FURUNO

Installation Manual
RADAR SENSOR
DRS2D/DRS4D/
DRS4A/DRS6A/DRS12A/DRS25A

NAVnet® 3D

FURUNO ELECTRIC CO., LTD.

www.furuno.co.jp

⚠ SAFETY INSTRUCTIONS

⚠ WARNING

Do not open the equipment unless totally familiar with electrical circuits and service manual.

Only qualified personnel should work inside the equipment.

Wear a safety belt and hard hat when working on the antenna unit.

Serious injury or death can result if someone falls from the radar mast.

Construct a suitable service platform from which to install the antenna unit.

Serious injury or death can result if the power is left on or is applied while the equipment is being installed.

Turn off the power at the mains switch-board before beginning the installation.

Fire, electrical shock or serious injury can result if the power is left on or is applied while the equipment is being installed.

⚠ CAUTION

Ground the equipment to prevent electrical shock and mutual interference.

Observe the following compass safe distance to prevent deviation of a magnetic compass.

Model	Standard	Steering
DRS4A	0.80 m	0.50 m
DRS6A	0.85 m	0.55 m
DRS12A	1.15 m	0.70 m
DRS25A	1.00 m	0.60 m
DRS2D	1.35 m	0.80 m
DRS4D	1.40 m	0.85 m
PSU-012	0.30 m	0.30 m
PSU-013	0.30 m	0.30 m

⚠ WARNING

Radio Frequency Radiation Hazard

The radar antenna emits electromagnetic radio frequency (RF) energy which can be harmful, particularly to your eyes. Never look directly into the antenna aperture from a close distance while the radar is in operation or expose yourself to the transmitting antenna at a close distance.
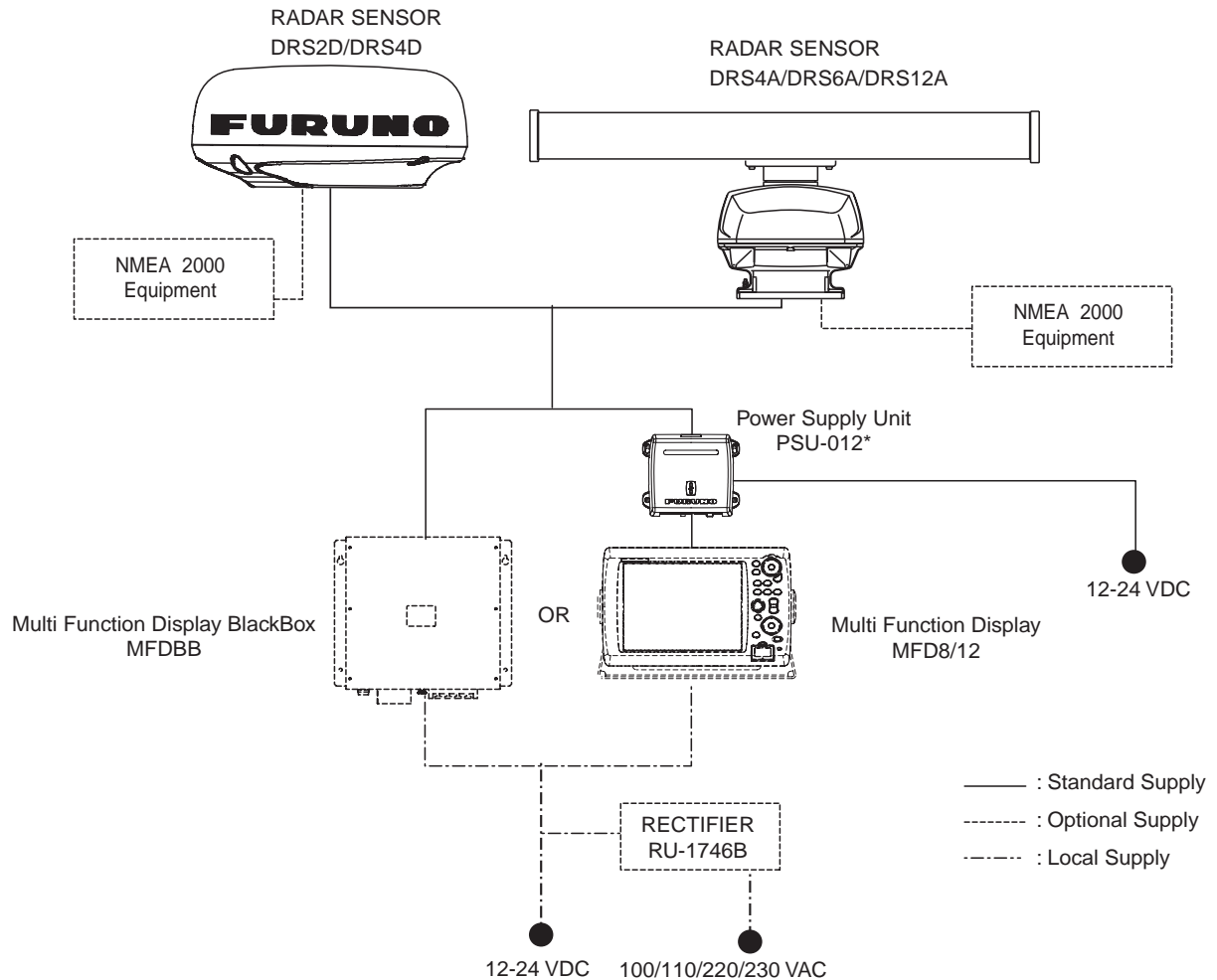
Distances at which RF radiation levels of 100 and 10 W/m² exist are given in the table below.

Note: If the antenna unit is installed at a close distance in front of the wheel house, your administration may require halt of transmission within a certain sector of antenna revolution. This is possible - Ask your FURUNO representive or dealer to provide this feature.

Model	Distance to 100 W/m² point	Distance to 10 W/m² point
DRS4A	Nil	1.20 m
DRS6A	Nil	1.20 m
DRS12A (XN12A)	0.20 m	2.40 m
DRS12A (XN13A)	0.20 m	1.90 m
DRS25A (XN12A)	0.50 m	5.30 m
DRS25A (XN13A)	0.40 m	4.40 m
DRS2D	Nil	0.40 m
DRS4D	0.10 m	1.40 m

i

SYSTEM CONFIGURATION

DRS2D/4D/4A/6A/12A

RADAR SENSOR
DRS2D/DRS4D

RADAR SENSOR
DRS4A/DRS6A/DRS12A

FURUNO

NMEA 2000
Equipment

NMEA 2000
Equipment

Power Supply Unit
PSU-012*

12-24 VDC

Multi Function Display BlackBox
MFDBB

OR

Multi Function Display
MFD8/12

———— : Standard Supply

-------- : Optional Supply

-·—·—·- : Local Supply
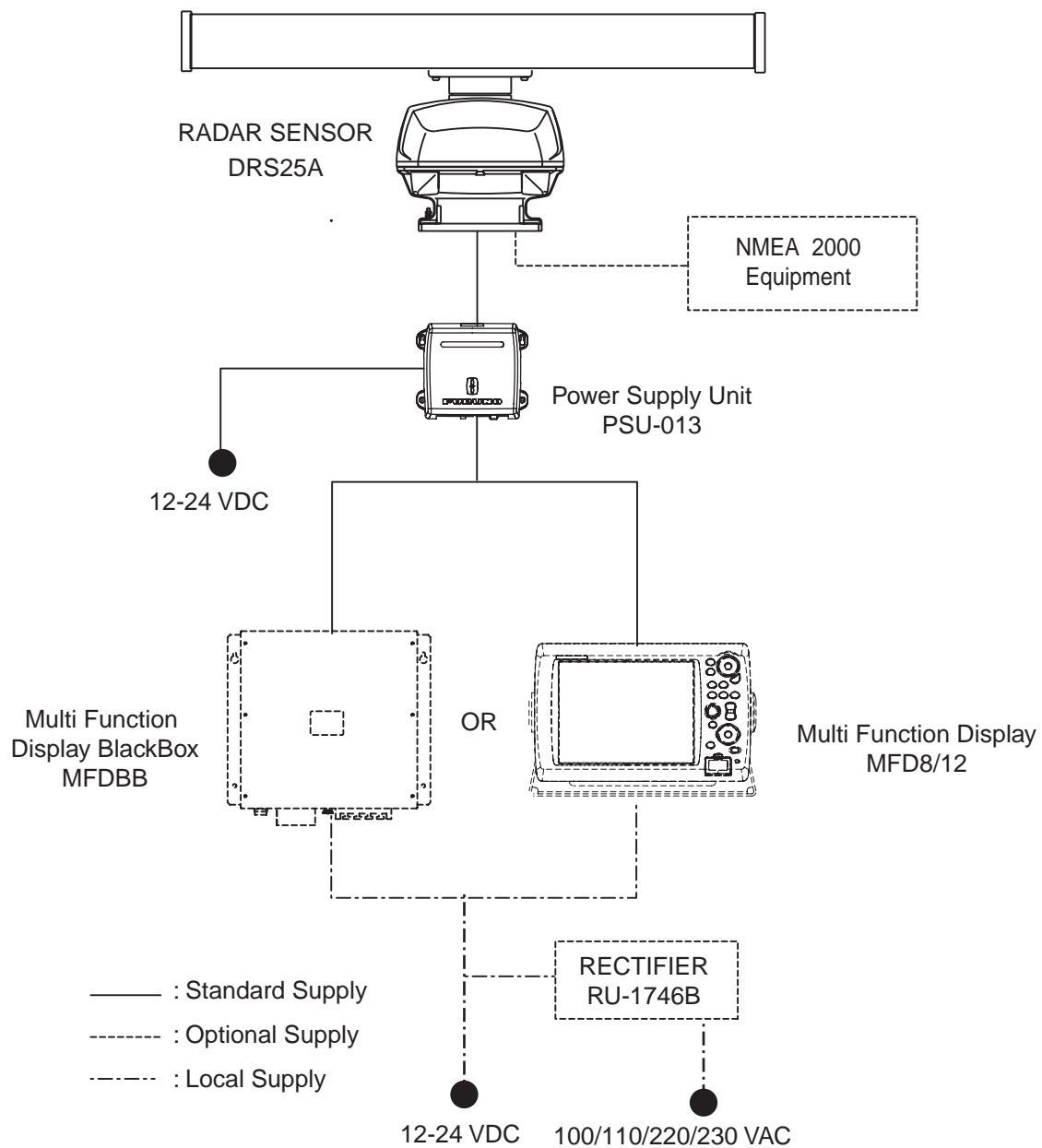
RECTIFIER
RU-1746B

12-24 VDC   100/110/220/230 VAC

*The power supply unit PSU-012 is necessary in the combination of radar sensor and MFD.

	DRS2D/4D	DRS4A	DRS6A	DRS12A (future development)
MFD8	NO	**YES**	**YES**	**YES**
MFD12	NO	NO	NO	**YES**
MFDBB	NO	NO	NO	NO

DRS25A

RADAR SENSOR
DRS25A

NMEA 2000
Equipment

Power Supply Unit
PSU-013

12-24 VDC

Multi Function
Display BlackBox
MFDBB

OR

Multi Function Display
MFD8/12

RECTIFIER
RU-1746B

———— : Standard Supply

-------- : Optional Supply

-·—·—·- : Local Supply

12-24 VDC   100/110/220/230 VAC

EQUIPMENT LISTS

Standard supply

| Name	Type	Code No.	Qty	Remarks
Radar Sensor	XN10A-RSB-118-092	-	1	For DRS4A, w/CP03-32601
	XN12A-RSB-118-093		1	For DRS6A, w/CP03-32601
	XN12A-RSB-118-094	-	1	For DRS12A, 1255 mm, w/CP03-32601
	XN13A-RSB-118-094		1	For DRS12A, 1795 mm, w/CP03-32601
	XN12A-RSB-118-095	-	1	For DRS25A, 1255 mm, w/CP03-32601
	XN13A-RSB-118-095	-	1	For DRS25A, 1795 mm, w/CP03-32601
	DRS2D	-	1	Radome, 2 kW, w/CP03-32101
	DRS4D	-	1	Radome, 4 kW, w/CP03-32101
Power Supply Unit	PSU-013	-	1	For DRS25A, w/SP03-16101 and CP03-32700
Installation Materials	CP03-32101	001-025-270	1 set	For DRS2D/4D
	CP03-32601	001-025-780	1 set	For DRS4A/6A/12A/25A
	CP03-32200	000-011-720	1	Two-way cable, MOD-ASW0001-100+, 10 m, for DRS2D/4D/4A/6A/12A
	CP03-32300	000-011-721		Two-way cable, MOD-ASW0001-150+, 15 m, for DRS2D/4D/4A/6A/12A
	CP03-32400	000-011-722		Two-way cable, MOD-ASW0001-200+, 20 m, for DRS2D/4D/4A/6A/12A
	CP03-32500	000-011-723		Two-way cable, MOD-ASW0001-300+, 30 m, for DRS2D/4D/4A/6A/12A
	CP03-32800	000-011-990		Two-way cable, MOD-ASW0002-100+, 10 m, for DRS25A
	CP03-32810	000-011-991		Two-way cable, MOD-ASW0002-150+, 15 m, for DRS25A
	CP03-32820	000-011-992		Two-way cable, MOD-ASW0002-200+, 20 m, for DRS25A
	CP03-32830	000-011-993		Two-way cable, MOD-ASW0002-300+, 30 m, for DRS25A

Optional supply

| Name	Type	Code No.	Qty	Remarks
Power Supply Unit	PSU-012	-	1 set	
Gasket	OP03-203	001-025-290	1	For DRS2D/4D, 10 NMEA2000 cable
	OP03-205	001-025-790		For DRS4A/6A, 10 NMEA2000 cable
	OP03-206	001-035-290		For DRS25A, 10 NMEA2000 cable
Resister Assy	OP03-204	001-025-300	1	For NMEA2000 connection with a unit
Joint Box	TL-CAT-012	000-167-140-10	1	For LAN cable extension
LAN Cable	MOD-Z072-020+	000-167-175-10	1	2 m
	MOD-Z072-050+	000-167-176-10	1	5 m
	MOD-Z072-100+	000-167-177-10	1	10 m
Cable Assy	M12-05BFFM-010	000-167-965-10	1	NMEA2000, 6, w/connector, 1 m
	M12-05BFFM-020	000-167-966-10	1	NMEA2000, 6, w/connector, 2 m
	M12-05BFFM-060	000-167-967-10	1	NMEA2000, 6, w/connector, 6 m
	CB-05BFFM-010	000-167-971-10	1	NMEA2000, 10, w/connector, 1 m
	CB-05BFFM-020	000-167-972-10	1	NMEA2000, 10, w/connector, 2 m
	CB-05BFFM-060	000-167-973-10	1	NMEA2000, 10, w/connector, 6 m

1. MOUNTING

1.1 Mounting Considerations

- The radar sensor is generally installed either on top of the wheelhouse or on the radar mast on a suitable platform. Locate the radar sensor where there is a good all-round view. Any obstruction will cause shadow and blind sectors. A mast for instance, with a diameter considerably less than the horizontal beamwidth of the radiator, will cause only a small blind sector, but a horizontal spreader or crosstrees in the same horizontal plane as the radar sensor would be a much more serious obstruction; you would need to place the radar sensor well above or below it.

- It is rarely possible to place the radar sensor where a completely clear view in all directions is available. Thus, you should determine the angular width and relative bearing of any shadow sectors for their influence on the radar at the first opportunity after fitting.

- A magnetic compass will be affected if the radar sensor is placed too close to it. Observe the compass safe distances mentioned in the SAFETY INSTRUCTIONS to prevent interference to a magnetic compass.

- Do not paint the radiator aperture and radome to ensure proper emision of the radar waves.

- When this radar sensor is to be installed on large vessels, consider the following points:
  - The two-way cable run between the radar sensor and MFDBB, MFD8, MFD12 or PSU-012 comes in lengths of 10 m, 15 m, 20 m or 30 m.
  - Deposits and fumes from a funnel or other exhaust vent can adversely affect the aerial performance and hot gases may distort the radiator portion. The radar sensor must not be mounted where the temperature is more than 55 degrees centigrade.

As shown in the figure below, the radar sensor may be installed on a common mast or on the radar mast.
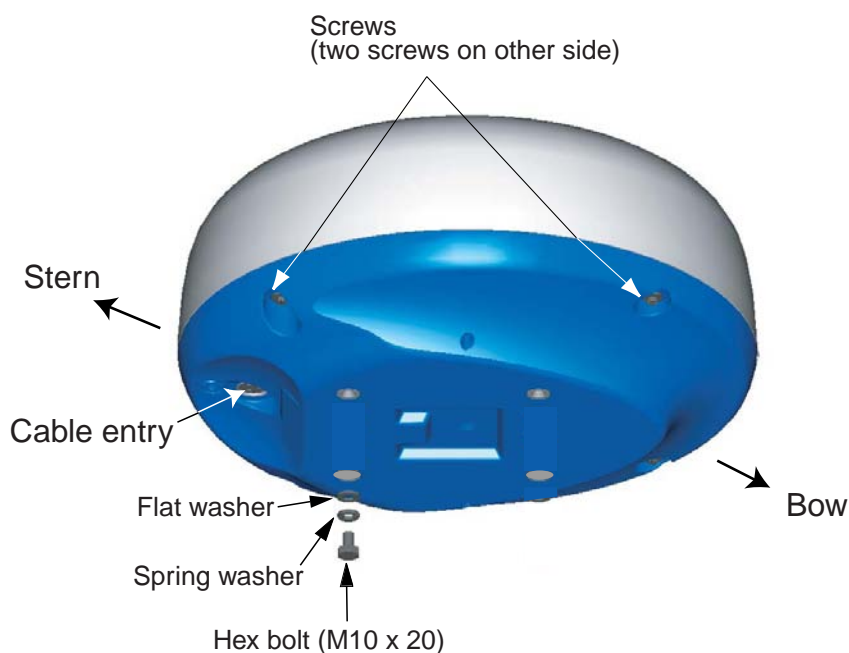

(a) Common mast   (b) Radar mast

For DRS4A/6A/12A

Radar sensor

Radar sensor
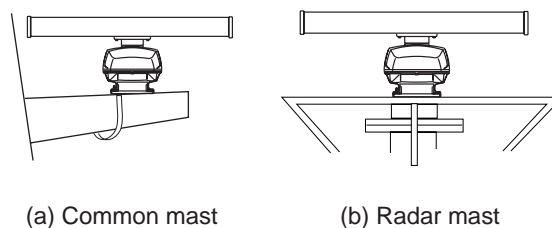
Radar sensor
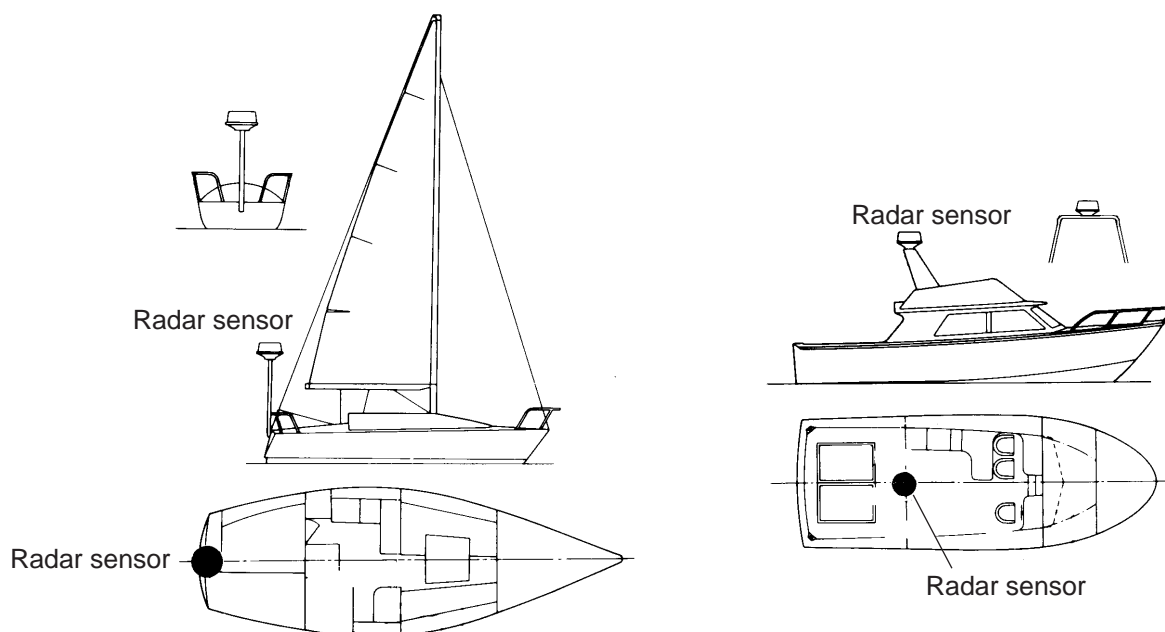
Radar sensor

For DRS2D/4D

1.2 Mounting Procedure for DRS2D/4D

1. Remove mounting hardware at the bottom of the radar sensor, four each of hex bolts
   (M10x20), spring washers and flat washers. Save the spring washers and flat washers to use
   them to fix the radome base to the platform, at step 3. If the thickness of the mounting platform
   is 5 mm or less, also save the bolts.

Screws
(two screws on other side)

Stern

Cable entry

Flat washer
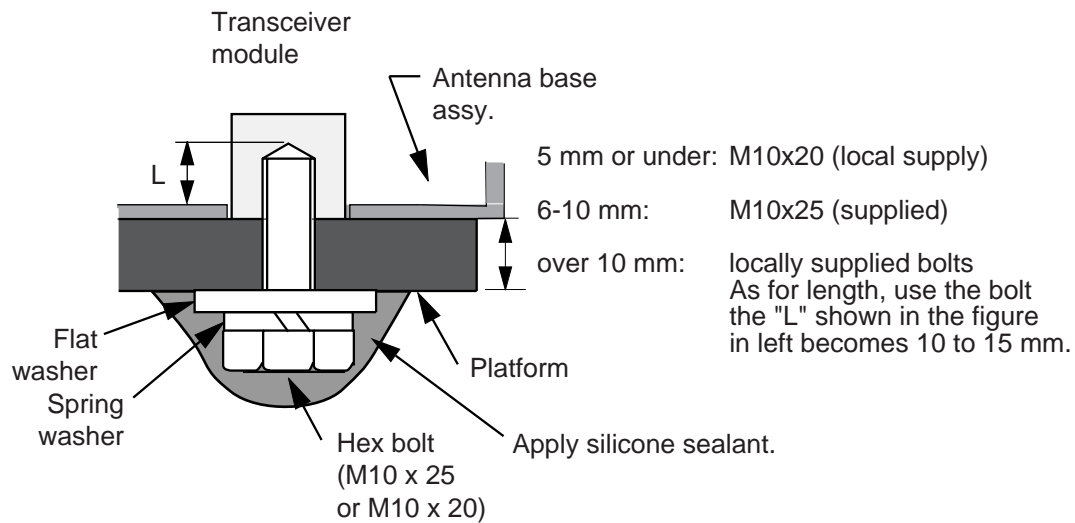
Spring washer

Hex bolt (M10 x 20)

Bow

2. Construct a platform (steel or aluminum) 6-10 mm in thickness referring to the outline drawing
   at the back of this manual. Fasten the platform to the mounting location. Next, position the
   base so the cable entrance is facing the stern.

Note: When drilling holes in the platform, be sure they are parallel with the fore and aft line.

2

3. Use the hex bolts*, flat washers and spring washers removed at step 1, and fasten the radome base to the platform. The torque should be between 19.6-24.5N•m.

*If the thickness of the platform is 6-10 mm, use M10x25 bolts (supplied). For thicker platform, use locally supplied bolts.

Transceiver module

Antenna base assy.

L

5 mm or under: M10x20 (local supply)

6-10 mm: M10x25 (supplied)

over 10 mm: locally supplied bolts
As for length, use the bolt
the "L" shown in the figure
in left becomes 10 to 15 mm.

Flat washer
Spring washer

Platform

Hex bolt
(M10 x 25
or M10 x 20)

Apply silicone sealant.

4. Mount the cover tentatively. The cover is opened for wiring at Chapter 2.

1.3   Mounting Procedure for DRS4A/6A/12A/25A

Refer to the outline drawing at the back of this manual, and drill five holes in the mounting platform: four holes of 15 mm in diameter for fixing the radar sensor and one hole of 25-30 mm in diameter for the signal cable. The outline drawing shows two cable entrance holes, one on the radar sensor and one on the rubber mat. Use only the one on the rubber mat.

1.3.1   Fastening the radiator to the radiator bracket

1. Remove the radiator cap from the radiator bracket.

2. Coat the surface of the radiator bracket with silicone sealant as shown in the figure below.

RADIATOR BRACKET
(top view)

10mm
(Do not coat.)

Coat hatched area with
silicone sealant.
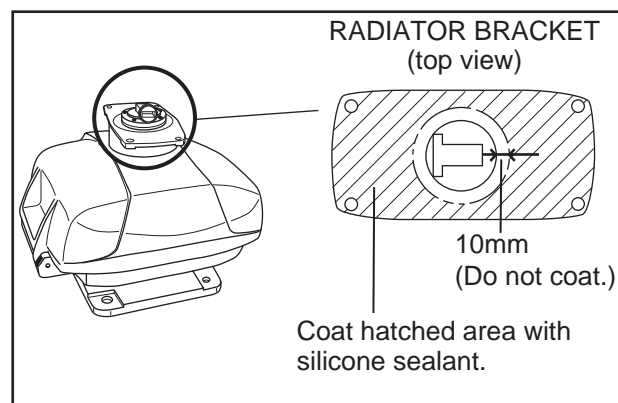
3. Coat threaded holes on the antenna radiator with silicone sealant.

4. Grease the O-ring and set it to the radiator bracket.

3

5. Coat the hex bolts (4 pcs.) with silicone sealant. Fasten the antenna radiator to the radiator bracket with the hex bolts, flat washers and spring washers supplied with the radiator.

Antenna radiator

Coat threaded holes with silicone sealant.

O-ring

Radiator bracket

Flat washer

Spring washer

Hex bolt (M8 x 30)

Coat bolts with silicone sealant.
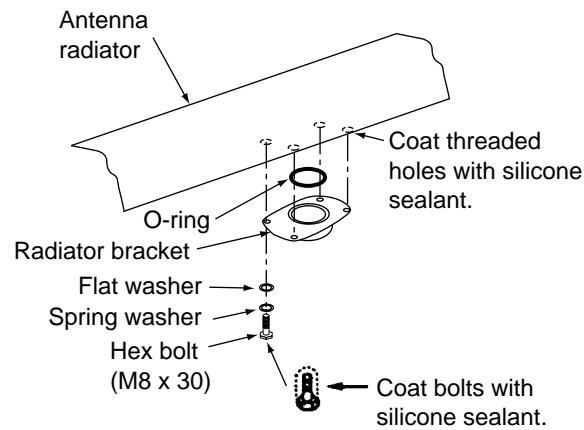
1.3.2 Mounting the radar sensor

The radar sensor can be mounted using the fixing holes on the outside (200 x 200 mm) or inside (140 x 150 mm) the radar sensor.
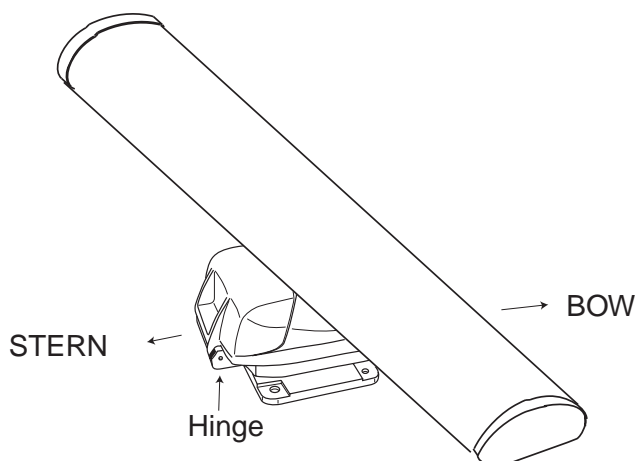
Using outside fixing holes of radar sensor

Use the hex bolts (supplied) to mount the radar sensor as below.

1. Lay the corrosion-proof rubber mat (supplied) on the mounting platform.

Rubber mat

Ground terminal

Bow mark

4
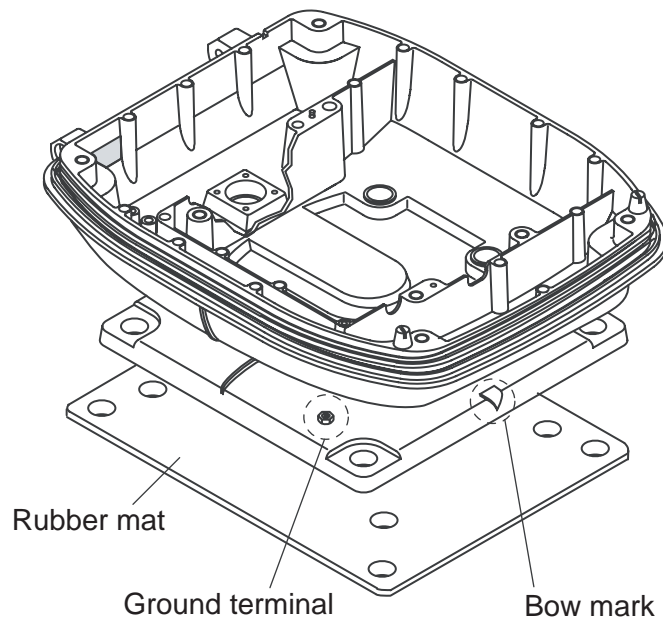
2. Lay the radar sensor on the mounting platform, orienting it as shown below. (The hinges must face toward the stern.)
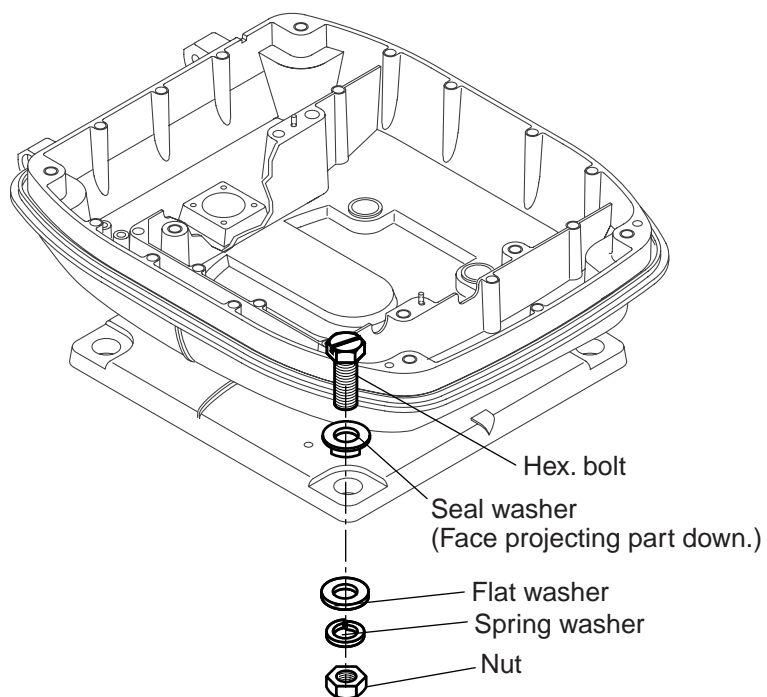
STERN ←

BOW →

Hinge

⚠ CAUTION

Do not lift the radar sensor by the radiator; lift it by the housing.

The radiator may be damaged.

3. Insert four hex bolts (M12 x 60, supplied) and seal washers (ϕ30, supplied) from the top of the housing, as shown below.

Hex. bolt

Seal washer
(Face projecting part down.)

Flat washer

Spring washer

Nut

5

4. Pass flat washers (M12, supplied), spring washers (M12, supplied) and nuts (M12, supplied) onto hex. bolts. Fasten by tightening nuts. Do not fasten by tightening the hex. bolts; seal washers may be damaged.
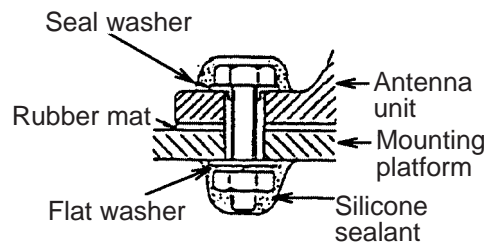
5. Coat flat washers, spring washers, nuts and exposed parts of bolts with anticorrosive sealant.

6. Prepare ground point in mounting platform (within 300 mm of ground terminal on radar sensor) using M6 x 25 bolt, nut and flat washer (supplied).

7. Run the ground wire (RW-4747, 340 mm, supplied) between the ground terminal and ground point.

8. Coat ground terminal and ground point with silicone sealant as shown below.
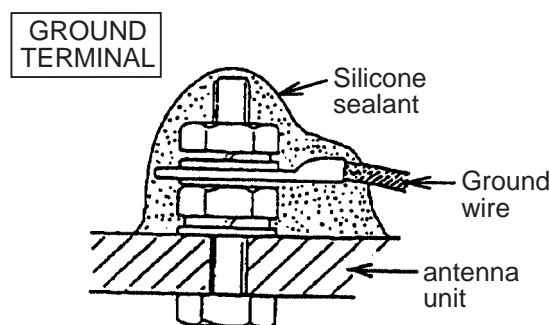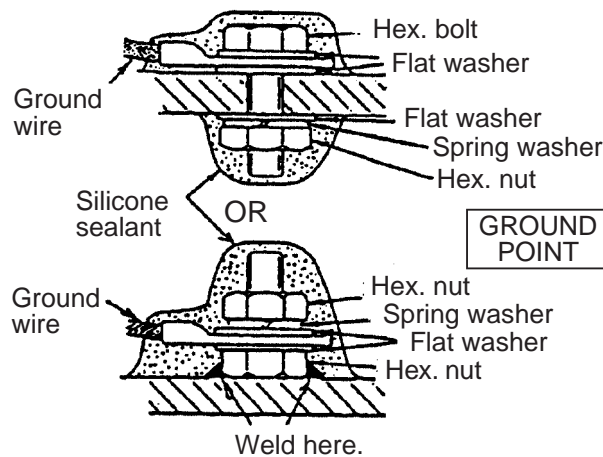
Using inside fixing holes of the sensor housing

If this radar is replacing a FURUNO radar whose mounting dimensions are the same as this one (140 x 150 mm), it may be possible to use its mounting platform. This method requires removal of the RF unit from the radar sensor to access inside fixing holes. Use hex bolts, flat washers, spring washers and nuts (local supply) to mount the radar sensor.

1. Unfasten four bolts from the cover to open the radar sensor.
2. Unplug the PCS connector from RF unit.
3. Separate upper chassis from lower chassis by removing two bolts (M8x25).
4. Remove RF unit by unfastening two hex bolts and two fixing bolt.

(Example: DRS4A/6A)
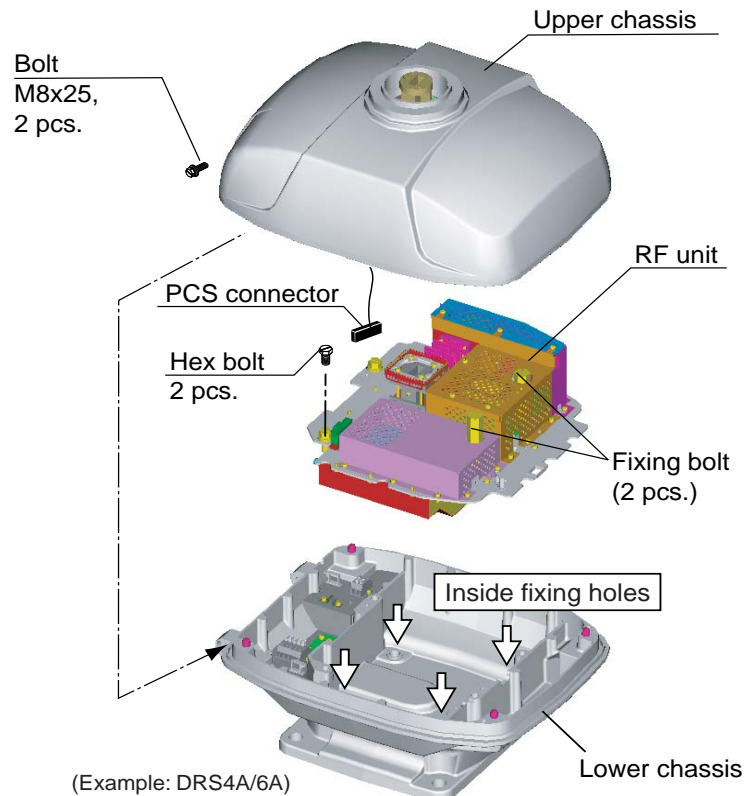
For DRS12A/25A, unfasten four hex bolts, not two fixing bolts, to remove the RF unit.

5. Lay the corrosion-proof rubber mat (supplied) on the mounting platform.
6. Fasten the lower chassis to the mounting platform with hex bolts, spring washers, flat washers and nuts (local supply), and then coat flat washers, nuts and exposed parts of bolts with silicone sealant. Cut a slit in the rubber bushing and insert bolt into the bushing. Do not use seal washers.
7. Remount RF unit.
8. Coat outside fixing holes with silicone sealant and then attach caps (supplied) to holes.
9. Do steps 6-8 on page 6.

1.4 Mounting of Power Supply Unit PSU-013 (for DRS25A)/PSU-012 (Option)

For combinations shown below, the optional power supply unit PSU-012 (Code No.: 000-011-756) is necessary. The PSU-013 is required for any DRS25A installation.

	DRS2D/4D	DRS4A	DRS6A	DRS12A
MFD8	NO	**YES**	**YES**	**YES**
MFD12	NO	NO	NO	**YES**
MFDBB	NO	NO	NO	NO

Contents of PSU-0012/013

Name	Type	Code No.	Qty	Remarks
Power supply unit	PSU-012	-	1	
	PSU-013	-		for DRS25A
Cable assy	VL3P-VV-S2X2C-AA050	000-152-217-10	1	5 m
LAN cable	MOD-Z072-050+	000-167-176-10	1	5 m, standard
Self-tapping screw	4x20, SUS304	000-158-850-10	4	
Fuse*	FGB0 250V 10A	000-155-839-10	2	For 24 VDC
	FGB0 250V 15A	000-157-874-10	2	For 12 VDC

*Note: The power supply unit is shipped with 15A fuse. Replace fuse with 10A when using the unit with 24V ship's battery.

The power supply unit can be installed almost anywhere provided the following conditions are met:

• Location is dry, well ventilated.

• Sufficient maintenance space is available.

• Installated within 2, 5 or 10 m (2 and 10 m: optional supply) from the multi function display.

Do not install the power supply unit on the overhead; install it on the deck or bulkhead. Use four tapping screws (4x20, supplied) to fasten the power supply unit.

Self-tapping screw (4x20, 4 pcs.)
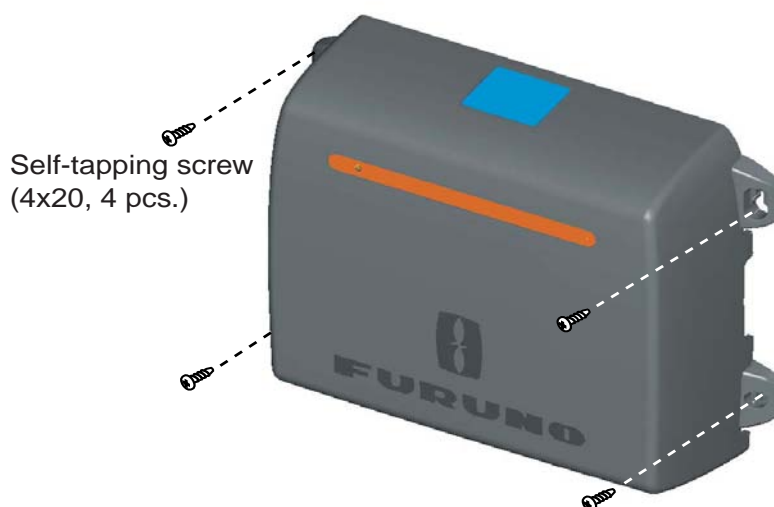
Power supply unit PSU-012/013

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2. WIRING

The MFDBB, MFD8, MFD12 or PSU-012 connects to the radar sensor with the two-way cable MOD-ASW0001 (MOD-ASW0002 for DRS25A).In order to minimize the chance of picking up electrical interference, avoid where possible routing the two-way cable near other onboard electrical equipment. After passing the cable through the hole in the radar sensor, apply sealing compound around the hole for waterproofing. When connecting to other NMEA2000 equipment, use the optional cable M12-05BFFM (φ6) or CB-05BFFM (φ10).

<div style="border:1px solid black; padding:10px;">

NOTICE

Before connecting or disconnecting the NMEA2000 cable, turn off the radar sensor.

The sensor may become damaged if the power is not turned off.

</div>

Wiring for DRS2D/4D/4A/6A/12A without PSU-012

RADAR SENSOR
DRS2D/DRS4D

RADAR SENSOR
DRS4A/DRS6A/DRS12A

FURUNO

NMEA2000 cable
M12-05BFFM (φ6) or
CB-05BFFM (φ10)

NMEA2000
Equipment

Two-way cable
MOD-ASW0001
(10/15/20/30 m)

NMEA2000
Equipment

NMEA2000 cable
M12-05BFFM (φ6) or
CB-05BFFM (φ10)

——— : Standard Supply

-------- : Optional Supply

To Multi Function Display BlackBox
MFDBB or Multi Function Display
MFD8/12
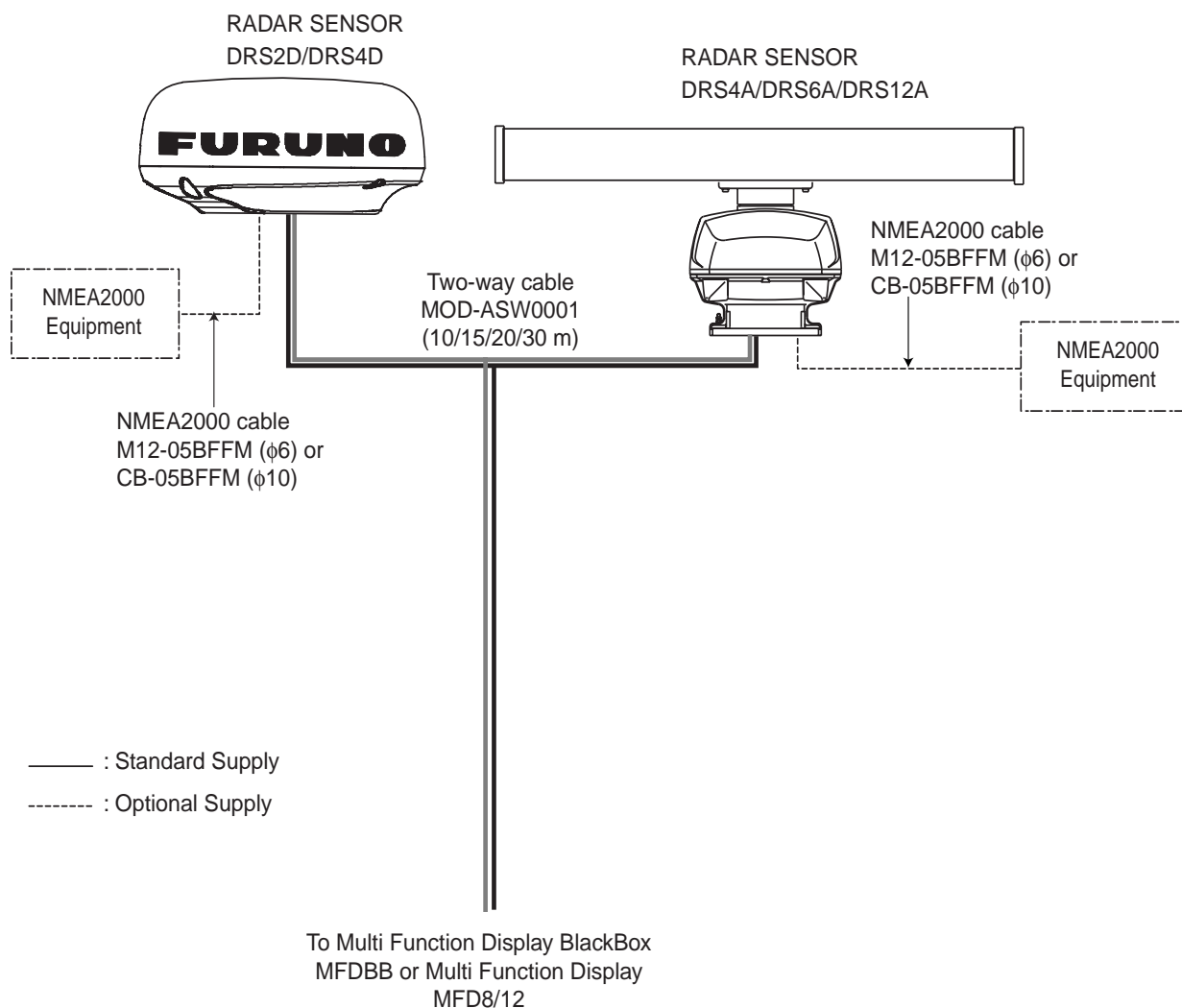
Wiring for DRS2D/4D/4A/6A/12A with PSU-012

Radar Sensor
DRS2D/DRS4D

Radar Sensor
DRS4A/DRS6A/DRS12A

FURUNO

NMEA2000
Equipment

Two-way cable
MOD-ASW0001
(10/15/20/30 m)

NMEA2000 cable
M12-05BFFM (φ6) or
CB-05BFFM (φ10)

NMEA2000
Equipment

NMEA2000 cable
M12-05BFFM (φ6) or
CB-05BFFM (φ10)

(LAN)   (Power)

Power Supply Unit
PSU-012

12-24 VDC

Power cable
VL3P-VV-S2X2C-AA050
(supplied with PSU-012)

LAN cable
MOD-Z072
-5 m: supplied
-2, 10 m: option

———— : Standard Supply

-------- : Optional Supply

-·—·—· : Local Supply

To ship's ground

Ground wire
(Local supply, IV-2sq)

To Multi Function Display BlackBox
MFDBB or Multi Function Display
MFD8/12

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Wiring for DRS25A

RADAR SENSOR
DRS25A

NMEA2000 cable
M12-05BFFM (ϕ6) or
CB-05BFFM (ϕ10)

NMEA2000
Equipment

Two-way cable
MOD-ASW0002 cable
(10/15/20/30 m)

(POWER)

(LAN)

Power cable
VL3P-VV-S2X2C-AA50

Power Supply Unit
PSU-013

12-24 VDC

LAN cable
MOD-2072-050

Ground wire
(Local supply, IV-2sq)

To ship's ground

To Multi Function Display BlackBox
MFDBB or Multi Function Display
MFD8/12

———— : Standard Supply

-------- : Optional Supply

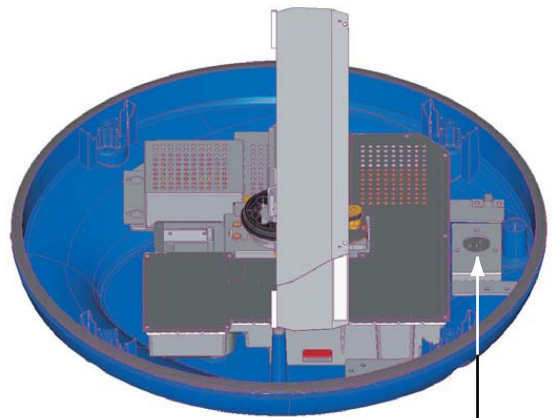-·—·-·· : Local Supply

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2.1　Wiring inside DRS2D/4D

Two-way cable connection

1. Unfasten three screws at the bottom of the mounting base to remove the fixing plate for the gasket.

Fixing plate
(for gasket)

2. Remove the gasket, and pass the two-way cable MOD-ASW0001.

3. Fasten the shield of the cable (power) with the cable clamp in the radar sensor, and connect the connector of cable (power) to the power terminal.

4. Connect the RJ-45 connector of the cable (LAN) to the LAN terminal in the radar sensor.

LAN terminal

Power terminal

Fix the cable (LAN)
with this locking saddle.
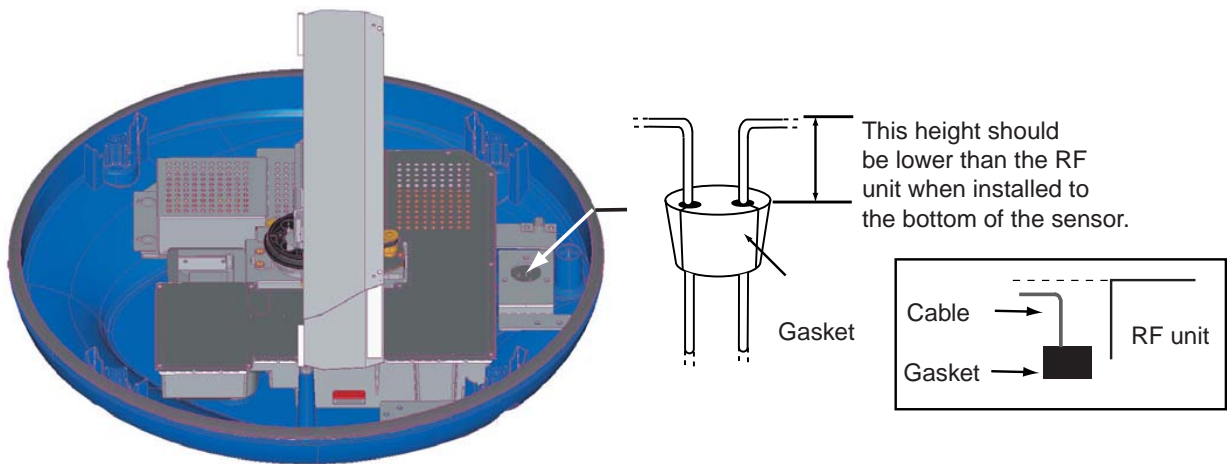
Fix the shield cable
(power) with this clamp.
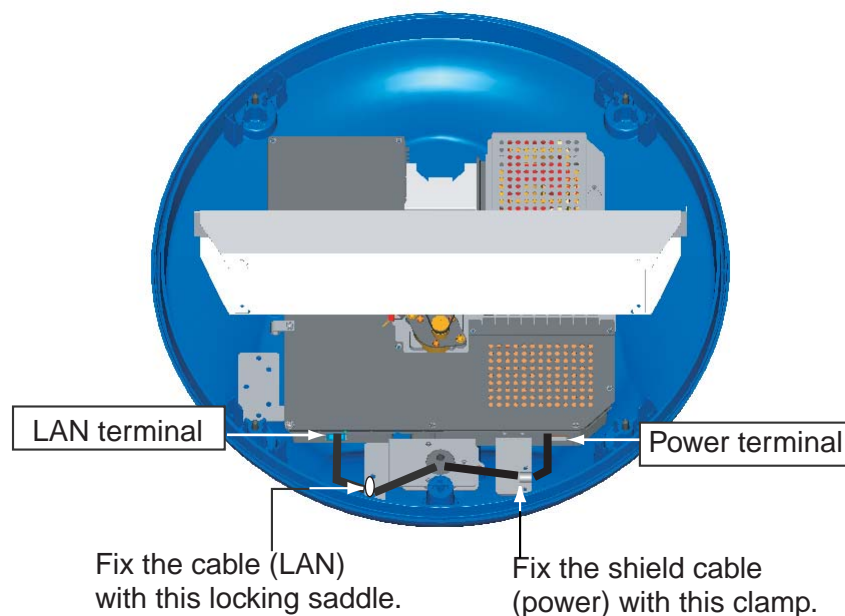
5. Push cables of the two-way cable into the slits of the gasket inside the radar sensor.

**Note:** The ends of the gasket are different. Larger end should be up.

Large

Up

Small

12

6. Slide the gasket on cables so that the amount of cable above the gasket is lower than the RF chassis.

This height should be lower than the RF unit when installed to the bottom of the sensor.

Gasket

Cable → RF unit
Gasket →

Note: If the two-way cable touches the platform near the mounting base, wind vinyl tape around the cable at the point where it is bent.

7. Confirm that the rubber gasket is properly positioned and that the triangle mark on the cover is aligned with the triangle mark on the mounting base, then tighten the fixing screws for the cover.

Triangle marks

Cover →
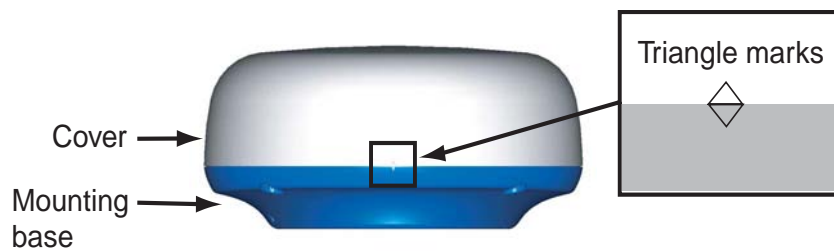
Mounting base →

Connecting to NMEA2000 equipment

To connect NMEA2000 equipment to the sensor, wire an optional NMEA2000 cable, M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10), as shown below. Also, the gasket at the bottom of mounting base must be replaced.

1. Do steps 1 to 4 on page 12.

2. Refer to the figure below, and fabricate the cable M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10).

5   15 (Area fastened with the cable clamp)

M12-05BFFM cable

100   Shield
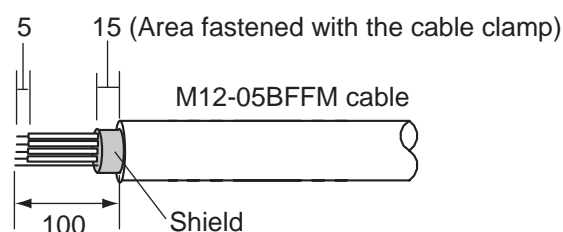
Fabrication of cable M12-05BFFM (ϕ6)

13

5 — 15

Shield

CB-05BFFM cable

370

Fasten the cable tie (supplied) within 15 mm from the end of vinyl sheath.

Wind vinyl tape. (supplied)

CB-05BFFM cable

20

65

15 (Area fastened with the cable clamp)
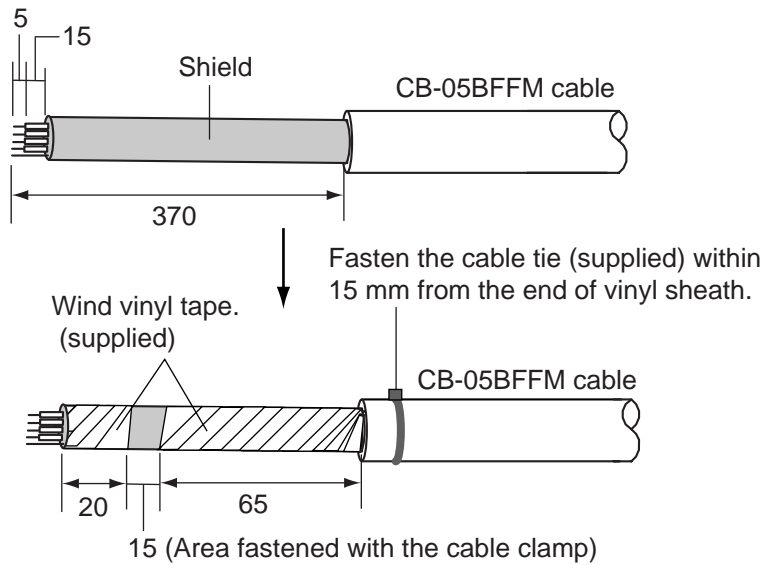
Fabrication of CB-05BFFM cable

3. Insert wires of cable M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10) to the NMEA connector inside the radar sensor, consulting the label on the connector for location. As for shield, use the cable clamp shown below to fasten it to the RF chassis.

Cable	M12-05BFFM (ϕ6)	CB-05BFFM (ϕ10)
Clamp	Use the clamp in the plastic bag supplied inside the radar sensor.	Use the clamp supplied with the optional gasket (Type: OP03-203, Code No.: 001-025-290)

Zoom up

Attach the cable clamp using this screw.

Cable clamp (Face projecting part down.)

14
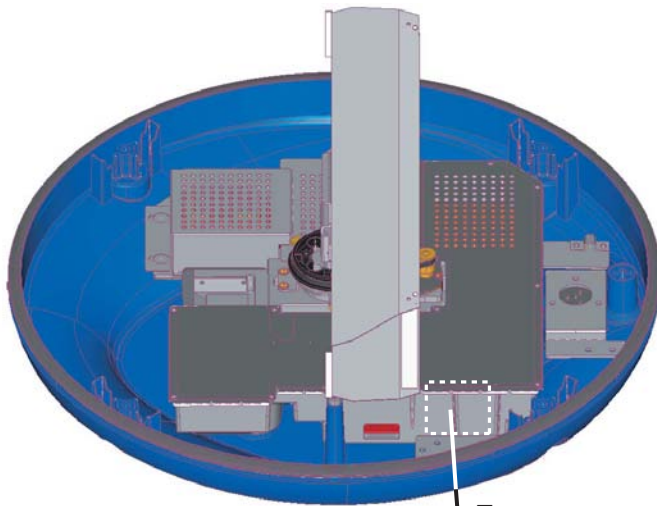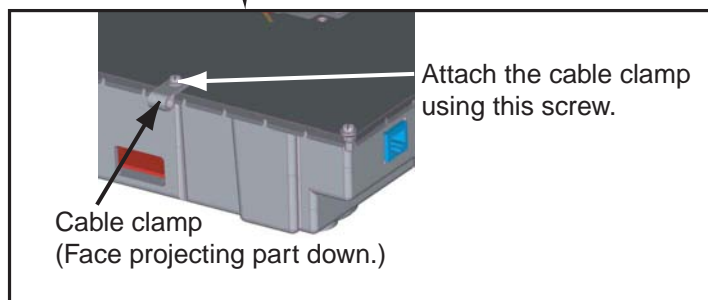
4. Push LAN and POWER cables of the two-way cable and cable M12-05BFFM (φ6) or CB-05BFFM (φ10) into the slits of the gasket inside the mounting base. Depending on the NMEA2000 cable used, replace the gasket as shown below.

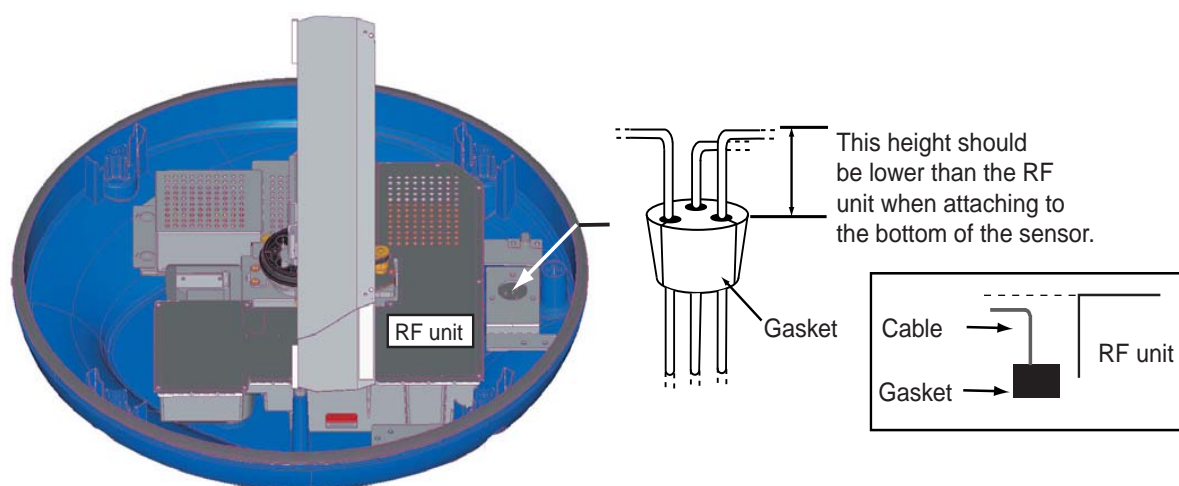| Cable type	M12-05BFFM (φ6)	CB-05BFFM (φ10)
Gasket	Use the gasket supplied in the plastic bag inside the radar sensor.	Use the optional gasket. (Type: OP03-203, Code No.: 001-025-290)

Note: The ends of the gasket are different. Larger end should be up)

Large

Up

Small

5. Slide the gasket on cables so that the amount of cable above the gasket is lower than the RF chassis.

RF unit

This height should be lower than the RF unit when attaching to the bottom of the sensor.

Gasket

Cable

Gasket

RF unit

Note: If the two-way cable touches the platform near the radar sensor base, wind vinyl tape around the cable at the point where is bent.

6. Confirm that the rubber gasket is properly positioned and that the triangle mark on the cover is aligned with the triangle mark on the mounting base, then tighten the fixing screws for the cover.

2.2 Wiring inside DRS4A/6A/12A/25A

Two-way cable connection

If you have no NMEA2000 equipment to connect, use the MOD-ASW0001 cable (standard supply).

1. Open the radar sensor cover by loosening four bolts, and fix the stay for safety purpose.

2. Unfasten four bolts to detach the plate, gasket, washer and lid. Discard the lid at the bottom of the hole for the gasket.
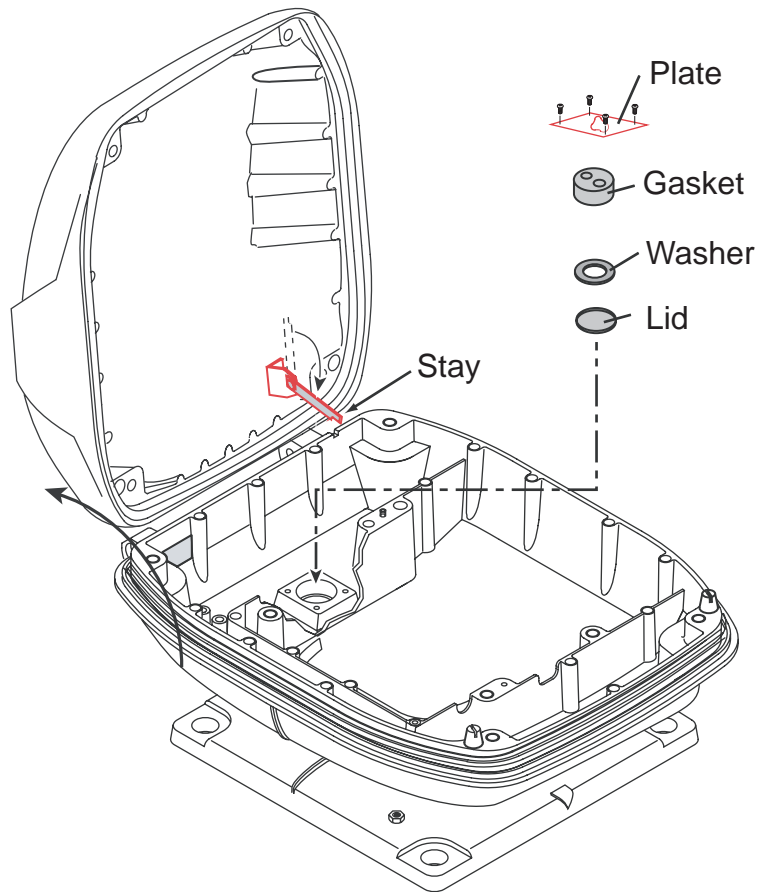
3. Pass the two-way cable MOD-ASW0001 (MOD-ASW0002 for DRS25A) through the bottom of the chassis and washer.

4. Fasten the shield of the power cable of the two-way cable (part of the foil) with the cable clamp in the radar sensor, and then connect the power cable to the power terminal as shown on next page.

16

5. Attach the LAN cable of the two-way cable to the LAN terminal in the radar sensor.

Fix the power cable at the foil part with this cable clamp.

Power cable

White

Black

Power terminal

LAN cable

RF unit

LAN terminal

DRS4A/6A/12A

Fix the power cable at the copper foil part with this cable clamp.

LAN cable

Gasket

White

Power terminal

Blue

Red

Power cable

Black

LAN terminal
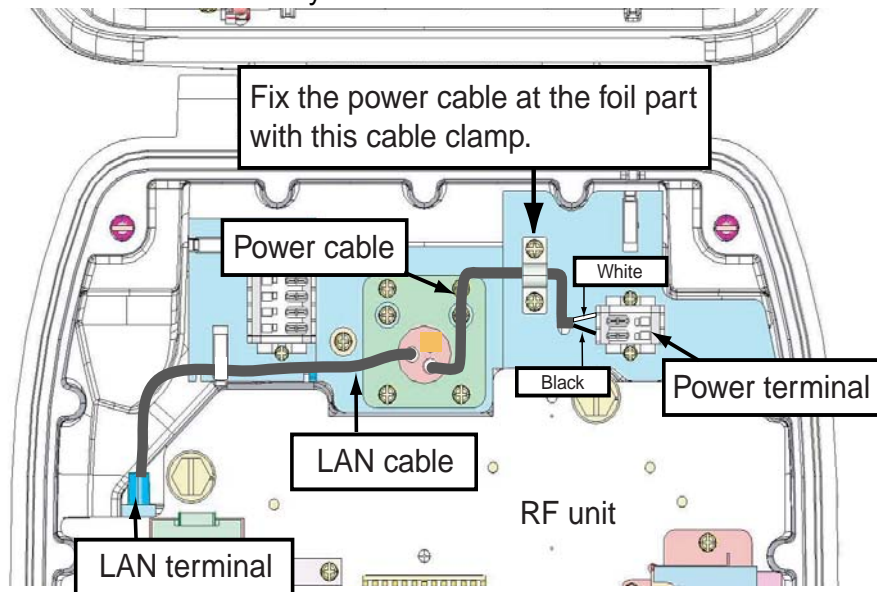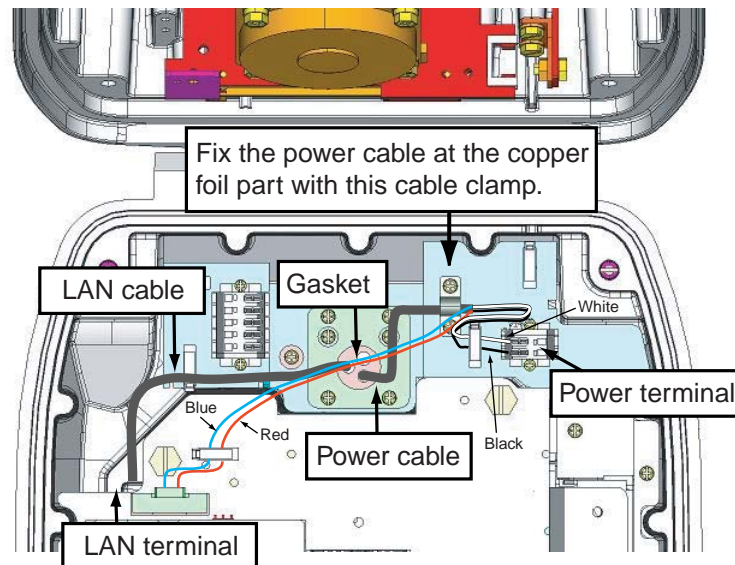
DRS25A

6. Refer to the illustration shown below, and attach the gasket to the two-way cable, inserting the cable into the slits on the gasket.

17

7. Slide the gasket on cables so that the amount of cable above the gasket is lower than the RF chassis.

This height should be lower than the RF unit when installed to the bottom of the sensor.

Cable →

Gasket →

RF unit

Washers →

Gasket

8. Push the gasket and washers into the hole at the bottom of the radar sensor, then fasten four pan head screws to fix the plate to the sensor.

9. Release the stay and close the cover.

Note: When closing the cover, set the gaskets to grooves in the bottom chassis, then tighten bolts.

BOTTOM
CHASSIS

GROOVE

GASKET

HEX BOLT

Torque : 9.8 ±0.1 N·m

Connecting to NMEA2000 equipment

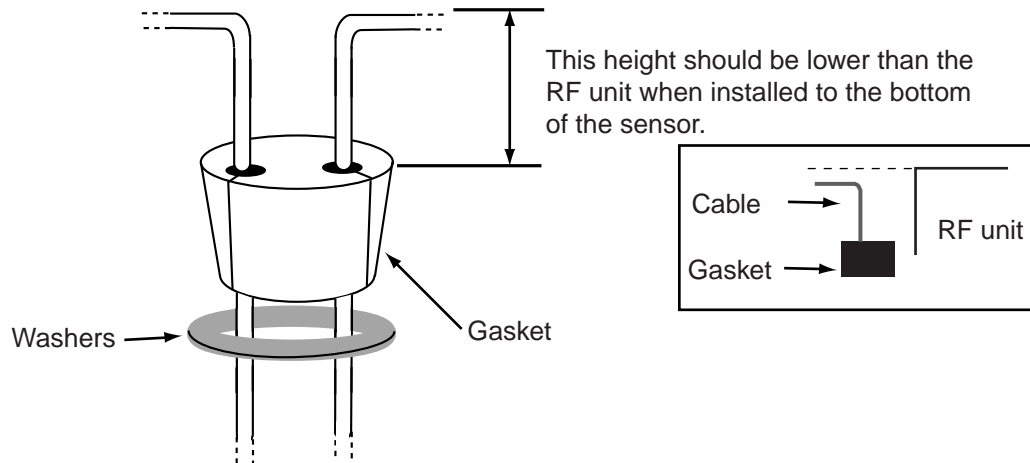To connect NMEA2000 equipment to the sensor, use an optional NMEA2000 cable, M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10). Also, the gasket at the bottom of the antenna sensor must be replaced.

1. Do steps 1 to 5 on pages 16 and 17.

2. Fabricate the cable M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10) as shown below.

5

95

Cable M12-05BFFM
or CB-05BFFM
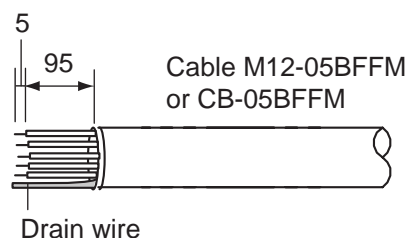
Drain wire

3. Pass the cable through the bottom of the chassis.

4. Insert wires of the cable M12-05BFFM (ϕ6) or CB-05BFFM (ϕ10) to the NMEA connector inside the radar sensor, consulting the label on the connector for location. As for drain wire, attach

18

the crimp-on lug (pre-attached at the bottom of the chassis) to the drain wire, and fasten it with the screw shown below.

A view

NMEA connector
NMEA connector
Crimp-on lug
Drain wire
Fasten the drain wire with this screw.
NMEA cable
RF unit
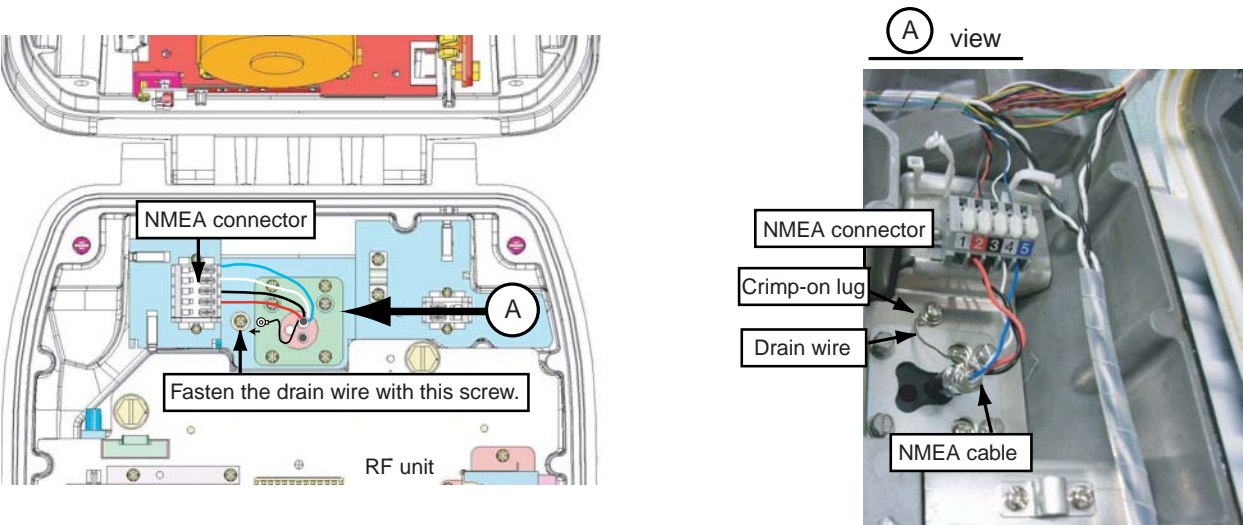
5. Depending on the NMEA2000 used, replace the gasket as shown below.

DRS4A/6A/12A

Cable type	M12-05BFFM (φ6)	CB-05BFFM (φ10)
Gasket	Use the gasket supplied in the plastic bag inside the radar sensor.	Use the optional gasket. (Type: OP03-205, Code No.: 001-025-790)

DRS25A

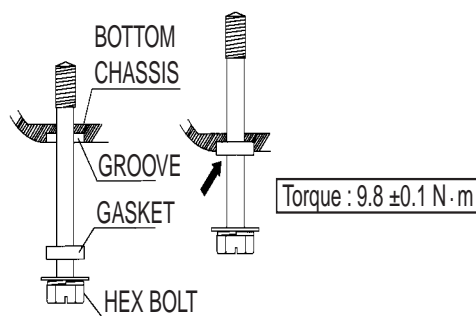| Cable type	M12-05BFFM (φ6)	CB-05BFFM (φ10)
Gasket	Use the gasket supplied in the plastic bag inside the radar sensor.	Use the optional gasket. (Type: OP03-206, Code No.: 001-035-290)

6. Refer to the illustration shown on next page, and attach the gasket to the two-way cable inserting the cable into the slits on the gasket.

7. Slide the gasket on cables so that the amount of cable above the gasket is lower than the RF chassis.

This height should be lower than the RF unit when installed to the bottom of the sensor.

Gasket

Washer

Cable

Gasket

RF unit
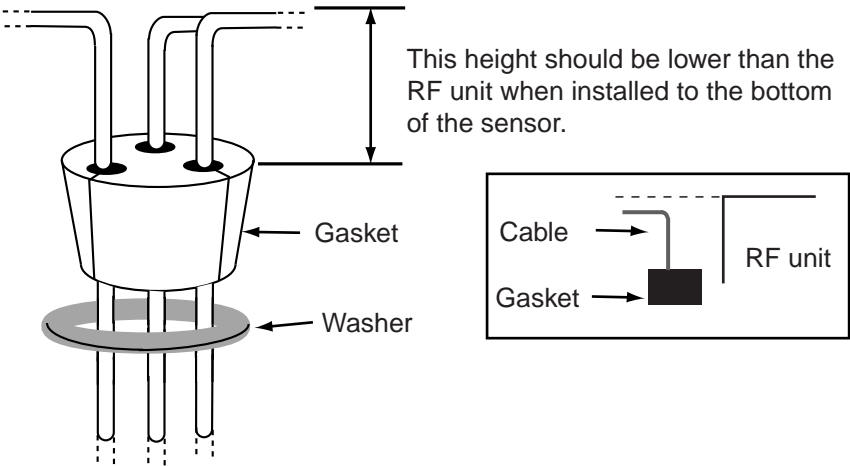
8. Do steps 8 and 9 on page 18.

19

2.3 Wiring of Power Supply Unit PSU-013 (for DRS25A)

1. Detach the body cover by hand.

2. Loosen six pan head screws (M3x8) and slide the shield cover upward to remove it.

3. Unfasten four pan head screws (M14x10) to remove two cable clamps.
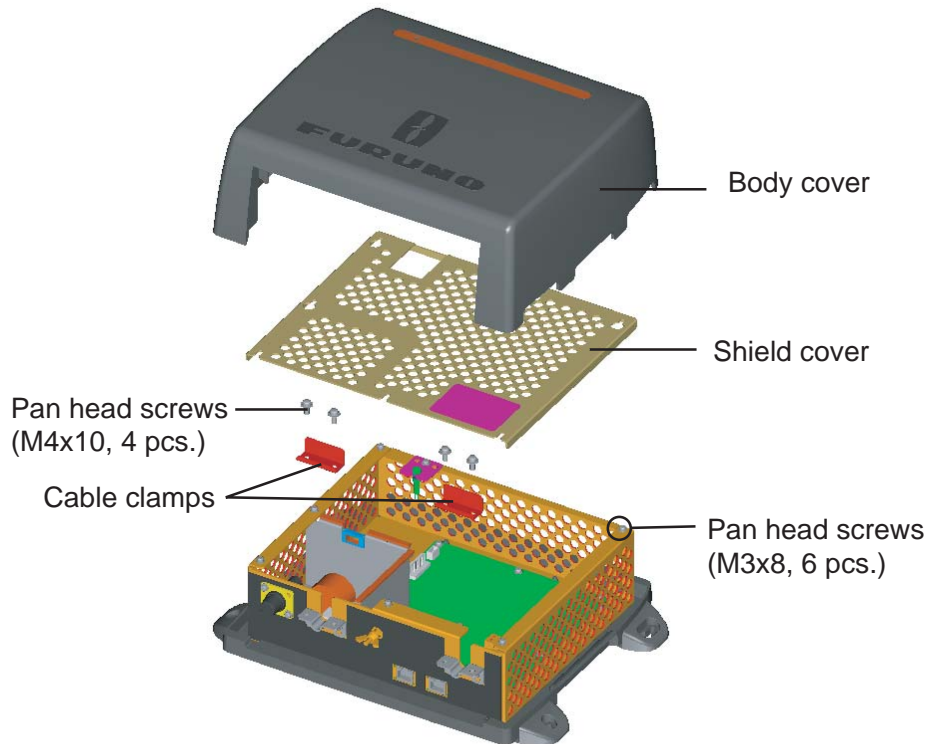
4. Connect the cable VL3P-VV-S2X2C-AA50 and MOD-ASW0002 cables (supplied) to appropriate connectors in the power supply unit as shown below.
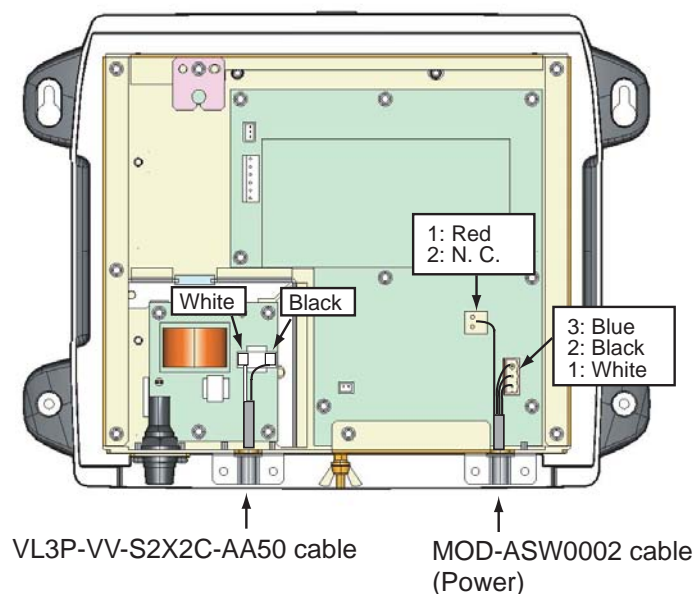
5. Remove two cable clamps, shield cover and body cover in that order.

6. Connect other cables.

20

2.4 Wiring inside Power Supply Unit PSU-012 (Option)

1. Detach the body cover by hand.

2. Loosen six pan head screws (M3x8) and slide the shield cover upward to remove it.

3. Unfasten two pan head screws (M4x12) to remove the cable clamp.

Body cover

Shield cover

Pan head screw
(M4x12, 2 pcs.)

Cable clamp

Pan head screw
(M3x8, 6 pcs.)
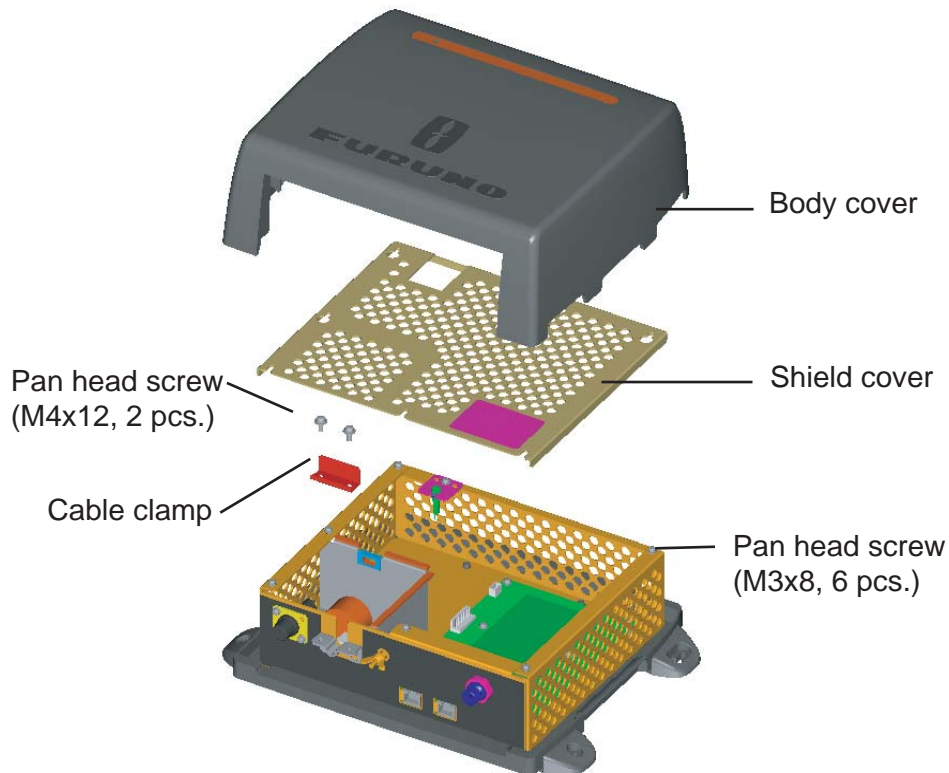
4. Connect the cable VL3P-VV-S2X2C-AA050 (supplied) to the power connector in the PSU-012.

For white wire   For black wire
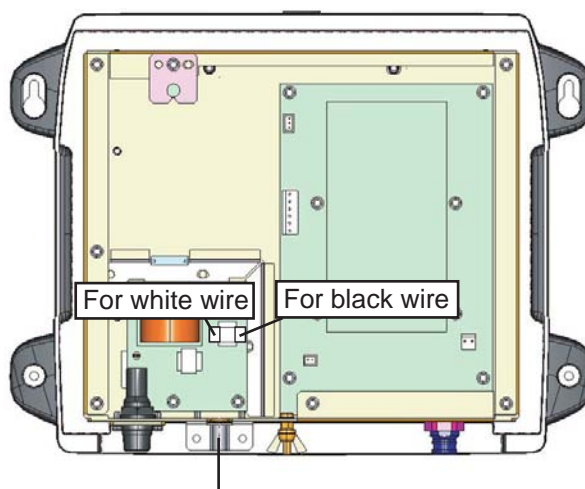
Put the cable VL3P-VV-S2X2C-AA050 here at the shield part.

5. Remount the cable clamp, shield cover and body cover in that order.

6. Connect other cables.

FURUNO

CODE NO.	001-025-270-00	03HA-X-9401 -0
TYPE	CP03-32101	1/1

INSTALLATION MATERIALS

NO	NAME	OUTLINE	DESCRIPTIONS		QTY	REMARKS
1	RESISTOR ASSEMBLY	≒60	120 OHM 1007#24-L50		1	
			CODE NO.	000-167-746-10		
2	FLAT WASHER	φ21	M10 SUS304		4	
			M10 SUS304			
			CODE NO.	000-167-232-10 / 000-864-131-00		
3	SPRING WASHER	18	M10 SUS304		4	
			M10 SUS304			
			CODE NO.	000-167-233-10 / 000-864-261-00		
4	HEX.BOLT (SLOTTED HEAD)	25 φ10	M10X25 SUS304		4	
			CODE NO.	000-162-883-10		

/

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.
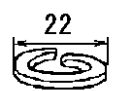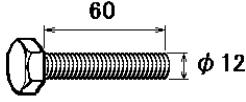
DIMENSIONS IN DRAWING FOR REFERENCE ONLY.

03HA-X-9401

FURUNO

CODE NO.	001-025-780-00	03GY-X-9401 -2
TYPE	CP03-32601	1/2
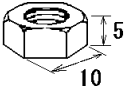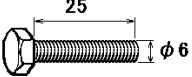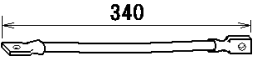
工事材料表
INSTALLATION MATERIALS

RSB-118-092/093/094

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS		数量 Q'TY	用途／備考 REMARKS
1	シールワッシャ SEAL WASHER	φ30	03-001-3002-0 ROHS 03-001-3002-0		4	
			CODE NO.	300-130-020-10 300-130-020-00		
2	防蝕ゴム CORROSION-PROOF RUBBER MAT	256 256	03-142-3001-0 ROHS		1	
			CODE NO.	100-275-580-10		
3	キャップ CAP	φ17 4.4	040-4010		4	
			CODE NO.	000-164-929-10		
4	テイコウ組品 RESISTOR ASSEMBLY	≒60	120 OHM-1007#24-L50		1	
			CODE NO.	000-167-746-10		
5	バネ座金 SPRING WASHER	22	M12 SUS304		4	
			CODE NO.	000-167-397-10		
6	ミガキマル平座金 FLAT WASHER	φ24	M12 SUS304		4	
			CODE NO.	000-167-446-10		
7	六角ナット 1シュ HEX. NUT	10 19	M12 SUS304		4	
			CODE NO.	000-167-491-10		
8	六角ボルト（全ネジ） HEX. BOLT	60 φ12	M12X60 SUS304		4	
			CODE NO.	000-162-813-10		
9	ミガキ平座金 FLAT WASHER	φ13	M6 SUS304		3	
			CODE NO.	000-158-854-10		
10	バネ座金 SPRING WASHER	12	M6 SUS304		1	
			CODE NO.	000-158-855-10		

型式/コード番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。　なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO ELECTRIC CO ., LTD.　　03GY-X-9401

FURUNO

CODE NO.	001-025-780-00	03GY-X-9401 -2
TYPE	CP03-32601	2/2

工事材料表
INSTALLATION MATERIALS

RSB-118-092/093/094

番 号 NO.	名 称 NAME	略 図 OUTLINE	型名／規格 DESCRIPTIONS		数量 Q'TY	用途／備考 REMARKS
11	六角ナット 1シュ HEX. NUT	5 10	M6 SUS304		1	
			CODE NO.	000-158-856-10		
12	六角ボルト HEX. BOLT	25 φ6	M6X25 SUS304		1	
			CODE NO.	000-162-871-10		
13	アース線 GROUND WIRE	340	RW-4747-1		1	
			CODE NO.	000-566-000-01		
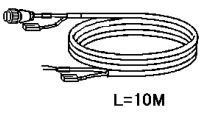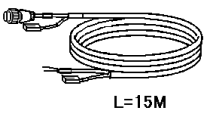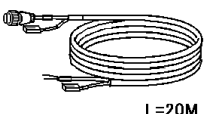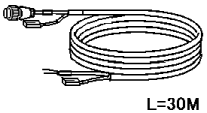
型式/コード番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.
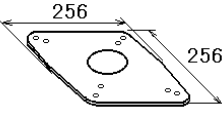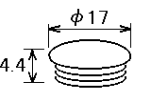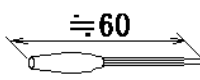（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO ELECTRIC CO ., LTD.   03GY-X-9401

FURUNO

CODE NO.		03HA-X-9402 -0
TYPE		1/1

INSTALLATION MATERIALS	RADAR SENSOR DRS2D/4D	

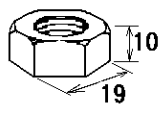| NO.	NAME	OUTLINE	DESCRIPTIONS	Q'TY	REMARKS
1	CABLE ASSY.	L=10M	MOD-ASW0001-100+ CODE NO. 000-167-635-00	1	TO BE SELECTED
2	CABLE ASSY.	L=15M	MOD-ASW0001-150+ CODE NO. 000-167-636-00	1	TO BE SELECTED
3	CABLE ASSY.	L=20M	MOD-ASW0001-200+ CODE NO. 000-167-637-00	1	TO BE SELECTED
4	CABLE ASSY.	L=30M	MOD-ASW0001-300+ CODE NO. 000-167-638-00	1	TO BE SELECTED

15
STANDARD LENGTH IS 15M. OTHER LENGTHS ARE ALSO AVAILABLE.

/

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

DIMENSIONS IN DRAWING FOR REFERENCE ONLY.

03HA-X-9402

FURUNO

CODE NO.		03HC-X-9402 -0
TYPE		1/1

工事材料表
INSTALLATION MATERIALS

RADAR SENSOR

DRS25A

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS		数量 Q'TY	用途／備考 REMARKS
1	ケーブル組品 CABLE ASSY.	L=10M	MOD-ASW0002-100+	CODE NO. 000-167-639-00	1	*選択 TO BE SELECT
2	ケーブル組品 CABLE ASSY.	L=15M	MOD-ASW0002-150+	CODE NO. 000-167-640-00	1	*選択 TO BE SELECT
3	ケーブル組品 CABLE ASSY.	L=20M	MOD-ASW0002-200+	CODE NO. 000-167-641-00	1	*選択 TO BE SELECT
4	ケーブル組品 CABLE ASSY.	L=30M	MOD-ASW0002-300+	CODE NO. 000-167-642-00	1	*選択 TO BE SELECT

型式/コード番号が２段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO ELECTRIC CO .,LTD. 03HC-X-9402

FURUNO ELECTRIC CO., LTD.

FURUNO

表1 TABLE 1

寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

空中線部底部
ANTENNA BOTTOM
プラットフォーム
PLATFORM
F.W.
M10六角ボルト
M10 BOLT
S.W.

A部 詳細（尺度 1／4）
DETAIL OF A (SCALE: 1/4)

15

船首方向
BOW

取付穴
4-M10
FIXING HOLES

60
180
160±0.5
160±0.5

通気孔 φ7
AIR VENT

ケーブル導入口
CABLE ENTRY

φ488

220
75
166
307

A

ケーブル導入口
CABLE ENTRY

302

銘板
NAMEPLATE

通気孔
AIR VENT

注 記
1) 指定外の寸法公差は表1による。
2) 取付用ネジはM10ボルトを使用のこと。ネジ長さは板厚tに応じて、
   20（t≦5）または25（5<t≦10）とする。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHITCH IS NOT SPECIFIED.
2. USE M10 BOLTS FOR FIXING THE UNIT. SCREW LENGTH SHOULD BE 20 (t≦5) OR
   25 (5<t≦10). t: THICKNESS OF PLATFORM

DRAWN	Oct. 10 '07	T.YAMASAKI	TITLE	DRS2D
CHECKED	Oct. 10 '07	T.TAKENO	名称	レーダーセンサー
APPROVED	Oct. 15 '07	R.Esumi		外寸図
SCALE	1/8	MASS 6 ±10% kg	NAME	RADAR SENSOR
DWG.No.	C3567-G01- A	REF.No. 03-174-300G-0		OUTLINE DRAWING

More user manuals on ManualsBase.com

FURUNO

表 1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

空中線部底部
ANTENNA BOTTOM
プラットフォーム
PLATFORM

F.W.

M10六角ボルト
M10 BOLT

S.W.

15
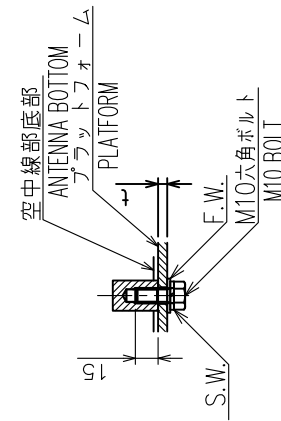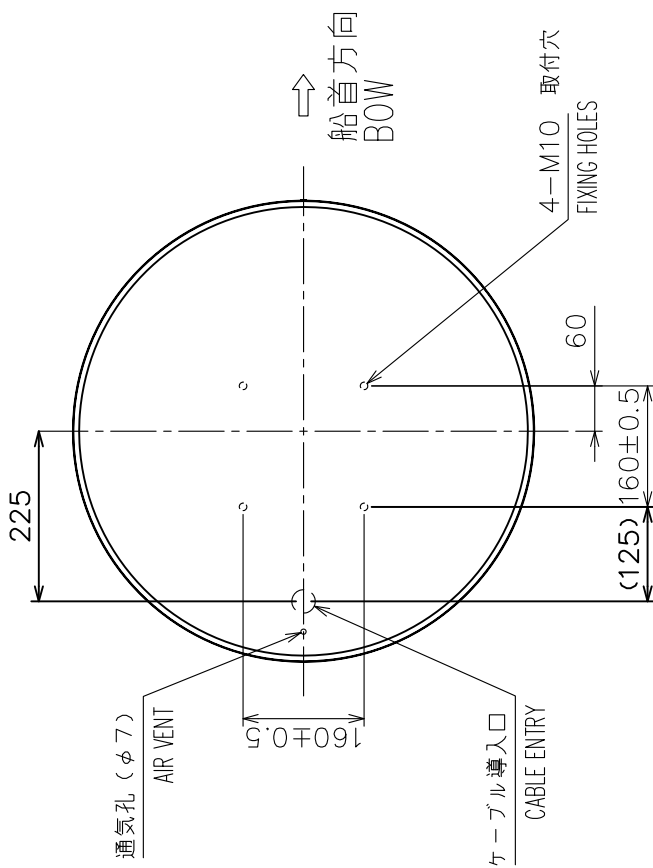
A部 詳細 (尺度 1/5)
DETAIL OF A (SCALE: 1/5)
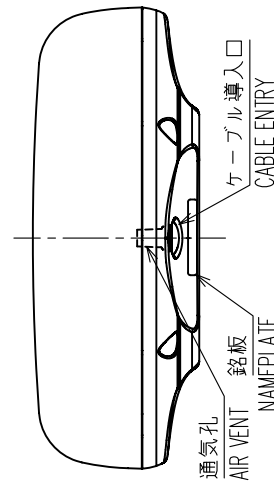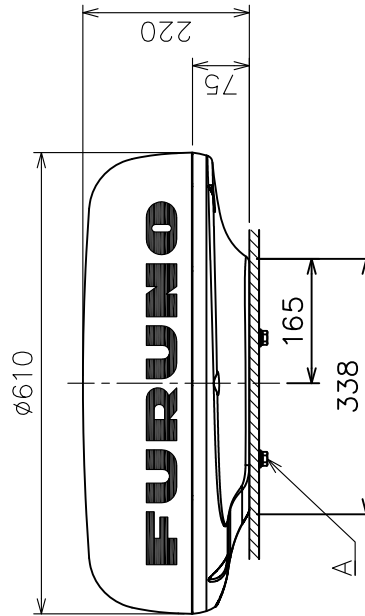
船首方向
BOW

4—M10 取付穴
FIXING HOLES

60

225

160±0.5

(125) 160±0.5

通気孔 (φ7)
AIR VENT

ケーブル導入口
CABLE ENTRY

φ610

220

75

165

338

A

ケーブル導入口
CABLE ENTRY

銘板
NAMEPLATE

通気孔
AIR VENT

注 記
1) 指定外の寸法公差は表1による。
2) 取付用ネジはM10ボルトを使用のこと。ネジ長さは板厚tに応じて、
20 (t≦5) または25 (5<t≦10) とする。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. USE M10 BOLTS FOR FIXING THE UNIT. SCREW LENGTH SHOULD BE 20 (t≦5) OR
   25 (5<t≦10). t: THICKNESS OF PLATFORM

DRAWN	10/Mar/08	T.YAMASAKI	TITLE	DRS4D
CHECKED	10/Mar/08	T.TAKENO	名称	レーダーセンサー
APPROVED	22/Mar/08	R.Esumi		外寸図
SCALE	1/10	MASS 7.5 ±10% kg	NAME	RADAR SENSOR
DWG.No.	C3568-G01-B			OUTLINE DRAWING
			REF.No.	03-174-310G-1

FURUNO ELECTRIC CO., LTD.

表 1　TABLE 1

機種型式 MODEL		DRS4A	DRS6A	DRS12A DRS25A	DRS12A DRS25A
輻射器 RADIATOR		XN10A	XN12A	XN12A	XN13A
空中線長 (A) ANT. LENGTH (mm)		1036±10	1255±10	1255±10	1795±10
回転安全空間 (B) ANT. CLEARANCE (mm)		1200	1400	1400	1940
質量 (kg±10%) MASS		25	25	26	28

表 2　TABLE 2

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L≤50	±1.5
50<L≤100	±2.5
100<L≤500	±3
500<L≤1000	±4
1000<L≤2000	±5

空中線長 (A) ANTENNA LENGTH

250

340

アース端子 GND TERMINAL

回転中心 CENTER OF ROTATION

4－φ15 取付穴（換装用）FIXING HOLES (FOR REMOUNT)

船首方向 BOW

回転安全空間 (B) ANTENNA CLEARANCE

ケーブル導入口 CABLE ENTRY

銘板 NAMEPLATE

取付穴（標準）4－φ15 FIXING HOLES (STANDARD)

140±0.5

78

92

150±0.5

117

200±0.5

200±0.5

357

438

213

445

φ25～30 ケーブル導入口 CABLE ENTRY

112

138

100°

542

561
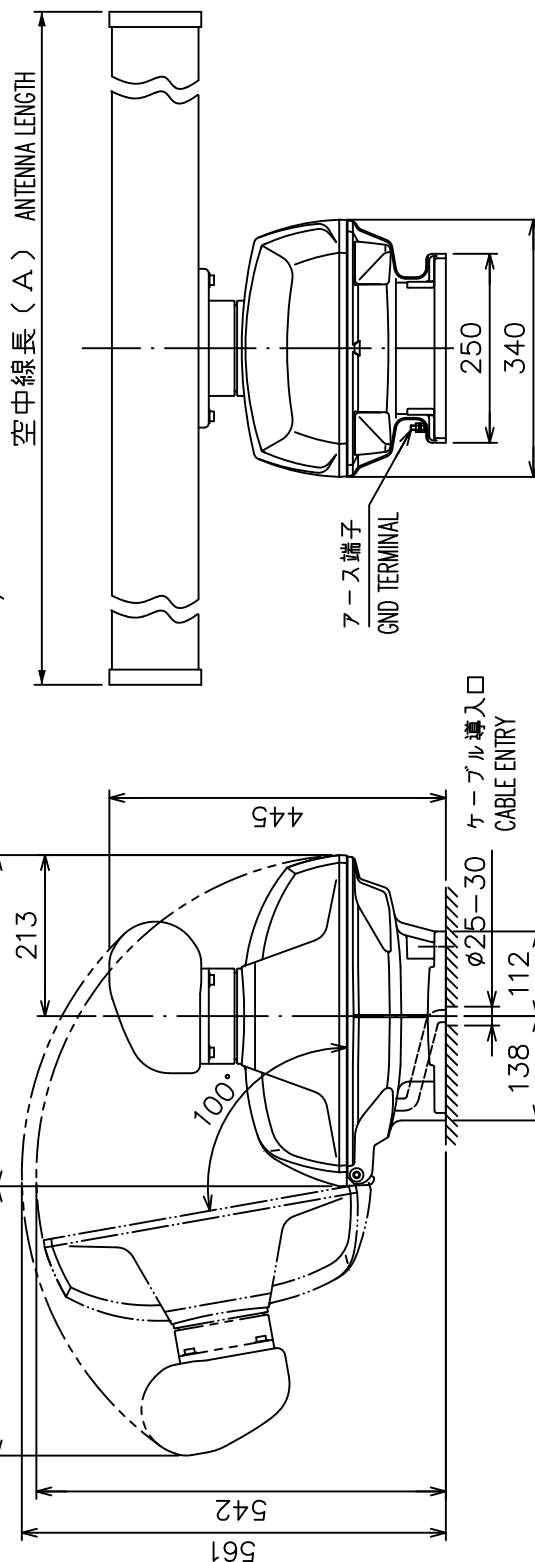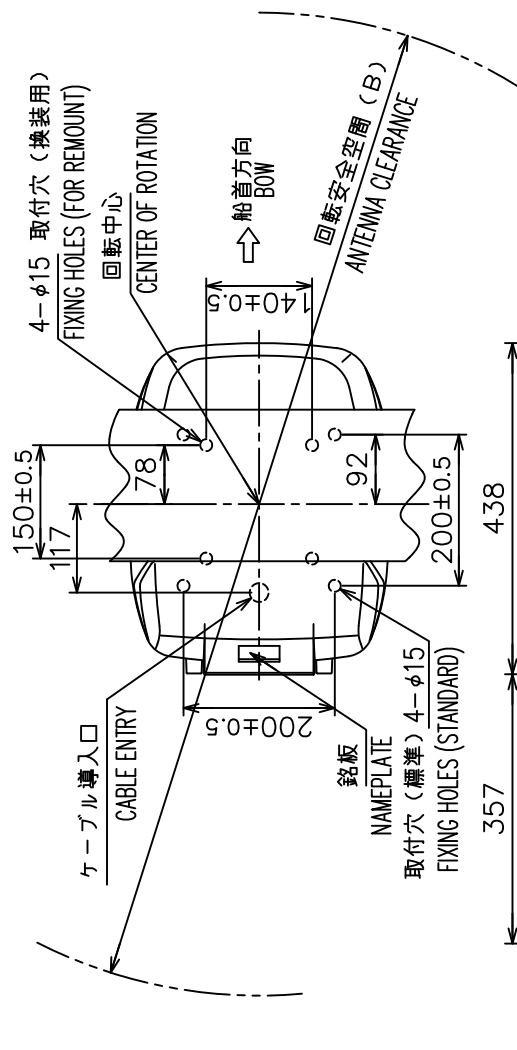
注　記
1) 指定外寸法公差は表2による。
2) 取付はM12ボルトを使用のこと。

NOTE
1. TABLE 2 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. USE M12 BOLTS FOR FIXING THE UNIT,

DRAWN	Jan. 17 '08	T.YAMASAKI	
CHECKED	Jan. 17 '08	T.TAKENO	
APPROVED	Jan 18 08 R. Esumi		
SCALE	1/10	MASS 表1参照 SEE TABLE 1	DRS4A/6A/12A/25A
DWG.No.	C3569-G01-B		REF.No. 03-174-5046-2

TITLE | RSB-118
名称 | 空中線部　ANTENNA UNIT
外寸図　OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

銘板
NAMEPLATE

表 1 TABLE 1

寸法区分（mm）DIMENSION	公差（mm）TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

#20

251

#150

100

A

PSU-012 POWER SUPPLY UNIT

158±1

48

290±1

電源端子台
POWER TERMINAL

取付穴
2−φ5
FIXING HOLES

ケーブルクランプ
CABLE CLAMP

#70   316   #70

ヒューズ
FUSE

アース端子
GND TERMINAL

LANコネクタ
LAN CONNECTOR

空中線電源
ANTENNA SOURCE

5
R6
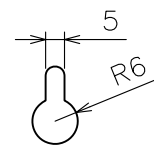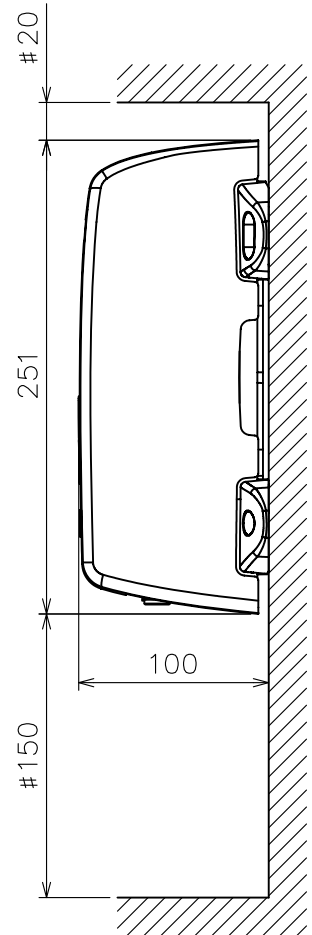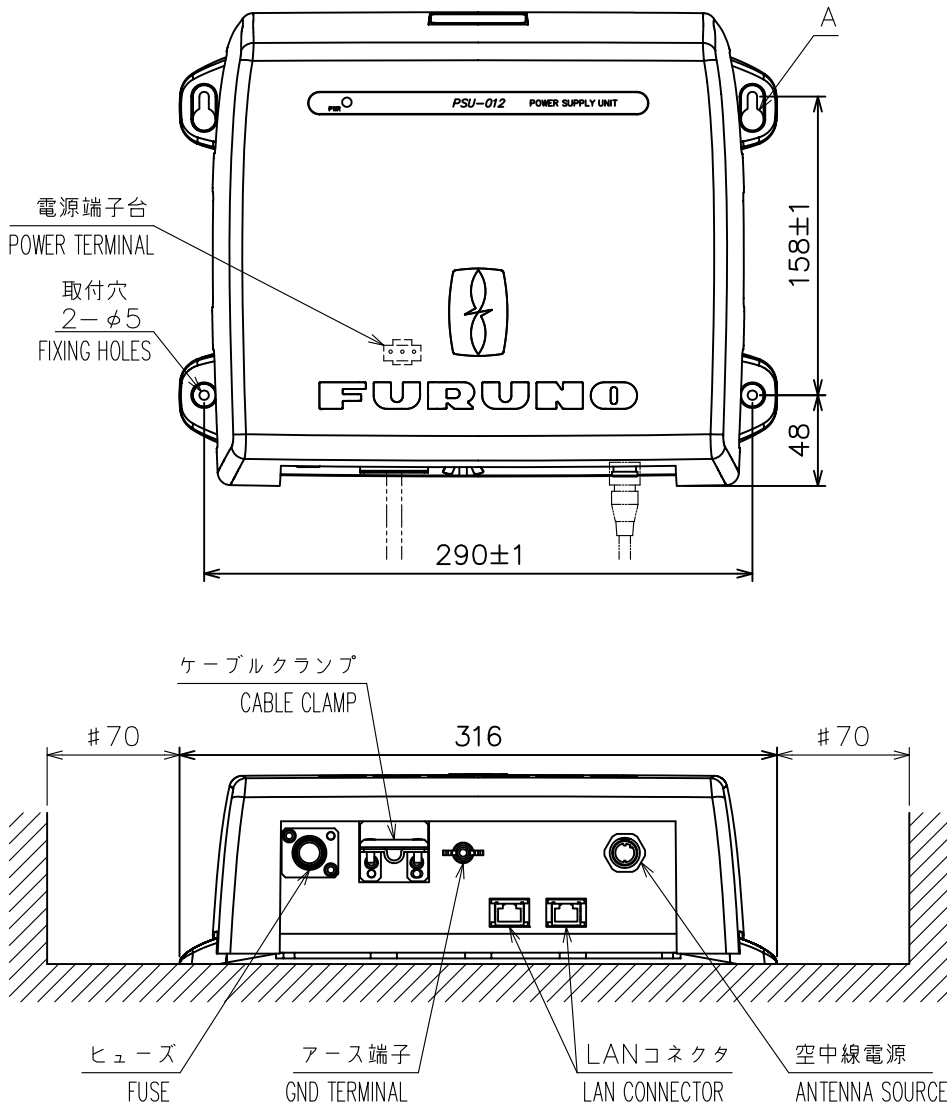
A部詳細（縮尺：1／2）
DETAIL OF A (SCALE: 1/2)

注 記 1) ＃印寸法は最小サービス空間寸法とする。
2) 指定外の寸法公差は表１による。
3) 取付用ネジはトラスタッピンネジ呼び径4×20を使用のこと。

NOTE 1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE TAPPING SCREWS φ4x20 FOR FIXING THE UNIT.

DRAWN	1/Apr/08 T.YAMASAKI		TITLE	PSU-012
CHECKED	1/Apr/08 T.TAKENO		名称	パワーサプライユニット
APPROVED	2/Apr/08 R.Esumi	DRS4A/6A/12A		外寸図
SCALE 1/4	MASS 1.8 ±10% kg		NAME	POWER SUPPLY UNIT
DWG.No. C3569-G02-D	REF.No. 03-174-900G-2			OUTLINE DRAWING
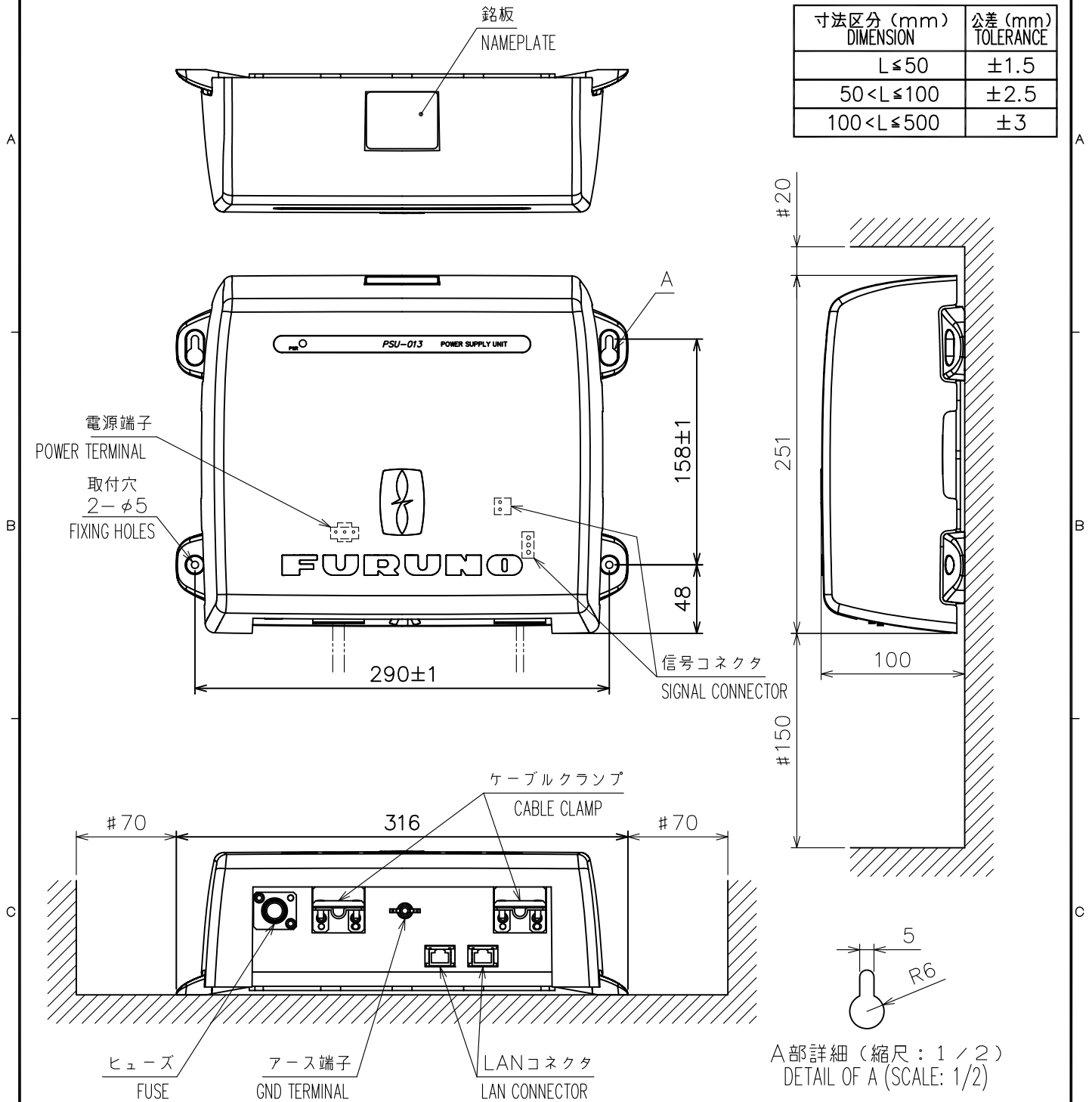
FURUNO ELECTRIC CO., LTD.

表 1 TABLE 1

寸法区分（mm）DIMENSION	公差（mm）TOLERANCE
L≦50	±1.5
50＜L≦100	±2.5
100＜L≦500	±3

銘板
NAMEPLATE

A

電源端子
POWER TERMINAL

取付穴
2−φ5
FIXING HOLES

信号コネクタ
SIGNAL CONNECTOR

PSU-013   POWER SUPPLY UNIT
PWR

FURUNO

158±1

48

290±1

#20

251

100

#150

ケーブルクランプ
CABLE CLAMP

#70   316   #70

ヒューズ
FUSE

アース端子
GND TERMINAL

LANコネクタ
LAN CONNECTOR

5
R6

A部詳細（縮尺：1／2）
DETAIL OF A (SCALE: 1/2)

注 記 1）＃印寸法は最小サービス空間寸法とする。
　　　 2）指定外の寸法公差は表1による。
　　　 3）取付用ネジはトラスタッピンネジ呼び径4×20を使用のこと。

NOTE   1.   #: MINIMUM SERVICE CLEARANCE.
　　　 2.   TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　　 3.   USE TAPPING SCREWS φ4x20 FOR FIXING THE UNIT.

DRAWN	Oct. 10 '07 T.YAMASAKI	TITLE	PSU-013
CHECKED	Oct. 10 '07 T.TAKENO	名称	パワーサプライユニット
APPROVED	Oct. 15' 07 R.Esumi DRS25A		外寸図
SCALE 1/4	MASS 2 ±10% kg	NAME	POWER SUPPLY UNIT
DWG.No. C3573-G01- A	REF.No. 03-174-910G-1		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

FURUNO ELECTRIC CO.,LTD.

TITLE	DRS2D/4D
名称	レーダーセンサー
	相互結線図
NAME	RADAR SENSOR
	INTERCONNECTION DIAGRAM

DRAWN	Jan. 23 '08	T. YAMASAKI
CHECKED	Jan. 23 '08	T. TAKENO
APPROVED	Jan. 23 '08	R. Esumi
SCALE	MASS	kg
DWG. No.	C3567-C01-B	REF. No. 03-174-6001-1

レーダー
センサー
RADAR SENSOR
DRS2D/4D

B1 RTR-090/091
J603 NMEA2000
1 < SHIELD
2 < NC
3 < NET-S
4 < NET-C
5 < NET-H
6 < NET-L

または
OR

DRS2D/4D
J207 NETWORK
1 < E_TD-P
2 < E_TD-N
3 < E_RD-P
4 < NC
5 < NC
6 < E_RD-N
7 < NC
8 < NC
J301 POWER
1 48V-H
2 48V-C

*3 RJ45
MOD-ASW0001, 10/15/20/30m
φ7 シロ WHT
クロ BLK

*2 FMC1.5/6ST
M12-05BFFM, 1/2/6m
CB-05BFFM, 1/2/6m
アカ RED
クロ BLK
シロ WHT
アオ BLU

J207 NETWORK
1 < E_TD-P
2 < E_TD-N
3 < E_RD-P
4 < NC
5 < NC
6 < E_RD-N
7 < NC
8 < NC
J301 POWER
1 48V-H
2 48V-C

*3 RJ45
MOD-ASW0001, 10/15/20/30m, φ6
φ7 シロ WHT
クロ BLK

航法装置またはセンサー
NAV. EQUIPMENT OR SENSOR
GP-330B
SC-30
WS-200 etc.

マルチファンクションディスプレイ
MULTI-FUNCTION DISPLAY
MFD8/12
MFDBB (MPU-001)
*3 RJ45   MOD-ASW0001, 10/15/20/30m, φ6
1 > E_TD-P
2 > E_TD-N
3 > E_RD-P
4 > NC
5 > NC
6 > E_RD-N
7 > NC
8 > NC
MJ-A3SPF *3
+48V 1 >
GND 2 >
SHIELD 3 >

JUNCTION BOX *2
TL-CAT-012 *2
RJ45
またはOR
ETHERNET HUB
HUB-101 *2
*3 RJ45
1 < 1
2 < 2
3 < 3
4 < 4
5 < 5
6 < 6
7 < 7
8 < 8
J3
1 (+)
2 (−)
*1

*2 MOD-WPAS0001, 3m
*2 MOD-Z072, 2/5/10m, φ6 (CROSS) OR MOD-WPAS0001, 3m
12-24VDC   VVRx2C

MFD8/12
MFDBB (MPU-001)
*3 RJ45
1 > E_TD-P
2 > E_TD-N
3 > E_RD-P
4 > NC
5 > NC
6 > E_RD-N
7 > NC
8 > NC
MJ-A3SPF *3
+48V 1 >
GND 2 >
SHIELD 3 >

注記
1) 造船所手配。
2) オプション。
3) コネクタは工場にて取付済み。

NOTE
1. SHIPYARD SUPPLY.
2. OPTION.
3. CONNECTOR PLUG FITTED AT FACTORY.

INTERCONNECTION DIAGRAM

RADAR SENSOR

相互結線図

レーダーセンサー

DRS4A/6A

TITLE

名称

NAME

FURUNO ELECTRIC CO., LTD.

DRAWN 1/Apr./08 T. YAMASAKI
CHECKED 1/Apr./08 T. TAKENO
APPROVED 2/Apr./08 R. Esumi
SCALE MASS kg
DWG. No. C3569-C01- C REF. No. 03-174-6003-3

注記
1) 造船所手配。
2) オプション。
3) コネクタは工場にて取付済み。

NOTE
1. SHIPYARD SUPPLY.
2. OPTION.
3. CONNECTOR PLUG FITTED AT FACTORY.

FURUNO

NMEA2000
TB102
1	SHIELD
2	NET-S	アカ RED
3	NET-C	クロ BLK
4	NET-H	シロ WHT
5	NET-L	アオ BLU

M12-05BFFM, 1/2/6m *2
CB-05BFFM, 1/2/6m

航法装置または センサー
NAV. EQUIPMENT OR SENSOR
GP-330B
SC-30
WS-200 etc.

空中線部
ANTENNA UNIT
RSB-118

B2 | RTR-094 | NETWORK
J207
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

TB101 | POWER
| 1 | 48V-H |
| 2 | 48V-C |

RW-4747, 0.3m

*3 RJ45
MOD-ASW0001, 10/15/20/30m, φ6

*3 RJ45
MJ-A3SPF *3

φ7 シロ WHT
クロ BLK

パワーサプライユニット
POWER SUPPLY UNIT
PSU-012

J3
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

J11
1	48V-H
2	48V-L
3	SHIELD

1V-2sq. *1

J1
1	(+)
2	
3	(-)

J2
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

PSU-012
J2
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

(2/10m *2) φ6
MOD-Z072, 5m

*3 RJ45
JUNCTION BOX
TL-CAT-012
またば OR
ETHERNET HUB
HUB-101

| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |

J3 (-) (+)

WVRx2C *1

12-24VDC

*3 RJ45
MOD-Z072, 2/5/10m, φ6 (CROSS) OR
MOD-WPAS0001, 3m

MOD-WPAS0001, 3m

*2
MOD-Z072, 2/5/10m, φ6

マルチファンクションディスプレイ
MULTI-FUNCTION DISPLAY
MFDBB (MPU-001)
MFD8/12

*3 RJ45
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

(2/10m *2) φ6
MOD-Z072, 5m

VL3P-VVS2x2C, 5m シロ WHT
クロ BLK
12-24VDC

MFDBB (MPU-001)
MFD8/12

*3 RJ45
1	E_TD-P
2	E_TD-N
3	E_RD-P
4	NC
5	NC
6	E_RD-N
7	NC
8	NC

注記
1) 造船所手配。
2) オプション。
3) コネクタは工場にて取付済み。

NOTE
1. SHIPYARD SUPPLY.
2. OPTION.
3. CONNECTOR PLUG FITTED AT FACTORY.

DRAWN	1/Apr/08	T.YAMASAKI
CHECKED	1/Apr/08	T.TAKENO
APPROVED	2/Apr/08	R.Esumi
SCALE	MASS	kg
DWG. No.	C3571-001- C	REF. No. 03-174-6003-3

TITLE	DRS12A
名称	レーダーセンサー
	相互結線図
NAME	RADAR SENSOR
	INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO.,LTD.

FURUNO

航法装置または センサー
NAV. EQUIPMENT OR SENSOR
GP-330B
SC-30
WS-200 etc.

NMEA2000
TB102
1 SHIELD
2 NET-S アカ RED
3 NET-C クロ BLK
4 NET-H シロ WHT
5 NET-L アオ BLU

M12-05BFFM, 1/2/6m *2
CB-05BFFM, 1/2/6m

空中線部
ANTENNA UNIT
RSB-118

B2 RTR-095
J207 NETWORK
1 E_TD-P
2 E_TD-N
3 E_RD-P
4 NC
5 NC
6 E_RD-N
7 NC
8 NC
RJ45

J305
1 TXHV
2 NC
3 GND

POWER
TB101
1 48V-H
2 48V-C

RW-4747, 0.3m

MOD-ASW0002, 10/15/20/30m, φ6

アカ RED TXHV
アオ BLU

シロ WHT
クロ BLK

パワーサプライユニット
POWER SUPPLY UNIT
PSU-013

J3
1 E_TD-P
2 E_TD-N
3 E_RD-P
4 SW-P
5 SW-N
6 E_RD-N
7 NC
8 NC
RJ45

J5
1 TXHV
2

J4
1 +48V
2 GND
3 GND

*1
IV-2sq.

J2
1 E_TD-P
2 E_TD-N
3 E_RD-P
4 SW-P
5 SW-N
6 E_RD-N
7 NC
8 NC
RJ45 *3

J1
1 (+)
2
3 (-)

VL3P-VVS2x2C, 5m
シロ WHT
クロ BLK

12/24VDC

MOD-Z072 (2/10m *2), 5m, φ6

マルチファンクションディスプレイ
MULTI-FUNCTION DISPLAY
MFDBB (MPU-001)
MFD8/12

E_TD-P 1
E_TD-N 2
E_RD-P 3
SW-P 4
SW-N 5
E_RD-N 6
NC 7
NC 8
RJ45 *3

PSU-013
J2
1 E_TD-P
2 E_TD-N
3 E_RD-P
4 SW-P
5 SW-N
6 E_RD-N
7 NC
8 NC
RJ45 *3

MOD-Z072, 5m, φ6 (2/10m *2)

12/24VDC
VL3P-VVS2x2C, 5m
シロ WHT
クロ BLK
J1 1 (+) 2 3 (-)

JUNCTION BOX
TL-CAT-012 *2
RJ45

ハブ または
ETHERNET HUB
HUB-101 *2

*3 RJ45
1
2
3
4
5
6
7
8

J3 (-) 2 (+) 1

MOD-Z072, 2/5/10m, φ6 (CROSS) OR
MOD-WPAS0001, 3m

MFDBB (MPU-001)
MFD8/12
E_TD-P 1
E_TD-N 2
E_RD-P 3
SW-P 4
SW-N 5
E_RD-N 6
NC 7
NC 8
RJ45 *3

MOD-WPAS0001, 3m

VVRx2C
12/24VDC

注記
1) 造船所手配。
2) オプション。
3) コネクタは工場にて取付済み。

NOTE
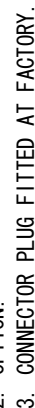1. SHIPYARD SUPPLY.
2. OPTION.
3. CONNECTOR PLUG FITTED AT FACTORY.

DRAWN   Feb. 22 '08 T. YAMASAKI
CHECKED Feb. 22 '08 T. TAKENO
APPROVED Mar. 12 '08 R. Esumi
SCALE   MASS   kg
DWG. No. C3573-C01-A   REF. No. 03-174-6003-3

TITLE
DRS25A
名称 レーダーセンサー
相互結線図
NAME RADAR SENSOR
INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.

ECF

(Elemental Chlorine Free)

The paper used in this manual
is elemental chlorine free.

FURUNO ELECTRIC CO., LTD.

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・FURUNO Authorized Distributor/Dealer

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