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## Service Information

### CAUTION

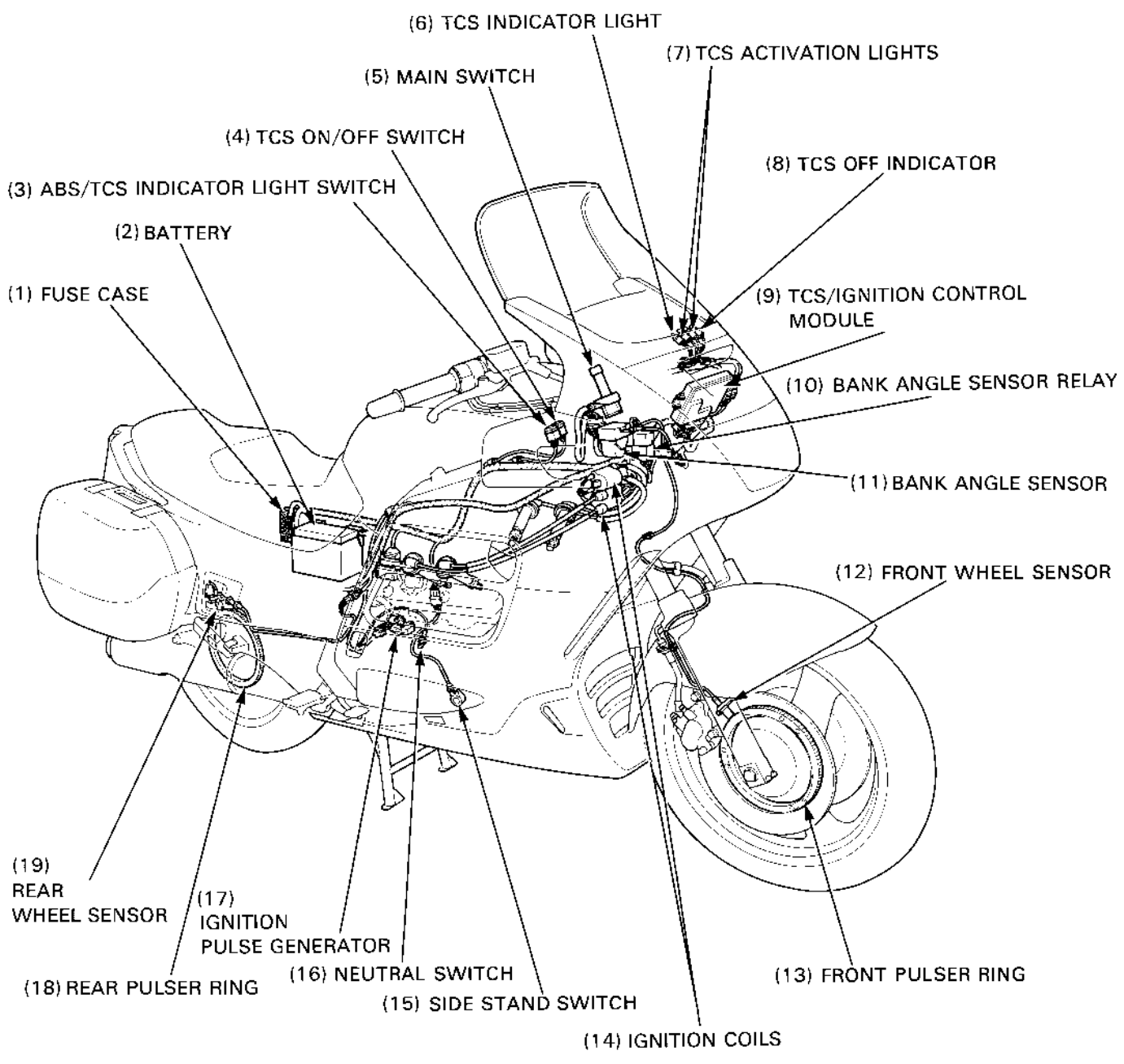
- Use the fully charged battery for troubleshooting. Do not diagnose the TCS with a charger connected to the battery.
- On removal and installation of the wheel sensors/wheels, be careful not to damage the wheel sensors and pulser rings.

### NOTE

- Check the following before performing any TCS troubleshooting.
  - Pre-start self-diagnosis of TCS
  - Check on all lights and indicators of TCSIf an abnormality is found during the above checks, perform the TCS troubleshooting following the Symptom-to-System Chart (page 19-6). The TCS is normal if no trouble is found. Go on to the check the other basic systems (e. g. fuel system, ignition system, etc.).
- Record the symptom of the problem and the problem code in MEMO before troubleshooting.
- When the TCS is faulty, the TCS indicator light blinks or it comes on. The TCS does not function this time; take care during the test ride.
- The TCS OFF indicator turns on when the TCS ON/OFF switch connector is disconnected and then reconnected with the ignition switch ON. The TCS can be recovered this time by pushing the TCS ON/OFF switch. Take care when removing the left side pocket.
- When the rear wheel sensor or rear pulser ring is replaced, perform the air gap inspection (16-51).
- The TCS indicator light might blink in the following cases. If the indicator light blinks, turn the ignition switch OFF and perform the pre-start self-diagnosis (page 19-5). The TCS is normal if the TCS indicator light goes off.
  - The TCS/ignition control module was disrupted due to an extremely powerful radio wave (Electromagnetic Interference).
  - After riding (i.e. after the pre-start self- diagnosis), either front or rear wheel was stopped and the other wheel was turned (for more than 10 seconds) with the engine kept running.
    - Example: • Only the rear wheel was turned with the motorcycle set on the main stand.
    - Only the front wheel was turned for inspection of the meter.
- When, after the test ride (i.e. after pre-start self- diagnosis), the motorcycle is set on the center stand with the engine running and the throttle is opened quickly with the gear engaged (rear wheel idles), the ignition timing is retarded because of the difference in wheel speed between the front and rear wheels, which might cause afterfire and afterburn.
- The TCS indicator light might blink under the following conditions. Turn the ignition switch OFF to return to the normal condition and perform the pre-start self-diagnosis (page 19-5) of the TCS. The TCS is normal if the TCS indicator goes off:
  - Improper tire air pressure
  - Tire not recommended for the motorcycle is installed.
  - Deformation of the wheel

# System Location

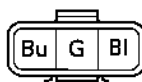
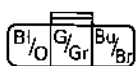
ABS/TCS model shown:



# System Wiring Connections/Locations

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

① REAR WHEEL SENSOR  
-R. side color (page 2-2)



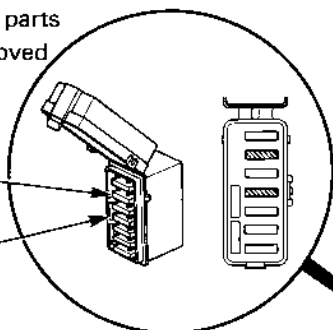
② TCS ON/OFF SWITCH  
-Top shelter  
(page 2-5)



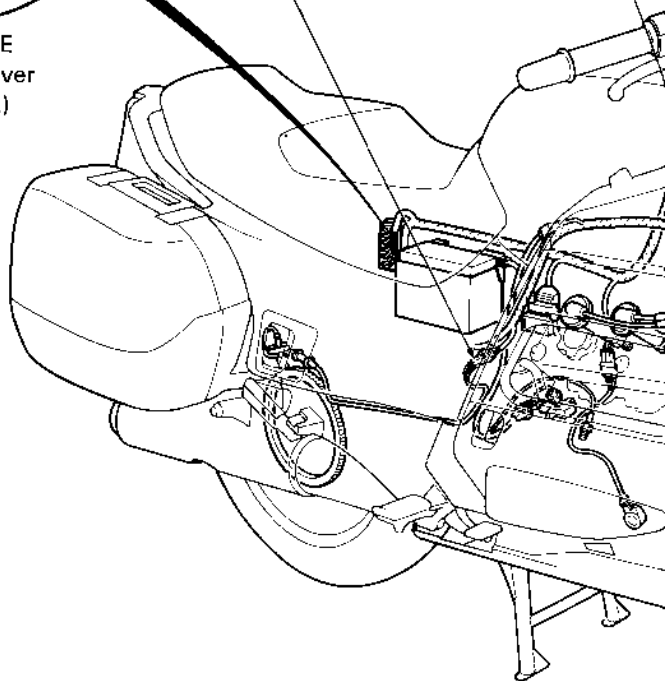
For example: ② TCS SWITCH ← Maintenance part  
-Top shelter ← The parts that must be removed for service.

INDICATOR FUSE  
("METER TAIL POSITION")

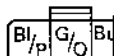
IGNITION FUSE  
("IGN ACG STARTER")



FUSE CASE  
-L. side cover  
(page 2-2)



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



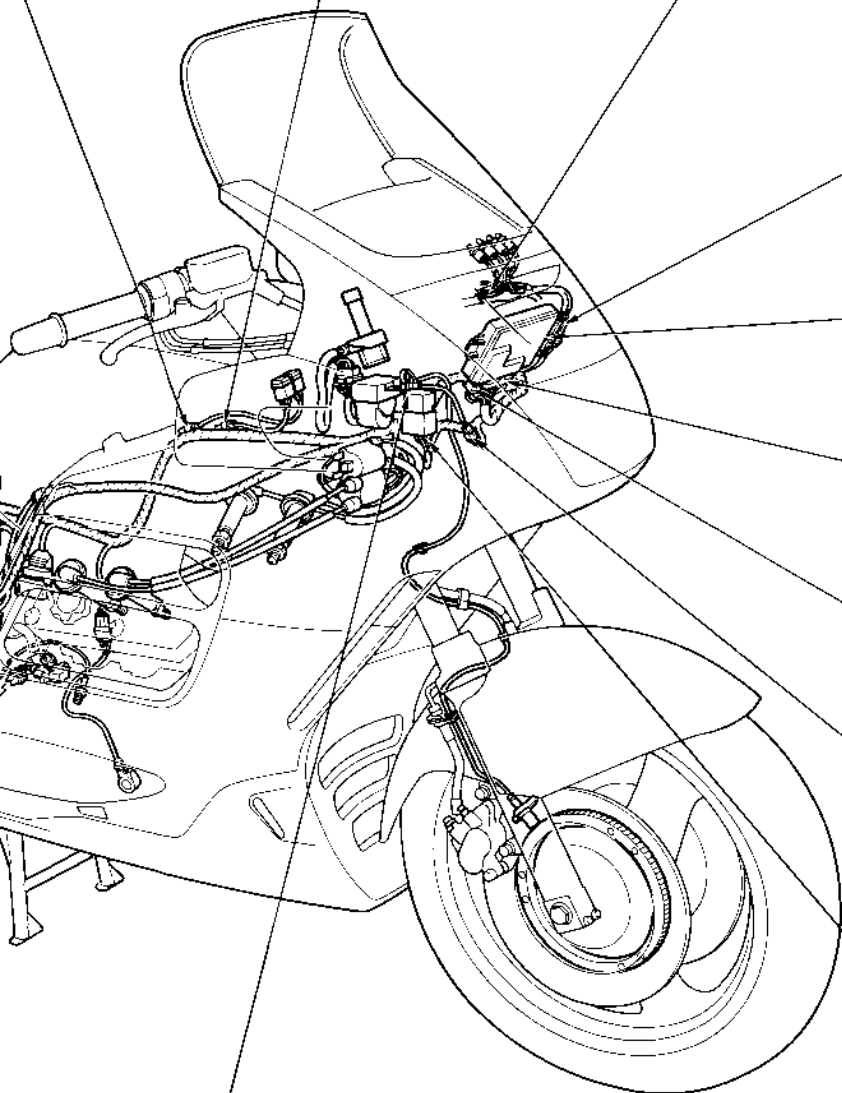
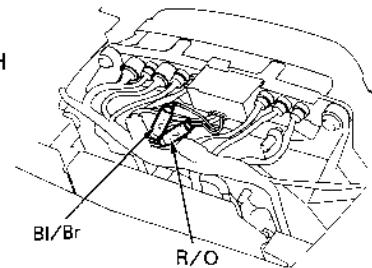
① FRONT  
-Upper  
(page

F SWITCH

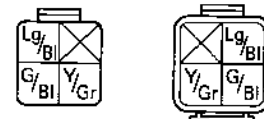


③ ABS/TCS INDICATOR LIGHT SWITCH  
-Top shelter (page 2-5)

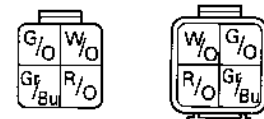
④ TCS INDICATOR LIGHT  
-Inner screen (page 2-7)



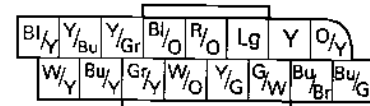
⑤ INDICATOR (BLACK)  
-Inner screen (page 2-7)



⑥ INDICATOR (WHITE)  
-Inner screen (page 2-7)



⑦ TCS/IGNITION CONTROL MODULE (ICM) (16P)  
-Upper fairing (page 2-9)



⑧ TCS/IGNITION CONTROL MODULE (ICM) (4P)  
-Upper fairing (page 2-9)



⑨ BANK ANGLE SENSOR  
-Upper fairing (page 2-9)



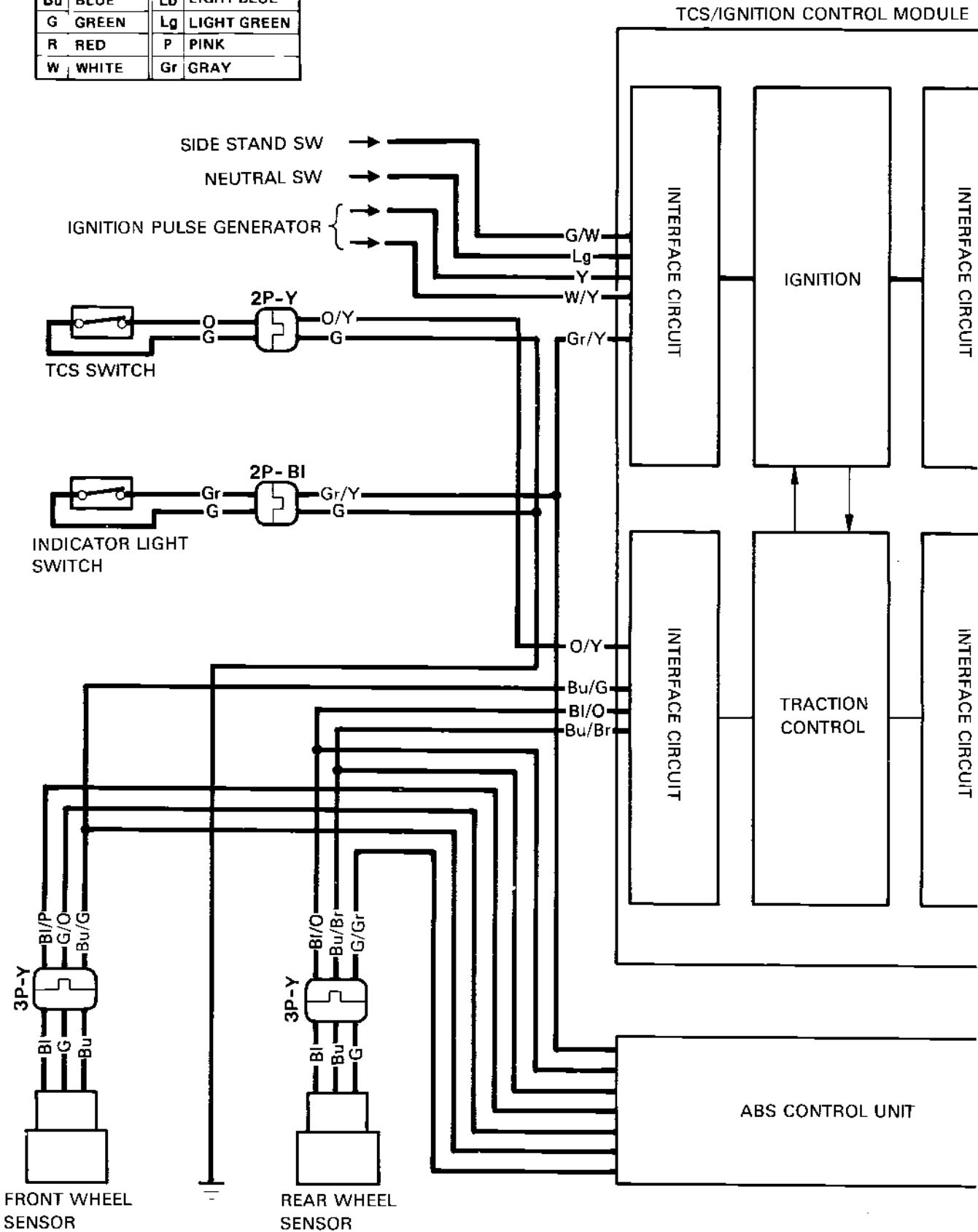
⑩ BANK ANGLE SENSOR RELAY  
-Upper fairing (page 2-9)

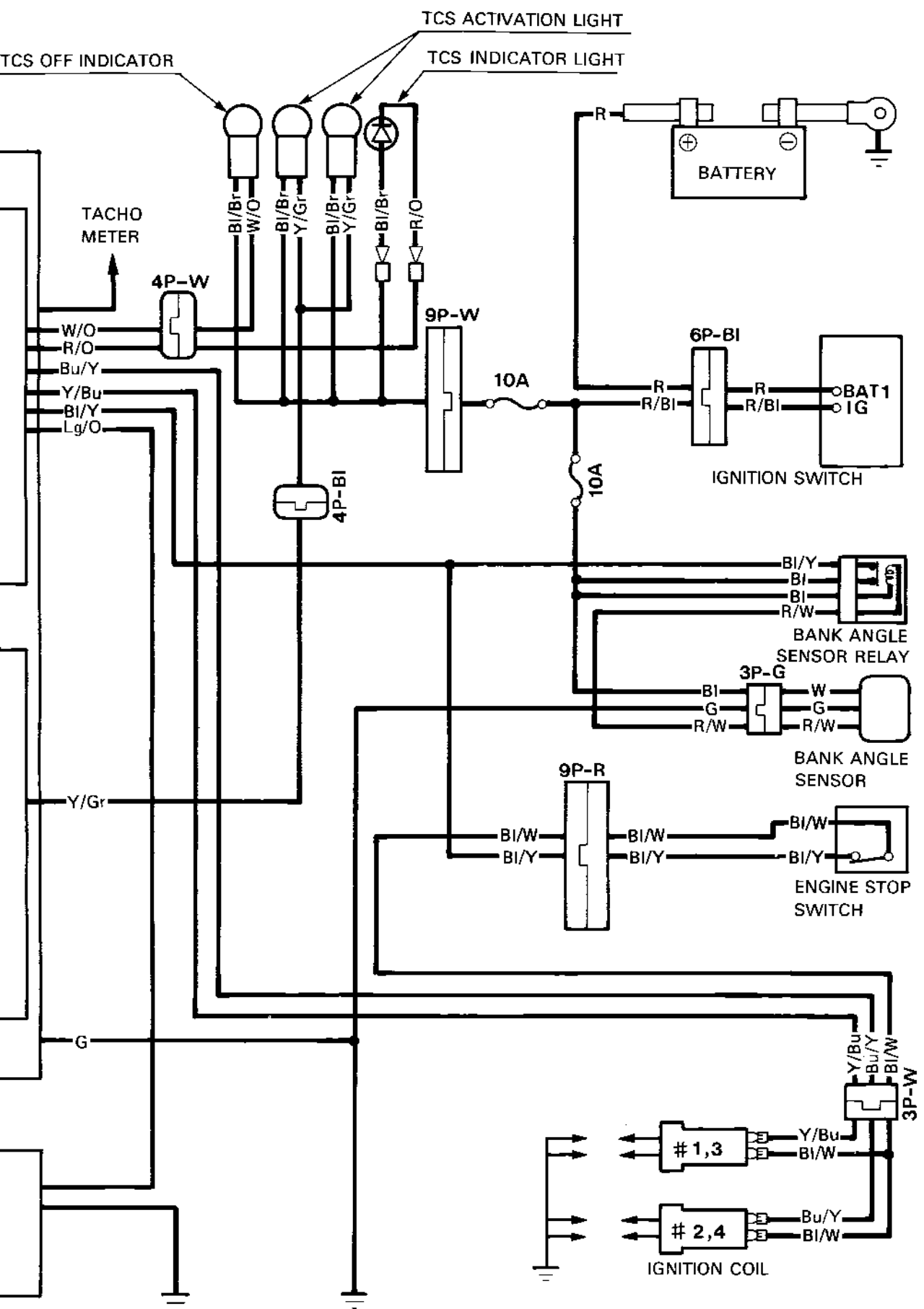


⑪ FRONT WHEEL SENSOR  
-Upper fairing  
(page 2-9)

# 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





# Troubleshooting

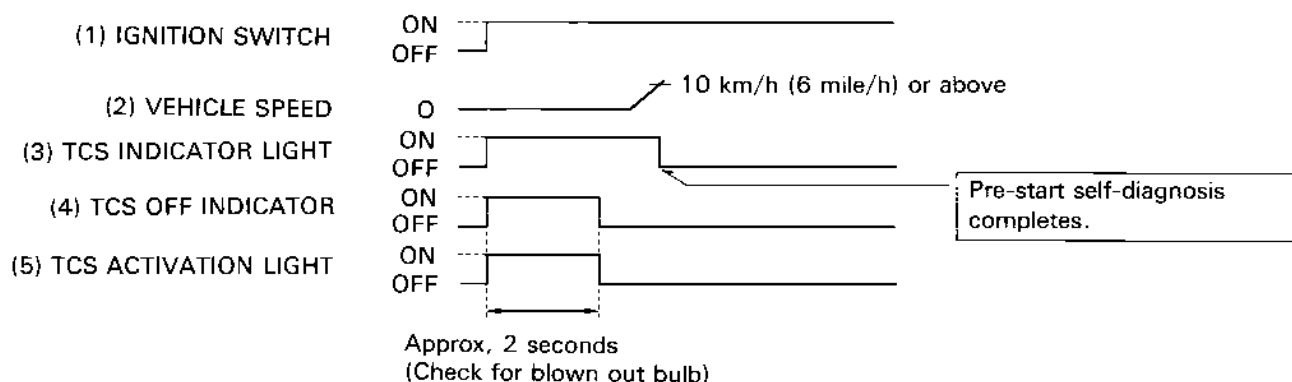
## Before Beginning Troubleshooting:

### Summary of TCS pre-start self-diagnosis system

The TCS pre-start self-diagnosis system diagnoses inside the TCS/ignition control module (ICM) and the electrical circuit of the wheel sensors.

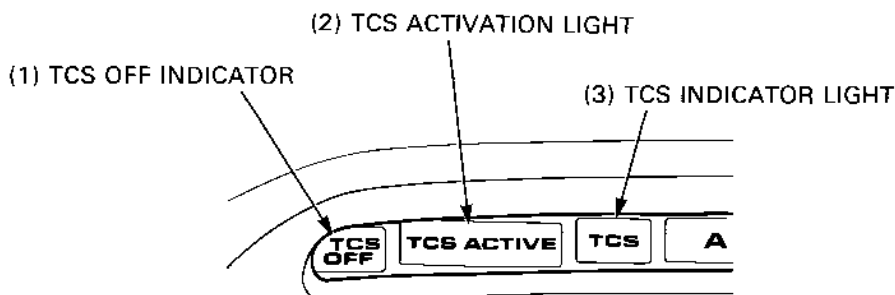
When the ignition switch is turned ON, the TCS starts the pre-start self-diagnosis to check inside the TCS/ICM for condition. Then it goes to the stand-by mode for the wheel sensor signal. After starting the motorcycle, the pre-start self-diagnosis completes when the wheel sensor signal is transmitted to the TCS/ICM with the front/rear wheel rotating at the speed of approximately 10 km/h (6 mile/h) or above.

If the TCS is normal, the indicator light goes off after the motorcycle starts notifying the rider that the pre-start self-diagnosis is completed. When a problem is detected, the indicator light blinks or stays ON to notify the rider. The self-diagnosis is made while the motorcycle is moving, too, and the indicator light blinks when a problem is detected. (The TCS OFF indicator comes ON simultaneously.) The probable cause of the trouble can be detected from the lighting condition of the TCS indicator light, indicator, etc. (see the following page).



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

1. Turn the ignition switch ON.
2. Be sure that the TCS OFF indicator and TCS activation light turn ON for approximately 2 seconds and then go OFF, and be sure that the TCS indicator light stays ON.
3. Start the engine and ride the motorcycle until the engine speed reaches approximately 10 km/h (6 mile/h).
4. The TCS is normal if the TCS indicator light goes OFF.



### NOTE

- Check the following before performing TCS troubleshooting:
  - Pre-start self-diagnosis of TCS
  - Check all lights and indicators of TCS

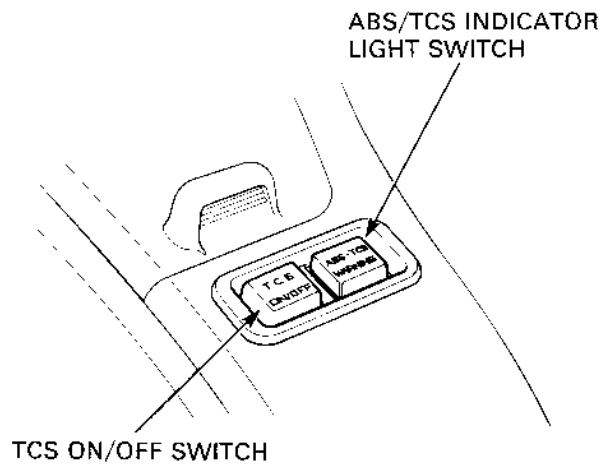
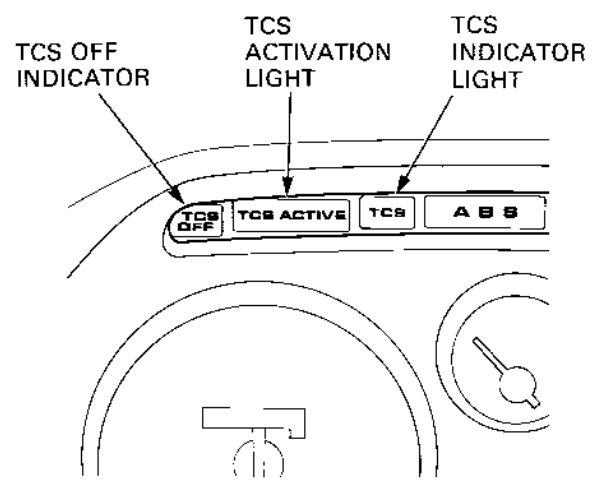
If an abnormality is found during the above checks, perform the TCS troubleshooting following the Symptom-to-System Chart (see the following page). The TCS is normal if no trouble is found. Go on to check the other basic systems (e.g., fuel system, ignition system).

Symptom-to-System Chart

Symptom	Affected									Reference page	
	Fuse		TCS ON/OFF switch system	ABS/TCS indicator light switch system	Wheel sensor system		TCS/ignition control module (ICM)	Indicator system			
	Indicator	Ignition			Front	Rear		TCS OFF indicator	TCS indicator light		TCS activation light
Lights and indicator of TCS do not turn on when the ignition switch is ON.	○	○					○	○	○	○	19-7
Lights and indicator of TCS (except TCS indicator light) do not go off 2 seconds after the ignition switch is ON.							○	○	○	○	19-10
TCS indicator light does not go off after the motorcycle starts to move.					○	○	○		○		19-11
TCS indicator light blinks and TCS OFF indicator turns on after the ignition switch is ON or while riding.					○	○	○				19-13
TCS does not turn on or off by pushing the TCS ON/OFF switch.			○				○				19-15
When TCS indicator light blinks while riding, it does not go off by operating the indicator light switch.				○			○				19-17

NOTE

- Check the following before performing TCS troubleshooting:
  - Pre-start self-diagnosis of TCS (page 19-5)
  - Check all lights and indicators of TCS (page 19-5)
- If an abnormality is found during the above checks, perform the TCS troubleshooting following the Symptom-to-System Chart. The TCS is normal if no trouble is found. Go on to the check the other basic systems (e.g. fuel system, ignition system, etc.).
- After troubleshooting, perform the pre-start self-diagnosis again (page 19-5) to be sure that the indicator lights of the TCS are operating properly.





## Flowcharts

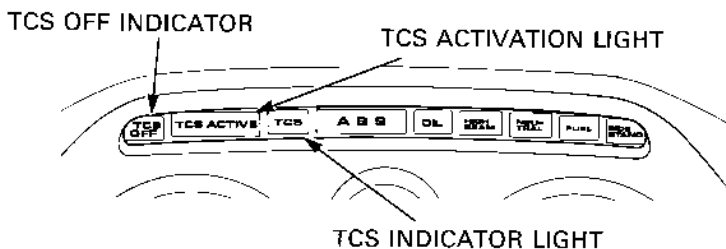
## NOTE

- Turn the ignition switch OFF unless otherwise specified.
- When the TCS/ignition control module (ICM) is found to be faulty, recheck the connectors before replacing the TCS/ICM.
- After troubleshooting, perform the pre-start self-diagnosis again and be sure that the indicator light of the TCS are normal.
- The encircled numbers in the text and connector diagrams indicate the connectors (see page 19-3).

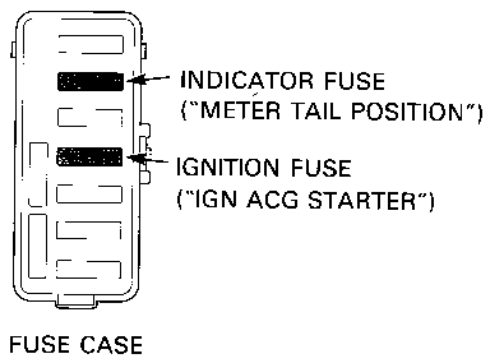
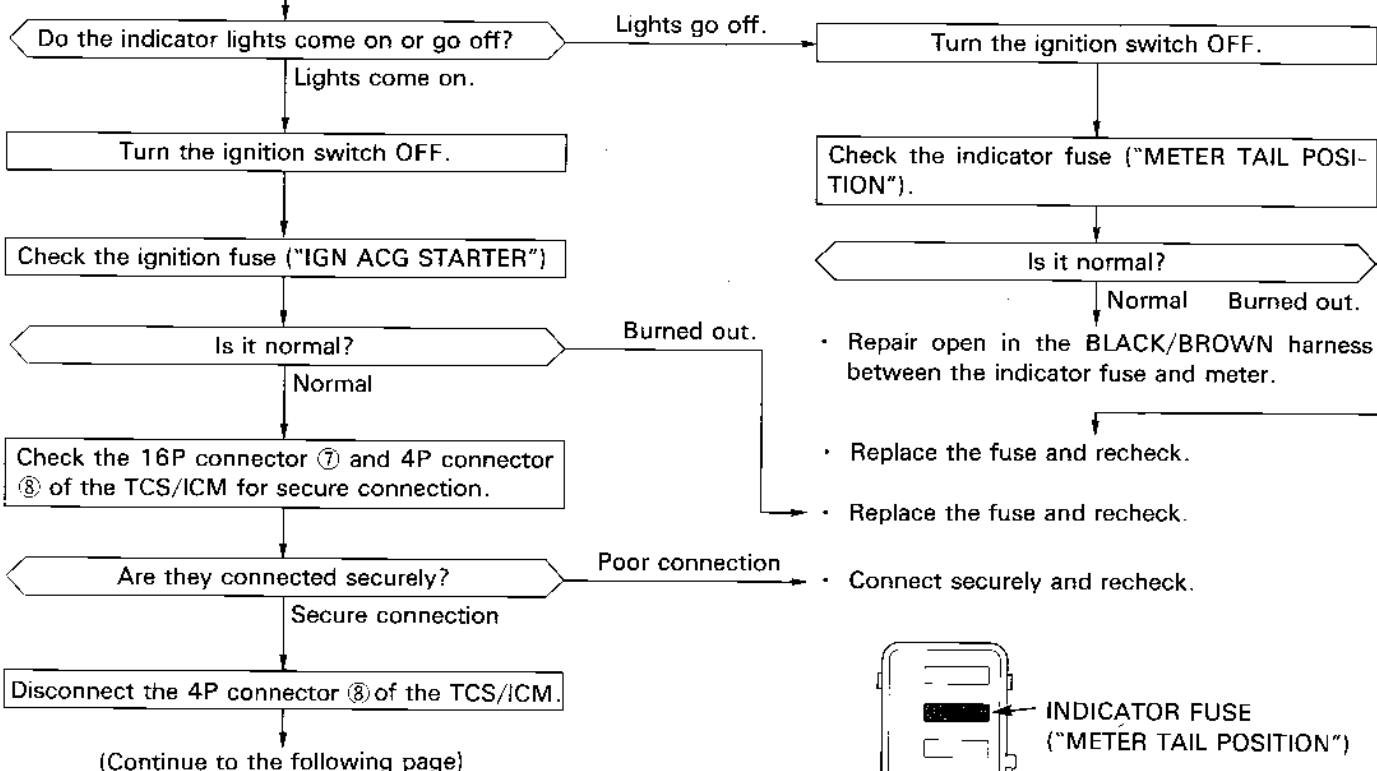
Lights and indicators of the TCS do not turn on when the ignition switch is ON.

## NOTE

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



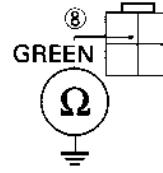
Check the indicator lights other than of TCS (e. g., neutral, fuel, and oil pressure switch indicator lights).



(From the previous page)

Check for continuity between the GREEN terminal of the TCS/ICM 4P connector ⑧ and body ground.

View from terminal side



Is there continuity?

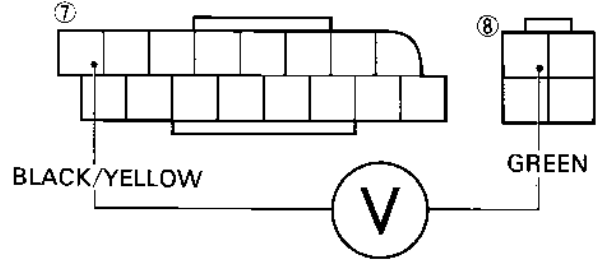
No continuity

- Repair open in the GREEN harness between the TCS/ICM and body ground, or poor grounding.

Continuity

Disconnect the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM.

View from terminal side



Turn the ignition switch ON.

Check for voltage between the BLACK/YELLOW terminal of the TCS/ICM 16P connector ⑦ and the GREEN terminal of the 4P connector ⑧

Does battery voltage register?

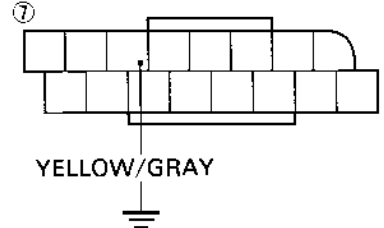
No battery voltage

- Repair open in the BLACK/YELLOW harness between the bank angle sensor relay and TCS/ICM.
- Repair open in the BLACK harness between the ignition fuse and bank angle sensor relay.

Battery voltage

Turn the ignition switch OFF.

View from terminal side

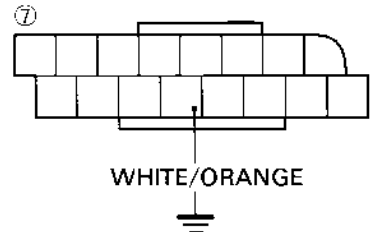


TCS activation light and OFF indicator do not come on (See page 19-7)

TCS indicator light does not come on (See page 19-7).

(To the following page.)

Install the 4P connector ⑧ of the TCM/ICM.



Connect the WHITE/ORANGE terminal (TCS OFF indicator) and the YELLOW/GRAY terminal (TCS activation light) of the TCS/ICM 16P connector ⑦ to the body to ground.

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

Does the light come on or go off?

Light goes off.

- Replace the burned out bulb.
- Repair open in the WHITE/ORANGE or YELLOW/GRAY harness between the TCS/ICM and meter.

Light comes on.

• Faulty TCS/ICM

(From the previous page)

Connect the 4P connector ⑧ of the TCS/ICM.

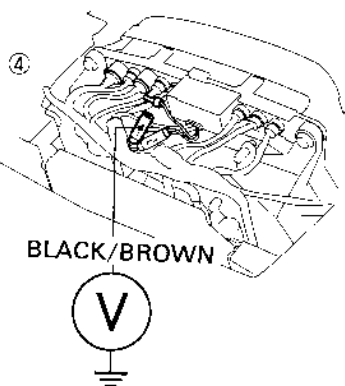
Disconnect the BLACK/BROWN connector ④ of the TCS indicator light.

Turn the ignition switch ON.

Check for voltage between the BLACK/BROWN connector ④ of the TCS indicator light and body ground.

Does battery voltage register?

No battery voltage



- Repair open in the BLACK/BROWN harness between the indicator fuse and meter.

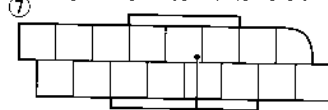
Battery voltage

Turn the ignition switch OFF.

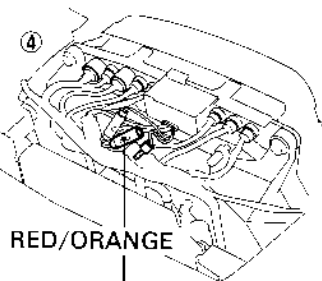
Disconnect the RED/ORANGE connector ④ of the TCS indicator light.

Check for continuity between the RED/ORANGE terminal ④ of the TCS indicator light and the RED/ORANGE terminal ⑦ of the TCS/ICM 16P connector.

View from terminal side



RED/ORANGE



RED/ORANGE

Is there continuity?

No continuity

- Repair open in the RED/ORANGE harness between the TCS/ICM and meter.

Continuity

Connect the TCS/ICM 16P connector ⑦ and connect the BLACK/BROWN and WHITE/ORANGE connectors of the TCS indicator light.

Replace the LED of the TCS indicator light.

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

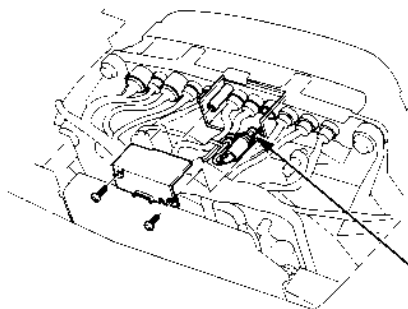
Does the light come on?

Light comes on.

- Faulty TCS indicator light LED

Light goes off.

- Faulty TCS/ICM



TCS INDICATOR LIGHT LED

Indicator lights of the TCS (except TCS indicator light) do not go off 2 seconds after the ignition switch is ON.

**NOTE**

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

Turn the ignition switch OFF.

Disconnect the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM.

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

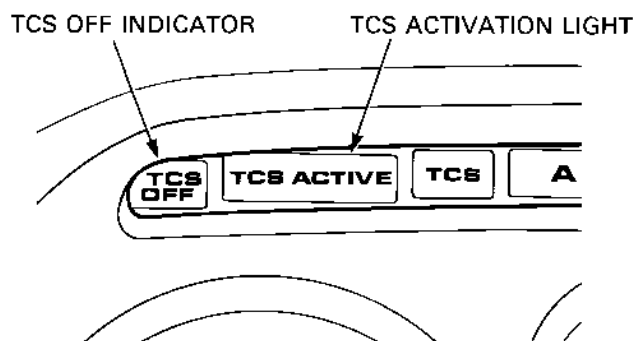
Do the lights come on or go off?

Lights come on

- Repair short in the YELLOW/GRAY harness (TCS activation light) or WHITE/ORANGE harness (TCS OFF indicator) between the TCS/ICM and meter.

Lights go off.

- Faulty TCS/ICM



**TCS indicator light does not go off after the motorcycle starts to move.**

**NOTE**

- If the TCS is normal, the wheel sensor system self checks and the TCS indicator light goes off after the motorcycle starts to move.

Turn the ignition switch OFF.

Check the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM for secure connection.

Are they connected securely?

Secure connection

Disconnect the 4P connector ⑧ of the TCS/ICM.

Check for continuity between the GREEN terminal of the TCS/ICM 4P connector ⑧ and body ground.

Is there continuity?

Continuity

Check the wheel sensor connectors (⑩ for front and ⑪ for rear) for secure connection.

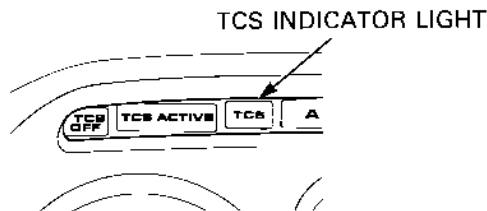
Are they connected securely?

Secure connection

Disconnect the 16P connector ⑦ of the TCS/ICM and the wheel sensor connectors (⑩ for front and ⑪ for rear).

Check for continuity between the 16P connector ⑦ terminals of the TCS/ICM and the main harness side terminal of the wheel sensor connectors (⑩ for front and ⑪ for rear).

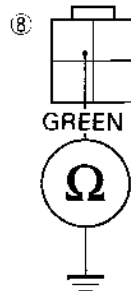
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Poor connection

- Connect securely and recheck.

View from terminal side



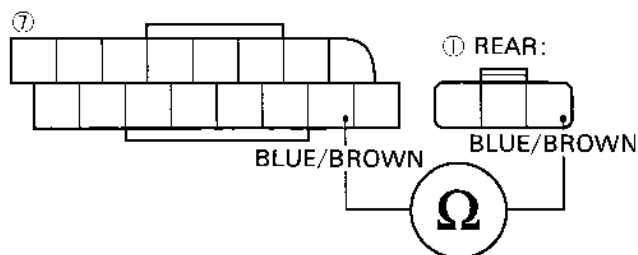
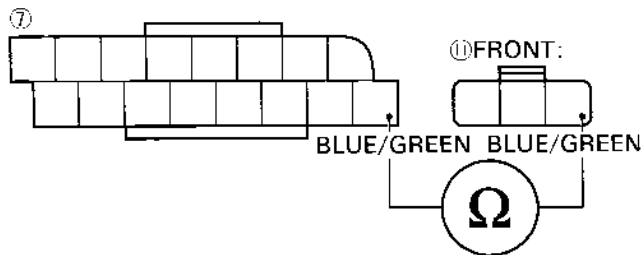
No continuity

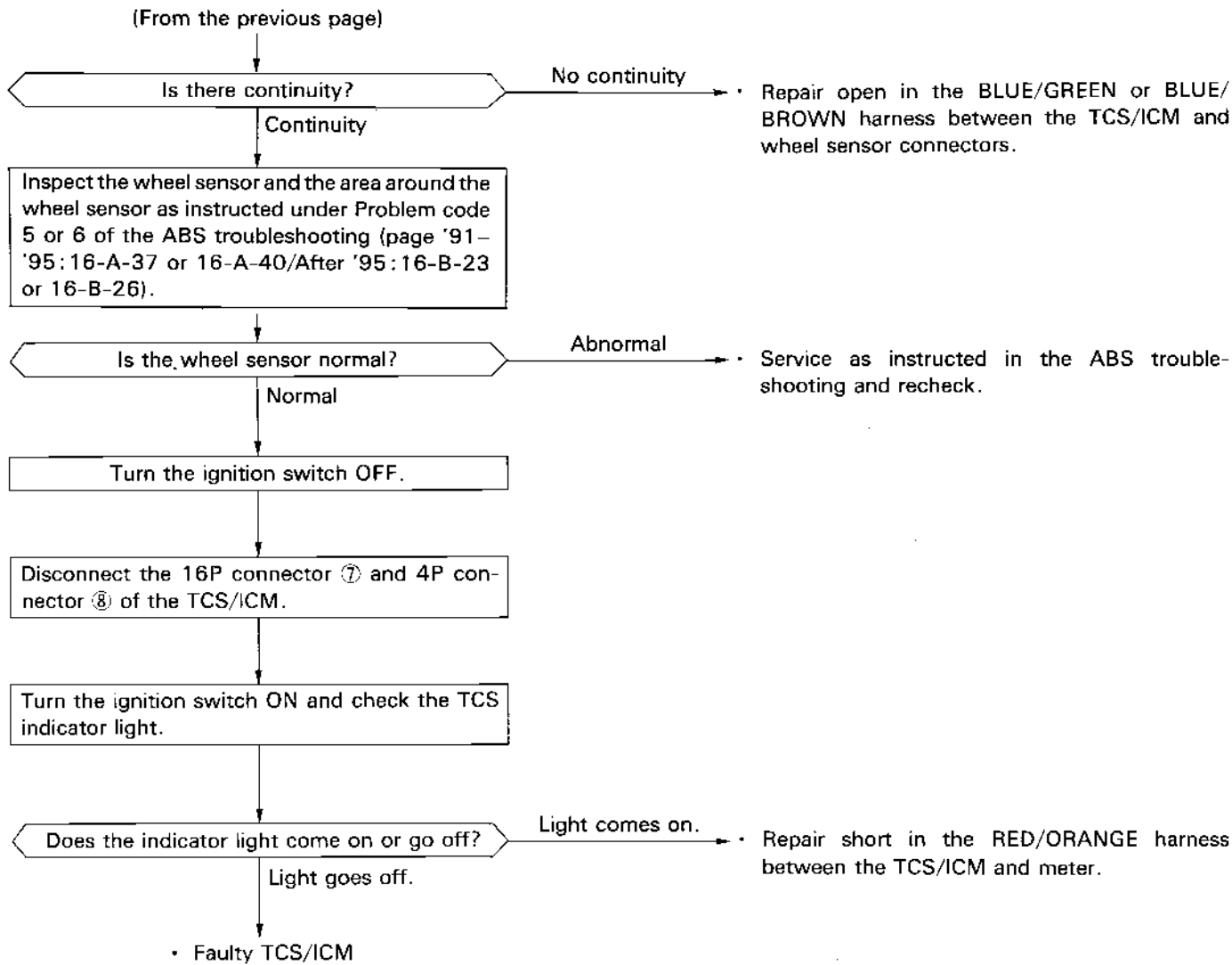
- Repair open in the GREEN harness between the TCS/ICM and body ground, or poor grounding.

Poor connection

- Connect securely and recheck.

View from terminal side





TCS indicator light blinks and TCS OFF indicator comes on after the ignition switch is turned ON or while riding.

## NOTE

- TCS indicator light should go off after the motorcycle starts to move.

Turn the ignition switch OFF.

Check the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM for secure connection.

Are they connected securely?

Secure connection

Disconnect the 4P connector ⑧ of the TCS/ICM.

Check for continuity between the GREEN terminal of the TCS/ICM 4P connector ⑧ and body ground.

Is there continuity?

Continuity

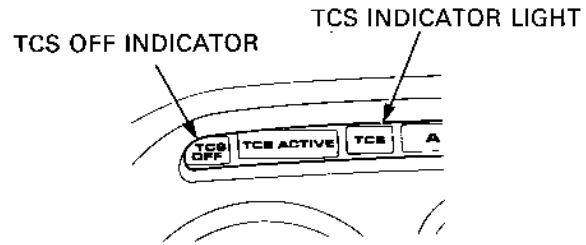
Check the wheel sensor connectors (⑩ for front and ⑪ for rear) for secure connection.

Are they connected securely?

Secure connection

Disconnect the 16P connector ⑦ of the TCS/ICM and the wheel sensor connectors (⑩ for front and ⑪ for rear).

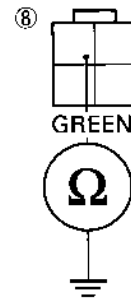
(Continue to the following page)



Poor connection

- Connect securely and recheck.

View from terminal side



No continuity

- Repair open in the GREEN harness between the TCS/ICM and body ground, or poor grounding.

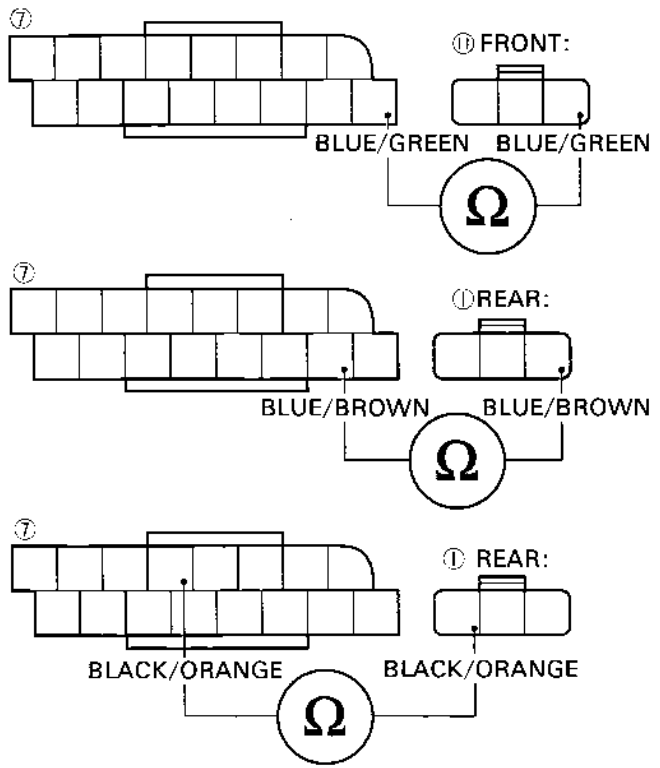
Poor connection

- Connect securely and recheck.

(From the previous page)

Check for continuity between the 16P connector ⑦ terminal of the TCS/ICM and the main harness side terminals of the wheel sensor connector (① for front and ② for rear).

View from terminal side



Is there continuity?

No continuity

• Repair open in the BLUE/GREEN, BLUE/BROWN, or BLACK/ORANGE harness between the TCS/ICM and wheel sensor connectors.

No continuity

Inspect the wheel sensor and the area around the wheel sensor as instructed under Problem code 5 or 6 of the ABS troubleshooting (page '91-'95: 16-A-37 or 16-A-40/After '95: 16-B-23 or 16-B-26).

Is the wheel sensor normal?

Abnormal

• Service as instructed in the ABS troubleshooting and recheck.

Normal

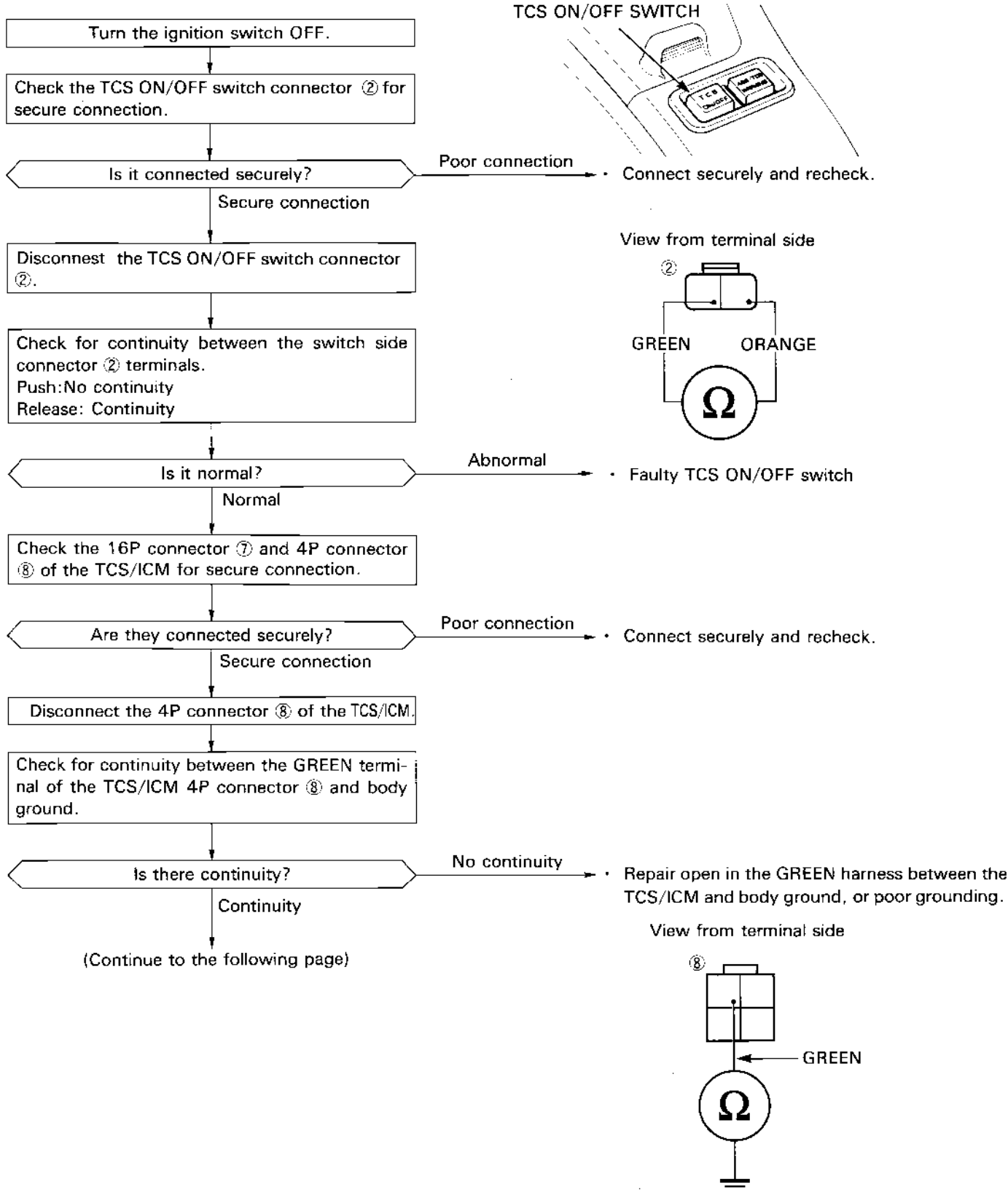
• Faulty TCS/ICM



## TCS does not turn ON or OFF by operating the TCS ON/OFF switch.

### NOTE

- The TCS should automatically turn ON when the ignition switch is ON. The TCS can then be turned ON/OFF by operating the TCS ON/OFF switch.



(From the previous page)

Disconnect the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM, and disconnect the TCS ON/OFF switch connector ②.

Check for continuity between the TCS/ICM 4P connector ⑧ terminal and main harness side connector ② terminal of the TCS ON/OFF switch, and between the TCS/ICM 16P connector ⑦ terminal and harness side connector ② terminal of the TCS ON/OFF switch.

Is there continuity?

Continuity

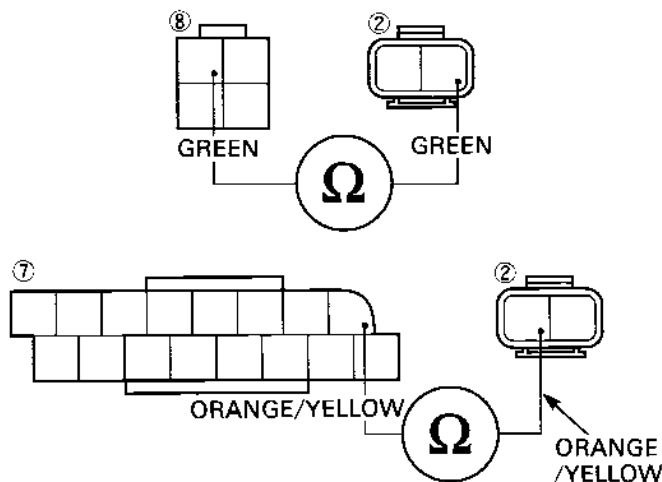
With the TCS ON/OFF switch connector ② disconnected, check for continuity between the 16P connector ⑦ terminal and 4P connector ⑧ of the TCS/ICM.

Is there continuity

No continuity

Faulty TCS/ICM

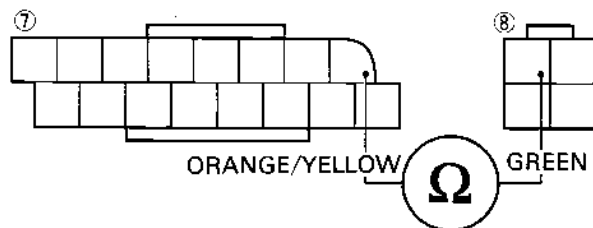
View from terminal side



No continuity

• Repair open in the GREEN harness or ORANGE/YELLOW harness between the TCS/ICM and TCS ON/OFF switch connector.

View from terminal side



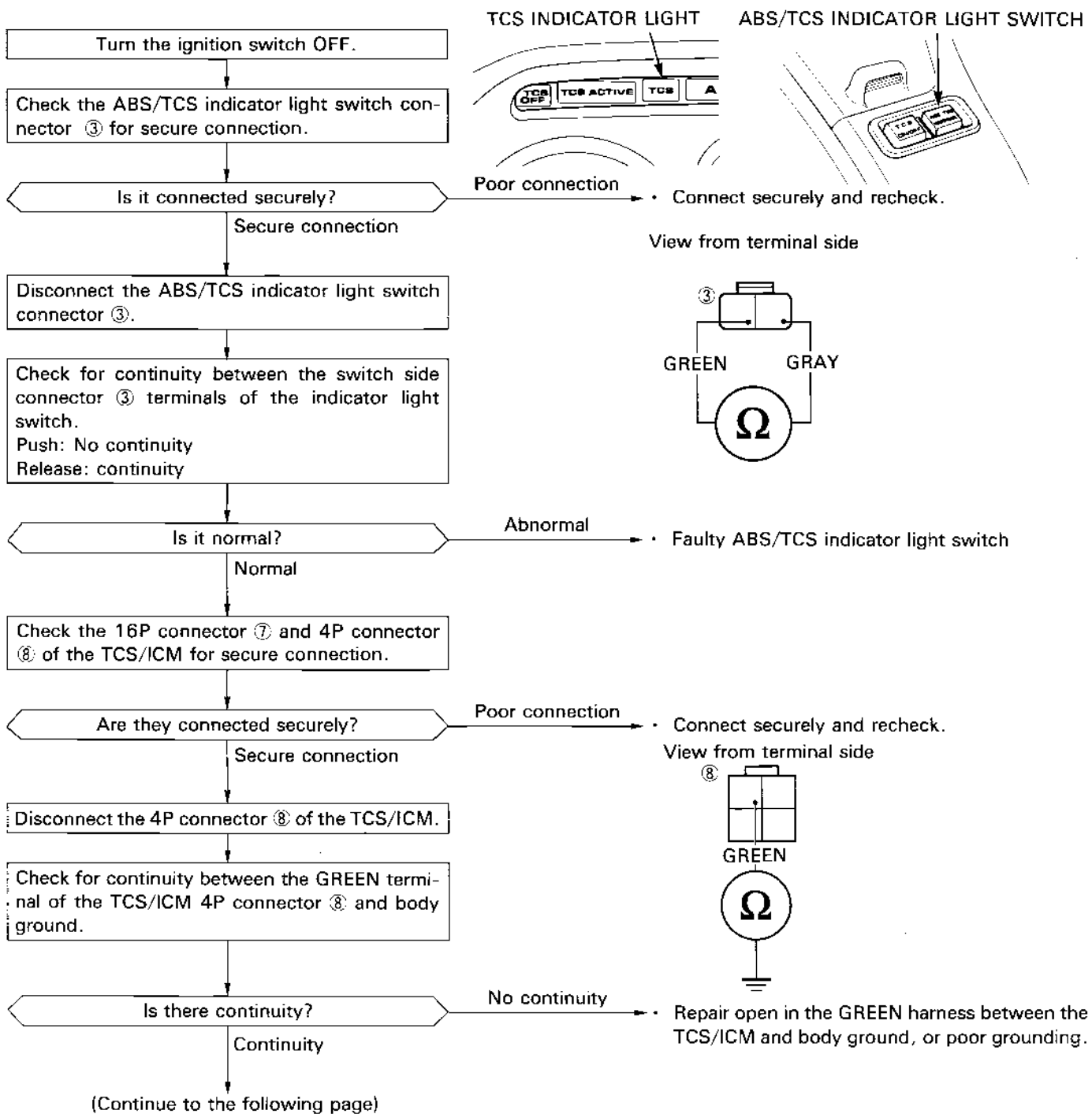
Continuity

• Repair short in the ORANGE/YELLOW harness between the TCS/ICM and TCS ON/OFF switch.

TCS indicator light blinks while riding and does not go off by operating ABS/TCS indicator light switch.

## NOTE

- When the TCS is faulty and the TCS indicator light blinks and TCS OFF indicator light comes on, the TCS indicator light can be turned off by operating the ABS/TCS indicator light switch. (However, the TCS OFF indicator cannot be turned off.)



(From the previous page)

Disconnect the 16P connector ⑦ and 4P connector ⑧ of the TCS/ICM, and disconnect the ABS/TCS indicator light switch connector ③.

Check for continuity between the 4P connector ⑧ terminal of the TCS/ICM and the main harness side connector ③ terminal of the ABS/TCS indicator light switch, and between the 16P connector ⑦ terminal of the TCS/ICM and the main harness side connector ③ terminal of the ABS/TCS indicator light switch.

Is there continuity?

Continuity

Disconnect the WHITE connector of the ABS TCS/ICM (page 16-3-②).

With the ABS/TCS indicator light switch connector ③ disconnected, check for continuity between the 16P connector ⑦ terminal and 4P connector ⑧ terminal of the TCS/ICM.

Is there continuity?

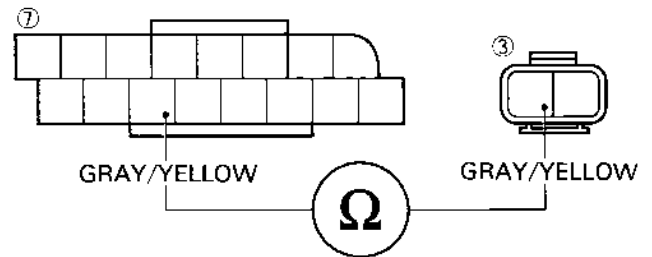
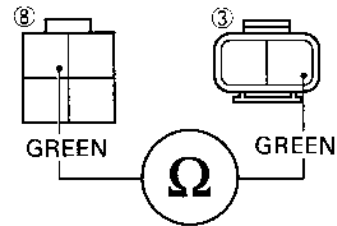
No continuity

Install the 4P connector ⑧ of the TCS/ICM and the WHITE connector (page 16-3-②) of the ABS ECU. (Do not yet install the ABS/TCS indicator light switch connector ③ and 16P connector ⑦ of the TCS/ICM.)

Turn the ignition switch ON.

(Continue to the following page)

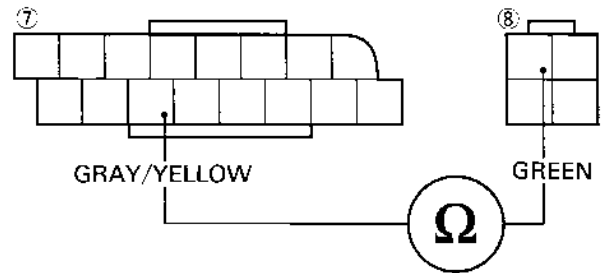
View from terminal side



No continuity

- Repair open in the GREEN harness or GRAY/YELLOW harness between the TCS/ICM and ABS/TCS indicator light switch connector.

View from terminal side



Continuity

- Repair short in the GRAY/YELLOW harness between the TCS/ICM and ABS/TCS indicator light switch.

(From the previous page)

Check for voltage between the main harness side connector ③ terminals of the ABS/TCS indicator light switch.

Is there approximately 5V?

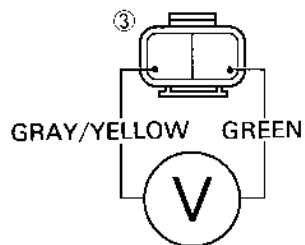
Yes

• Faulty TCS/ICM

No















• Faulty ABS ECU

View from terminal side



# 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.

	<p>Replace the part(s) with new one(s) before assembly.</p>
	<p>Use special tool</p>
	<p>Use optional tool. Use the same procedure you use to order parts.</p>
 <p>10 (1.0, 7.2)</p>	<p>Torque specification.    10 N·m (1.0 kg-m, 7.2 ft-lb)</p>
	<p>Use recommended engine oil, unless otherwise specified.</p>
	<p>Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).</p>
	<p>Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent)</p>
	<p>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</p>
	<p>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</p>
	<p>Use silicone grease</p>
	<p>Apply a locking agent. Use a middle strength locking agent unless otherwise specified.</p>
	<p>Apply sealant</p>
	<p>Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.</p>
	<p>Use Fork or Suspension Fluid.</p>