16-A. ABS ('92 – '95)

Service Information

CAUTION

- **Use a fully charged battery for troubleshooting. Do not diagnose the ABS with a charger connected to the battery.**
- **On removal and installation of the wheels and wheel sensors, be careful not to damage the wheel sensors and pulser rings.**

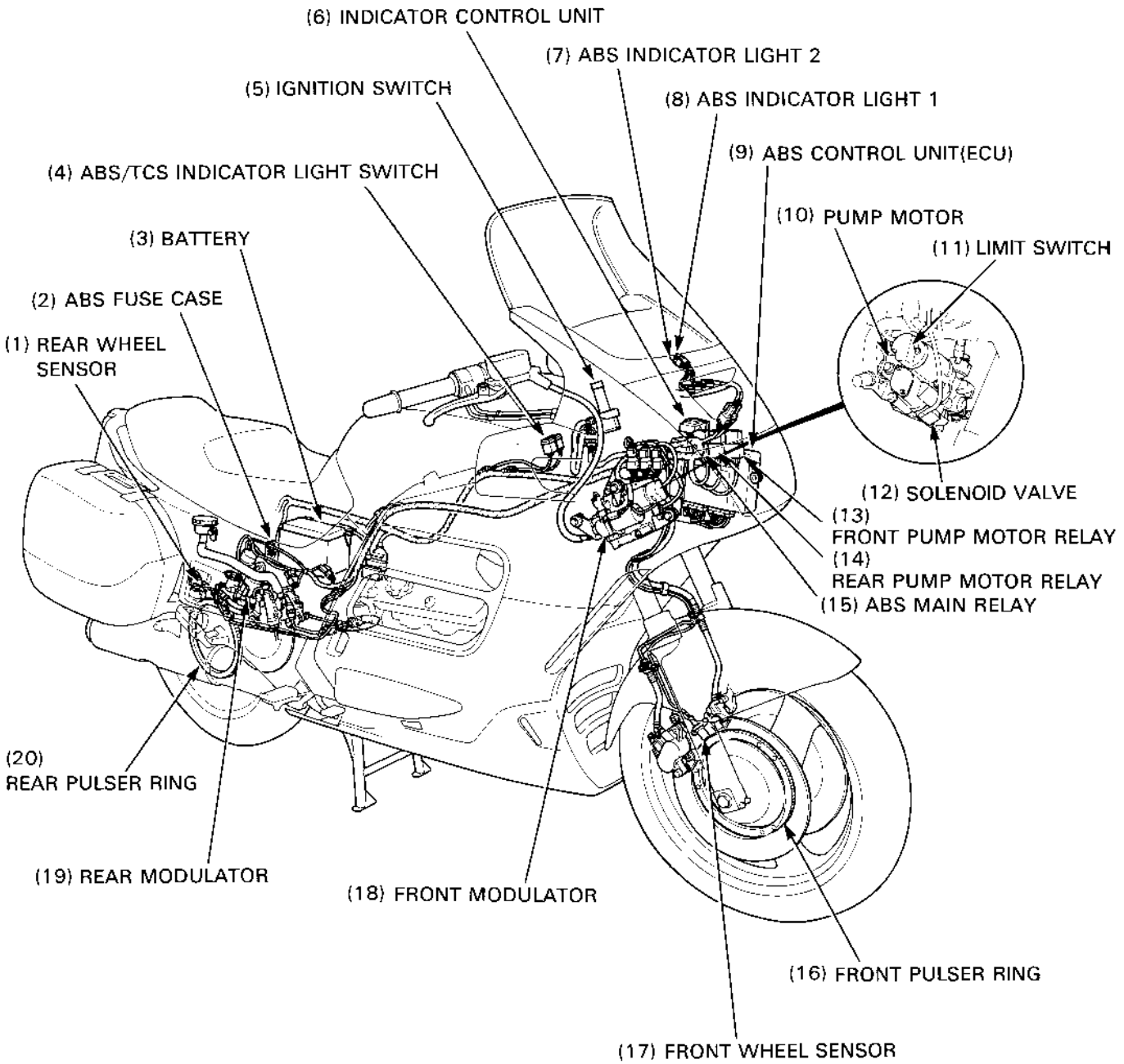
NOTE

- Check the following before performing any ABS troubleshooting.
  - Pre-start self-diagnosis of ABS
  - ABS indicator light

  If an abnormality is found during the above checks, perform the ABS troubleshooting following the Symptom-to-System Chart (page 16-A-8). The ABS is normal if no trouble is found. Go to the checks on the other basic systems (e.g., brake system).
- Troubles not resulting from a faulty ABS, i.e. brake disc squeak, unevenly worn brake pad, etc., cannot be recognized by the ABS diagnosis system. (See the Common Service Manual.)
- Record the symptom of the problem and the problem code in MEMO before troubleshooting.
- When the ABS is faulty, the ABS indicator light blinks or it comes on. The ABS does not function at this time; take care during the test ride.
- Do not disassemble the modulator assembly. If it is faulty, replace it as an assembly.
- After replacing the modulator, bleed air from the brake fluid according to the standard air bleeding procedure. Note that replacement and bleeding air from the brake fluid is not possible, as it is sealed in the modulator.
- When the rear wheel sensor or rear pulser ring is replaced, perform the air gap inspection (page 16-A-51).
- The ABS indicator light might blink in the following cases. If the indicator light blinks, clear the problem code and perform the pre-start self-diagnosis of the ABS (page 16-A-5). The ABS is normal if the ABS indicator light goes off.
  - The motorcycle has continuously run on the bumpy road.
  - The ABS control unit (ECU) was disrupted by extremely powerful radio wave (Electromagnetic Interference).
  - After riding (i.e. after the pre-start self-diagnosis), the engine was kept running and the rear wheel turning (for more than 30 seconds) with the motorcycle on the center stand.
- The ABS indicator light might blink in the following cases. If the indicator light blinks, service the faulty parts, clear the problem code, and perform the pre-start self-diagnosis of the ABS (page 16-A-5). The ABS is normal if the ABS indicator light goes off.
  - Incorrect tire pressure
  - Tires not recommended for the motorcycle were installed.
  - Deformation of the wheel
- After troubleshooting, clear the problem code and perform the pre-start self-diagnosis again to be sure that the ABS indicator light is operating normally.

16

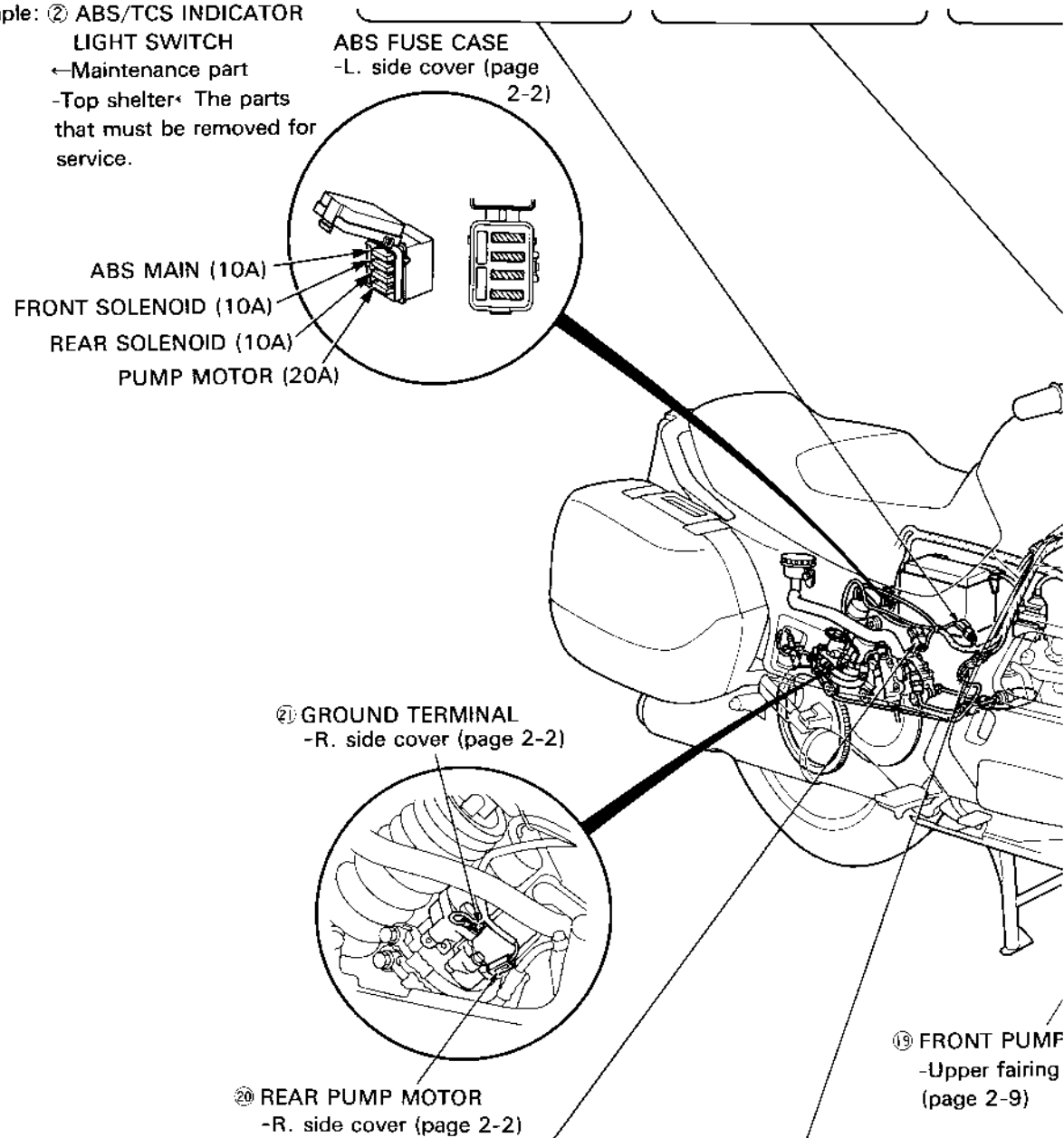
System Location



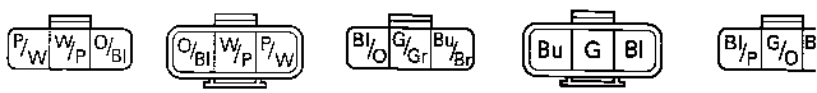
System Wiring Connections/Locations

- Refer to section 2, (frame/body panels/exhaust system), for the parts that must be removed for sevice.

For example: ② ABS/TCS INDICATOR LIGHT SWITCH
←Maintenance part
-Top shelter← The parts that must be removed for service.



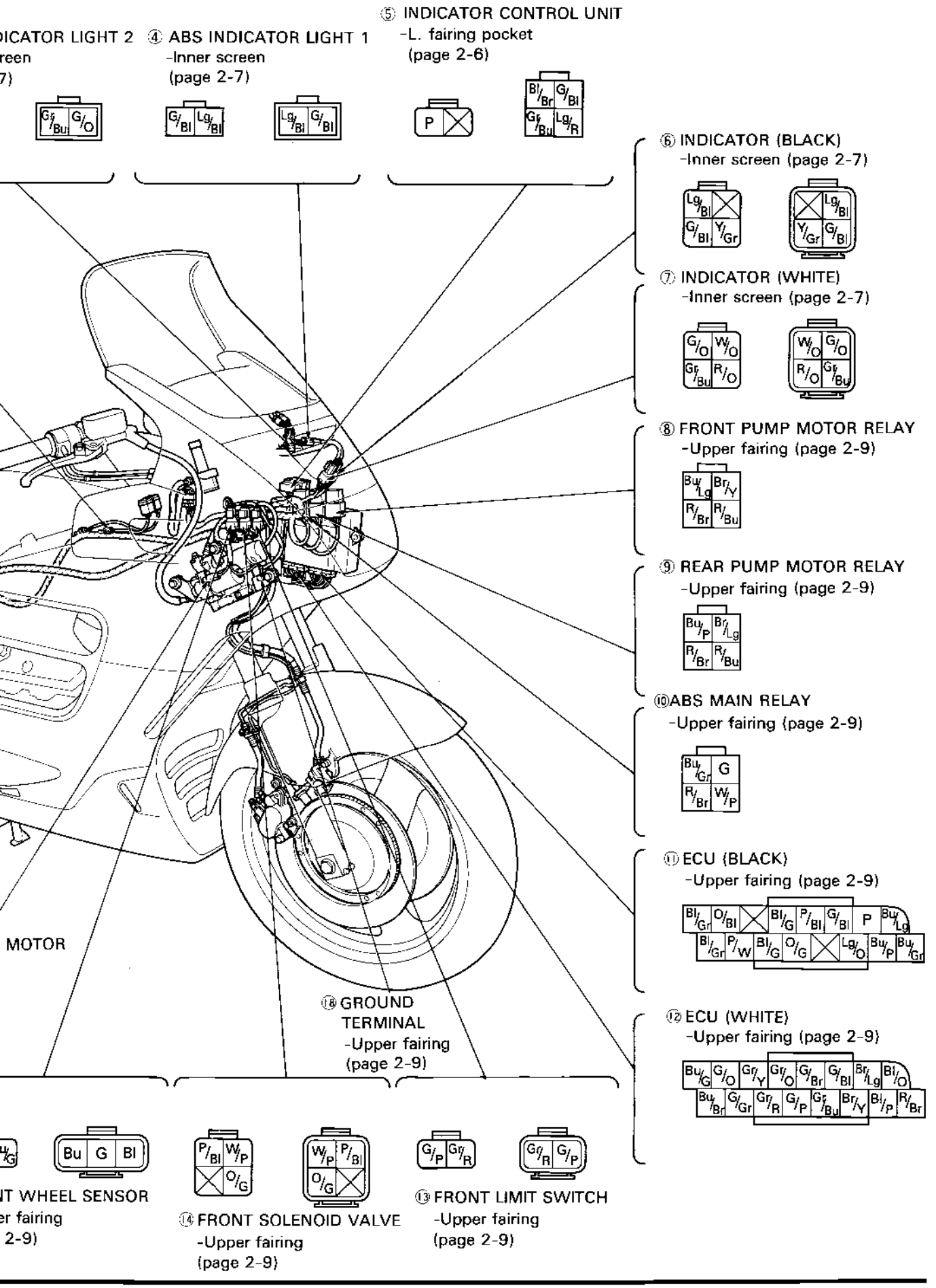
Bl	BLACK	Br	BROWN
Y	YELLOW	O	ORANGE
Bu	BLUE	Lb	LIGHT BLUE
G	GREEN	Lg	LIGHT GREEN
R	RED	P	PINK
W	WHITE	Gr	GRAY



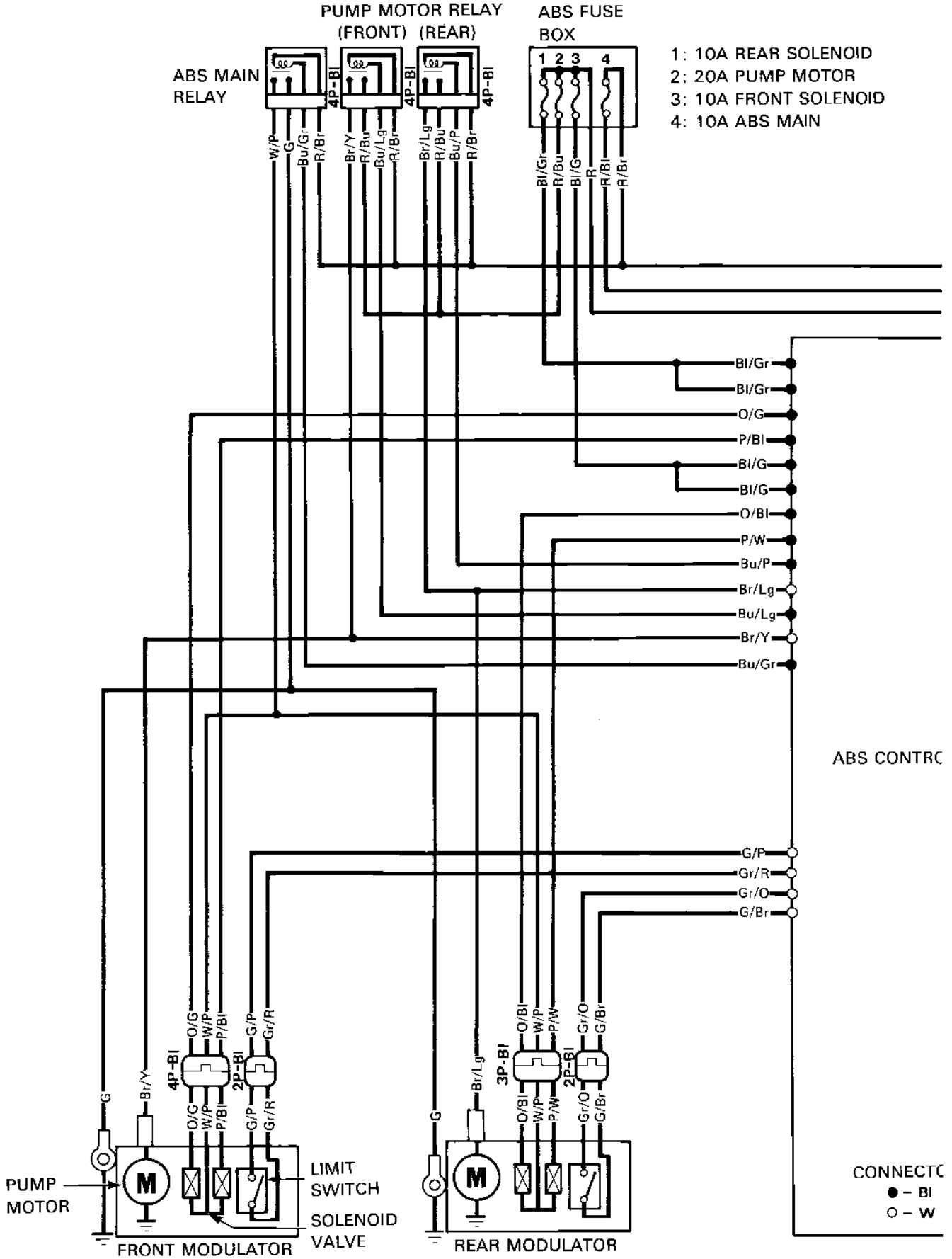
⑰ REAR SOLENOID VALVE
-R. side cover (page 2-2)

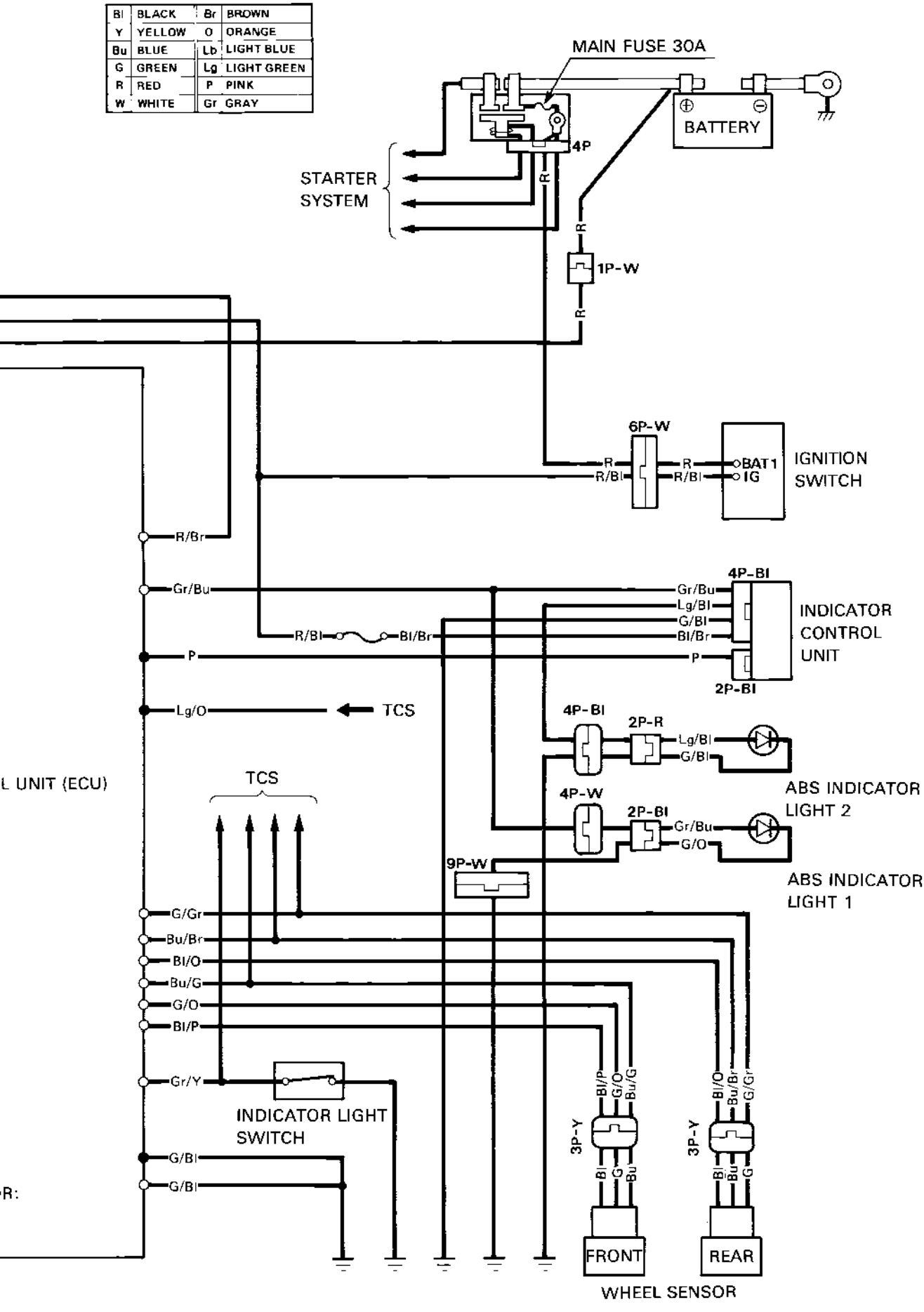
⑯ REAR WHEEL SENSOR
-R. side cover (page 2-2)

⑮ FRON
-Upp
(page


DICATOR LIGHT 2
reen
7)
④ ABS INDICATOR LIGHT 1
-Inner screen
(page 2-7)
⑤ INDICATOR CONTROL UNIT
-L. fairing pocket
(page 2-6)
⑥ INDICATOR (BLACK)
-Inner screen (page 2-7)
⑦ INDICATOR (WHITE)
-Inner screen (page 2-7)
⑧ FRONT PUMP MOTOR RELAY
-Upper fairing (page 2-9)
⑨ REAR PUMP MOTOR RELAY
-Upper fairing (page 2-9)
⑩ABS MAIN RELAY
-Upper fairing (page 2-9)
⑪ ECU (BLACK)
-Upper fairing (page 2-9)
⑫ ECU (WHITE)
-Upper fairing (page 2-9)
MOTOR
⑱ GROUND
TERMINAL
-Upper fairing
(page 2-9)
Bu G Bl
NT WHEEL SENSOR
er fairing
2-9)
⑭ FRONT SOLENOID VALVE
-Upper fairing
(page 2-9)
⑬ FRONT LIMIT SWITCH
-Upper fairing
(page 2-9)

Circuit Diagram




Bl BLACK
Br BROWN
Y YELLOW
O ORANGE
Bu BLUE
Lb LIGHT BLUE
G GREEN
Lg LIGHT GREEN
R RED
P PINK
W WHITE
Gr GRAY
MAIN FUSE 30A
BATTERY
4P
STARTER SYSTEM
1P-W
6P-W
BAT1
IG
IGNITION SWITCH
4P-Bl
INDICATOR CONTROL UNIT
2P-Bl
TCS
2P-R
ABS INDICATOR LIGHT 2
4P-W
2P-Bl
ABS INDICATOR LIGHT 1
9P-W
INDICATOR LIGHT SWITCH
3P-Y
FRONT
REAR
WHEEL SENSOR
L UNIT (ECU)
R:

Troubleshooting

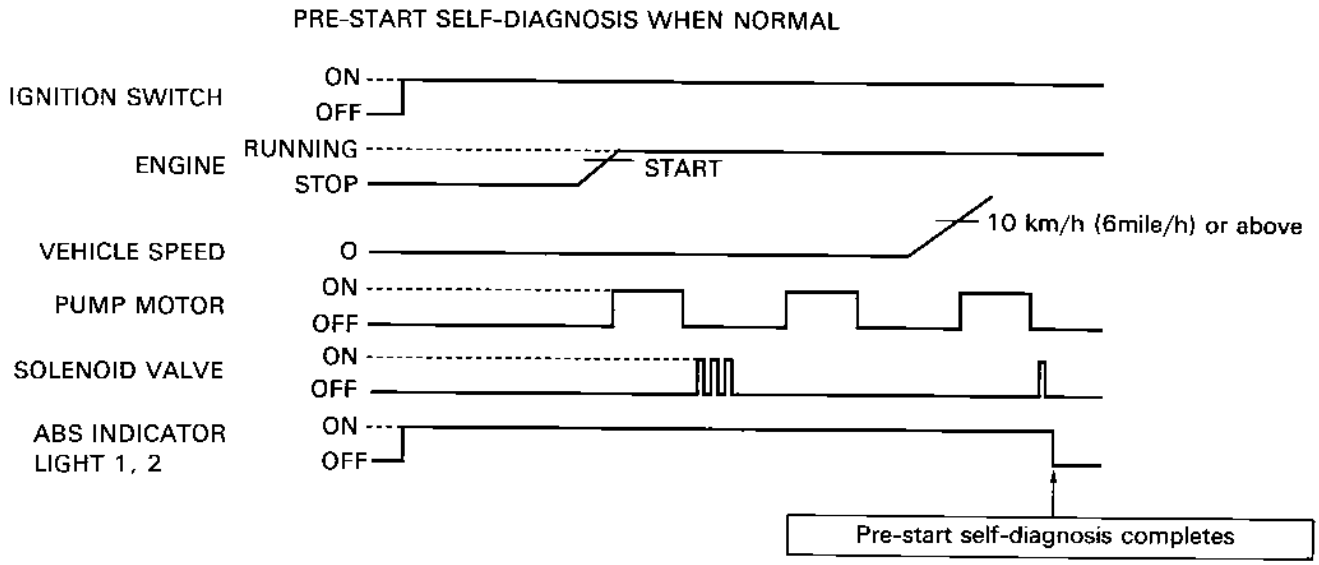
Before Beginning Troubleshooting:

Summary of ABS pre-start self-diagnosis system

The ABS pre-start self-diagnosis system diagnoses the electrical system as well as the hydraulic system operation in the modulator. When there is any abnormality, the problem and the problem part can be detected by outputting the problem code.

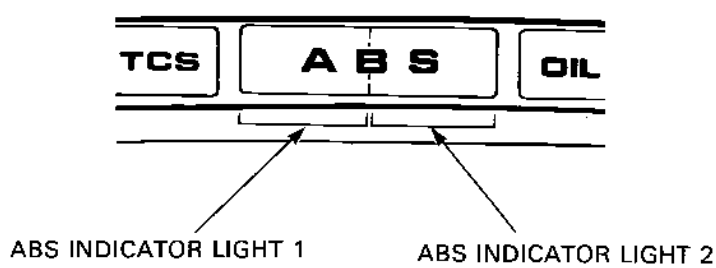
After starting the engine, the ABS pre-start self-diagnosis system operates the pump motor and solenoid valve inside the modulator, checks the limit switch ON/OFF condition with the ECU and detects whether the hydraulic operation is normal. Then, the diagnosis system enters the stand-by phase for receiving the signal from the wheel sensor, and it completes the pre-start self-diagnosis when the wheel sensor signal is input in the ECU at approximately 10 km/h (6 mile/h) or more of the vehicle speed.

If the ABS is normal, the ABS indicator light goes off just after starting the engine and the motorcycle is in motion indicating that the dignosis is completed.
If a problem is detected, the ABS indicator light blinks or comes on and stays on to notify the rider of the problem.The self-diagnosis is also made while the motorcycle is running, and the indicator light blinks when a problem is detected.
When the indicator light blinks, the cause of the problem can be identified by retrieving the problem code following the specified retrieval procedure. (page 16-A-6)



Pre-start self-diagnosis procedure (Everyday check-up)

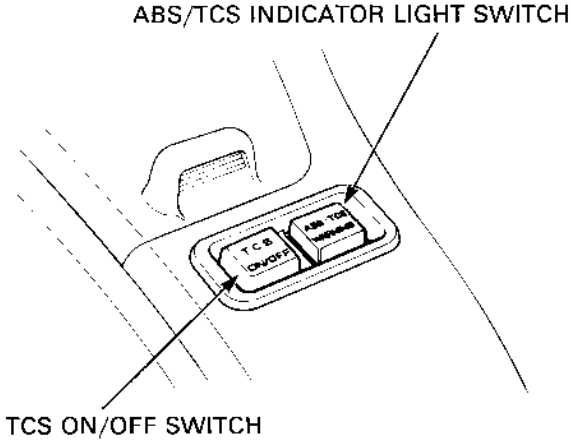
1. Turn the ignition switch ON.
2. Be sure that the ABS indicator lights 1 and 2 come ON.
3. Start the engine.
4. Ride the motorcycle and raise the vehicle speed to approximately 10 km/h (pre-start self-diagnosis completes).
5. The ABS is normal if both the ABS indicator lights 1 and 2 go off.



Retrieval of/Clearing Problem Code

NOTE

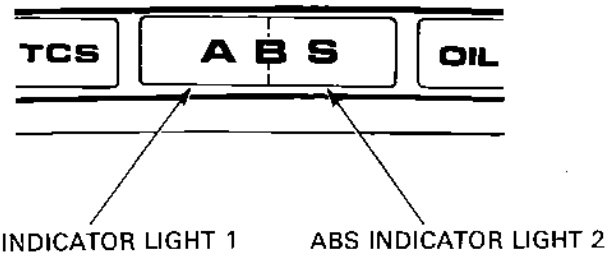
- The ABS indicator light indicates the problem code by its number of blinks (see the next page).
- The problem code is not cleared when the ignition switch is turned OFF during output of the problem code. However, output cannot be restarted by turning the ignition switch ON. Restart the output following 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 immdiately (within 1 second) after the ABS indicator light go OFF.

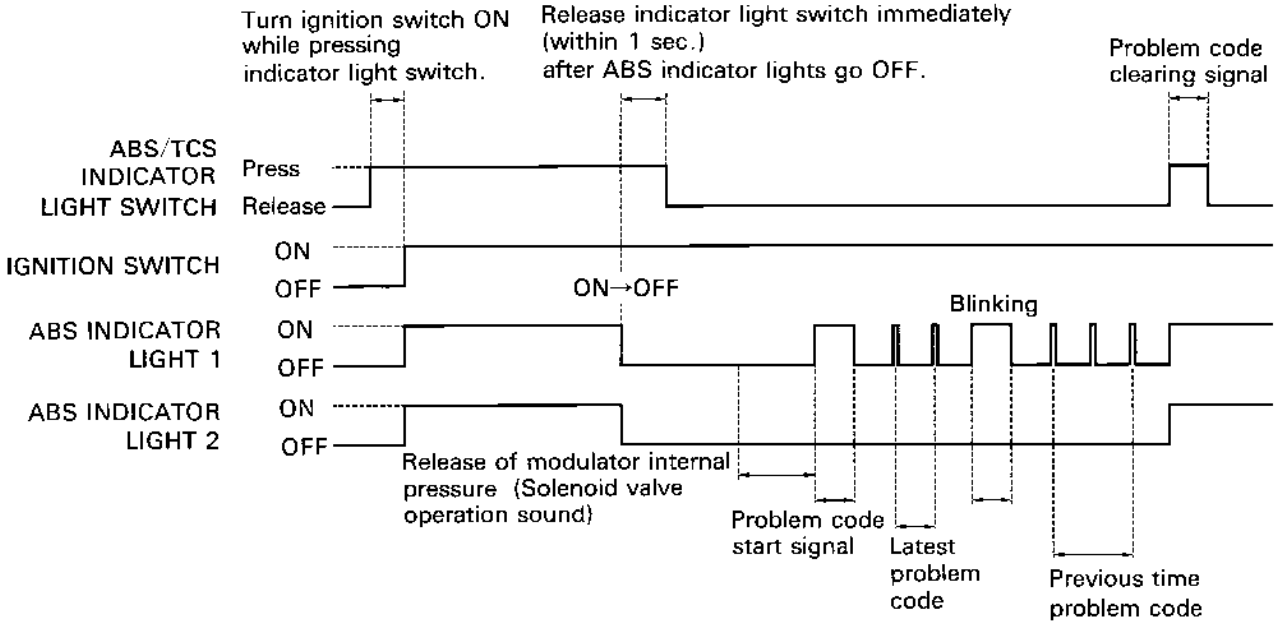
⇨ Output of the problem code starts and the ABS indicator light 1 blinks. (The ABS indicator light 2 is OFF this time.)



Clearing:

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

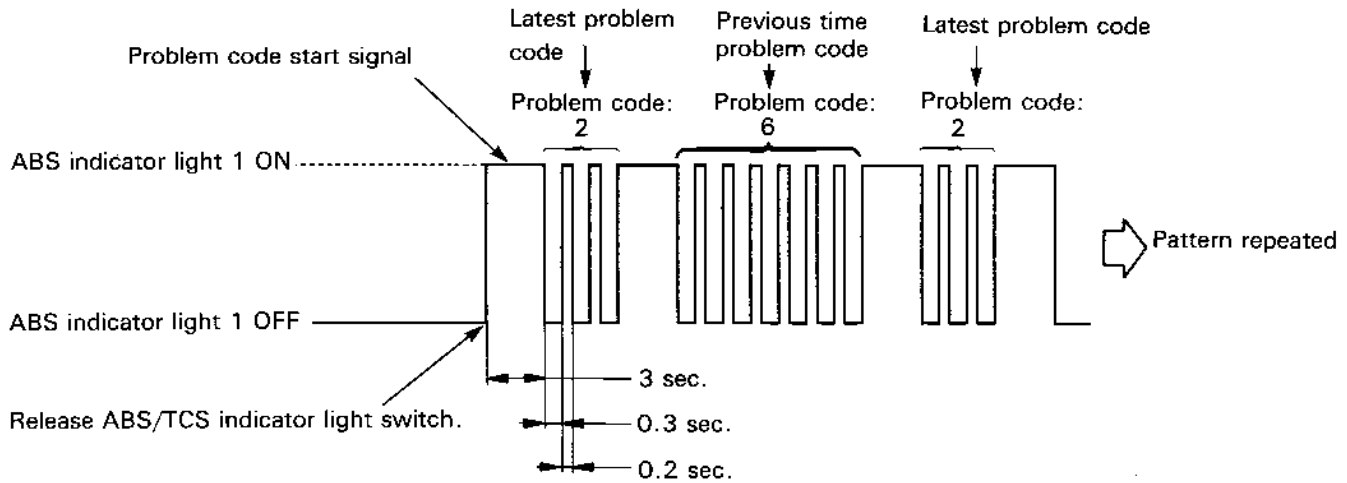
⇨ The Problem code is cleared and the ABS indicator light 1 and 2 comes ON and stay ON.



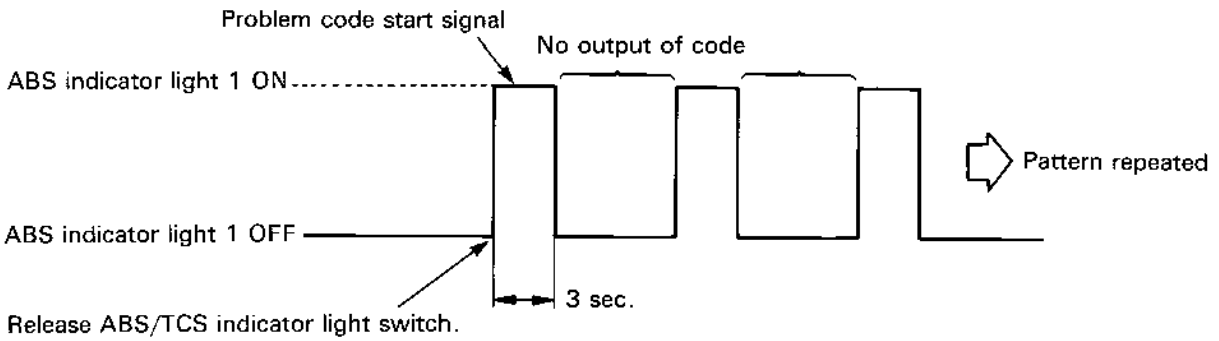
Problem code indication pattern

Example:

- When the problem code is stored;



- When the problem code not stored;



NOTE

- The ECU can store up to two problem codes. The latest problem code is output first, then the previous one is output, When the two problem codes are output, diagnose on the latest problem code (i.e. code output first).
- After troubleshooting, perform the pre-start self-diagnosis again to be sure that there is no problem in the ABS indicator lights and the problem code is cleared.
- See page 16-A-46 for the problems that are not represented with the problem codes.
- Check the following before performing ABS troubleshooting:
  - Pre-start self-diagnosis of ABS
  - ABS indicator light

  If an abnormality is found during the above checks, perform the ABS toubleshooting following the Symptom-to-System Chart (see the following page). The ABS is normal if no trouble is found. Go on to the check the other basic systems (e.g., brake system).

Symptom-to-System Chart

Problem		Affected																						
		Fuse				Modulator								ABS main relay	Wheel sensor		Pulser ring		Power circuit (charging)	Wire harness	Control unit (ECU)	ABS indicator light	Indicator control unit	Reference page
Problem code	Item	ABS main	Pump motor	Solenoid		Pump motor		Pump motor relay		Solenoid valve		Limit switch												
				Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear		Front	Rear	Front	Rear						
①	Faulty front hydraulic pressure circuit system		○			○		○				○								○	○			16-A-9
②	Faulty rear hydraulic pressure circuit system		○				○		○				○							○	○			16-A-16
③	Faulty front hydraulic control system			○						○		○		○						○	○			16-A-23
④	Faulty rear hydraulic control system				○						○		○	○						○	○			16-A-30
⑤	Faulty front wheel speed sensor system														○		○			○	○			16-A-37
⑥	Faulty rear wheel speed sensor system															○		○		○	○			16-A-40
⑦	Faulty ABS main relay													○						○	○			16-A-43
⑧	Faulty power circuit																		○	○				16-A-45
⑨	Faulty control unit (ECU)																				○			16-A-45
\	Problems not recognized by control unit (ECU)	○																	○	○	○	○	○	16-A-46

NOTE

- Check the following before performing ABS troubleshooting.
  - Pre-start self-diagnosis of ABS (page 16-A-5)
  - ABS indicator light (page 16-A-5)

  If an abnormality is found during the above checks, perform the ABS troubleshooting following the Symptom-to-System Chart. The ABS is normal if no trouble is found. If no trouble is found, continue on to the other basic system checks (e.g., brake system).
- After troubleshooting, clear the problem code (page 16-A-6) and perform the pre-start self-diagnosis again (page 16-A-6) to be sure that the ABS indicator light is operating properly.

Flowcharts

NOTE

- Turn the ignition switch OFF unless otherwise specified.
- When the control unit (ECU) or modulator is detected to be faulty, recheck the wire harnesses and connectors connections closely before replacing the control unit or modulator.
- After troubleshooting, perform the pre-start self-diagnosis again and be sure that the ABS indicator light is normal.
- The encircled numbers in the text and connector diagrams indicate the connectors (see page 16-A-3).

Problem code 1: Faulty front hydraulic pressure circuit system

After starting the engine (before riding the motorcycle), check the ABS indicator light.

↓

Does the ABS indicator light blink or stay on?

→ Light stays on.

- Normal
  (Temporary problem: Fine foreign matter in the modulator or the ECU has been disrupted by an extremely powerful radio wave.)

NOTE

- There are two types of modulator pre-start self-diagnosis sounds; 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.

↓ Light blinks.

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 starts.

↓

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

→ Motor sound in both modulators.

(Go to page 16-A-12)

↓ No

No motor sound in either modulator

No motor sound in the front modulator

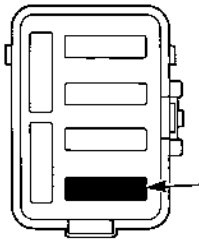
→ (Go to the following page.)

Turn the ignition switch OFF.

↓

Check the pump motor fuse in the ABS fuse case.

ABS FUSE CASE



PUMP MOTOR FUSE (20A)

↓

Is the fuse normal?

→ Burned out.

- Replace the fuse and recheck.

↓ Normal

Disconnect the pump motor relay connectors ⑨ and ⑩.

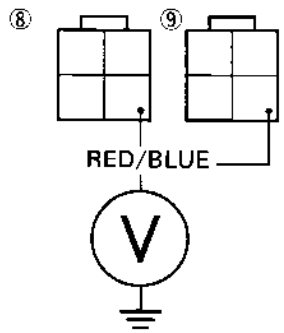
↓

(Continue to the following page)

(From the previous page: Disconnect the pump motor relay connectors ⑨ and ⑩.)

Check for voltage between the pump motor relay connector ⑧ and ⑨ terminals and the body ground respectively.

View from terminal side.



Does battery voltage register?

No battery voltage → • Repair open in the RED or RED/BLUE harnesses between the battery and pump motor relay.

Battery voltage

Check the harnesses and connectors for secure connection (page 16-A-3).

(From the previous page: No motor sound in the front modulator)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Check whether the front and rear pump motor sounds interchanged with each other.

Did the pump motor sounds interchange? (No motor sound in the rear pump motor?)

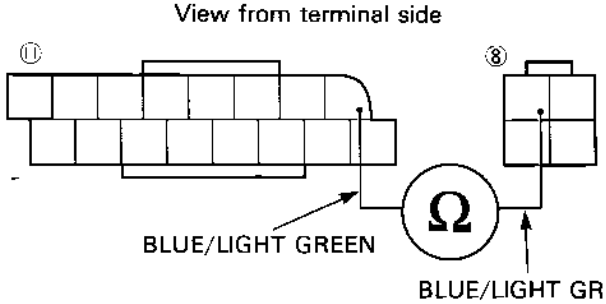
Interchanged. → • Faulty pump motor relay

Did not interchange.

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑧ and the BLACK connector ⑪ of the ECU.

View from terminal side



Check for continuity between the pump motor relay connector ⑧ terminal and the BLACK connector ⑪ terminal of the ECU.

(Continue to the following page)

(From the previous page)

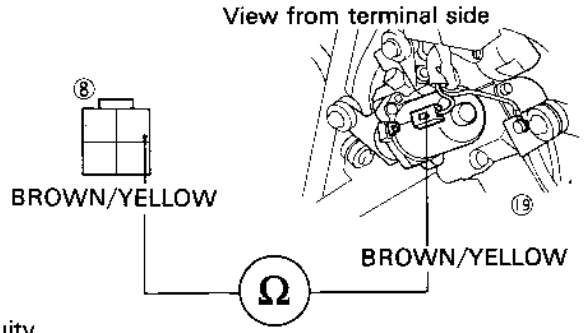
Is there continuity?

No continuity → · Repair open in the BLUE/LIGHT GREEN harness between the pump motor relay and ECU.

Continuity

Disconnect the pump motor connector ⑲.

Check for continuity between the pump motor relay connector ⑧ terminal and pump motor connector ⑲ terminal.



Is there continuity?

No continuity → · Repair open in the BROWN/YELLOW harness between the pump motor relay and pump motor.

Continuity

Install the pump motor relay connector ⑧, pump motor connector ⑲ and the BLACK connector ⑪ of the ECU.

Start the engine and check the front pump motor relay for a clicking sound at the relay contact point.

Is there a clicking sound in the relay?

Sound → · Faulty modulator

No sound

· Faulty ECU

(From page 16-A-9: Motor sound in both modulators.)

Front motor sounds for approximately 5 seconds, then it stops. (Normally it should sound for 3 seconds.)

Front motor sound does not stop. → (Go to page 16-A-14.)

Motor sound is normal. (It stops within 3 seconds.) → (Go to page 16-A-15.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Did the front and rear motor sounds interchange with each other?

- Interchanged. → • Faulty pump motor relay
- Did not interchange.

Check the modulator limit switch connector ⑬ for secure connection.

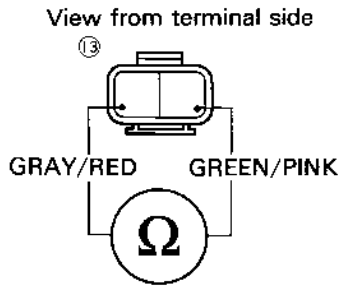
Is it connected securely?

- Poor connection → • Connect securely and recheck.
- Secure connection

Turn the ignition switch OFF.

Disconnect the limit switch connector ⑬.

Start the engine. Check for continuity between the switch side terminals of the limit switch connector ⑬ during pump motor rotation (see page 16-9).



Is there continuity during pump motor rotation?

- No continuity → • Repair open in the limit switch side GRAY/RED or GREEN/PINK harness.
  • Faulty modulator
- Continuity

Clear the problem code.

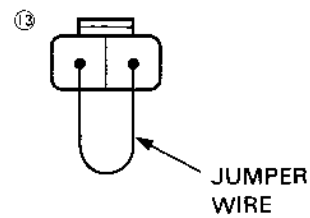
(Continue to the following page)

(From the previous page)

Turn the ignition switch OFF.

Connect the main harness side terminals of the limit switch connector ⑬ with a piece of jumper wire.

View from terminal side



Perform the pre-start self-diagnosis and retrieve the problem code.

Is the problem code "3"?

Problem code "3"

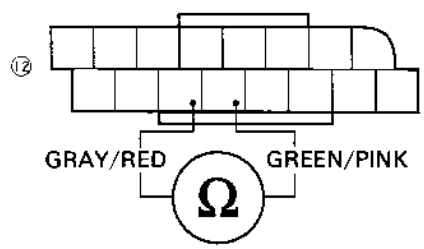
- Check the harnesses and connectors for secure connection (page 16-A-3).

Problem code "1"

Turn the ignition switch OFF.

View from terminal side

Disconnect the WHITE connector ⑫ of the ECU.



While connecting the main harness side terminals of the limit switch connector ⑬ with a jumper wire, check for continuity between the WHITE connector ⑫ terminals of the ECU.

Is there continuity?

No continuity

- Repair open in GRAY/RED or GREEN/PINK harness between the ECU and modulator (limit switch).

Continuity

- Faulty ECU

(From page 16-A-12: Front motor sound does not stop.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Did the front and rear motor sounds interchange with each other?

Interchanged.

- Faulty motor relay

Did not interchange.

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑧ and BLACK connector ⑪ of the ECU.

Check for continuity between the pump motor relay connector ⑧ terminals and body ground respectively.

Is there continuity?

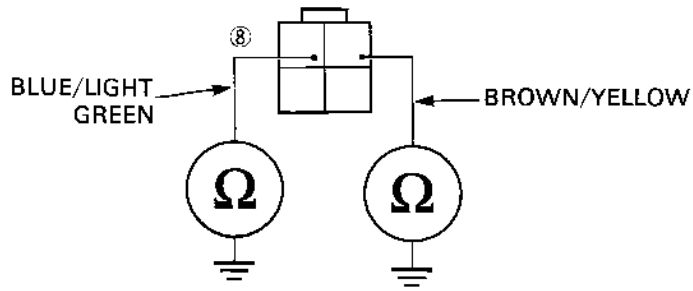
Continuity

- Repair short in the BLUE/LIGHT GREEN or BROWN/YELLOW harness between the pump motor relay and ECU.

No continuity

- Faulty ECU

View from terminal side



(From page 16-A-12: Motor sound is normal.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Perform the pre-start self-diagnosis and retrieve the problem code.

Is the problem code "2"?

Problem code "2"

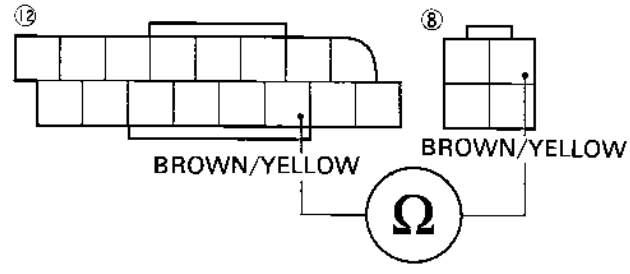
- Faulty front pump motor relay

Problem code "1"

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑧ and WHITE connector ⑫ of the ECU.

View from terminal side



Check for continuity between the pump motor relay connector ⑧ and WHITE connector ⑫ of the ECU.

Is there continuity?

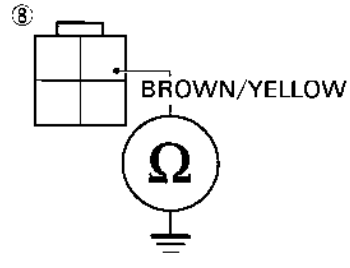
No continuity

- Repair open in the BROWN/YELLOW harness between the pump motor relay and ECU.

Continuity

Disconnect the front and rear modulator pump motor connectors ⑲ and ⑳.

View from terminal side



Check for continuity between the pump motor relay connector ⑧ and body ground.

Is there continuity?

Continuity

- Repair short in the BROWN/YELLOW harness between the pump motor relay and ECU.

No continuity

- Faulty ECU

Problem code 2: Faulty rear hydraulic pressure circuit system

After starting the engine (before riding the motorcycle), check the ABS indicator light.

Does the ABS indicator light blink or stay on?

Light stays on.

- Normal (Temporary problem: Fine foreign matter in the modulator or the ECU has been disrupted by an extremely powerful radio wave.)

Light blinks.

NOTE

- There are two types of the modulator pre-start self-diagnosis sounds; 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 starts.

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

Motor sound in both modulators.

(Go to page 16-A-19.)

No

No motor sound in either modulator.

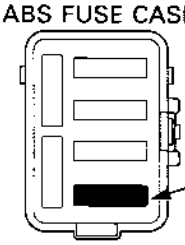
No motor sound in the rear modulator.

(Go to the following page.)

Turn the ignition switch OFF.

Check the pump motor fuse in the ABS fuse case.

ABS FUSE CASE



PUMP MOTOR FUSE (20A)

Is the fuse normal?

Burned out.

- Replace the fuse and recheck.

Normal

Disconnect the pump motor relay connectors ⑨ and ⑩.

(Continue to the following page)

(From the previous page: Disconnect the pump motor relay connectors ⑨ and ⑩.)

Check for voltage between the pump motor relay connector ⑧ and ⑨ terminals and the body ground respectively.

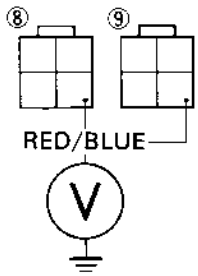
Does battery voltage register?

No battery voltage → Repair open in the RED or RED/BLUE harnesses between the battery and pump motor relay.

Battery voltage

Check the harnesses and connectors for secure connection (page 16-A-3).

View from terminal side



(From the previous page: No motor sound in the rear modulator.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Check whether the front and rear pump motor sounds interchanged with each other.

Did the pump motor sounds interchange? (No motor sound in the front pump motor?)

Interchanged. → Faulty pump motor relay

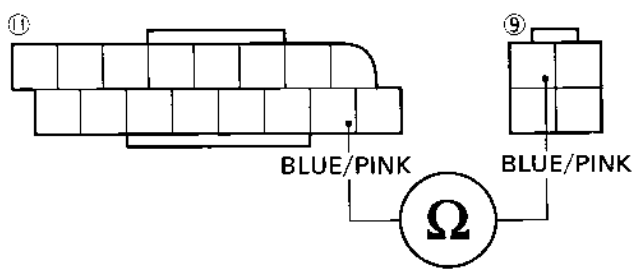
Did not interchange.

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑨ and the BLACK connector ⑪ of the ECU.

Check for continuity between the pump motor relay connector ⑨ terminal and the BLACK connector ⑪ terminal of the ECU.

View from terminal side



(Continue to the following page)

(From the previous page)

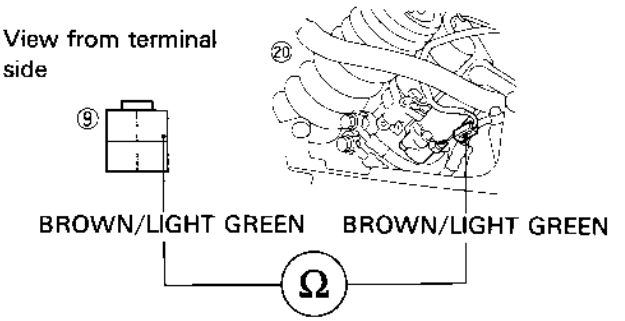
Is there coutinuity?

No continuity → · Repair open in the BLUE/LIGHT GREEN harness between the pump motor relay and ECU.

Continuity

Disconnect the pump motor connector ⑳.

Check for continuity between the pump motor relay connector ⑨ terminal and pump motor connector ⑳ terminal.



Is there continuity?

No continuity → · Repair open in the BROWN/LIGHT GREEN harness between the pump motor relay and pump motor.

Continuity

Install the pump motor relay connector ⑨, pump motor connector ⑳ and the BLACK connector ⑪ of the ECU.

Start the engine and check the front pump motor relay for a clicking sound at the relay contact point.

Is there a clicking sound in the relay?

Sound → · Faulty modulator

No Sound

· Faulty ECU

(From page 16-A-16: Motor sound in both modulators.)

Rear motor sounds for approximately 5 seconds, then it stops. (Normally, it should sound for approximately 3 seconds.)

Rear motor sound does not stop.

(Go to page 16-A-21).

Motor sound is normal. (It stops within 3 seconds.)

(Go to page 16-A-22).

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Did the front and rear motor sounds interchange with each other?

Interchanged.

- Faulty punp motor relay

Did not interchange

Check the modulator limit switch connector ① for secure connection.

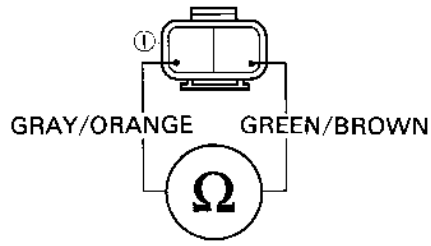
Is it connected securely?

Poor connection

- Connect securely and recheck.

Secure connection

View from terminal side



Turn the ignition switch OFF.

Disconnect the limit switch connector ①.

Start the engine. Check for continuity between the switch side terminals of the limit switch connector ① during pump motor rotation (see page 16-16).

Is there continuity during pump motor rotation?

No continuity

- Repair open in the limit switch side GRAY/ORANGE or GREEN/BROWN harness.
- Faulty modulator

Continuity

Clear the problem code.

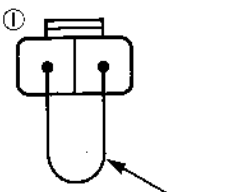
(Continue to the following page)

(From the previous page)

Turn the ignition switch OFF.

Connect the main harness side terminals of the limit switch connector ① with a piece of jumper wire.

View from terminal side



Perform the pre-start self-diagnosis and retrieve the problem code.

Is the problem code "4"?

Problem code "4"

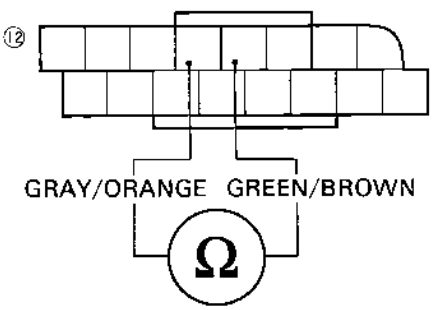
- Check the harness and connector for secure connection (page 16-A-3).

Problem code "2"

Turn the ignition switch OFF.

Disconnect the WHITE connector ⑫ of the ECU.

View from terminal side



While connecting the main harness side terminals of the limit switch connector ① with a jumper wire, check for continuity between the WHITE connector ⑫ terminals of the ECU.

Is there continuity?

No continuity

- Repair open in the GRAY/ORANGE or GREEN/BROWN harness between the ECU and modulator (limit switch).

Continuity

- Faulty ECU

(From page 16-A-19: Rear motor sound does not stop.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Start the engine. Did the front and rear motor sounds interchange with each other?

Interchanged.

- Faulty motor relay

Did not interchange.

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑨ and BLACK connector ⑪ of ECU.

Check for continuity between the pump motor relay connector ⑨ terminals and body ground respectively.

Is there continuity?

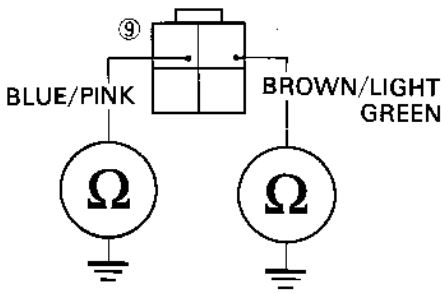
Continuity

- Repair short in the BLUE/PINK or BROWN/LIGHT GREEN harness between the pump motor relay and ECU.

No continuity

- Faulty ECU

View from terminal side



(From page 16-A-19: Motor sound is normal.)

Turn the ignition switch OFF.

Interchange the front and rear pump motor relays with each other.

Perform the pre-start self-diagnosis and retrieve the problem code.

Is the problem code "1"?

Problem code "1"

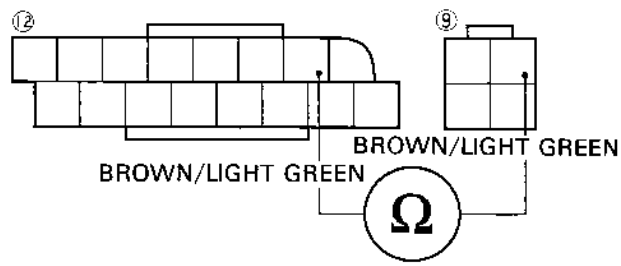
- Faulty rear pump motor relay

Problem code "2"

Turn the ignition switch OFF.

Disconnect the pump motor relay connector ⑨ and WHITE connector ⑫ of the ECU.

View from terminal side



Check for continuity between the pump motor relay connector ⑨ and WHITE connector ⑫ of the ECU.

Is there continuity?

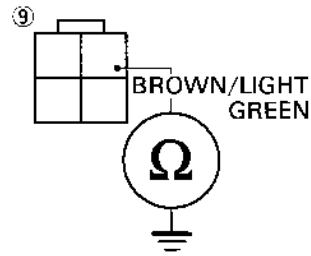
No continuity

- Repair open in the BROWN/LIGHT GREEN harness between the pump motor relay and ECU.

Continuity

Disconnect the front and rear modulator pump motor connectors ⑲ and ⑳.

View from terminal side



Check for continuity between the pump motor relay connector ⑨ and body ground.

Is there continuity?

Continuity

- Repair short in the BROWN/LIGHT GREEN harness between the pump motor relay and ECU.

No continuity

- Faulty ECU

Problem code 3: Faulty front hydraulic control system

Turn the ignition switch ON (but do not start the engine) and check the ABS indicator light 1 and 2.

Does the ABS indicator light blink or come on and stay on?

Light blinks. → Retrieve the problem code and record it. Clear the problem code.

→ Turn the ignition switch OFF.

Light stays on.

Start the engine. Check the ABS indicator light before riding the motorcycle.

Perform the pre-start self-diagnosis (including riding the motorcycle) and check the ABS indicator light.

Does the ABS indicator light blink or stay on?

Light stays on. → (Go to page 16-A-28.)

Light blinks.

Turn the ignition switch OFF.

Does the ABS indicator light blink or go off?

Light goes OFF. → • Check the harness and connector for secure connection (page 16-A-3.)

Light blinks (Appears repeatedly).

Retrieve the problem code again and clear the problem code.

Turn the ignition switch OFF.

Check the solenoid fuse in the ABS fuse case.

Is the fuse normal?

Burned out. → • Replace the fuse and recheck.

Normal

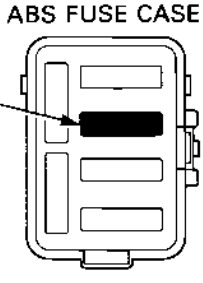
Start the engine. Check the ABS main relay for a clicking sound at the relay contact point immediately after starting the engine.

Is there a clicking sound in the relay?

Sound → (Go to page 16-A-25.)

No sound

(Continue the following page)



(From the previous page)

Disconnect the ABS main relay connector ⑩ and connect the headlight relay instead.

Restart the engine. Check the ABS indicator light 1 and 2 before riding the motorcycle.

Does the ABS indicator light blink or stay on?

Light stays on. → • Faulty ABS main relay

Light blinks.

Disconnect the ABS main relay connector ⑩ from the headlight relay.

Turn the ignition switch ON.

Check for voltage between the ABS main relay connector ⑩ terminal and body ground.

Does battery voltage register?

No battery voltage → • Repair open in the RED/BROWN harness between the ABS main relay and ABS main fuse.

Battery voltage

Turn the ignition switch OFF.

Connect the ABS main relay connector ⑩ to the ABS main relay and disconnect the BLACK connector ⑪ of the ECU.

Turn the ignition switch ON.

Check for voltage between the BLACK connector ⑪ terminal of the ECU and body ground.

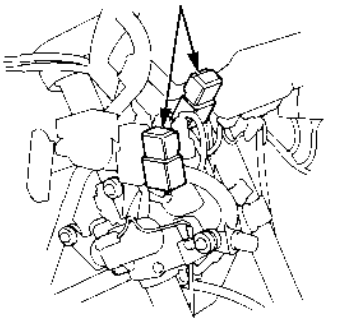
Does battery voltage register?

No battery voltage → • Repair open in the BLUE/GRAY harness between the ABS main relay and ECU.

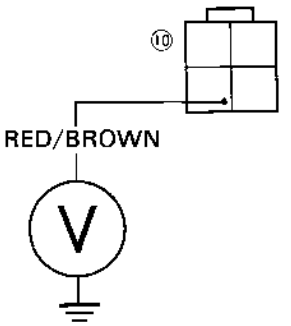
Battery voltage

• Faulty ECU

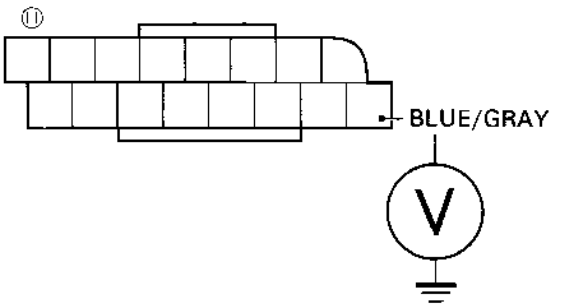
HEADLIGHT RELAY



View from terminal side



View from terminal side



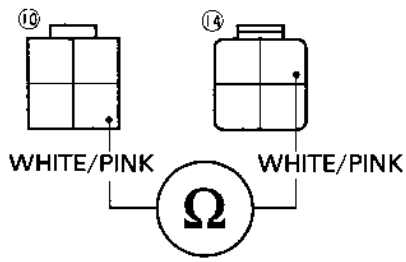
(From page 16-A-23: Operation sound in the ABS main relay.)

Turn the ignition switch OFF.

Disconnect the ABS main relay connector ⑩ and solenoid valve connector ⑭.

Check for continuity between the ABS main relay connector ⑩ terminal and the main harness side terminal of the solenoid valve connector⑭.

View from terminal side



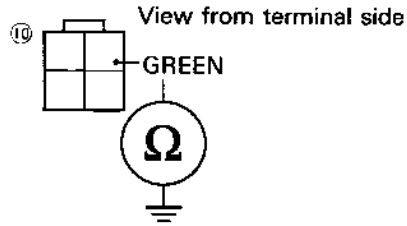
Is there continuity?

No continuity → Repair open in the WHITE/PINK harness between the ABS main relay and modulator (solenoid valve).

Continuity

Check for continuity between the ABS main relay connector ⑩ terminal and body ground.

View from terminal side



Is there continuity?

No continuity → Open harness between the ABS main relay and modulator ground terminal⑱, or poor grounding.

Continuity

Install the ABS main relay connector ⑩ and solenoid valve connector ⑭.

Retrieve the problem code. Check whether the valve operation sound (i.e., clattering sound) can be heard for approximately 3 seconds before the problem code appears.

Is there the operation sound?

Operation sound → Go to page 16-A-27

No operation sound

Turn the ignition switch OFF.

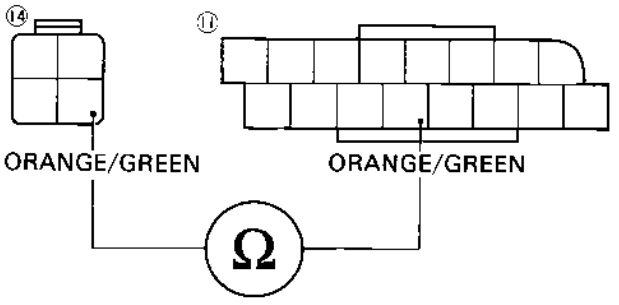
(Continue to the following page)

(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

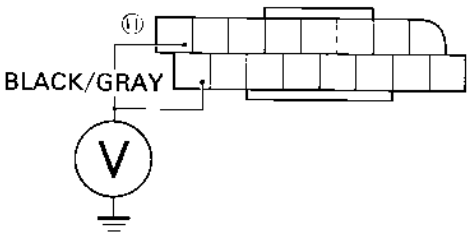
- Repair open in the ORANGE/GREEN harness between the modulator (solenoid valve) connector and ECU.

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



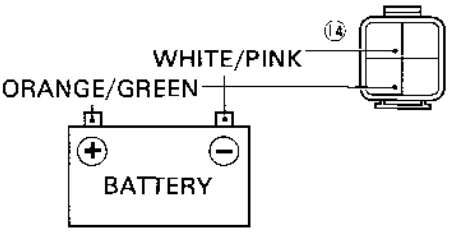
Does battery voltage register?

No battery voltage

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

Battery voltage

View from terminal side



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

When connecting, is there the valve operation sound (i.e., clattering 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

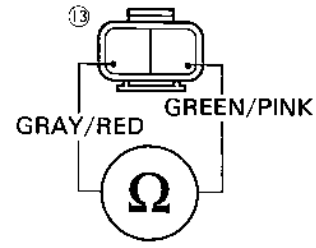
- **Connect to the battery terminals securely. Be sure not to connect to the battery terminals for more than 5 seconds continuously.**

(From page 16-A-25: Valve operation sound.)

After checking the operation sound, turn the ignition switch OFF and disconnect the limit switch connector ⑬.

Check for continuity between the switch side terminals of the limit switch connector⑬.

View from terminal side

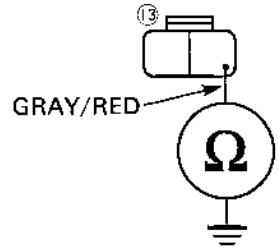


Is there continuity?

- Continuity → · Faulty modulator
- No continuity

Disconnect the WHITE connector ⑫ of the ECU.

View from terminal side



Check for continuity between the main harness side terminal of the limit switch connector ⑬ and body ground.

Is there continuity?

- Continuity → · Repair short in the GRAY/RED harness between the ECU and limit switch connector.
- No continuity → · Faulty ECU

(From page 16-A-23: ABS indicator light stays on.)

Start the motorcycle. Raise the vehicle speed to 10 km/h (6 mile/h) and check the ABS indicator light. (After checking, the motorcycle can be parked.)

The ABS indicator light 1 and 2 blink as the motorcycle starts to move.

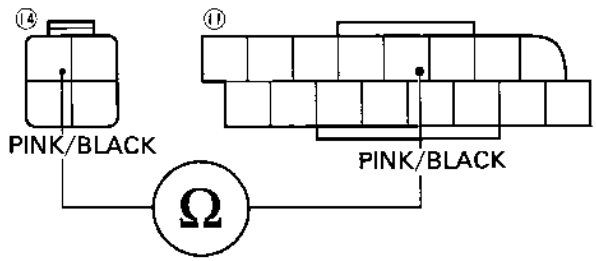
The ABS indicator light 1 and 2 go off once as the motorcycle starts to move, then they blink.

Go to page 16-A-29

Turn the ignition switch OFF.

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

View from terminal side



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

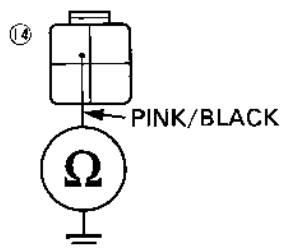
Is there continuity?

No continuity → Repair open in the PINK/BLACK harness between the solenoid connector and ECU.

Continuity

With the BLACK connector of the ECU disconnected, check for continuity between the main harness side terminal of the solenoid valve connector ⑭ and body ground.

View from terminal side



Is there continuity?

Continuity → Repair short in the PINK/BLACK harness between the solenoid connector and ECU.

No continuity

Connect the BLACK connector ⑪ of the ECU.

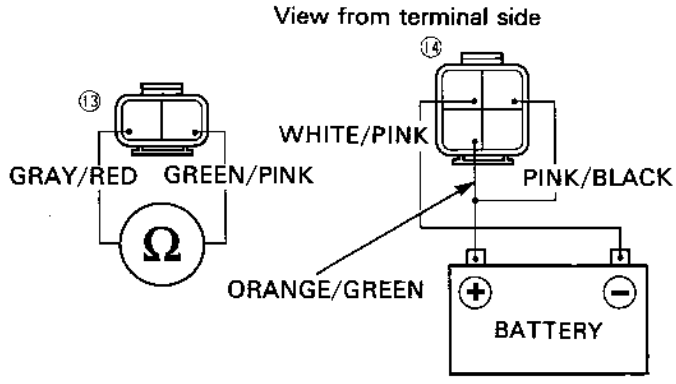
Disconnect the limit switch connector ⑬.

(Continue to the following page)

(From the previous page)

Check for continuity between the switch side terminals of the limit switch connector ⑬.

Connect the valve side terminals of the solenoid valve connector ⑭ to the battery terminals, and check for continuity between the switch side terminals of the limit switch connector ⑬.
- Connect the PINK/BLACK (Inlet valve side) harness to the terminal first, then connect the ORANGE/GREEN (Outlet valve side) harness immediately.



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/GREEN harness?

Continuity stops. → • Faulty modulator

Continuity

• Faulty ECU

(From page 16-A-28: The ABS indicator light 1 and 2 go off as the motorcycle starts to move, then they blink.)

Retrieve the problem code.

Is the problem code "3"?

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

Problem code "3"

• Faulty ECU

Problem code 4: Faluty rear hydraulic control system

Turn the ignition switch ON (but do not start the engine) and check the ABS indicator light 1 and 2.

Does the ABS indicator light blink or come on and stay on?

Light blinks.

Retrieve the problem code and record it. Clear the problem code.

Turn the ignition switch OFF.

Light stays on.

Start the engine. Check the ABS indicator light before riding the motorcycle.

Perform the pre-start self-diagnosis (including riding the motorcycle) and check the ABS indicator light.

Light stays on.

Does the ABS indicator light blink or stay on?

Light blinks.

Light go OFF.

Does the ABS indicator light blink or go off?

Light blinks (Appears repeatedly).

Retrieve the problem code again and clear the problem code.

Turn the ignition switch OFF.

Turn the ignition switch OFF.

- Check the harness and connector for secure connection (page 16-A-3).

Check the solenoid fuse in the ABS fuse case.

(Go to page 16-A-35).

Is the fuse normal?

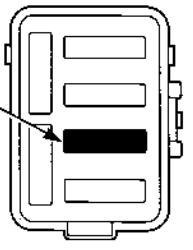
Burned out.

- Replace the fuse and recheck.

Normal

ABS FUSE CASE

REAR SOLENOID FUSE



Start the engine. Check the ABS main relay for a clicking sound at the relay contact point immediately after starting the engine.

Is there a clicking sound in the relay?

Sound

(Go to page 16-A-32).

No sound

(Continue to the following page)

(From the previous page)

Disconnect the ABS main relay connector ⑩ and connect the headlight relay instead.

Restart the engine. Check the ABS indicator light before riding the motorcycle.

Does the ABS indicator light 1 and 2 stay on?

Light stays on. → • Faulty ABS main relay

Light blinks.

Disconnect the ABS main relay connector ⑩ from the headlight relay.

Turn the ignition switch ON.

Check for voltage between the ABS main relay connector ⑩ terminal and body ground.

Does battery voltage register?

No battery voltage → • Repair open in the RED/BROWN harness between the ABS main relay and ABS main fuse.

Battery voltage

Turn the ignition switch OFF.

Connect the ABS main relay connector ⑩ to the ABS main relay and disconnect the BLACK connector ⑪ of the ECU.

Turn the ignition switch ON.

Check for voltage between the BLACK connector ⑪ terminal of the ECU and body ground.

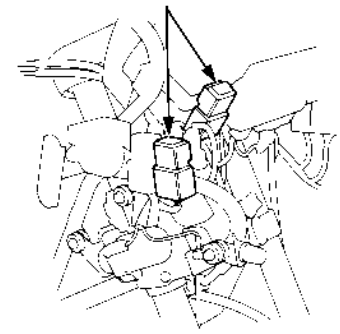
Does battery voltage register?

No battery voltage → • Repair open in the BLUE/GRAY harness between the ABS main relay and ECU.

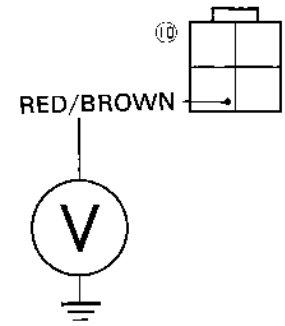
Battery voltage

• Faulty ECU

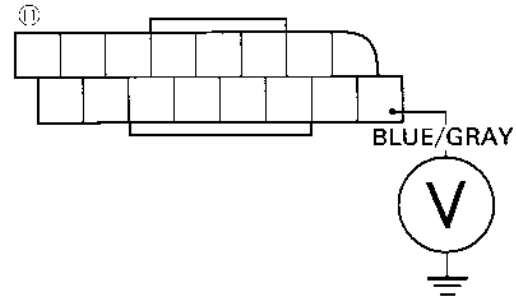
HEADLIGHT RELAY



View from terminal side



View from terminal side



(From page 16-A-30: Operation sound in the ABS main relay.)

Turn the ignition switch OFF.

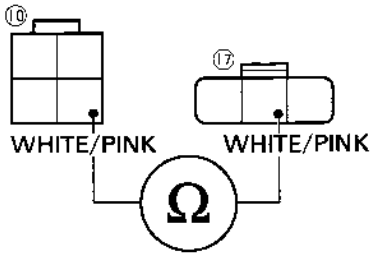
Disconnect the ABS main relay connector ⑩ and solenoid valve connector ⑰.

Check for continuity between the ABS main relay connector⑩ terminal and the main harness side terminal of the solenoid valve connector ⑰.

Is there continuity?

No continuty → • Repair open in the WHITE/PINK harness between the ABS main relay and modulator (solenoid valve).

View from terminal side



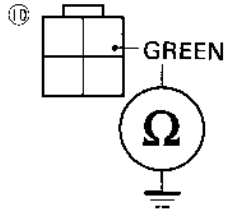
Continuity

Check for continuity between the ABS main relay connector ⑩ terminal and body ground.

Is there continuity?

No continuity → • Open harness between the ABS main relay and modulator ground terminal ㉑, or poor grounding.

View from terminal side



Continuity

Install the ABS main relay connector ⑩ and solenoid valve connector ⑰.

Retrieve the problem code. Check whether the valve operation sound (i.e. clattering sound) can be heard for approximately 3 seconds before the problem code appears.

Is there the operation sound?

Operation sound → Go to page 16-A-34.

No operation sound.

Turn the ignition switch OFF.

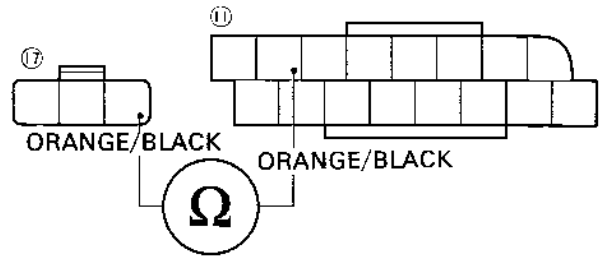
(Continue to the following page)

(From the previous page)

Disconnect the solenoid valve connector ⑰ and BLACK connector ⑪ of the ECU.

Check for continuity between the main harness side terminal of the solenoid valve connector ⑰ and BLACK connector ⑪ of the ECU.

View from terminal side



Is there continuity?

No continuity

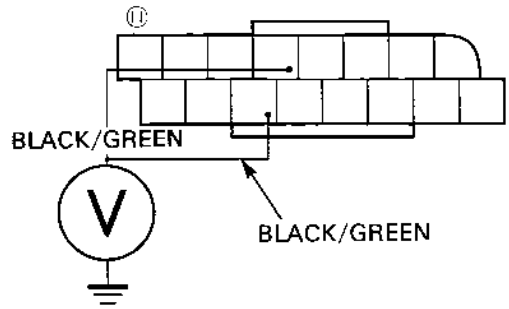
- Repair open in the ORANGE/BLACK harness between the modulator (solenoid valve) connector and ECU.

Continuity

- Turn the ignition switch ON.

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

View from terminal side



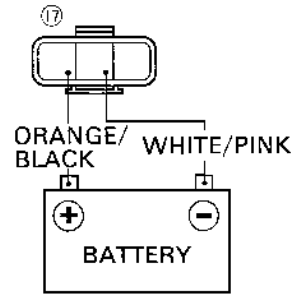
Does battery voltage register?

No battery voltage

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

Battery voltage

View from terminal side



Connect the valve side terminals of the solenoid valve connector ⑰ to the battery terminals.
ORANGE/BLACK: Positive (+)
WHITE/PINK: Negative (−)

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

No operation sound

- Repair open in the ORANGE/BLACK 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 page 16-A-32: Valve operation sound.)

After checking the operation sound, turn the ignition switch OFF and disconnect the limit switch connector ①.

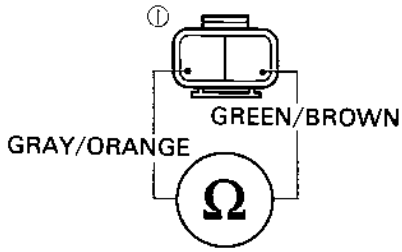
Check for continuity between the switch side terminals of the limit switch connector ①.

Is there continuity?

Continuity → · Faulty modulator

No continuity

View from terminal side



Disconnect the WHITE connector ⑫ of the ECU.

Check for continuity between the main harness side terminal of the limit switch connector ① and body ground.

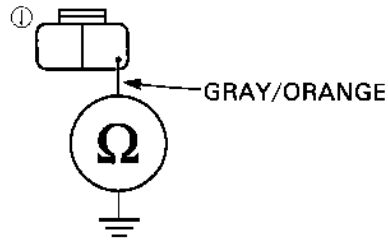
Is there continuity?

Continuity → · Repair short in the GRAY/ORANGE harness between the ECU and limit switch connector.

No continuity

· Faulty ECU

View from terminal side



(From page 16-A-30: ABS indicator light stays on.)

Start the motorcycle. Raise the vehicle speed to 10 km/h (6 mile/h) and check the ABS indicator light. (After checking, the motorcycle can be parked.)

The ABS indicator light 1 and 2 blink as the motorcycle start to move.

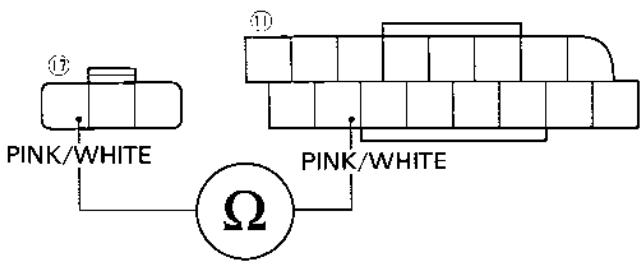
The ABS indicator light 1 and 2 go off once as the motorcycle starts to move, then they blink.

(Go to page 16-A-36.)

Turn the ignition switch OFF.

Disconnect the solenoid valve connector ⑰ and BLACK connector ⑪ of the ECU.

View from terminal side



Check for continuity between the main harness side terminal of the solenoid valve connector ⑰ and BLACK connector ⑪ of the ECU.

Is there continuity?

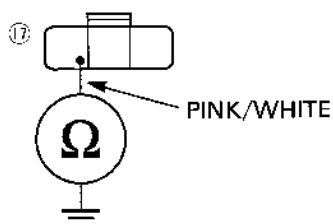
No continuity

- Repair open in the PINK/WHITE harness of the solenoid connector and ECU.

Continuity

With the BLACK connector of the ECU disconnected, check for continuity between the main harness side terminal of the solenoid valve connector ⑰ and body ground.

View from terminal side



Is there continuity?

Continuity

- Repair short in the PINK/WHITE harness between the solenoid connector and ECU.

No continuity

Connect the BLACK connector ⑪ of the ECU.

Disconnect the limit switch connector ①.

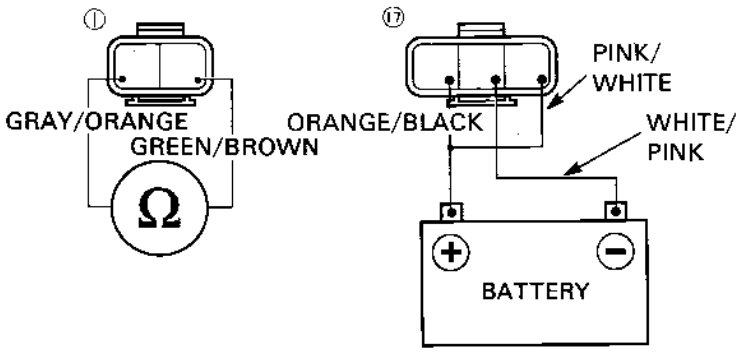
(Continue to the following page)

(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 (Inlet valve side) harness to the battery first, then connect the ORANGE/BLACK (Outlet valve 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-A-35: The ABS indicator light 1 and 2 go off as the motorcycle starts to move, 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-A-3).

Problem code "4"

· Faulty ECU

Problem code 5: Faulty front wheel speed sensor system

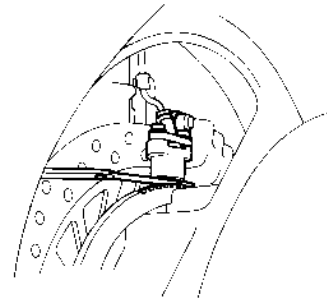
CAUTION

- **When removing/installing the wheel sensor and wheel, take care not to damage the tip of the sensor.**

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 warning light goes off. However, the problem code is stored in the ECU. Ask the rider for the riding conditions in detail when he brings his motorcycle to your dealership for inspection.
  - The motorcycle has continuously run on bumpy road.
  - After riding on the road(after the pre-start self diagnosis), the engine was kept running and the rear wheel turning (for more than 30 seconds) with the motorcycle placed on the center stand.

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



Place the motorcycle on its center stand and measure the air gap between the pulser ring and wheel sensor.
Standard: 0.8 ± 0.4 mm (0.031 ± 0.016 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.) ?
- Defomed and/or damaged → · Replace the pulser ring and recheck.
- Not deformed and damaded ↓

Is there iron or other magnetic deposits between the pulser ring and wheel sensor?
- Deposits → · Remove the deposits and recheck.
- No deposits ↓

NOTE

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

Are the pulser ring, wheel sensor, and caliper bracket loosely installed?
- Loosely installed. → · Correct deformation. Install securely and re-check.
- Securely installed. ↓

(Contiue to the following page)

(From the previous page)

- Check the wheel sensor signal in the ECU.

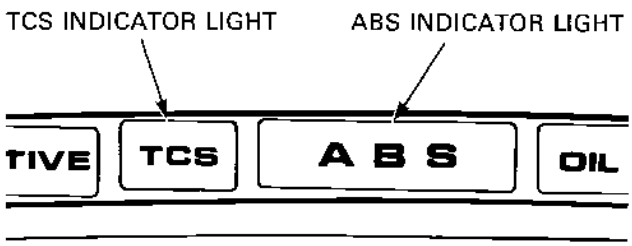
Retrieve the problem code and record it. Clear the problem code.

Turn the front wheel [Vehicle speed: approximately 4 km/h (2.5 mile/h) or above, i.e.as fast as when the wheel is turned with all your strength by hand.]

Check the ABS indicator light.

NOTE

- Turn the front wheel with the problem code cleared. (Do not operate the ignition switch after clearing the problem code.)



Does the light blink or stay on?

Light blinks. (Sensor signal is input in the ECU.)

- Check the harness and connector for secure connection (page 16-A-3).

Light stays on.

Perform the pre-start self-diagnosis (including riding the motorcycle), then check the TCS indictor light.

Does the light stay on or go off?

Light goes off.

- Repair open in the BLUE/GREEN harness between the wheel sensor and ABS ECU.
- Faulty ABS ECU

Does not go off.

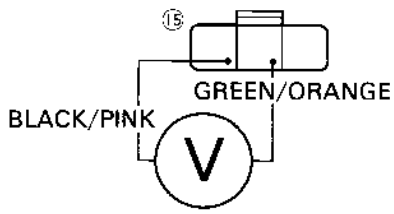
Turn the ignition switch OFF.

Disconnect the wheel sensor connector ⑮.

Turn the ignition switch ON.

Check for voltage between the main harness side terminals of the wheel sensor connector ⑲.

View from terminal side



Does battery voltage register?

No battery voltage

- Repair open in the BLACK/PINK or GREEN/ORANGE harness between the wheel sensor and ABS ECU.
- Faulty ABS ECU

Battery voltage

(Continue to the following page)

(From the previous page)

Turn the ignition switch OFF.

Disconnect the WHITE connector ⑫ of the ECU.

Check for continuity between the WHITE connector ⑫ terminal of the ECU and the main harness side terminal of the wheel sensor connector ⑮.

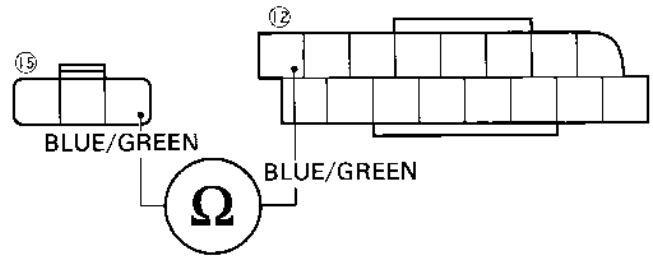
Is there continuity?

No continuity → · Repair open in the BLUE/GREEN harness between the wheel sensor and ABS ECU.

Continuity

· Faulty wheel sensor

View from terminal side



Problem code 6: Faulty rear wheel speed sensor system

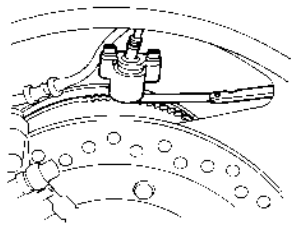
CAUTON

- **When removing/installing the wheel sensor and wheel, take care not to damage the tip of the sensor.**

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 warning light goes off. However, the problem code is stored in the ECU. Ask the rider for the riding conditions in detail when he brings his motorcycle to your dealership for inspection. (Was the motorcycle has continuously run on bumpy road?)
- When the rear wheel sensor or rear pulser ring is replaced, perform the air gap inspection (page 16-A-51).

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



Place the motorcycle on its center stand and measure the air gap between the pulser ring and wheel sensor.
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 sensor?
- Deposits → • Remove the deposits and recheck.
- No deposits ↓

NOTE

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

Are the pulser ring, wheel sensor, and caliper bracket loosely installed?
- Loosely installed. → • Correct deformation. Install securely and recheck.
- Securely installed. ↓

(Continue to the following page)

(From the previous page)

- Check the wheel sensor signal in the ECU.

Retrieve the problem code and record it. Clear the problem code.

Turn the rear wheel [Vehicle speed: approximately 4 km/h (2.5 mile/h) or above, i.e. as fast as when the wheel is turned with all your strength by hand.]

Check the ABS indicator light.

Does the light blink or stay on?

Light blinks. (Sensor signal is input in the ECU.)

- Check the harness and connector for secure connection (page 16-A-3).

Light stays on.

Perform the pre-start self-diagnosis (including riding the motorcycle), then check the TCS indicator light.

Does the light stay on or go off?

Light goes off.

- Repair open in the BLUE/GREEN harness between the wheel sensor and ABS ECU.
- Faulty ABS ECU

Does not go off.

Turn the ignition switch OFF.

Disconnect the wheel sensor connector ⑯.

Turn the ignition switch ON.

Check for voltage between the main harness side terminals of the wheel sensor connector ⑯.

Does battery voltage register?

No battery voltage

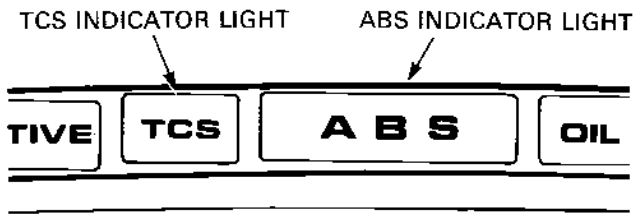
- Repair open in the BLACK/ORANGE or GREEN/GRAY harness between the wheel sensor and ABS ECU.
- Faulty ABS ECU

Battery voltage

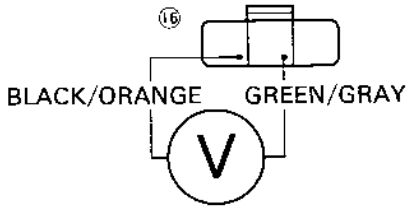
(Continue to the following page)

NOTE

- Turn the rear wheel with the problem code cleared. (Do not operate the ignition switch after clearing the problem code.)



View from terminal side



(From the previous page)

Turn the ignition switch OFF.

Disconnect the WHITE connector ⑫ of the ECU.

Check for continuity between the WHITE connector ⑫ terminal of the ECU and the main harness side terminal of the wheel sensor connector ⑯.

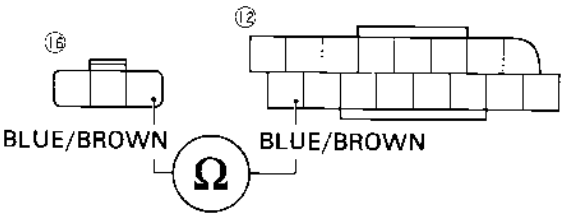
Is there continuity?

No continuity → · Repair open in the BLUE/BROWN harness between the wheel sensor and ABS ECU.

continuity

· Faulty wheel sensor

View from terminal side



Problem code 7: Faulty ABS main relay system

Disconnect the ABS main relay connector ⑩.

Perform the pre-start self-diagnosis and retrieve the problem code.

Problem code "3" / Problem code "7" → (Go to the following page.)

Clear the problem code.

Connect the headlight relay to the ABS main relay connector ⑩.

Perform the pre-start self- diagnosis and check the ABS indicator light.

Does the light blink or go off?

- Light goes off. → · Faulty ABS main relay
- Light blinks.

Connect the ABS main relay to the ABS main relay connector ⑩. (Return to the original condition.)

Disconnect the BLACK connector ⑪of the ECU.

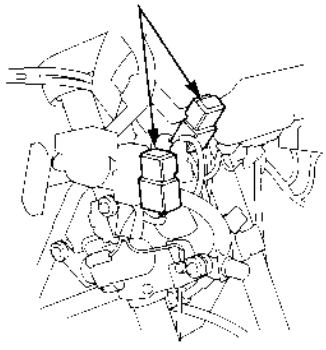
Turn the ignition switch ON and check the ABS main relay for the operation sound (i.e.clattering sound).

Is there a clattering sound?

- Clattering sound → · Repair short in the BLUE/GRAY harness between the ABS main relay and ECU.
- No clattering sound

· Faulty ECU

HEADLIGHT RELAY



(From the previous page: problem code "7")

Clear the problem code.

Disconnect the front and rear modulator solenoid connectors ⑭ and ⑰.

Perform the pre-start self- diagnosis and retrieve the problem code.

Problem code "7" / Problem code "3"

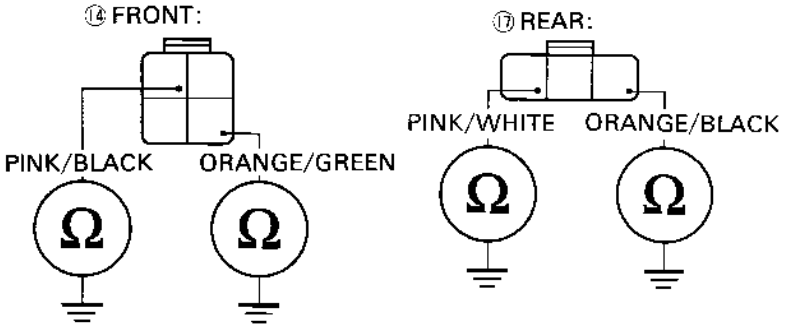
- Problem code "3" → Repair short in the WHITE/PINK harness between the ABS main relay and solenoid.

Turn the ignition switch OFF.

Disconnect the BLACK connector ⑪ of the ECU.

Check for continuity between the harness side terminals of the solenoid connectors ⑰ or ⑭ and the body ground respectively.

View from terminal side



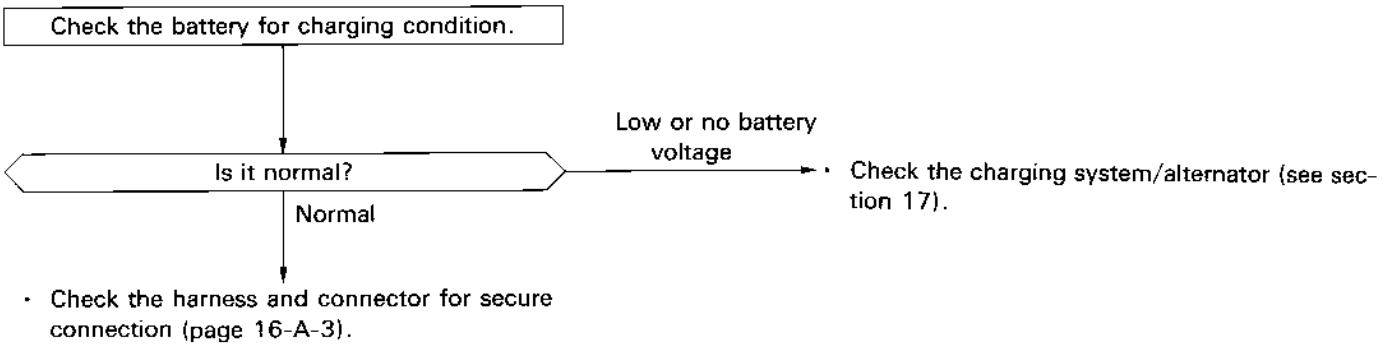
Is there continuity?

- Continuity → Repair short in the ORANGE/BLACK and PINK/WHITE, or ORANGE/GREEN and PINK/BLACK harnesses between the ECU and solenoid.
- No continuity → Faulty ECU

Problem code 8: Faulty power circuit

NOTE

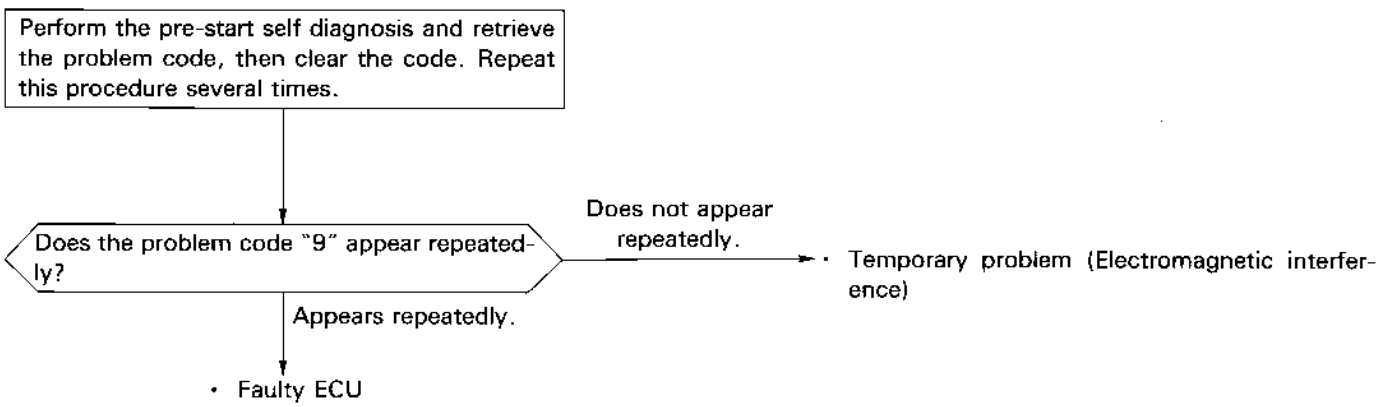
- Before starting the troubleshooting, check to see whether the idle speed conforms to the specified speed. If the idle speed is below specification, adjust idle speed.
- Ask the rider about the following when the motorcycle is brought in for inspection.
  - Ask whether the motorcycle has been run with electrical accessories.
  - Ask whether the motorcycle has been left for a long time with the ignition switch in the ON position. This problem code will light up to indicate battery discharge.



Problem code 9: Faulty ECU

NOTE

- The ABS indicator light blinks or comes on and stays on when the ECU has been disrupted by an extremely powerful radio wave (Electromagnetic Interference). This is just a temporary symptom. Clear the problem code and the ECU will operate normally unless the symptom recurs.



Trouble not represented by a problem code

– **Abnormal sound from the modulator**
(Difference in sound level is twice or more 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 connections 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.**

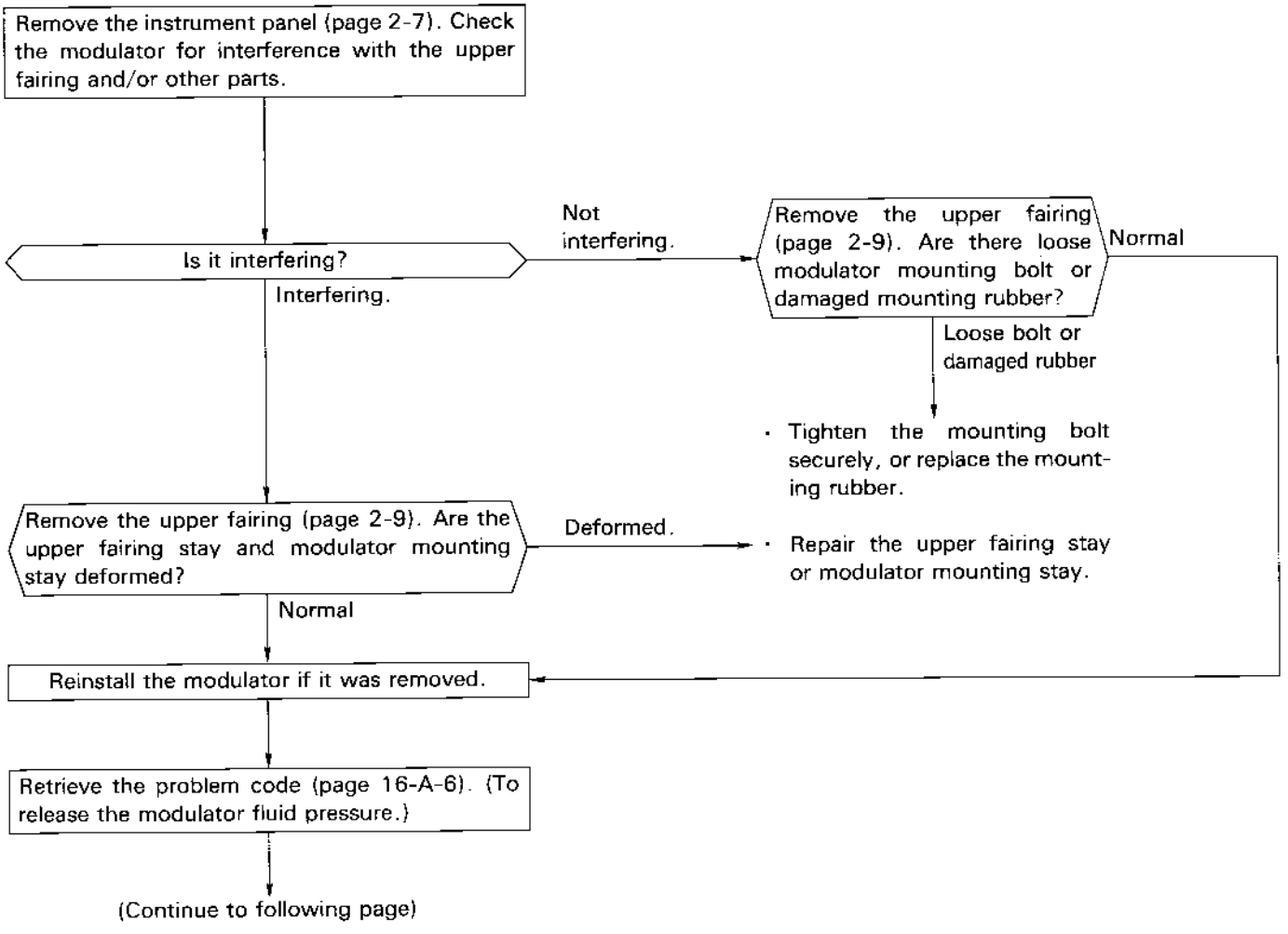
CAUTION

- **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; the solenoid valve clattering sound and the pump motor beep sound.

Front modulator:



(Continue to following page)

(From the previous page)

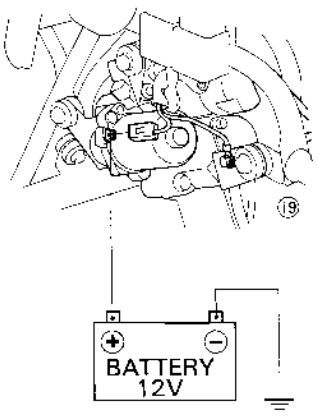
Turn the ignition switch OFF.

Remove the right side cover (to compare the modulator sound between the front and rear modulators).

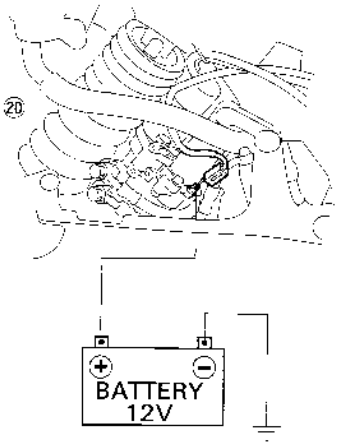
Disconnect the pump motor connectors (⑲ and ⑳) from the front and rear modulators.

Connect the front and rear pump motor terminals to the battery respectively, and compare the sound (motor sound) between the front and rear modulators.

FRONT MODULATOR



REAR MODULATOR



Does the sound change within 3 seconds after connecting the pump motor terminal to the battery, and does the sound level drop?

Sound changes and drops at the front and rear modulators.

- Normal: Recheck the front modulator for proper mounting (page 16-A-46). (Improper mounting may cause unnecessary vibrational noise.)

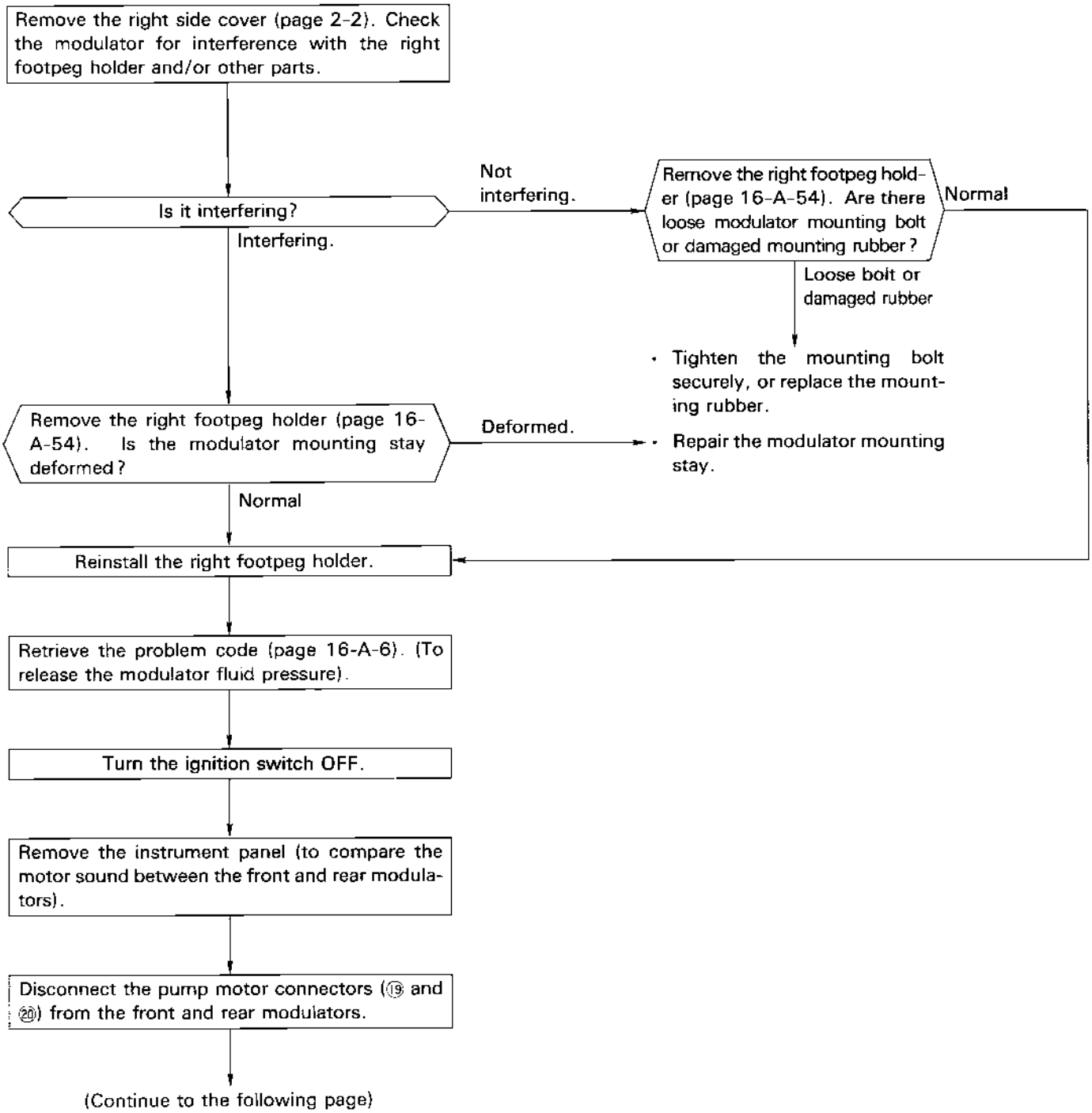
Front modulator sound does not change (regular).

- Faulty front modulator

NOTE

- After checking the motor sound, connect the front and rear pump motor connectors, retrieve the problem code and erase it (page 16-A-6).

Rear modulator:

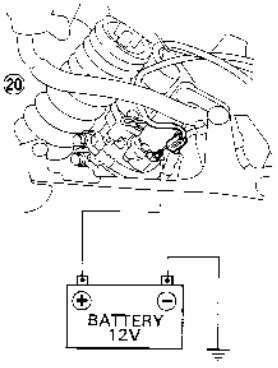


(Continue to the following page)

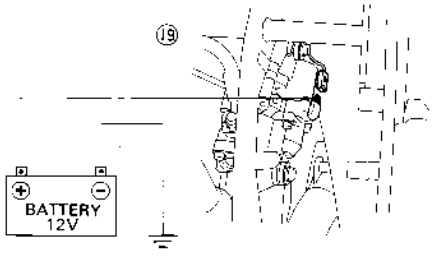
(From the previous page)

Connect the front and rear pump motor terminals to the battery respectively, and check the motor sound between the front and rear modulators.

REAR MODULATOR



FRONT MODULATOR



Does the sound change within 3 seconds after connecting the terminals to the battery, and does the sound level drop?

Sound changes and drops at the front and rear modulators.

- Normal: Recheck the rear modulator for proper mounting (page 16-A-48). (Improper mounting may cause unnecessary vibrational noise.)

Rear modulator sound does not change (regular).

- Faulty rear modulator

NOTE

- After checking the motor sound, connect the front and rear pump motor connectors, retrieve the problem code and erase it (page 16-A-6).

– Faulty ABS indicator light

- When the pre-start self-diagnosis sound (motor sound) from the modulator can be heard after starting the engine, and where the ABS operates normally while riding:

– Before pre-start self-diagnosis (Ignition switch ON)

ABS indicator light 1 \ ABS indicator light 2	ON	Blink	OFF
ON	Normal	A	A. B. F. E
Blink			
OFF	D. G. I. K	D. G. I. K	D. E. F. G. I

– While riding

ABS indicator light 1 \ ABS indicator light 2	ON	Blink	OFF
ON			I
Blink			
OFF		A. C. I	Normal

- When there is no motor sound in the modulator after starting the engine and the indicator light is faulty (i.e. pre-start self-diagnosis does not start):

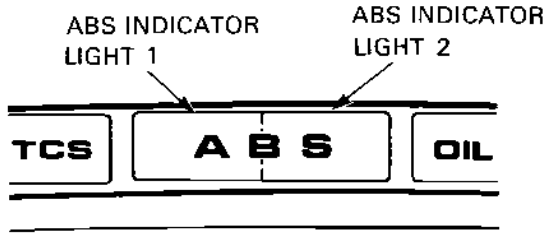
– Before riding (with the engine started and the motorcycle parked)

ABS indicator light 1 \ ABS indicator light 2	ON	Blink	OFF
ON	H. I. J. M	I	I
Blink	I		I
OFF		K. L	I

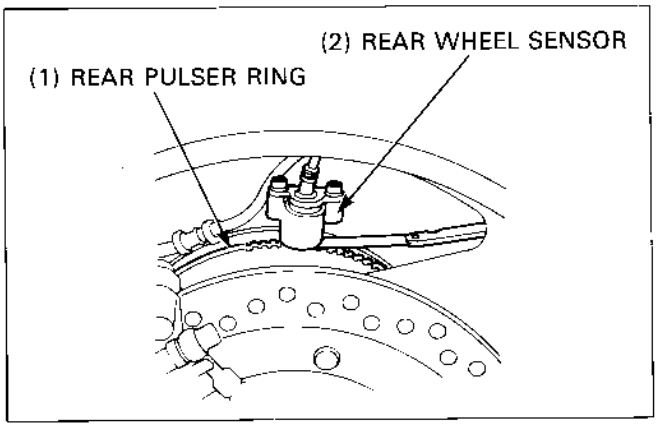
– While riding

ABS indicator light 1 \ ABS indicator light 2	ON	Blink	OFF
ON	I. J. M	I	I
Blink	I	H	I
OFF		K. L	I

A : Faulty indicator control unit
B : Poor connection of the indicator control unit connector ⑤ (4P)
C : Poor connection of the indicator control unit connector ⑤ (2P)
D : Faulty ABS indicator light LED 1, poor connection of the connector ③
E : Faulty ABS indicator light LED 2, poor connection of the connector ④
F : Poor connection of the ABS indicator light connector ⑥
G : Poor connection of the ABS indicator light connetor ⑦
H : Faulty indicator light switch, poor connection of the connector ②
I : Faulty ABS ECU
J : Faulty TCS/ignition control module (ICM), Open or short in the LIGHT GREEN/ORANGE harness between the TCS/ICM and ABS ECU
K : Poor connection of the ABS ECU connector ⑪
L : Burned ABS main fuse (10A)
M : Improper battery charge (See section 17.)



Wheel Sensor Air Gap Inspection (Rear wheel only)



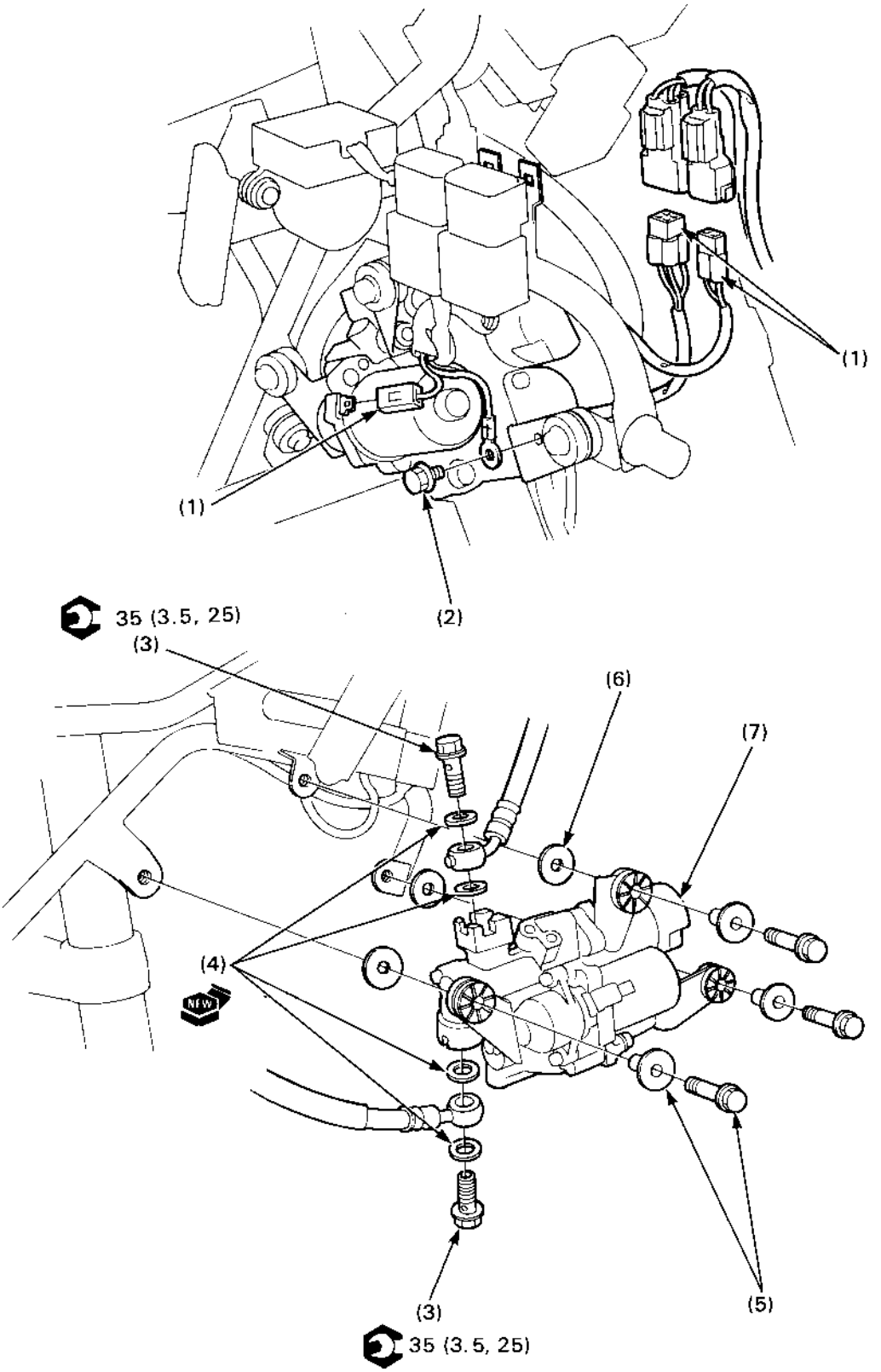
Place the motorcycle on its center stand.

Measure the air gap between the wheel sensor and pulser ring using a feeler gauge. It must be within the specification.

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

If not within specification, perform the shim adjustment.

Front Modulator Removal/Installation



⚠ WARNING

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

CAUTION

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

NOTE

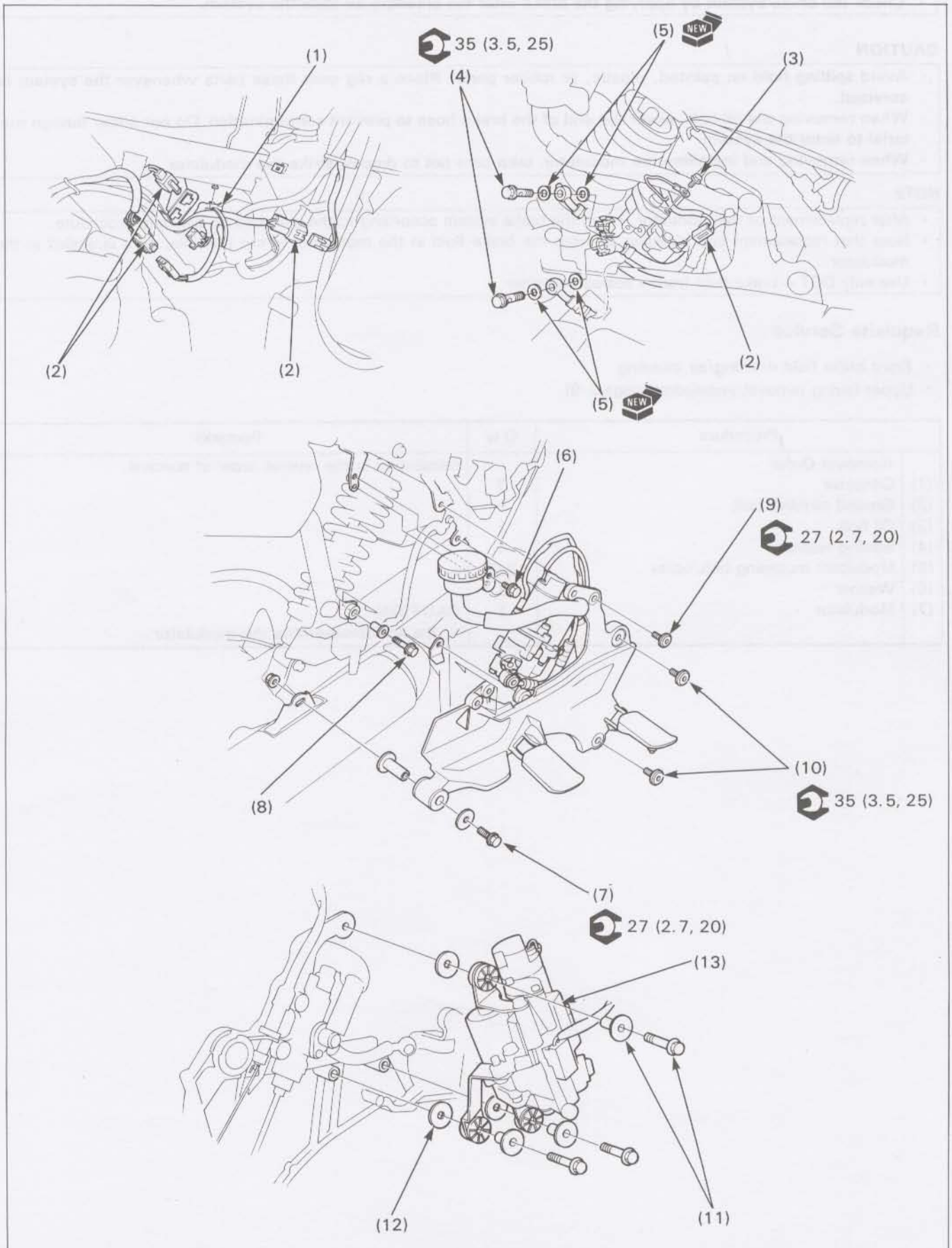
- After replacement of the moduator, bleed the brake system according to the standard air bleeding procedure.
- Note that replacement and bleeding air from the brake fluid in the modulator is not possible, as it is sealed in the modulator.
- Use only DOT 4 brake fluid from a sealed container.

Requisite Service

- Front brake fluid draining/air bleeding
- Upper fairing removal/installation (page 2-9).

	Procedure	Q'ty	Remarks
	Removal Order		Installation in the reverse order of removal.
(1)	Conector	3	
(2)	Ground terminal bolt	1	
(3)	Oil bolt	2	
(4)	Sealing washer	4	
(5)	Modulator mounting bolt/collar	3/3	
(6)	Washer	3	
(7)	Modulator	1	**CAUTION** • **Do not disassemble the modulator.**

Rear Modulator Removal/Installation



⚠ WARNING

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

CAUTION

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

NOTE

- After replacement of the moduator, bleed the brake system according to the standard air bleeding procedure.
- Note that replacement and bleeding air from the brake fluid in the modulator is not possible, as it is sealed in the modulator.
- Use only DOT 4 brake fluid from a sealed container.

Requisite Service

- Rear brake fluid draining/air bleeding
- Right pivot cover removal/installation (page 2-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Harness band	1	
(2)	Connector	4	
(3)	Ground terminal bolt	1	
(4)	Oil bolt	2	
(5)	Sealing washer	4	
(6)	Reservoir bolt	1	
(7)	Muffler mounting bolt	1	
(8)	Right footpeg holder bolt 6 mm	1	
(9)	8 mm	1	
(10)	10 mm	2	
(11)	Modulator mounting bolt/collar	3/3	
(12)	Washer	3	
(13)	Modulator	1	**CAUTION** - **Do not disassemble the modulator.**

Symbols

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

	Replace the part(s) with new one(s) before assembly.
	Use special tool
	Use optional tool. Use the same procedure you use to order parts.
 10 (1.0, 7.2)	Torque specification. 10 N·m (1.0 kg-m, 7.2 ft-lb)
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent)
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent) Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil Japan
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent) Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease
	Apply a locking agent. Use a middle strength locking agent unless otherwise specified.
	Apply sealant
	Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.