FURUNO

INSTALLATION MANUAL

MARINE RADAR

MODEL **FR-8062/8122/8252**

FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

ECF
(Elemental Chlorine Free)
The paper used in this manual
is elemental chlorine free.

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⚠ SAFETY INSTRUCTIONS

⚠ WARNING

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

ELECTRICAL SHOCK HAZARD

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 someone falls from the radar mast.

Turn off the power at the mains switchboard 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

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

	Standard	Steering
Display unit	0.60 m	0.35 m
Antenna unit FR-8062 (24 rpm)	1.95 m	1.25 m
FR-8062 (48 rpm)	1.90 m	1.20 m
FR-8122	0.80 m	0.50 m
FR-8252	1.80 m	1.15 m
Power supply unit	0.80 m	0.50 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/m^2 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 representative or dealer to provide this feature.

MODEL	Distance to 100 W/m^2 point	Distance to 10 W/m^2 point
FR-8062 XN-12A (4')	Nil	2.5 m
FR-8062 XN-13A (6')		2.3 m
FR-8122 XN-12A	0.5 m	7.5 m
FR-8122 XN-13A	0.3 m	7.0 m
FR-8252 XN-12A	0.8 m	9.5 m
FR-8252 XN-13A	0.7 m	9.0 m

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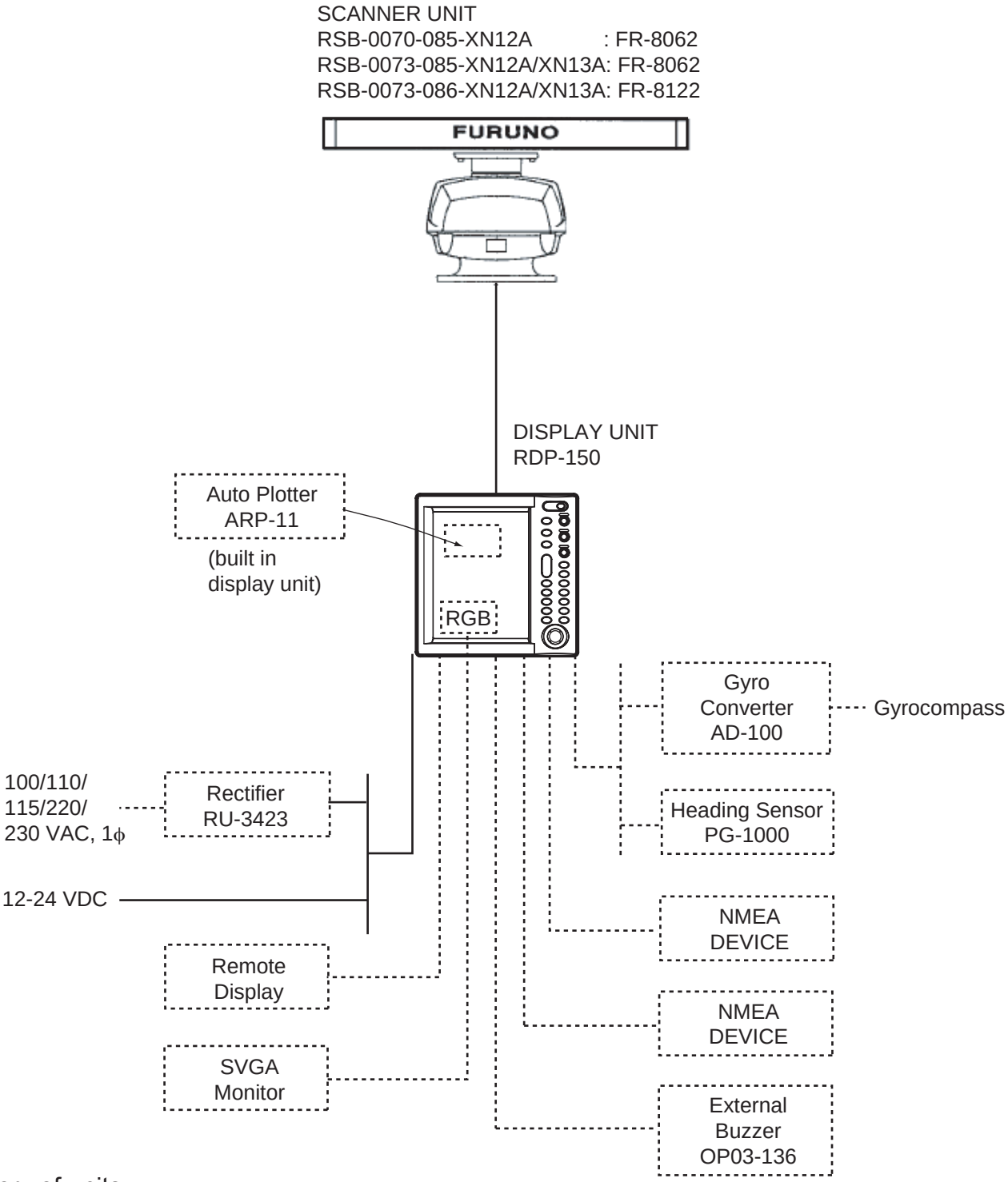
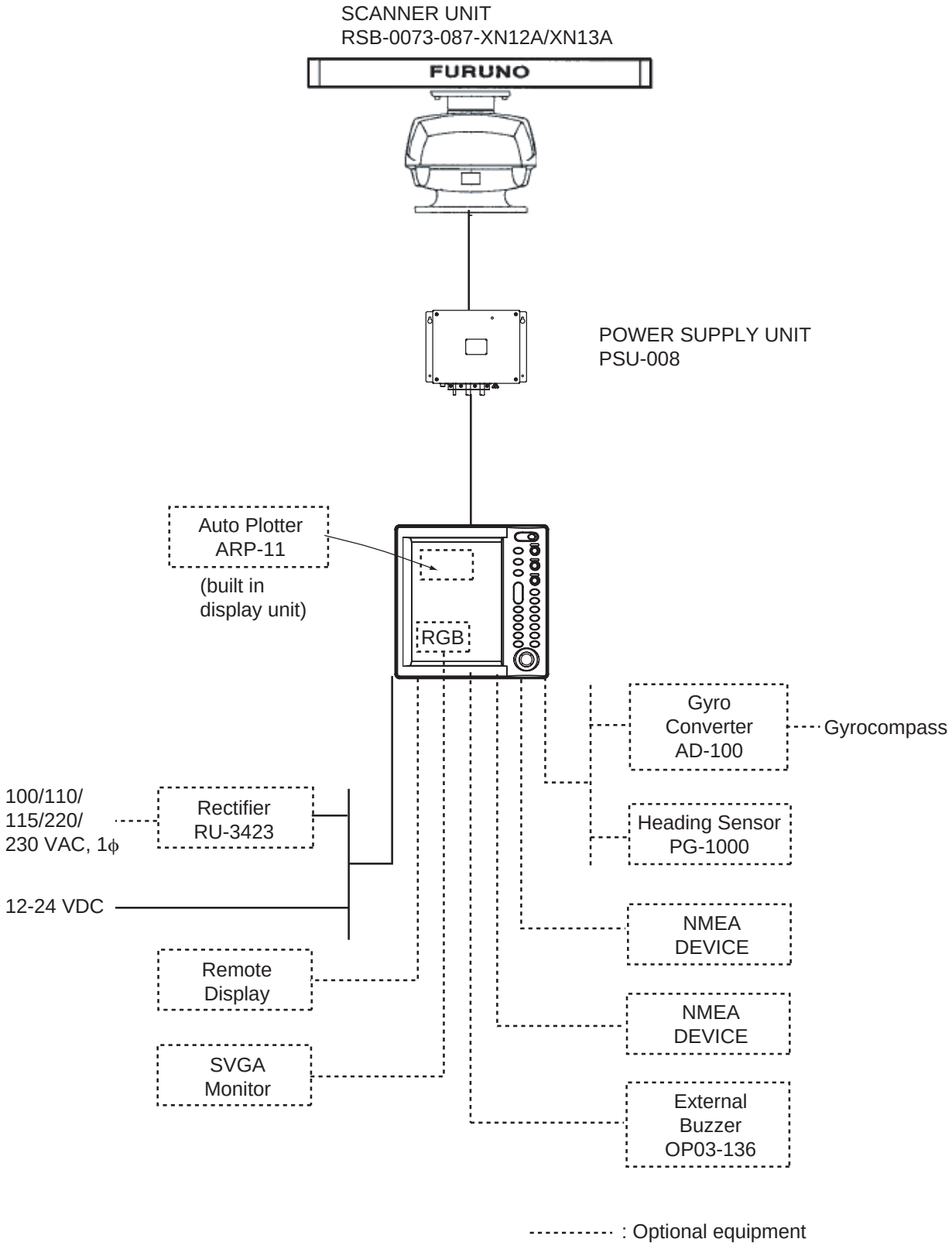
SYSTEM CONFIGURATIONS

FR-8062/8122



Category of units
Antenna unit: Exposed to weather
All other units: Protected from weather

---------- : Optional equipment



Category of units
Antenna unit: Exposed to weather
All other units: Protected from weather

EQUIPMENT LISTS

Standard Supply

Name	Type	Code No.	Qty	Remarks
Antenna unit	XN12A-RSB-0070-085	-	1	FR-8062, 1255 mm, 24 rpm
	XN12A-RSB-0073-085	-		FR-8062, 1255 mm, 48 rpm
	XN13A-RSB-0073-085	-		FR-8062, 1795 mm, 48 rpm
	XN12A-RSB-0073-086	-		FR-8122, 1255 mm, 24/48 rpm
	XN13A-RSB-0073-086	-		FR-8122, 1795 mm, 24/48 rpm
	XN12A-RSB-0073-087	-		FR-8252, 1255 mm, 24/48 rpm
	XN13A-RSB-0073-087	-		FR-8252, 1795 mm, 24/48 rpm
Display unit	RDP-150	-	1	
Power supply unit	PSU-008	-	1	For FR-8252
Installation materials	CP03-30801	008-552-960	1	For antenna unit
	CP03-30700	000-090-471	1	10 m signal cable for FR-8062/8122
	CP03-30710	000-090-472		15 m signal cable for FR-8062/8122
	CP03-30720	000-090-473		20 m signal cable for FR-8062/8122
	CP03-30730	000-090-474		30 m signal cable for FR-8062/8122
	CP03-30500	000-083-620	1	10 m signal cable for FR-8252
	CP03-30510	000-083-621		15 m signal cable for FR-8252
	CP03-30520	000-083-622		20 m signal cable for FR-8252
	CP03-30530	000-083-623		30 m signal cable for FR-8252
	CP03-30900	000-090-464		CP03-30901 & power cable for display unit
Spare parts	SP03-15401	008-553-040	1	15 A fuse, 3pcs and 10A fuse, 3pcs

*: See lists on the back of this manual.

Optional Supply

Name	Type	Code No.	Remarks
External buzzer	OP03-136	000-086-443	
Rectifier	RU-3423	000-030-443	
Cable assy.	MJ-A7SPF0007-050C	000-144-418-10	W/ 7P plug for one end, 5m
	MJ-A6SPF0003-050C	000-154-054-10	W/6P plug at one end, 5 m
	MJ-A6SPF0007-100	000-125-237	For compass, 10 m
Auto plotter	ARP-11	008-523-050	
EMI core	CP03-31001	008-556-830	RFC-H13 1pc & plastic bands
RGB kit	OP03-195	008-553-110	RGB board assembly to connect monitor.

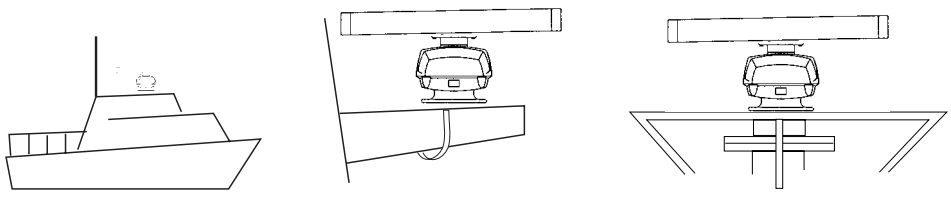
1. MOUNTING

1.1 Antenna Unit

Mounting considerations

- The antenna unit is generally installed either on top of the wheelhouse or on the radar mast on a suitable platform. Locate the antenna unit 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 antenna unit would be a much more serious obstruction; you would need to place the antenna unit well above or below it.
- It is rarely possible to place the antenna unit 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.
- To lessen the chance of picking up electrical interference, avoid where possible routing the signal cable near other onboard electrical equipment. Also avoid running the cable in parallel with power cables.
- A magnetic compass will be affected if the antenna unit 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, to ensure proper emission of the radar waves.
- When this radar is to be installed on larger vessels, consider the following points:
    - The signal cable run between the antenna and the display units comes in lengths of 10 m, 15 m, 20 m and 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 antenna unit must not be mounted where the temperature is more than 70°C.

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



(a) On bridge (b) Common mast (c) Radar mast

Mounting methods

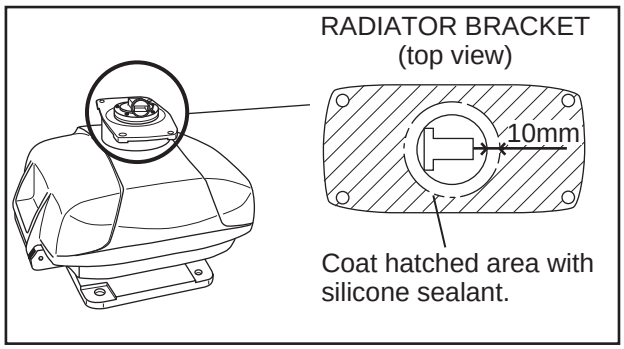
Mounting procedure

Referring to the outline drawing at the back of this manual, drill five holes in the mounting platform: four holes of 15 mm diameter for fixing the antenna unit and one hole of 25-30 mm diameter for the signal cable.

Fastening the radiator to the radiator bracket

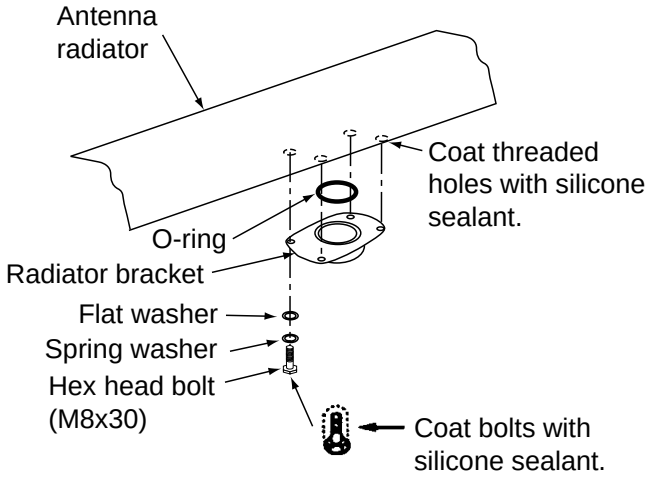
For your reference, the antenna installation materials list appears in the packing list for this unit at the back of this manual.

1. Remove the radiator cap from the radiator bracket.
2. Coat contacting surface between the antenna radiator and the radiator bracket with silicone sealant as shown in the figure below.



Coating the antenna 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.
5. Lay the antenna radiator on the radiator bracket.
6. Coat the radiator fixing bolts (4 pcs.) with silicone sealant. Fasten the antenna radiator to the radiator bracket with the radiator fixing bolts, flat washers and spring washers.



Fastening the radiator bracket to the antenna unit chassis

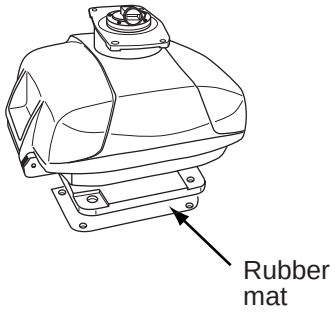
Mounting the antenna unit

The antenna unit can be mounted using the fixing holes on the outside (200x200 mm) or inside (140x150 mm) the antenna unit.

Using outside fixing holes of the antenna housing

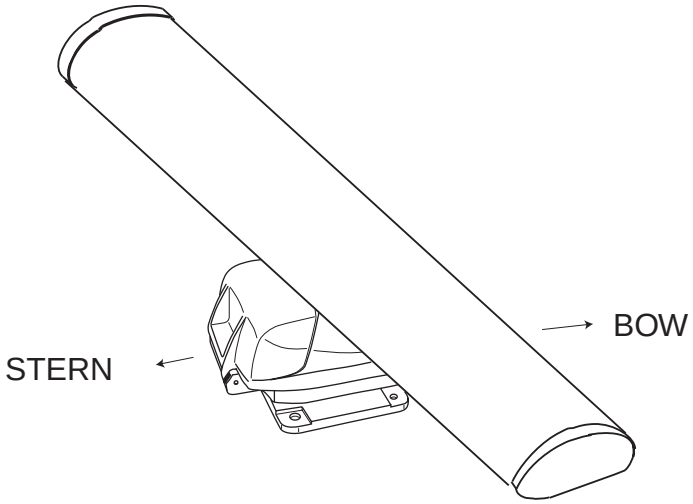
Use the hex head bolts (supplied) to mount the antenna unit as below.

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



Location of rubber mat

2. Lay the antenna unit on the mounting platform, orienting it as shown in below.



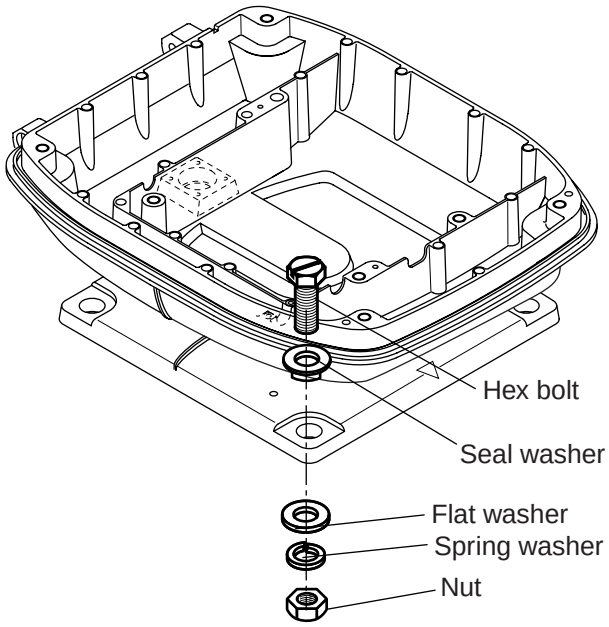
Antenna unit

⚠ CAUTION

Do not lift the Antenna unit by the radiator; lift it by the housing.

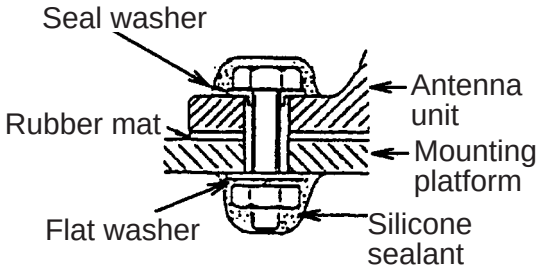
The radiator may be damaged.

3. Insert four hex bolts (M12x60, supplied) and seal washers (Φ30, supplied) from the top of the antenna housing, as shown below.



Fixing the antenna unit chassis

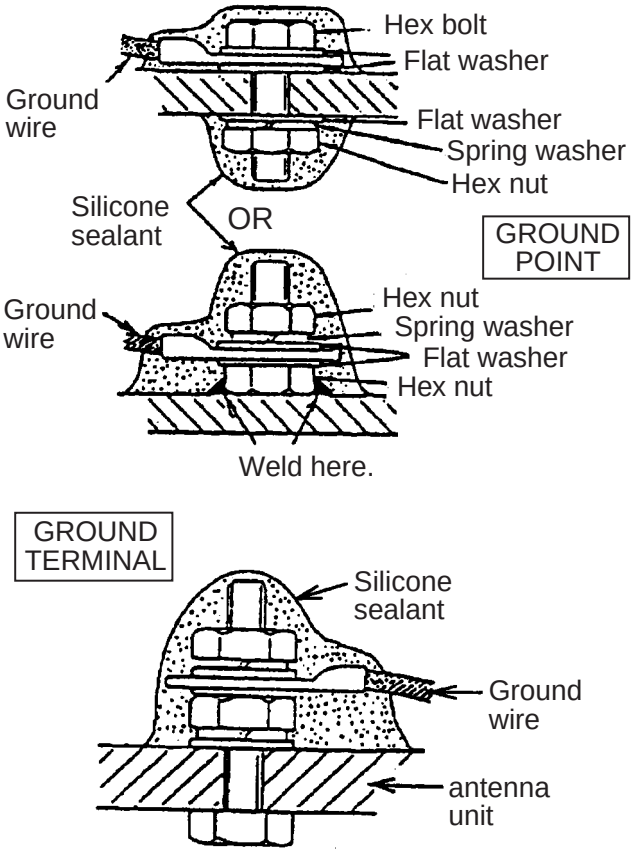
4. Pass flat washers (M12, supplied), spring washers (M12, supplied) and nuts (M12, supplied) onto hex bolts. Fasten by tightening nuts. Do not fasten by tightening the hex bolts; seal washers may be damaged.



How to fasten antenna unit to mounting platform

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 antenna unit) using M6x25 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.

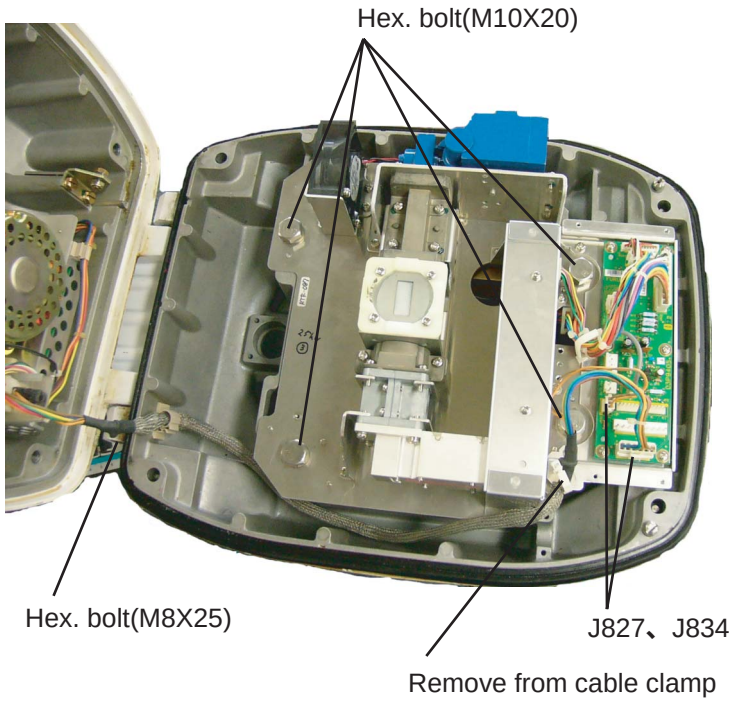


How to coat ground point and ground terminal with silicone sealant

Using inside fixing holes of the antenna housing

This method requires removal of the RF unit in the antenna unit to access inside fixing holes. Use hex head bolts, flat washers, spring washers and nuts (local supply) to mount the antenna unit, confirming length of bolts.

1. Unfasten four scanner bolts on the cover to open the antenna unit.
2. Unfasten four screws on the RTB cover to remove it.
3. Unplug connector J827 and J834 on the RTB board.
4. Separate upper chassis from lower chassis by removing two hex head bolts (M8x25).
5. Remove RF unit by unfastening four hex head bolts.



Antenna unit, opened

7. Lay the corrosion-proof rubber mat (supplied) on the mounting platform.
8. Fasten the lower chassis to the mounting platform with hex head 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.
9. Reassemble RF unit, cover and chassis.
10. Set four knob caps (supplied) into outside fixing holes.
11. Do steps 6-8 in “Outside fixing holes”.

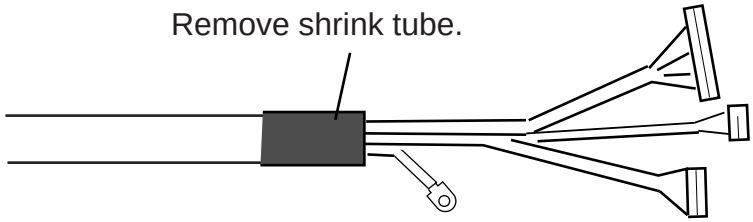
Connecting the signal cable

Only the signal cable runs from the display unit (power supply unit in case of 1954C-BB) to the antenna unit. In order to minimize the chance of picking up electrical interference, avoid where possible routing the signal cable near other onboard electrical equipment. Also, avoid running the cable in parallel with power cables. Pass the cable through the hole and apply sealing compound around the hole for waterproofing.

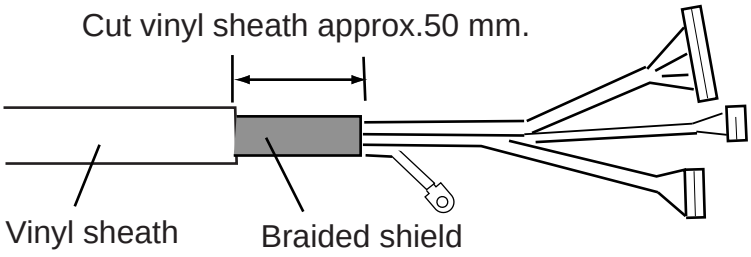
- Fabricating the signal cable

The signal cable is used with other models of radar. For this model, the following fabrication required.

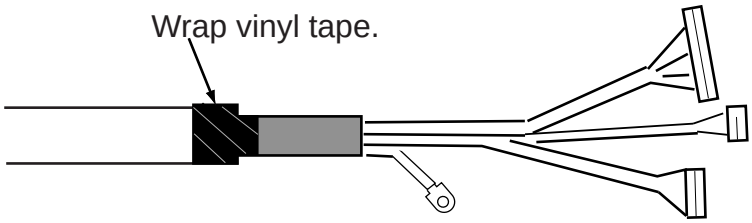
1. Remove shrink tube from the signal cable.



2. Remove vinyl sheath approx. 5 cm.

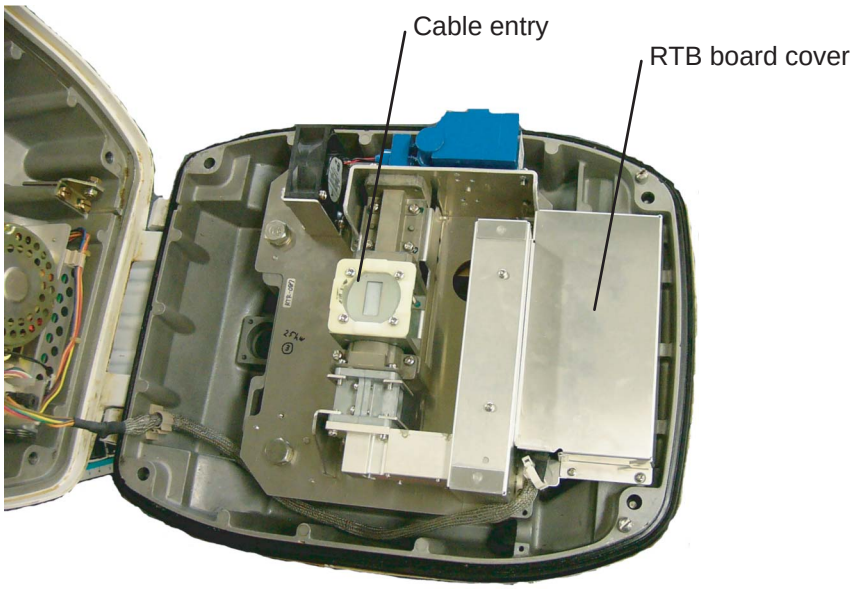


3. Wrap vinyl tape at the end of the vinyl sheath.



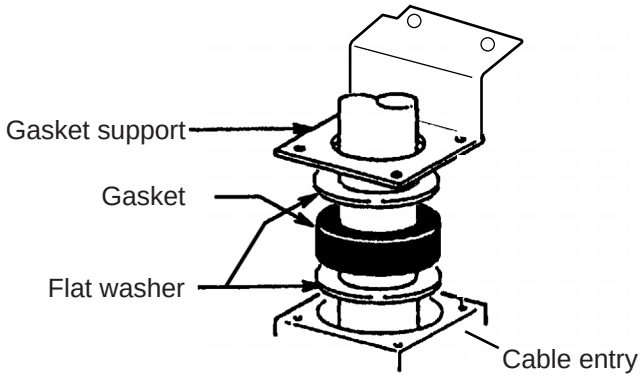
- Connecting the signal cable

1. Open the antenna cover by loosening four bolts, and then fix the stay.



Antenna unit chassis, cover opened

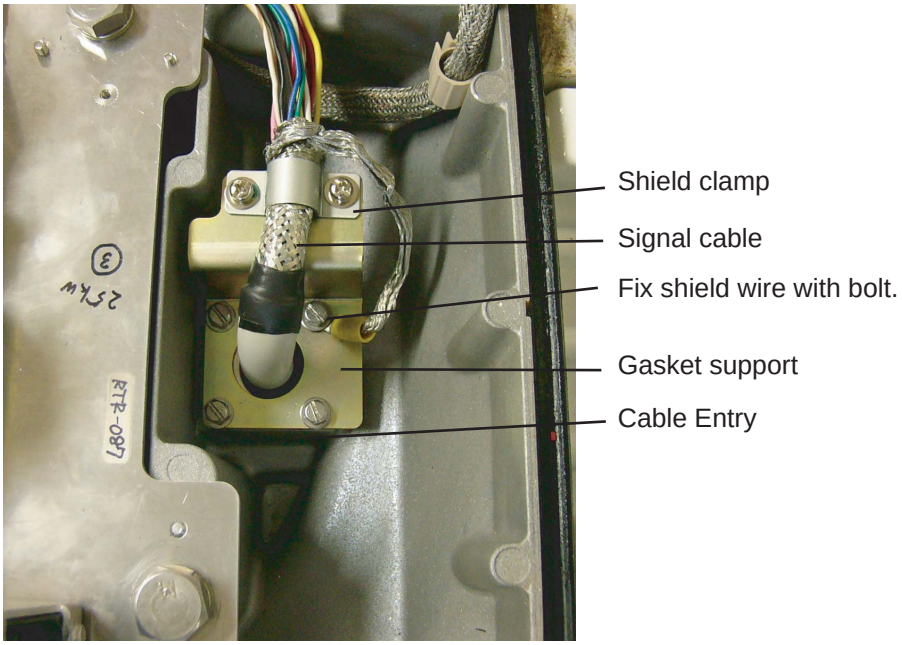
2. Unfasten the cable gland assembly (plate, gasket, flat washer). The plate is discarded.
3. Pass the signal cable with connector through the bottom of the antenna unit chassis. Pass the cable through the gland assembly as shown below.



Passing the signal cable through the cable gland assembly

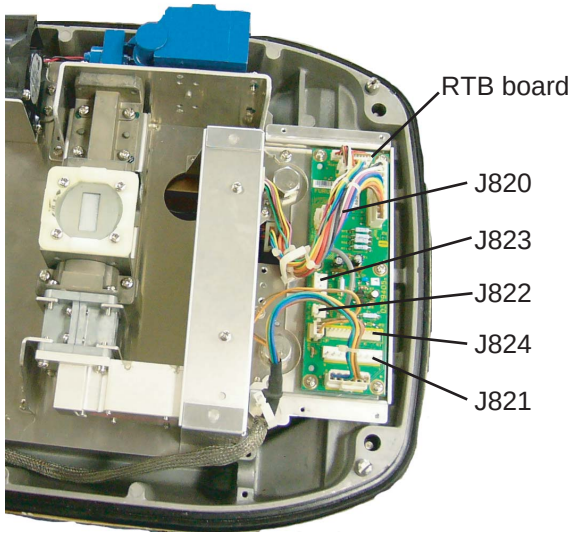
4. Fasten the gasket support with four bolts. Using one of the four bolts, fasten the crimp-on lug on the shield wire.

5. Fasten the shielded part of the signal cable with shield clamp (installation material) as shown below.



How to fix signal cable in cable gland

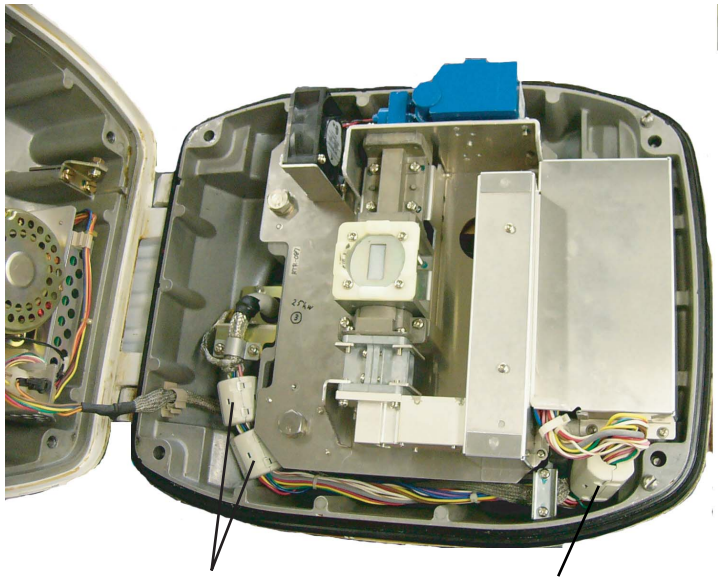
6. Unfasten four screws to remove the RTB board cover.
7. Connect the plugs of the signal cable to the RTB board.
   FR-8062, FR-8122: J821, J823, J824, J822
   FR-8252: J821, J823, J824, J820



Connecting to the RTB board

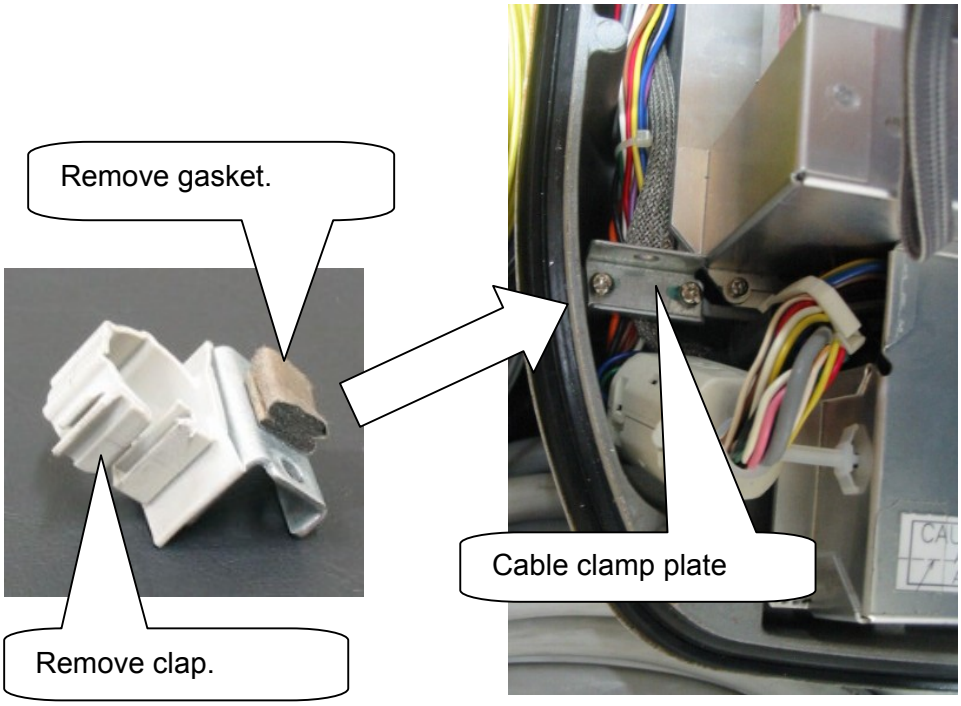
8. Reattach the RTB board cover.

9. Attach three EMI cores to the signal cable as shown below.

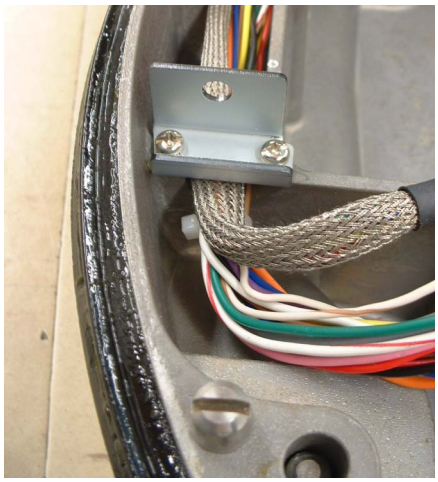


Antenna unit chassis, cover opened

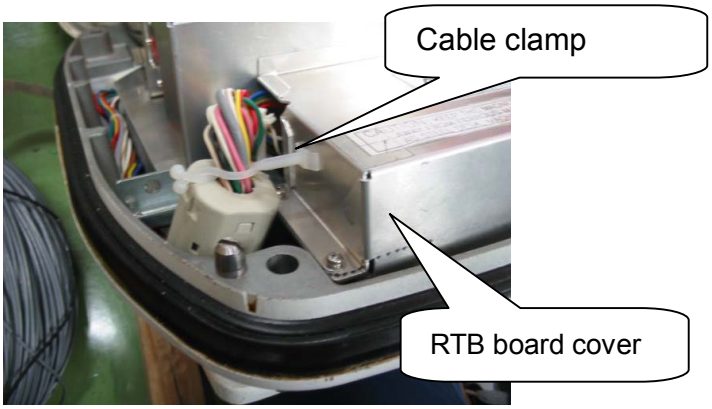
10. Fix the signal cable with the cable clamp as follows.
    a) Dismount the cable clamp plate and remove clamp and gasket.

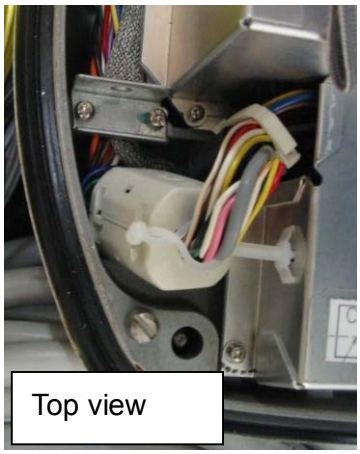


b) Run the signal cable as shown below.



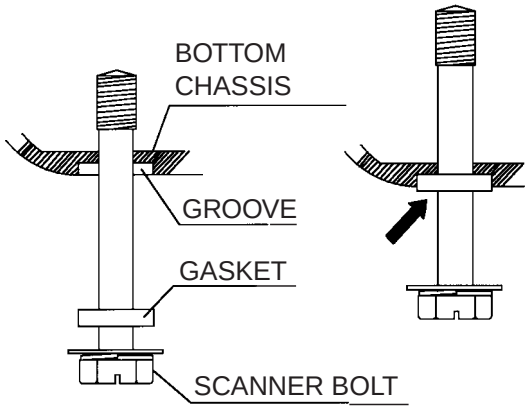
c) Fix the signal cable with cable clamp as shown below.





11. Release the stay and close the co と ver. Loosely fasten the scanner bolts; you will have to make some adjustments inside after completion of wiring.

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



Torque : 9.8 ±0.1 N・m

1.2 Display Unit

The display unit can be mounted on a tabletop, on the overhead or flush mounted in a console or panel.

Mounting considerations

When selecting a mounting location for the display unit, keep the following in mind:

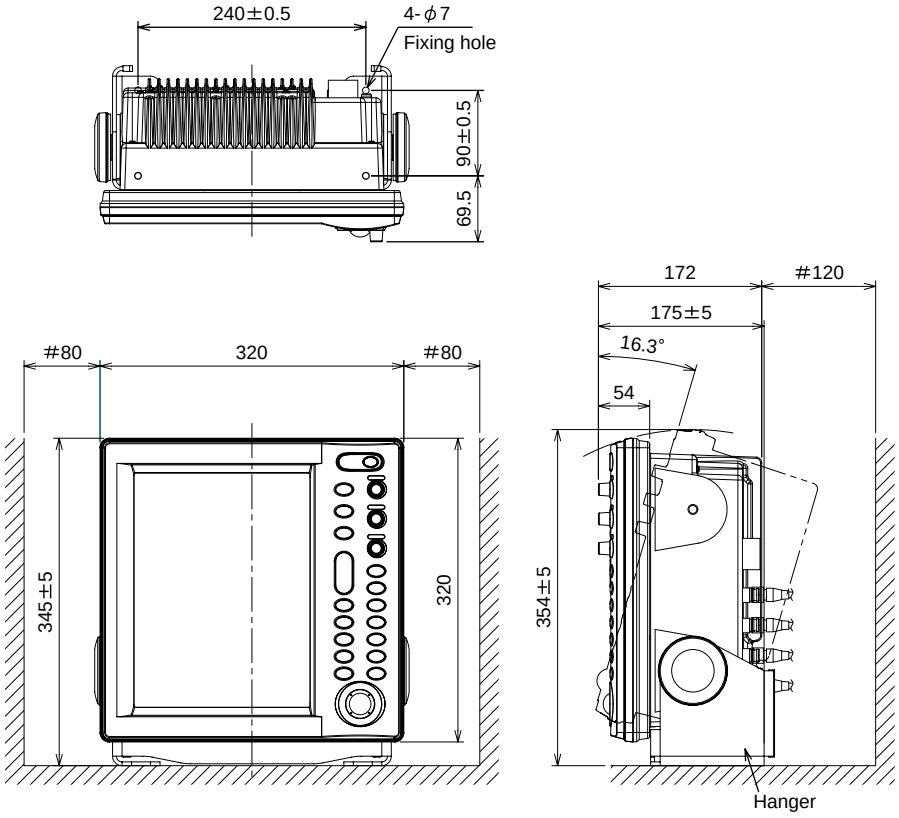
- Keep the display unit out of direct sunlight.
- The temperature and humidity at the mounting location should be moderate and stable.
- Locate the unit away from exhaust pipes and vents.
- The mounting location should be well ventilated.
- Mount the unit where shock and vibration are minimal.
- Keep the unit away from electromagnetic field generating equipment such as motors and generators.
- For maintenance and checking purposes, leave sufficient space at the sides and rear of the unit and leave slack in cables. Minimum recommended space is shown in the outline drawing for the display unit.
- A magnetic compass will be affected if the display unit is placed too close to it. Observe the compass safe distances shown in the SAFETY INSTRUCTIONS to prevent disturbance to the magnetic compass.

Mounting procedure

Tabletop, overhead mounting

Follow the procedure below to mount the display unit on a tabletop or the overhead.

1. Fix the hanger by using four self-tapping screws (5x20).
2. Screw knob bolts in display unit, set it to the hanger, and tighten the knob bolts.

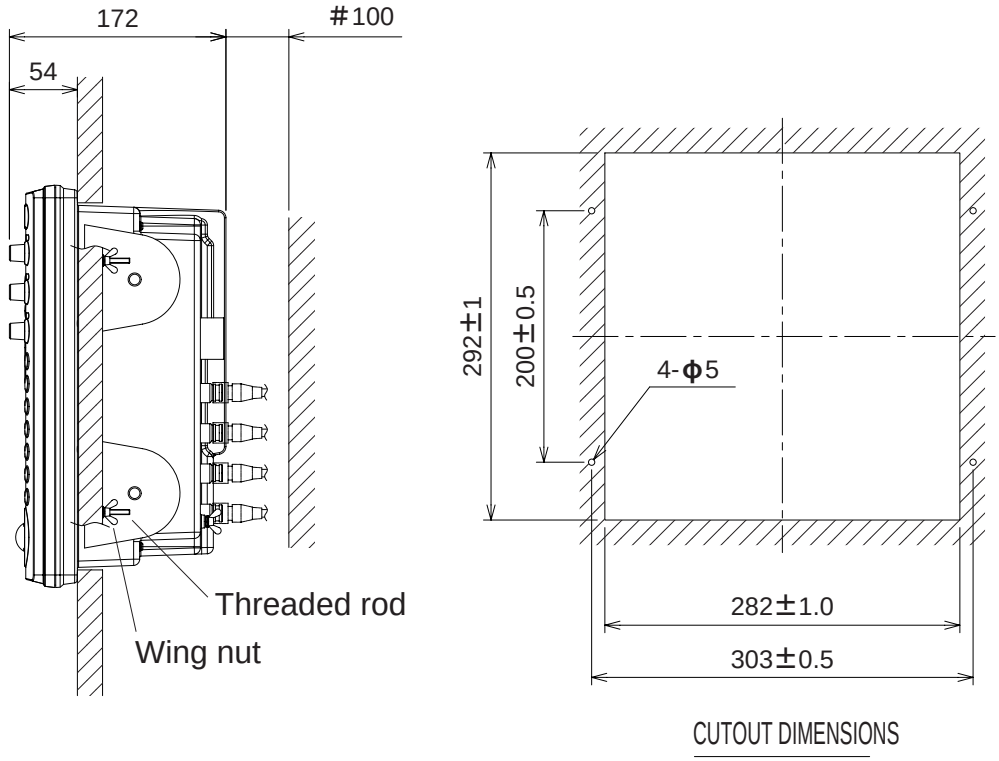


Mounting dimensions of display unit

Note: For the overhead mounting, reinforce the mounting location and secure the hanger, with bolts, nuts and washers (local supply).

Flush mounting

1. Prepare a cutout in the mounting location whose dimensions are as shown below.
2. Insert the flush mounting sponge and four threaded rods from the rear side of the display unit, and then set the display unit to the mounting location.
3. Fix the display unit by using four wing nuts from the rear side of the display unit.



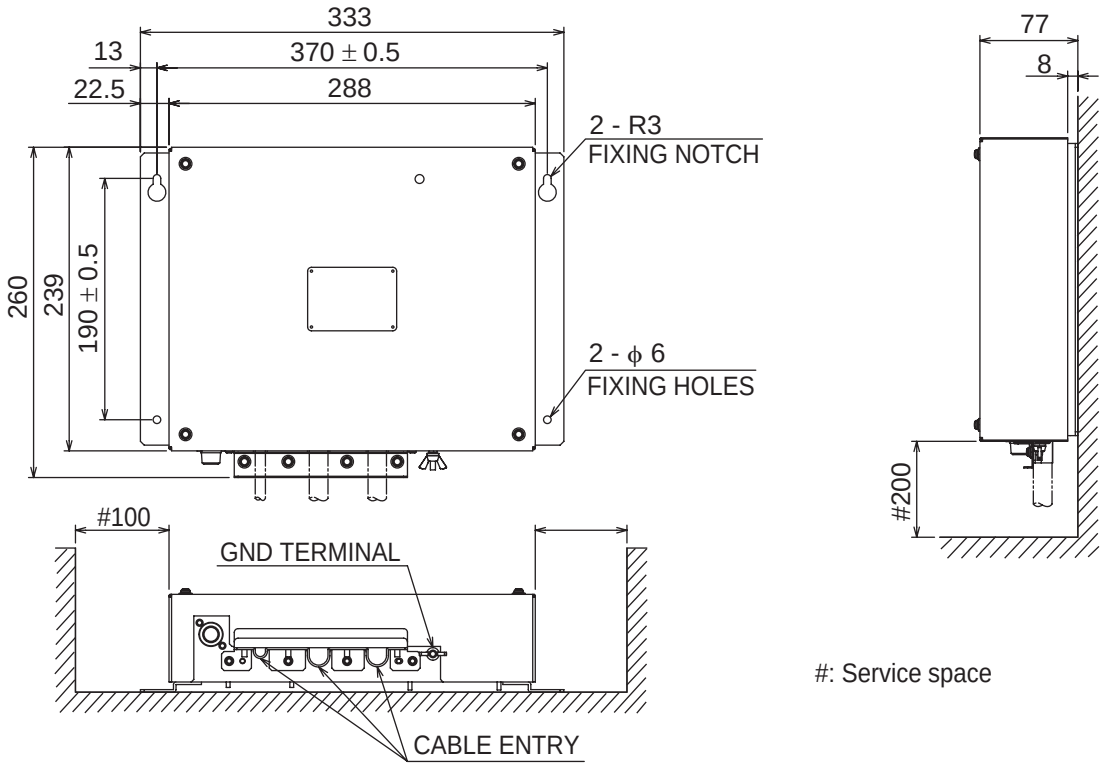
Flush mounting of display unit

1.3 Power Supply Unit

A power supply unit is shipped with the FR-8252, because of its high power consumption.

The power supply unit can be installed almost anywhere provided the location is dry, well-ventilated, sufficient maintenance space is provided and is installed within 5 m (cable length) from the display unit. To fix the unit, use four self-tapping screws (5x20).

Note: Do not install the power supply unit on the overhead; install it on the deck or bulkhead.



Power supply unit

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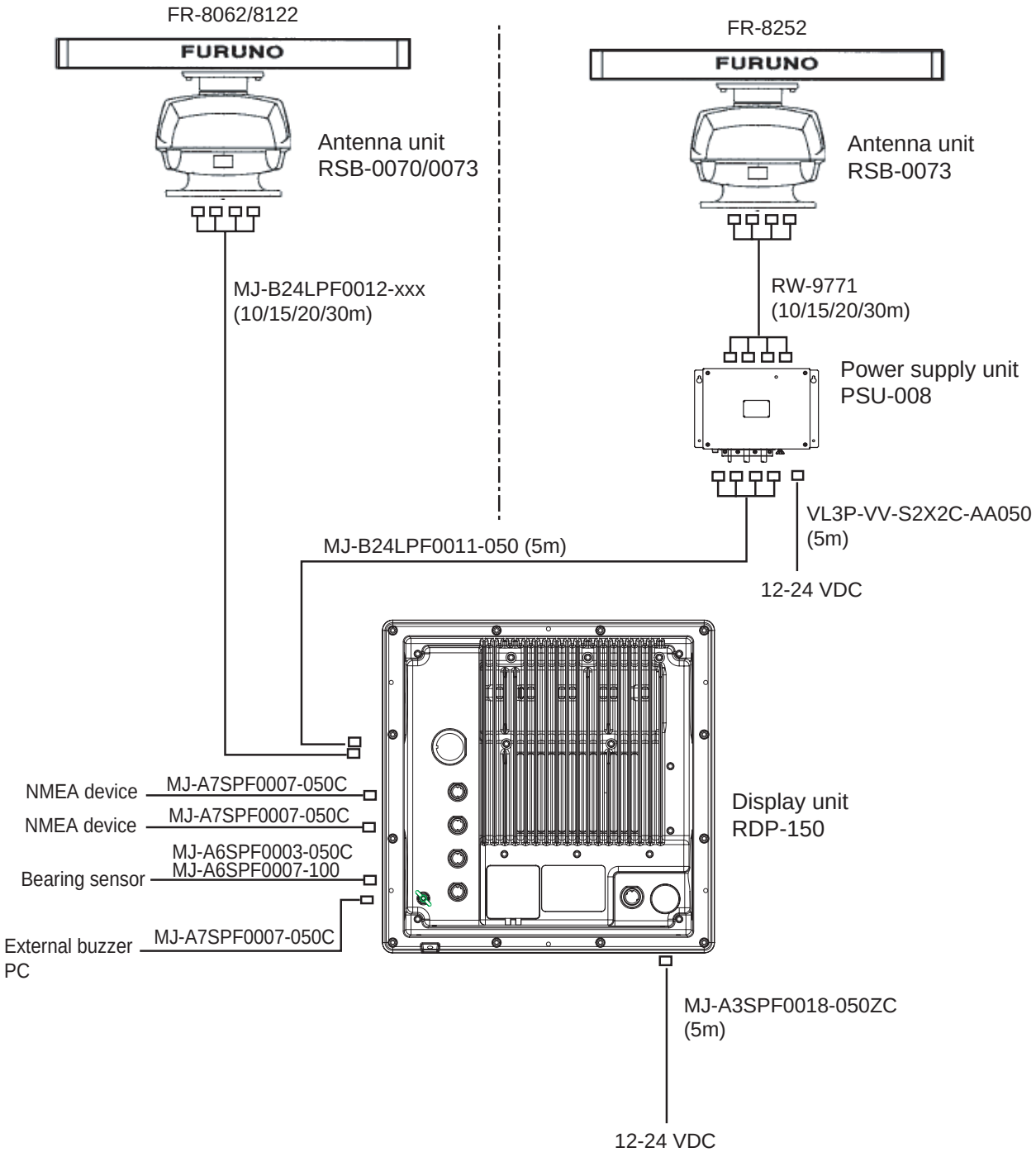
2. WIRING

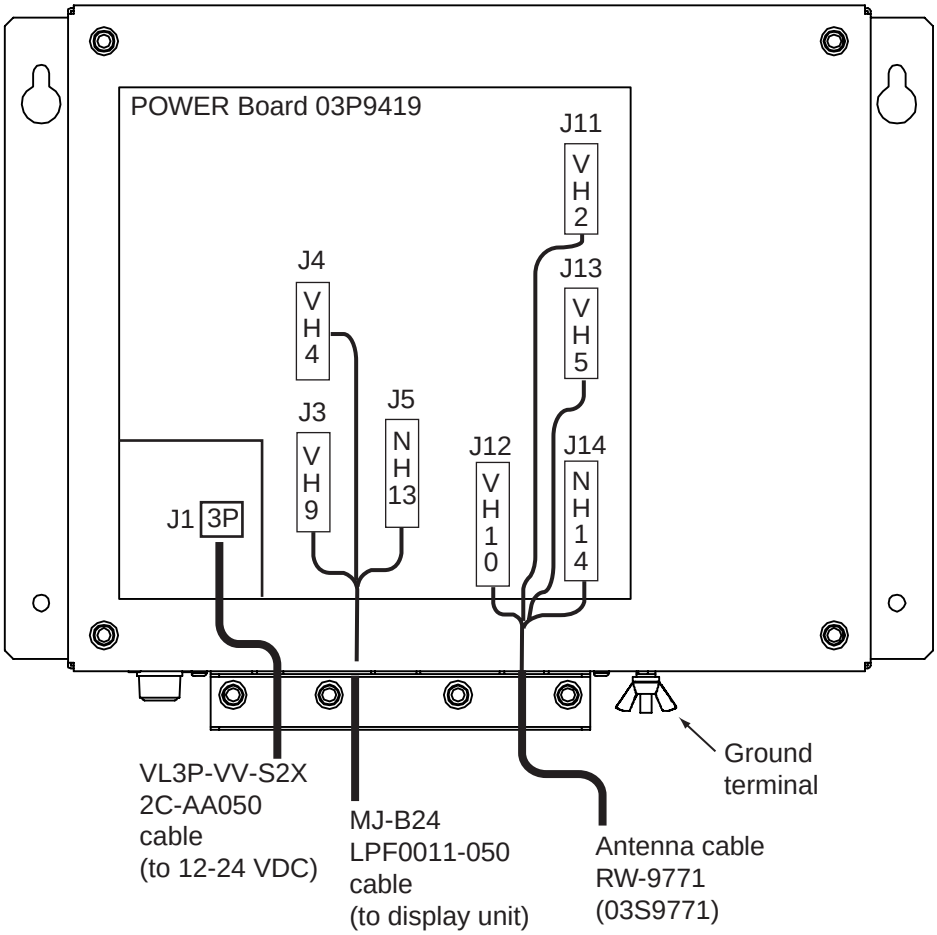
2.1 Standard Wiring



2.2 Wiring the Power Supply Unit

Cabling

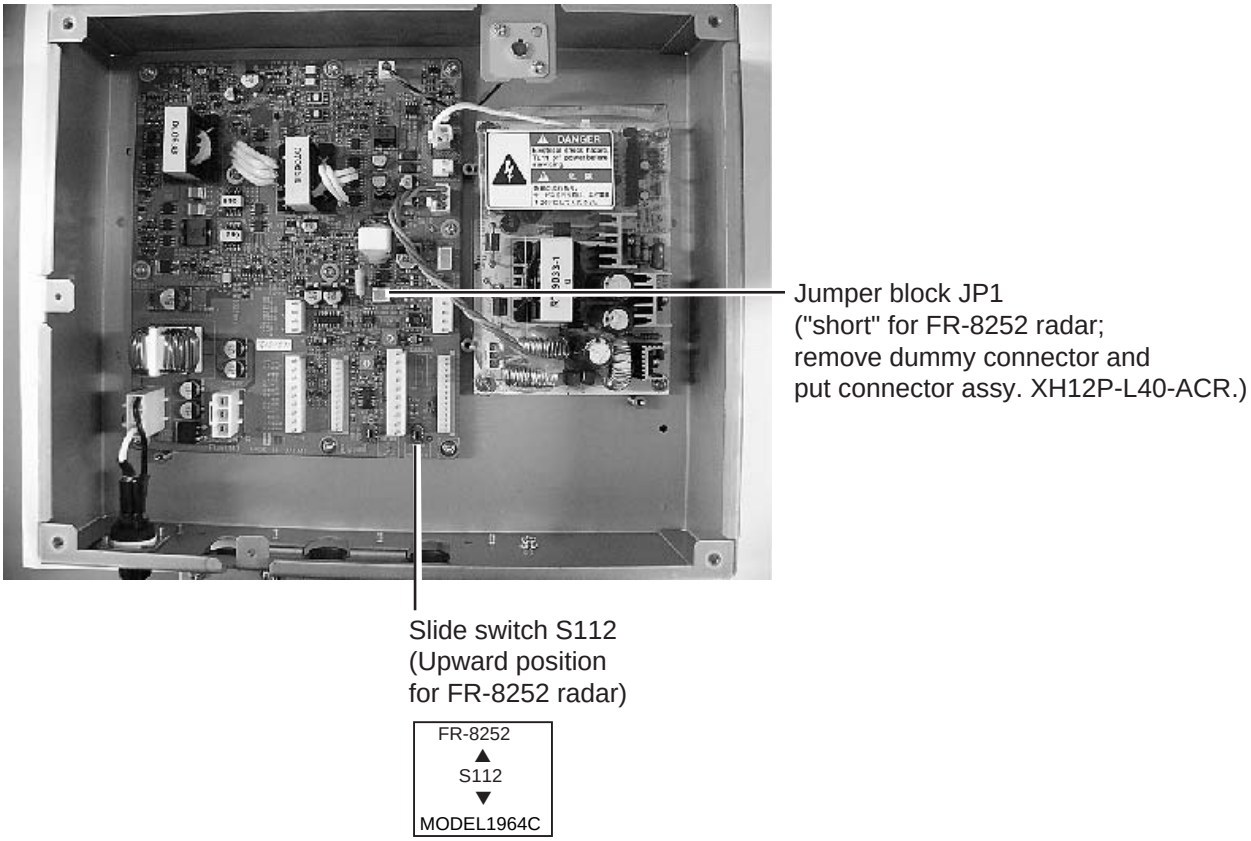
1. Unfasten fou screws to remove the cable clamp.
2. Unfasten four screws to remove the cover.
3. Attach the connectors of three cables as shown in the figure below.



4. Lay three cables in respective slots referring to the figure above.
5. Reattach the cover and the cable clamp.
6. Connect a ground wire (local supply, IV-2sq) between the ground terminal and ship's ground.

Jumper block, slide switch setting

The jumper block JP1 and slide switch S112 on the PWR board (03P9419) must be set according to radar model. Open the unit, locate JP1 and S112 and set them as below.



Power supply unit, inside view

Jumper block, slide switch	Function	Setting
JP1	Enables/disables motor slow start circuit.	Short (disable)
S112	TUNE voltage selector (0-12 V, 0-32 V)	Upward position (0-12 V)

Power requirement, replacement of fuses

Power requirement

The power for the power supply unit and display unit must be drawn from the same power switch on the power terminal board.

Replacement of fuses

The power supply unit is shipped with 15 A fuse(for connection to 12 VDC battery). Replace fuse with 7 A (supplied) when the ship's battery is 24 VDC.

2.3 Port for external devices

External equipments can be connected here as shown below.

NMEA (7P)	NMEA2(7P)	HDG (6P)	PC/EXT-BUZZER (7P)
NMEA sentence device	NMEA sentence device	Heading sensor	External buzzer, PC,

This equipment can receive the following NMEA 0183 format sentence from other equipments. You will need the optional NMEA cable to connect with external equipment.

- Course: RMC>RMA>VTG
- Waypoint Range: BWR> BWC> RMB, Bearing: BWR> BWC(>RMB*1)
-
-
- Heading (True): HDT>HDG*2>HDM*2>VHW*2
- Heading (Magnetic): HDM>HDG>HDT*2>VHW*2
- Ship's speed: Over ground: VTG>RMC> VHW, Through water: VHW
- Date: ZDA
- Time: ZDA
- Own ship's position: GNS>GGA>RMC> GLL
- GPS buoy GLL>TLL>BLD*3
- Depth: DPT>DBT
- Wind speed and angle*4: True: MWV>VWT, Relative: MWV>VWR
- Water temperature: MTW

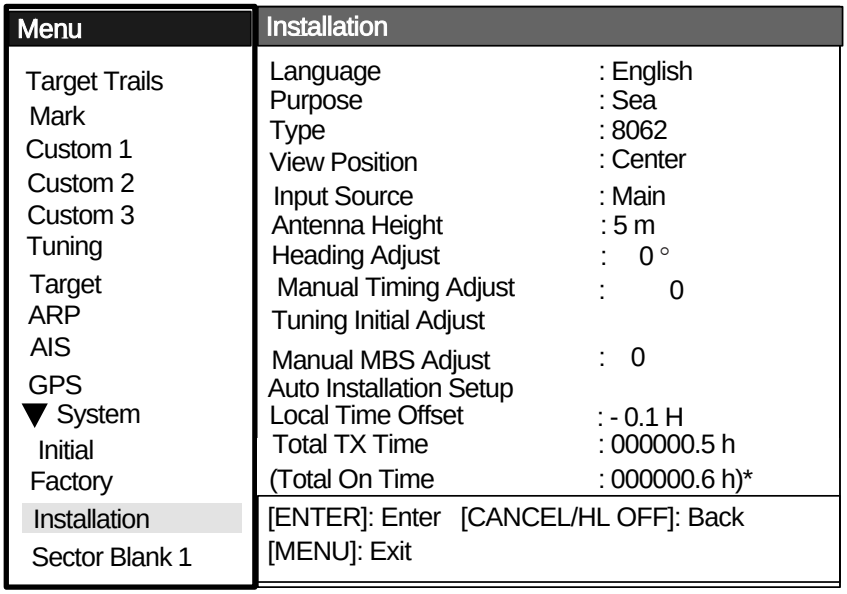
*1: Available when true bearing.
*2: Variation data is required.
*3: BLV is an original sentence of TAIYO MUSEN CO., LTD
*4: True or Relative is changed with menu.

3. SETTING UP THE EQUIPMENT

3.1 Opening the Installation Menu

After you have installed the equipment, set up the equipment as follows.

1. Press the **MENU** key. The main menu appears on the screen.
2. Rotate the trackball downward to choose **Installation**. The installation menu appears in gray to right side of the screen.
3. While pressing down the **CANCEL/HL OFF** key, press the **MENU** key five times.



* : Displayed when scrolled.

4. Press the **ENTER** key. The highlighted cursor appears in the Installation menu.
5. Rotate the trackball downward or upward to choose an item in the Installation menu.
6. Press the **ENTER** key to show setting window.
7. Rotate the trackball downward or upward to choose an option.
8. Press the **ENTER** key to set it.
9. Finally, press the **MENU** key to close the main menu.

Basic settings

Language: The default setting is English. Choose an appropriate language.

Purpose: Choose the purpose of this radar among River, Sea and IEC. The default setting is Sea.

River: To use this radar on the river

Sea: To use this radar at oceans.

IEC: To use this radar as the type approved radar.

Type: Choose type of this radar among 8062 (6 kW radar), 8122 (12 kW radar) and 8252 (25 kW radar) to coincide with the specifications of the antenna unit. The default setting is 8062. Unsuitable setting may result malfunctions.

View Position: Choose an operating position for this radar among Left, Left-Center, Center, Right-Center and Right to view the colors (echo, background, characters, etc.) correctly. The default setting is Center.
Left: When operating this radar at the left side.
Left-Center: When operating this radar at the left-center side.
Center: When operating this radar at center position.
Right-Center: When operating this radar at the right-center side.
Right: When operating this radar at the right side.

Input Source: Choose the input source between Main and Sub. The default setting is Main.
Main: When using this display unit as main radar.
Sub: When using this display unit as sub display.

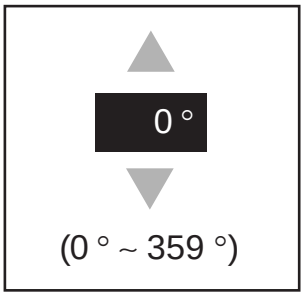
Antenna Height: Choose a position of the antenna unit from the sea level among 5, 10, 15, 20, 30, 40 and 50 m. The default setting is 5 m.

Local Time Offset: To display a local time on the screen, set the time difference from the UTC.

Heading Adjustment

You have mounted the antenna unit facing straight ahead in the direction of the bow. Therefore, a small but conspicuous target dead ahead visually should appear on the heading line (zero degrees).
In practice, you will probably observe some small error on the display because of the difficulty in achieving accurate initial positioning of the antenna unit. The following adjustment will compensate for this error.

1. Set ship's heading toward a suitable target (for example, ship or buoy) at a range between 0.125 and 0.25 nautical mile.
2. Transmit the radar at 0.25 nm range and measure the bearing of that target relative to ship' heading with EBL.
3. Open the Installation menu, and choose Heading Adjust.
4. Press the **ENTER** key to show the HEADING ADJUST window.



5. Rotate the trackball upward or downward to set the value measured at the step 2 above.
6. Press the **ENTER** and confirm that the target shows dead ahead on the screen.

Auto Installation Setup

When this item is executed, the tune adjustment, timing adjustment, video adjustment and MSB adjustment are automatically done.

1. Transmit the radar at 48 nm range.
2. Choose Auto Installation Setup at the installation menu and press the **ENTER** key.
3. Rotate the trackball to choose **Yes**, and then press the **Enter** key.
   Automatically, the tune adjustment begins, indicating “Tuning adjusting….” Then, the timing adjustment, video adjustment and MSB adjustment are execute automatically, indicating “Timing adjustment…”, “Video adjustment…”, and “MSB adjustment…” in that order. After adjustment, the window disappears.

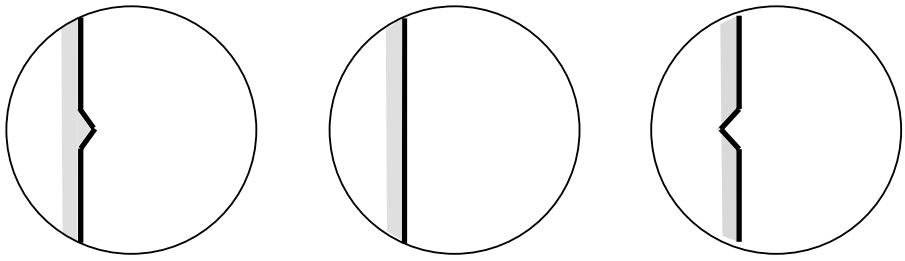
If you do not satisfy the result of the Auto Installation Setup, execute Manual Timing Adjust, Tuning Initial Adjust and Manual MSB Adjust as follows.

Tuning Initial Adjust

1. Transmit the radar.
2. Open the Installation menu, and choose Tuning Initial Adjust.
3. Press the **ENTER** key to show the setting window.
4. Rotate the trackball to choose **Yes**, and then press the **Enter** key. The tune adjustment begins, indicating “Tuning adjusting….” After adjustment, the window disappears.

Manual Timing Adjust

This adjustment ensures proper radar performance, especially on short ranges. The radar measures the time required for a transmitted echo to travel to the target and return to the source. The received echo appears on the display based on this time. Thus, at the instant the transmitter is fired, the sweep should start from the center of the display (sometimes called sweep origin.)
A trigger pulse generated in the display unit goes to the antenna unit through the signal cable to trigger the transmitter (magnetron). The time taken by the signal to travel up to the antenna unit varies, depending largely on the length of signal cable. During this period the display unit should wait before starting the sweep. When the display unit is not adjusted correctly, the echoes from a straight local object (for example, a harbor wall or straight pier) will not appear with straight edges – namely, they will be seen as “pushed out” or “pulled in” near the picture center. The range of objects will also be incorrectly shown.



Examples of improper and correct sweep timing

1. Transmit on the shortest range and confirm that gain and A/C SEA are properly adjusted.
2. Visually select a target which forms straight line (harbor wall, straight piers).
3. Open the Installation menu and choose Manual Timing Adjust.
4. Press the **ENTER** key to show the setting window.
5. Rotate the trackball to straighten the target selected at step 2, and then press the **ENTER** key to finish.

Manual MBS Adjust

Main bang (black hole), which appears at the display center on short ranges, can be suppressed as follows.

1. Open the Installation menu and select b Manual MBS Adjust.
2. Press the **ENTER** key to show the setting window.
3. Rotate the trackball to suppress main bang (between 0 and 25).
4. Press the **ENTER** key to finish.

4. OPTIONAL EQUIPMENT

4.1 ARP Kit ARP-11

Necessary parts

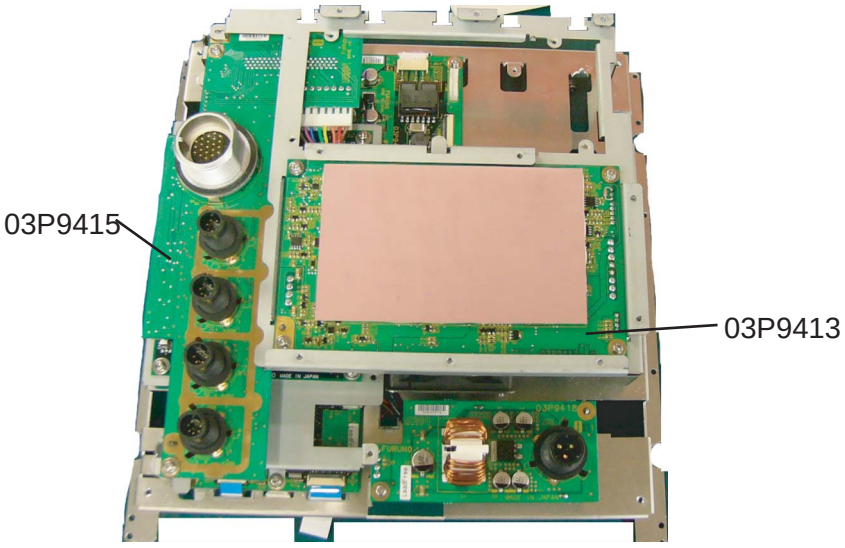
Name: ARP kit
Type: ARP-11
Code no.: 008-523-050

Contents of ARP kit

Name	Type	Code No.	Qty
ARP Board	18P9013	008-521-830	1
Pan head screw	M3x6 C2700W	000-881-403	4
Spacer*	SQ9	000-801-850	1
	SQ15	000-801-779	3
Spring washer*	M3 C5191W	000-864-204	3

*Not used

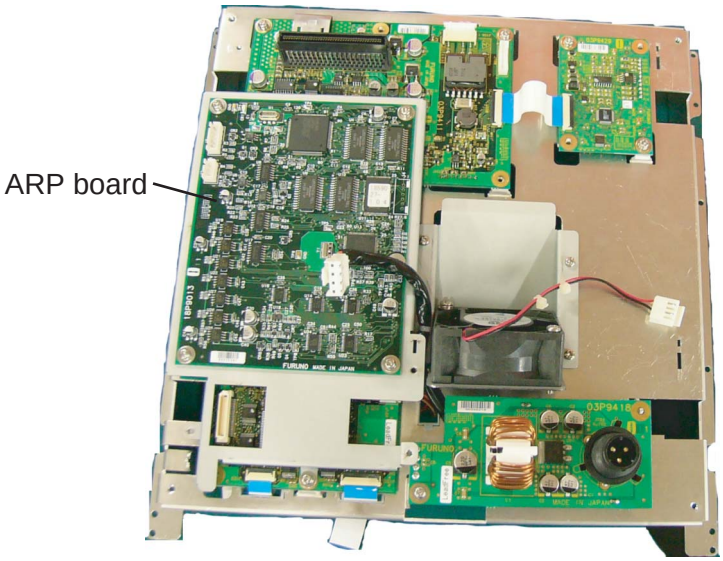
1. Unscrew all connecter nuts at the rear of the display unit.
2. Unfasten all screws to remove the display cover.



Removing the display unit cover

3. Disconnect the printed circuit board 03P9415 and 03P9413.
   Before disconnecting the 03P9413, disconnect J601 and J604 at the back of the board.

4. Mount the ARP board, mating with connectors and fix it with four screws at the location as shown in the figure below.



5. Remount 03P9415 and 03P9413 at original position and display cover.

4.2 External Monitor

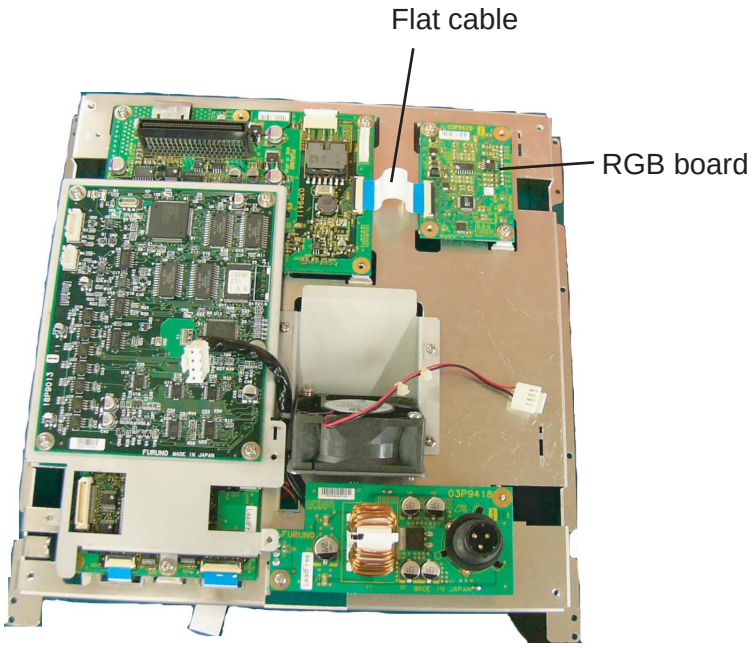
You can display the radar screen on an external monitor which accepts industrial standard VGA input by using the optional RGB kit OP03-195. Supply monitor and interconnection cable (with HD-15P connectors of male, three rows of 15 pins) locally.

Necessary parts for external monitor

Name: RGB kit
Type: OP03-195
Code No.: 008-553-110

Name	Type	Code No.	Qty
RGB board	03P9492	008-553-680	1
Flat cable	SML2SC34-4X50BDP.5S4	000-155-457	1
Cable assy	15SDS/XHP10-005	000-144-511	1
EMI core	RFC-6	000-144-132	1

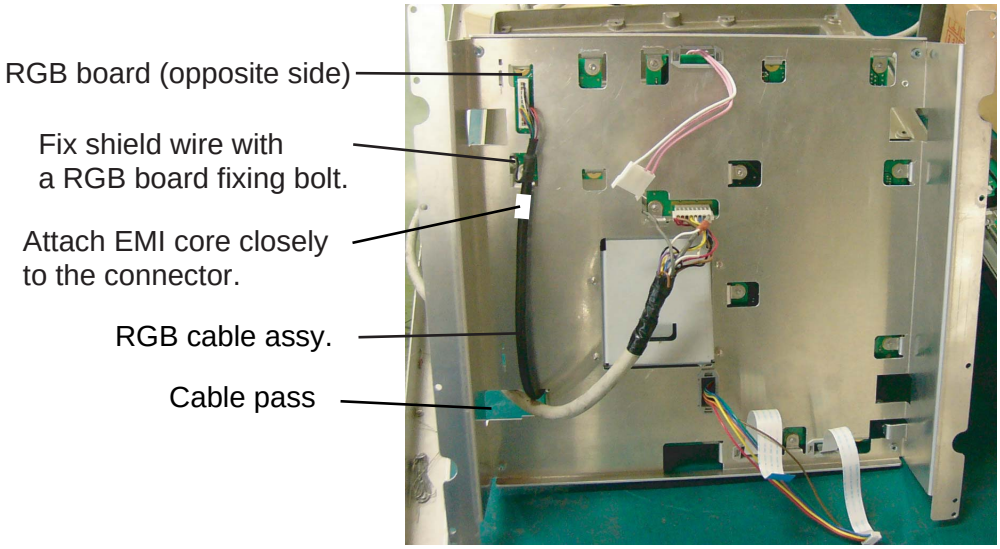
1. Unscrew all connecter nuts at the rear of the display unit.
2. Unfasten all screws to remove the display cover.
3. Disconnect the printed circuit board 03P9415 and 03P9413.
   Before disconnecting the 03P9413, disconnect J601 and J604 at the back of the board.
4. Mount the RGB board with two screws and connect the flat cable at the location as shown in the figure below.



Removing the display unit cover

5. Remount 03P9415 and 03P9413 at original position and display cover.

6. Detach LCD panel from the above assembly. Take care to disconnect the connector and flat cables.
7. Connect the cable assy. 15SDS/XHP10-005 to the rear side of the RGB board.
8. Fix the shield wire of the cable assy. with a screw used to fix the RGB board.
9. Attach the EMI core RFC-1 to the cable assy. closely to the connector.
10. Pass the cable as shown in the figure below and then OPTION port of the cover of the display unit.

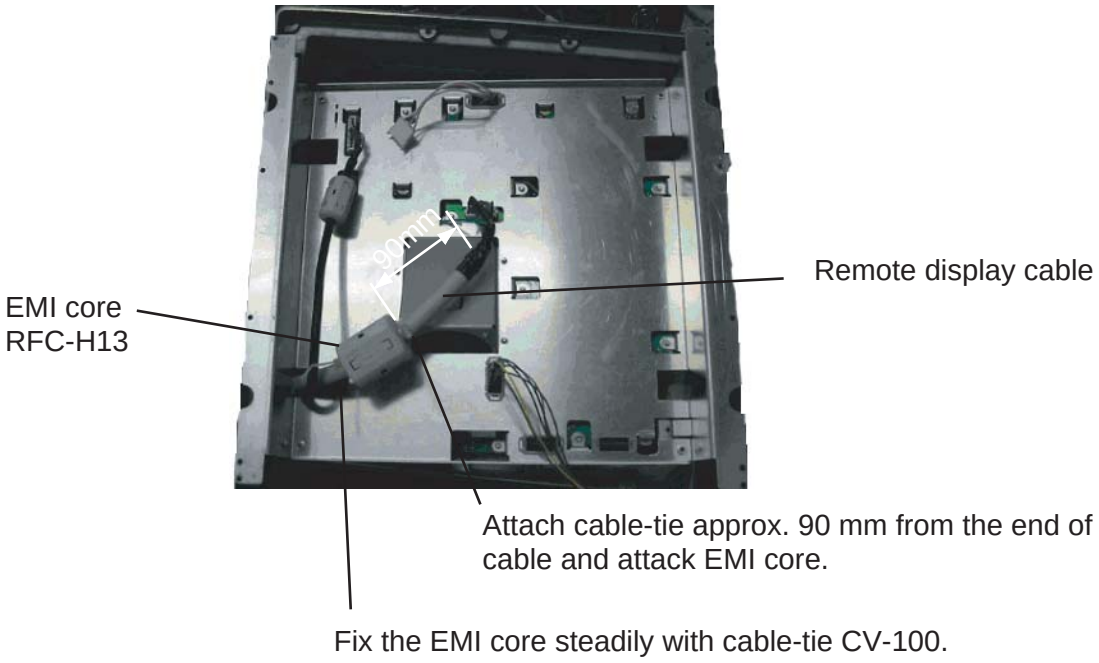


11. Reassemble the display unit and cover the hole with soft putty to seal.
12. Fix the EMI core RFC-6 to the cable closely to the display unit.

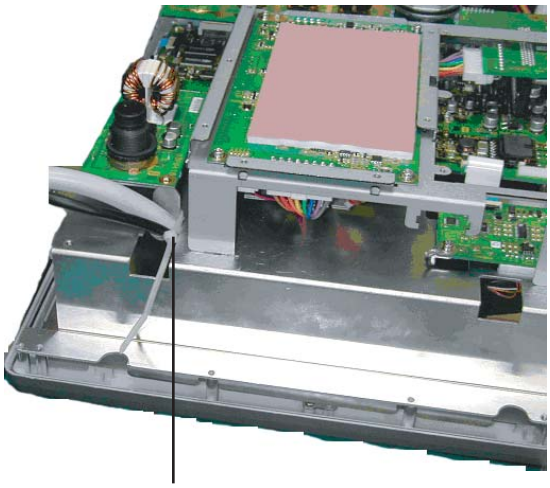
4.3 Remote display

The FURUNO Display unit FMD-811, MODEL1832 or GD-280/380, etc. can be connected to this radar as a remote display. To interconnect them, use a cable attached with or set as option for the remote display. Also, the optional EMI core (Type: CP03-31001, Code No.:008-556-830) should be attached to the remote display cable to prevent a noise.

1. Unscrew all connecter nuts at the rear of the display unit.
2. Unfasten all screws to remove the display cover.
3. Pass the signal cable from the OPTION port of the display unit cover to the hole as shown in the figure below and then connect it to SPU board.
4. Fix the shield wire with a screw used to fixed the SPU board.
5. Attach the EMI core RFC-H13 on the signal cable.



6. Fix the signal cable to the spacer of the FIL board with a cable tieCV-150.



Fix the cable with cable-tie using the spacer of FIL board.

7. Reassemble the display unit.

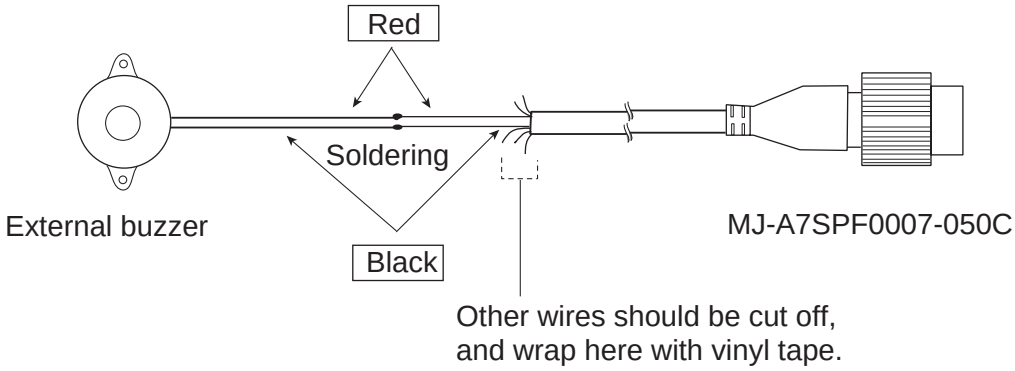
4.4 External Buzzer

The optional external buzzer provides a louder alert when the alarm is violated.

External buzzer
Type: OP03-136
Code no.: 000-086-443

Further, you need the optional cable assy. MJ-A7SPF0007-050C (w/7P connector, 5 m, code no. 000-154-028-10).

1. Attach the MJ-A7SPF0007-050C cable assy. (option) to the PC/EXT-BUZZER port at the rear of the display unit.
2. Cut the XH connector at the end of the external buzzer cable with appropriate length.
3. Solder the cables made at step 2 with MJ-A7SPF0007-050C cable as shown below.



Connection of external buzzer and display unit
using cable assy. type MJ-A7SPF0007-050C cable

4. Attach the buzzer to the mounting location with the double-sided tape or two tapping screws (3x15 or 3x20, local supply).

PACKING LIST

03GT-X-9852 -0 1/1

RSB-0070-085/RSB-0073-085/RSB-0073-086/RSB-0073-087

NAME	OUTLINE	DESCRIPTION/CODE №	Q'TY
ユニット UNIT			
空中線本体部 ANTENNA UNIT		RSB-0070-085 008-552-970 **	1
工事材料 INSTALLATION MATERIALS			
空中線部工材 ANTENNA INSTALLATION MATERIALS		CP03-30801 008-552-960	1

ｺｰﾄﾞ番号末尾の[**]は、選択品の代表ｺｰﾄﾞを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

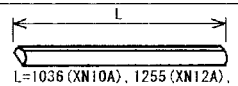
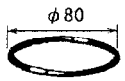
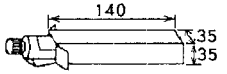
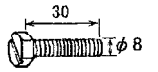
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

03GT-X-9852

PACKING LIST

19AK-X-9856

XN12A, XN13A

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
ｱﾝﾃﾅ ANTENNA	 L=1036(XN10A), 1255(XN12A),	XN10A, 12A 008-523-***	1
アンテナ工材 ANTENNA INSTALLATION MATERIALS		CP03-22901	
ｵﾘﾝｸﾞ O-RING		JISB2401-1A-G80 000-851-313	1
ｽﾘｰﾎﾞﾝﾄﾞ SEALANT		1211 50G 000-854-118	1
六角ﾎﾞﾙﾄ ｽﾘﾜﾘ HEX. BOLT		M8X30 SUS304 000-862-151	4
ﾐｶﾞｷ平座金 FLAT WASHER		M8 SUS304 000-864-130	4
ﾊﾞﾈ座金 SPRING WASHER		M8 SUS304 000-864-262	4

DWG NO.
C3500-Z01- C

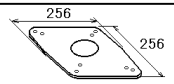
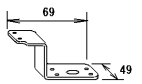
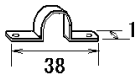
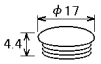
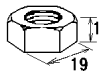
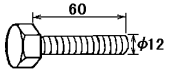
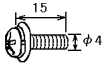
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	008-552-960	03GT-X-9401 -3
TYPE	CP03-30801	1/2

工事材料表

INSTALLATION MATERIALS

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		03-001-3002-0 CODE NO. 300-130-020	4	
2	防蝕ゴム CORROSION-PROOF RUBBER MAT		03-142-3001-0 CODE NO. 100-275-580	1	
3	パッキンオサエ PACKING SUPPORT		03-167-2017-0 CODE NO. 100-327-760	1	
4	シールドクランプ SHIELD CLAMP		03-167-2018-1 CODE NO. 100-327-771	1	
5	キャップ CAP		040-4010 CODE NO. 000-515-332	4	
6	ミガキ平座金 FLAT WASHER		M12 SUS304 CODE NO. 000-864-132	4	
7	六角ナット　1種 HEX.NUT		M12 SUS304 CODE NO. 000-863-112	4	
8	バネ座金 SPRING WASHER		M12 SUS304 CODE NO. 000-864-263	4	
9	六角ボルト（全ネジ） HEX. BOLT		M12X60 SUS304 CODE NO. 000-862-191	4	
10	+-ナベセムスネジB WASHER HEAD SCREW		M4X15 C2700W MBN12 CODE NO. 000-881-448	2	

03GT-X-9401

FURUNO ELECTRIC CO .,LTD.

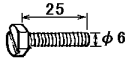
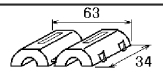
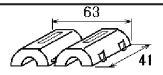
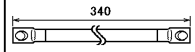
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	008-552-960	03GT-X-9401 -3
TYPE	CP03-30801	2/2

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
11	バネ座金 SPRING WASHER		M6 SUS304 CODE NO. 000-864-260	1	
12	ミガキ平座金 FLAT WASHER		M6 SUS304 CODE NO. 000-864-129	3	
13	六角ナット　1種 HEX.NUT		M6 SUS304 CODE NO. 000-863-109	1	
14	六角ボルト HEX.BOLT		M6X25 SUS304 CODE NO. 000-862-180	1	
15	EMIコア EMI CORE		RFC-13 CODE NO. 000-141-084	2	
16	EMIコア EMI CORE		RFC-H13 CODE NO. 000-146-570	1	
17	アース線 GROUNDING WIRE		RW-4747-1 03S4747-2 CODE NO. 000-566-000	1	

03GT-X-9401

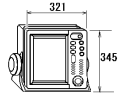
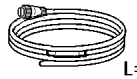
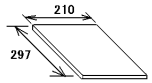
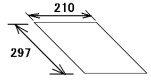
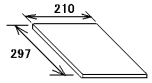
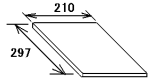
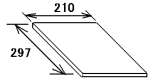
FURUNO ELECTRIC CO .,LTD.

（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

PACKING LIST

03GT-X-9851 -0 1/1

RDP-150-J/E

NAME	OUTLINE	DESCRIPTION/CODE №	Q'TY
ユニット UNIT			
指示部 DISPLAY UNIT		RDP-150-J/E 000-090-462 **	1
予備品 SPARE PARTS			
予備品 SPARE PARTS		SP03-15401 008-553-040	1
工事材料 INSTALLATION MATERIALS		CP03-30900	
工事材料 INSTALLATION MATERIALS		CP03-30901 008-553-050	1
工事材料 INSTALLATION MATERIALS		CP03-30902 008-554-600	1
ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-A3SPF0027-050ZC 000-153-769	1
図書 DOCUMENT			
技適認証要領 APPLICATION GUIDE		J32-00501-* Japan only 000-153-768	1 (*1)
ﾋｭｰｽﾞ変更のお願い NOTICE FOR FUSE REPLACEMENT		C32-00504-* 000-153-329	1
操作要領書 OPERATOR'S GUIDE		OS*-35390-* 000-153-319 **	1
装備要領書 INSTALLATION MANUAL		IM*-35390-* 000-153-317 **	1
取扱説明書 OPERATOR'S MANUAL		OM*-35390-* 000-153-315 **	1

ｺｰﾄﾞ番号末尾の[**]は、選択品の代表ｺｰﾄﾞを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.
(*1)の書類は、和文仕様専用
(*1)MARKED DOCUMENTS ARE FOR JAPANESE SET ONLY.

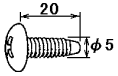
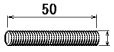
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	008-553-050	03GT-X-9402 -0
TYPE	CP03-30901	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	冷間圧造蝶ﾅｯﾄ WING NUT		M4 SUS304 CODE NO. 000-863-331	4	
2	ﾊﾞﾈ座金 SPRING WASHER		M4 SUS304 CODE NO. 000-864-256	4	
3	ﾐｶﾞｷ平座金 FLAT WASHER		M4 SUS304 CODE NO. 000-864-126	4	
4	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1種 SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-802-081	4	
5	寸切ﾎﾞﾙﾄ THREADED ROD		M4X50 SUS304 CODE NO. 000-147-539	4	

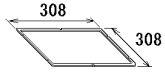
FURUNO ELECTRIC CO., LTD.

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	008-554-600	03GT-X-9405 -0
TYPE	CP03-30902	1/1

工事材料表
INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	Fﾏｳﾝﾄﾖｳｽﾎﾟﾝｼﾞ FLUSH MOUNTING SPONGE		03-167-1601-0 CODE NO. 100-328-390	1	

03GT-X-9405

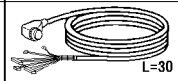
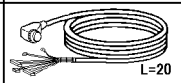
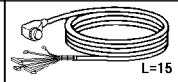
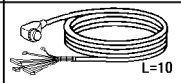
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.		03GT-X-9403 -0
TYPE		1/1

工事材料表
INSTALLATION MATERIALS

FR-8062/8122

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-B24LPF0012-300 CODE NO. 000-153-622	1	選択 TO BE SELECT
2	ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-B24LPF0012-200 CODE NO. 000-153-621	1	選択 TO BE SELECT
3	ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-B24LPF0012-150 CODE NO. 000-153-620	1	選択 TO BE SELECT
4	ｹｰﾌﾞﾙ組品MJ CABLE ASSY.		MJ-B24LPF0012-100 CODE NO. 000-153-619	1	選択 TO BE SELECT

03GT-X-9403

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

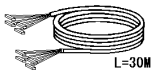
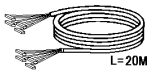
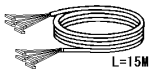
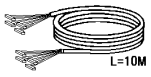
FURUNO

CODE NO.		19AV-X-9402 -0
TYPE		1/1

工事材料表

INSTALLATION MATERIALS

FR-8252

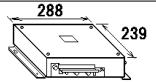
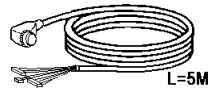
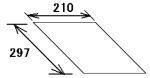
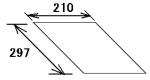
番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｹｰﾌﾞﾙ組品 CABLE ASSY.		RW-9771 *30M* CODE NO. 000-152-869	1	選択 TO BE SELECTED
2	ｹｰﾌﾞﾙ組品 CABLE ASSY.		RW-9771 *20M* CODE NO. 000-152-868	1	選択 TO BE SELECTED
3	ｹｰﾌﾞﾙ組品 CABLE ASSY.		RW-9771 *15M* CODE NO. 000-152-867	1	選択 TO BE SELECTED
4	ｹｰﾌﾞﾙ組品 CABLE ASSY.		RW-9771 *10M* CODE NO. 000-152-866	1	選択 TO BE SELECTED

FURUNO ELECTRIC CO ., LTD.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

PACKING LIST

PSU-008

NAME	OUTLINE	DESCRIPTION/CODE №	Q'TY
ユニット UNIT			
空中線電源部 POWER SUPPLY UNIT		PSU-008 000-083-617	1
予備品 SPARE PARTS			
予備品 SPARE PARTS		SP03-14501 008-444-420	1
工事材料 INSTALLATION MATERIALS		**CP03-30600**	
ｹｰﾌﾞﾙ組品 CABLE ASSY.		VL3P-VV-S2X2C-AA050 000-152-217	1
ｹｰﾌﾞﾙ組品MJ CABLE ASSY		MJ-B24LPF0011-050 000-152-939	1
工事材料 INSTALLATION MATERIALS		CP03-30601 008-550-740	1
図書 DOCUMENT			
設定要領書 INTERNAL SETTING(JR/EN)		C32-00505-* 000-153-867	1
ﾋｭｰｽﾞ変更のお願い NOTICE FOR FUSE REPLACEMENT		C32-00502-* 000-152-940	1

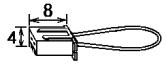
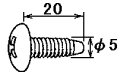
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	008-550-740	19AV-X-9401 -1
TYPE	CP03-30601	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｺﾈｸﾀ組品 CONNECTOR ASSY.		XH2P-L40-ACR CODE NO. 000-153-879	1	
2	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1種 SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-802-081	4	

19AV-X-9401

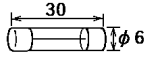
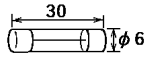
FURUNO ELECTRIC CO ., LTD.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	008-553-040	03GT-X-9301 -0 1/1
TYPE	SP03-15401	BOX NO. P

SHIP NO.	SPARE PARTS LIST FOR	U S E	SETS PER VESSEL

ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY WORKING PER SET	QUANTITY WORKING PER VES	QUANTITY SPARE	REMARKS/CODE NO.
1	ﾋｭｰｽﾞ FUSE		FGBO 15A AC125V			3	000-549-014
2	ﾋｭｰｽﾞ FUSE		FGBO 10A AC125V			3	000-549-065

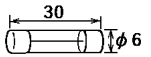
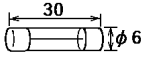
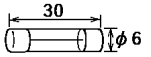
MFR'S NAME	FURUNO ELECTRIC CO.,LTD.	DWG NO.	03GT-X-9301	1/1

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	008-444-420	19AQ-X-9301 -1 1/1
TYPE	SP03-14501	BOX NO. P

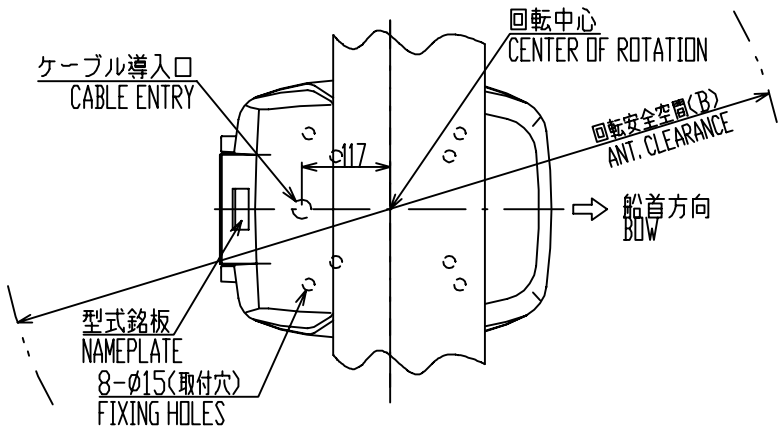
SHIP NO.	SPARE PARTS LIST FOR	U S E	SETS PER VESSEL

ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY WORKING PER SET	QUANTITY WORKING PER VES	QUANTITY SPARE	REMARKS/CODE NO.
1	ｶﾝｲﾘﾋｭｰｽﾞ FUSE		FGBO 3A AC125V			3	000-131-845
2	ﾋｭｰｽﾞ FUSE		FGBO 7A AC125V			3	000-549-013
3	ﾋｭｰｽﾞ FUSE		FGBO 15A AC125V			3	000-549-014

MFR'S NAME	FURUNO ELECTRIC CO.,LTD.	DWG NO.	19AQ-X-9301	1/1

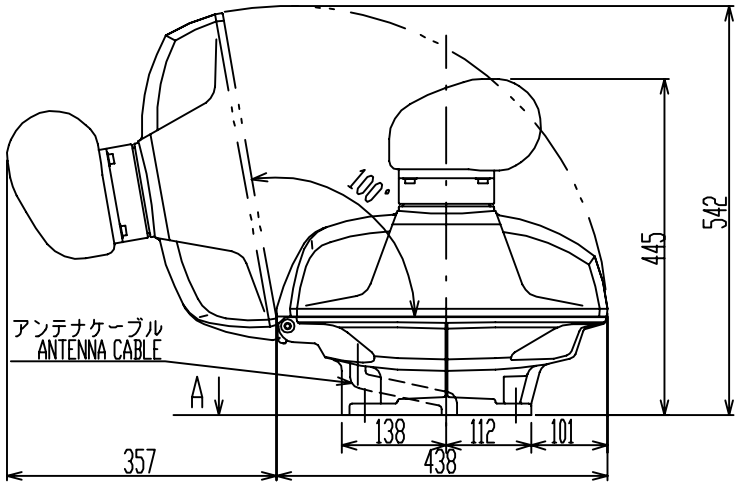
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO



注記 1) 指定外寸法公差は表1による。
2) 取付はM12ボルトを使用のこと。
3) 空中線部の取付台に⌀25-30のケーブル貫通穴を開ける。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. USE M12 BOLTS FOR FIXING THE UNIT.
3. MAKE A HOLE ⌀25-30 ON MOUNTING BASE FOR CABLE ENTRY.



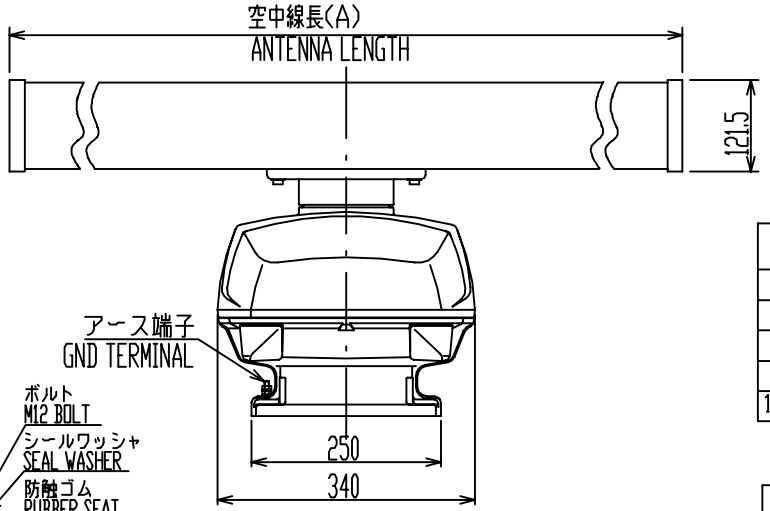
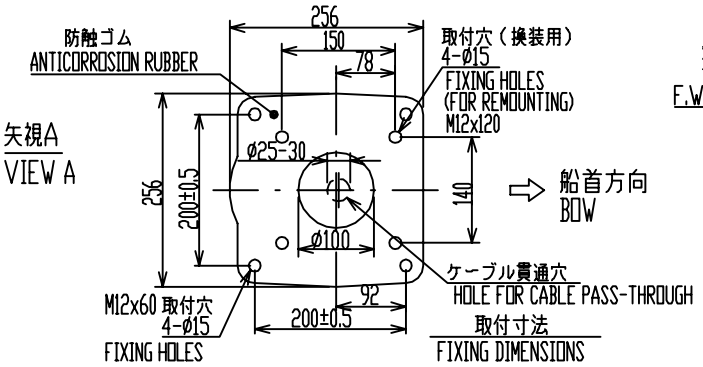


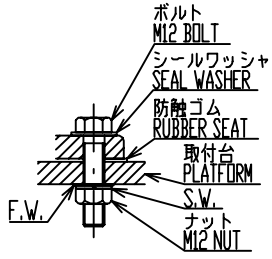
表1 TABLE 1

寸法範囲(mm) DIMENSIONS	公差(mm) TOLERANCE
0<L≦50	±1.5mm
50<L≦100	±2.5mm
100<L≦500	±3mm
500<L≦1000	±4mm
1000<L≦2000	±5mm

表2 TABLE 2

種類 TYPE	XN12A	XN13A
空中線長(A) ANT. LENGTH(mm)	1255±10	1795±10
安全空間(B) ANT. CLEARANCE(mm)	1400	1940
質量(kg) MASS	25	27





取付部詳細
DETAIL FOR FIXING

DRAWN Sep. 7, '05 E. MIYOSHI		TITLE	RSB-0070/0072/0073 (XN12A/13A)
CHECKED TAKAHASHI. T		名称	空中線部
APPROVED Y. Hatai	FR-8062/8122/8252 SERIES		外寸図
SCALE 1/10 MASS 表2に記載 SEE TABLE 2		NAME	ANTENNA UNIT
DWG.No. C3539-G03- A	03-142-300G-5		OUTLINE DRAWING

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FURUNO

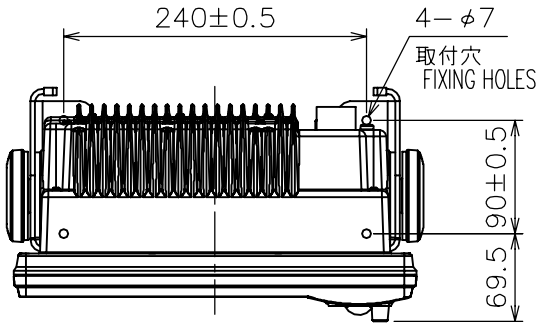
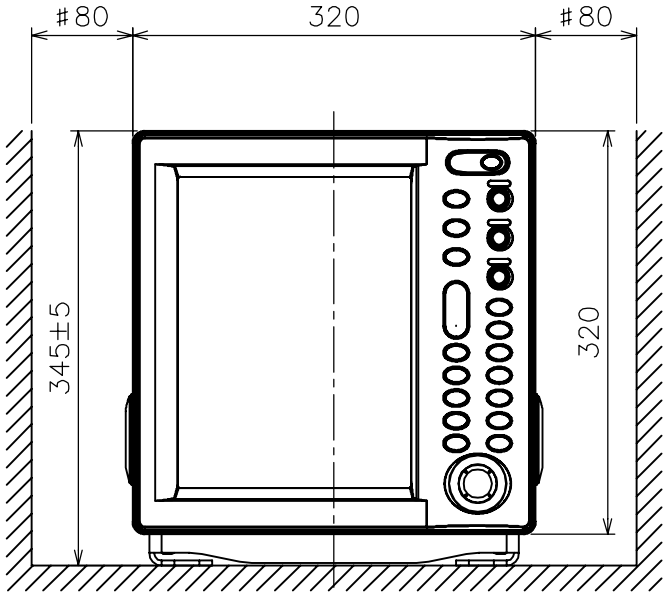
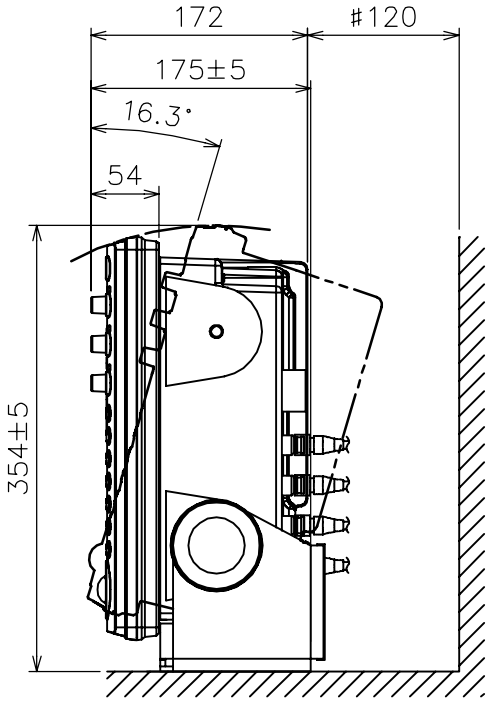
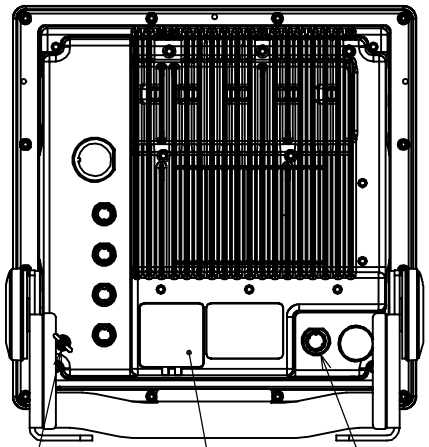


表 1 TABLE 1

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







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５×２０を使用のこと。

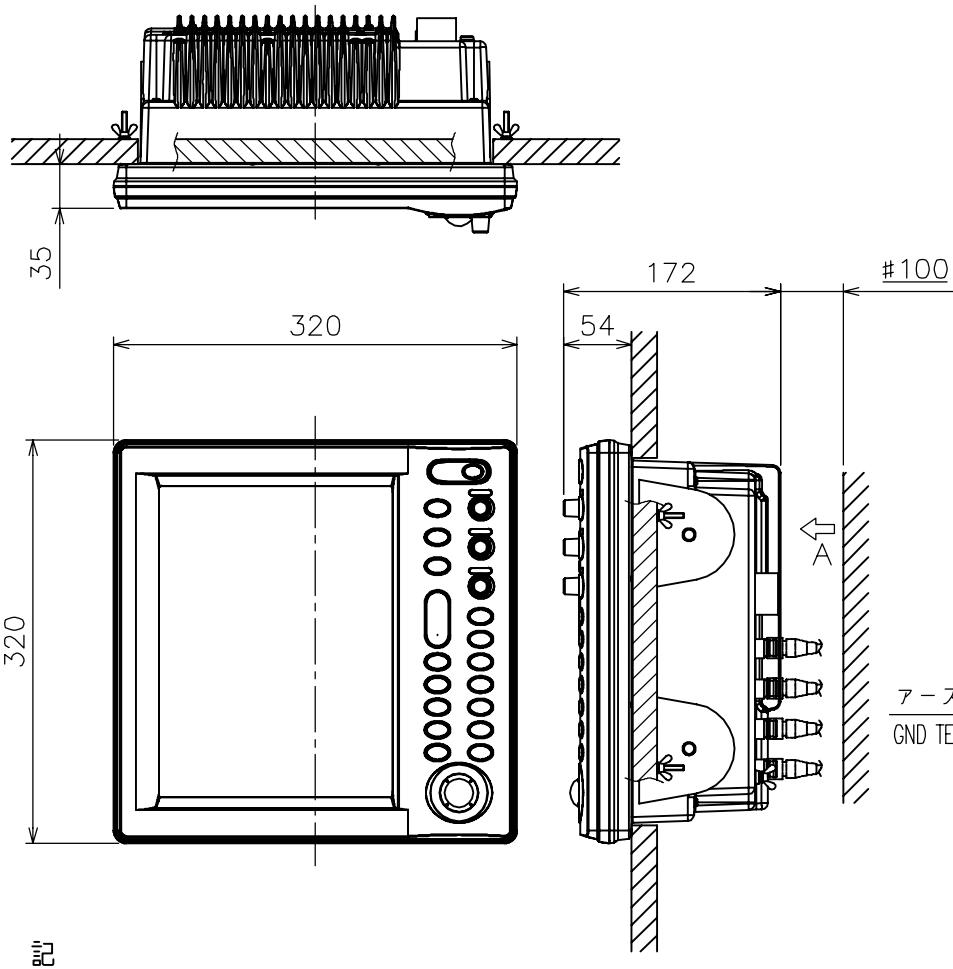
NOTE

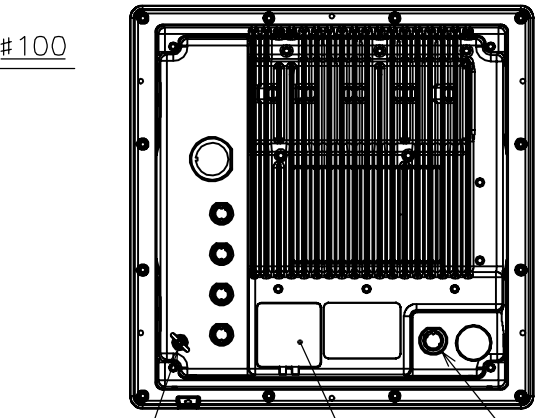
1) #: MINIMUM SERVICE CLEARANCE.
2) TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE SELF-TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

DRAWN Sep. 9, '05 E. MIYOSHI		TITLE	RDP-150
CHECKED TAKAHASHI. T		名称	指示部（卓上装備）
APPROVED Y. Hatai	FR-8062/8122/8252		外寸図
SCALE 1/6 MASS 6.9 ±10% kg	質量にハードカバー、ケーブルは含まない MASS DOES NOT INCLUDE HARD COVER OR CABLE.	NAME	DISPLAY UNIT (TABLETOP MOUNT)
DWG.No. C3539-G02- A	REF.No. 03-167-110G-1		OUTLINE DRAWING

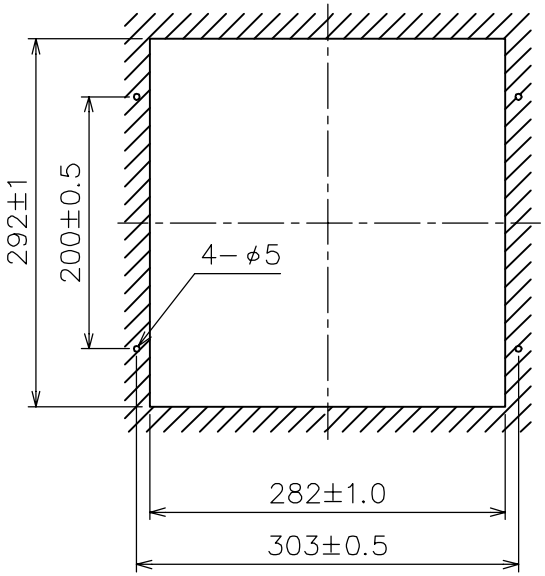
FURUNO ELECTRIC CO., LTD.

FURUNO





矢視 A
VIEW A



取付穴寸法図
CUTOUT DIMENSIONS

表 1 TABLE 1

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

注　記

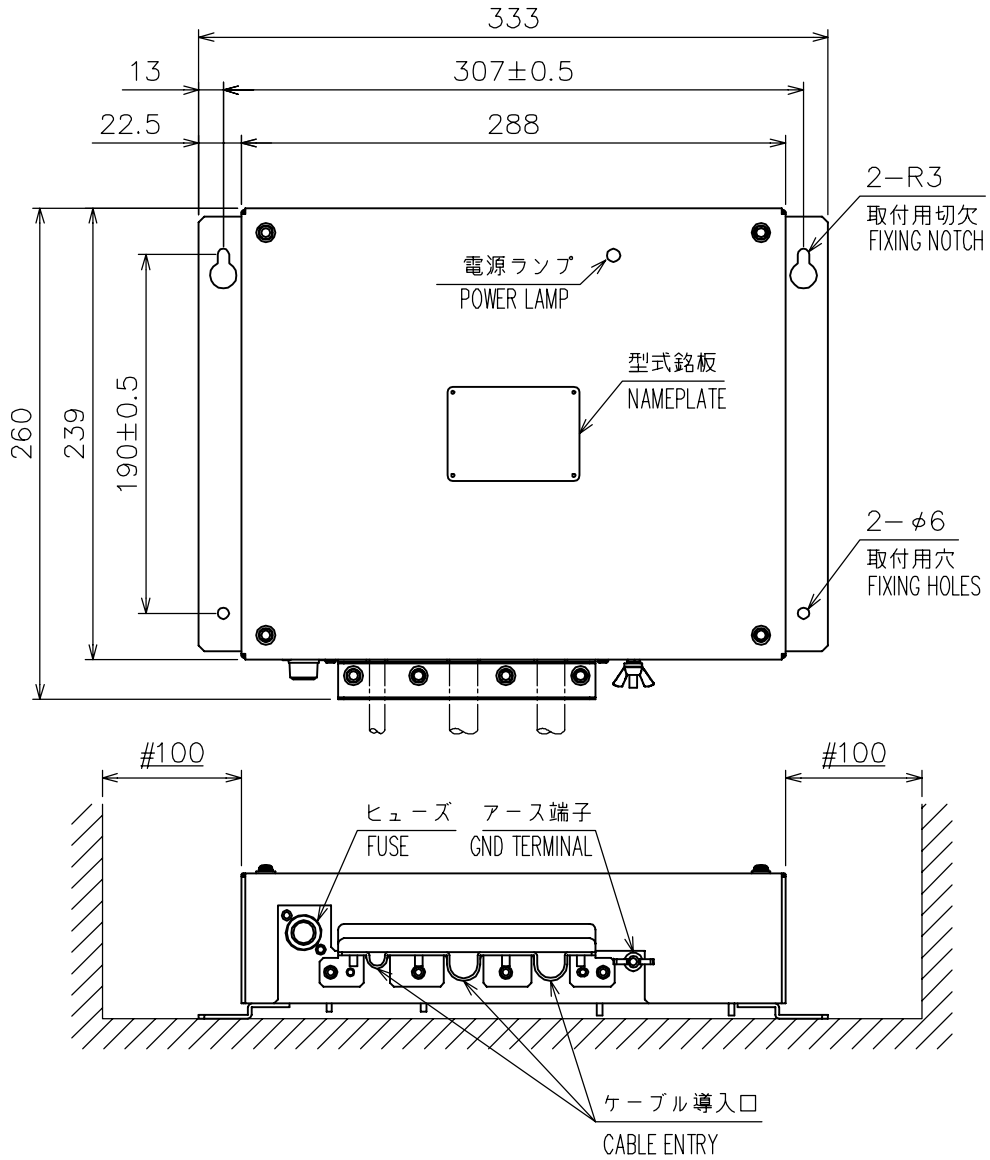
1）＃印寸法は最小サービス空間寸法とする。
2）指定外の寸法公差は表１による。
3）取付はＭ４Ｘ５０寸切りボルト、Ｍ４平座金、
　Ｍ４バネ座金、Ｍ４蝶ナット使用のこと。

NOTE

1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE M4X50 BOLTS, M4 FLAT WASHERS, M4 SPRING WASHERS AND M4 WING NUTS FOR FIXING UNIT.

DRAWN Sep. 9, '05 E. MIYOSHI			TITLE RDP-150
CHECKED TAKAHASHI. T			名称 指示部（埋込装備）
APPROVED Y. Hatai		FR-8062/8112/8252	外寸図
SCALE 1/6	MASS 6.1 ±10% kg	質量にハードカバー、ケーブルは含まない MASS DOES NOT INCLUDE HARD COVER OR CABLE.	NAME DISPLAY UNIT (FLUSH MOUNT)
DWG.No. C3539-G01- A		REF.No. 03-167-100G-1	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.



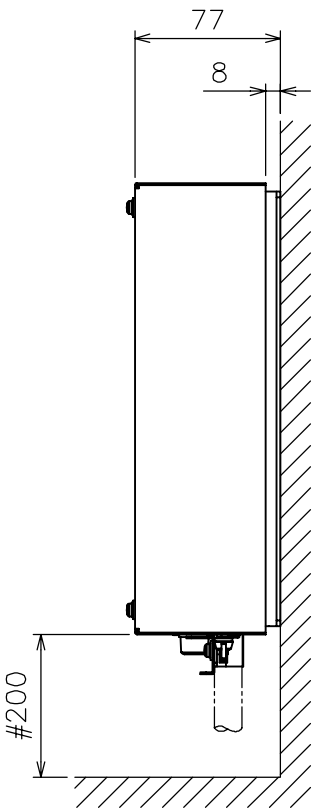


表 1　TABLE 1

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

注　記

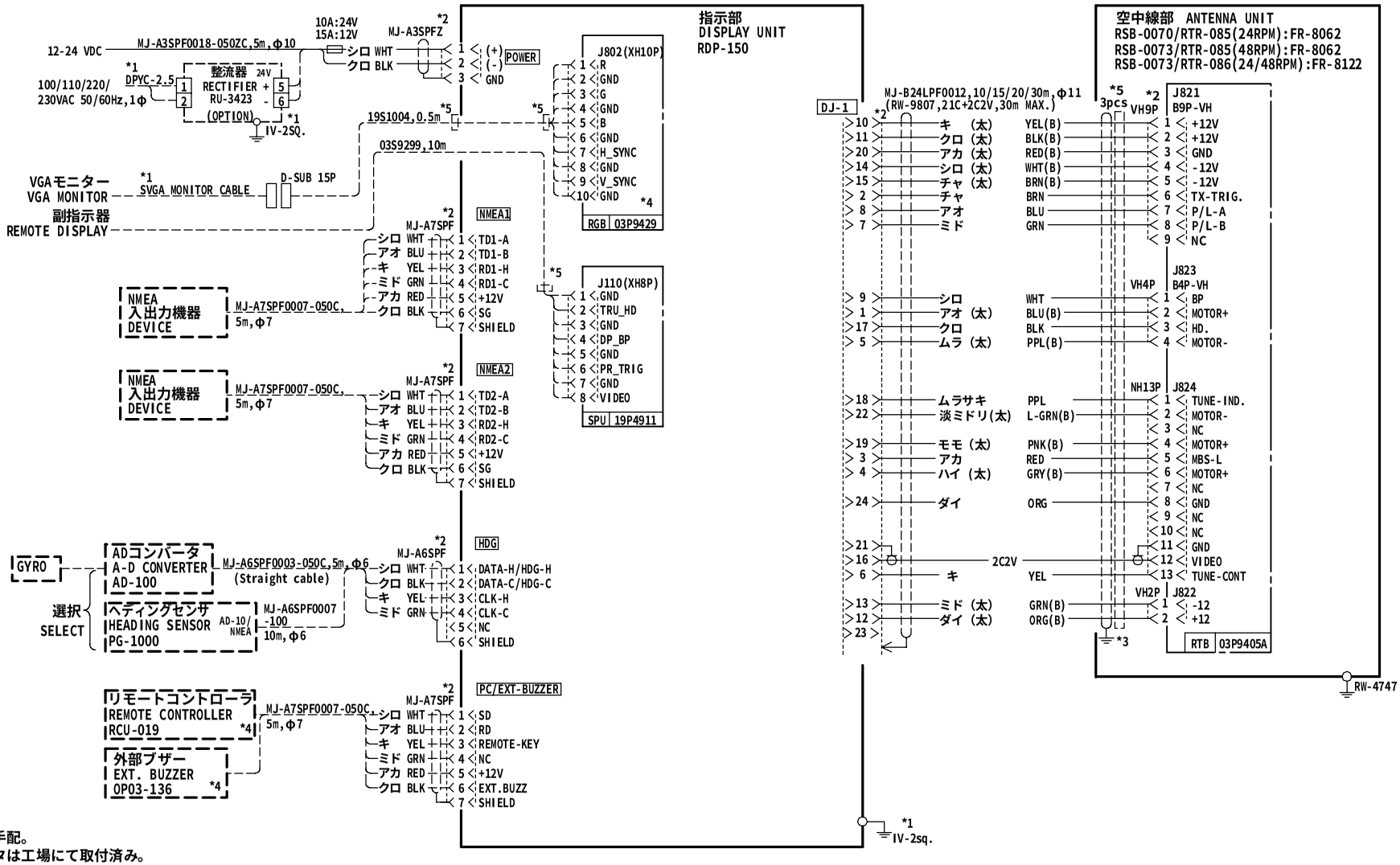
1）　＃印寸法は最小サービス空間寸法とする。
2）　指定外の寸法公差は表１による。
3）　取付用ネジはトラスタッピングネジ呼び径5×20を使用のこと。

NOTE

1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE SELF-TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

DRAWN Apr. 8, '05 E. MIYOSHI		TITLE	PSU-008
CHECKED TAKAHASHI. T		名称	空中線電源部
APPROVED	MODEL 1964C		外寸図
SCALE 1/4	MASS 2.7 ±10% kg	NAME	POWER SUPPLY UNIT
DWG.No. C3548-G01- A	19-025-400G-0		OUTLINE DRAWING

FURUNO



注
1 造船所手配。
2 コネクタは工場にて取付済み。
3 シールドは両端で完全にアースする。
4 オプション。
5 EMIコアを取り付ける。

NOTES
1. SHIPYARD SUPPLY.
2. FITTED AT FACTORY.
3. GROUND SHIELD EFFECTIVELY AT BOTH ENDS.
4. OPTION.
5. ATTACH EMI CORES.

DRAWN Sep.15,'05 E.MIYOSHI		TITLE	FR-8062,FR-8122
CHECKED TAKAHASHI.T		名 称	船舶用レーダー
APPROVED			相互結線図
SCALE / MASS kg		NAME	MARINE RADAR
DWG.No. C3539-C01- A			INTERCONNECTION DIAGRAM

S-1

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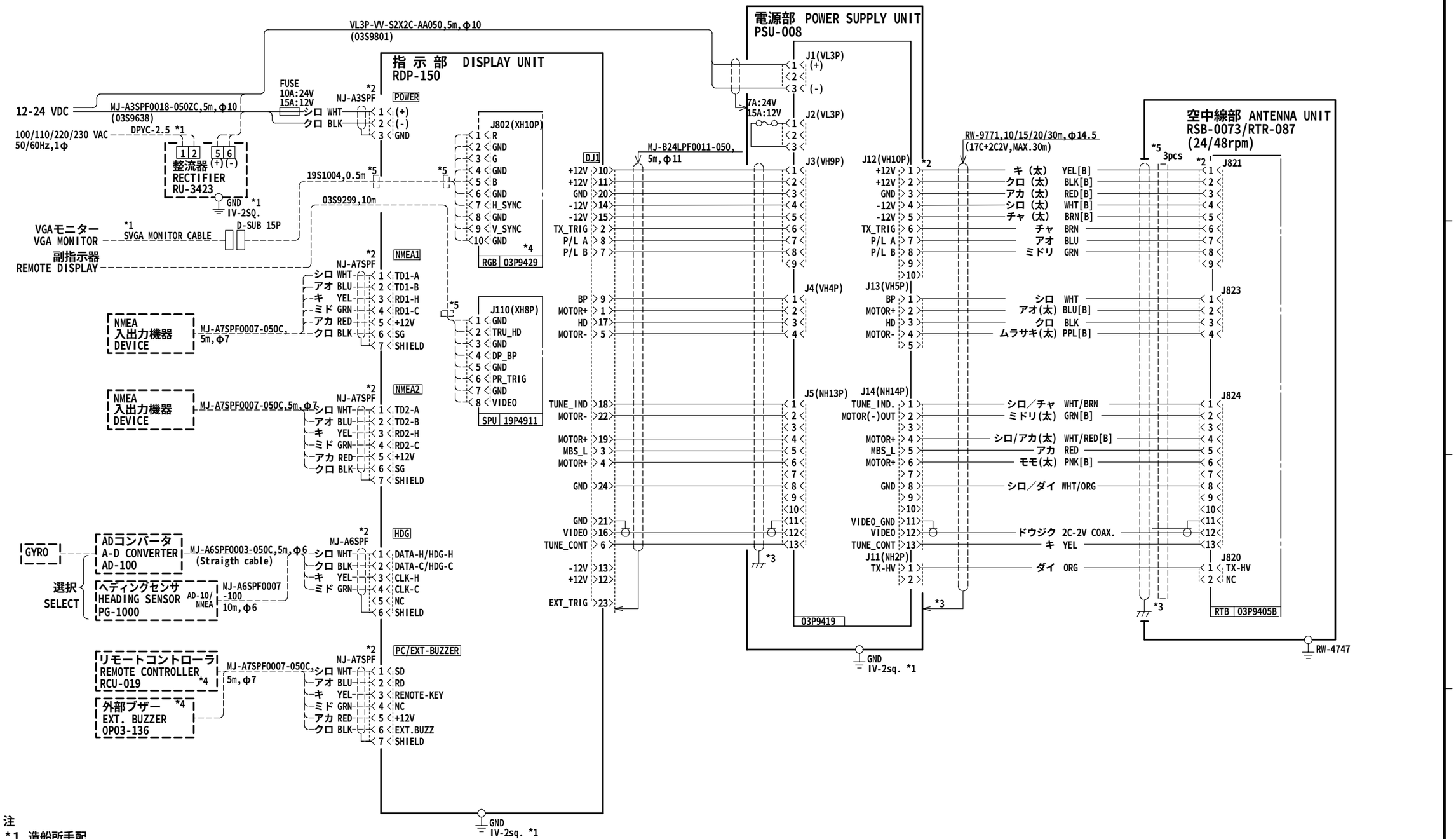

注
*1 造船所手配
*2 コネクタは工場にて取付済み。
*3 シールドは完全に接地する。
*4 オプション。
*5 EMIコアを取り付ける。

NOTES
*1. SHIPYARD SUPPLY.
*2. CONNECTOR PLUG FITTED AT FACTORY.
*3. GROUND SHIELD EFFECTIVELY.
*4. OPTION.
*5. ATTACH EMI CORES.

DRAWN Sep.15,'05 E.MIYOSHI		TYPE	FR-8252
CHECKED TAKAHASHI.T		名 称	船舶用レーダー
APPROVED			相互結線図
SCALE / MASS kg		NAME	MARINE RADAR
DWG.No. C3541-C01- A			INTERCONNECTION DIAGRAM