

Installation Manual **VHF RADIOTELEPHONE** **FM-8900S**

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FURUNO ELECTRIC CO., LTD.

9-52 Ashihara-cho,
Nishinomiya, 662-8580, JAPAN

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Printed in Japan

A : APR. 2012

Pub. No. IME-56800-A

(DAMI) FM-8900S



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SAFETY INSTRUCTIONS



WARNING



HAZARDOUS VOLTAGE.
Can shock, burn or cause serious injury.

Do not work inside the equipment unless totally familiar with electrical circuits.



Do not approach the antenna closer than the distances shown below when the antenna is transmitting.

The antenna emits radio waves that can be harmful to the human body.

RF power density on antenna aperture	Distance	Description required by
100 W/m ²	0.12 m	IEC 60945
10 W/m ²	0.39 m	IEC 60945
2 W/m ²	0.89 m	MPE by FCC

(MPE: Minimum Permissible Exposure)



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

Post a warning sign near the switch-board to indicate that power should not be applied while the equipment is being installed.

Electrical shock, serious injury or fire can result if the power is not turned off or is applied while the equipment is being installed.



CAUTION



Ground the transceiver unit.

Ground the transceiver unit to prevent electrical shock and interference.



Confirm that the power supply voltage is compatible with the voltage rating of the equipment.

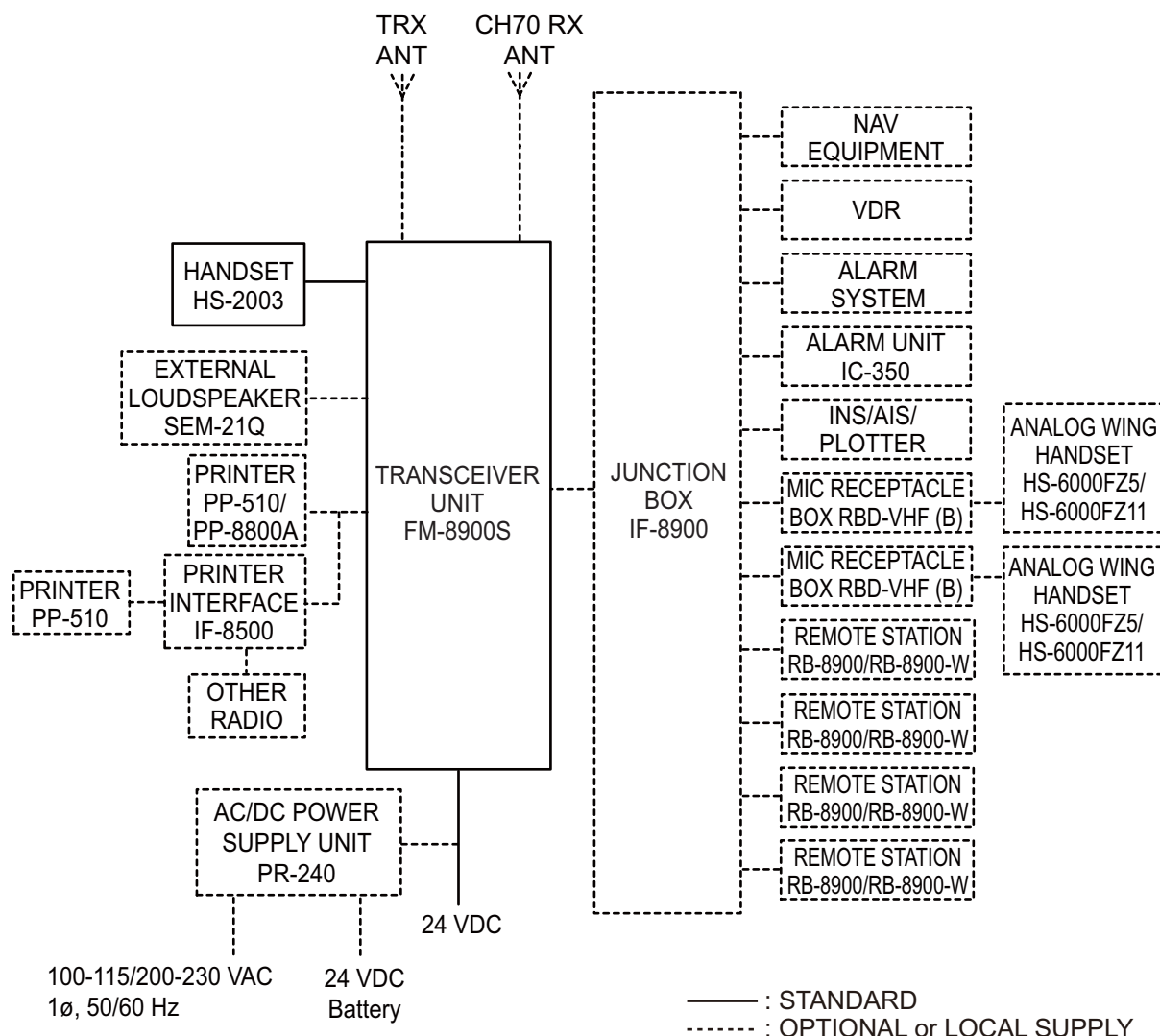
Connection to the wrong power supply can cause fire or damage the equipment.



Follow the compass safe distances to prevent interference to a magnetic compass.

	Standard compass	Steering compass
FM-8900S	0.50m	0.30m
IF-8900	2.05m	1.35m
HS-2003	1.50m	0.95m
HS-8900	0.45m	0.30m
HS-8900-W	0.45m	0.30m
HG-8900	1.75m	1.20m
HG-8900-W	1.70m	1.10m
RB-8900	1.40m	0.90m
RB-8900-W	1.40m	0.90m
PR-240	0.90m	0.60m
IF-8500	1.05m	0.70m
SEM-21Q	2.20m	1.50m

SYSTEM CONFIGURATION



Environmental category

Antenna units: Exposed to the weather

All other units: Protected from the weather

EQUIPMENT LISTS

Standard supply

Name	Type	Qty	Remarks
Transceiver Unit	FM-8900S	1	
Installation Materials	CP05-12600	1 set	w/inst. mat. CP05-12601, cable assy. LP-02-1(7A)-L3000
Accessories	FP05-05730	1 set	For HS-2003-15
	FP05-05720		For HS-2003-15-L
Spare Parts	SP05-06201	1 set	

Optional equipment

Name	Type	Code no.	Remarks
Junction Box	IF-8900	-	w/Inst. mat. CP05-12701
Remote Station	RB-8900-15	-	Remote handset HS-8900-15, Handset hanger HG-8900, w/Inst. mat. CP05-12801
Remote Station	RB-8900-20	-	Remote handset HS-8900-20, Handset hanger HG-8900, w/Inst. mat. CP05-12801
Watertight Remote Station	RB-8900-W-15	-	Waterproof handset HS-8900-W-15, Waterproof handset hanger HG-8900-W, w/Inst. mat. CP05-12801
Remote Handset	HS-8900-15	000-020-890	w/1.5 m cable, HG-8900
Remote Handset	HS-8900-20	000-020-891	w/2.0 m cable, HG-8900
Watertight Remote Handset	HS-8900-W-15	000-020-924	w/1.5 m cable, HG-8900
Handset Hanger	HG-8900	000-020-892	
Watertight Handset Hanger	HG-8900-W	000-020-925	
Flush Mount Kit	OP05-129	000-020-883	
Hanger Kit	OP05-132	000-020-884	Hanger for transceiver unit, w/accessories
Waterproof Seal	OP05-133	001-174-890	For Junction Box IF-8900, to comply with waterproofing std.
Rainproof Cover	OP05-134	001-178-740	For transceiver unit
External Loudspeaker	SEM-21Q	001-165-970-10	
Dynamic Mic. Set	OP05-57	000-045-775	Receptacle Box: RBD-VHF(B)-75BG Hanger: AP-102 Handset: HS-6000FZ5 (dynamic mic., curled cable)
Handset Set	OP05-42	000-045-778	Receptacle Box: RBD-VHF(B)-75BG Hanger: AP-102 Handset: HS-6000FZ11 (dynamic mic., straight cable)
MIC Receptacle Box	RBD-VHF(B)-75BG	000-056-094	
Handset Hanger	AP-102	001-081-320-10	

Name	Type	Code no.	Remarks
Handset	HS-6000FZ11	000-135-072-10	
Handset	HS-6000FZ5	000-112-623-10	
Recording Paper	TP058-30CL	001-097-110	08S0378 W: 57 mm, L: 30 m
Printer	PP-510		
Printer Interface	IF-8500	000-053-895	
Handset	HS-2003-15	000-021-369	w/1.5 m cable
Handset	HS-2003-15-L	000-021-367	w/1.5 m cable, elbow connector
Handset	HS-2003-20-L	000-021-368	w/2 m cable, elbow connector
Handset	HS-2003-50S	000-054-391	w/5 m straight cable
Handset Hanger	FP05-05510	005-951-790	For HS-2003
AC/DC Power Supply	PR-240		
Antenna	FAB-151D	001-144-490-10	
Antenna Fixture	4-310071	000-166-333-10	
Connector	AP05-01001	005-389-790	
Antenna Installation Materials	CP05-11001	001-034-670	
Printer	PP-8800A		w/power cable
Emergency Lamp	NLFL-03W-WB	000-176-706-10	For rack console
Cable Assy	PG05-0053-1	000-158-681-11	Extension cable for HS-2003
Coaxial Cable	RG-10/U-Y *10M*	000-159-411-10	
Coaxial Cable	RG-10/U-Y *20M*	000-159-412-10	
Coaxial Cable	RG-10/U-Y *30M*	000-159-413-10	
Coaxial Cable	RG-10/U-Y *40M*	000-159-414-10	
Coaxial Cable	RG-10/U-Y *50M*	000-159-415-10	

1. HOW TO INSTALL THE EQUIPMENT

This chapter shows you how to install the units of the system. The transceiver unit and handset are standard supply. All other units are optional supply. (The junction box is standard supply in some installations.)

1.1 Transceiver Unit FM-8900S

1.1.1 General installation remarks

The transceiver unit can be installed on a desktop (with hanger), underneath a desktop, overhead, bulkhead, or in a console (requires a flush mount kit). Select a location where the controls can be easily operated and a location that is near the power source and the ground location. Additionally, select a location that meets the following conditions:

- Select a location away from water spray and water splash.
- The location must not be in direct sunlight, because of heat that can increase inside the unit.
- Leave some additional length in cables to allow a service technician to move the radio from its normal location with the cables connected.
- Do not install the unit where flammable gases are stored.
- Select a location that provides good ventilation.
- Make sure the location can hold the weight of the unit under the condition of continued vibration normally found on the ship. If necessary, strengthen the location. For added support use nuts, bolts and washers (instead of self-tapping screws) to fasten the unit.
- Leave enough space at the sides and rear of the unit for maintenance and service purposes and to provide cool air. See the outline drawings at the back of this manual for recommended service space.
- For Solas Convention vessels, the mounting location must satisfy the conditions of Regulations 22 Navigation bridge visibility.
- For installation in a console, select a location where the display can be easily seen.
- The transceiver unit causes interference to a magnetic compass if put too close to the compass. Follow the compass safe distance in the safety instructions to prevent interference to a magnetic compass.

1.1.2 Desktop, bulkhead, overhead installation

1. Use the hanger as a template to mark the fixing holes in the installation location.
2. Fix the hanger to the location with the self-tapping screws and washers (supplied). **(For the overhead mount, use nuts, bolts and washers instead of the self-tapping screws.)**
3. Screw the knob bolts with the washers into the transceiver unit.
4. Set the transceiver unit to the hanger and tighten the knob bolts.

1.1.3 Console installation (flush mount, option)

Requires the optional flush mount kit (OP05-129), the contents of which are shown in the table below. Follow the instructions in the outline drawing to install the unit in a console.

Name	Type	Code no.	Qty
Mounting Plate	05-104-2603	100-323-160	1
Self-tapping Screw	5×20	000-802-081	4
Hex Screw	M8×16	000-882-075	2

1.2 VHF Antenna

1.2.1 Requirements for the antenna

Any good quality antenna that meets the requirements shown below can be used.

- Frequency range: 155 to 164 MHz
- Impedance: 50 ohms
- Polarization: Vertical
- Handling power: 30 W
- Quality: Withstand the marine environment

1.2.2 Installation location

The location and installation of different antennas on a ship is important to ensure effective communications. Incorrectly installed antennas will degrade performance of the radio equipment and reduce the range of communications.

Select the location for the antenna considering the following points.

- VHF antennas should be placed in a position which is as elevated and free as possible, with at least 2 meters horizontal separation from constructions made by conductive materials.
- Ideally there should not be more than one antenna on the same level.
- The location of mandatory VHF antennas should be given priority compared with mobile telephone antennas. If they are located on the same level, the distance between them should be at least 5 meters.

1. HOW TO INSTALL THE EQUIPMENT

1.2.3 Mounting procedure

The basic mounting procedure for the antennas supplied by FURUNO is as follows; however, consult appropriate outline drawing for details.

1. Fasten the antenna bracket to the stanchion.
2. Set the antenna to the antenna bracket and tighten bolts.
3. Screw the coaxial cable plug into the antenna.

1.3 CH70 RX Antenna

The antenna must be separated from the antennas, masts, and other objects that can cause interference. Follow the recommended separation distances in section 1.2.2. The installation procedure is like that for the VHF antenna. See the outline drawing.

1.4 Handset Hanger

Install the handset hanger to the left of the transceiver unit. The location must provide easy access to the front panel controls while you operate the handset. The length of the standard handset cable is 50 cm. Put the handset hanger within 50 cm of the unit. (Longer cables are available.)

1.5 AC-DC Power Supply Unit PR-240

For Solas Convention vessels, both AC and DC power must be supplied to the transceiver unit, through an AC/DC power supply. When the AC input fails, DC power is supplied. FURUNO can supply an AC/DC power supply unit, the PR-240. Provide protective earth. See chapter 2.

1.5.1 Installation location

Select the location that meets the following conditions:

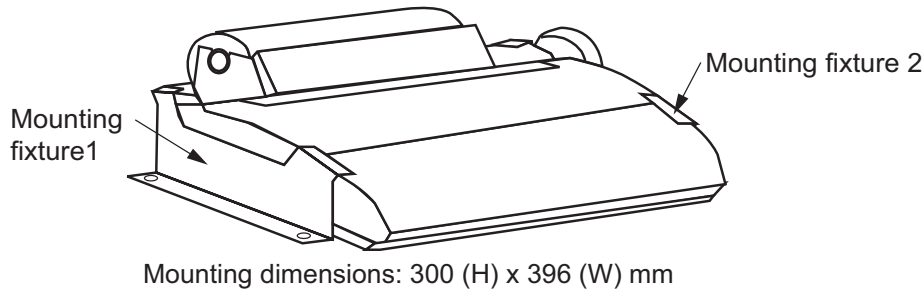
- Select a location that provides good ventilation.
- The location must be clean and dry.
- Make sure the location can hold the weight of the unit under the condition of continued vibration normally found on the ship.
- The power supply unit will affect the performance of a magnetic compass if put near the compass. Follow the compass safe distance in the safety instructions to prevent the interference to a magnetic compass.

1.6 Printer

1.6.1 Printer PP-510

See the outline drawing for installation instructions.

1. Select a flat surface.
2. Fasten the mounting base to the location with four screws (supplied).
3. Put the printer on the top of the mounting base. Fasten the printer with the mounting fixtures (two at each side and one at rear).



1.6.2 Printer PP-8800A

See the outline drawing at the back of this manual for information. This printer cannot be connected to the Printer Interface IF-8500.

1. Make a cutout of 208(W)×118(H) mm in the mounting location.
2. Set the printer to the cutout and fasten the printer with four self-tapping screws (4×16).

1.7 Printer Interface IF-8500

The Printer Interface IF-8500 allows the FM-8900S and other MF/HF radio communication equipment to share the Printer PP-510. See the outline drawing at the back of this manual for installation instructions.

1.8 Loudspeaker SEM-21Q

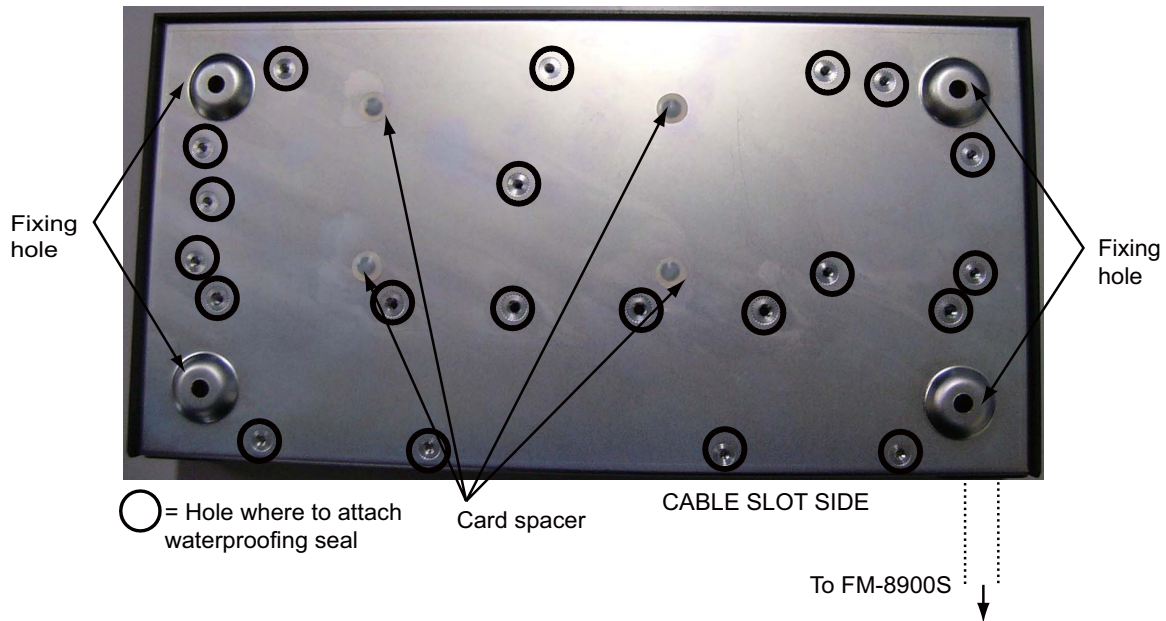
The loudspeaker can be installed on a desktop, the overhead or a bulkhead. Fasten the loudspeaker with the self-tapping screws, or nuts, bolts and washers. See the outline drawing at the back of this manual for dimensions.

1. HOW TO INSTALL THE EQUIPMENT

1.9 Junction Box IF-8900

The junction box can be mounted on a desktop or bulkhead, and is required to connect the remote station, wing handset, etc. Put the unit within 3 m of the transceiver unit, because that is the length of the cable connected between the units.

For the bulkhead mount, it is necessary to cover holes in the bottom of the unit to comply with the Ingress Protection Rating IPx2. Waterproof seals (Type: OP05-133, Code no.: 001-174-890) are optionally available for this purpose. Set them to the open holes on the underside of the junction box as shown below, BEFORE installing the junction box.



To install the junction box, open the cover and fasten the box with four self-tapping screws (5×20). Close the cover.

1.10 Remote Station RB-8900, Watertight Remote Station RB-8900-W

A maximum of four remote stations can be installed.

1. Remove six screws on the handset hanger.
2. Remove upper chassis of the hanger.
3. Fasten the base of the hanger to a bulkhead with two self-tapping screws (4×20).
4. Connect the cables to the remote station then assemble the remote station.

1.10.1 How to install the Watertight Remote Station outdoors

The Watertight Remote Station RB-8900-W (with Watertight Remote Handset HS-8900-W) can be installed outside if it is contained in a waterproof enclosure. As shown below, apply the silicone sealant to the hanger to waterproof the hanger.

Be sure to put the RB-8900-W in a waterproof enclosure when the unit is installed outside. The waterproofing category of the RB-8900-W is IEC 60529 IP56. However, protect the unit from the weather (IEC 60945).

Before you close the hanger with the silicone sealant (for waterproofing), do the termination setting (only for termination device, see section 2.11) and connect the cables. Do not open the hanger after it has been sealed.

1. Fasten the mounting base with the self-tapping screws. Apply the silicone sealant to the exposed part of those screws.
2. Attach the cable from the transceiver unit or junction box. Apply the silicone sealant to the cable around the cable entrance.
3. Confirm that the plastic washers are in the screw holes. Fasten the cover of the handset hanger. Apply the silicone sealant to the junction between the mounting base and the cover.

2. Apply silicone sealant to cable entrance.



1. Apply silicone sealant to self-tapping screws.



3. Apply silicone sealant to junction.



1.11 VHF Console RC-8900

Install the VHF console where you can easily operate the equipment in the console and do maintenance and service. Meet with shipyard personnel and ship's officer-in-charge to select the best location. The location must meet the following points:

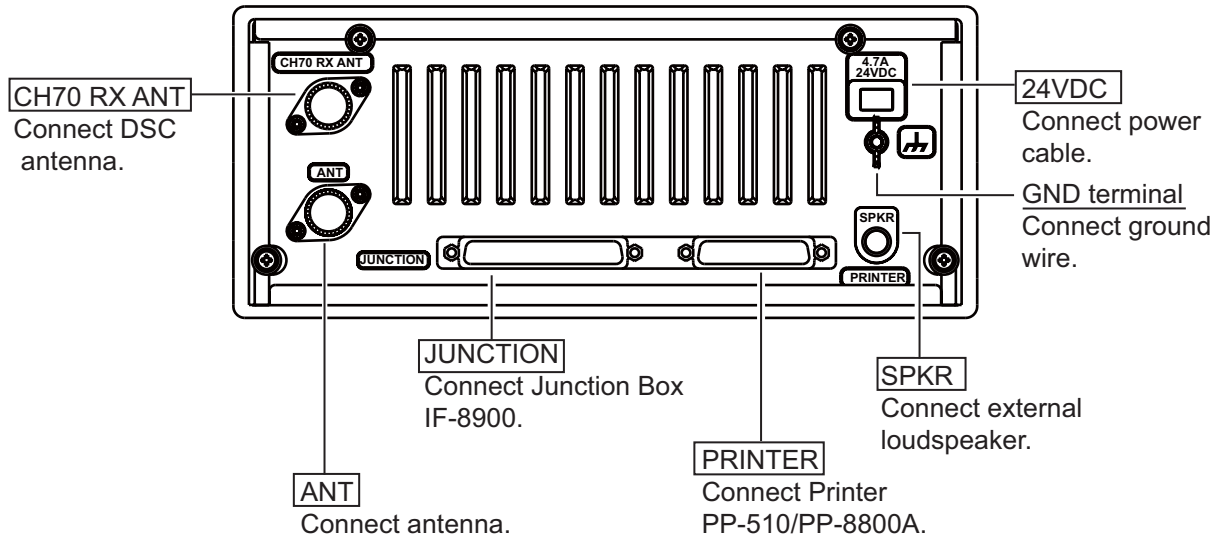
- Select a location where you can operate controls easily.
- Select a location where shock and vibration are the least possible.
- Select a location away from water splash and rain.
- The temperature and humidity of the location must be both stable and moderate.

How to install the console

1. Ask shipyard personnel to tighten six M5 nuts or six M5 bolts to the fixing holes (on the bulkhead), referring to the outline drawing at the back of this manual.
2. Unfasten the cover assembly from the console.
3. Set the VHF console to the bolts.
4. Fasten the console with the bolts or nuts and weld nuts to the bulkhead.
5. Fasten the cover assembly to the console.
Note: To connect wires after you have hung the console, see section 2.12.
6. Fasten the handset hanger with two screws.
7. To fasten the optional emergency lamp, connect the cable to the terminal board, then fasten the lamp to the console. Refer to the interconnection diagram and outline drawing.

2. CONNECTIONS

Connect external equipment at the rear of the transceiver unit.



2.1 Power Supply

2.1.1 Solas Convention vessels, 100/220 VAC ship's mains

Solas Convention vessels must supply both AC and DC power to the transceiver unit, through an AC/DC power supply unit. The AC/DC Power Supply Unit PR-240 is optionally available. When the AC input fails, the DC power is activated.

Connect the reserve source of energy to the DC IN terminal on the PR-240. Connect the AC ship's mains to the AC IN terminal on the PR-240.

Be sure to ground the unit.

2.1.2 Radio battery

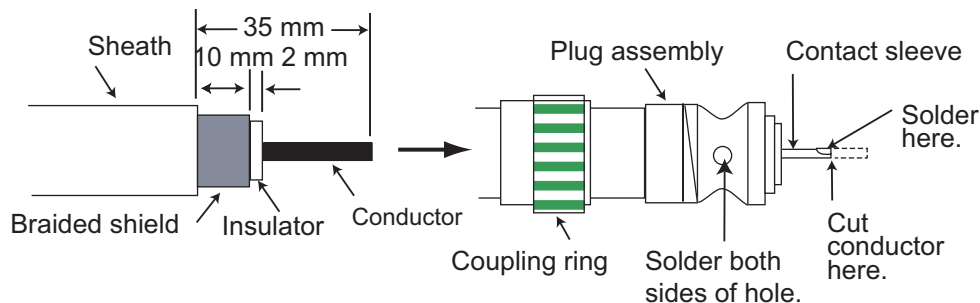
Attach the connector (supplied) to the power cable and connect the cable to the 24 VDC connector at the rear of the transceiver unit. Connect the wire ends to the radio battery line.

2.2 VHF Antenna

The VHF antenna is connected to the transceiver unit with a 50 ohm coaxial cable, type RG-10/U-Y. Make sure you leave some additional length in the cable for future service and maintenance.

Lay the coaxial cable and fasten an M-type plug to the cable (if necessary) as follows.

1. Remove the sheath by 35 mm.
2. Bare 23 mm of the center conductor. Trim the braided shield by 10 mm and tin.
3. Slide the coupling ring on the cable.
4. Screw the plug assembly on the cable.
5. Solder plug assembly to the braided shield through the solder holes. Solder the contact sleeve to the conductor.
6. Screw the coupling ring into the plug assembly.
7. Screw the plug into the ANT connector at the rear of the transceiver unit.



2.3 CH70 RX Antenna

The CH70 RX antenna is connected to the transceiver unit with a 50 ohm coaxial cable, type RG-10/U-Y. Attach an M-type plug to the cable (if necessary) as shown above. Screw the plug into the CH70 RX ANT connector at the rear of the transceiver unit.

2.4 Handset HS-2003

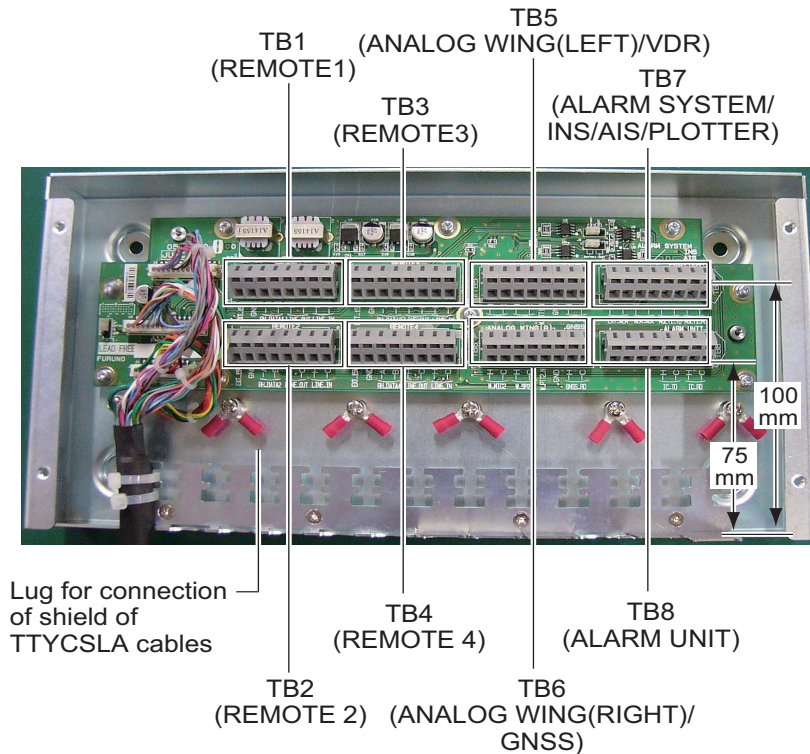
Connect the handset HS-2003 to the HANDSET connector on the front panel.

2.5 How to Ground the Transceiver Unit

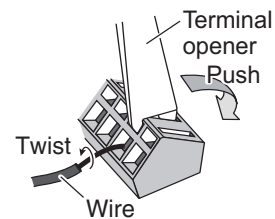
Fasten a ground wire (local supply) between the GND terminal at the rear of the transceiver unit and ship's hull (or ground bus).

2.6 Junction Box

The junction box connects external equipment to the transceiver unit. The cable that connects between the junction box and the transceiver unit is pre-connected to the junction box. WAGO connectors connect the external equipment. A terminal opener is provided inside the junction box to open terminals on the connectors. See the illustration below for how to use the opener. Terminal lugs are provided to connect the shield of the TTYCSLA cables.



How to open WAGO connector



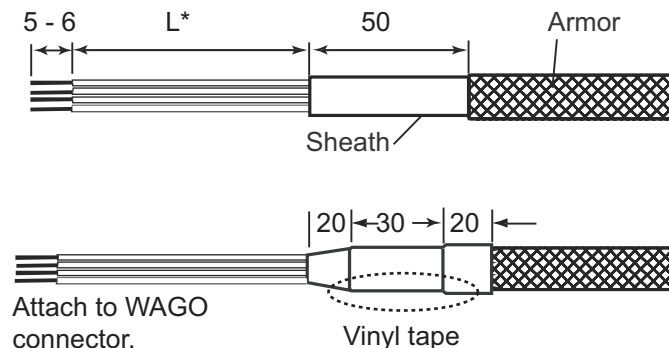
Procedure

1. Twist core.
2. Insert terminal opener and push.
3. Insert wire into hole. Be careful not to pinch sheath.
4. Release terminal opener.
5. Pull wire to confirm it is correctly inserted.

2.6.1 How to prepare the cables of external equipment

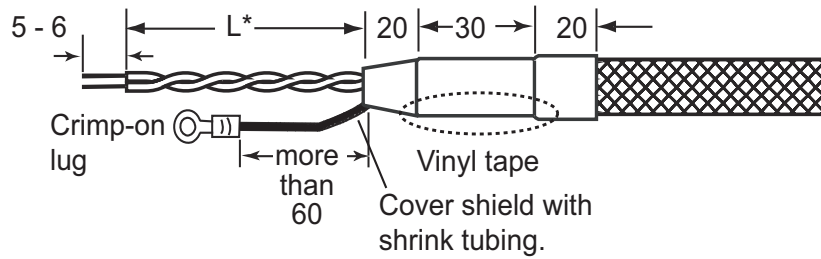
The cables shown are JIS (Japan Industry Standard) cables. See the Appendix for the equivalent cables.

Cable MPYC-4 (Alarm system)



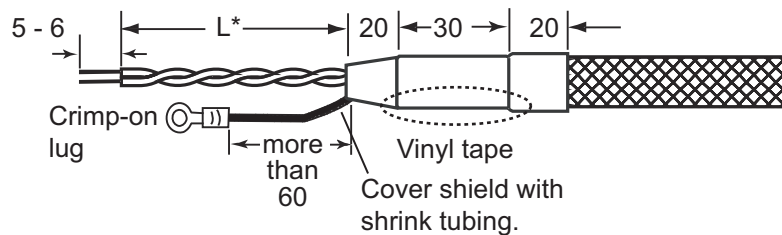
L*=Depends on location of connector. See illustration of junction box on page 9 for length.

Cable TTYCSLA-1 (NAV equipment)



L^* =Depends on location of connector. See illustration of junction box on page 9 for length.

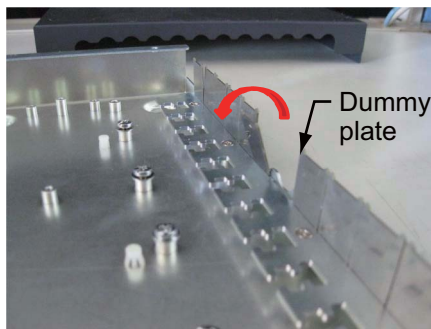
Cable TTYCSLA-4 (Alarm Unit IC-350, INS, AIS, Plotter, MIC Receptacle Box, Remote Handset)



L^* =Depends on location of connector. See illustration of junction box on page 9 for length.

2.6.2 Dummy plates in cable slots

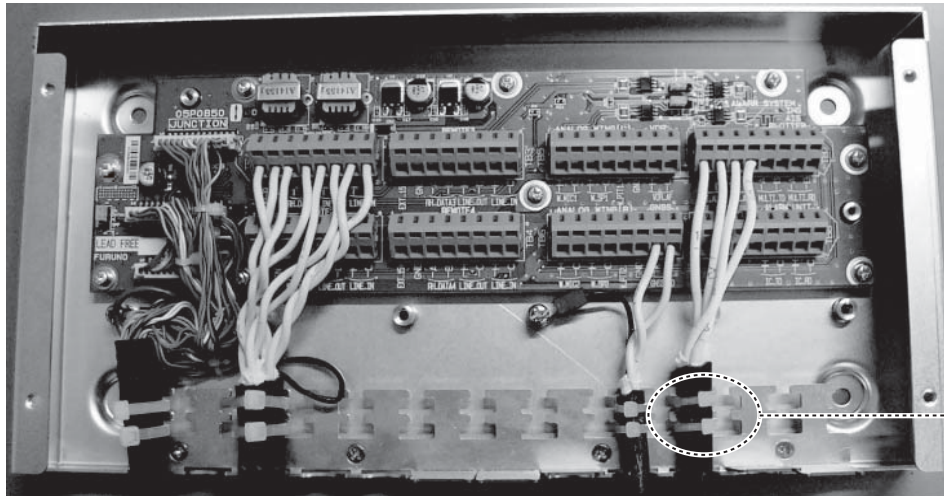
Dummy plates are inserted at the factory in all but three cable slots. Remove or insert the dummy plates as necessary. Cover unused cable slots to comply to Ingress Protection Rating IP2x.



2. CONNECTIONS

2.6.3 How to fasten the cables to the Junction Box

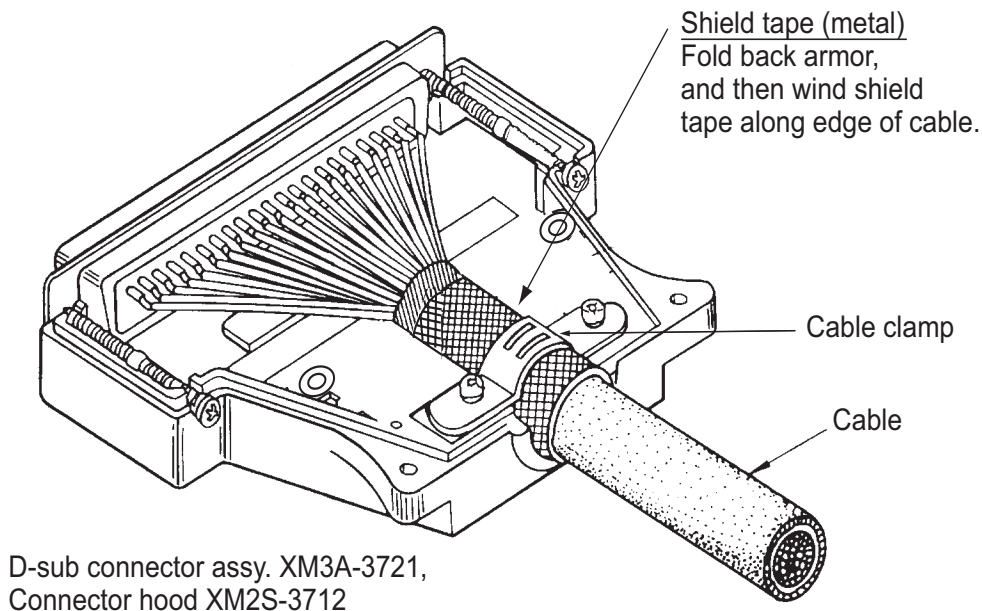
Connect cables to related connectors. Fasten the cables to the cable posts with two cable ties.



Fasten cable to post with two cable ties.

2.7 How to Connect the Remote Station without the Junction Box

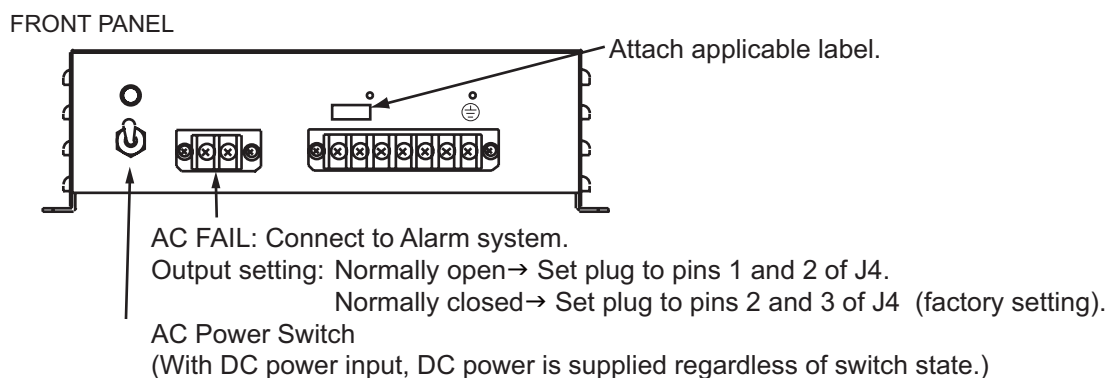
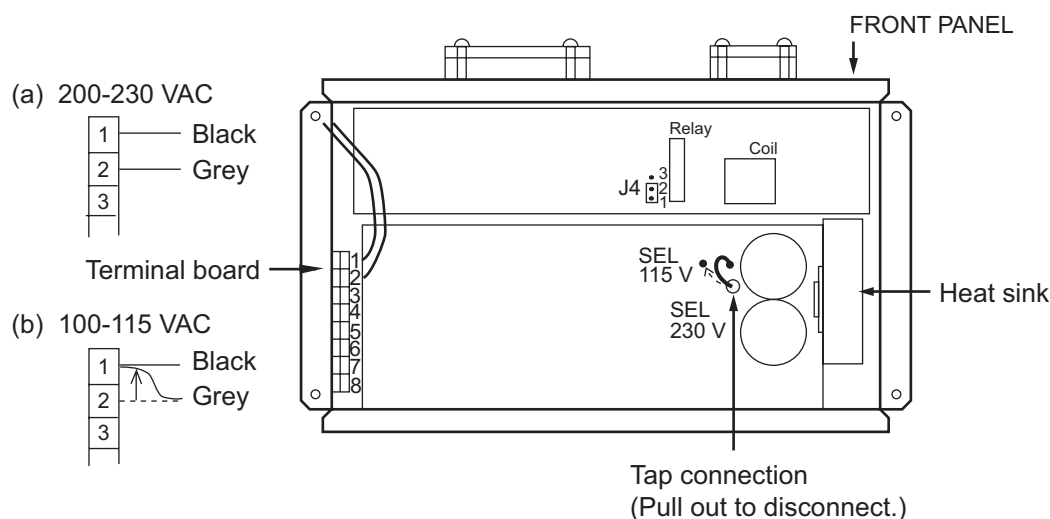
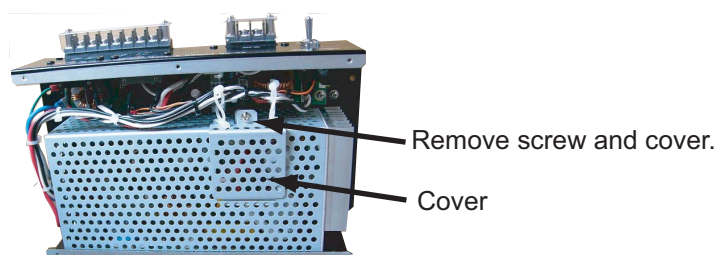
The remote station (MIC receptacle box, etc.) can be connected directly to the transceiver unit, using the D-sub connector supplied as installation materials. Attach the connector to the cable as follows.



2.8 AC/DC Power Supply Unit PR-240

The AC/DC Power Supply Unit PR-240 is shipped ready for connection to 200-230 VAC. For connection to 100 VAC-115 VAC, change the tap connection and terminal board connection as below. Attach applicable label (supplied in accessories) to the front panel according to the ship's mains.

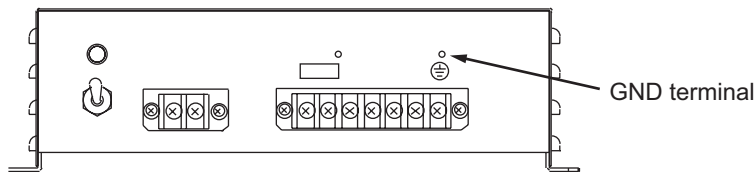
Power	Tap connection	Terminal board	Label
200-230 VAC	SEL 230 V	(a) in figure below	200-230 VAC, 2.2-1.7 A, 1 ϕ , 50/60 Hz
100-115 VAC	SEL 115 V	(b) in figure below	100-115 VAC, 3.2-2.6 A, 1 ϕ , 50/60 Hz



2. CONNECTIONS

Protective earth

Connect a IV-2sq wire between the ship's ground and the ground terminal on the PR-240 to prevent electrical shock.

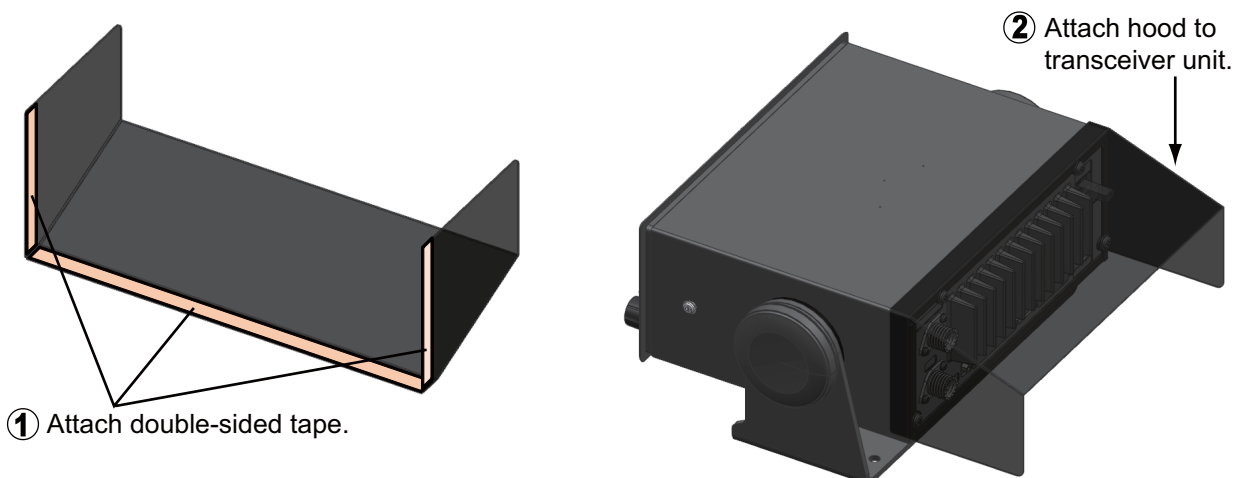


2.9 When the Handset HS-2003 is not Connected to the Transceiver Unit

When the Handset HS-2003 is not connected to the transceiver unit; namely, the remote handset is used always, turn on [M-HS HOOK] in the [OTHER] menu. See section 4.6.

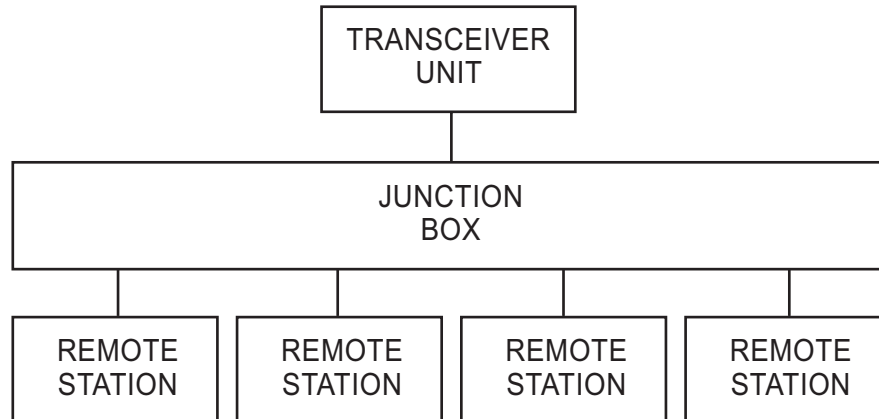
2.10 Rainproof Cover for Transceiver Unit

The optional rainproof cover kit (Type: 05-104-2601, Code No. 001-174-310-10), consisting of a protective hood and double-sided tape, protects the connectors at the rear of the transceiver unit from rain and water splash. The cover can be used with both the desktop and flush mount installation methods. Connect the cables to the transceiver unit then install the cover as shown below.

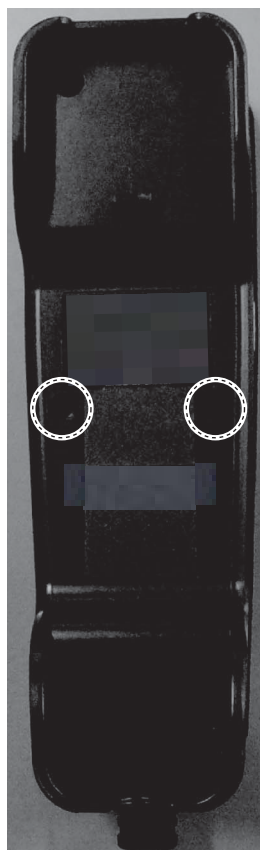


2.11 Jumper Setting for Termination

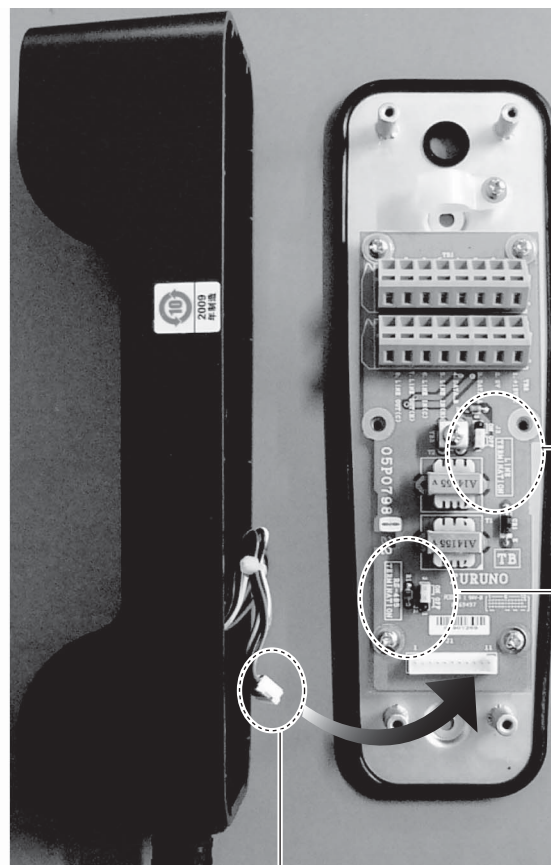
For termination on the remote stations, open the remote handset hanger as shown below. The default setting for J2 is "ON" (jumper block connected to pins 2 and 3). Confirm this setting. Reconnect the connector to the circuit board. Confirm that the plastic washers are in the screw holes in the handset hanger then close the hanger. Do this for all remote stations.



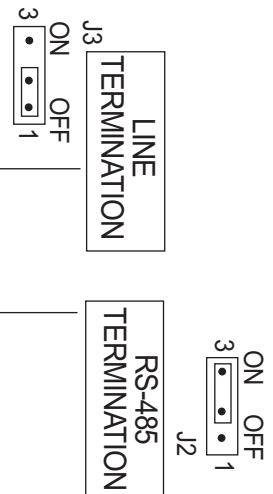
A maximum of four remote stations can be connected.



Unfasten six screws.



Disconnect connector from circuit board.



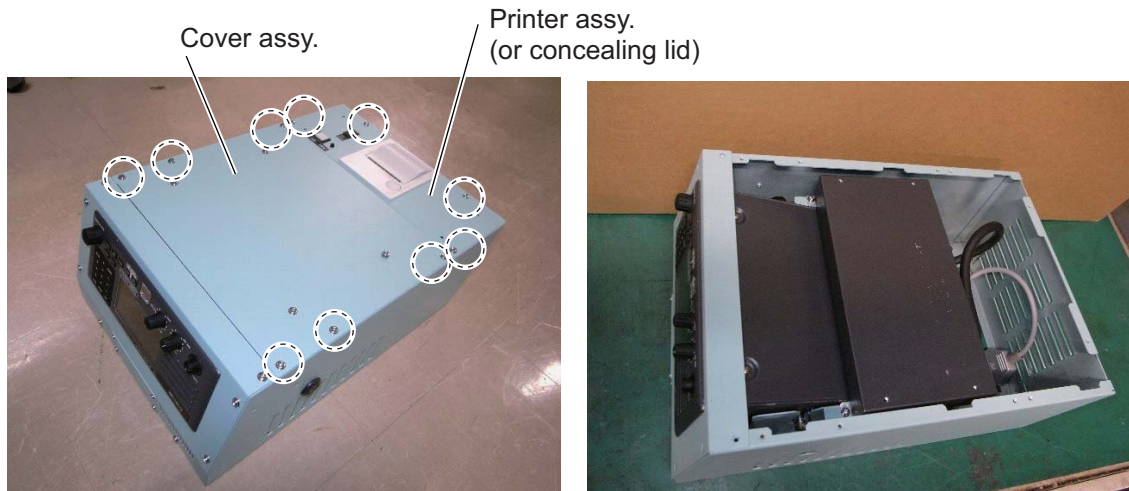
Short pins 2 and 3 for termination.

2.12 VHF Console

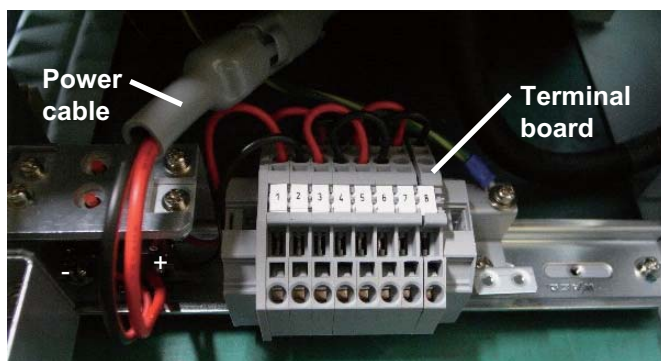
Install the VHF console following Chapter 3, then following the procedure in this section.

VHF console

1. Remove the cover assembly and printer assembly (or concealing lid) from the console. For the printer assembly, remove the cables connected to the transceiver unit and the terminal board.

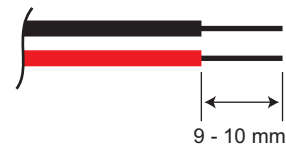


2. Connect the power cable from the ship to the terminal board 1 (+) and 2 (-).



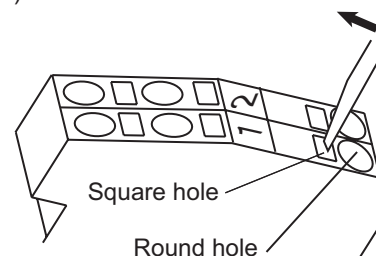
Terminal Board Connection

1. Process conductor



2. Wiring

- 1) Insert screwdriver (blade: 3.5x0.5 mm) to square hole.
- 2) Press screwdriver in direction of arrow to open spring in round hole.
- 3) Insert wire to round hole.
- 4) Remove screwdriver.

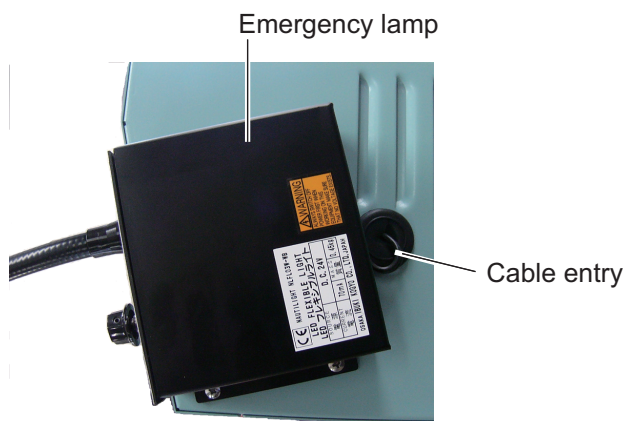


3. Connect the ground wire from the ship to each ground terminal for the transceiver unit and the junction box
4. Connect the cables from external equipment to the junction box and transceiver unit.
5. Fix the printer assembly (or concealing lid) and the cover assembly.

Emergency lamp

The emergency lamp can be installed on the left or right side (default arrangement) of the rack. For installation on the left side, unfasten the four screws from the front panel of the emergency lamp, rotate the emergency lamp 180° then refasten the screws.

1. Remove four screws from the right or left side of the rack.
2. Fasten the emergency lamp to the rack, with the four screws removed at step 1.



3. Insert the cable from the emergency lamp base into the cable entry of the rack. Connect the cable to the terminal board, referring to the interconnection diagram at the back of this manual.
4. Connect the emergency lamp connector to the emergency lamp.

2.13 I/O Data

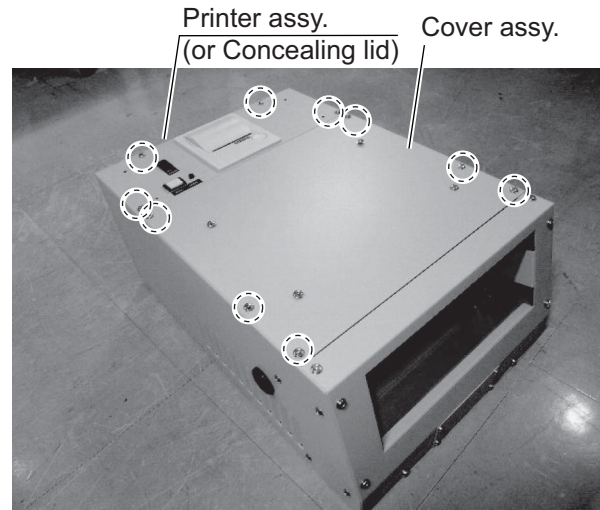
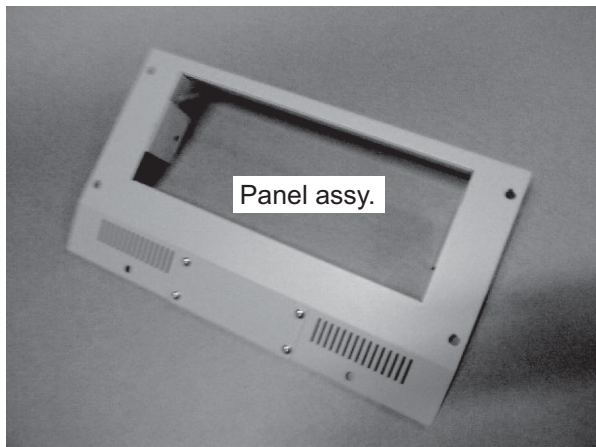
Data	Input/Output	Sentence, priority order
Position info, Position fix	Input	GNS>GGA>RMC>GLL
Time info	Input	ZDA>RMC
DSC information, Expanded DSC	Output	DSC, DSE
Target Latitude and Longitude	Output	TLL*
Equipment information	Input/Output	PFEC

* The TLL sentence can be output by selecting [TLL-S] on the [OTHER] menu of the [SERVICE] menu.

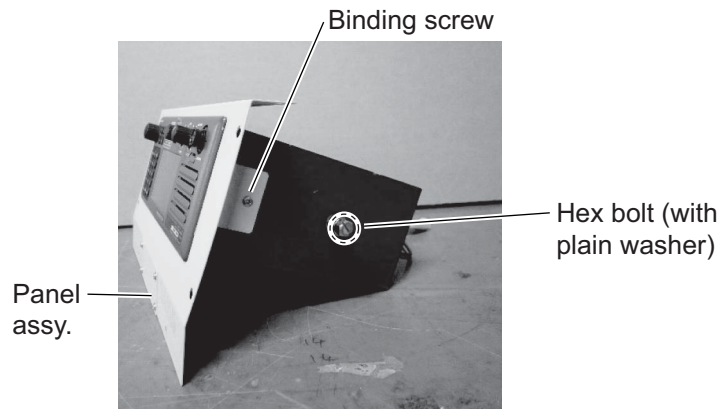
3. HOW TO ASSEMBLE THE VHF CONSOLE KIT

A VHF console kit is required to install the transceiver unit in the VHF console. There are two types of consoles, with a printer and without a printer.

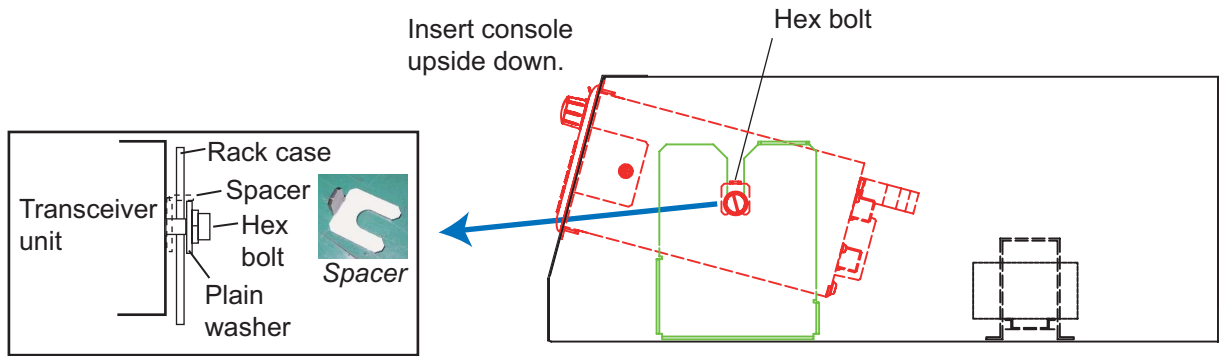
1. Remove the cover assembly, the panel assembly and the printer assembly (or concealing lid) from the console. For the printer assembly, remove the cable connected to the terminal board.



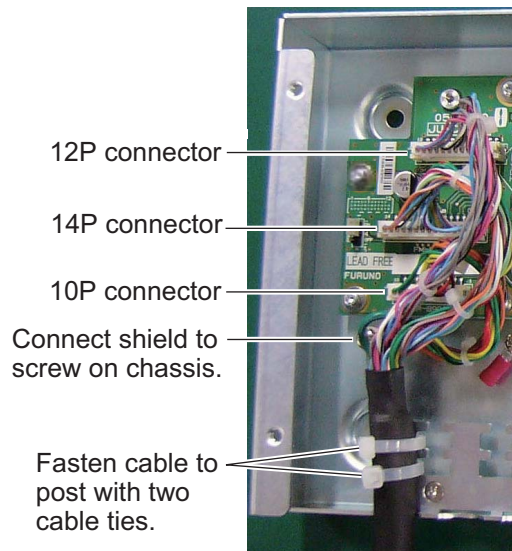
2. Fasten the panel assembly to the transceiver unit with the binding screws (use binding screws of the transceiver unit). Loosely insert M8×16 hex bolt (with plain washer) at both sides of the transceiver unit.



3. Set the transceiver unit to the console upside down. Fasten the transceiver unit to the rack case as shown below.

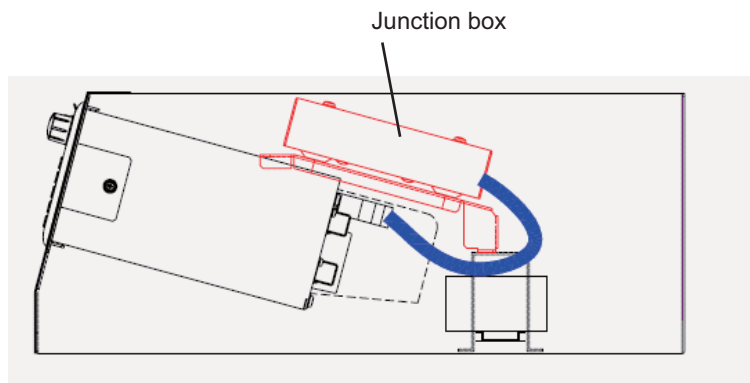


4. Replace the cable attached to the junction box with the cable (55 cm, 37-pin D-sub) supplied with the console kit. Connect the cable (37-pin D-sub) attached to the junction box to the transceiver unit.



Replace original cable with cable assembly DSUB37M-PHX3-L550.

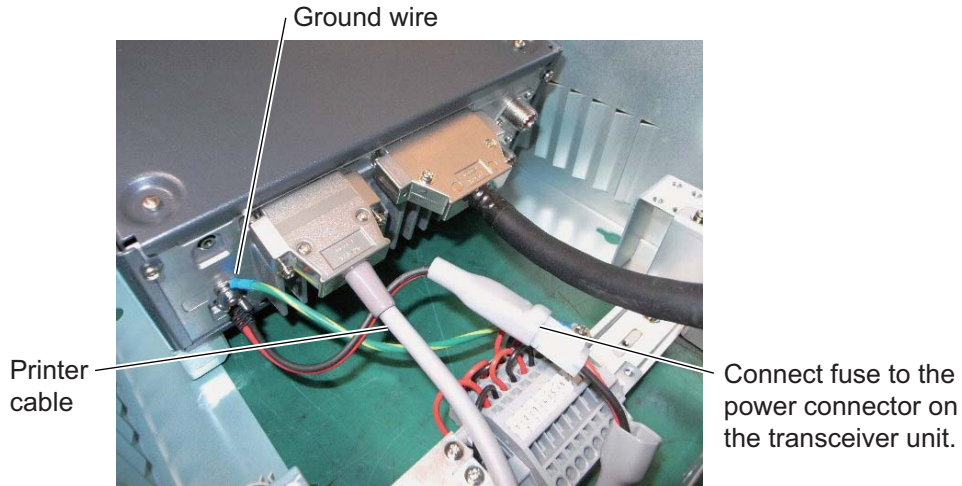
5. Fasten the junction box to the console and connect it to the transceiver unit.



3. HOW TO ASSEMBLE THE VHF CONSOLE KIT

6. Connect the following to the transceiver unit:

- fuse to the power connector on the transceiver unit
- For the console with printer, connect the printer cable to the PRINTER port. (For no printer, fasten the concealing lid.)
- ground wire



7. Fasten the cover assembly.

Note: If the console assembly is to be installed on the hull, see sections 1.11 and 2.12.

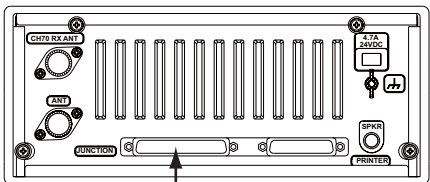
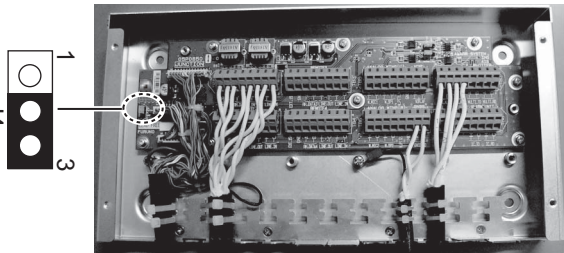
4. INITIAL SETTINGS

This chapter shows you how to enter the initial settings, which requires a password. Refer to FU-RUNO Information for the password. Entry of the MMSI and ATIS ID* numbers also requires a short inside the junction box or at the rear panel of the transceiver unit. Under no condition can the password or the location of the shorting points be released to the operator.

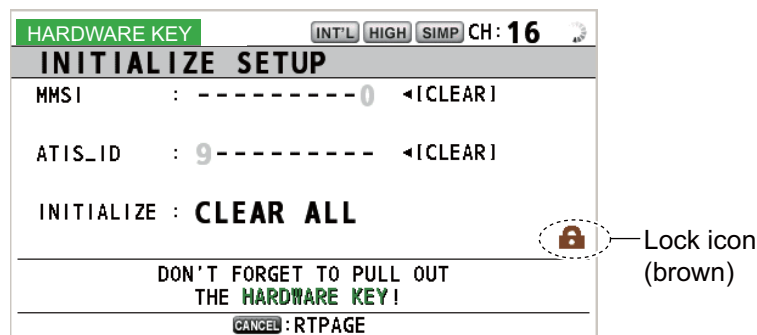
* ATIS is the acronym meaning Automatic Transmitter Identification System. ATIS is used on inland waterways in various countries in mainland Europe to identify ships. At the end of every transmission the radio sends a unique FFSK data signal that contains the user or ship's unique ATIS call sign. The FFSK signal identifies you to marine coast stations and inland stations.

4.1 How to Register the MMSI and ATIS ID

1. Do one of the procedures shown in the illustration below to enable the registering of the MMSI and ATIS ID numbers.

TRANSCEIVER UNIT	JUNCTION BOX
Use a shorting link or the like to short pin 6 and 23 on the supplied D-SUB connector. Attach the connector to the JUNCTION connector (D-sub connector, 37 pin) at the rear of the transceiver unit.  Connect supplied connector here.	Open the junction box and set the jumper block J4 to pins 2 and 3 (OFF position) as shown below.  NOTICE: Jumper blocks J5 and J6 are for testing at the factory. Do not change the settings.

2. Turn on the transceiver unit. The [INITIALIZE SETUP] menu appears, with the indication "HARDWARE KEY" and the "lock icon" shown.



3. Enter the password. The lock icon turns green, the shackle of the lock opens and the cursor selects the MMSI. Push the **CH** knob to show the MMSI input box.
4. Use the numeric keys to enter the MMSI. Confirm the number then push the **CH** knob to submit the number.



4. INITIAL SETTINGS

5. **If applicable**, enter the ATIS ID like how you entered the MMSI.

Note: You can re-enter the MMSI/ATIS ID if it is wrong. Select the applicable ◀[CLEAR] then push the **CH** knob. You are asked if it is OK to clear the number. Select [Yes] then push the **CH** knob. Select the number location then push the **CH** knob. Reenter the number.

6. Turn off the transceiver unit.

7. Do one of the following according to the action taken at step 1 to write the MMSI (and ATIS ID if applicable) to the memory.

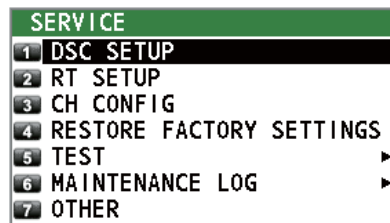
Junction box: Restore the jumper block to its original position (connect jumper block to pins 1 and 2) and close the junction box.

Transceiver unit: Remove the connector.

Note: If you do not restore the jumper block to its original position or remove the shorting link, the message "HARDWARE KEY" appears at the top-left corner of the standby screen.

4.2 How to Open the Service Menu, Do Operations on the Menu

1. Press the **MENU** key to open the menu.
2. Enter the password to show the [SERVICE] menu.



3. Rotate the **CH** knob to select a menu then push the knob.
4. Rotate the **CH** knob to select a menu item then push the knob.
5. Rotate the **CH** knob to select an option (or set numeric value) then push the knob.
6. Press the **CANCEL** key to go backward in the menu, or press the **MENU** key to close the menu.

4.3 DSC SETUP Menu

The [DSC SETUP] menu configures the radiotelephone's DSC section.

INT'L HIGH SIMP CH: 16
DSC SETUP
 MMSI ◀ 1234567890
 SIG DETECT S-LEVEL : 50
 DISTRESS ALARM : 16
 DSC/DSE SENTENCE : ON
 FNAS MODE : OFF

 [LAST DISTRESS LOG]
 UNIT ◀ ----
 TIME ◀ --/--/---- --:--:--
 ◀ : SELECT CANCEL : BACK

MMSI: Displays ship's MMSI no.

SIG DETECT S-LEVEL: Adjust the carrier sense threshold for DSC and PSTN. DSC transmission is delayed if the carrier level is higher than the level set here. Also, determine whether a DSC frequency is in use or not. A DSC message is not transmitted when the signal strength of the DSC frequency is higher than that set here. When the DSC frequency becomes clear, the DSC message is sent.

The carrier is checked at a specified interval during PSTN communications, and if the carrier level is lower than set here the line is disconnected.

Procedure

1. Select [SIG DETECT S-LEVEL] then push the **CH** knob to show the [SIG DETECT S-LEVEL] adjustment window.
2. Rotate the **CH** knob to set the level.
3. Push the **CH** knob to finish.

SIG DETECT S-LEVEL
 ▲
 50
 ▼
 [0, 100]

DISTRESS ALARM: Set the audio level for the buzzer that sounds when a distress or urgency message is received.

DSC/DSE SENTENCE: Select ON to output DSC/DSE sentences (messages), from the JUNCTION port.

FNAS MODE: For the service technician.

LAST DISTRESS LOG: The name of the unit ("FM-8900S" or "ALARM UNIT") that transmitted the last distress alert and the date and time of transmission are shown here.

4.4 RT SETUP Menu

The [RT SETUP] menu has the initial settings for the radiotelephone section.

RT SETUP	
FORMAT	: IEC
TX TIMEOUT	: ON
DW SETTING	: ENABLE
SCAN SETTING	: ENABLE
LINEIN	: 0
LINEOUT	: 0
VDR OUTPUT	: 0
TX AF UPPER	: -9
TX AF LOWER	: 0

LINEIN OFFSET	
0, 1:	0dB
2:	3dB
3:	4.875dB
4:	6dB

SELECT CANCEL: BACK

FORMAT: Select the NMEA sentence format to use:

[IEC]: Receives only IEC 61162-1 sentences. Receive analysis is done regardless of presence or absence of checksum.

[IEC+NMEA]: Tries to receive NMEA ver. 1 - 3 sentences when possible. Receive analysis not done unless a checksum is present.

TX TIMEOUT: Turn on TX TIMEOUT to automatically stop transmission when continuous transmission occurs for five minutes.

DW SETTING: Activate or deactivate the scanning of dual channels (DW). DW is deactivated when the channel region is "Inland W," regardless of this setting.

SCAN SETTING: Activate or deactivate frequency scanning. Frequency scanning is automatically deactivated when the channel region is "Inland W," regardless of this setting.

LINE IN: Adjust the input audio level from the remote station(s).

LINE OUT: Adjust the output level to the remote station(s).

VDR OUTPUT: Adjust the output level to the VDR terminal.

TX AF UPPER: Adjust the high TX audio frequency.

TX AF LOWER: Adjust the low TX audio frequency.

TX POWER ADJUST: Set TX power to use in the high and low output power settings.

[HIGH]: Output power in the high power setting.

[LOW]: Output power in the low power setting.

[TEMP REDUCE]: Output power to use when the temperature inside the transceiver unit is more than 85°C (185°F).

LINE IN OFFSET: The MIC input level of the remote handset is automatically adjusted according to the number of remote handsets installed. This indication shows the MIC gain of each remote handset. The current setting is shown in green in the daytime mode, pink in the nighttime mode.

4.5 CH CONFIG Menu

The [CH CONFIG] menu sets the TRX state, communication type and output power for every channel.

Note 1: An exclamation mark (!) appears to the left of a channel number when you change that channel's configuration. After the screen is saved the mark disappears.

Note 2: Entry of ATIS is required to show INLAND-W channels.

CH CONFIG (MEM/ABLE/ALL=1/56/57)											
INT'L		USA		WX:U		CANADA		WX:C		PRIVATE	
1/5	TRX	MEM	TYPE	PWR	CH	TRX	MEM	TYPE	PWR		
01	: TRX	--	DUP	H_VAR	08	: TRX	--	SIMP	H_VAR		
02	: TRX	--	DUP	H_VAR	09	: TRX	--	SIMP	H_VAR		
03	: TRX	--	DUP	H_VAR	10	: TRX	--	SIMP	H_VAR		
04	: TRX	--	DUP	H_VAR	11	: TRX	--	SIMP	H_VAR		
05	: TRX	--	DUP	H_VAR	12	: TRX	--	SIMP	H_VAR		
06	: TRX	--	SIMP	H_VAR	13	: TRX	--	SIMP	H_VAR		
07	: TRX	--	DUP	H_VAR	14	: TRX	--	SIMP	H_VAR		

1 PAGE 3
7: TRX 8: MEM
MENU: SAVE

4 REGION 6
9: TYPE 0: PWR
CANCEL: BACK

Procedure

1. Use the **4** or **6** key to select the region ([INT'L], [USA], [WX:U], [CANADA], [WX:C], [INLAND-W], [PRIVATE]).
2. Rotate the **CH** knob to select a channel.
3. Use the **7** key to select the TRX mode, [RX], [TRX], or [---] (disable TX and RX).
4. Use the **8** key to select [ON] in the MEM column to add the channel to the memory channel list, or show [--] to not add the channel to the list. (CH16 cannot be removed from the memory channel list.)
5. Use the **9** key to set [TYPE], duplex ([DUP]) or simplex ([SIMP]).
6. Use the **0** key to set [PWR]. The choices are [H_VAR], [H_#16], [L_PTT] and [L_FIX].

[H_VAR]: High or Low TX power can be selected with the **HI/LO** key. The TX power setting is kept when the channel is changed and when the power is turned off.

[H_#16]: High or Low TX power can be selected with the **HI/LO** key. However, the TX power is automatically set to High after the channel is changed or the power is turned off. For CH16.

[L_PTT]: TX power is fixed to Low. However, High or Low TX power can be selected, with the **HI/LO** key, while the PTT switch is pressed. Meets the requirements of FCC Rule 47 Part 80.80.

[L_FIX]: TX power is fixed to Low.

7. Press the **MENU** key to save the settings. (To escape without saving, press the **CANCEL** key instead of the **MENU** key.)

Note: A proposal is underway to add satellite monitoring of Automatic Identification System (AIS) equipped vessels, and the system intends to use VHF channels 75 and 76 (156.775 MHz and 156.825 MHz). When the system becomes operational, those channels will be disabled, in accordance with the revised Radio Regulations.

4.6 OTHER Menu

OTHER	
[for SERVICE]	[for DEVELOP]
DEMO MODE : OFF	POWER AMP : ON
P-BROWSER : OFF	POPUP ALARM : ON
ROR MODE : OFF:RES	MIC L-BACK : OFF
MULTI PORT : AIS	R-HS UPDATE : ON
TLL-S : OFF	DEBUG MODE : OFF
ALARM UNIT : DISCONNECT	CS SETTING : ENABLE
PRINTER : TYPE-A	ATIS KILLER : INLAND-W
M-HS HOOK : ON	
← : SELECT	CANCEL : BACK

for SERVICE

DEMO MODE: For exhibition use. Do not change the setting.

P-BROWSER: Activate or deactivate the parameter browser, which is controlled from a PC. For use by the service technician.

ROR MODE: ROR means RT-Oriented Remote HS Mode and it allows or prevents operation of the remote handset when a DSC active procedure is in progress.

MULTI PORT: Select the equipment connected to the serial port, AIS transponder, INS (Integrated Navigation System) or navigational plotter. The option [DEBUG SIO] is for use by the service technician.

TLL-S: Enable or disable output of the TLL (Target Latitude and Longitude) sentence when a distress alert is received.

ALARM UNIT: Select [CONNECT] if the Alarm Unit IC-350 is connected to the radiotelephone.

PRINTER: Choose the printer model connected to the radiotelephone.

[TYPE-A]: PP-510

[TYPE-B]: PP-8800A

[OTHER]: Other printer

M-HS HOOK: Select where the main handset is connected. When the handset is not connected to the transceiver unit, and this setting is [NORMAL] (default setting), the system recognizes OFF-HOOK state, preventing use of the remote station.

[NORMAL]: Select if the handset is connected to the transceiver unit.

[F(ON)]: The software forcibly sets ONHOOK state at the transceiver unit. Use this setting if the handset is not connected to the transceiver unit; namely, the remote handset is used always.

[F(OFF)]: The software forcibly sets OFFHOOK state.

for DEVELOP

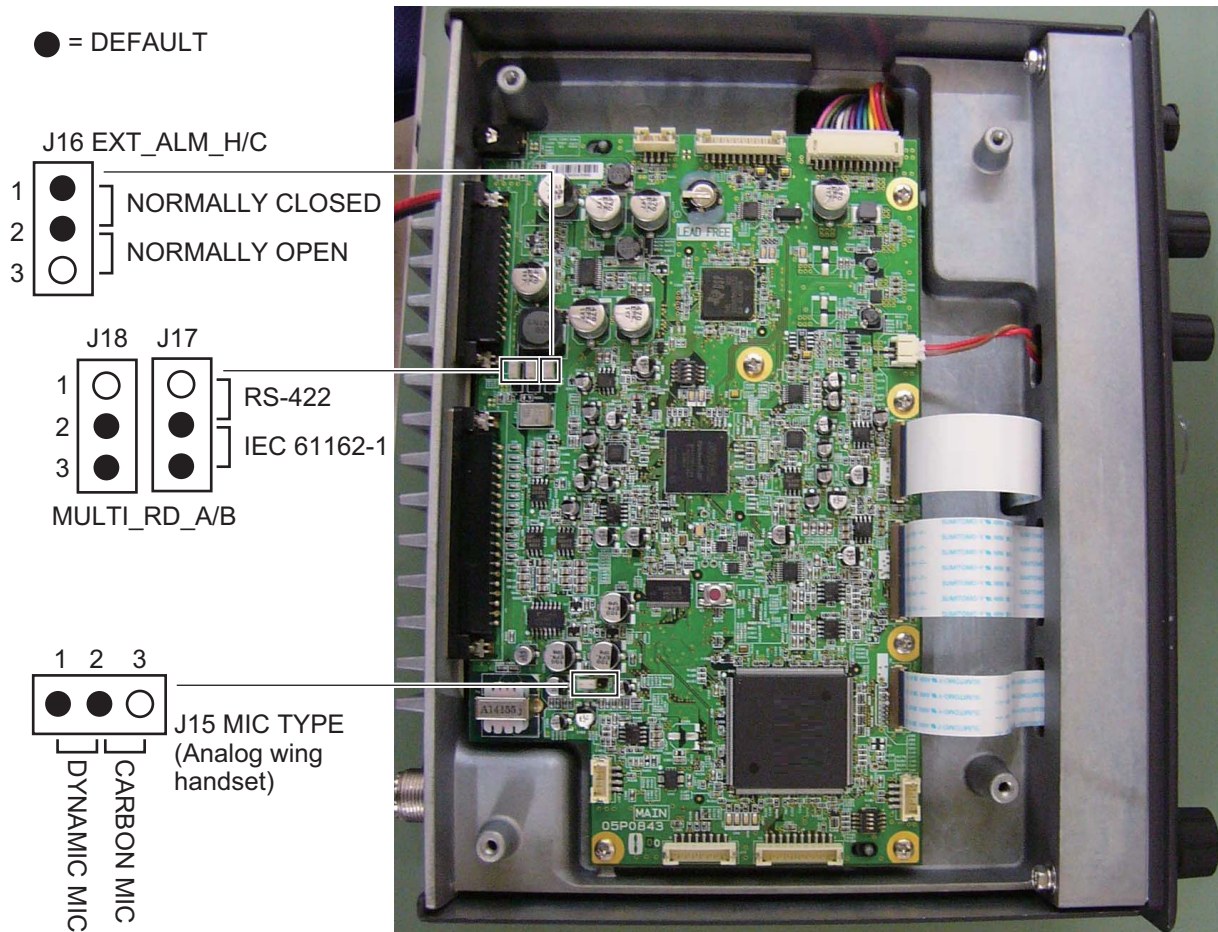
The items in this column are for use by developers. Do not change the settings.

4.7 Settings Inside the Transceiver Unit

Various jumper blocks are provided inside the transceiver unit to customize the system according to local regulations, user requirements, specifications, etc.

4.7.1 MIC type, MULTI SIO port receive format type, alarm output

Turn the transceiver unit upside down. Remove the cover to show the MAIN board (05P0843). Set the jumper blocks as required, referring to the illustration below. Jumper block information is also printed on the label on the inside cover.



J15: Set the type of analog wing handset MIC used, carbon or dynamic.

J16: Define alarm output, normally closed or normally open.

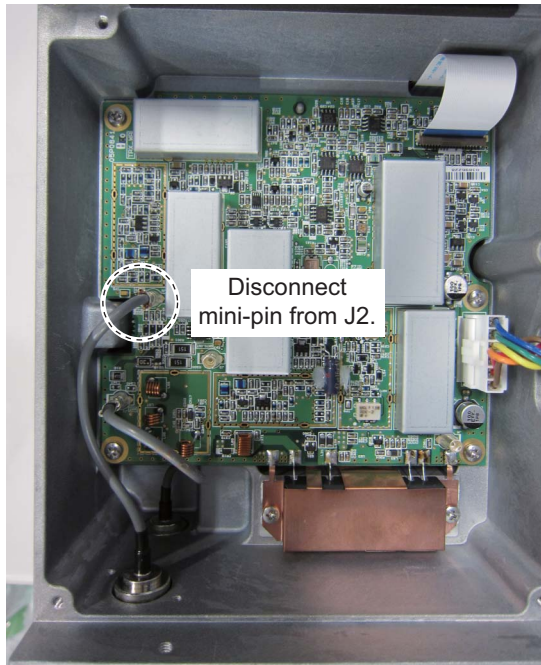
J17, J18: Select the type of receiving circuit to use on the MULTI SIO port, RS-422 or IEC 61162-1 (Opt-Coupler). Set both jumpers to the same setting.

4. INITIAL SETTINGS

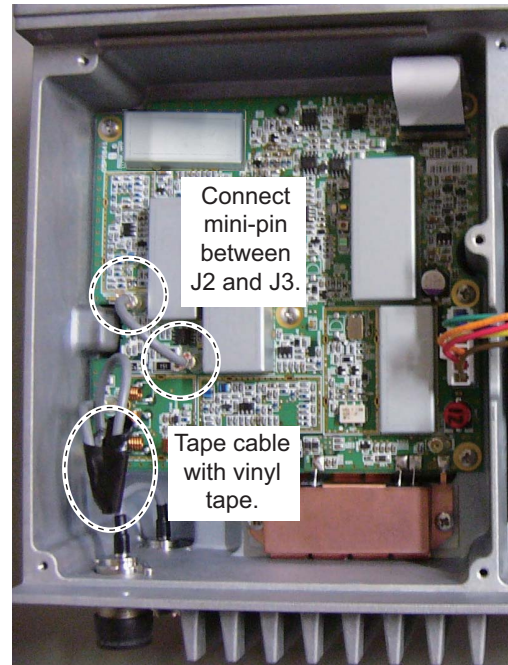
4.7.2 VHF antenna only

Non-GMDSS vessels are not required to have DSC functionality and thus a DSC antenna is unnecessary. If this is the case do as shown below to use only the VHF antenna.

Remove the outer cover and the shield cover to show the TRX_WR Board (05P0841). Connect the supplied mini-pin assy. as shown below.



1. Disconnect the mini-pin from J2.



2. Connect the supplied mini-pin assy. between J2 and J3. Use vinyl tape to attach the cable disconnected at step 1 to the chassis or the W9 connector assy.

APPENDIX 1 JIS CABLE GUIDE

Cables listed in the manual are usually shown as Japanese Industrial Standard (JIS). Use the following guide to locate an equivalent cable locally.

JIS cable names may have up to 6 alphabetical characters, followed by a dash and a numerical value (example: DPYC-2.5). For core types D and T, the numerical designation indicates the *cross-sectional Area (mm²)* of the core wire(s) in the cable. For core types M and TT, the numerical designation indicates the *number of core wires* in the cable.

1. Core Type 2. Insulation Type 3. Sheath Type

D Double core power line **P** Ethylene Propylene Rubber **Y** PVC (Vinyl)

T Triple core power line

M Multi core

TT Twisted pair communications (1Q=quad cable)

4. Armor Type

C Steel

5. Sheath Type

Y Anticorrosive vinyl sheath

6. Shielding Type

SLA All cores in one shield, plastic tape w/aluminum tape

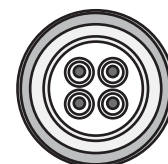
-SLA Individually shielded cores, plastic tape w/aluminum tape



DPYCY



TPYCY



MPYC-4



TTYCSLA-4

EX: ^{1 2 3 4 5 6}DPYCYSLA - 1.5 ^{1 2 3 4}MPYC - 4

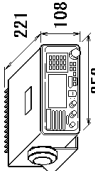
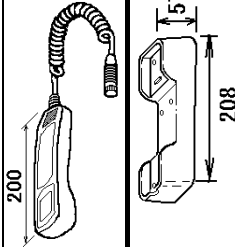
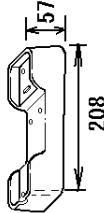
Designation type Core Area (mm²) Designation type # of cores

The following reference table lists gives the measurements of JIS cables commonly used with Furuno products:

Type	Core		Cable Diameter		Type	Core		Cable Diameter
	Area	Diameter				Area	Diameter	
DPYC-1.5	1.5mm ²	1.56mm	11.7mm		TPYCY-1.5	1.5mm ²	1.56mm	14.5mm
DPYC-2.5	2.5mm ²	2.01mm	12.8mm		TPYCY-2.5	2.5mm ²	2.01mm	15.5mm
DPYC-4	4.0mm ²	2.55mm	13.9mm		TPYCY-4	4.0mm ²	2.55mm	16.9mm
DPYC-6	6.0mm ²	3.12mm	15.2mm		TPYCYSLA-1.5	1.5mm ²	1.56mm	13.9mm
DPYC-10	10.0mm ²	4.05mm	17.1mm		TTYC-7SLA	0.75mm ²	1.11mm	20.8mm
DPYC-16	16.0mm ²	5.10mm	19.4mm		TTYCSLA-1	0.75mm ²	1.11mm	9.4mm
DPYCY-1.5	1.5mm ²	1.56mm	13.7mm		TTYCSLA-1Q	0.75mm ²	1.11mm	10.8mm
DPYCY-2.5	2.5mm ²	2.01mm	14.8mm		TTYCSLA-4	0.75mm ²	1.11mm	15.7mm
DPYCY-4	4.0mm ²	2.55mm	15.9mm		TTYCY-4SLA	0.75mm ²	1.11mm	19.5mm
DPYCYSLA-1.5	1.5mm ²	1.56mm	11.9mm		TTYCYSLA-1	0.75mm ²	1.11mm	11.2mm
DPYCYSLA-2.5	2.5mm ²	2.01mm	13.0mm		TTYCYSLA-4	0.75mm ²	1.11mm	17.9mm
MPYC-2	1.0mm ²	1.29mm	10.0mm					
MPYC-4	1.0mm ²	1.29mm	11.2mm					
MPYC-7	1.0mm ²	1.29mm	13.2mm					
MPYCY-12	1.0mm ²	1.29mm	19.0mm					
MPYCY-19	1.0mm ²	1.29mm	22.0mm					

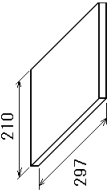
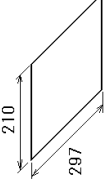
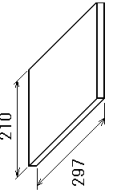
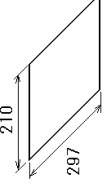
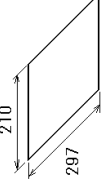
PACKING LIST FM-8900S-A

05EQ-X-9851-1 1/1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
送受信機 TRANSCEIVER UNIT		FM-8900S-A	1
		000-020-889-00	
予備品 SPARE PARTS			
予備品 SPARE PARTS		SP05-06201	1
		001-174-160-00	
付属品 ACCESSORIES FP05-05730			
ハンドセット HANDSET		HS-2003-15	1
		000-021-362-00	
ハンドセットハンガー組品 BRACKET FOR HANDSET		FP05-05510	1
		005-951-790-00	
付属品 ACCESSORIES		FP05-05511	1
		005-951-920-00	
工事材料 INSTALLATION MATERIALS CP05-12600			
ケーブル組品 CABLE ASSEMBLY		LP-02-1 (7A) -L3000	1
		000-176-274-10	
工事材料 INSTALLATION MATERIALS		CP05-12601	1
		001-174-170-00	

コード番号末尾の[**]は、選択品の代表コードを表します。
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.)

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
図書			
取扱説明書 OPERATOR'S MANUAL		OM*-56800-*	1
		000-176-198-1*	**
操作要領書 OPERATOR'S GUIDE		OS*-56800-*	1
		000-176-200-1*	**
装備要領書 INSTALLATION MANUAL		IM*-56800-*	1
		000-176-202-1*	**
遭難警報フロ- (VHF/MF) DISTRESS ALERT CHART (VHF/MF)		*52-00101-*	1
		000-809-269-1*	**
遭難通信要領 PROCEDURE FOR DISTRESS VHF		TIC-56800-*	1
		000-176-225-1*	

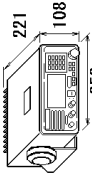
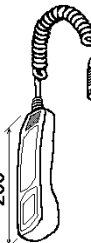
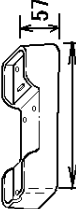
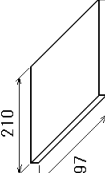
型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

05EQ-X-9851

PACKING LIST FM-8900S-A*-V

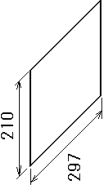
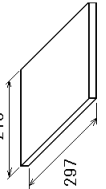
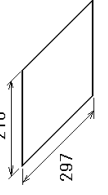
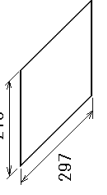
05EQ-X-9852-1

1/1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット			
送受信機 TRANSCIVER UNIT		FM-8900S-A	1
		000-020-889-00	
付属品 ACCESSORIES			
FP05-05730			
ハンドセット HANDSET		HS-2003-15	1
		000-021-362-00	
ハンドセットハンガ-組品 BRACKET FOR HANDSET		FP05-05510	1
		005-951-790-00	
付属品 ACCESSORIES		FP05-05511	1
		005-951-920-00	
工事材料 INSTALLATION MATERIALS			
CP05-12600			
ケーブル組品 CABLE ASSEMBLY		LP-02-1 (7A)-L3000	1
		000-176-274-10	
工事材料 INSTALLATION MATERIALS		CP05-12601	1
		001-174-170-00	
図書 DOCUMENT			
取扱説明書 OPERATOR'S MANUAL		OM*-56800-*	1
		000-176-198-1*	**

コード番号末尾の[**]は、選択品の代表コードを表します。
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.)

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
操作要領書 OPERATOR'S GUIDE		OS*-56800-*	1
		000-176-200-1*	**
装備要領書 INSTALLATION MANUAL		IM*-56800-*	1
		000-176-202-1*	**
遭難警報ワ- (VHF/MF) DISTRESS ALERT CHART (VHF/MF)		*52-00101-*	1
		000-809-269-1*	**
遭難通信要領 PROCEDURE FOR DISTRESS VHF		T10-56800-*	1
		000-176-225-1*	

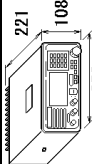
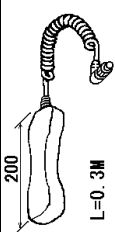
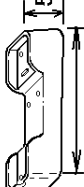
型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらが入っています。なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

05EQ-X-9852

PACKING LIST FM-8900S-N

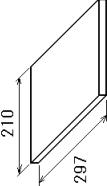
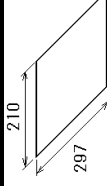
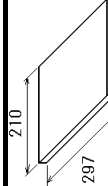
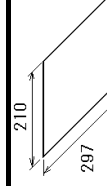
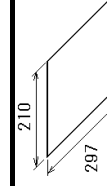
05EQ-X-9864-0

1/1

NAME	OUTLINE	DESCRIPTION/ CODE No.	Q' TY
ユニット			
送受信機 TRANSCEIVER UNIT		FM-8900S-N	1
		000-020-920-00	**
予備品			
予備品 SPARE PARTS		SP05-06201	1
		001-174-160-00	
付属品			
ACCESSORIES			
ハンドセット HANDSET		HS-2003-15-L	1
		000-021-367-00	
ハンドセットハンガー組品 BRACKET FOR HANDSET		FP05-05510	1
		005-951-790-00	
付属品 ACCESSORIES		FP05-05511	1
		005-951-920-00	
工事材料			
INSTALLATION MATERIALS			
ケーブル組品 CABLE ASSEMBLY		LP-02-1 (7A) -L3000	1
		000-176-274-10	
工事材料 INSTALLATION MATERIALS		CP05-12601	1
		001-174-170-00	

コード番号末尾の[**]は、選択品の代表コードを表します。
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.)

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
図書			
取扱説明書 OPERATOR'S MANUAL		OM*-56800-*	1
		000-176-198-1*	**
操作要領書 OPERATOR'S GUIDE		OS*-56800-*	1
		000-176-200-1*	**
装備要領書 INSTALLATION MANUAL		IM*-56800-*	1
		000-176-202-1*	**
遭難警報フロ- (VHF/MF) DISTRESS ALERT CHART (VHF/MF)		*52-00101-*	1
		000-809-269-1*	**
遭難通信要領 PROCEDURE FOR DISTRESS VHF		TIC-56800-*	1
		000-176-225-1*	

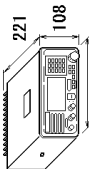
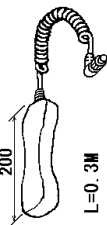
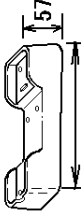
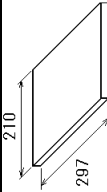
型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

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.

05EQ-X-9864

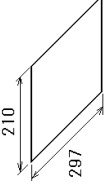
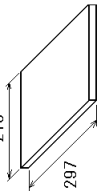
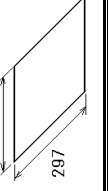
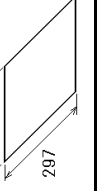
PACKING LIST FM-8900S-N*-V

05EQ-X-9865-0 1/1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット			
送受信機 TRANSCIEVER UNIT		FM-8900S-N 000-020-920-00 **	1
付属品 ACCESSORIES FP05-05720			
ハンドセット HANDSET		HS-2003-15-L 000-021-367-00	1
ハンドセットハンガー組品 BRACKET FOR HANDSET		FP05-05510 005-951-790-00	1
付属品 ACCESSORIES		FP05-05511 005-951-920-00	1
工事材料 INSTALLATION MATERIALS CP05-12600			
ケーブル組品 CABLE ASSEMBLY		LP-02-1 (7A)-L3000 000-176-274-10	1
工事材料 INSTALLATION MATERIALS		CP05-12601 001-174-170-00	1
図書 DOCUMENT			
取扱説明書 OPERATOR'S MANUAL		OM*-56800-* 000-176-198-1*	1

コード番号末尾の[**]は、選択品の代表コードを表します。
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.)

NAME	OUTLINE	DESCRIPTION/CODE No.	Q' TY
操作要領書 OPERATOR'S GUIDE		OS*-56800-*	1
		000-176-200-1*	
装備要領書 INSTALLATION MANUAL		IM*-56800-*	1
		000-176-202-1*	
遭難警報ワ- (VHF/MF) DISTRESS ALERT CHART (VHF/MF)		*52-00101-*	1
		000-809-269-1*	
遭難通信要領 PROCEDURE FOR DISTRESS VHF		TIC-56800-*	1
		000-176-225-1*	

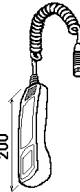
型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらが入っています。なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

05EQ-X-9865

PACKING LIST

HS-8900-15/20, HS-8900-W-15

05EQ-X-9856 -0 1/1
A-5

NAME		OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT				
リモートハンド セット REMOTE HANDSET			HS-8900-*	1
			000-020-880-00 **	

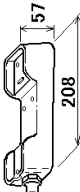
コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH “**” INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

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.) 05EQ-X-9856

PACKING LIST

HG-8900/-W

05EQ-X-9857 -0 1/1
A-6

NAME		OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT				
ハンドセット用ハンガー HANDSET HANGER			HG-8900*	1
			000-020-882-00 **	

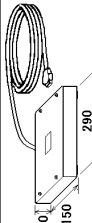
コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH “**” INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

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.) 05EQ-X-9857

PACKING LIST

IF-8900

05EQ-X-9854 -0 1/1
A-7

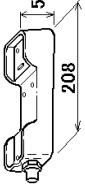
NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
接続箱 JUNCTION BOX		IF-8900	1
		000-020-877-00	
工事材料 INSTALLATION MATERIALS			
工事材料 INSTALLATION MATERIALS		CP05-12701	1
		001-174-210-00	

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.) 05EQ-X-9854

PACKING LIST

RB-8900-15/20, RB-8900-W-15

05EQ-X-9855 -0 1/1
A-8

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット			
ハンド・セットハンガー HANDSET HANGER		HG-8900*	1
		000-020-882-00 **	
リモート・セット REMOTE HANDSET		HS-8900 *	1
		000-020-880-00 **	
工事材料			
工事材料 INSTALLATION MATERIALS		CP05-12801	1
		001-174-260-00	

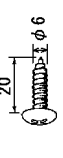
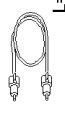
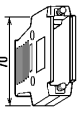
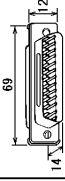
コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH “**” INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

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.) 05EQ-X-9855



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	＋５ｋｋｋﾋﾞﾝｽｸﾚｰ 1ｼｭ SELF-TAPPING SCREW		6X20 SUS304 CODE NO. 000-162-613-10	4	
2	ﾐﾆﾋﾞﾝｽｸﾚｰ (1) MINI PIN ASSY(1)		L-70 CODE NO. 000-165-834-10	1	
3	ｺﾎｳｼｬｰﾄﾞ (XM2) HOUSING CASE		XM2S-3712 CODE NO. 000-160-599-10	1	
4	ｺﾈｸﾀ (XM3) CONNECTOR		XM3A-3721 CODE NO. 000-176-295-10	1	

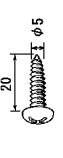
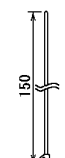
型式/コード番号が2段の場合、下段より上段に代わる適量部品であり、どちらかが入っています。なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO.,LTD. 05EQ-X-9401



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	＋５ｋｋｋﾋﾞﾝｽｸﾚｰ 1ｼｭ SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-162-608-10	4	
2	ｺﾌﾞﾙ ｵﾌﾞｼﾞ CABLE TIE		CV-150N CODE NO. 000-162-186-10	22	

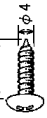
型式/コード番号が2段の場合、下段より上段に代わる適量部品であり、どちらかが入っています。なお、品質は変わりません。
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO.,LTD. 05EQ-X-9402

FURUNO

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	＋152カビトンボ 1/2 SELF TAPPING SCREW		4X16 SUS304 CODE NO. 000-162-605-10	2	
2	＊ワッシャー WASHER		M4 CODE NO. 000-168-234-10	2	

型式/コード番号が2段の場合、下段より上段に代わる通達部品であり、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.)

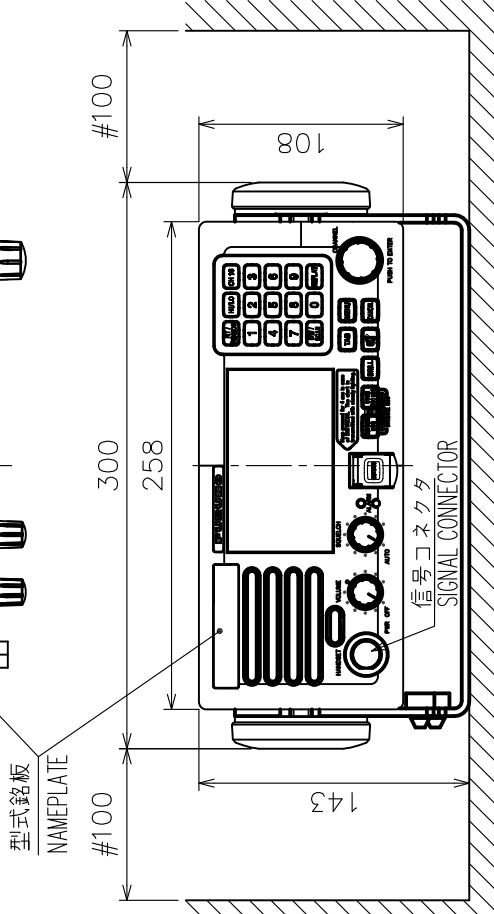
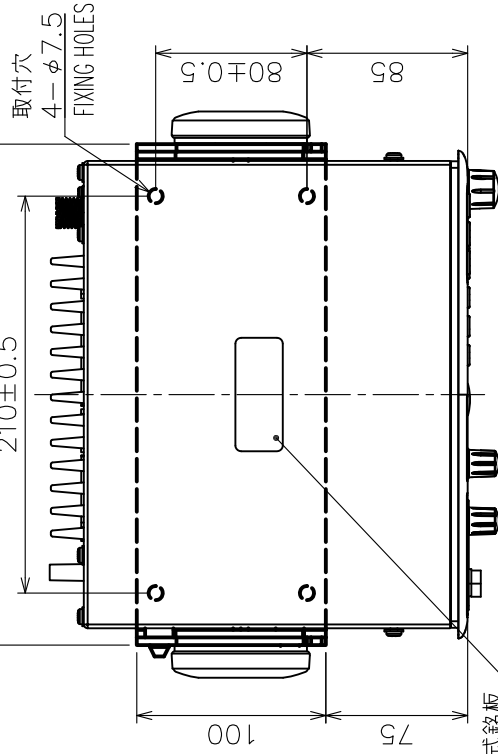
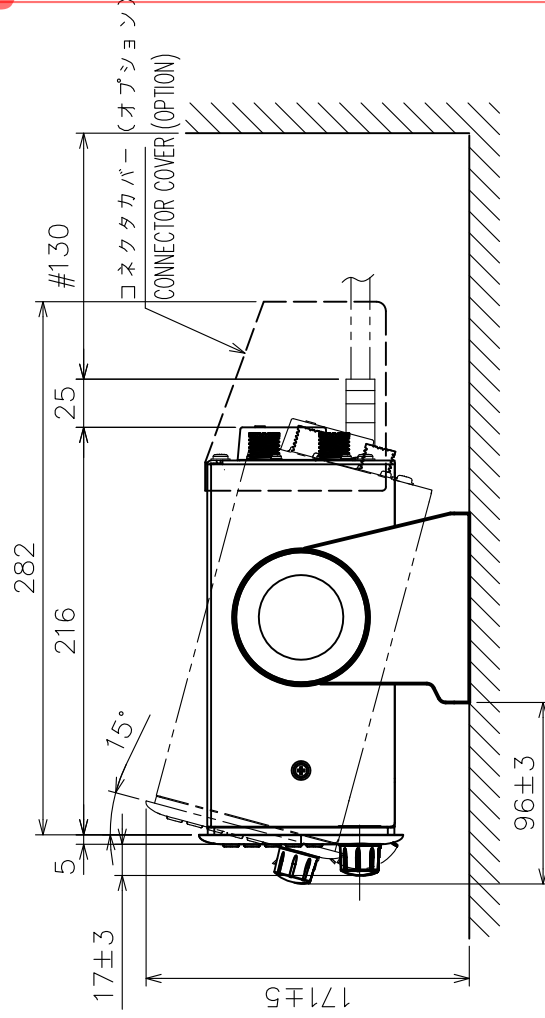
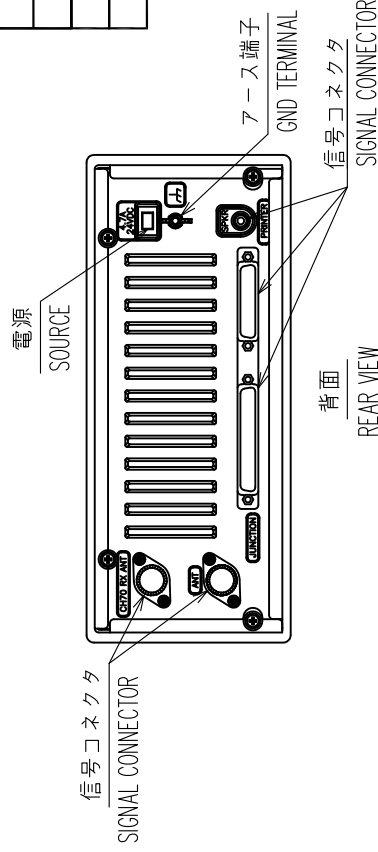
FURUNO ELECTRIC CO., LTD. 05EQ-X-9403

FURUNO

FURUNO													05EQ-X-9301-0 1/1	
SHIP NO.		SPARE PARTS LIST FOR			U S E			TYPE		BOX NO.		P		

表1 TABLE 1

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



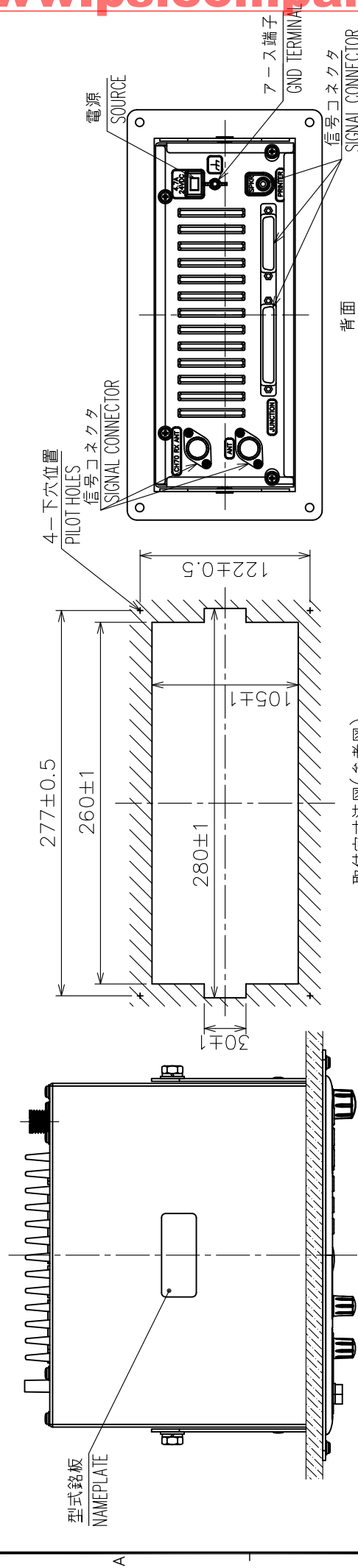
注 記

- 1) 指定外の寸法公差は表 1 による。
- 2) # 印寸法は最小サービスクリアランスとする。
- 3) 取付用ネジは+トラスタックピンネジ6×20を使用のこと。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # : MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS $\phi 6 \times 20$ FOR FIXING THE UNIT.

DRAWN	25/Apr/2012 T.YAMASAKI	TITLE	FM-8900S
CHECKED	25/Apr/2012 H.MAKI	名称	送受信機 (卓上装備)
APPROVED	25/Apr/2012 Y.NISHIYAMA	外寸図	
SCALE	1/4 MASS 4.2 kg	NAME	TRANSCEIVER UNIT (TABLETOP MOUNT)
DMC No.	C5680-G01-B	REF No.	05-104-250G-2
			OUTLINE DRAWING



取付穴寸法図(参考図)
CUTOUT DIMENSIONS

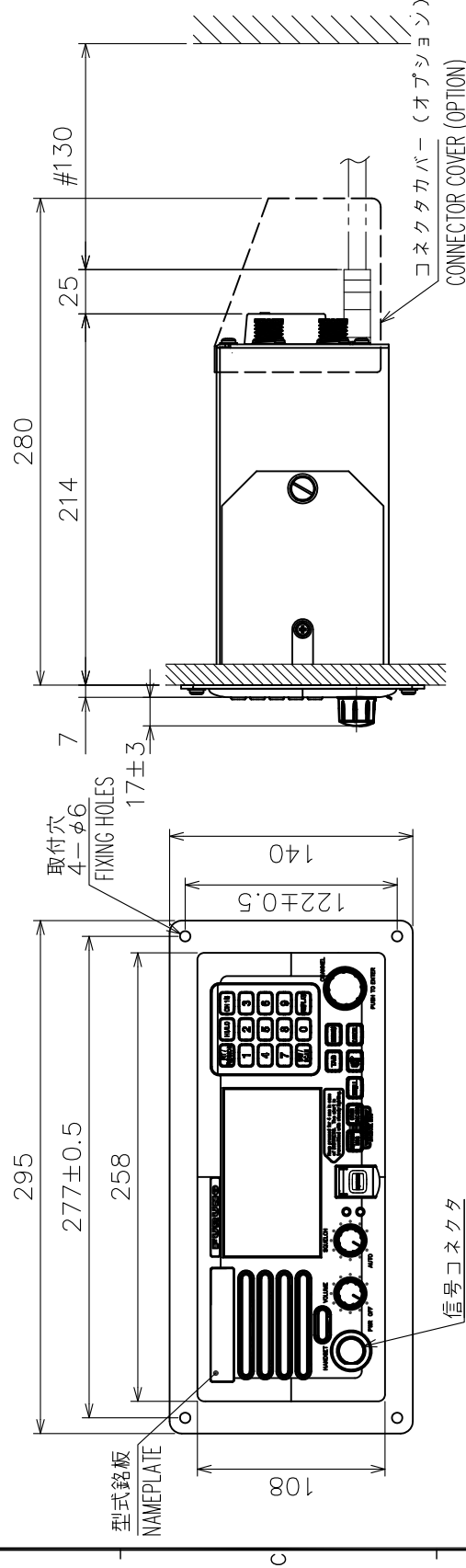


表1 TABLE 1

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

注 記

- 1) 指定外の寸法公差は表1による。
- 2) #印寸法は最小サービス空間寸法とする。
- 3) 取付用ネジはプラスタツピンネジ呼び径5×15を使用のこと。

NOTE

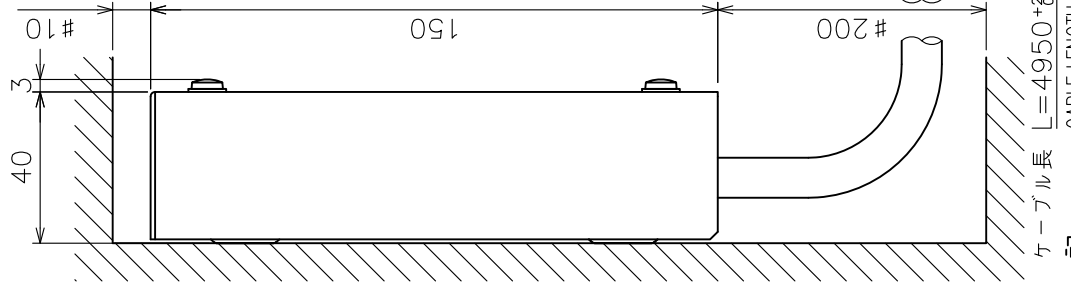
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS $\phi 5 \times 15$ FOR FIXING THE UNIT.

DRAWN	25/Apr/2012 T.YAMASAKI	TITLE	FM-8900S
CHECKED	25/Apr/2012 H.MAKI	名称	送受信機 (埋込装置)
APPROVED	25/Apr/2012 Y.NISHIYAMA	外寸図	
SCALE	1/4 MASS 4.2 kg	NAME	TRANSCIVER UNIT (FLUSH MOUNT)
DMC No.	C5680-G02-B	REF No.	05-104-251G-2
			OUTLINE DRAWING



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

取付穴
4-φ6
FIXING HOLES



注 記

- 1) 指定外の寸法公差は表 1 による。
- 2) # 印寸法は最小サービスクリアランスとする。
- 3) 取付用ネジはトラスチックピンネジ呼び径 5 × 2.0 を使用のこと。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS φ5x20 FOR FIXING THE UNIT.

240±0.7

型式銘板
NAMEPLATE

100±0.8

付属ケーブル
ATTACHED CABLE

ケーブル導入口
CABLE ENTRY

#10

290

#10

φ15 MAX.
許容ケーブル径
MAXIMUM CABLE DIA.

DRAWN	26/Dec/2011 T.YAMASAKI	TITLE	IF-8900
CHECKED	26/Dec/2011 H.MAKI	名称	接続箱
APPROVED	27/Dec/2011 Y.NISHIYAMA	外寸図	
SCALE	1/2 MASS 1.6 kg	NAME	JUNCTION BOX
DMC No.	C5680-G04-A	REF No.	05-104-350G-2

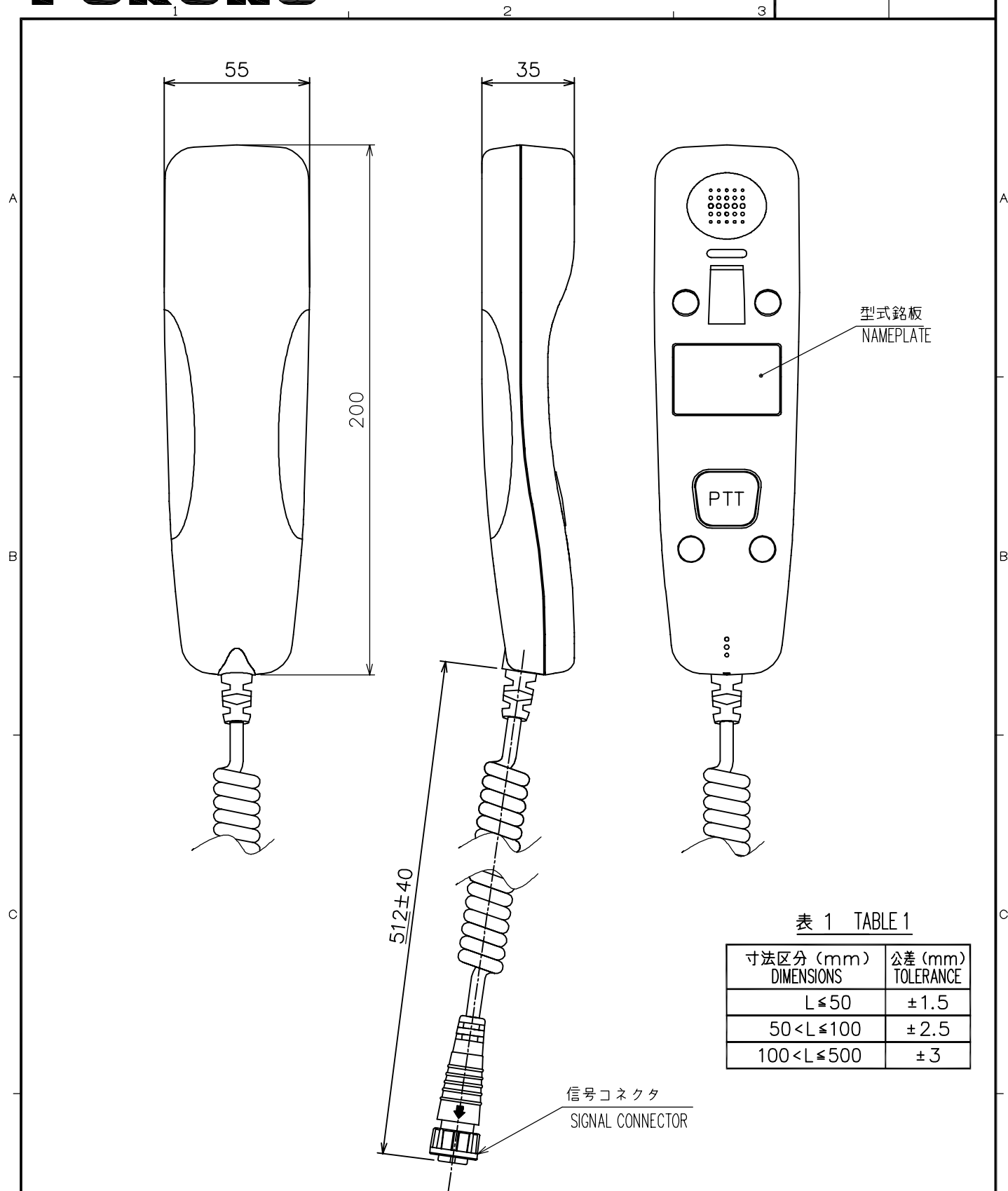


表 1 TABLE 1

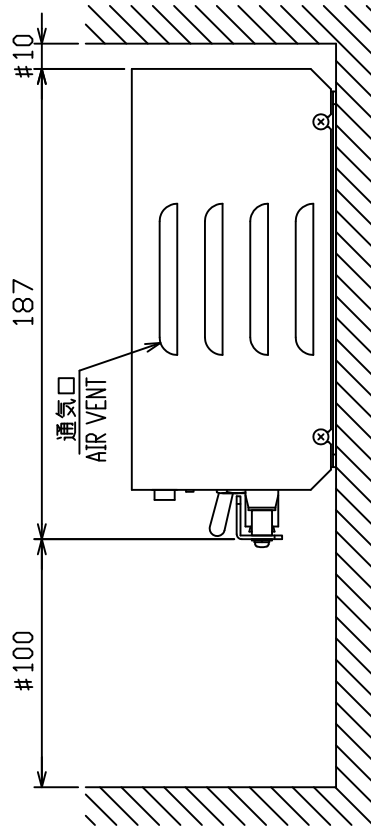
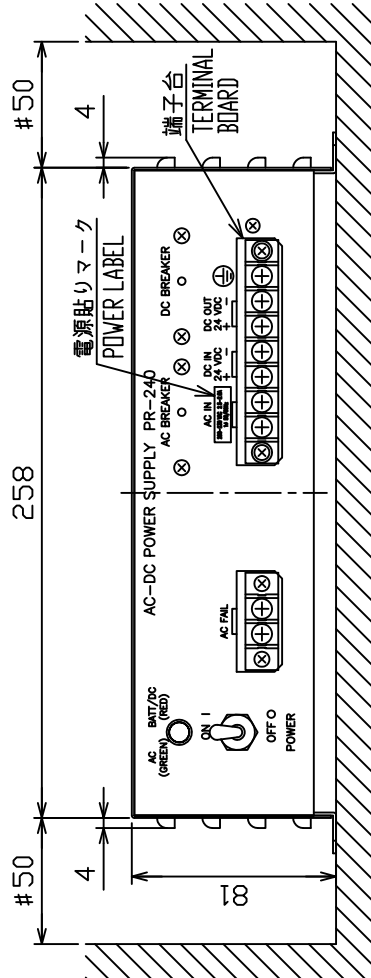
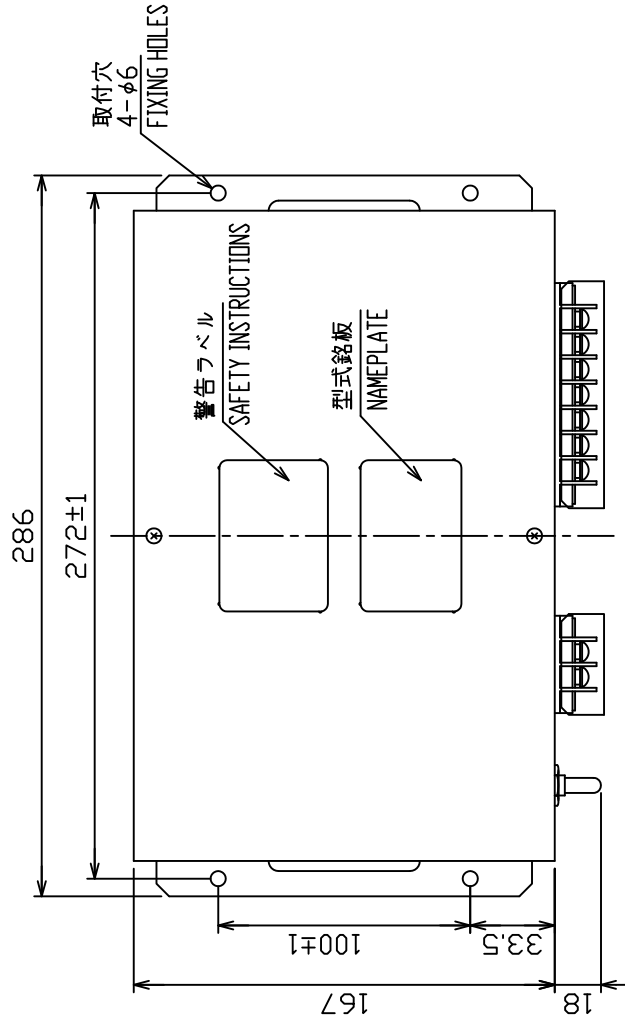
寸法区分 (mm) DIMENSIONS	公差 (mm) TOLERANCE
$L \leq 50$	± 1.5
$50 < L \leq 100$	± 2.5
$100 < L \leq 500$	± 3

注 記 指定外の寸法公差は表 1 による。
NOTE TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

DRAWN Dec. 10 '04 E. MIYOSHI		TITLE HS-2003
CHECKED TAKAHASHI. T	FM-8800S/D	名称 ハンドセット
APPROVED Y. Hatai	質量にはケーブルコードを含む。 MASS W/ CABLE.	外寸図
SCALE 1/2 MASS 0.20 $\pm 10\%$ kg		NAME HANDSET
DWG.No. C5642-G10-C	05-093-200G-2	OUTLINE DRAWING

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



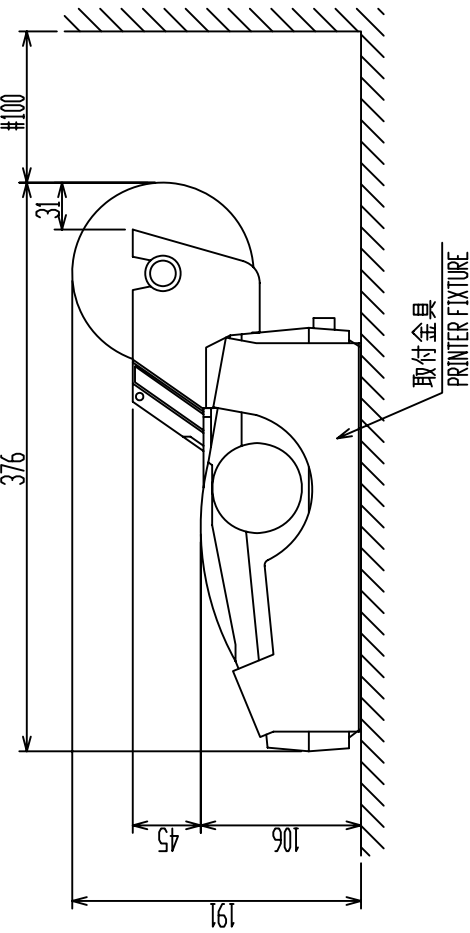
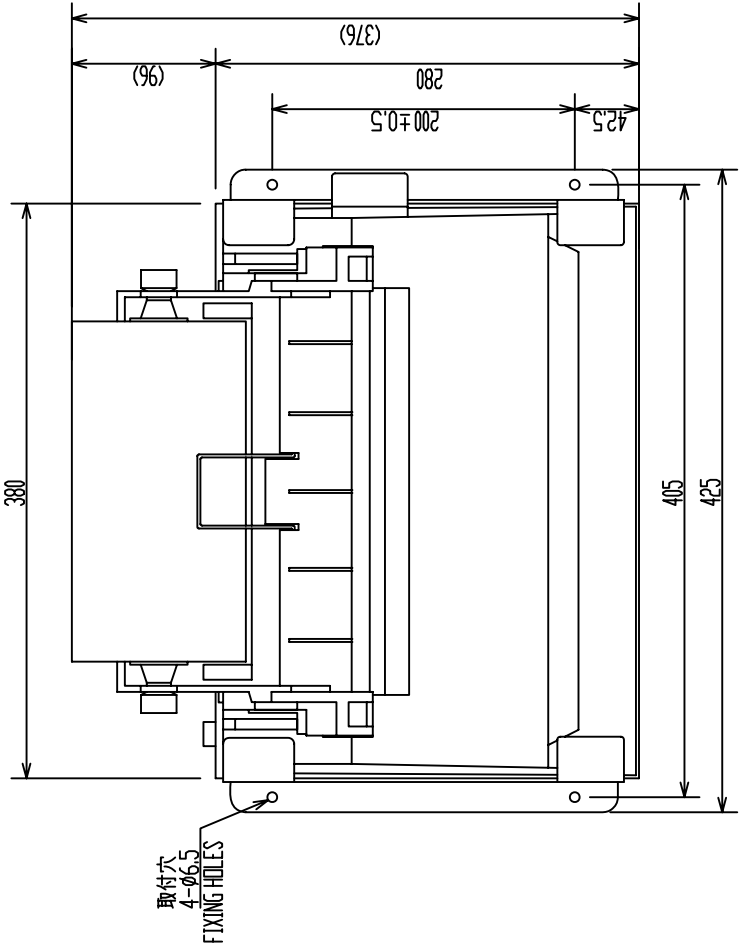
注 記 1) 指定なき寸法公差は表 1 による。
2) #印寸法は最小サービスクリアランスとする。
3) 取付用ネジは+トラスタッピンネジ 呼び径 4 × 1.6 を使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS Ø4x1.6 FOR FIXING THE UNIT.

DRAWN	25/Sep/09 T.YAMASAKI	TITLE	PR-240
CHECKED	25/Sep/09 T.TAKENO	名*	AC/DC 電源ユニット
APPROVED	26/Oct/09 R.Esumi	外寸図	
SCALE	1/3	NAME	AC/DC POWER SUPPLY UNIT
FIG.No.	C5003-603-J	REF.No.	24-003-500G-4

表 1 TABLE 1

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



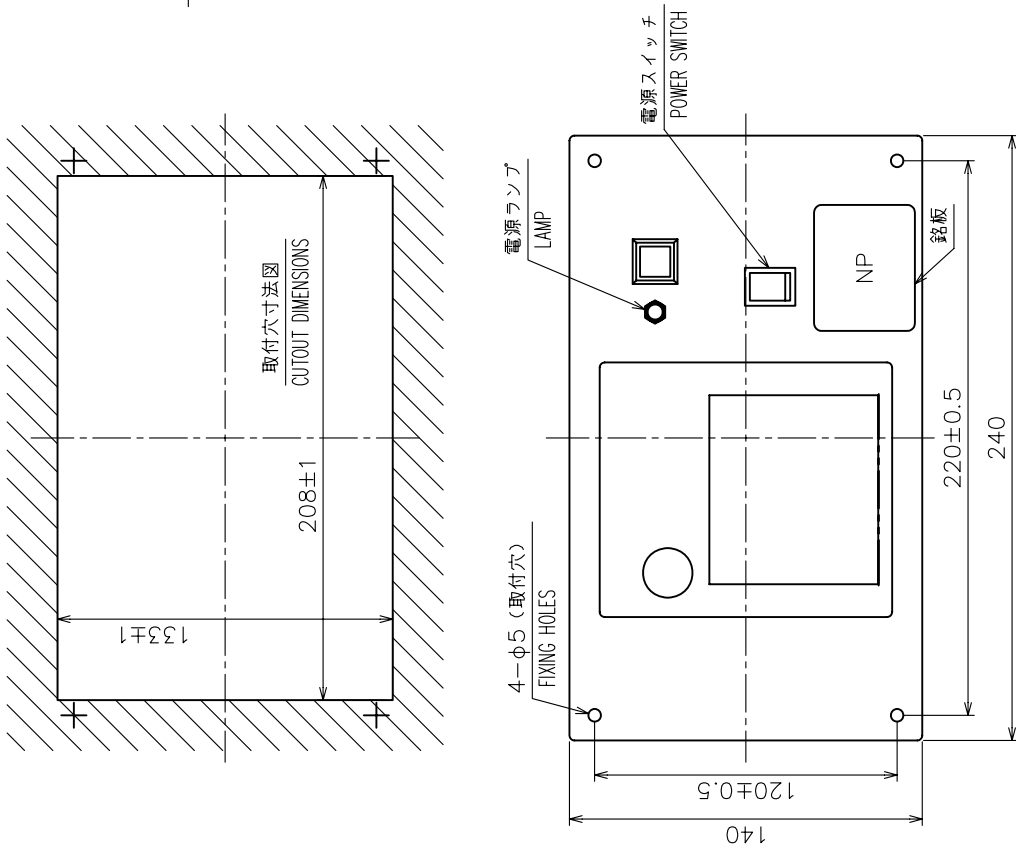
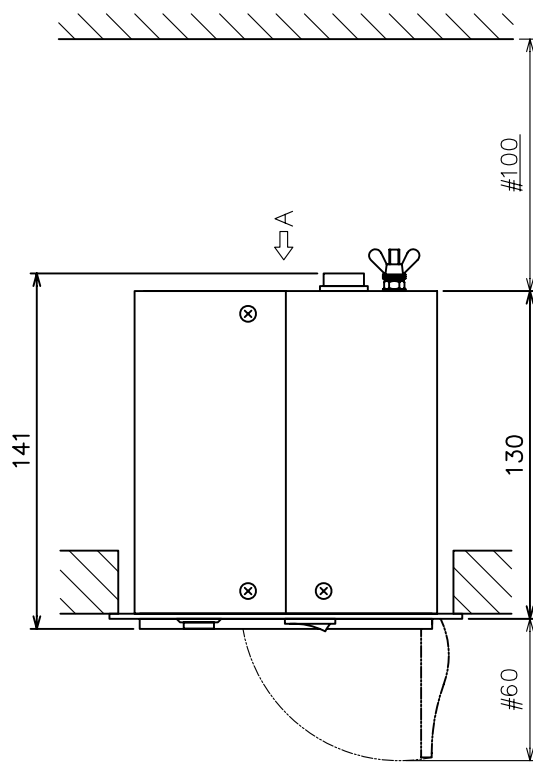
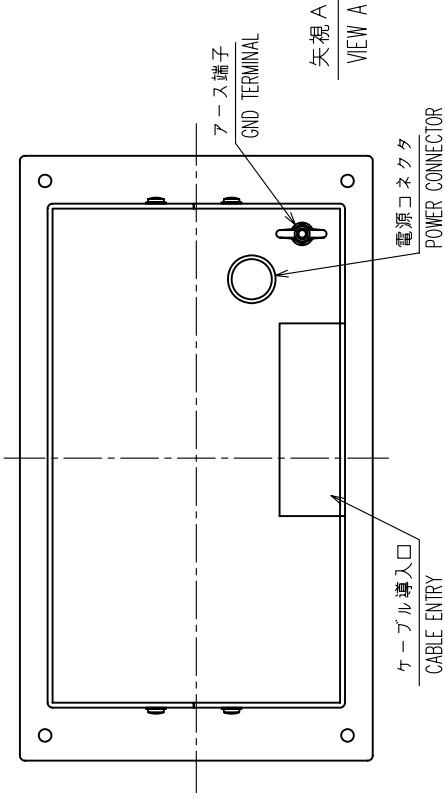
注 記 1) #印寸法は最小サービス空間寸法とする。
2) 指定外の寸法公差は表1による。
3) 取付用ネジはM6ボルトまたはコーチボルト呼び径φを使用のこと。

NOTE 1. # MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE M6 BOLTS OR CHACH SCREWS φ6 FOR FIXING THE UNIT.

DRAWN	Nov. 27, '96	E. MIYOSHI	TITLE	PP-510
CHECKED		TAKAHASHI, I.	名称	プリンタ
APPROVED		Y. Hatai	外寸図	
SCALE	1/5	MASS ±10% 3.8 kg	NAME	PRINTER
DWG.No.	C5589-G08-K	REF.No.	16-007-660G-2	OUTLINE DRAWING

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



- 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チックピンネジ呼び径4×16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 4x16 FOR FIXING THE UNIT.

DRAWN	Dec. 25 '06	T. YAMASAKI	TITLE	PP-8800A
CHECKED	Dec. 25 '06	I. TAKENO	名 称	プリンタ (埋込装備)
APPROVED	Dec. 26 '06	R. Esumi	外 寸 図	
SCALE	1/3	WASS 1.4 kg	NAME	PRINTER (FLUSH MOUNT)
DWG.No.	C5642-G16-B	REF.No.	05-093-791G-0	OUTLINE DRAWING

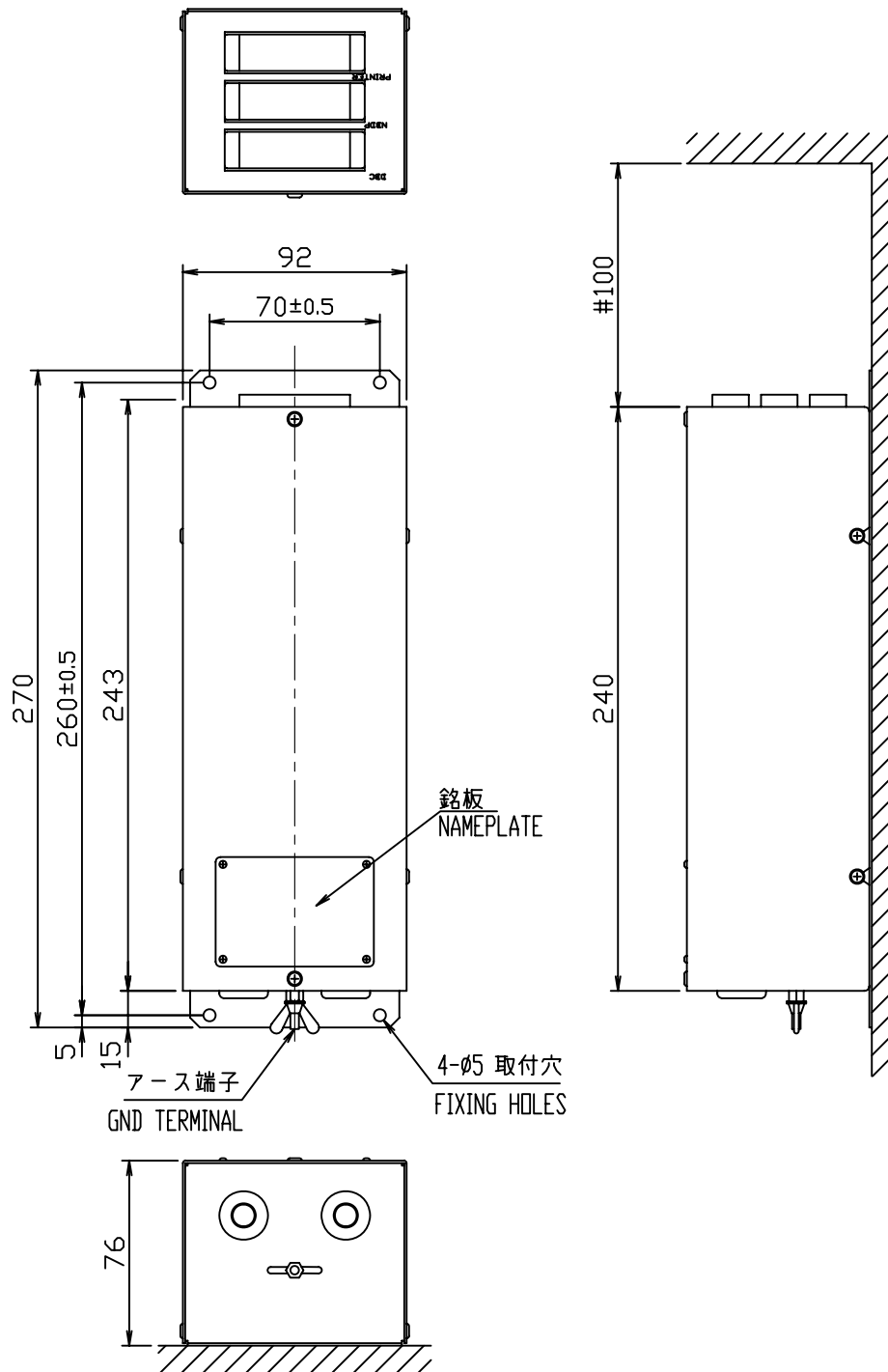
FURUNO

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注記

1) 指定なき寸法公差は表 1 による。

2) # : 最小サービス空間寸法。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

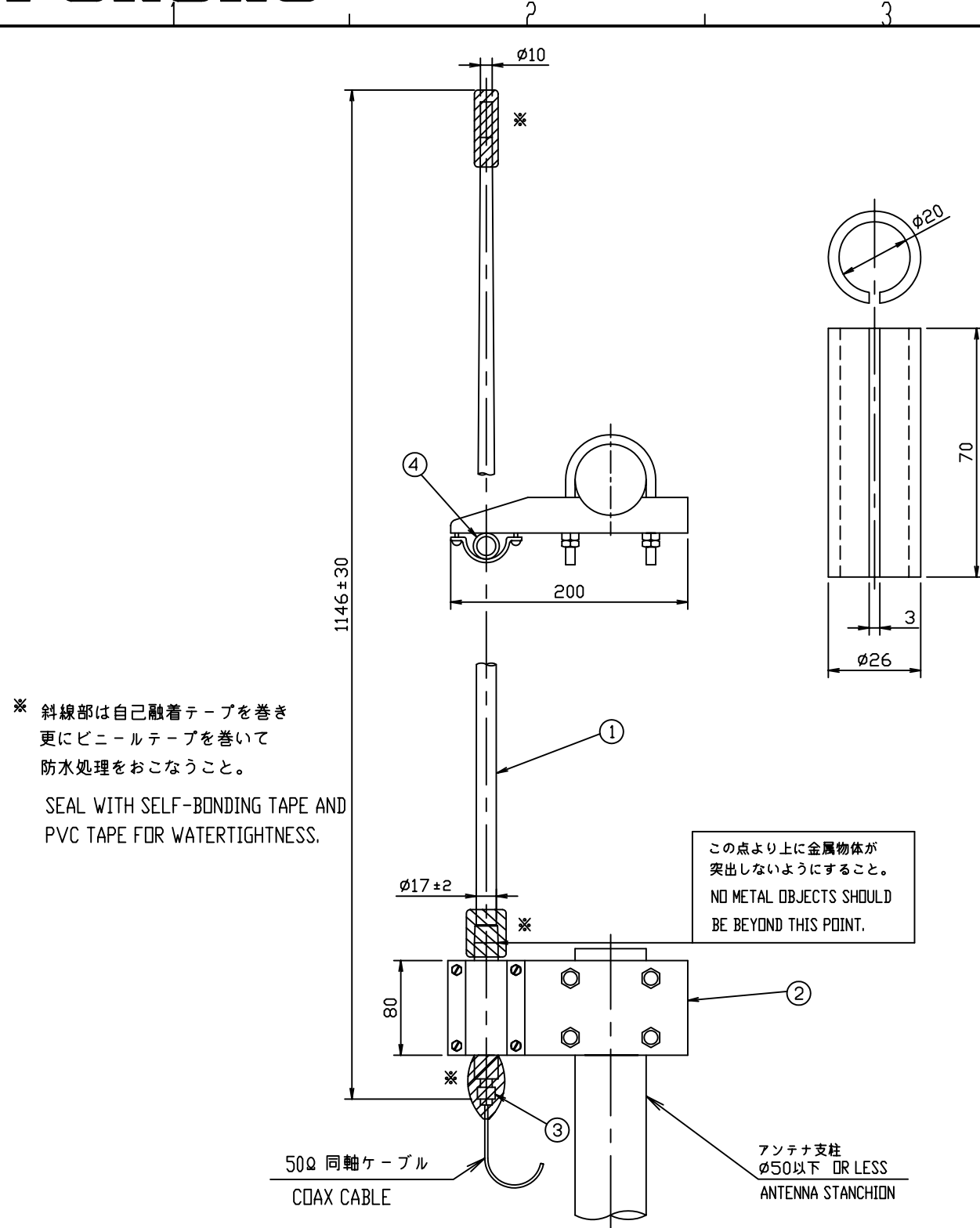
2. #: MINIMUM SERVICE CLEARANCE.

表 1 TABLE 1

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

DRAWN Sep. 6 '06 T.YAMASAKI		TITLE IF-8500
CHECKED Sep. 6 '06 T.TAKENO		名称 プリンターインターフェイス
APPROVED Sep.21'06 T.Matsuguchi	FM-8500	外寸図
SCALE 1/3	MASS 0.7 ±10% kg	NAME PRINTER INTERFACE
DWG.No. C5603-G05- C	05-073-2100-G1	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.



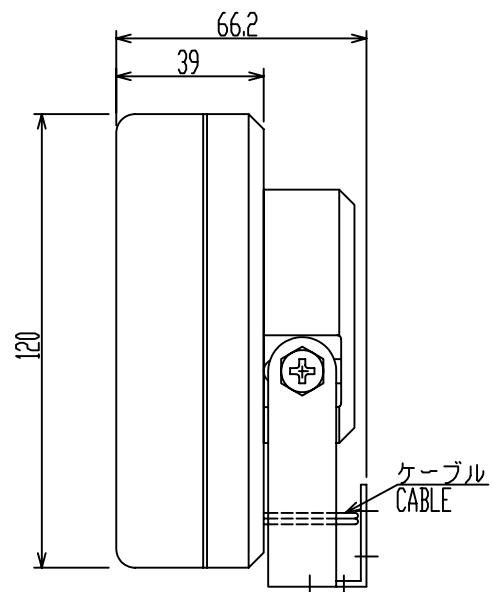
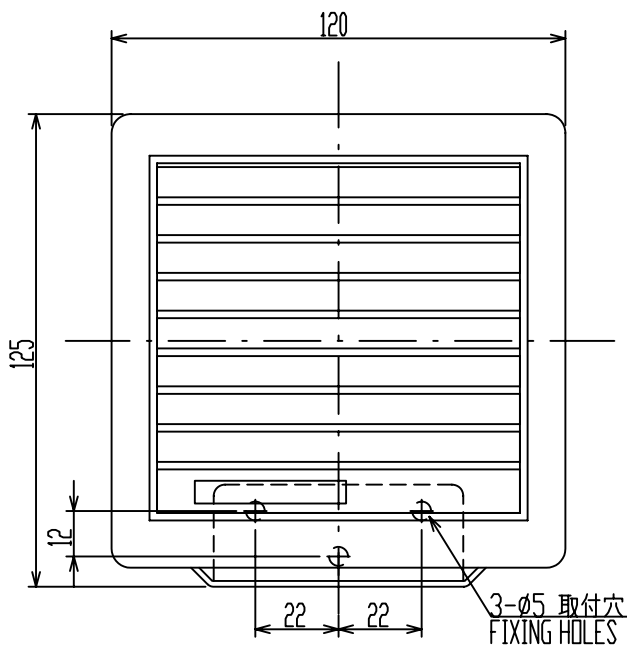
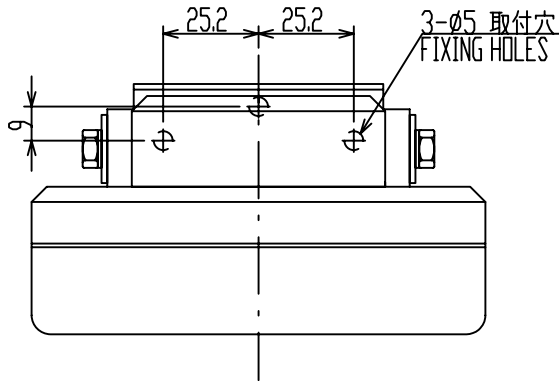
4	固定用パイプ LINER PIPE	硬質塩ビ VINYL CHLORIDE	1		
3	同軸コネクタ COAX. CONNECTOR		1		M-R
2	アンテナ取付金具 ANTENNA BRACKET	SUS	1 式 SET	4-310071	0.6kg
1	アンテナ棒 ANTENNA ELEMENT	FRP	1		0.25kg
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.No.	摘要 REMARKS

DRAWN	Feb. 1 '05	T.YAMASAKI	TITLE	FAB-151D
CHECKED	Feb. 1 '05	T.MATSUGUCHI	名称	150MHz ホイップアンテナ
APPROVED	Feb. 02 '05	T.Matsuguchi	外寸図	
SCALE	1/5	MASS 0.85 ±10% kg	NAME	150MHz WHIP ANTENNA
DWG.No.	C5013-019- J	4-110718		OUTLINE DRAWING

FURUNO

表1 TABLE 1

寸法区分(mm) DIMENSIONS	公差(mm) TOLERANCE
$0 < L \leq 50$	± 1.5
$50 < L \leq 100$	± 2.5
$100 < L \leq 500$	± 3

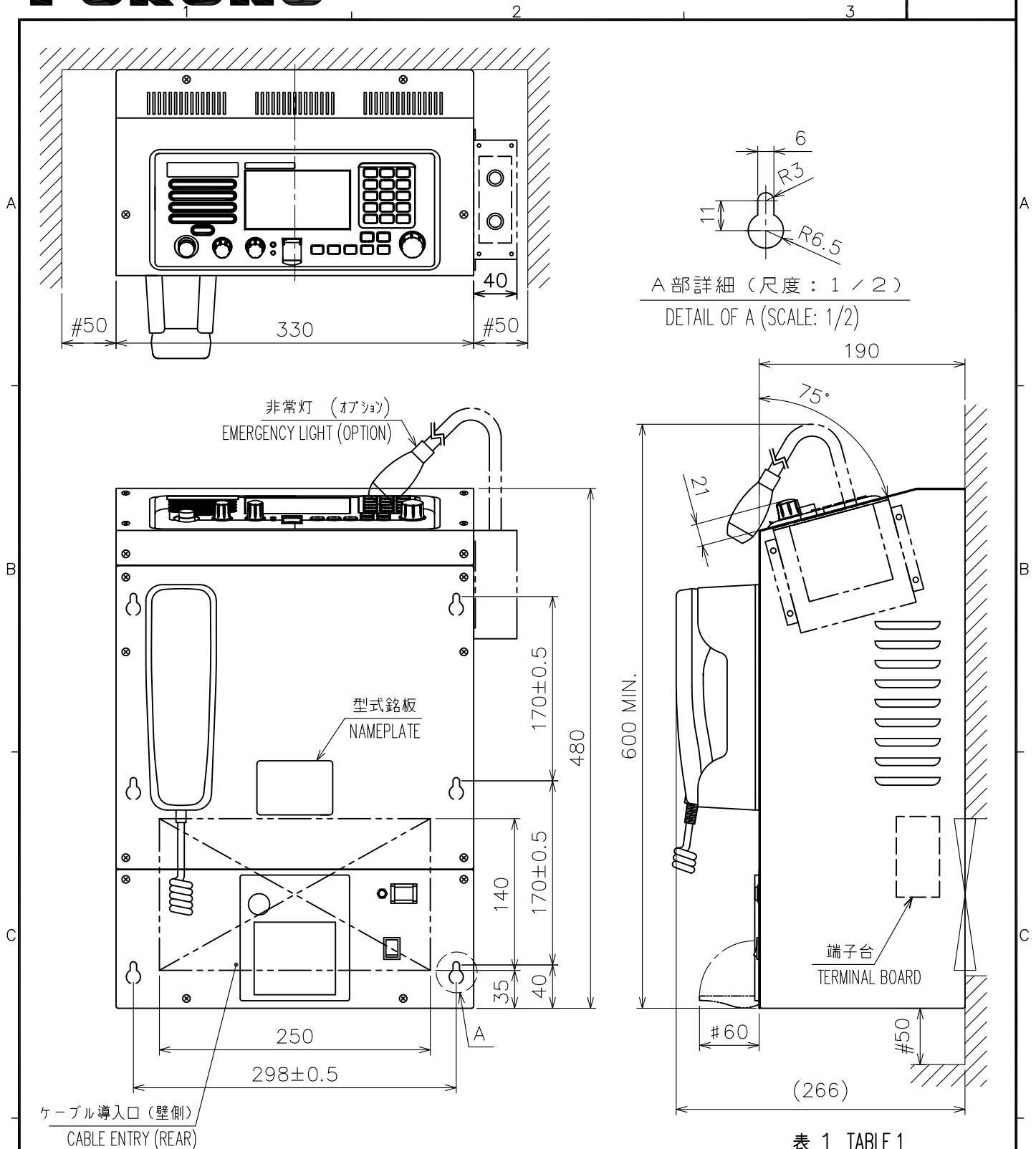


注記 1) 指定外寸法公差は表1による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

DRAWN	Nov. 25, '06	E. MIYOSHI	TITLE	SEM-21Q
CHECKED		TAKAHASHI, T	名称	スピーカ
APPROVED		Y. Hatai		外寸図
SCALE	1/2	MASS 0.54 ±10% kg	質量は2.8mケーブルを含む MASS W/ 2.8m CABLE	NAME LOUDSPEAKER
DWG.No.	C5016-G07-C	REF.No.		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.



- 注記 1) 指定外の寸法公差は表 1 による。
2) #印寸法は最小サービス空間とする。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.

表 1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	± 1.5
$50 < L \leq 100$	± 2.5
$100 < L \leq 500$	± 3
$500 < L \leq 1000$	± 4

DRAWN 21/Mar/2012 T.YAMASAKI	TITLE RC-8900
CHECKED 21/Mar/2012 H.MAKI	名称 コンソールキット (壁掛ラック、プリンタ付)
APPROVED 8/Mar/2010 Y.NISHIYAMA	外寸図
SCALE 1/5	NAME CONSOLE KIT (RACK W/ PRINTER)
MASS 17 ±10% kg	質量はプリンタを含む。 MASS INCLUDES PRINTER.
DWG. No. C5680-G05- B	REF. No. 05-104-850G-2
	OUTLINE DRAWING

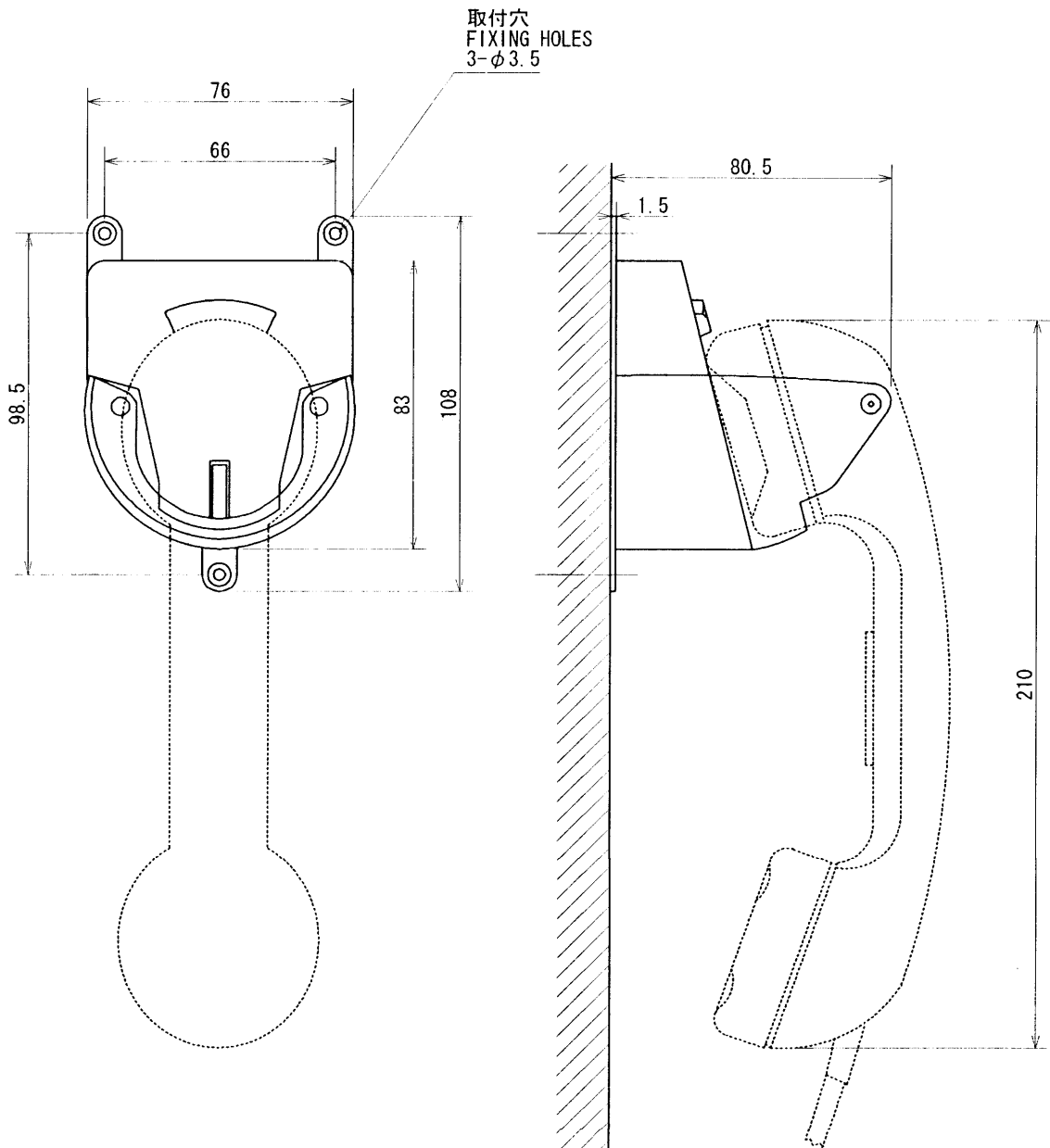
FURUNO

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DRAWN Aug 16 '00 T. YAMASAKI		TITLE AP-102
CHECKED Aug 16 '00 Y. Kuri		名称 ハンドセットハンガー
APPROVED Aug 16 '00 Y. Kuri		外寸図
SCALE 1/2 MASS 0.5 kg		NAME HANDSET HANGER
DWG. No. C5015-G05-B		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

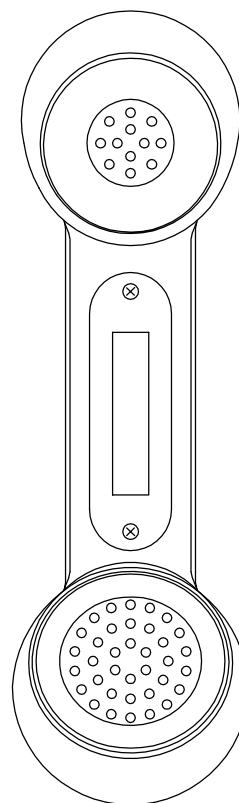
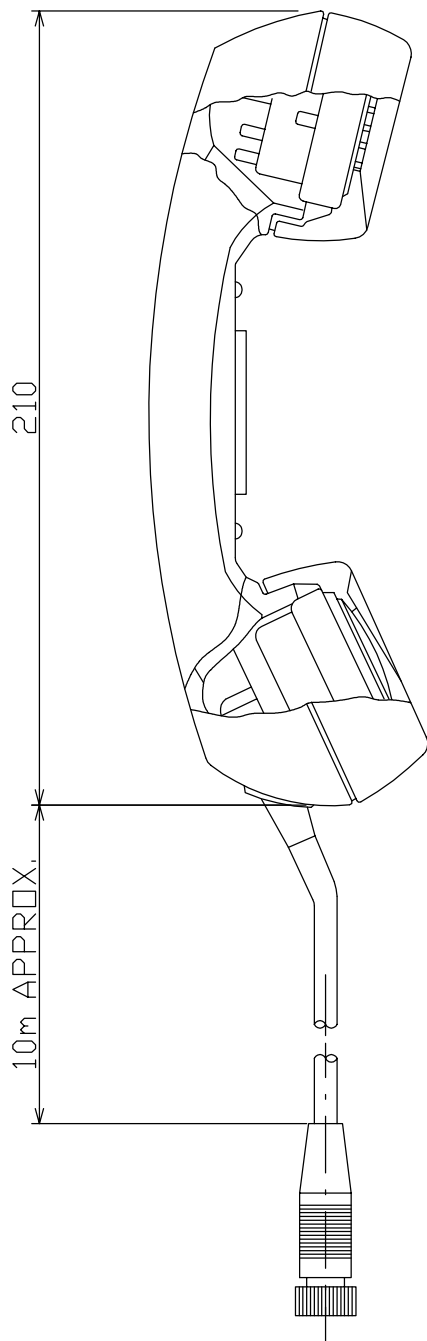
FURUNO

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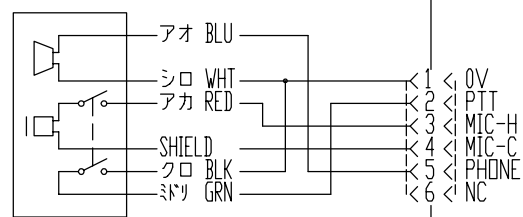
C

D



材質 MATERIAL	A B S樹脂 ABS RESIN
色 COLOR	黒 BLACK

回路図 SCHEMATIC DIAGRAM



DRAWN Dec. 22 '03 T.YAMASAKI		TITLE HS-6000F Z11
CHECKED Dec. 22 '03 T.TAKENO		名称 ハンドセット
APPROVED Dec. 26 '03 <i>Matsuguchi</i>		外寸図
SCALE 1/2	MASS 0.5 kg	NAME HANDSET
DWG.No. C5015-G11-A		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

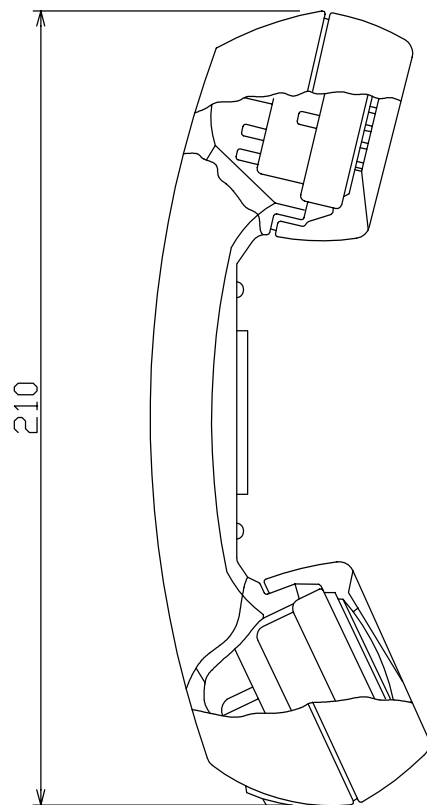
FURUNO

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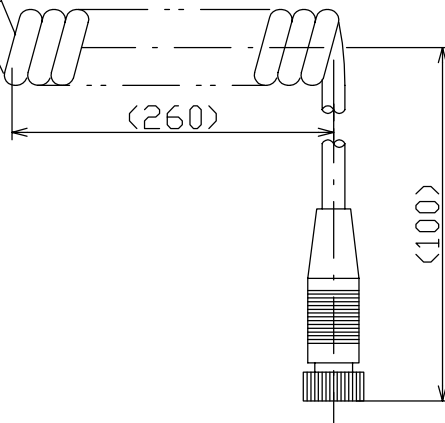
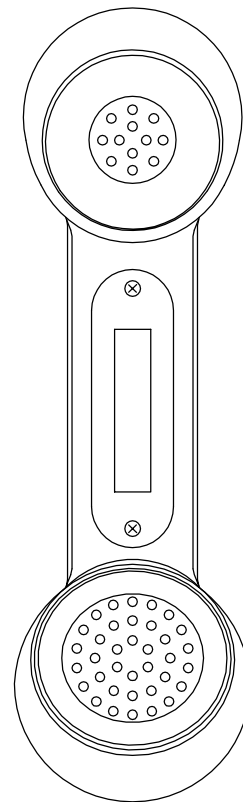
B

C

D



210

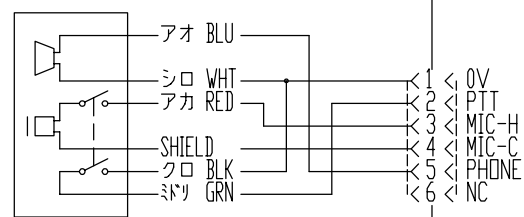


<260>

<100>

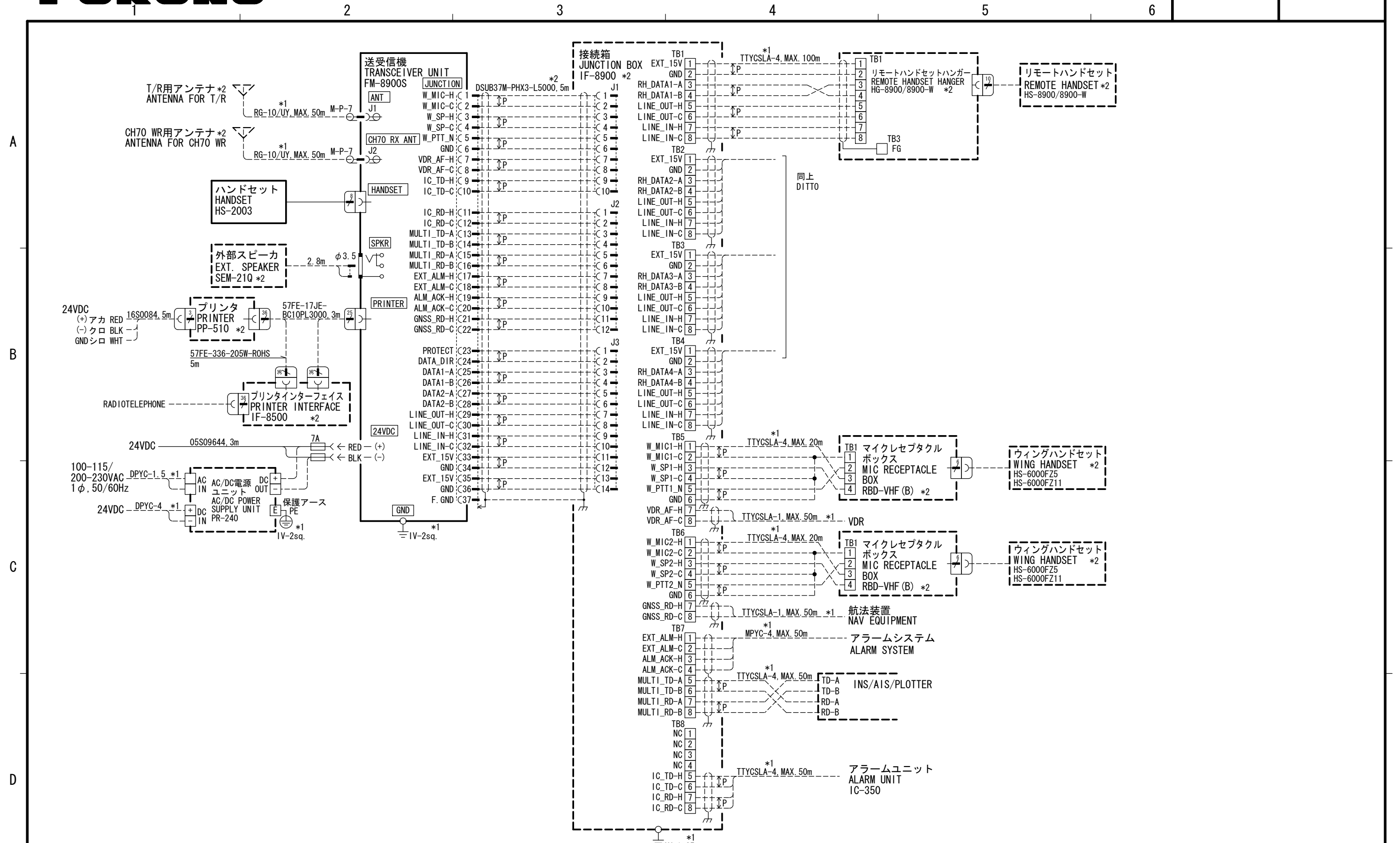
材質 MATERIAL	A B S樹脂 ABS RESIN
色 COLOR	黒 BLACK

回路図 SCHEMATIC DIAGRAM



DRAWN Dec. 22 '03 T.YAMASAKI		TITLE HS-6000FZ5
CHECKED Dec. 22 '03 T.TAKENO		名称 ハンドセット
APPROVED Dec. 26 '03 <i>Matsuyuchi</i>		外寸図
SCALE 1/2	MASS 0.3 kg	NAME HANDSET
DWG.No. C5015-024- D		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

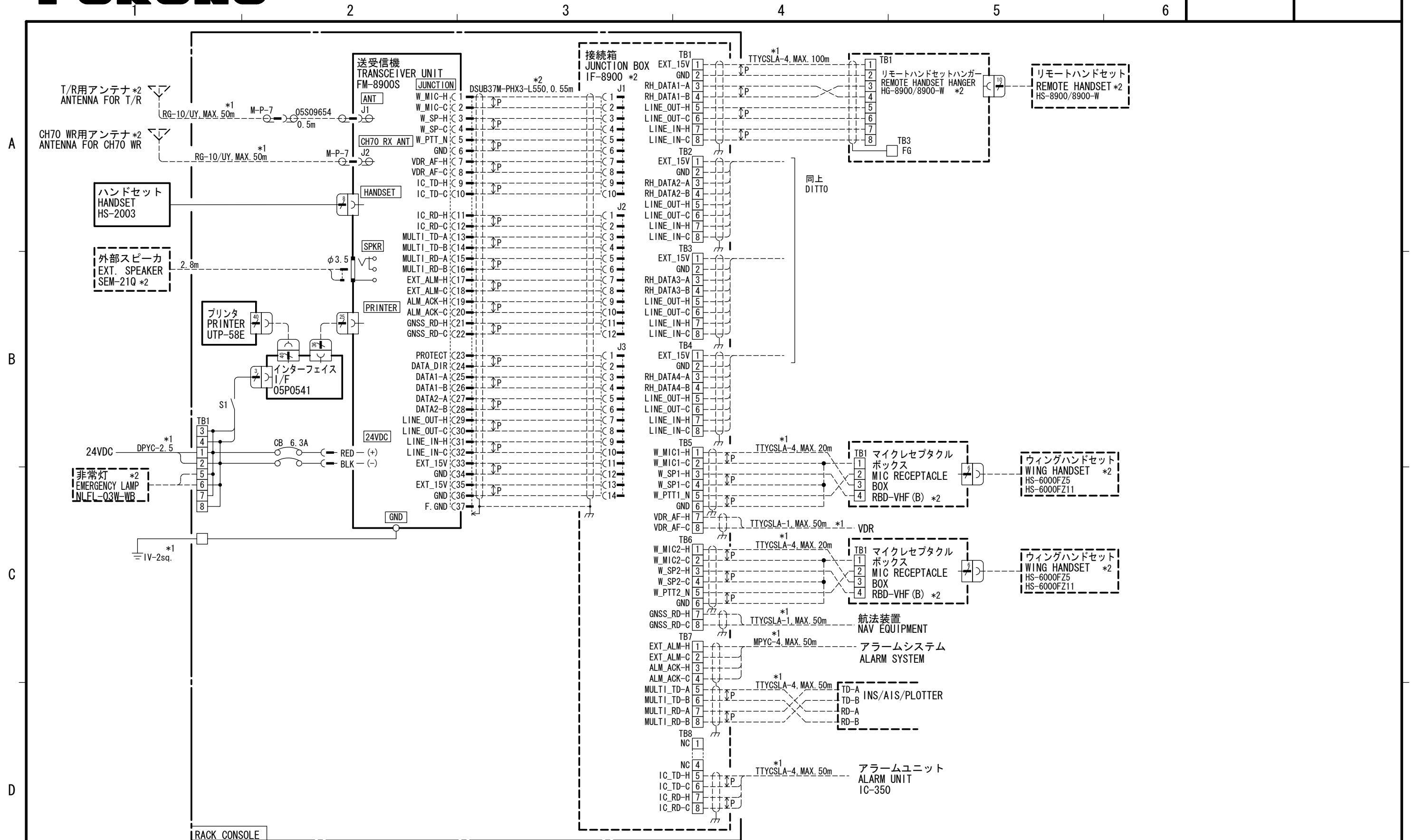


注記
 * 1) 造船所手配。
 * 2) オプション。

NOTE
 *1: SHIPYARD SUPPLY.
 *2: OPTION.

DRAWN	17/Apr/2012 T. YAMASAKI	TITLE	FM-8900S
CHECKED	17/Apr/2012 H. MAKI	名称	国際VHF無線電話装置
APPROVED	18/Apr/2012 H. Maki		相互結線図
SCALE	MASS kg	NAME	VHF RADIOTELEPHONE
DWG. No.	C5680-C01- B	REF. No.	05-104-2001-0
INTERCONNECTION DIAGRAM			

FURUNO



注記
* 1) 造船所手配。
* 2) オプション。

NOTE
*1: SHIPYARD SUPPLY.
*2: OPTION.

DRAWN	17/Apr/2012 T. YAMASAKI	TITLE	RC-8900 (FM-8900S)
CHECKED	17/Apr/2012 H. MAKI	名称	国際VHF無線電話装置(ラック組込)
APPROVED	18/Apr/2012 H. Mak i		相互結線図
SCALE	MASS kg	NAME	VHF RADIOTELEPHONE (RACK CONSOLE)
DWG. No.	C5680-C02- D	REF. No.	05-104-2001-0
			INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.

