



YAMAHA

2004

TDM900(S)

5PS1-AE3

**SUPPLEMENTARY
SERVICE MANUAL**

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the TDM900 (S) 2004. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the following manual.

TDM900 (N) 2001 SERVICE MANUAL: 5PS1-AE1
TDM900 (R) SUPPLEMENTARY SERVICE MANUAL: 5PS1-AE2

**TDM900 (S) 2004
SUPPLEMENTARY
SERVICE MANUAL**
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NOTICE

This manual was produced by the Yamaha Motor Company, Ltd. primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

Yamaha Motor Company, Ltd. is continually striving to improve all its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

NOTE:

Designs and specifications are subject to change without notice.

IMPORTANT INFORMATION

Particularly important information is distinguished in this manual by the following.



The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander or a person checking or repairing the motorcycle.

CAUTION:

A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE:

A NOTE provides key information to make procedures easier or clearer.

HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

- ① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter. Refer to "SYMBOLS".
- ② Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("PERIODIC CHECKS AND ADJUSTMENTS"), where the sub-section title(s) appears.
- ③ Sub-section titles appear in smaller print than the section title.
- ④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.
- ⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.
- ⑥ Symbols indicate parts to be lubricated or replaced. Refer to "SYMBOLS".
- ⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
- ⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.

②
①

CLUTCH
ENG

5408024

CLUTCH

| Order | Job/Part | Q'ty | Remarks |
|----------------------------|---------------------------------------|------|---------|
| Removing the clutch | | | |
| | Remove the parts in the order listed. | | |
| 1 | Clutch spring | 6 | |
| 2 | Pressure plate | 1 | |
| 3 | Full rod | 1 | |
| 4 | Friction plate 1 | 2 | |
| 5 | Clutch plate | 8 | |
| 6 | Friction plate 2 | 7 | |
| 7 | Nut | 1 | |
| 8 | Lock washer | 1 | |
| 9 | Clutch boss | 1 | |
| 10 | Thrust plate | 1 | |
| 11 | Bearing | 1 | |
| 12 | Spacer | 1 | |
| 13 | Clutch housing | 1 | |

CLUTCH
ENG

5408025

REMOVING THE CLUTCH

1. Straighten the lock washer tab.
2. Loosen:
 - clutch boss nut ①

NOTE:
While holding the clutch boss ③ with the universal clutch holder ④, loosen the clutch boss nut.

Universal clutch holder
90890-04086

3. Remove:
 - lock washer ②
 - Clutch boss ③

4. Remove:
 - spacer ①
 - bearing ②

NOTE:
Insert two 6-mm bolts ③ into the spacer and then remove the spacer by pulling on the bolts.

5408026

























CHECKING THE FRICTION PLATES

The following procedure applies to all of the friction plates.

1. Check:
 - friction plate
 - Damage/wear → Replace the friction plates as a set.
2. Measure:
 - friction plate thickness
 - Out of specification → Replace the friction plates as a set.

NOTE:
Measure the friction plate at four places.

Friction plate thickness
2.9 - 3.1 mm
<Limit>: 2.8 mm

| | | |
|--|--|---|
| ① GEN INFO  | ② SPEC  | |
| ③ CHK ADJ  | ④ CHAS  | |
| ⑤ ENG  | ⑥ COOL  | |
| ⑦ FI  | ⑧ ELEC  | |
| ⑨ TRBL SHTG  | ⑩  | |
| ⑪  | ⑫  | |
| ⑬  | ⑭  | |
| ⑮  | ⑯  | ⑰  |
| ⑱  | ⑲  | ⑳  |
| ㉑  | ㉒  | ㉓  |
| ㉔  | ㉕ New | |

SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

- ① General information
- ② Specifications
- ③ Periodic checks and adjustments
- ④ Chassis
- ⑤ Engine
- ⑥ Cooling system
- ⑦ Fuel injection system
- ⑧ Electrical system
- ⑨ Troubleshooting

Symbols ⑩ to ⑰ indicate the following.

- ⑩ Serviceable with engine mounted
- ⑪ Filling fluid
- ⑫ Lubricant
- ⑬ Special tool
- ⑭ Tightening torque
- ⑮ Wear limit, clearance
- ⑯ Engine speed
- ⑰ Electrical data

Symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

- ⑱ Engine oil
- ⑲ Gear oil
- ⑳ Molybdenum-disulfide oil
- ㉑ Wheel-bearing grease
- ㉒ Lithium-soap-based grease
- ㉓ Molybdenum-disulfide grease

Symbols ㉔ to ㉕ in the exploded diagrams indicate the following.

- ㉔ Apply locking agent (LOCTITE®)
- ㉕ Replace the part

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CHASSIS

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ELECTRICAL

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TDM900 (S) 2004 WIRING DIAGRAM



SPECIFICATIONS

GENERAL SPECIFICATIONS

| Item | Standard | Limit |
|-------------------|----------------------------------|------------|
| Model code | 5PS6 (for EUR) 5PS7 (for OCE) | ••• ••• |

CHASSIS SPECIFICATIONS

| Item | Standard | Limit |
|---|---|------------------------|
| Front suspension | | |
| Suspension type | Telescopic fork | ••• |
| Front fork type | Coil spring/oil damper | ••• |
| Front fork travel | 150 mm (5.91 in) | ••• |
| Spring | | |
| Free length | 349.9 mm (13.78 in) | 342.9 mm (13.50 in) |
| Spacer length | 125 mm (4.92 in) | ••• |
| Installed length | 332.9 mm (13.11 in) | ••• |
| Spring rate (K1) | 5.39 N/mm (0.55 kg/mm, 30.78 lb/in) | ••• |
| Spring rate (K2) | 7.84 N/mm (0.80 kg/mm, 44.77 lb/in) | ••• |
| Spring stroke (K1) | 0 ~ 82 mm (0.00 ~ 3.23 in) | ••• |
| Spring stroke (K2) | 82 ~ 150 mm (3.23 ~ 5.91 in) | ••• |
| Optional spring available | No | ••• |
| Fork oil | | |
| Recommended oil | Yamaha fork oil 10 W or equivalent | ••• |
| Quantity (each front fork leg) | 545 cm ³ (19.22 Imp oz, 18.43 US oz) | ••• |
| Level (from the top of the inner tube, with the inner tube fully compressed, and without the fork spring) | 127 mm (5.00 in) | ••• |
| Inner tube outer diameter | 43 mm (1.69 in) | ••• |
| Inner tube bend | ••• | 0.2 mm (0.008 in) |
| Spring preload adjusting positions | | |
| Minimum | 8 | ••• |
| Standard | 7 | ••• |
| Maximum | 1 | ••• |
| Rebound damping adjusting positions | | |
| Minimum | 1 | ••• |
| Standard | 2 | ••• |
| Maximum | 4 | ••• |

CHASSIS SPECIFICATIONS/ ELECTRICAL SPECIFICATIONS

SPEC


| Item | Standard | Limit |
|----------------------------------|------------------------------------|--------------------|
| Front brakes | | |
| Brake type | Dual-disc brake | ••• |
| Operation | Right-hand operation | ••• |
| Recommended fluid | DOT 4 | ••• |
| Brake discs | | |
| Diameter × thickness | 298 × 5 mm (11.73 × 0.20 in) | ••• |
| Min. thickness | ••• | 4.5 mm (0.18 in) |
| Max. deflection | ••• | 0.1 mm (0.0039 in) |
| Brake pad lining thickness | 4.5 mm (0.18 in) | 0.5 mm (0.02 in) |
| Master cylinder inside diameter | 16 mm (0.63 in) | ••• |
| Caliper cylinder inside diameter | 30.2 mm and 27 mm (1.19 × 1.06 in) | ••• |
| Drive chain: | | |
| Type (manufacturer) | DID525HV KAI (DAIDO) | ••• |
| Link quantity | 118 | ••• |
| Drive chain slack | 50 ~ 60 mm (1.97 ~ 2.36 in) | ••• |
| Maximum ten-link section | ••• | 159.5 mm (6.28 in) |

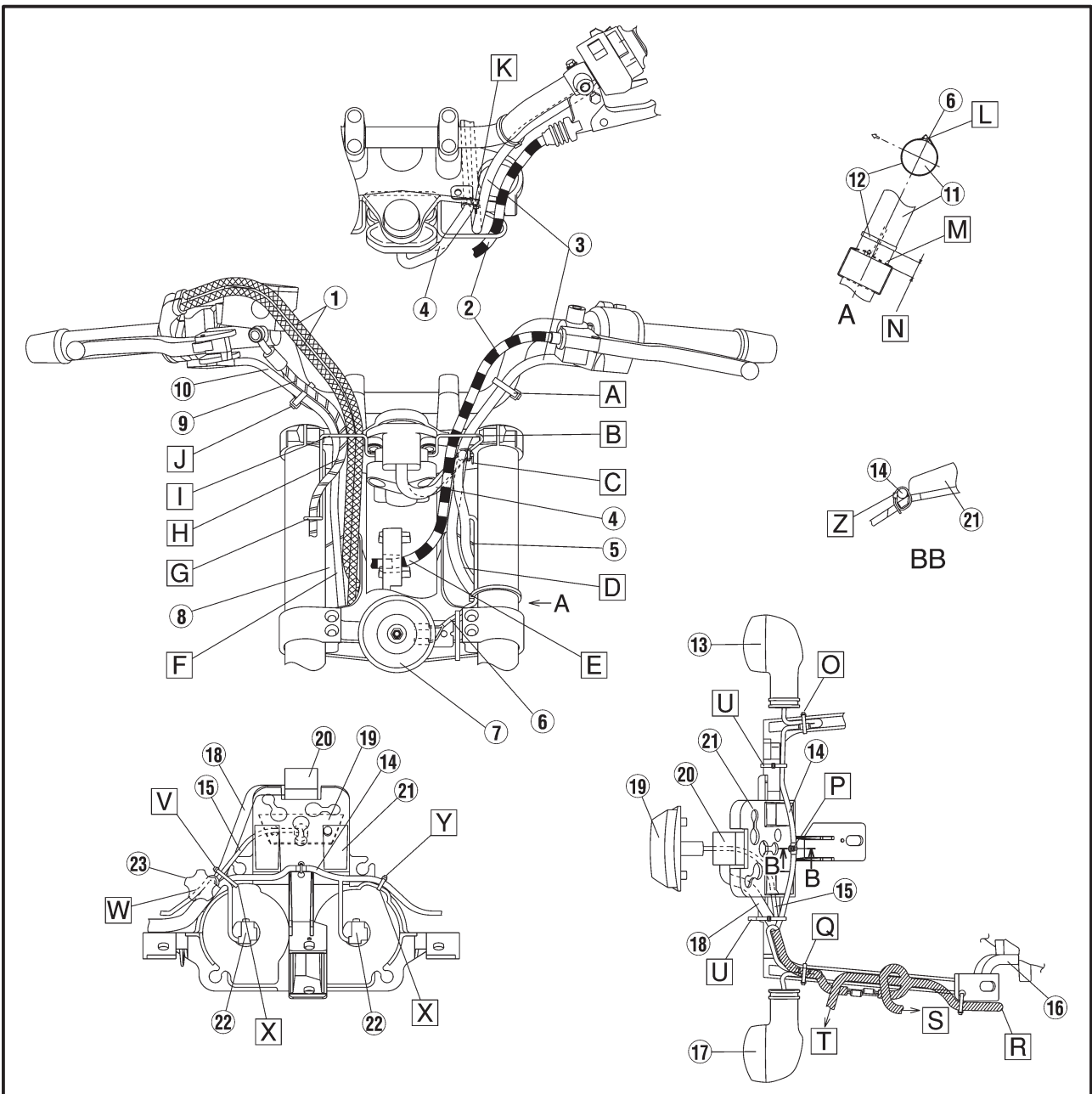
ELECTRICAL SPECIFICATIONS

| Item | Standard | Limit |
|---|----------------------------|-------|
| Horn | | |
| Horn type | Plane | ••• |
| Model (manufacturer) × quantity | HF-12 (NIKKO) × 1 | ••• |
| Max. amperage | 3 A | ••• |
| Performance | 105 ~ 118 db/2 m (6.56 in) | ••• |
| Coil resistance | 1.01 ~ 1.11 Ω | ••• |
| Indicator light (voltage/wattage × quantity) | | |
| Neutral indicator light | 14 V 1.2 W × 1 | ••• |
| Turn signal indicator light | 14 V 1.2 W × 2 | ••• |
| Oil level warning light | LED × 1 | ••• |
| High beam indicator light | 14 V 1.4 W × 1 | ••• |
| Engine trouble warning light | 14 V 1.4 W × 1 | ••• |
| Immobilizer system indicator light | LED × 1 | ••• |
| Fuses (amperage × quantity) | | |
| Main fuse | 40 A × 1 | ••• |
| Fuel injection system fuse | 15 A × 1 | ••• |
| Headlight fuse | 15 A × 1 | ••• |
| Signaling system fuse | 10 A × 1 | ••• |
| Ignition fuse | 10 A × 1 | ••• |
| Radiator fan motor fuse | 20 A × 1 | ••• |
| Hazard light fuse | 10 A × 1 | ••• |
| Parking light fuse | 5 A × 1 | ••• |
| Backup fuse | 5 A × 1 | ••• |
| Reserve fuse | 20 A × 1 | ••• |
| | 15 A × 1 | ••• |
| | 10 A × 1 | ••• |
| | 5 A × 1 | ••• |



CABLE ROUTING

- ① Throttle cables
- ② Clutch cable
- ③ Handlebar switch lead (left)
- ④ Main switch lead and immobilizer lead
- ⑤ Cover 7
- ⑥ Horn lead
- ⑦ Horn
- ⑧ Cover 8
- ⑨ Brake hose
- ⑩ Handlebar switch lead (right)
- ⑪ Front fork
- ⑫ Clamp
- ⑬ Turn signal light (right)
- ⑭ Headlight sub-wire harness
- ⑮ Auxiliary light lead
- ⑯ Stay 3
- ⑰ Turn signal light (left)
- ⑱ Meter lead
- ⑲ Auxiliary light
- ⑳ Meter
- ㉑ Stay 1
- ㉒ Headlight coupler
- ㉓ Headlight adjusting knob

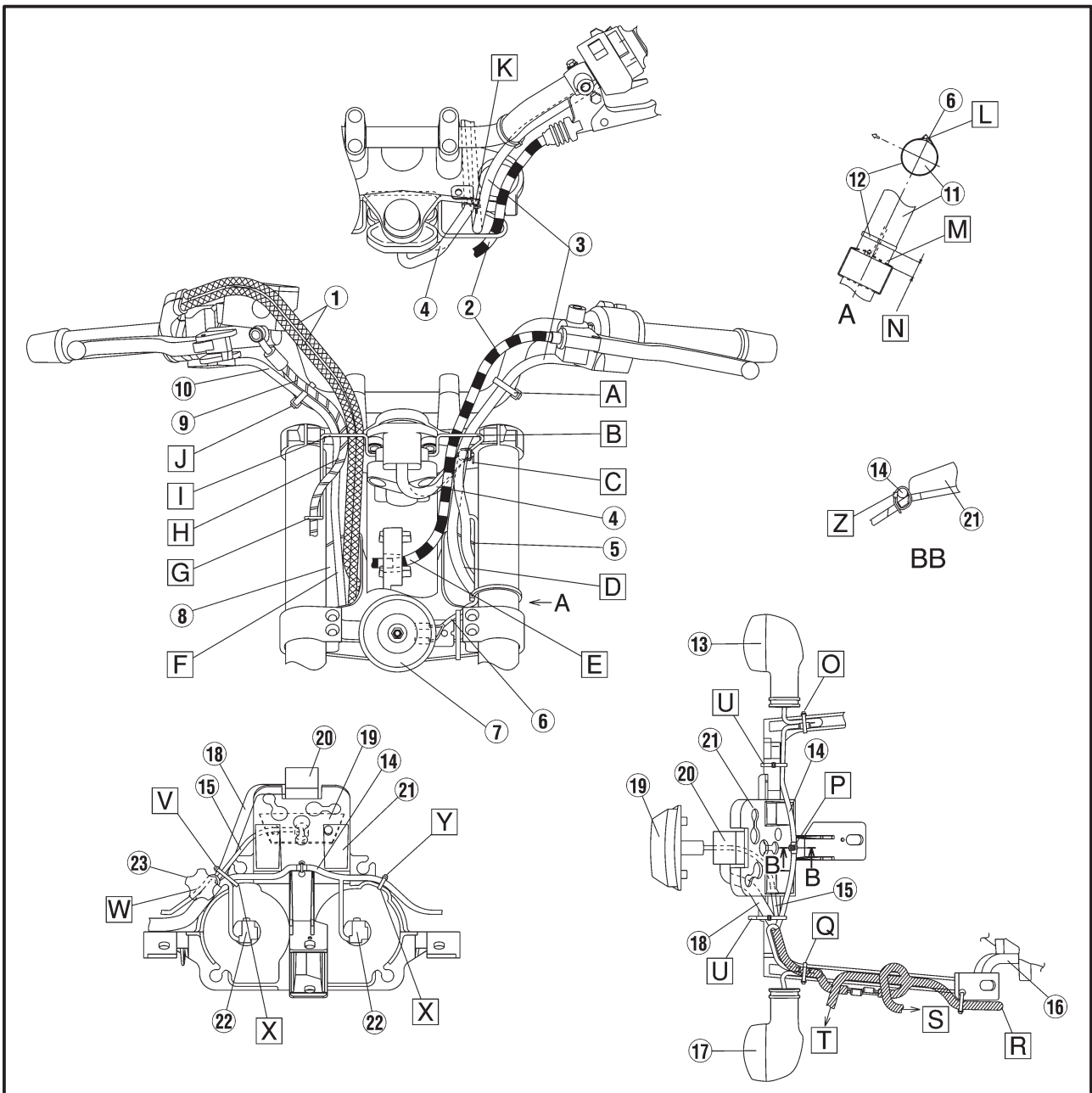


CABLE ROUTING

SPEC



- A** Fasten the handlebar switch lead (left) to the handlebar with a band.
- B** Through the handlebar switch lead (left) and clutch cable to the wire guide on the upper bracket.
- C** Fasten the main switch lead and immobilizer lead to the wire guide with a clamp. There should be no slack between main switch and wire guide. Cut the clamp tip leaving 3 to 8 mm (0.12 to 0.31 in).
- D** Route the main switch lead through the cover 7 so that it route beneath the handlebar switch lead (left).
- E** Route the clutch cable through the hole in front of the head pipe on the frame.
- F** Route the handlebar switch lead (right) and throttle cables (2 cables) through the cover 8.
- G** Route the brake hose through the guide.
- H** Always route the hose so that the brake hose passes by the outside of the throttle cables.
- I** Route the handlebar switch lead (right), brake hose and throttle cables through the wire guide of the upper bracket.
- J** Fasten the handlebar switch lead (right) to the handlebar with a band.
- K** Fasten the main switch lead and immobilizer lead with a clamp so that it faces the front side of the vehicle.
- L** Fasten the horn lead to the front (left side) with a clamp as shown in the drawing. Cut the clamp tip leaving 3 to 8 mm (0.12 to 0.31 in).

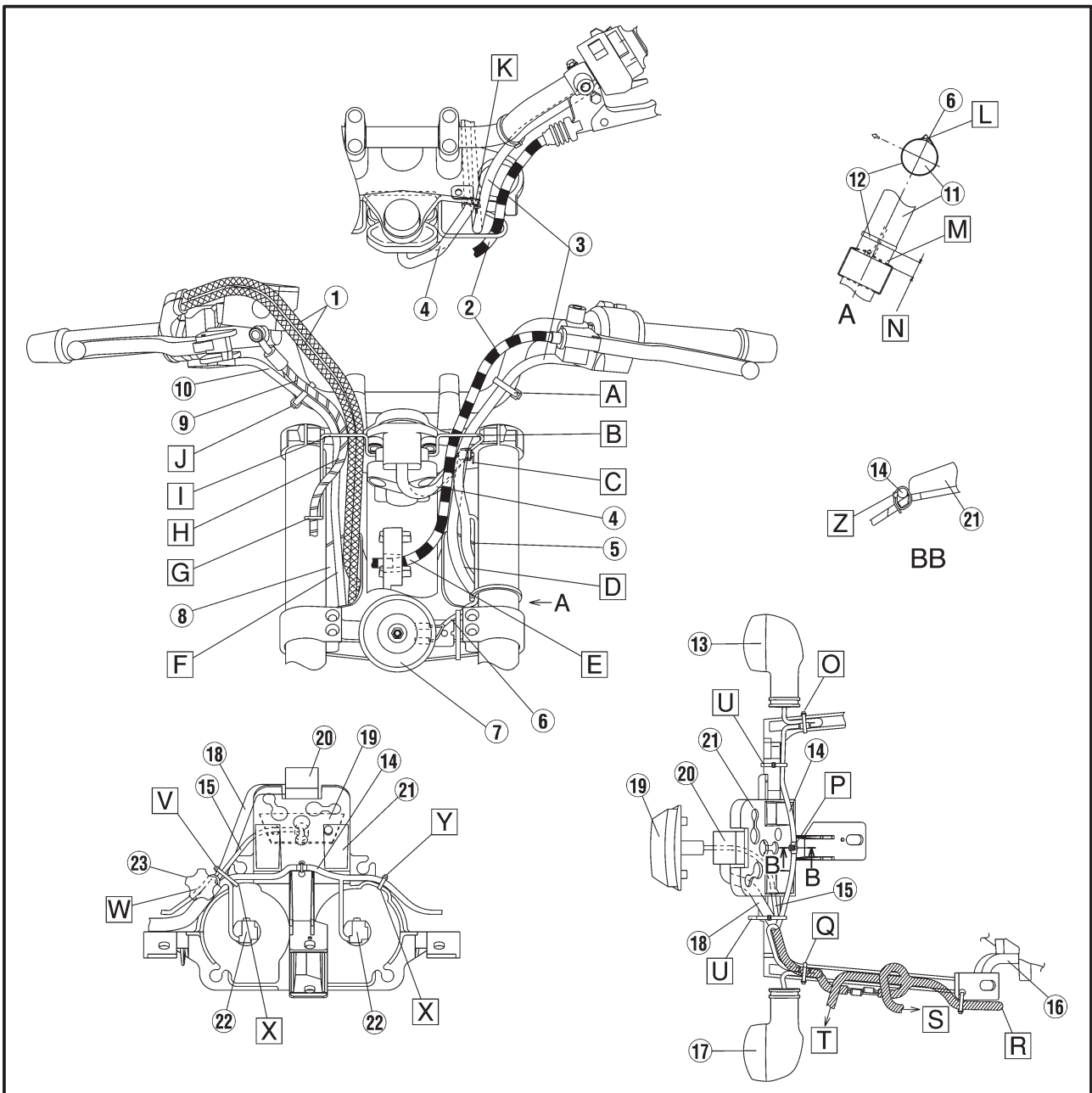


CABLE ROUTING

SPEC



- M** Fasten the horn lead to the upper side of the under bracket as shown in the drawing. Cut the clamp tip leaving 3 to 8 mm (0.12 to 0.31 in).
- N** 10 mm (0.39 in)
- O** Fasten the turn signal light lead (right) together with the coupler to the stay 1.
- P** Clamp the white tape of headlight sub-wire harness to the stay 1. (For detail of the clamp, refer to section BB.)
- Q** Fasten the main harness and turn signal light lead (left) together with the coupler to the stay 1. And locate the turn signal light lead, under the wire harness.
- R** Route the main harness through the outside of the bolt.
- S** To the headlight relay.
- T** To the ECU.
- U** After the clamping, direct the band point to the front.
- V** Clamp the meter lead, indicator lead, headlight lead and sub-wire harness to the stay 1 with a band.
- W** Route the all leads through inside of the headlight adjusting knob. Because of the protruding of the wire harness, it does not have to become the disturbance of operation of the headlight adjusting knob.
- X** Clamp the headlight sub-wire harness to the dent in the stay 1.
- Y** Clamp the headlight sub-wire harness to the stay 1 with a band.
- Z** Fasten the headlight sub-wire harness with the clamp that is passed through the center hole of stay 1.

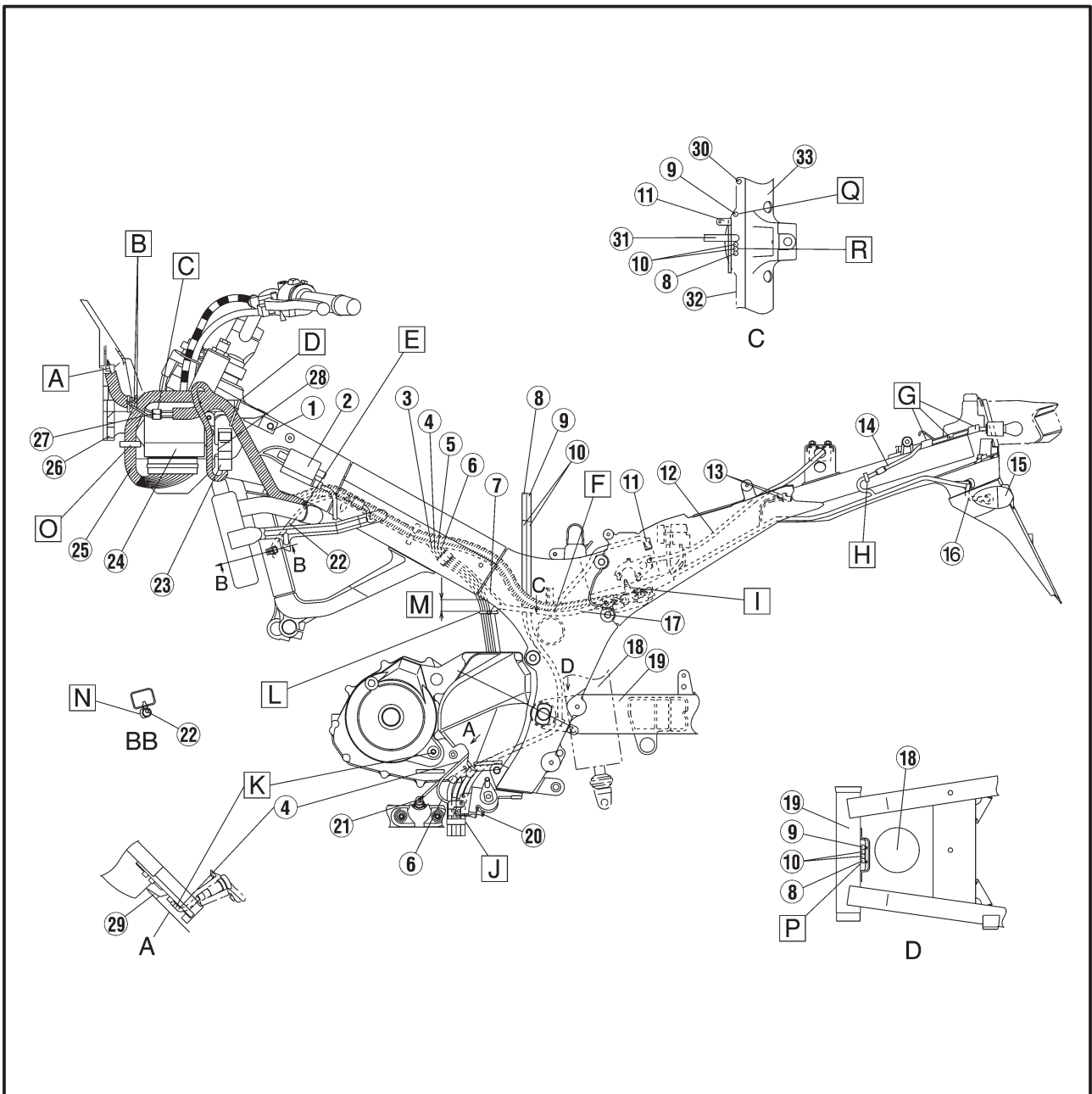


CABLE ROUTING

SPEC



- | | | |
|-------------------------------------|---------------------------------------|------------------------------|
| ① Stay 3 | ⑫ Seat lock cable | ⑳ Headlight relay |
| ② Ignition coil assembly | ⑬ Immobilizer coupler | ㉑ ECU |
| ③ Neutral switch lead | ⑭ Tail/brake light lead | ㉒ ECU lead |
| ④ O ₂ sensor lead | ⑮ Rear turn signal light (left) | ㉓ Stay 1 |
| ⑤ Speed sensor lead | ⑯ Rear turn signal light lead (left) | ㉔ 4 poles waterproof coupler |
| ⑥ Sidestand switch lead | ⑰ Rectifier/regulator lead | ㉕ Plate |
| ⑦ Pickup coil lead | ⑱ Rear shock absorber | ㉖ Boss |
| ⑧ Air filter drain hose | ㉑ Swingarm | ㉗ Starter relay lead |
| ⑨ Coolant reservoir tank drain hose | ㉒ Sidestand switch | ㉘ Oil pipe |
| ⑩ Fuel tank drain hose | ㉓ O ₂ sensor | ㉙ Engine |
| ⑪ Battery negative lead | ㉔ Cylinder identification sensor lead | ㉚ Frame |

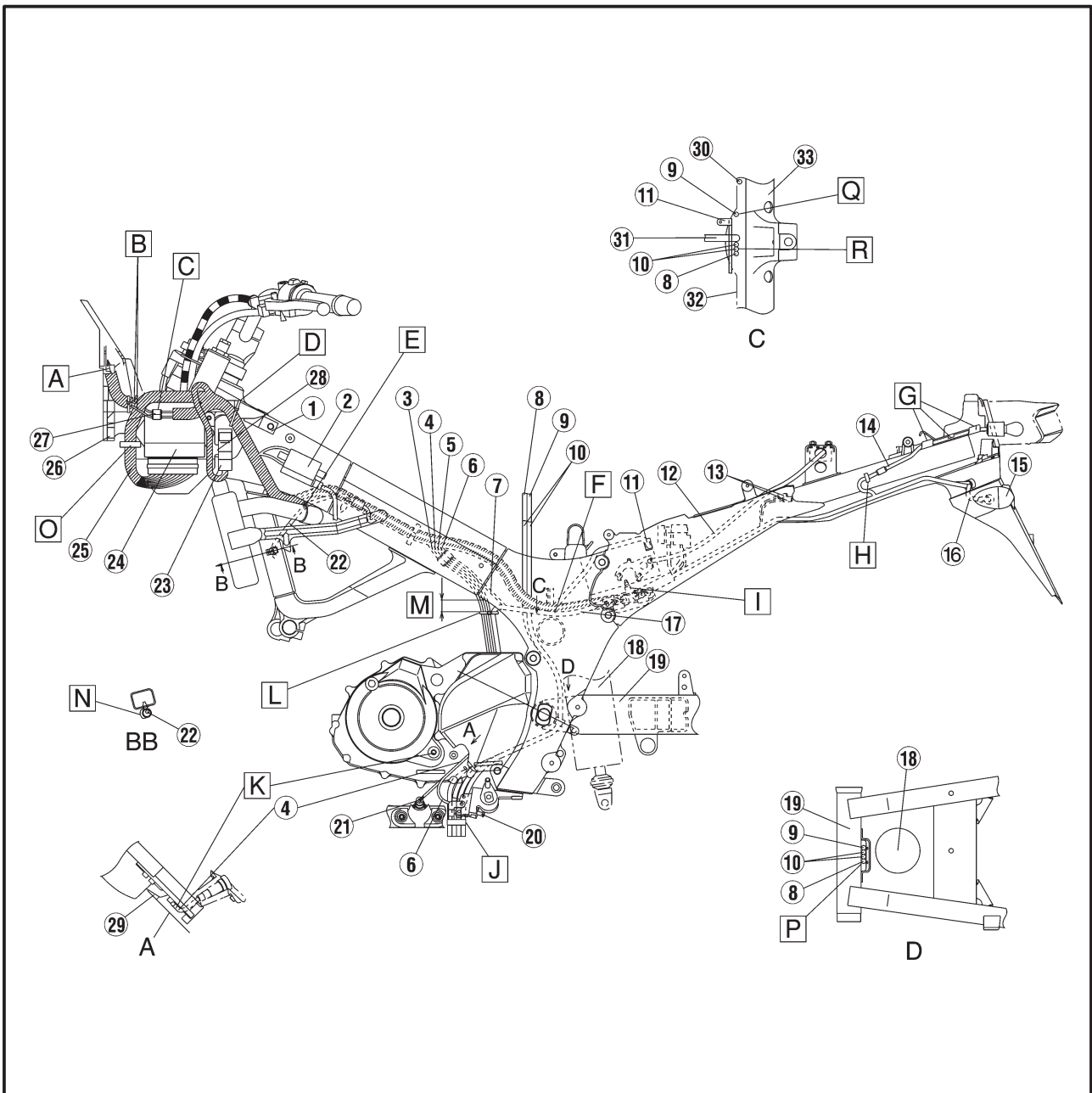


CABLE ROUTING

SPEC



- A** To the headlight.
- B** Route the 4 poles water proof coupler through inside of the ECU lead, and the 10 poles coupler through outside of the ECU lead.
- C** Connect the headlight sub-wire harness coupler in front of ECU and make it not to route above the ECU lead.
- D** Fasten the wire harness to the stay 1 with a clamp. The clump through the hole of the stay 1. The knot should be faced to the outside of the vehicle.
- E** Pass the cylinder identification sensor lead above the left radiator hose.
- F** Pass the rectifier/regulator lead above the frame cross tube.
- G** Route the tail/brake light lead through the guides (3 places) of the tail/brake light bracket.
- H** Fasten the tail/brake light lead at outside of the frame with a clamp. After connecting the tail/brake light lead coupler, insert the surplus wiring between frame, and positioning without routing above the frame.
- I** Fasten the rectifier/regulator lead with the clamp installed with the rear fender. The clamp tip should face the inner side of the vehicle.
- J** Route the fuel drain hoses (2 hoses), air filter case drain hose, and coolant reservoir tank drain hose trough the clamp. For the fuel drain hose, the white paint mark should be under the clamp. The position is regardless of ranks. Arrange the end of coolant reservoir tank drain hose, air filter case drain hose and fuel drain hose from the clamp.

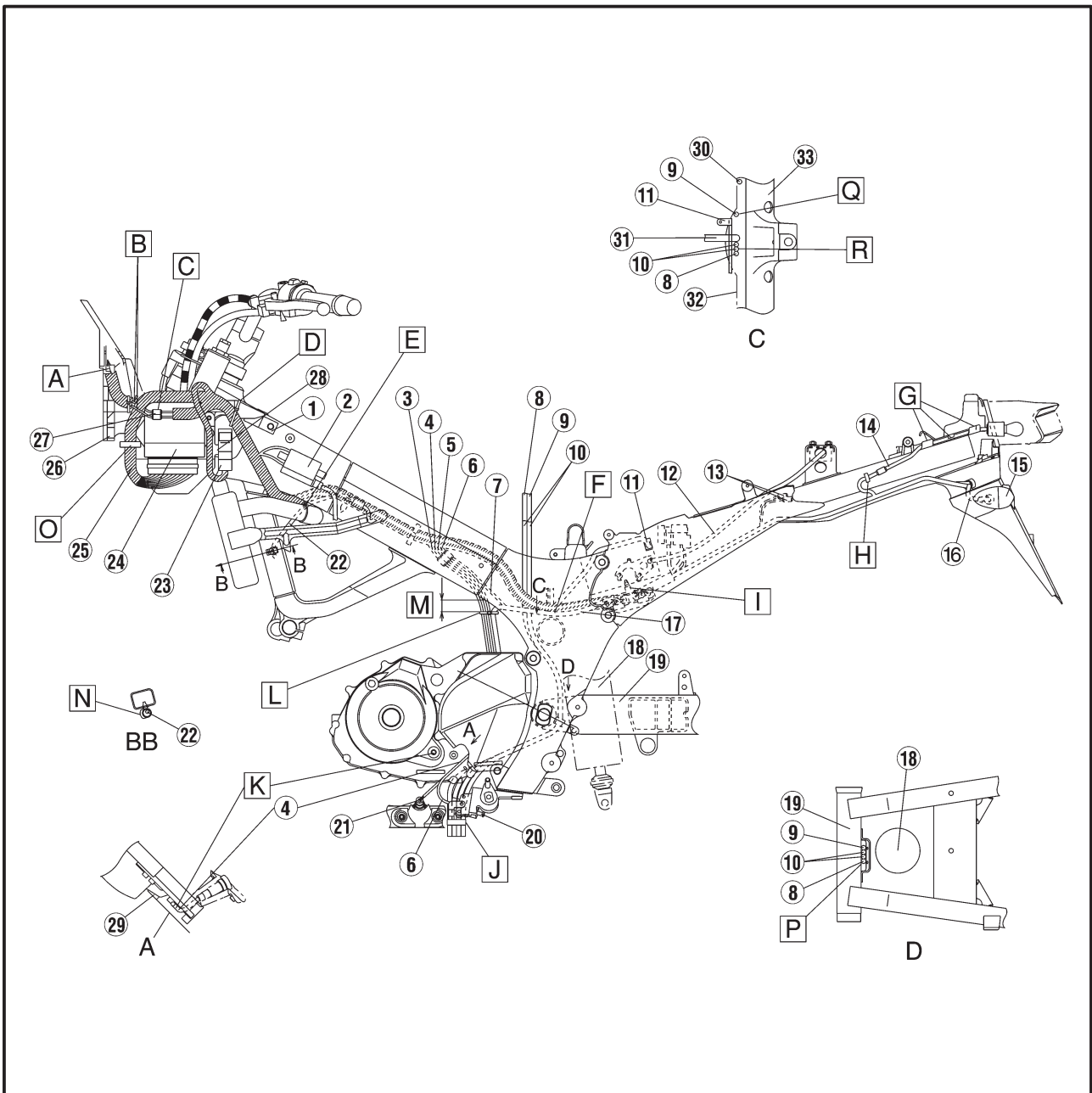


CABLE ROUTING

SPEC



- K** The O₂ sensor lead should not stick out from the boss seat face to the outside of the vehicle.
- L** Fasten the neutral switch lead, O₂ sensor lead, speed sensor lead, sidestand switch lead and rectifier/regulator lead with the clamp as shown in the drawing. Cut the clamp tip leaving 3 to 8 mm (0.12 to 0.31 in) and make it face to the outside of the vehicle.
- M** Less than 20 mm (0.79 in)
- N** Fasten the cylinder identification sensor lead to the inner side of the frame with a clamp.
- O** Fasten the ECU lead with the clamp installed to the plate of front side hole. Align the positioning tape and the clamp. Install the clamp to the outside of plate.
- P** Route the fuel drain hoses (2 hoses), air filter case drain hose and radiator reservoir tank drain hose through the guide located behind the swingarm head pipe. Do not make hoses to cross in the area between C and D.
- Q** Pass the radiator reservoir tank drain hose through right side of the battery negative lead.
- R** Pass the fuel drain hose and air filter case drain hose behind the battery negative lead.



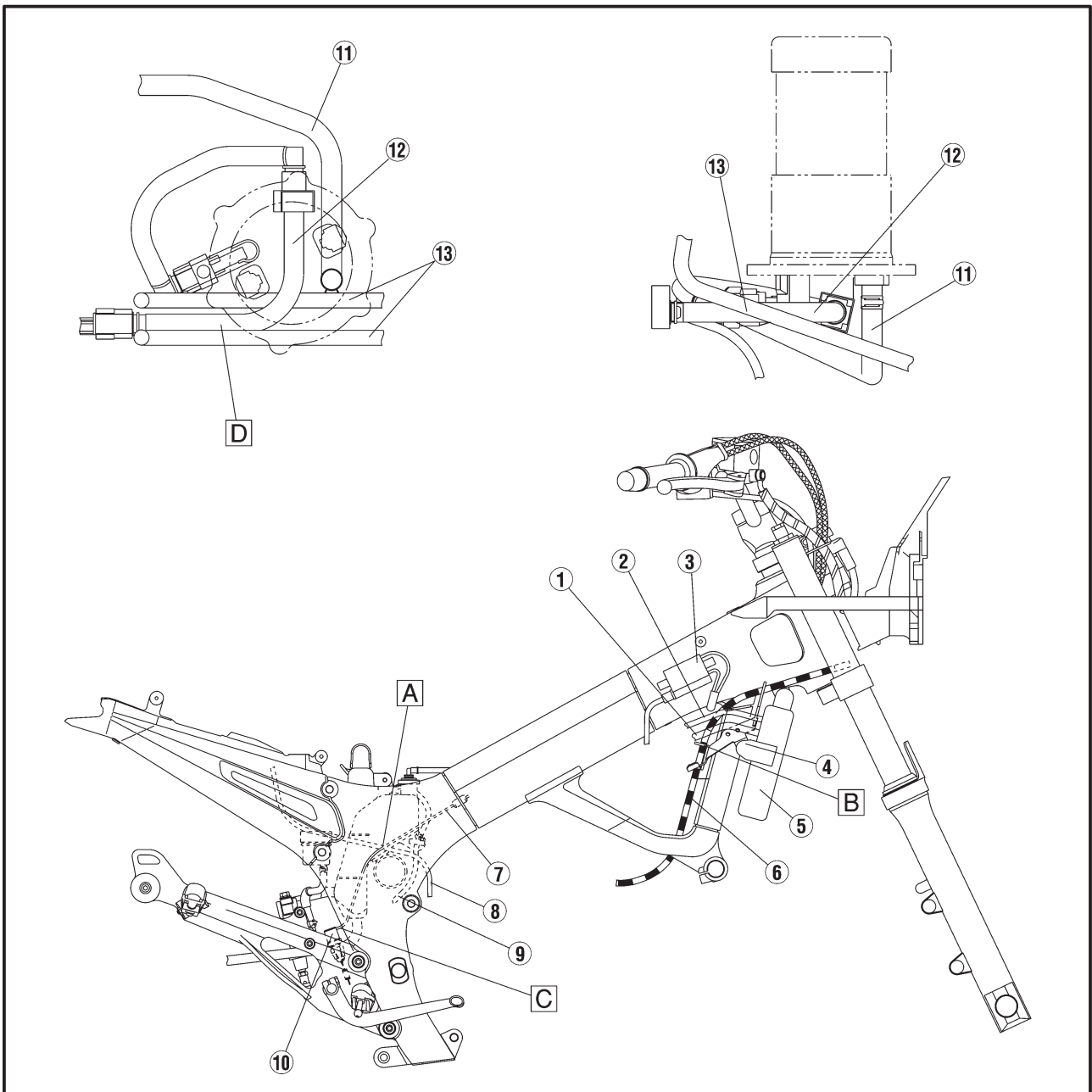
CABLE ROUTING

SPEC



- ① Hose 2
- ② Hose
- ③ Ignition coil assembly
- ④ Stay 2
- ⑤ Radiator
- ⑥ Clutch cable
- ⑦ Rear brake light switch lead
- ⑧ Starter relay lead
- ⑨ Coolant reservoir tank drain hose
- ⑩ Rear brake light switch
- ⑪ Fuel tank return hose
- ⑫ Fuel hose
- ⑬ Fuel tank drain hose

- A Position of the rear brake light switch lead and starter relay lead make possible with whichever.
- B Route the clutch cable through the guide of stay 2.
- C Direct the rear brake light switch lead to the front.
- D Pass the fuel hose between the fuel drain hoses.

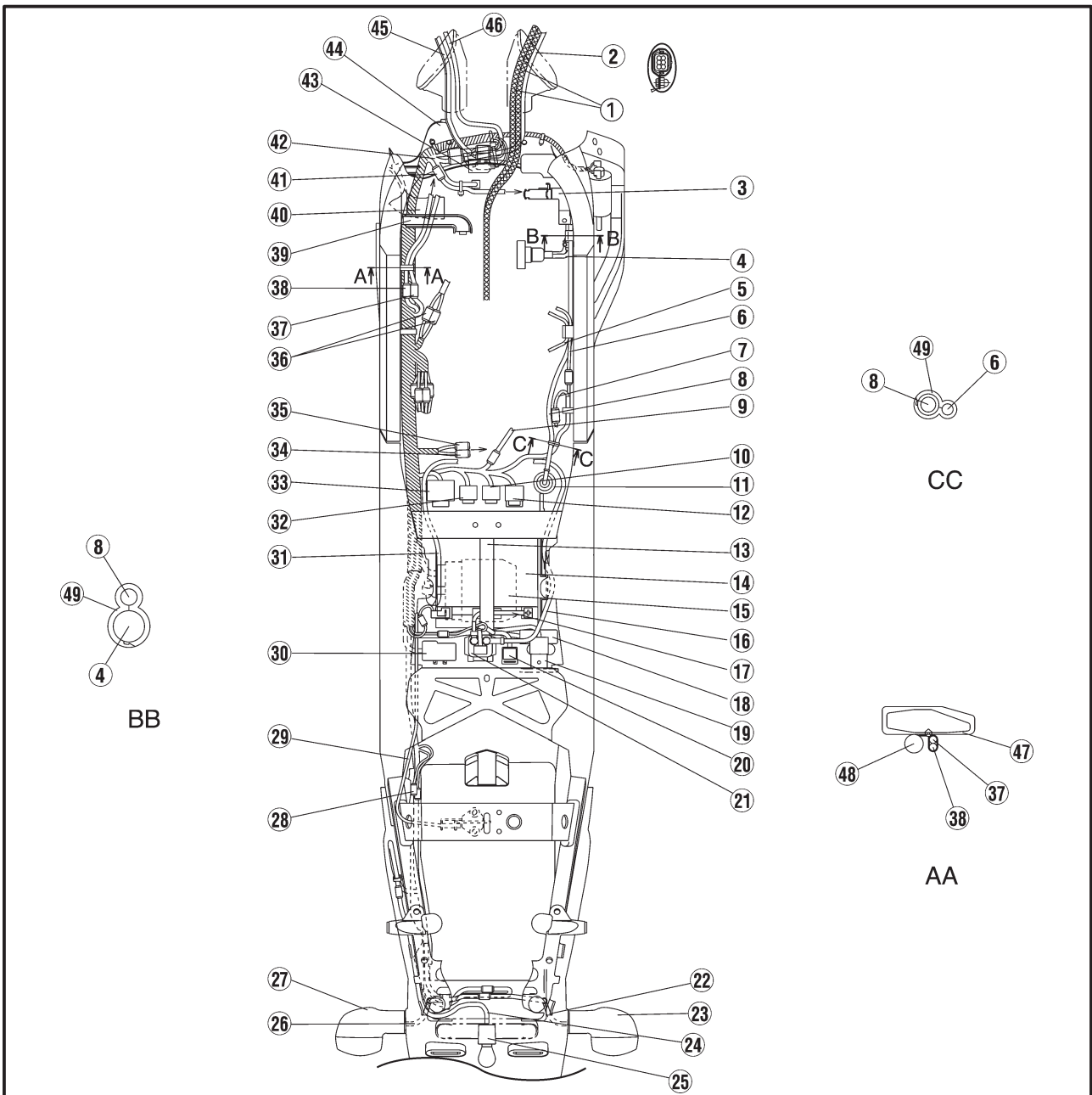


CABLE ROUTING

SPEC



- | | |
|--------------------------------------|---------------------------------------|
| ① Throttle cable | ⑭ Battery |
| ② Handlebar switch lead (right) | ⑮ Rectifier/regulator |
| ③ Stay | ⑯ Starter motor lead |
| ④ Thermo wax hose | ⑰ Battery positive lead |
| ⑤ Intake vacuum hose | ⑱ Lean angle cut-off switch |
| ⑥ Sub-wire harness (air filter case) | ⑲ Atmospheric pressure sensor |
| ⑦ Rear brake light switch lead | ⑳ Fuse (main) |
| ⑧ Coolant reservoir tank hose | ㉑ Starter relay |
| ⑨ Oil level switch lead | ㉒ Rear turn signal light lead (right) |
| ⑩ Fuel injection system relay | ㉓ Rear turn signal light (right) |
| ⑪ Coolant reservoir tank | ㉔ Tail/brake light lead |
| ⑫ Turn signal relay | ㉕ Tail/brake light |
| ⑬ Battery band | ㉖ Rear turn signal light lead (left) |

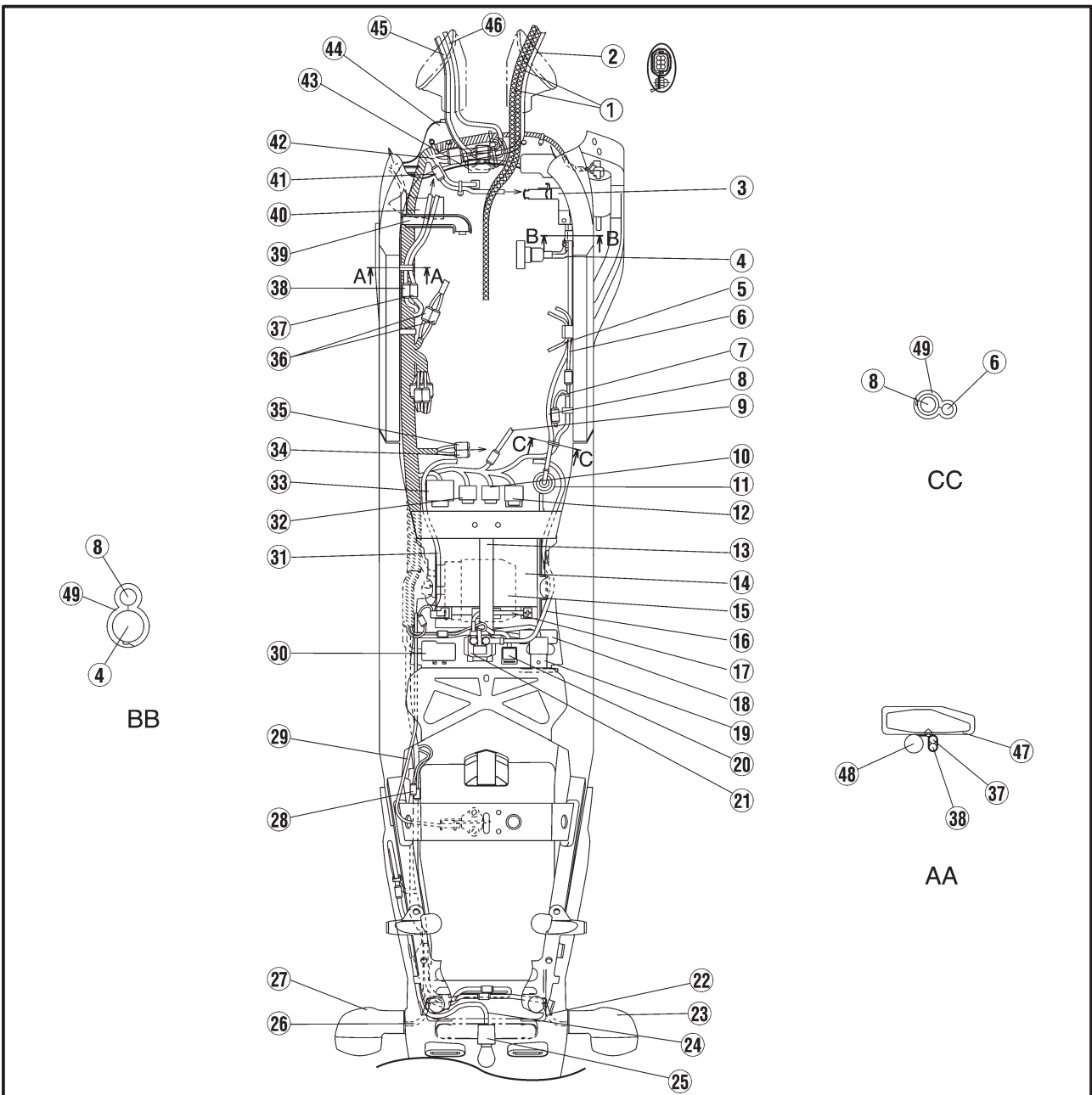


CABLE ROUTING

SPEC



- ②7 Rear turn signal light (left)
- ②8 Immobilizer coupler
- ②9 Seat lock cable
- ③0 Fuse box
- ③1 Battery negative lead
- ③2 Radiator fan motor relay
- ③3 Starting circuit cut-off relay
- ③4 Fuel pump lead 2
- ③5 Fuel pump lead 1
- ③6 Sub-wire harness (throttle body)
- ③7 Cylinder identification sensor lead
- ③8 Radiator fan motor lead
- ③9 Bracket 1
- ④0 Hose 1
- ④1 Air induction system lead
- ④2 Coolant temperature sensor lead
- ④3 Cover
- ④4 Cover 2
- ④5 main switch lead and immobilizer lead
- ④6 Handlebar switch lead (left)
- ④7 Frame
- ④8 Wire harness
- ④9 Clamp

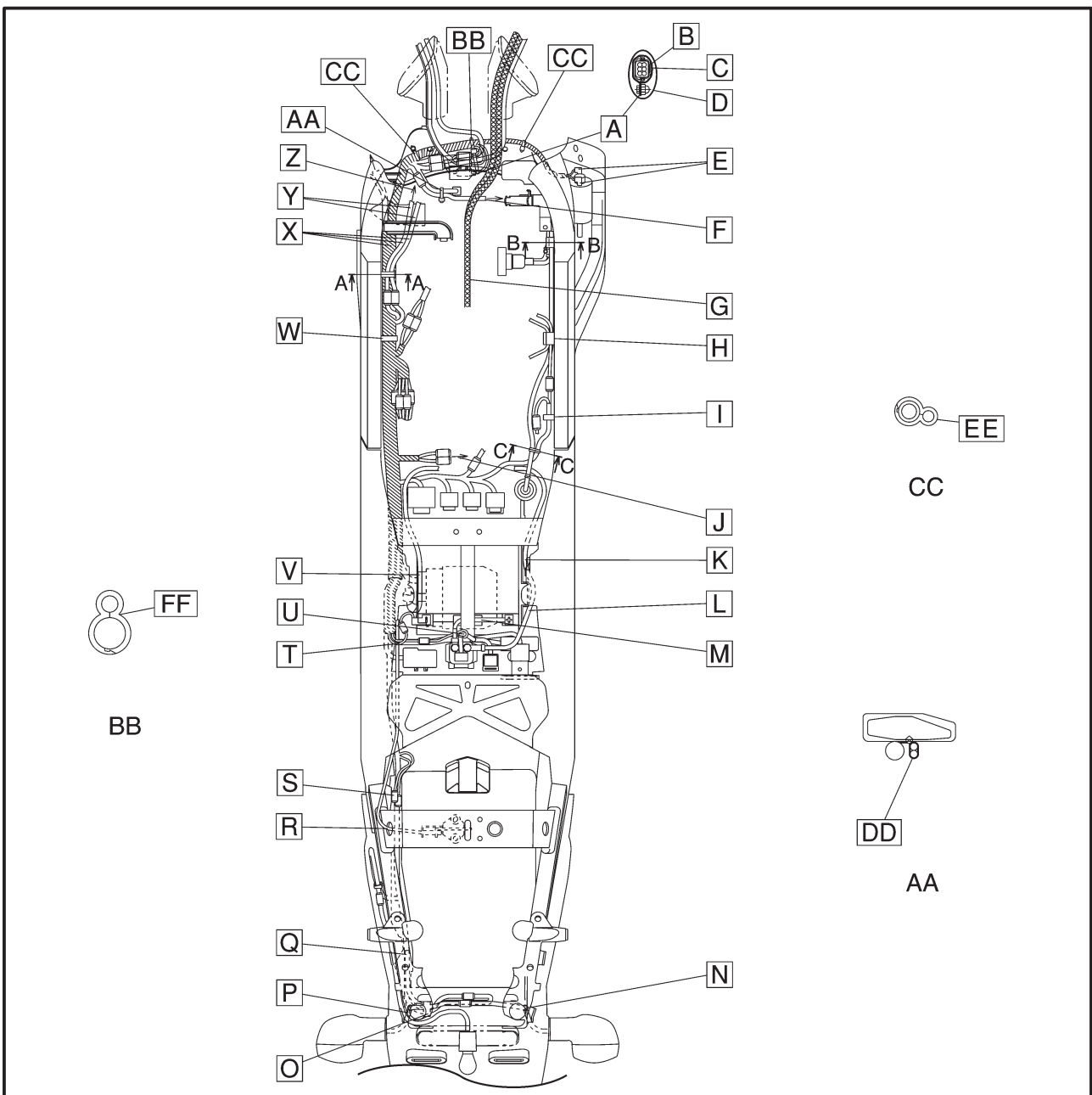


CABLE ROUTING

SPEC



- A** Put the cover on the coupler for the immobilizer lead and wire harness.
- B** Install the projection part of the coupler pointing to the connector housing 2.
- C** Align the projection part of the connector housing 2 with the hole of the locking bracket.
- D** Attach the boot over the immobilizer coupler.
- E** Insert the ignition coil lead as shown in the illustration (left, right).
- F** To the air induction system.
- G** For the throttle cable, route the return side cable by the upper side, and the pull side cable by the lower side.
- H** Fasten the coolant reservoir hose, sub wire harness (air filter case) and intake vacuum hose to the inner side of the frame with the clamp. Install the clamp with its opening pointed to the upper side.
- I** Fasten the sub wire harness (air filter case) to the inner side of the frame with the wrapping clamp of the wire harness.
- J** To the fuel pump.
- K** Route the starter motor lead under the rear frame attaching boss section.
- L** Route the starter motor lead by the right side of the battery and coolant reservoir tank.
- M** Route the battery positive lead under the battery band.
- N** Pass the rear turn signal light lead (right) through the right hole of the fender.
- O** Pass the rear turn signal light leads (right and left) through the clamp installed to the rear fender. Adjust the length of the rear turn signal light lead (left) by folding and then bundle it.

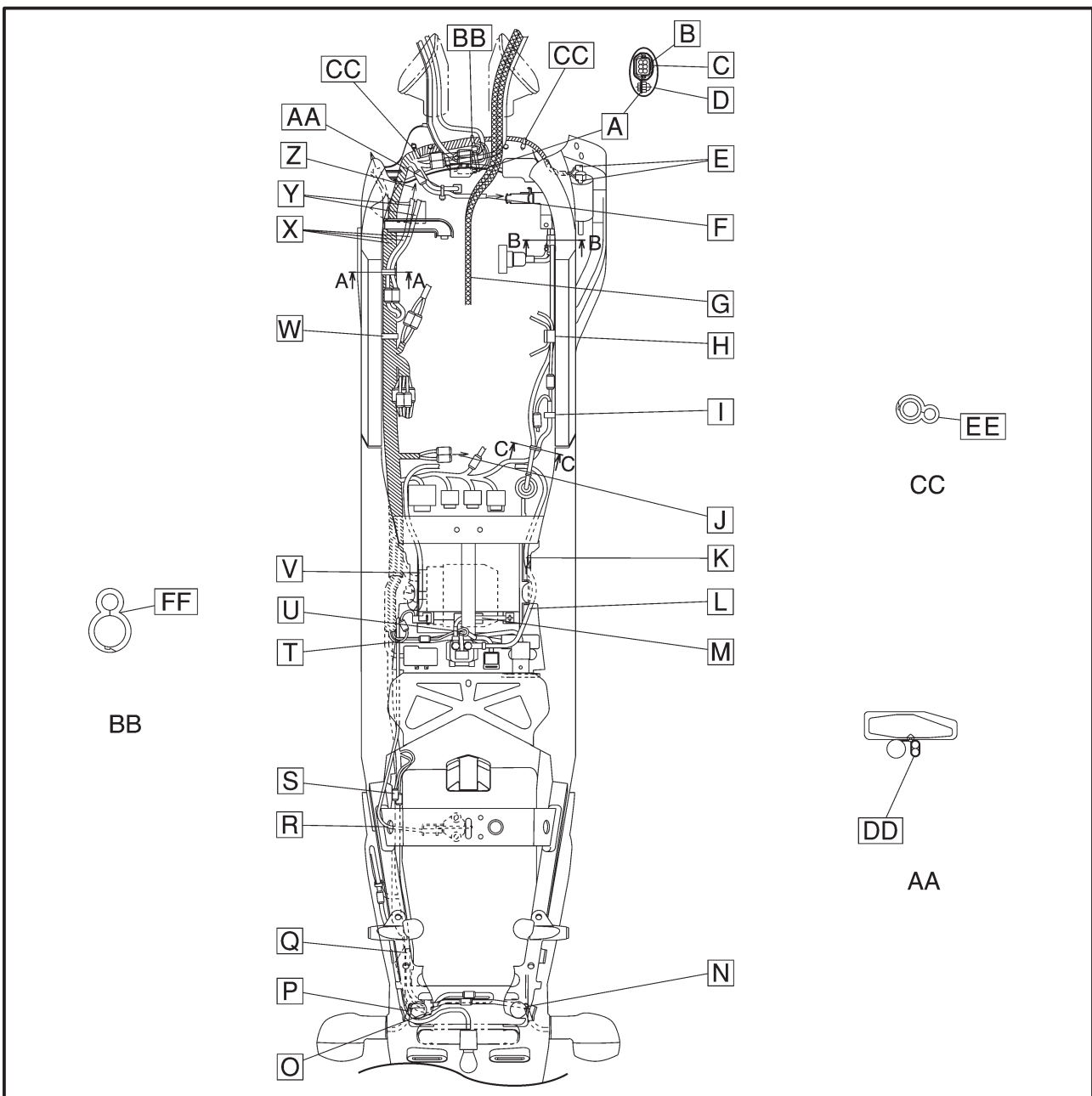


CABLE ROUTING

SPEC

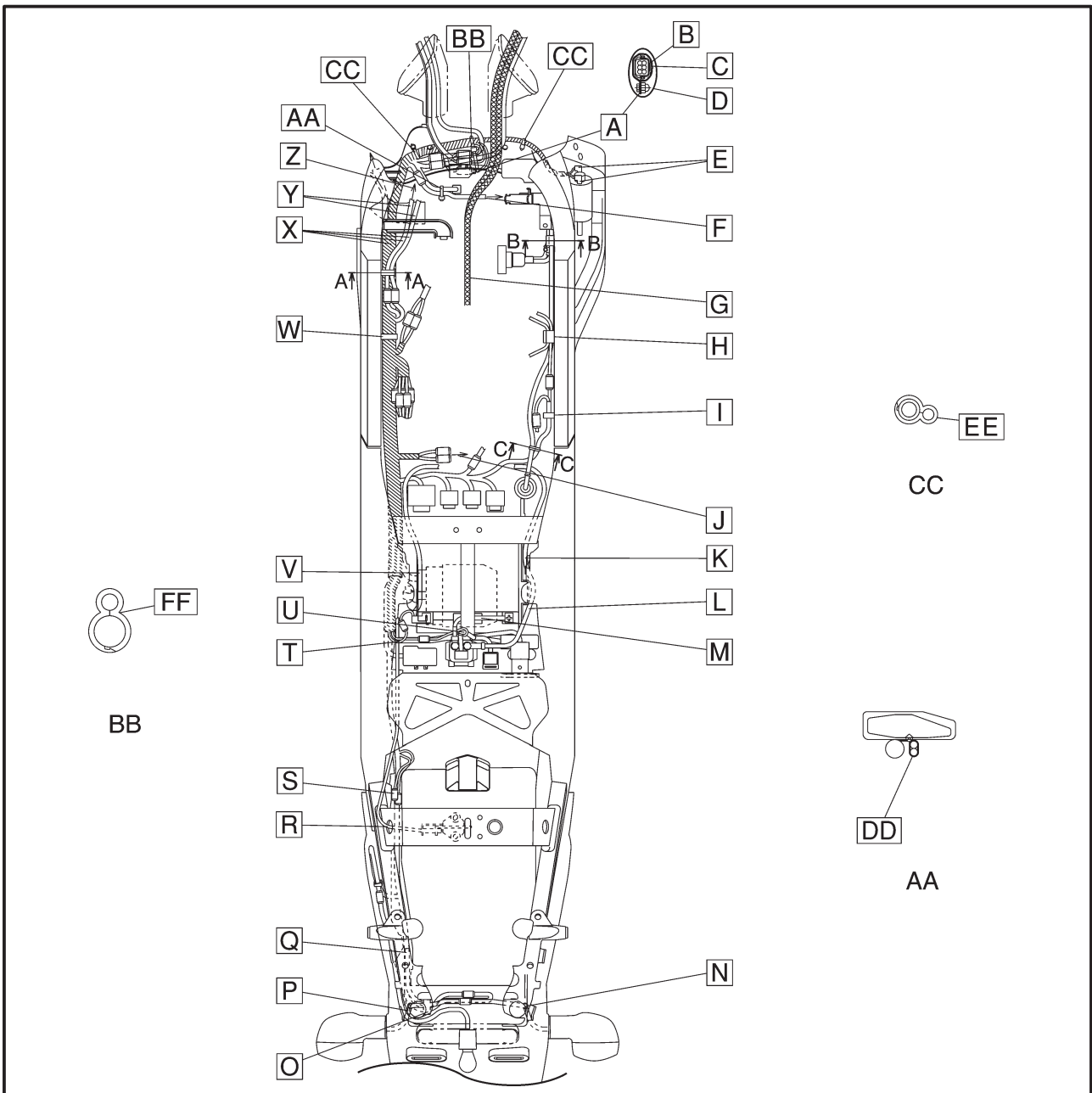


- P** Pass the rear turn signal light lead (left) through the left hole of the fender.
- Q** Pass the rear turn signal light leads (right and left) between the ribs of the rear fender.
- R** Pass the seat locking cable through the hole section of the seat bracket of the rear frame. Either direction of the seat locking cable can be accepted.
- S** Set the immobilizer coupler between the ribs of the rear fender.
- T** Route the battery negative lead above the seat locking cable.
- U** Route the battery positive lead together with the starter relay lead as shown in the illustration.
- V** Route the battery negative lead above the battery.
- W** Fasten the wire harness to the inner side of the frame with the harness wrapping clamp.
- X** Route the wire harness, cylinder identification sensor and radiator fan motor leads under the bracket 1.
- Y** Route the cylinder identification sensor and radiator fan motor leads above the radiator hose.
- Z** To the radiator.
- AA** Bundle the coolant temperature sensor lead and air induction system lead with the clamp. Cut the clamp tip leaving 3 to 8 mm (0.12 to 0.31 in).
- BB** Bundle the main switch lead, immobilizer lead and handle bar switch leads (right and left) with the clamp. Point the tip of the clamp to the front side and set it between cover and wire harness. Place the clamp at the right side of the vehicle from the coupler as shown in the illustration.
- CC** Fasten the wire harness to both holes of the cover 2 with the harness wrapping clamps.





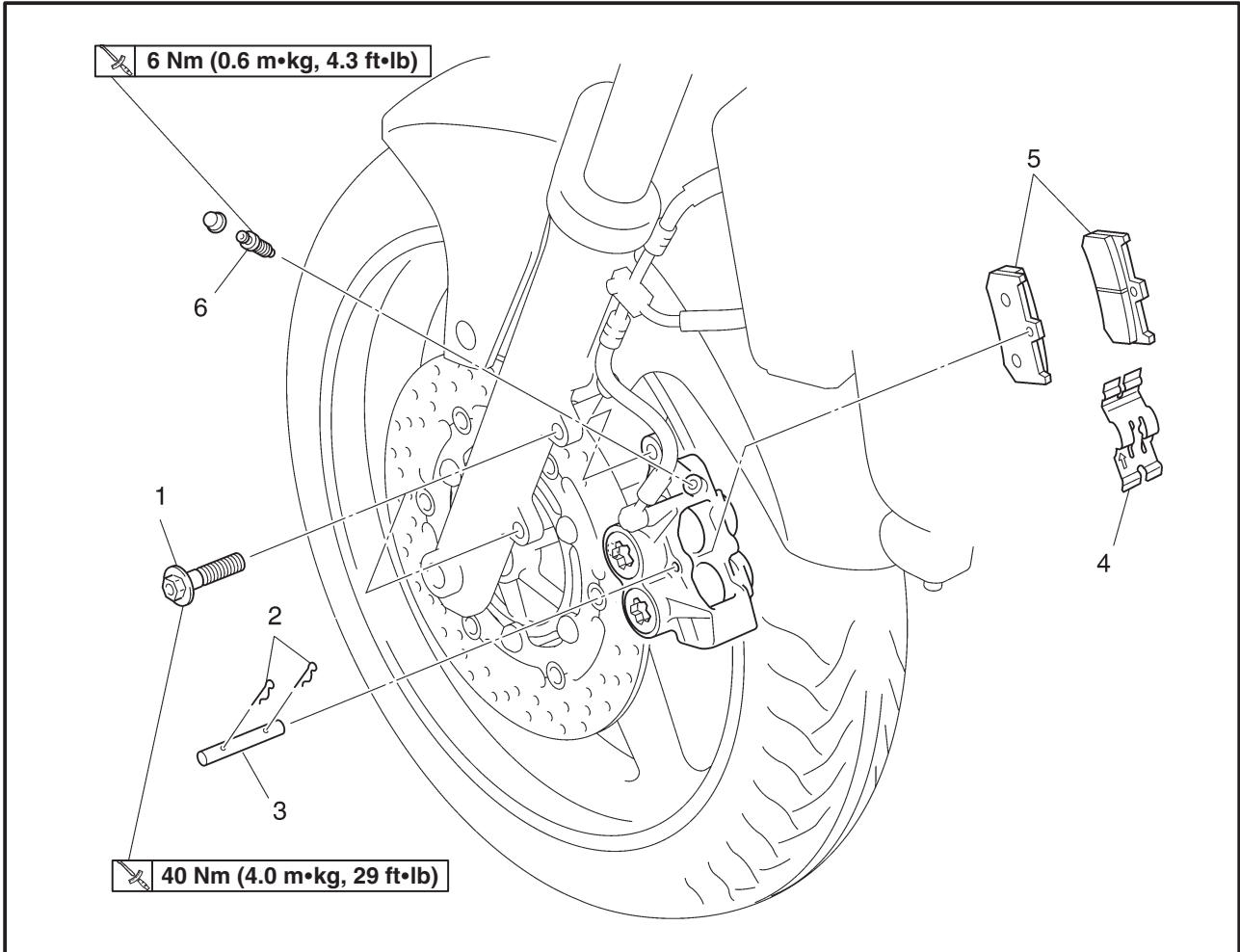
- DD** Fasten the cylinder identification sensor and radiator fan motor leads to the frame with the clamp as shown in the illustration. Point the tip of the clamp to the downside.
- EE** Pass the wire harness through the small diameter side of the clamp and the coolant reservoir tank drain hose through the large diameter side and then clamp them.
- FF** Clamp the coolant reservoir tank hose and thermo wax hose. Locate of the thermo wax hose under the coolant reservoir tank hose. Opening part of clamp is downward.



EAS00577

CHASSIS

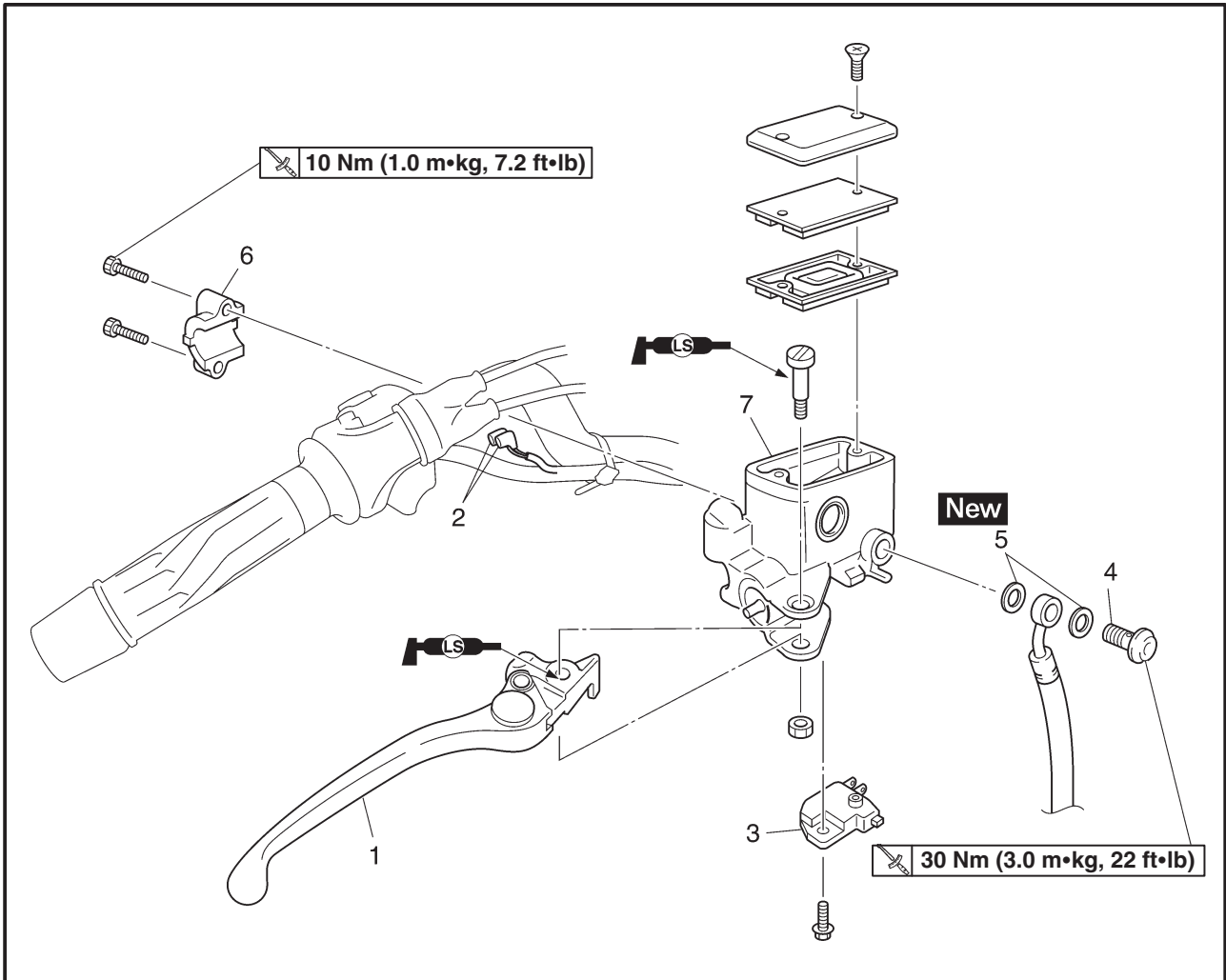
FRONT AND REAR BRAKES
FRONT BRAKE PADS



| Order | Job/Part | Q'ty | Remarks |
|-------|--------------------------------------|------|--|
| | Removing the front brake pads | | Remove the parts in the order listed. |
| 1 | Brake caliper bolt | 2 | |
| 2 | Brake pad clip | 2 | |
| 3 | Brake pad pin | 1 | |
| 4 | Brake pad spring | 1 | |
| 5 | Brake pad | 2 | |
| 6 | Bleed screw | 1 | |
| | | | For installation, reverse the removal procedure. |

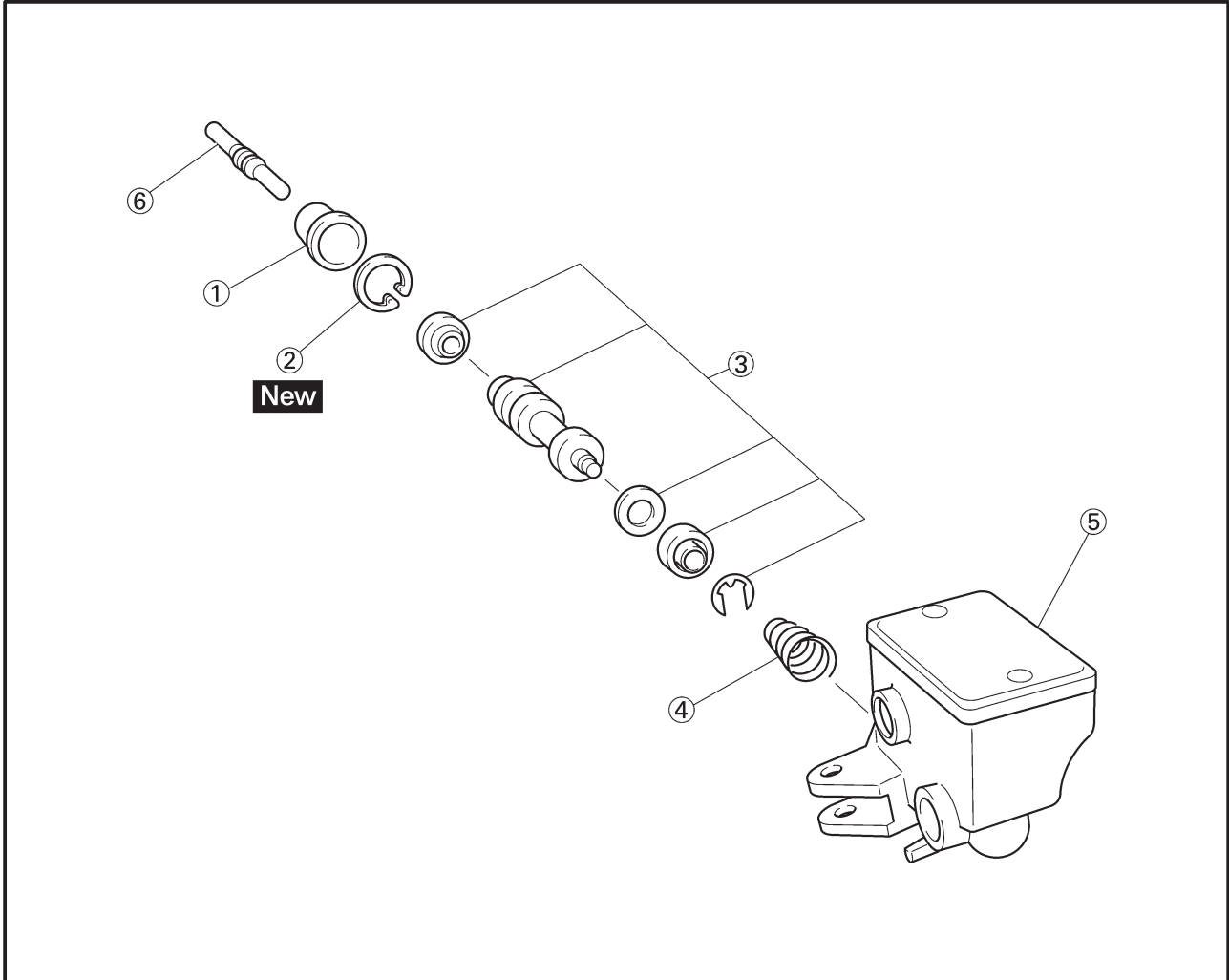
EAS00584

FRONT BRAKE MASTER CYLINDER



| Order | Job/Part | Q'ty | Remarks |
|-------|---|------|--|
| | Removing the front brake master cylinder | | Remove the parts in the order listed. |
| | Brake fluid | | Drain. |
| 1 | Brake lever | 1 | |
| 2 | Front brake light switch lead coupler | 1 | Disconnect. |
| 3 | Front brake switch | 1 | |
| 4 | Union bolt | 1 | |
| 5 | Copper washer | 2 | |
| 6 | Master cylinder bracket | 1 | |
| 7 | Master cylinder assembly | 1 | |
| | | | For installation, reverse the removal procedure. |

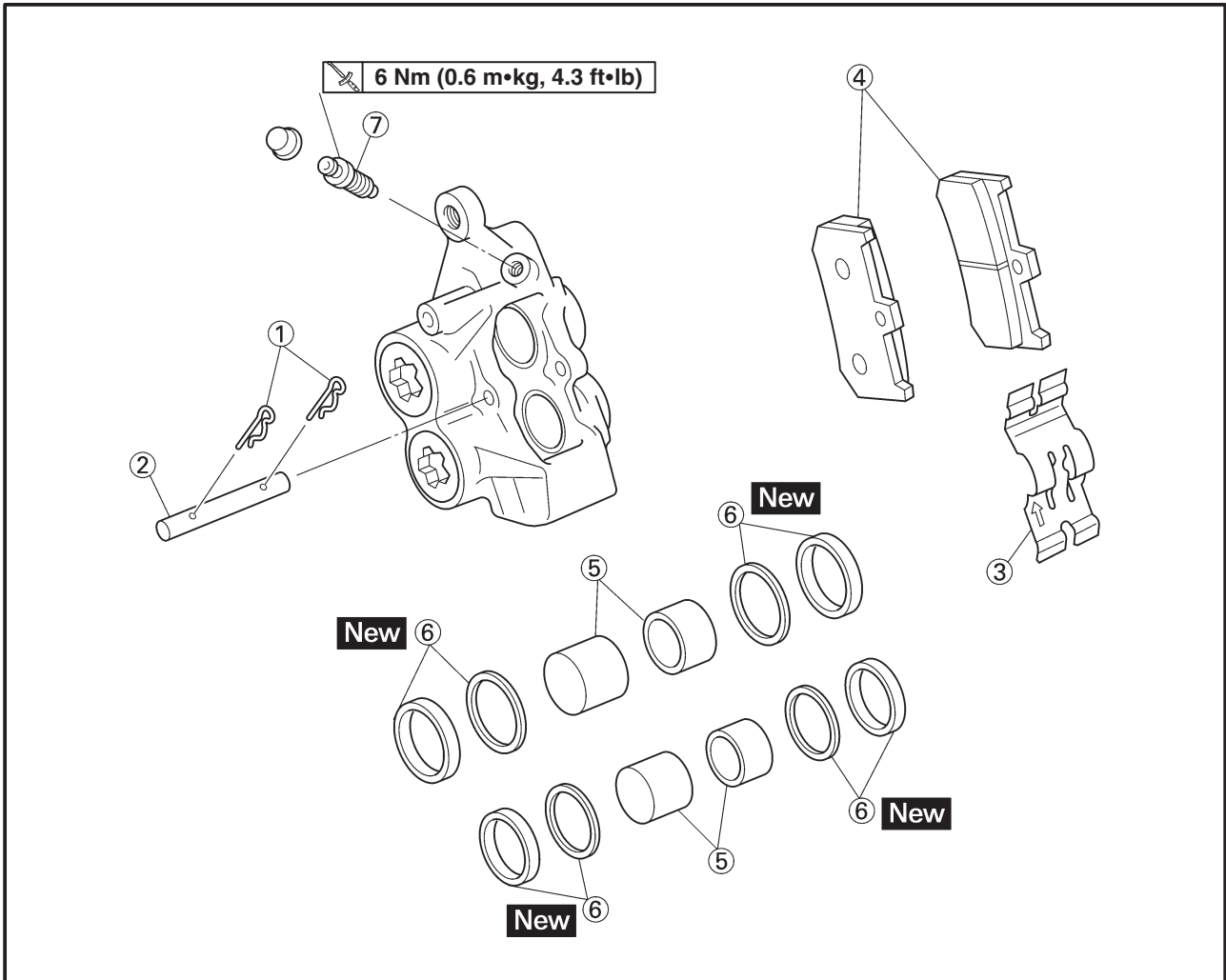
EAS00585



| Order | Job/Part | Q'ty | Remarks |
|-------|--|------|--|
| | Disassembling the front brake master cylinder | | Disassembly the parts in the order listed. |
| ① | Dust boot | 1 | |
| ② | Circlip | 1 | |
| ③ | Master cylinder kit | 1 | |
| ④ | Spring | 1 | |
| ⑤ | Master cylinder body | 1 | |
| ⑥ | Push rod | 1 | |
| | | | For assembly, reverse the disassembly procedure. |

EAS00615

FRONT BRAKE CALIPERS



| Order | Job/Part | Q'ty | Remarks |
|-------|---|------|---|
| | Disassembling the front brake calipers | | Disassemble the parts in the order listed. The following procedure applies to both of the front brake calipers. |
| ① | Brake pad clip | 2 | |
| ② | Brake pad pin | 1 | |
| ③ | Brake pad spring | 1 | |
| ④ | Brake pad | 2 | |
| ⑤ | Brake caliper piston | 4 | |
| ⑥ | Brake caliper piston seal kit | 4 | |
| ⑦ | Bleed screw | 1 | |
| | | | For assembly, reverse the disassembly procedure. |

EAS00731

ELECTRICAL

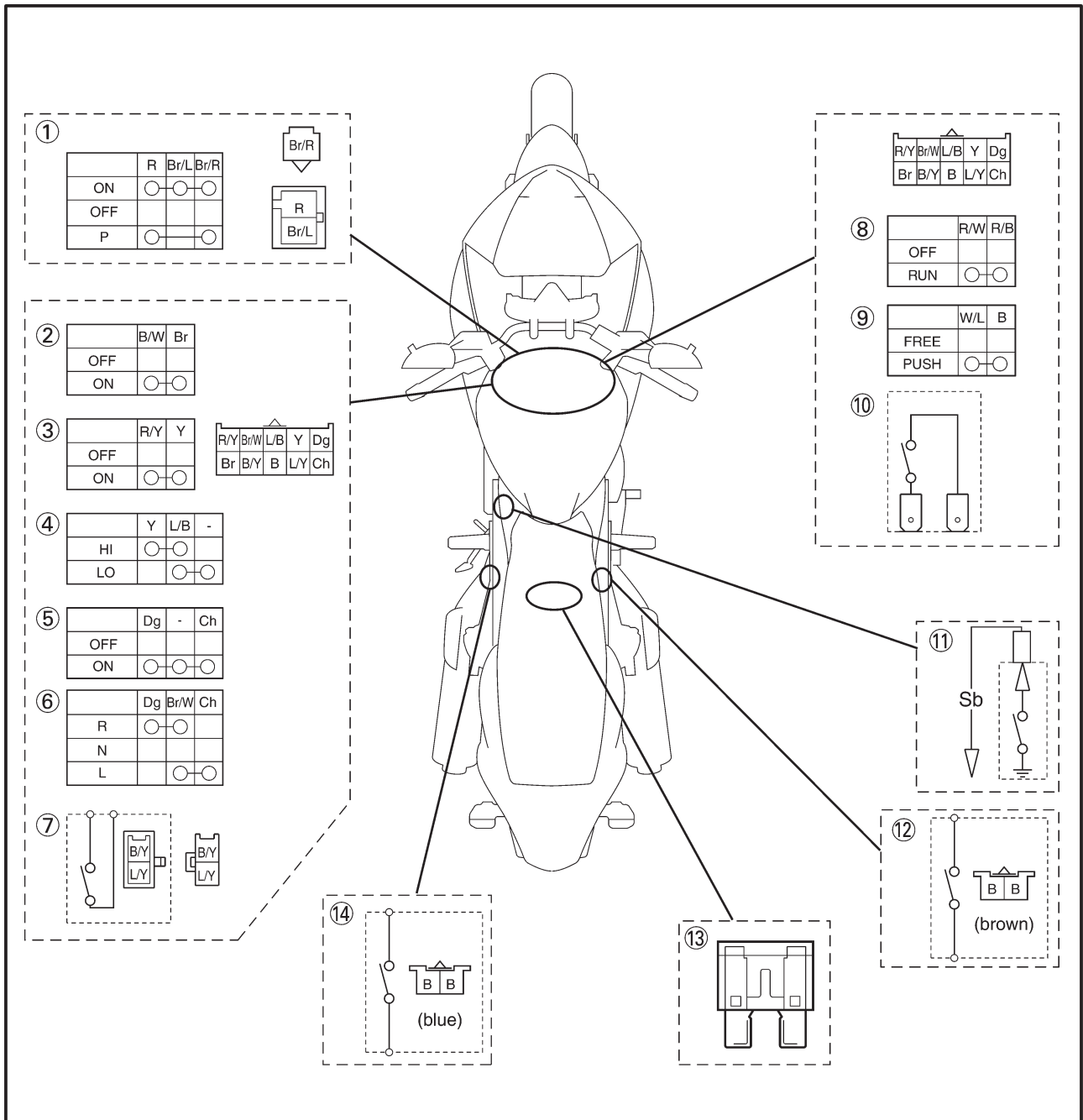
CHECKING THE SWITCHES

Check each switch for damage or wear, proper connections, and also for continuity between the terminals. Refer to “CHECKING SWITCH CONTINUITY”.

Damage/wear → Repair or replace.

Improperly connected → Properly connect.

Incorrect continuity reading → Replace the switch.

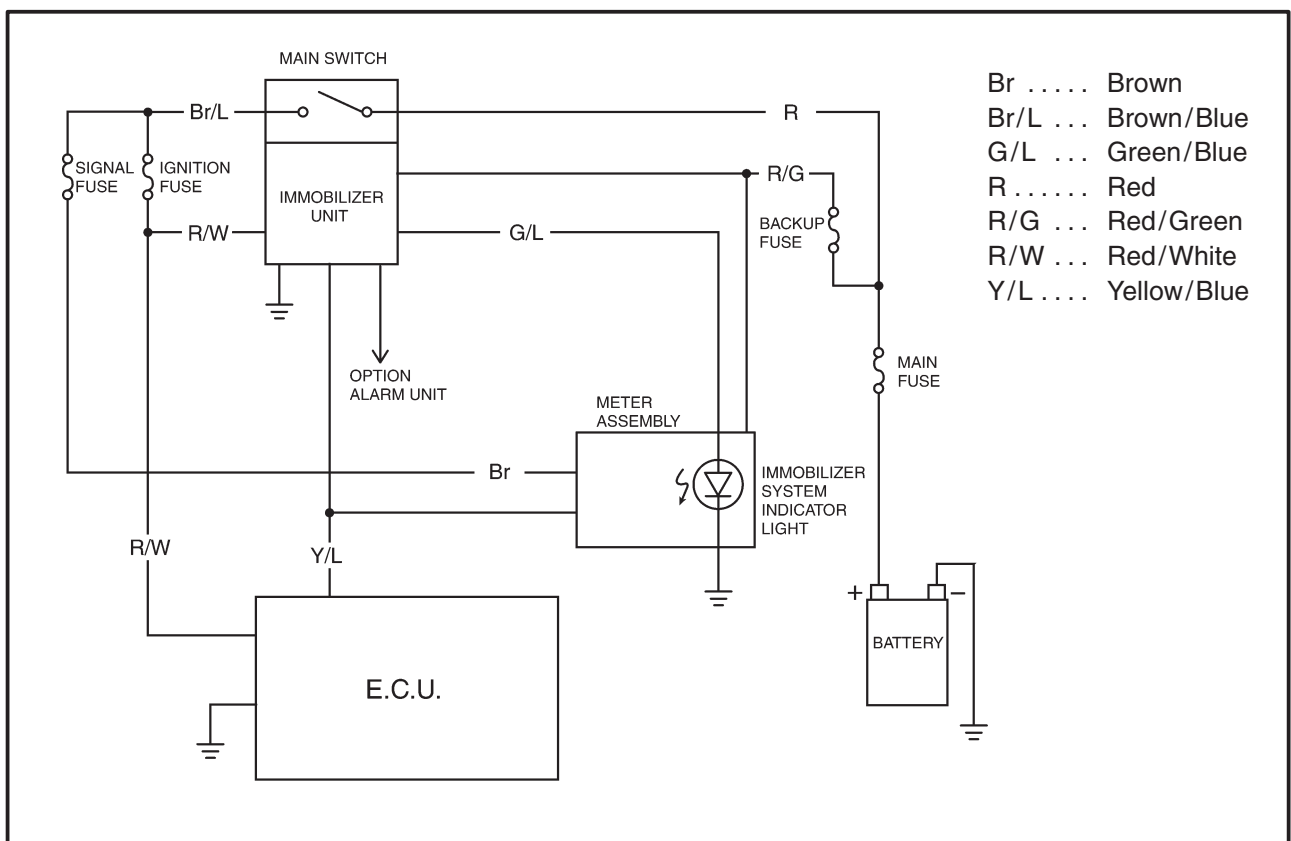
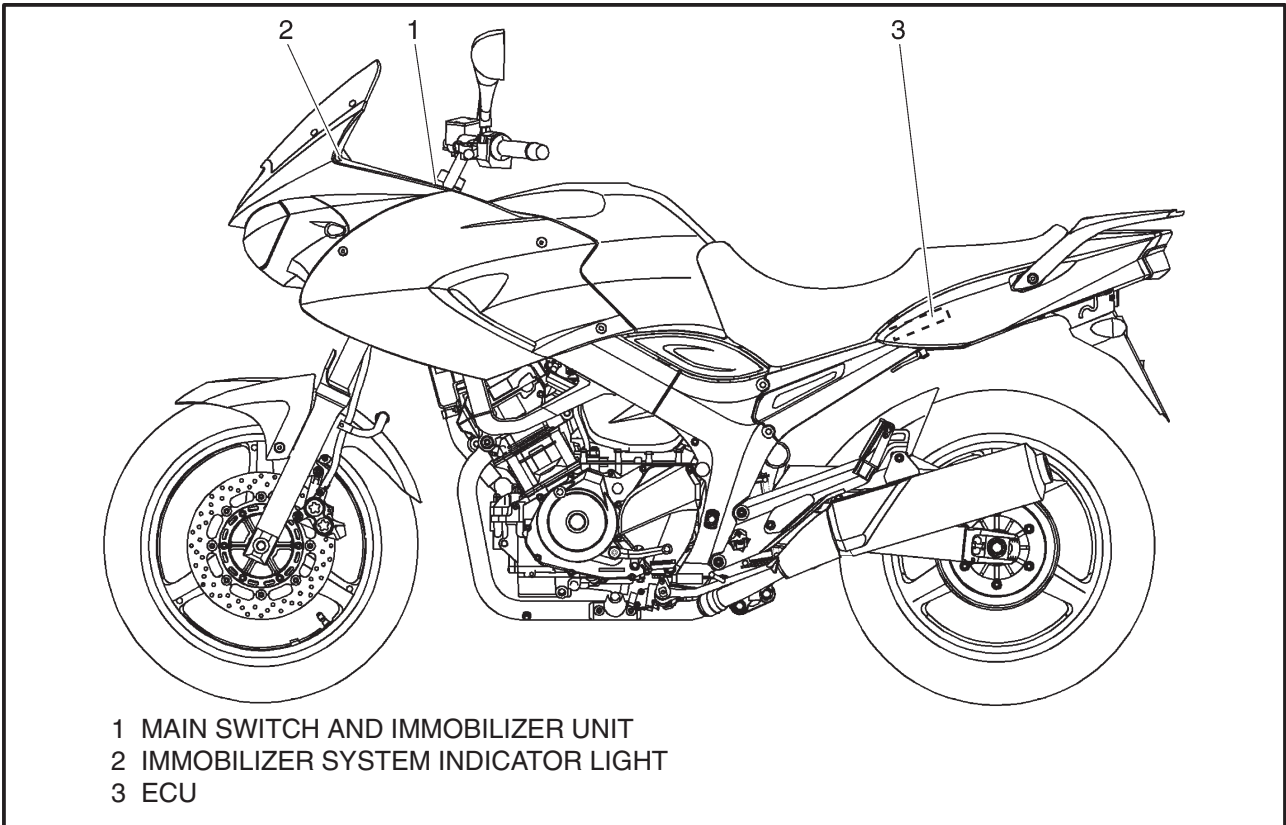


- ① Main switch
- ② Horn switch
- ③ Pass switch
- ④ Dimmer switch
- ⑤ Hazard switch
- ⑥ Turn signal switch

- ⑦ Clutch switch
- ⑧ Engine stop switch
- ⑨ Start switch
- ⑩ Front brake light switch
- ⑪ Neutral switch
- ⑫ Rear brake light switch

- ⑬ Fuses
- ⑭ Sidestand switch

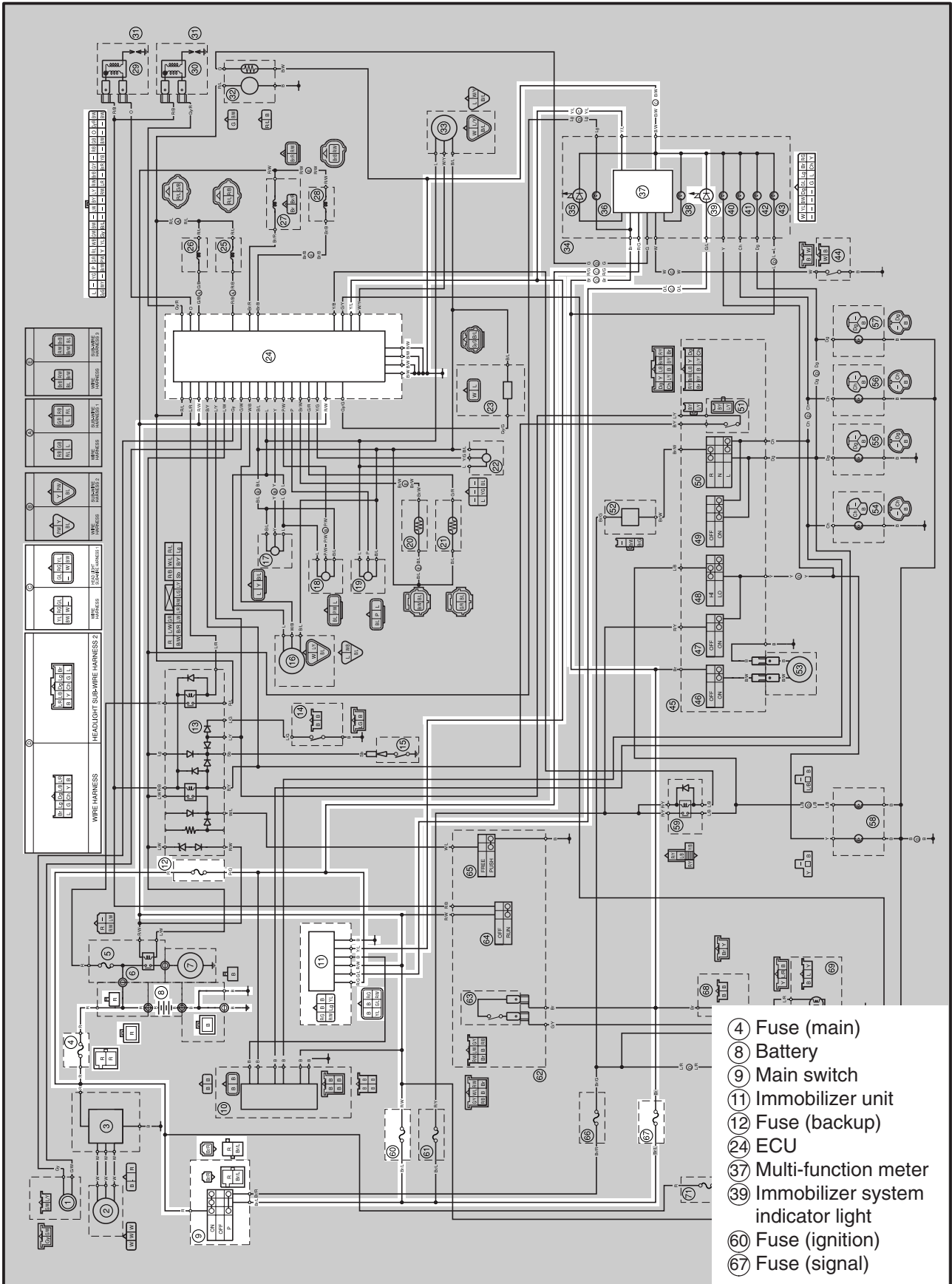
**IMMOBILIZER SYSTEM
SYSTEM DIAGRAM**



IMMOBILIZER SYSTEM



CIRCUIT DIAGRAM

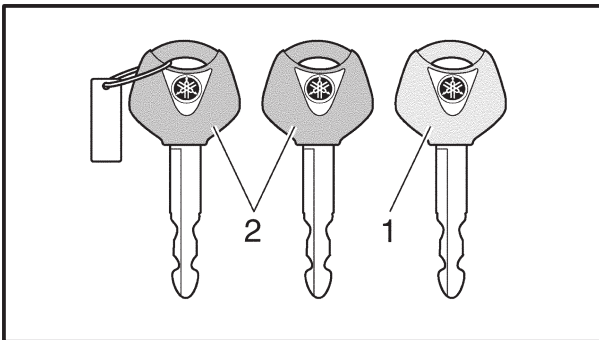


- ④ Fuse (main)
- ⑧ Battery
- ⑨ Main switch
- ⑪ Immobilizer unit
- ⑫ Fuse (backup)
- ⑭ ECU
- ⑰ Multi-function meter
- ⑱ Immobilizer system indicator light
- ⑳ Fuse (ignition)
- ㉑ Fuse (signal)



GENERAL INFORMATION

- When the main switch is turned "ON" with the registered key, the immobilizer system indicator light comes on for about 0.5 second and then goes off.
- To check the immobilizer system, follow the steps in the troubleshooting chart.
- To use the immobilizer key, keep it away from other keys. Otherwise, the key code signal may not work or the correct action may be disturbed.
- The key contains the electronic component (transponder). Do not drop or hit it with a solid metal. Do not leave it on the dashboard of vehicle where the temperature may rise.
- Do not put it in the water. (when washing clothes for example)
- Do not place it near a magnet or a loud speaker.
- If all keys are missing, the engine control unit (ECU) is required to replace together with the keys and the immobilizer unit.
- Immobilizer unit cannot be operated with the copy key until the transponder code of the code re-registering key is registered to the immobilizer unit.
- Total three key codes are registered to the immobilizer unit, which are one code re-registering key code and two standard key codes.
- Among them, two of standard key codes can be registered to prepare for the case when the key is lost. To register, the code re-registering key is needed.



1. Code re-registering key (red bow)
2. Standard key (black bow)



KEY ID REGISTRATION METHOD

Initially one code re-registering key and two standard keys have been registered with the immobilizer system.

In the course of use, you may encounter the following case where re-registration of code re-registering/standard key is required.

Code re-registering key registration:

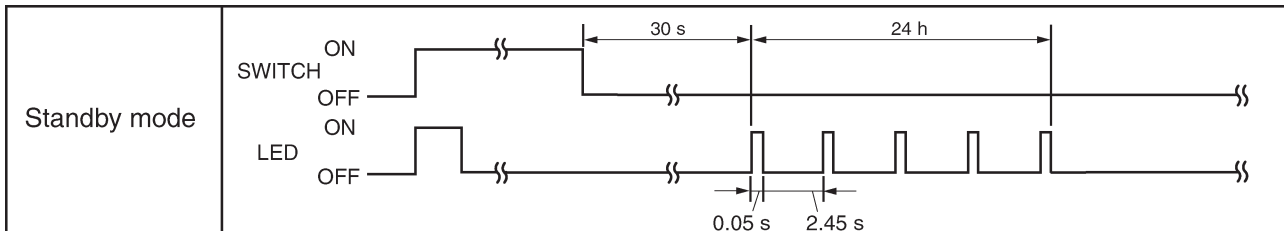
When the immobilizer unit or ECU, failed and the unit was replaced, the unit cannot be used until the key ID is registered because it is not registered to the unit.

- a. As usual steps, when the main switch is turned “ON”, the immobilizer system indicator light goes on for about one second.
- b. If the immobilizer system indicator light goes off, it shows that the code re-registering key registration is finished.
- c. Check that the engine can be started.
- d. Consequently, carry out the standard key registration, according the section below.

Standard key registration:

When you lost a standard key and need a new one. Or when the code re-registering key is re-registered after the immobilizer unit or the ECU, are replaced.

- a. Check that the immobilizer system indicator light shows the standby mode.
To initiate the standby mode, turn “OFF” the main switch and then it will be the standby mode when it passes 30 seconds. When 24 hours passed, the standby mode ends and the immobilizer system indicator light stops flashing.



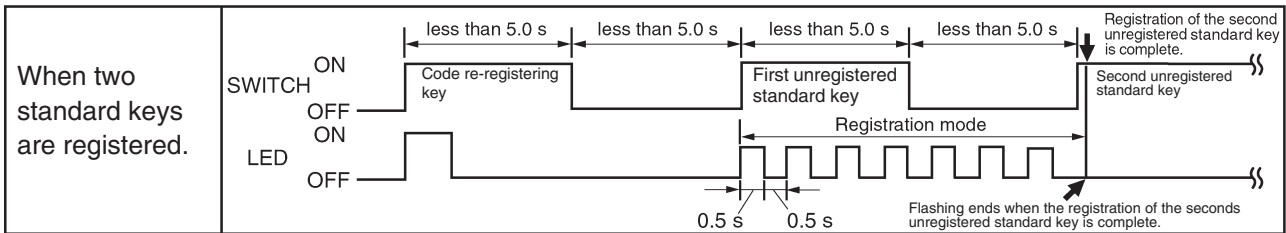
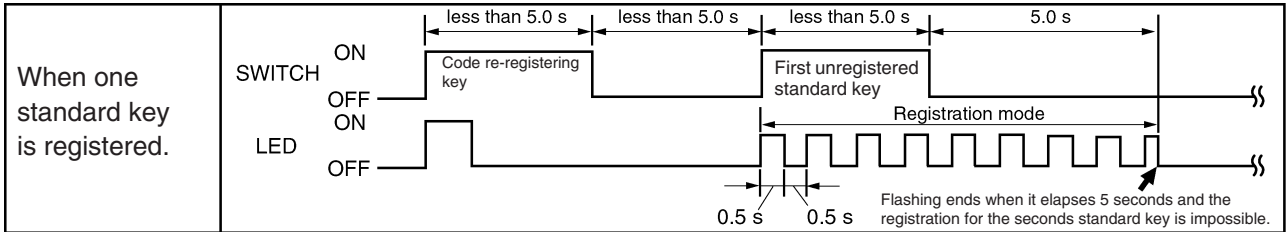
- b. After the main switch is turned “ON” with the code re-registering key, within 5 seconds, turn “OFF” the main switch and then turn “ON” the main switch with the standard key (the first new key) that you want to register.
- c. It becomes the key registration mode and two standard key IDs that have been stored in the memory are erased and the first new standard key ID will be registered. At this time, the indicator light quickly blinks (“OFF” for 0.5 sec. and “ON” for 0.5 sec.).
- d. In the condition as mentioned above (while the immobilizer system indicator light continues quick flashing), after the main switch is turned “ON” with the first new standard key, turn “OFF” the main switch within 5 seconds, and then turn “ON” the main switch with the standard key that you want to register (which is the second new key or the standard key remained in hand).

NOTE:

Fast flashing goes off when it elapses 5 seconds and the registration mode is finished. In this case, the second standard key cannot be registered and only the first standard key is registered.



- e. When the registration is finished, the immobilizer system indicator light goes off.
- f. Check that the engine can be started with the registered two standard keys.



Important note:

If you lost a standard key, immediately re-register your code re-registering key and the remaining standard key (if any). This will delete the stored registration data, protecting the motorcycle against being started with the lost key.



SELF-DIAGNOSIS ERROR CODE INDICATION

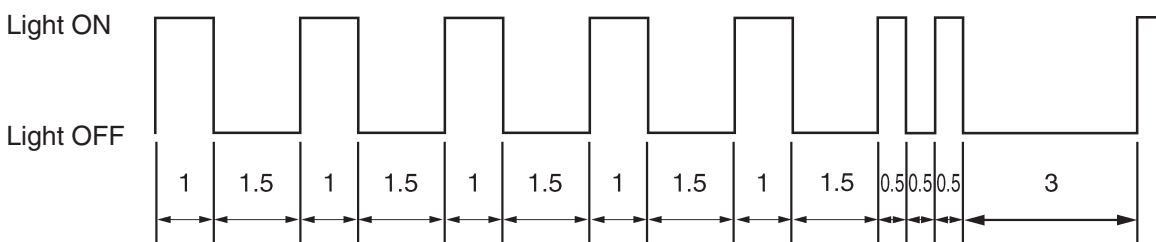
When the system failure occurred, the error code number is indicated in the LCD display of meter and the immobilizer system indicator light flashes at the same time. The pattern of flashing also shows the error code.

| Error code | Detection | Symptoms | Trouble | Measures |
|------------|-------------|--|---|--|
| 51 | Immobilizer | Cannot transmit code between the key and immobilizer unit. | 1) Objects that may keep off radio waves exist around the keys and antennas. 2) Immobilizer unit failure 3) Key failure | 1) Keep clear of magnets, metals and other keys from the surroundings of keys and antennas. 2) Replace the immobilizer unit. 3) Replace the key. |
| 52 | Immobilizer | Codes do not match between the key and immobilizer unit. | 1) Disturbed by other transponder. Failed to verify continually for ten times. 2) Unregistered standard key was used. | 1) Place the immobilizer unit away more than 50 mm from the transponder of other vehicle. 2) Register the standard key. |
| 53 | Immobilizer | Cannot transmit code between the ECU and immobilizer unit. | Noise interference or disconnected lead/cable. 1) Obstruction due to radio wave noise. 2) Error by disconnection of the communication harness. 3) Immobilizer unit failure. 4) ECU failure. | 1) Check the wire harness and connector. 2) Replace the immobilizer unit. 3) Replace the ECU. |
| 54 | Immobilizer | Codes do not match between ECU and immobilizer unit. | Noise interference or disconnected lead/cable. 1) Obstruction due to radio wave noise. 2) Error by disconnection of the communication harness. 3) Immobilizer unit failure 4) ECU failure (When the used parts from other vehicles are used, the code re-registering key ID is not registered to the ECU.) | 1) Register the code re-registering key ID. 2) Check the wire harness and connector. 3) Replace the immobilizer unit. 4) Replace the ECU. |
| 55 | Immobilizer | Key code registration error. | Same standard key was attempted to continuously two times register. | Prepare the new standard key and register it. |
| 56 | ECU | Undefined code is received. | Noise interference or disconnected lead/cable. 1) Obstruction due to radio wave noise. 2) Error by disconnection of the communication harness. 3) Immobilizer unit failure. 4) ECU failure. | 1) Check the wire harness and connector. 2) Replace the immobilizer unit. 3) Replace the ECU. |

Immobilizer system indicator light code indication

Digit of 10 : Cycles of 1 sec. "ON" and 1.5 sec. "OFF".
Digit of 1 : Cycles of 0.5 sec. "ON" and 0.5 sec. "OFF".

<Example> 52



IMMOBILIZER SYSTEM



EAS00794

TROUBLESHOOTING


• When the main switch is turn “ON”, the immobilizer system indicator light does not come on or flashing.

Check:

1. main, ignition, and backup fuses
2. battery
3. main switch
4. wiring connections
(of the entire immobilizer system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. side cowlings
- Troubleshoot with the following special tool(s).

 **Pocket tester**
90890-03112, YU-3112

EAS00738

1. Main, ignition and backup fuses

- Check the main, ignition and backup fuses for continuity. Refer to “CHECKING THE FUSES” in chapter 3. (Manual No.: 5PS1 -AE1)
- Are the main, ignition and backup fuses OK?

↓ YES


↓ NO

Replace the fuse(s).

EAS00739

2. Battery

- Check the condition of the battery. Refer to “CHECKING AND CHARGING THE BATTERY” in chapter 3. (Manual No.: 5PS1-AE1)

 **Minimum open-circuit voltage**
12.8 V or more at 20°C (68°F)

- Is the battery OK?

↓ YES

↓ NO

• Clean the battery terminals.
• Recharge or replace the battery.

EAS00749

3. Main switch

- Check the main switch for continuity. Refer to “CHECKING THE SWITCHES”.
- Is the main switch OK?

↓ YES

↓ NO

Replace the main switch.

EAS00787

4. Wiring

- Check the entire immobilizer system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the immobilizer system’s wiring properly connected and without defects?

↓ YES

↓ NO

Check the condition of each of the immobilizer system’s circuits. Refer to “CHECKING THE IMMOBILIZER SYSTEM”.

Properly connect or repair the immobilizer system’s wiring.



EAS00788

CHECKING THE IMMOBILIZER SYSTEM

1. The immobilizer system indicator light does not come on.

1. Immobilizer system indicator light (LEDs)

- Check the immobilizer system indicator light continuity. Refer to "CHECKING THE LEDs". (Manual No.: 5PS1-AE1)
- Are the immobilizer system indicator light (LEDs) OK?

↓ YES

↓ NO

Replace the meter assembly.

3. Wiring

- Disconnect the meter coupler and immobilizer unit coupler.
- Check the immobilizer system indicator light lead (green/blue) continuity. (meter coupler – immobilizer unit coupler).
- Is the immobilizer system indicator light lead OK?

↓ YES

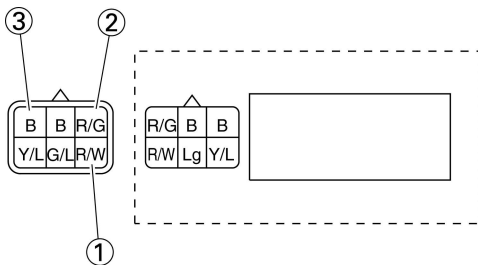
↓ NO

Replace the immobilizer unit.

The wiring circuit from the meter to immobilizer unit is faulty and must be repaired.

2. Voltage

- Connect the pocket tester (DC 20 V) to the immobilizer unit coupler as shown.



Positive tester probe → red/white ① or red/green ②
Negative tester probe → black ③

- Turn the main switch to "ON".
- Measure the voltage (DC 12 V) on the immobilizer unit coupler (wire harness side).
- Is the voltage within specification?

↓ YES

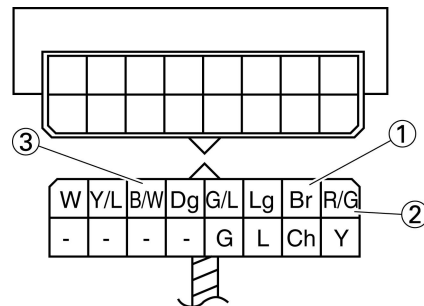
↓ NO

The wiring circuit from the main switch to the immobilizer unit coupler is faulty and must be repaired.

2. The LCD display does not indicated.

1. Voltage

- Connect the pocket tester (DC 20 V) to the meter coupler as shown.



LCD display
Positive tester probe → brown ① or red/green ②
Negative tester probe → black/white ③

- Turn the main switch to "ON".
- Measure the voltage (DC 12 V) meter coupler (wire harness side).
- Is the voltage within specification?

↓ YES

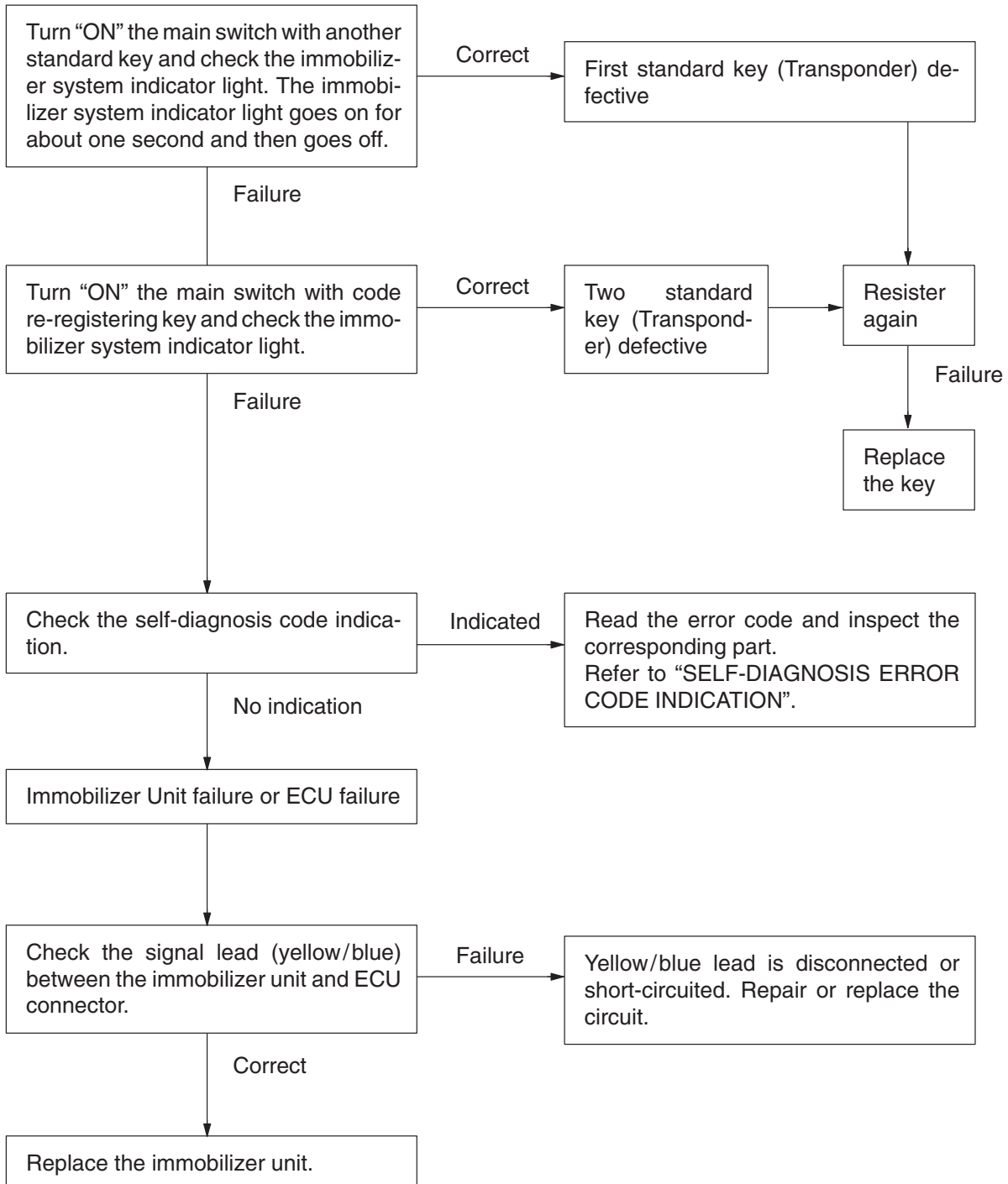
↓ NO

Replace the meter.

The wiring circuit from the main switch to the meter coupler is faulty and must be repaired.



2. When the main switch is turned "ON", the immobilizer system indicator light is flashing.
- Check if the metallic obstacle or the transponder of other vehicle exists near the immobilizer unit. If it exists, eliminate it and recheck the condition.





REPLACEMENT PARTS ON TROUBLES

| | Replacement parts | | | | |
|---|-------------------|------------------|-----|---------------|--------------------------|
| | Transponder Key | Immobilizer Unit | ECU | *1Main Switch | *2Accessory Lock And Key |
| When standard key is missing and the replace standard key is required | ○ | | | | |
| All keys have been lost (including code re-registering key) | ○ | ○ | ○ | ○ | ○ |
| ECU is defective | | | ○ | | |
| When the immobilizer unit is defective | | ○ | | | |
| When the main switch is defective | ○ | ○ | ○ | ○ | ○ |
| When the accessory lock is defective | | | | | ○ |

*1 There is no parts setting as a single unit. It will be the replacement in a set with the IMMOBILIZER UNIT.

*2 Accessory lock means the seat lock, fuel filler cap or the helmet holder.

NOTE:

- To replace the single unit of ECU, first turn “ON” the main switch with the code re-registering key. This operation allows the code re-registering key ID to be registered to the new ECU. Register the standard key subsequently.
- To replace the single unit of immobilizer unit, first turn “ON” the main switch with the code re-registering key. This operation allows the code re-registering key ID to be registered to the new immobilizer unit. Register the standard key subsequently.

WIRING DIAGRAM

- ① Crankshaft position sensor
- ② A.C. magneto
- ③ Rectifier/regulator
- ④ Fuse (main)
- ⑤ Fuse (fuel injection system)
- ⑥ Starter relay
- ⑦ Starter motor
- ⑧ Battery
- ⑨ Main switch
- ⑩ Alarm
- ⑪ Immobilizer unit
- ⑫ Fuse (backup)
- ⑬ Starting circuit cut-off relay
- ⑭ Sidestand switch
- ⑮ Neutral switch
- ⑯ Cylinder identification sensor
- ⑰ Throttle position sensor
- ⑱ Intake air pressure sensor
- ⑲ Atmospheric pressure sensor
- ⑳ Intake air temperature sensor
- ㉑ Coolant temperature sensor
- ㉒ Lean angle cut-off switch
- ㉓ O₂ sensor
- ㉔ ECU
- ㉕ Injector #1
- ㉖ Injector #2
- ㉗ Air cut-off valve
- ㉘ Intake solenoid
- ㉙ Ignition coil #1
- ㉚ Ignition coil #2
- ㉛ Spark plug
- ㉜ Fuel pump
- ㉝ Speed sensor
- ㉞ Meter assembly
- ㉟ Oil level warning light
- ㊱ Neutral indicator light
- ㊲ Multi-function meter
- ㊳ Engine trouble warning light
- ㊴ Immobilizer system indicator light
- ㊵ High beam indicator light
- ㊶ Left turn signal light
- ㊷ Right turn signal indicator light
- ㊸ Meter light
- ㊹ Oil level switch
- ㊺ Left handlebar switch
- ㊻ Horn switch
- ㊼ Pass switch
- ㊽ Dimmer switch
- ㊾ Hazard switch
- ㊿ Turn signal switch
- ① Clutch switch
- ② Turn signal relay
- ③ Horn
- ④ Rear turn signal light (left)
- ⑤ Rear turn signal light (right)
- ⑥ Front turn signal light (left)
- ⑦ Front turn signal light (right)
- ⑧ Headlight
- ⑨ Headlight relay
- ⑩ Fuse (ignition)
- ⑪ Fuse (head)

- ⑫ Right handlebar switch
- ⑬ Front brake light switch
- ⑭ Engine stop switch
- ⑮ Start switch
- ⑯ Fuse (hazard)
- ⑰ Fuse (signal)
- ⑱ Rear brake light switch
- ⑲ Tail/brake light switch
- ⑳ Auxiliary light
- ㉑ Fuse (radiator fan motor)
- ㉒ Radiator fan motor relay
- ㉓ Radiator fan motor

COLOR CODE

| | | |
|------|-------|--------------|
| B | ..... | Black |
| Br | ..... | Brown |
| Ch | ..... | Chocolate |
| Dg | ..... | Dark green |
| G | ..... | Green |
| Gy | ..... | Gray |
| L | ..... | Blue |
| Lg | ..... | Light green |
| O | ..... | Orange |
| P | ..... | Pink |
| R | ..... | Red |
| Sb | ..... | Sky blue |
| W | ..... | White |
| Y | ..... | Yellow |
| B/L | ..... | Black/Blue |
| B/W | .... | Black/White |
| B/Y | .... | Black/Yellow |
| Br/B | .... | Brown/Black |
| Br/G | ... | Brown/Green |
| Br/L | .... | Brown/Blue |
| Br/R | .... | Brown/Red |
| Br/W | ... | Brown/White |
| G/B | .... | Green/Black |
| G/L | .... | Green/Blue |
| G/R | .... | Green/Red |
| G/W | .... | Green/White |
| G/Y | .... | Green/Yellow |
| Gy/G | ... | Gray/Green |
| Gy/R | ... | Gray/Red |
| L/B | ..... | Blue/Black |
| L/G | .... | Blue/Green |
| L/R | .... | Blue/Red |
| L/W | .... | Blue/White |
| L/Y | ..... | Blue/Yellow |
| P/W | .... | Pink/White |
| R/B | .... | Red/Black |
| R/G | .... | Red/Green |
| R/L | .... | Red/Blue |
| R/W | .... | Red/White |
| R/Y | .... | Red/Yellow |
| W/B | .... | White/Black |
| W/Y | .... | White/Yellow |
| Y/B | .... | Yellow/Black |
| Y/G | .... | Yellow/Green |
| Y/L | ..... | Yellow/Blue |



YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA SHIZUOKA JAPAN

TDM900 (S) 2004 WIRING DIAGRAM

