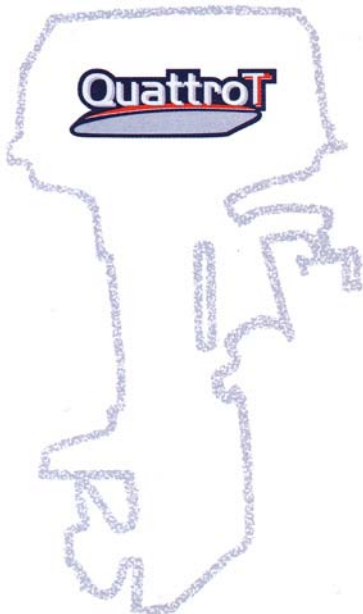


# 6Y8 ROUND GAUGES

## SERVICE MANUAL





# GAUGE LINE-UP

## ROUND STYLE GAUGES

2 kinds of round gauges are available.

The round gauges feature the similar shape design as conventional digital gauges (6Y5 type), and reasonable cost.

### TACHOMETER



Part No.	6Y8-8350T-11
----------	--------------

### COMB. SPEEDOMETER AND FUEL MGT GAUGE



Part No.	6Y8-83500-11
----------	--------------

# GAUGE FEATURES

## ROUND TACHOMETER

Maintenance information  
Informs maintenance every 100-hour

Dimmer Function  
Adjusts illumination in 5-stage with independent or synchronization with all gauges

Trolling speed adjustment  
Adjusts trolling speed within specified RPM range (For F50-F100)

Customization function

- Selects measurement unit
- Resets maintenance period
- Selects motor for multi-applications
- Adjusts zero trim angle

Warning information  
Informs warning item with icon

Engine information  
Shows engine condition by icon and letters, or graph



Multi-gauge display

- Shows Elapsed hour, Trip hour, Coolant temp., Coolant press., Oil pressure/level, Engine voltage (ECU)
- Selects gauge display

Diagnosis code indication  
Shows number of fail code (For dealers)

## ROUND COMBINATION SPEEDOMETER AND FUEL MANAGEMENT GAUGE

Customization function

- Arranges each display
- Selects measurement unit
- Selects fuel sender resistance

Dimmer Function  
Adjusts illumination in 5-stage with independent or synchronization with all gauges

Speed display  
Selects ground speed or water speed



Multi-gauge display

- Shows Total Fuel consumption, Fuel economy, and Fuel flow
- Shows Water surface temp., Water depth, Trip distance, and Clock
- Selects gauge display

Warning information  
Informs fuel warning

## GAUGE FUNCTIONS AND DISPLAY

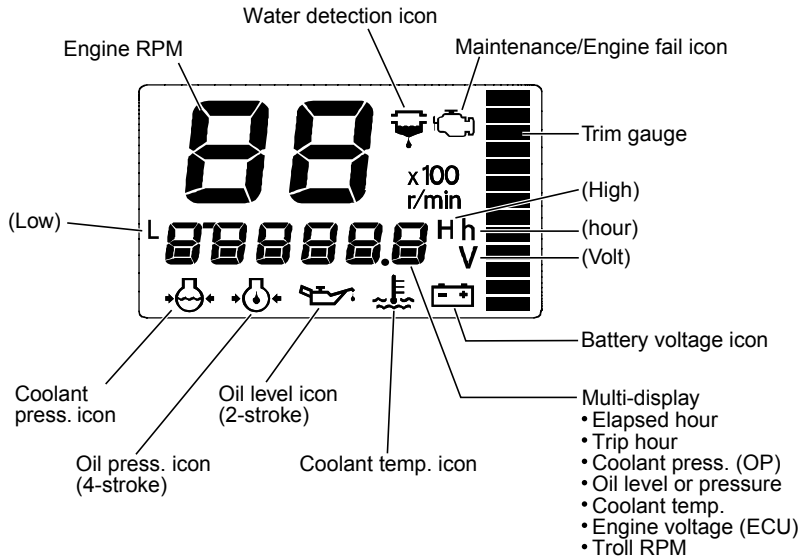
### ROUND STYLE GAUGES FUNCTIONS

Display or Function	Tachometer	Comb. Speedometer & Fuel MGT gauge	Descriptions
Voltage	1 (ECU)		Shows 6-level With low battery warning
Boat speed		1	MPH (Mile/Hour), km/h or knots Required speed sensor, optional multi-sensor, or NMEA0183 compatible GPS unit
Clock (OP)		1	Shown 12-hour Required NMEA0183 compatible GPS unit
Coolant pressure (OP)	1		Required optional coolant pressure sensor Shows 6-level with low pressure warning
Coolant temperature	1		Shows 6-level with overheat warning
Diagnosis code	1		For dealer service
Dimmer illumination	1	1	5-level dimmer switch Adjustable with synchronized or independent
Elapsed hour	1		Hour meter (0-99999h)
Engine failure warning	1		Activated if electric sensor has malfunctioned
Engine RPM	1		Shows 100 RPM interval (For trolling mode, 50 RPM fluctuation)
Engine selection	1		Resettable each engine No.
Fuel consumption		1	Gallon or Liter for all engines
Fuel economy		1	MPG (Mile/Gallon), NM/L (Nautical Mile/Liter) or km/L for all engines
Fuel flow		1	GPH (Gallon/Hour) or L/H (Liter/Hour) for all engines
Fuel level		1	Shows 8-level
Maintenance indication	1		Alerts for 100-hour interval service Resettable
Oil level (For 2-stroke engine)	1		Shows 3-level with low oil level warning
Oil pressure (For 4-stroke engine)	1		Shows 6-level with low oil pressure warning
Trim position	1		Shows 13-level Adjustable zero trim angle
Trip distance		1	Mile, NM (Nautical Mile), or km Resettable
Tripped hour	1		Resettable (0-999.9h)
Troll RPM control (For F50-F100)	1		Changes and shows engine speed every 50 RPM
Water depth (OP)		1	Feet or meter Required optional multi-sensor
Water detection warning	1		Activated if water has mixed into fuel
Water surface temperature (OP)		1	Celsius or Fahrenheit Required optional multi-sensor

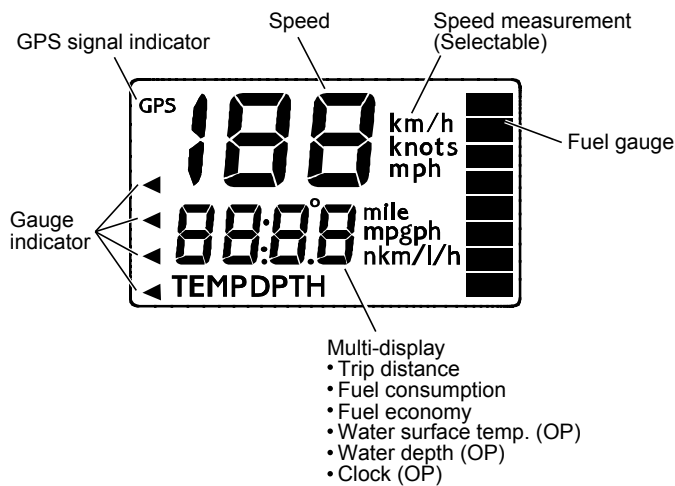
# GAUGE FUNCTIONS AND DISPLAY

## ROUND STYLE GAUGE DISPLAY

### ROUND TACHOMETER



### ROUND COMB. SPEEDOMETER AND FUEL MGT GAUGE



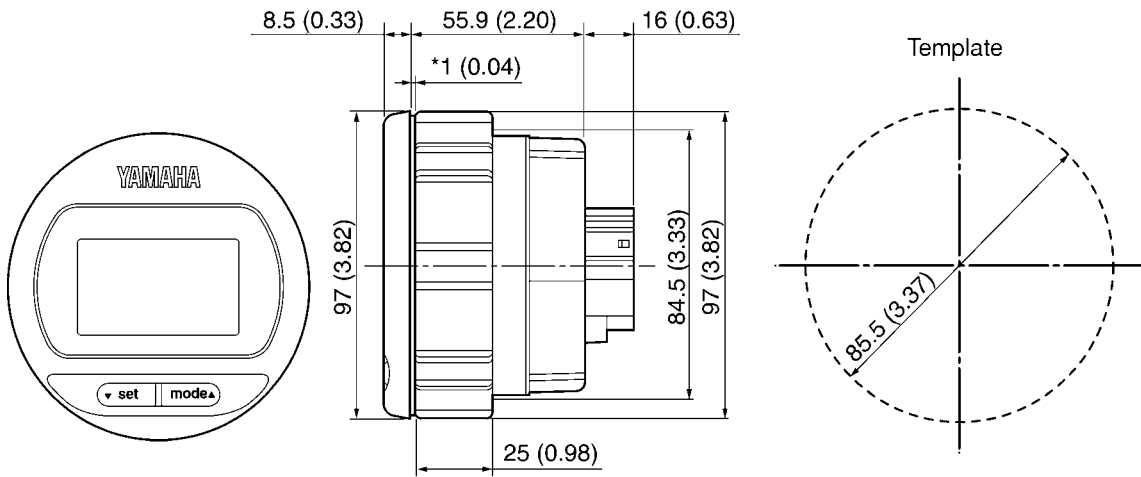
# GAUGE DIMENSIONS

## ROUND STYLE GAUGES

- TACHOMETER
- COMB. SPEEDOMETER AND FUEL MGT GAUGE

The round style gauges allow the surface mount only.

mm (in.)

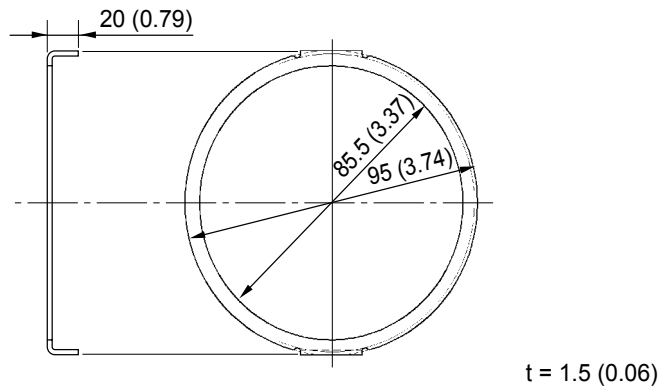


\*Gasket thickness

## FITTING PLATE (OPTIONAL)

This plate is prepared for rough surface for fitting the gauges. For use of the plate, see the gauge installation section.

mm (in.)



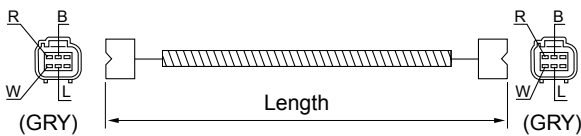
# BUS WIRES AND HUBS SPECIFICATIONS

## BUS WIRE SPECIFICATIONS

### MAIN BUS WIRES

The main bus wire is used for connecting the hub to hub, and supplied the electric source and various signals to the another hub.

The wire-harness with the gray 6-pin coupler is used.

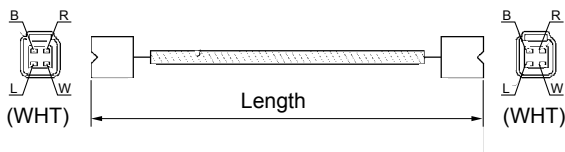


Part No.	Main bus wire length	
6Y8-82553-41	30 ft	9.1 m
6Y8-82553-31	25 ft	7.6 m
6Y8-82553-21	20 ft	6.1 m
6Y8-82553-11	15 ft	4.6 m
6Y8-82553-50	10 ft	3.0 m
6Y8-82553-01	1 ft	0.3 m

### PIGTAIL BUS WIRES

The pigtail bus wire is used for connecting the engine to the hub, and the hub to the gauge.

The wire-harness with the white 4-pin coupler is used.

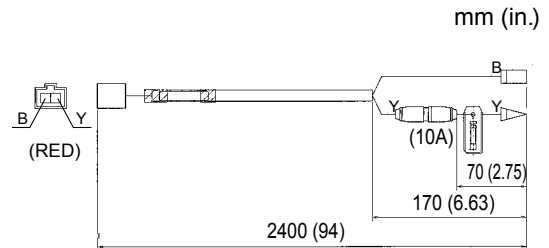


Part No.	Pigtail bus wire length	
6Y8-82521-51	12 ft	3.6 m
6Y8-82521-41	9 ft	2.7 m
6Y8-82521-31	6 ft	1.8 m
6Y8-82521-21	3 ft	0.9 m
6Y8-82521-11	2 ft	0.6 m
6Y8-82521-01	1 ft	0.3 m

## POWER SUPPLY WIRE

This wire is used for connecting the main switch to the hub to supply the electric power to the digital network gauge system.

The wire-harness with the red 2-pin coupler is used.

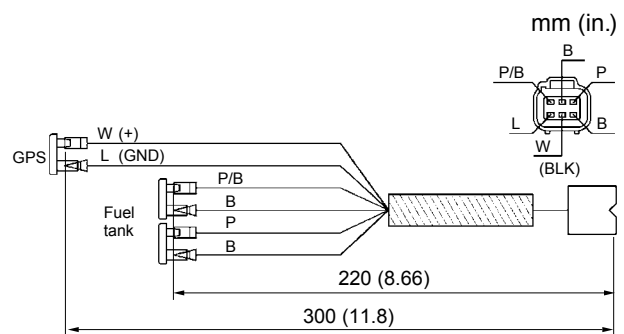


Part No.	Remarks
6Y8-83553-01	With 10 amps fuse

## FUEL TANK AND GPS WIRE

This wire-harness is used for connecting a GPS and fuel sender(s) to the speedometer or combination speedometer and fuel management gauge.

The wire-harness has the black 6-pin coupler for the speedometer, shorter twin 2-bullet connectors for the fuel sender, and longer 2-bullet connector for a NMEA 0183 compatible GPS unit.



Part No.	Remarks
6Y8-8356N-01	Accommodated to twin fuel tank and GPS

### CAUTION:

**Do not connect the GPS and Fuel tank wire to the hub. Electrical components can damage.**



# BUS WIRES AND HUBS SPECIFICATIONS

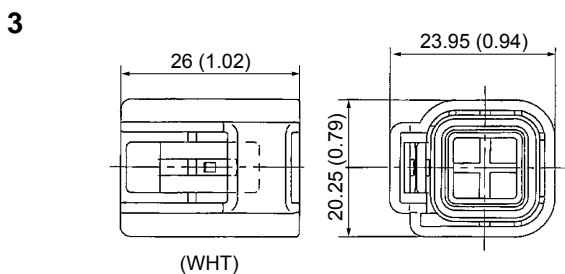
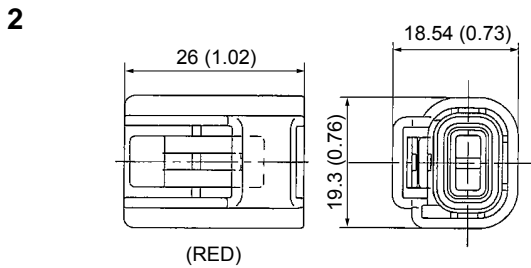
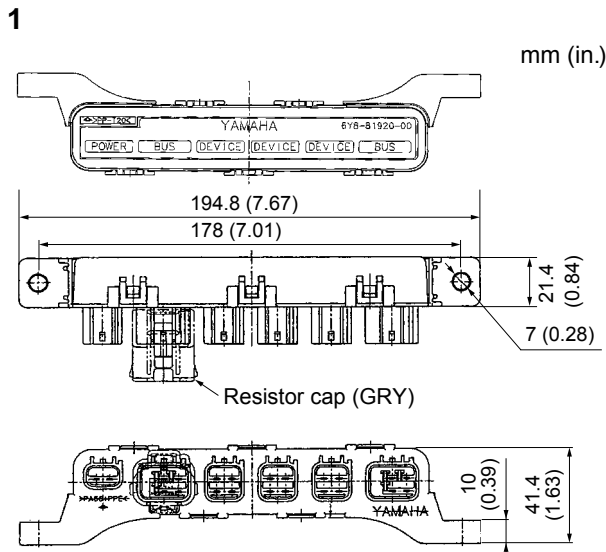
## HUB SPECIFICATIONS

### MULTI-HUB

The multi-hub is usually used to put on the transom and helm areas.

This hub has 6 connectors, 2 for main bus wire, 3 for pigtail bus wire, 1 for power supply wire. If connector is not used, plug it with the genuine waterproof cap.

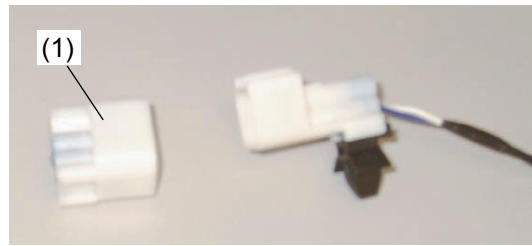
The ending hubs require the resistor cap connected.



Ref.	Part No.	Descriptions
1	6Y8-81920-01	With resistor cap (gray)
2	6Y8-82582-01	2-pin connector waterproof cap (red)
3	6Y8-82582-11	4-pin connector waterproof cap (white)

### NOTE:

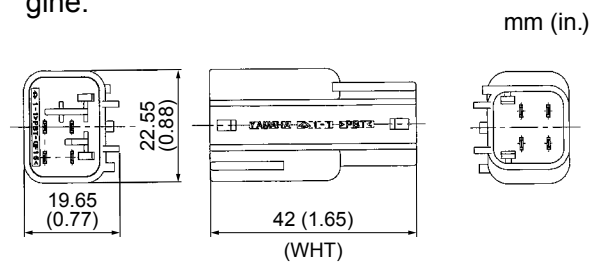
The 4-pin white cap (1) attached to the connector of engine wire-harness can be used as the waterproof cap for the pigtail bus wire of multi-hub.



### SINGLE HUB

The white single hub is especially used for single outboard motor installed without optional transom multi-sensor on the transom area.

This hub is an adapter to change to the main bus wire from the pigtail bus wire from the engine.

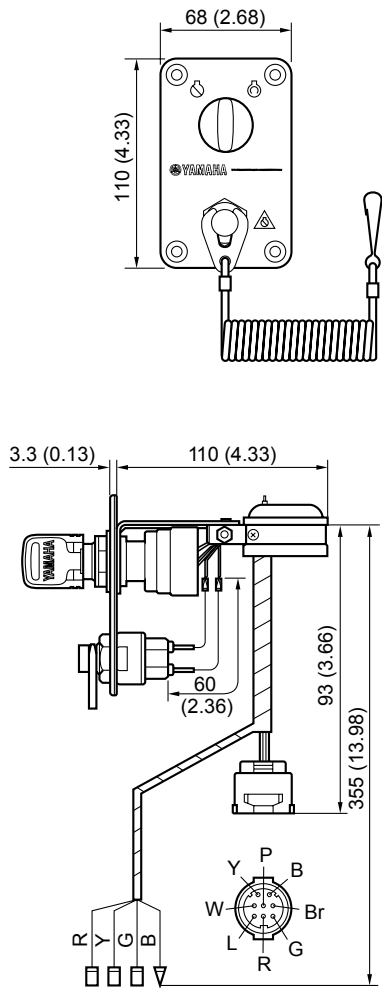


Part No.	Descriptions
6Y8-81920-11	Adapter 4-pin to 6-pin, with ending resistor

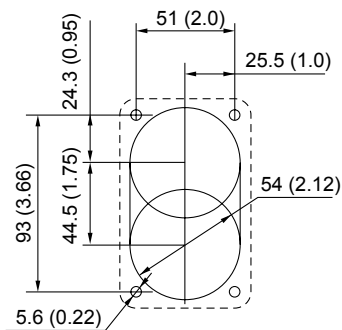
# SWITCH PANEL SPECIFICATIONS

## SINGLE SWITCH PANEL

mm (in.)



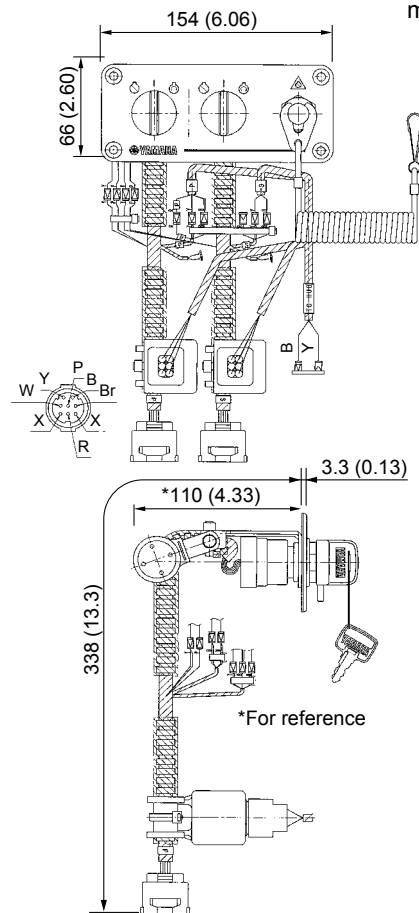
Template



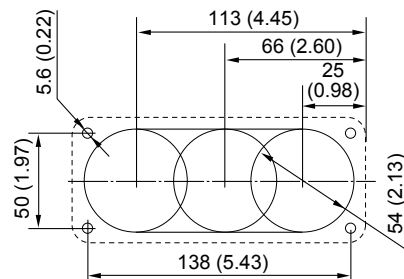
## TWIN-SWITCH PANEL

For twin applications, the dual engine system (DES) is directly controlled by ECU because of the digital network gauge system. Therefore, the control unit located behind the panel is not required, which is obtained a compact twin-switch panel.

mm (in.)



Template



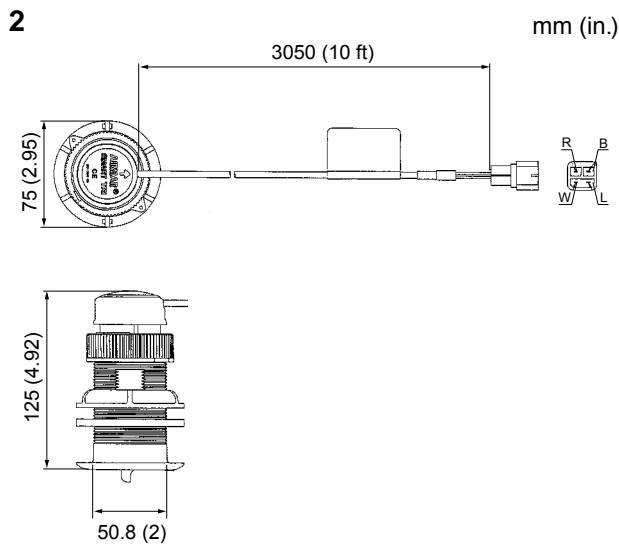
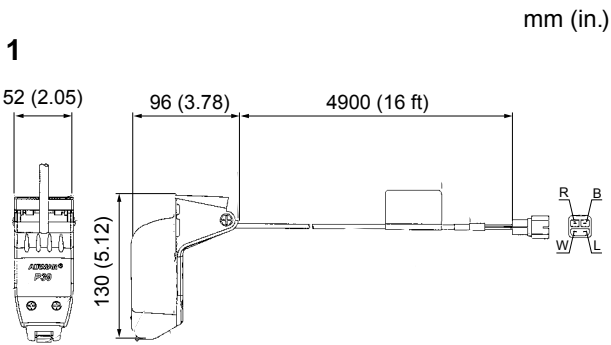
Part No.	Descriptions
704-82570-08	Single application

Part No.	Descriptions
6Y8-82570-01	Twin applications

## MULTI-SENSOR UNIT SPECIFICATIONS

Boat transom or thru-hull mounted optional multi-sensor is provided.

Boat speed, water depth and water surface temperature can be obtained only connecting the sensor cable to the nearest hub.



Ref.	Part No.	Descriptions
1	6Y8-83688-01	Boat transom mount
2	6Y8-83688-11	Thru-hull mount (Plastic)
	6Y8-83688-20	Thru-hull mount (Bronze)

**NOTE:** \_\_\_\_\_  
 For detail information, see the Owners Guide & Installation Instruction supplied in the multi-sensor unit package .

## APPLICABLE OUTBOARD MOTORS

The digital network system for 6Y8 multifunction meter can be used for the fuel injected outboard motors for 2007 model.

## APPLICABLE MODEL

HPDI (Z150-Z300)
------------------

Fuel injected F50-F250
------------------------

# SYSTEM COMPONENTS INSTALLATION

## GAUGE INSTALLATION

1. Select the mounting location so that the gauge is easy to read from the operator, and protected from water-splash, and is a sufficient clearance behind the dashboard.

**NOTE:** \_\_\_\_\_

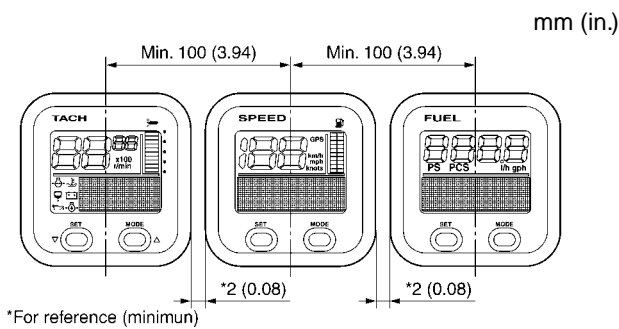
If the mounting panel or dashboard is thicker than 14 mm (9/16 in.), remove the ring nut and overturn.

Thereby, the gauge can be installed to a board which thickness is a maximum of 27 mm (1.06 in.).

2. Drill a 85.5 mm (3 3/8 in.) hole.

**NOTE:** \_\_\_\_\_

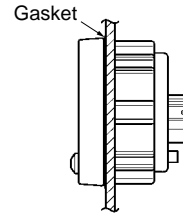
- Mount hole size is the same as the previous gauge.
- The minimum distance between the drilling centers of each gauge has to take 100 mm (4 in.) to avoid the ring nut from interfering.



3. Remove the ring nut (1) from the gauge.




4. Install the gauge into the mounting hole.

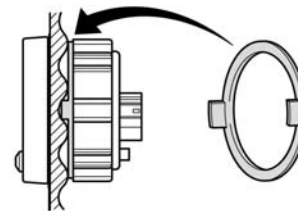


**NOTE:** \_\_\_\_\_  
The arrow mark is stamped on the back of gauge to indicate upside.

5. Reinstall and tighten the ring nut until the gauge can no longer be rotated by hand.

	<p><b>Ring nut torque (for reference):</b> <b>Max. 11.8 Nm, 1.2 kgf·m, 9 lb·ft</b></p>
---	--

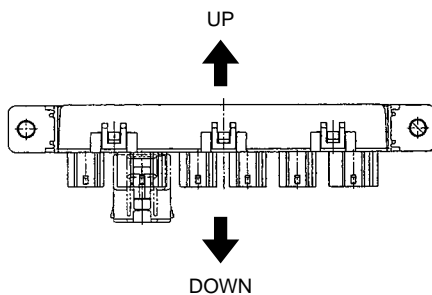
**NOTE:** \_\_\_\_\_  
If the surface for contacting the ring nut is not flat, put the optional fitting plate between the ring nut and unflat surface as shown.



# SYSTEM COMPONENTS INSTALLATION

## HUB INSTALLATION

1. Select the mount position near the helm and transom that is dry area and is easy to connect the wires.
2. Mount the multi-hubs securely using market obtainable stainless steel hardware so that the connector end faces down.

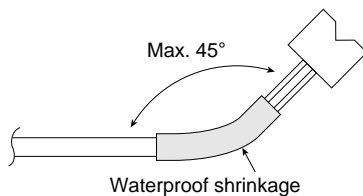


**NOTE:** \_\_\_\_\_

- The multi-hub mount hole diameter is 7 mm (9/32 in.). Therefore, drill 6.5 mm holes, and secure the multi-hub with M6 screws and nuts.
- Resistor (6-P gray cap) has to connect to the ending multi-hubs.

**CAUTION:** \_\_\_\_\_

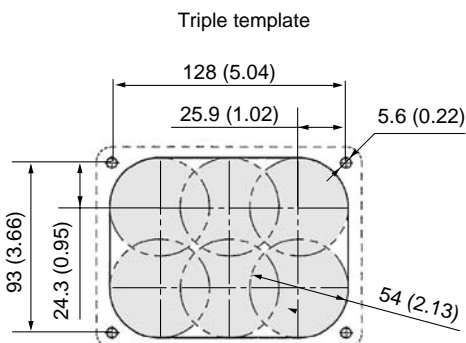
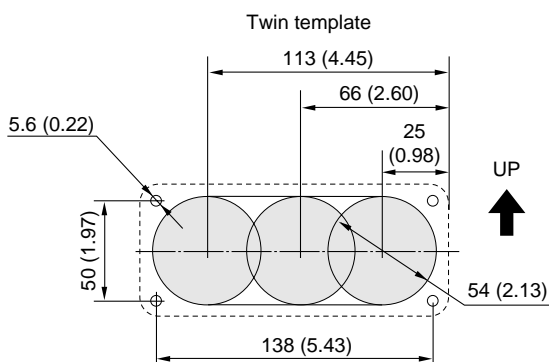
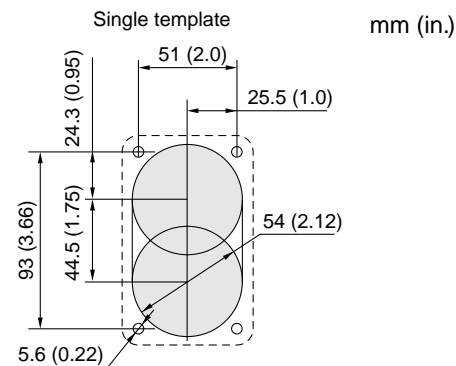
Do not allow the waterproof shrinkage portion of wire to bend sharper. Otherwise, the waterproof structure may damage, causing the system malfunctioned. The bend of 45 degrees or less is allowed.



## SYSTEM COMPONENTS INSTALLATION

### SWITCH PANEL INSTALLATION

1. Select a mount position so that the switch panel is in easy reach from the helm, and the engine shut-off lanyard is not interfered with steering wheel and/or remote control lever.
2. Check behind the dash area for adequate installed clearance.
3. Attach the template to the selected position if necessary.
4. Drill 5.5 mm (7/32 in.) holes, and cut off shaded area.



5. Secure the panel with stainless steel M5 screws and nuts.

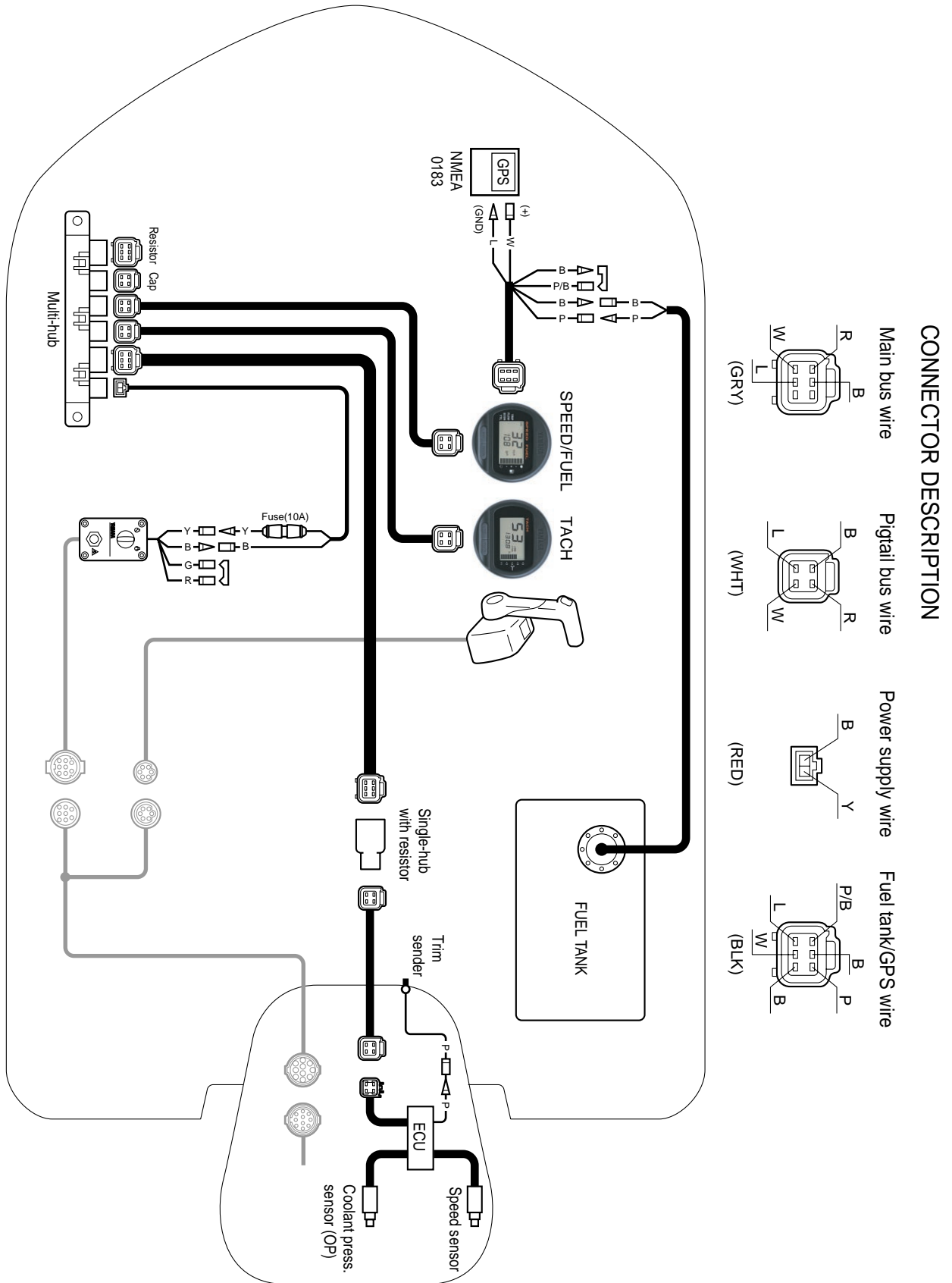
## POWER SUPPLY WIRE INSTALLATION

1. Connect the yellow and black bullet connectors to that of the switch panel.
2. Connect the red 2-pin coupler to the nearest hub.
3. Secure the wire after connection.

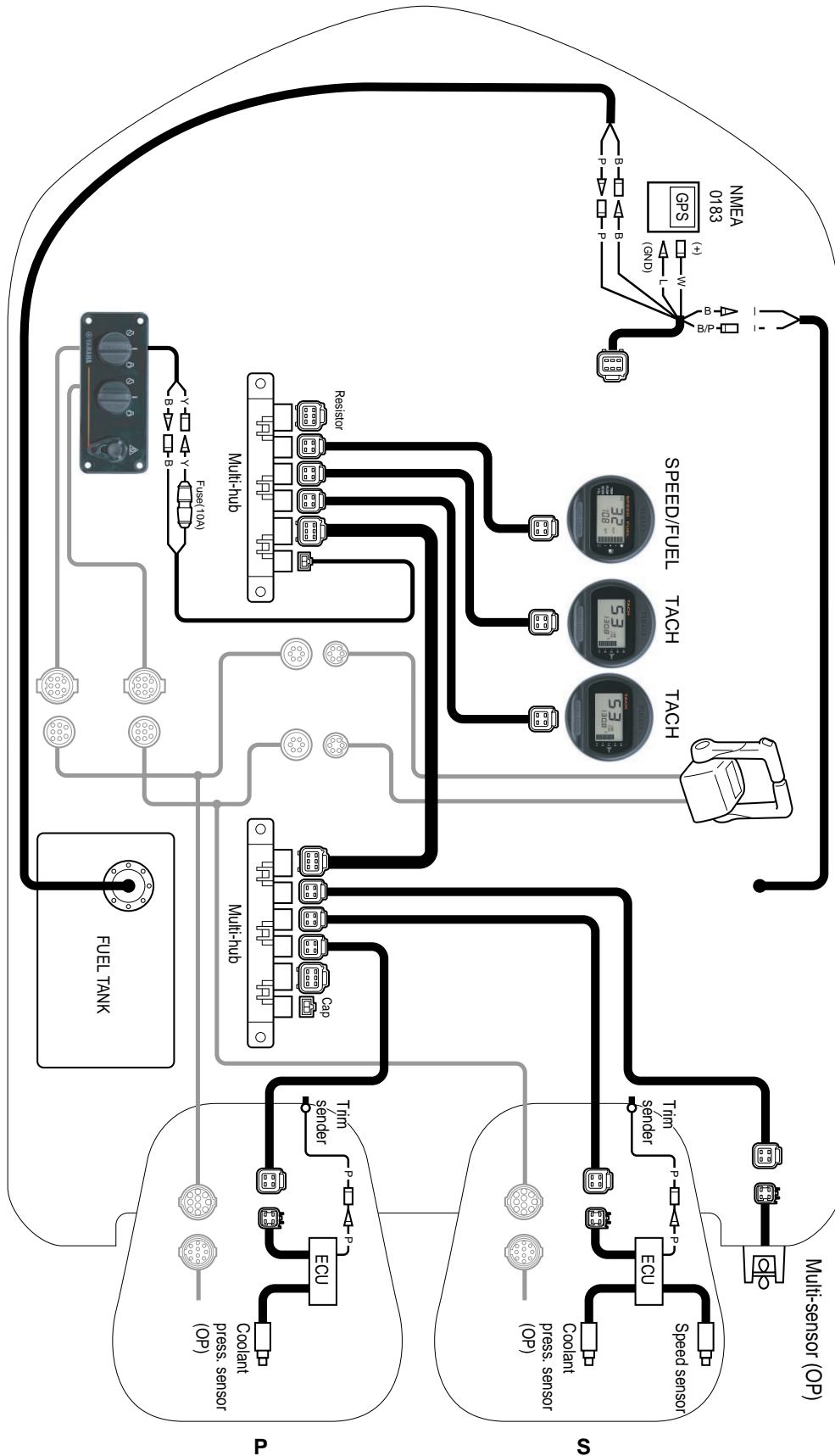
# SYSTEM COMPONENTS CONNECTIONS

The wiring connection shown in this chapter is a general diagram.

## SINGLE-ENGINE WIRING



# SYSTEM COMPONENTS CONNECTIONS TWIN-ENGINE WIRING



CONNECTOR DESCRIPTION	
	Main bus wire (GRY)
	Pigtail bus wire (WHT)
	Power supply wire (RED)
	Fuel tank/GPS wire (BLK)



## BUS WIRE CONNECTION AT ENGINE

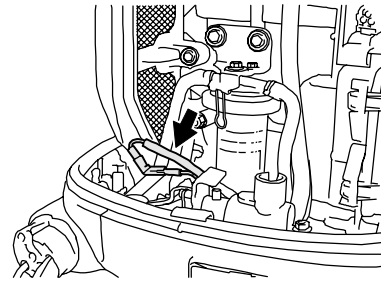
### TRIM SIGNAL WIRE CONNECTION

Connect the pink lead coupler (white: 1-pin) each other. This is to input the trim signal into the ECU to show the trim angle on the tachometer. The location of white 1-pin coupler is shown in the illustration below.

**NOTE:** \_\_\_\_\_

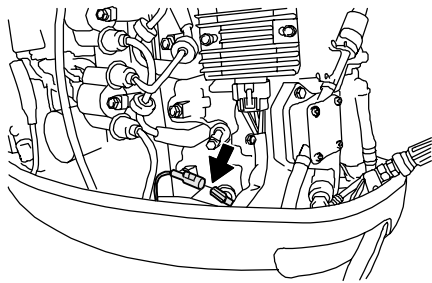
The trim signal wire with white 1-pin coupler for 6Y8 multifunction meter is attached to the engine wire-harness with yellow tape, and the coupler is unconnected at the factory. \_\_\_\_\_

150



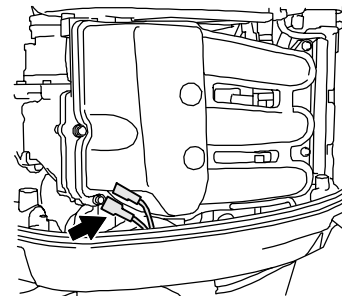
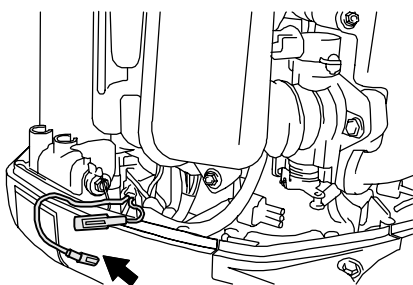
..

50-60



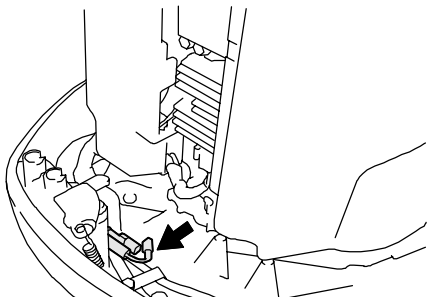
200, 225, 250  
w/ Variable Camshaft Timing

100



..

115



# BUS WIRE CONNECTION AT ENGINE

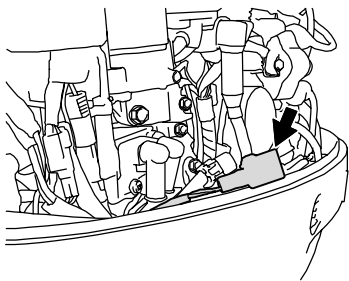
## PIGTAIL BUS WIRE CONNECTION

This is to send the digital signal to the gauges from the ECU.  
For detail setup information, see the applicable installation manual.

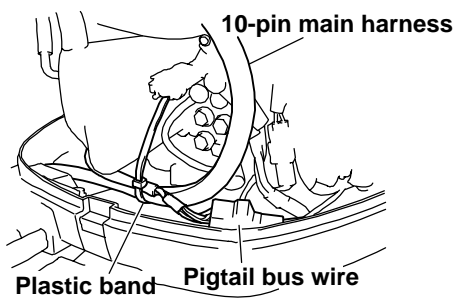
### 50-60

Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

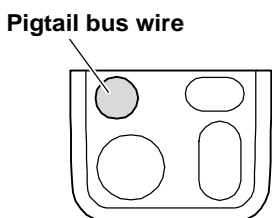
**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.



Secure the pigtail bus wire to the 10-pin main harness using a plastic band.



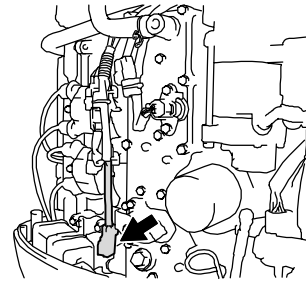
Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.



### 100

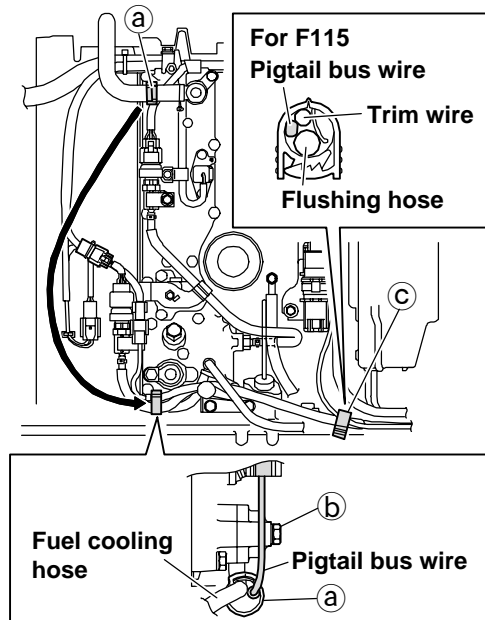
Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.

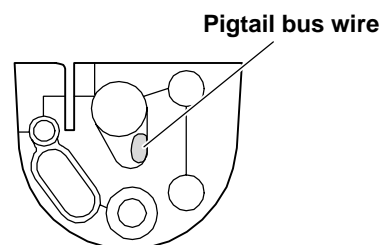


Remove the plastic holder (a), and secure the pigtail bus wire and fuel cooling hose reusing the plastic holder positioned 100 mm (3.9 in.) from the end of coupler. (under the anode (b))

**For 115,** secure the pigtail bus wire and flushing hose reusing plastic holder (c).



Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.

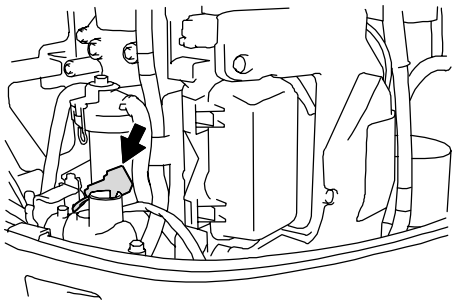


## BUS WIRE CONNECTION AT ENGINE

### 150

Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

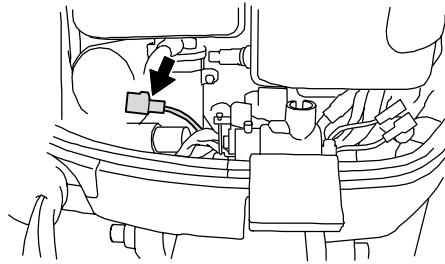
**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.



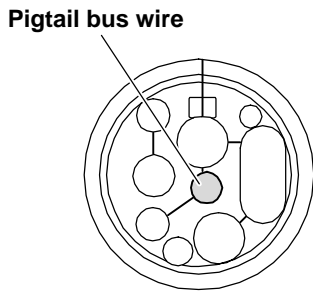
### F200, F225

Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

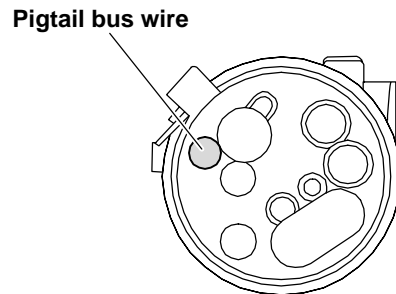
**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.



Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.



Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.

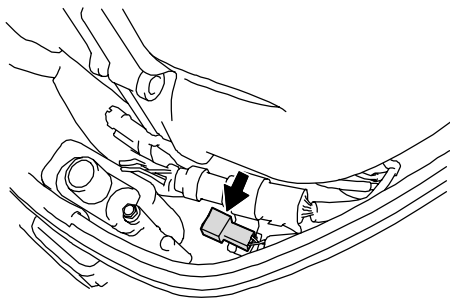


# BUS WIRE CONNECTION AT ENGINE

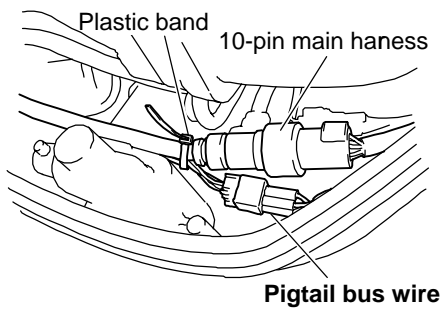
## 200, 225, 250 w/ Variable Camshaft Timing

Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

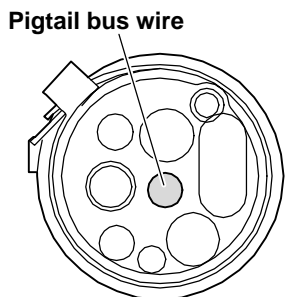
**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.  
\_\_\_\_\_



Secure the pigtail bus wire to the 10-pin main harness using a plastic band.



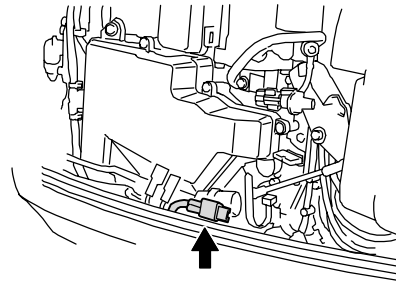
Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.



## HPDI models

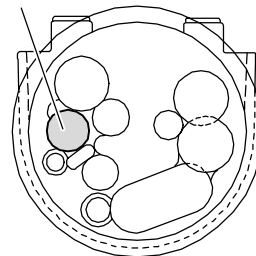
Remove the white 4-pin cap, and connect the pigtail bus wire to the white 4-pin coupler of engine wire-harness.

**NOTE:** \_\_\_\_\_  
The removed white 4-pin cap can be used as the waterproof cap for multi-hub.  
\_\_\_\_\_



Pass the pigtail bus wire into the specified position of grommet, and connect it to the transom hub.

Pigtail bus wire



## SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

Two sensor kits are prepared for the digital network system for 6Y8 multifunction meter.

The speed sensor kit is required for the speedometer to show the water speed of boat, picking up the dynamic water pressure from the pitot tube.

The coolant pressure kit is required for the tachometer to show the coolant pressure of engine water jacket.

If the outboard motor is mounted with an elevated position, the coolant pressure sensor will be very useful to avoid lack of coolant supply.

### NOTE:

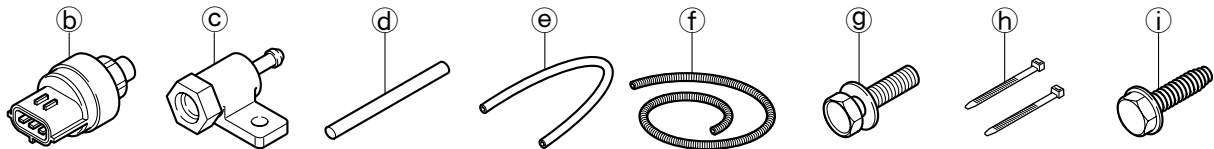
- Speed data can be input from a NMEA 0183 compatible GPS unit.
- After the coolant pressure sensor is installed, set up the tachometer to show the coolant pressure gauge.

## SPEED SENSOR KIT CONTENTS

50-250

KIT P/N: 60V-8A4L1-01

Ref.	Part name	P/N	Q'ty	Remarks
ⓑ	Speed sensor	6Y5-8366B-00	1	
ⓒ	Connector 3	60V-8366D-00	1	For speed sensor
ⓓ	Rubber seal 2	60V-42629-00	1	From 100 to 250
ⓔ	Hose (L=55 cm, 22 in.)	90445-07017	1	From 150 to 250 Cut off to specific length on model
ⓕ	Corrugated tube (L=70 cm, 28 in.)	90447-07013	1	From 100 to 250 Cut off to specific length on model
ⓖ	Bolt (L=16 mm, 0.63 in.)	97595-06516	1	From 150 to 150
ⓗ	Clamp	90465-11M10	2	Use 1 clamp for 50-100
Ⓢ	Tapping bolt (L=25 mm, 1 in.)	90109-06M81	1	For 200-250
	Installation manual	6Y5-2819K-90	1	English



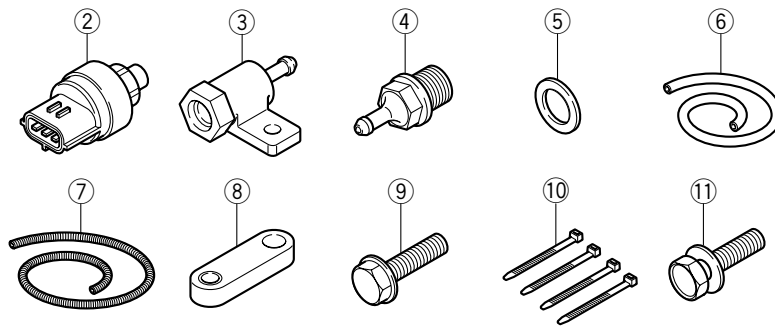
## SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

### COOLANT PRESSURE SENSOR KIT CONTENTS (OPTIONAL)

**50-115**

**KIT P/N: 60V-8A4L0-01**

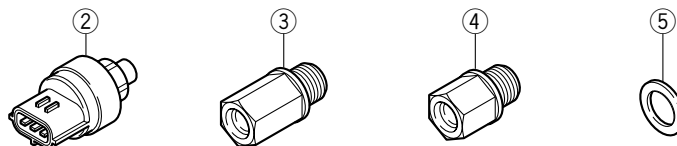
Ref.	Part name	P/N	Q'ty	Remarks
②	Coolant pressure sensor	6Y5-8366B-00	1	
③	Connector 3	60V-8366D-00	1	For coolant pressure sensor
④	Adapter	60V-83667-00	1	
⑤	Gasket	90430-14115	1	For adapter
⑥	Hose (L=140 cm, 55 in.)	90445-07018	1	Cut off to specific length on model
⑦	Corrugated tube (L=130 cm, 51 in.)	90447-07015	1	Cut off to specific length on model
⑧				
⑨	Bolt (L=25 mm, 1 in.)	95895-06025	1	For 100-115
⑩	Clamp	90465-11M10	4	2 clamps for 50-115
⑪	Bolt (L=16 mm, 0.63 in.)	97595-06516	1	For 50-60
	Installation manual	6Y5-2819K-90	1	English



**150-250**

**KIT P/N: 69J-8A4L0-00**

Ref.	Part name	P/N	Q'ty	Remarks
②	Coolant pressure sensor	6Y5-8366B-00	1	
③				
④	Connector 2 (Short)	63P-8366C-00	1	For 150, 200-250 w/Variable Camshaft Timing
⑤	Gasket	90430-14115	1	
	Installation manual	6Y5-2819K-90	1	English



## **SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION INSTALLATION DESCRIPTION**

The sensors are used to pick up the pitot tube water pressure and the coolant pressure, and input the pressure data into the ECU to calculate them for 6Y8 multifunction meter.

Follow the procedure to install the sensors after the basic digital network system components have been set up.

### **CAUTION:**

---

- **Do not tighten the sensor using its plastic portion. Therefore, the sensor can result in damage. Tighten the sensor using metallic hexagon portion.**
  - **Check the rubber seal in 3-P coupler for proper position before the coupler is connected to the optional sensor.**
  - **Check the joints for water leakage after the optional sensor has been installed.**
  - **Do not allow the wires and/or tubes to interfere with moving parts and/or sharper edges, and to make loose wiring.**
- 

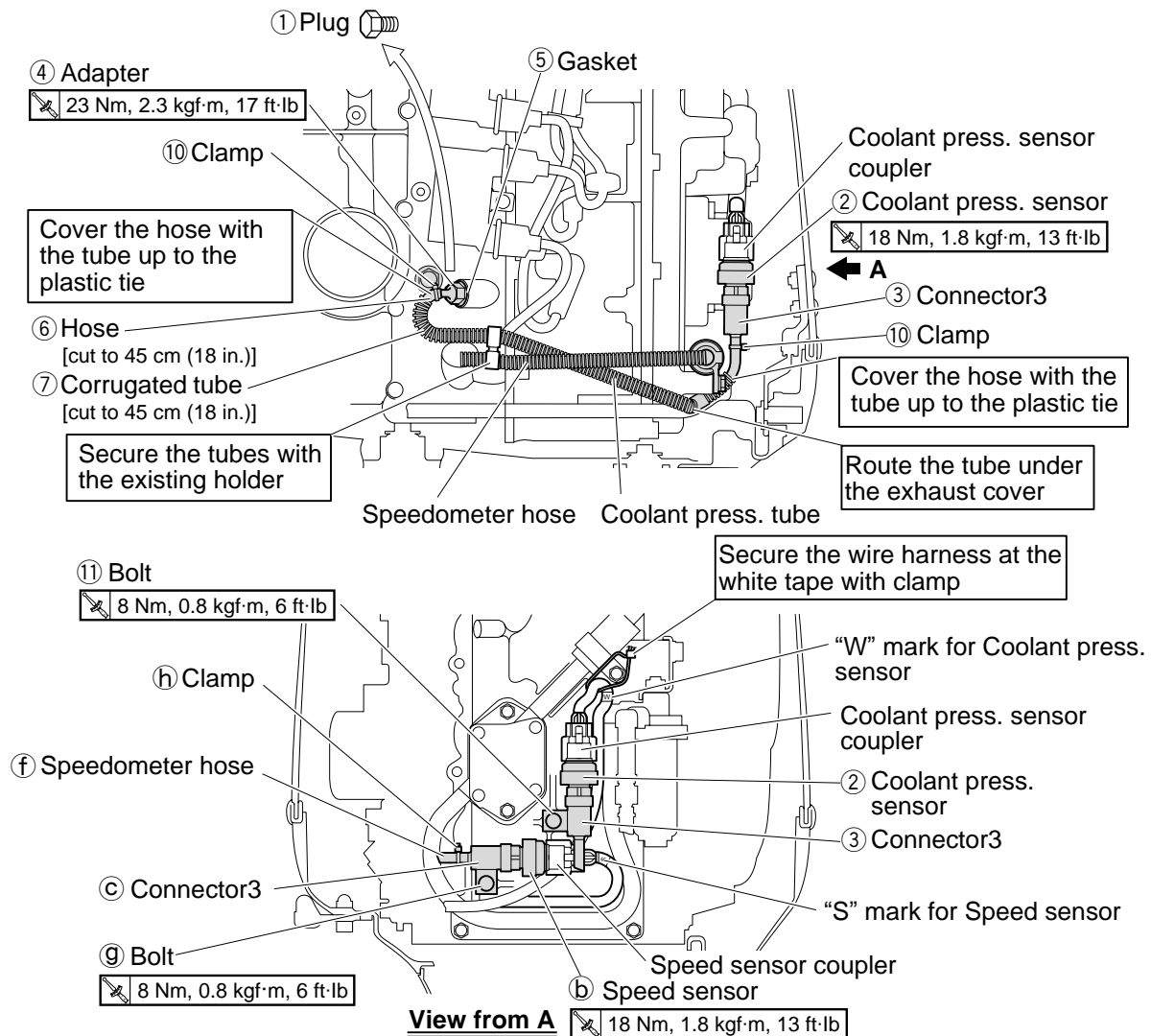
### **NOTE:**

---

For detail information to install the sensors, see the installation manual (P/N : 6Y5-2819K-90) supplied with the sensor kit.

---

# SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION 50-60



## COOLANT PRESSURE SENSOR INSTALLATION

1. Remove the plug ① from the exhaust cover.
2. Install the adapter ④ with gasket ⑤, and tighten the adapter to the specific torque.
3. Install the coolant press. sensor ② to the connector3 ③ with the specific torque.
4. Install the connector3 ③ with sensor using the bolt ⑪ to the cylinder head cover with specific torque.
5. Cut off the hose ⑥ and the corrugated tube ⑦ to the specific length, and install them between the adapter ④ and the connector3 ③.
6. Secure the hose with the clamp ⑩.
7. Remove the coupler marked "W" from the holder, and connect it to the coolant press. sensor ② after removing the 3-pin cap.

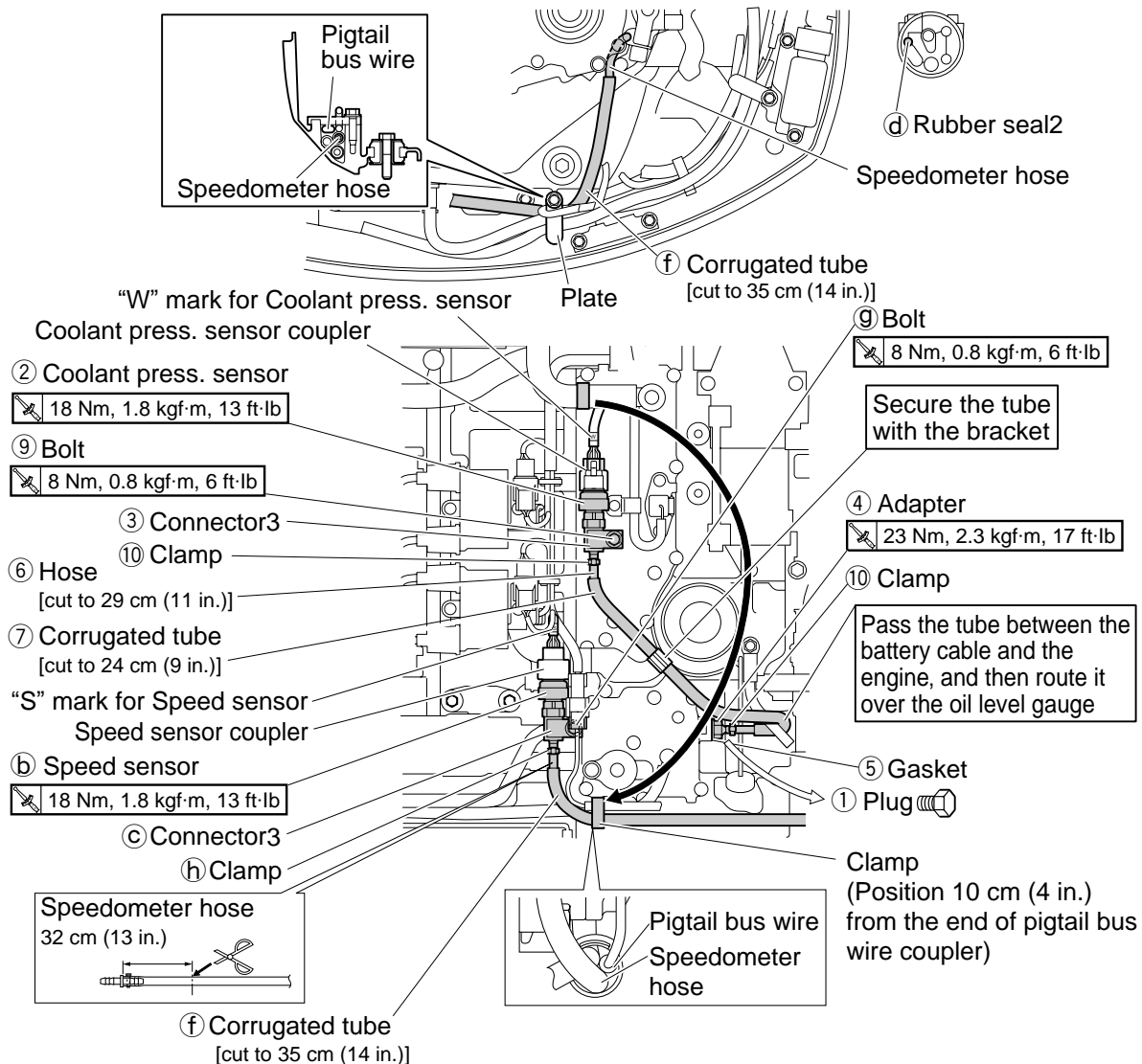
## SPEED SENSOR INSTALLATION

1. Remove the nipple from speedometer hose.
2. Install the speed sensor ⑬ to the connector3 ⑭ with the specific torque.
3. Install the connector3 ⑭ with sensor using the bolt ⑨ to the cylinder head cover with specific torque.
4. Install the speedometer hose ⑮ with corrugated tube to the connector3 ⑭, and secure the hose with the clamp ⑨.
5. Remove the coupler marked "S" from the holder, and connect it to the speed sensor ⑬ after removing the 3-pin cap.



# SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

## 100



### COOLANT PRESSURE SENSOR INSTALLATION

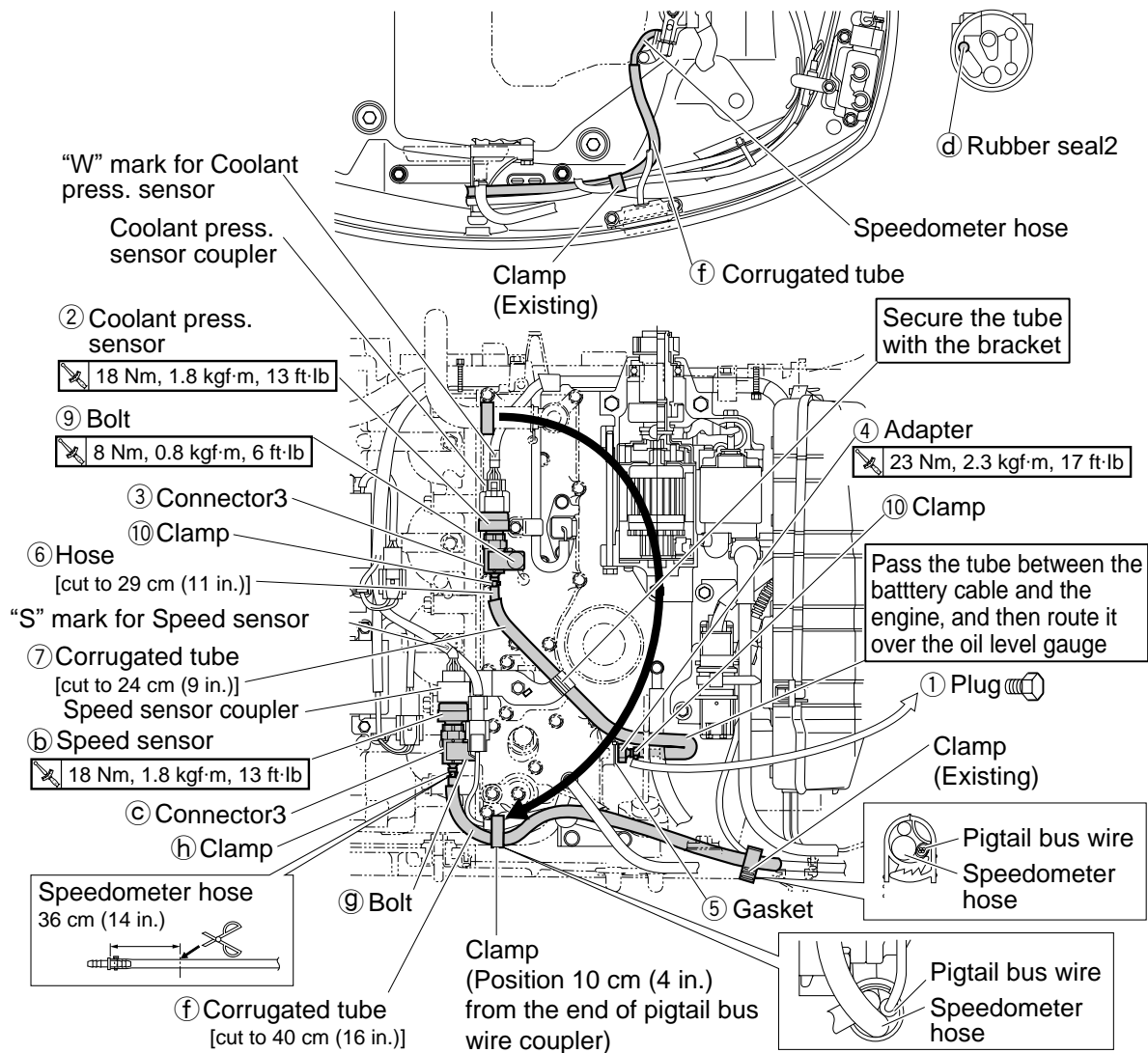
1. Remove the plug ① from cylinder body.
2. Install the adapter ④ with gasket ⑤, and tighten the adapter to the specific torque.
3. Install the coolant press. sensor ② to the connector3 ③ with the specific torque.
4. Install the connector3 ③ with sensor using the bolt ⑨ to the exhaust cover with specific torque.
5. Cut off the hose ⑥ and the corrugated tube ⑦ to the specific length, and install them between the adapter ④ and the connector3 ③.
6. Secure the hose with the clamp ⑩.
7. Remove the coupler marked "W" from the holder, and connect it to the coolant press. sensor ② after removing the 3-pin cap.

### SPEED SENSOR INSTALLATION

1. Remove the speedometer hose from the rigging grommet, and put the hose into the bottom cowl.
2. Cut out the speedometer hose 32 cm (13 in.) from its end.
3. Install the speed sensor ⑥ to the connector3 ③ with the specific torque.
4. Install the connector3 ③ with sensor using the bolt ⑨ to the exhaust cover with specific torque.
5. Cut off the corrugated tube ⑦ to the specific length.
6. Install the speedometer hose with corrugated tube ⑦ to the connector3 ③, and secure the hose with the clamp ⑩.
7. Remove the coupler marked "S" from the holder, and connect it to the speed sensor ⑥ after removing the 3-pin cap.
8. Install the rubber seal2 ④ into the rigging grommet to waterproof.

# SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

## 115



### COOLANT PRESSURE SENSOR INSTALLATION

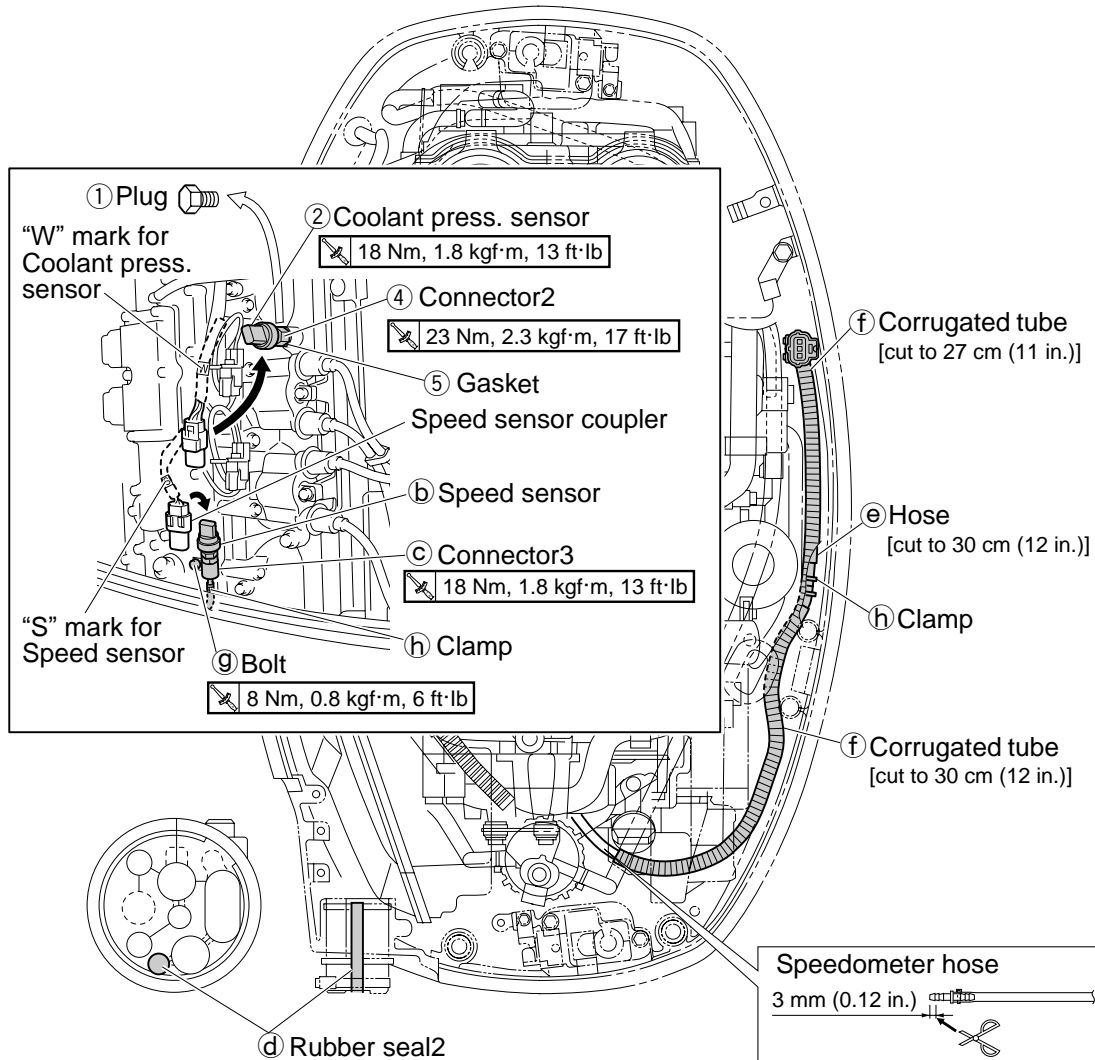
1. Remove the plug ① from cylinder body.
2. Install the adapter ④ with gasket ⑤, and tighten the adapter to the specific torque.
3. Install the coolant press. sensor ② to the connector3 ③ with the specific torque.
4. Install the connector3 ③ with sensor using the bolt ⑨ to the exhaust cover with specific torque.
5. Cut off the hose ⑥ and the corrugated tube ⑦ to the specific length, and install them between the adapter and the connector.
6. Secure the hose with the clamps ⑩.
7. Remove the coupler marked “W” from the holder, and connect it to the coolant press. sensor ② after removing the 3-pin cap.

### SPEED SENSOR INSTALLATION

1. Remove the speedometer hose from the rigging grommet, and put the hose into the bottom cowl.
2. Cut out the speedometer hose 36 cm (14 in.) from its end.
3. Install the speed sensor ⑧ to the connector3 ③ with the specific torque.
4. Install the connector3 ③ with sensor using the bolt ⑨ to the exhaust cover with specific torque.
5. Cut off the corrugated tube ⑦ to the specific length.
6. Install the speedometer hose with corrugated tube ⑦ to the connector3 ③, and secure the hose with the clamp ⑩.
7. Remove the coupler marked “S” from the holder, and connect it to the speed sensor ⑧ after removing the 3-pin cap.
8. Install the rubber seal2 ④ into the rigging grommet to waterproof.

# SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

## 150



### COOLANT PRESSURE SENSOR INSTALLATION

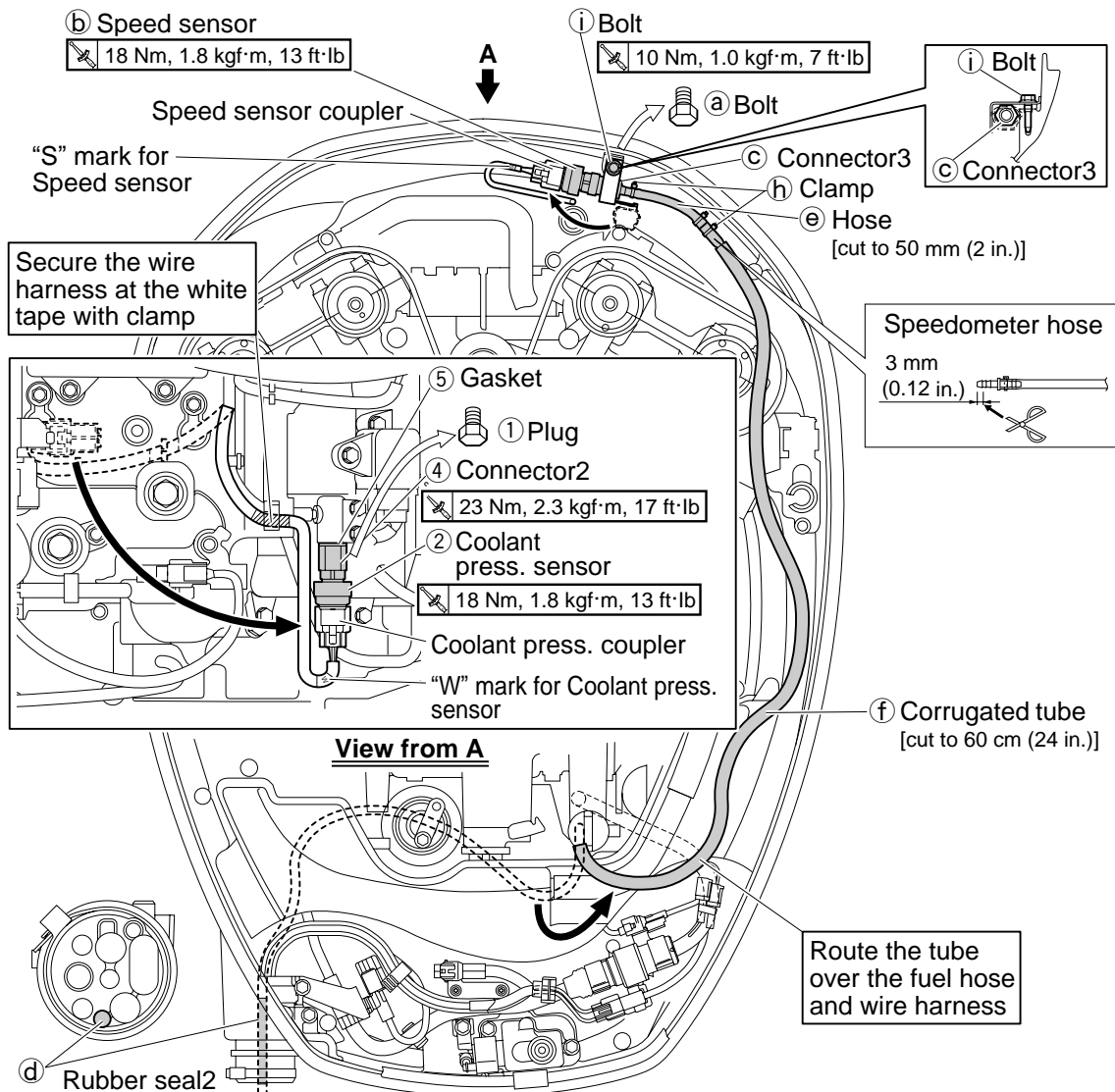
1. Remove the plug ① from the cylinder head.
2. Install the connector2 ④ with gasket ⑤, and tighten the connector2 to the specific torque.
3. Install the coolant press. sensor ② onto the connector2 ④ with the specific torque.
4. Remove the coupler marked "W" from the holder, and connect it to the coolant press. sensor ② after removing the 3-pin cap.

### SPEED SENSOR INSTALLATION

1. Remove the speedometer hose from the rigging grommet, and put the hose into the bottom cowl.
2. Cut out 3 mm (0.12 in.) from the end of nipple of speedometer hose.
3. Cut off the hose ⑤ and the corrugated tube ⑥ to the specific length, and install them to the speedometer hose to extend.
4. Install the speed sensor ⑥ to the connector3 ③ with the specific torque.
5. Install the connector3 ③ with sensor using the bolt ⑧ to the cylinder body with specific torque.
6. Install the hose ⑤ with corrugated tube ⑥ to the connector3 ③, and secure the hose with the clamps ④.
7. Remove the coupler marked "S" from the holder, and connect it to the speed sensor ⑥ after removing the 3-pin cap.
8. Install the rubber seal2 ② into the rigging grommet to waterproof.

# SPEED SENSOR & COOLANT PRESSURE SENSOR INSTALLATION

## 200,225, 250 w/Variable Camshaft Timing



### COOLANT PRESSURE SENSOR INSTALLATION

1. Remove the plug ① from the bracket.
2. Install the connector2 ④ with gasket ⑤, and tighten the connector2 to the specific torque.
3. Install the coolant press. sensor ② onto the connector2 ④ with the specific torque.
4. Remove the coupler marked "W" from the holder, and connect it to the coolant press. sensor ② after removing the 3-pin cap.

### SPEED SENSOR INSTALLATION

1. Remove the speedometer hose from the ringing grommet, and put the hose into the bottom cowl.
2. Cut out 3 mm (0.12 in.) from the end of nipple of speedometer hose.
3. Cut off the hose ⑤ and the corrugated tube ⑥ to the specific length, and install them to the speedometer hose to extend and protect.
4. Remove the bolt ① and its bracket from the bottom cowl.
5. Install the speed sensor ② to the connector3 ③ with the specific torque.
6. Install the connector3 ③ with sensor and bracket using the bolt ① to the bottom cowl with specific torque.
7. Install the hose ⑤ to the connector3 ③, and secure the hose with the clamps ④.
8. Remove the coupler marked "S" from the holder, and connect it to the speed sensor ② after removing the 3-pin cap.
9. Install the rubber seal2 ① into the rigging grommet to waterproof.

## GAUGE CUSTOMIZATION DESCRIPTION

After the digital network system components with 6Y8 multifunction meter were installed, the initial setup is required for the engine application, boat specifications, and/or user's preference. If the initial setup is not performed, the gauges can show wrong values and/or graphs.

### 1ST STEP FOR INITIAL SETUP PROCEDURE

If two or more engines with 6Y8 multifunction meter are installed, at the first, the engine ignition switches have to be turned to ON in order from Port to Starboard engine in 2 seconds and more interval. If the other ignition switch was next turned to ON, it is recognized as No.2 engine. Therefore, the engine ignition switches should be turned to ON in order from Port to Starboard for easier recognition. Besides, the fuel management gauge has been programmed to recognize No.1, No.2, No.3 and No.4 engine in order from Portside.

**NOTE:** \_\_\_\_\_

- If single engine has been installed, the initial engine number recognition setup is not required.
  - When the initial recognition setup has been stumbled, reset the engine numbers and perform it again following Gauge Customization procedure.
- 

### GAUGE BUTTON OPERATIONS

The example of button operation is described in this chapter as follows.

**SET** OR **set**

Press the SET button.

**MODE** OR **mode**

Press the MODE button.

**MODE** or **mode** (4 seconds)

Press the MODE button for 4 seconds.

# ROUND TACHOMETER CUSTOMIZATION

## 03 (setting corresponding engine)

You can select the engines that are compatible to this meter. The port outboard motor is set to engine number one (-1-) and the starboard outboard motor is set to engine number two (-2-).

1. Turn the engine off and the engine start switch to ON.
2. **mode** (4 seconds): To activate the custom mode.
3. **mode** (1 second) (2 times): Press to switch among the setting function numbers and to switch to the change settings display.

01 (setting maintenance intervals)

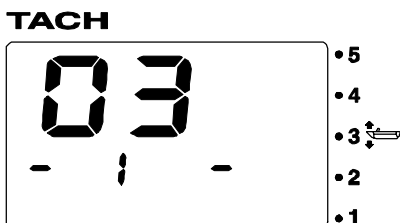
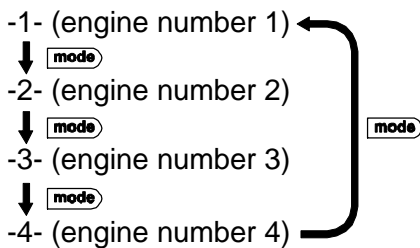
↓ **mode** (1 sec.)

02 (setting trim angle)

↓ **mode** (1 sec.)

**03 (setting corresponding engine)**

4. **mode** : To switch among the displayed engine numbers.



5. **set** (1 second): To change the corresponding engine and return to the normal display.

**NOTE:** \_\_\_\_\_

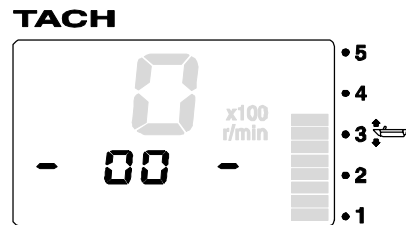
- The meters are set at the factory to “-1- (engine number 1).”
- To reset an engine number, see “Resetting engine number.”

## RESETTING ENGINE NUMBER

If the engine numbers have been wrongly setup, you can reset all the engine numbers to -1- (engine number 1).

When performing the setup procedures again, reset all the engine numbers.

1. Turn the engine off and the engine start switch to ON.
2. **set** (10 seconds): Shows “-00-” in the display.
3. Turn the engines off, and wait for 10 seconds to reset the engine numbers.
4. Turn the start switch on again from the port engine at over 2 seconds interval to memorize the correct engine numbers.



**NOTE:** \_\_\_\_\_

- The engine numbers are memorized in the ECU of each engine for engine recognition.
- The engine numbers are memorized in the ECU when the engine start switch is first turned to ON after being connected. The numbers are memorized in order from number one to number four starting from the port outboard motor. When two or more outboard motors are installed, be sure to wait at least 2 seconds before turning each engine start switch to ON.

## ROUND TACHOMETER CUSTOMIZATION

### 02 (setting trim angle)

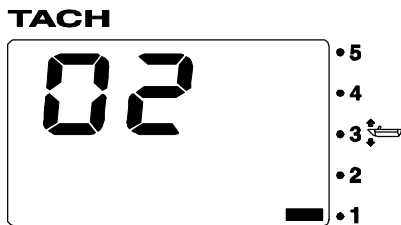
If the trim gauge has shown wrong angle, you can reset the trim angle to zero when the outboard motor is fully trimmed in.

1. Turn the engine off and the engine start switch to ON.
2. **mode** (4 seconds): To activate the custom mode.
3. **mode** (1 second): To switch between the setting function numbers and to switch to the zero adjustment display.

01 (setting maintenance intervals)

↓ **mode** (1 sec.)

### 02 (setting trim angle)



4. **set** + **mode** (1 second): To adjust the trim angle to zero using the current trim position as the standard value and return to the normal display.

#### NOTE:

Press the **set** button for 1 second from step 3 to cancel the adjustment of the trim angle to zero and return to the normal display.

## RND COMB. SPEEDOMETER AND FUEL MGT GAUGE CUSTOMIZATION

### 02 (selecting fuel sensor)

You can select the fuel sensor type that is connected to this meter.

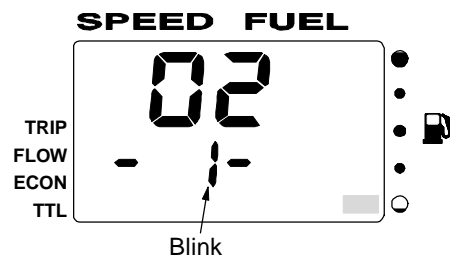
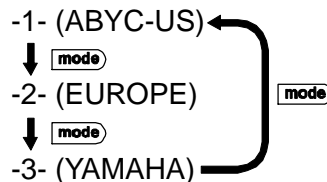
1. Turn the engine off and the engine start switch to ON.
2. **mode** (4 seconds): To activate the custom mode.
3. **mode** (1 second): To switch between the setting function numbers and to switch to the change settings display.

01 (setting displayed units)

↓ **mode** (1 sec.)

### 02 (selecting fuel sensor)

4. **mode** : Press to switch among the fuel sensor types.



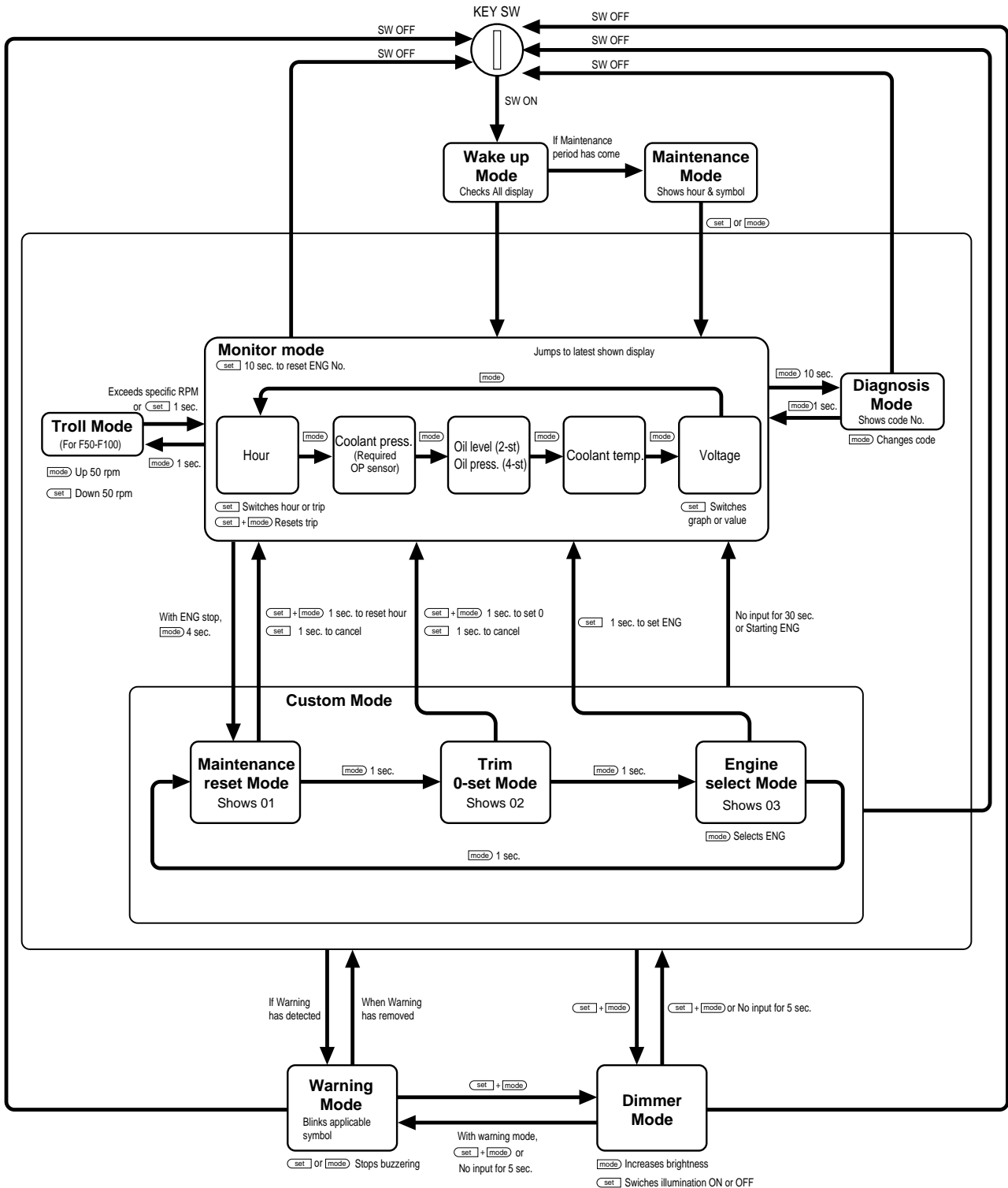
5. **set** (1 second): To change the fuel sensor type and return to the normal display.

# ROUND TACHOMETER OPERATION FLOW CHART

[mode] Pushing MODE button

[set] Pushing SET button

[set] + [mode] Pushing both buttons



Initial setting contents	
Voltage	Graph
Hour	Elapsed hour
Illumination	Level 1 & OFF
Engine selection	No. 1
Monitor	Coolant temp.

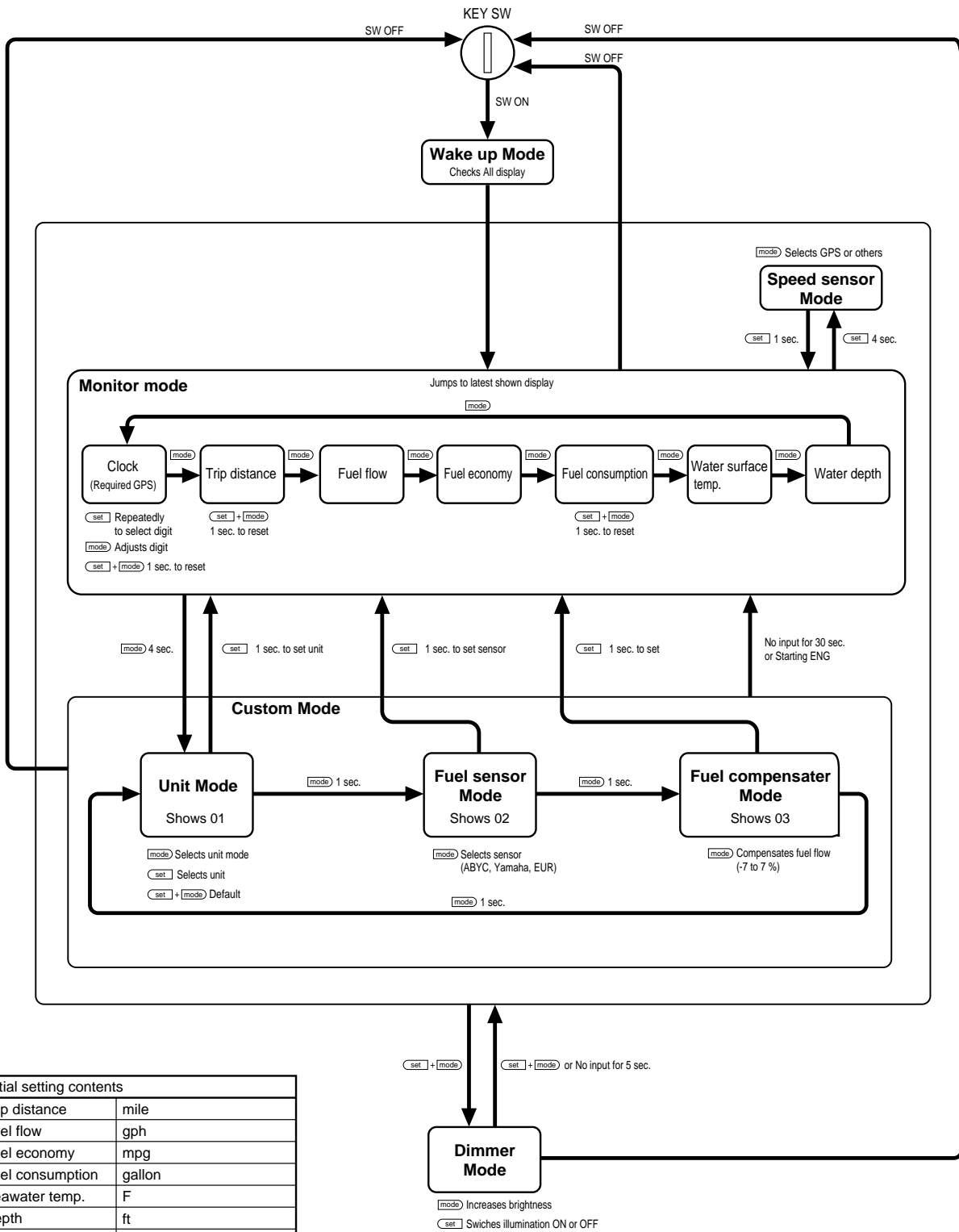


# RND COMB. SPEEDOMETER AND FUEL MGT GAUGE OPERATION FLOW CHART

**mode** Pushing MODE button

**set** Pushing SET button

**set + mode** Pushing both buttons



Initial setting contents	
Trip distance	mile
Fuel flow	gph
Fuel economy	mpg
Fuel consumption	gallon
Seawater temp.	F
Depth	ft
Clock	ON
Speed	mph
Speed sensor	All automatic
Fuel sensor	ABYC
Illumination	Level 1 & OFF
Monotor	Fuel flow mode

