

OPERATION MANUAL

MARINE INSTRUMENT PANEL

3G

en English

YANMAR

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MARINE INSTRUMENT PANEL

OPERATION MANUAL

Thank you for purchasing a YANMAR Marine Instrument Panel.

[INTRODUCTION]

- This Operation Manual describes the operation, maintenance and inspection of the YANMAR marine instrument panel.
- Read this Operation Manual carefully before operating the engine to ensure that the engine is used correctly and that it stays in the best possible condition.
- Keep this Operation Manual in a convenient place for easy access.
- If this Operation Manual is lost or damaged, order a new one from your authorized YANMAR dealer or distributor.
- Make sure this manual is transferred to subsequent owners. This manual should be considered a permanent part of the engine and remain with it.
- Constant efforts are made to improve the quality and performance of YANMAR products, so some details included in this Operation Manual may differ slightly from your engine. If you have any questions about such differences, please contact your authorized YANMAR dealer or distributor.

Please review and comply with the applicable laws and regulations of the international export control regimes at the territory or country where the product and manual are intended to be imported and used.

| | | |
|------------------|-------|----------------------------|
| OPERATION MANUAL | MODEL | 3G MARINE INSTRUMENT PANEL |
| | CODE | 0A03G-EN0010 |

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Operation
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FOR YOUR SAFETY

Following the precautions described in this manual will enable you to use this engine with complete satisfaction. Failure to observe any of the rules and precautions, however, may result in injury, burns, fires, and engine damage. Read this manual carefully and be sure you fully understand it before beginning operation.

Safety symbols

This chapter describes the safety labels used in this manual. They contain important symbols and warnings that are necessary to operate this product safely.

These are the warning signs used in this manual.



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

 **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which can cause damage to the machine, personal property and/or the environment or cause the equipment to operate improperly.

Safety Precautions

WARNING

Fires from electric short-circuits

- Always turn off the battery switch or detach the earth cable (-) before you inspect the electrical system.

A short-circuit can cause a fire.



NOTICE

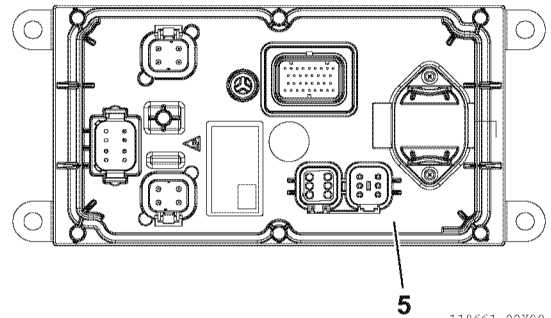
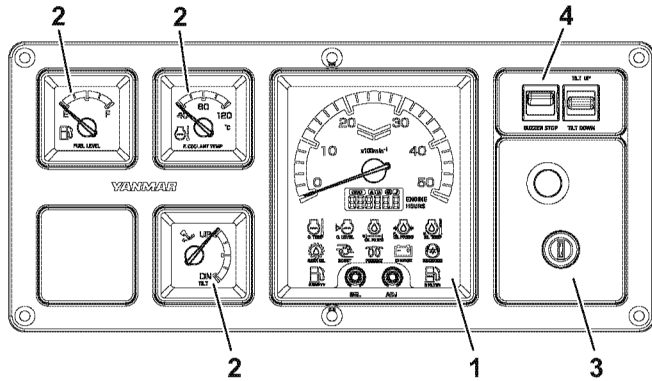
Do not customize the product or install additional systems to it. Doing so may damage the product. If you have any questions, contact your Yanmar dealer or distributor.

PRODUCT OVERVIEW

Component

3G marine instrument panel comes in three types: B, C and D. The optional parts vary depending on the type and engine.

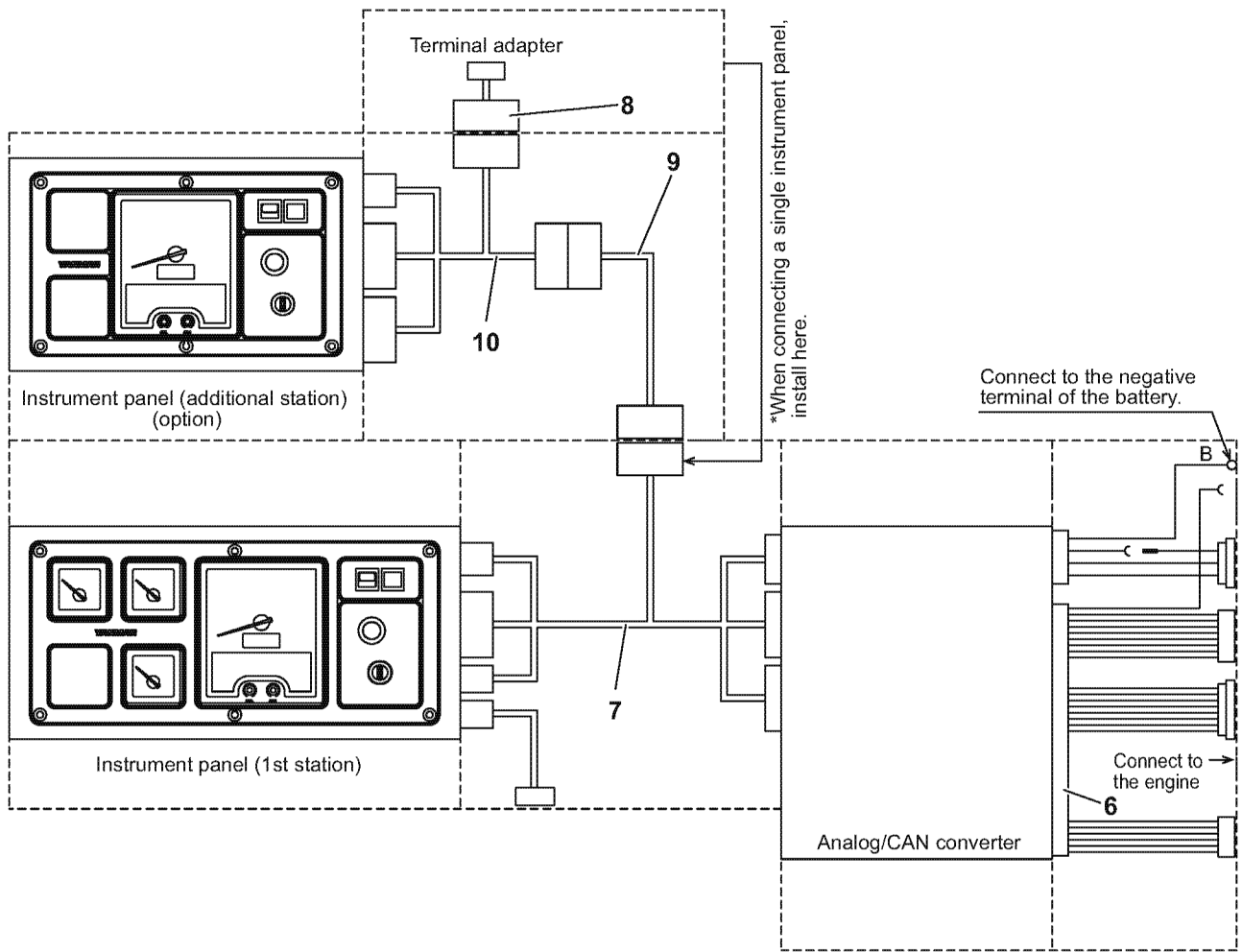
Check which model of engine you are using.



119661-00X00

| Part name | | Outline |
|-----------|----------------------|---|
| 1. | Tachometer | Shows the engine speed / operating hours / various alarms / brightness. |
| 2. | Instrument panel | Sub-meter |
| 3. | Instrument panel | Key switch |
| 4. | Instrument panel | Sub-switch |
| 5. | Analog/CAN converter | Outputs CAN signal by converting from the analog input information. |

4 — PRODUCT OVERVIEW



119662-00EN00

| | Part name | Outline |
|-----|--------------------|---|
| 6. | Harness A | Harness for connecting engine with analog/CAN converter |
| 7. | Harness B | Harness for connecting the instrument panel with analog/CAN converter |
| 8. | Harness C | Terminating resistor for CAN signal |
| 9. | Harness D (Option) | Extension harness for additional instrument panel |
| 10. | Harness E (Option) | Harness for connecting additional instrument panel |

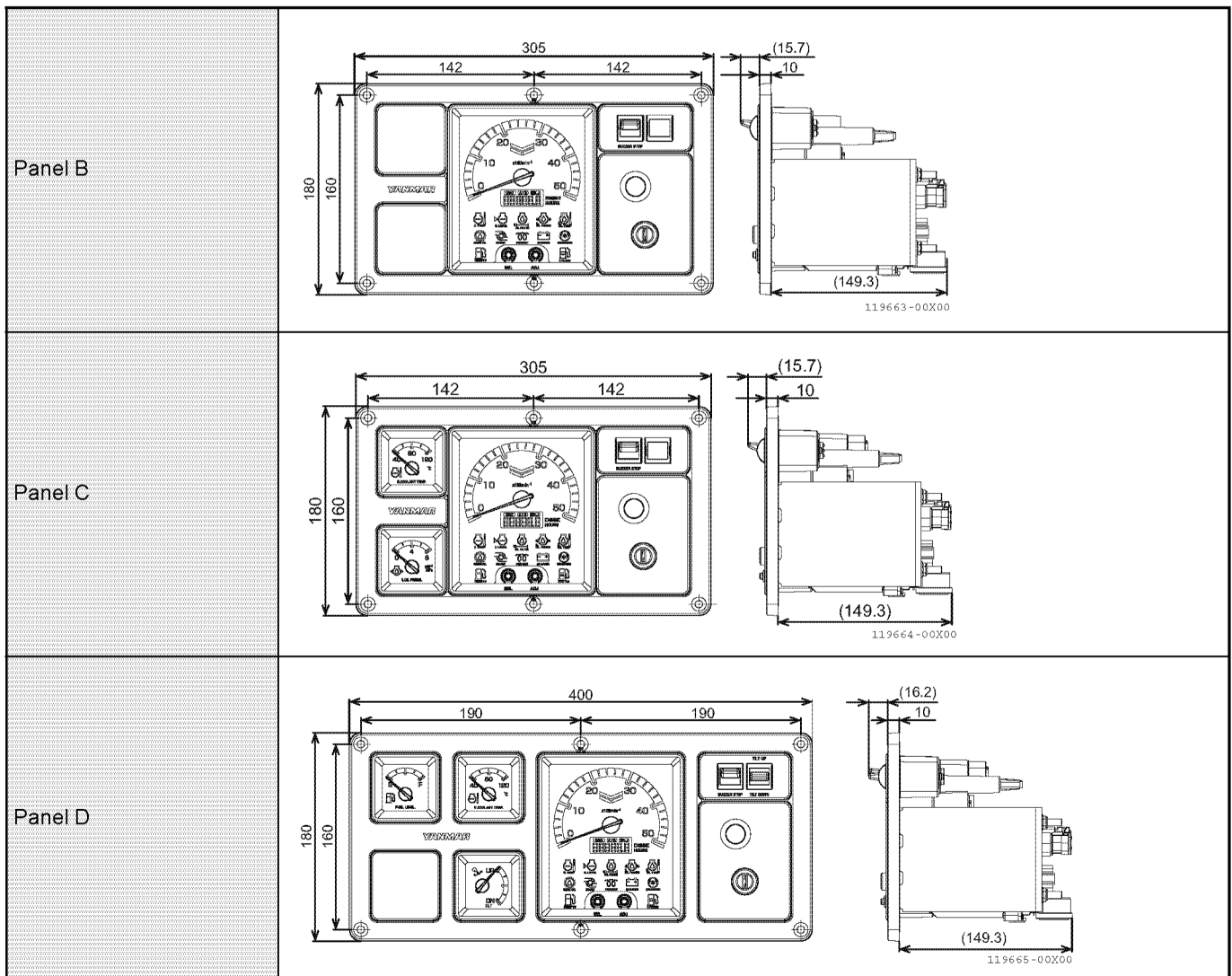
Performance specifications

| Engine model | Instrument panel | Analog/CAN converter |
|--|--------------------------------|---|
| Power supply | DC12 V/DC24 V (8 V to 32 V) | DC12 V (8 V to 16 V) or DC24 V (16 V to 32 V) |
| Operating temperature | -20°C to 60°C | -20°C to 75°C |
| Storage temperature | -30°C to 80°C | -30°C to 100°C |
| Water resistance (Protection class) | Front IPX7 Back IPX6 | IPX7 |

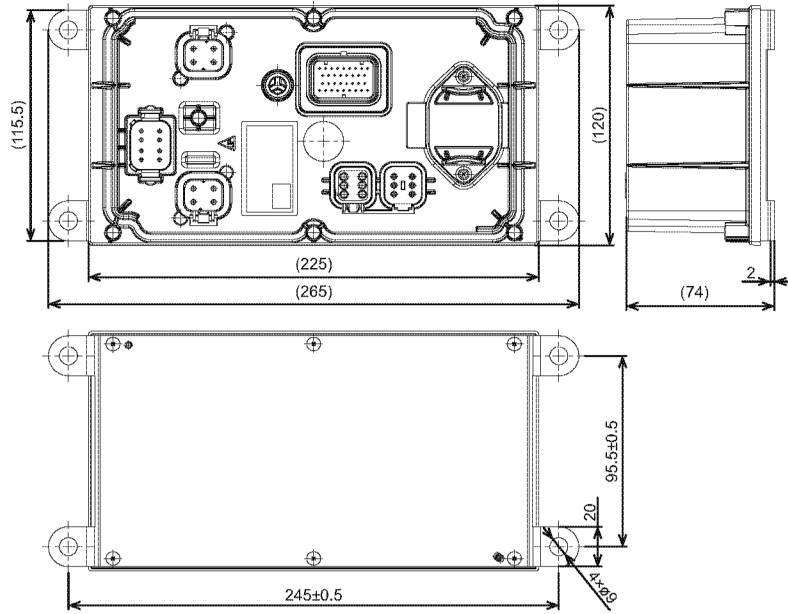
⚠ CAUTION

Do not use high pressure spray. It may damage the instrument panel.

External dimensions

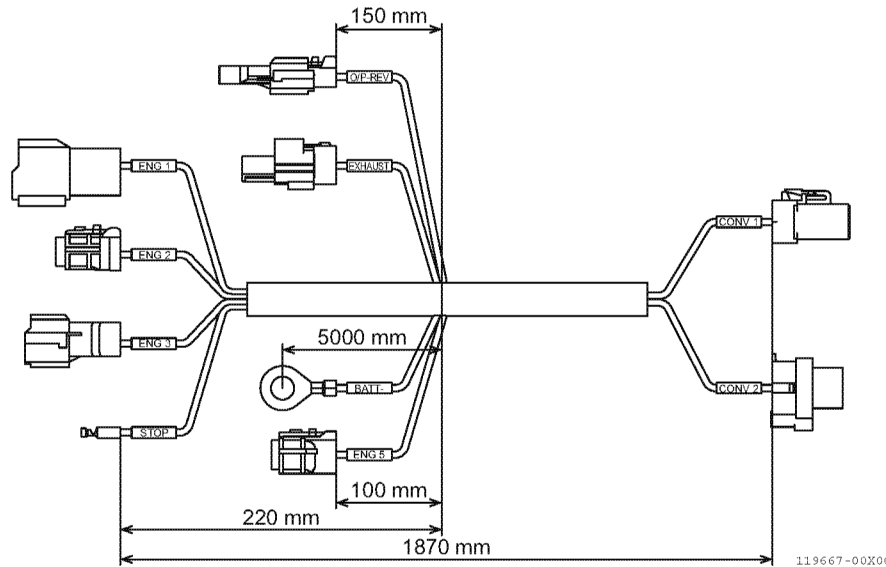


Analog/CAN converter



119666-00X00

Harness A

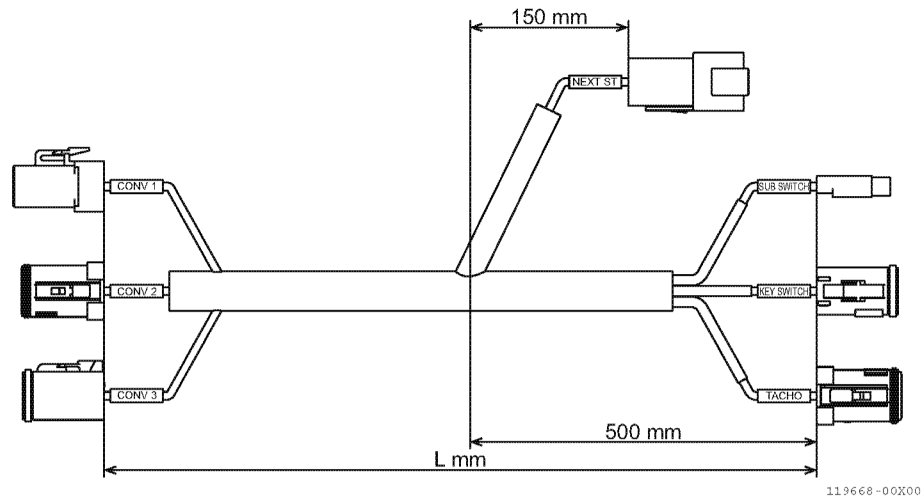


119667-00X00

| Part number |
|--------------|
| 164010-21010 |
| 164010-21020 |
| 164010-21030 |
| 164010-21040 |
| 164010-21050 |
| 164010-21060 |

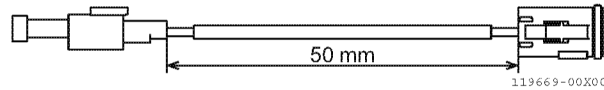
Note: This varies depending on your engine.

Harness B



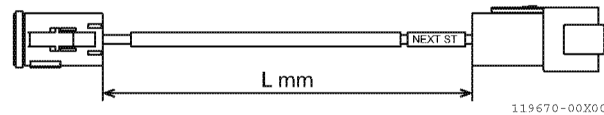
| | Length | Part number |
|---|--------|--------------|
| L | 3350 | 164010-21210 |
| | 5350 | 164010-21220 |
| | 10350 | 164010-21230 |
| | 15350 | 164010-21240 |

Harness C

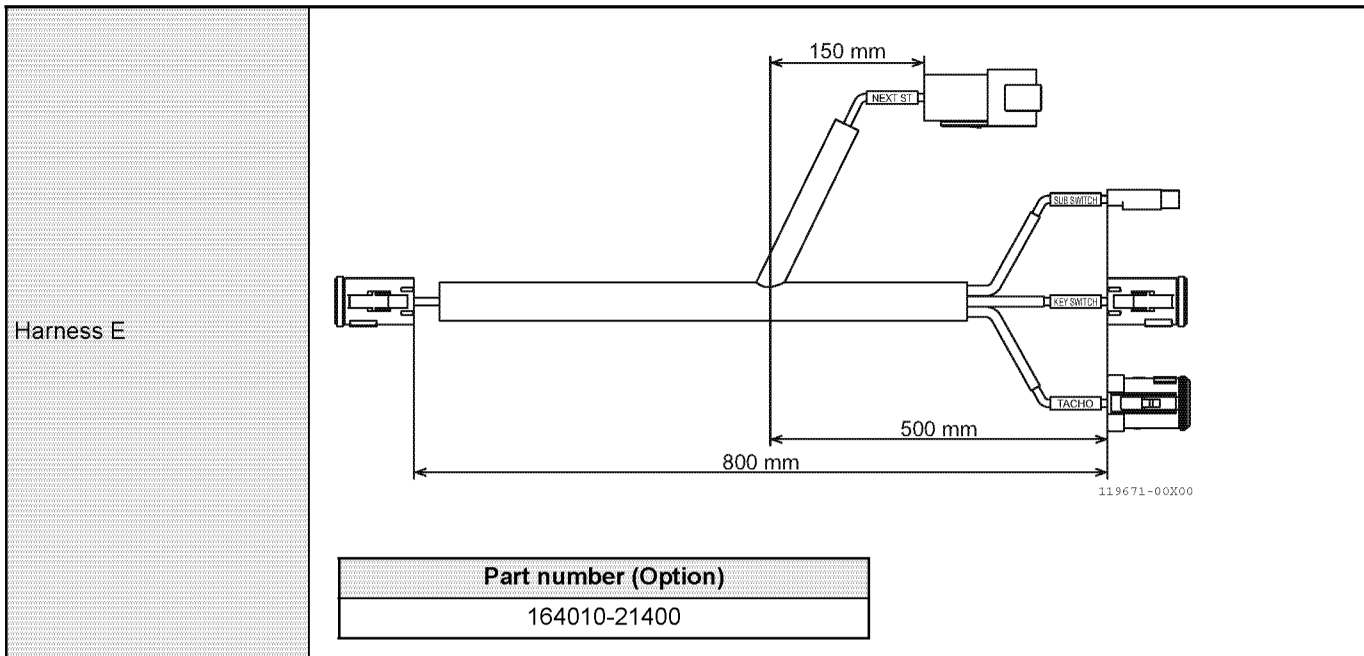


| Part number |
|--------------|
| 164010-29000 |

Harness D



| | Length | Part number (Option) |
|---|--------|----------------------|
| L | 3000 | 164010-23010 |
| | 5000 | 164010-23020 |
| | 10000 | 164010-23030 |
| | 20000 | 164010-23040 |

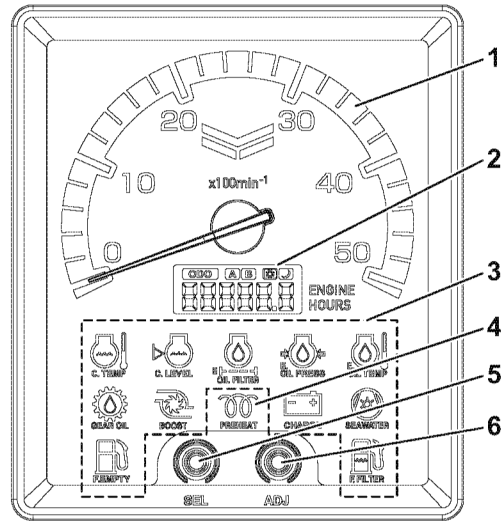


LCD DISPLAY AND CONTROLLER

Tachometer

There are two types of tachometer. One covers 0 to 3000 min⁻¹, and the other covers 0 to 5000 min⁻¹.

Outline



119672-00X00

| | Name | Description |
|----|----------------------------------|---|
| 1. | Tachometer (analog display) | Indicates the engine speed in min ⁻¹ . You can monitor the load conditions and speed. |
| 2. | LCD Display (digital display) | Shows the operating hours / exhaust air temperature (option)* / propeller speed (option)* / configured brightness of backlight. Press the SEL and ADJ buttons to switch between the different screens. |
| 3. | Warning lamp | Illuminate to indicate where an abnormality is occurring. |
| 4. | Notification lamp | Illuminates to notify that the air heater is on. (cold climate spec.) |
| 5. | SEL button | Used for switching the LCD display screen. |
| 6. | ADJ button | Used for resetting the operating hours / adjusting the brightness. |

* Display of the exhaust temperature and propeller speed are optional extras. (They are not displayed on the standard specification panel.)

CAUTION

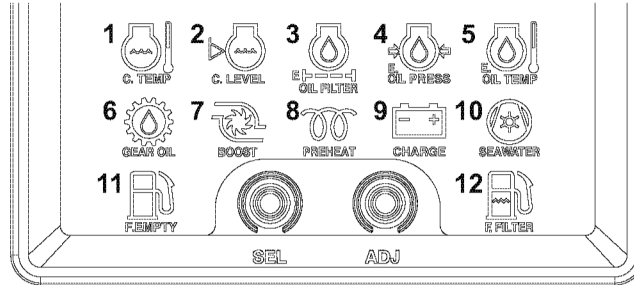
Do not subject the panel glass to force or impact. It may crack and cause injury.

Warning/Notification Lamps







If a defect occurs during operation, alarm buzzers and warning lamps will activate.







Warning/Notification Lamps

Note that there are some lamps that do not come on depending on the engine model and specification.



119673-00X00

| | Name | Lamp | Description |
|----|--|---|--|
| 1. | Freshwater temperature warning lamp |  | This lamp comes on if the freshwater temperature is abnormally high. If the engine continues to operate, it will overheat and seizure will occur. Check the load condition and the freshwater cooling system for abnormalities. |
| 2. | Freshwater level warning lamp |  | This lamp comes on if the freshwater level drops below the lower level. If the engine continues to operate, it will overheat and damage will occur. Check the freshwater level and cooling system for abnormalities. |
| 3. | Engine lubricating oil filter clogged warning lamp |  | This lamp comes on if the lubricating oil filter clogs. The alarm buzzer does not sound. Replace the filter element. |
| 4. | Engine lubricating oil pressure warning lamp |  | This lamp comes on if the engine lubricating oil pressure drops below the lower level. If the engine continues to operate, it will run out of oil and seizure will occur. Check the level of the lubricating oil and refill if necessary. |
| 5. | Engine lubricating oil temperature warning lamp |  | This lamp comes on that the lubricating oil temperature is abnormally high. If the engine continues to operate, it will overheat and seizure will occur. Check the seawater cooling system for abnormalities. |
| 6. | Marine gear lubricating oil pressure warning lamp or Stern drive gear oil level warning lamp |  | (Marine gear lubricating oil pressure warning lamp) This lamp comes on if the marine gear lubricating oil pressure drops below the lower level. If the engine continues to operate, it will run out of oil and seizure will occur. Check the level of the marine gear lubricating oil and refill if necessary. (Stern drive gear oil level warning lamp) This lamp comes on if the freshwater level drops below the lower level. If the engine continues to operate, it will run out of oil and seizure will occur in the stern drive gear. Check the level of the stern drive lubricating oil and refill if necessary. |

| | Name | Lamp | Description |
|-----|-------------------------------------|--|--|
| 7. | Boost pressure Warning lamp |  | This lamp comes on if the boost pressure (boost pressure of turbo-charger) is abnormally high. Check that there is no operation failure due to sticking of the turbo-charger waste gate. |
| 8. | Preheating lamp |  | In cold environments, preheating makes the engine easier to start. This lamp comes on when the air heater is activating. |
| 9. | Charge lamp |  | This lamp comes on if the charge is abnormal. The alarm buzzer does not sound. Check for failures such as a slip or broken V-belt in the alternator. If the charge lamp flashes quickly and the meter does not work, this indicates that the voltage is out of the specified range. Check the battery. |
| 10. | Low seawater warning lamp |  | This lamp comes on if the discharge amount of cooling seawater becomes low. If the engine continues to operate, it will overheat and seizure will occur. Check for clogging in the cooling seawater passage or parts failure. |
| 11. | Low fuel warning lamp |  | This lamp comes on if the fuel oil in the fuel tank becomes low. Refill with fuel. |
| 12. | Oil-water separator warning lamp |  | This lamp comes on if the amount of water in the fuel filter's oil-water separator increases. If the engine continues to operate, the filter will become clogged, preventing fuel from being supplied, or causing fuel injection pump seizure. Drain the water from the fuel filter's and oil-water separator. |

Normal operation of warning devices

If a meter or warning device is defective and an engine abnormality occurs, it may not be possible to prevent accidents. Further, it can result in incorrect operation or malfunction.

Be sure to check that the warning devices operate normally before and after starting the engine.

You can determine whether the electronic circuits for the buzzers and lamps operate normally.

If the warning devices operate by the key switch as follows, they are normal. If they do not operate normally, consult your YANMAR dealer or distributor for inspection or repair.

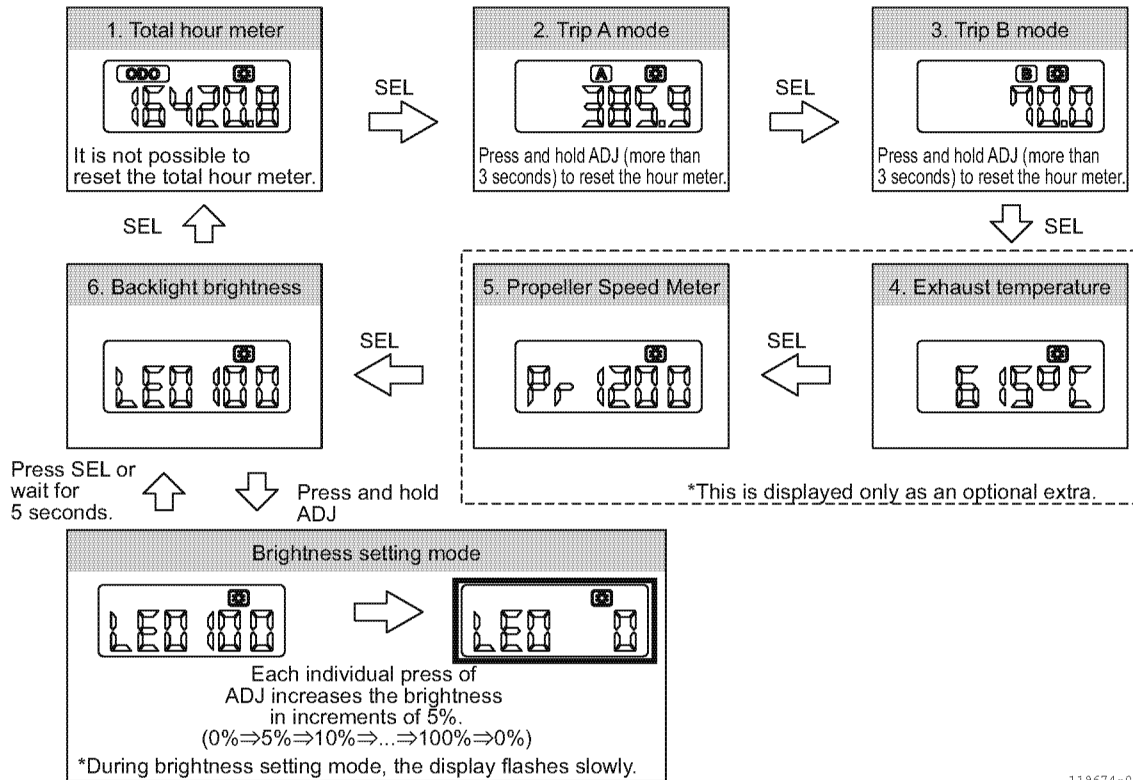
| Operation of key switch | | OFF → ON (Before starting) | START → ON (After starting) |
|-------------------------|---|-------------------------------------|-----------------------------|
| Alarm buzzer | | Buzzer sounds | Buzzer stops |
| warning lamp | Freshwater temperature | Temporarily lights up | OFF |
| | Freshwater level | Temporarily lights up | OFF |
| | Engine lubricating oil filter clogged | Temporarily lights up | OFF |
| | Engine lubricating oil pressure | Temporarily lights up | OFF |
| | Engine lubricating oil temperature | Temporarily lights up | OFF |
| | Clutch lubricating oil pressure or Stern drive gear oil level | Temporarily lights up | OFF |
| | Boost pressure | Temporarily lights up | OFF |
| | Charge lamp | Temporarily lights up, then flashes | OFF |
| | Low seawater | Temporarily lights up | OFF |
| | Low fuel | Temporarily lights up | OFF |
| | Oil-water separator | Temporarily lights up | OFF |

LCD Display

■ Operating the LCD display

Switching screens

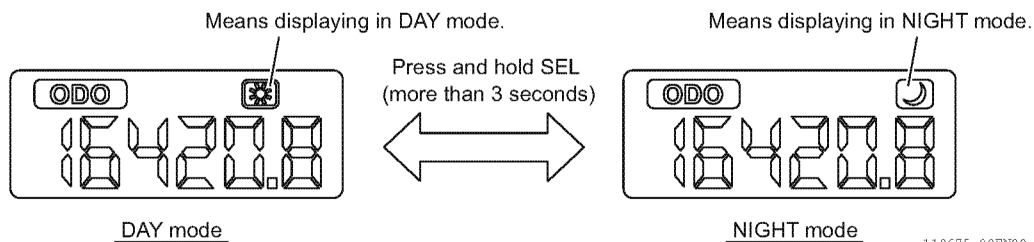
Press the SEL button to cycle through the screens as follows.



119674-00EN00

Switching backlight modes

Press and hold the SEL button (more than 3 seconds) to switch between DAY mode and NIGHT mode. At any point on any screen, it is possible to switch the backlight modes.

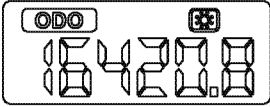
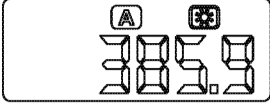
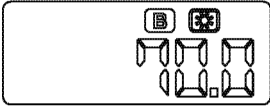
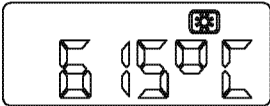
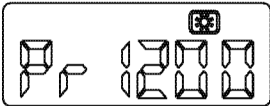
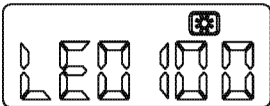




119675-00EN00

It is possible to set and save the brightness (0% to 100%) for DAY mode and NIGHT mode respectively. On the mode for which you want to adjust the brightness (DAY or NIGHT), switch the screen to “brightness setting mode”.

- The default value is 100% for DAY mode and 50% for NIGHT mode.

■ LCD display items

| | | Name | Description |
|----|------------------------------|--|---|
| 1. | Engine total operating hours |  <small>119676-00X00</small> | It displays the total engine operation time as a numeric value (hours). "ODO" is displayed at the top of the screen. It serves as a guideline for when to perform periodic maintenance. <i>Note: It is not possible to reset the total hour meter value.</i> |
| 2. | Engine operation Trip A mode |  <small>119677-00X00</small> | It displays the engine trip operation time after resetting as a numeric value (hours). "A" or "B" is displayed at the top of the screen. |
| 3. | Engine operation Trip B mode |  <small>119678-00X00</small> | The operation hours for trip A mode and trip B mode can be configured separately according to your needs. |
| 4. | Exhaust temperature (Option) |  <small>119679-00X00</small> | It displays the exhaust temperature as a numeric value (°C). <i>Note: This is displayed only as an optional extra.</i> |
| 5. | Propeller speed (Option) |  <small>119680-00X00</small> | It displays the propeller speed as a numeric value (min ⁻¹). <i>Note: This is displayed only as an optional extra.</i> |
| 6. | Backlight brightness |  <small>119681-00X00</small> | It displays the currently configured brightness level of the backlight (%). |

- When the backlight mode is in DAY mode,  is displayed at the top of the screen. When in NIGHT mode,  is displayed.

⚠ CAUTION

If the "Err" message appears, consult your authorized YANMAR dealer or distributor for investigation and repair.

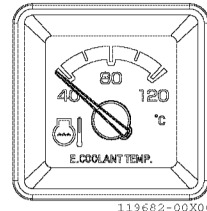
Sub-meters

Note that the meters vary depending on the type of instrument panel, and the engine model and specifications. Check which type of instrument panel you are using.

- Cooling water thermometer (part number: 164010-52000)

It indicates the freshwater temperature.

It serves as a guide for judging the condition of the engine temperature to prevent accidents.

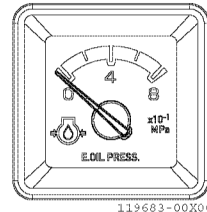


119682-00X00

- Engine lubricating oil pressure meter (part number: 164010-53000)

It indicates the pressure of the engine lubricating oil (MPa).

It serves as a guide for judging the condition of engine lubrication oil to prevent accidents.

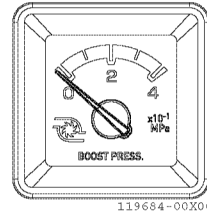


119683-00X00

- Boost pressure meter (part number: 164010-53100)

It indicates the pressure of the air (MPa) that flows to the combustion chamber.

It serves as a guide for judging the condition of the turbocharger to prevent accidents.



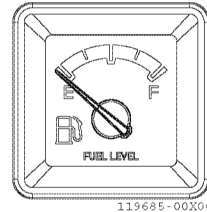
119684-00X00

- Fuel meter (part number: 164010-54000)

It indicates the fuel level in the fuel tank.

“F”: Full

“E”: Empty



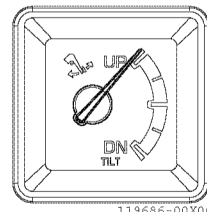
119685-00X00

- Tilt angle meter (part number: 164010-54100)

It indicates the tilt angle of the stern drive.

“UP”: Tilt up

“DN”: Tilt down



119686-00X00

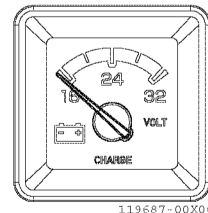
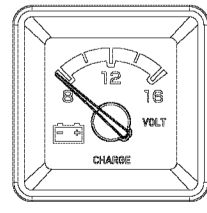
- Voltmeter (Option)

12 V (part number: 164010-55000)

24 V (part number: 164010-55100)

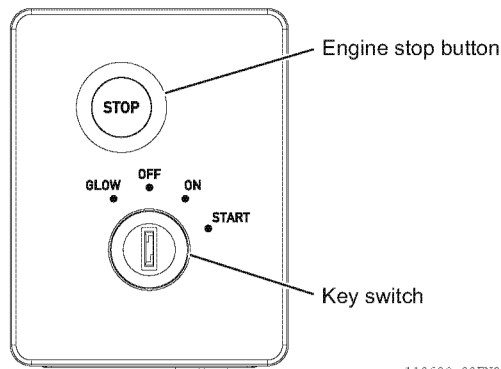
It indicates the power supply voltage.

It serves as a guide for judging the condition of the battery to prevent accidents.



119687-00X00

Key switch



119688-00EN00

■ Engine stop button

This red button stops the engine, and is located above the key switch. If you push the engine stop button, the stop device actuates, the fuel supply is cut, and the engine stops. Press and hold down the button until the engine comes to a complete stop.

Note: Engines with a manual shut-off device do not have the engine stop button.

■ Key switch

The key switch starts/stops the engine. This is a three-step rotary switch which is operated by turning the key.

OFF: This is the stop position.

The electric system of the engine is cut off and that allows the key to be inserted and removed.

During engine operation, if the key is turned to the OFF position, the engine will stop.

If there are two or more instrument panels, turn all the key switches to the OFF position. When all of them are turned to the OFF position, the engine stops.

ON: This is the position during engine operation.

The meters and warning devices are on.

Do not leave the key switch turned to ON while the engine is stopped for long periods. This may cause the battery to discharge, resulting in the engine being unable to start.

START: Starts the engine.

The starter rotates and the engine starts.

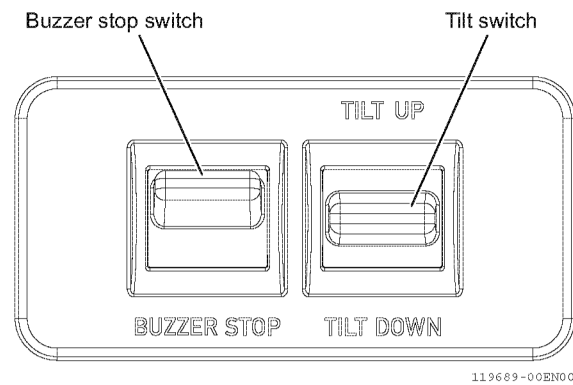
After the engine starts and you release the key, it goes back to ON automatically.

GLOW: Turns on the air heater. (cold climate specification)

Increases the temperature of the intake air before engine start to assist the engine when starting in cold climates.

After the engine starts and you release the key, it goes back to ON automatically.

Sub-switches



■ Buzzer stop switch

This switch temporarily stops the buzzer sound.

The buzzer goes off with a single operation of the switch. Also, the warning lamps stop flashing and remain continuously lit.

After the engine starts and you release the key, it goes back to ON automatically.

■ Tilt switch (electro-hydraulic tilt stern drive engines only)

Operate to tilt up and down.

When the switch position is in “TILT UP” the stern drive rises. When it is in “TILT DOWN” the stern drive lowers.

After the engine starts and you release the key, it goes back to ON automatically.

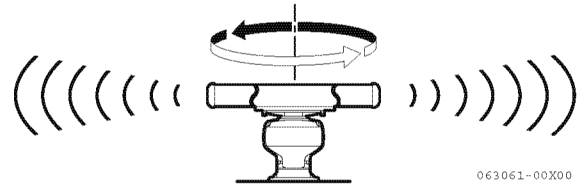
INSTALLATION

Precautions for installation

When installing the instrument panel, analog/CAN converter, and harnesses, observe the following installation precautions. Failure to do so may result in malfunction of the instrument panel and analog/CAN converter, resulting in improper operation and display.

- Do not install in places with high temperature or high-vibration (including direct installation to an engine).
- Do not install near the following devices.
 - Radio antenna
 - Coaxial cables of radar and radio equipment
 - Generators and motors (keep away from devices with high output)
 - Radio communication equipment (keep away from devices with high output or low frequency)
 - Transformers/Inverters
 - AC power sources
 - DC/DC converters
 - Harnesses excluding those of the instrument panel system
 - Microwave ovens
 - Equipment that generates strong electromagnetic fields
- Install as far away as possible from the radar antenna

As the radar antenna rotates, radio waves are emitted horizontally. Therefore, regardless of distance, do not install at the same height as the radar antenna.

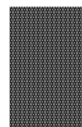
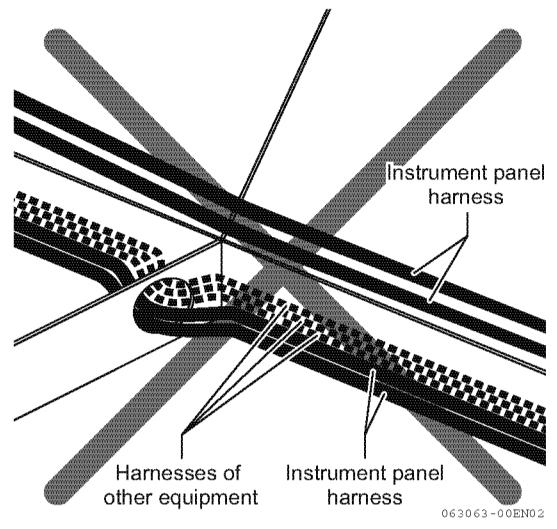
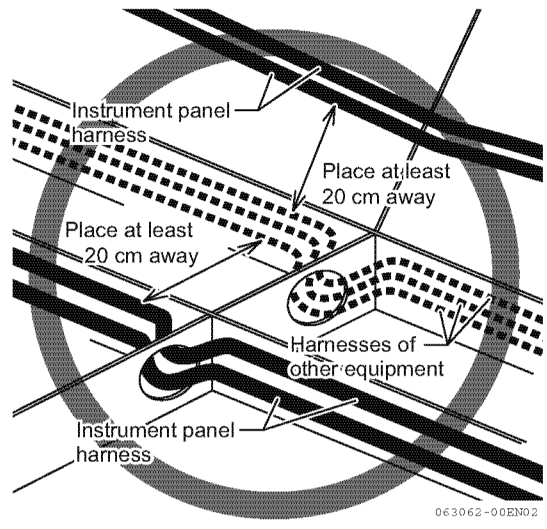


- Harness wiring

When installing the instrument panel harnesses, ensure a clearance of at least 20 cm from harnesses of other equipment.

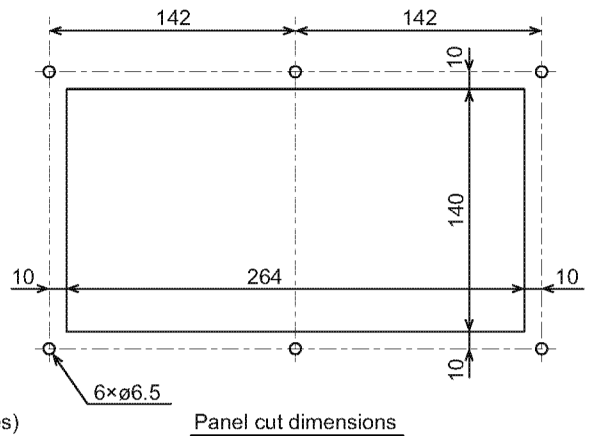
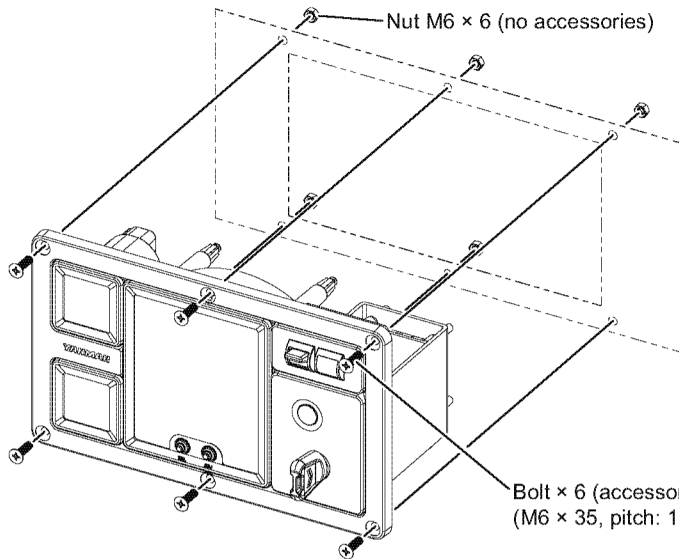
When routing through a partition hole, do not route the instrument panel harnesses and harnesses of other equipment through the same hole. However, multiple harnesses belonging to the instrument panel may be bound together.

If unavoidable, harnesses of the instrument panel may intersect at right angles with the harnesses of other equipment.



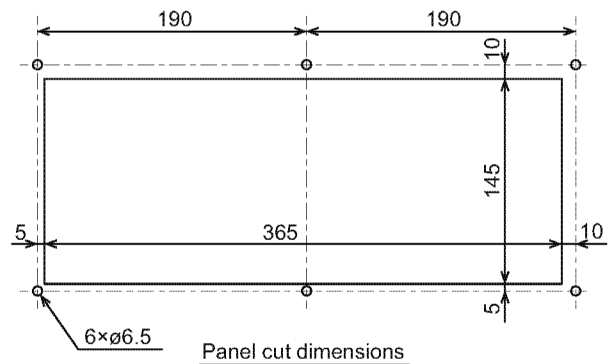
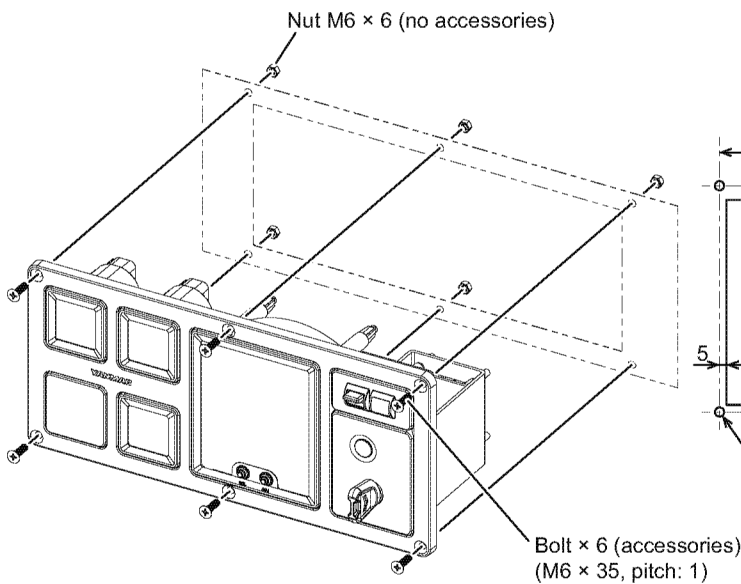
Installing the instrument panel

■ Installing panels B and C



119690-01EN00

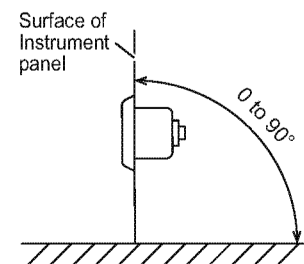
■ Installing panel D



119691-01EN00

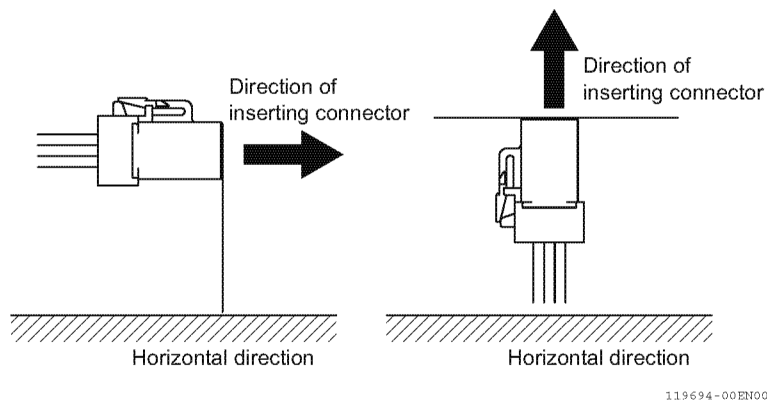
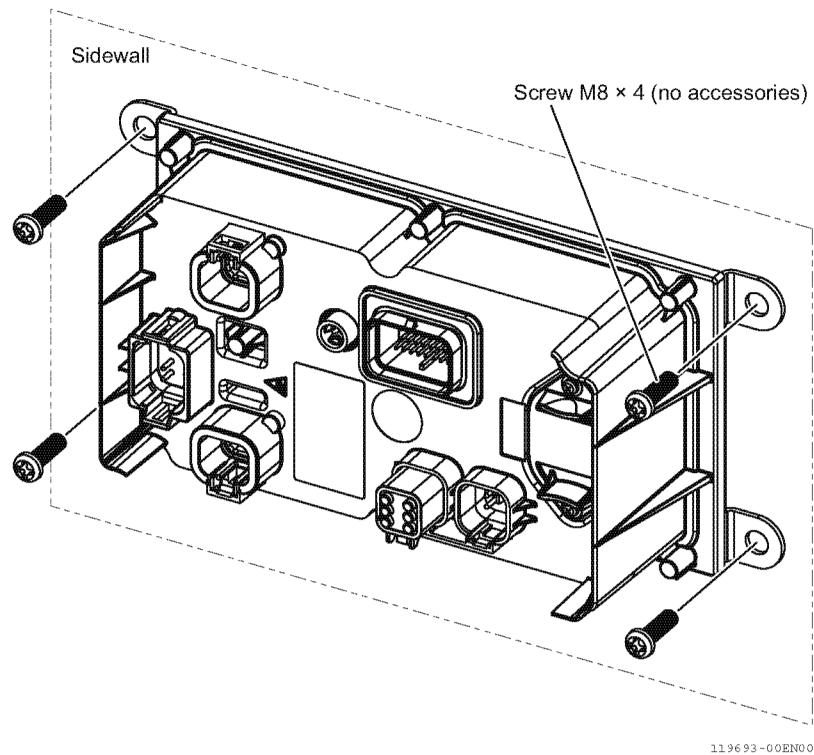
Cut the plate by referring to the panel cut dimensions, and affix it with the bolts and nuts. The included bolts can be used with plates up to 15 mm in thickness.

When installing, make sure that the instrument panel does not face downward (install within 90° from horizontal, with the instrument panel facing upward). Otherwise, the instrument panel may not operate properly.



119692-00EN00

Installing the analog/CAN converter



NOTICE

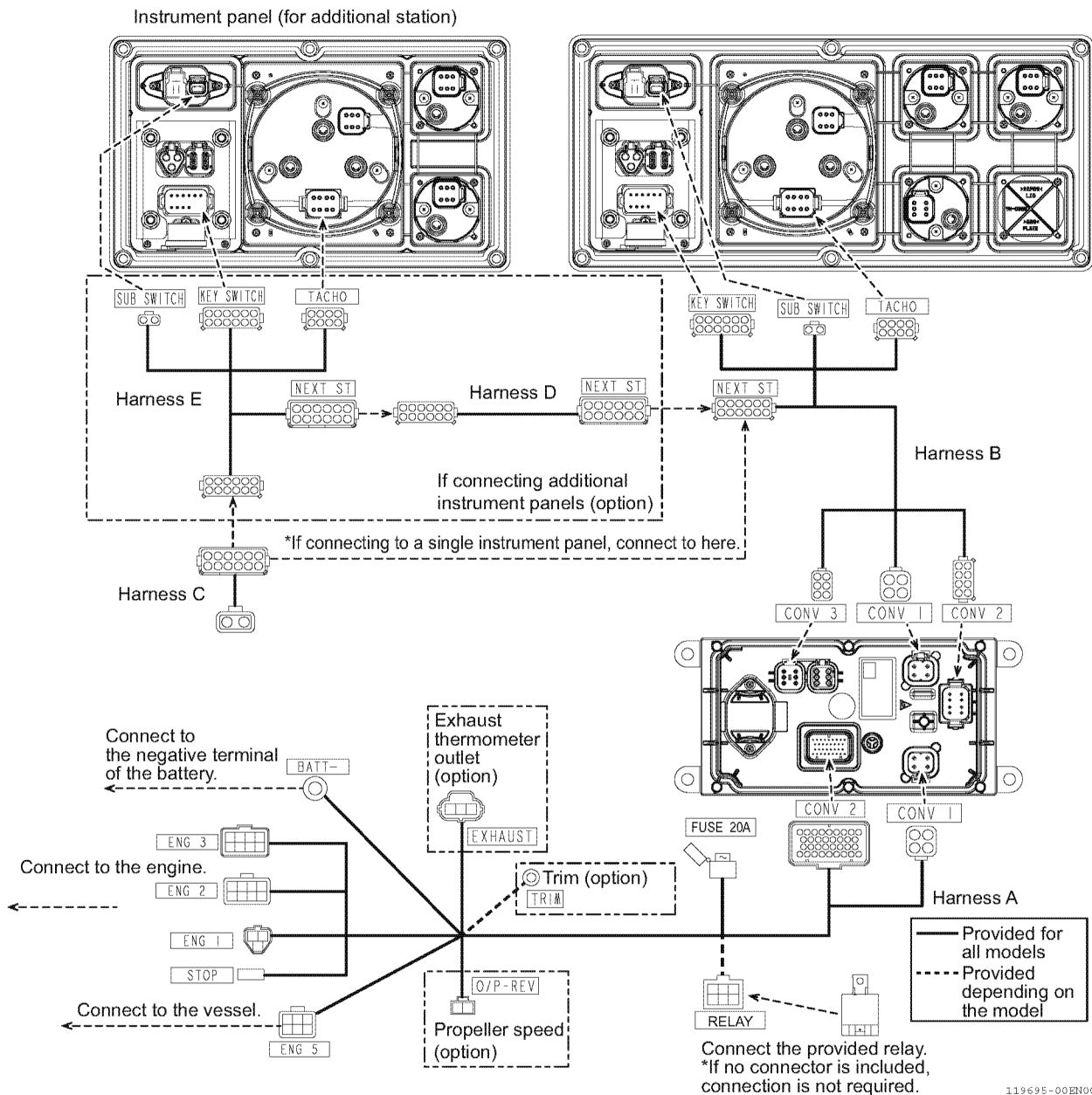
Securely install on the walls of the engine room or vessel.

In the case of installing at the location exposed to seawater, wind, or rain, make sure to insert the connector as shown in the figure above. Otherwise, water pools inside the connector and will cause failure.

Supported analog/CAN converter varies depending on the engine model. Be sure to use analog/CAN converter that was included with your engine. When storing, keep the converter separately from others if you have multiple models.

Installing harnesses

Labels are attached on the base of harness connectors. Refer to the figure below when inserting the connectors.



The figure shows an example. When actually connecting, make sure that each piece of equipment is wired correctly.

- If you are not using the low fuel warning, fuel meter, and tilt angle meter, connecting “ENG 5” is not necessary.
- Connect according to the options as required.
- Harness D is an extension harness. Use as required when installing additional equipment. Layout so as the entire length between the analog/CAN converter and the harness C terminal does not exceed 40 m.
- Be sure to install harness C (terminating resistor).

NOTICE

Be sure to connect the “BATT -” terminal to the negative side of the battery. Otherwise, the instrument panel may not display correctly due to interference from other equipment. If an extension is required, use a power cable of 3.00 sq or more (conduction cross sectional area of 3.2 mm²).

■ Connecting fuel sensor

By attaching the appropriate sensor to “ENG 5”, it is possible to display the fuel level on the fuel meter. The sensor varies depending on the size of the fuel tank.

- Sensor: resistive float sensor (part number: 49554-087000 [representation])

Connect the sensor to “ENG 5” using the adapter harness (part number: 119183-77860 [option]).

■ Connecting tilt sensor

By attaching the appropriate sensor to “ENG 5”, it is possible to display the angle of tilt on the tilt angle meter.

- Sensor: resistive angle sensor (part number: 196322-06960)

Connect the sensor to “ENG 5” using the adapter harness (part number: 119183-77860 [option]).

■ Exhaust temperature sensor

By attaching the appropriate sensor to “EXHAUST”, it is possible to display the exhaust temperature on the LCD display. The sensor varies depending on the shape of the mount.

- Sensor: exhaust temperature sensor resistance bulb (part number: 46150-57252 [representation])

In the case that an extension is needed when connecting the sensor, use the following.

| Length (m) | Part number (Option) |
|------------|----------------------|
| 5 | 164010-24010 |
| 7 | 164010-24020 |
| 10 | 164010-24030 |
| 15 | 164010-24040 |
| 20 | 164010-24050 |

■ Connecting propeller speed sensor*

By attaching the appropriate sensor to “O/P-REV”, it is possible to display the propeller speed on the LCD display.

- Sensor: propeller sensor rotation pickup (part number: 177129-04690)

* *Optional specification analog/CAN converter only.*

NOTICE

For additional safety, install the analog/CAN converter as close to the connection as possible to make the connecting harness short. Otherwise, the instrument panel may not display correctly due to interference from other equipment.

■ Connecting relay

It is required to light the preheating lamp. In the case of using an air heater, connect it to “RELAY”.

- Relay: DC12V (part number: 119247-77100)

■ Replacing fuses

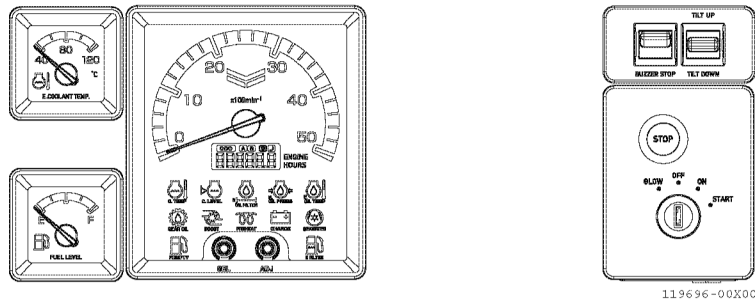
When replacing the fuses, be sure to turn off the main power.

- Fuse: DC32V, 20A (part number: 127677-77130)

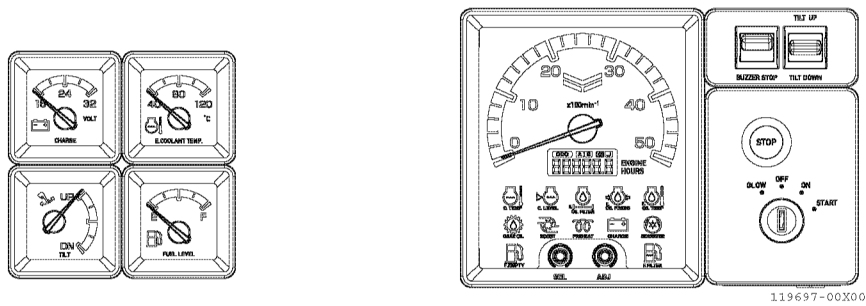
Free-layout

It is possible to remove each meter from the instrument panel and position them in any layout you like.

Layout sample 1

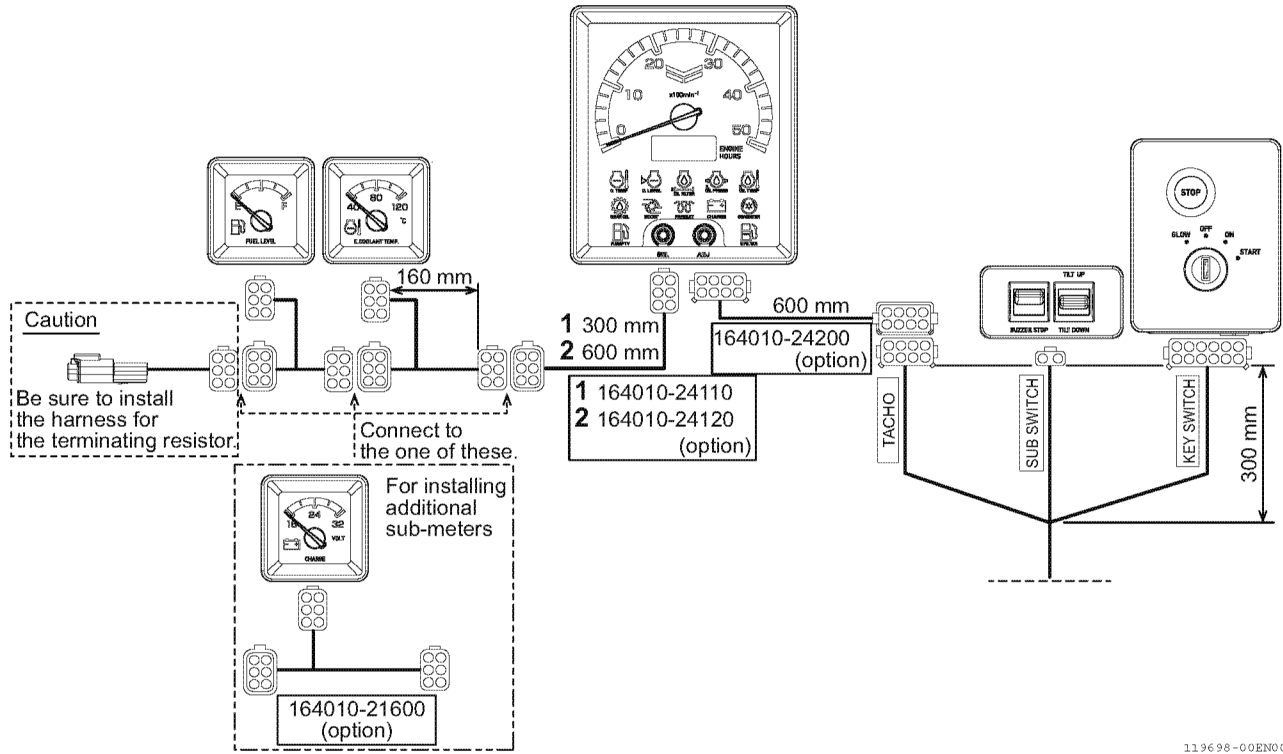


Layout sample 2



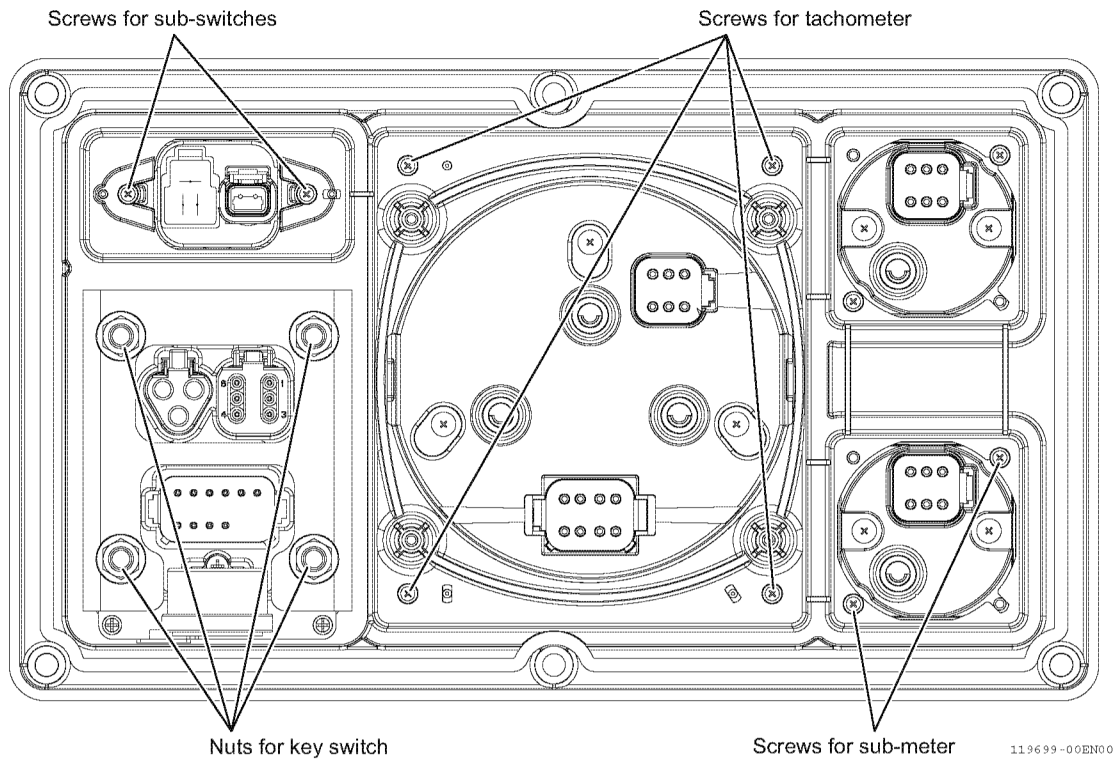
■ Connecting harnesses

- In the case of installing the tachometer and key switch separately as shown in sample 1, if the standard harness cannot reach the connection, use an extension harness (part number: 164010-24200[option]) as required.
- In the case of installing sub-meters separately as shown in sample 2, if the standard harness cannot reach the connection, use an extension harness (part number: 164010-24110, 164010-24120 [option]) as required.
- In the case of installing additional sub-meters, connect using a dedicated sub-meter harness (part number: 164010-21600).



■ **Removing**

When removing meters and switches from the instrument panel, unscrew the parts shown in the figure below.



- Tachometer: four screws on the back (If it is connected to a sub-meter, also disconnect the connector.)
- Sub-meters: two screws on the back and the connector
- Key switch: four screws on the back
- Sub-switch: two screws on the back

■ Installing tachometer individually

A special mounting plate set “164010-50090” is required to install the tachometer as a standalone unit.

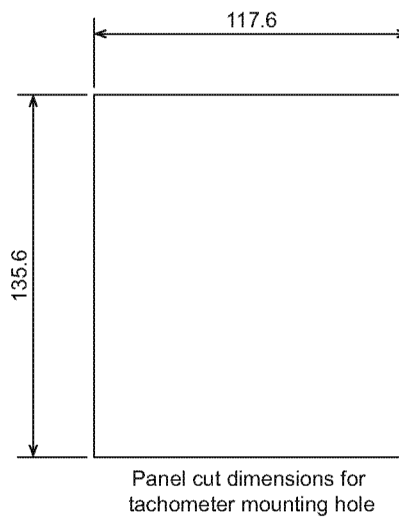
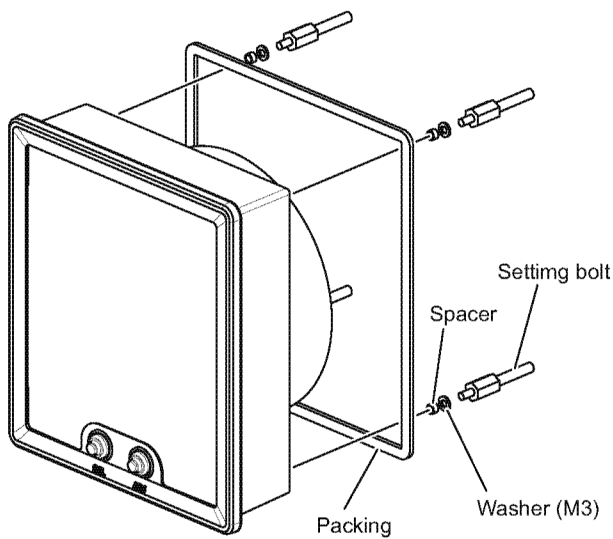
- Special mounting plate set for tachometer (accessory)

| Name | Qty. | Part number |
|---------------------------|------|--------------|
| Tachometer mounting plate | 1 | 164010-51020 |
| Spacer | 4 | 164010-59100 |
| Washer (M3) | 4 | 164010-59110 |
| Setting bolt | 4 | 164010-59120 |
| Washer (M4) | 4 | 164010-59130 |
| Nut (M4) | 4 | 164010-59140 |

1. Attach the bolts (four places) on the back of the tachometer.

When installing, insert the spacers and washers (M3).

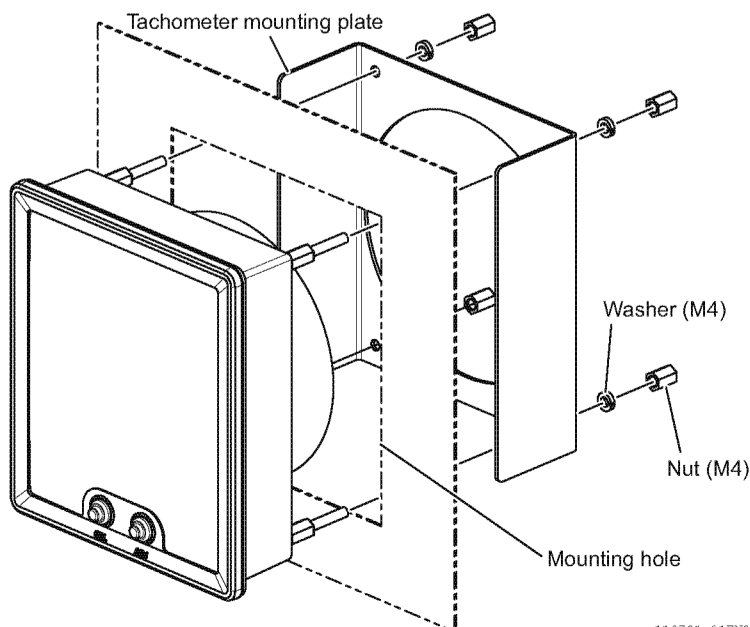
2. Cut the plate by referring to the panel cut dimensions.



119700-00EN00

3. When the mounting plate is properly seated against the back of the tachometer, firmly tighten with the nuts (four places).

When installing, insert the washers (M4) between the mounting panel and nuts.



119701-01EN00

■ Installing sub-meters individually

A special mounting plate set “164010-50190” is required to install sub-meters as a standalone unit.

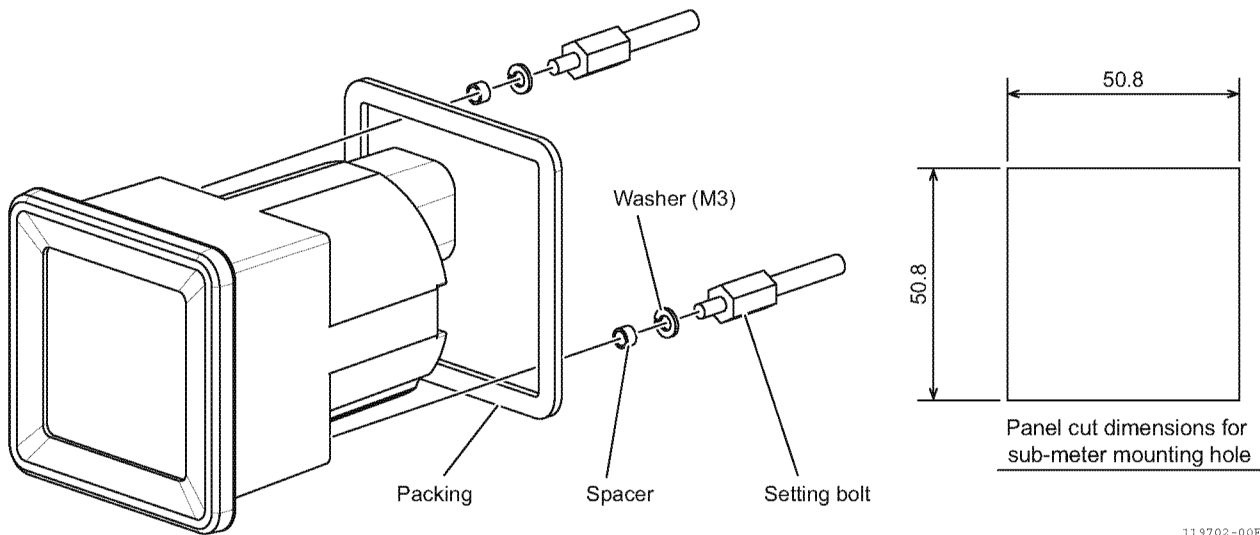
- Special mounting plate set for sub-meters (accessory)

| Part name | Qty. | Part number |
|--------------------------|------|--------------|
| Sub-meter mounting plate | 2 | 164010-52020 |
| Spacer | 2 | 164010-59100 |
| Washer (M3) | 2 | 164010-59110 |
| Setting bolt | 2 | 164010-59120 |
| Washer (M4) | 2 | 164010-59130 |
| Nut (M4) | 2 | 164010-59140 |

1. Attach the bolts (two places) on the back of the sub-meter.

When installing, insert the spacers and washers (M3).

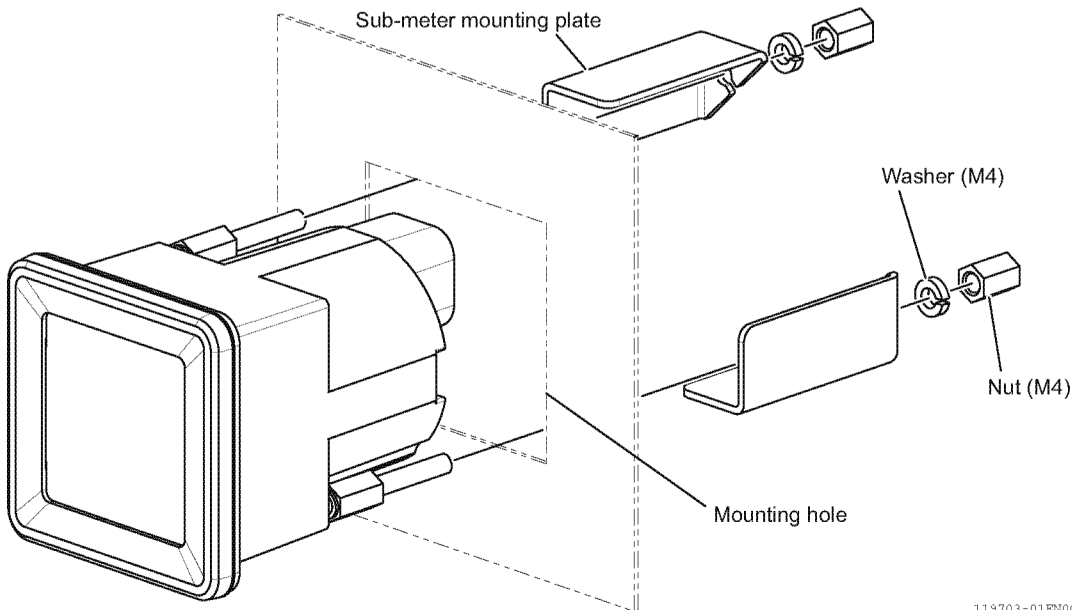
2. Cut the plate by referring to the panel cut dimensions.



119702-00EN00

3. When the mounting plate is properly seated against the back of the sub-meter, firmly tighten with the nuts (two places).

When installing, insert the washers (M4) between the mounting plate and nuts.

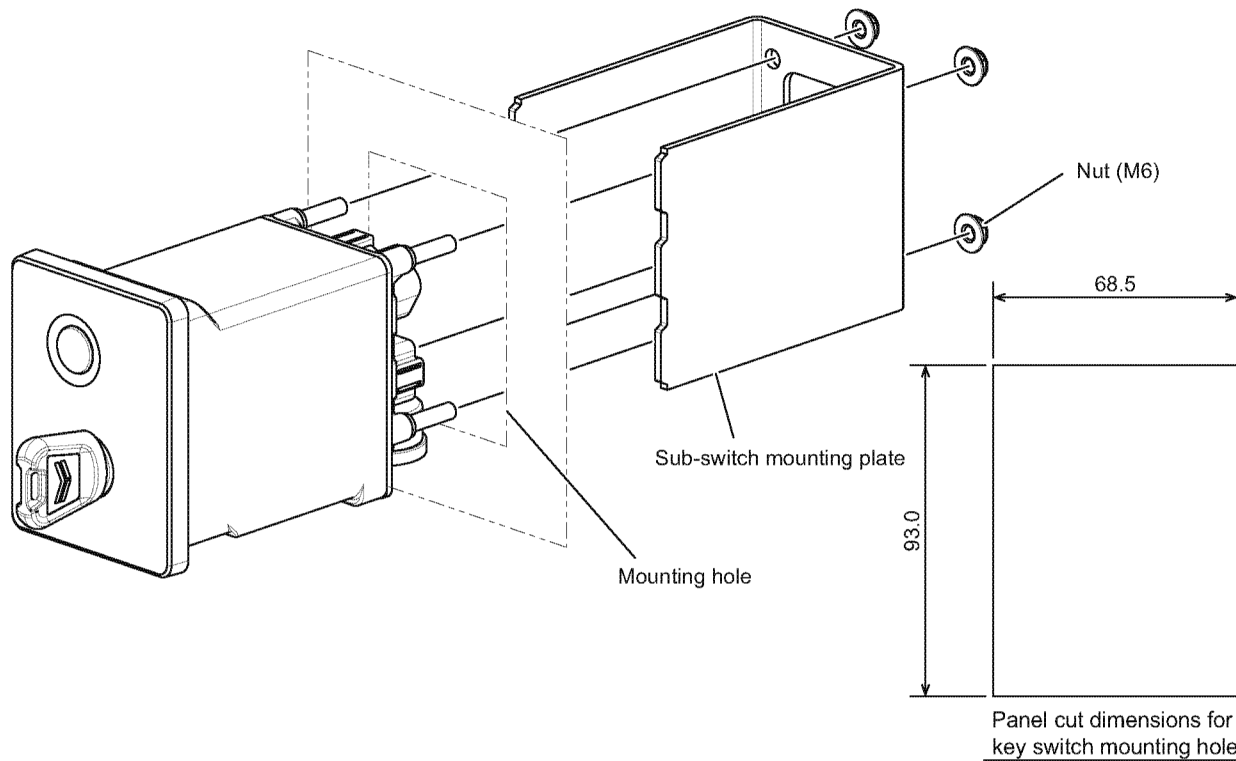


119703-01EN00

■ Installing key switch individually

It is possible to install using the special mounting plate and nuts. (The mounting plate and nuts are supplied with the key switch as standard.)

1. Cut the plate by referring to the panel cut dimensions.
2. When the mounting plate is properly seated against the back of the key switch, firmly tighten with the nuts (four places).



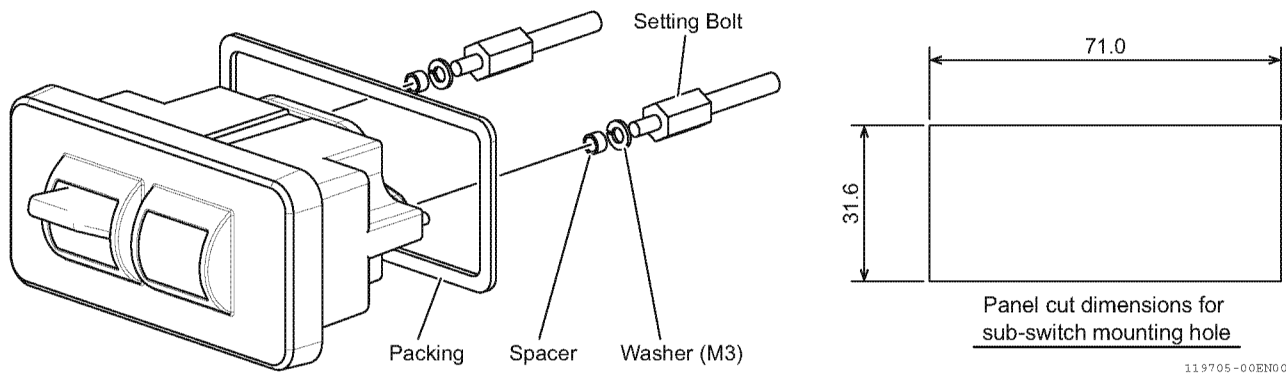
■ Installing sub-switch individually

A special mounting plate set “164010-30190” is required to install a sub-switch as a standalone unit.

- Sub-switch mounting plate set (accessory)

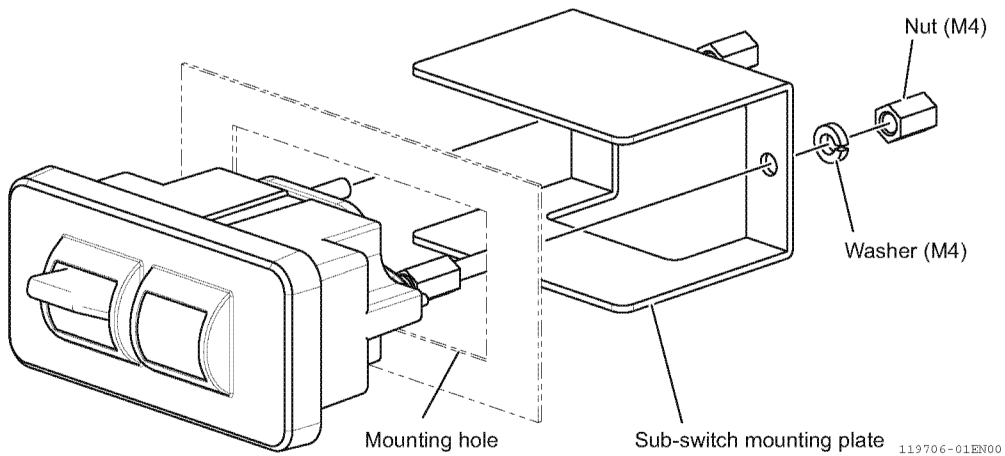
| Part name | Qty. | Part number |
|---------------------------|------|--------------|
| Sub-switch mounting plate | 1 | 164010-31420 |
| Spacer | 2 | 164010-59100 |
| Washer (M3) | 2 | 164010-59110 |
| Setting bolt | 2 | 164010-59120 |
| Washer (M4) | 2 | 164010-59130 |
| Nut (M4) | 2 | 164010-59140 |

1. Attach the bolts on the back of the sub-switch.
When installing, insert the spacers and washers (M3).
2. Cut the plate by referring to the panel cut dimensions.



119705-00EN00

3. When the mounting plate is properly seated against the back of the sub-switch, firmly tighten with the nuts (two places).
When installing, insert the washers (M4) between the mounting plate and nuts.



119706-01EN00

NMEA2000

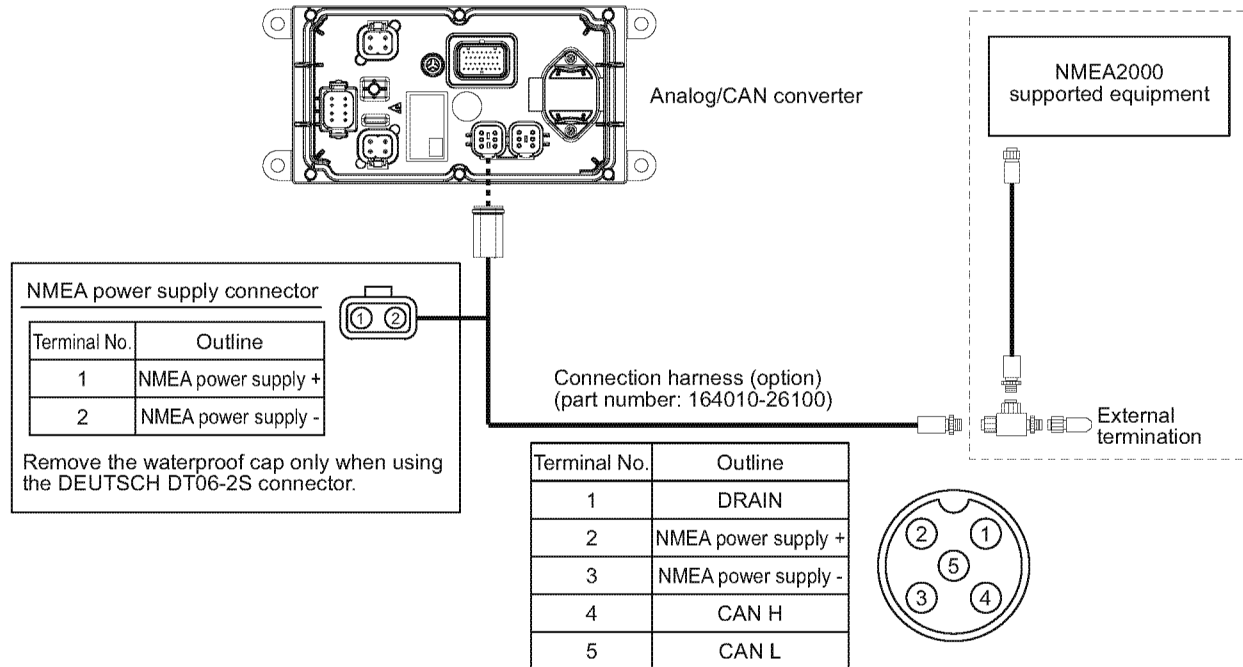
By connecting NMEA2000 compatible equipment (such as multi-function displays) to the analog/can converter, you can use equipment other than the Yanmar instrument panel for displaying the indications.

Connecting

When outputting data from the analog/CAN converter to the display unit, connect using the dedicated harness (part number: 164010-26100 [option]). There is a terminating setting inside the analog/can converter, so a terminal as shown in the figure below is required on the display unit to be connected.

It is required to supply power (DC 12 V) to the analog/CAN converter from the display unit or NMEA power supply connector. When there is no power supply from the display unit, it is possible to supply power from the NMEA power supply connector.

(Connection example)



List of Output PGN

| Instruction | PGN | |
|------------------------------|--------|----------------------------------|
| Engine Speed | 127488 | Engine Parameters, Rapid Update |
| Engine Boost Pressure | | |
| Engine tilt | | |
| Engine oil pressure | 127489 | Engine Parameters, Dynamic |
| Engine temp. | | |
| Engine oil pressure | | |
| Total engine hours | | |
| Engine Discrete Status | 127493 | Transmission Parameters, Dynamic |
| Transmission Discrete Status | 127505 | Fluid Level |
| Fuel Level | 127508 | Battery Status |
| Battery Voltage | 130312 | Temperature |
| Exhaust Gas Temperature | 130316 | Temperature, Extended Range |
| Exhaust Gas Temperature | | |

- The instance setting for standard products is set to "00".



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As of March 1st, 2019

OPERATION MANUAL

3G MARINE INSTRUMENT PANEL

1st edition: September 2019

Issued by: YANMAR CO., LTD. Large Power Products Management Division

Edited by: YANMAR TECHNICAL SERVICE CO., LTD.

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0A03G-EN0010
2019.9(YTSK)