
Clutch spring free length		36.2 (1.43)	35.5 (1.40)
Clutch disc thickness		2.72-2.88 (0.136-0.348)	2.65 (0.104)
Clutch plate warpage		–	0.20 (0.008)
Clutch master cylinder I.D.		27.000-27.021 (1.0630-1.0638)	—
Clutch master piston O.D.		26.940-26.960 (1.0606-1.0614)	—
Kickstarter	Idle gear I.D.	21.020-21.041 (0.8276-0.8284)	21.6 (0.85)
	Bushing O.D.	20.979-21.000 (0.8259-0.8268)	20.96 (0.825)
	Bushing I.D.	17.000-17.018 (0.6693-0.6700)	17.04 (0.671)
	Countershaft O.D.	16.983-16.994 (0.6686-0.6691)	16.96 (0.668)

Unit: mm (in)

Item		Standard	Service Limit
Crankshaft/Transmission			
Crankshaft runout	Right	—	0.015 (0.0006)
	Left	—	0.040 (0.0016)
Connecting rod big end			
Side clearance		0.4-0.8 (0.02-0.03)	0.9 (0.04)
Radial clearance		0.010-0.022 (0.0004-0.0009)	0.032 (0.0013)
Transmission gear I.D.	M4	17.032-17.059 (0.6705-0.6716)	17.078 (0.6724)
	M5	20.020-20.041 (0.7882-0.7890)	20.060 (0.7898)
	C1	20.020-20.041 (0.7882-0.7890)	20.060 (0.7898)
	C2	25.020-25.041 (0.9850-0.9859)	25.060 (0.9866)
	C3	25.020-25.041 (0.9850-0.9859)	25.060 (0.9866)
Gear bushing I.D.	C1	17.000-17.018 (0.6693-0.6700)	17.030 (0.6705)
	C2	22.000-22.021 (0.8661-0.8670)	22.040 (0.8677)
O.D.	C1	19.979-20.000 (0.7866-0.7874)	19.950 (0.7854)
	C2	24.979-25.000 (0.9834-0.9843)	24.950 (0.9823)
	C3	24.979-25.000 (0.9834-0.9843)	24.950 (0.9823)
Mainshaft O.D.			
at M4 gear		16.983-16.994 (0.6686-0.6991)	16.970 (0.6681)
at M5 gear		19.959-19.980 (0.7858-0.7866)	19.940 (0.7859)
Countershaft O.D.			
at C1 bushing		16.983-16.994 (0.6686-0.6691)	16.970 (0.6681)
at C2 bushing		21.959-21.980 (0.8645-0.8654)	21.940 (0.8638)
at kickstarter idle gear		16.983-16.994 (0.6686-0.6691)	16.970 (0.6681)
Shift fork I.D.		10.000-10.021 (0.3937-0.3945)	10.03 (0.395)
Claw thickness		4.93-5.00 (0.194-0.197)	4.8 (0.19)
Shift fork shaft O.D.		9.977-9.987 (0.3936-0.3932)	9.97 (0.0392)

Unit: mm (in)

Item		Standard	Service Limit
Wheels/Tires			
Axle runout		—	0.20 (0.008)
Tire air pressure	Front	39-44 kPa (0.40-0.45 kgf/cm², 5.6-6.5 psi)	—
	Rear	29-34 kPa (0.30-0.35 kgf/cm², 4.3-5.0 psi)	—
Wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Drive chain slack		25-35 (1.0-1.4)	—
Drive chain slider thickness		—	2.0 (0.08) from upper surface
Front Suspension			
Left fork spring free lenght		384.8 (15.14)	377.1 (14.85)
Fork tube runout		—	0.20 (0.008)
Recommended fork fluid		Above 5° C/41° F: Showa SS05	—
		Below 5° C/41° F: Belray #5 or BP #10	—
Damping adjuster setting		Compression adjuster: 10 clicks from full hard	
		Tension adjuster: 10 clicks from full hard	
Fork oil level	Right	39 (1.5)	—
	Left	97 (3.8)	—
Fork oil capacity	Right	407 cm³ (13.8 US oz, 14.3 Imp oz)	—
	Left	391 cm³ (13.2 US oz, 13.8 Imp oz)	—
Rear Suspension			
Shock absorber spring pre-load		126.5 (4.9)	—
Spring free length		133 (5.2)	129.4 (5.09)
Nitrogen gas pressure		1.27 Mpa (13 kgf/cm²)	—
Damper rod compressed force at 10 mm compressed		—	—
		196-232 N (19.9-23.6 kgf)	—
Tension adjuster setting		10 clicks from full hard	—

Unit: mm (in)

Item	Standard	Service Limit
Brakes		
Recommended brake fluid	DOT 4	—
Front Brake disc thickness	4.0 (0.16)	3.5 (0.14)
Brake disc runout	—	0.15 (0.006)
Rear Brake disc thickness	3.0 (0.12)	2.5 (0.10)
Brake disc runout	—	0.15 (0.006)
Electrical		
Spark plug	NGK: BR6ES	—
Spark plug gap	0.7-0.8 (0.027-0.031)	—
Ignition coil resistance		
Primary	0.45-0.55 Ω	—
Secondary with plug cap	12.4-16.8 Ω	—
Secondary without plug cap	8.6-10.6 Ω	—
Ignition pulse generator		
Resistance	90-110 Ω	—
Alternator		
Exciter coil resistance	10.8-13.2 Ω	—
Charging coil resistance	0.64-0.79 Ω	—

Torque Values

Standard

Item	Torque N·m (kgf·m, lbf·ft)
5 mm bolt and nut	5 (0.52, 3.5)
6 mm bolt and nut	10 (1.0, 7)
8 mm bolt and nut	22 (2.2, 16)
10 mm bolt and nut	33 (3.4, 25)
12 mm bolt and nut	53 (5.4, 40)
5 mm screw	4 (0.42, 3)
6 mm screw and flange bolt (SH type)	9 (0.9, 7)
6 mm flange bolt and nut	12 (1.2, 9)
8 mm flange bolt and nut	26 (2.7, 20)
10 mm flange bolt and nut	38 (3.9, 29)

Engine

Item	Q'ty	Threads Dia. (mm)	Torque N·m (kgf·m, lbf·ft)	Remarks
Spark plug	1	14	21 (2.1, 15)	
Oil drain bolt	1	8	22 (2.2, 16)	
Carburetor insulator band	1	5	Band width 3-4 mm	
Reed valve screw	4	3	1 (0.1, 0.7)	Note 1
Cylinder head stud bolt	6	8	8 (0.8, 6)	
Cylinder stud bolt	4	8	8 (0.8, 6)	
Water pump impeller	1	7	12 (1.2, 9)	
Cylinder head air bleed valve	1	6	10 (1.0, 7)	
Coolant drain bolt	1	6	10 (1.0, 7)	
Clutch center nut	1	18	80 (8.2, 59)	
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	
Shift drum center bolt	1	8	22 (2.2, 16)	Note 1
Primary drive gear bolt	1	10	44 (4.5, 33)	
Bearing set plate screw	3	6	10 (1.0, 7)	Note 1
Flywheel nut	1	14	108 (11.0, 80)	Note 2
Ignition pulse generator bolt	2	5	6 (0.6, 4.3)	Note 1

Notes: 1. Apply a locking agent to the threads.
2. Apply clean engine oil to the threads and seating surface.

Frame

Item	Q'ty	Threads Dia. (mm)	Torque N·m (kgf·m, lbf·ft)	Remarks
Kickstarter arm mounting bolt	1	8	26 (2.7, 20)	
Gearshift pedal pinch bolt	1	6	9 (0.9, 6.5)	
Exhaust pipe flange nut	2	8	22 (2.2, 16)	
Expansion chamber bolt (lower)	1	6	10 (1.0, 7)	
Silencer mounting bolt	1	6	10 (1.0, 7)	
Silencer stay mounting bolt	2	8	22 (2.2, 16)	
Down tube mounting bolt	4	8	22 (2.2, 16)	
Skid plate:				
Front mounting bolt	2	8	26 (2.7, 20)	
Rear mounting bolt	2	8	22 (2.2, 16)	
Engine hanger:				
Front hanger bolt	1	10	39 (4.0, 29)	
Rear hanger bolt/nut	1	10	39 (4.0, 29)	
Upper hanger bolt/nut	1	8	26 (2.7, 20)	
Handlebar holder socket bolt	4	8	22 (2.2, 16)	
Throttle housing bolt	2	5	4.2 (0.43, 3.1)	
Clutch lever holder bolt	2	5	3.2 (0.33, 2.4)	
Clutch hose (master cylinder)	1	10	20 (2.0, 14)	
Clutch oil bleeder bolt	1	10	23 (2.3, 17)	
Steering head top thread	1	26	5 (0.5, 3.6)	Note 1
Steering stem bolt	1	20	64 (6.5, 47)	Note 1
Fork top pinch bolt	2	8	20 (2.0, 14)	Note 1
Fork bottom pinch bolt	4	8	20 (2.0, 14)	Note 1
Front axle bolt	1	17	69 (7.0, 51)	Note 1
Front axle pinch bolt	2	6	10 (1.0, 7)	Note 1
Front spoke nipple	36	BC 2.9	3.2 (0.33, 2.4)	
Rim lock nut	1	8	13 (1.3, 9)	
Front brake caliper mounting bolt	2	8	26 (2.7, 20)	Note 2
Front brake disc mounting bolt	6	6	12 (1.2, 9)	Note 2
Fork cap	2	36	23 (2.3, 17)	
Fork cap bolt-to-adjuster case	1	22	34 (3.5, 25)	
Fork adjuster case lock nut	1	10	20 (2.0, 14)	
Right center bolt	1	14	34 (3.5, 25)	Note 2
Center bolt	1	15	34 (3.5, 25)	Note 2

Item	Q'ty	Threads Dia. (mm)	Torque N·m (kgf·m, lbf·ft)	Remarks
Rear axle nut	1	17	69 (7.0, 51)	Note 1
Rear spoke nipple	36	4	3.7 (0.38, 2.7)	
Final driven sprocket nut	6	8	25 (2.5, 18)	
Rear brake disc mounting bolt	5	6	12 (1.2, 9)	Note 2
Shock absorber:				
Upper mounting bolt/nut	1	10	39 (4.0, 29)	
Lower mounting bolt/nut	1	10	39 (4.0, 29)	
Shock absorber spring lock nut	1	50	49 (5.0, 36)	
Shock arm bolt/nut	1	10	39 (4.0, 29)	
Shock link bolt/nut	2	10	39 (4.0, 29)	
Swingarm pivot nut	1	14	69 (7.0, 51)	Note 1
Side stand pivot nut	1	10	23 (2.3, 17)	
Side stand bracket mounting bolt	2	8	26 (2.7, 20)	Note 2
Brake pedal pivot bolt	1	8	26 (2.7, 20)	
Front brake master cylinder holder bolt	2	6	3.2 (0.33, 2.4)	
Brake hose:				
Front master cylinder	1	10	20 (2.0, 14)	
Front caliper	1	10	23 (2.3, 17)	
Rear master cylinder	1	10	23 (2.3, 17)	
Rear brake caliper	1	10	23 (2.3, 17)	

Notes: 1. Apply grease to the sliding surface.
2. Apply a locking agent to the threads.

Tools

Special

Description	Tool Number	Applicability
Bearing remover, 12 mm	07936-1660101	Water pump bearing
- Remover shaft	07936-1660120	
- Remover weight	07741-0010201	
Water seal driver	07945-KA30000	Water seal
Attachment, 28x30 mm	07946-1870100	Water pump bearing
Crankcase puller	07SMC-0010001	Crankcase
Crankshaft assembly tool	89001-NN3-000	Crankshaft
- Crankcase assembly shaft	89002-NN2-003	Crankcase
- Crankcase assembly nut	89003-NN2-003	
- Crankcase assembly collar	89003-NN3-003	
- Crankcase assembly adaptor	89005-NN2-003	
Fork seal driver set	07947-4630100	Fork oil seal
Fork damper holder	89515-NN3-821	Right fork socket bolt
Fork damper holder	07930-KA50000	Left fork socket bolt
Ball race remover	07948-4630100	Stem bearing race
Steering stem driver	07946-4300001	Stem lower bearing
Bearing driver	07946-KA50000	Swingarm pivot bearing
Bearing remover	07946-MJ00100	Shock link needle bearing
		Swingarm link bearing
Spherical bearing driver	07HMF-KS60100	Shock absorber bearing
Snap ring pliers	07914-3230001	Master cylinder snap ring
Flywheel puller	89010-NN3-003	Flywheel
Compressor attachment	07959-MB10000	Shock absorber spring

Common

Description	Tool Number	Applicability
Spoke nipple wrench	07701-0020200	Front spoke nipple
Clutch center holder	07724-0050001	Clutch center lock nut
Gear holder	07724-0010100	Primary drive gear bolt
Flywheel holder	07725-0040000	Flywheel
Universal puller	07631-0010000	Crankshaft bearing
Bearing remover head	07746-0050600	Wheel bearing
Bearing remover shaft	07746-0050100	Wheel bearing
Driver	07749-0010000	Radial ball bearing
Attachment, 24x26 mm	07746-0010700	Swingarm pivot bearing
Attachment, 32x35 mm	07746-0010100	Right countershaft bearing
Attachment, 37x40 mm	07746-0010200	Left mainshaft bearing
		Left shift drum bearing
Attachment, 42x47 mm	07746-0010300	Right mainshaft bearing
		Left countershaft bearing
		Right shift drum bearing
		Wheel bearing
		Ball race
Attachment, 62x68 mm	07746-0010500	Crankshaft bearing
Pilot, 12 mm	07746-0040200	Water pump bearing
Pilot, 17 mm	07746-0040400	Right countershaft bearing
		Left mainshaft bearing
Pilot, 20 mm	07746-0040500	Left countershaft bearing
		Wheel bearing
		Swingarm pivot bearing
Pilot, 25 mm	07746-0040600	Right shift drum bearing
Pilot, 28 mm	07746-0041100	Crankshaft bearing
Pin spanner	07702-0020001	Shock spring adjuster (2 required)
Shock absorber compressor	07GME-0010000	Shock absorber

*Newly designed tool for this model.

Lubrication And Seal Points

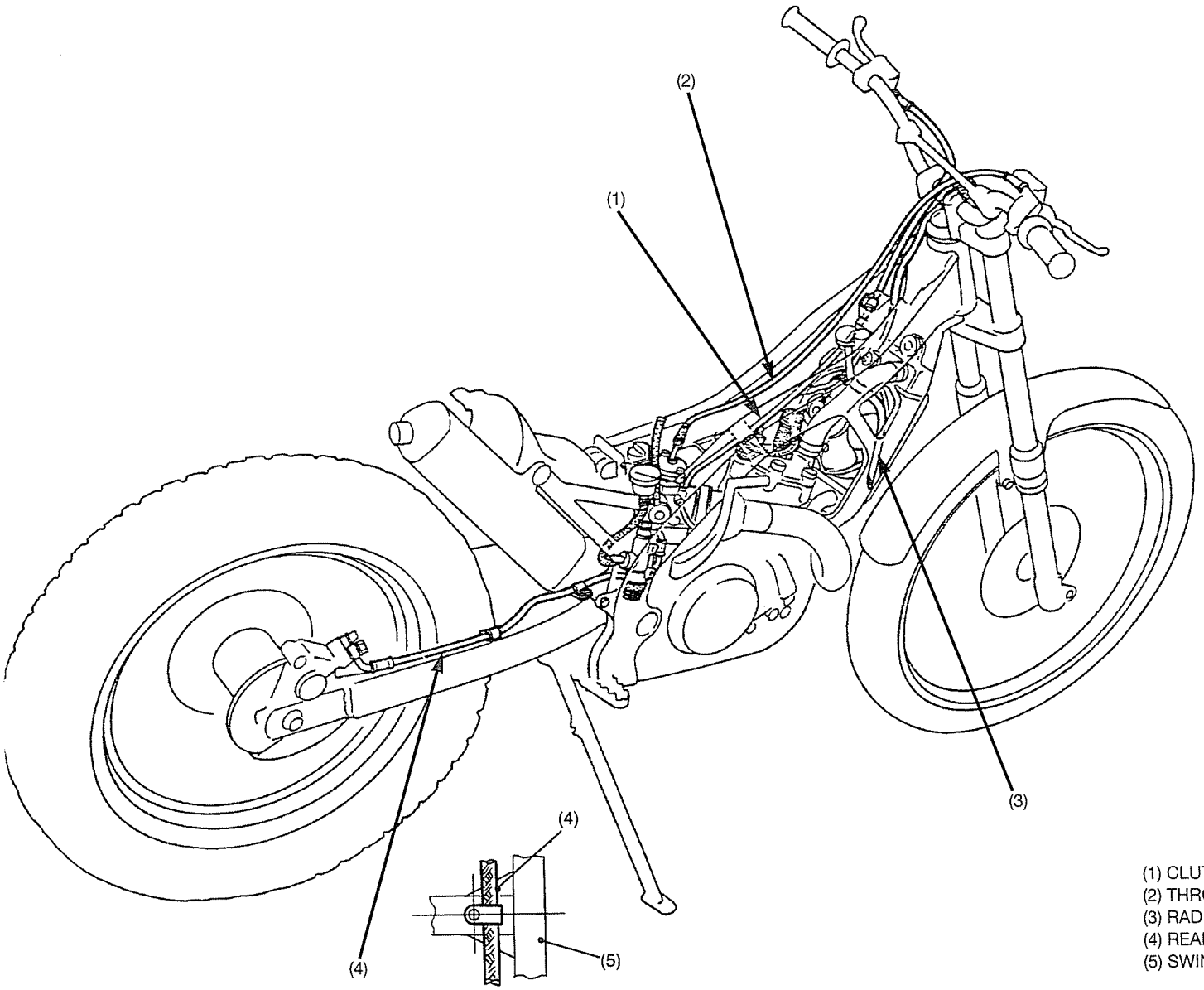
Engine

Item	Material	Remarks
Cylinder bore inner surface Piston/piston pin outer surface Piston ring surface Connecting rod bearing Crankshaft bearings	Engine oil ELF HTX976	
Each gear rotating and sliding area Each gear teeth Mainshaft/countershaft surface Kickstarter spindle surface Water pump shaft sliding surface Water pump gear teeth Clutch lifter rod surface Transmission/shift drum bearings Water pump shaft bearing Shift fork/fork shaft sliding surface Gearshift spindle outer surface Flywheel nut threads and seating surface	ELF HTX740	
Oil seal lips: - Right crankshaft - Countershaft - Water pump shaft - Kickstarter spindle - Gearshift spindle Clutch slave cylinder O-ring Oil filler cap O-ring	Multi-purpose grease	
Water seal lips	Lithium based multi-purpose grease	
Connecting rod big end bearing	Molybdenum disulfide oil (A 50/50 mixture of molybdenum disulfide grease and ELF HTX 976 motor oil)	
Clutch outer guide outer surface	Molybdenum paste	
Clutch slave cylinder piston/O-ring Left crankshaft oil seal lips	Silicone grease	
Gearshift guide plate bolt threads Bearing stopper plate screw threads Shift drum center bolt threads	Locking agent	
Ignition pulse generator bolt threads	THREE BOND SEALOCK #4100	

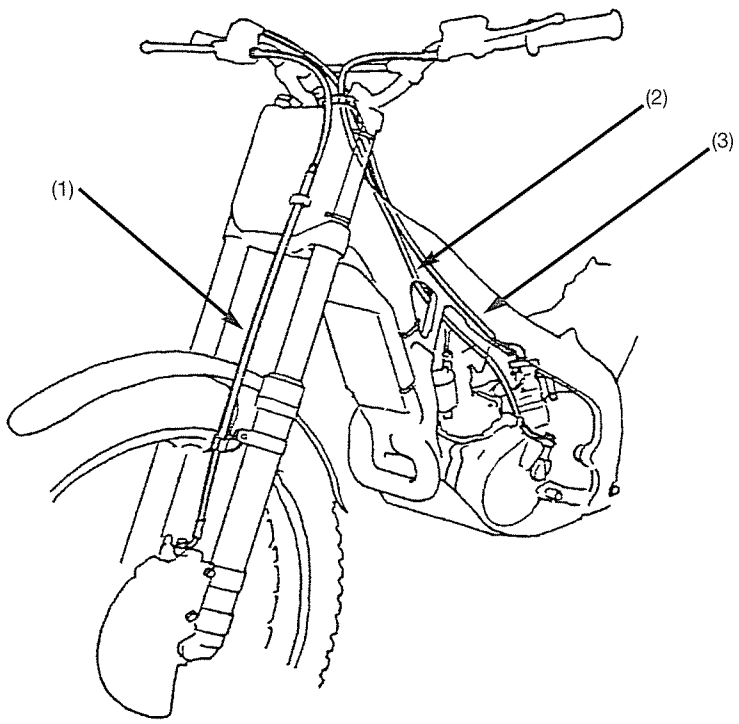
Frame

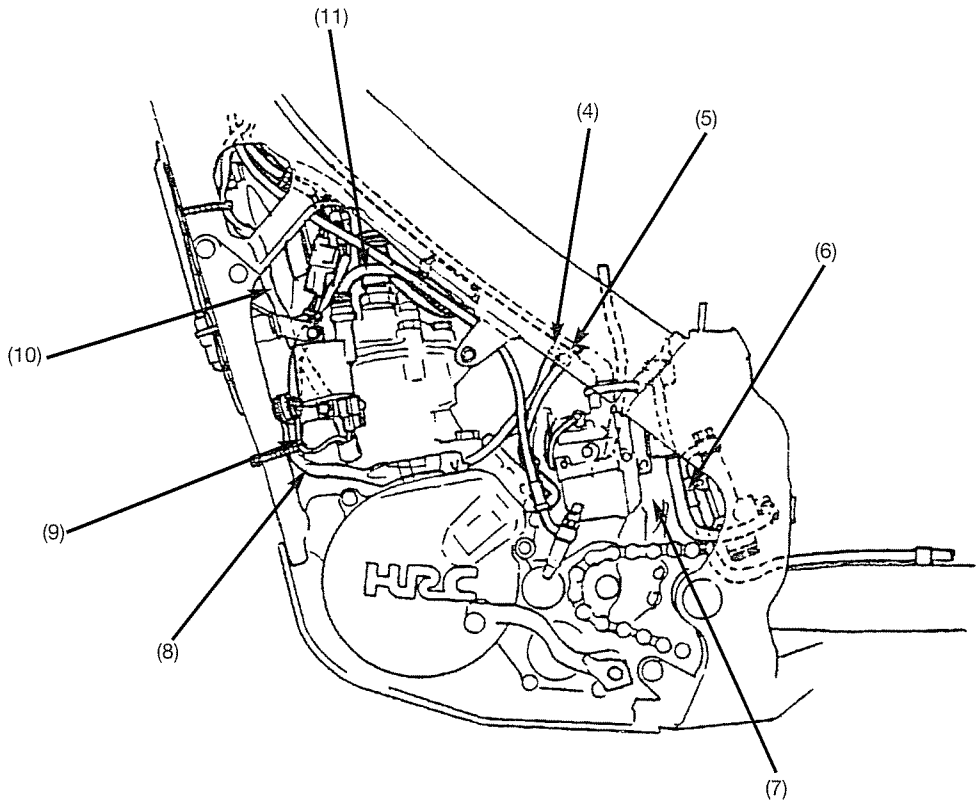
Item	Material	Remarks
Steering head bearing race and bearings Steering head dust seal lips Steering head top threads Steering stem bolt threads Fork top pinch bolt threads Fork bottom pinch bolt threads Swingarm pivot needle bearing Swingarm pivot dust seal lips Swingarm pivot bolt threads Shock link/shock arm needle bearings Shock link/shock arm dust seal lips Kickstarter arm joint sliding Brake lever pivot sliding surface Side stand pivot sliding surface Brake pedal pivot roller bearings Chain tensioner pivot sliding surface Clutch lever pivot sliding surface Wheel bearing spinning area Wheel axle threads Step joint pin surface	Multi-purpose grease	
Throttle pipe sliding surface and throttle wire drum	4-stroke engine oil (SAE 10W-30)	
Throttle housing screw threads	Molybdenum disulfide grease	
Brake hydraulic system inside Clutch hydraulic system inside	DOT 4 brake fluid	
Air cleaner element	Filter oil or 4-stroke engine oil (SAE 10W-30)	
Throttle cable sliding surface	Cable lubricant	
Handlebar grip	Honda bond A or Equivalent	
Drive chain adjuster stopper screw threads Side stand bracket bolt threads Steering stopper bolt threads Drive chain slider mounting screw threads Rear brake hose clamp screw threads Cooling fan nut threads	Locking agent	

Cable And Harness Routing



(1) CLUTCH HOSE
(2) THROTTLE CABLE
(3) RADIATOR OVERFLOW TUBE
(4) REAR BRAKE HOSE
(5) SWING ARM

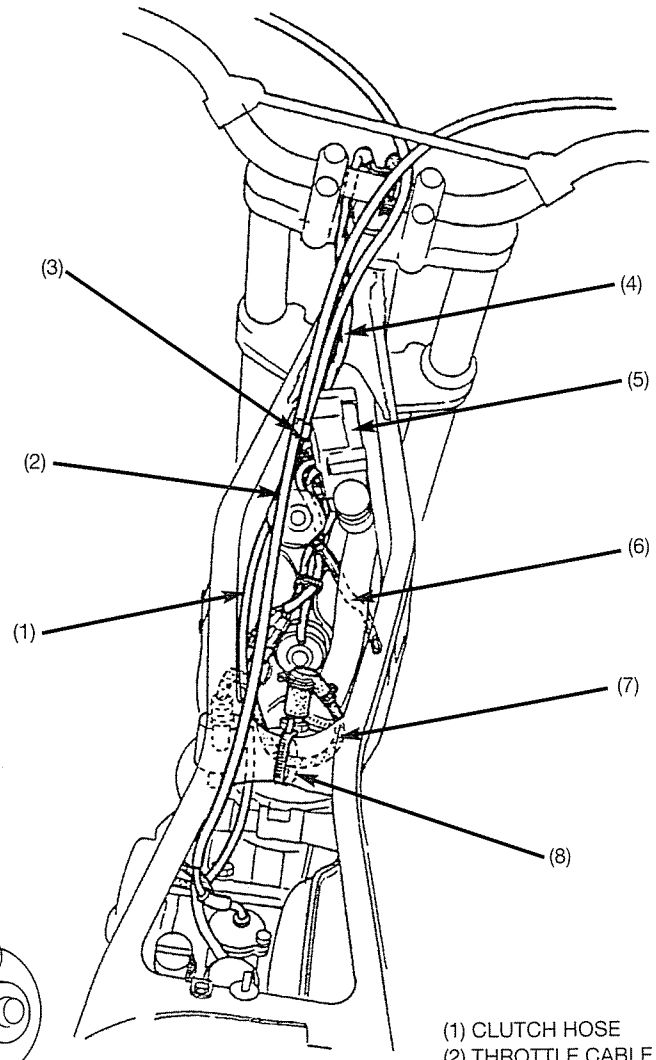


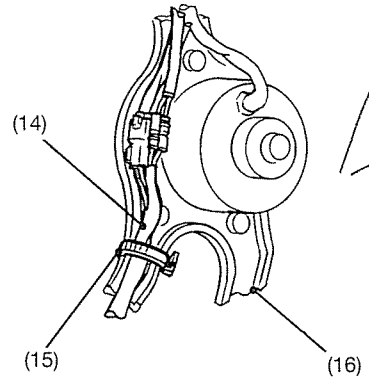


(1) FRONT BRAKE HOSE
(2) CLUTCH HOSE
(3) THROTTLE CABLE

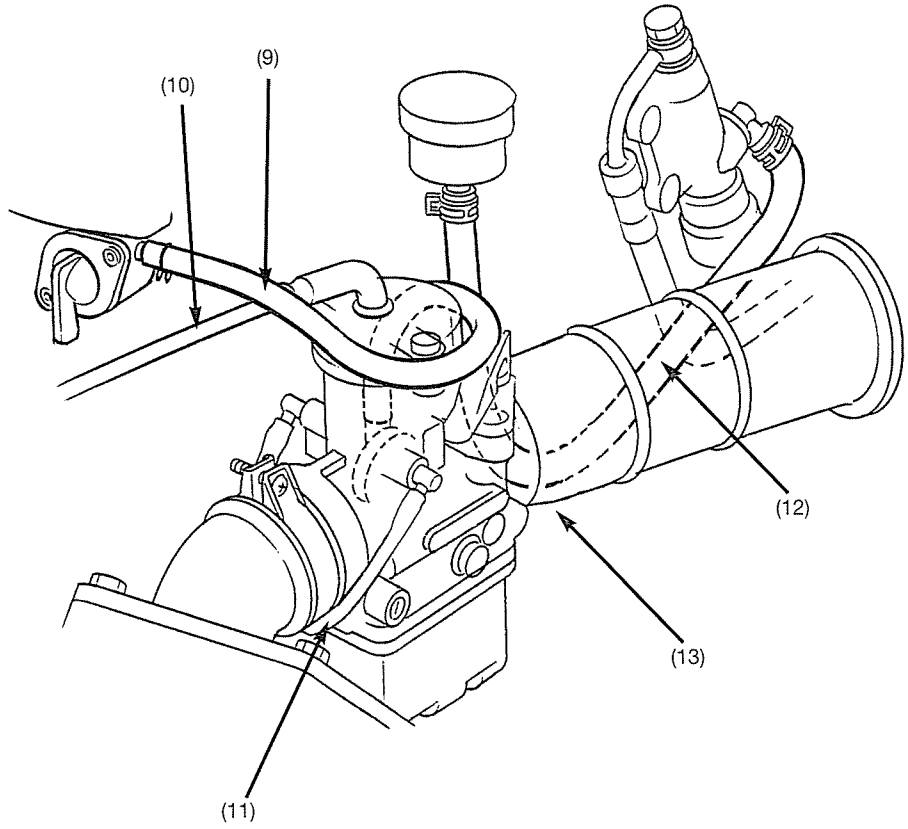
(4) ALTERNATOR BREATHER TUBE
(5) TRANSMISSION BREATHER TUBE
(6) REAR BRAKE RESERVOIR HOSE
(7) SUB-AIR CLEANER TUBE
(8) ALTERNATOR/IGNITION PULSE GENERATOR WIRE

(9) IGNITION COIL GROUND CORD
(10) IGNITION COIL WIRE
(11) SPARK PLUG WIRE





(1) CLUTCH HOSE
(2) THROTTLE CABLE
(3) CLUTCH HOSE CLAMP
(4) ENGINE STOP SWITCH WIRE
(5) IGNITION CONTROL MODULE
(6) RADIATOR OVERFLOW TUBE
(7) SPARK PLUG WIRE
(8) WIRE BAND



(9) FUEL TUBE
(10) THROTTLE CABLE
(11) CARBURETOR AIR VENT TUBE
(12) REAR BRAKE RESERVOIR TUBE
(13) SUB-AIR CLEANER TUBE
(14) ACG GENERATOR WIRE
(15) WIRE BAND
(16) SHROUD FAN

Maintenance Schedule

Perform pre-ride Inspection at each scheduled maintenance period.
I: Inspect and clean, Adjust, Lubricate or Replacement if necessary. C: Clean. R: Replace. L: Lubricate.

Item \ Frequency	Each race	Every 3 race	Every half a year	Every year	Remarks
Throttle Operation	I				
Carburetor	I				
Air Cleaner	C				Check the air cleaner after riding in dusty area
Spark Plug	I	R			
Transmission Oil		R			
Radiator Coolant	I			R	
Cooling System	I				
Cylinder Head/Exhaust Port Decarbonizing		C			
Piston		I		R	
Piston Ring		I	R		
Reed Valve		I			Check for damage, clack
Drive Chain	I, L				
Drive Chain Slider/Tensioner	I				
Drive/Driven Sprocket	I				
Brake Fluid	I				
Brake Pad Wear	I				
Brake System	I				
Front Master Cylinder Assy.	I			R	
Brake Hose				R	
Clutch Fluid	I				
Clutch System	I				
Clutch Slave Cylinder Seals				R	
Control Cables	I, L				
Expansion Chamber/Silencer	I	C			C: Silencer; Replace the glass wool if necessary
Suspension	I	C			Check the spherical bearing damage.
Swingarm/Shock Linkage	I	C			
Fork Oil	I	R			
Wheels/Tires	I				
Steering Head Bearing	I				
Nuts, Bolts, Fasteners	I				

Pre-ride Inspection

For your safety, it is very important to take a few moments before each ride to walk around your COTA 315R and check its condition.

⚠ WARNING

Improperly maintaining this COTA 315R or failing to correct a problem before riding can cause a crash in which you can be seriously hurt or killed.
Always perform a Pre-ride and Pre-race inspection before every ride and correct any problems.

Check the following items before you get on the COTA 315R:

- Fuel, oil and water leaks
- Coolant for proper level
- Spark plug for proper heat range, carbon fouling and spark plug cap terminals for looseness
- Clutch operation
- Steering head bearings and related parts for condition
- Damaged or distorted frame
- Throttle grip and throttle valve operation
- Tires for damaged or improper inflation pressure
- Front and rear suspension for proper operation
- Front and rear brakes, for proper operation
- Drive chain for correct slack and adequate lubrication
- Drive chain slider for damage or wear
- Loose bolts, screws and other fasteners

Warming-up Inspection

When warming-up the engine, check for the following:
- Do not rev the engine more than necessary or engine damage may result
- Check for fuel, oil and water leaks
- Warm up the engine for a few minutes until it is heated to the operating temperature until the engine responds to the throttle smoothly

Ride Inspection

When running the COTA, check for the following:
- Carburetor setting
- Control system
- Clutch operation
- Brake stopping power

After Ride Inspection

After riding the COTA, check for the following:
- Color condition of piston head and spark plug
- Signs of detonation
- Fuel, oil and water leaks
- Loose or missing bolts and nuts

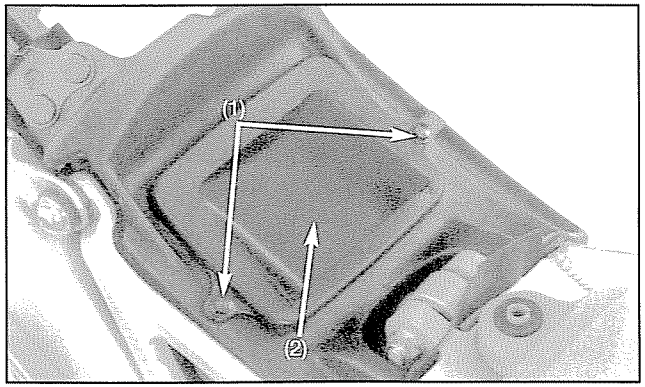
Replacement Parts

Parts Requiring Periodic Replacement

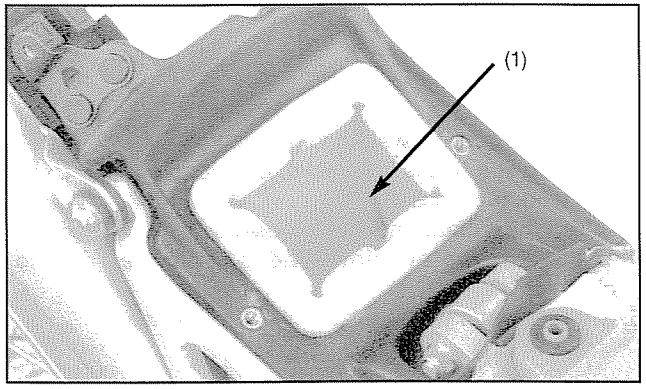
Item	Replacement Interval	Cause
Engine		
Plug cap	Every 3 races	Contamination or emulsification
Piston	Every year	Damage or wear at skirt
Piston ring	Every half a year	Damage at ends of wear
Transmission oil	Every 3 races	
Clutch slave piston seals	Every year	
Radiator coolant	Every year	
Frame		
Front fork fluid	Every half a year	
Brake hose	Every year	

Fast Wearing/Expendable Parts

Item	Cause
Engine	
Reed valve	Damage or fatigue
Clutch disc	Wear or discoloration
Clutch spring	Fatigue
Drive sprocket	Wear or damage
Frame	
Front/rear tire	Wear
Brake pad	Wear
Chain slider	Wear
Driven sprocket	Wear or damage
Drive chain	Elongation or wear



(1) BOLTS
(2) AIR CLEANER HOUSING COVER

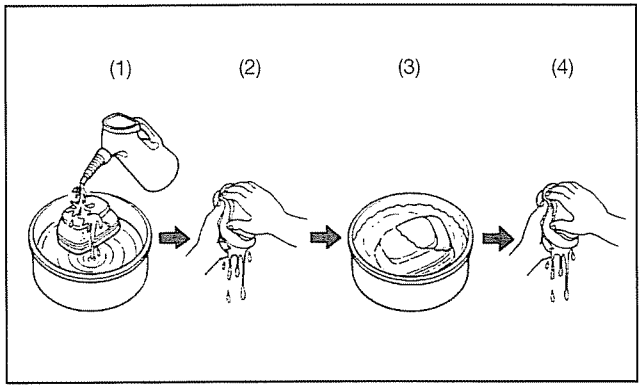


(1) AIR CLEANER ELEMENT

Air Cleaner

Remove the rear fender.
Remove the two bolts and air cleaner housing cover.

Remove the air cleaner element from the air cleaner housing.



(1) WASH
(2) SQUEEZE OUT AND DRY
(3) APPLY OIL
(4) SQUEEZE OUT EXCESS OIL

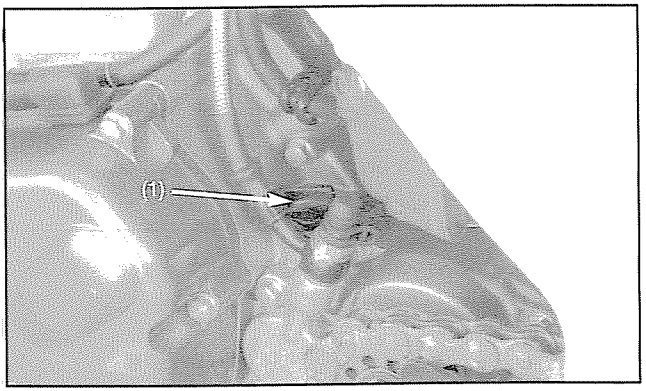
Thoroughly wash the element in clean non-flammable cleaning solvent, then wash in a solution of hot water and dish-washing liquid soap.
Apply air filter oil or clean 4-stroke engine oil to the element, and squeeze out excess oil.
Clean the inside of the air cleaner housing.

⚠ WARNING

Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.
Soak the element in an special air filter oil and squeeze out the excess.

Do not twist the element to squeeze out the excess. Failure to follow this precaution can result in a damaged element.

Installation is in the reverse order of removal.



(1) FILLER CAP

Transmission Oil

Specified transmission oil: ELF HTX740

Use only specified transmission oil.

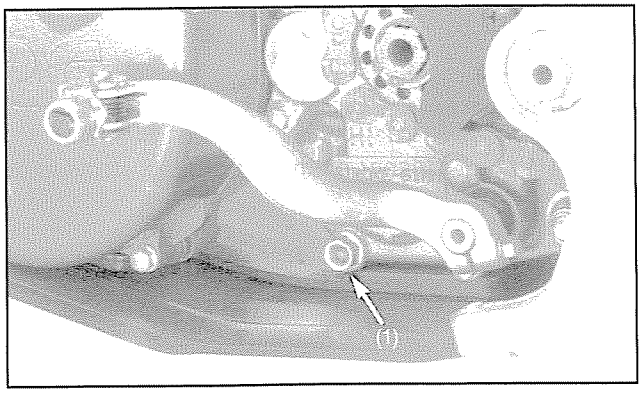
NOTICE

Oil is a major factor effecting the performance and service life of the transmission. Non-detergent, vegetable, or castor based racing oils are not recommended.

Oil Change

Change the transmission oil with the engine warm. Support the machine upright to assure complete and rapid draining.

1. Remove the oil filler cap.



(1) DRAIN BOLT

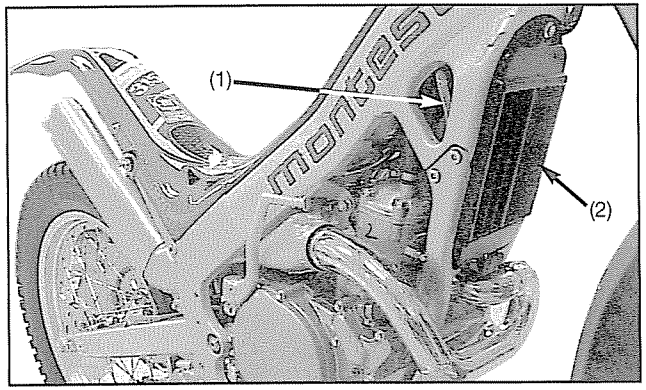
2. Place an oil drain pan under the engine and remove the drain bolts.
3. After the oil has completely drained, make sure that the sealing washer is in good condition and reinstall the drain bolts. Tighten the drain bolt to the specified torque.

Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

4. Pour the specified transmission oil slowly through the oil filler hole.

Capacity:
0.52 liter (0.55 US qt, 0.46 Imp qt) at draining
0.55 liter (0.58 US qt, 0.48 Imp qt) at disassembly

Install the oil filler cap.

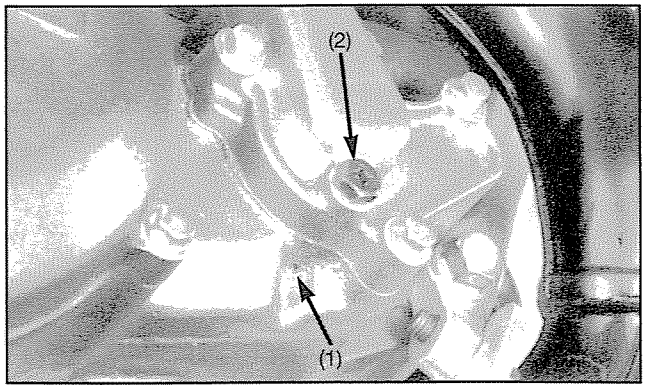


(1) OVERFLOW TUBE
(2) RADIATOR

Coolant

Cooling System Inspection

1. Check the cooling system for leaks.
2. Check water hoses for cracks, deterioration, and clamp bands for looseness.
3. Check the radiator mount for looseness.
4. Make sure the overflow tube is connected and not clogged.
5. Check radiator fins for obstructions or damage.



(1) INSPECTION HOLE
(2) COOLANT DRAIN BOLT/SEALING WASHER

6. Check the water pump inspection hole bottom of the water pump for leakage. Make sure the hole remains open.
   If water leaks through the check hole, the water seal is damaged.
   If oil leaks through the check hole, the oil seal is damaged.
   Replace the water seal or the oil seal (page 4-5).

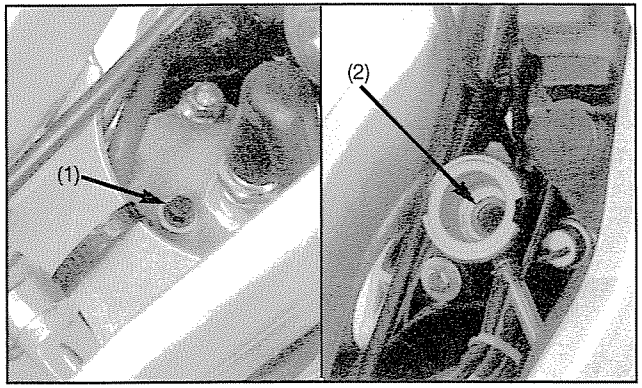
Coolant Replacement

⚠ WARNING

Removing the radiator cap while the engine is hot will allow the coolant to spray out, seriously scalding you.
Always let the engine and radiator cool down before removing the radiator cap.

1. Remove the coolant drain bolt and sealing washer.
2. Remove the radiator cap and drain the coolant.
3. Install the sealing washer, drain bolt and tighten it to the specified torque.

Torque: 10 N·m (1.0 kgf·m, 7 lbf·it)

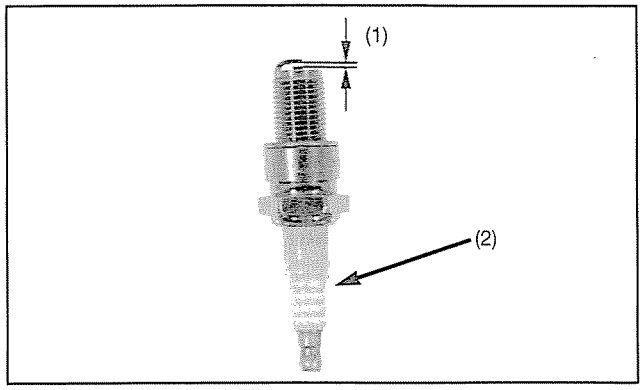


(1) CYLINDER HEAD AIR BLEED BOLT
(2) FILLER NECK

4. Remove the cylinder head air bleed bolt.
5. Fill the radiator with coolant until it comes out the cylinder head air bleed bolt hole.
6. Tighten the cylinder head air bleed bolt.

Torque: 10 N·m (1.0 kgf·m, 7 lbf·ft)

7. Squeeze the radiator hoses alternately and if level drops, fill the coolant again.
8. Fill the radiator with coolant up to the filler neck.
9. After this first filling, start the engine, check the coolant level (page 1-1).



(1) SPARK PLUG CAP
(2) SPARK PLUG

Spark Plug

Using a spark plug with the wrong heat range can damage the engine or cause the plugs to foul. Be careful to select the correct spark plug for the conditions.

Standard plug: NGK: BR6ES

Spark Plug Gap

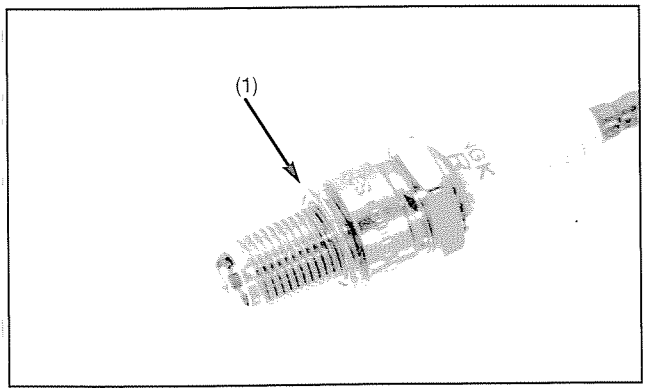
Remove the spark plug and measure the spark plug gap.

Standard: 0.7-0.8 mm (0.027-0.031 in)

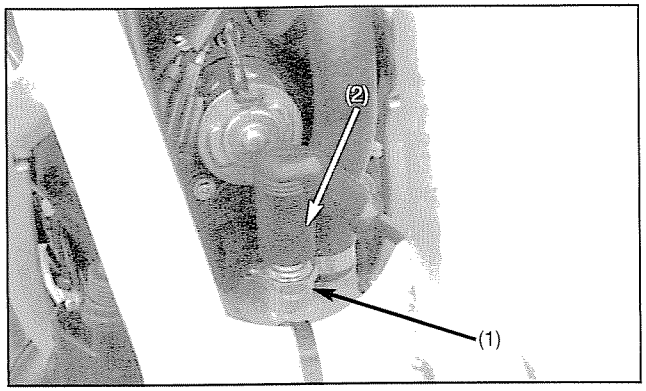
Replace the spark plug if the spark plug gap is out of specification.

Flash Over

If engine misfire occurs due to arcing, replace both the spark plug and the cap.



(1) INSULATOR



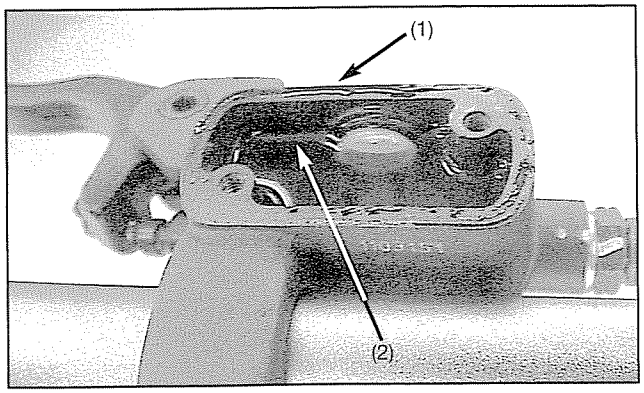
(1) SPARK PLUG
(2) SPARK PLUG CAP

Spark Plug Cap

Remove the spark plug cap from the spark plug.
Clean the inside of the plug cap with electrical contact cleaner to prevent misfire.

Check that the insulator is in good condition.
Install and tighten the spark plug.

Torque: 21N·m (2.1 kgf·m, 15 lbf·ft)

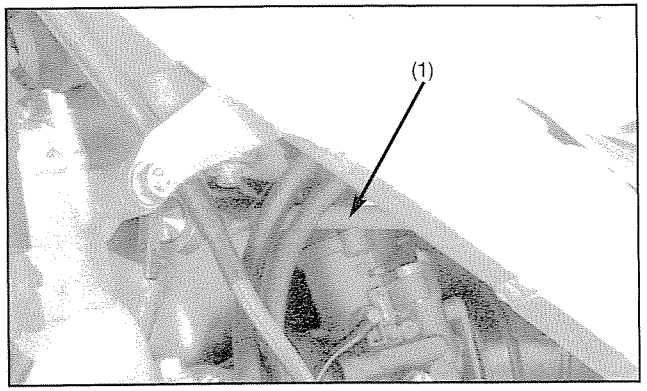


(1) CLUTCH FLUID RESERVOIR
(2) UPPER LEVEL LINE

Clutch System

System Inspection

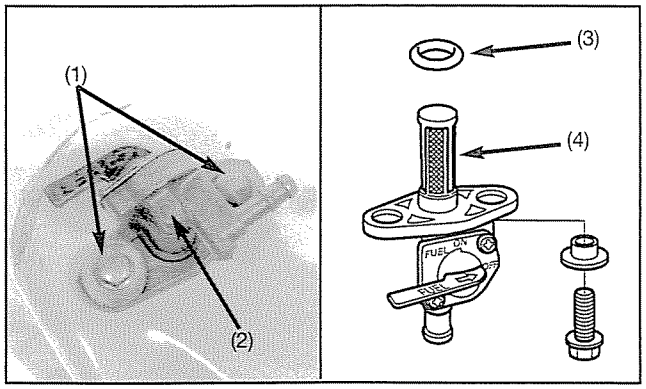
1. Operate the clutch lever and check that no air has entered in the system. If the clutch is not disengaged properly, or the lever feels soft or spongy, bleed the air from the system.
2. Remove the reservoir cover and diaphragm, check the clutch fluid level. If the level is low, inspect the clutch hose and fittings for damage, deterioration, cracks or sign of leakage. Tighten any loose fittings. Replace hose and fittings as require.



(1) FUEL TUBE

Fuel Tank/Fuel Filter

1. Check the fuel valve and fuel filter for contamination.
2. Check for leaks.
3. Check the fuel line for cracks, deteriorarion or leakage.



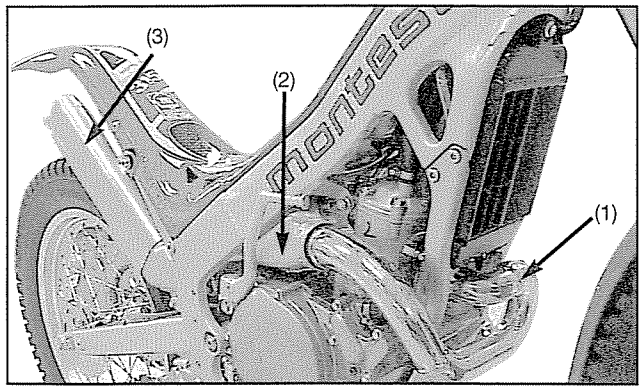
(1) BOLTS
(2) FUEL VALVE
(3) O-RING
(4) FUEL FILTER

Fuel Filter

The fuel filter is incorporated in the fuel valve which is mounted on the bottom of the fuel tank.
Accumulation of dirt in the filter will restrict the flow of the fuel to the carburetor.

1. Remove the fuel tank and drain the fuel into an approved gasoline container.
2. Remove the fuel valve by loosening the fuel valve mounting bolts. Wash the fuel filter in high flashpoint cleaning solvent.
3. Reassemble the fuel valve in the reverse order of removal.

Make sure the O-ring is in place.
Install the fuel valve in the fuel tank.
Fuel valve should be set as shown.
Reinstall the fuel tank, make sure there are no fuel leaks.



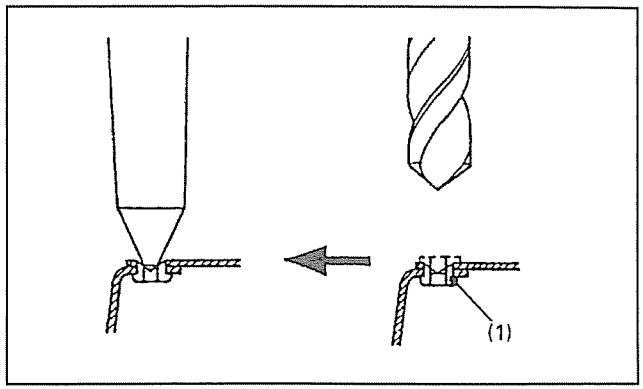
(1) EXHAUST PIPE
(2) EXPANSION CHAMBER
(3) SILENCER

Exhaust Pipe And Silencer

Inspection

Check the silencer for clogging.
Check for loose or missing bolts and nuts.
Check the exhaust pipe and silencer for cracks or deformation.
Check the exhaust pipe gasket and O-rings.
Check the silencer O-rings.

Loss of power will result if the exhaust pipe is broken.

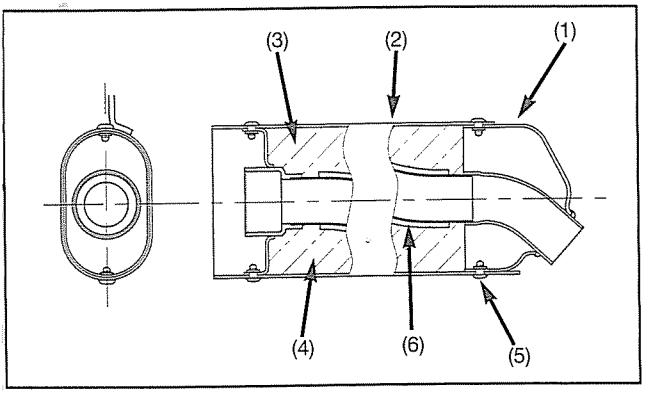


(1) RIVET

Silencer Glass Wool Replacement

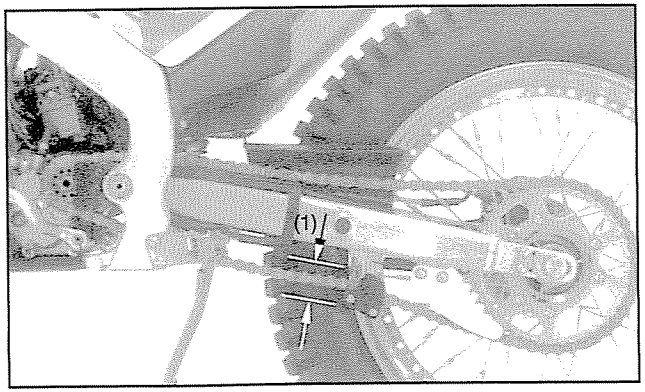
The silencer consists of an inner pipe, outer casing and noise-absorbing glass wools as shown. To replace the glass wools:

1. Remove the mounting bolt and silencer from the expansion chamber.
2. Drill off the heads of two rivets at the rear end of the silencer body. Press the rivets down into the end plate using a 4 mm pin or rod.
3. Remove the end plate from the silencer body.



(1) END PLATE
(2) SILENCER BODY
(3) GLASS WOOL A
(4) GLASS WOOL B
(5) BLIND RIVET
(6) INNER PIPE

4. Remove the glass wools from the silencer body. Install the new glass wools onto the inner pipe.
5. Apply sealant (Cemedine CE7451 or equivalent) to the mating surface between the inner pipe and front plate. Then slide the inner pipe and glass wools into the silencer body.
   Apply sealant to the mating surface between the inner pipe and end plate, then install the end plate aligning the holes between the silencer body and end plate.
6. Drive two stainless pop rivet (4.8 mm) through the holes in the silencer body and end plate after applying epoxy based adhesive.



(1) DRIVE CHAIN SLACK

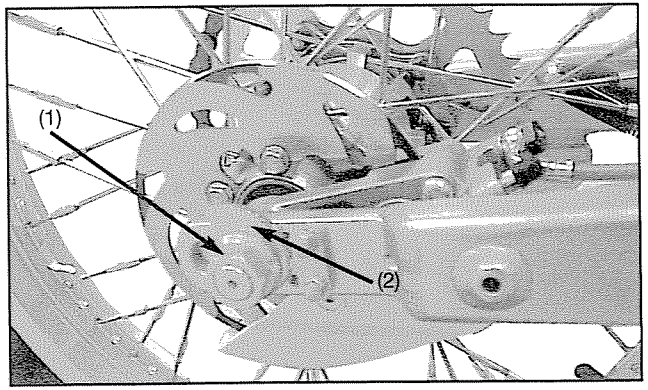
Drive Chain

Drive Chain Slack Inspection

During the break-in period, drive chain slack should be checked and adjusted often. Also check the drive chain slack after the drive chain replacement.
Regular cleaning, lubrication, and proper adjustment will help to extend the service life of the drive chain.
Shift the transmission into neutral, turn the engine off and support the motorcycle on its side stand.
Unhook the drive chain tensioner spring to remove any load on the chain.
Measure chain slack at the lower section midway between the sprockets.

Drive chain slack: 25 - 35 mm (1.0 - 1.4 in)

Rotate the wheel and chain slack in several sections. If slack in one section increases beyond the standard measurement, this indicates the chain has stretched and needs to be replaced.
Take care to prevent catching your fingers between the chain and sprocket.



(1) AXLE NUT (2) ADJUSTER

Drive Chain Slack Adjustment

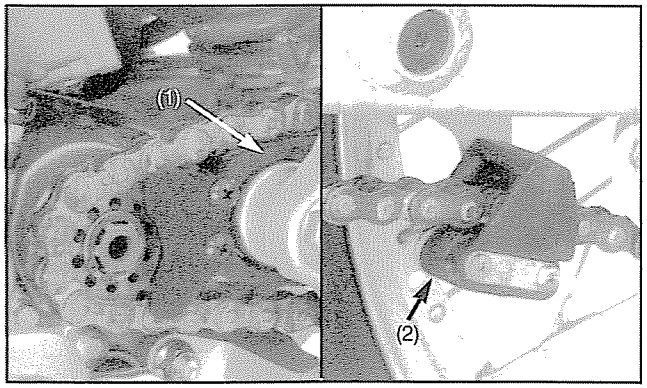
Loosen the rear axle nut just enough to move the rear wheel in fore-act direction.
Turn the adjuster equally on both sides until the correct drive chain tension is obtained.
Turn the adjuster counterclockwise will decrease slack and turning it clockwise will increase slack.

- Adjust the chain with the chain adjusters so that it is parallel with the center line of the frame.
- Check that the stopper is between the teeth of the adjuster.

Recheck the drive chain slack and free wheel rotation.
After adjustment, apply grease to the axle nut threads and seating surface and tighten the axle nut to the specified torque.

Torque: 69 N·m (7.0 kgf·m, 51 lbf·ft)

Lubricate the drive chain.
Hook the drive chain tensioner spring.



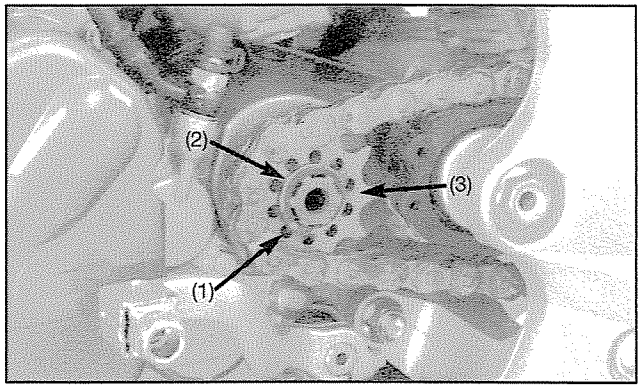
(1) DRIVE CHAIN SLIDER
(2) DRIVE CHAIN TENSIONER

Drive Chain Slider

Inspection/Replacement

Check the drive chain slider for wear or damage.
If the wear is 2.0 mm (0.08 in) or more, replace the slider.
Check the drive chain tensioner slider for wear or damage.
If the wear is 2.0 mm (0.08 in) or more, replace the slider.

The drive chain slider and tensioner screws must be retightened after break-in.



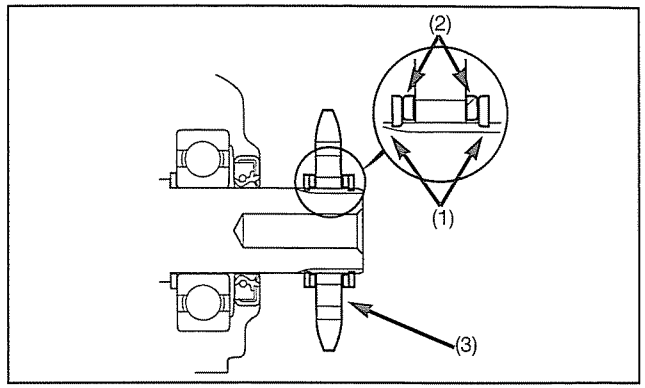
(1) SNAP RING
(2) SPLINE WASHER
(3) DRIVE SPROCKET

Drive/Driven Sprockets

Drive Sprocket Replacement

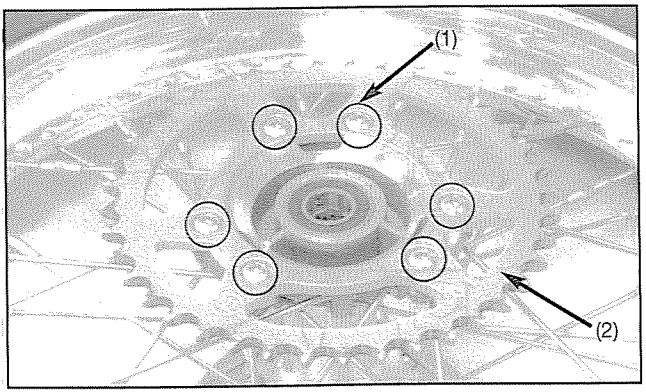
Remove the drive sprocket cover.
Loosen the drive chain fully (page 3-8).

Remove the snap ring, spline washer and drive sprocket.



(1) SNAP RINGS
(2) SPLINE WASHERS
(3) DRIVE SPROCKET

Install the snap ring, spline washer and drive sprocket.
Install the spline washer with its chamfered side facing outward and install the snap ring with its chamfered side facing inward.
Secure drive sprocket using new snap ring.



(1) BOLTS/NUT
(2) DRIVEN SPROCKET

Driven Sprocket Replacement

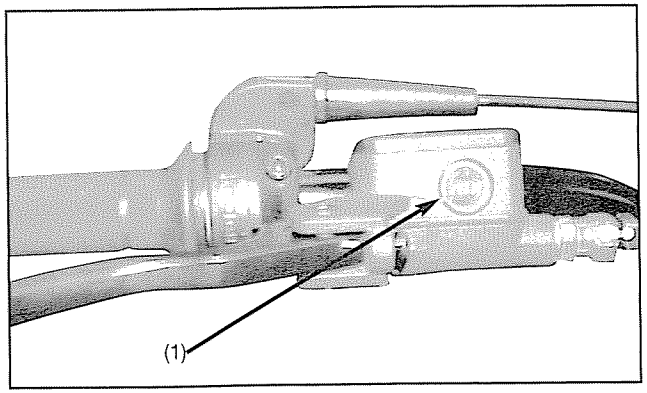
Remove the rear wheel (page 5-15).

Remove the bolts/nuts and driven sprocket.

Installation is in the reverse order of removal.
Tighten the nuts to the specified torque.

Torque: 25 N·m (2.5 kgf·m, 18 lbf·ft)

Adjust the drive chain slack (page 3-8).



(1) "MIN" LEVEL

Brake Fluid

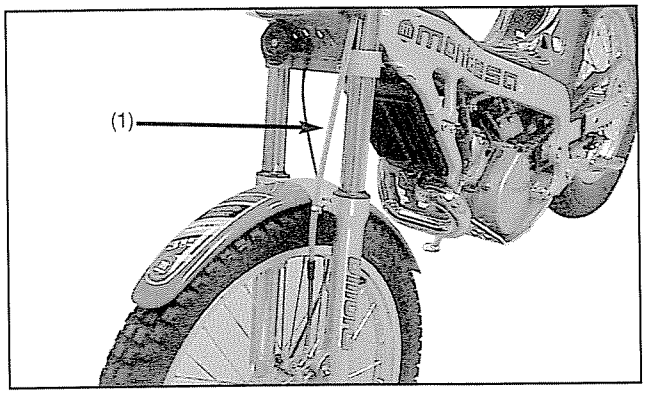
Front Brake Master Cylinder

Always inspect the brake fluid level.

Remove the screws, master cylinder cover and diaphragm.

If the fluid level is lower than the "MIN" line, check for the brake pad wear.
Replace the brake pad if necessary.
Refer to page 5-23 for brake pad replacement.

Also check the brake system for leaks.

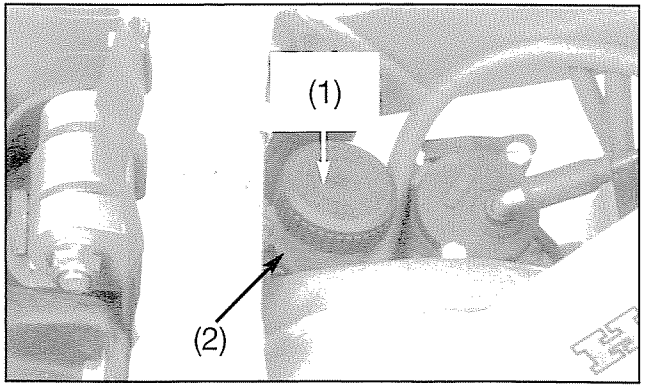


(1) BRAKE HOSE

Check that the brake hose do not bind or kink in all steering position, and is not pulled when the suspension is extended.

Replace the brake fluid every 6 months.
Replace the brake hose every year.
Do not service the brake system in high humidity.

Brake fluid: DOT 4 only.



(1) COVER
(2) "MIN" LEVEL

Rear Master Cylinder

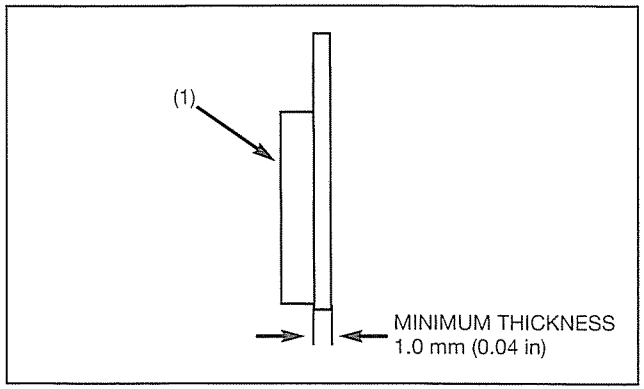
Always inspect the brake fluid level.

Remove the fuel tank.
Remove the master cylinder cover, set plate and diaphragm.
If the fluid level is lower than the "MIN" level, check for brake pad wear.
Replace the brake pad if necessary.
Refer to page 5-24 for brake pad replacement.

Also check the brake system for leaks.

Replace the brake fluid every 6 months.
Replace the brake hose every year.
Do not service the brake system in high humidity.

Brake fluid: DOT 4 only.

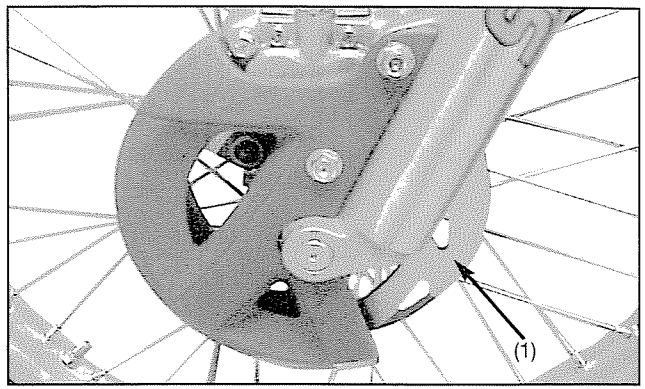


(1) BRAKE PAD

Brake Pad Wear

Measure the brake pad thickness.
If either pad is wear to the minimum thickness, both pads must be replaced.

Minimum thickness: 1.0 mm (0.04 in)



(1) BRAKE DISC

Brake System

Refer to page 1-4 for Brake Lever Adjustment.
Refer to page 1-4 for Brake Pedal Height Adjustment.

Brake Discs

Measure the rear brake disc runout with a dial gauge.

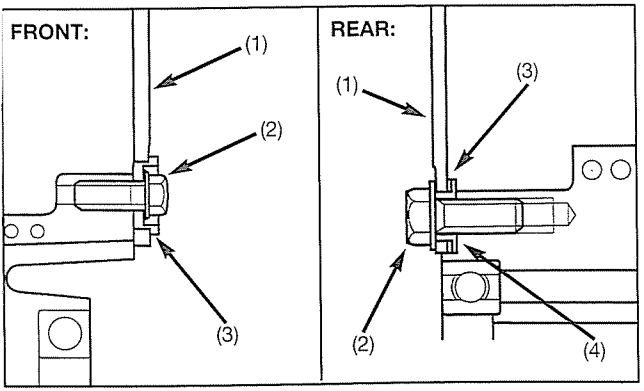
Service limit: 0.15 mm (0.006 in)

Replace the brake disc if the runout exceeds the service limit.

Measure the brake disc thickness.

Service limit:	**Front:**	**3.5 mm (0.14 in)**
	Rear:	**2.5 mm (0.10 in)**

Replace the brake disc if necessary.
Refer to pages 5-1 and 5-15 for removal.

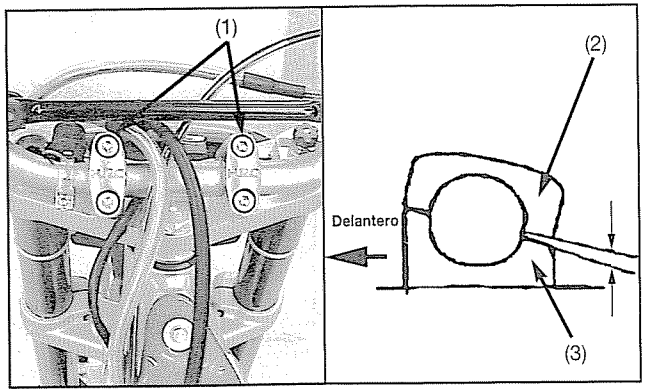


(1) BRAKE DISC
(2) DISC BOLT
(3) WAVE WASHER
(4) COLLAR

The front and rear brake are floating disc type.
Replace the disc and disc bolts if the play in the rotating direction exceeds 2.0 mm (0.08 in), as measured at its periphery. The standard play is from 0.3 - 1.0 mm (0.01 - 0.04 in).
Apply a locking agent to the threads of the brake disc bolts before installation.

Torque:
Front: 12 N·m (1.2 kgf·m, 9 lbf·ft)
Rear: 12 N·m (1.2 kgf·m, 9 lbf·ft)

For the rear brake disc, replace the wave washers with new ones if the disc starts to wobble right and left.



(1) HOLDER BOLTS
(2) UPPER HOLDER
(3) LOWER HOLDER

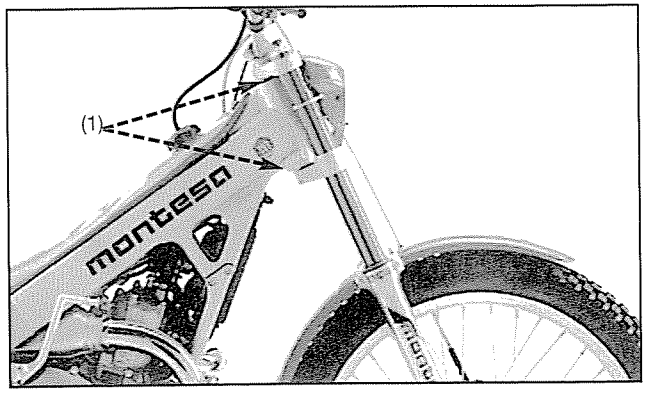
Handlebar And Steering Head Bearings

Handlebar

Check the handlebar for bends or cracks.

Check that the handlebar has not moved from its proper position.
Check that the handlebar holder bolts are tight.
If necessary, tighten the holder bolts to the specified torque.

Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

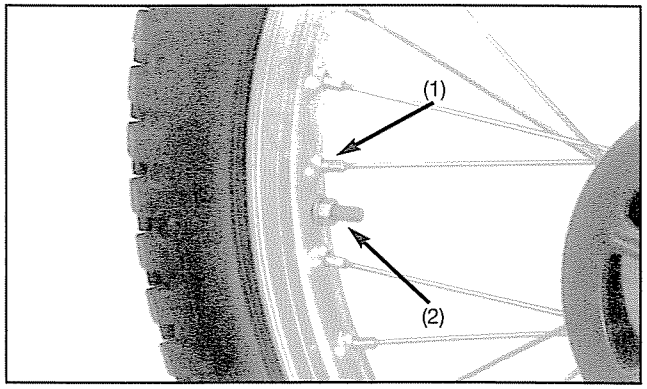


(1) STEERING HEAD BEARINGS

Steering Head Bearings

Support the motorcycle using the maintenance stand with its front wheel oft the ground.

Turn the handlebar to the right and left to check for roughness in the steering head bearings. Stand in front of the motorcycle and grab the fork (at the axle), then push the fork in and out (toward the engine) to check for play in the steering head bearings. If any roughness or play is felt, adjust or replace the steering head bearings.



(1) SPOKE NIPPLE
(2) RIM LOCK

Wheels And Tires

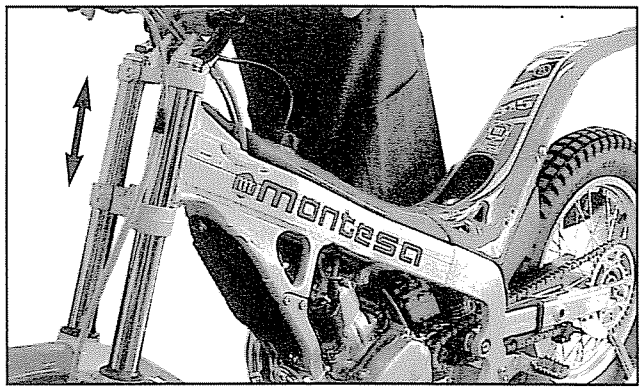
Proper air pressure will provide maximum stability and tire life. Check tire pressure frequently and adjust if necessary.
Tire air pressure should be checked when the tires are COLD.

Standard cold tire air pressure:
Front: 39-44 kPa (0.40-0.45 kgf/cm², 5.6-6.4 psi)
Rear: 29-34 kPa (0.30-0.35 kgf/cm², 4.3-5.0 psi)

Inspect the wheel for damage.
Check the wheel runout. If runout is noticeable, check the spokes are tight, or replace the wheel.
Check the axle for runout.
Check the condition of the front and rear wheel bearings.
Check the trueness of the wheel, spoke tension and the tightness of the rim lock nut.

Tool:
Spoke nipple wrench (front) 07701-0020200

Torque:
Spoke nipple:
Front: 3.2 N·m (0.33 kgf·m, 2.4 lbf·ft)
Rear: 3.7 N·m (0.38 kgf·m, 2.7 lbf·ft)
Rim lock nut: 13 N·m (1.3 kgf·m, 9 lbf·ft)

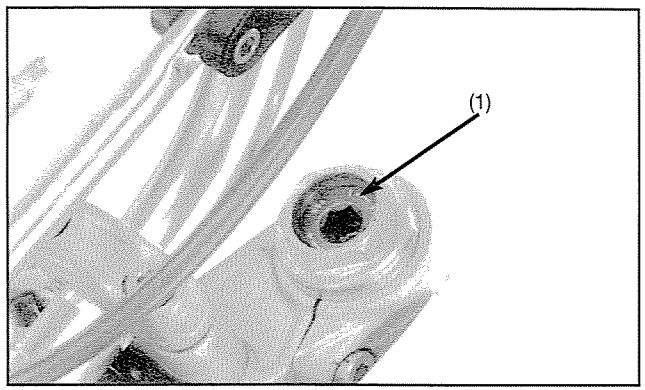


Front Suspension

Inspection

1. Make sure that the fork surfaces and dust seals are clean.
2. Check for signs of oil leakage. Damaged or leaking fork seals should be replaced before you ride the motorcycle.
3. Make a quick check of fork operation by locking the front brake and pushing down on the handlebar several times.

- When your COTA is new, break in your COTA to ensure that the suspension has worked in.
- After break-in, test ride your COTA with the front suspension at the standard setting before attempting any adjustments.



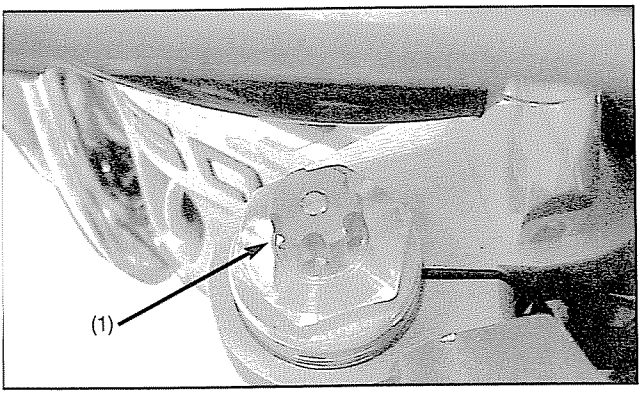
(1) PRE-LOAD ADJUSTER

Fork

The motorcycle is shipped with a light coating of grease on the forks. This is not an indication of a leak.

The fork should always be adjusted for the rider's weight and track conditions by using one or more of the following methods.
Basically, there are three adjustments you can make to the front suspension:
- Rebound damping
  Turning the rebound damping adjuster adjusts how quickly the fork extends.
- Spring pre-load
  Turning the spring pre-load adjuster adjusts the spring initial pre-load length.
- Fork fluid volume
  The effects of higher or lower fork fluid level are only felt during final fork travel.

Replace the fork fluid every 6 months. See page 5-8, 11 for oil level adjustment after changing the fork fluid.

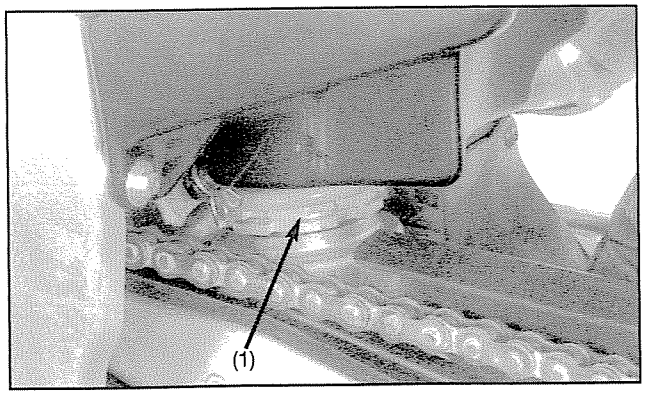


(1) REBOUND ADJUSTER

Use specified fork fluid which additives to assure maximum performance of your COTA 's front suspension.

Specified fork fluid:
Left: Belray MC5
Right: Belray MC5

- Periodically check and clean all front suspension parts to assure top performance. Check the dust seals for dust, dirt and foreign materials. Check the fluid for any contamination.
- Make rebound damping adjustments in one-click increments. Adjusting two or more clicks at a time may cause you to pass over the best adjustment. Test ride after each adjustment.
- If you become confused about adjustment settings, return to the standard position and start over.

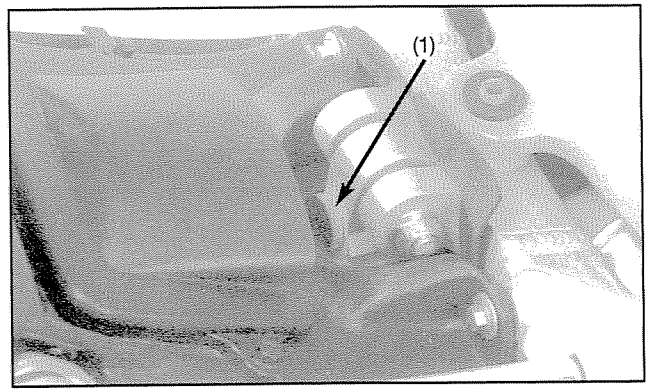


(1) PRE-LOAD ADJUSTER

Rear Suspension

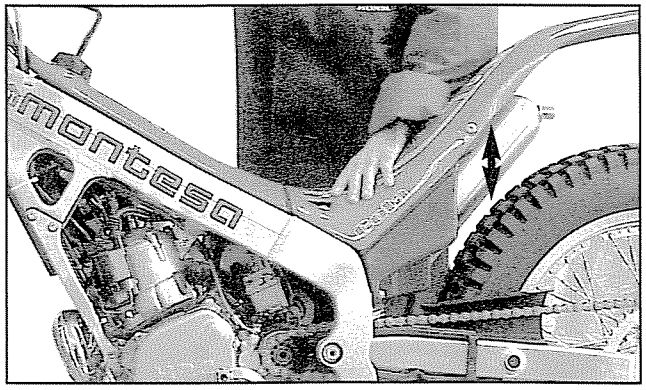
The swingarm is controlled by a shock absorber. The rear shock absorber should always be adjusted for the rider's weight and race track conditions by using one or more of the following methods.

- Rebound damping
  Turning the rebound damping screw adjusts how quickly the shock absorber extends.
- Spring pre-load
  Turning the spring pre-load adjuster adjusts the spring initial pre-load length.



(1) REBOUND ADJUSTER

- When your COTA is new, your suspension will break-in as you ride.
- After break-in is completed, test ride your COTA with the rear suspension at the standard setting before attempting any adjustments
- Make all rebound damping adjustments in one-click increments. Adjusting two or more clicks at a time may cause you to pass over the best adjustment. Test ride after each adjustment.
- If you become confused about adjustment settings, return to the standard position and start over.



Inspection

1. Check for a broken or collapsed spring.
2. Bounce the rear of the machine up and down and check for smooth suspension action.
3. Check the rear shock absorber for a bent shaft or oil leaks.
4. Push the rear wheel sideways to check for worn or loose swingarm bearings. There should be no movement. If movement is felt, replace the pivot bearings (page 5-19).

Cleaning

Clean your COTA regularly to protect the surface finishes and inspect damage, wear, and oil seepage.
When washing your COTA, always use water and a mild detergent (such as diswashing liquid) to avoid discoloring decals.

NOTICE

High pressure water (or air) can damage certain parts of the motorcycle.
Carburetor
Wheel hubs
Engine stop switch
Silencer outlet
Electrical components
Drive chain
Brake and clutch master cylinder

1. After cleaning, rinse your COTA thoroughly with plenty of clean water. Strong detergent residue can corrode alloy parts.
2. Dry your COTA, start the engine, and let it run for several minutes.
3. Lubricate the drive chain immediately after washing and drying your COTA.
4. Test the brakes before riding your COTA. Several applications may be necessary to restore normal braking performance. Braking performance may be impaired immediately after washing your COTA.

Storage

Extended storage, such as for winter, requires that you take certain steps to reduce the effects of non-use. In addition, necessary repairs should be made BEFORE storing your COTA : otherwise, these repairs may be forgotten by the time your COTA'S is removed from storage.

Preparing The Motorcycle For Storage

1. Completely clean all parts of your COTA. Wash with fresh water and wipe dry.
2. Drain the fuel tank and carburetor into an approved gasoline container.
   Turn the fuel valve OFF.

⚠ WARNING

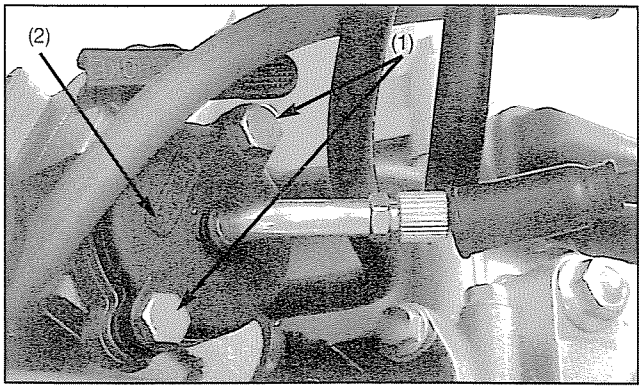
Gasoline is highly flammable and explosive.
You can be burned or seriously injured when draining or refueling.
- **Stop engine and keep heat, sparks, and flame away.**
- **Drain or refuel only outdoors.**
- **Wipe up spills immediately.**

3. Remove the coolant drain bolt at the water pump cover to drain coolant. Drain coolant into a proper container. After the coolant has been completely drained, ensure that the drain bolt sealing washer is in good condition and reinstall the drain bolt.
4. Lubricate the drive chain.
5. Remove the spark plug and pour a table spoon (15 - 20 cm^3) of clean engine oil into the cylinder.
   With the spark plug grounded or the Engine Stop Switch OFF, crank the engine several times to distribute the oil.

6. Inflate the tires to their recommended pressure.
7. Place your COTA on the maintenance stand or equivalent to raise both tires off the ground.
8. Stuff a rag into the silencer outlet. Then tie a plastic bag over the end of the silencer to prevent moisture from entering.
9. Cover your COTA and store in a place which is free of humidity and dust.

Removal From Storage

1. Uncover and clean your COTA.
   Change the transmission oil if more than 4 months have passed since the start of storage.
2. Uncover the end of the silencer and remove the rag from the silencer outlet.
3. Fill the fuel tank with pre-mixed fuel (page 1-1).
4. Pour the recommended coolant slowly into the radiator reserve tank filler cap.
   Bleed the air in the cooling system and install the radiator cap securely (page 1-1).
5. Perform the maintenance check (page 3-1).



(1) BOLTS
(2) CARBURETOR TOP

Carburetor

Removal

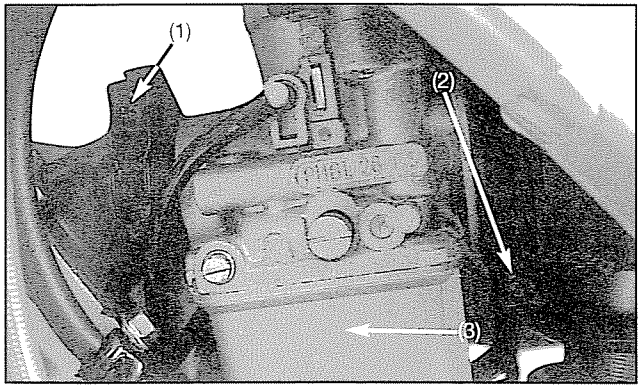
⚠ WARNING

Gasoline is highly flammable and is explosive.
You can be burned or seriously injured.
- **Stop engine and keep heat, sparks, and flame away.**
- **Refuel only outdoors.**
- **Wipe up spills immediately.**

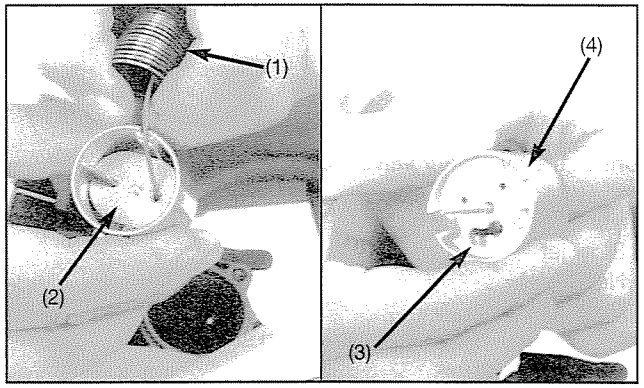
Remove the following:
- Rear fender
- Fuel tank

Remove the carburetor top mounting bolts.
Remove the carburetor top/throttle valve from the carburetor.

Disconnect the fuel tube from the carburetor body.



(1) INSULATOR BAND SCREW
(2) CONNECTING TUBE BAND SCREW
(3) CARBURETOR

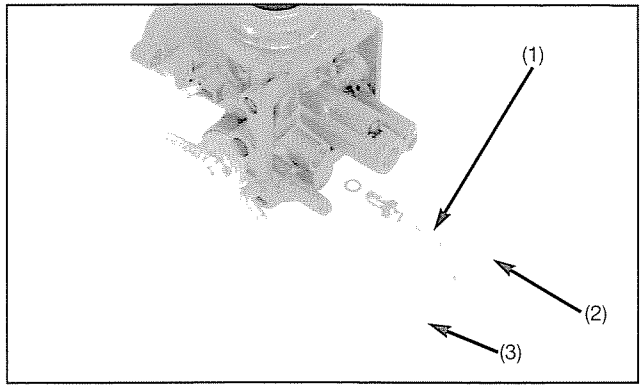


(1) THROTTLE VALVE SPRING
(2) SETTING PLATE
(3) THROTTLE CABLE
(4) THROTTLE VALVE

Disconnect the sub-air cleaner tube.
Loosen the carburetor insulator band and connecting tube band screws then remove the carburetor.

Disassembly/Assembly

Remove the cable setting plate from the throttle valve while compressing the throttle valve spring, then remove the throttle cable from the groove.
Disassemble the carburetor.

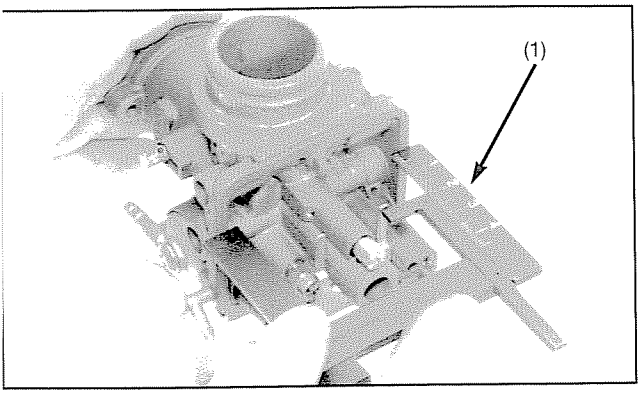


(1) FLOAT VALVE
(2) FLOAT ARM
(3) FLOAT ARM PIN

Check the float valve and valve seat for wear or damage.

Blow open all jets and body openings with compressed air.

Install the float valve, float arm and arm pin.

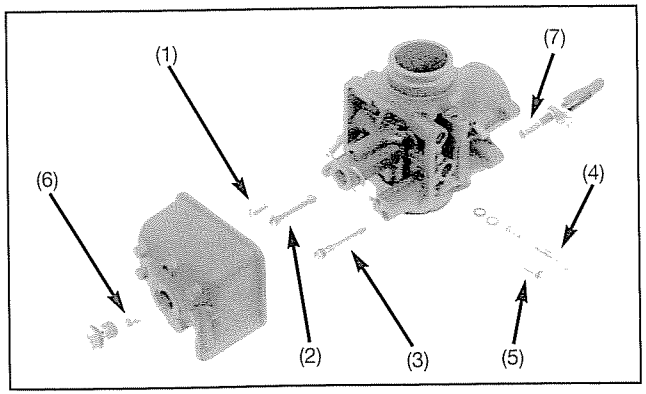


(1) FLOAT LEVEL GAUGE

Measure the float level.
To adjust the float level, bend the float arm carefully until the float tip just contacts the float arm.

TOOL:
Float level gauge **07401-0010000**

Float level: 18.5 mm (0.73 in)



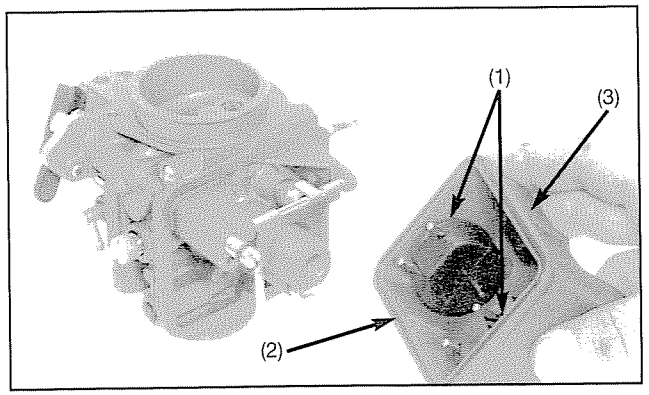
(1) SLOW JET
(2) NEEDLE JET
(3) BY-STARTER JET
(4) THROTTLE STOP SCREW
(5) Air mixture screw
(6) MAIN JET
(7) BY-STARTER

Check the by-starter valve seat for damage.

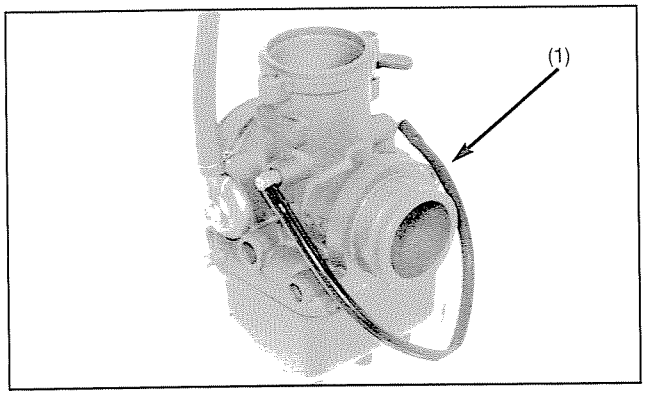
Install the following:
- Slow jet
- Needle jet
- By-starter jet
- O-ring/washer/spring/throttle stop screw
- Air mixture screw

Air mixture screw opening: 3 to 4 turn out

- Main jet onto the holding bolt



(1) FLOATS
(2) O-RING
(3) FLOAT CHAMBER

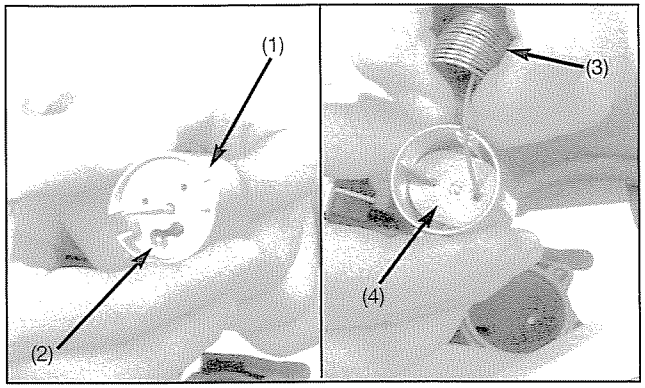


(1) AIR VENT TUBE

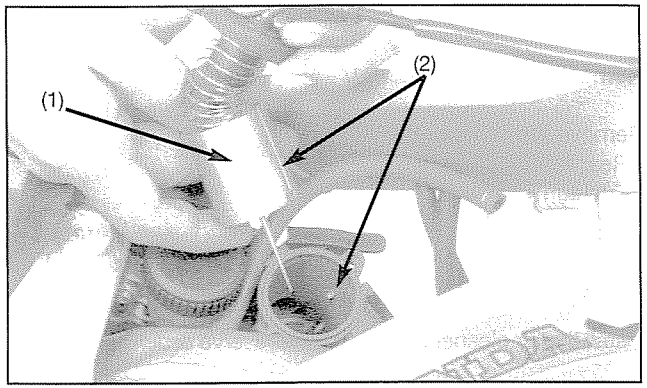
Install the floats into the float chamber, aligning their holes with the bosses in the float chamber.

Check the float chamber O-ring is in good condition, install the float chamber.
Install and tighten the holding bolt.

Install the air vent tube as shown.



(1) THROTTLE VALVE
(2) THROTTLE CABLE
(3) THROTTLE VALVE SPRING
(4) SETTING PLATE

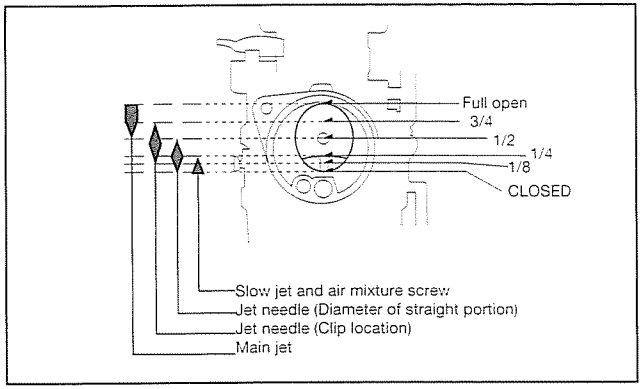


(1) THROTTLE VALVE
(2) ALIGN

Install the jet needle into the throttle valve.
Install the throttle valve spring and cable setting plate onto the carburetor top cover, then connect the throttle cable to the throttle valve while compressing the throttle valve spring.

Installation

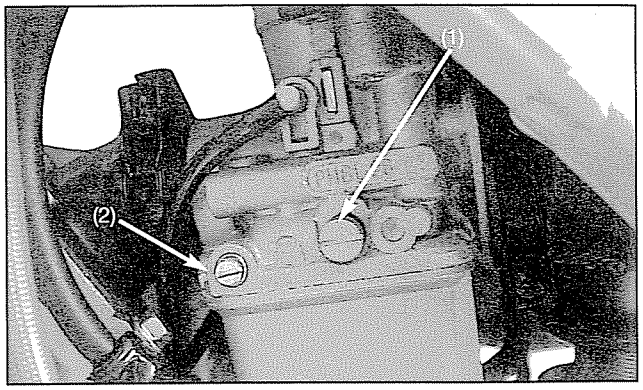
Install the carburetor in the reverse order of removal.
Install the throttle valve while aligning it groove with the guide in the carburetor body.



Carburetor Setting

Principle

Carburetor operation is broken into three segments.
Each of the metering units is responsible for one segment.
There is always overlap from one segment to the next, so any change will always affect the next segment up or down.
Because of this, making carburetor adjustments for altitude or temperature should be done very methodically.
The illustration shows the relationship the main jet, jet needle, slow jet and air mixture screw.



(1) THROTTLE STOP SCREW
(2) AIR MIXTURE SCREW

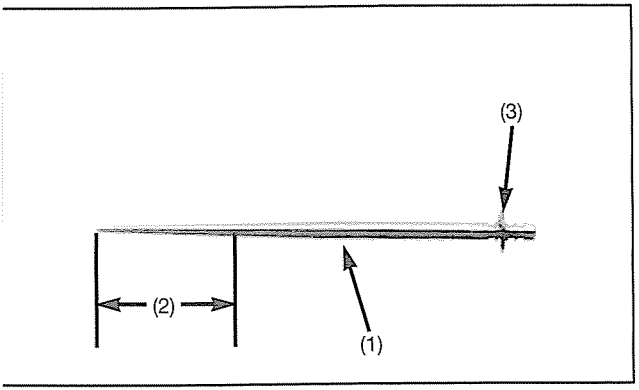
Slow Jet And Air Mixture Screw

The air mixture screw meters air that is mixed with fuel metered by the slow jet.
Turning the air mixture screw clockwise, leans the mixture; counterclockwise enriches the mixture.
Turn the air mixture screw in until it lightly seats, then back it out to specified position.

Air mixture screw opening: 3 or 4 turn out

After warming up the engine, connect the tachometer and slowly turn the air mixture screw in or out until the engine revs up smoothly.
Adjust the idle speed by turning the throttle stop screw.

Idle speed: 1.300 ± 100 min^{-1} (rpm)



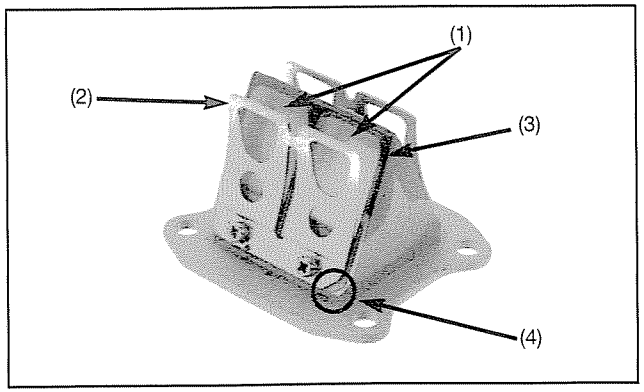
(1) STRAIGHT
(2) TAPERED PORTION
(3) CLIP

Jet Needle

The jet needle affects the mixture through the first 1/8 to 3/4 of the throttle opening range.
The straight portion of the needle affects acceleration from low rpm, and the tapered portion affects medium and high speed range.
The position of the clip on the needle affect fuel metering at medium throttle range.

Main Jet.

The main jet affects the mixture from 3/4 to the full throttle range.



(1) REED VALVE
(2) REED VALVE STOPPER
(3) REED VALVE SEAT
(4) CUT-OUT

Reed Valve Inspection

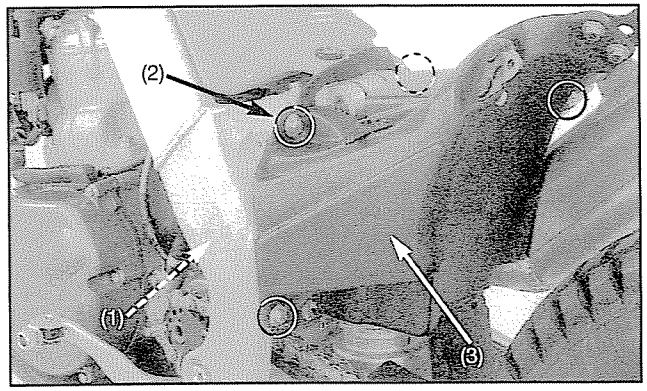
Inspect the reed valve and if it has signs of damage or fatigue, replace if necessary.
If the rubber surface of the reed valve sheet has cracks or damage, replace the reed valve as an assembly.
When reassembling the reed valve, align the cut outs between the reed valve only and reed stopper

NOTICE

Never bend the reed stoppers.

Apply a locking agent to the screw threads and tighten them to the specified torque.

Torque: 1 N·m (0.1 kgf·m, 0.7 lbf·ft)



(1) CONNECTING TUBE BAND
(2) BOLTS
(3) AIR CLEANER HOUSING

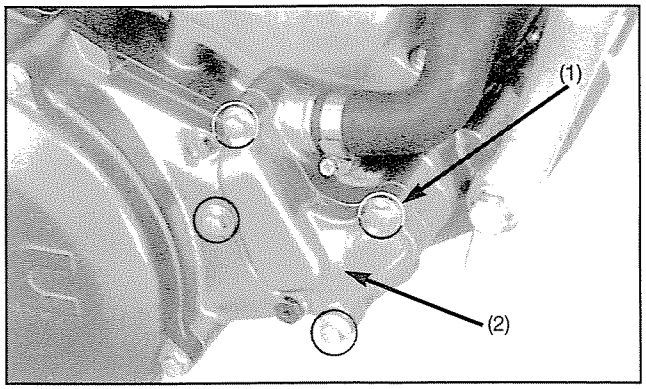
Air Cleaner Housing

Removal/Installation

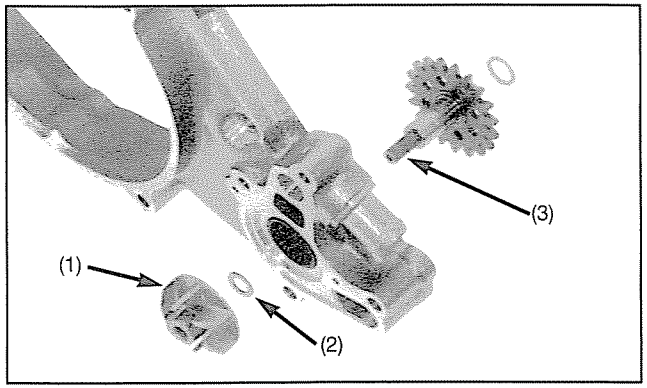
Remove the following:
- Rear fender
- Fuel tank

Loosen the connecting tube band screw.
Remove the bolts and air cleaner housing.

Install the air cleaner housing in the reserve order of removal.



(1) BOLTS (2) WATER PUMP COVER

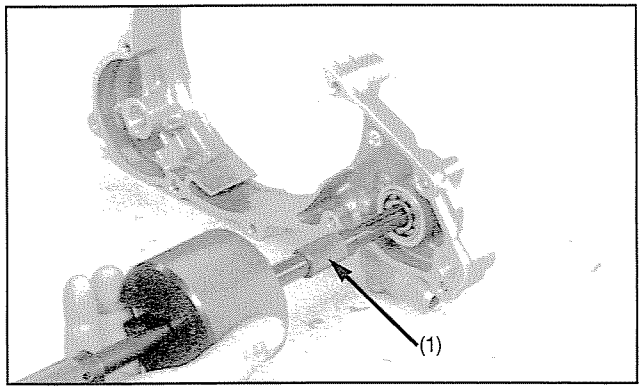


(1) IMPELLER
(2) COPPER WASHER
(3) WATER PUMP SHAFT

Water Seal And Bearing Replacement

Drain the transmission oil (page 3-4).
Remove the following:
- Water pump cover bolt/cover/dowel pins/gasket
- Right crankcase cover and washer

Hold the water pump gear holes using a suitable, then remove the impeller, copper washer and water pump shaft.



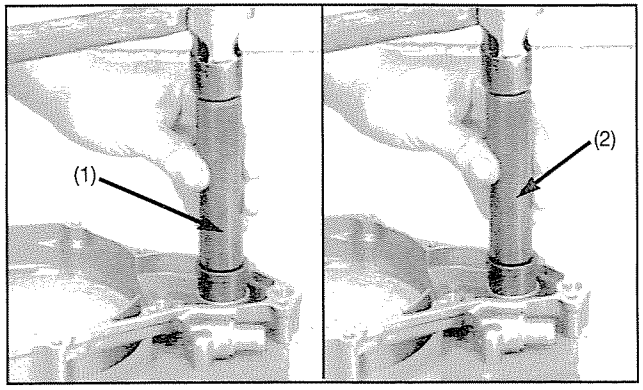
(1) BEARING REMOVER, 12 mm

Remove the water pump bearing from the right crankcase cover using the special tools.

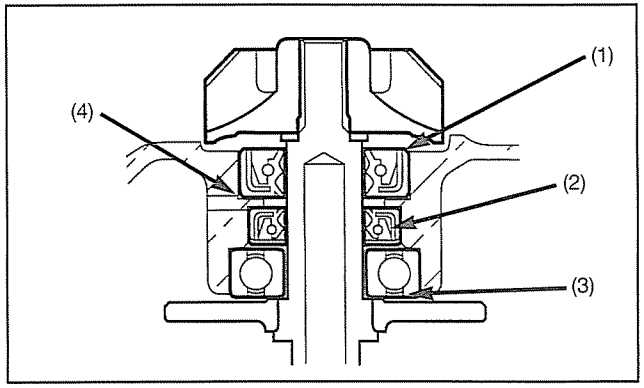
TOOLS:

Bearing remover, 12 mm	**07936-1660101**
- Remover shaft	**07936-1660120**
- Remover weight	**07741-0010201**

Remove the oil seal and water seal.



(1) WATER SEAL DRIVER
(2) DRIVER/ATTACHMENT



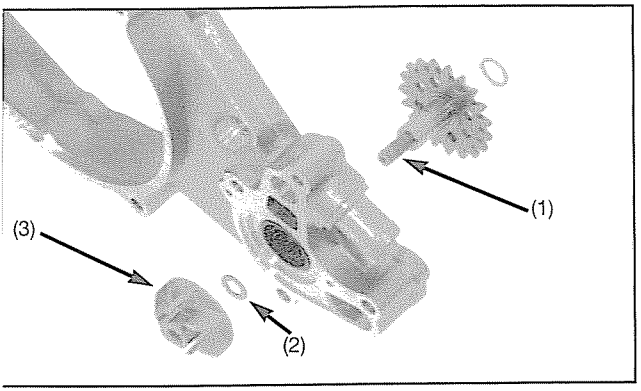
(1) WATER SEAL (3) BEARING
(2) OIL SEAL (4) RIB

Install the water seal into the right crankcase cover in the direction shown above, being careful not to damage the case cover rib.

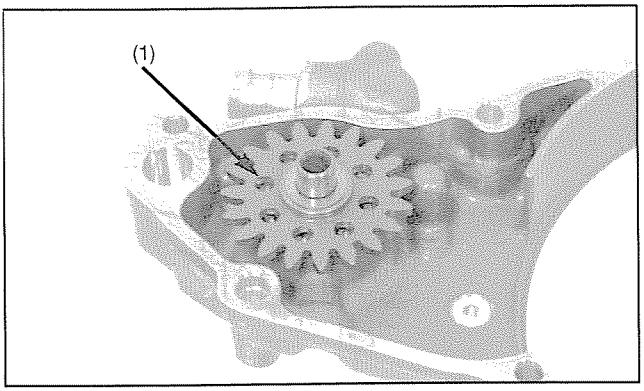
TOOL:

Water seal driver	**07945-KA30000**

Install a new oil seal in the direction shown above, being careful not to damage the case cover rib.
Drive the new bearing into the right crankcase cover (Tools; page 2-7).



(1) WATER PUMP SHAFT
(2) NEW COPPER WASHER
(3) IMPELLER

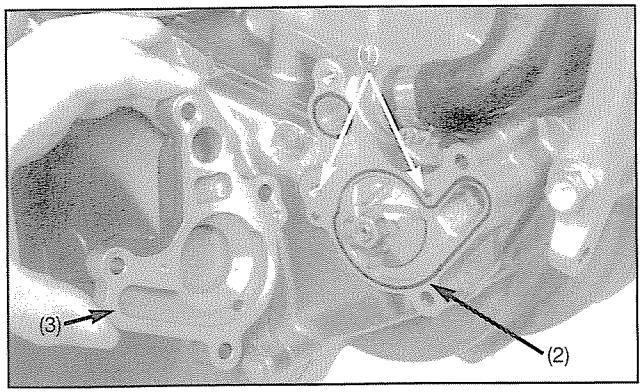


(1) GEAR HOLES

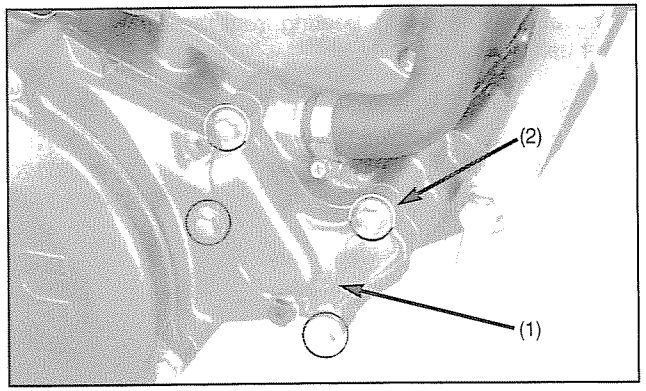
Install the water pump shaft, new copper washer and impeller into the right crankcase cover.
Hold the water pump gear holes using a suitable tool and tighten the impeller.

Torque: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the right crankcase cover (page 4-11).



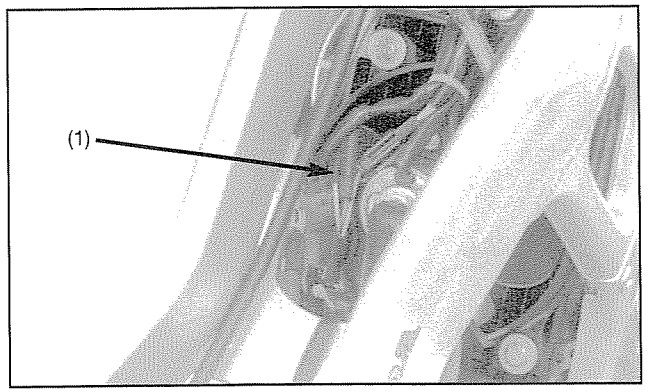
(1) DOWEL PINS
(2) NEW GASKET
(3) COVER



(1) WATER PUMP COVER
(2) BOLTS

Install the following:
- Dowel pins, new gasket
- Water pump cover, bolts

Connect the lower water hose and tighten the clamp screw.
Fill the crankcase with recommended transmission oil (page 3-4).
Fill the coolant and bleed air (page 3-5).

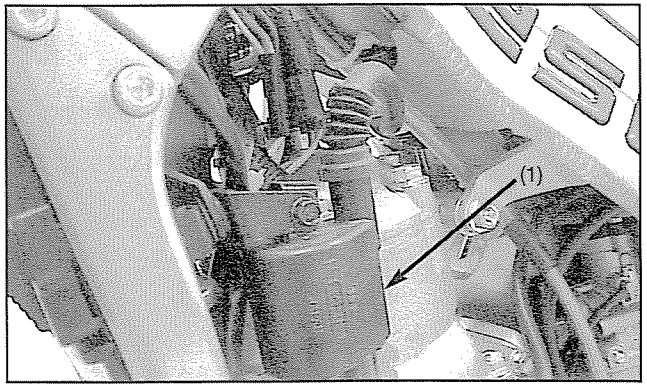


(1) CONNECTORS

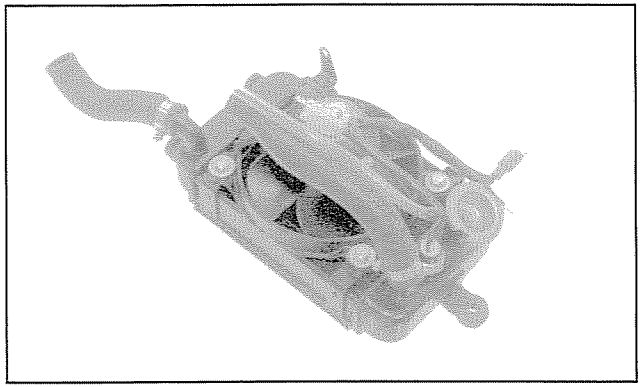
Radiator Removal/Installation

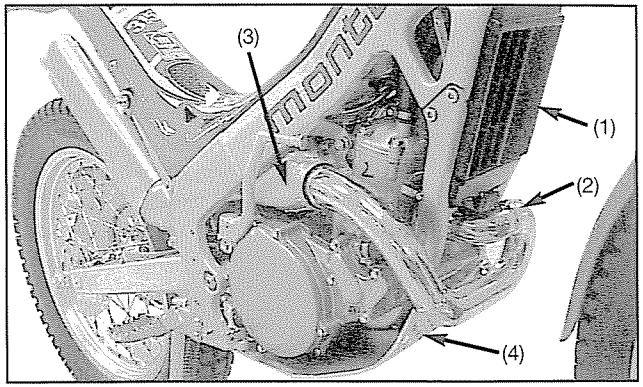
Remove the following:
- Exhaust pipe
- Skid plate
- Fuel tank

Disconnect the following:
- DC coil connectors
- Excitor coil connectors
- Ignition pulse generator 2P (Red) connector
- Engine stop switch connectors

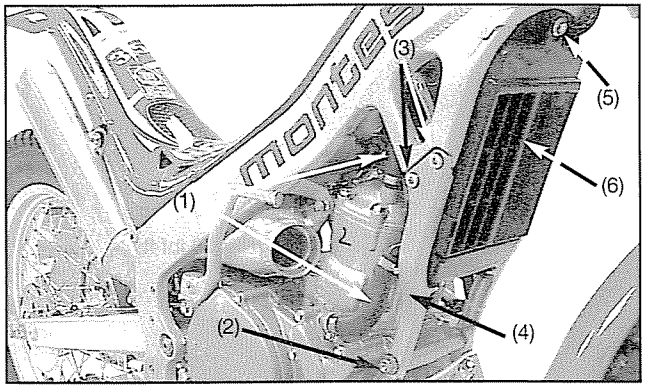


(1) IGNITION COIL



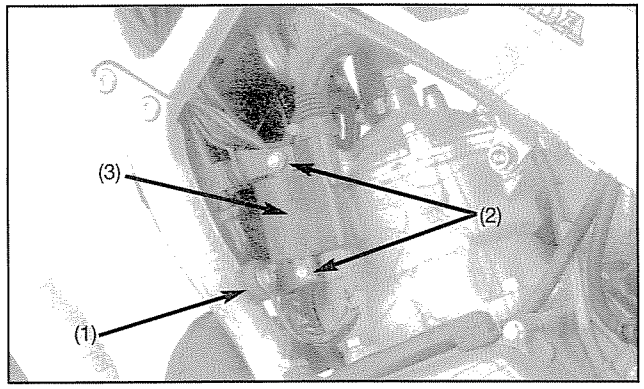


(1) RADIATOR
(2) EXHAUST PIPE
(3) EXPANSION CHAMBER
(4) SKID PLATE



(1) WATER HOSES
(2) HANGER BOLT
(3) DOWN TUBE BOLTS
(4) DOWN TUBE
(5) BOLT
(6) RADIATOR

Remove the ignition coil and ignition coil lower mounting bracket.
Disconnect the water hoses at the right crankcase cover and cylinder head.
Remove the front engine hanger bolts and front down tube mounting bolts, then remove the down tubes.
Remove the radiator mounting bolt.
Disconnect the fan motor 2P (Black) connector, then remove the radiator assembly.



(1) GROUND EYELET
(2) BOLT
(3) IGNITION COIL

Installation is in the reverse order of removal.

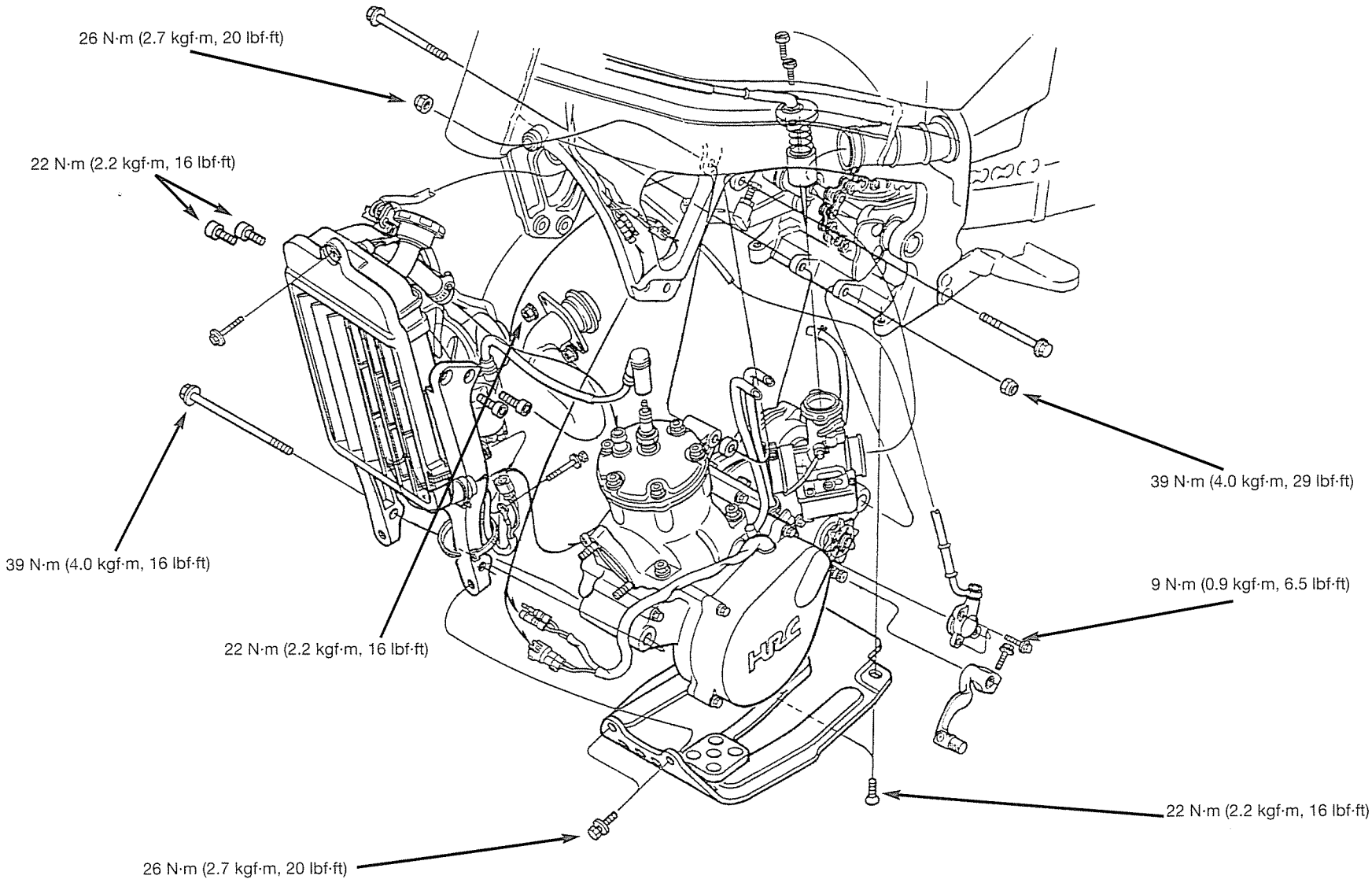
NOTICE

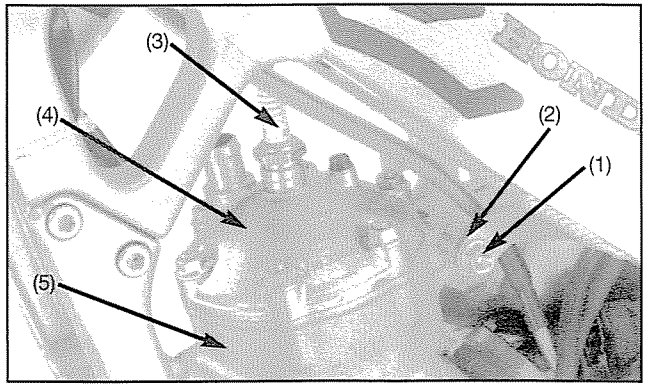
At ignition coil installation, install the ground eyelet with the ignition coil lower mounting bracket bolt as shown in the illustration.

Engine Removal/Installation

- Support the motorcycle securely using a hoist or equivalent.
- The following parts must be removed before engine removal.
  - Exhaust pipe, chamber
  - Skid plate
  - Down tubes, radiator (page 4-6)
  - Air cleaner housing
- The following components can be serviced with the engine in the frame.
  - Cylinder head/cylinder/piston
  - Clutch/gearshift linkage
  - Flywheel/stator
  - Kickstarter
- The following components require engine removal for servicing.
  - Crankshaft
  - Transmission
  - Shift forks and shift drum

Engine Removal/Installation Illustration





(1) HANGER BOLT
(2) DISTANCE COLLAR
(3) SPARK PLUG
(4) CYLINDER HEAD
(5) CYLINDER

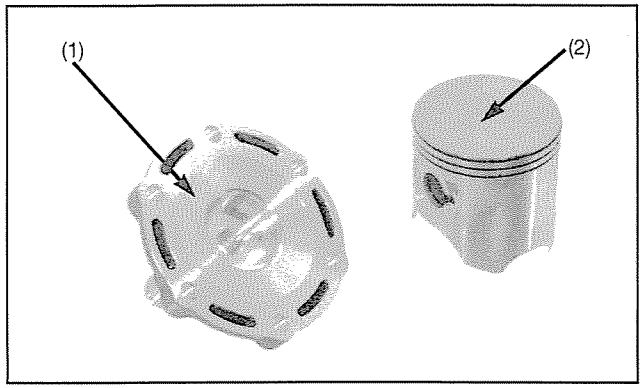
Cylinder/Piston Replacement

Removal

Drain the coolant (page 3-5).

Remove the down tubes and radiator (page 4-6), then temporarily install the down tubes.

Remove the following:
- Upper engine hanger bolt and distance collar
- Spark plug
- Cylinder head nuts, cylinder head and gasket
- Cylinder nuts, cylinder, gasket and dowel pins
- Piston pin clip, piston pin, piston and needle bearing



(1) COMBUSTION CHAMBER
(2) PISTON HEAD

Inspection

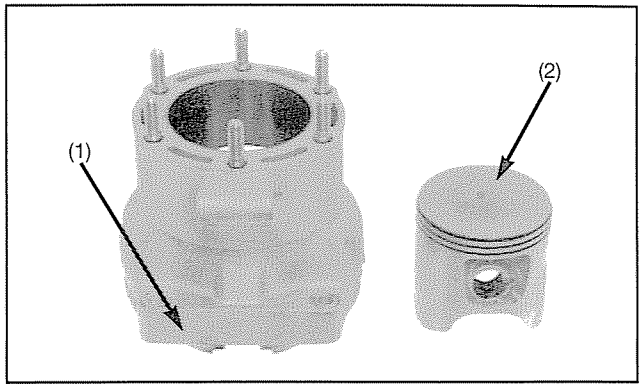
Remove the carbon deposits from the combustion chamber, piston head, piston ring grooves and exhaust port.

NOTICE

Take care not to damage the combustion chamber, cylinder mating surface and cylinder wall.

Check the cylinder head, cylinder and piston for wear or damage.

Check the following items (specification; page 2-2).
- Cylinder head and cylinder warpage
- Piston O.D. and cylinder I.D.
- Piston ring end gap and ring groove clearance
- Piston pin hole I.D. and piston pin O.D.
- Connecting rod small end I.D.

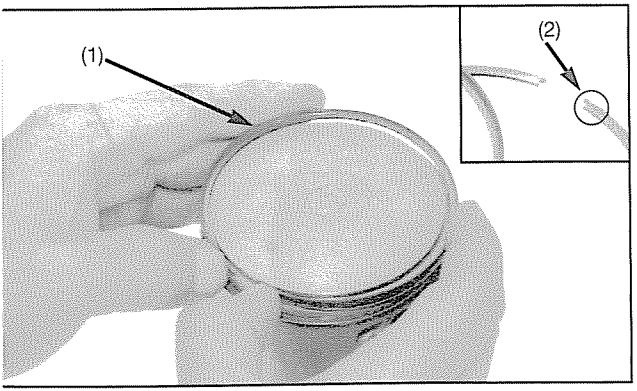


(1) CYLINDER I.D. CODE
(2) PISTON O.D. CODE

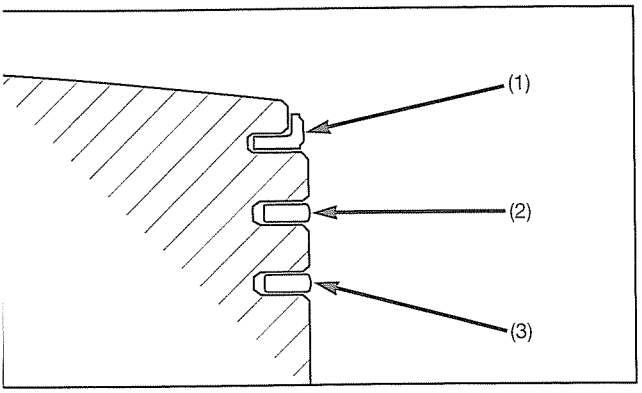
Cylinder/Piston selection

Cylinder and piston are select fitted.
Record the piston O.D. code (A, B or C) on the top of the piston head.
Record the cylinder I.D. code (A, B or C) on the bottom of the side.
Cross reference the piston and cylinder codes to determine the replacement piston and cylinder.

Cylinder I.D. code / Piston O.D. code	A	B	C
A	O	X	X
B	X	O	X
C	X	X	O



(1) PISTON RINGS
(2) "N" MARK



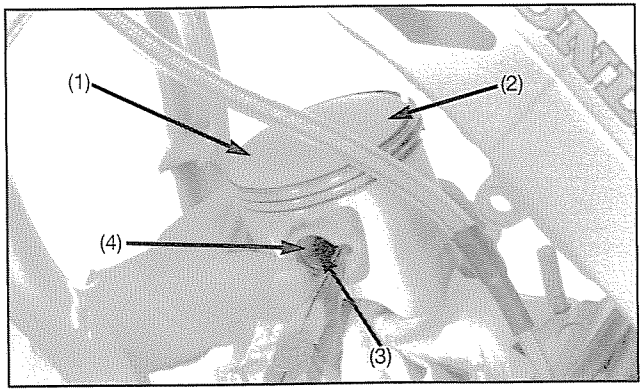
(1) TOP RING
(2) SECOND RING
(3) THIRD RING

Installation

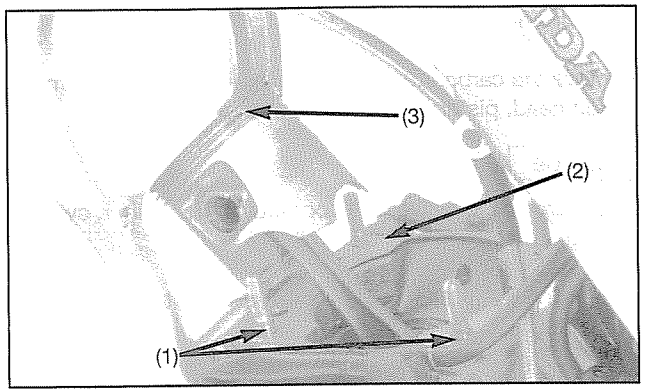
Apply 2-stroke engine oil to the piston rings and install the 2nd and 3rd piston rings with its "N" mark facing up.
2nd and 3rd piston rings are interchangeable.
Install the top ring.

NOTICE

Note the direction of the top ring.



(1) PISTON
(4) PISTON PIN CLIP
(2) "IN" MARK
(3) PISTON PIN

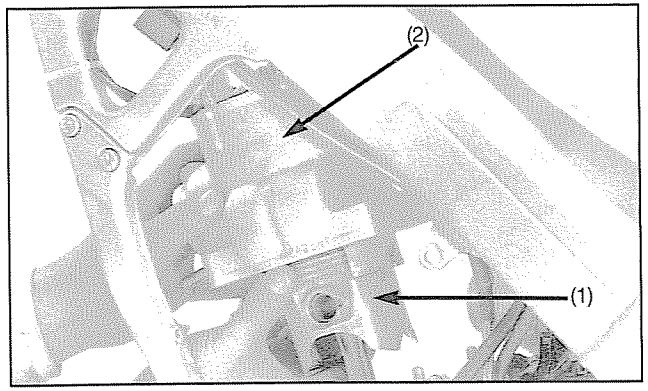


(1) DOWEL PINS
(2) NEW GASKET
(3) RING END GAPS/STOPPERS

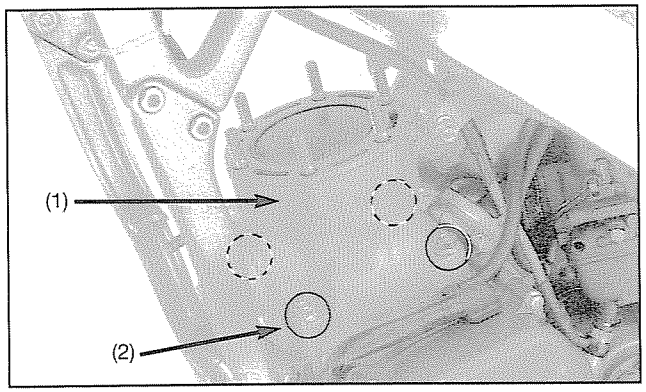
Apply 2-stroke engine oil to the connecting rod needle bearing and piston pin.
Install the piston with the "IN" mark facing to the intake side.
Install the piston pin and new piston pin clips.

Install the dowel pins and new gasket.

Align the ends of each ring with the stoppers in the piston ring grooves.



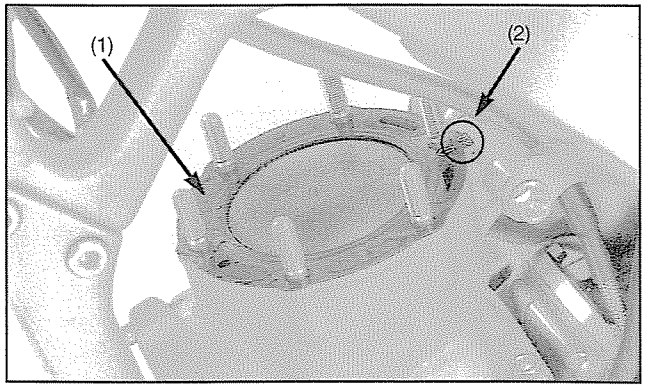
(1) PISTON
(2) CYLINDER



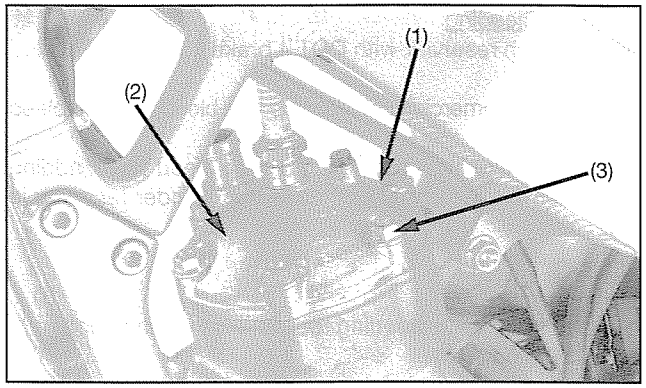
(1) CYLINDER
(2) NUTS

Apply 2-stroke engine oil to the cylinder wall, piston and piston rings.
Install the cylinder over the piston while compressing the piston rings.

Install the cylinder nuts and tighten the nuts.



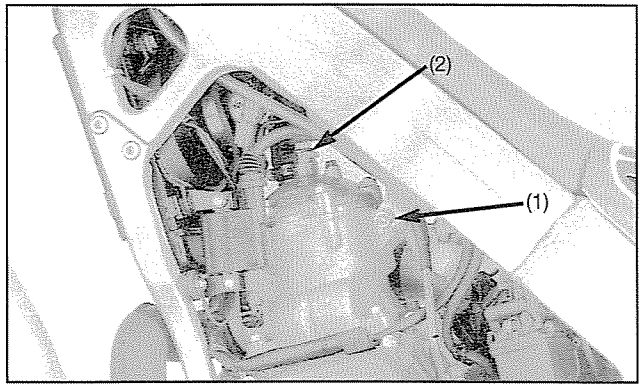
(1) NEW GASKET
(2) "UP" MARK/TAB



(1) CYLINDER HEAD
(2) ARROW MARK
(3) NUTS

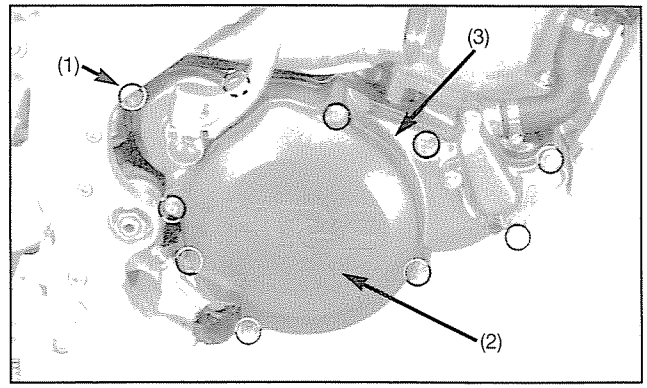
Install the new cylinder head gasket with its "UP" mark facing up and locating tab facing the intake side.

Install the cylinder head with its arrow mark facing the intake side and tighten the nuts in a crisscross pattern in 2 - 3 steps.

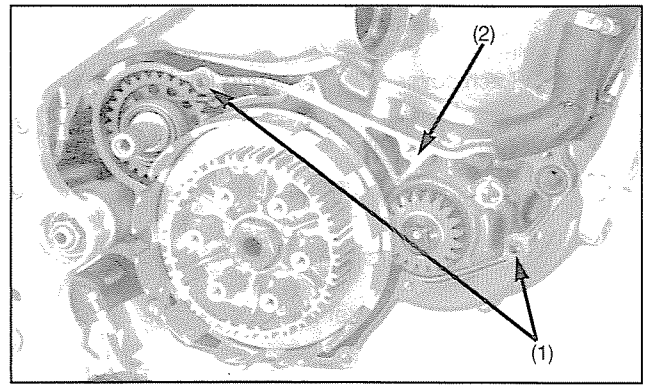


(1) HANGER BOLT/NUT
(2) SPARK PLUG CAP

Install the spark plug and spark plug cap.
Install the distance collar and engine hanger bolt/nut.
Remove the down tubes and reinstall the radiator and down tubes (page 4-7).
Tighten the engine hanger bolts and down tube mounting bolts to the specified torque (page 2-6).



(1) BOLTS
(2) CLUTCH COVER
(3) RIGHT CRANKCASE COVER



(1) DOWEL PINS
(2) NEW GASKET

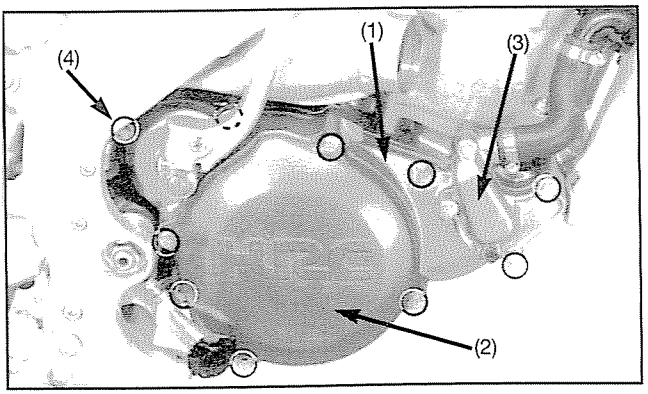
Right Crankcase Cover

Removal

Remove the bolt and kickstarter pedal.
Remove the bolts, clutch cover, right crankcase cover, gasket and dowel pins.

Installation

Install two dowel pins and new gasket onto the crankcase.



(1) RIGHT CRANKCASE COVER
(2) CLUTCH COVER
(3) WATER PUMP COVER
(4) BOLTS

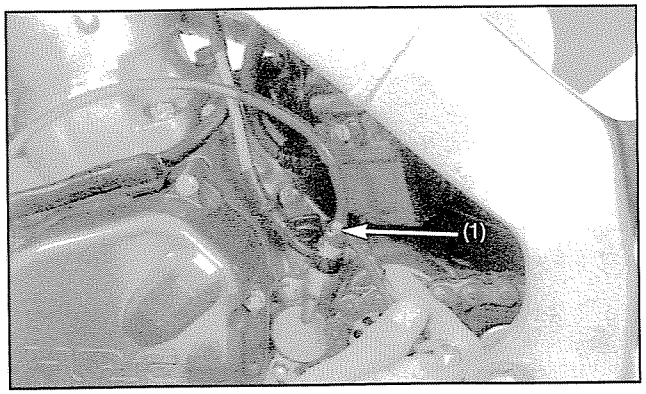
Install the right crankcase cover while turning the water pump impeller.
Check the clutch cover gasket is in good condition, replace if necessary.
Install the clutch cover.

Install the water pump cover (page 4-6).

Tighten the right crankcase cover bolts in a crisscross pattern in 2 - 3 steps.
Install the kickstarter pedal and tighten the bolt to the specified torque.

Torque: 26 N·m (2.7 kgf·m, 20 lbf·ft)

Connect the lower water hose.
Fill the crankcase with recommended transmission oil (page 3-4).
Fill the coolant and bleed air.



(1) BLEED VALVE

Clutch

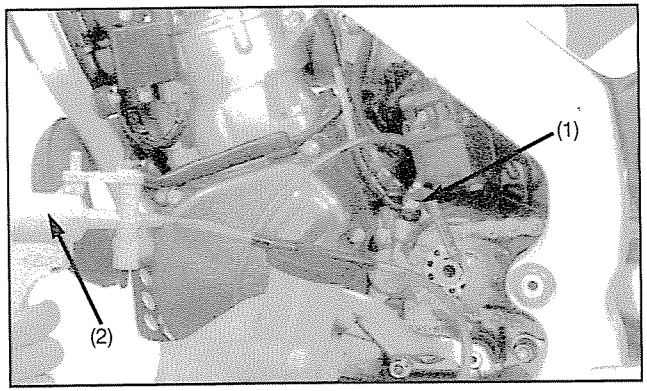
Clutch Fluid Replacement/Air Bleeding

NOTICE

Avoid spilling brake fluid on painted, plastic or rubber parts. Place a shop rag over these parts whenever the system is serviced.
When removing the clutch hose bolt, cover the end of the hoses to prevent contamination. Secure the hoses to prevent fluid from leaking out.
Use only DOT 4 brake fluid from a sealed container.
Do not mix different types of fluid.

Draining
Remove the screws and clutch reservoir cap.

Connect a bleed hose to the slave cylinder bleeder valve.
Loosen the bleed valve and pump the brake lever.
Stop pumping the lever when no more fluid flows out of the bleed valve.



(1) BLEED VALVE
(2) BRAKE BLEEDING TOOL

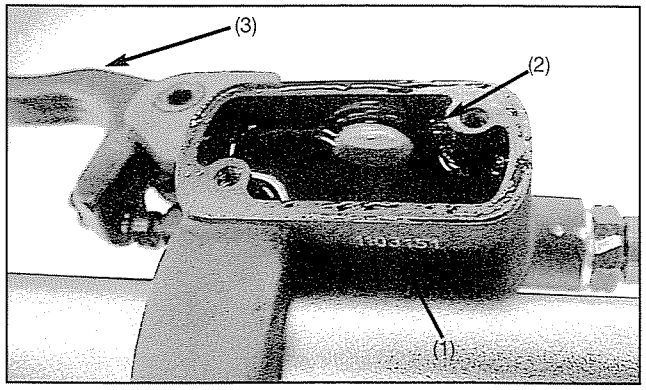
Filling/Air Bleeding
Fill the clutch reservoir with DOT 4 brake fluid from a sealed container.
Connect a commercially available brake bleeder to the bleed valve.
Pump the brake bleeder and loosen the bleed valve, adding fluid when the fluid level in the master cylinder reservoir is low.

NOTICE

When using a brake bleeding tool, follow the manufacturer's operating instruction.

Repeat the above step procedures until air bubbles do not appear in the transparent hose.
If air is entering the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Close the bleed valve.
Operate the clutch lever and check the clutch operation (page 3-6).
If it still feels spongy, bleed the system again.



(1) CLUTCH MASTER CYLINDER
(2) CASTING LEDGE
(3) CLUTCH LEVER

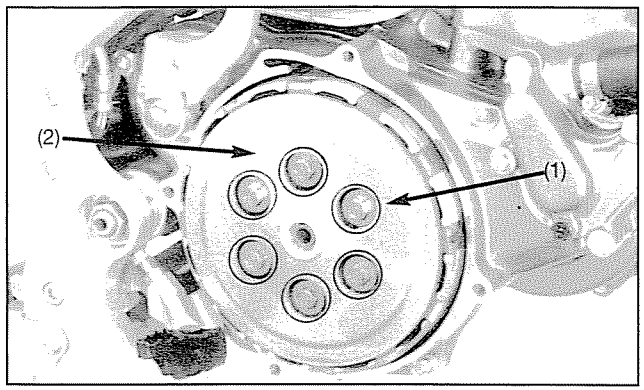
If a brake bleeding tool is not available, use the following procedures.

Connect a transparent bleed hose to the bleed valve and place the other end of the hose in a container.
Loosen the bleed valve 1/4 turn and pump the clutch lever until the fluid flows out from the bleed valve.

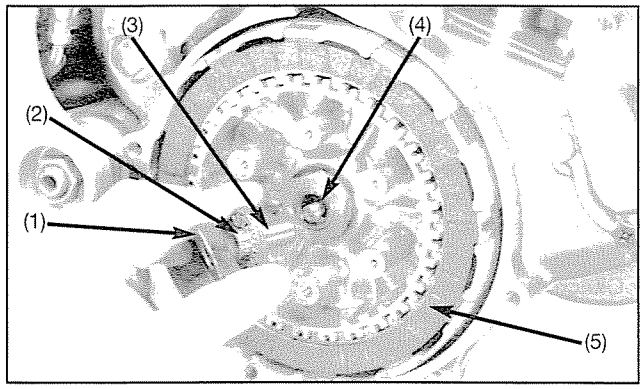
1. Pump the brake lever several times, then squeeze the lever all the way and loosen the bleed valve 1/4 turn. Wait several seconds and close the bleed valve. Do not release the clutch lever until the bleed valve has been closed.
2. Release the clutch lever slowly until the bleed valve has been closed.
3. Repeat the steps 1-2 until there are no air bubbles in a bleed hose.

After bleeding air completely, tighten the bleed valve.
Fill the reservoir to the casting ledge with DOT 4 brake fluid from a sealed container.
Install the diaphragm and reservoir cap, then tighten the screws.

Check the clutch operation (page 3-6).



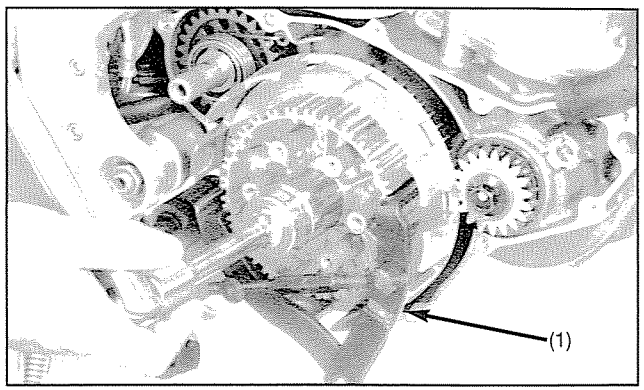
(1) CLUTCH BOLTS/SPRINGS
(2) PRESSURE PLATE



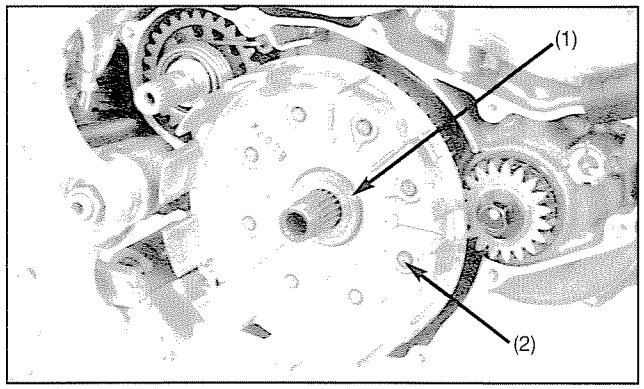
(1) THRUST WASHER
(2) THRUST NEEDLE BEARING
(3) LIFTER PIECE
(4) LIFTER ROD
(5) CLUTCH DISCS/PLATES

Clutch Removal

Remove the following:
- Clutch cover
- Clutch spring bolts/springs
- Pressure plate
- Thrust washer/thrust needle bearing/lifter piece/lifter rod
- Clutch discs/plates



(1) CLUTCH CENTER HOLDER

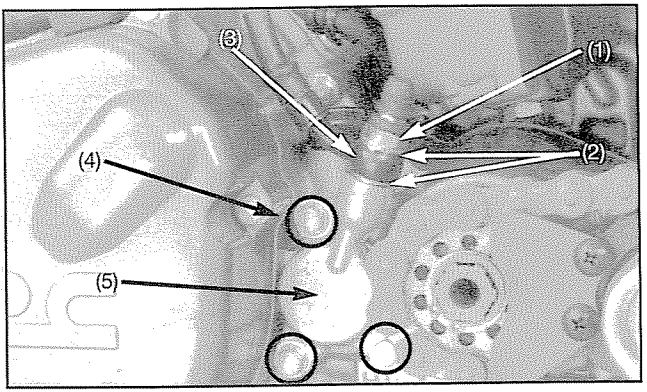


(1) WASHER
(2) CLUTCH OUTER

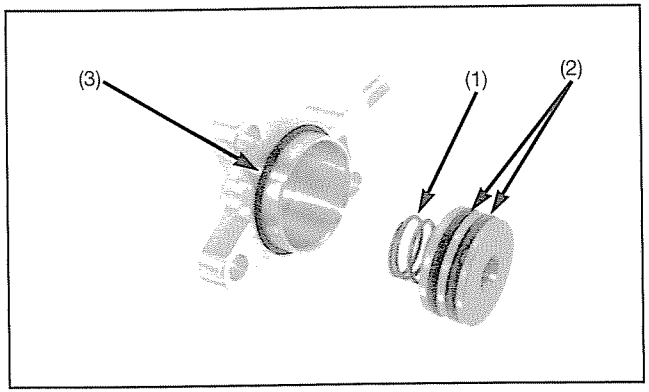
Remove the right crankcase cover.
Hold the clutch center with the clutch center holder and remove the clutch center nut.

TOOL:
Clutch center holder **07724-0050001**

Remove the lock washer, plain washer and clutch center.
Remove the washer, clutch outer, needle bearing and clutch outer guide.



(1) OIL BLEEDER BOLTS
(2) SEALING WASHERS
(3) EYELET JOINT
(4) BOLTS
(5) SLAVE CYLINDER

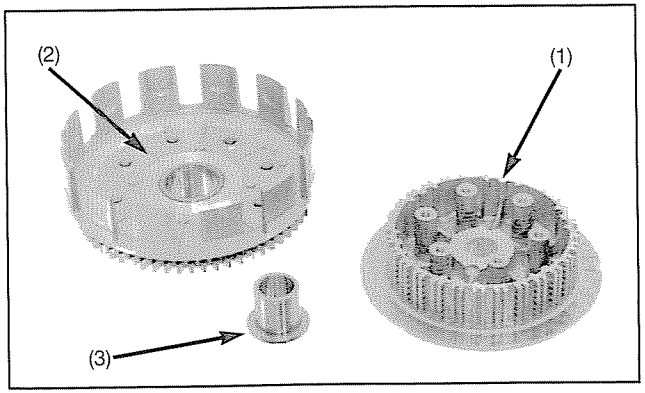


(1) SPRING
(2) SEAL RINGS
(3) O-RING

Slave Cylinder Removal/Disassembly

Drain the brake fluid from clutch hydraulic system (page 4-13).

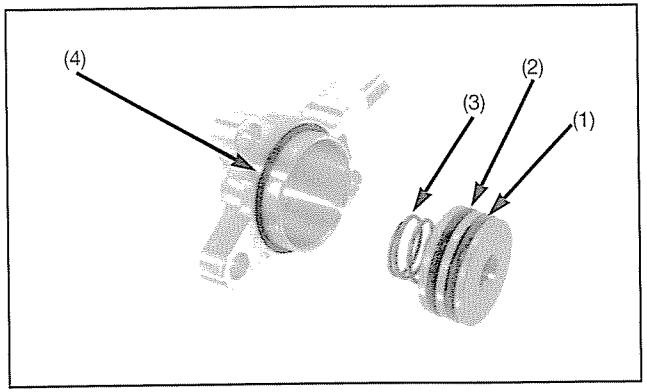
Remove the oil bleeder bolt, sealing washers and clutch hose eyelet.
Disassemble the slave cylinder.
Clean the slave cylinder and piston with clean brake fluid and wipe them dry



(1) CLUTCH CENTER
(2) CLUTCH OUTER
(3) OUTER GUIDE

Inspection

Check the following items (specifications; 2-2).
- Clutch outer for wear, cracks or indentation by the clutch discs.
- Clutch center grooves for damage, crack or indentation by the clutch plates.
- Clutch lifter and thrust needle bearing for damage.
- Clutch lifter rod for damage and straightness.
- Clutch outer needle bearing for wear or damage.
- Clutch spring free length.
- Clutch disc thickness.
- Clutch plate warpage.
- Clutch outer I.D.
- Clutch outer guide I.D. and O.D.
- Mainshaft O.D. at clutch outer guide.
- Slave cylinder piston spring for weakness or damage.
- Slave cylinder and piston for scoring or other damage
- Slave cylinder O-ring for wear or damage.



(1) SEAL RING (GREEN)
(2) SEAL RING (BLACK)
(3) SPRING
(4) O-RING

Slave Cylinder Assembly/Installation

Clean any oil off from the slave cylinder piston grooves.

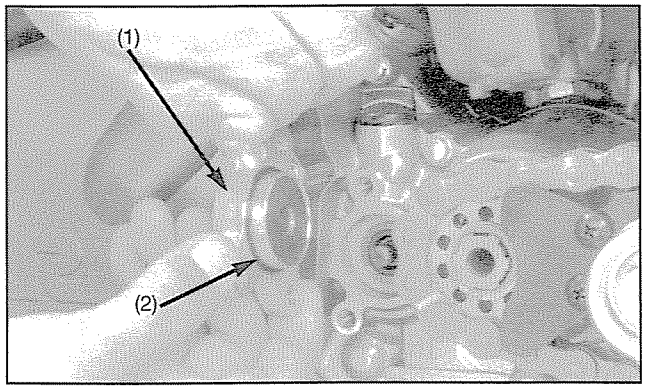
NOTICE

Do not reuse the seal rings.
Do not apply brake fluid to the seal rings.

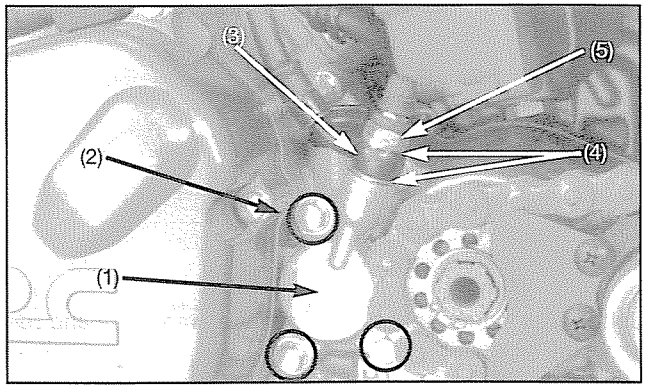
Apply silicone grease to the new seal rings.
Install the green colored seal ring into the outer groove of the slave cylinder piston.
Install the black colored seal ring into the inner groove of the slave cylinder piston.

Install the spring in the tip of the piston.

Apply multi-purpose grease to the slave cylinder body O-ring and install it onto the body.



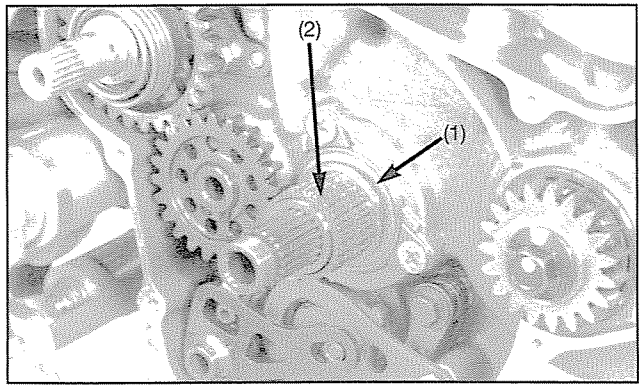
(1) SLAVE CYLINDER
(2) O-RING



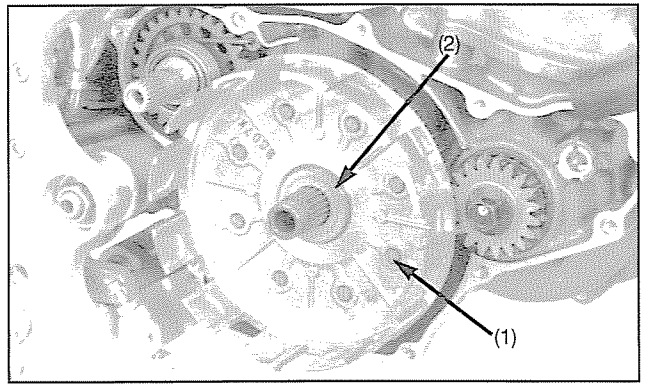
(1) SLAVE CYLINDER (2) BOLTS (3) EYELET JOINT
(4) NEW SEALING WASHERS (5) OIL BLEEDER BOLT

Install the slave cylinder onto the left crankcase being careful not to damage the O-ring.
Install and tighten the mounting bolts.
Install the clutch hose eyelet with new sealing washers, then tighten the oil bleeder bolt to the specified torque.

Torque: 23 N·m (2.3 kgf·m, 16 lbf·ft)



(1) OUTER GUIDE
(2) NEEDLE BEARING

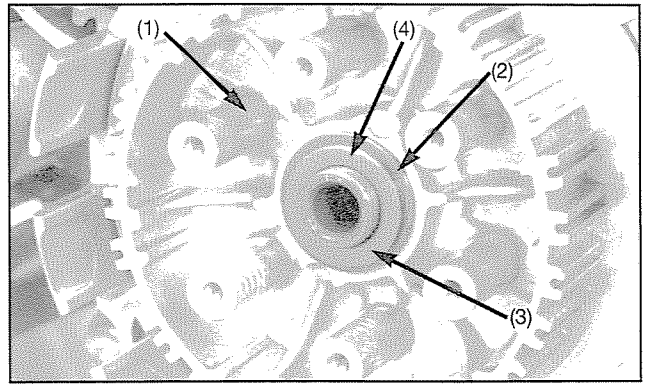


(1) CLUTCH OUTER
(2) THRUST WASHER

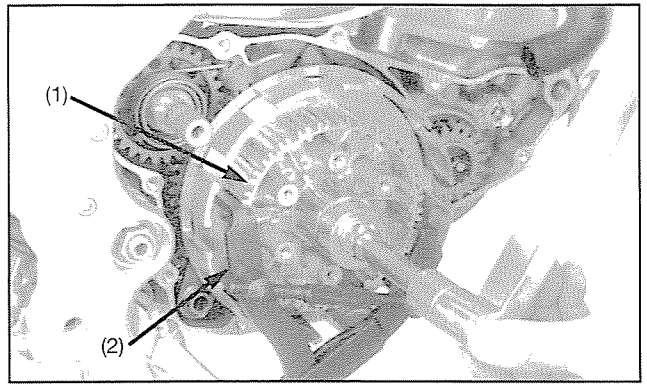
Clutch Installation

Install the clutch outer guide and needle bearing onto the mainshaft.

Install the clutch outer and thrust washer.



(1) CLUTCH CENTER (2) THRUST WASHER
(3) LOCK WASHER (4) "OUTSIDE" MARK

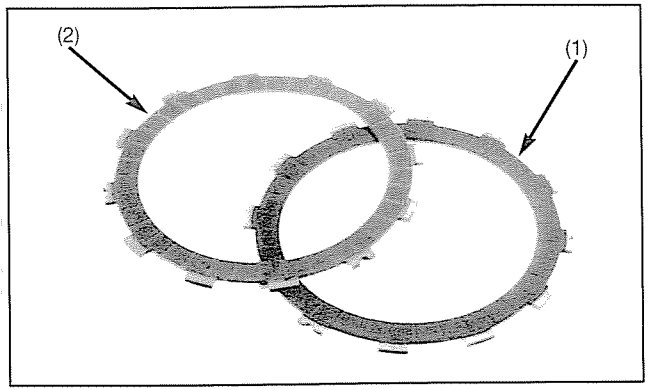


(1) CLUTCH CENTER
(2) CLUTCH CENTER HOLDER

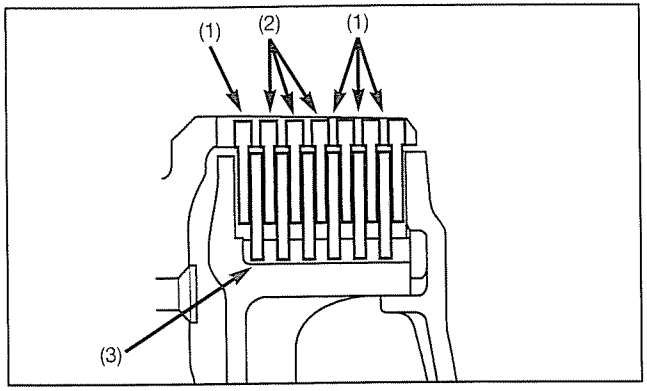
Install the clutch center and thrust washer onto the mainshaft.
Install the new lock washer with its "OUT SIDE" mark facing out.
Hold the clutch center with the clutch center holder and tighten the clutch center nut to the specified torque.

TOOL:
Clutch center holder **07724-0050001**

Torque: 80 N·m (8.2 kgf·m, 59 lbf·ft)



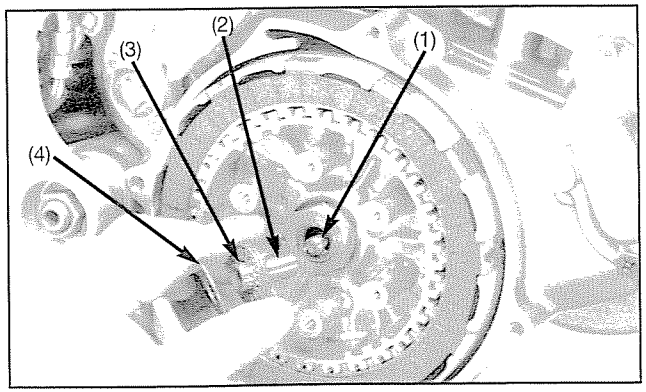
(1) CORK MOLD DISC (DARK BROWN COLOR)
(2) PAPER MOLD DISC (LIGHT BROWN COLOR)



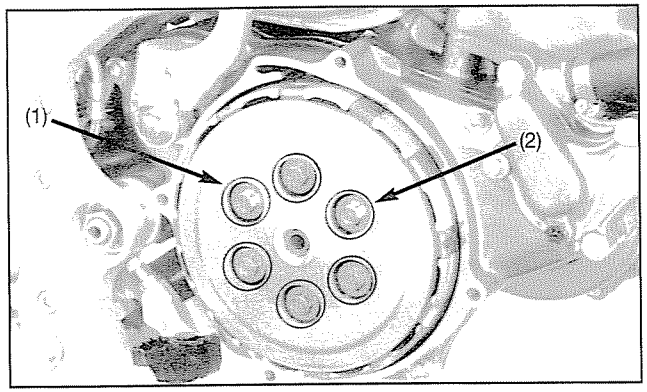
(1) CORK MOLD DISCS
(2) PAPER MOLD DISCS
(3) PLATES

This motorcycle is equipped with two different types of clutch disc. Install the discs in their proper location as noted below.

Coat the clutch plates with transmission oil.
Install the four cork mold friction discs and clutch plates alternately, starting with a friction disc.
Install the three paper mold friction disc and clutch plates alternately starting with a clutch plate.



(1) LIFTER ROD
(2) LIFTER PIECE
(3) THRUST NEEDLE BEARING
(4) THRUST WASHER

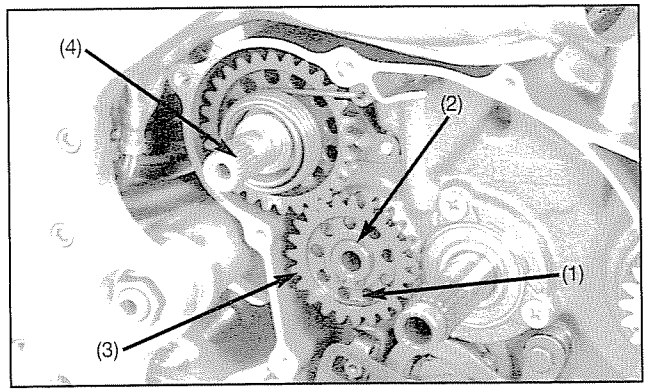


(1) PRESSURE PLATE
(2) CLUTCH SPRINGS/BOLTS

Apply grease to the tip of the lifter rod.
Install the clutch lifter rod, lifter piece, thrust needle bearing and thrust washer.

Install the clutch pressure plate, springs and clutch bolts and tighten the bolt in a crisscross pattern in several steps.

Install the right crankcase cover and clutch cover (page 4-11).



(1) SNAP RING
(2) THRUST WASHER
(3) IDLE GEAR/BUSHING
(4) KICKSTARTER ASSEMBLY

Kickstarter

Removal/Disassembly

Remove the clutch (page 4-11)

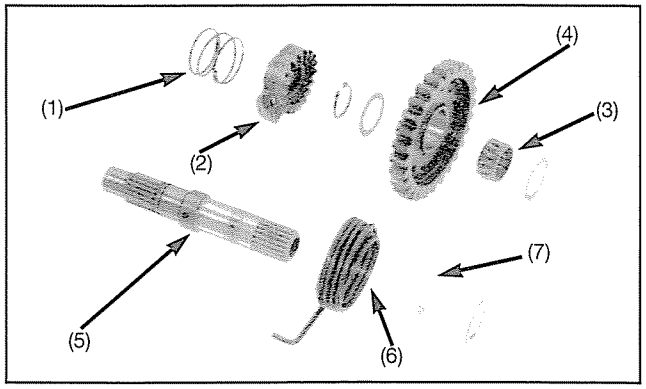
Remove the following:
- Snap ring, thrust washer
- Idle gear and bushing

Unhook the return spring end from the crankcase and remove the kickstarter as an assembly.

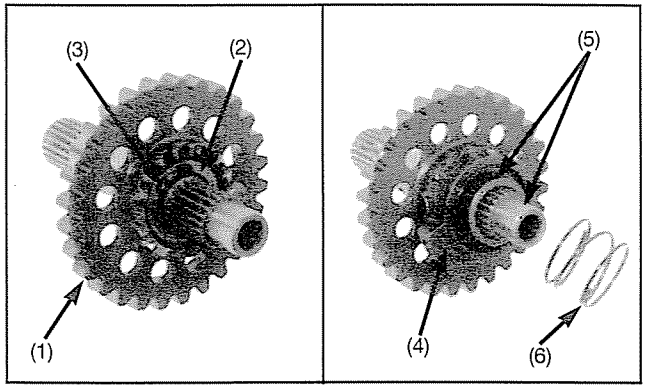
Disassemble the kickstarter.

Inspection

Check the following items (specification; page 2-2):
- Return spring and ratchet spring for wear or damage.
- Needle bearing for wear or damage.
- Pinion gear I.D. and spindle O.D.
- Idle gear I.D. and bushing O.D. and I.D.
- Countershaft O.D. at the idle gear bushing.



(1) RATCHET SPRING
(2) STARTER RATCHET
(3) NEEDLE BEARING
(4) PINION GEAR
(5) SPINDLE
(6) RETURN SPRING
(7) COLLAR

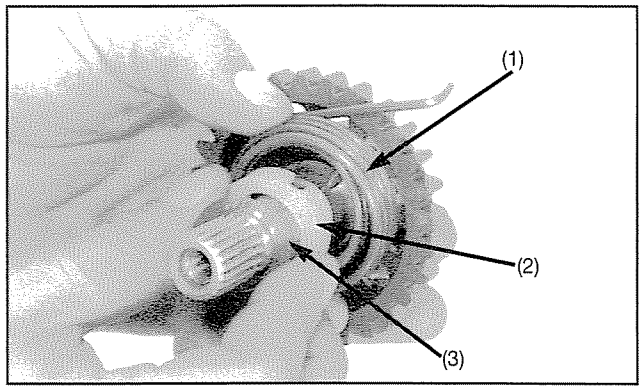


(1) PINION GEAR
(2) THRUST WASHER
(3) SNAP RING
(4) STARTER RATCHET
(5) PUNCH MARKS
(6) RATCHET SPRING

Assembly/Installation

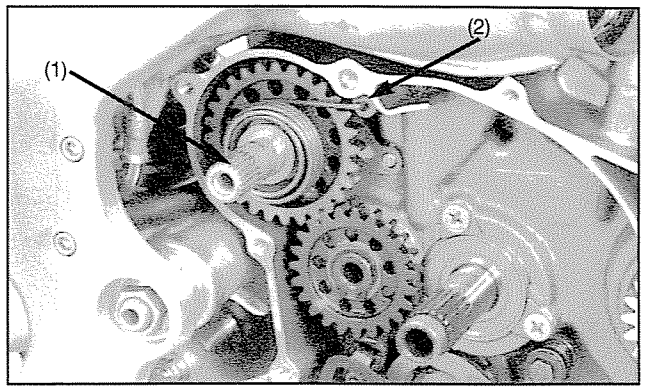
Assemble the kickstarter as shown in the illustration above.

Install the thrust washer, needle bearing, pinion gear, thrust washer and snap ring.
Install the starter ratchet aligning the punch marks on the ratchet and spindle.
Install the ratchet spring.

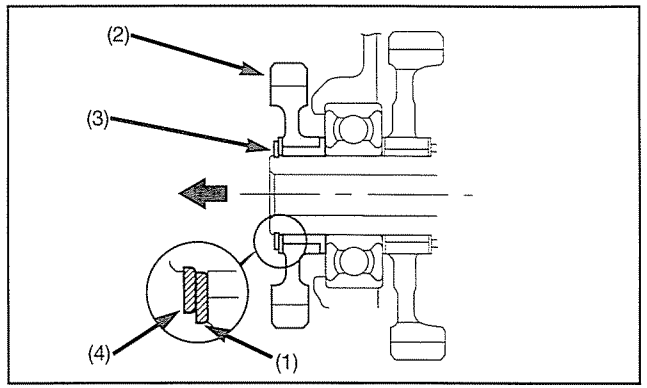


(1) RETURN SPRING
(2) COLLAR
(3) WASHER

Install the return spring with its end into the spindle hole.
Install the collar aligning its groove with the return spring end, then install the washer.

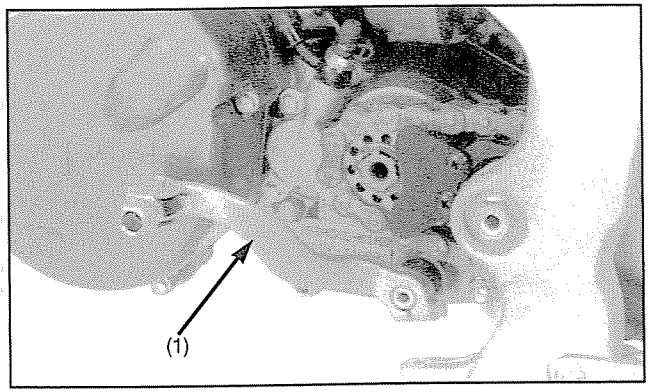


(1) KICKSTARTER ASSEMBLY
(2) SPRING HOOK



(1) BUSHING
(2) IDLE GEAR
(3) THRUST WASHER
(4) SNAP RING

Install the kickstarter assembly and hook the starter ratchet with the stopper.
Install the return spring end into the crankcase hole as shown.
Install the idle gear bushing, idle gear onto the countershaft. Note the direction of the idle gear as shown in the illustration.
Install the thrust washer with its chamfered side facing the idle gear, then secure them with snap ring.



(1) GEARSHIFT PEDAL

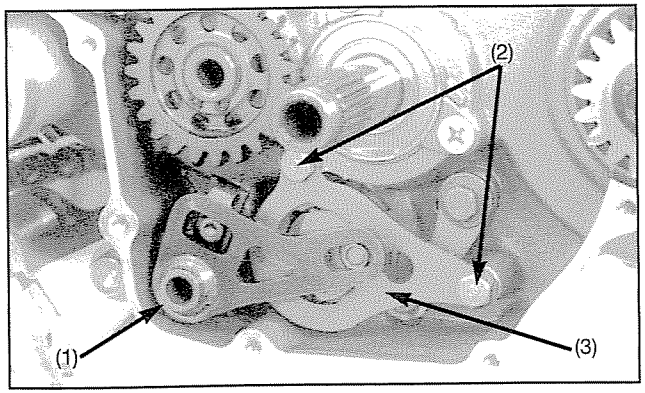
Gearshift Linkage

Removal

Remove the bolt and gearshift pedal.

NOTICE

Avoid entering the dust and dirt into the crankcase, clean the gearshift spindle before removing the gearshift spindle.

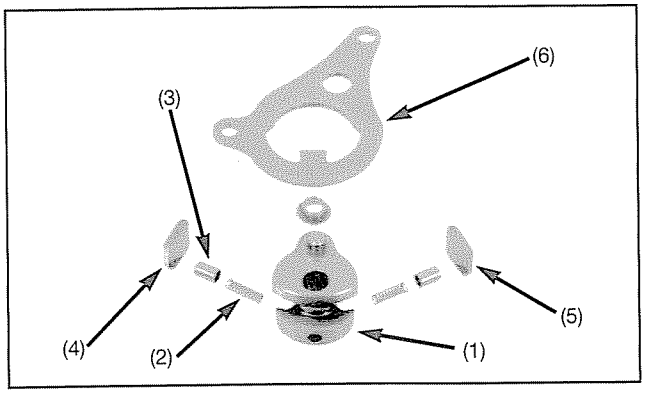


(1) GEARSHIFT SPINDLE
(2) BOLTS
(3) GUIDE PLATE

Pull out the gearshift spindle from the crankcase.

Remove the guide plate bolts and guide plate as an assembly.

Remove the center bolt and drum center.
Remove the bolts and stopper arm, return spring and washer.



(1) DRUM SHIFTER
(2) SPRING
(3) PLUNGER
(4) RATCHET PAWL A
(5) RATCHET PAWL B
(6) GUIDE PLATE

Inspection

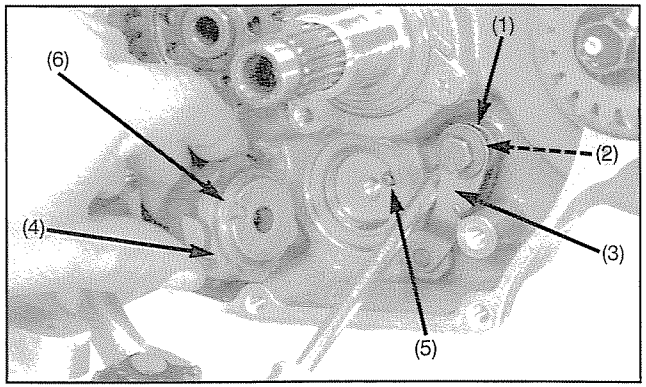
Inspect each part for wear or damage and replace if necessary.

Installation

Apply transmission oil to the ratchet pawls, springs and plungers.
Assemble the drum shifter, springs, plungers and ratchet pawls in the guide plate as shown.

NOTICE

Note the direction of the ratchet pawl A and B.



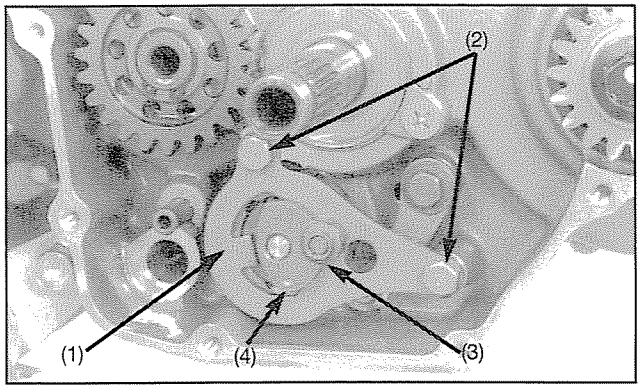
(1) RETURN SPRING (2) WASHER (3) STOPPER ARM
(4) DRUM CENTER (5) DOWEL PIN
(6) CUT-OUT

Install the return spring, plain washer and stopper arm and tighten the stopper arm bolt to the specified torque.

Torque: 12 N·m (1.2 kgf·m, 9 lbf·ft)

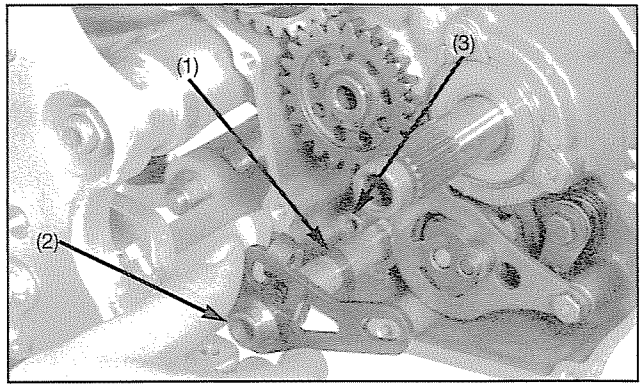
Install the dowel pin into the shift drum.
Install the drum center by aligning the cut out with the dowel pin on the shift drum while holding the stopper arm with the screwdriver as shown.
Apply a locking agent to the center bolt threads and install and tighten the drum center bolt to the specified torque.

Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

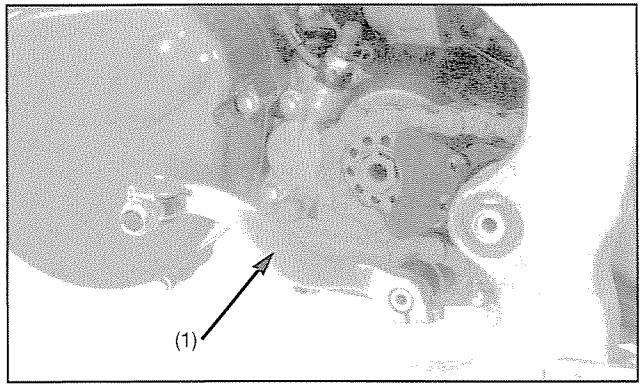


(1) GUIDE PLATE (2) BOLTS (3) SHIFTER COLLAR
(4) DRUM SHIFTER

Set the drum center in a position other than neutral.
Install the drum shifter with the guide plate while holding onto the ratchet pawls.
Install the guide plate bolts and tighten them.
Install the shifter collar on the drum shifter.



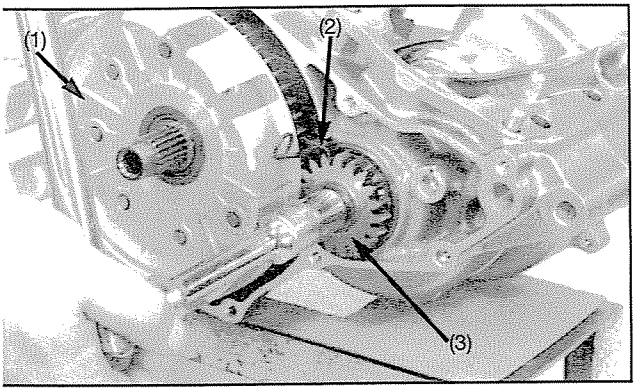
(1) WASHER
(2) GEARSHIFT SPINDLE
(3) SHIFT FORK SHAFT



(1) GEARSHIFT PEDAL

Install the washer and gearshift spindle aligning the return spring ends with the shift fork shaft on the crankcase and guide plate hole with the shifter collar.

Install the gearshift pedal and check the operation.



(1) CLUTCH OUTER
(2) GEAR HOLDER
(3) PRIMARY DRIVE GEAR

Crankcase Separation/Disassembly

Remove the engine from the frame.

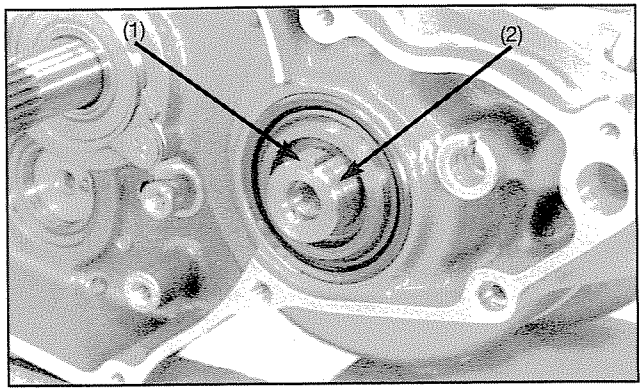
Remove the following:
- Carburetor
- Cylinder head, cylinder, piston
- Clutch
- Kickstarter
- Gearshift linkage
- Flywheel and woodruff key (page 6-2)

Remove the drive sprocket.

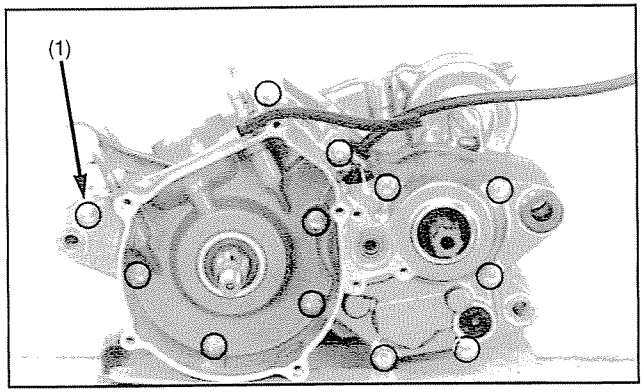
Temporarily install the clutch outer guide, needle bearing and clutch outer onto the mainshaft and attach the gear holder between the primary drive and driven gears.
Remove the primary drive gear bolt.

TOOL:
Gear holder **07724-0010100**

Remove the primary drive gear, key and crankshaft collar.



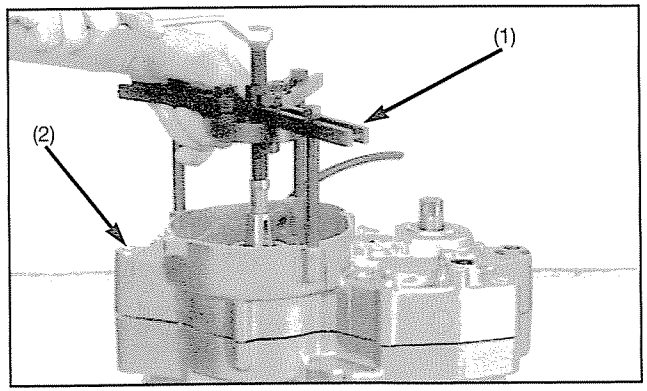
(1) KEY
(2) CRANKCASE COLLAR



(1) CRANKCASE BOLTS

Remove the key from the crankshaft, then remove the crankshaft collar.

Loosen the crankcase bolts in a crisscross pattern in 2-3 steps, then remove the bolts.



(1) CRANKCASE PULLER
(2) LEFT CRANKCASE

Remove the woodruff key from the crankshaft.

NOTICE

The woodruff key must be removed before separating the crankcase halves to prevent damaging the oil seal rips.

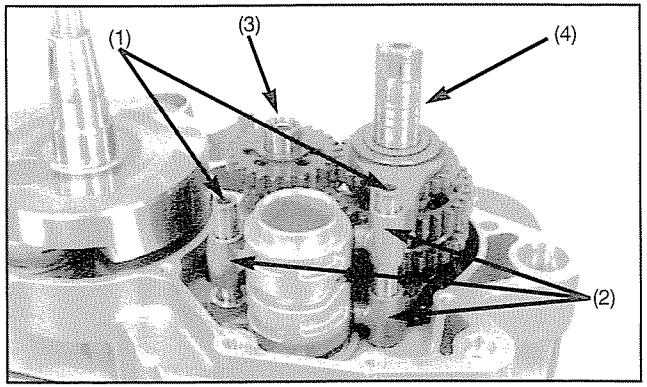
Attach the crankcase puller to the left crankcase.

TOOL:
Crankcase puller **07SMC-0010001**

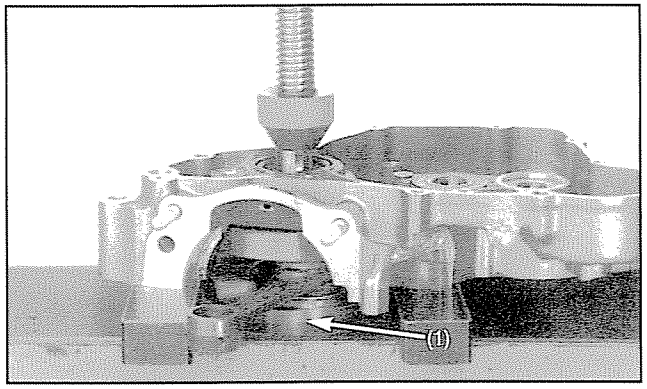
Remove the left crankcase while tapping the cases a few times with a soft hammer.

NOTICE

Do not pry the crankcase halves apart with a screwdriver.



(1) SHIFT FORK SHAFTS
(2) SHIFT FORKS
(3) MAINSHAFT
(4) COUNTERSHAFT

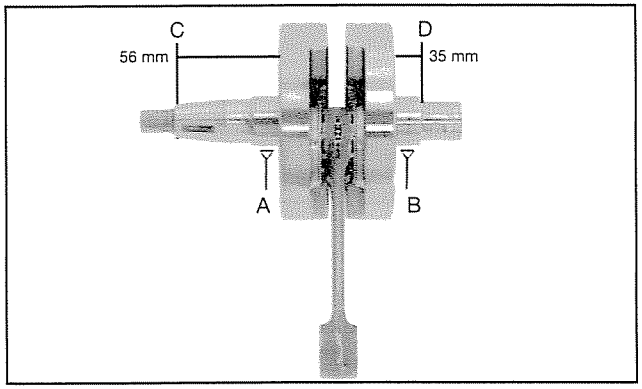


(1) CRANKSHAFT

Remove the following:
- Gasket and dowel pins
- Shift fork shafts, shift forks and shift drum
- Mainshaft and countershaft assembly

Remove the crankshaft using a hydraulic press.
Remove the both crankshaft bearing using a bearing puller, if they are left on the crankshaft.

Disassemble the mainshaft and countershaft.

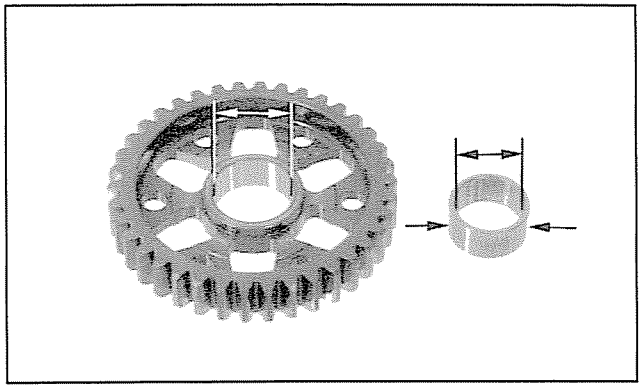


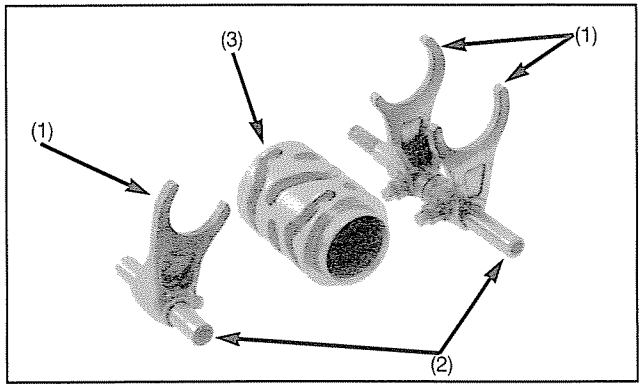
Crankshaft/Transmission Inspection

Measure the crankshaft runout.
Support the crankshaft at point "A" and "B" and then measure the runout at the points "C" and "D".

Service limits: C: 0.05 mm (0.002 in)
D: 0.015 mm (0.0006 in)

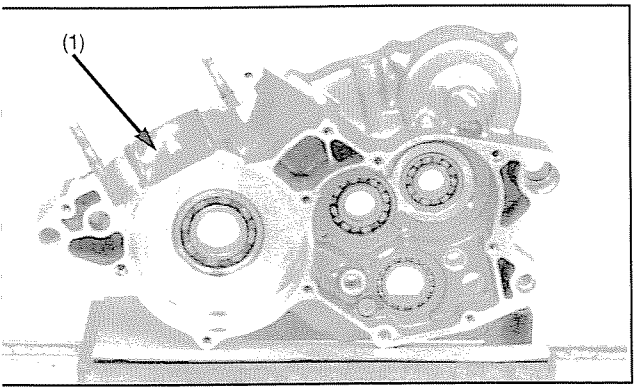
Measure the connecting rod big end side clearance and big end axial/radial play (specification; page 2-3).



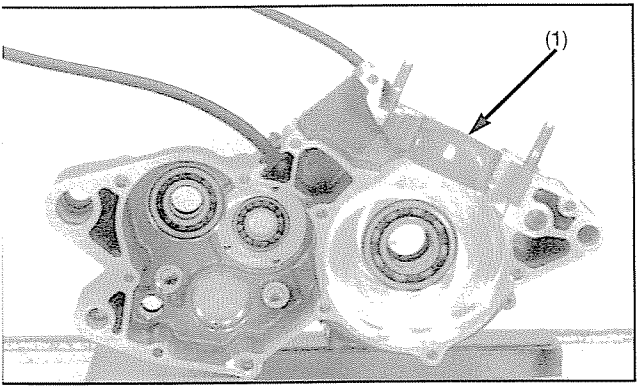


(1) SHIFT FORKS
(2) SHIFT FORK SHAFTS
(3) SHIFT DRUM

Inspect each part for wear or damage.
Check the following items (specifications; page 2-3).
- Spinning gear I.D.
- Bushing I.D. and O.D.
- Mainshaft and countershaft O.D.
- Shift fork I.D. and claw thickness
- Shift fork shaft O.D.
- Shift drum O.D.



(1) RIGHT CRANKCASE



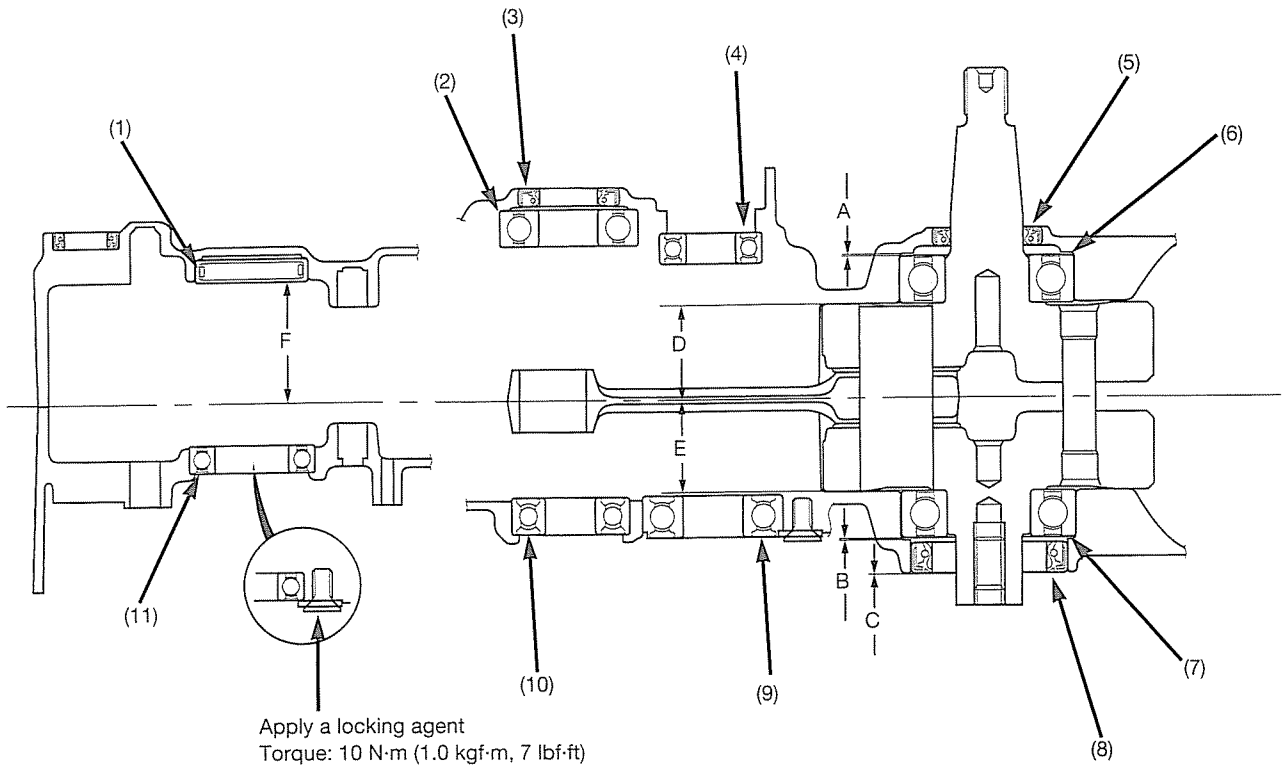
(2) LEFT CRANKCASE

Crankcase Bearing Replacement

Remove the oil seals and bearing set plates.
Drive out the bearing using the special tools (Tools; page 2-6).

Install the new bearing as shown in the illustration using the special tools.

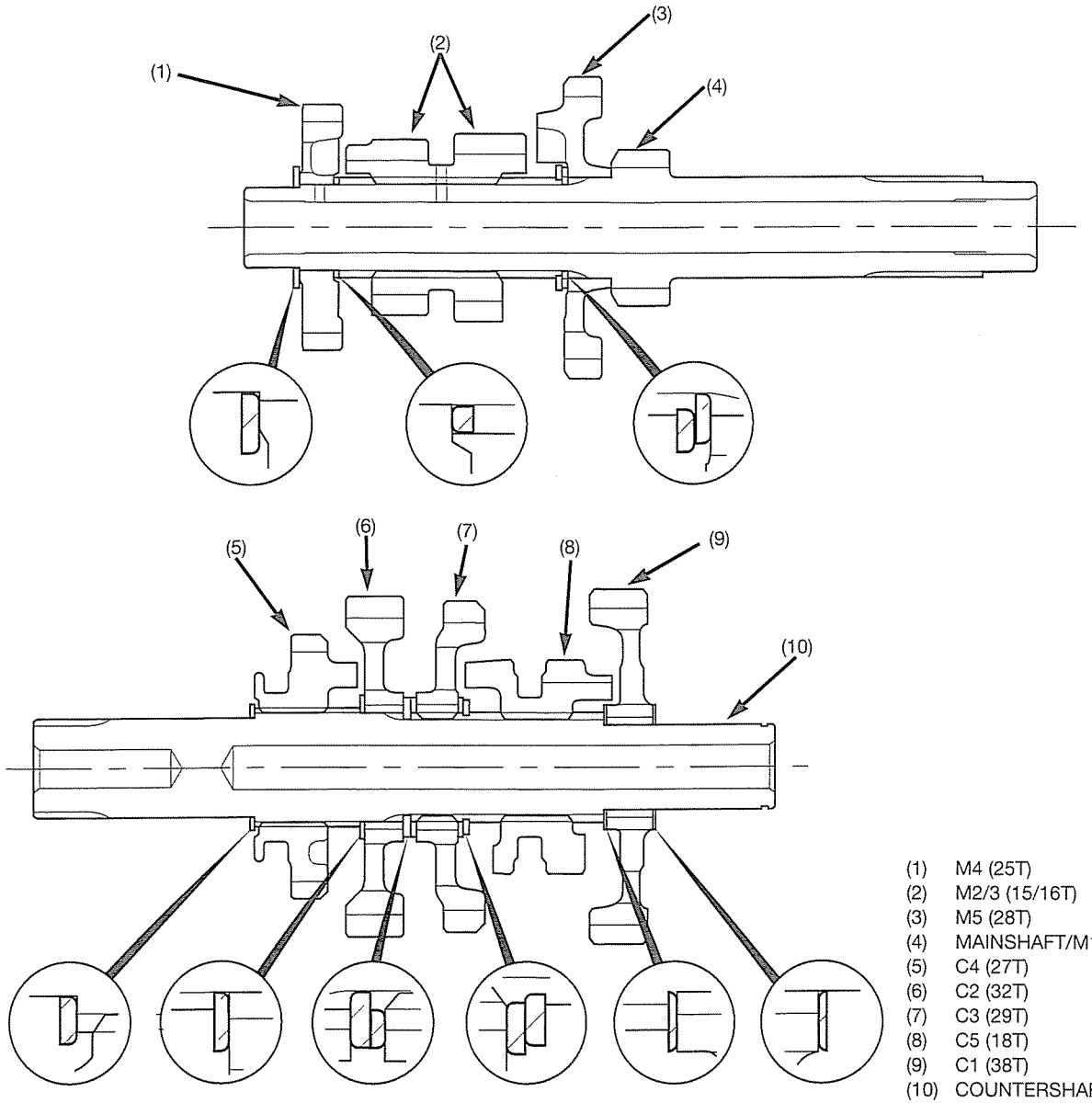
Crankcase Bearings/Oil Seals Location



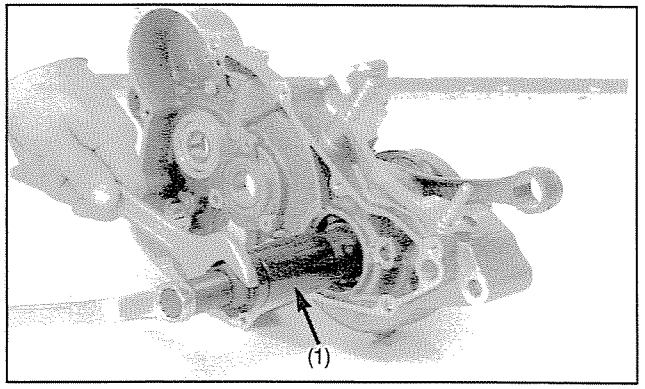
(1) LEFT SHIFT DRUM BEARING
(2) LEFT COUNTERSHAFT BEARING
(3) LEFT COUNTERSHAFT OIL SEAL
(4) LEFT MAINSHAFT BEARING
(5) LEFT CRANKSHAFT OIL SEAL
(6) LEFT CRANKSHAFT BEARING
(7) RIGHT CRANKSHAFT BEARING
(8) RIGHT CRANKSHAFT OIL SEAL
(9) RIGHT MAINSHAFT BEARING
(10) RIGHT COUNTERSHAFT BEARING
(11) RIGHT SHIFT DRUM BEARING

A: 0-0.27 mm (0-0.011 in)
B: 0-0.27 mm (0-0.011 in)
C: 0 ± 0.3 mm (0 ± 0.01 in)
D: 30.55-30.60 mm (1.203-1.205 in)
E: 30.95-31.00 mm (1.219-1.220 in)
F: 40.1-40.5 mm (1.58-1.59 in)

Transmission Assembly



(1) M4 (25T)
(2) M2/3 (15/16T)
(3) M5 (28T)
(4) MAINSHAFT/M1 (15T)
(5) C4 (27T)
(6) C2 (32T)
(7) C3 (29T)
(8) C5 (18T)
(9) C1 (38T)
(10) COUNTERSHAFT



(1) CRANKCASE ASSEMBLY TOOL

Crankcase Combination

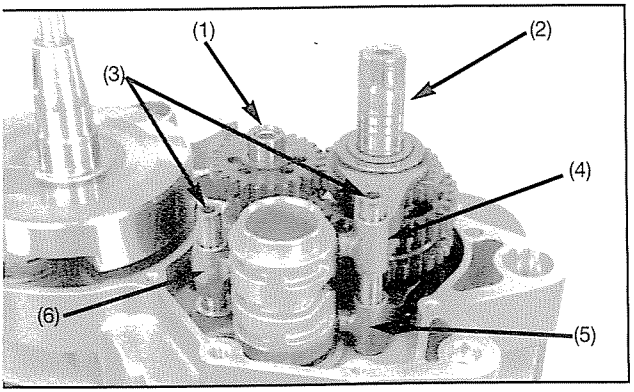
Clean the crankcase mating surfaces before assembling and check for wear or damage.
If the minor roughness or irregularities on the crankcase mating surfaces, dress them with an oil stone.

After cleaning, lubricate the crankshaft bearings with clean 2-stroke engine oil.
Lubricate the transmission bearings with transmission oil.

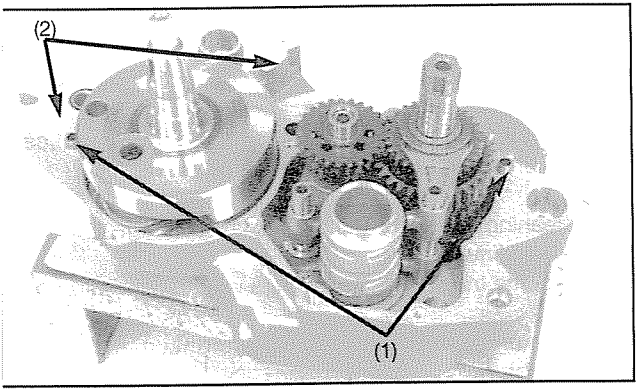
Draw the crankshaft into the right crankcase using the special tool.

TOOLS:

Crankcase assembly tool	**89001-NN3-000**
- Crankcase assembly shaft	**89002-NN2-003**
- Crankcase assembly nut	**89003-NN2-003**
- Crankcase assembly collar	**89004-NN3-003**
- Crankcase assembly adaptor	**89005-NN2-003**



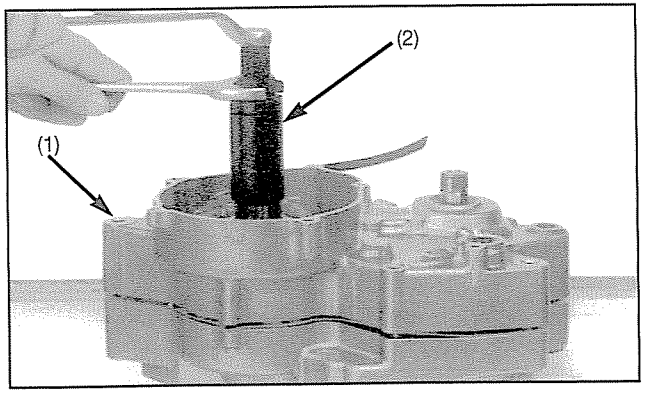
1) MAINSHAFT
(2) COUNTERSHAFT
3) SHIFT FORK SHAFTS
(4) LEFT SHIFT FORK
5) RIGHT SHIFT FORK
(6) CENTER SHIFT FORK



(1) DOWEL PINS
(2) NEW GASKET

Install the mainshaft and countershaft as an assembly into the right crankcase.
Install the shift forks with their marks facing out.
Install the shift forks.

Install the dowel pins and new gasket.

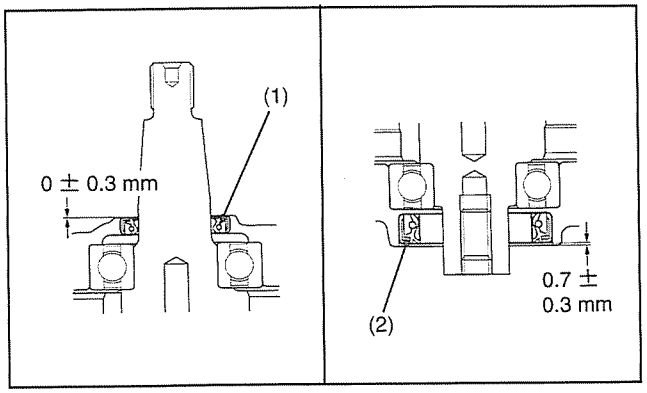


(1) LEFT CRANKCASE
(2) CRANKCASE ASSEMBLY TOOL

Place the left crankcase onto the right crankcase and assemble the crankcase halves using the especial tools.

TOOLS:

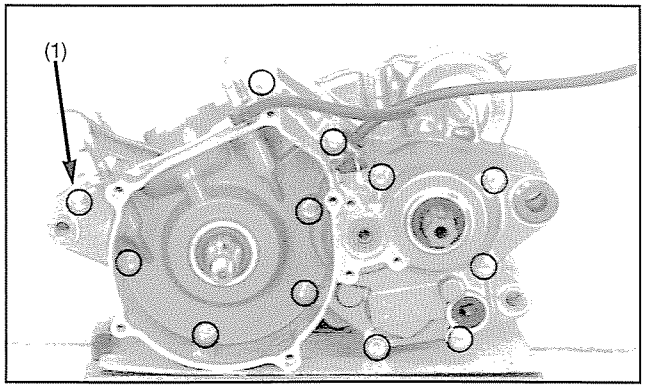
Crankcase assembly tool	**89001-NN3-000**
- Crankcase assembly shaft	**89002-NN2-003**
- Crankcase assembly nut	**89003-NN2-003**
- Crankcase assembly collar	**89004-NN3-003**
- Crankcase assembly adaptor	**89005-NN2-003**



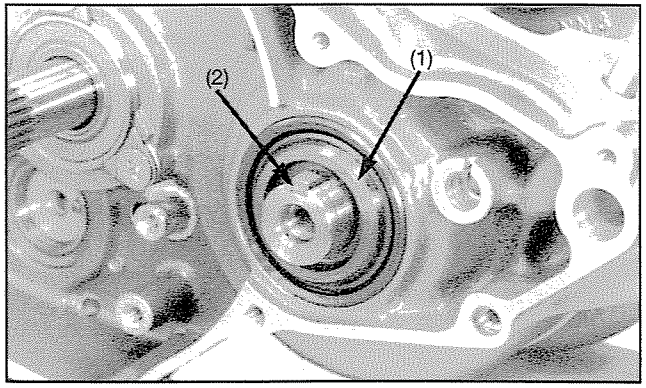
(1) LEFT OIL SEAL
(2) RIGHT OIL SEAL

Pack grease into the cavity between the right oil seal lips.
Press the oil seal into the crankcase with the special tools until the seal flush with the crankcase surface.

Pack silicone grease into the cavity between the left oil seal lips.
Install the left oil seal into the crankcase until the seal flush with the crankcase surface.



(1) CRANKCASE BOLTS



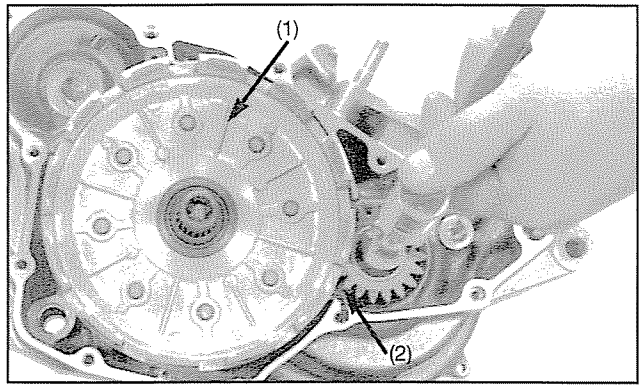
(1) CRANKSHAFT COLLAR
(2) KEY

Install and tighten the crankcase bolts in a crisscross pattern in 2 - 3 steps.

Trim the protruding gasket material from the cylinder base gasket surface.

Install the crankshaft collar.
Install the key into the crankshaft key way.

Install the primary drive gear, washer and bolt.



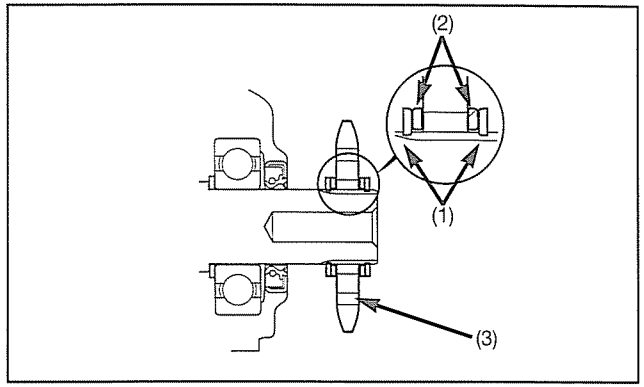
(1) CLUTCH OUTER
(2) GEAR HOLDER

Temporarily install the clutch outer guide, needle bearing and clutch outer onto the mainshaft and attach the gear holder between the primary drive and driven gears.

TOOL:
Gear holder **07724-0010100**

Tighten the primary drive gear bolt to the specified torque.

Torque: 44 N·m (4.5 kgf·m, 33 lbf·ft)



(1) SNAP RINGS
(2) SPLINE WASHERS
(3) DRIVE SPROCKET

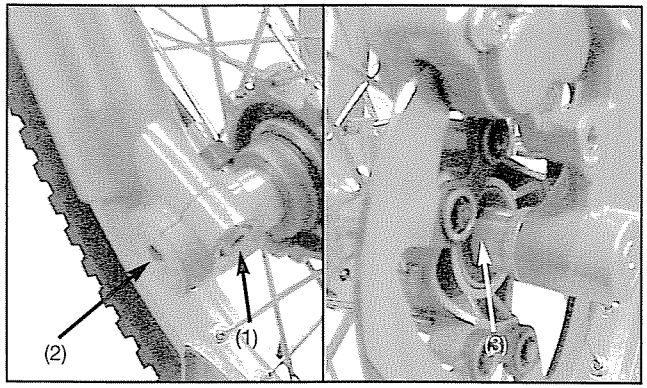
Install the new snap ring onto the countershaft groove.
Install the washer, drive sprocket, washer and new snap ring securely into the countershaft groove.

NOTICE

Install the new snap ring with its chamfered side facing the spline washer.
Install the spline washer with its flat side facing the drive sprocket.

Install the removed parts in the reverse order of removal.

Memo



(1) AXLE PINCH BOLT
(2) AXLE
(3) SIDE COLLAR

Front Wheel

Removal

Remove the brake caliper mounting bolts and disc cover.
Loosen the axle pinch bolt.

Support the motorcycle and front wheel off the ground.
Remove the axle, left side collar and front wheel.

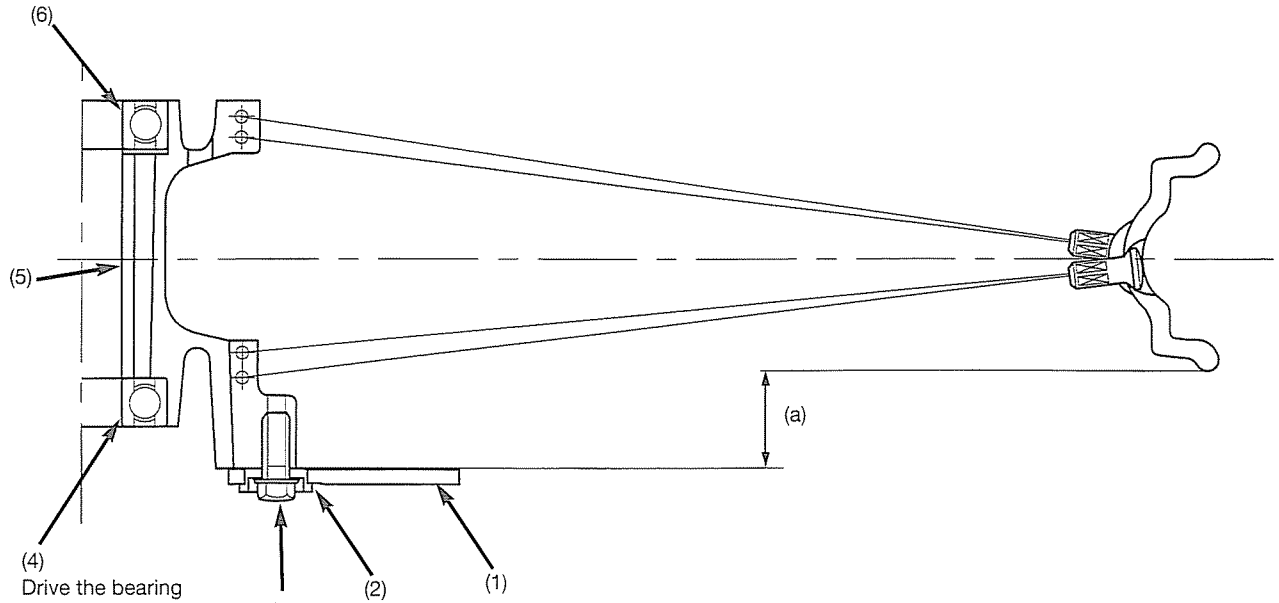
Do not depress the brake lever after the front wheel is removed.
The caliper pistons will move and make reassembly difficult.

Disassembly/Assembly

⚠ WARNING

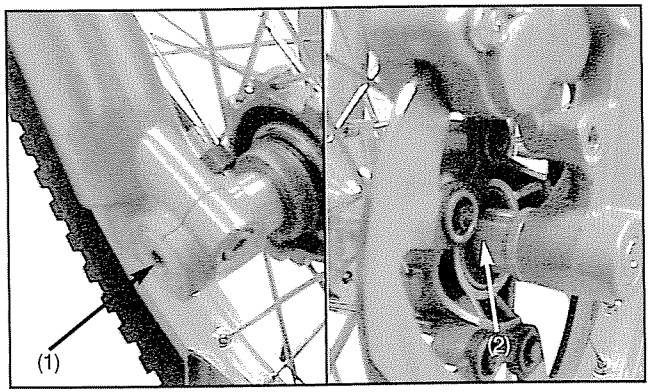
A contaminated brake disc or pad reduces stopping power, and can cause a serious injury or death.

Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.



(1) BRAKE DISC
(2) COLLAR
(3) DISC BOLT
(4) LEFT WHEEL BEARING
(5) DISTANCE COLLAR
(6) RIGHT WHEEL BEARING

(a) 25 ± 0.5 mm



(1) AXLE
(2) SIDE COLLAR

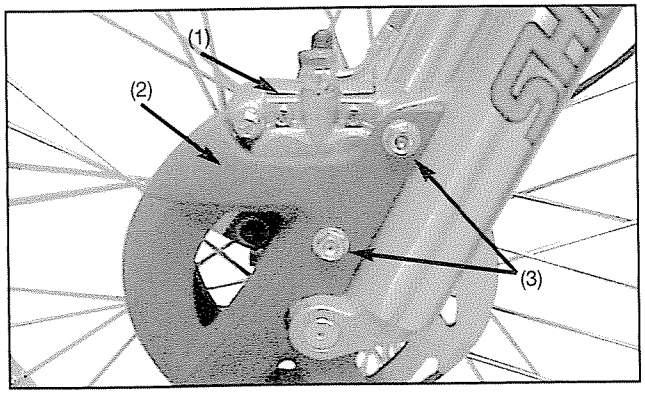
Installation

Clean the surfaces where the axle and axle clamps contact each other.
Place the front wheel between the fork legs.

Apply thin layer of grease to the axle surface.
Apply grease to the axle threads.
Install the axle from the right side through the wheel and left side collar.

Tighten the axle to the specified torque.

Torque: 69 N·m (7.0 kgf·m, 51 lbf·ft)

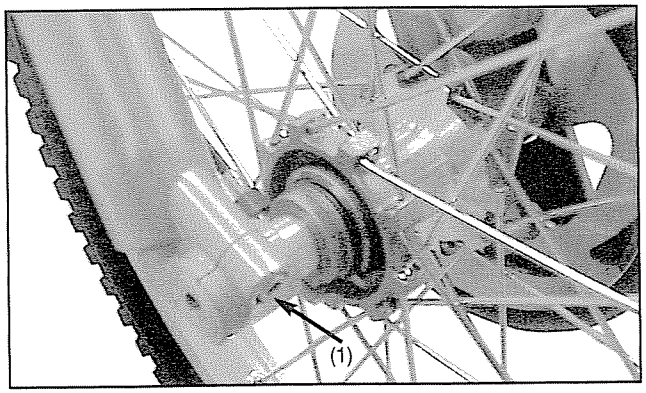


(1) BRAKE CALIPER
(2) DISC COVER
(3) BOLTS

Install the brake caliper and disc cover, tighten the mounting bolts to the specified torque.

Torque: 26 N·m (2.7 kgf·m, 20 lbf·ft)

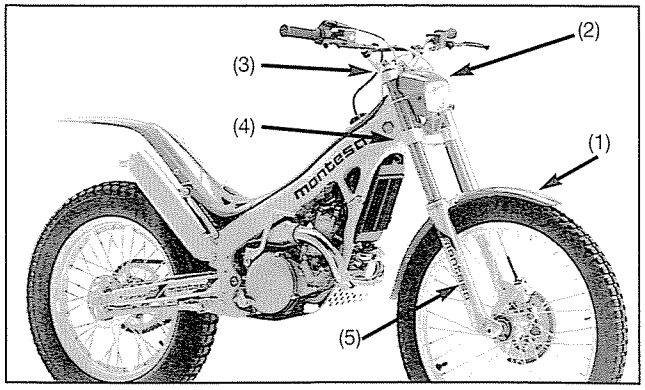
With the front brake applied, pump the fork up and down several times to seat the axle and check the front brake operation.



(1) AXLE PINCH BOLT

Apply grease to the axle pinch bolt threads and seating surface.
Install the axle pinch bolt.
While keeping the fork parallel, alternately tighten the right axle pinch bolts.

Torque: 10 N·m (1.0 kgf·m, 7 lbf·ft)



(1) FRONT FENDER
(2) HEAD LIGHT CASE
(3) TOP BRIDGE
(4) BOTTOM BRIDGE
(5) FORK LEG

Fork

Removal

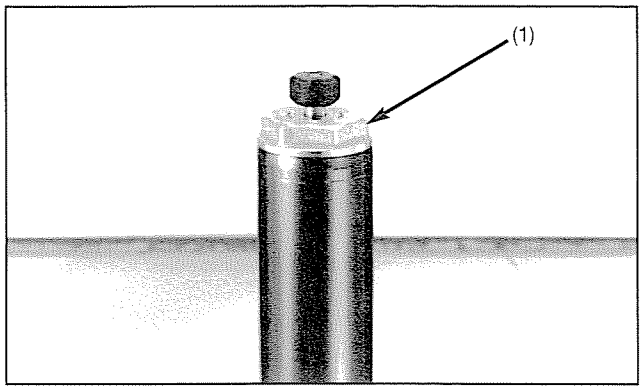
Remove the front wheel (page 5-1).

Remove the front fender and head light case.
Loosen the top bridge pinch bolt.
If the forks are to be disassembled, loosen the fork bolt.

NOTICE

To avoid damaging the fork bolt threads, loosen the top bridge pinch bolt before loosening the fork bolts.

Loosen the bottom bridge pinch bolts, and pull the fork tube down and out.



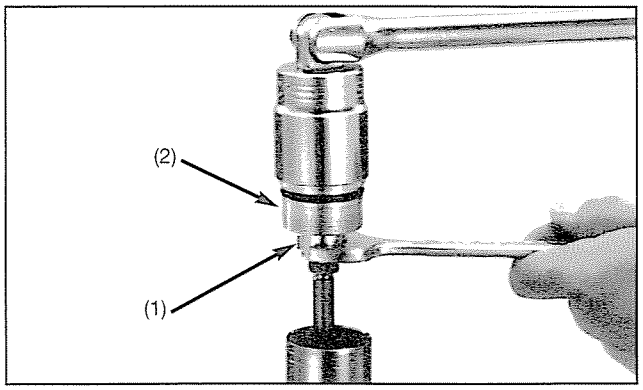
(1) FORK BOLT

Right Fork Disassembly

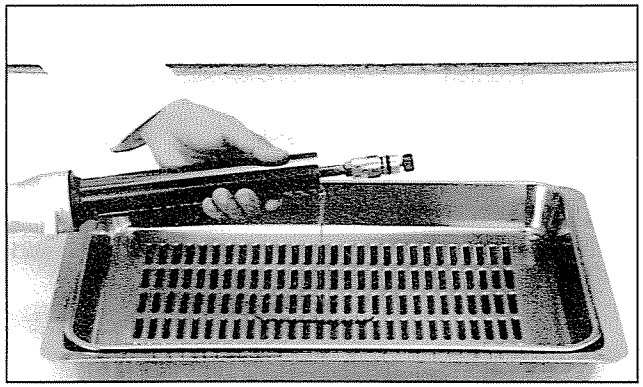
Before disassembling the fork, clean the entire sliding surface and the bottom of the fork slider.

Be careful not to scratch the fork tube.
A scratched fork tube will damage the seal, causing an oil leak.

Hold the fork tube, remove the fork bolt and slide the fork tube down.

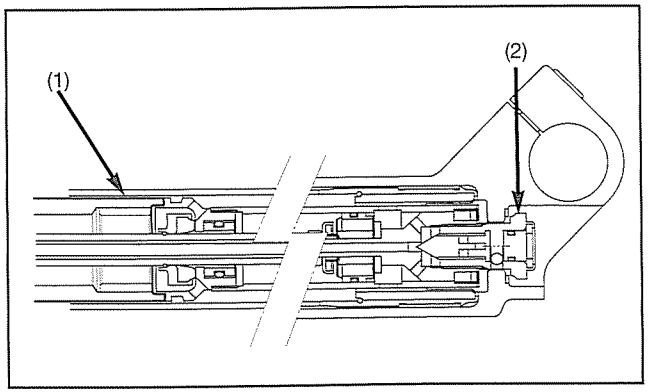


(1) DAMPER ADJUSTER CASE
(2) FORK BOLT



Make sure the damping adjuster is in clicked position and is not in between the position.
Hold the damper adjuster case and remove the fork bolt from the damper adjuster case.
Do not remove the damper adjuster case from the damper rod.

Pour out the fork fluid.

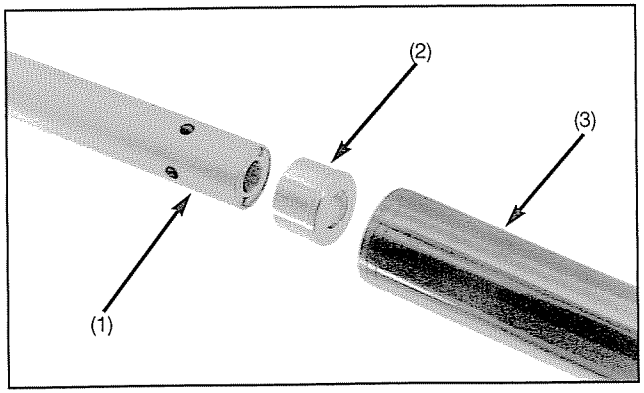


(1) FORK DAMPER HOLDER
(2) RIGHT CENTER BOLT

Hold the axle holder in a vise protected with a piece of wood or soft jaws to avoid damage.
Do not overtighten.

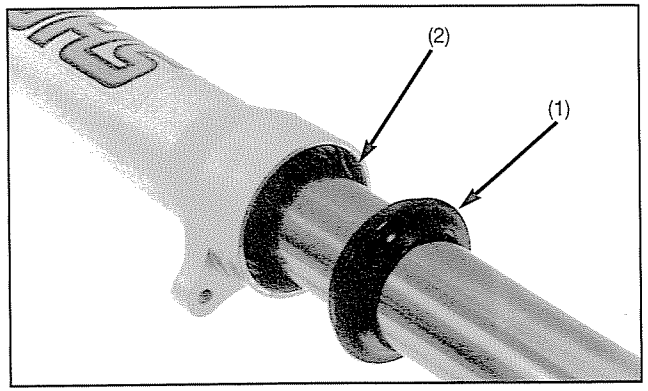
Hold the fork damper using the special tool, then loosen the right center bolt.

TOOL:
Fork damper holder **89515-NN3-821**

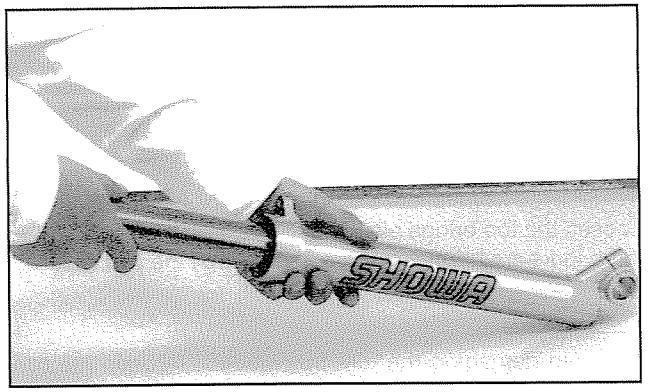


(1) FORK DAMPER
(2) CENTERING PLATE
(3) FORK TUBE

Remove the fork damper assembly and centering plate from the fork tube.

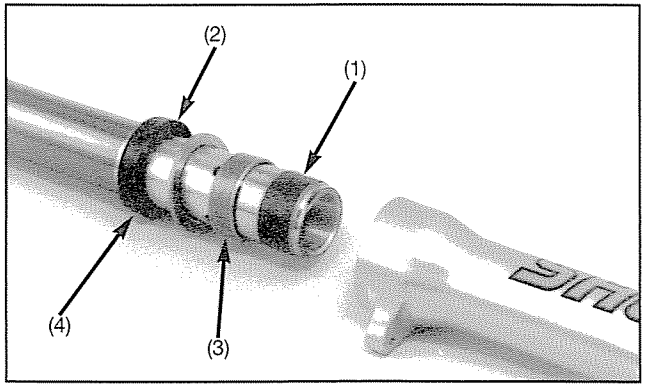


(1) DUST SEAL
(2) STOP RING



Remove the dust seal and stop ring being careful not to scratch the fork tube.

In quick successive motions, pull the fork tube out of the slider. Empty the fork fluid from the damper by pumping the damper rod 8-10 times.

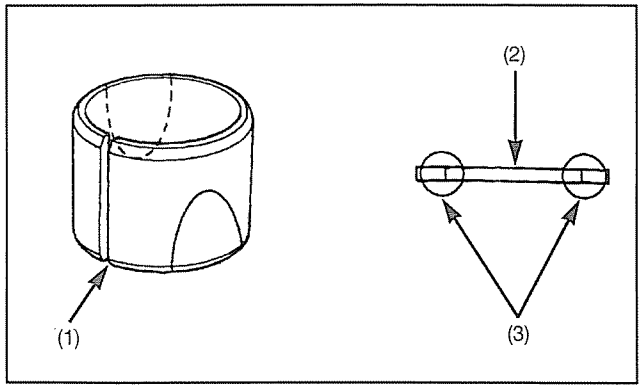


(1) FORK TUBE BUSHING (2) GUIDE BUSHING
(3) BACK-UP RING (4) OIL SEAL

Check that the fork tube moves smoothly in the slider.
If it does not, check the fork tube bending or damage, and the bushings for wear or damage.
If the slider and bushing are normal, check the fork tube.

Carefully remove the fork tube bushing by prying the slot with a screwdriver until the bushing can be pulled off by hand.
Be careful not to scratch the teflon coating of the bushing.

Remove the guide bushing, back-up ring and oil seal from the fork tube.

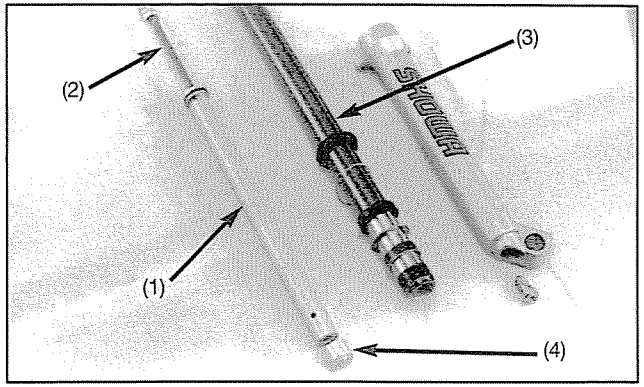


(1) BUSHING
(2) BACK-UP RING
(3) INSPECTION POINT

Right Fork Inspection
Check the following items (specifications; page 2-3):
- Fork tube for score marks, scratches and excessive wear
- Fork tube runout
- Fork slider for damage or deformation
- Fork damper for damage

Bushing/Back-up Ring
Check the bushings for excessive wear or scratches.
Remove any metal powder from the slider and guide bushings with a nylon brush and fork fluid.
If copper appears on the entire surface, replace the bushing.

Replace the back-up ring if there is any distortion at the points shown.

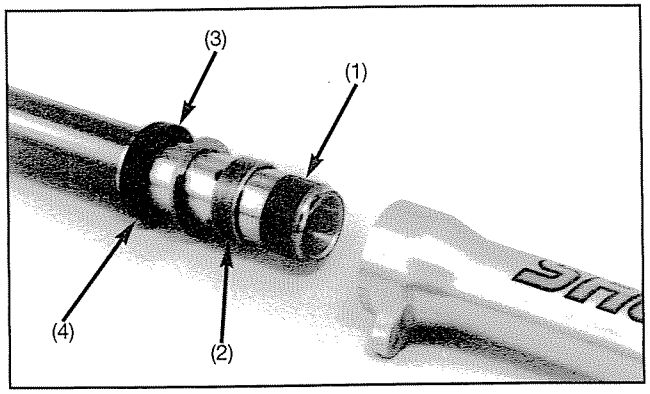


(1) DAMPER ASSEMBLY (2) DAMPER ROD
(3) FORK TUBE (4) CENTERING PLATE

Stopper rubber
Check the stopper rubber for wear or damage.

Fork Damper
Check the fork damper assembly for damage or deformation.
Check the damper rod for bend or other damage.

Fork tube/centering plate
Check the fork tube for bent or deformation.
Check the centering plate for damage.



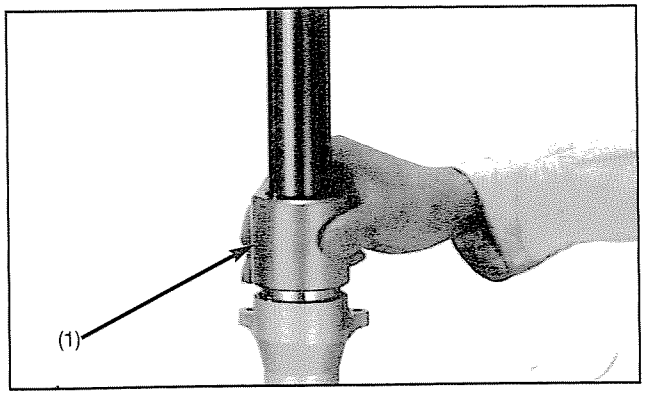
(1) FORK TUBE BUSHING
(2) GUIDE BUSHING
(3) BACK-UP RING
(4) OIL SEAL

Right Fork Assembly

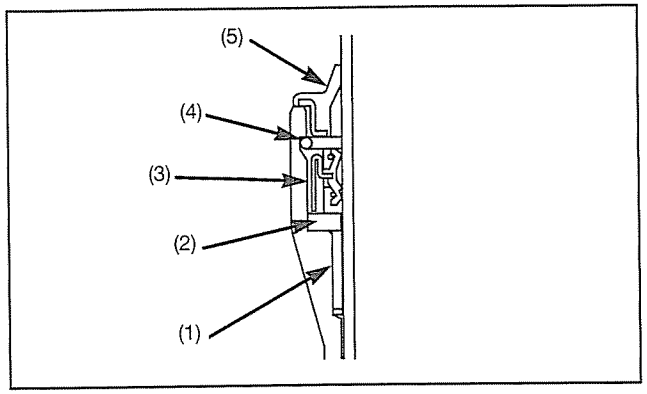
Clean the parts thoroughly with non-flammable or high flush point solvent before assembly.

Install the following:
- Slide bushing
- Guide bushing
- Back-up ring
- New oil seal

Coat the guide and slider bushings with recommended fork fluid.
Install the fork tube assembly into the fork slider.



(1) FORK SEAL DRIVER

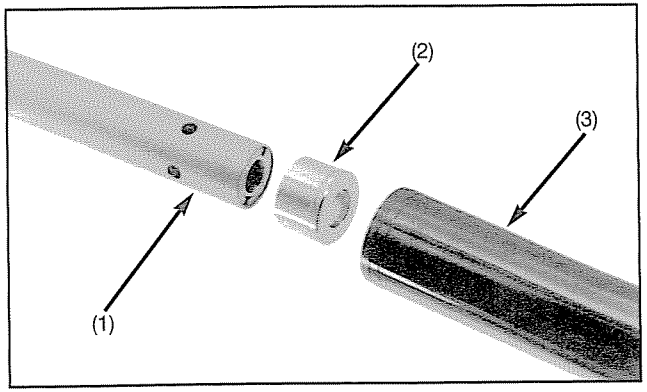


(1) GUIDE BUSHING
(2) BUCK-UP RING
(3) OIL SEAL
(4) STOP RING
(5) DUST SEAL

Drive the guide bushing, back-up ring and oil seal until the stop ring groove is visible, using the special tool.

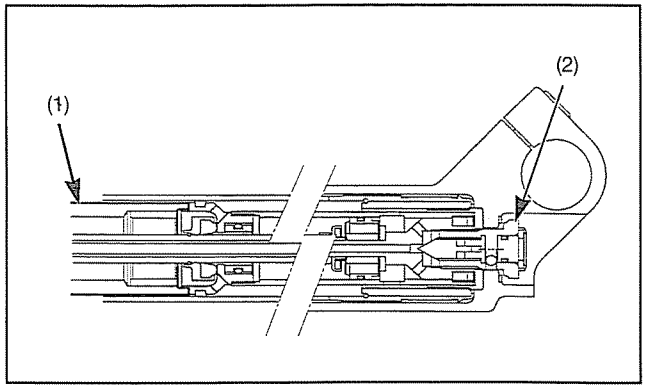
TOOL:
Fork seal driver **07947-4630100**

Install the stop ring into the fork slider groove securely.
Install the dust seal.



(1) FORK DAMPER ASSEMBLY
(2) CENTERING PLATE
(3) FORK TUBE

Install the centering plate and fork damper assembly into the fork tube.



(1) FORK DAMPER HOLDER
(2) RIGHT CENTER BOLT

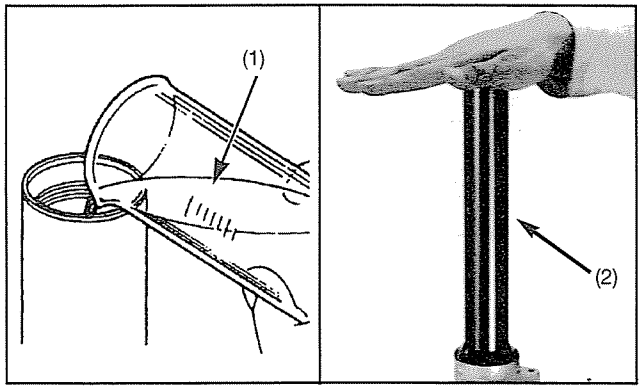
Hold the axle holder in a vise protected with a piece of wood or soft jaws to avoid damage.
Do not overtighten the vise.

Install the right center bolt with a new sealing washer.

Hold the fork damper using the special tool, then tighten the right center bolt to the specified torque.

TOOL:
Fork damper holder **89515-NN3-821**

Torque: 34 N·m (3.5 kgf·m, 25 lbf·ft)

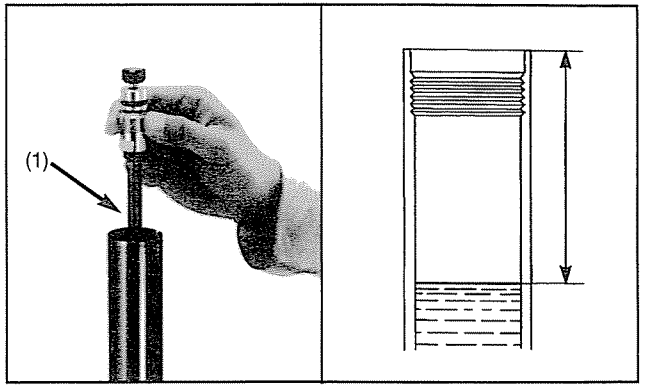


(1) FORK FLUID
(2) FORK TUBE

Pour recommended fork fluid in the fork leg.

Specified fork fluid:
Above 5° C/41° F:
Showa SS05
Below 5° C/41° F:
Belray #5 or BP #10

Bleed the air as follows:
1. Extend the fork. Cover the top of the fork tube with your hand and compress the fork slowly several times.



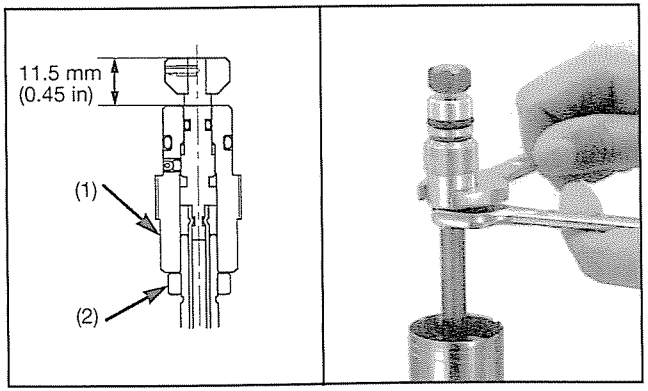
(1) FORK DAMPER ROD

2. Pump the damper rod 8-10 times.
3. Make sure no air in fork damper by slowly pull the damper rod up. If the resistance is felt at the top end, pump the damper rod again.

Wait 2-3 minutes before measuring the oil level.
Measure the oil level from top of the fork tube.

Standard oil level: 39 mm (1.5 in)

Oil capacity: 407 cm³ (13.8 US oz, 14.3 Imp oz)

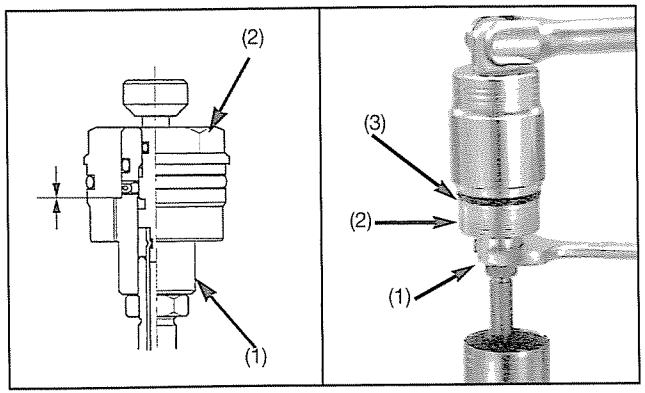


(1) DAMPER ADJUSTER CASE
(2) LOCK NUT

If the damper adjuster case was removed from the damper rod, reinstall the damper adjuster case as follows:

1. Adjust the distance between the top of damping adjuster knob and top of adjuster case is 11.5 mm (0.45 in).
2. Install the damper adjuster case/rod assembly into the damper rod pipe until the damper adjuster bottoms lightly.
3. Hold the damper adjuster case and tighten the lock nut to the specified torque. Do not turn the damper adjuster case.

Torque: 20 N·m (2.0 kgf·m, 14 lbf·ft)

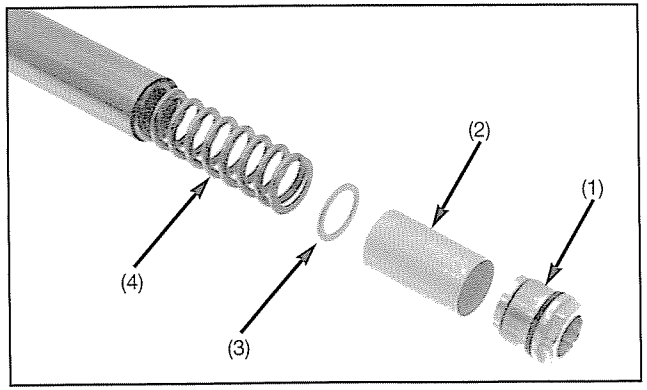


(1) DAMPER ADJUSTER CASE
(2) NEW O-RING
(3) FORK BOLT

Install a new O-ring onto the fork bolt groove.
Screw the fork bolt on the damper adjuster case until it seats.
Hold the damper adjuster case and tighten the fork cap bolt to the specified torque.

Torque: 34 N·m (3.5 kgf·m, 25 lbf·ft)

Apply recommended fork fluid to the O-ring, then screw the fork bolt into the fork tube.



(1) FORK BOLT (2) DISTANCE COLLAR
(3) SPRING SEAT (4) FORK SPRING

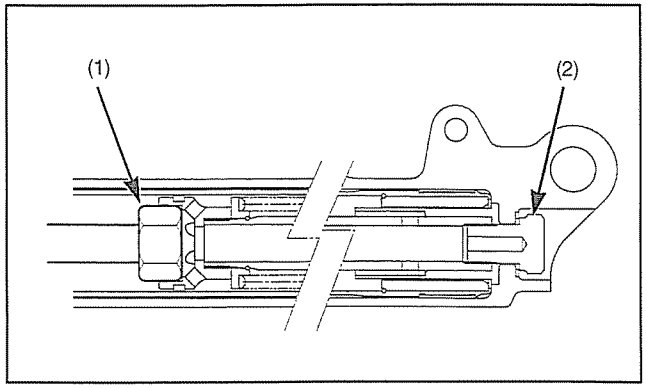
Left Fork Disassembly

Before disassembling the fork, clean the entire sliding surface and the bottom of the fork slider.

Be careful not to scratch the fork tube.
A scratched fork tube will damage the seal, causing an oil leak.

The fork bolt under spring pressure.
Before removing the fork bolt, turn the pre-load adjuster softest position.
Remove the fork bolt from the fork tube.

Remove the distance collar, spring seat and fork spring.
Pour out the fork fluid.



(1) FORK DAMPER HOLDER
(2) CENTER BOLT

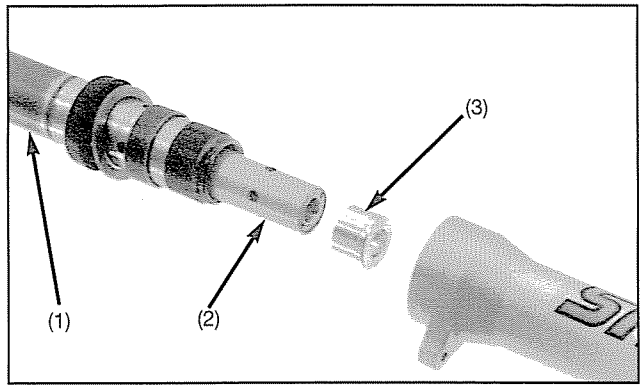
Hold the axle holder in a vise protected with a piece of wood or soft jaws to avoid damage.
Do not overtighten.

Hold the seat pipe using the special tool and loosen the center bolt as shown.

TOOL:
Fork damper holder **07930-KA50000**

Remove the center bolt and sealing washer.

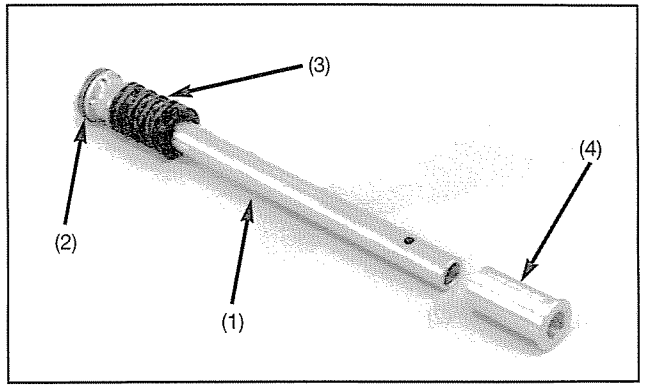
Remove the following items using the same procedure as the right fork disassembly (page 5-3):
- Dust seal
- Stop ring
- Fork tube from the fork slider



(1) FORK TUBE
(2) SEAT PIPE ASSEMBLY
(3) OIL LOCK PIECE

Remove the oil lock piece from the fork piston.
Remove the seat pipe assembly from the fork tube.

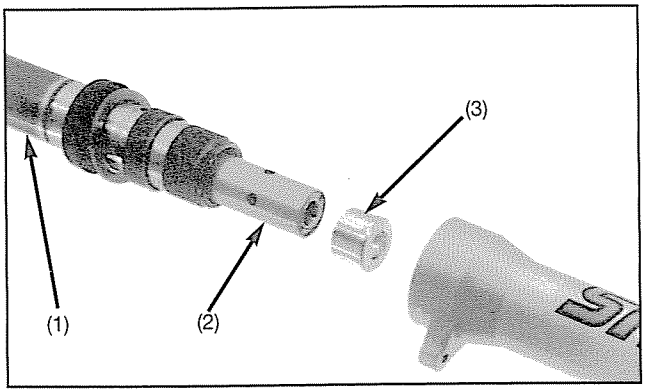
Remove the following items using the same procedure as the right fork disassembly (page 5-3):
- Oil seal
- Back-up ring
- Guide bushing
- Slider bushing



(1) SEAT PIPE
(2) PISTON RING
(3) REBOUND SPRING
(4) OIL LOCK PIECE

Left Fork Inspection

Check the following items (specifications; page 2-3):
- Fork slider for damage or deformation
- Fork tube runout
- Fork spring free length
- Fork tube for score marks, scratches and excessive wear.
- Bushing/back-up ring (page 5-5)
- Fork piston ring for wear or damage
- Oil lock piece for damage
- Rebound spring for fatigue or other damage

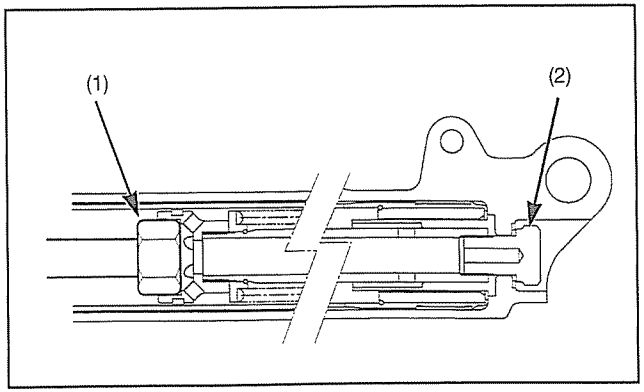


(1) FORK TUBE
(2) SEAT PIPE ASSEMBLY
(3) OIL LOCK PIPE

Left Fork Assembly

Clean the parts thoroughly with non-flammable or high flush point solvent before assembly.

Apply fork fluid to the piston ring.
Install the fork piston assembly into the fork tube.
Install the oil lock piece on the end of the seat pipe.



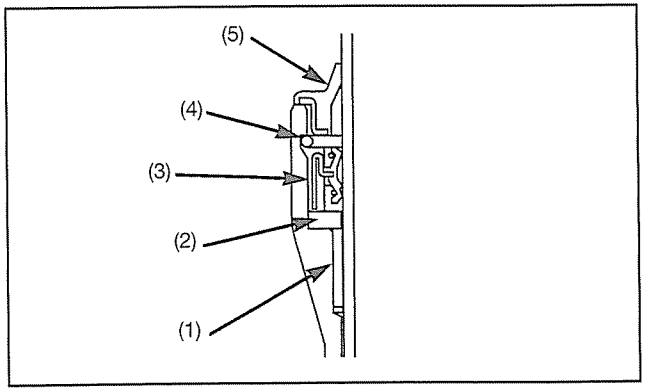
(1) FORK DAMPER HOLDER
(2) CENTER BOLT

Hold the axle holder in a vise protected with a piece of wood or soft jaws to avoid damage.
Do not overtighten the vise.

Clean and apply a locking agent to the center bolt threads.
Install the center bolt with a new sealing washer.
Hold the seal pipe using the special tool, then tighten the center bolt to the specified torque.

TOOL:
Fork damper holder **07930-KA50000**

Torque: 34 N·m (3.5 kgf·m, 25 lbf·ft)

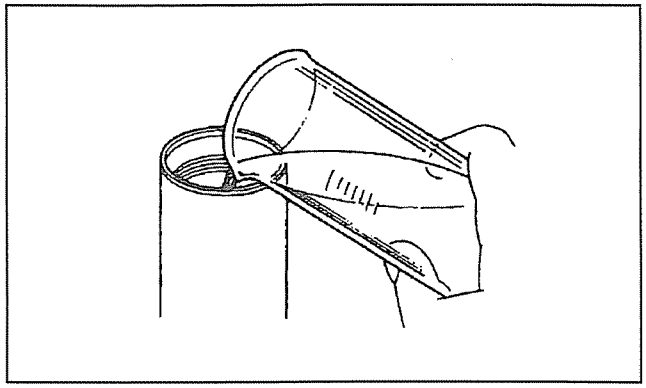


(1) GUIDE BUSHING
(2) BUCK-UP RING
(3) OIL SEAL
(4) STOP RING
(5) DUST SEAL

Install the following using the same procedure as the right fork (page 5-5):
- Slider bushing/guide bushing/new oil seal/back-up ring onto the fork tube.
- Fork tube into the fork slider.

Drive the guide bushing and oil seal until the stop ring groove is visible, using the special tool (page 5-6).

Install the stop ring and dust seal.



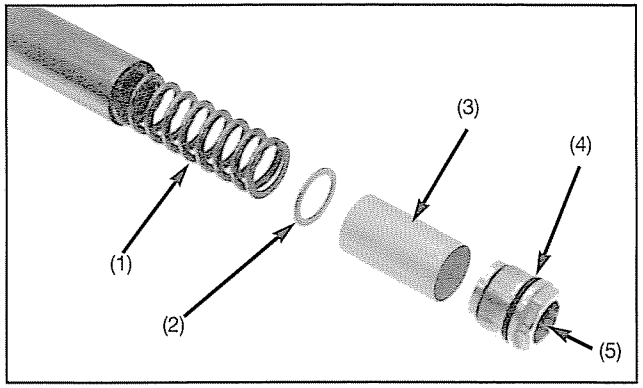
Pour half the required amount of recommended fork fluid in the fork leg.

Specified fork fluid:
Above 5° C/41° F:
Showa SS05
Below 5° C/41° F:
Belray #5 or BP #10

Pump the fork tube slowly 8-10 times.
Pour additional fluid to the specified capacity.

Oil level: 97 mm (3.8 in)

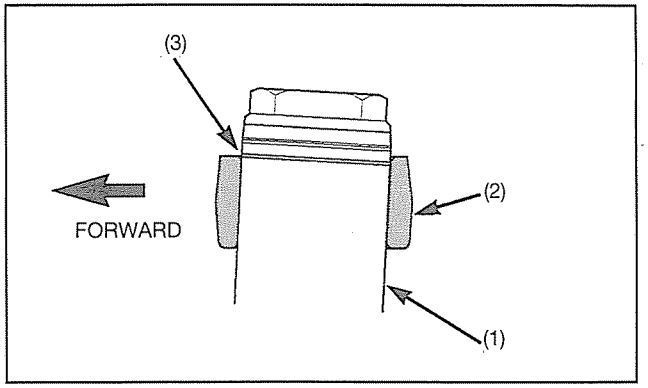
Oil capacity: 391 cm³ (13.2 US oz, 13.8 Imp oz)



(1) FORK SPRING
(2) SPRING SEAT
(3) DISTANCE COLLAR
(4) O-RING
(5) FORK BOLT

Install the fork spring, spring seat and distance collar.

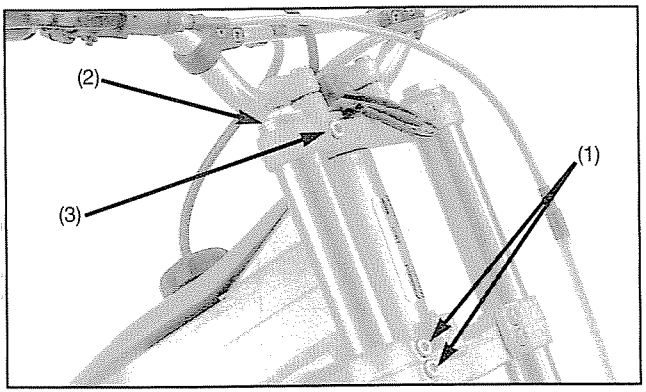
Apply recommended fork fluid to the new O-ring, then screw the fork bolt into the fork tube.



(1) FORK TUBE
(2) TUBE BRIDGE
(3) 2ND GROOVE

Installation

Install the fork leg.
Raise the fork through the bottom bridge and top bridge.
Align the 2nd groove (8 mm from top of fork tube) on the fork tube to the upper surface of the top bridge as shown.
Align the fork tube position at the front of top bridge.



(1) BOTTOM BRIDGE PINCH BOLTS
(2) FORK BOLT
(3) TOP BRIDGE PINCH BOLTS

Aply grease to the fork top and bottom pinch bolt threads.
Tighten the bottom bridge pinch bolts to the specified torque.

Torque: 20 N·m (2.0 kgf·m, 14 lbf·ft)

Overtightening the pinch bolts can deform the outer tube.
Deformed outer tube must be replaced.

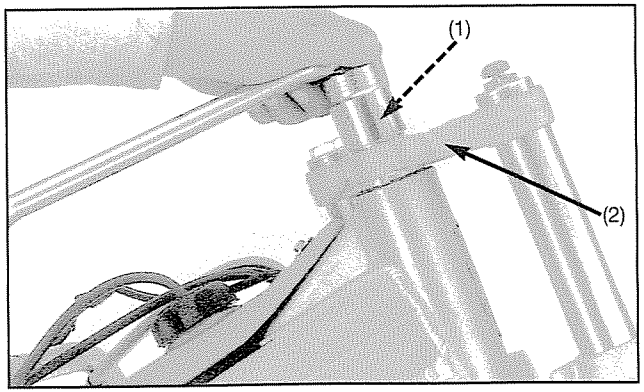
Tighten the fork bolt.

Tighten the top bridge pinch bolt to the specified torque.

Torque: 20 N·m (2.0 kgf·m, 14 lbf·ft)

Return spring pre-load and rebound adjuster to their original positions as noted during removal.

Install the following:
- Front fender
- Front wheel (page 5-2)



(1) STEM BOLT
(2) TOP BRIDGE

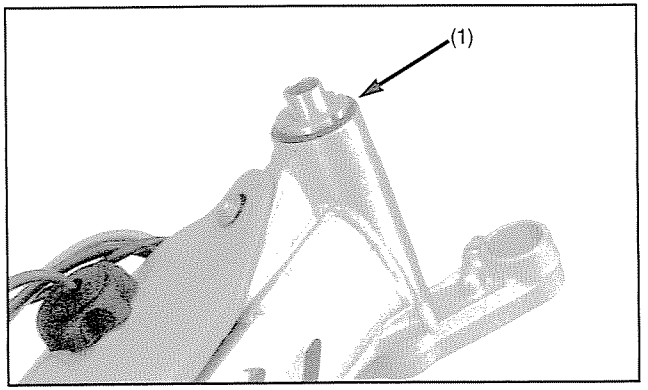
Steering stem

Disassembly

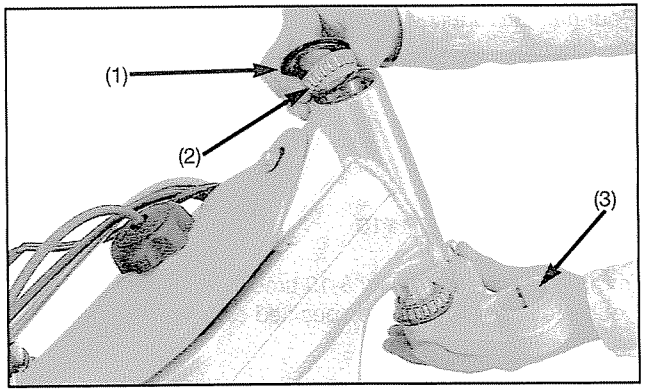
Remove the following:
- Handlebar
- Front wheel (page 5-1)
- Front fender

Remove the steering stem bolt and washer.

Remove the fork legs (page 5-3).
Remove the top bridge.



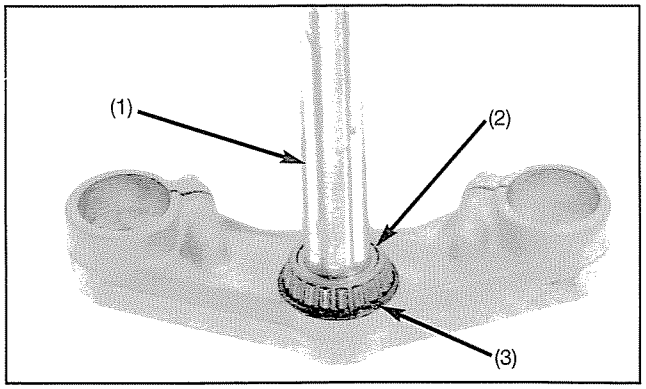
(1) ADJUSTING NUT



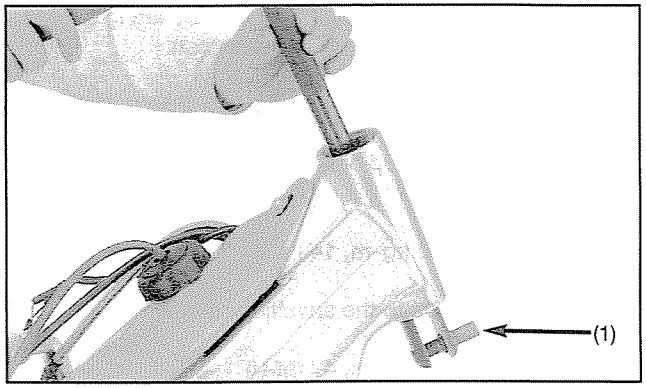
(1) DUST SEAL
(2) UPPER BEARING
(3) STEM

Remove the stem bearing adjusting nut.

Remove the following:
- Dust seal
- Upper bearing
- Steering stem/lower bearing



(1) STEM
(2) LOWER BEARING
(3) DUST SEAL

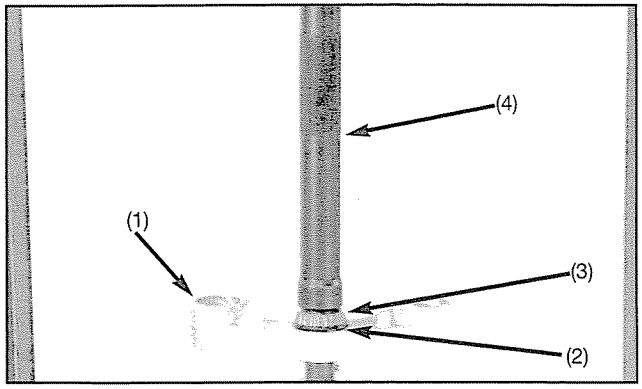


(1) BALL RACE REMOVER

Remove the lower bearing and dust seal from the steering stem.

Remove the upper and lower bearing races from the steering head using special tools.

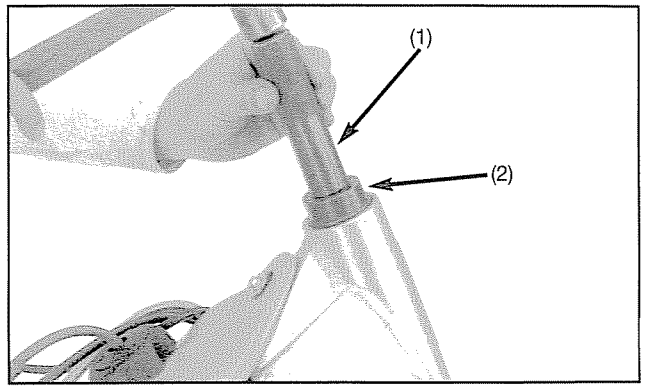
TOOL:
Ball race remover **07948-4630100**



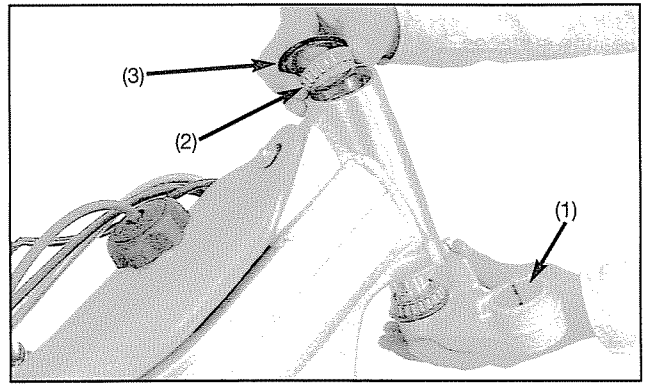
(1) STEM (2) DUST SEAL (3) BEARING
(4) STEERING STEM DRIVER

Install new dust seal onto the steering stem.
Install the new lower bearing into the steering stem using a hydraulic press and driver.

TOOL:
Steering stem driver **07946-4300001**



(1) DRIVER
(2) ATTACHMENT

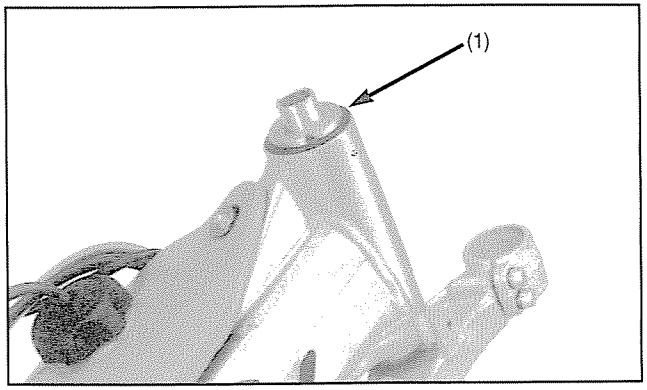


(1) STEM
(2) UPPER BEARING
(3) DUST SEAL

Install new bearing races.

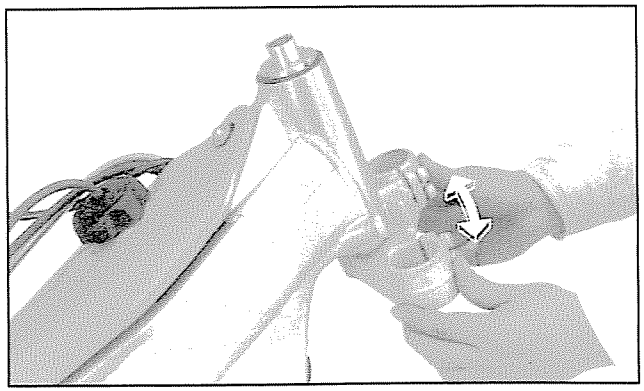
TOOLS:
Driver **07749-0010000**
Attachment, 42 x 47 mm **07746-0010300**

Pack the uper and lower bearings with grease.
Install the steering stem, upper bearing and dust seal.



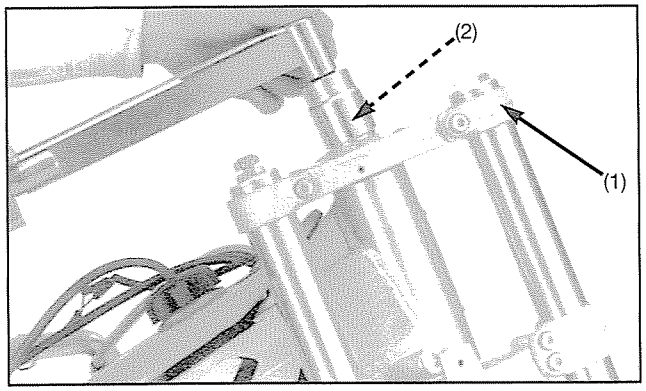
(1) ADJUSTING NUT

Apply grease to the stem bearing adjusting nut threads and seating surfaces.
Screw the stem bearing adjusting nut all the way with your fingers.



Turn the steering stem lock-to-lock 5 times to seat the bearings and retighten the adjusting nut to the specified torque.

Torque: 5 N·m (0.5 kg-m, 3.6 lbf·ft)



(1) TOP BRIDGE
(2) STEM BOLT

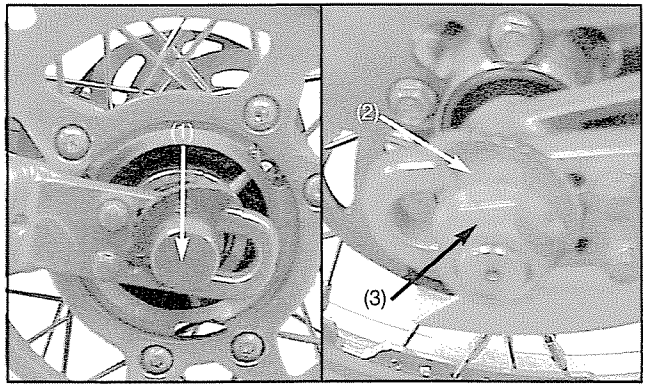
Apply grease to the stem bolt threads and seating surfaces.
Install the top bridge, washer and stem bolt.
Temporarily install both fork legs.
Apply grease to the top bridge pinch bolt threads and seating surfaces.
Install and tighten the top bridge pinch bolts to the specified torque.

Torque: 20 N·m (2.0 kg-m, 14 lbf·ft)

Tighten the stem bolt to the specified torque.

Torque: 64 N·m (6.5 kg-m, 47 lbf·ft)

Recheck the steering stem adjustment before installing the removed parts.



(1) AXLE
(2) ADJUSTER
(3) AXLE NUT

Rear Wheel

Removal

Raise the rear wheel off the ground with a block or maintenance stand under the engine.

Remove the following:
- Axle nut and drive chain adjuster
- Drive chain
- Axle, drive chain adjuster, and rear wheel

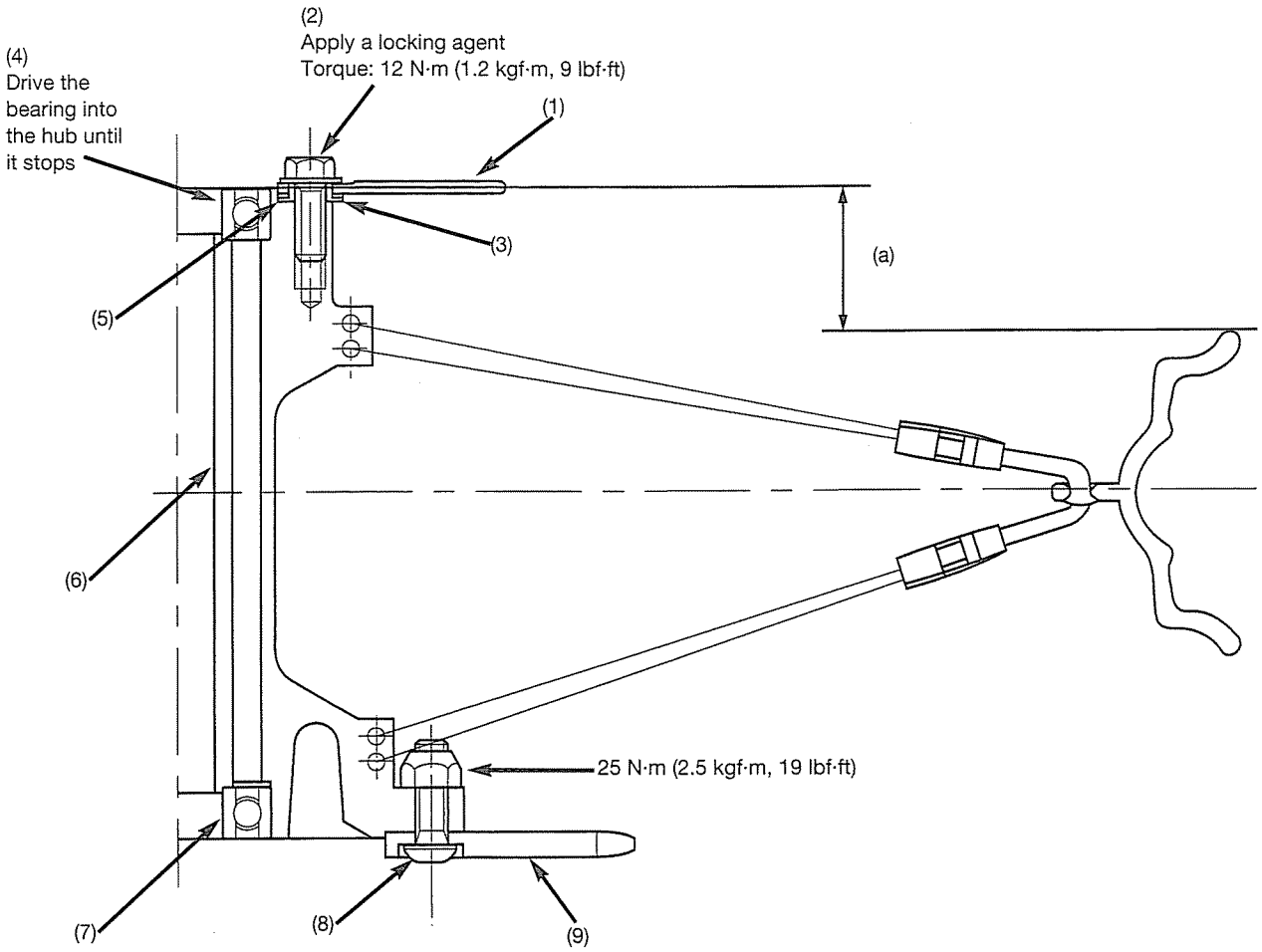
Do not depress the brake pedal after the rear wheel is removed.
The caliper pistons will move and make reassembly difficult.

Disassembly/Assembly

⚠ WARNING

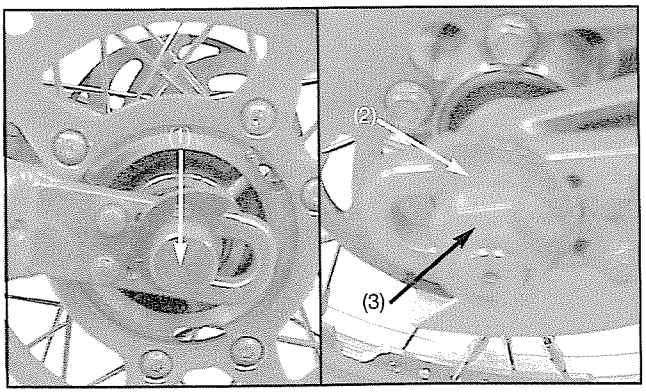
A contaminated brake disc or pad reduces stopping power, and can cause a serious injury or death.

Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.



(1) BRAKE DISC
(2) DISC BOLT
(3) COLLAR
(4) RIGHT WHEEL BEARING
(5) WAVE WASHER
(6) DISTANCE COLLAR
(7) LEFT WHEEL BEARING
(8) DRIVEN SPROCKET BOLT
(9) DRIVEN SPROCKET

(a) 34 ± 0.5 mm



(1) AXLE/ADJUSTER
(2) ADJUSTERS
(3) AXLE NUT

Installation

Install the rear brake caliper aligning the caliper slide rail.

Apply thin layer of grease to the axle.

Place the rear wheel between the swingarm being careful not to damage the disc.
Insert the rear axle into the left chain adjuster, side collar and wheel.

Apply grease to the axle nut threads and seating surfaces.
Install the right chain adjuster, washer and axle nut.

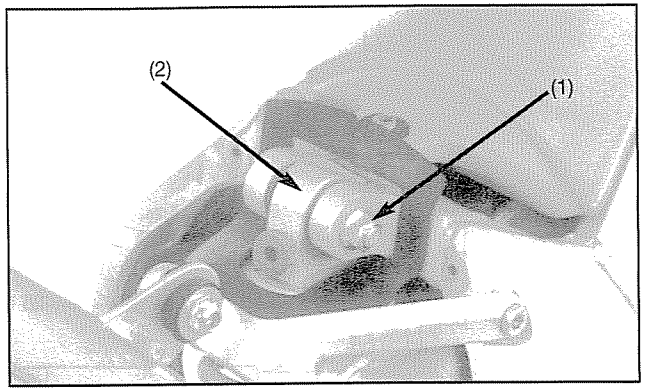
Install the drive chain.
If the master link retaining clip was removed, install the drive chain with the closed end of the clip in the direction of wheel rotation.

Check and adjust the drive chain slack (page 3-8).

Tighten the axle nut.

Torque: 69 N·m (7.0 kgf·m, 51 lbf.ft)

(1) LOWER MOUNTING BOLT/NUT

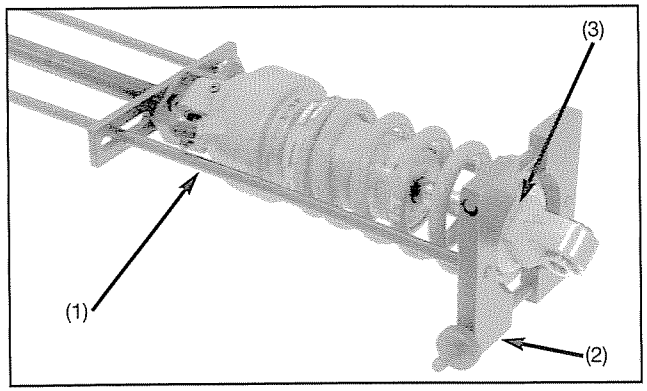


(1) UPPER MOUNTING BOLT/NUT
(2) SHOCK ABSORBER

Shock Absorber

Removal

Remove the air cleaner housing.
Raise the rear wheel off the ground with a block or maintenance stand under the engine.
Remove the shock absorber lower mounting bolt/nut.
Remove the upper mounting bolt/nut and shock absorber.



(1) COMPRESSOR
(2) ATTACHMENT
(3) SPRING SEAT STOPPER

Disassembly

Loosen the spring lock nut and adjuster.
Remove the lower mounting collars.
Set the shock absorber in the shock absorber compressor and attachment.

TOOL:

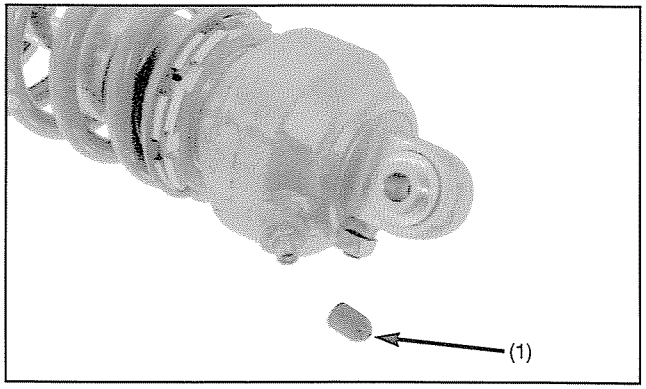
Shock absorber compressor	**07GME-0010000**
- Compressor attachment	**07959-MB10000**

Remove the stopper ring, spring seat and spring.

Inspection

Check the following items (specification; page 2-3):
- Upper and lower spherical bearing for wear or damage
- Spring for damage and measure the free length
- Damper for oil leakage from the damper rod

Replace the damper assembly if leaked oil.

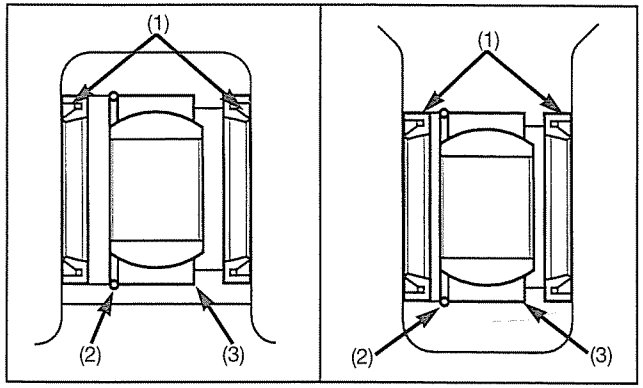


(1) VALVE

Nitrogen Releasing Procedure

Remove the air valve cap and press the valve stem and release the nitrogen from the damper until pressure is released.

Before disposal of the shock absorber, release the nitrogen from the damper.
Wear adequate eye protection.
Point the valve away from you to prevent debris getting into your eyes.



(1) DUST SEALS
(2) STOP RING
(3) SPHERICAL BEARING

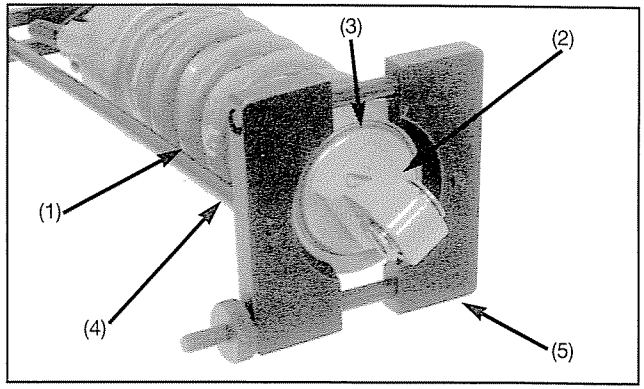
Spherical Bearing Replacement

Remove the collars and dust seals.
Check the spherical bearing for smooth rotation or damage.
Remove the stop ring.
Press the spherical bearing out using the special tool.

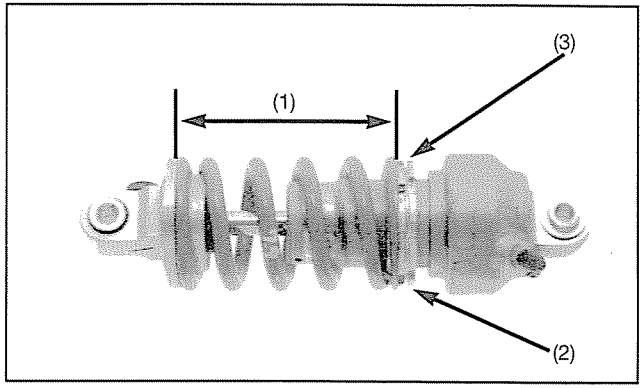
TOOL:
Spherical bearing driver **07HMF-KS60100**

Press a new spherical bearing into the shock absorber pivot until it seats using same tool.
Install the new stop ring into the groove.

Apply grease to the dust seal lips.
Install the dust seals and collars.



(1) SPRING
(2) SPRING SEAT
(3) STOPPER RING
(4) COMPRESSOR
(5) ATTACHMENT



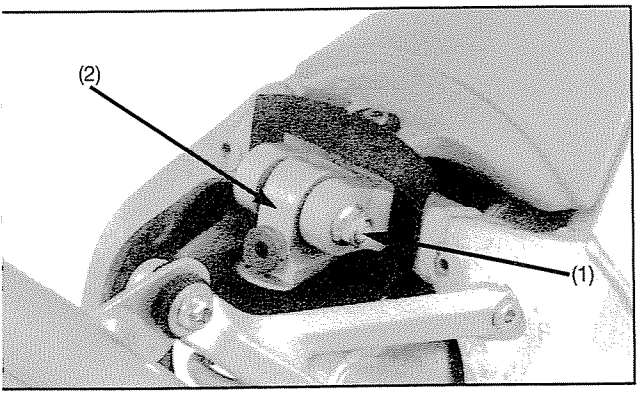
(1) PRE-LOAD LENGTH
(2) ADJUSTER
(3) LOCK NUT

Assembly

Assembly is in the reverse order of disassembly.

Adjust the spring pre-load length (page 2-3).
Hold the spring adjuster and tighten the lock nut to the specified torque.

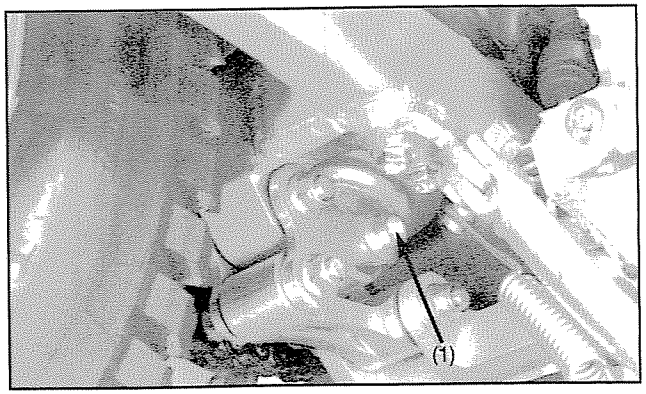
Torque: 49 N·m (5.0 kgf·m, 36 lbf·ft)



(1) UPPER MOUNTING BOLT/NUT
(2) SHOCK ABSORBER

Installation

Set the shock absorber into the frame and install the upper mounting bolt from the left side.
Install the upper mounting nut.

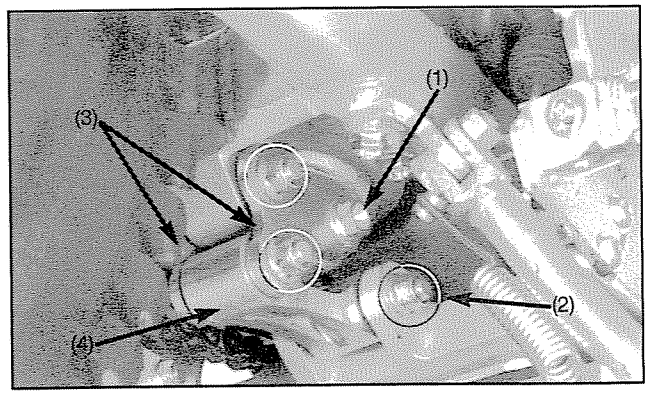


(1) LOWER MOUNTING BOLT/NUT

Move the swingarm aligning the lower mount, then install the lower mounting bolt from the right side.

Install and tighten the upper and lower mounting nuts to the specified torque.

Torques:
Upper mounting bolt: 39 N·m (4.0 kgf·m, 29 lbf·ft)
Lower mounting bolt: 39 N·m (4.0 kgf·m, 29 lbf·ft)



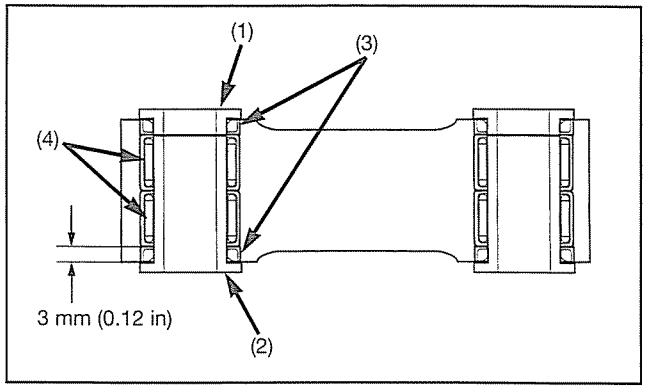
(1) LOWER MOUNTING BOLT/NUT (2) BOLTS/NUTS
(3) CUSHION ARM PLATES
(4) CUSHION LINK

Shock Linkage

Removal

Raise the rear wheel off the ground with a block or maintenance stand under the engine.

Remove the following:
- Rear cushion lower mounting bolt/nut
- Cushion arm plate-to-cushion link bolt/nut
- Cushion arm plates-to-swingarm bolt/nut
- Cushion arm plates
- Cushion link-to-frame socket bolt/nut
- Cushion link



(1) PIVOT COLLAR A
(2) PIVOT COLLAR B
(3) DUST SEALS
(4) NEEDLE BEARINGS

Needle Bearing Replacement

Remove the pivot collars and dust seals.
Check the cushion link needle bearings for damage.

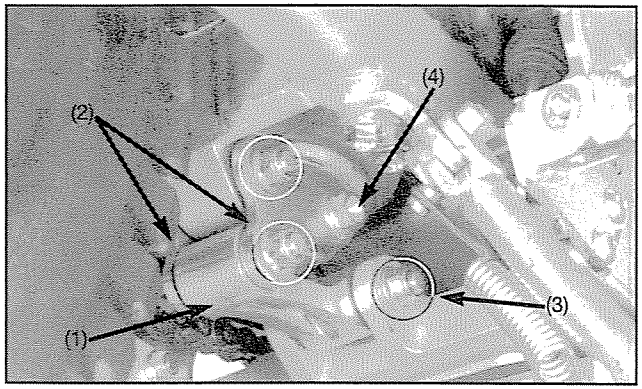
Remove the cushion link needle bearings using the special tool.

TOOL:
Bearing driver **07946-MJ00100**

Press new needle bearings into the cushion link to 3 mm (0.12 in) below the surface of the cushion link using the special tool, on both sides.
Face the bearing with its marked side facing out.

TOOL:
Bearing remover **07946-MJ00100**

Apply multi-purpose grease to the collars and dust seal lips.
Install the dust seals and pivot collars.



(1) CUSHION LINK
(2) CUSHION ARM PLATES
(3) BOLTS/NUTS
(4) LOWER MOUNTING BOLT/NUT

Installation

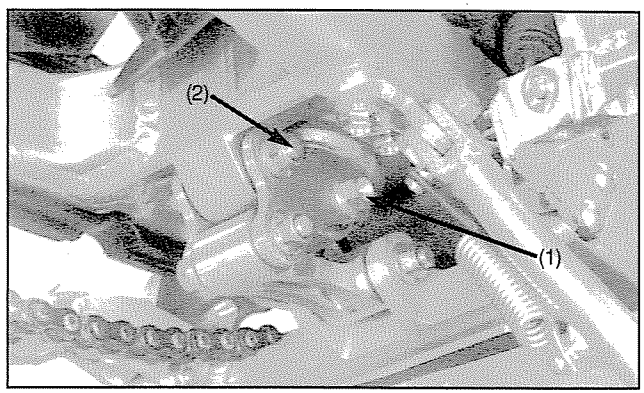
Install the following:
- Cushion link
- Cushion link-to-frame socket bolt/nut
- Cushion arm plates
- Cushion arm plates-to-swingarm bolt/nut
- Cushion arm plate-to-cushion link bolt/nut
- Rear cushion lower mounting bolt/nut

Tighten the cushion arm plate and cushion link nuts to the specified torque.

Torque: 39 N·m, (4.0 kgf·m, 29 lbf·ft)

Tighten the rear cushion lower mounting nut to the specified torque.

Torque: 39 N·m (4.0 kgf·m, 29 lbf·ft)

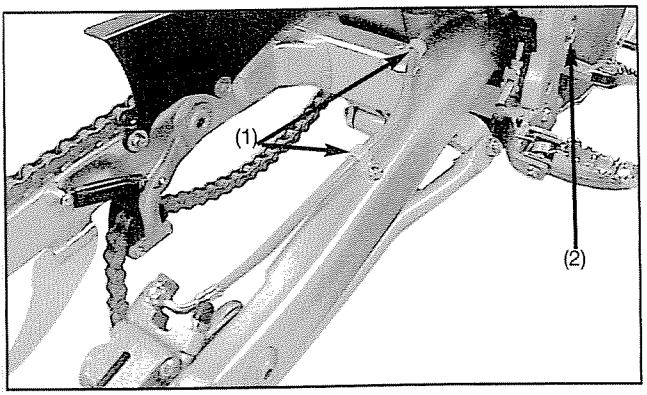


(1) SHOCK ABSORBER LOWER MOUNTING BOLT/NUT
(2) SHOCK ARM PLATES-TO-SWINGARM BOLT/NUT

Swingarm

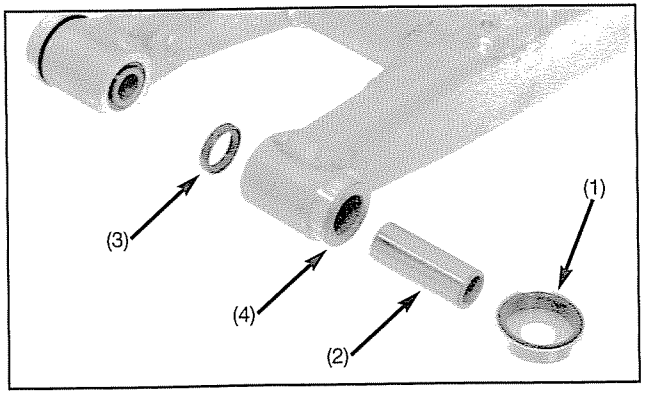
Removal

Remove the following:
- Rear wheel (page 5-15)
- Shock absorber lower mounting bolt/nut
- Cushion arm plates-to-swingarm bolt/nut



(1) BRAKE HOSE CLAMPS
(2) SWINGARM PIVOT BOLT/NUT

Remove the following:
- Brake hose clamp screws
- Rear brake caliper
- Swingarm pivot bolt and swingarm assembly

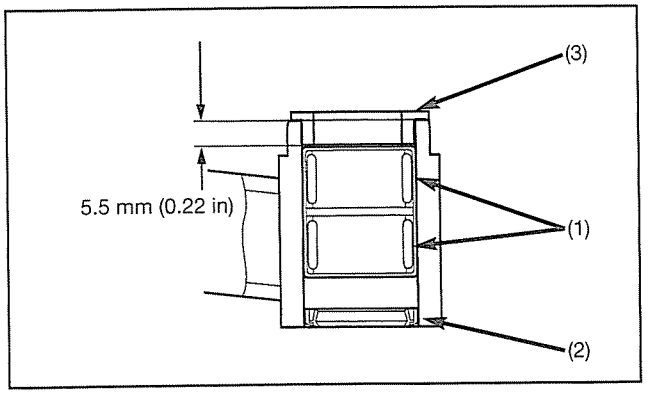


(1) DUST SEAL CAP
(2) PIVOT COLLAR
(3) DUST SEAL
(4) BUSHING

Disassembly

Remove the following:
- Bolts and drive chain cover
- Bolts and driven sprocket guard
- Screws and drive chain slider
- Chain tensioner
- Dust seal caps
- Dust seals
- Pivot collars
- Thrust bushings

Replace them if they have score marks, scratches, excessive or abnormal wear.
Check the shock mounts and swingarm for stress, cracks or other damage.



(1) NEEDLE BEARINGS
(2) DUST SEAL
(3) BUSHING

Pivot Bearing Replacement

Replace the swingarm bearings as a set.

Remove the pivot bearings using the special tool.

TOOL:

Bearing driver	**07946-KA50000**

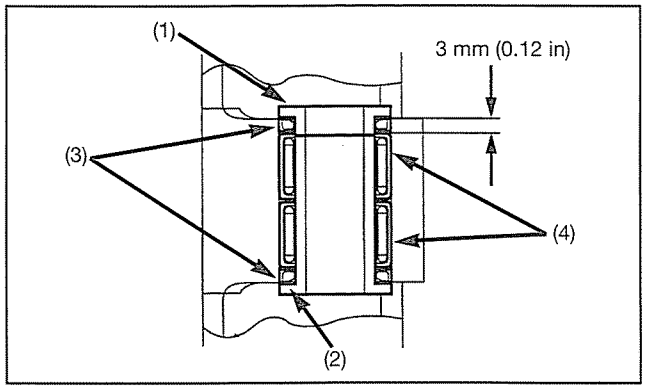
Press a new pivot bearing in using the special tools.

TOOLS:

Driver	**07749-0010000**
Attachment, 24 x 26 mm	**07746-0010700**
Pilot, 20 mm	**07746-0040500**

Face the bearing with its marked side facing out.
Press the needle bearing so that it is 5.5 mm (0.22 in) below the swingarm end.

Install the thrust bushings.



(1) PIVOT COLLAR A
(2) PIVOT COLLAR B
(3) DUST SEALS
(4) NEEDLE BEARINGS

Link Bearing Replacement

Remove the pivot collars and dust seals.
Remove the pivot bearings using the special tool.

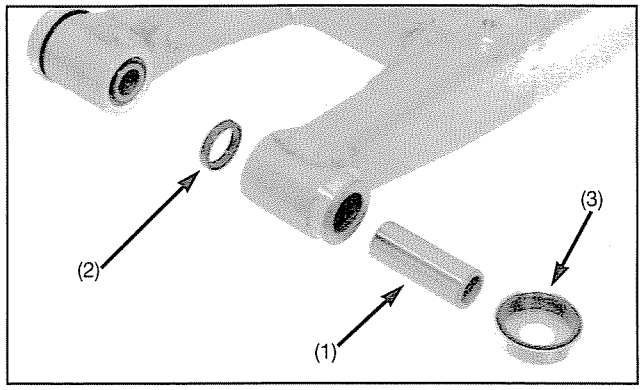
TOOL:
Bearing remover **07946-MJ00100**

Press a new pivot bearing in using the special tools.

TOOLS:
Bearing remover **07946-MJ00100**

Face the bearing with its marked side facing out.
Press the needle bearing so that it is 3.0 mm (0.12 in) below the swingarm end.

Install the dust seals and pivot collars.

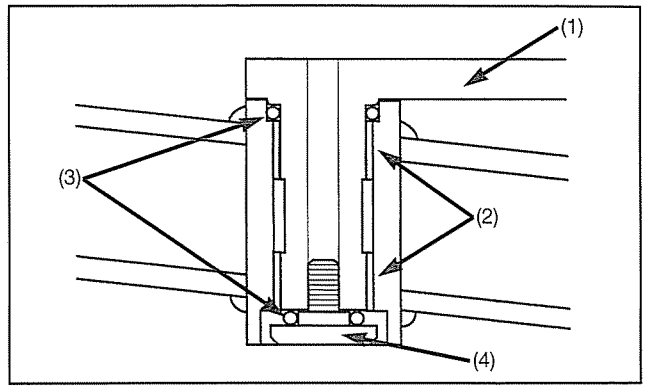


(1) PIVOT COLLAR
(2) DUST SEALS
(3) DUST SEAL CAP

Assembly

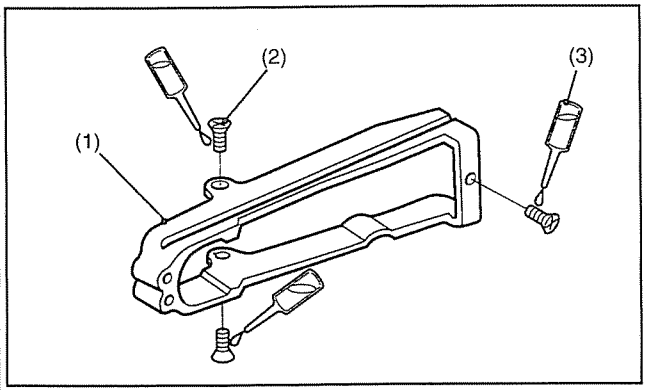
Apply grease to the bearing, collars and lips of a new dust seals.

Install the collars, dust seals and dust seal caps.



(1) CHAIN TENSIONER
(2) BUSHING
(3) O-RINGS
(4) PIVOT BOLT

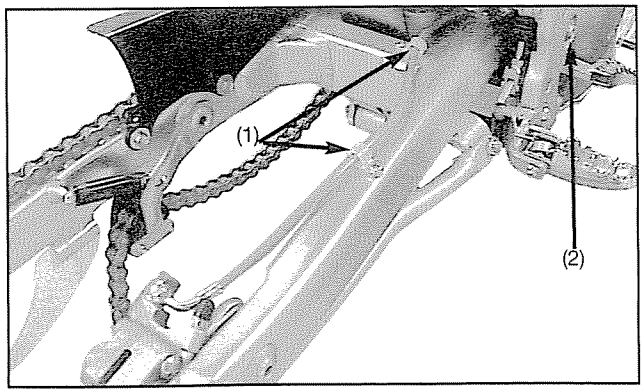
Install the drive chain tensioner pivot bushings into the swingarm.
Install a new O-ring onto the chain tensioner pivot.
Install the chain tensioner into the swingarm.
Install a new O-ring and tighten the pivot bolt.



(1) DRIVE CHAIN SLIDER
(2) SCREW
(3) LOCKING AGENT

Install the drive chain sliders onto the swingarm.
Apply a locking agent to the drive chain slider screw threads and tighten the screw.

Install the drive chain guard and tighten the bolts.



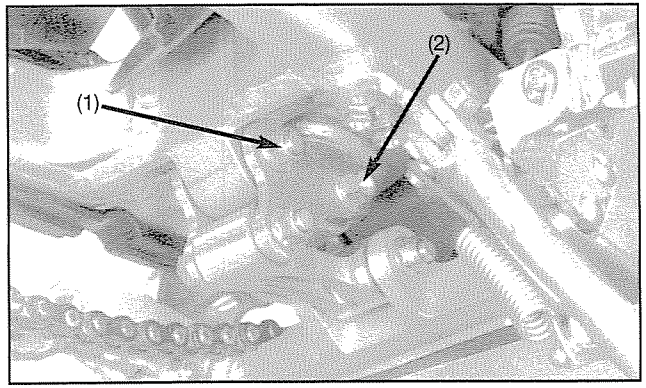
(1) PIVOT BOLT/NUT
(2) HOSE CLAMPS

Installation

Apply thin coat of grease to the swingarm pivot bolt surface.
Install the swingarm into the frame.
Install the swingarm pivot bolt from the left side.
Install and lighten the swingarm pivot nut to the specified torque.

Torque: 69 N·m (7.0 kgf·m, 51 lbf·ft)

Install the brake caliper onto the swingarm rail.
Install the brake hose clamps and tighten the screws.



(1) SHOCK ARM PLATES-TO-SWINGARM BOLT/NUT
(2) SHOCK ABSORBER LOWER MOUNTING BOLT/NUT

Install the following:
- Shock arm plates-to-swingarm bolt/nut
- Rear cushion lower mounting bolt/nut

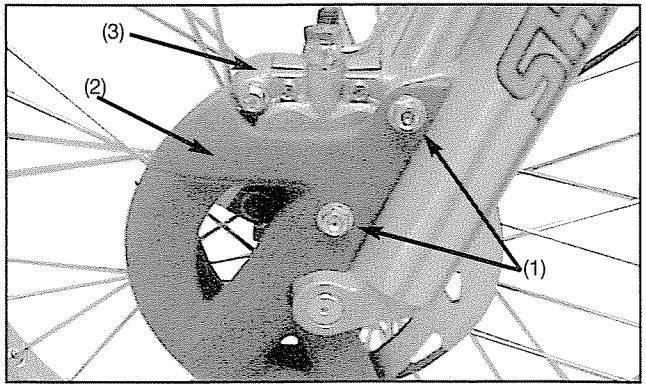
Tighten the shock arm plate bolt.

Torque: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Tighten the shock absorber lower mounting bolt to the specified torque.

Torque: 44 N·m (4.5 kgf·m, 33 lbf.ft)

Install the rear wheel (page 5-16)



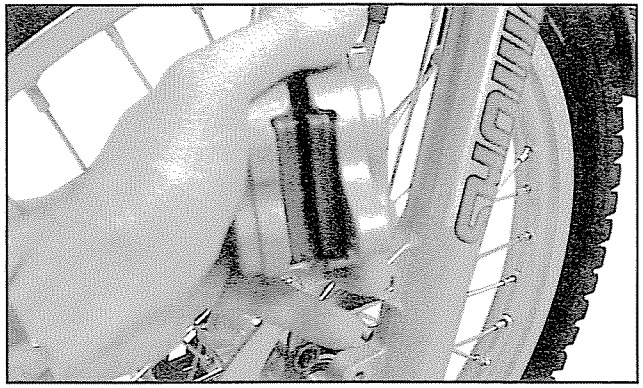
(1) BOLTS
(2) DISC COVER
(3) CALIPER

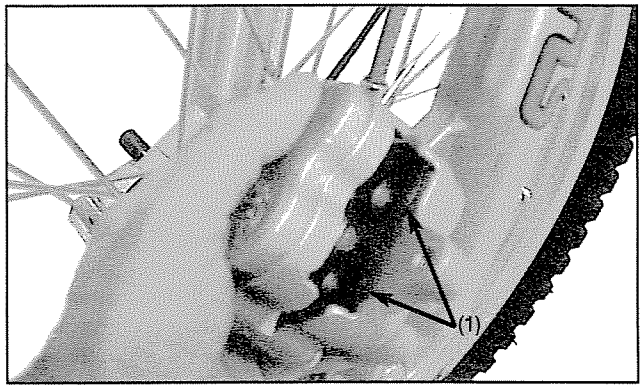
Brake Pad Replacement

Clean the brake discs with a high quality degreasing agent if they are contaminated with oil or grease.
Replace the pads if they are contaminated.

Front Brake Pad Replacement

Remove the brake caliper mounting bolts, disc protector and caliper.



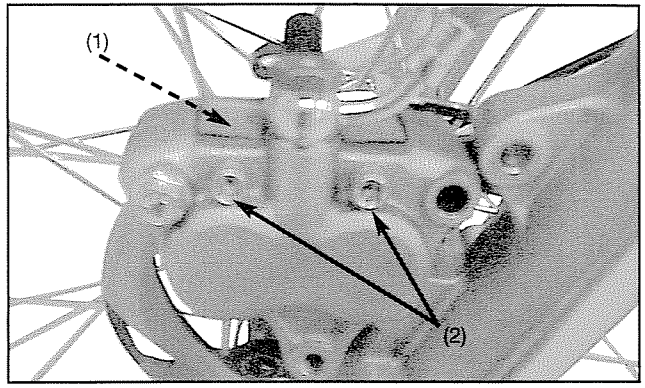


(1) CALIPER PISTONS

Push the pistons all the way in to allow installation of new brake pads.
Check the brake fluid level in the reservoir as this operation causes the level to rise.

Remove the socket bolts.
Remove the brake pad.

Clean the brake caliper inside especially around the caliper pistons.



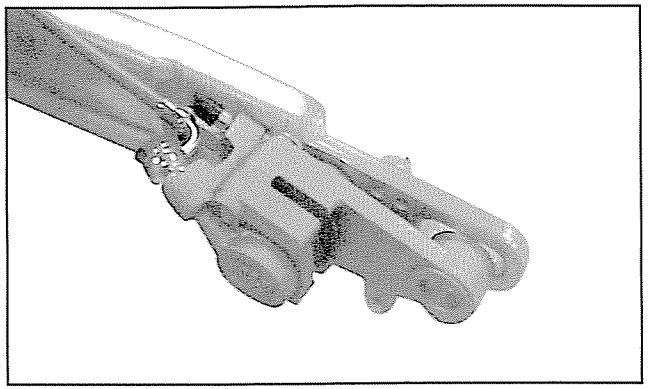
(1) NEW PADS
(2) SOCKET BOLTS

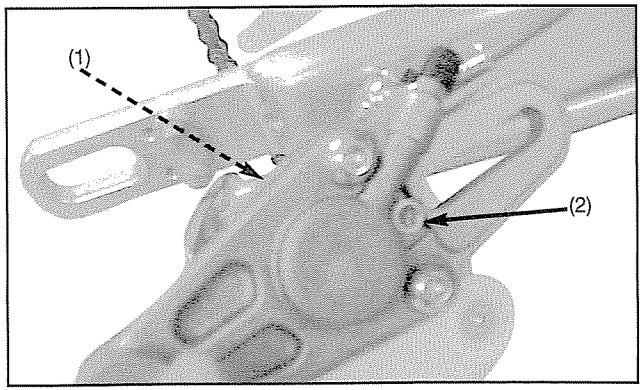
Install the new pads and secure them with the socket bolts.

Install the caliper to the fork so the disc is positioned between the pads, being careful not to damage the pads.
Apply a locking agent to the caliper mounting bolts threads.
Install the disc cover, then install and tighten the mounting bolts.

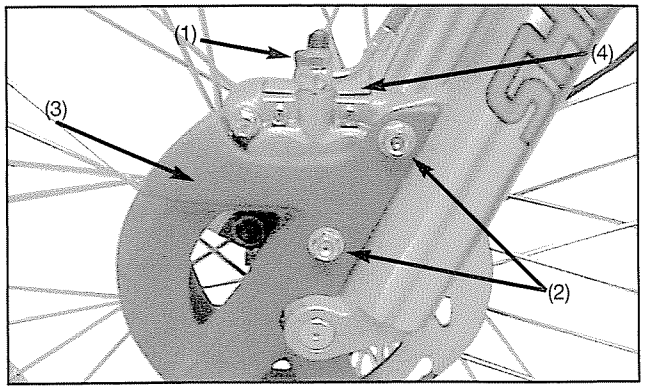
Torque: 26 N·m (2.7 kgf·m, 20 lbf·ft)

Operate the brake lever to seat the caliper pistons against the pads.

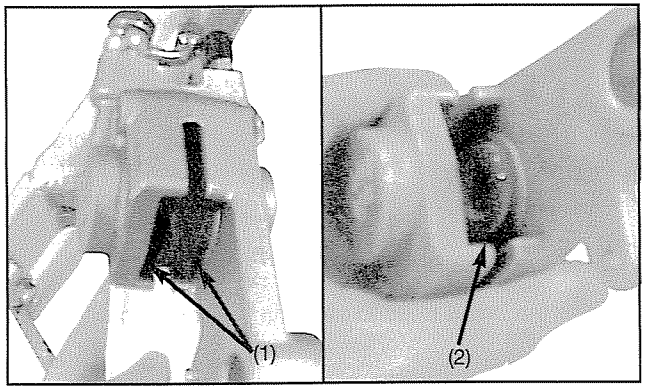




(1) BRAKE PADS
(2) SOCKET BOLT



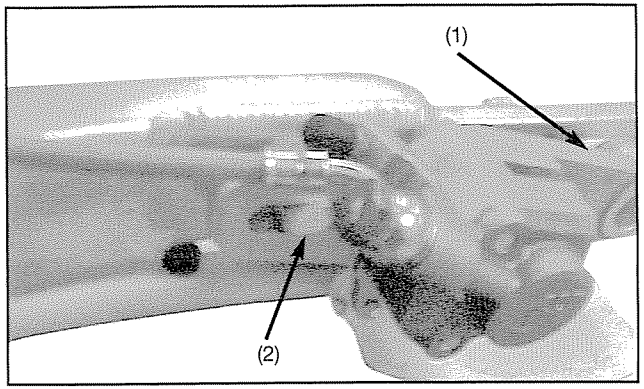
(1) OIL BOLT
(2) MOUNTING BOLTS
(3) DISC COVER
(4) BRAKE CALIPER



(1) BRAKE PADS
(2) CALIPER PISTON

Rear Brake Pad Replacement

Remove the rear wheel (page 5-15)
Push the piston all the way in to allow installation of new brake pads.
Check the brake fluid level in the reservoir as this operation causes the level to rise.
Remove the socket bolt and next, straight the pads.
Clean the brake caliper inside especially around the caliper pistons.



(1) CALIPER BRACKET
(2) BOSS/SPLIT

Install the new pads and secure them with the socket bolt.

Install the brake caliper bracket aligning its slit with the boss on the swingarm.

Install the rear wheel (page 5-16).
Operate the brake pedal to seat the caliper pistons against the pads.

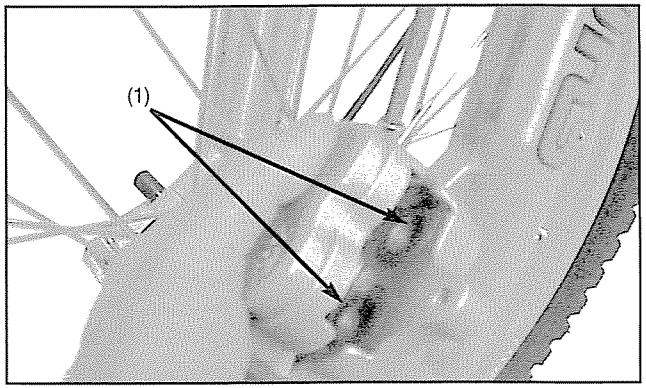
Front Brake Caliper

Removal

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

Drain the brake system.
Place a clean container under the caliper.

Remove the following:
- Brake hose oil bolt
- Sealing washers
- Brake hose eyelet
- Caliper mounting bolts
- Disc cover
- Brake caliper
- Brake pads (page 5-23)



(1) CALIPER PISTONS

Inspection

Clean the inside of the caliper.
Check the oil leakage from the caliper pistons.

If any part of the caliper is damaged, replace the caliper as an assembly.

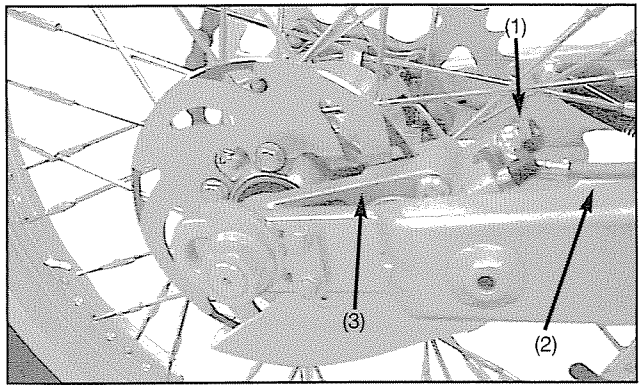
Installation

Apply a locking agent to the caliper mounting bolts threads.
Install the brake caliper and disc cover, and then install and tighten the caliper mounting bolts.

Torque: 26 N·m (2.7 kgf·m, 20 lbf·ft)

Connect the brake hose eyelet joint with two new sealing washers, then tighten the oil bolt.

Torque: 23 N·m (2.7 kgf·m, 17 lbf·ft)



(1) OIL BOLT
(2) BRAKE HOSE
(3) BRAKE CALIPER

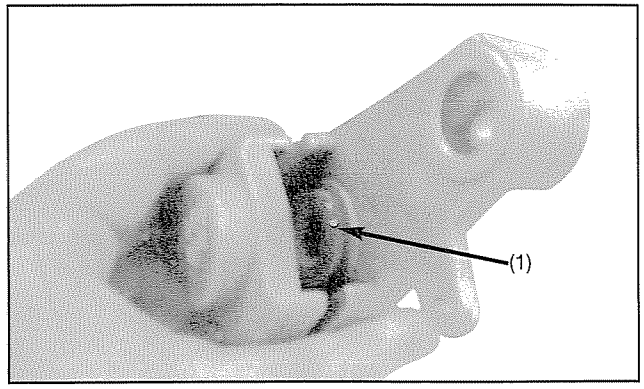
Rear Brake Caliper

Removal

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

Drain the brake system.
Place a clean container under the caliper.

Remove the following:
- Brake hose oil bolt
- Sealing washers
- Brake hose eyelet
- Rear wheel (page 5-15)
- Brake caliper/bracket
- Brake pads (page 5-24)



(1) CALIPER PISTON

Inspection

Clean the inside of the caliper.
Check the oil leakage from the caliper cylinder.

If any part of the caliper is damaged, replace the caliper as an assembly.

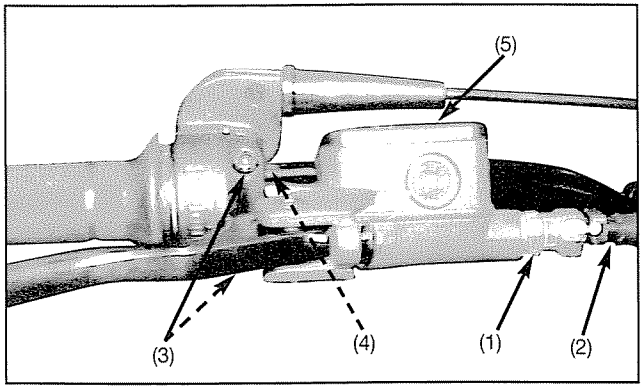
Installation

Install the brake caliper onto the swingarm rail.
Connect the brake hose eyelet joint with two new sealing washers.

Install the rear wheel (page 5-16).

Tighten the oil bolt to the specified torque.

Torque: 23 N·m (2.7 kgf·m, 17 lbf·ft)



(1) OIL BOLT (2) BRAKE HOSE (3) BOLTS
(4) HOLDER (5) MASTER CYLINDER

Front Master Cylinder

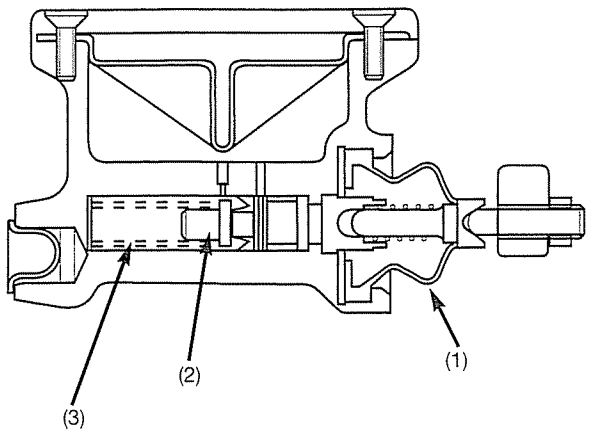
Removal/Installation

NOTICE

Avoid spilling brake fluid on painted, plastic or rubber parts. Place a shop rag over these parts whenever the system is serviced.
When removing the brake hose bolt, cover the end of the hoses to prevent contamination. Secure the hoses to prevent fluid from leaking out.

Drain the brake fluid from the hydraulic system into a suitable container.

Remove the following:
- Brake lever
- Brake hose and sealing washer
- Master cylinder holder bolts and holder
- Master cylinder



(1) BOOT
(2) PISTON ASSEMBLY
(3) SPRING

Disassembly/Assembly

NOTICE

Keep the master cylinder piston, cups, spring and snap ring as a set; don't substitute individual parts.
When installing the cups, do not allow the lips to turn inside out .

Remove the brake lever and disassemble the master cylinder.

Inspection

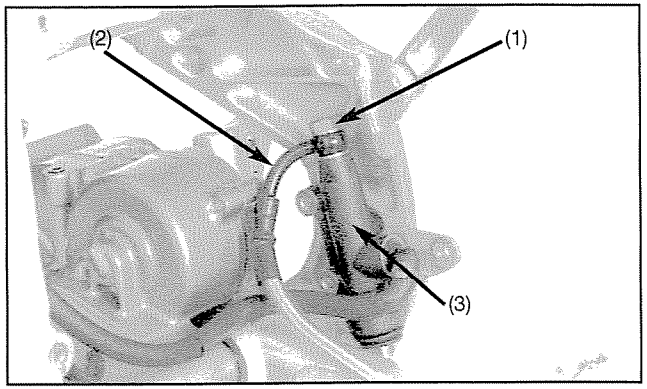
Check the master cylinder and piston for scoring, scratches or other damage

Installation

Installation is in the reverse order of removal.

Torques:
Brake hose oil bolt: 20 N·m (2.0 kgf·m, 14 lbf·ft)
Master cylinder holder bolt: 3.2 N·m (0.33 kgf·m, 2.4 lbf·ft)

Bleed the air from the front brake system.



(1) OIL BOLT
(2) BRAKE HOSE
(3) MASTER CYLINDER

Rear Master Cylinder

Removal/Installation

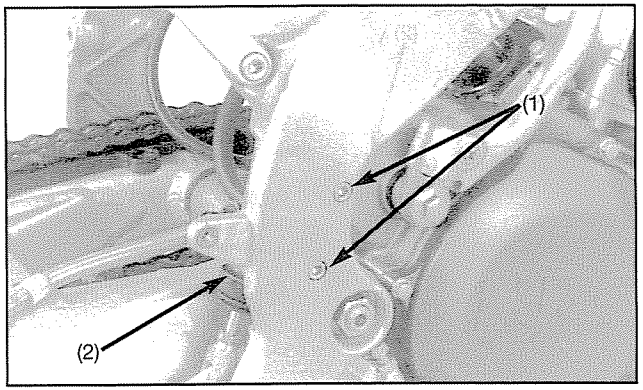
NOTICE

Avoid spilling brake fluid on painted, plastic or rubber parts. Place a shop rag over these parts whenever the system is serviced.
When removing the brake hose bolt, cover the end of the hoses to prevent contamination. Secure the hoses to prevent fluid from leaking out.
Do not disassemble the rear master cylinder.

Drain the brake fluid from the hydraulic system into a suitable container.

Remove the exhaust chamber.
Remove the reservoir tank from the bracket.

Remove the brake hose oil bolt and disconnect the brake hose eyelet joint.



(1) BOLTS
(2) MASTER CYLINDER

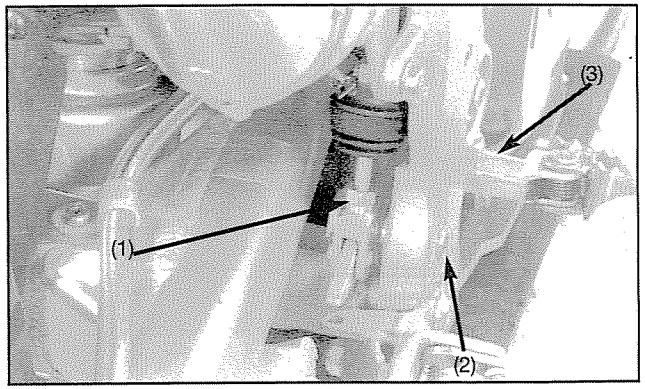
Remove the mounting bolts and master cylinder.

Installation

Installation is in the reverse order of removal.
Connect the brake hose eyelet joint with two new sealing washers, then tigthen the oil bolt.

Torque: 23 N·m (2.7 kgf·m, 17 lbf·ft)

Bleed the air from the rear brake system.

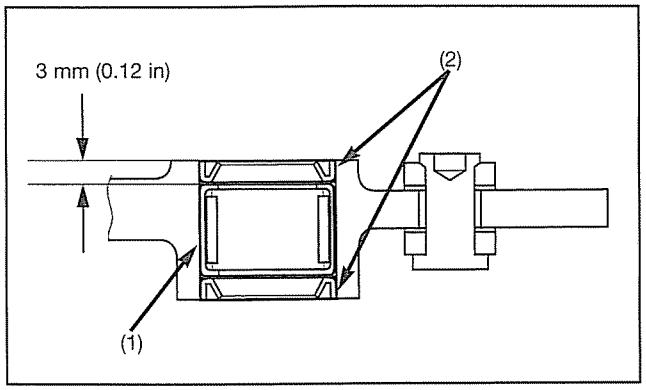


(1) NUT
(2) BOLT
(3) BRAKE PEDAL

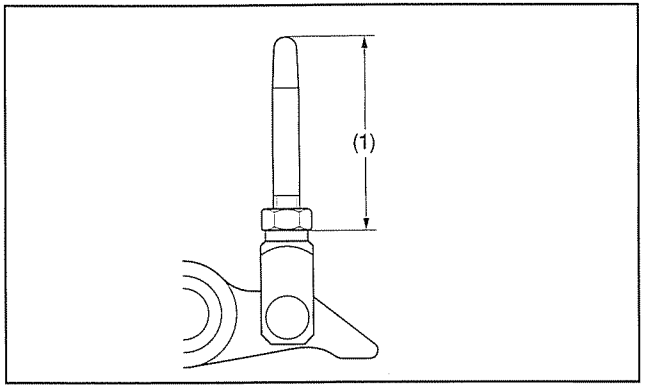
Brake Pedal

Removal

Remove the brake pedal pivot nut and bolt.
Remove the brake pedal and collar.



(1) BEARING
(2) DUST SEALS

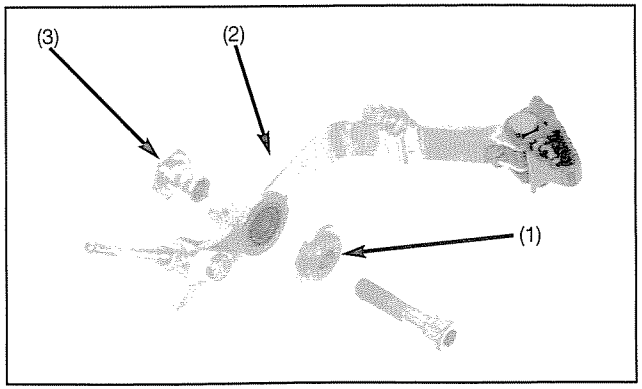


(1) STANDARD LENGTH; 40 mm

Pivot Bearing Replacement

Remove the dust seals.
Remove the pivot bearing and press a new needle bearing so that it is 3 mm (0.12 in) below the pedal end.
Apply grease to the dust seal lips, and then insall them into the pivot.

Adjust the brake pedal height by loosening the lock nut and turning the push rod.
Push rod length must be adjusted between 38 to 43 mm.

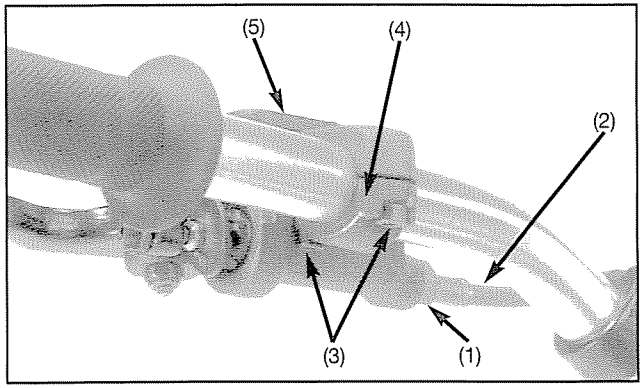


(1) COLLAR
(2) PEDAL
(3) NUT

Installation

Install the brake pedal and collar.
Install and tighten the pivot nut and bolt.

Torque: 26 N·m (2.7 kgf·m, 20 lbf·ft)



(1) OIL BOLT (2) CLUTCH HOSE (3) BOLTS
(4) HOLDER (5) MASTER CYLINDER

Clutch Master Cylinder

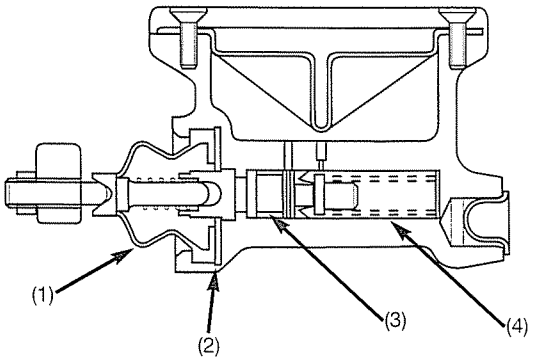
Removal/Installation

NOTICE

Avoid spilling brake fluid on painted, plastic or rubber parts. Place a shop rag over these parts whenever the system is serviced.
When removing the clutch hose bolt, cover the end of the hoses to prevent contamination. Secure the hoses to prevent fluid from leaking out.

Drain the clutch fluid from the hydraulic system into a suitable container.

Remove the following:
- Clutch lever
- Clutch hose and sealing washer
- Master cylinder holder bolts and holder
- Master cylinder



(1) BOOT
(2) SNAP RING
(3) PISTON ASSEMBLY
(4) SPRING

Disassembly/Assembly

NOTICE

Keep the master cylinder piston, cups, spring and snap ring as a set; don't substitute individual parts.
When installing the cups, do not allow the lips to turn inside out and be certain the snap ring is firmly seating in the groove.

Remove the snap ring and disassemble the master cylinder.

Inspection

Check the master cylinder and piston for scoring, scratches or other damage

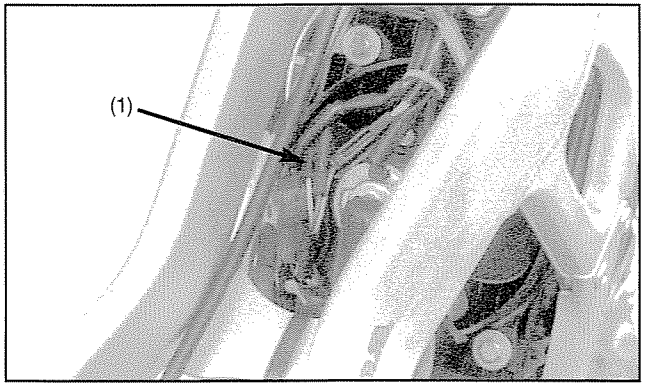
Installation

Installation is in the reverse order of removal.

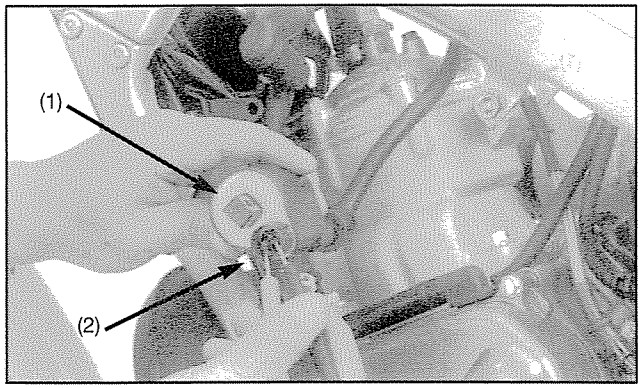
Torques:
Clutch hose oil bolt: 20 N·m (2.0 kgf·m, 14 lbf·ft)
Master cylinder holder bolt: 3.2 N·m (0.33 kgf·m, 2.4 lbf.ft)

Bleed the air from the clutch system (page 4-12).

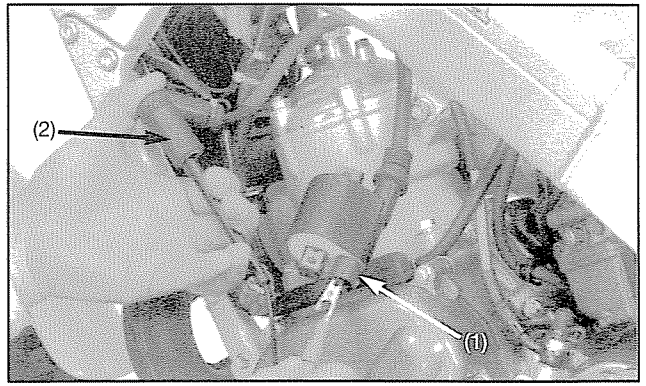
Memo



(1) CONNECTORS



(1) IGNITION COIL (2) PRIMARY WIRE TERMINALS



(1) PRIMARY WIRE TERMINALS
(2) SPARK PLUG CAP

Ignition System Inspection

ICM (Ignition Control Module) Unit Inspection

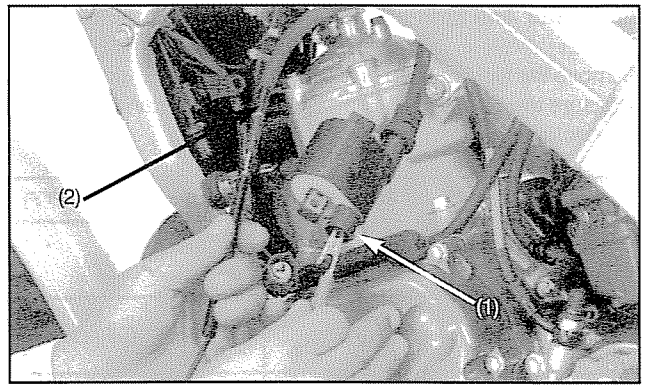
Remove the fuel tank.
Disconnect the ICM connectors and conduct these tests.
- Ignition coil (page 6-1)
- Alternator stator/ignition pulse generator (page 6-1)
- Engine stop switch (page 6-5)

Replace any part, if the measurement is out of the specified range.
All item is OK, replace the ICM.

Ignition Coil Inspection

Measure the primary coil resistance

Standard: 0.45 - 0.55 Ω (25°C/77°F)

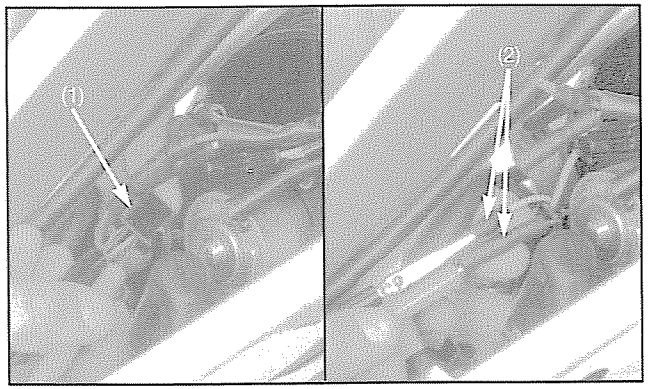


(1) PRIMARY WIRE TERMINALS
(2) SPARK PLUG CAP

Measure the secondary coil resistance.

Standard:
With plug cap: 12.4-16.8 kΩ (25°C/77°F)
Without plug cap: 8.6-10.6 kΩ (25°C/77°F)

Replace the ignition coil if the resistance is out of specification.



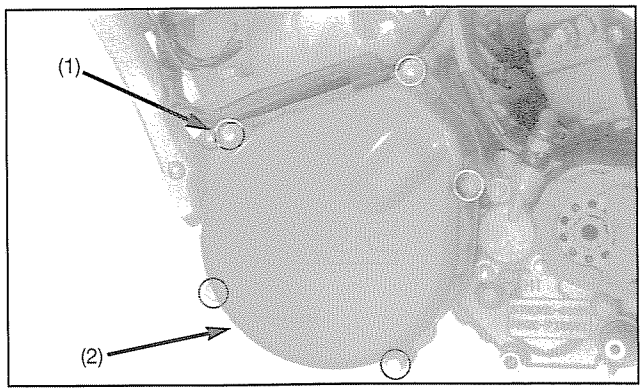
(1) CHARGING COIL CONNECTOR
(2) EXCITER COIL CONNECTORS

Alternator And Ignition Pulse Generator Inspection

Remove the fuel tank and disconnect the alternator connectors. Measure the charging coil and exciter coil resistance between connectors.

Item	Terminal	Standard (25° C/77° F)
Ignition pulse generator	Bu/Y - G/W	90 - 110 Ω
Charging coil	Y - Y	0.64 - 0.79 Ω
Exciter coil	Bu - W	10.8 - 13.2 Ω

Replace the stator as an assembly if the resistance is out of specification



(1) BOLTS
(2) LEFT CRANKCASE COVER

Alternator

Removal

Remove the exhaust pipe, skid plate and gearshift pedal.

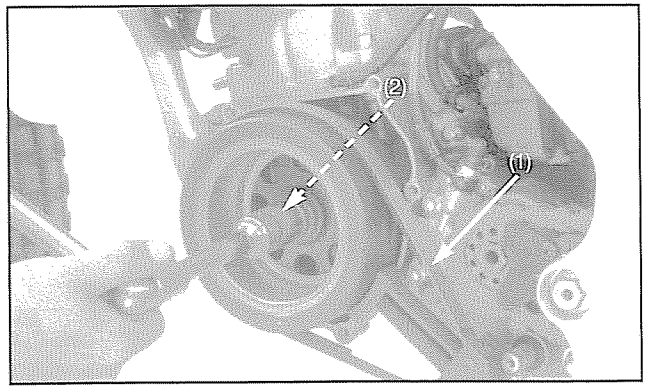
Disconnect the alternator connectors and the ignition pulse generator 2P (red) connector (page 2-9).

Remove the bolts and left crankcase cover.

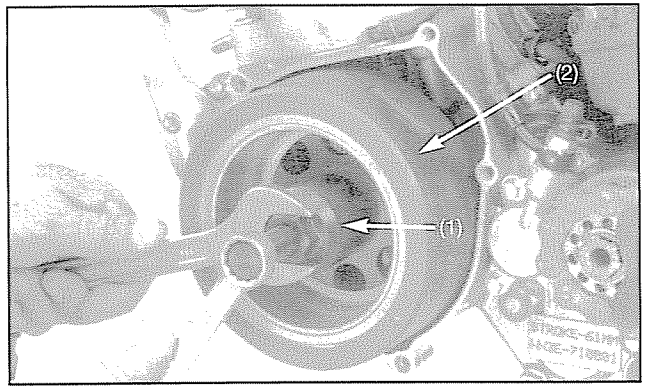
NOTICE

The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during removal.

Remove the gasket and dowel pins.



(1) FLYWHEEL HOLDER
(2) FLYWHEEL NUT/WASHER



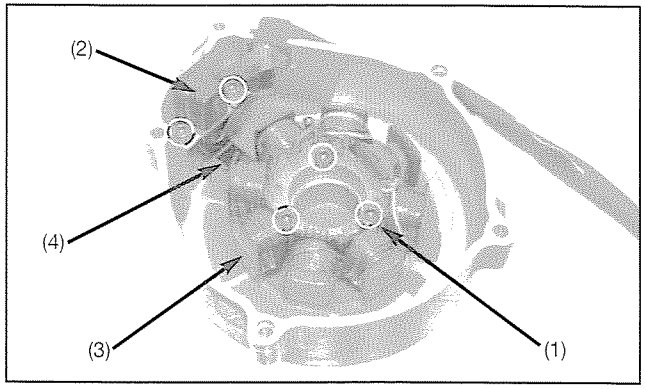
(1) FLYWHEEL PULLER
(2) FLYWHEEL

Remove the flywheel nut and washer.

TOOL:
Flywheel holder **07720-0040000**

Remove the flywheel using the special tool.

TOOL:
Flywheel puller **89010-NN3-003**



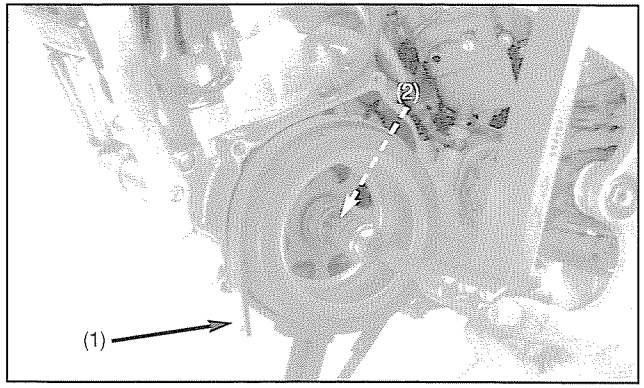
(1) SOCKET BOLTS
(2) IGNITION PULSE GENERATOR
(3) STATOR (4) WIRE GUIDE

Remove the socket bolts, ignition pulse generator and stator.

Install the stator into the left crankcase cover.
Set the wire grommet into the groove of the left crankcase cover.
Install the wire guide, then install the ignition pulse generator.
Apply a locking agent to the ignition pulse generator socket bolt threads.
Install and tighten the bolts to the specified torque.

Torque: 6 N·m (0.6 kgf·m, 4.3 lbf·ft)

Install and tighten the stator socket bolts.



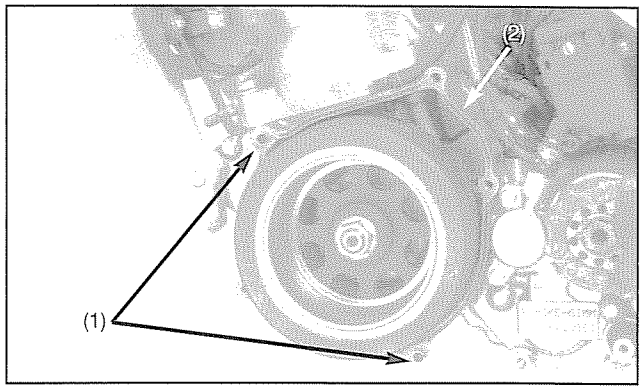
(1) FLYWHEEL HOLDER
(2) FLYWHEEL NUT

Installation

Install the woodruff key into the key way of the crankshaft.
Install the flywheel and washer.
Apply the oil to the flywheel nut threads and seating surfaces.
Hold the flywheel using the flywheel holder, install and tighten the flywheel nut to the specified torque.

TOOL:
Flywheel holder **07725-0040000**

Torque: 108 N·m (11.0 kgf·m, 80 lbf·ft)

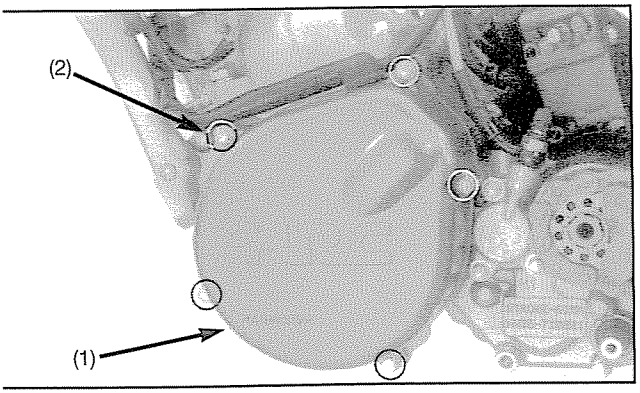


(1) DOWEL PINS
(2) NEW GASKET

Install the dowel pins and new gasket.

NOTICE

The left crankcase cover gasket must be replaced whenever the left crankcase cover is removed.



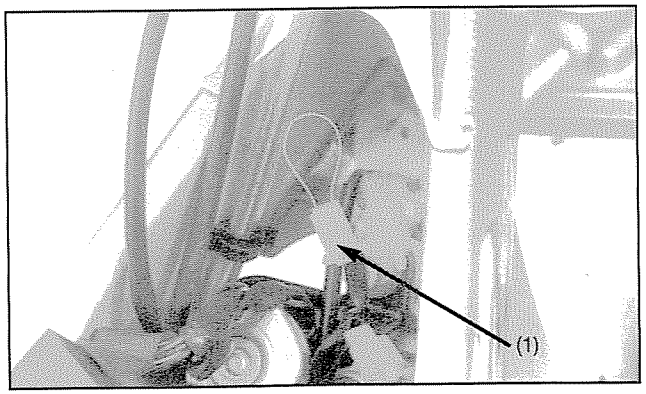
(1) LEFT CRANKCASE COVER
(2) BOLTS

Install the left crankcase cover and tighten the bolts.

NOTICE

The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during installation.

Connect the alternator connectors and the ignition pulse generator 2P (Red) connector (page 2-9).



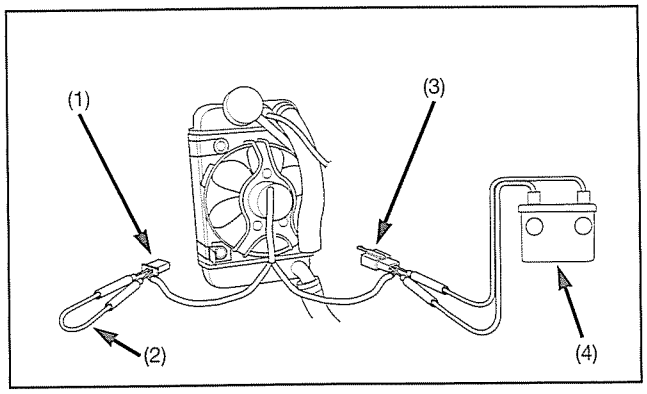
(1) 2P (NATURAL) CONNECTOR

Cooling Fan System Inspection

Remove the fuel tank.
Disconnect the thermo switch 2P (Natural) connector.

Short the Black and Green wire terminal with a jumper wire.
Start the engine and check for fan motor starts.

If the fan motor does not start, inspect the fan motor.
If the fan motor starts, replace the thermo switch.

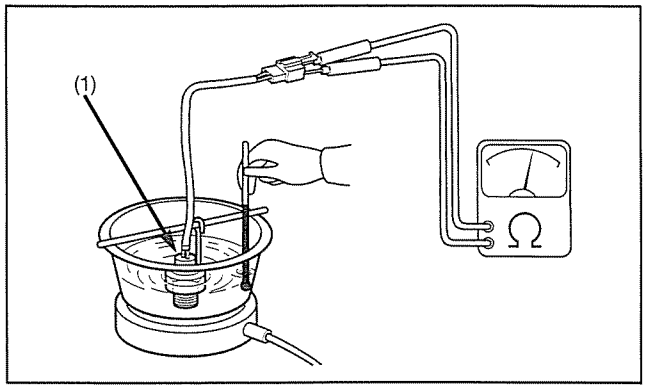


(1) 2P (NATURAL) CONNECTOR
(2) JAMPER WIRE
(3) 2P (RED) CONNECTOR
(4) 12V BATTERY

Fan Motor Inspection

Remove the fuel tank.
Disconnect the fan motor 2P (Red) and thermo switch 2P (Natural) connector.
Short the 2P (Natural) connector Black and Green wire terminal with a jumper wire.
Connect the 12V battery positive (+) terminal to the Black/Blue terminal and negative (-) terminal to the Green terminal of the 2P (Red) connector.
Check for fan motor starts.

Replace the fan motor if the fan motor does not start.
If the fan motor starts, check for the following items:
- Continuity for Green and Black wire between fan motor 2P (Red) and thermo switch 2P (Natural) connector terminals.
- Continuity for Black/Blue and Green wire between fan motor and regulator/rectifier.
- Regulator/rectifier (page 6-5).
- Termo switch



(1) TERMO SWITCH

Thermo Switch Inspection

⚠ WARNING

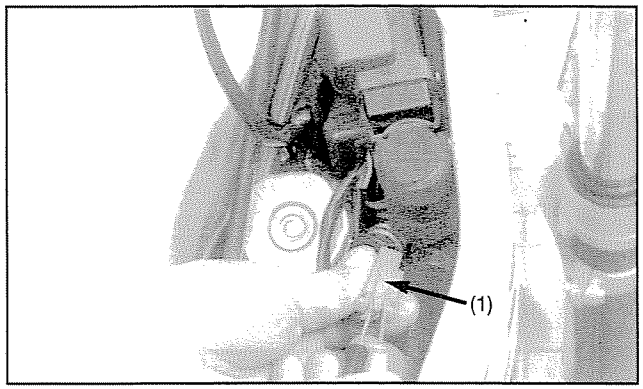
Removing the radiator and thermo switch while the engine is hot will allow the coolant to spray out, seriously scalding you.

Always let the engine and radiator cool down before removing the radiator cap.

Remove the radiator (page 4-6).

Remove the thermo switch from the radiator.
Suspend the thermo switch in a pan of water an electric heating element.
Water heats up to 80° C/68° F or more, check for continuity between the thermo switch terminals.

Thermo switch is normal if continuity is exist.
If there is no continuity, replace the thermo switch a new one.



(1) 2P (RED) CONNECTOR

Regulator/Rectifier

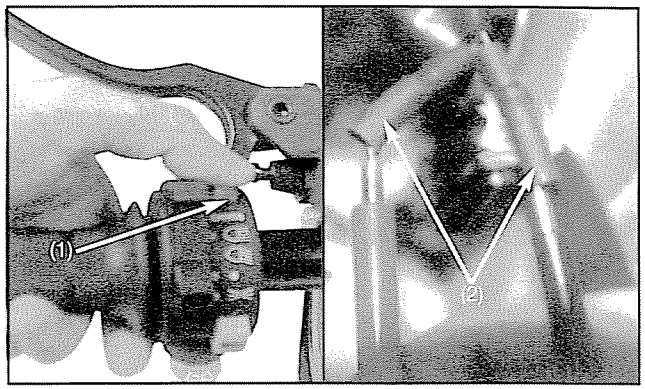
System Inspection

Connect the voltmeter to the Black wire terminal (+) and Green terminal (-) of the regulator/rectifier 2P (RED) connector with the connector connected.

Start the engine and measure the voltage.

Standard: 10-15 V (25°C/77°F)

If the measured voltage out of the specification, replace the regulator/rectifier.



(1) ENGINE STOP SWITCH
(2) CONNECTORS

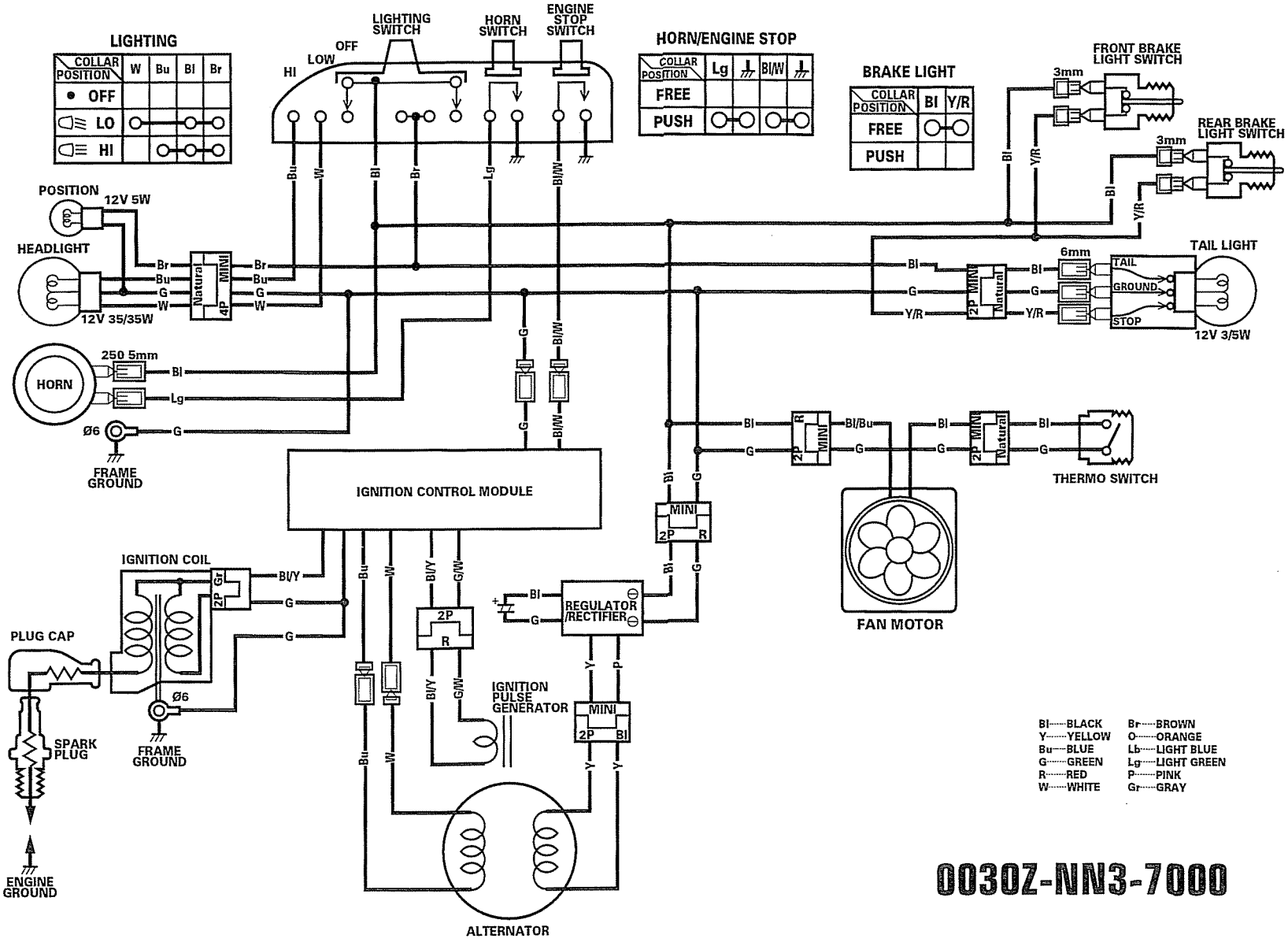
Engine Stop Switch Inspection

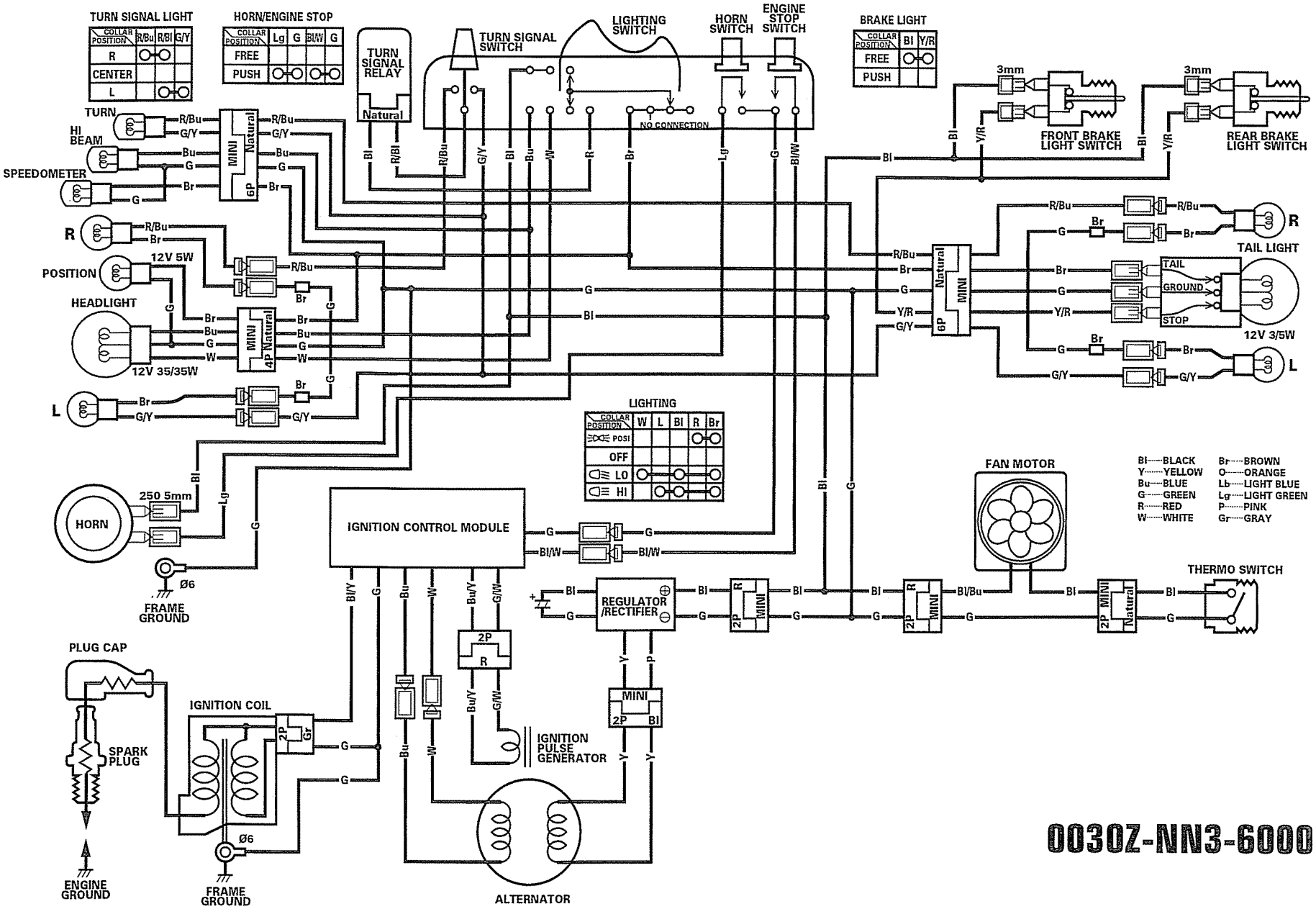
Disconnect the engine stop switch connectors.
Check the engine stop switch for continuity between the terminals.

There should be continuity with the switch is pushed.
Release the switch button, there should be no continuity.

Replace the lights and engine stop switch if it is out of specification.

Wiring Diagrams





0030Z-NN3-6000

Memo

Memo

Memo