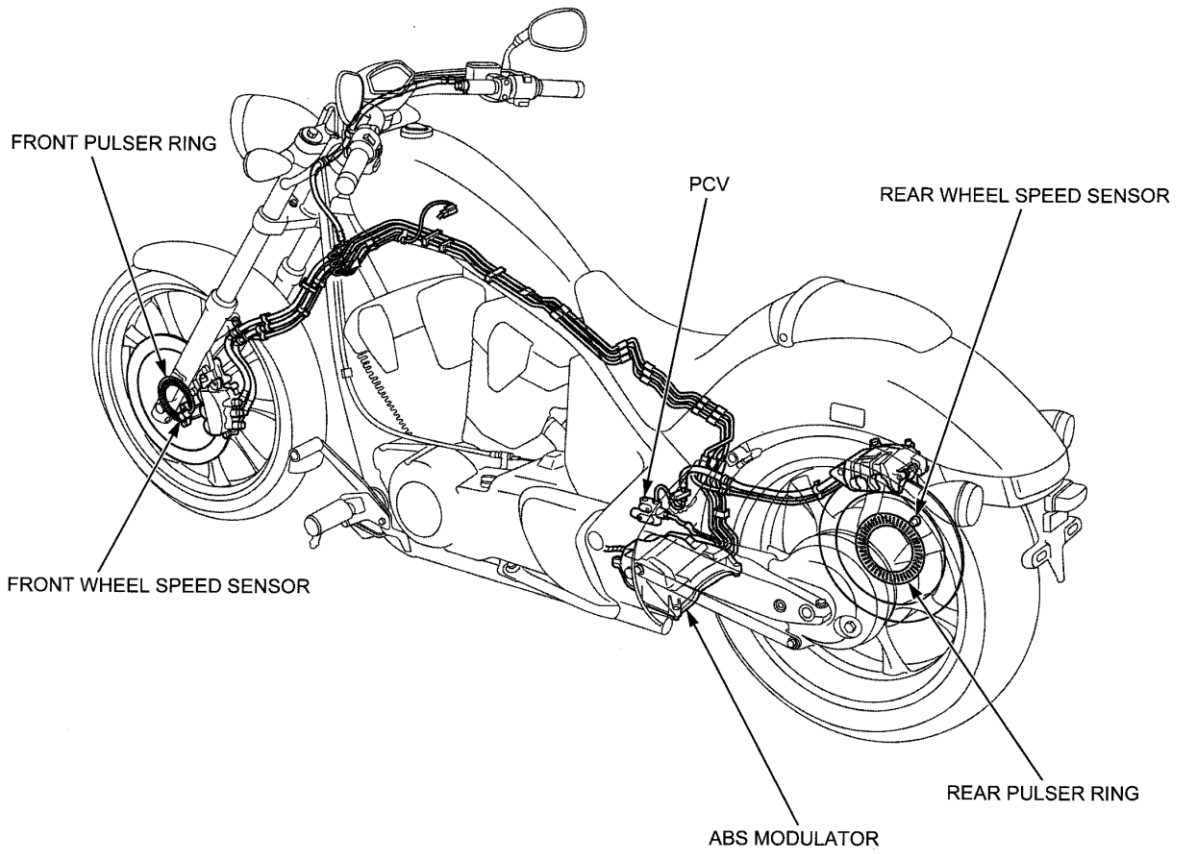


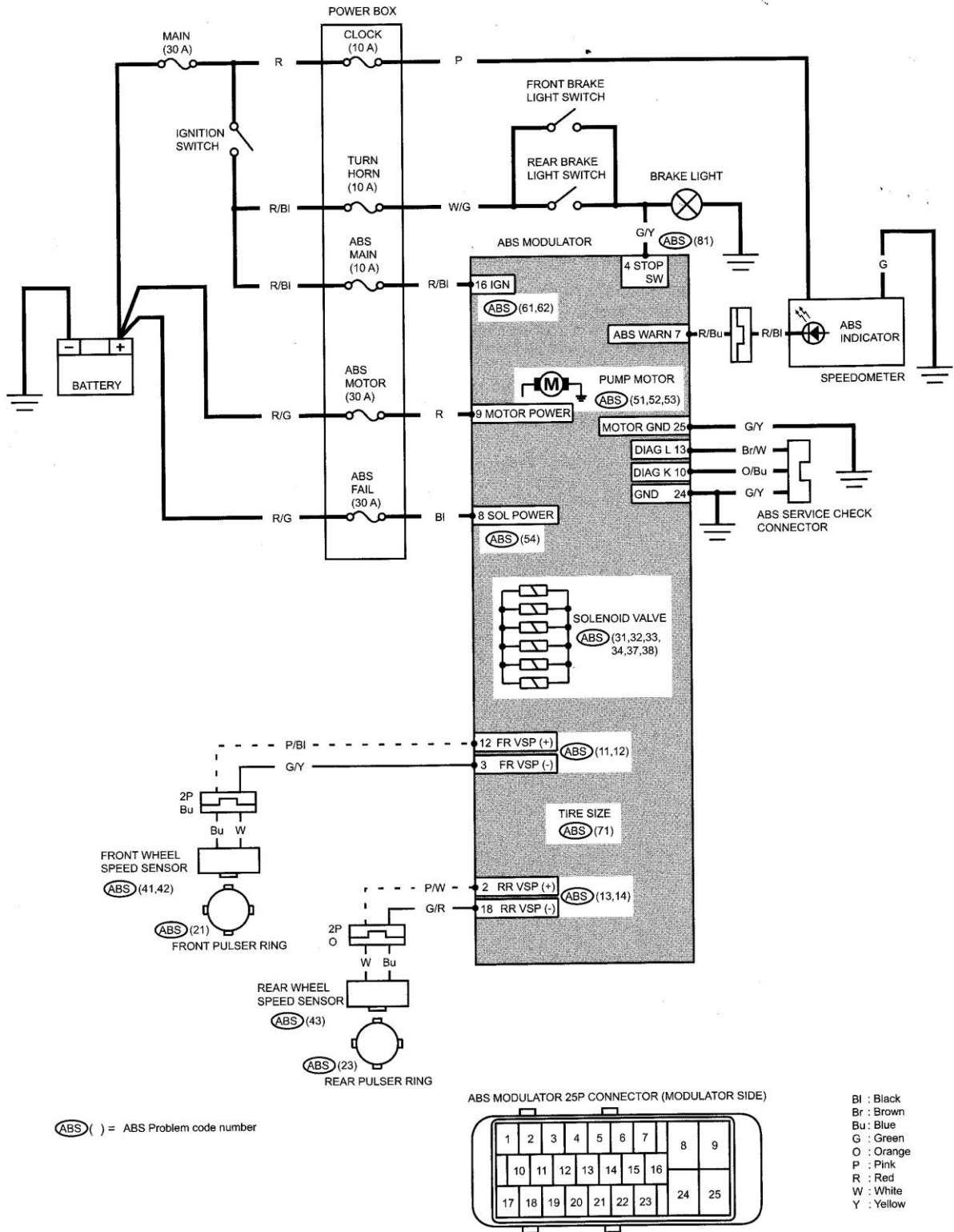
18. ABS (VT1300CXA)

ABS SYSTEM LOCATION	18-2	ABS TROUBLESHOOTING	18-15
ABS SYSTEM DIAGRAM	18-3	FRONT WHEEL SPEED SENSOR	18-26
SERVICE INFORMATION	18-4	FRONT PULSER RING	18-28
ABS CONNECTOR LOCATIONS	18-5	REAR WHEEL SPEED SENSOR	18-28
ABS TROUBLESHOOTING INFORMATION	18-7	REAR PULSER RING	18-29
ABS INDICATOR PROBLEM CODE INDEX	18-10	PCV	18-30
ABS INDICATOR CIRCUIT TROUBLESHOOTING	18-12	ABS MODULATOR	18-30

ABS SYSTEM LOCATION



ABS SYSTEM DIAGRAM



SERVICE INFORMATION

GENERAL

NOTICE

The ABS Modulator may be damaged if dropped. Also, if the connector is disconnected when current is flowing, the excessive voltage may damage the control unit. Always turn the ignition switch OFF before servicing.

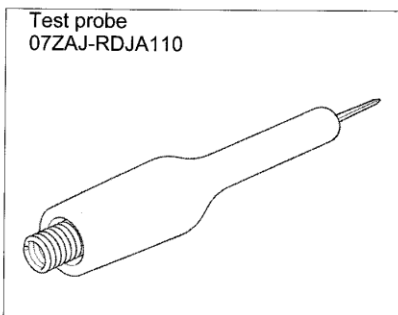
- This section covers service of the ABS. For conventional brake service see Section 17, Hydraulic Brake.
- When the motorcycle is running and the front wheel leaves the ground for a long time (wheelies), the ABS Control Unit detects a difference between the front and rear wheel speeds and causes the ABS indicator to blink.
- The ABS Modulator contains the ABS Control Unit. Do not disassemble the ABS Modulator. Replace the ABS Modulator as an assembly if it is faulty.
- When the ABS Control Unit detects a problem, it stops the ABS function and switches back to conventional brake operation, and the ABS indicator blinks or stays on. Take care during the test ride.
- Troubles not resulting from a faulty ABS (e.g. brake disc squeak, unevenly worn brake pad) cannot be recognized by the ABS diagnosis system.
- Read "ABS TROUBLESHOOTING INFORMATION" carefully. Inspect and troubleshoot the ABS system according to the Diagnostic Troubleshooting flow chart. Observe each step of the procedures one by one. Write down the problem code and probable faulty part before starting diagnosis and troubleshooting.
- After troubleshooting, erase the problem code and perform the pre-start self-diagnosis to be sure that the ABS indicator is operating normally.
- When the wheel speed sensor and/or pulser ring is replaced, check the clearance (air gap) between both components.
- Be careful not to damage the wheel speed sensor and pulser ring when removing and installing the wheel.
- The following color codes are used throughout this section.

Bu = Blue	G = Green	Lg = Light Green	R = Red
Bl = Black	Gr = Gray	O = Orange	W = White
Br = Brown	Lb = Light blue	P = Pink	Y = Yellow

TORQUE VALUES

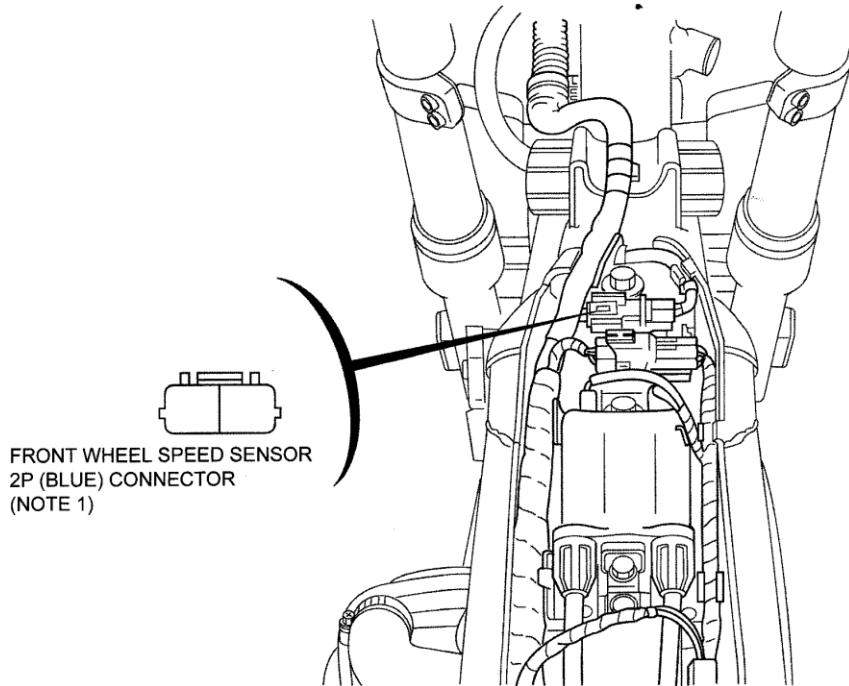
Brake pipe joint nut	14 N·m (1.4 kgf·m, 10 lbf·ft)	Apply brake fluid to the threads.
Front pulser ring mounting bolt	7 N·m (0.7 kgf·m, 5.2 lbf·ft)	ALOC bolt; replace with a new one.
Rear pulser ring mounting bolt	7 N·m (0.7 kgf·m, 5.2 lbf·ft)	ALOC bolt; replace with a new one.
Front brake caliper mounting bolt	31 N·m (3.2 kgf·m, 23 lbf·ft)	ALOC bolt; replace with a new one.

TOOL

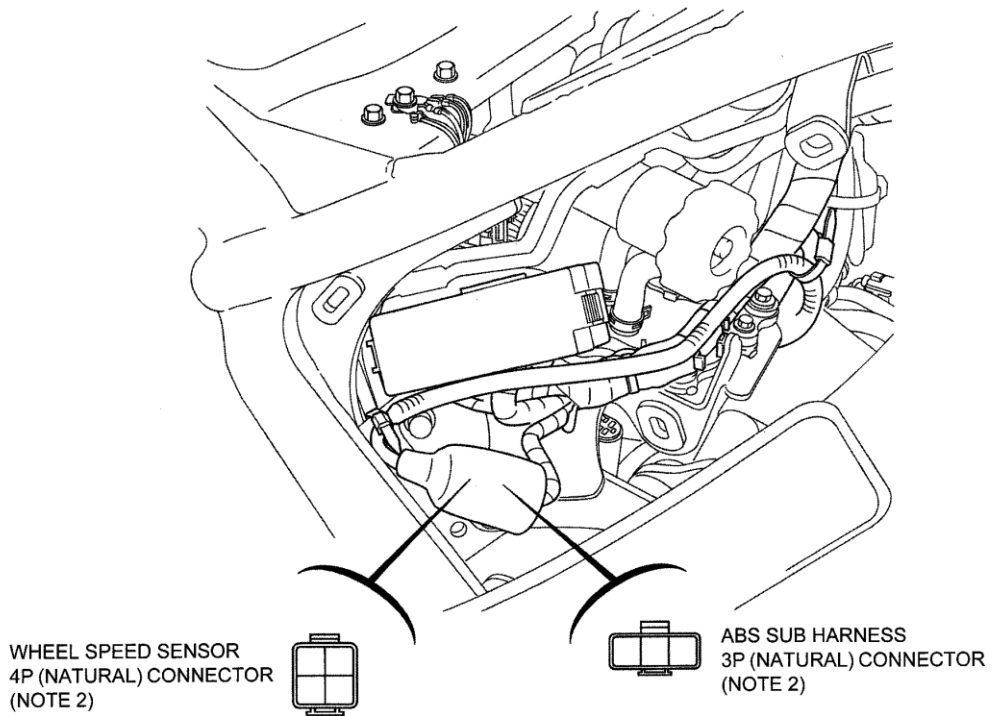


ABS CONNECTOR LOCATIONS

NOTE 1: Remove the fuel tank (page 6-43).



NOTE 2: Remove the right side cover (page 3-6).

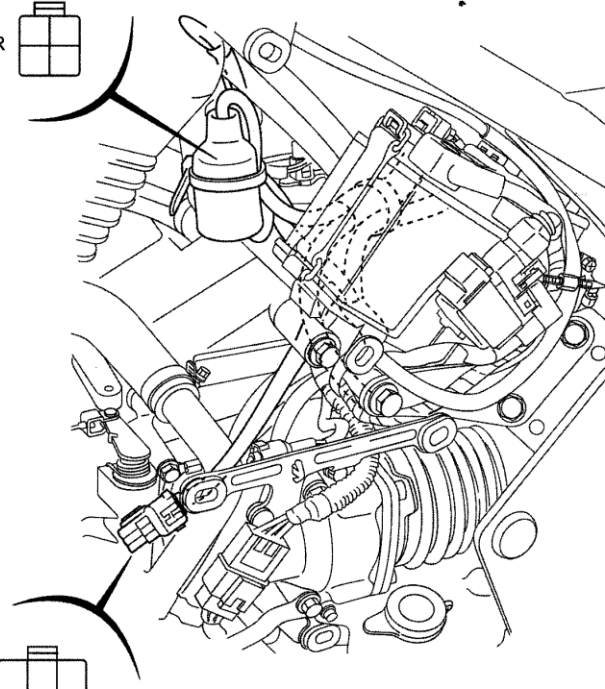


ABS (VT1300CXA)

NOTE 1: Remove the following:

- Left side cover (page 3-6)
- Left crankcase rear cover (page 3-7)

ABS SUB HARNESS
4P (NATURAL) CONNECTOR
(NOTE 1)

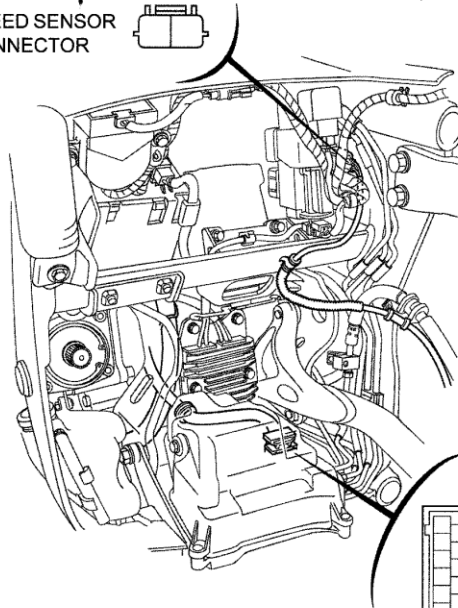


ABS SERVICE CHECK
3P (NATURAL) CONNECTOR
(NOTE 1)

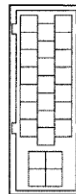


NOTE 2: Remove the swingarm (page 16-17).

REAR WHEEL SPEED SENSOR
2P (ORANGE) CONNECTOR



ABS MODULATOR
25P CONNECTOR
(NOTE 2)



ABS TROUBLESHOOTING INFORMATION

SYSTEM DESCRIPTION

SUMMARY OF ABS PRE-START SELF-DIAGNOSIS SYSTEM

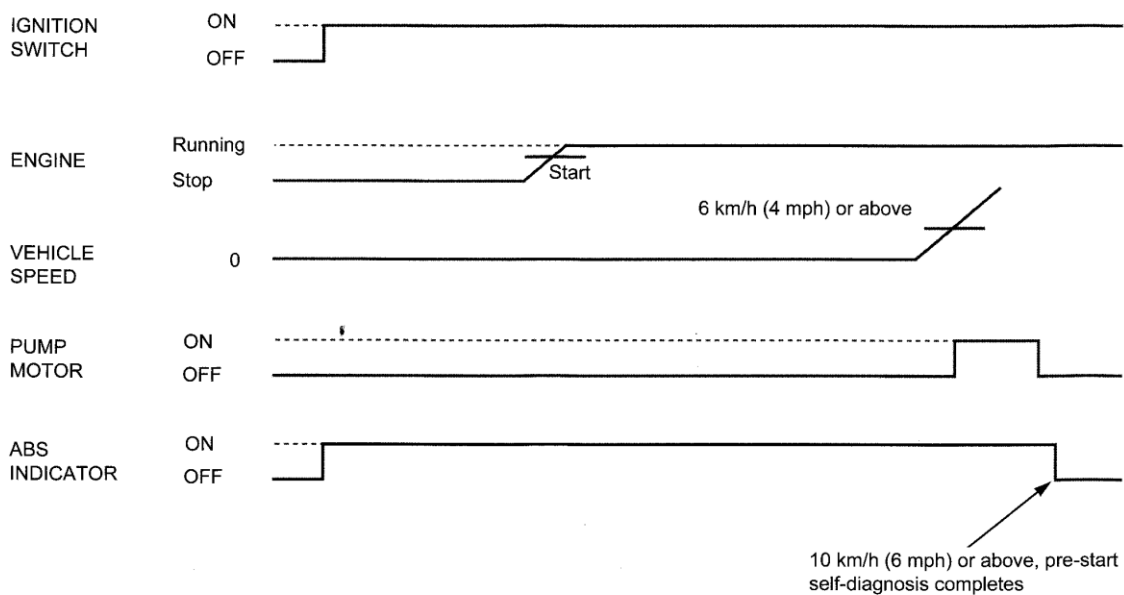
The ABS pre-start self-diagnosis system diagnoses the electrical system as well as the operating status of the modulator. When there is any abnormality, the problem and the problematic part can be detected by outputting the problem code.

When the motorcycle is running, pulse signals generated at the front/rear wheel speed sensor are sent to the ABS Control Unit. When the ABS Control Unit detects that vehicle speed reaches 6 km/h (4 mph), the pump motor is temporarily operated to check if the ABS system functions normally. If the system is normal, pre-start self-diagnosis is complete by the time the vehicle speed reaches 10 km/h (6 mph) approximately.

If the ABS indicator blinks, it is because a problem was detected during the pre-start self-diagnosis (page 18-7).

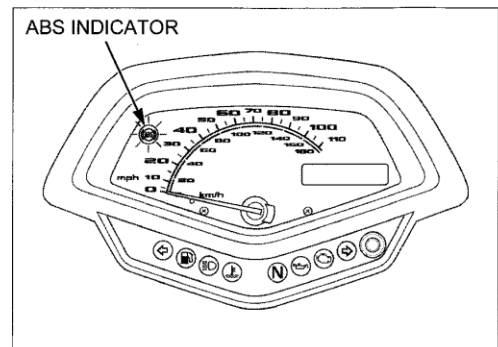
If the ABS indicator does not come on when the ignition switch is turned ON, or the ABS indicator stays on after the pre-start self-diagnosis procedure is complete, the ABS indicator may be faulty. Follow the troubleshooting (page 18-12).

Pre-start self-diagnosis when normal:



PRE-START SELF-DIAGNOSIS PROCEDURE

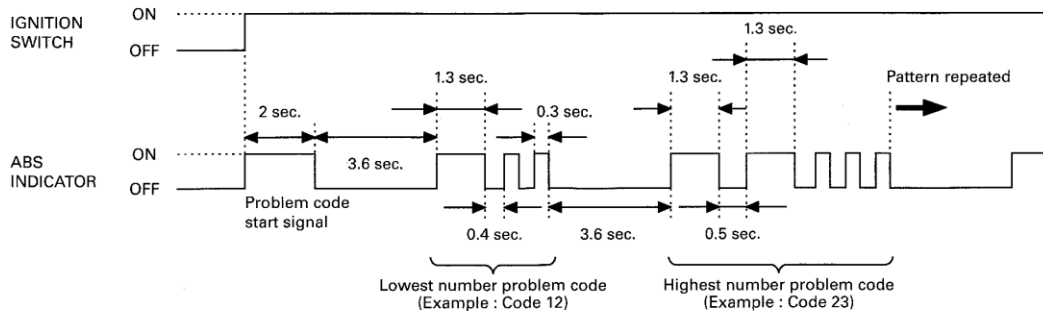
1. Turn the ignition switch ON and engine stop switch "O".
2. Make sure the ABS indicator comes on.
3. Start the engine.
4. Ride the motorcycle and increase the vehicle speed to approximately 10 km/h (6 mph).
5. The ABS is normal if the ABS indicator goes off.



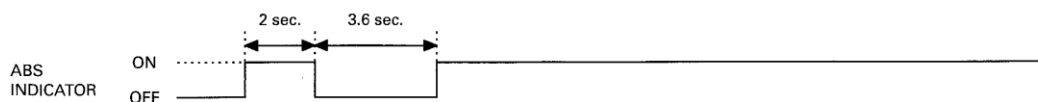
ABS (VT1300CXA)

PROBLEM CODE INDICATION PATTERN

- The ABS indicator indicates the problem code by blinking a specified number of times. The indicator has two types of blinks, a long blink and short blink. The long blink lasts for 1.3 seconds and represents 10, the short blink lasts for 0.3 seconds and represents 1. When two long blinks occur, and three short blinks, that problem code is 23 (two long blinks = 20 blinks, three short blinks = 3 blinks). Then, go to troubleshooting and see problem code 23.
- The ABS Control Unit can store up to six problem codes. The ABS indicator shows the problem codes in order from the latest to the earliest.



When the problem code is not stored:



PROBLEM CODE READOUT

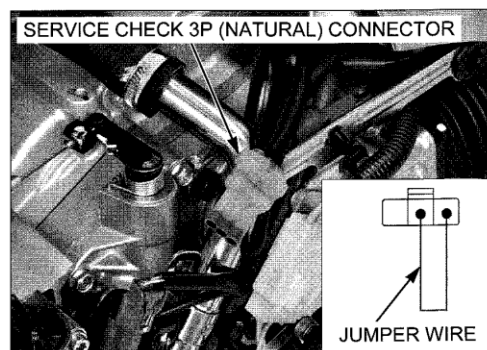
NOTE:

- The problem code is not erased by turning the ignition switch OFF while the problem code is being output. Note that turning the ignition switch ON again does not indicate the problem code. To show the problem code again, repeat the problem code retrieval procedures from the beginning. Do not apply the front or rear brake during retrieval.
- After diagnostic troubleshooting, erase the problem code(s) and pre-start self-diagnosis to be sure that there is no problem in the ABS indicator (indicator is operating normally).

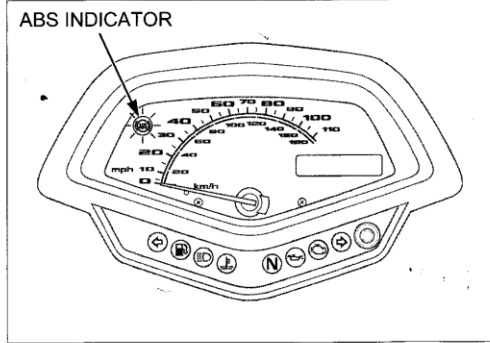
- Remove the left crankcase rear cover (page 3-7). Turn the ignition switch OFF.

Short the wire terminals of the ABS service check 3P (Natural) connector with a jumper wire.

CONNECTION: Brown/white – Green/yellow



2. Turn the ignition switch ON and engine stop switch "O".
The ABS indicator starts problem code indication.
3. Note how many times the ABS indicator blinks, and determine the cause of the problem (page 18-10).
4. Turn the ignition switch OFF and remove the jumper wire from the ABS service check 3P (Natural) connector.

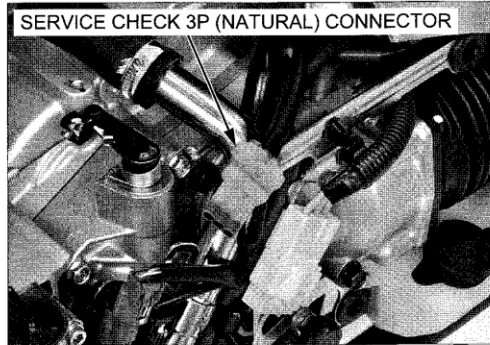


ERASING PROBLEM CODE

1. Remove the left crankcase rear cover (page 3-7).
Short the wire terminals of the ABS service check 3P (Natural) connector with a jumper wire with the ignition switch turned OFF in the same manner as retrieval.

CONNECTION: Brown/white – Green/yellow

2. Turn the ignition switch ON and engine stop switch "O" while squeezing the brake lever. The ABS indicator should come on for 2 seconds and go off.
3. Release the brake lever immediately after the ABS indicator is off. The ABS indicator should come on.
4. Squeeze the brake lever immediately after the ABS indicator is on. The ABS indicator should go off.
5. Release the brake lever immediately after the ABS indicator is off.

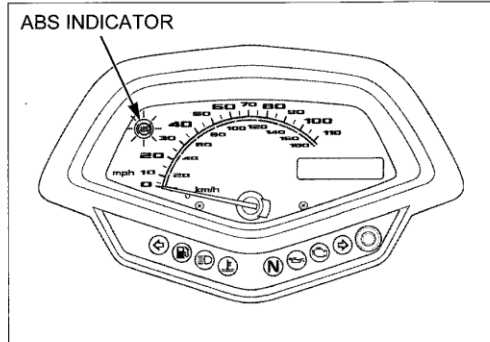


When code erasure is complete, the ABS indicator blinks 2 times and stays on.

If the ABS indicator does not blink 2 times, the data has not been erased, so try again.

If the ABS indicator blinks 2 times and blinks, faulty ABS system, go to ABS troubleshooting (page 18-10).

6. Turn the ignition switch OFF and remove the jumper wire from the ABS service check 3P (Natural) connector.



ABS INDICATOR PROBLEM CODE INDEX

NOTE:

- The ABS indicator might blink in the following cases. Correct the faulty part.
 - Incorrect tire pressure.
 - Tires not recommended for the motorcycle were installed (incorrect tire size).
 - Deformation of the wheel or tire.
- The ABS indicator might blink while riding under the following conditions. This is temporary failure. Erase the problem code and perform the pre-start self-diagnosis. The ABS is normal if the indicator goes off. Ask the rider for the riding conditions in detail when the motorcycle is brought in for inspection.
 - The motorcycle has continuously run bumpy roads.
 - The front wheel leaves the ground for a long time when riding (wheelie).
 - Only either the front or rear wheel rotates.
 - The ABS operates continuously.
 - The ABS control unit has been disrupted by an extremely powerful radio wave (electromagnetic interference).

Problem Code	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
–	<ul style="list-style-type: none"> • ABS modulator voltage input line • Indicator related wires • Speedometer • ABS modulator • ABS MAIN fuse (10 A) 			• ABS indicator never come ON at all	18-12
				• ABS indicator stays ON at all	18-13
11	Front wheel speed sensor circuit malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires 	○	○	• Stops ABS operation	18-15
13	Rear wheel speed sensor malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires 	○	○		18-18
12	Front wheel speed sensor circuit malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires • Electromagnetic interference 		○	• Stops ABS operation	18-15
14	Rear wheel speed sensor malfunction <ul style="list-style-type: none"> • Wheel speed sensor, pulser ring or related wires • Electromagnetic interference 		○		18-18
21	Front pulser ring <ul style="list-style-type: none"> • Pulser ring or related wires 		○	• Stops ABS operation	18-15
23	Rear pulser ring <ul style="list-style-type: none"> • Pulser ring or related wires 		○		18-18
31	Solenoid valve malfunction (ABS modulator)			• Stops ABS operation	18-20
32					
33					
34		○	○		
37					
38					
41	Front wheel lock <ul style="list-style-type: none"> • Riding condition 		○	• Stops ABS operation	18-15
42	Front wheel lock (Wheelie) <ul style="list-style-type: none"> • Riding condition 		○		
43	Rear wheel lock <ul style="list-style-type: none"> • Riding condition 		○	18-18	
51	Motor lock <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS MOTOR fuse (30 A) 	○	○	• Stops ABS operation	18-21
52	Motor stuck off <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS MOTOR fuse (30 A) 	○	○		
53	Motor stuck on <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS MOTOR fuse (30 A) 	○	○		
54	Fail-safe relay malfunction <ul style="list-style-type: none"> • Fail-safe relay (ABS modulator) or related wires • ABS FAIL fuse (30 A) 	○	○	• Stops ABS operation	18-22

Problem Code	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
61	Power circuit/Under voltage • Input voltage (too low) • ABS MAIN fuse (10 A)	O	Q	• Stops ABS operation	18-24
62	Power circuit/Over voltage • Input voltage (too high)	O	O	• Stops ABS operation	
71	Tire malfunction • Tire size		O	• Stops ABS operation	18-26
81	ABS control unit • ABS control unit malfunction (ABS modulator)	O	O	• Stops ABS operation	18-26

(A) Pre-start self-diagnosis (page 18-7)

(B) Ordinary self-diagnosis: diagnoses while the motorcycle is running (after pre-start self-diagnosis)

ABS INDICATOR CIRCUIT TROUBLESHOOTING

ABS INDICATOR DOES NOT COME ON (when the ignition switch turned ON)

NOTE:

- Before starting the inspection, check the speedometer power and ground lines.

1. Indicator Operation Inspection 1

Remove the right side cover (page 3-6).

Disconnect the ABS sub harness 3P (Natural) connector.

Turn the ignition switch ON and engine stop switch "O". Check the indicator.

Does the indicator come on?

YES – GO TO STEP 2.

NO – Short circuit in Red/black wire between the speedometer and ABS sub harness 3P (Natural) connector.

2. Indicator Signal Line Short Circuit Inspection 1

Turn the ignition switch OFF.

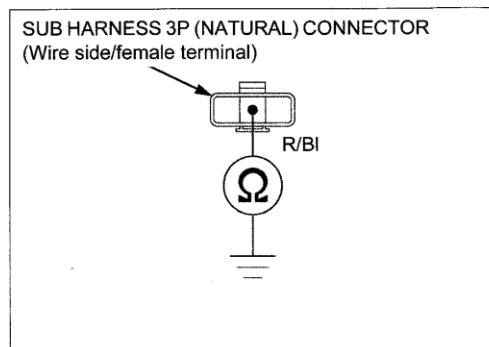
Check for continuity between the ABS sub harness 3P (Natural) connector and ground.

CONNECTION: Red/black – Ground

Is there continuity?

YES – Short circuit in Red/black wire between the speedometer and ABS sub harness 3P (Natural) connector.

NO – GO TO STEP 3.



3. Indicator Operation Inspection 2

Connect the ABS sub harness 3P (Natural) connector.

Disconnect the ABS modulator 25P connector (page 18-30).

Turn the ignition switch ON and engine stop switch "O". Check the ABS indicator.

Does the indicator come on?

YES – Faulty ABS modulator

NO – GO TO STEP 4.

4. Indicator Signal Line Short Circuit Inspection 2

Turn the ignition switch OFF.

Check for continuity between the ABS modulator 25P connector and ground.

TOOL:

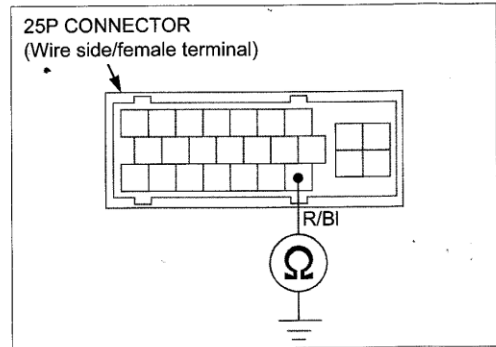
Test probe 07ZAJ-RDJA110

CONNECTION: Red/black – Ground

Is there continuity?

YES – Short circuit in Red/black wire between the ABS sub harness 3P (Natural) connector and ABS modulator.

NO – Faulty speedometer



ABS INDICATOR STAYS ON (Indicator does not go off when the motorcycle is running and problem code is not indicated by the retrieval procedure)

1. Service Check Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector (page 18-30).

Check for continuity between the ABS modulator 25P connector and ground.

TOOL:

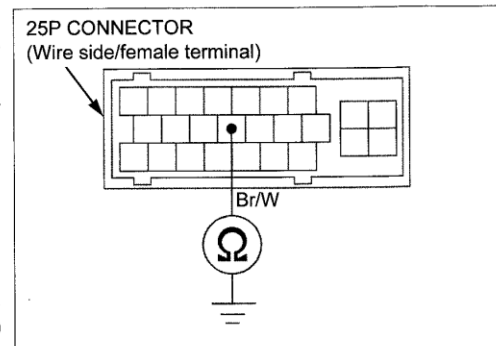
Test probe 07ZAJ-RDJA110

CONNECTION: Brown/White – Ground

Is there continuity?

YES – Short circuit in Brown/white wire between the ABS service check 3P (Natural) connector and ABS modulator.

NO – GO TO STEP 2.



2. Indicator Signal Line Short Circuit Inspection

Check for continuity between the ABS modulator 25P connector at the wire side and ground.

TOOL:

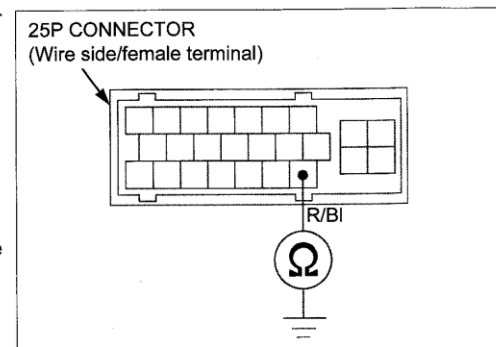
Test probe 07ZAJ-RDJA110

CONNECTION: Red/black – Ground

Is there continuity?

YES – GO TO STEP 3.

NO – Short circuit in Red/black wire between the speedometer and ABS modulator.



ABS (VT1300CXA)

3. Indicator Operation Inspection

Remove the speedometer lower covers (page 22-12).

Turn the ignition switch ON and engine stop switch "O".

With the speedometer 20P (Gray) connector connected, short the Red/black wire terminal of the speedometer 20P (Gray) connector and ground with a jumper wire.

CONNECTION: Red/black – Ground

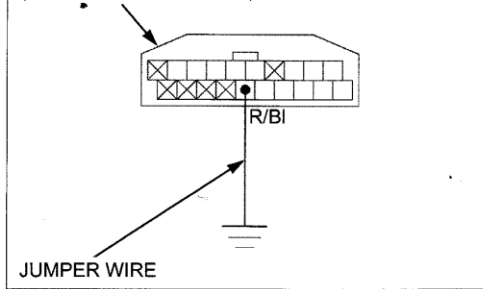
Check the ABS indicator with the ignition switch turned ON.

Does the ABS indicator go off?

YES – GO TO STEP 4.

NO – Faulty speedometer

SPEEDOMETER 20P (GRAY) CONNECTOR
(Wire side/female terminal)



4. Indicator Signal Line Open Circuit Inspection

Remove the jumper wire from the speedometer 20P (Gray) connector.

With the speedometer 20P (Gray) connector connected, short the Red/black wire terminal of the ABS modulator 25P connector and ground with a jumper wire.

TOOL:

Test probe 07ZAJ-RDJA110

CONNECTION: Red/black – Ground

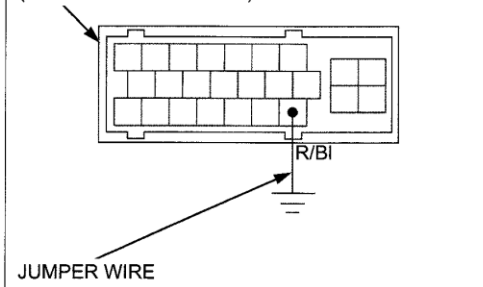
Check the ABS indicator with the ignition switch turned ON.

Does the ABS indicator go off?

YES – Faulty ABS modulator

NO – Open circuit in Red/black wire between the speedometer and ABS modulator.

25P CONNECTOR
(Wire side/female terminal)



ABS TROUBLESHOOTING

NOTE:

- Perform inspection with the ignition switch OFF, unless otherwise specified.
- Refer to the ABS connector locations (page 18-5). All connector diagrams in the troubleshooting are viewed from the terminal side.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- When the ABS modulator assembly is detected to be faulty, recheck the wire harness and connector connections closely before replacing it.
- After diagnostic troubleshooting, erase the problem code (page 18-9) then test ride the motorcycle above 30 km/h (18 mph) and check the other problem code by retrieving the self-diagnosis system (page 18-8).
- Before starting the diagnosis and troubleshooting, check the ABS modulator power/ground line (page 18-24).
Also, check the ABS indicator circuit (page 18-12).

PROBLEM CODE 11, 12, 21, 41 or 42 (Front Wheel Speed Sensor/Front Pulser Ring/Front Wheel Lock)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 18-10). This is intermittent failure.
Erase the problem code (page 18-9) then test ride the motorcycle above 30 km/h (18 mph) and check the problem code by retrieving the self-diagnosis system (page 18-8).
- If the problem code 41 is indicated, check the front brake for drag.

1. Front Wheel Speed Sensor Air Gap Inspection

Support the motorcycle securely using a safety stand or hoist and raise the front wheel off the ground.

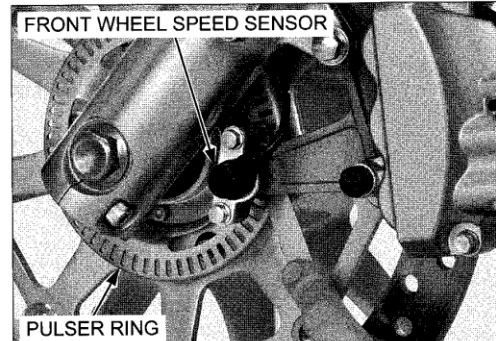
Measure the clearance (air gap) between the front wheel speed sensor and pulser ring at several points by turning the wheel slowly.

STANDARD: 0.4 – 1.4 mm (0.02 – 0.06 in)

Is the air gap correct?

YES – GO TO STEP 2.

NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.



2. Front Wheel Speed Sensor Condition Inspection

Inspect the area around the front wheel speed sensor:

Check that there is iron or other magnetic deposits between the pulser ring and front wheel speed sensor, and the pulser ring slots for obstructions.

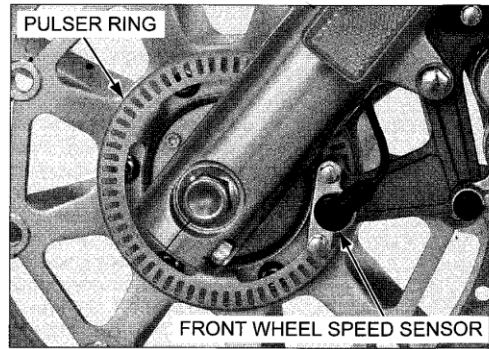
Check installation condition of the pulser ring or front wheel speed sensor for looseness.

Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 3.

NO – Remove any deposits. Install properly or replace faulty part.



3. Front Wheel Speed Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the front wheel speed sensor 2P (Blue) connector (page 18-26).

Turn the ignition switch ON and engine stop switch "O".

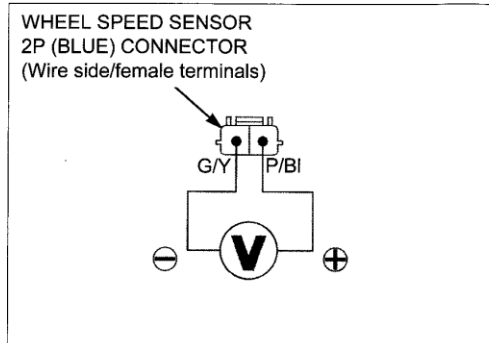
Measure the voltage at the front wheel speed sensor 2P (Blue) connector of the wire side.

CONNECTION: Pink/black (+) – Green/yellow (-)

Is there battery voltage?

YES – Faulty front wheel speed sensor

NO – GO TO STEP 4.



4. Front Wheel Speed Sensor Line Short Circuit Inspection

Turn the ignition switch OFF.

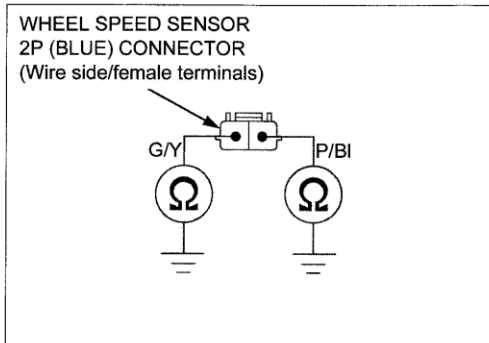
Check for continuity between each terminal of the wire side front wheel speed sensor 2P (Blue) connector and ground.

**CONNECTION: Pink/black – Ground
Green/yellow – Ground**

Is there continuity?

YES – • Short circuit in Pink/black wire
• Short circuit in Green/yellow wire

NO – GO TO STEP 5.



5. Front Wheel Speed Sensor Line Open Circuit Inspection 1

Disconnect the wheel speed sensor 4P (Natural) connector.

Connect the front wheel speed sensor 2P (Blue) connector with a jumper wire.

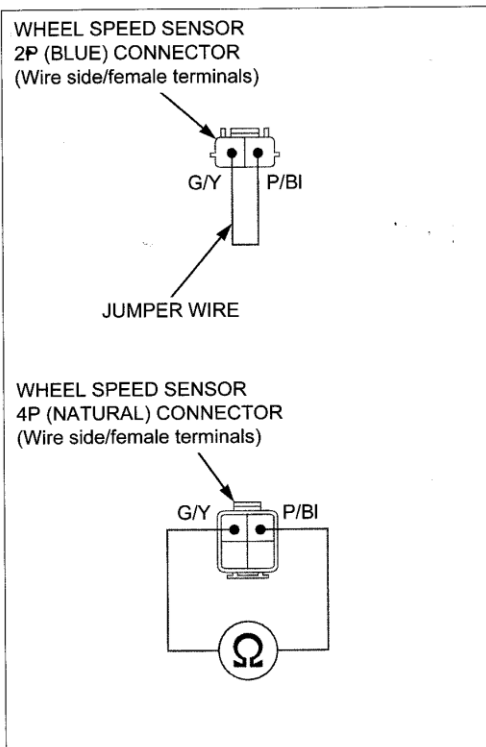
Check for continuity at the wheel speed sensor 4P (Natural) connector terminals.

CONNECTION: Pink/black – Green/yellow

Is there continuity?

YES – GO TO STEP 6.

NO – • Open circuit in Pink/black wire
• Open circuit in Green/yellow wire



6. Front Wheel Speed Sensor Line Open Circuit Inspection 2

Disconnect the ABS modulator 25P connector (page 18-30).

Connect the ABS modulator 25P connector with a jumper wire.

Check for continuity at the wheel speed sensor 4P (Natural) connector.

TOOL:

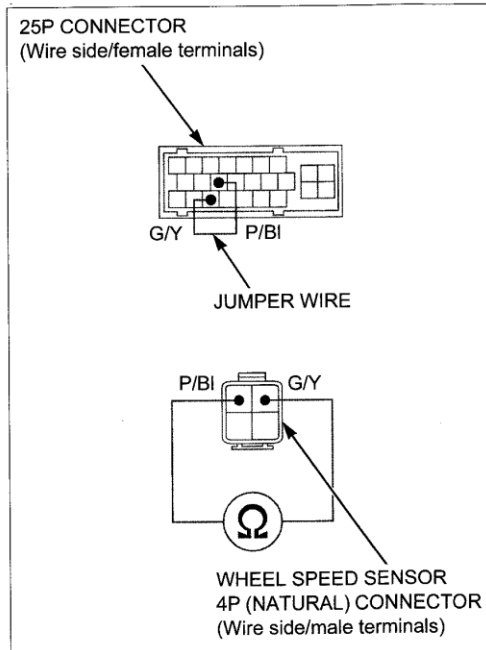
Test probe 07ZAJ-RDJA110

CONNECTION: Pink/black – Green/yellow

Is there continuity?

YES – GO TO STEP 7.

NO – • Open circuit in Pink/black wire
• Open circuit in Green/yellow wire



7. Failure Reproduction with a New Front Wheel Speed Sensor

Replace the front wheel speed sensor with a new one (page 18-26).
Connect the ABS modulator 25P and front wheel speed sensor 2P (Blue) connectors.
Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph).
Retrieve the problem code (page 18-8) and recheck the ABS indicator.

Dose the indicator blink 11, 12, 21, 41 or 42 times?

- YES** – Faulty ABS modulator
- NO** – Faulty original front wheel speed sensor

PROBLEM CODE 13, 14, 23 or 43 (Rear Wheel Speed Sensor/Rear Pulser Ring/Rear Wheel Lock)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 18-10). This is intermittent failure. Erase the problem code (page 18-9) then test ride the motorcycle above 30 km/h (18 mph) and check the problem code by retrieving the self-diagnosis system (page 18-8).
- If the problem code 43 is indicated, check the rear brake for drag.

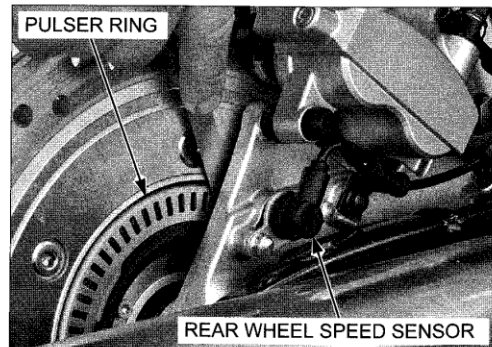
1. Rear Wheel Speed Sensor Air Gap Inspection

Support the motorcycle using a safety stand or hoist and raise the rear wheel off the ground.
Measure the clearance (air gap) between the rear wheel speed sensor and pulser ring at several points by turning the wheel slowly.

STANDARD: 0.4 – 1.4 mm (0.02 – 0.06 in)

Is the air gap correct?

- YES** – GO TO STEP 2.
- NO** – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

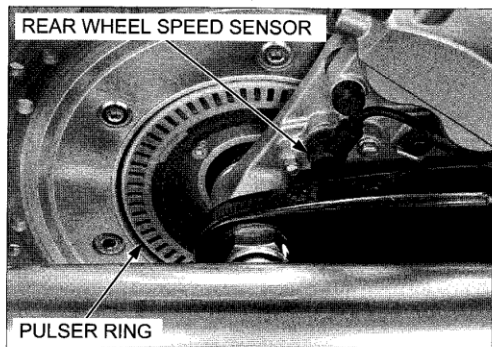


2. Rear Wheel Speed Sensor Condition Inspection

Inspect the area around the rear wheel speed sensor and pulser ring:
Check that there is iron or other magnetic deposits between the pulser ring slots and rear wheel speed sensor, and the pulser ring slots for obstructions.
Check installation condition of the pulser ring or rear wheel speed sensor for looseness.
Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).

Are the sensor and pulser ring in good condition?

- YES** – GO TO STEP 3.
- NO** – Remove any deposits. Install properly or replace faulty part.



3. Rear Wheel Speed Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the rear wheel speed sensor 2P (Orange) connector.

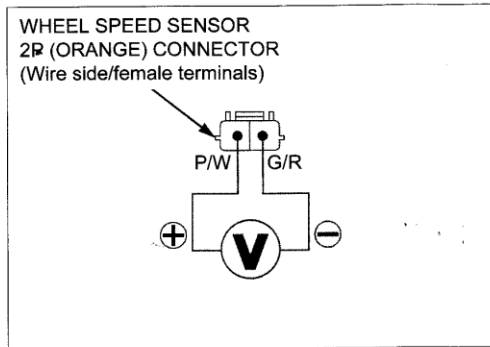
Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the rear wheel speed sensor 2P (Orange) connector of the wire side.

CONNECTION: Pink/white (+) – Green/red (-)

Is there battery voltage?

- YES** – Faulty rear wheel speed sensor
- NO** – GO TO STEP 4.



4. Rear Wheel Speed Sensor Line Short Circuit Inspection

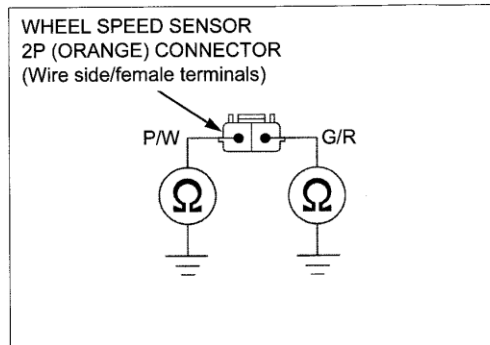
Turn the ignition switch OFF.
Check for continuity between each terminal (Pink/white and Green/red) of wheel speed sensor 2P (Orange) connector and ground.

CONNECTION:

- Pink/white – Ground**
- Green/red – Ground**

Is there continuity?

- YES** – • Short circuit in Pink/white wire
- Short circuit in Green/red wire
- NO** – GO TO STEP 5.



5. Rear Wheel Speed Sensor Line Open Circuit Inspection 1

Disconnect the wheel speed sensor 4P (Natural) connector.

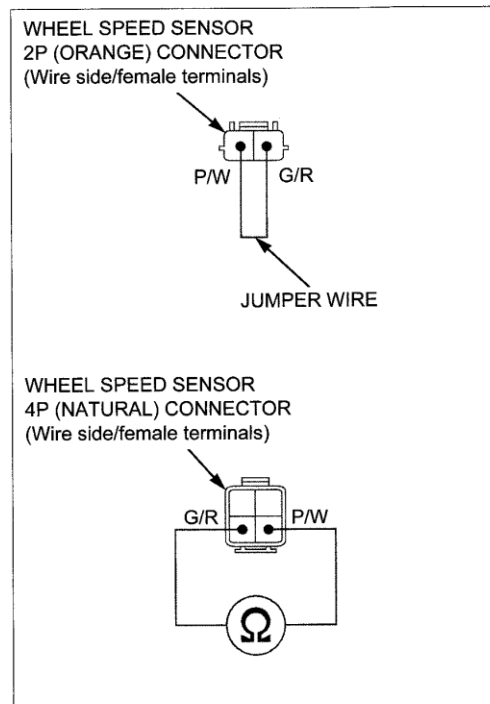
Connect the rear wheel speed sensor 2P (Orange) connector with a jumper wire.

Check for continuity at the wheel speed sensor 4P (Natural) connector terminals.

CONNECTION: Pink/white – Green/red

Is there continuity?

- YES** – GO TO STEP 6.
- NO** – • Open circuit in Pink/white wire
- Open circuit in Green/red wire



6. Rear Wheel Speed Sensor Line Open Circuit Inspection 2

Disconnect the ABS modulator 25P connector (page 18-30).

Connect the ABS modulator 25P connector with a jumper wire.

Check for continuity at the wheel speed sensor 4P (Natural) connector.

TOOL:

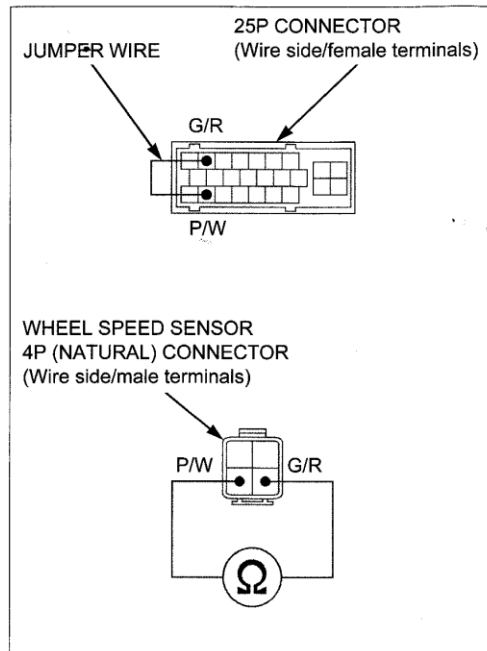
Test probe **07ZAJ-RDJA110**

CONNECTION: Pink/white – Green/red

Is there continuity?

YES – GO TO STEP 7.

- NO** –
- Open circuit in Pink/white wire
 - Open circuit in Green/red wire



7. Failure Reproduction with a New Rear Wheel Speed Sensor

Replace the rear wheel speed sensor with a new one (page 18-28).

Connect the ABS modulator 25P and rear wheel speed sensor 2P (Orange) connectors.

Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph). Retrieve the problem code (page 18-8) and recheck the ABS indicator.

Does the indicator blink 13, 14, 23 or 43 times?

YES – Faulty ABS modulator

NO – Faulty original rear wheel speed sensor

PROBLEM CODE 31, 32, 33, 34, 37 or 38 (Solenoid Valve)

1. Failure Reproduction

Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph). Retrieve the problem code (page 18-8) and recheck the ABS indicator.

Does the indicator blink 31, 32, 33, 34, 37 or 38 times?

YES – Faulty ABS modulator

NO – Solenoid valve is normal (intermittent failure)

PROBLEM CODE 51, 52 or 53 (Pump Motor)

NOTE:

Before starting the inspection, check for blown fuse (ABS MOTOR 30 A).

1. Motor Power Input Voltage Inspection 1

Disconnect the ABS sub harness 4P (Natural) connector.

Turn the ignition switch ON and engine stop switch "O".

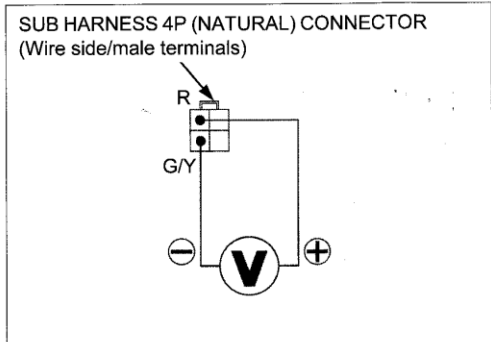
Measure the voltage at the ABS sub harness 4P (Natural) connector terminals of the wire side.

CONNECTION: Red (+) – Green/yellow (-)

Is there battery voltage?

YES – GO TO STEP 3.

NO – GO TO STEP 2.



2. Motor Power Input Line Short Circuit Inspection 1

Turn the ignition switch OFF.

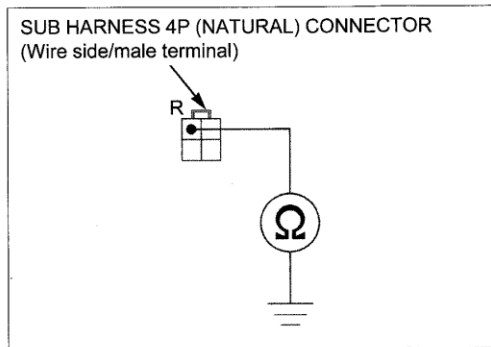
Check for continuity between the ABS sub harness 4P (Natural) connector and ground.

CONNECTION: Red – Ground

Is there continuity?

YES – Short circuit in Red wire

NO – GO TO STEP 3.



3. Motor Power Input Voltage Inspection 2

Connect the ABS sub harness 4P (Natural) connector.

Disconnect the ABS modulator 25P connector (page 18-30).

Measure the voltage at the ABS modulator 25P connector terminals of the wire side.

TOOL:

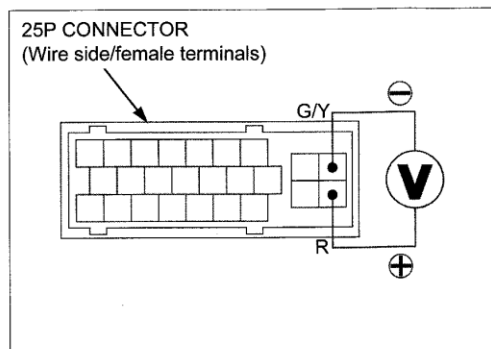
Test probe 07ZAJ-RDJA110

CONNECTION: Red (+) – Green/yellow (-)

Is there battery voltage?

YES – GO TO STEP 5.

NO – GO TO STEP 4.



ABS (VT1300CXA)

4. Motor Power Input Line Short Circuit Inspection 2

Check for continuity between the wire side ABS modulator 25P connector of the wire side and ground.

TOOL:

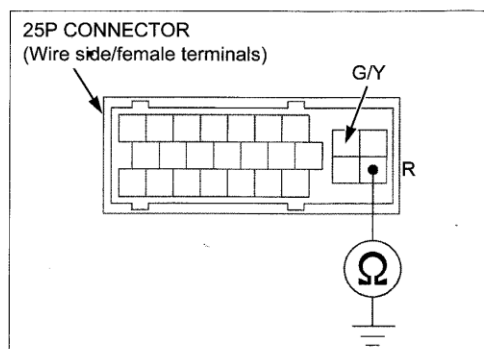
Test probe 07ZAJ-RDJA110

CONNECTION: Red – Ground

Is there continuity?

YES – Short circuit in Red wire

NO – • Open circuit in Green/yellow wire
• Intermittent failure



5. Failure Reproduction

Connect the ABS modulator 25P connector.
Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph).
Retrieve the problem code (page 18-8).

Does the indicator blink 51, 52, or 53 times?

YES – Faulty ABS modulator

NO – Pump motor is normal (intermittent failure).

PROBLEM CODE 54 (Fail-safe Relay)

NOTE:

Before starting the inspection, check for blown fuse (ABS FAIL 30 A).

1. Relay Power Input Voltage Inspection 1

Disconnect the ABS sub harness 4P (Natural) connector.

Turn the ignition switch ON and engine stop switch "O".

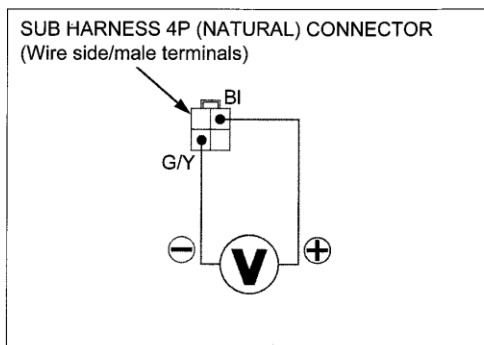
Measure the voltage between the ABS sub harness 4P (Natural) connector.

CONNECTION: Black (+) – Green/yellow (-)

Is there battery voltage?

YES – GO TO STEP 3.

NO – GO TO STEP 2.



2. Relay Power Input Line Short Circuit Inspection 1

Turn the ignition switch OFF.

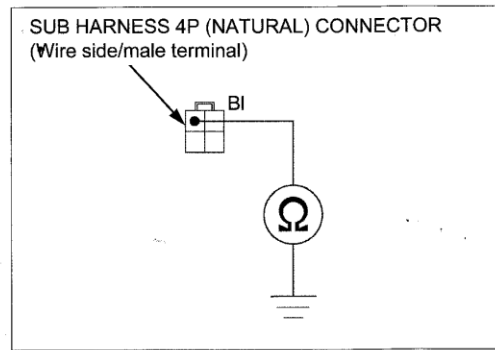
Check for continuity between the ABS sub harness 4P (Natural) connector and ground.

CONNECTION: Black – Ground

Is there continuity?

YES – Short circuit in Black wire

NO – GO TO STEP 3.



3. Relay Power Input Voltage Inspection 2

Connect the ABS sub harness 4P (Natural) connector.

Disconnect the ABS modulator 25P connector (page 18-30).

Measure the voltage between the ABS modulator 25P connector terminals.

TOOL:

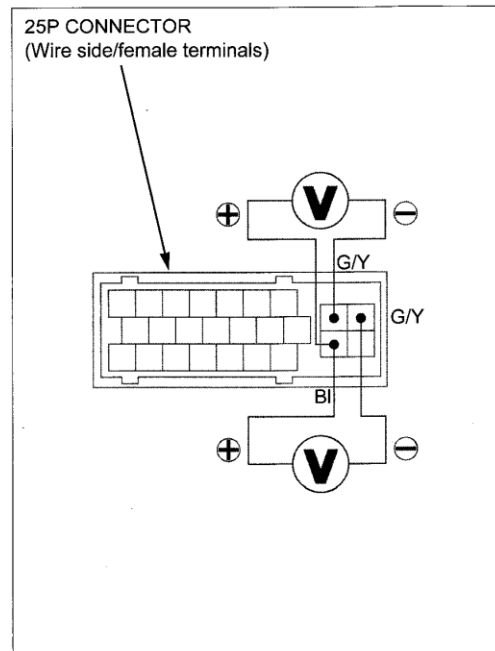
Test probe 07ZAJ-RDJA110

CONNECTION: Black (+) – Green/yellow (-)

Is there battery voltage?

YES – GO TO STEP 5.

NO – GO TO STEP 4.



4. Relay Power Input Line Short Circuit Inspection 2

Check the continuity between the ABS modulator 25P connector of the wire side and ground.

TOOL:

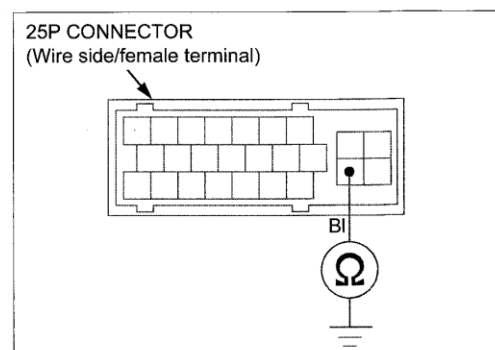
Test probe 07ZAJ-RDJA110

CONNECTION: Black – Ground

Is there continuity?

YES – Short circuit in Black wire

NO – • Open circuit in Green/yellow wire
• Intermittent failure (Replace the ABS FAIL (30 A) fuse, and recheck.)



5. Failure Reproduction

Connect the ABS modulator 25P connector (page 18-30).
Erase the problem code (page 18-9).
Test ride the motorcycle above 30 km/h (18 mph).
Retrieve the problem code (page 18-8).

Does the indicator blink 54 times?

- YES** – Faulty ABS modulator
- NO** – Fail-safe relay is normal (intermittent failure)

PROBLEM CODE 61 or 62 (Power Circuit)

NOTE:

Before starting the inspection, check for blown fuse (ABS MAIN 10 A).

1. ABS Power Input Voltage Inspection 1

Disconnect the ABS sub harness 3P (Natural) connector.

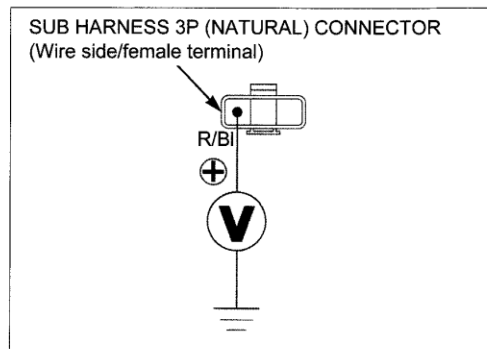
Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the ABS sub harness 3P (Natural) connector terminals.

CONNECTION: Red/black (+) – Ground (-)

Is there battery voltage?

- YES** – GO TO STEP 3.
- NO** – GO TO STEP 2.



2. ABS Power Input Line Short Circuit Inspection 1

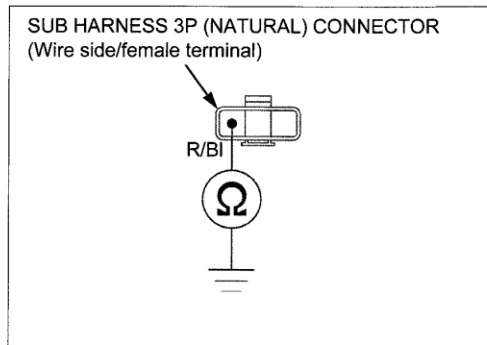
Turn the ignition switch OFF.

Check for continuity between the ABS sub harness 3P (Natural) connector terminal and ground.

CONNECTION: Red/black – Ground

Is there continuity?

- YES** – Short circuit in Red/black wire
- NO** – GO TO STEP 3.



3. ABS Power Input Voltage Inspection 2

Connect the ABS sub harness 3P (Natural) connector.

Disconnect the ABS modulator 25P connector (page 18-30).

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the ABS modulator 25P connector terminals of the wire side.

TOOL:

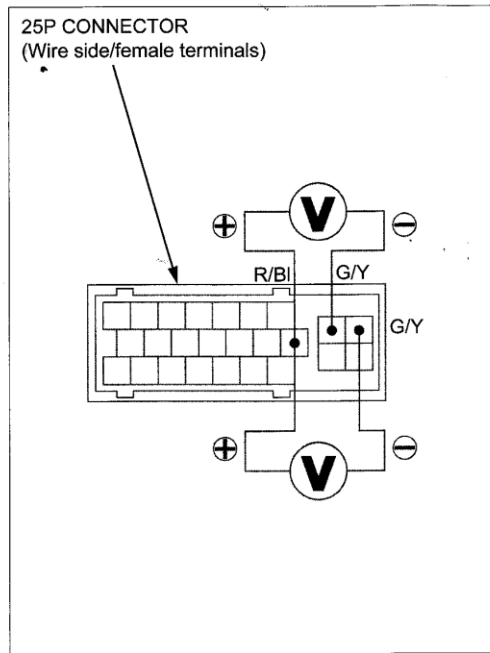
Test probe 07ZAJ-RDJA110

CONNECTION: Red/black (+) – Green/yellow (-)

Is there battery voltage?

YES – GO TO STEP 5.

NO – GO TO STEP 4.



4. ABS Power Input Line Short Circuit Inspection 2

Turn the ignition switch OFF.

Check for continuity between the ABS modulator 25P connector of the wire side and ground.

TOOL:

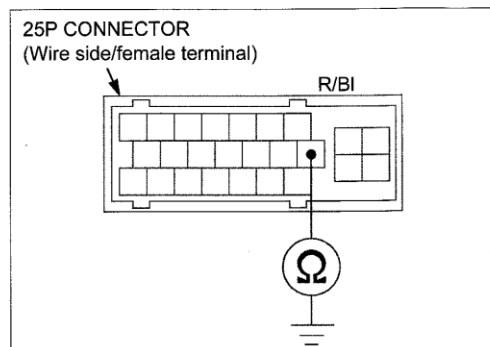
Test probe 07ZAJ-RDJA110

CONNECTION: Red/black – Ground

Is there continuity?

YES – Short circuit in Red/black wire

NO – • Open circuit in Green/yellow wire
• Intermittent failure



5. Failure Reproduction

Connect the ABS modulator 25P connector.
Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph).
Retrieve the problem code (page 18-8).

Does the indicator blink 61 or 62 times?

YES – Faulty ABS modulator

NO – Power circuit is normal (intermittent failure)

PROBLEM CODE 71 (Tire Size)

NOTE:

- Check the following and correct the faulty part.
 - Incorrect tire pressure.
 - Tires not recommended for the motorcycle were installed (incorrect tire size).
 - Deformation of the wheel or tire.

1. Failure Reproduction

Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 18-8).

Does the indicator blink 71 times?

YES – Faulty ABS modulator

NO – Tire size is normal (intermittent failure)

PROBLEM CODE 81 (ABS Control Unit)

1. Failure Reproduction

Erase the problem code (page 18-9).

Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 18-8).

Does the indicator blink 81 times?

YES – Faulty ABS modulator

NO – CPU is normal (intermittent failure)

FRONT WHEEL SPEED SENSOR

INSPECTION

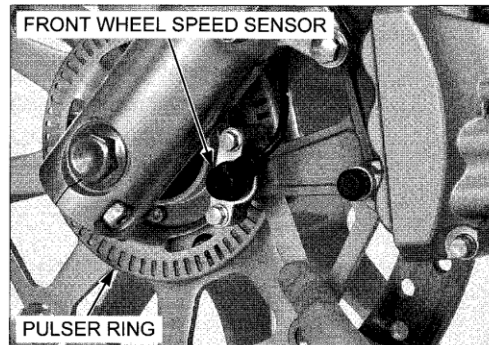
Support the motorcycle using a safety stand or hoist and raise the front wheel off the ground.

Measure the clearance (air gap) between the front wheel speed sensor and pulser ring at several points by turning the wheel slowly.

STANDARD: 0.4 – 1.4 mm (0.02 – 0.06 in)

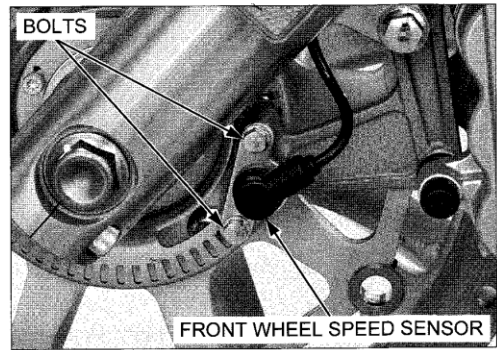
The sensor air gap cannot be adjusted.

If it is not within specification, check each installation part for deformation, looseness and damage.



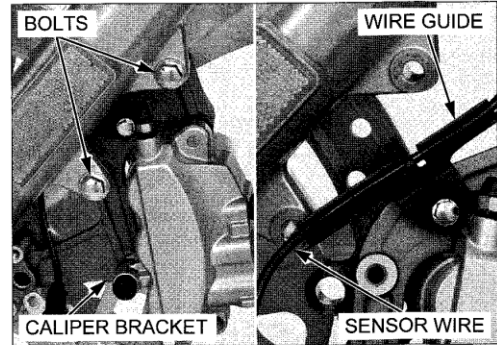
REMOVAL/INSTALLATION

Remove the fuel tank (page 6-43).
 Remove the bolts and front wheel speed sensor.

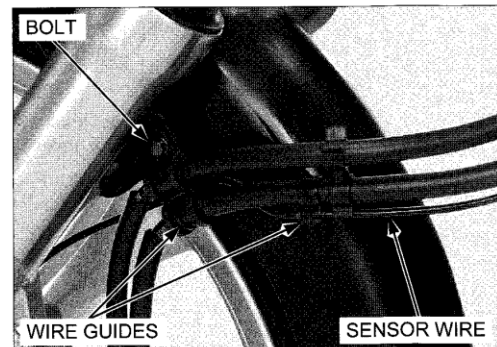


Remove the bolts and front brake caliper bracket.
 Release the front wheel speed sensor wire from the wire guide.

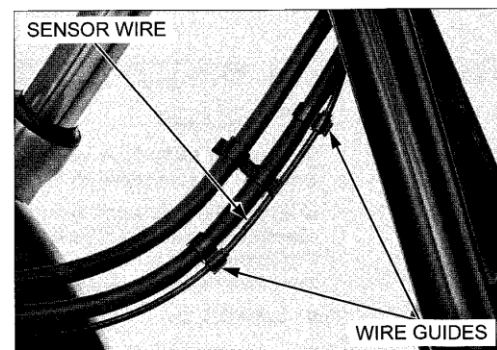
NOTE:
 Support the brake caliper so it does not hang from the brake hose. Do not twist the brake hose.



Remove the bolt and release the front wheel speed sensor wire from the wire guides.

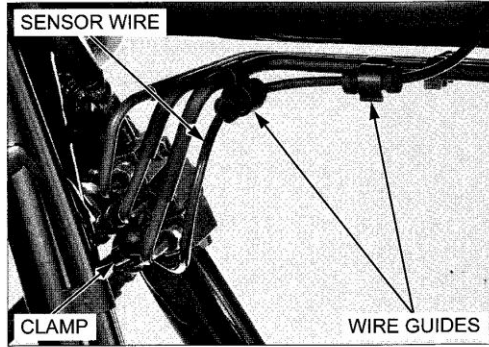


Release the front wheel speed sensor wire from the wire guides.



ABS (VT1300CXA)

Release the wire clamp from the frame.
Release the front wheel speed sensor wire from the wire guides.



Disconnect the front wheel speed sensor 2P (Blue) connector.

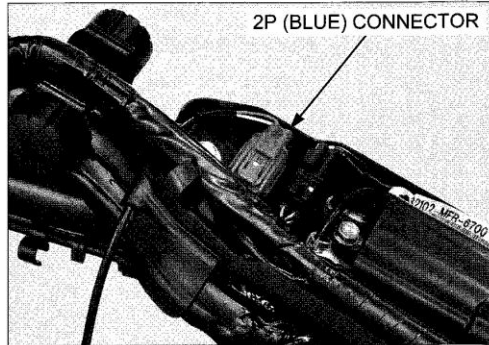
Route the front wheel speed sensor wire properly (page 1-22).

Installation is in the reverse order of removal.
Replace the front brake caliper mounting bolts with new ones.

TORQUE:

**Front brake caliper mounting bolt:
31 N·m (3.2 kgf·m, 23 lbf·ft)**

Check the air gap between the front wheel speed sensor and pulser ring (page 18-26).

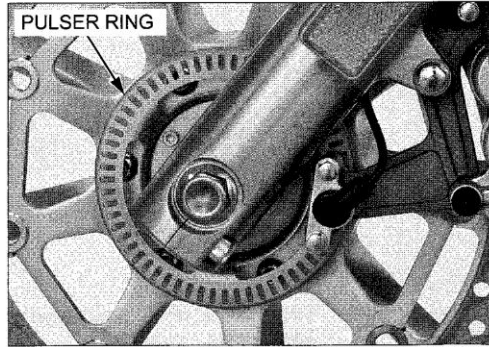


FRONT PULSER RING

INSPECTION

Support the motorcycle using a safety stand or hoist and raise the front wheel off the ground.

Check the pulser ring for scratch or damage.
Replace the pulser ring if necessary.



REAR WHEEL SPEED SENSOR

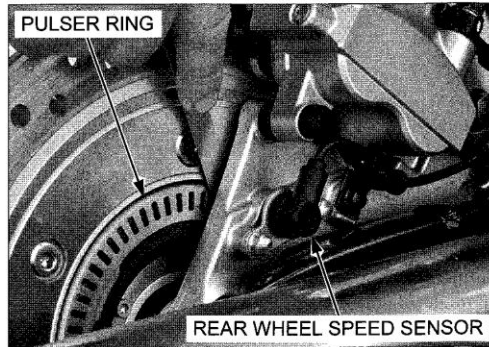
INSPECTION

Support the motorcycle using a safety stand or hoist and raise the rear wheel off the ground.

Measure the clearance (air gap) between the rear wheel speed sensor and pulser ring at several points by turning the wheel slowly.
It must be within specification.

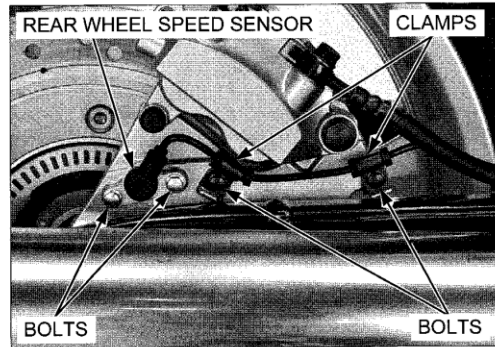
STANDARD: 0.4 – 1.4 mm (0.02 – 0.06 in)

The sensor air gap cannot be adjusted.
If it is not within specification, check each installation part for deformation, looseness and damage.



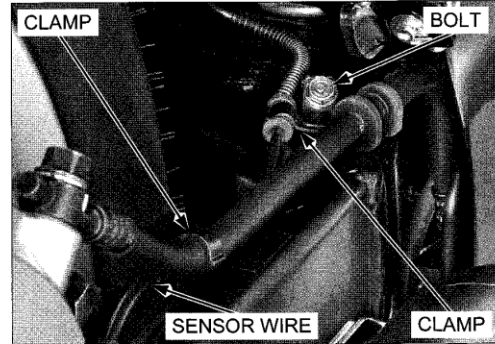
REMOVAL/INSTALLATION

Remove the bolts and rear wheel speed sensor.
Remove the bolts and release the wire clamps.



Release the rear wheel speed sensor wire from the wire clamp.

Remove the bolt and release the rear wheel speed sensor wire from the hose clamp.



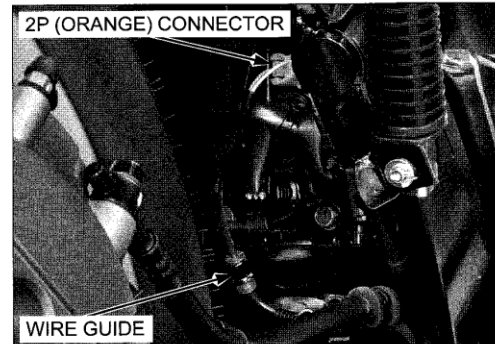
Release the rear wheel speed sensor wire from the wire guide.

Disconnect the rear wheel speed sensor 2P (Orange) connector.

Installation is in the reverse order of removal.

Check the air gap between the rear wheel speed sensor and pulser ring (page 18-28).

Route the rear wheel speed sensor wire properly (page 1-22).

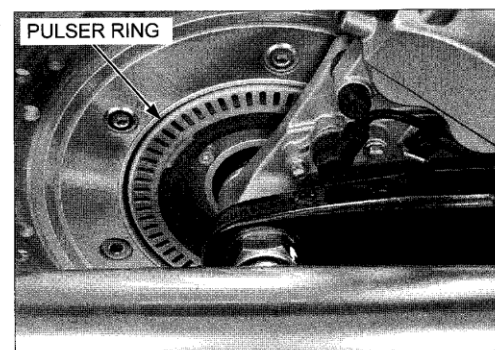


REAR PULSER RING

INSPECTION

Support the motorcycle using a safety stand or hoist and raise the rear wheel off the ground.

Check the pulser ring for scratch or damage.
Replace the pulser ring if necessary.



PCV

REMOVAL/INSTALLATION

NOTICE

Spilled brake fluid will severely damage painted surfaces. It is also harmful to some rubber parts.

NOTE:

When removing the brake pipes, cover the end of the brake pipes to prevent contamination.

Remove the exhaust system (page 3-10).

Drain the brake fluid from the rear hydraulic system (page 17-10).

Loosen the joint nuts and disconnect the brake pipe.

Remove the bolts and PCV.

Installation is in the reverse order of removal.

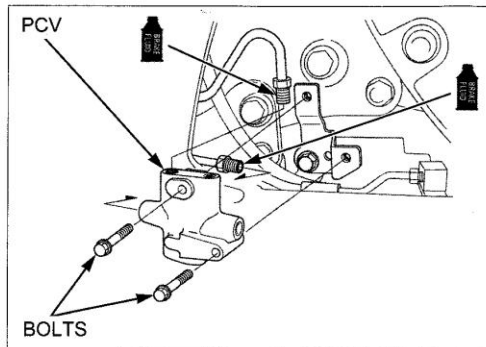
TORQUE:

Brake pipe joint nut: 14 N·m (1.4 kgf·m, 10 lbf·ft)

NOTE:

Apply brake fluid to the brake pipe joint nut threads.

Fill and bleed the hydraulic system (page 17-10).



ABS MODULATOR

NOTICE

Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts.

NOTE:

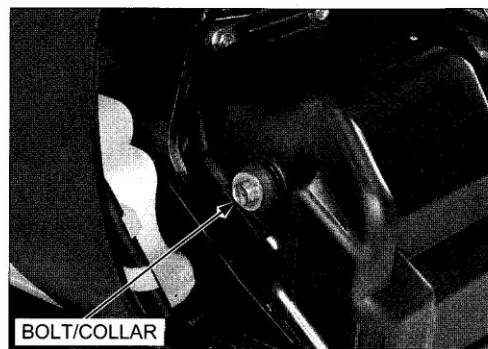
When removing the brake pipes, cover the end of the brake pipes to prevent contamination.

REMOVAL/INSTALLATION

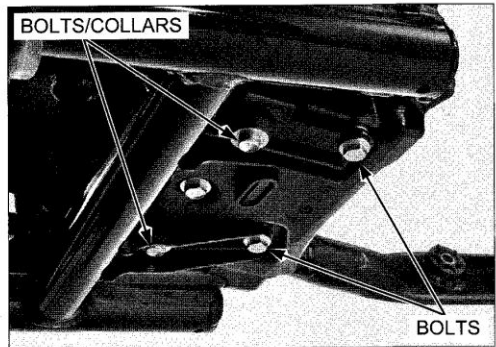
Drain the brake fluid (page 17-10).

Remove the swingarm (page 16-17).

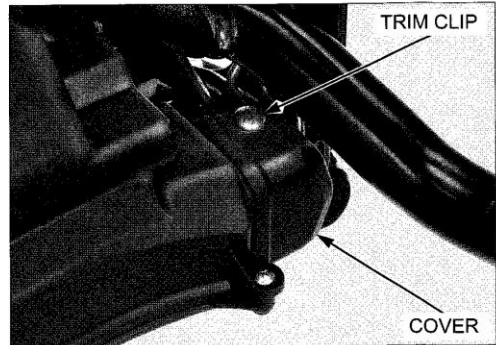
Remove the ABS modulator left side mounting bolt and collar.



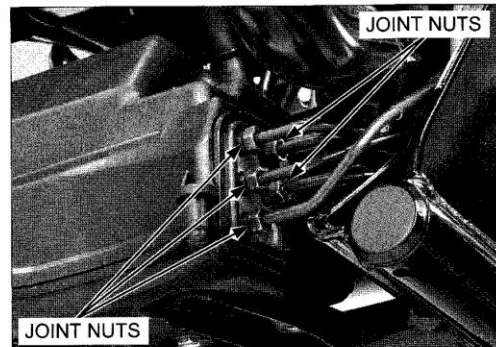
Remove the lower ABS modulator mounting bolts and collars.



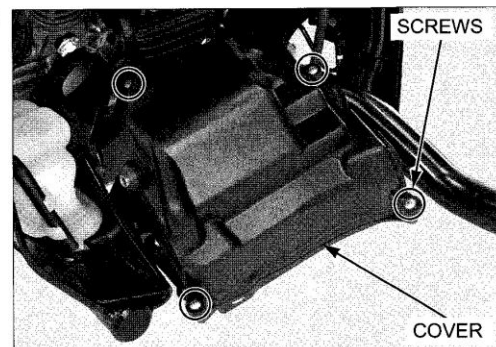
For trim clip information (page 3-3). Remove the trim clip and brake pipe cover.



Loosen the joint nuts and disconnect the brake pipes from the ABS modulator.



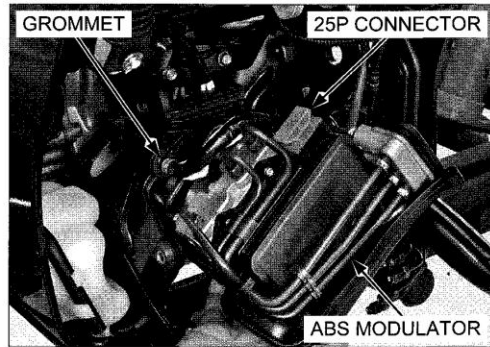
Loosen the screws and separate the ABS modulator cover.



ABS (VT1300CXA)

Remove the grommet from the ABS modulator.

Disconnect the ABS modulator 25P connector by pulling the lock lever up to disconnect it and remove the ABS modulator.



Installation is in the reverse order of removal.

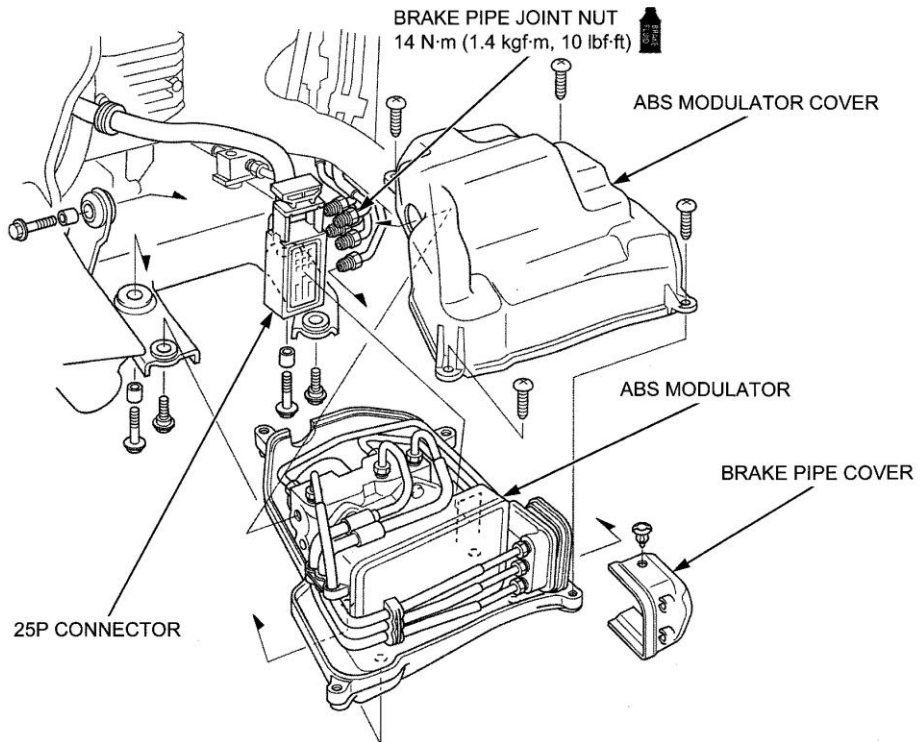
TORQUE:

Brake pipe joint nut:
14 N·m (1.4 kgf·m, 10 lbf·ft)

NOTE:

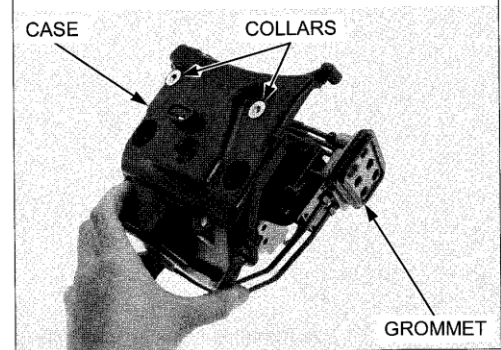
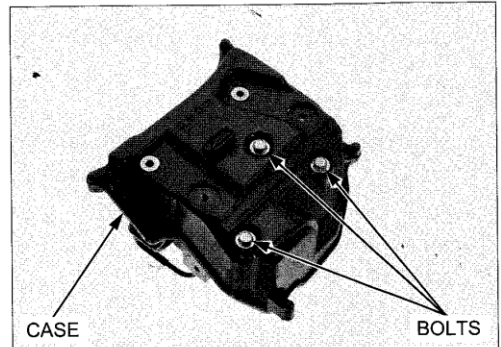
Apply brake fluid to the brake pipe joint nut threads.

Fill and bleed the hydraulic system (page 17-10).

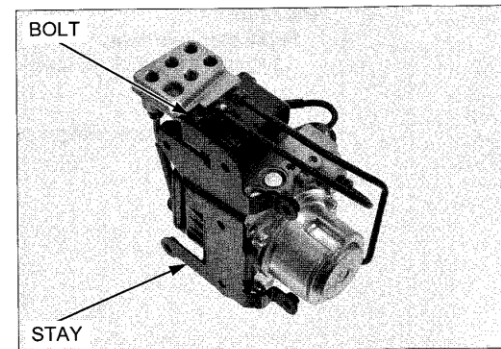


DISASSEMBLY/ASSEMBLY

Remove the bolts, ABS modulator case and collars.
Remove the grommet from the brake pipe joint.

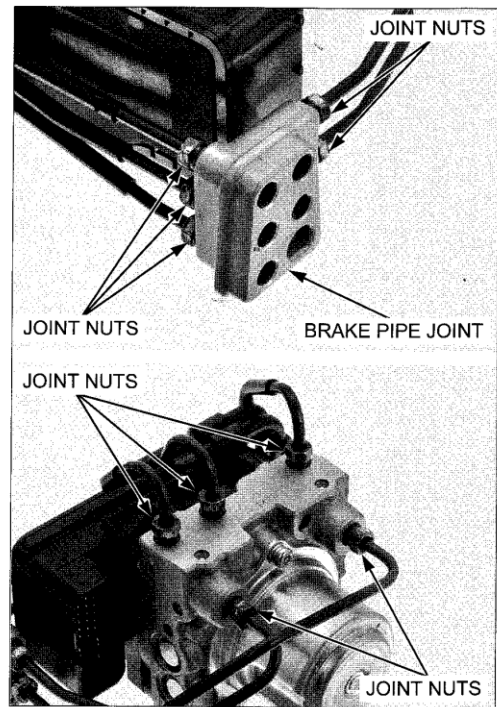


Remove the bolt and ABS modulator stay.



ABS (VT1300CXA)

Loosen the joint nuts then remove the brake pipes and brake pipe joint from the ABS modulator.



Assembly is in the reverse order of disassembly.

TORQUE:

Brake pipe joint nut:
14 N·m (1.4 kgf·m, 10 lbf·ft)

NOTE:

Apply brake fluid to the brake pipe joint nut threads.

