Introduction

This service manual describes the service procedures for the ST1100.
This Model Specific Manual includes every service procedure that is of a specific nature to this particular model. Basic service procedures that are common to other Honda Motorcycles/Motor Scooters/ATVs are covered in the Common Service Manual. This Model Specific Service Manual should be used together with the Common Service Manual in order to provide complete service information on all aspects of this motorcycle.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
While Sections 4 through 22 describe parts of the motorcycle, grouped according to locations.

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

Most sections describe the service procedure through system illustration. Refer to the next page for details on how to use this manual.

If you are not familiar with this motorcycle, read Technical Feature in section 23.
If you don't know the source of the trouble, go to section 24 Troubleshooting.

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Contents

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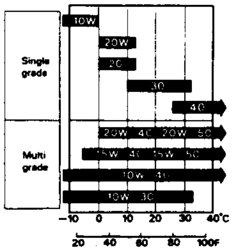
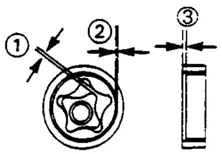
Unit: mm (in)

Lubrication

Item	Standard	Service Limit
Engine oil capacity at draining	3.6 liters (3.80 US qt, 3.17 Imp qt)	—
at disassembly	4.3 liters (4.54 US qt, 3.78 Imp qt)	—
at oil filter change	3.7 liters (3.91 US qt, 3.26 Imp qt)	—
Recommended engine oil	Use Honda 4-stroke oil or equivalent Viscosity: SAE 10W—40 Other viscosity shown in the chart may be used when the average temperature in your riding area is within the indicated range.	
OIL VISCOSITIES 		
Oil pressure at oil pressure switch	392—490 kPa (4.0—5.0 kg/cm², 57—71 psi) at 5,000 min⁻¹ (rpm) (80°C/176°F)	—
Oil pump rotor tip clearance ①	0.15 (0.006)	—
body clearance ②	0.15—0.22 (0.006—0.009)	—
end clearance ③	0.02—0.09 (0.0008—0.0035)	—
		

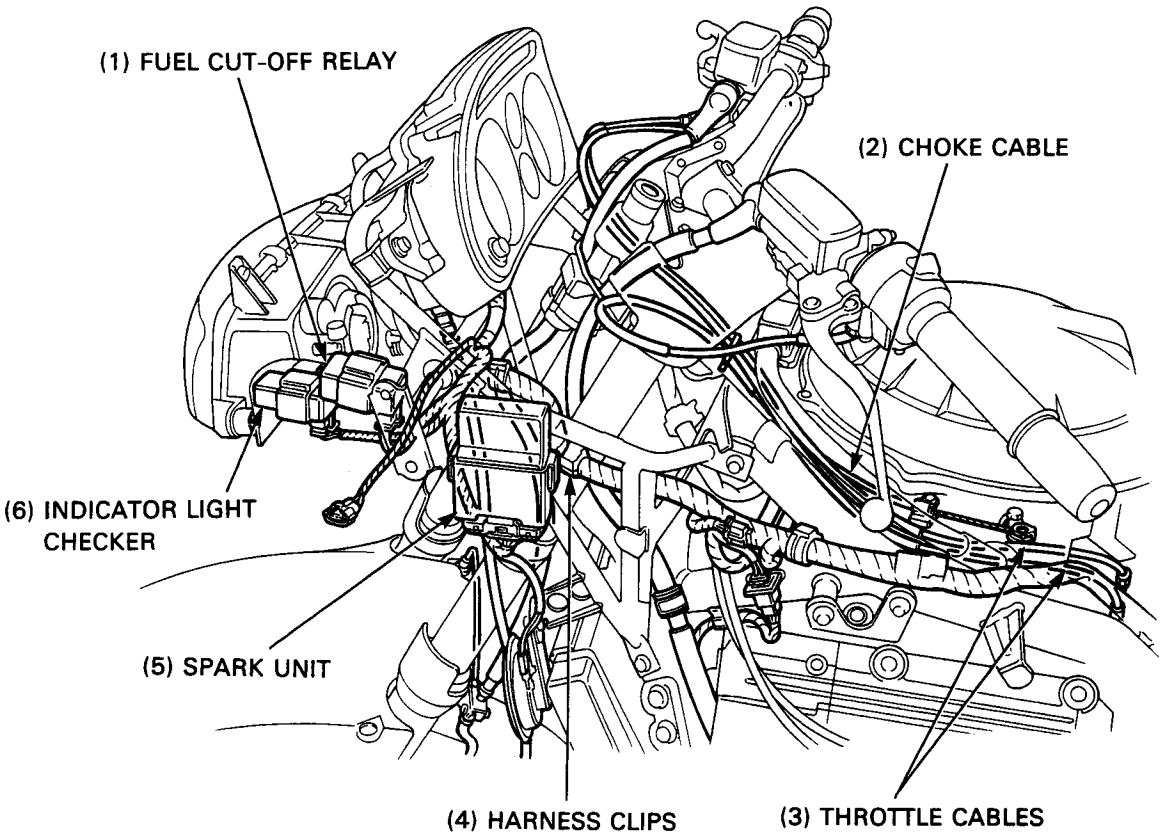
Fuel System

Item	Standard	Service Limit
Carburetor identification number	VD B1A	—
	VD BFA (SW type)	—
	VD BHA (AR type)	—
Main jet	#128	—
(High altitude)	—	—
(2,3)	—	—
(1,4)	—	—
(Front)	—	—
(Rear)	—	—
Slow jet	#40	—
Jet needle clip position	—	—
Pilot screw intial opening	1-7/8 turns out	—
	1-5/8 turns out (G,ND, FI types)	—
	2-1/8 turns out (AR type)	—
	2-1/2 turns out (SW type)	—
Pilot screw high altitude adjustment	—	—
Pilot screw final opening	7/8 turns out	—
Air screw intial opening	—	—
Air screw high altitude adjustment	—	—
Float level	7.0 (0.28)	—
Carburetor Vacuum difference	Within 40 mmHg (1.6 inHg)	—
Base carburetor (For carburetor synchronization)	No.4 carburetor	—
Idle speed	1,000 ± 100 min⁻¹ (rpm)	—
	1,200 ± 50 min⁻¹ (rpm) (SW, AR types)	—
Throttle grip free play	2—6 (0.08—0.24)	—
Accelerator pump clearance	—	—

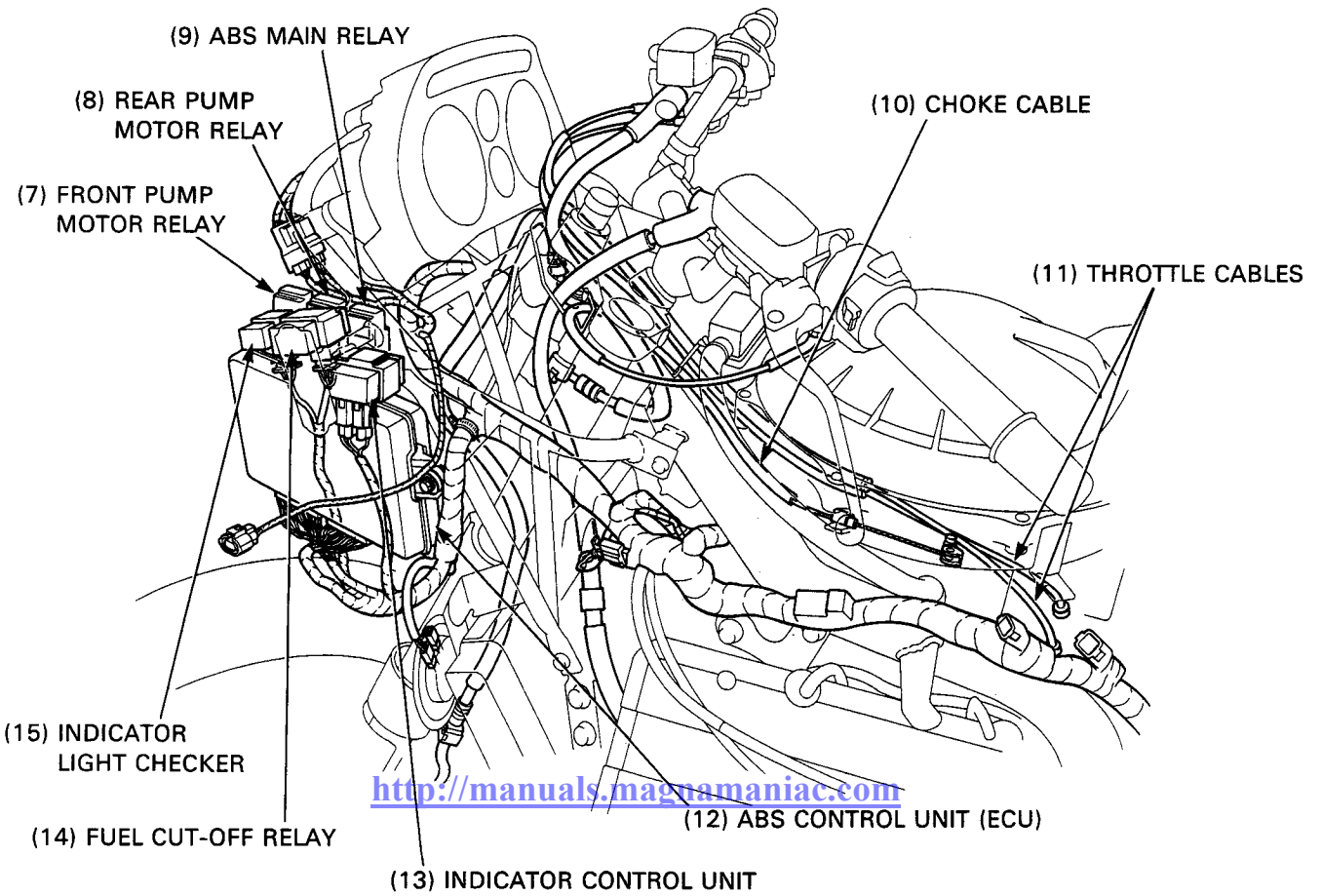
Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Frame/body panels:				
Center stand pivot bolt	1	8	27 (2.7, 20)	
Side stand pivot bolt	1	10	10 (1.0, 7)	
Side stand pivot lock nut	1	10	27 (2.7, 20)	
Rotary switch attaching bolt	1	6	10 (1.0, 7)	
Step holder 8 mm	2	8	27 (2.7, 20)	
10 mm	4	10	35 (3.5, 25)	
Grab rail	6	8	27 (2.7, 20)	
Grab rail center plate bolt	4	8	35 (3.5, 25)	
Saddle bag stay bolt 6 mm	2	6	10 (1.0, 7)	
8 mm	2	8	35 (3.5, 25)	
Center stand grip bolt	2	6	10 (1.0, 7)	
Engine gurard mounting bolt	3	8	27 (2.7, 20)	
Wind shield screw	5	5	0.6 (0.06, 0.43)	
Exhaust system:				
Exhaust pipe joint nut	8	7	17 (1.7, 12)	
Muffler band bolt	4	8	22 (2.2, 16)	
Exhaust pipe band bolt	1	8	22 (2.2, 16)	
Muffler mounting bolt	2	8	27 (2.7, 20)	
Exhaust pipe protector bolt	12	6	12 (1.2, 9)	
Fuel system:				
Fuel tank mounting bolt	4	6	12 (1.2, 9)	
Fuel pump mounting nut	6	6	10 (1.0, 7)	
Carburetor connecting screw	2	6	8 (0.8, 5.8)	
Cooling system:				
Fan motor switch	1	16	12 (1.2, 9)	
Thermostat case	2	6	10 (1.0, 7)	
Water hose band screw	10	—	1.2 (0.12, 0.9)	
Engine mount:				
Engine mounting bolt 10 mm	4	10	55 (5.5, 40)	
12 mm	1	12	65 (6.5, 47)	
Engine mounting bracket bolt 8 mm	8	8	27 (2.7, 20)	
10 mm	4	10	40 (4.0, 29)	
Sub frame bolt	5	10	40 (4.0, 29)	
Gearshift pedal pivot bolt	1	8	27 (2.7, 20)	
Front suspension:				
Handlebar upper holder bolt	4	8	27 (2.7, 20)	
Handlebar weight screw	2	6	9 (0.9, 6.5)	Note 1
Ignition switch mounting bolt	2	8	25 (2.5, 18)	
Throttle housing screw	2	5	4.2 (0.42, 3.0)	
Front fender attaching bolt Standard model	2	6	10 (1.0, 7)	
ABS/TCS model	2	8	22 (2.2, 16)	
Steering bearing adjustment nut	1	26	28 (2.8, 20)	Note 2
Steering stem nut	1	24	105 (10.5, 76)	
Upper fork pinch bolt	2	8	23 (2.3, 17)	
Lower fork pinch bolt	4	10	50 (5.0, 36)	
Fork cap bolt	2	—	20 (2.0, 14)	
Fork socket bolt	2	8	20 (2.0, 14)	Note 1
Fork damper lock nut	1	10	23 (2.3, 17)	
Anti-dive case bolt	4	5	4 (0.4, 2.9)	Note 1
Front axle bolt	1	14	90 (9.0, 65)	
Front axle pinch bolt	4	8	22 (2.2, 16)	
Front pulser ring bolt (ABS/TCS model)	6	5	8 (0.8, 5.8)	

Standard Model



ABS/TCS Model

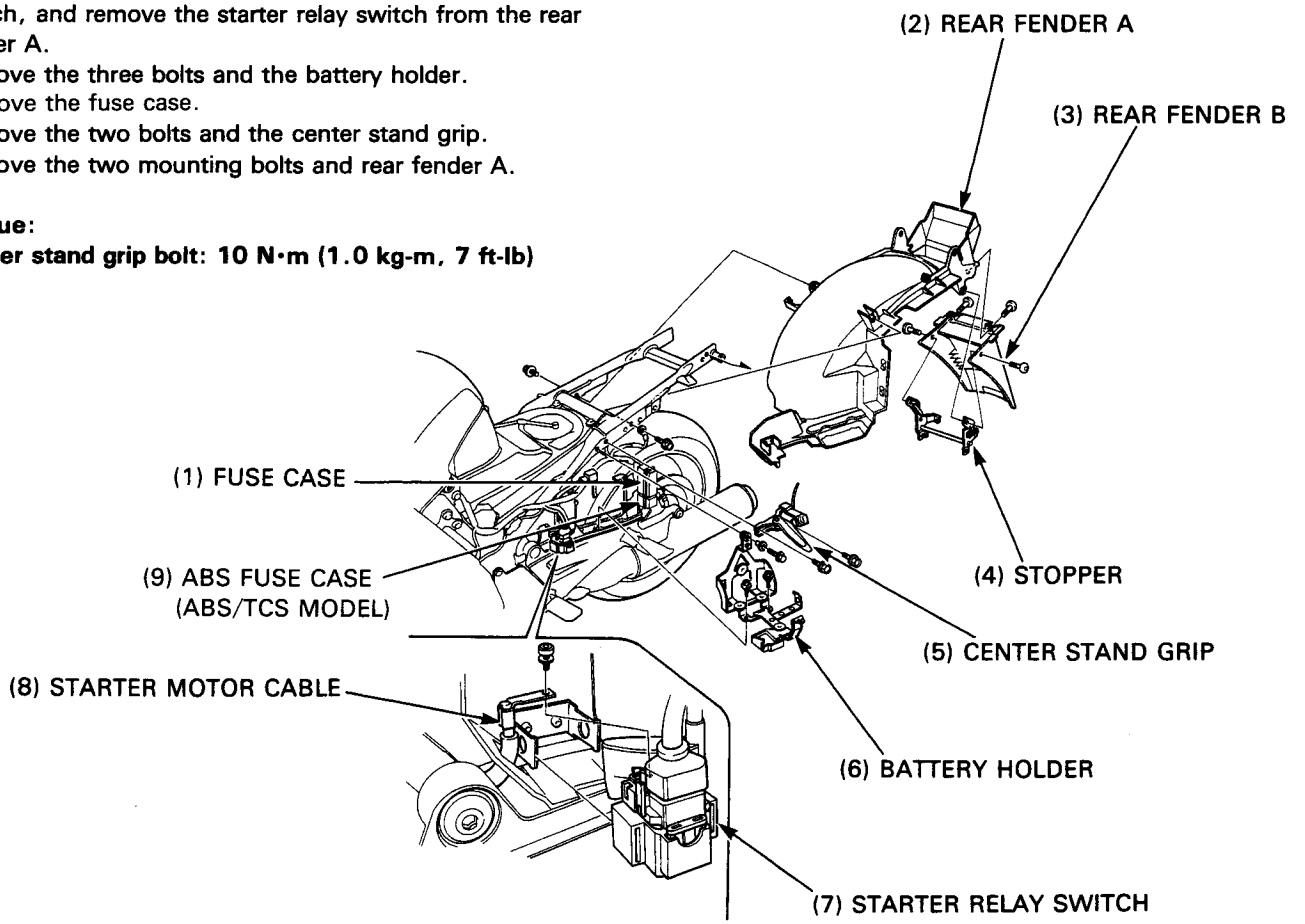


Rear Fender

Remove the battery (page 16-7).
Remove the left and right saddle bag stays.

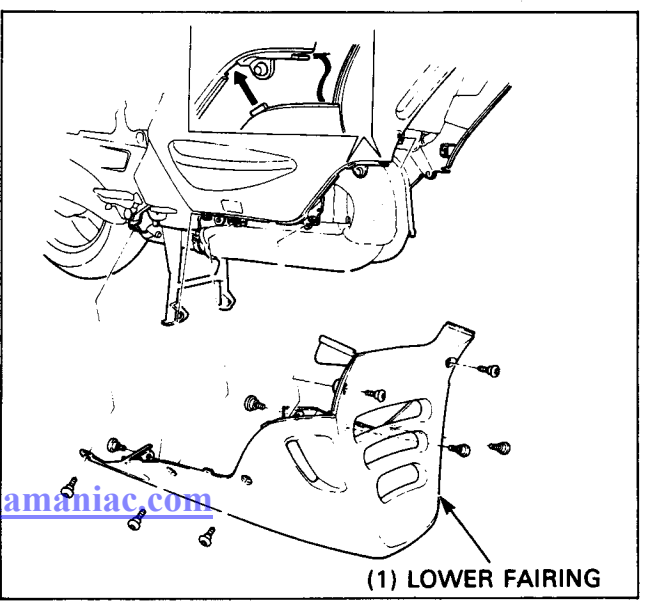
Remove the four socket bolt, rear fender B and saddle bag stay stopper.
Remove the starter motor cable from the starter relay switch, and remove the starter relay switch from the rear fender A.
Remove the three bolts and the battery holder.
Remove the fuse case.
Remove the two bolts and the center stand grip.
Remove the two mounting bolts and rear fender A.

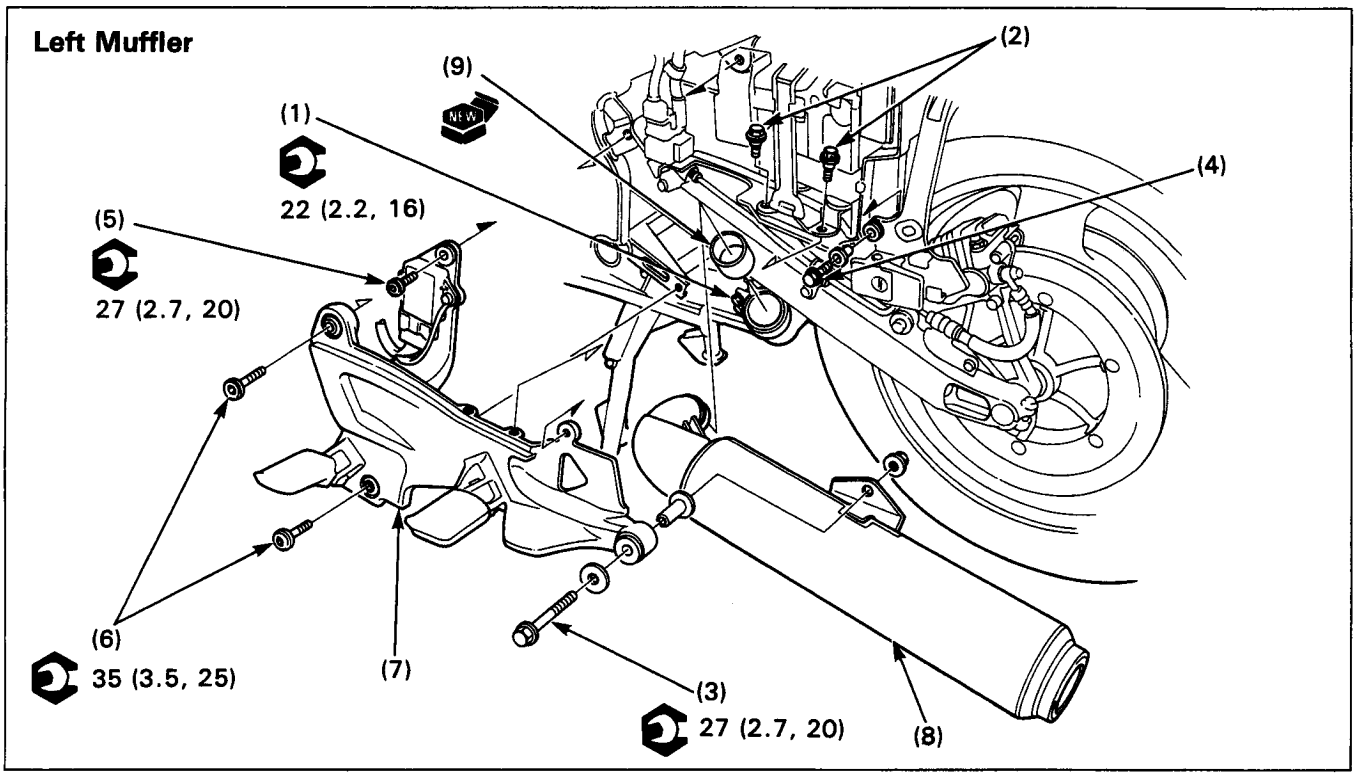
Torque:
Center stand grip bolt: 10 N·m (1.0 kg-m, 7 ft-lb)



Lower Fairing

Remove the nine socket bolts and the lower fairing.



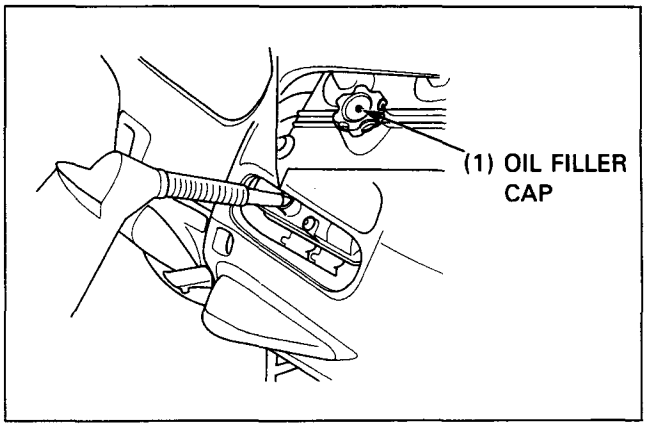


Requisite Service

- Left pivot cover removal/installation (page 2-5)
- Battery removal/installation (page 17-7)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Muffler band	2	Loosen the band bolts.
(2)	Battery holder bolt	2	
(3)	Muffler mounting bolt	1	
(4)	Left step holder bolt 6 mm	1	
(5)	8 mm	1	
(6)	10 mm	2	
(7)	Left step holder	1	Hang with a string.
(8)	Left muffler	1	
(9)	Gasket	1	

If required, remove the maintenance cover (page 2-5) and filler cap, and add the specified oil up to the upper level mark. Do not overfill.



Carburetor Synchronization

NOTE

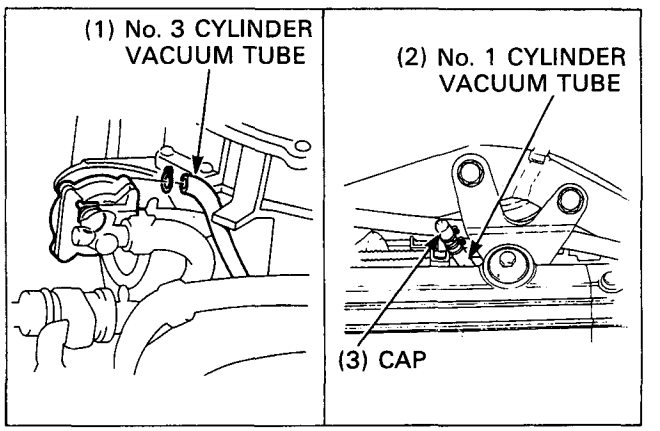
- Refer to section 2 of Common Service Manual for carburetor synchronization procedure.
- Synchronize the carburetor with the engine at normal operating temperature, transmission in neutral and motorcycle supported upright.

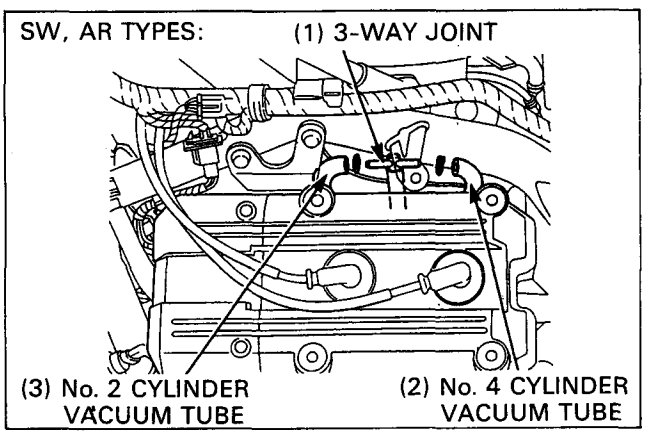
Remove the left and right fairing pockets (page 2-6).

Disconnect the No.3 cylinder vacuum tube from the auto fuel valve, apply vacuum to the auto fuel valve and pinch the tube with a clip.
Connect the vacuum gauge adaptor to the No. 3 cylinder vacuum tube.

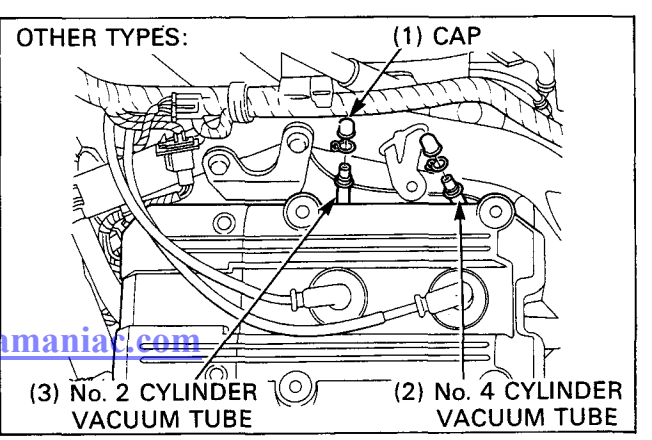
Remove the vacuum tube cap from the No.1 cylinder vacuum tube and install the vacuum gauge adaptor.

(SW, AR types)
Disconnect the No. 2 and 4 cylinder vacuum tubes at the 3-way joint, and connect the vacuum gauge adaptors.





(Other types)
Remove the vacuum tube caps from the No.2 and 4 cylinder vacuum tubes and install the vacuum gauge adaptors.



5. Fuel System

Service Information

⚠ WARNING

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

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

CAUTION

- **Bending or twisting the control cables will impair smooth operation and could cause the cable to stick or bind, resulting in loss of vehicle control.**
- **Be sure to remove the diaphragms before cleaning air and fuel passages with compressed air. The diaphragms might be damaged.**

- Refer to section 2 for fuel tank removal and installation.
- Refer to section 21 for fuel pump inspection, removal and installation.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before disassembling the carburetor, place the suitable container under the carburetor drain bolt, then loosen the bolt and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with piece of tape to prevent any foreign material from dropping into the engine.

NOTE

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

6. Cooling System

Service Information

⚠ WARNING

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

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

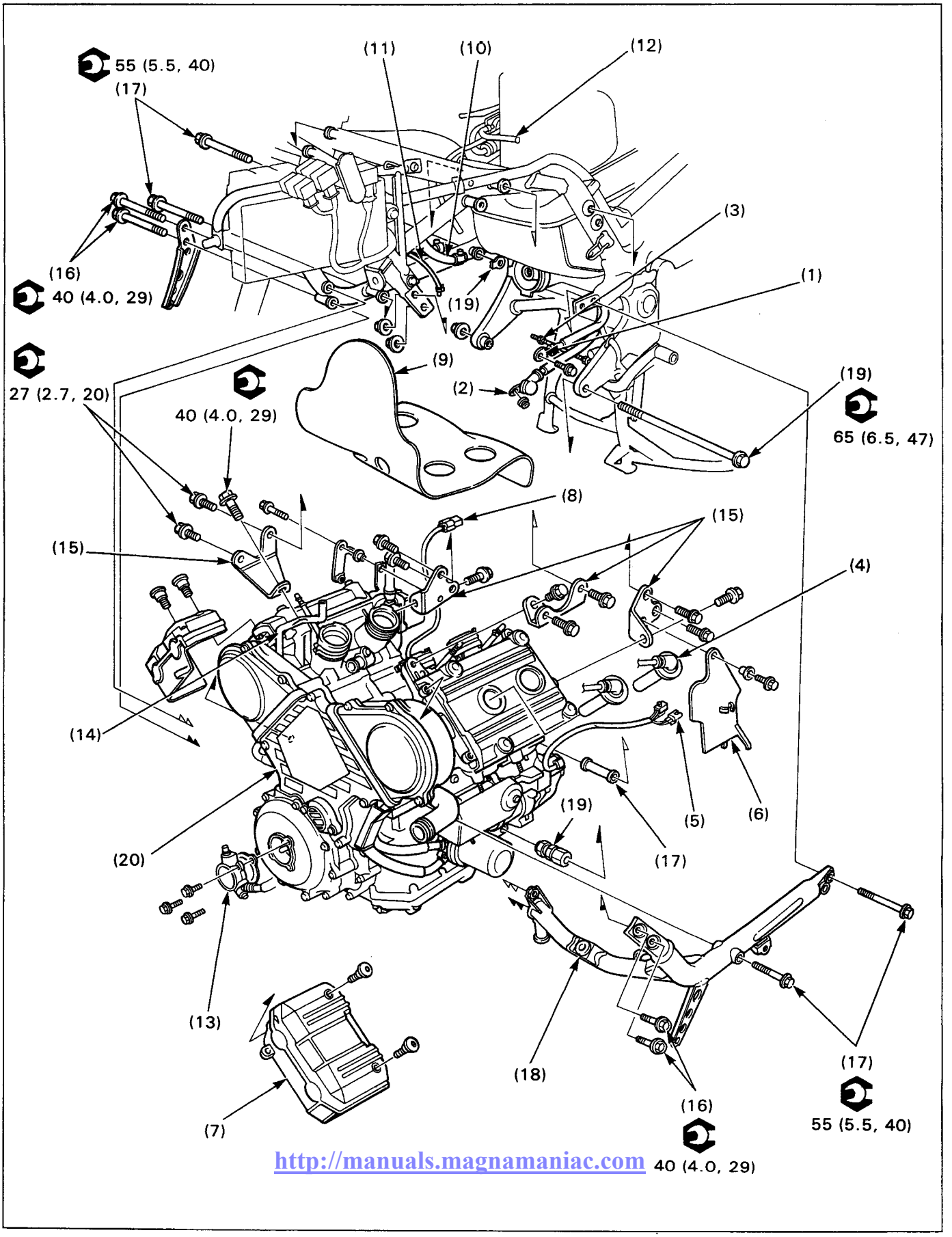
Troubleshooting

Engine temperature too high
- Faulty radiator cap.
- Insufficient coolant.
- Passages blocked in radiator, hoses, oil cooler, or water jacket.
- Air in system.
- Faulty water pump.
- Thermostat stuck closed.
- Faulty cooling fan motor.
- Faulty fan motor switch.

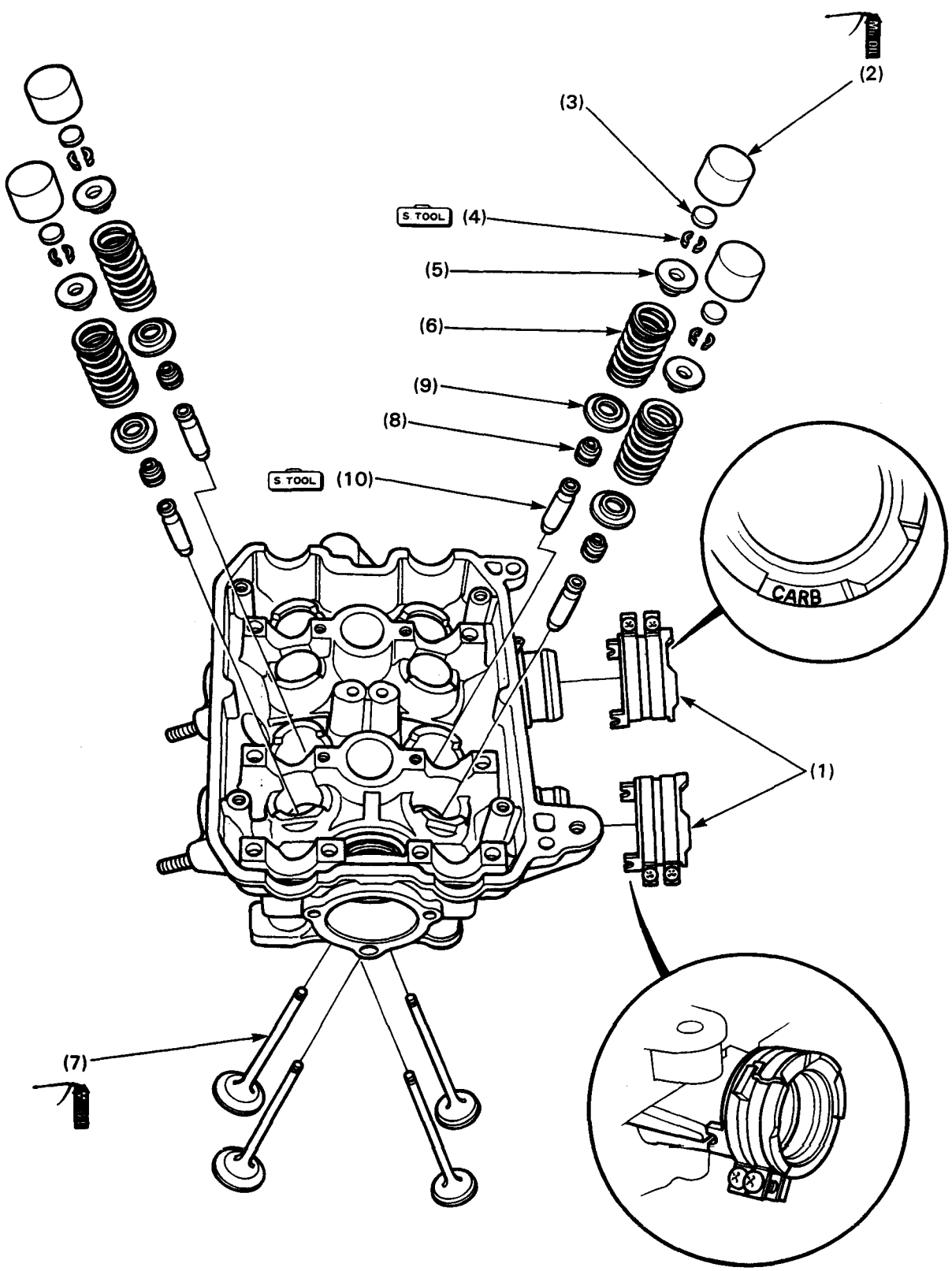
Engine temperature too low
- Faulty temperature gauge or gauge sensor.
- Thermostat stuck open.
- Faulty cooling fan motor switch.

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

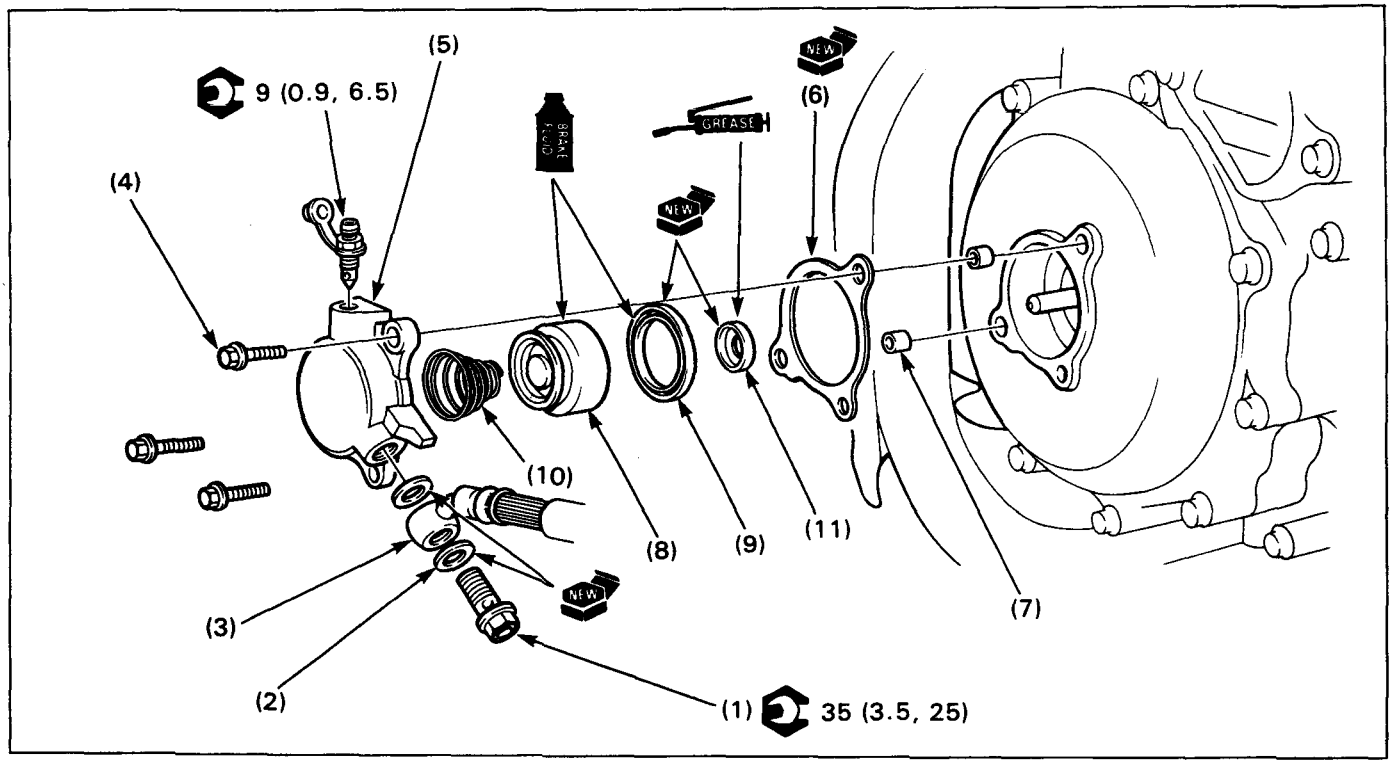
Engine Removal/Installation



Cylinder Head Disassembly/Assembly



Clutch Slave Cylinder Removal/Installation



CAUTION

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

NOTE

- Use only DOT 4 brake fluid from a sealed container.

Requisite Service

- Lower fairing removal/installation (page 2-4)
- Clutch fluid draining

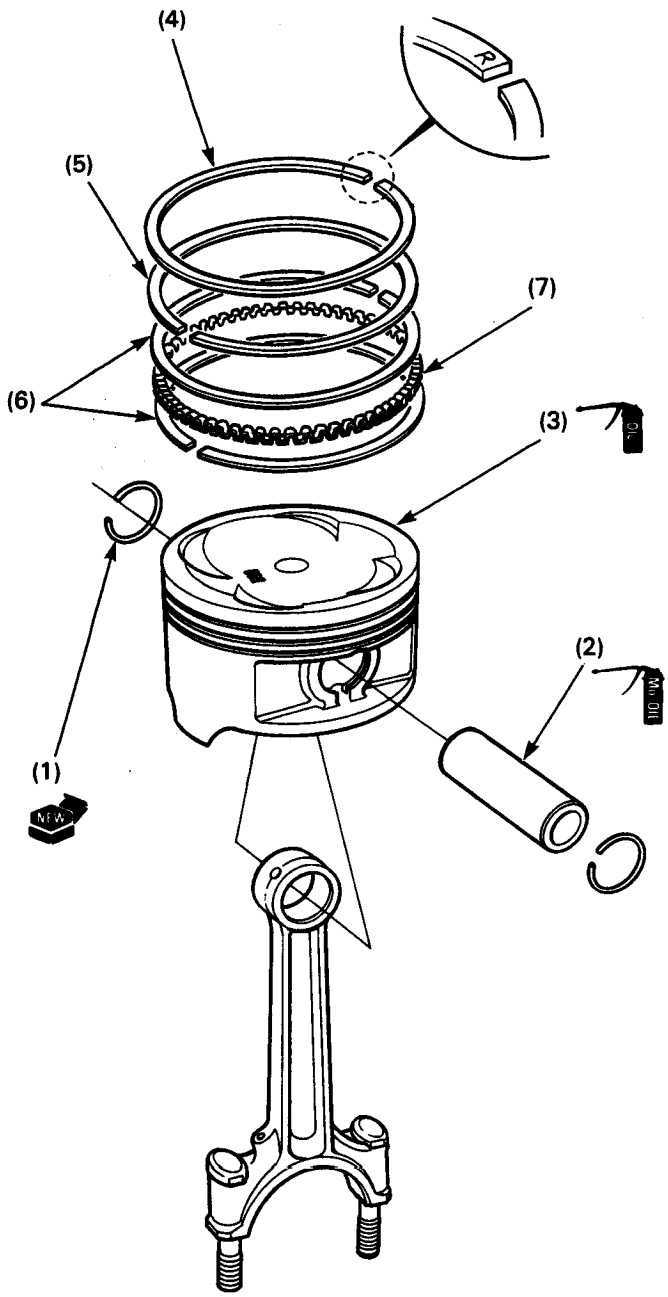
	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Clutch hose	1	
(4)	Mounting bolt	3	
(5)	Slave cylinder assembly	1	
(6)	Gasket	1	
(7)	Dowel pin	2	
(8)	Slave cylinder piston	1	If piston removal is difficult, apply compressed air to the fluid inlet to remove the piston.
(9)	Piston seal	1	
(10)	Spring	1	
(11)	Oil seal	1	

Requisite Service

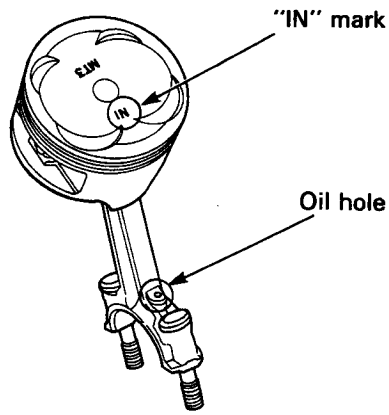
- Gearshift linkage removal/installation (page 10-2)
- Transmission unit removal/installlation (page 10-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Transmission case cover bolt	7	
(2)	Transmission case	1	
(3)	Dowel pin	2	
(4)	Shift fork shaft	1	
(5)	Rear shift fork	1	Install with the "R" mark facing down (forward).
(6)	Center shift fork	1	Install with the "C" mark facing down (forward).
(7)	Gearshift drum	1	
(8)	Front shift fork	1	Install with the "F" mark facing down (forward).
(9)	Mainshaft/countershaft assembly	1	

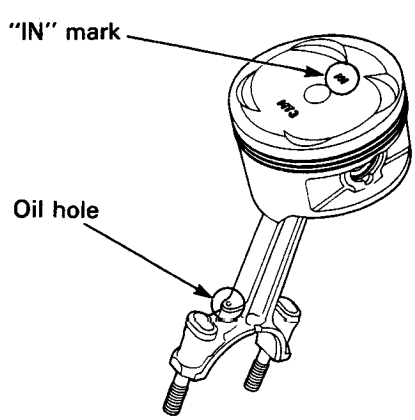
Piston Removal/Installation



Left cylinder piston



Right cylinder piston



NOTE

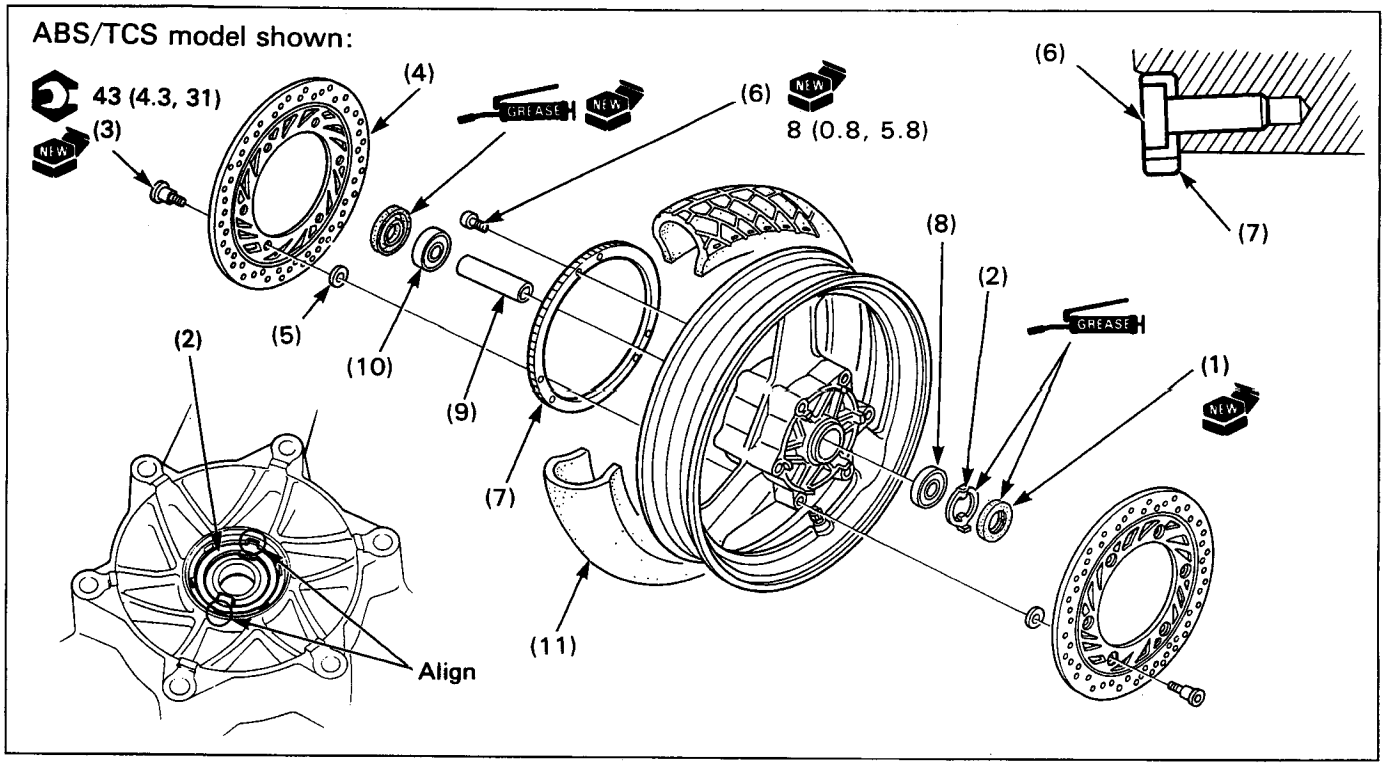
- Keep dust and dirt out of the gear case.
- Be careful not to damage the case and cover mating surfaces.
- Refer to section 15 of the Common Service Manual for the backlash inspection, the gear tooth contact pattern check and the ring gear-to-stop pin clearance check.
- If the gear set, pinion gear bearing, ring gear bearing gear case bearing and/or gear case are replaced, install a 1.50 mm pinion gear shim and a 2.00 mm ring gear shim.
- The ring gear and pinion gear must be replaced as a set.

Requisite Service

- Final gear case installation (page 12-3)

	Procedure		Q'ty	Remarks
	Disassembly Order			
(1)	Stop pin shim		1	Selection (page 12-10)
(2)	Ring gear stop pin		1	
(3)	Breather cap		1	Clean the breather hole and install.
(4)	Oil seal		1	Use the driver (07749—0010000) and attachment, 52 x 55 mm (07746—0010400).
(5)	Final case bearing		2	Use the driver (07749—0010000), attachment, 62 x 68 mm (07746—0010500) and pilot, 35 mm (07746—0040800).
(6)	Pinion gear shim		1	Selection (page 12-10)
(7)	Pinion bearing/outer race		1/2	Drive onto the pinion gear, useing the inner driver C (07746—0030100) and attachment, 25 mm ID (07746—0030200).
(8)	Pinion gear assembly		1	Drive into the gear case until enough threads are visible to engage the pinion retainer, using the bearing race insert attacchment (07931—4630300).
(9)	Oil seal		1	Install into the pinion retainer, using the driver (07749—0010000) and attachment, 52 x 55 mm (07746—0010400).
(10)	O-ring		1	Install onto the pinion retainer.
(11)	Pinion retainer		1	Installation (page 12-8).
(12)	Pinion retainer lock washer		1	NOTE • There are two types (A or B) of lock washers, as shown.
(13)	Bolt		1	
(14)	Pinion joint		1	
(15)	Pinion joint nut		1	Installation (page 12-8)
(16)	Ring gear shim		1	Selection (page 12-11)
(17)	Ring gear bearing		1	Installation (page 12-9)
(18)	O-ring		1	Install onto the O-ring guide.
(19)	O-ring guide		1	Drive in the ring gear, using the driver (07749—0010000) and attachment, 42 x 47 mm (07746—0010300).
(20)	Oil seal		1	
(21)	Ring gear		1	
(22)	Wave washer		1	
(23)	Gear case cover		1	Clean the mating surfaces of the case and cover throughly, and apply liquid sealant to them.
(24)	10 mm gear case cover bolt		2	
(25)	8 mm gear case cover bolt		6	
(26)	Dust guard plate		1	
(27)	Bolt	Standard model	1	
		ABS/TCS model	3	
(28)	Distance collar		1	Install with the polished side toward the final gear case.

Front Wheel Disassembly/Assembly



NOTE

- The left brake disc has "L" mark and the right brake disc has "R" mark. Install them on the correct sides.
- Always replace wheel bearings as a set.
- For wheel bearing replacement, refer to the section 1 of the Common Service Manual.

Requisite Service

- Front wheel removal/installation (page 13-4)

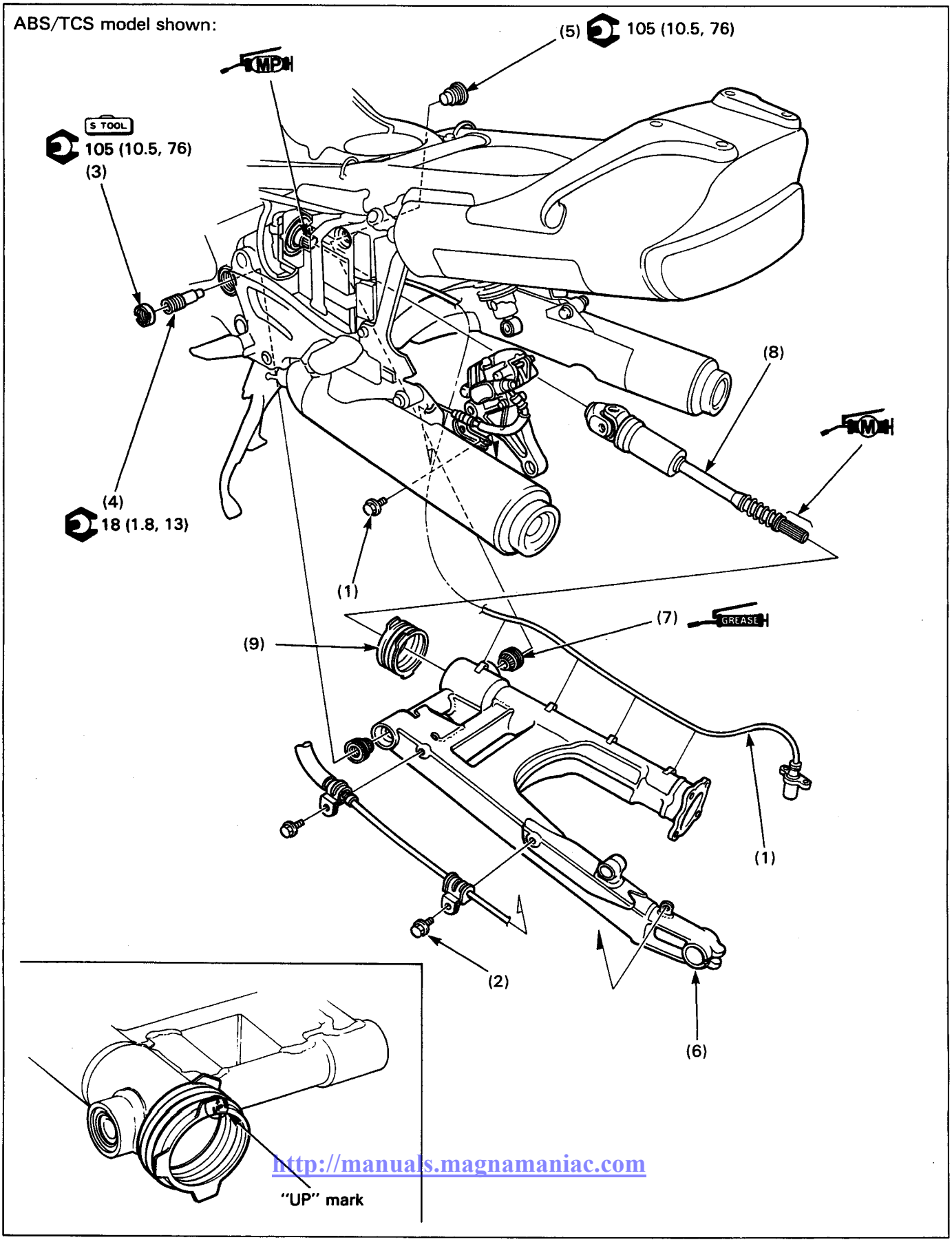
	Procedure	Q'ty	Remarks
	Disassembly Orer		Assembly is in the reverse order of disassembly.
(1)	Dust seal	2	
(2)	Speedomether gear retainer	1	At installaion, align the tabs with the slots in the wheel hub
(3)	Brake disc bolt	12	
(4)	Brake disc	2	Install the disc with the " L" mark on the left side, and the disc with the " R" mark on the right side.
(5)	Gasket	12	
(6)	Trox bolt (T25) (ABS/TCS model only)	6	
(7)	Pulser ring (ABS/TCS model only)	1	Install the pulser ring with the concave of bolt hole facing out. **CAUTION** • **Be careful not to deform, distort, or damage the pulser ring.**
(8)	Left wheel bearing (6004UU)	1	
(9)	Distance collar	1	
(10)	Right wheel bearisng (6004UU)	1	At installation, drive a new right bearing in the hub first, then drive a new left bearing in.
(11)	Front tire	1	

Requisite Service

- Fork installation (page 13-8)

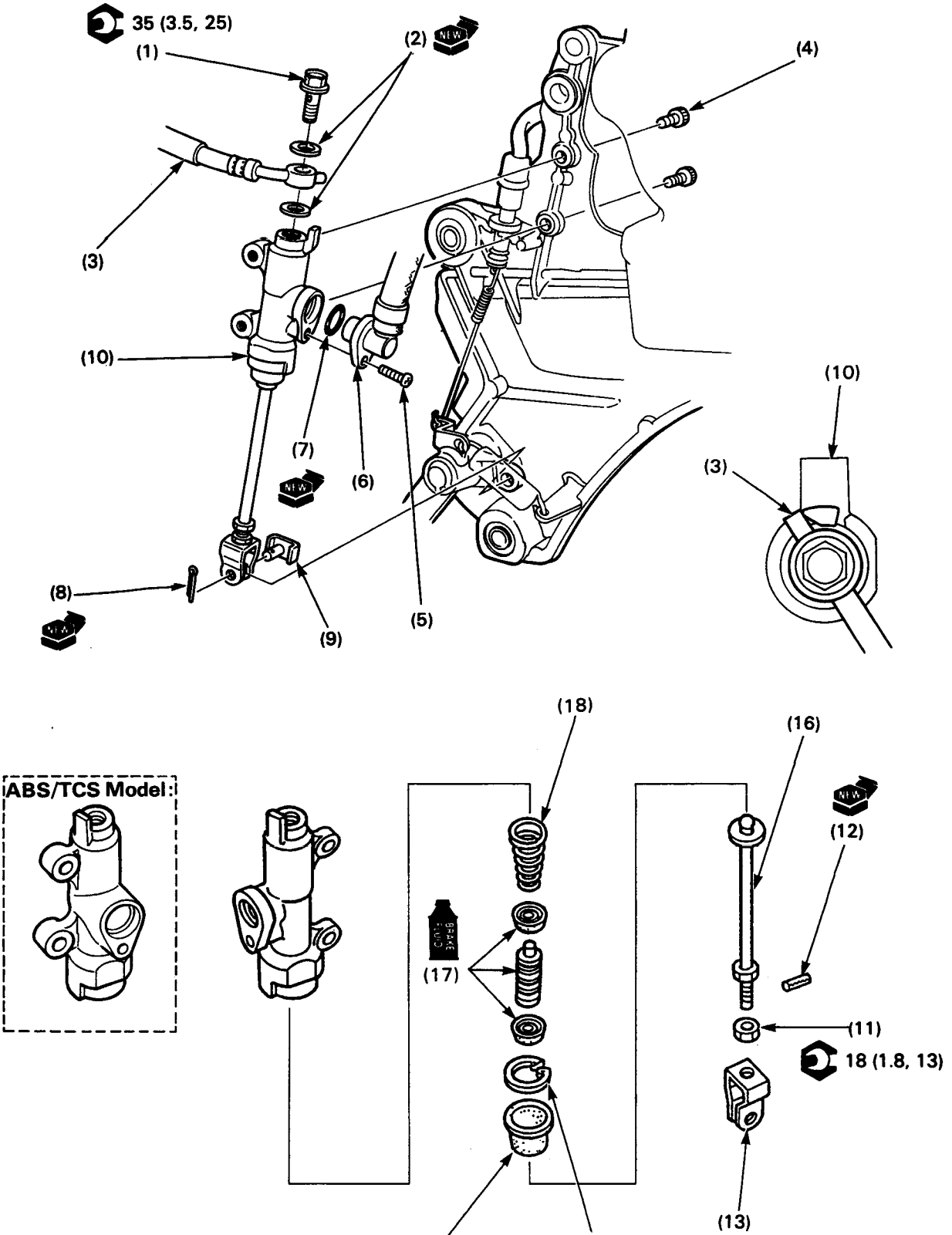
	Procedure	Q'ty	Remarks
	Assembly Order		
(1)	Fork tube bushing	1	
(2)	Fork tube	1	
(3)	Oil lock piece	1	Install onto the end of the fork damper.
(4)	Fork damper	1	
(5)	Socket bolt/washer	1/1	
(6)	Slider bushing	1	
(7)	Back-up ring	1	
(8)	Oil seal	1	NOTE • Wrap vinyl tape around the fork tube top end to avoid damaging the oil seal lip during installation. • Drive the slider bushing and oil seal into the slider using the fork seal driver (07947−KA50100) and attachment (07947−KF00100).
(9)	Stopper ring	1	**CAUTION** • **Be careful not to damage the fork tube sliding surface.**
(10)	Dust seal	1	Pour in the fork fluid to the specified level before installing the fork spring.
(11)	Fork spring	1	Wipe fluid off the spring thoroughly using a clean lint free cloth and install with the tightly wound coil end facing down.
(12)	Spring seat	1	
(13)	Spring collar	1	
(14)	Spring seat	1	
(15)	Spring seat stopper	1	Install the stopper between the spring seat and lock nut while compressing the fork spring as shown. NOTE • Before installing the stopper, measure the distance between the lock nut and the top of the damper rod. It should be at least 10.5 mm (0.41 in)
(16)	O-ring	1	
(17)	Fork cap bolt	1/1	Install the bolt onto the damper rod and tighten the lock nut as shown, then screw it into the fork tube, but do not tighten yet. **CAUTION** • **Be careful not to cross-thread the fork cap bolt.**
(18)	Fork pipe protector	1	Align the lug with the groove in the fork slider. NOTE • For easy installation, immerse in hot water (50−60°C/122−140°F).

Swingarm Removal/Installation



Rear Master Cylinder Disassembly/Assembly

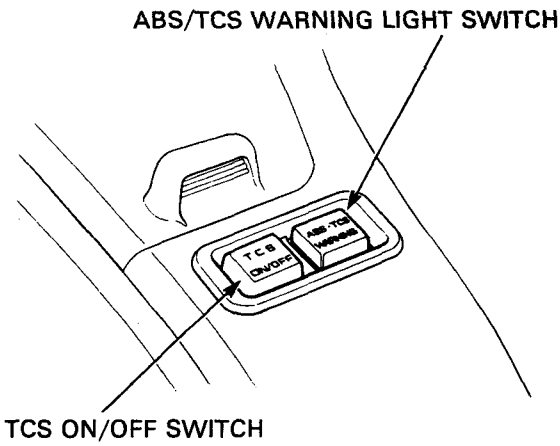
Standard model shown:



Retrieval of/clearing problem code

NOTE

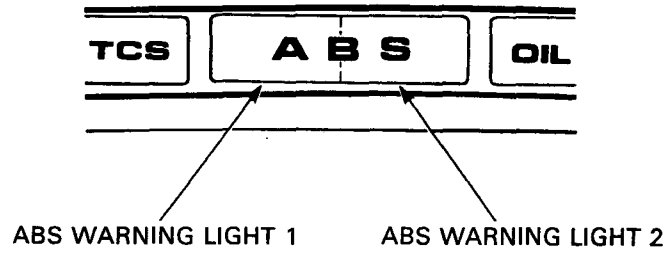
- The ABS warning light indicates the problem code by its number of blinks (see the next page).
- The problem code is not cleared when the ignition switch is turned OFF during output of the problem code. However, output cannot be restarted by turning the ignition switch ON. Restart the output following the problem code retrieval procedure.
- After retrieving the problem code, Be sure to record it in MEMO, etc. Clear the problem code after troubleshooting securely.



Retrieval:

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON while pressing the ABS/TCS warning light switch. The ABS warning light 1 and 2 should come ON.
3. Hold the ABS/TCS warning light switch pressed (for approximately 5 seconds). The ABS warning light 1 and 2 should go OFF.
4. Release the ABS/TCS warning light switch immediately (within 1 second) after the ABS warning light go OFF.

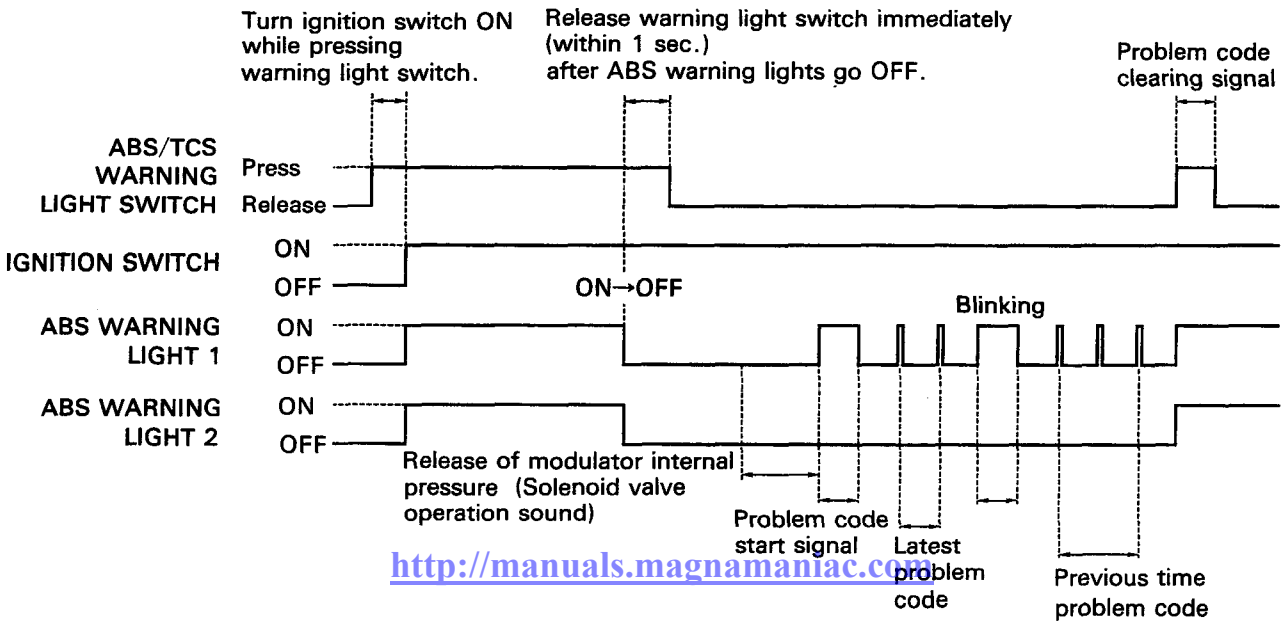
⇨ Output of the problem code starts and the ABS warning light 1 blinks. (The ABS warning light 2 is OFF this time.)



Clearing:

5. Press the ABS/TCS warning light switch during output of the problem code (while the ABS warning light is blinking).

⇨ The Problem code is cleared and the ABS warning light 1 and 2 comes ON and stay ON.



Problem code 2: Faulty rear hydraulic pressure circuit system

After starting the engine (before driving the motorcycle), check the ABS warning light.

Does the ABS warning light blink or stay on?

Light stays on.

- Nomal (Temporary problem: Fine foreign matters in the modulator or the ECU interfered with extremely powerful radio wave.)

Light stays blinks.

NOTE

- There are two types of the modulator pre-start self-diagnosis sound; one is the intermittent clattering sound of the solenoid valve operation sound, and the other is the continuous beep of the pump motor operation sound.

Restart the engine and check for the pre-start self-diagnosis sound (i.e. motor sound) from the front and rear modulators right after the engine start.

Is there the motor sound in the front and rear modulators?

Motor sound in both modulators.

(Go to page 16-19.)

No

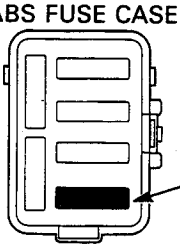
No motor sound in either modulator.

No motor sound in the rear modulator.

(Go to the following page.)

Turn the ignition switch OFF.

ABS FUSE CASE



PUMP MOTOR FUSE (20A)

Check the pump motor fuse in the ABS fuse case.

Is the fuse normal?

Burned out.

- Replace the fuse and recheck.

Normal

Disconnect the pump motor relay connectors ⑨ and ⑩.

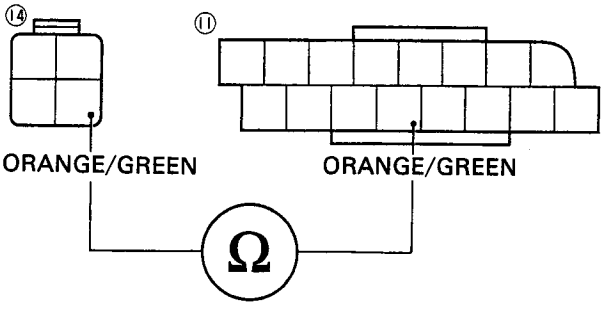
(To the following page)

(From the previous page)

Disconnect the solenoid valve connector ⑭ and BLACK connector ⑪ of the ECU.

Check for continuity between the main harness side terminal of the solenoid valve connector ⑭ and BLACK connector ⑪ terminal of the ECU.

View from terminal side



Is there continuity?

No continuity

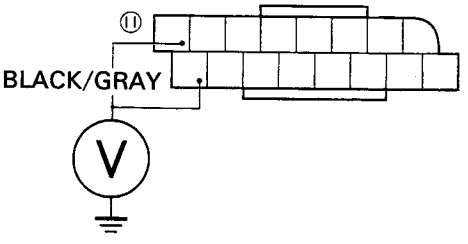
- Repair open in the ORANGE/GREEN harness between the modulator (solenoid valve) connector and ECU.

Continuity

Turn the ignition switch ON.

Check for voltage betwen the BLACK connector ⑪ terminals of the ECU and body ground respectively.

View from terminal side



Is there the battery voltage?

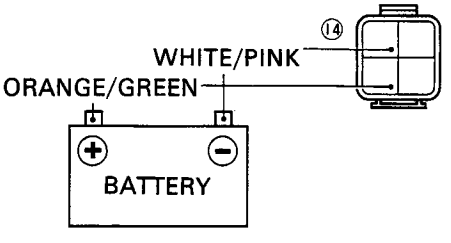
No battery voltage

- Repair open in the BLACK/GRAY or RED harness between the ECU and battery.

Battery voltage

Connect the valve side terminals of the solenoid valve connector ⑭ to the battery terminals.
ORANGE/GREEN: Positive (+)
WHITE/PINK: Negative(-)

View from terminal side



When connecting, is there the valve operation sound (i.e. clatting sound)?

No operation sound

- Repair open in the ORANGE/GREEN or WHITE/PINK harness of the valve solenoid.
- Faulty modulator

Operation sound

- Faulty ECU

CAUTION

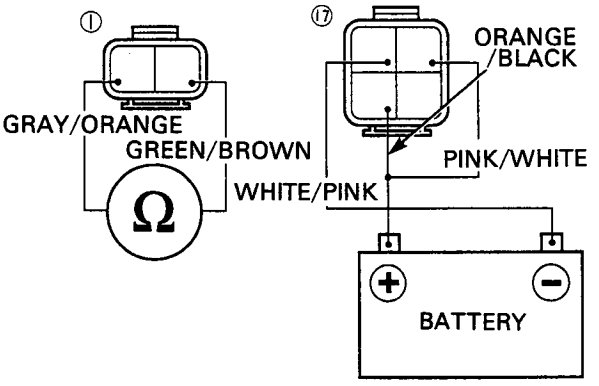
- **Connect to the battery terminals securely. Be sure not to connect to the battery terminals for more than 5 seconds continuously.**

(From the previous page)

Check for continuity between the switch side terminals of the limit switch connector ①.

Connect the valve side terminals of the solenoid valve connector ⑰ to the battery, and check for continuity between the switch side terminals of the limit switch connector ①.
- Connect the PINK/WHITE (IN side) harness to the battery first, then the ORANGE/BLACK (OUT side) harness immediately.

View from terminal side



CAUTION

- **Connect to the battery terminals securely. Be sure not to connect to the battery terminals for more than 5 seconds continuously.**

Does continuity stop within 1 second after connecting the ORANGE/BLACK harness?

Continuity stops.
- Faulty modulator

Continuity
- Faulty ECU

(From page 16-35: The ABS warning light 1 and 2 go off as the motorcycle starts to drive, then they blink.)

Retrieve the problem code.

Is the problem code "4"?

No problem code
- Check the harness and connector for secure connection (page 16-3).

Problem code "4"
- Faulty ECU

Trouble not represented by a problem code

— Abnormal sound from the modulator
(Gap of noise level is twice or more when noise level is compared between the front and rear modulators during the pre-start self-diagnosis.):

⚠ WARNING

- **Connect the pump motor terminal to the battery securely. Avoid loose terminal connection and do not allow the battery terminals to contact the frame and other parts.**
- **The modulator motor becomes very hot when it is turned ON repeatedly to check for the motor sound. Take care not to burn your hands, etc.**

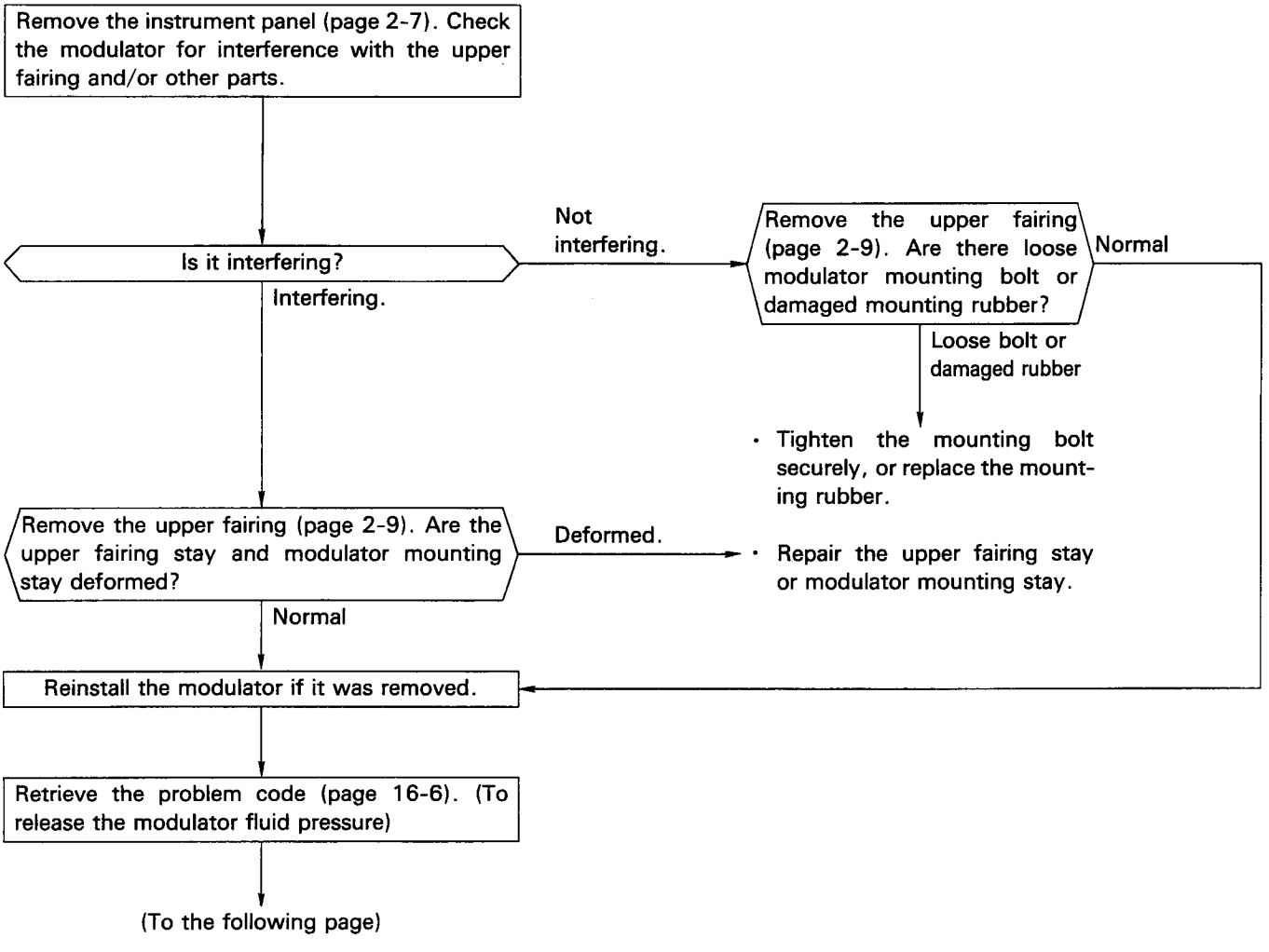
CAUTION

- **Do not turn the motor continuously for more than 30 seconds. If you have to turn the motor repeatedly to check for the sound, be sure to stop the motor within 30 seconds and wait at least one minute before starting it again. Otherwise, the motor can be damaged.**

NOTE

- There are two types of the modulator sounds; i.e. the solenoid valve sound and the pump motor sound.

Front modulator:



17. Charging System/Alternator

Service Information

⚠ WARNING

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

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

CAUTION

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

- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry place.
- For battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.

NOTE

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

CAUTION

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

- Battery can be damaged if overcharged or undercharged, or if left to discharge for long periods. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of battery deteriorates after 2—3 years.
- Battery voltage may recover after battery charging, but under heavy load, battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected to be the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharge symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight ON for long periods of time without riding the motorcycle.
- The battery will self-discharge when the motorcycle is not in use. For this reason, charge the battery every two weeks to prevent sulfation from forming.
- Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initial-charged.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 17-3).
- For battery testing/charging, refer to section 22 of the Common Service Manual.
- For charging system location, see page 17-2.

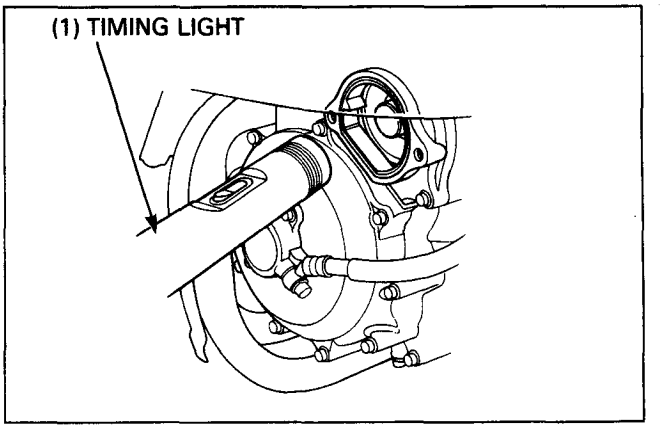
18. Ignition System

Service Information

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 18-4).
- The digital transistorized ignition system uses an electrically controlled ignition timing system. No adjustments can be made to the ignition timing.
- A rough diagnosis can be made by identifying the cylinder whose spark timing is incorrect.
- The spark unit may be damaged if dropped. Also, if the connector is disconnected when current is flowing, the excessive voltage may damage the unit. Always turn off the ignition switch before servicing.
- A faulty ignition system is often related to poorly connected connectors. Check those connections before proceeding.
- Make sure the battery is adequately charged. Using the starter motor with a weak battery results in a slower engine cranking speed as well as no spark at the spark plugs.
- Use spark plugs of the correct heat range. Using spark plugs with an incorrect heat range can damage the engine. Refer to section 2 of the Common Service Manual.
- For neutral switch inspection, refer to section 25 of the Common Service Manual; for switch location, see page 18-2 or 18-3 of this manual (System Location).
- For the ignition switch and engine stop switch inspection, check for continuity on the continuity chart of the Wiring Diagram (section 22). Refer to page 21-4 for side stand switch inspection.

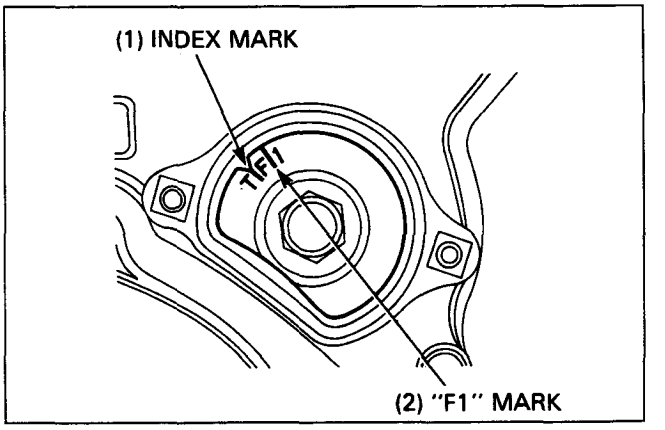
Ignition Timing

Remove the timing inspection hole cap on the timing belt cover.
Connect the timing light to the No. 1 cylinder spark plug wire.



The timing is correct if the "F1" mark on the drive pulley guide plate aligns with the index mark on the timing belt cover at idle.

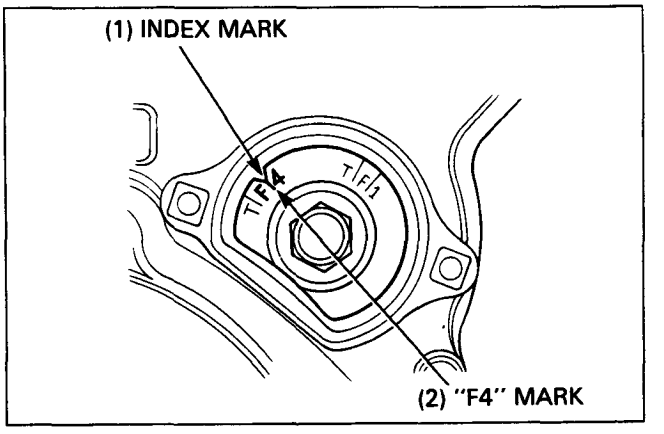
Idle speed: Except SW type: 1,000 ± 100 min^{-1} (rpm)
SW type: 1,200 ± 50 min^{-1} (rpm)



Connect the timing light to the No.4 cylinder spark plug wire.

The timing is correct if the "F4" mark on the drive pulley guide plate aligns with the index mark on the timing belt cover at idle.

If the ignition timing is incorrect, make a ignition system inspection (page 18-6) and replace any faulty parts.
After inspection, install the timing inspection hole cap.



Lights and indicators of the TCS (except TCS warning light) do not go off 2 seconds after the ignition switch is ON.

NOTE

- Light and indicators of the TCS must come on when the ignition switch is ON. The TCS activation light and TCS OFF indicator should go off approximately 2 seconds after the ignition switch is ON, while the TCS warning light should not go off unless the motorcycle starts to drive.

Turn the ignition switch OFF.

↓

Disconnect the 16P connector ⑦ and 4P connector ⑧ of the ECU.

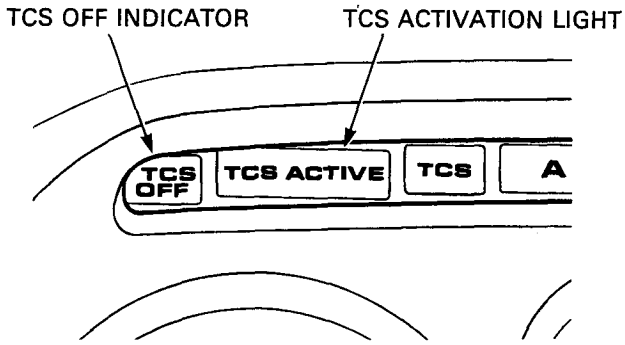
↓

Turn the ignition switch ON and check the TCS activation light and TCS OFF indicator.

↓

Do the lights come on or go off?

- Lights come on → • Repair short in the YELLOW/GRAY harness (TCS activation light) or WHITE/ORANGE harness (TCS OFF indicator) between the ECU and meter.
- Lights go off. → • Faulty ECU



20. Electric Starter

Service Information

⚠ WARNING

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

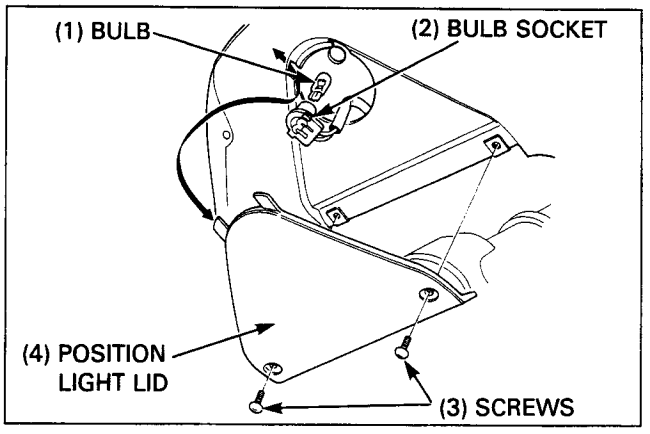
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor to turn it while the enigne is not cranking over, the starter motor may be damaged.
- For the following component inspections, refer to the following pages; for the parts locations, see page 20-2 of this manual (System Locaion).

Clutch switch diode	Section 24 of the Common Service Manual.
Starter motor	Section 24 of the Common Service Manual.
Clutch switch	Section 25 of the Common Service Manual.
Neutral switch	Section 25 of the Common Service Manual.
Ignition switch	Check for continuity on the continuity chart of the Wiring Diagram, section 22.
Side stand switch	See page 21-4.

Position Light

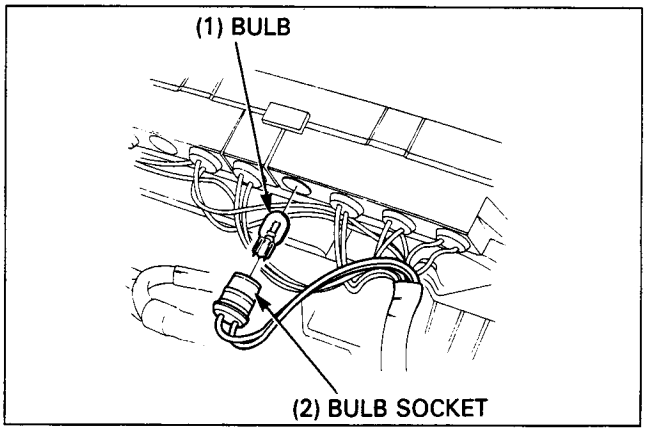
Bulb Replacement

Remove the screws and position light lid.
Remove the bulb socket and bulb.
Install a new bulb and install the removed parts in the reverse order of removal.



Indicator Bulb Replacement

Remove the instrument panel (page 2-7).
Remove the bulb socket and bulb.
Install a new bulb and install the removed parts in the reverse order of removal.



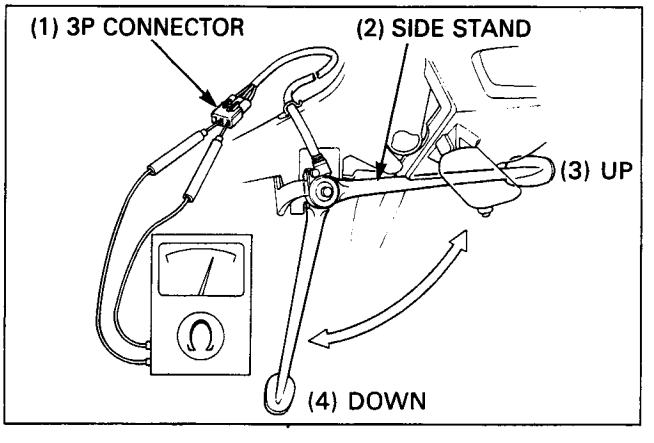
Side Stand Switch

Inspection

Remove the left side cover (page 2-2).
Disconnect the side stand 3P connector (green) and check for continuity between each terminal as shown below.
There should be continuity between the ○—○ position on the continuity chart.

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

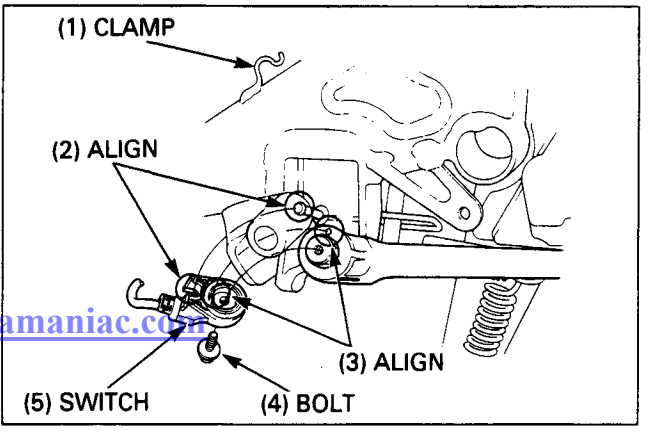
Replace the side stand switch if the measurement is out of standard.



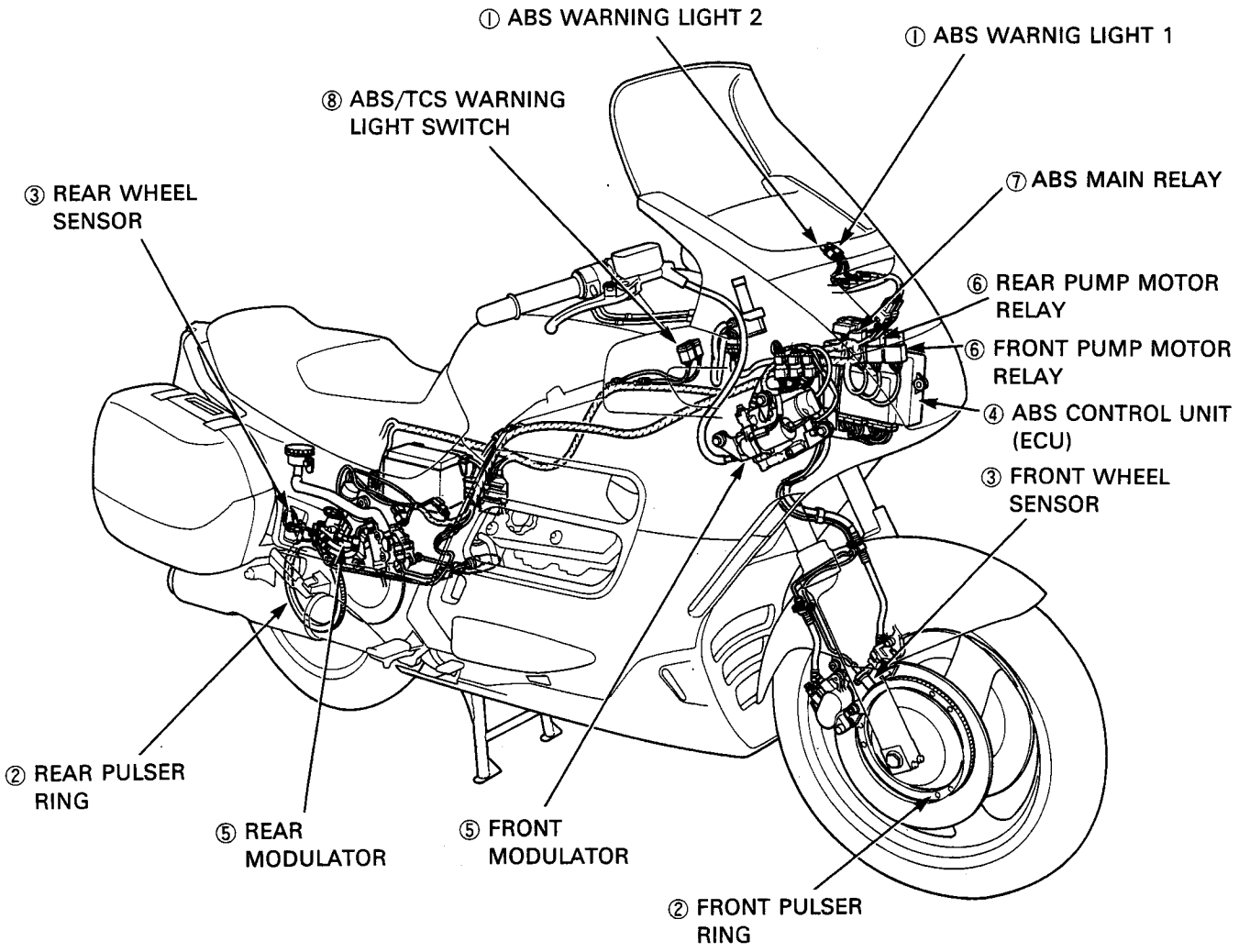
Replacement

Remove the pivot cover (page 2-5).
Diconnect the 3P connector (green) and release the wire from the clamp.
Remove the bolt and side stand switch.
Install the side stand switch aligning the stopper pin on the frame with the cut out of the switch and the pin on the switch with the hole in the side stand.
Secure the side stand switch with the bolt.

Torque: 10 N·m (1.0 kg-m, 7 ft-lb)
Install removed parts in the reverse order of removal.



The braking effectiveness and balance of the motorcycle are significantly affected by the way how the front and rear brakes are applied. This ABS system is characterized by the high deceleration and follow-up performance thanks to its quick response to any road surface conditions. It is characterized by its compact size, too, which was achieved by collective arrangement of the hydraulic control parts in the modulator.



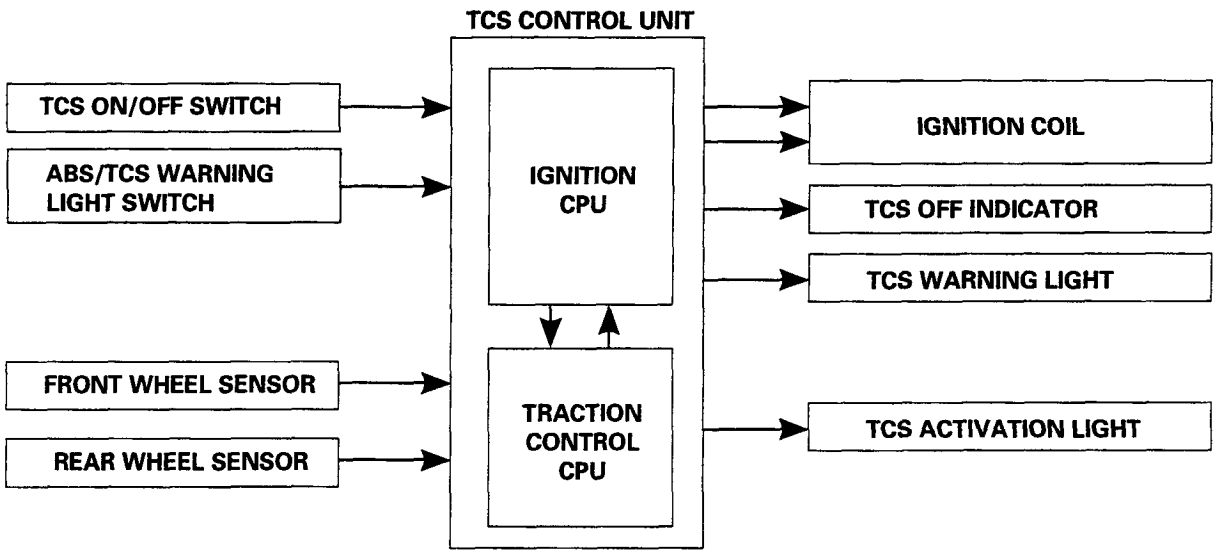
① ABS warning lights
Blinks or stays ON when a problem occurred in the ABS.
② Pulser ring
Rotates together with the wheel and detects the wheel speed using the wheel sensor.
③ Wheel sensor
Input the pulse signal, generated proportional to the rotating speed of the pulser ring, in the control unit.
④ ABS control unit (ECU)
Controls ABS by computing the input signal of each sensor and switch.
⑤ Modulator
Adjusts the caliper fluid pressure.
⑥ Pump motor relay
Controls the modulator motor power source by receiving the signal from the control unit (ECU).
⑦ ABS main relay
When the control unit detects abnormality, power to the solenoid valve is shut off by the ABS main relay as it receives the signal from the control unit.
⑧ ABS/TCS warning light switch
A common switch for the ABS and TCS. When the ABS warning light 1 and 2 blink, the ABS warning light 1 can be dimmed and the warning light 2 can be turned OFF not to blind the rider when riding, for example, at night. The ABS/TCS warning light switch is used to output the problem code, too.

System construction

TCS control unit (ECU):

The TCS control unit detects the front and rear wheel speed receiving the signal from the wheel sensors. When the rear wheel speed exceeds a given ratio of the front/rear wheel speed, the control unit judges that the rear wheel (driving wheel) is idling and it activates the TCS.
The control unit body is the ECU that is integrated with the spark unit. As the ignition CPU and the traction control CPU communicate with each other and the igntion CPU monitors the traction control CPU, the engine will operate with the ordinary ignition system even if the TCS becomes inoperative due to a problem in the system.
When the TCS is inoperative,TCS warning light and TCS OFF indicator turn ON.

The TCS control unit constantly monitors the input signal and inside the control unit itself,and it stops the TCS when it detects a problem with the system.
Simultaneously, the TCS control unit turns ON or blinks the TCS warning light notifying the rider of the problem with the system,and it turns the TCS OFF indicator ON to notify the rider of the inoperative state of the TCS.



25. ST1100/ST1100A (S) Addendum

Introduction

This addendum contains information for the ST1100/ST1100A (S). Refer to ST1100/ST1100A Shop Manual (No. 62MY300) for service procedures and data not included in this addendum.

HONDA MOTOR CO.,LTD.
SERVICE PUBLICATIONS OFFICE

Contents

Unit: mm (in)

Wheels/Tires

Item		Standard	Service Limit
Minimum tire tread depth	(FR)	—	1.5 (0.06)
	(RR)	—	2.0 (0.08)
Cold tire pressure	Driver only (FR)	250 kPa (2.50 kg/cm², 36 psi)	—
	Drive only (RR)	290 kPa (2.90 kg/cm², 42 psi)	—
	Driver and passenger (FR)	250 kPa (2.50 kg/cm², 36 psi)	—
	Driver and passenger (RR)	290 kPa (2.90 kg/cm², 42 psi)	—
Front and rear axle runout		—	0.2 (0.01)
Front and rear wheel rim runout	(Radial)	—	2.0 (0.08)
	(Axial)	—	2.0 (0.08)
Front wheel hub-to-rim distance		—	—
Front wheel hub standard surface		—	—
Rear wheel hub-to-rim distance		—	—
Rear wheel hub standard surface		—	—
Wheel balance weight (Front)		—	60 g (2.1 oz) max.
	(Rear)	—	60 g (2.1 oz) max.
Drive chain slack		—	—
Drive chain size link	(DID)	—	—
	(RK)	—	—
Wheel sensor air gap	(Front)	0.4—1.2 (0.016—0.047)	—
	(Rear)	0.7—1.2 (0.028—0.047)	—

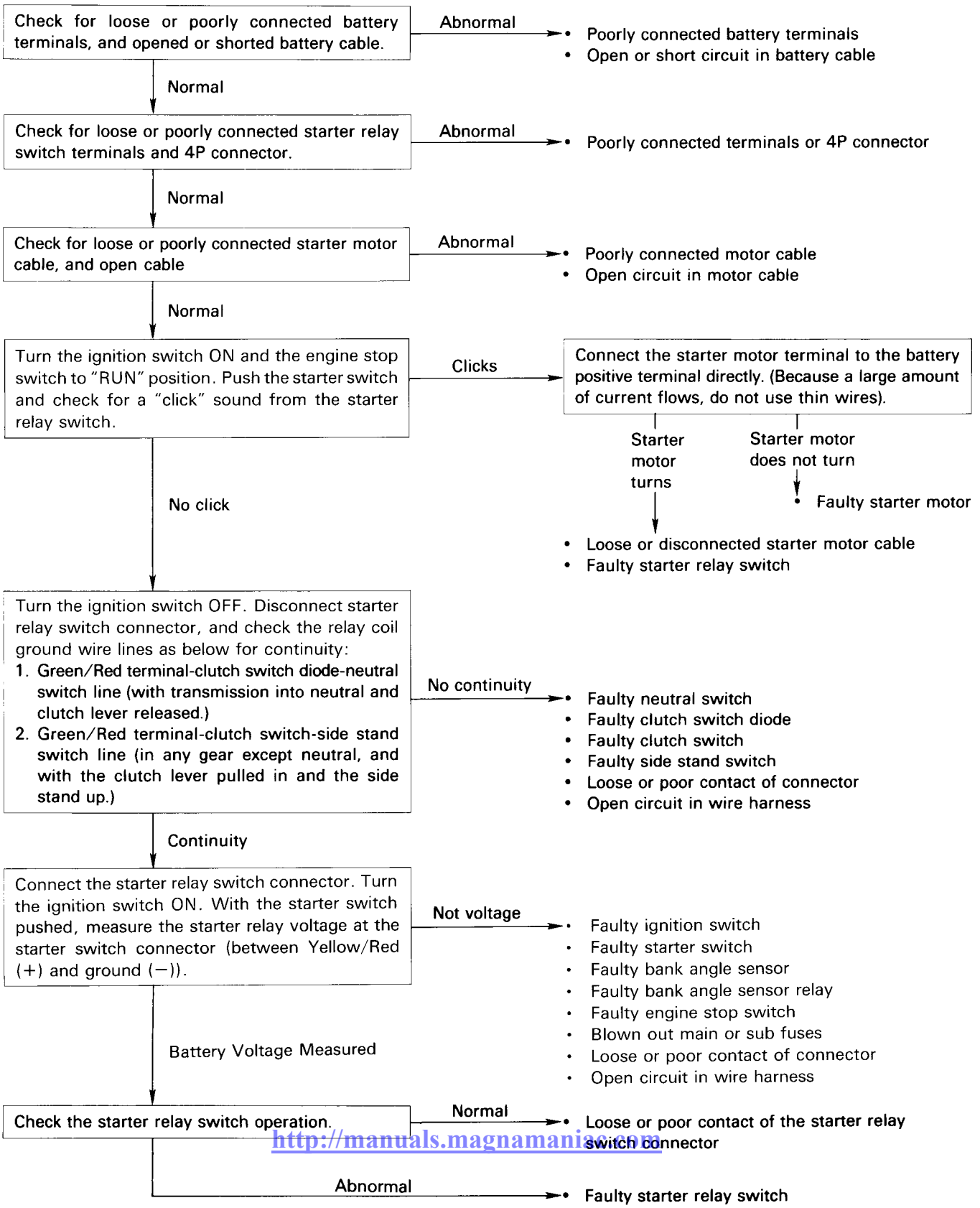
Front Suspension

Front spring free length	Standard model	415.6 (16.36)	407.3 (16.04)
	ABS/TCS model	474.2 (18.67)	464.7 (18.30)
Fork spring free length	A	—	—
	B	—	—
Fork spring direction		Tightly wound coil end facing down	—
Fork tube runout		—	0.20 (0.008)
Recommended fork oil		Fork fluid	—
Fork oil level		—	—
Fork oil level (R)	Standard model	190 (7.5)	—
	ABS/TCS model	177 (7.0)	—
(L)	Standard model	187 (7.4)	—
	ABS/TCS model	174 (6.9)	—
Fork oil capacity		—	—
Fork oil capacity (R)	Standard model	385.0±2.5 cm³ (13.02±0.08 US oz, 13.51±0.09 Imp oz)	—
	ABS/TCS model	372.0±2.5 cm³ (12.58±0.08 US oz, 13.05±0.09 Imp oz)	—
(L)	Stanard model	435.0±2.5 cm³ (14.71±0.08 US oz, 15.27±0.09 Imp oz)	—
	ABS/TCS model	418.0 ±2.5 cm³ (14.14±0.08 US oz, 14.67±0.09 Imp oz)	—
Fork air pressure		—	—
Steering bearing preload		1.5—2.0 kg (3.3—4.4 lb)	—

Electric Starter Troubleshooting

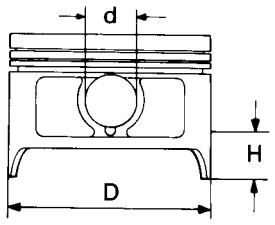
Starter motor will not turn

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

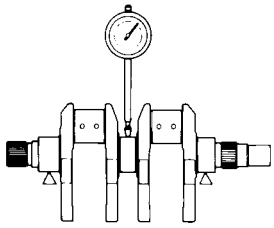


Unit: mm (in)

Cylinder/Piston

Item	Standard	Service Limit
Cylinder I.D.	73.000—73.015 (2.8740—2.8746)	73.10 (2.878)
Cylinder out of round	—	0.10 (0.004)
Cylinder taper	—	0.10 (0.004)
Cylinder warpage	—	0.10 (0.004)
Piston mark direction	"IN" mark facing toward the intake side	—
Piston O.D. (D)	72.970—72.990 (2.8728—2.8736)	72.850 (2.8681)
Piston O.D. measurement point (H)	19 (0.75)	—
Piston pin hole I.D. (d)	18.002—18.008 (0.7087—0.7090)	18.020 (0.7094)
		
Cylinder-to-piston clearance	0.010—0.045 (0.0004—0.0018)	—
Piston pin O.D.	17.994—18.000 (0.7084—0.7087)	17.98 (0.708)
Piston-to-piston pin clearance	0.002—0.014 (0.0001—0.0006)	—
Connecting rod-to-piston pin clearance	0.016—0.040 (0.0006—0.0016)	—
Top ring-to-ring groove clearance	0.025—0.060 (0.0010—0.0024)	0.10 (0.004)
Second ring-to-ring groove clearance	0.015—0.050 (0.0006—0.0020)	0.10 (0.004)
Top ring end gap	0.15—0.30 (0.006—0.012)	0.5 (0.02)
Second ring end gap	0.30—0.45 (0.012—0.018)	0.7 (0.03)
Oil ring (side rail) end gap	0.20—0.70 (0.008—0.028)	1.0 (0.04)
Top ring mark	"R" mark facing up	—
Second ring mark	"RN" mark facing up	—

Crankshaft

Connecting rod small end I.D.	18.016—18.034 (0.7093—0.7100)	18.050 (0.7106)
Connecting rod big end side clearance	0.10—0.30 (0.004—0.012)	0.40 (0.016)
radial clearance	—	—
Crankshaft runout	—	0.05 (0.002)
		
Crankpin oil clearance	0.030—0.052 (0.0012—0.0020)	0.080 (0.0031)
Crankpin bearing selection	See page 11-6	—
Main journal oil clearance	0.026—0.048 (0.0010—0.0019)	0.065 (0.0026)
Main journal bearing selection	See page 11-6	—

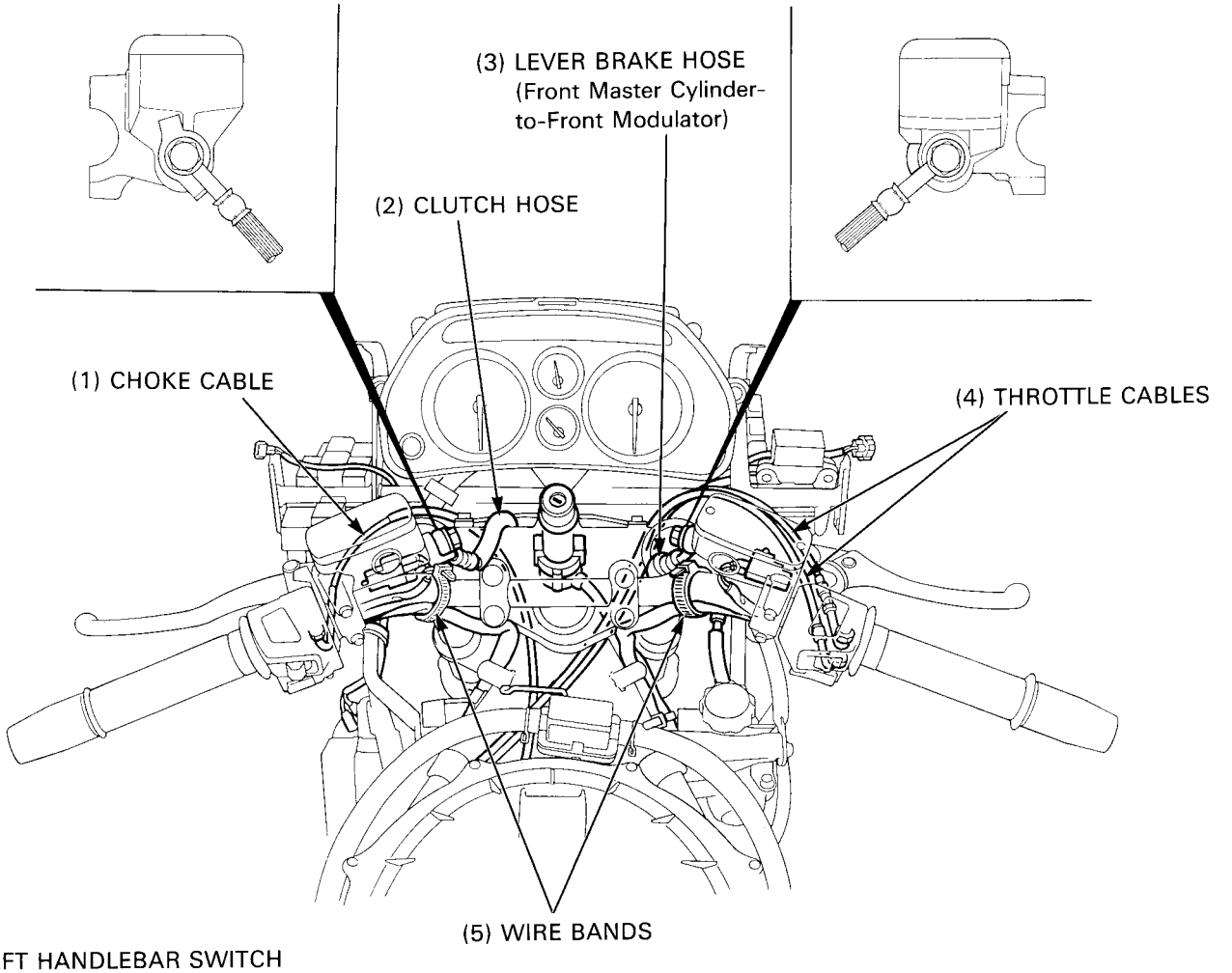
Kickstarter

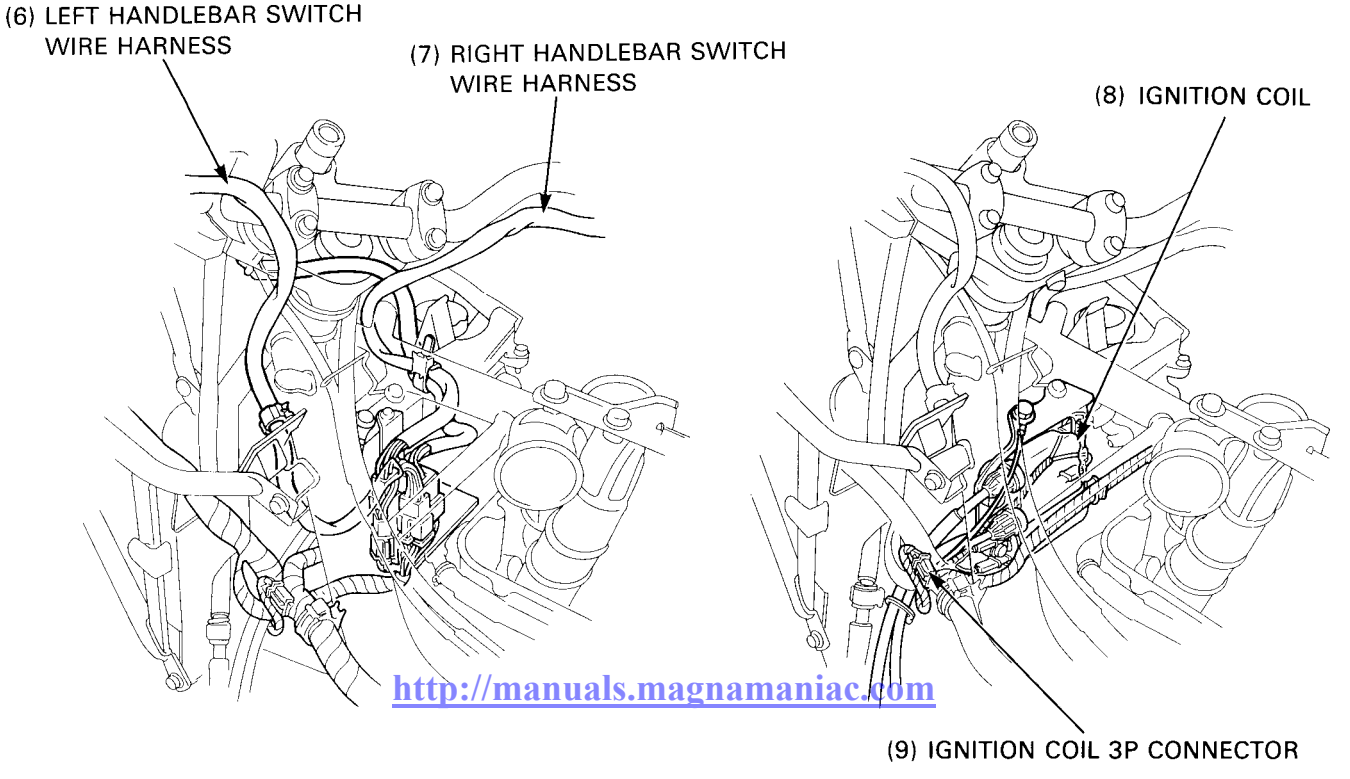
Kickstarter pinion gear I.D.	—	—
Kickstarter spindle O.D.	—	—
Kickstarter idle gear I.D.	—	—
Countershaft O.D. at kickstarter idle gear	—	—
Kickstarter idle gear bushing O.D.	—	—
I.D.	—	—

Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Rear suspension:				
Shock absorber upper mounting bolt	1	10	65 (6.5, 43)	Note 2
Shock absorber lower mounting bolt	1	8	23 (2.3, 17)	
Swingarm right pivot bolt	1	30	105 (10.5, 76)	
Swingarm left pivot bolt Standard model	1	30	18 (1.8, 13)	
CBS-ABS/TCS model	1	30	22 (2.2, 16)	
Swingarm left pivot bolt lock nut	1	30	105 (10.5, 76)	
Rear axle nut	1	18	110 (11.0, 80)	
Rear axle pinch bolt	1	8	27 (2.7, 20)	
Rear wheel damper plate bolt	5	6	20 (2.0, 14)	
Rear pulser ring bolt (CBS-ABS/TCS model)	6	5	8 (0.8, 5.8)	
Brake/clutch system:				
Front wheel speed sensor bracket bolt (CBS-ABS/TCS model)	1	6	12 (1.2, 9)	
Pad pin plug	3	10	2.5 (0.25, 1.8)	
Pad pin	3	10	18 (1.8, 13)	
Caliper assembly bolt (CBS-ABS/TCS model)	9	8	33 (3.3, 24)	
Front caliper pin bolt (caliper side)	2	8	23 (2.3, 17)	Note 1
(bracket side)	2	8	13 (1.3, 9)	Note 1
Rear caliper pin bolt (caliper side) Standard model	1	12	28 (2.8, 20)	Note 1
CBS-ABS/TCS model	1	12	28 (2.8, 20)	
(bracket side) Standard model	1	8	13 (1.3, 9)	Note 1
CBS-ABS/TCS model	1	8	23 (2.3, 17)	Note 1
Caliper bleed valve Standard model	3	—	5.5 (0.55, 4.0)	
CBS-ABS/TCS model	6	—	5.5 (0.55, 4.0)	
Right front caliper mounting bolt (Standard model)	2	8	27 (2.7, 20)	
Left front caliper pivot bolt (Standard model); upper	1	8	27 (2.7, 20)	
lower	1	6	12 (1.2, 9)	
Right front caliper pivot bolt (CBS-ABS/TCS model); upper	1	8	30 (3.0, 22)	
lower	1	6	12 (1.2, 9)	
Left front caliper pivot bolt (CBS-ABS/TCS model)	2	8	30 (3.0, 22)	
Rear caliper stopper pin bolt	1	18	70 (7.0, 51)	
Brake disc bolt	18	8	43 (4.3, 31)	
Rear master cylinder push rod lock nut	1	8	18 (1.8, 13)	
Secondary master cylinder mounting bolt (CBS-ABS/TCS model)	2	6	12 (1.2, 9)	
Secondary master cylinder push rod lock nuts (CBS-ABS/TCS model)	2	8	18 (1.8, 13)	Note 1
Secondary master cylinder link plate bolt (CBS-ABS/TCS model)	2	8	30 (3.0, 22)	
Delay valve mounting bolt (CBS-ABS/TCS model)	2	6	12 (1.2, 9)	
Brake lever adjuster rod bolt	1	5	4 (0.4, 29)	Note 1
Master cylinder holder bolt	4	6	12 (1.2, 9)	
Master cylinder reservoir cap screw	4	4	1.5 (0.15, 1.1)	
Clutch lever pivot nut	1	6	6 (0.6, 4.3)	
Clutch lever pivot bolt	1	6	1 (0.1, 0.7)	
Clutch switch mounting screw	1	4	1.2 (0.12, 0.9)	
Brake lever pivot nut	1	6	6 (0.6, 4.3)	
Front brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Front brake switch mounting screw	1	4	1.2 (0.12, 0.9)	
Brake hose oil bolt Standard model	5	10	35 (3.5, 25)	
CBS-ABS/TCS model	18	10	35 (3.5, 25)	
Clutch hose oil bolt	2	10	35 (3.5, 25)	
Brake pipe joint nut (CBS-ABS/TCS model)	14	—	17 (1.7, 12)	
Brake hose clamp screw (at fork tube; Standard model)	1	5	4.3 (0.43, 3.1)	

CBS-ABS/TCS Model

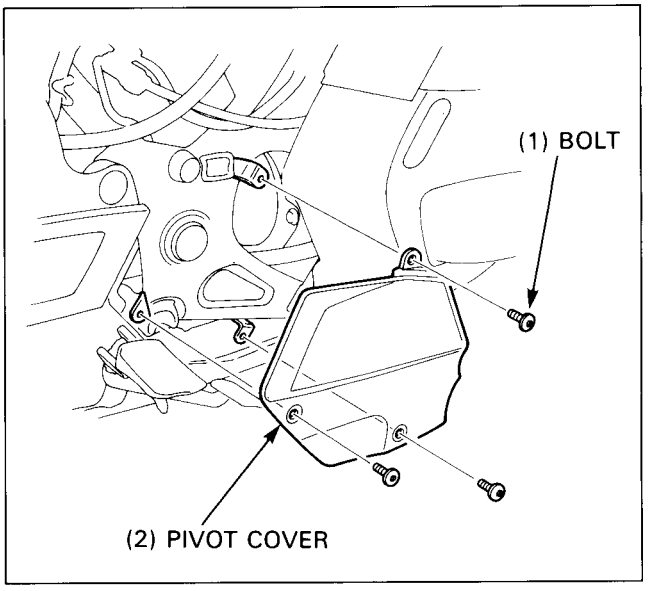




Pivot Cover

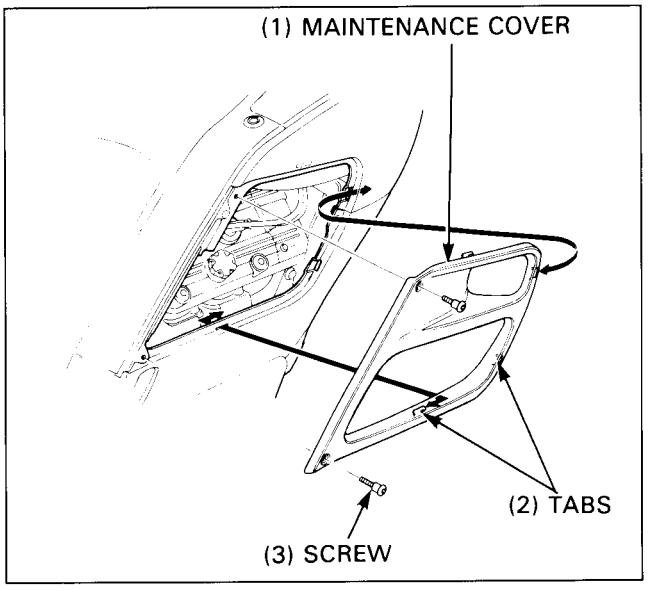
Remove the side cover (page 26–33).

Remove the three bolts and the pivot cover.



Maintenance Cover

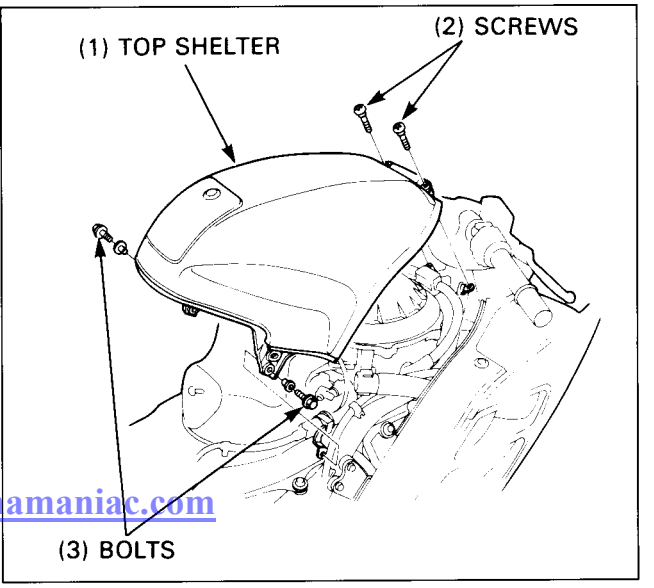
Remove the two screws.
Release the four tabs by sliding the maintenance cover rearward and remove the cover.



Top Shelter

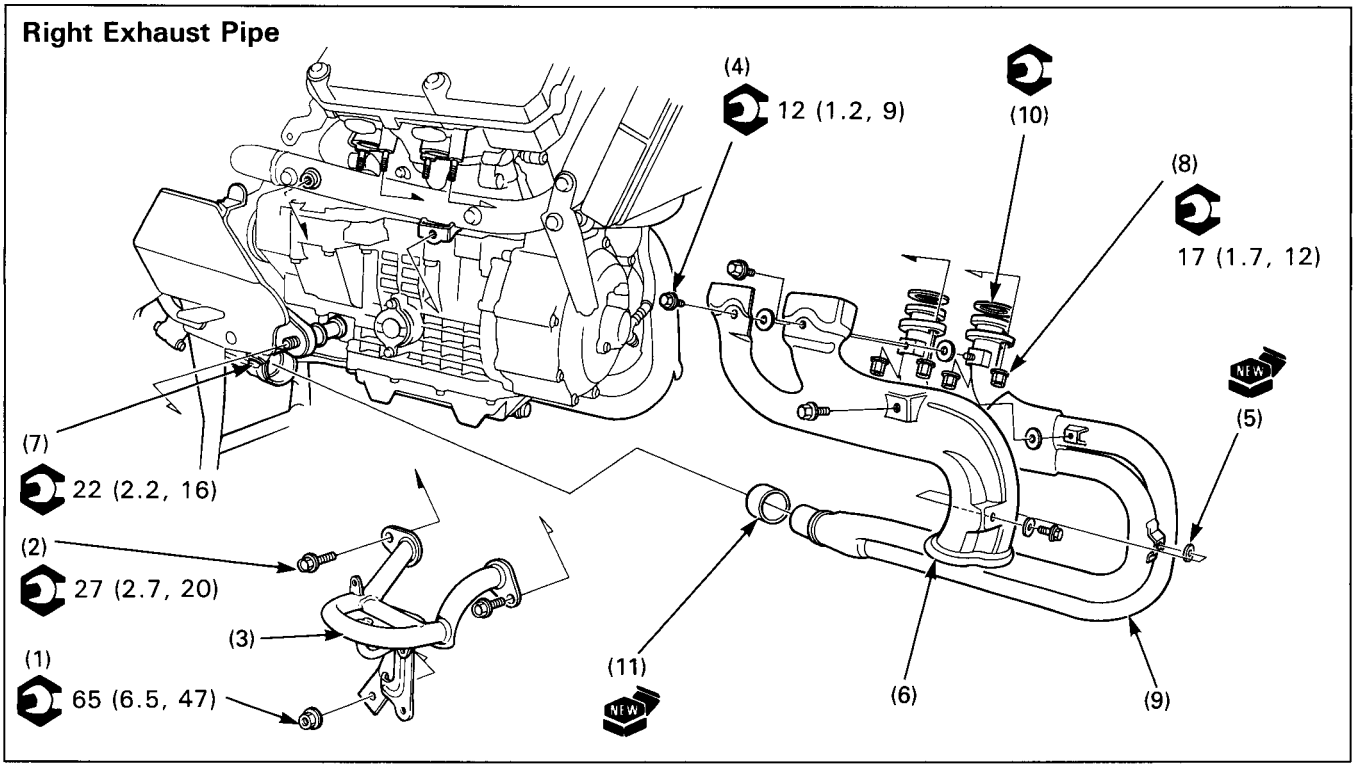
Remove the left and right side covers (page 26–33).

Remove the two screws, bolts and the top shelter.



Exhaust Pipe

Right Exhaust Pipe



⚠ WARNING

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

Requisite Service

- Right middle fairing removal/installation (page 26–39)
- CBS-ABS/TCS Model :
  Radiator reserve tank removal/installation(page 6–7)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Lower engine mounting nut	1	
(2)	Bolt	2	
(3)	Right engine guard	1	
(4)	Bolt	4	
(5)	Protector gasket	5	
(6)	Right exhaust pipe protector	1	
(7)	Exhaust pipe band	1	Loosen the band bolt.
(8)	Exhaust pipe joint nut	4	
(9)	Right exhaust pipe	1	
(10)	Exhaust pipe gasket	2	
(11)	Exhaust chamber gasket	1	

Engine Mounting Bolt Tightening Procedure

Loosely install all engine mounting bolts, nut, sub frame bolts, nuts, and engine mounting brackets.

Tighten the sub frame bolts in the sequence below.

①— ② — ③ —④ — ⑤

Torque: 40 N·m (4.0 kg–m, 29 ft–lb)

Tighten the 10 mm engine mounting bolts ⑥ and ⑦.

Torque: 55 N·m (5.5 kg–m, 40 ft–lb)

Lengthen the upper adjusting collar on the 10 mm engine mounting bolt ⑧ until the collar contacts with the engine and frame by turning the adjusting nut of the collar.
Lengthen the lower adjusting collar on the 12 mm engine mounting bolt ⑩ until the collar contacts with the engine and frame by turning the adjusting nut of the collar.

Tighten the adjusting nut of the lower adjusting collar.

Torque: 10 N·m (1.0 kg–m, 7 ft–lb)

Tighten the 10 mm engine mounting ⑧ and ⑨.

Torque: 55 N·m (5.5 kg–m, 40 ft–lb)

Tighten the 12 mm engine mounting bolt ⑩ and nut ⑪.

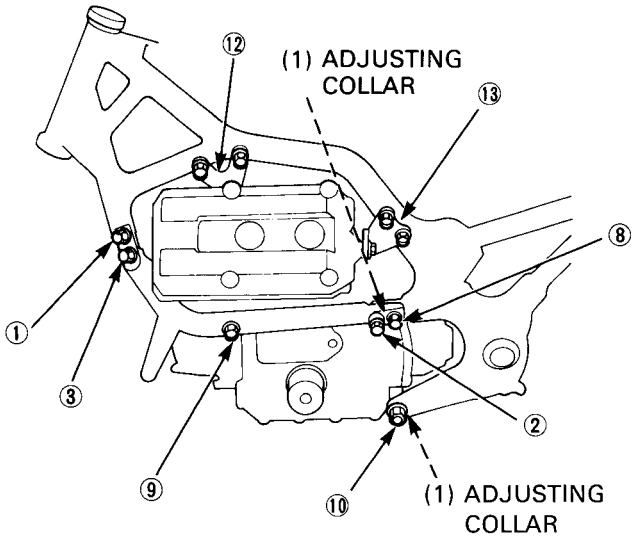
Torque: 65 N·m (6.5 kg–m, 47 ft–lb)

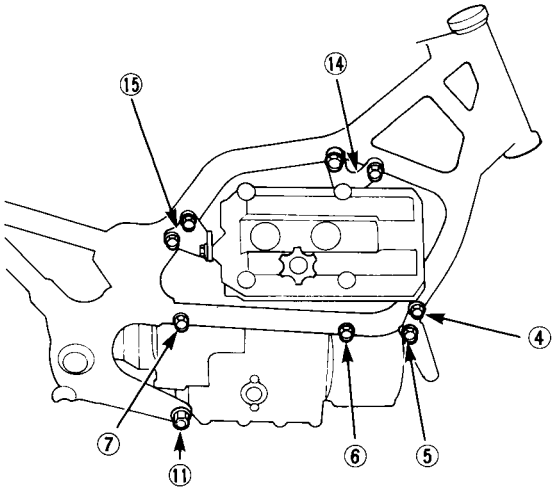
Tighten the upper and lower adjusting collar lock nuts.

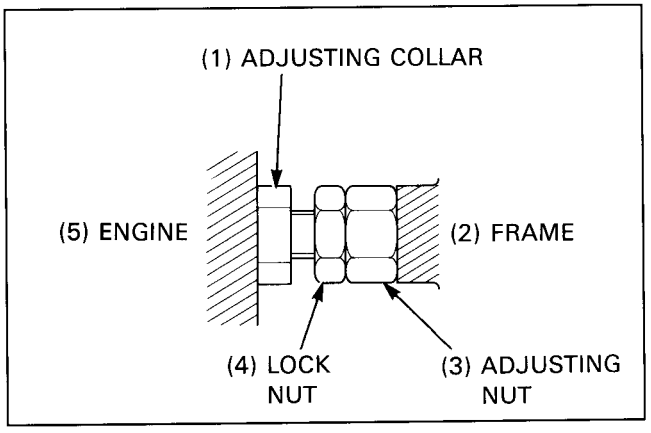
Torque: 28 N·m (2.8 kg–m, 20 ft–lb)

Tighten the engine mounting brackets ⑫, ⑬, ⑭ and ⑮.

Torque: 10 mm bolt: 40 N·m (4.0 kg–m, 29 ft–lb)
8 mm bolt: 27 N·m (2.7 kg–m, 20 ft–lb)

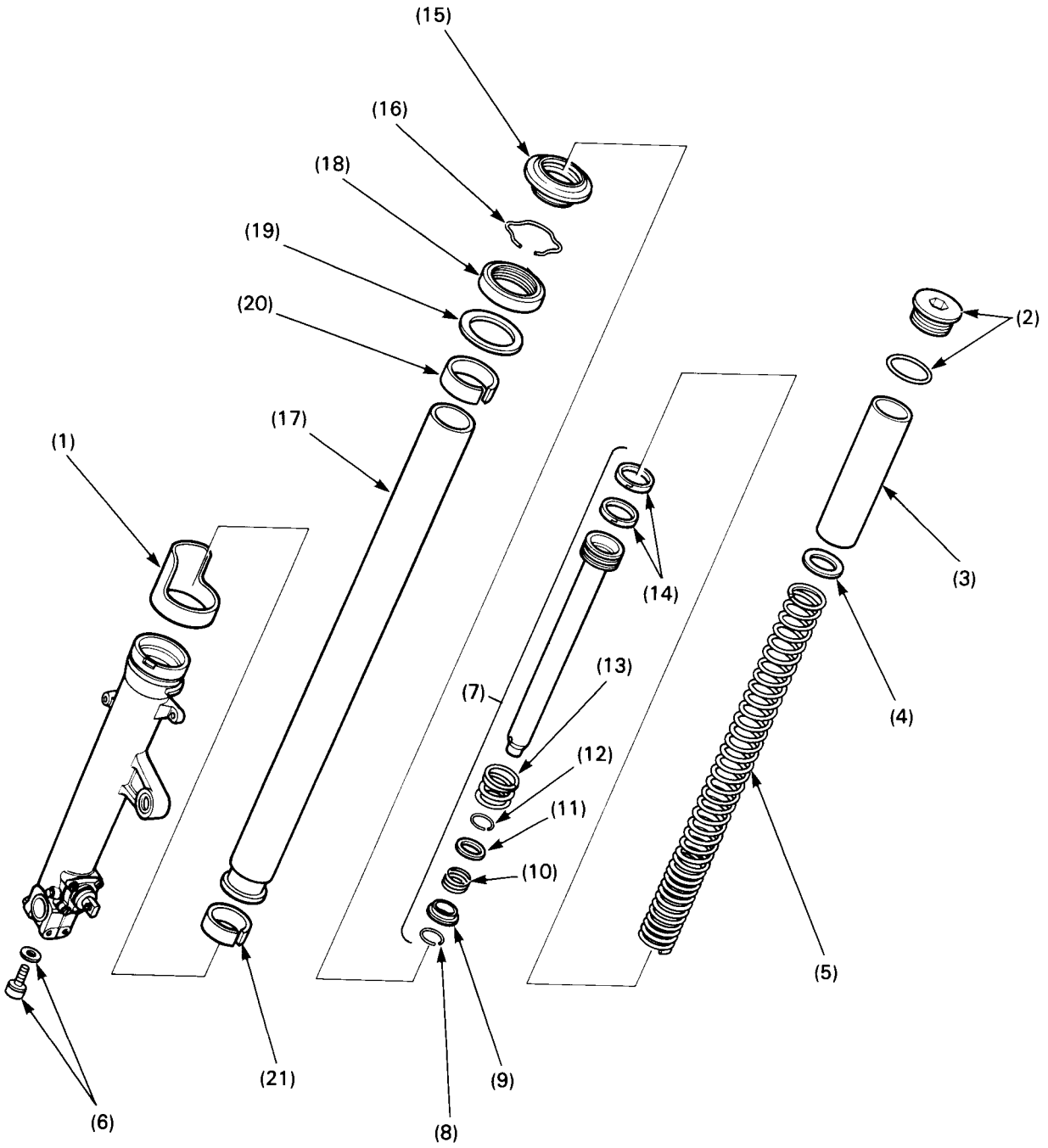




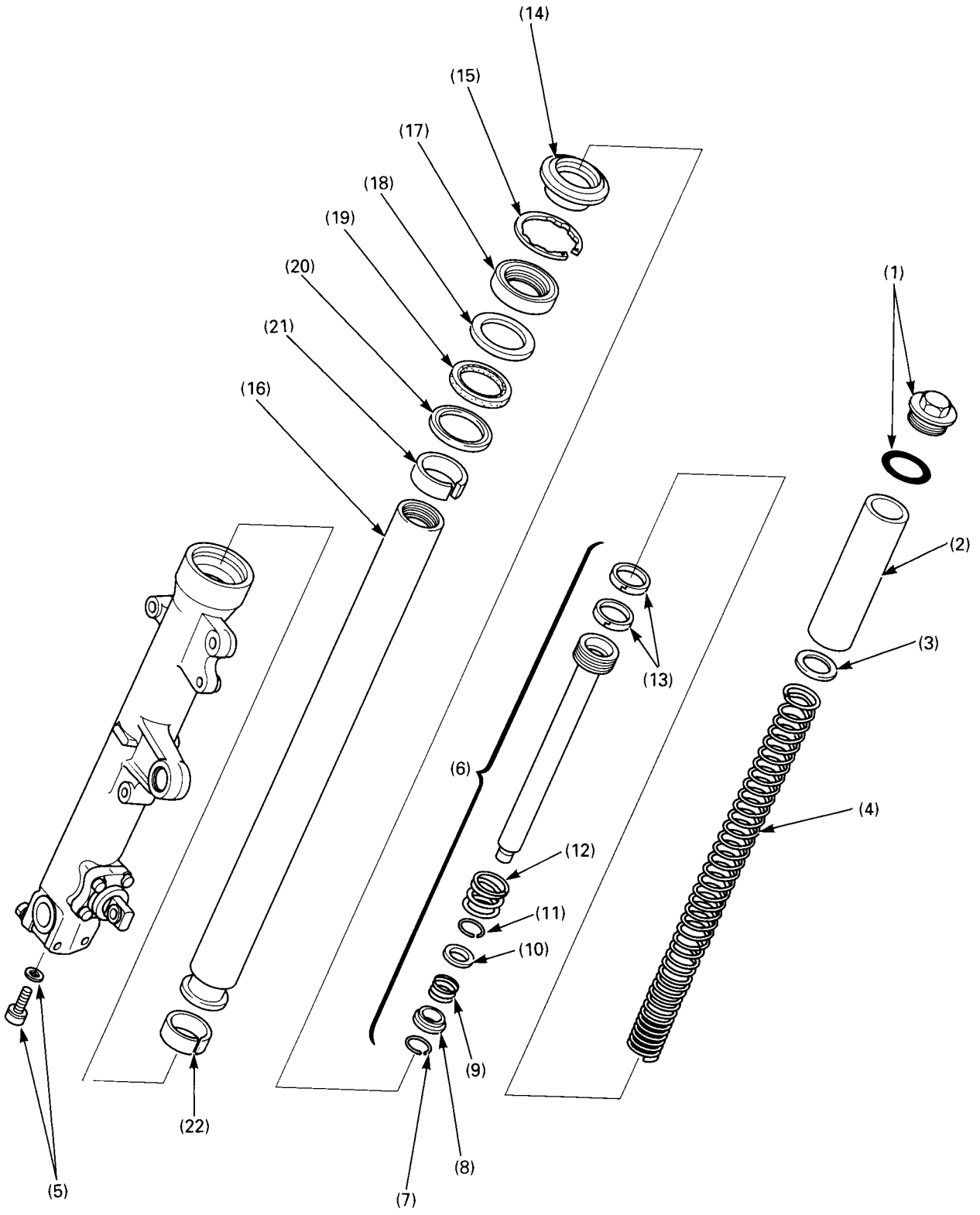


Left Fork Disassembly

Standard Model



CBS-ABS/TCS Model

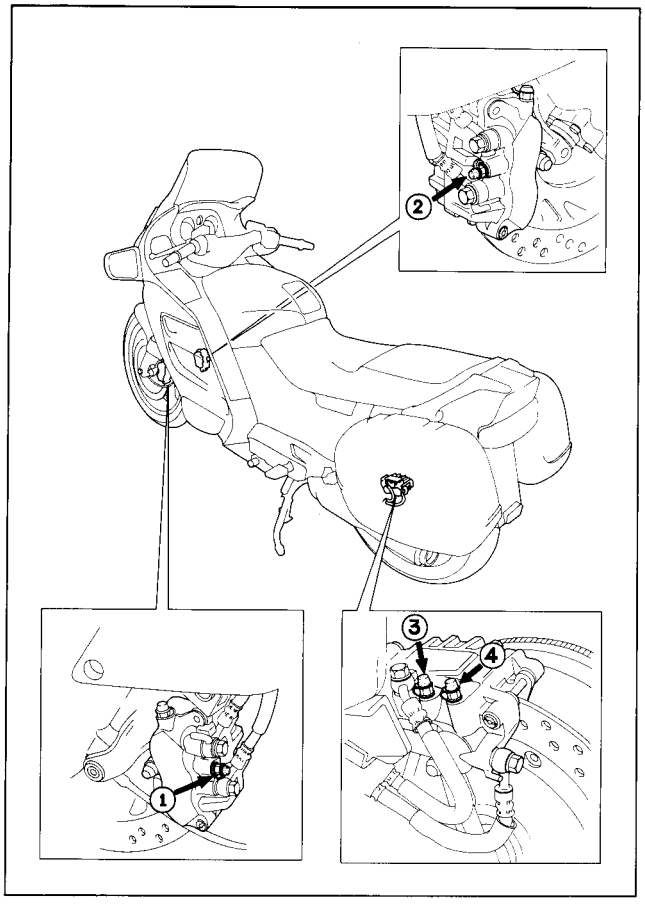


Pedal Brake Line

NOTE

- Refer to the Technical Feature (page 26–171).
- Before performing this service, prepare the brake fluid 500 cc (16.9 US oz, 14.1 Imp oz) or more, because the brake line is long.
- Fluid filling and bleed air from the pedal brake line in the sequence as follow:

1. Left front caliper lower side bleed valve (from the rear master cylinder–front modulator–delay valve line)
2. Right front caliper lower side bleed valve (from the rear master cylinder–front modulator–delay valve line)
3. Rear caliper front side bleed valve (from the rear master cylinder–rear modulator line)
4. Rear caliper rear side bleed valve (from the secondary master cylinder–PCV–rear modulator line)



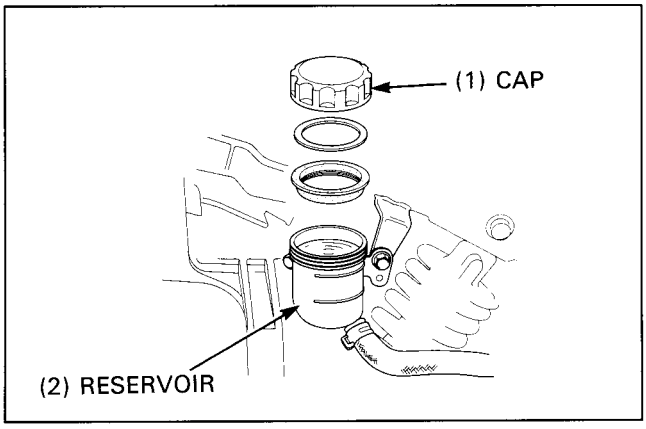
FLUID FEEDING

Support the motorcycle on its center stand.
Remove the right side cover (page 26–33).

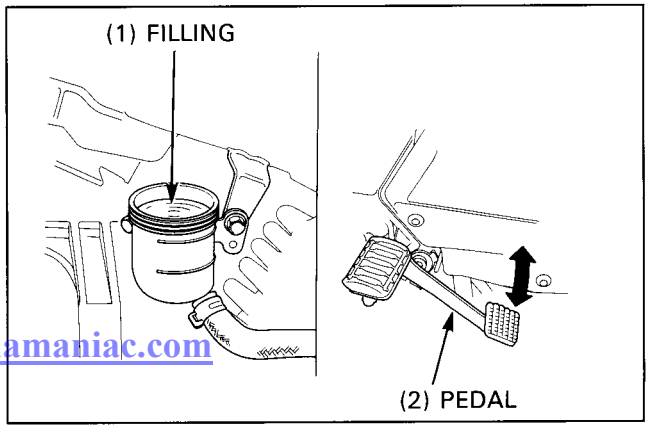
Remove the reservoir cap.
Fill the reservoir with DOT 4 brake fluid from a sealed container.

CAUTION

- **Use only DOT 4 brake fluid from a sealed container.**
- **Do not mix different types of fluid. They are not compatible.**



Operate the brake pedal several times to bleed air from the master cylinder.



⚠ WARNING

- **Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Check the brake system by applying the lever and pedal brake after the air bleeding (page 26–49).**

CAUTION

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

NOTE

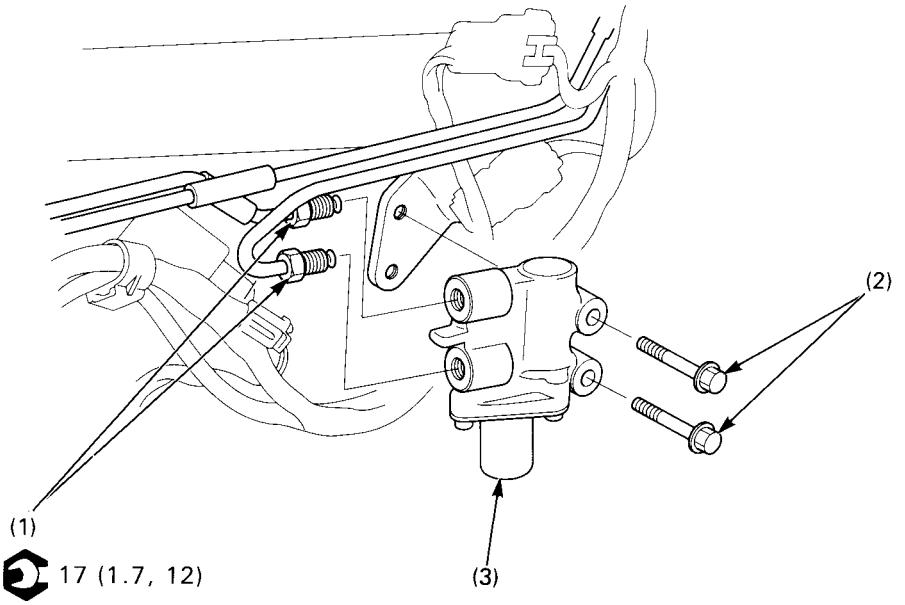
- Do not remove the bleed valve unless it is replaced.
- Reinstall the removed pistons and seals in the original position securely.
- After installing the right caliper, check the wheel speed sensor air gap (page 26–148).

Requisite Service

- Lever and pedal brake lines fluid draining/air bleeding (page 26–86)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake oil bolt	2	
(2)	Sealing washer	4	
(3)	Brake hose	2	
(4)	Pad	2	Removal/installation (page 26–92)
(5)	Caliper mounting bolt	2	On the left side, install the bolt with longer threads at the lower side.
(6)	Brake caliper assembly	1	
(7)	Caliper bracket	1	
(8)	Pad retainer	1	
(9)	Pad spring	1	Install as shown.
(10)	Assembly bolt/caliper body	3/1	
(11)	Caliper piston	3	
(12)	Dust seal	3	**CAUTION**
(13)	Piston seal	3	• **Be careful not to damage the piston sliding surface.**

Proportional Control Valve Removal/Installation (CBS-ABS/TCS model)



⚠WARNING

- **Check the brake system by applying the pedal brake after the air bleeding (page 26–49).**

CAUTION

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

Requisite Service

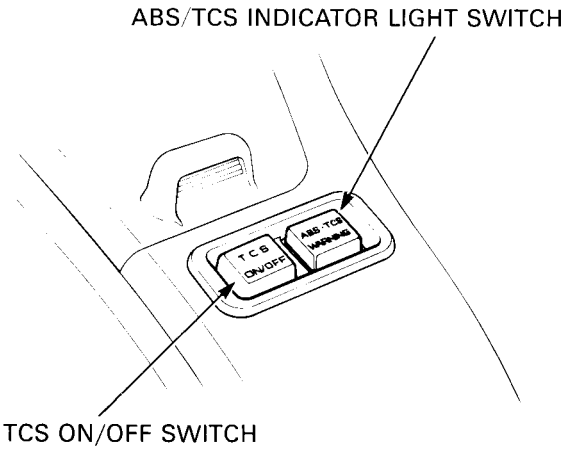
- Pedal brake line fluid draining/air bleeding (page 26–86)
- Right side cover removal/installation (page 26–33)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pipe joint nut	2	Be careful not to deform the oil pipe.
(2)	Mounting bolt	2	
(3)	Proportional control valve	1	

Retrieval of/Clearing Problem Code

NOTE

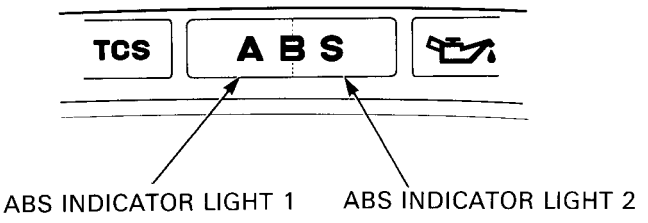
- The ABS indicator light indicates the problem code by its number of blinks (see the next page).
- The problem code is not cleared when the ignition switch is turned OFF during output of the problem code. However, output cannot be restarted by turning the ignition switch ON. Restart the output following the problem code retrieval procedure.
- After retrieving the problem code, be sure to record it in MEMO, etc. Clear the problem code after troubleshooting.



Retrieval:

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON while pressing the ABS/TCS indicator light switch. The ABS indicator light 1 and 2 should come ON.
3. Hold the ABS/TCS indicator light switch pressed (for approximately 5 seconds). The ABS indicator light 1 and 2 should go OFF.
4. Release the ABS/TCS indicator light switch immediately (within 1 second) after the ABS indicator light go OFF.

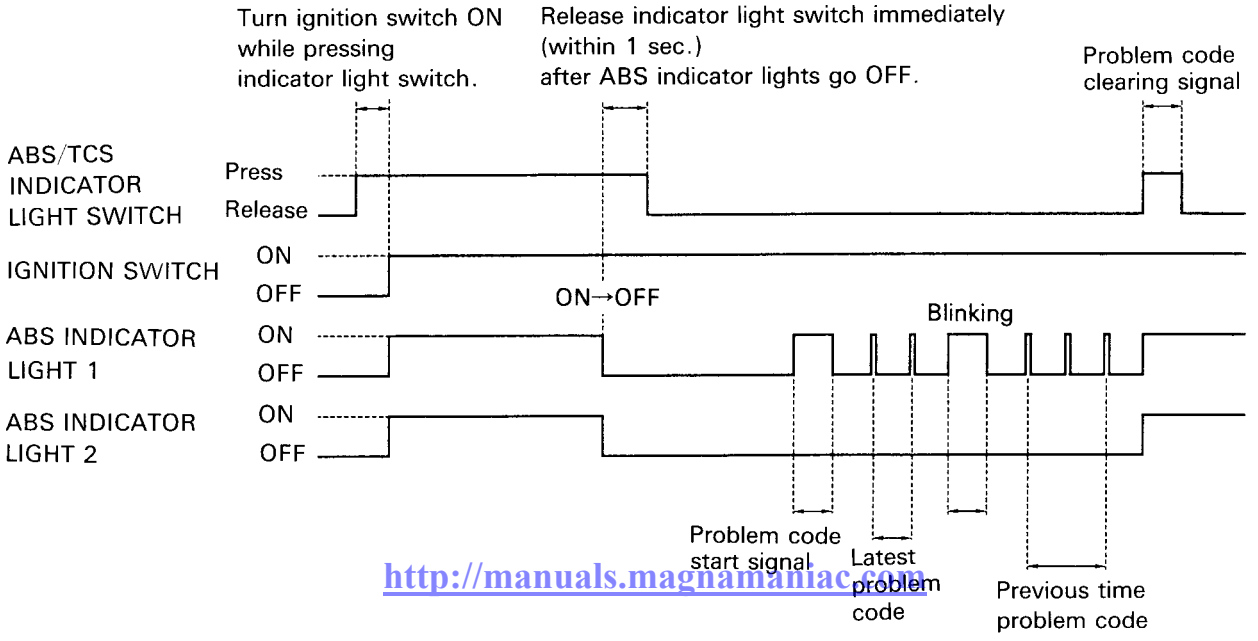
➪ Output of the problem code starts and the ABS indicator light 1 blinks. (The ABS indicator light 2 is OFF this time.)



Clearing:

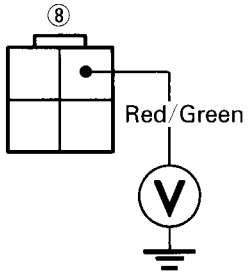
5. Press the ABS/TCS indicator light switch during output of the problem code (while the ABS indicator light is blinking).

➪ The Problem code is cleared and the ABS indicator light 1 and 2 comes ON and stay ON.



(From the previous page: Light blinks)

1. Disconnect the front modulator control motor relay connector ⑧ with the ignitioon switch OFF.
2. Check for voltage between the relay connector ⑧ terminal and body ground.

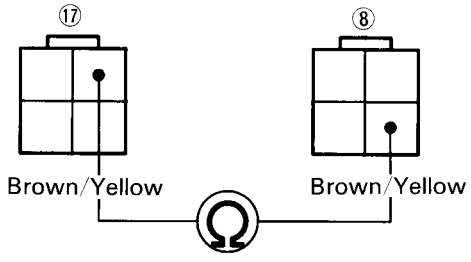


Does battery voltage register?

No voltage → • Repair open in the Red or Red/Green harness between the front modulator control motor relay and battery.

Voltage

1. Disconnect the motor driver Blue connector ⑰.
2. Check for continuity between the relay connector ⑧ and motor driver connector ⑰ terminals.

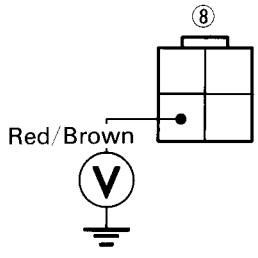


Is there continuity?

No continuity → • Repair open in the Brown/Yellow harness between the front modular control motor relay and motor driver.

Continuity

Check for voltage between the relay connector ⑧ terminal and body ground with the ignition switch ON.

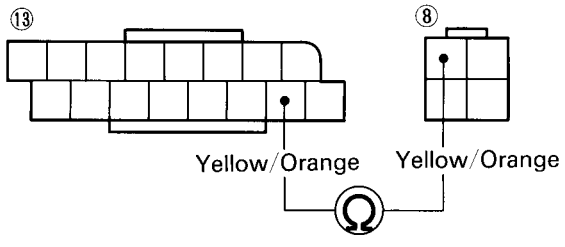


Does battery voltage register?

No voltage → • Repair open in the Red/Brown harness between the fuse case and front modular control motor relay.

Voltage

1. Disconnect the White connector ⑬ of the ECU with the ignition switch OFF.
2. Check for continuity between the ECU connector ⑬ and relay connector ⑧ terminals.



Is there continuity?

No continuity → • Repair open in the Yellow/Orange harness between the ABS control unit (ECU) and front modulator control motor relay.

Continuity

(Continuity to the following page)

Problem code 6: Faulty rear wheel speed sensor system

CAUTION

- **When removing/installing the wheel speed sensor and wheel, take care not to damage the sensor and pulser ring.**

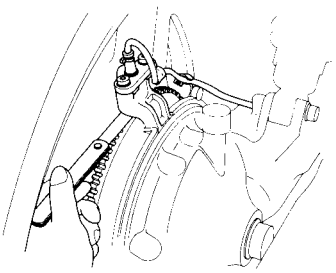
NOTE

- Check the tire size and air pressure and check the tire for deformation before troubleshooting.
- The ABS indicator light might come on while riding under the following conditions. Turn the ignition switch OFF and perform the pre-start self-diagnosis. The ABS is normal if the indicator light goes off. However, the problem code is stored in the ECU. Ask the rider for the riding conditions in detail when the brings his motorcycle to your dealership for inspection.
  –The motorcycle has continously run on bumpy road.

- Perform the inspection of the wheel speed sensor. Check the area around the wheel speed sensor as well.

Place the motorcycle on its center stand and measure the air gap between the pulser ring and wheel speed sensor (page 26–148).

Standard: 0.8 $^{+0.4}_{-0.1}$ mm (0.031 $^{+0.016}_{-0.004}$ in)



Is the air gap correct?

Incorrect → • Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

Correct

Is the pulser ring deformed or damaged (e.g. chipped teeth, etc.)?

Deformed and/or damaged → • Replace the pulser ring and recheck.

Not deformed and damaged

Is there iron or other magnetic deposits between the pulser ring and wheel speed sensor?

Deposits → • Remove the deposits and recheck.

No deposits

Are the pulser ring and sensor loosely installed?

Loosely installed → • Correct deformation. Install securely and recheck.

Securely installed

(Continue to the following page)

NOTE

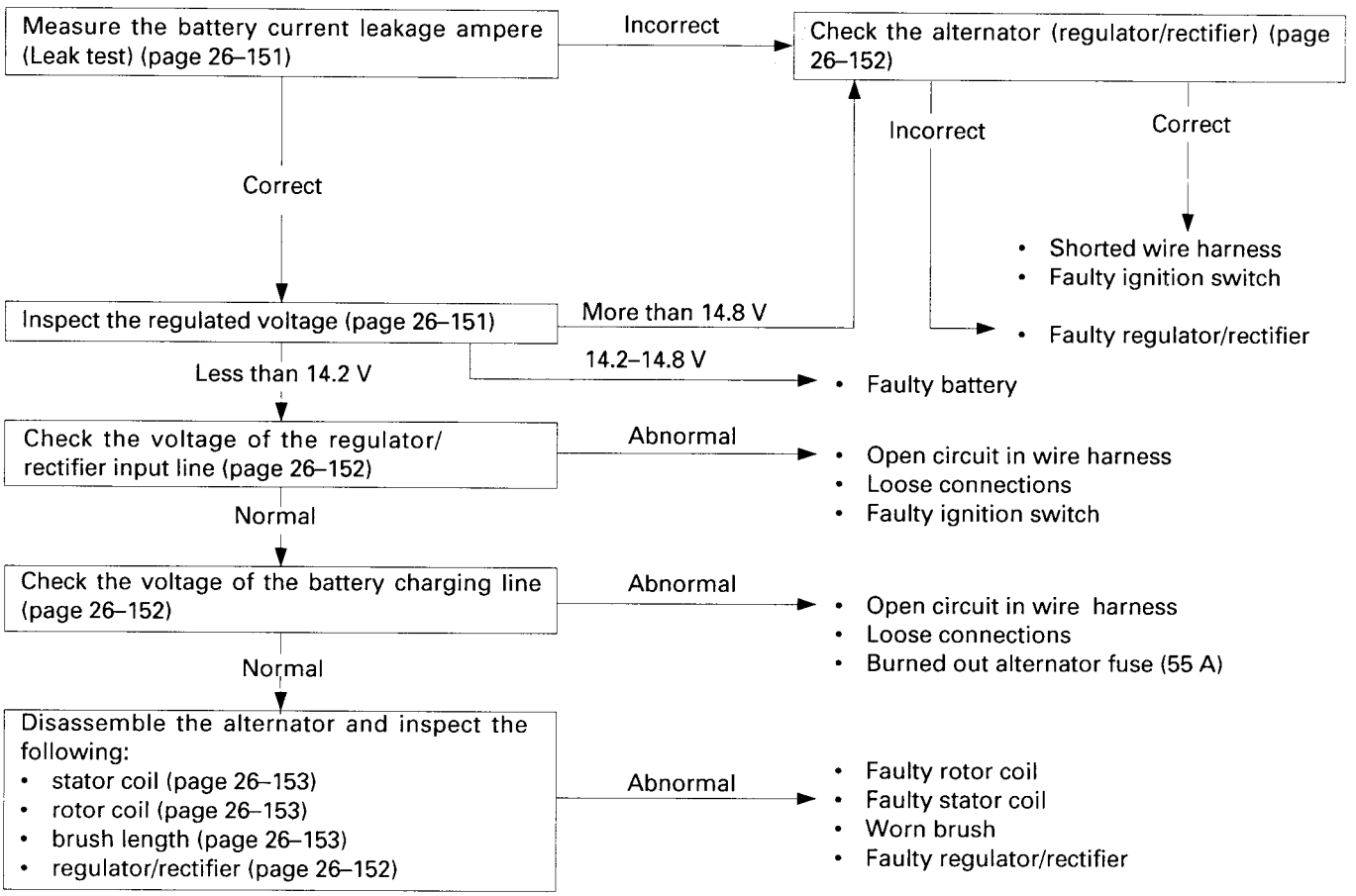
- Check the wheel speed sensor tip for damage. If it is damaged, replace with a new one and recheck the air gap.

Charging System Troubleshooting

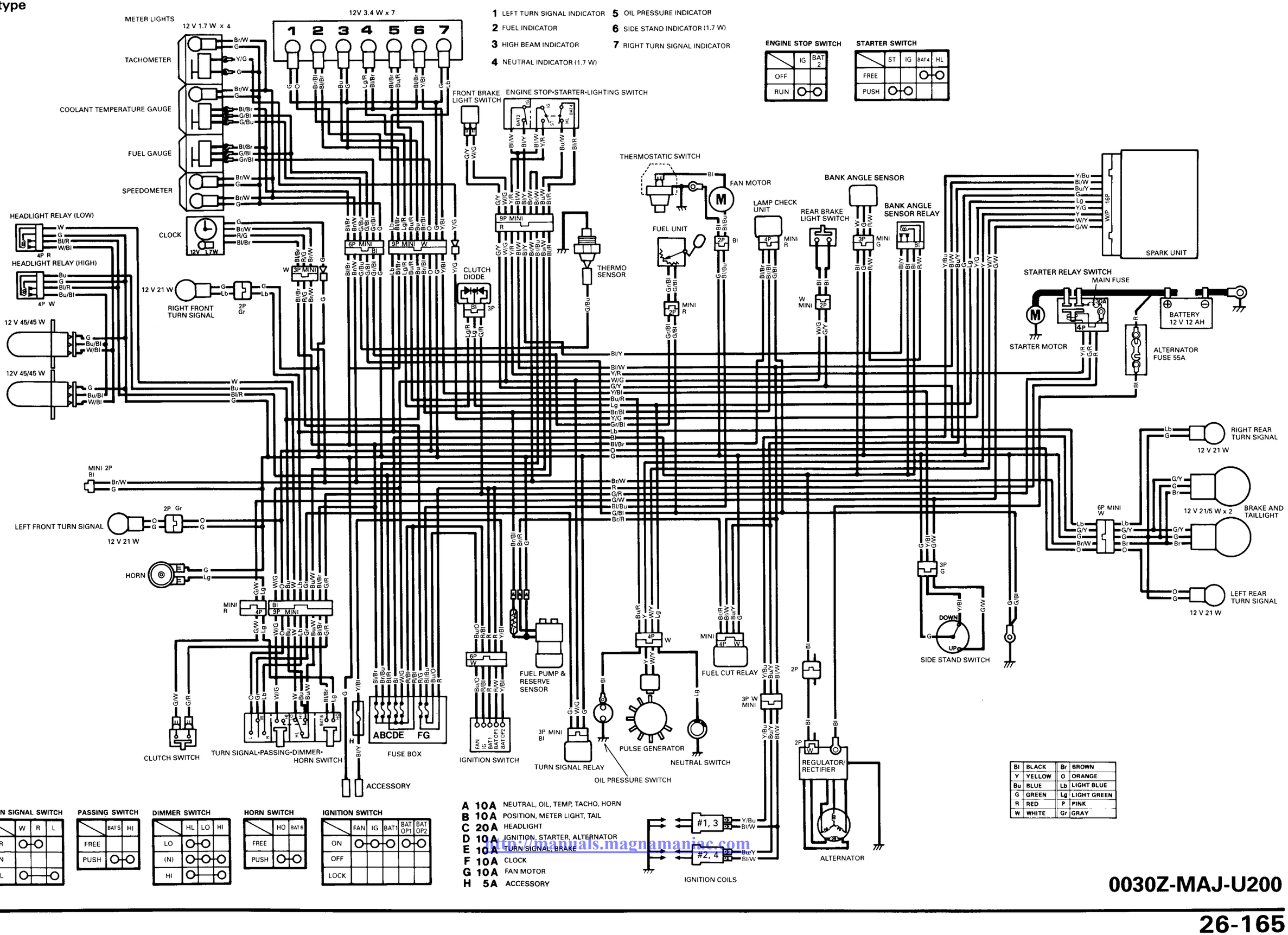
- Inspect the following before diagnosis the system.
  - discharged battery
  - loose or corroded terminals of the connectors

NOTE

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

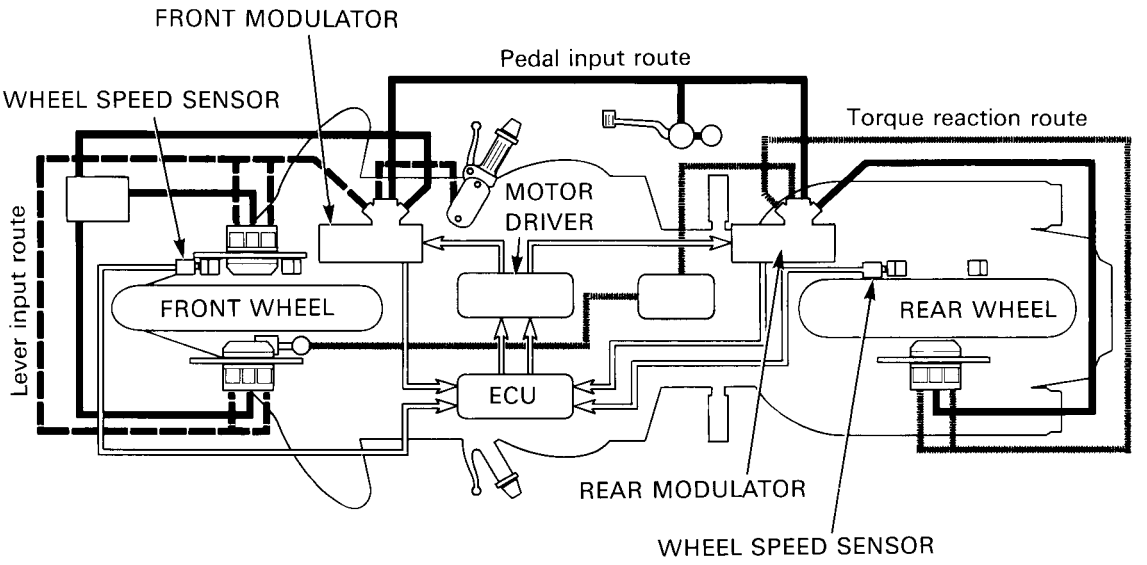


Standard Model/ U type



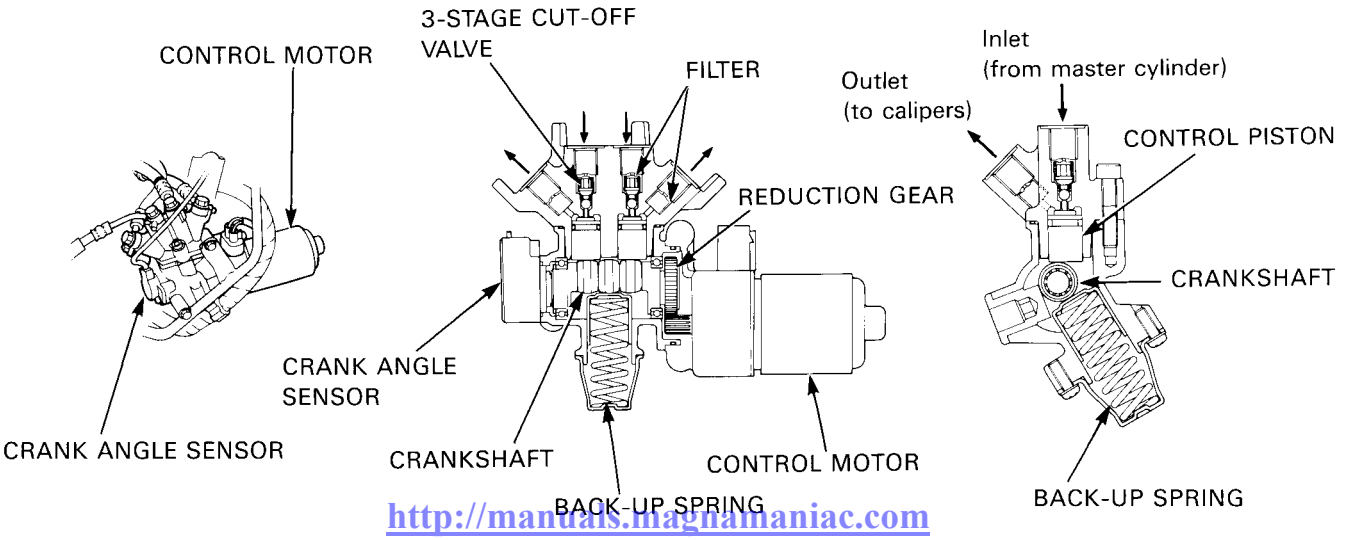
0030Z-MAJ-U200

System Construction



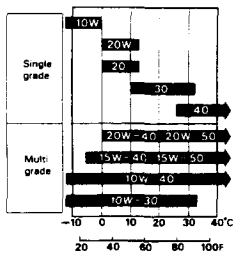
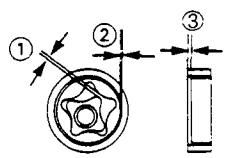
Motor Driven Modulator:
The modulator controls the brake fluid pressure that is essential for the ABS operation. The motorcycle equipped with separate and independent front and rear modulators. At the same time, in order to combine with the CBS (Dual Combined Brake System), a single modulator controls two routes for brake fluid pressure, as two routes for braking input are given respectively to the front and rear wheels.

The modulator consists of the following parts;
— Control piston: Operates in accordance with the change of the crankshaft angle and adjusts the caliper fluid pressure. Because each modulator must provide simultaneous control over two separate systems, each features two sets of control pistons.
— Crankshaft: Turn with the control motor to change the piston position.
— Back-up spring: Pushes the control pistons up (hold the cut-off valve open) by way of the crankshaft.
— Control motor: Drives the crankshaft and adjust the pressure in the system.
— Crank angle sensor: Detects the crank angle.
— Cut-off valve (3-stages): Cuts hydraulic pressure to the brake caliper.



Unit: mm (in)

Lubrication

Item	Standard	Service Limit
Engine oil capacity at draining	3.6 liters (3.80 US qt, 3.17 Imp qt)	—
at disassembly	4.3 liters (4.54 US qt, 3.78 Imp qt)	—
at oil filter change	3.7 liters (3.91 US qt, 3.26 Imp qt)	—
Recommended engine oil	Use Honda 4-stroke oil or equivalent Viscosity: SAE 10W—40	
OIL VISCOSITIES  	Other viscosity shown in the chart may be used when the average temperature in your riding area is within the indicated range.	
Oil pressure at oil pressure switch	392—490 kPa (4.0—5.0 kg/cm², 57—71 psi) at 5,000 min^{-1} (rpm) (80°C/176°F)	—
Oil pump rotor tip clearance ①	0.15 (0.006)	—
body clearance ②	0.15—0.22 (0.006—0.009)	—
end clearance ③	0.02—0.09 (0.0008—0.0035)	—
 		

Fuel System

Carburetor identification number	VD B1A	—
	VD BHA (AR type)	—
Main jet	#128	—
(High altitude)	—	—
(2,3)	—	—
(1,4)	—	—
(Front)	—	—
(Rear)	—	—
Slow jet	#40	—
Jet needle clip position	—	—
Pilot screw intial opening	1-7/8 turns out	—
	2-1/8 turns out (AR type)	—
Pilot screw high altituge adjustment	—	—
Pilot screw final opening	7/8 turns out	—
Air screw intial opening	—	—
Air screw high altitude adjustment	—	—
Float level	7.0(0.28)	—
Carburetor Vacuum difference	Within 40mmHg (1.6 inHg)	—
Base carburetor (For carburetor synchronization)	No.4 carburetor	—
Idle speed	1,000±100 min^{-1} (rpm)	—
	1,200±50 min^{-1} (rpm) (AR type)	—
Throttle grip free play	2—6 (0.08—0.24)	—
Accelertor pump clearance	—	—

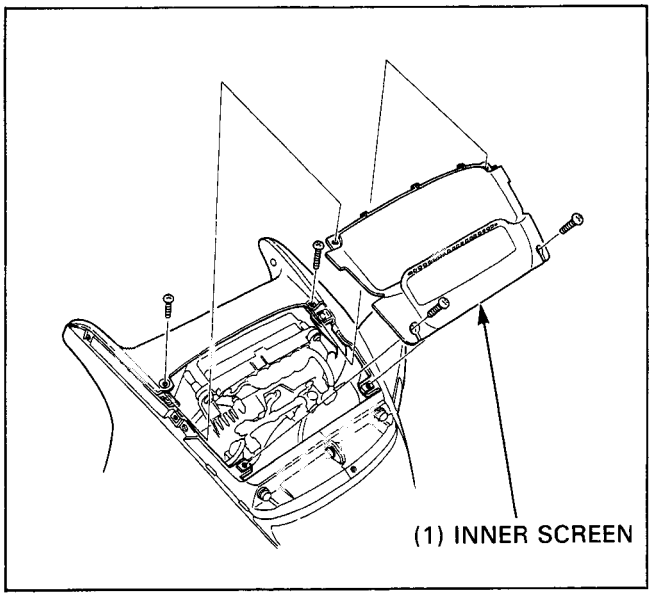
Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Frame/body panels:				
Center stand pivot bolt	1	8	27 (2.7, 20)	
Side stand pivot bolt	1	10	10 (1.0, 7)	
Side stand pivot lock nut	1	10	27 (2.7, 20)	
Rotary switch attaching bolt	1	6	10 (1.0, 7)	
Step holder 8 mm	2	8	27 (2.7, 20)	
10 mm	4	10	35 (3.5, 25)	
Grab rail	6	8	27 (2.7, 20)	
Grab rail center plate bolt	4	8	35 (3.5, 25)	
Saddle bag stay bolt 6 mm	2	6	10 (1.0, 7)	
8 mm	2	8	35 (3.5, 25)	
Center stand grip bolt	2	6	10 (1.0, 7)	
Engine gurard mounting bolt	3	8	27 (2.7, 20)	
Wind shield screw	5	5	0.6 (0.06, 0.43)	
Exhaust system:				
Exhaust pipe joint nut	8	7	17 (1.7, 12)	
Muffler band bolt	4	8	22 (2.2, 16)	
Exhaust pipe band bolt	1	8	22 (2.2, 16)	
Muffler mounting bolt	2	8	27 (2.7, 20)	
Exhaust pipe protector bolt	12	6	12 (1.2, 9)	
Fuel system:				
Fuel tank mounting bolt	4	6	12 (1.2, 9)	
Fuel pump mounting nut	6	6	10 (1.0, 7)	
Carburetor connecting screw	2	6	8 (0.8, 5.8)	
Cooling system:				
Fan motor switch	1	16	12 (1.2, 9)	
Thermostat case	2	6	10 (1.0, 7)	
Water hose band screw	10	—	1.2 (0.12, 0.9)	
Engine mount:				
Engine mounting bolt 10 mm	4	10	55 (5.5, 40)	
12 mm	1	12	65 (6.5, 47)	
Engine mounting bracket bolt 8 mm	8	8	27 (2.7, 20)	
10 mm	4	10	40 (4.0, 29)	
Sub frame bolt	5	10	40 (4.0, 29)	
Gearshift pedal pivot bolt	1	8	27 (2.7, 20)	
Front suspension:				
Handlebar upper holder bolt	4	8	27 (2.7, 20)	
Handlebar weight screw	2	6	9 (0.9, 6.5)	Note 1
Ignition switch mounting bolt	2	8	25 (2.5, 18)	
Throttle housing screw	2	5	4.2 (0.42, 3.0)	
Front fender attaching bolt	2	8	22 (2.2, 16)	
Steering bearing adjustment nut	1	26	28 (2.8, 20)	Note 2
Steering stem nut	1	24	105 (10.5, 76)	
Upper fork pinch bolt	2	8	23 (2.3, 17)	
Lower fork pinch bolt	4	10	50 (5.0, 36)	
Fork cap bolt	2	—	20 (2.0, 14)	
Fork socket bolt	2	8	20 (2.0, 14)	Note 1
Fork damper lock nut	1	10	23 (2.3, 17)	
Anti-dive case bolt	4	5	4 (0.4, 2.9)	Note 1
Front axle bolt	1	14	90 (9.0, 65)	
Front axle pinch bolt	4	8	22 (2.2, 16)	

Instrument Panel

Remove the windshield and garnish (page 2-6).

Remove the four screws and the inner screen.



Remove the left and right fairing pockets (page 23).

Disconnect the clock and voltmeter connectors under the instruments.

NOTE

• Adjust the clock after installing the instrument panel.

Remove the two screws, release the four tabs and remove the instrument panel from the upper fairing.