FURUNO

INSTALLATION MANUAL

INMARSAT B MOBILE EARTH STATION

MODEL FELCOM 82A ... (For Class 1)
FELCOM 82B ... (For Class 2)

FURUNO ELECTRIC CO., LTD.
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(TENI) FELCOM 82A/B

Your Local Agent/Dealer

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IME56240D00

⚠ SAFETY INSTRUCTIONS

⚠ WARNING

ELECTRICAL SHOCK HAZARD

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

Only qualified personnel should work inside the equipment.

Do not approach the radome closer than 6 meters when it is transmitting.

The radome emits radio waves which can be harmful to the human body, particularly the eyes.

RF power density on antenna aperture	distance
100W/m^2	1.0 m
10W/m^2	6.0 m

Turn off the power at the mains switchboard before beginning the installation. Post a sign near the switch to indicate it should not be turned on while the equipment is being installed.

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

⚠ WARNING

Ground the equipment to prevent electrical shock and mutual 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 equipment damage. The voltage rating appears on the label at the rear of the display unit.

Use the correct fuse.

Use of a wrong fuse can cause fire or equipment damage.

Keep the following compass safe distances.

	Standard	Steering
Antenna Unit	1.60 m	1.10 m
Communication Unit	2.10 m	1.40 m
Terminal Unit	1.10 m	0.80 m
Junction Box	1.10 m	0.90 m
Handset	2.05 m	1.40 m
Telex Distress Alert Button Telephone Distress Button Incoming Indicator	0.80 m	0.60 m
Printer	1.00 m	0.80 m
Facsimile	1.60 m	1.20 m
Telephone	0.50 m	0.40 m

TABLE OF CONTENTS

EQUIPMENT LISTS

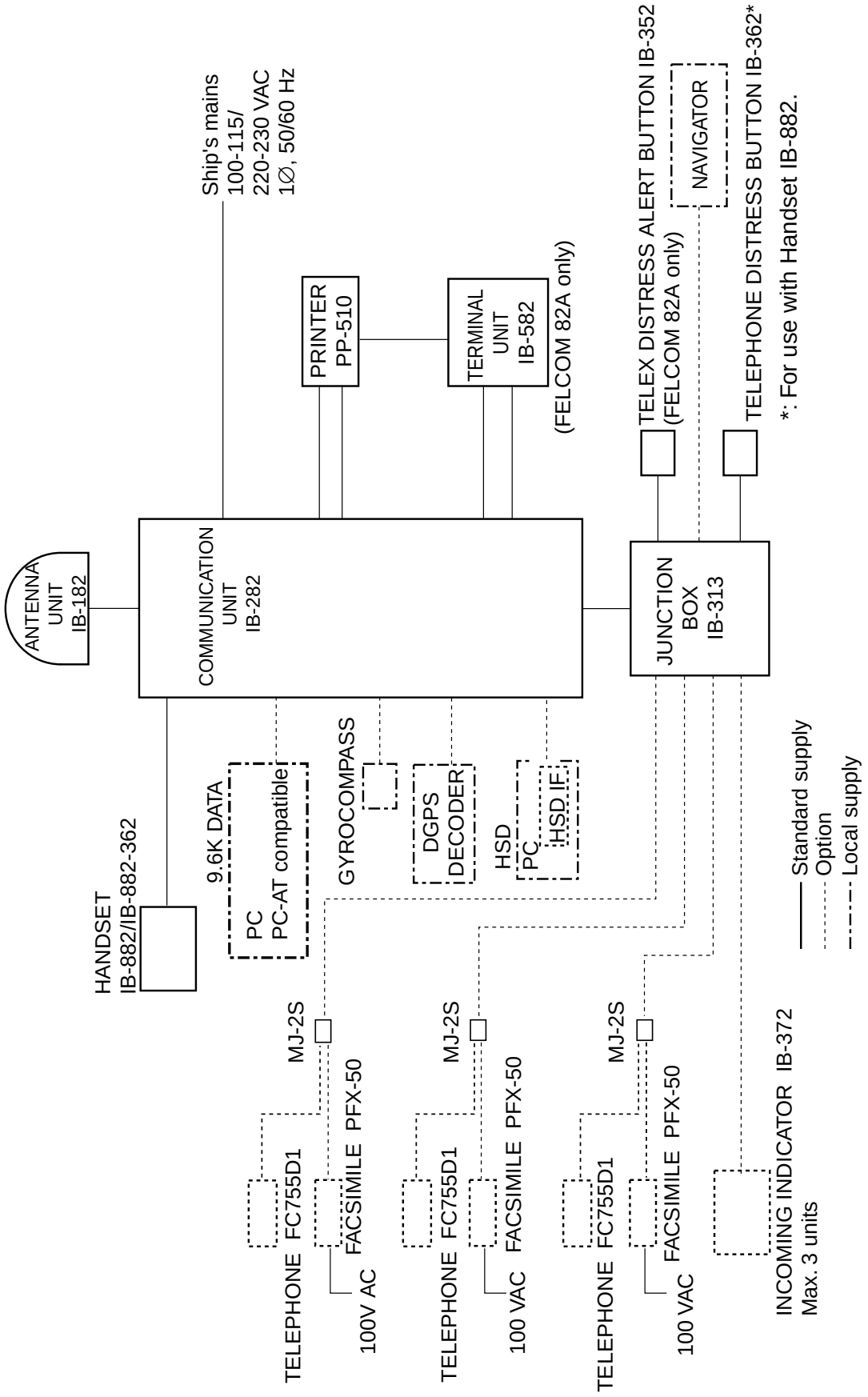
Standard Supply

Name	Type	Code No.	Qty	Remarks	
Antenna Unit	IB-182	-	1 set		
Communication Unit	IB-282	-	1 set		
Terminal Unit	IB-582	-	1 set	Class 1 only	
Junction Box	IB-313	-	1 set		
Handset	IB-882	-	1 set	with handset hanger RB-2721B	
	IB-882-362	-		with handset hanger RB-2721B-362	
Telex Distress Alert Button	IB-352	-	1 set	Class 1 only	
Telephone Distress Button	IB-362	-	1 set	Only when handset IB-882 is selected	
Printer	PP-510-82	-	1 set		
Installation Materials	CP16-01300	000-043-215	1 set	Supplied with antenna unit	No antenna cable, w/CP16-01101
	CP16-01310	000-043-216			w/30m antenna cable, CP16-01101
	CP16-01320	000-043-217			w/50m antenna cable, w/CP16-01101
	CP16-01330	000-043-218			w/100m antenna cable, w/CP16-01101
	CP16-01811	004-444-210	1 set	Supplied with Communication Unit	For CP16-01310/01320
	CP16-01812	004-444-220			For CP16-01330
	CP16-01813	004-444-230			For CP16-01300
	CP16-01820	000-043-387	1 set	Supplied with Terminal Unit	Cable assy, Power cable, CP16-01821
	CP16-01830	004-444-260	1 set	Supplied with Handset	Connector assy (5m), CP05-08002
	CP16-01840	004-444-270			Connector assy (10m), CP05-08002
	CP16-01850	004-444-280			Connector assy (20m), CP05-08002
	CP16-01701	004-444-290	1 set	Supplied with Printer	
	CP16-01102	004-441-450	1 set	Supplied with Junction Box	
	CP16-01801	004-444-300	1 set	Supplied with Telex Distress Alert Button	
	CP16-01801	004-444-300	1 set	Supplied with Telephone Distress Button	
Accessories	FP16-00400	000-043-388	1 set	Supplied with Terminal Unit	Mini keyboard, FP16-00401
	FP16-00100	000-043-258	1 set	Supplied with Printer	Recording paper

Optional Supply

Name	Type	Code No.	Qty	Remarks
Incoming Indicator	IB-372	-	1 set	w/CP16-01801
Printer	PP-510-82	-	1 set	w/CP16-01701, FP16-00100
Facsimile	PFX-50	-	1 set	w/CP16-00590
Telephone	FC755D1	-	1 set	w/CP16-00511, 00512
Antenna Cover	QB05-1801	100-079-480	1	
Modular Jack Box	OP16-10	000-043-278	1	Box type
Modular Jack Box	OP16-11	000-043-279	1	Flush mount type
Modular Jack Set	OP16-13	000-043-228	1	
Lifting Metal	OP16-15	004-442-460	1	
5-pair cable	CO-SPEVV-SB-C 0.2x5P	000-560-452	1	For junction box, 10m
		000-103-868		For junction box, 20m
		000-103-869		For junction box, 30m
		000-132-829		For junction box, 40m
		000-132-828		For junction box, 50m
1-pair cable	CO-SPEVV-SB-C 0.2x1P	000-110-681	1	For junction box, 10m
		000-138-789		For junction box, 20m
		000-138-790		For junction box, 30m
		000-138-791		For junction box, 40m
		000-138-792		For junction box, 50m
Ribbon Cartridge	SP-16051NB	000-133-029	1	
Printer Paper	A2 1PLYW	000-134-903	1 set	12 rolls
	A2 2PLYWW	000-134-780	1 set	12 rolls
Recording paper	K52 257X50M25TRU	000-806-564	1 set	12 rolls, B4 size
	K52 216X50M25TRU	000-806-565	1 set	12 rolls, A4 size
Transformer	FIT-100	000-139-903	1	220 VAC→100 VAC
HSD I/F	KLASHOPPER PCMCIA400	000-142-952	1	For laptop computer, PMCIA card type II, w/cable
	KLASHOPPER PCI-400	000-142-951		For desktop computer, built-in type

SYSTEM CONFIGURATION



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1 MOUNTING OF UNITS

This chapter describes how to mount the units of the system, including optional equipment.

1.1 Antenna Unit

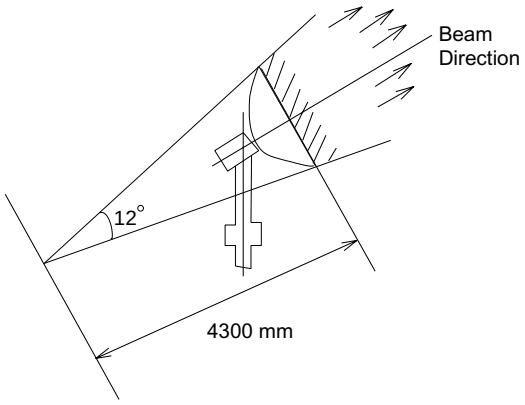
1.1.1 Mounting considerations

General

Interfering objects (especially metallic objects such as masts) near the antenna can, in the worst case, prevent reception or transmission. Further, RF radiation from the antenna will affect the human body. Keep these and the following guidelines in mind when selecting a mounting location for the antenna unit.

Secure unobstructed path in all directions

The ideal mounting location secures an unobstructed path between the antenna unit and the satellites, from horizontal to zenith. In order words, whatever the direction the antenna unit is pointing there are no interfering objects within the main beam (12 degrees). While this might be feasible on some vessels, on others it is impossible due to space considerations. The antenna unit should be located at least 3 meters away from masts having a diameter less than 15 centimeters.



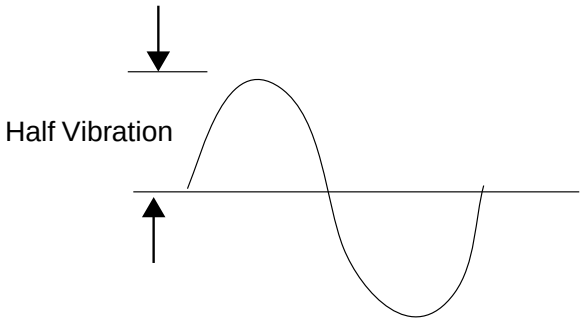
Beam direction

Select a location low in vibration

The maximum permissible vibration amplitude in three axis direction should be as shown in the table at the top of the next page. Consult with the shipyard to determine the mounting location which meets the requirements shown in the table.

The table at the top of the next page is taken from Inmarsat's System Definition Manual (SDM) and defines frequency and maximum vibration amplitude.

Freq. Range	Max. Amplitude
4 to 10 Hz	2.54 mm (max. 9.8 m/s²)
10 to 15 Hz	0.76 mm (max. 6.86 m/s²)
15 to 25 Hz	0.40 mm (max. 9.8 m/s²)
25 to 33 Hz	0.23 mm (max. 9.8 m/s²)



Max. amplitudes

Locate away from passengers and crew

Radio waves can be harmful to the human body. Since safe distances vary by country and ship construction there is no uniform formula for calculating safe distance. However, below are general guidelines.

- Unprotected persons should not approach an area in which the radiation level is higher than 100 W/m^2. For an Inmarsat B antenna, the radiation level is less than 100 W/m^2 at 1 meter distance from the radome surface.
- Unprotected persons should not approach within 6 meters of a transmitting Inmarsat antenna.

⚠ WARNING

Do not approatch within 6 meters of the antenna radome when it is transmiting. Microwave radiation can be harmful to the human body, particularly the eyes.

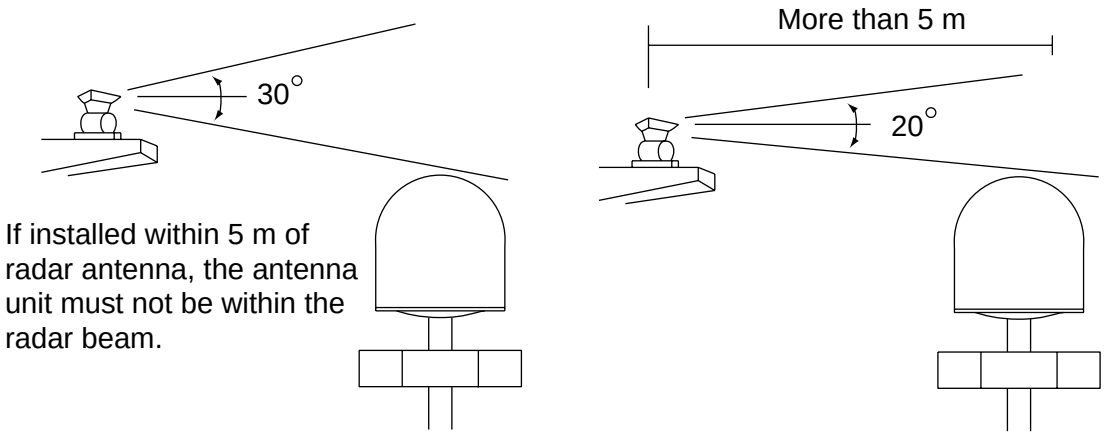
Minimum distance from other antennas

HF antennas, communication/navigation antennas:

The FELCOM 82 antenna should be at least 5 meters from a HF antenna. VHF, satellite navigation antenna and other communication antennas should be at least 4 meters away.

Radar:

The antenna for the FELCOM 82 should be at least 5 meters away to protect the low noise amplifier in the radar antenna. However, if this distance cannot be secured be sure the FELCOM 82 antenna unit is not within the radar beam.



Distance from antenna radar

Compass safe distance

Locating the antenna unit too close to a compass can affect compass performance. The compass safe distance is 1.10 meters, steering compass, 1.60 meters, standard compass.

Other mounting guidelines

Other important mounting guidelines are

- Locate the antenna unit away from exhaust stacks (foreign material on the radome can interfere with reception and transmission).
- Keep the unit away from heat sources.
- Locate the unit away from places where fuels and chemical solvents are stored.
- Keep in mind the length of the cable from the communication unit is maximum 100 meters.

1.1.2 General mounting (construction of mast)

General

To facilitate servicing, construct a mast more than 1 meter in height from the deck. The paragraphs which follow provide guidelines for selection and construction of the mast. Refer to the drawing at back of this manual.

Guardrail, platform

When the mast is tall, fit it with a guardrail and platform (or steps), for serviceman’s safety and convenience.

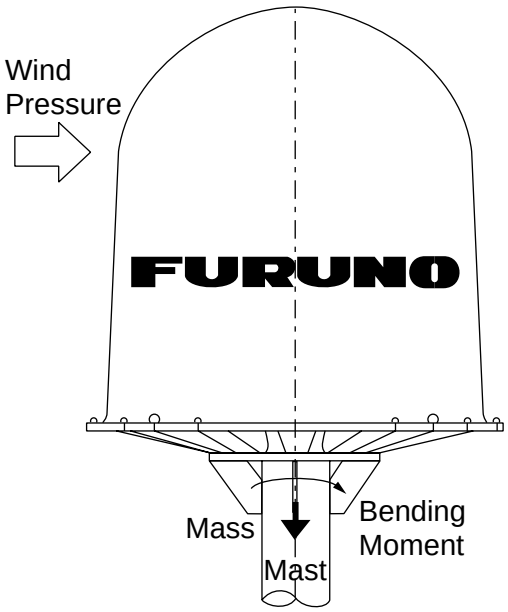
For servicing ease, the distance between hatch and the deck (or platform) to the antenna unit should be about 1 meter. (In most installations the serviceman stands on the platform while checking the radome. Thus this distance should be secured for ease of servicing.) The guardrail should be as high as possible for sufficient safety.

Mast strength

The mast material must be sufficiently strong to meet the demands of the marine environment. It should satisfy the following requirements.

- It must be able to support radome mass plus at least 2.5 centimeters of ice and snow. Special consideration should be given if the unit is operated in areas of heavy snow or freezing temperature.
- Mast bending moment must be able to withstand expected maximum pitching, rolling and wind pressure.

To prevent resonance at low frequencies (about 5 Hz), four stays can be fixed between the mast and the mounting base.



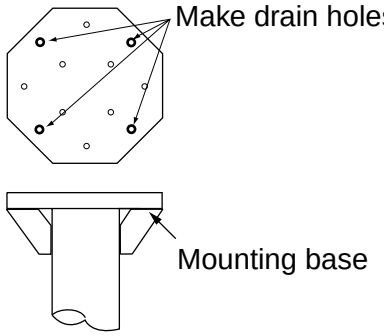
Fixing radome

Item	Mass
Antenna unit mass	87 kg ± 10%
Platform, guardrail mass	
Expected ice and snow	
Maximum wind pressure (at wind speed 75 m/s)	2083 N
Maximum bending moment (at wind speed 75 m/s)	1354 N•m
Maximum bending moment (at wind speed 75 m/s, muximum rolling angle)	1450 N•m
Maximum bending moment (at wind speed 75 m/s, maximum rolling angle including 0.5 G speed added by rolling.)	1730 N•m

Mounting base

A mounting base is installed between the mast and the antenna unit. Below are guidelines for installation of the mounting base.

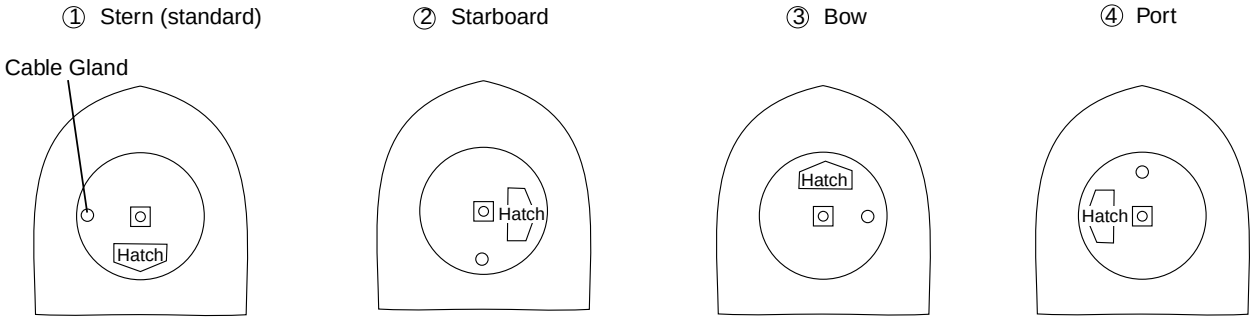
1. The face of the mounting base should be flat as possible (tolerance: within 2 millimeters of the horizontal plane).
2. The mounting base should be parallel with ship's horizontal plane (tolerance: ±1 degree).
3. The fixing bolts of the mounting base should be parallel with the ship's keel line (tolerance: ±2 degrees).
4. Weld a ground bolt (stainless steel, M12x40, local supply) to the mast within 50 cm of the ground terminal on the antenna unit. The length of the ground wire (supplied) is 50 centimeters.
5. Make four holes on the mounting base to face drain holes of the antenna unit.



Drain holes

Changing hatch direction

The standard hatch direction is stern, as shown in 1 in the figure below. If the hatch cannot face the stern, it may face port, starboard or bow direction as shown in 2, 3 and 4 in the figure below. Note that the location of the cable gland changes with hatch direction. After changing hatch direction, change the disk position setting for the limit switch. See Chapter 3.

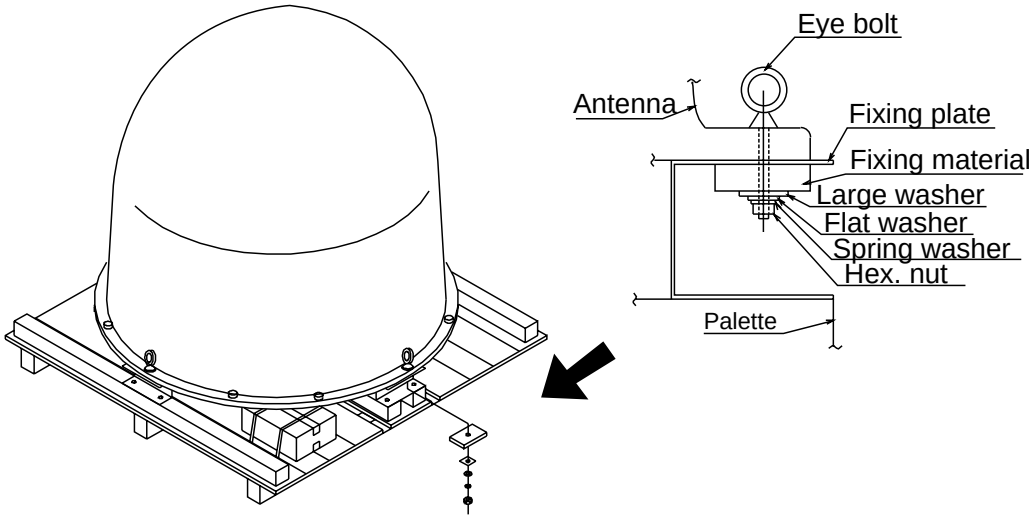


Hatch directions (view: top view)

Unpacking

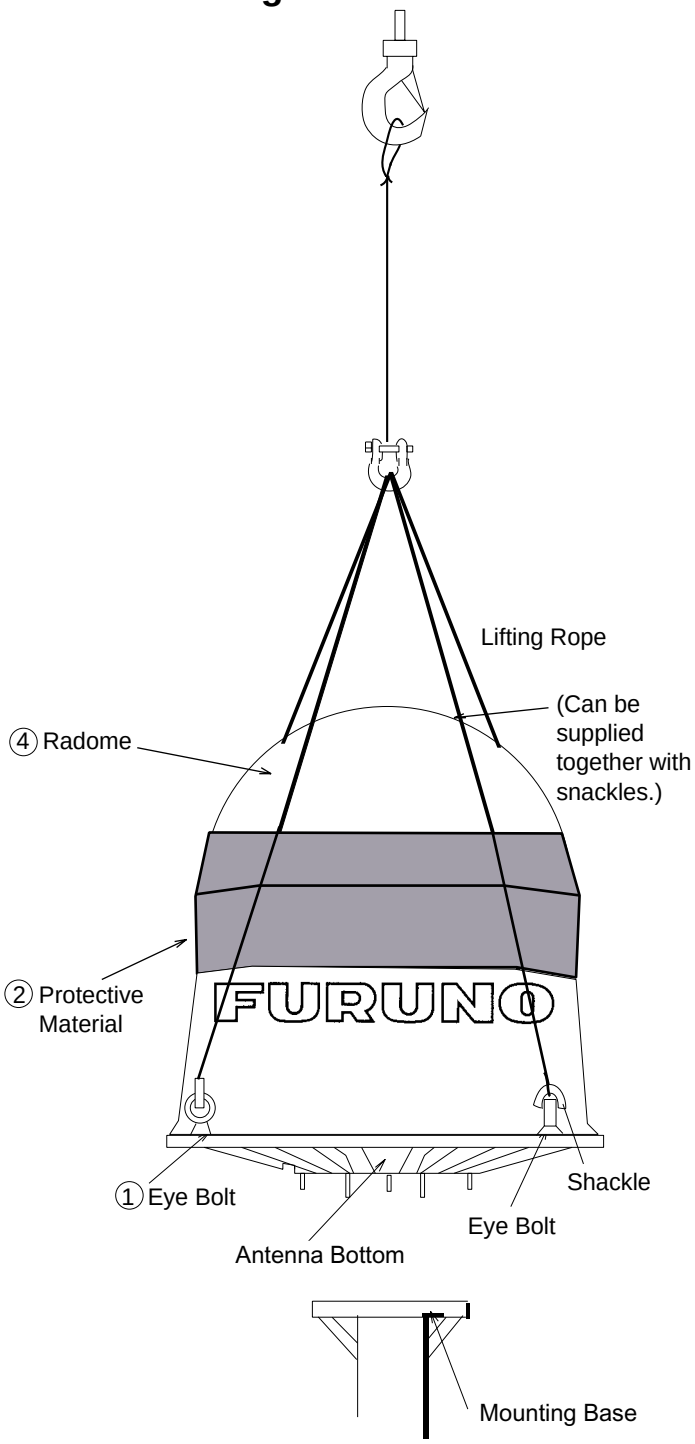
- Check that if the antenna unit is damaged by shipment.
- Unpack the antenna unit carefully so as not to damage it.

Remove hex nut, spring washer, flat washer, large washer and fixing material to dismount the antenna unit. This hardware can be discarded.



Unpacking antenna unit

1.1.3 Mounting

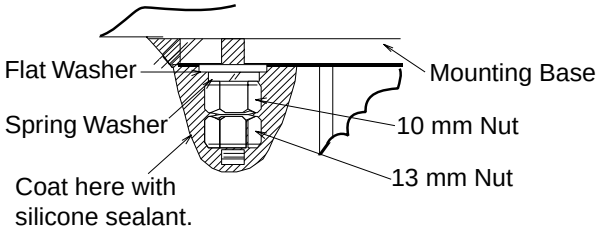


Unpacking, visual inspection

Carefully unpack the radome and check for damage.

Procedure

1. Run lifting rope through eye bolts and shackles.
2. Cover the portion of the radome which contacts the lifting rope with protective material (rubber mat, etc.), to prevent damage to the radome when hoisting it to the mounting location.
3. Hoist the antenna unit to the mounting location.
4. Fix the antenna unit to the mounting base (see note below) with nuts, keeping in mind hatch direction (standard direction is stern).



FIXING OF RADOME

5. If necessary, replace eye bolts with hex. bolts (supplied).

Note1: Coat all bolts and nuts with silicone sealant to prevent electrolytic corrosion.

Note2: Do not use a rubber gasket on the mounting base. The face of the mounting base should be flat as possible (tolerance: within 2 mm of the horizontal plane). If tolerance is more than 2 mm, insert a metal spacer between the antenna bottom and the mounting base. For earth wiring, see Chapter 2.

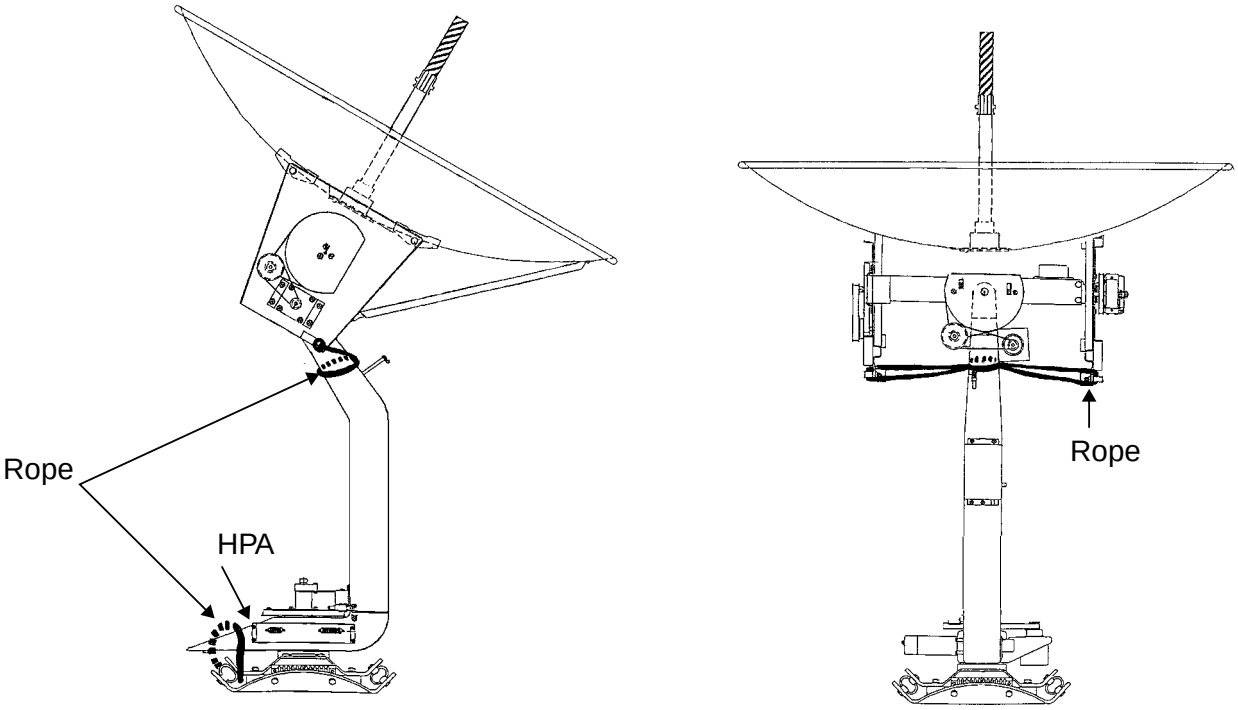
Attach electromagnetic wave caution label

Labels which warn of electromagnetic waves are supplied with the installation materials. Attach them as follows.

1. To the radome mast where it can easily be seen.
2. In a conspicuous location in the stairwell leading to the deck where the antenna unit is installed.

Removing ropes

The stabilizer in the radome is tied by two ropes to prevent damage to it during shipment and installation. Cut and remove them after finishing the installation.



Antenna unit

Note 1: Turn on the switch on the HPA case after mounting the antenna unit.

Note 2: The antenna cable for FELCOM 81 may be used in case of retrofit.

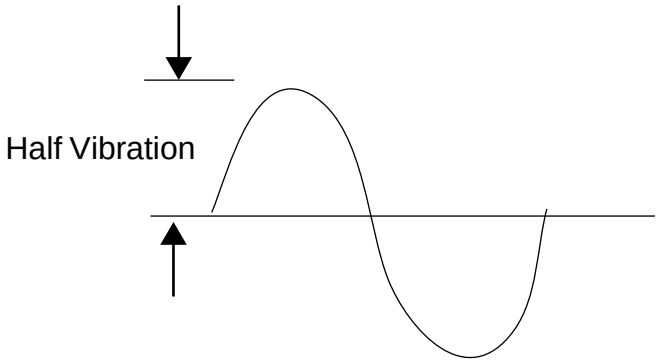
1.2 Communication Unit

1.2.1 Mounting considerations

Vibration conditions

The mounting location should satisfy the condition of vibration amplitude tabulated below.

Freq. Range	Max. Amplitude
4 to 15 Hz	0.76 (max. 6.86 m/s²)
15 to 25 Hz	0.40 (max. 9.8 m/s²)
25 to 33 Hz	0.23 (max. 9.8 m/s²)
33 to 40 Hz	0.13 (max. 8.23 m/s²)
40 to 50 Hz	0.07 (max. 6.86 m/s²)



Max. amplitudes

Environmental conditions

The mounting location should satisfy the following conditions. This unit can be mounted on the top or underside of a table.

- The usable temperature range is –15 to +55 °C.
- Select a location which is well ventilated.
- The location should be clean, and moderate and stable in temperature and humidity.
- Be sure to leave sufficient space around the unit for maintenance and checking.
- Locate the unit well away from high power HF band radiotelephones and antenna feeders.
- Be sure the mounting location is strong enough to support the weight of the unit under conditions of vibration normally encountered on the vessel.

1.2.2 Mounting

Procedure

Before mounting the unit, lay cables, fabricate connectors and establish the ground system. Then, mount the unit as follows.

Note: Do not install the communication unit on a bulkhead because of its weight.

1. Fix the arms at both sides of the equipment to the mounting location with four tapping screws (5x20, supplied as installation materials). The tapping screws should be fastened loosely.
2. Slide the equipment away, and then fasten tapping screws tightly.

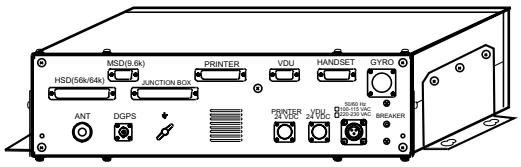
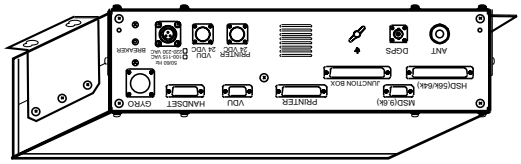
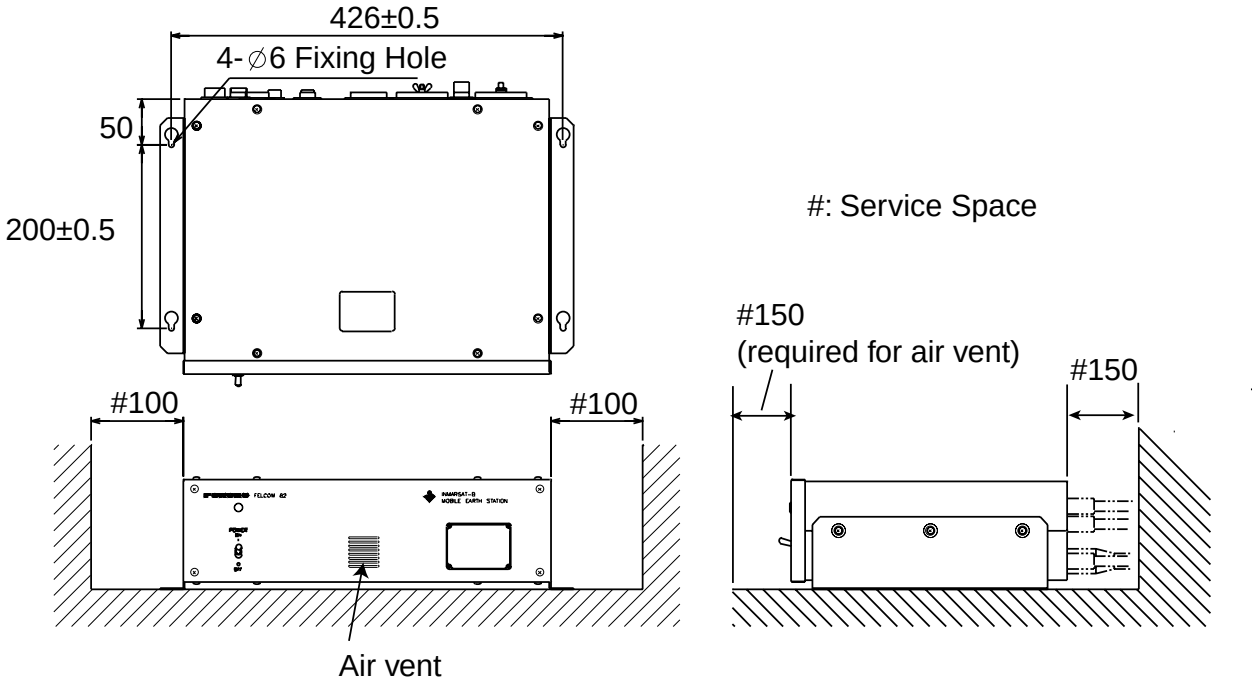


Table top mounting



Mounting on underside of table



Mounting dimensions for the communication unit

1.3 Terminal Unit (for class 1 only)

1.3.1 Mounting location

- Leave sufficient space around the unit to permit checking and maintenance.
- Locate the unit where temperature and humidity are stable and moderate.
- Locate the unit at least 5 meters from high power communications equipment and its feeder and antenna to prevent mutual interference.

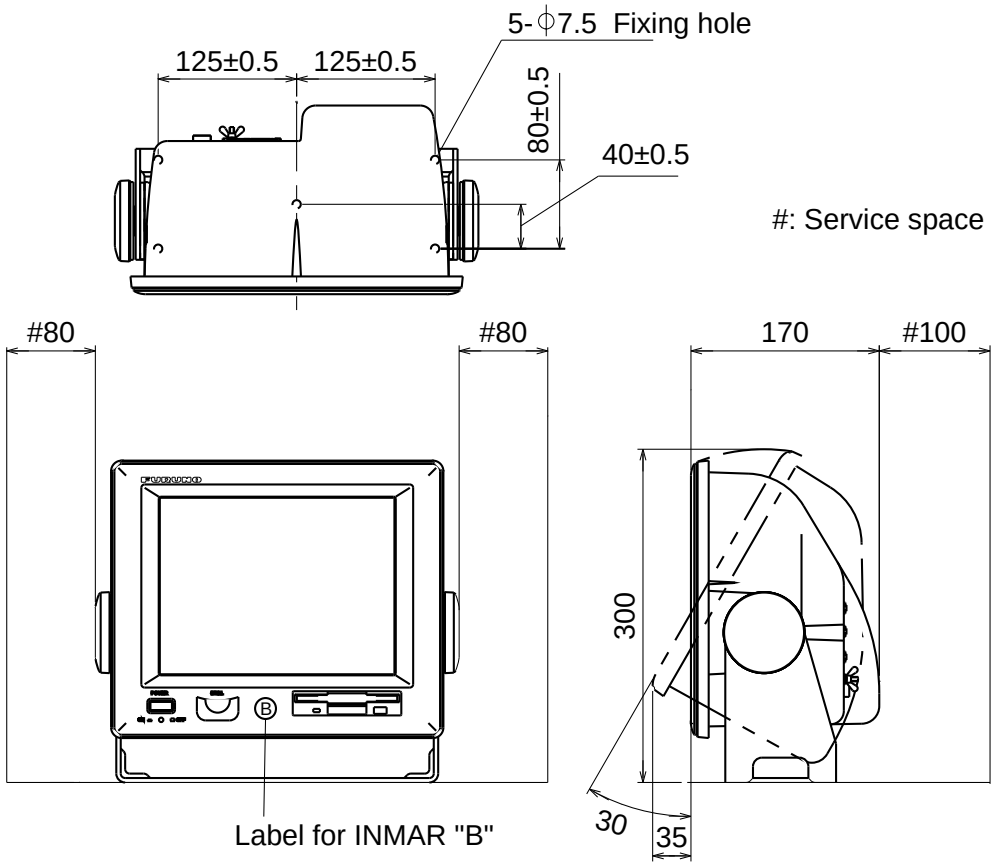
Mounting main unit

1. Fix the hanger to the table with five tapping screws.
2. Attach connectors to bottom panel.
3. Fix the unit to the hanger by two knobs.

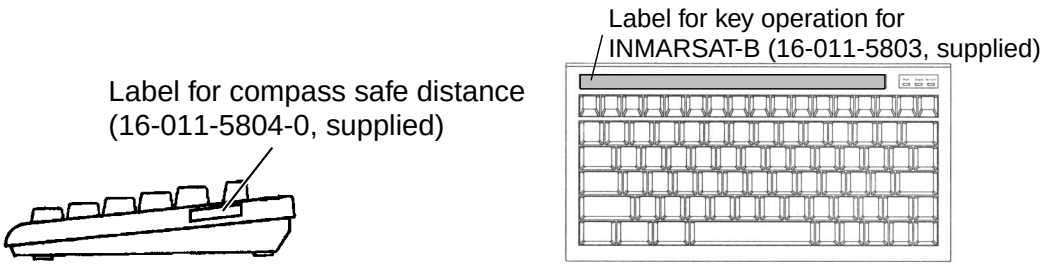
Mounting keyboard

To permanently fix the keyboard, do the following:

1. Attach the four “hook loop fastener 3” (small ones) to the bottom of the keyboard.
2. Attach the four “hook loop fastener 4” (large ones) to the “hook loop fastener 3” attached to the keyboard bottom.
3. Remove seals from the hook loop fastener 4.
4. Set the keyboard on the mounting location and press down firmly.
5. Attach labels as shown on the next page.



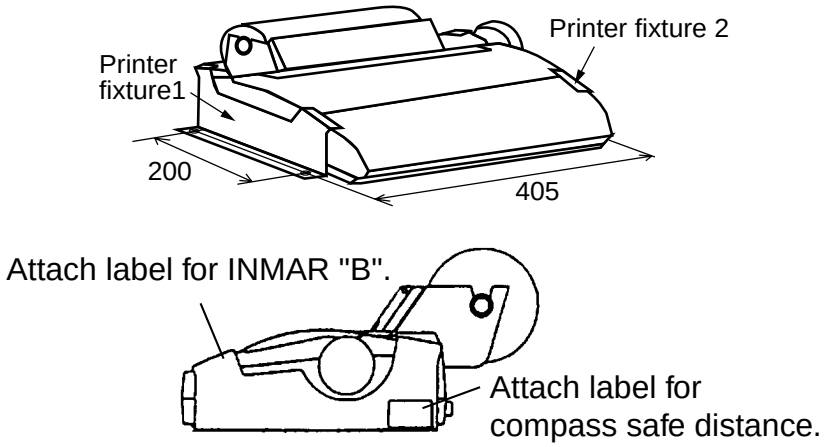
Mounting dimensions for the terminal unit



Keyboard, attaching labels

1.4 Printer

Fix the printer to the mounting location with the two mounting fixtures (supplied). See the outline drawing at back of this manual for details.



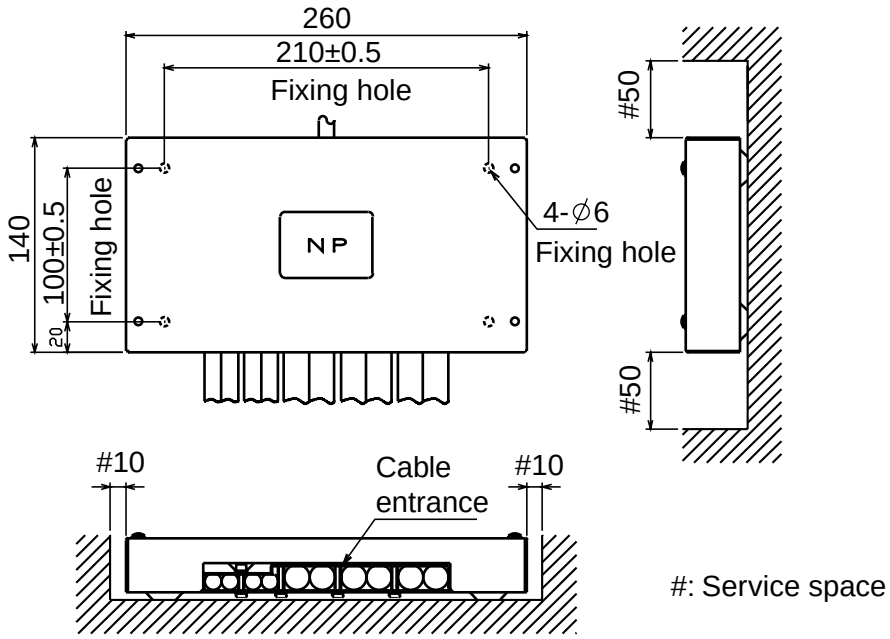
Printer PP-510

1.5 Junction Box IB-313

The usual mounting location is behind the communication unit on the bulkhead. The junction box connects to the communication unit with a 2 meter cable, which is attached to the IB-313 at the factory. Keep this length in mind when selection a mounting location.

Be sure to leave sufficient space around the unit as shown below.

To fix the unit, open the cover and fix the unit to the mounting location with four tapping screws.



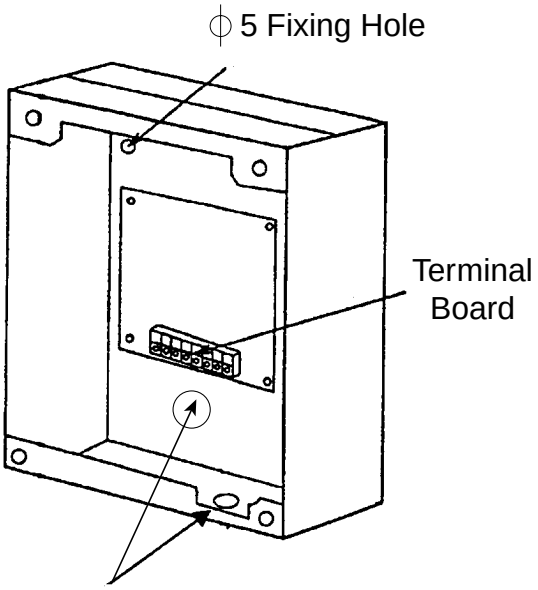
Mounting dimensions for the junction box

1.6 Telex Distress Alert Button IB-352

The IB-352 is usually installed near the terminal unit. For location away from the communications room, install it where it can be easily seen. Fix it to the mounting location with tapping screws.

The location of the cable gland depends on the type of unit.

Pass the cable through the bushing (supplied as installation materials) at the bottom or the rear of the unit and connect it to the terminal board referring to the interconnection diagram. Cover the unused hole with the hole plug (supplied). Attach the sticker (supplied) to the front.



Bulkhead type

IB-352, cover opened

1.7 Telephone Distress Button IB-362

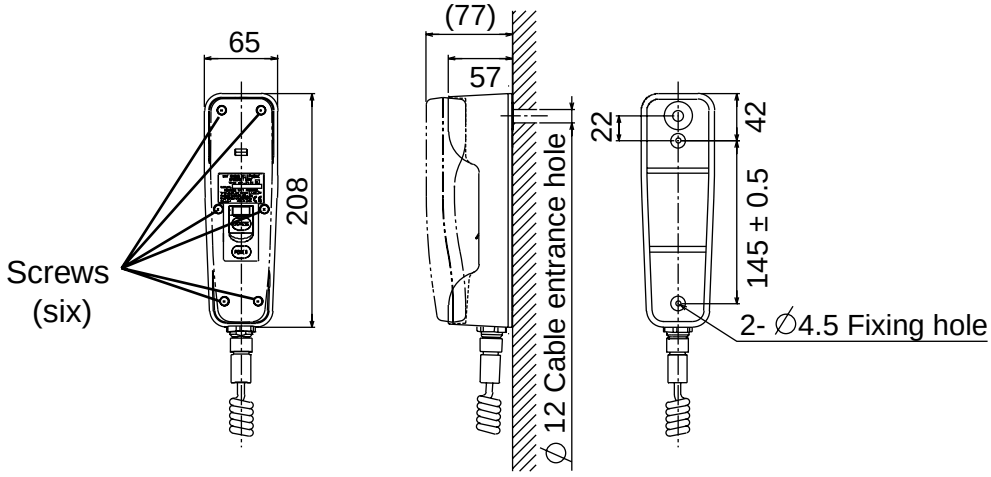
Mounting location should be near the handset because this button changes the priority of handset (telephone) to DISTRESS. When using the handset IB-882-362, the telephone distress button IB-362 is not installed.

1.8 Handset Hanger RB-2721B or RB-2721B/362

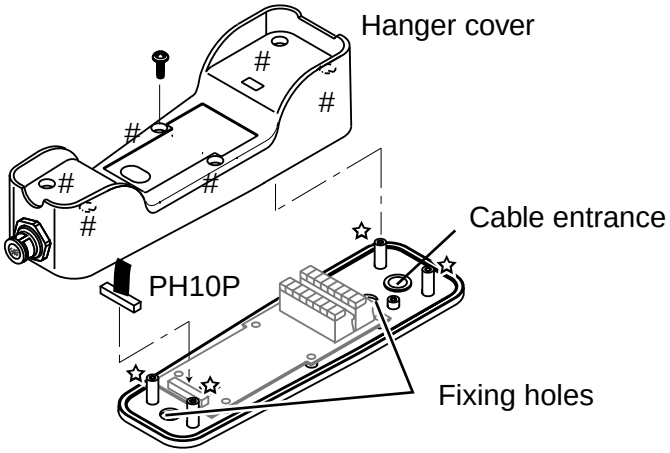
The length of the handset cable is 5 m/10 m/20 m, so locate the handset hanger within 5 m/10 m/20 m from the communication unit. The RB-2721B/362 has a distress telephone button.

Make a cable hole in the bulkhead referring to the figure below. Remove six screws to detach the hanger cover, and fasten the hanger with two tapping screws (supplied) on the desktop or bulkhead.

Note1: The magnet inside the hanger may pull the screwdriver when mounting the hanger.
Note2: Be careful not to pinch the cables at the locations marked with stars in the illustration below when closing the hanger cover.



Fixing the hanger



RB-2721B or RB-2721B/362

Handset, cover removed

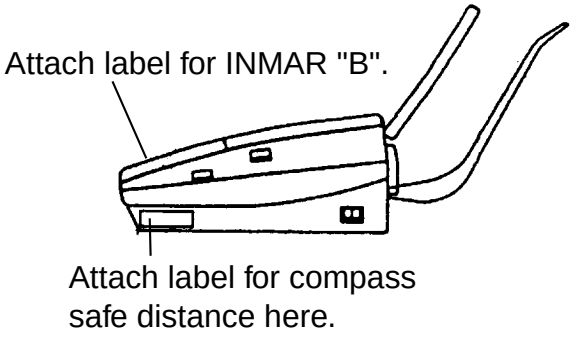
1.9 Mounting of Optional Equipment

1.9.1 Mounting the Facsimile PFX-50

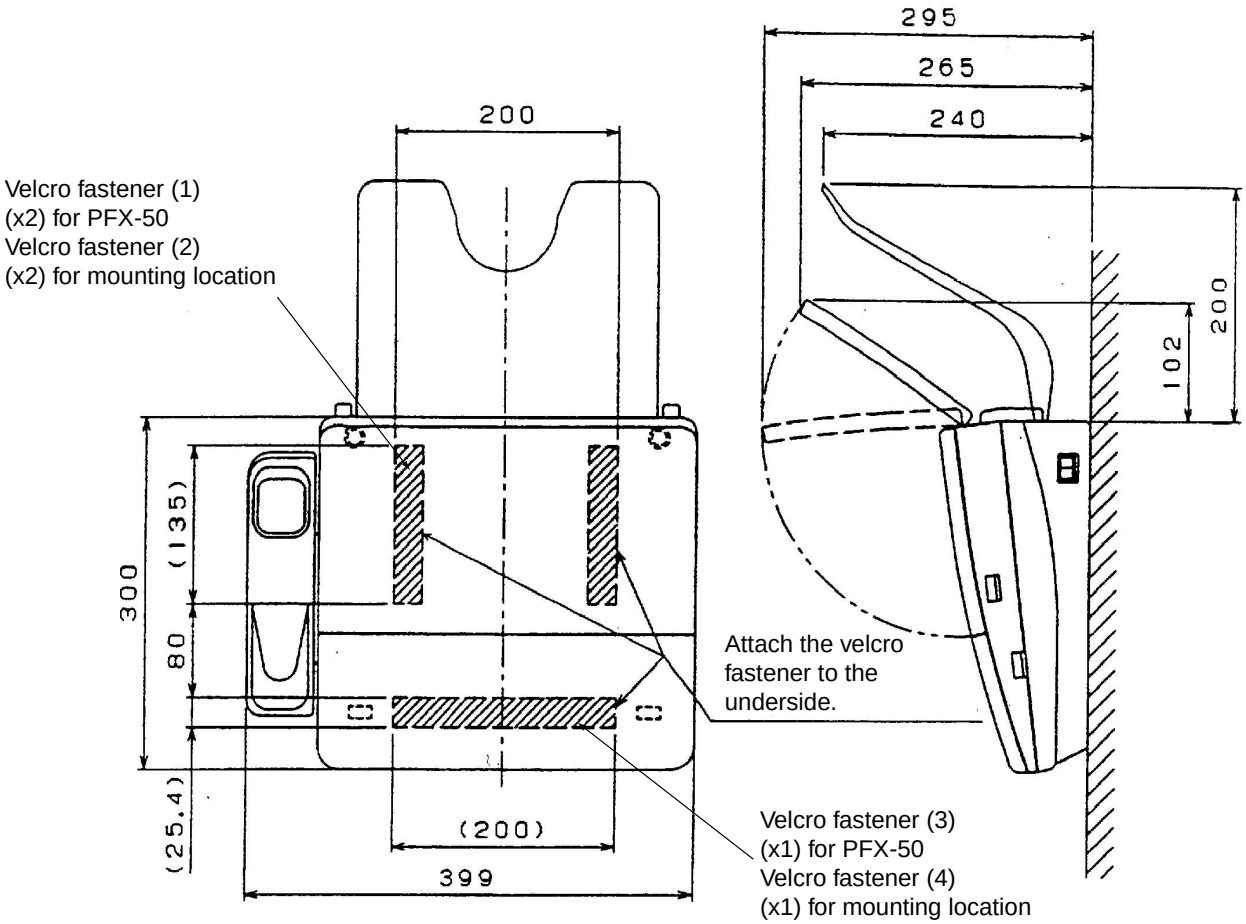
Refer to the drawing below. Use only the installation materials supplied.

Note: When ship's main is 220/230 VAC, the optional transformer FIT-100 is required.

1. Attach the "rough" velcro fasteners to the mounting location as shown in the drawing below.
2. Attach the "smooth" velcro fasteners to the underside of the PFX-50 as shown in the drawing below.
3. Set the PFX-50 on the mounting location and press down firmly. (Equipment should not move by ship's vibration.)
4. Attach PFX key label (for English) to facsimile key panel.
5. Attach INMAR "B" and compass safe distance labels to a side of facsimile.



Facsimile PFX-50, side view



Mounting dimensions for facsimile PFX-50

1.9.2 Incoming Indicator IB-372

The IB-372 alerts shipboard personnel (by aural alarm) to incoming telephone calls and telex and facsimile messages. For location away from the communications room, install it where it can be easily seen. Fix it to the mounting location with tapping screws or wood screws.
The IB-372 can be installed maximum three units. For details, refer to the description for the telex distress alert button IB-352 (page 14).

1.9.3 Telephone

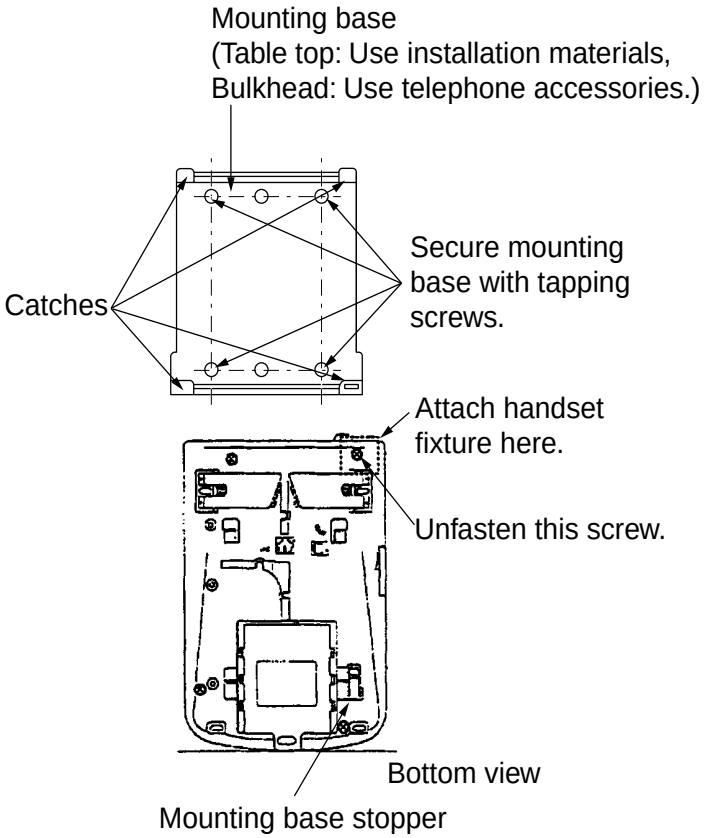
General

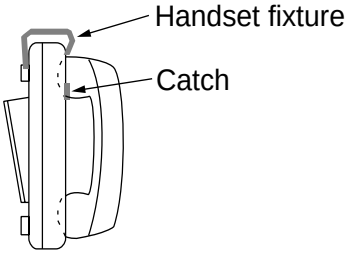
The telephone can be installed on a tabletop or a bulkhead. Select a location where the unit can easily be operated.

- For installation on a wooden table, use the mounting base and tapping screws (supplied).
- For installation on a steel table, fix the telephone with nuts and bolts.
- For bulkhead mounting, use the bulkhead mounting base (supplied with telephone accessories).

Mounting location

Select a location where temperature and humidity are moderate and stable. Secure sufficient space around the unit for ease of operation and maintenance.



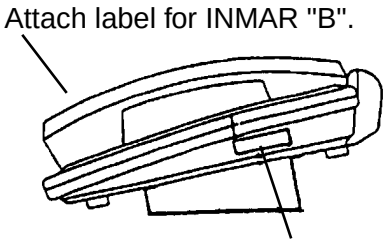


Mounting

The mounting dimensions are given in the outline drawing at the back of this manual. Determine the mounting location, leaving sufficient space around the unit, and then fix the mounting base to the mounting location. The mounting base is different for bulkhead and tabletop mounting, however the mounting procedure is the same for all.

1. Fix the mounting base to the mounting location with four tapping screws (4x16).
2. On the underside of the telephone, unfasten the screw shown in the figure. (The screw may be discarded.) Attach vulcanizing tape (supplied) to the handset fixture. Fasten the handset fixture to the underside of the telephone with a screw (3x14, supplied).
3. The catch in the receiver cradle functions to hang up the handset completely. Set the catch in the upward position as shown in left. (To detach the handset from the hanger, slide the handset upward.)
4. Set the telephone to the four catches in the mounting base and then slide it toward you until you hear a click.

5. Attach the “SLIDE” label (supplied) to the handset.
6. Attach English language label (supplied) to the telephone.
7. Attach the label for compass safe distance (16-007-6927-0) and INMAR “B” as shown below.



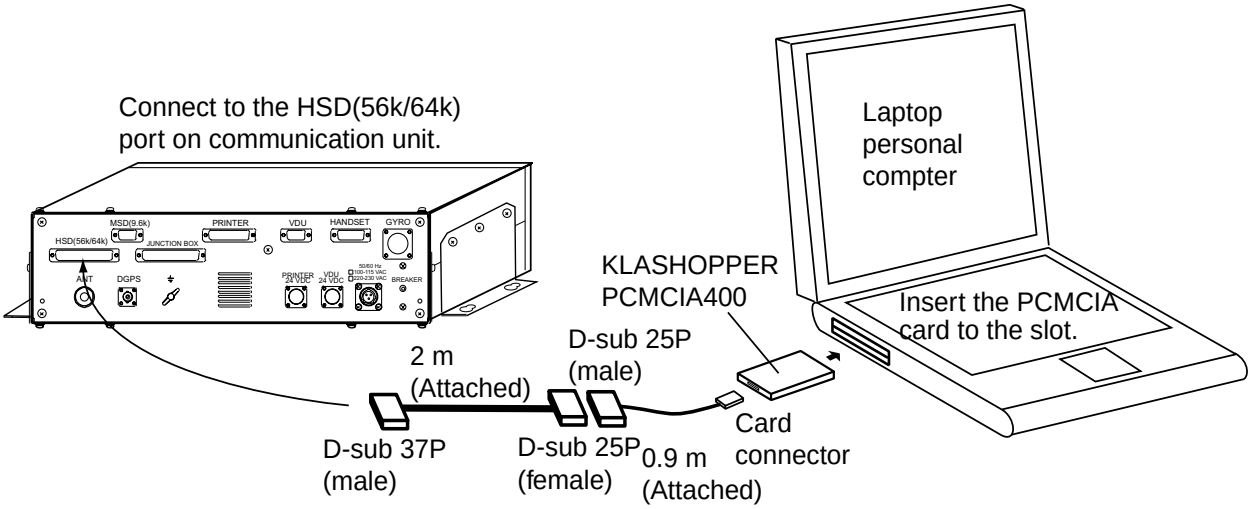
Telephone, attaching the label

1.9.4 HSD I/F (KLAS bland)

The optional KLASHOPPER HSD I/F, which is connected to PC, provides communication between FELCOM 82 and a terrestrial ISDN line, at the speed of 56/64 Kbps. There are two types of HSD I/F, PCMCIA400 (for laptop computer) and PCI-400 (for desktop computer). For details, see the operator’s manual for KLASHOPPER.

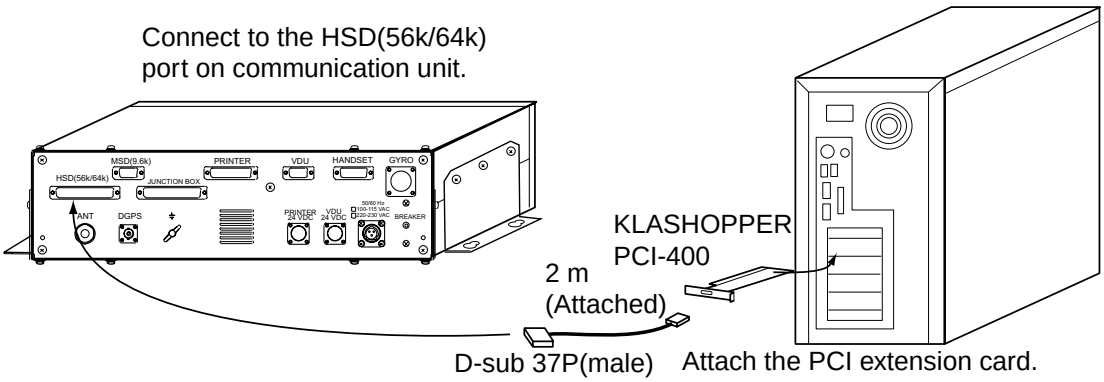
PCMCIA400

Insert the PCMCIA Type II card to the slot of the laptop type personal computer.



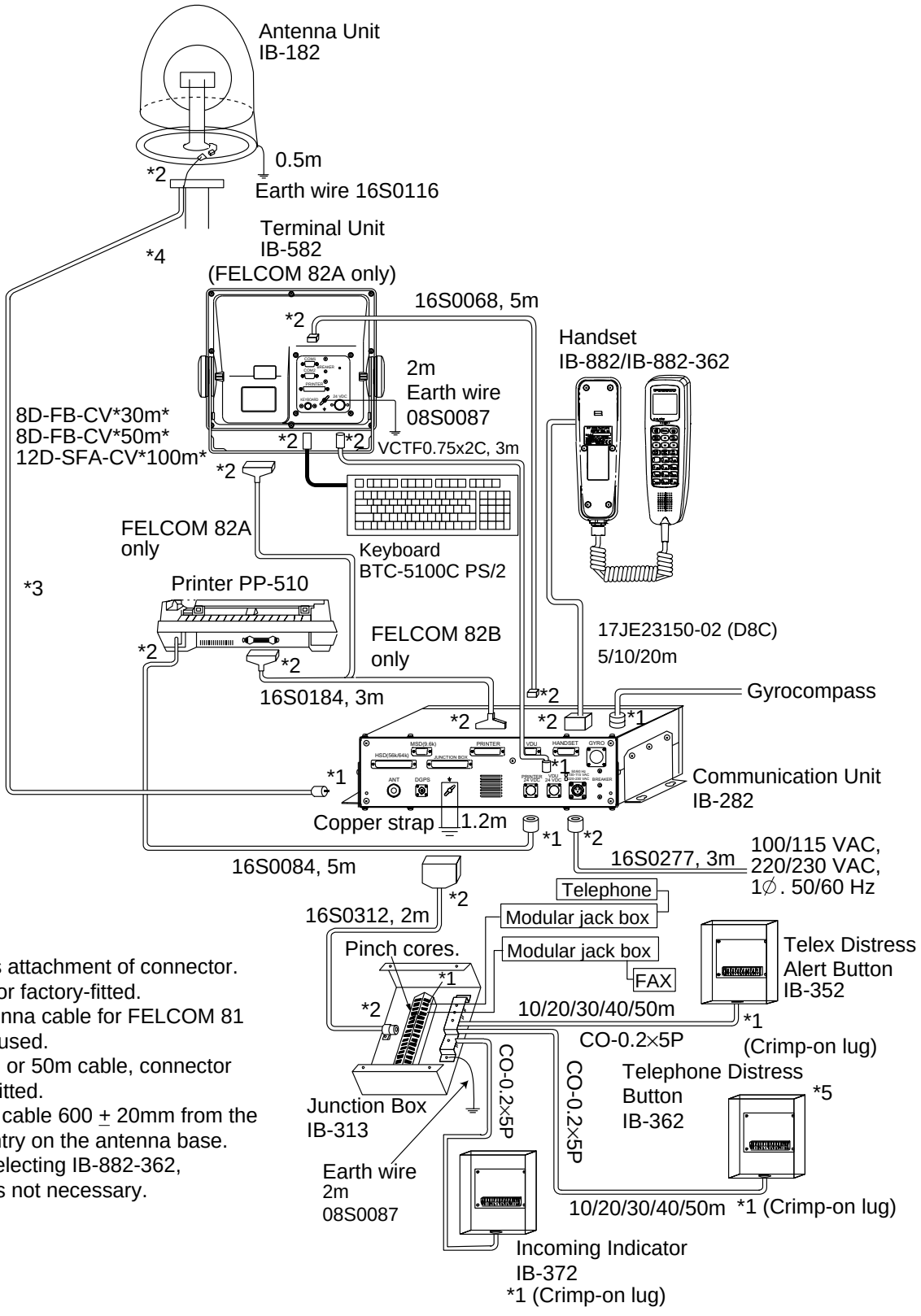
PCI-400

Remove the desktop personal computer cover, and then attach the PCI extension card to the unused port.



2 WIRING

2.1 Standard Wiring



*1 : Requires attachment of connector.
*2 : Connector factory-fitted.
*3 : The antenna cable for FELCOM 81 may be used.
*4 : For 30m or 50m cable, connector factory-fitted.
Run the cable 600 ± 20mm from the cable entry on the antenna base.
*5 : When selecting IB-882-362, IB-362 is not necessary.

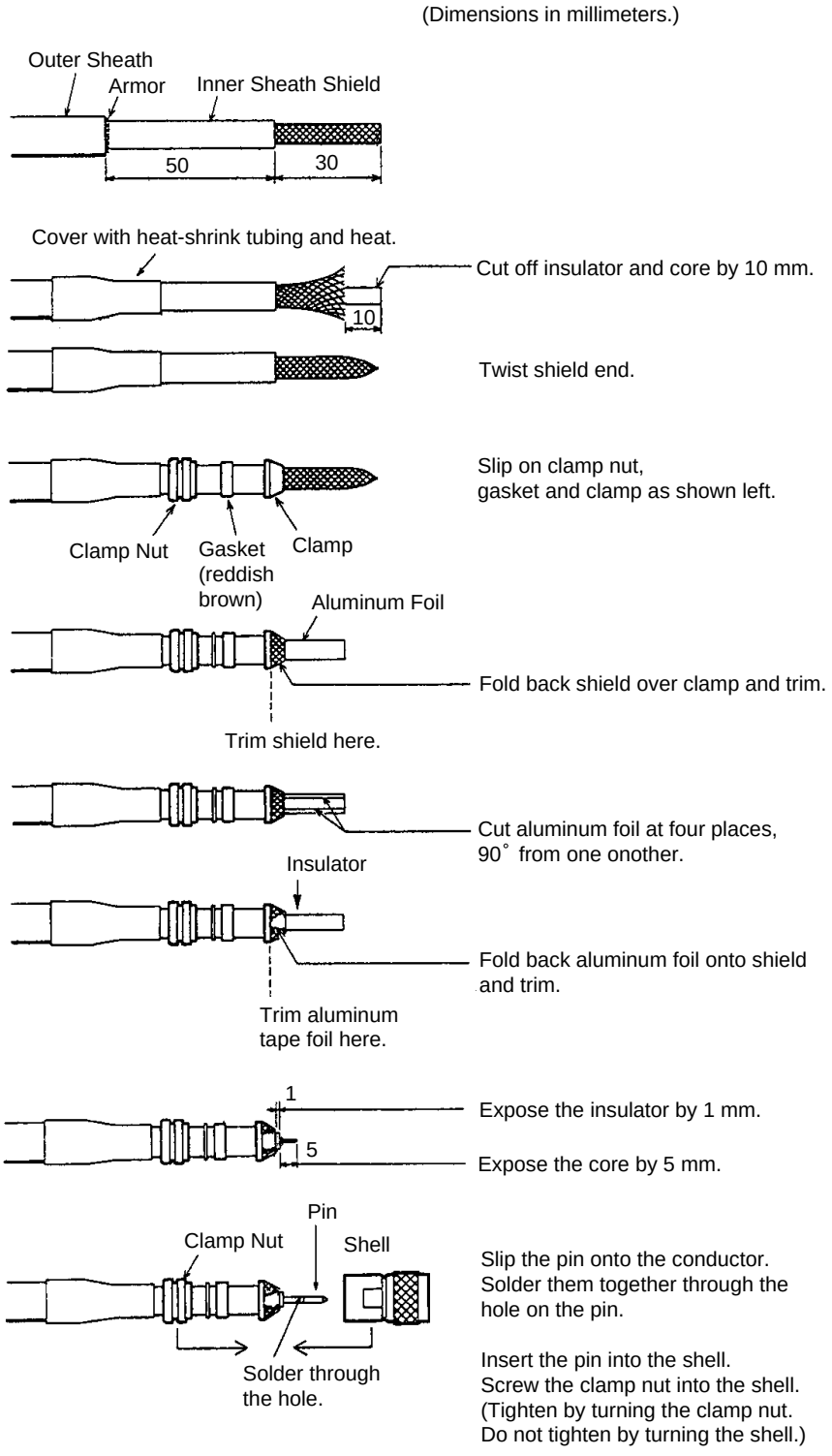
Wiring diagram

2.1.1 How to attach the antenna cable connector N-P-8DFB and N-P-12DSFA

Fabricate the antenna cable as shown below to connect the antenna unit to the communication unit.

N-P-8DFB connector

Note: The length of the antenna cable 8D-FB-CV must not be less than 20 m.

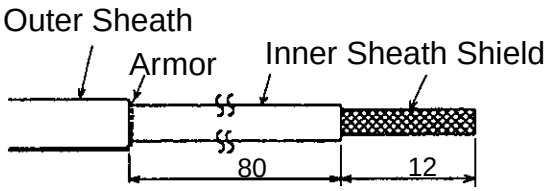


How to attach the antenna cable connector N-P-8DFB

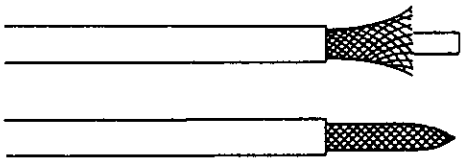
N-P-12DSFA connector

Note: The length of the antenna cable 12D-5FA-CV must not be less than 40 m.

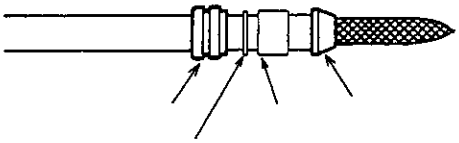
(Dimensions in millimeters.)



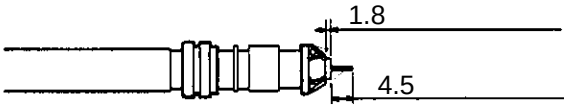
Remove outer sheath and armor by the dimensions shown left.
Expose inner sheath and shield by the dimensions shown left.



Twist shield end.

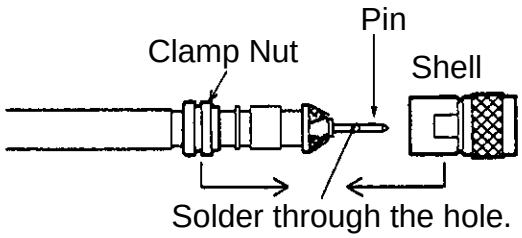


Slip on clamp nut, gasket and clamp as shown left.



Expose the insulator by 1.8 mm.

Expose the core by 4.5 mm.



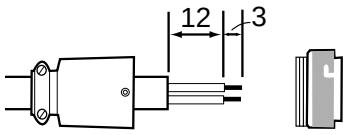
Slip the pin onto the conductor.
Solder them together through the hole on the pin.

Insert the pin into the shell.
Screw the clamp nut into the shell.
(Tighten by turning the clamp nut.
Do not tighten by turning the shell.)

How to attach the antenna cable connector N-P-12DSF

2.1.2 Power cable for printer and terminal unit

Fabricate the RM12BPG-2PH connectors and power cables for terminal unit and printer to connect to the communication unit.



Remove outer sheath by 15 mm,
core cable by 3 mm.

Cable from Terminal unit
White: 1 (+24V)
Black: 2 (GND)

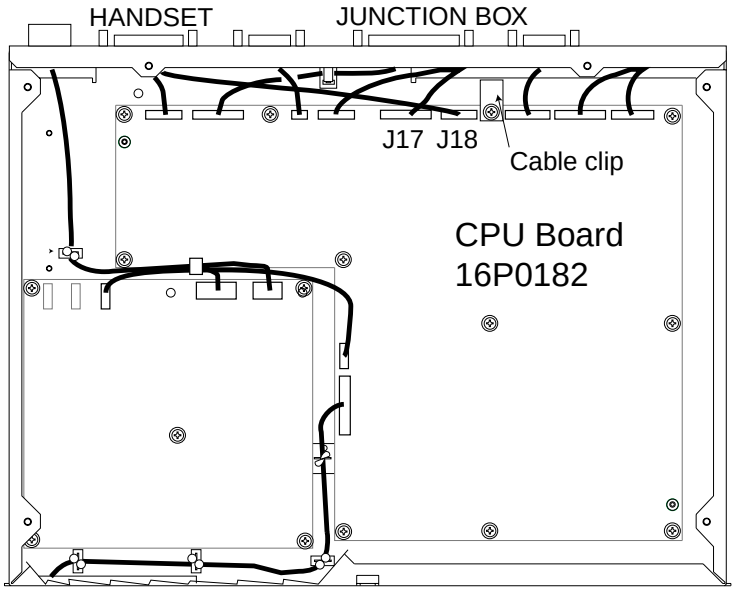
Cable from Printer
Red: 1(+24V)
Black: 2(GND)
White: Cut off.

Fabrication of power cables

2.1.3 Internal wiring change for handset IB-882-362

For the handset IB-882-362, change the wiring in the communication unit as below.

1. Remove the upper cover from the communication unit.
2. Disconnect the connector J18 from the CPU Board (16P0182).
3. Unfasten the cable clip shown below and pass the cable removed at step 2 through it.
4. Refasten the cable clip.
5. Attach the PH5P connector coming from the HANDSET port to J18 on the CPU Board (16P0182).



Communication unit, upper view

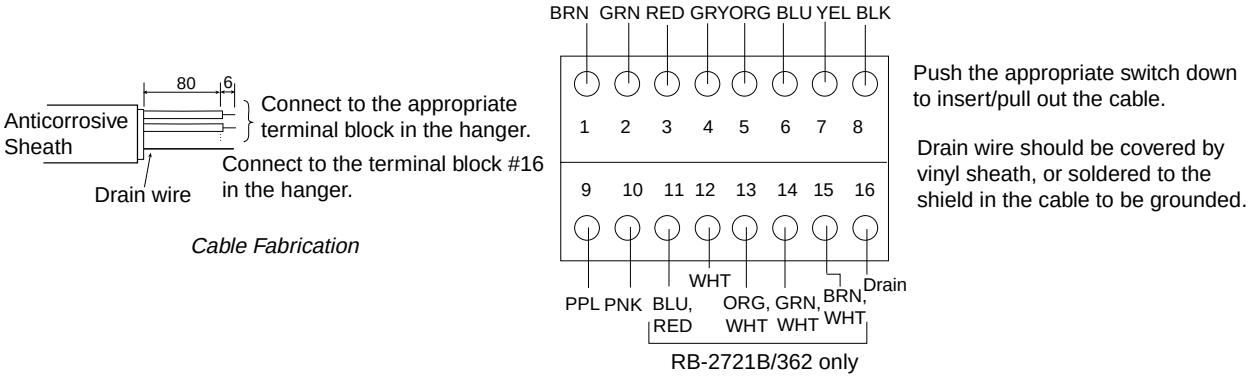
6. Close the cover of the communication unit.

2.2 Handset IB-882/IB-882-362

Take appropriate measures to ensure water does not penetrate through hole in bulkhead made for the handset cable.

2.2.1 8-pair cable between the hanger and communication unit

8-pair cable (supplied, 5 m/10 m/20 m) should be fabricated as below.
Unused cables should be cut.



Cable Fabrication

Terminal Block Arrangement

Cable arrangement and terminal block arrangement on handset

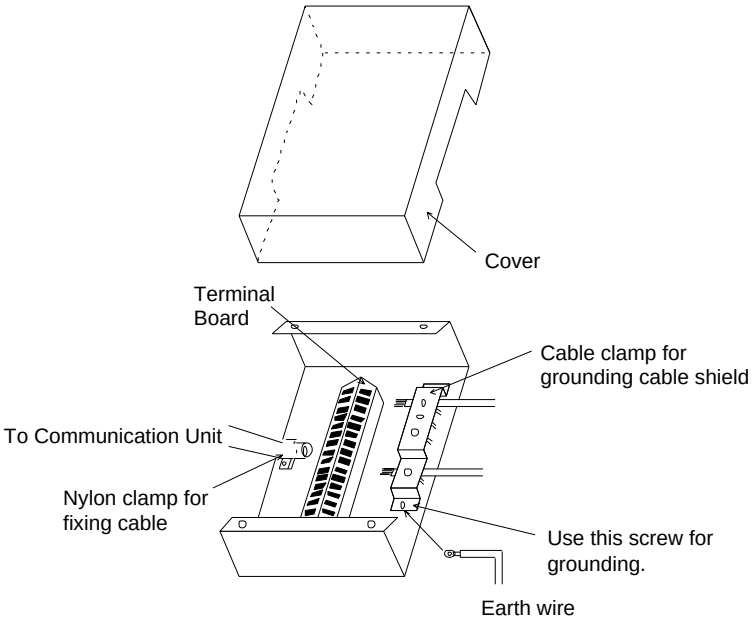
Pass the above cable through the entrance hole at the back of the hanger, and attach to the appropriate block. Cover the hole with soft putty, from the inside of the hanger.

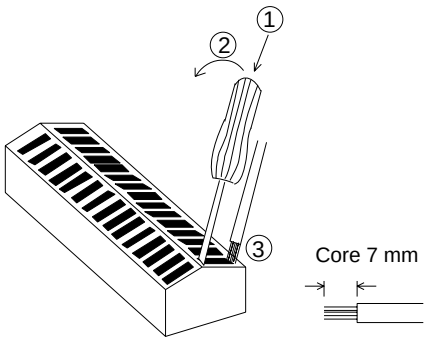
2.2.2 Handset cable

Connect the handset cable to the connector at the bottom of the hanger.

2.3 Junction Box IB-313

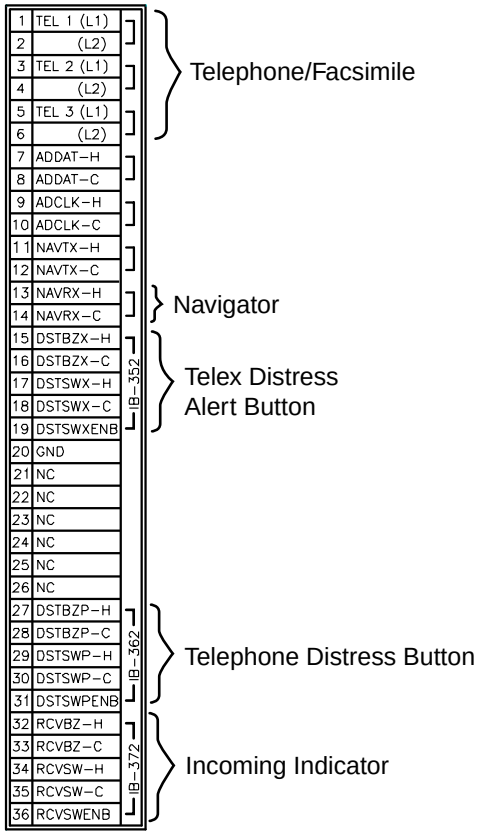
You will need a small slotted-head screwdriver to open terminals. Insert the screwdriver in terminal to open it. Then insert wire core. For cables with shields be sure the shields are well grounded in the cable clamps.





Procedure

1. Insert driver from direction ①.
2. Tilt slightly toward ② .
3. Insert cable core to ③.



Junction box terminal

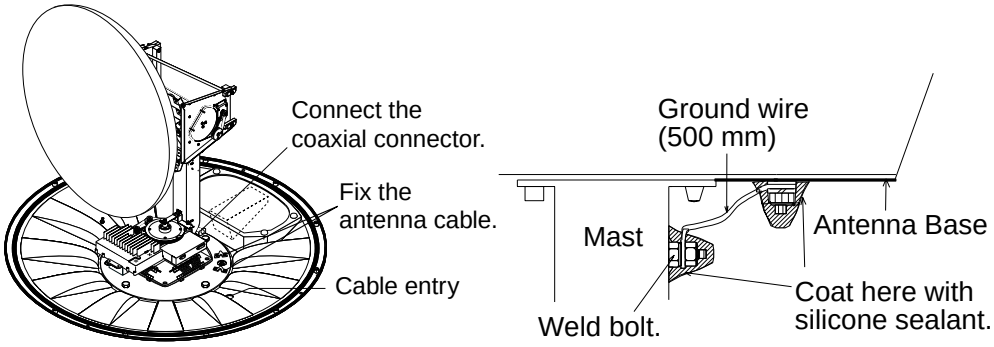
2.4 Wiring at the Antenna Unit

2.4.1 Fixing of antenna cable

Lead in the antenna cable 600 ± 20 mm (marked with vinyl tape) from the cable entry in the antenna base. Connect the coaxial connector and fix it by the cable clamp.

2.4.2 Ground

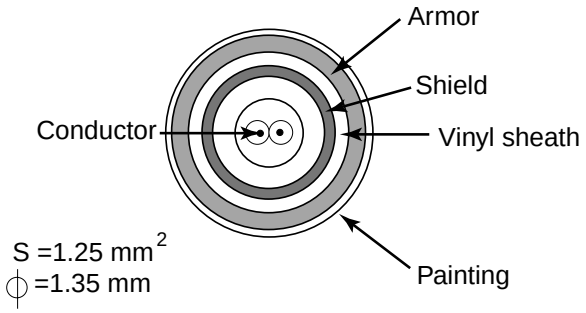
A ground wire (IV-14SQ, 500 mm) comes with the antenna unit. Connect it to fixing bolt at the base of the radome and the ground bolt on the mast.



Antenna cable, fixing and grounding

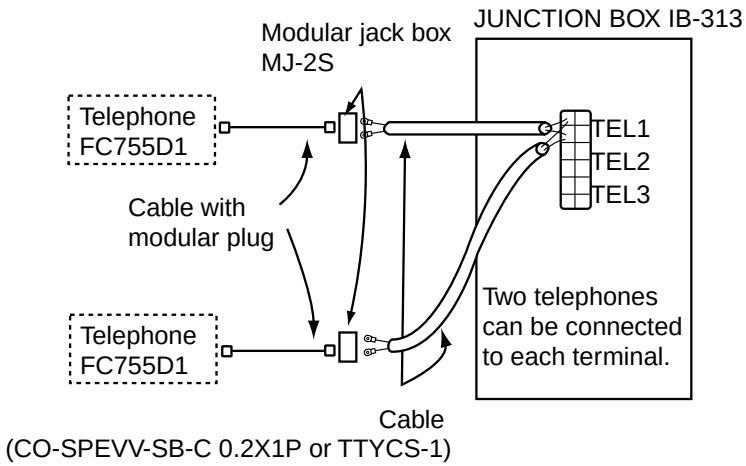
2.5 Telephone FC755D1 (option)

Connect the cable from the telephone to TEL1, 2, or 3 in the junction box. Use the modular jack box (supplied as installation material). Connect the CO-SPEVV-SB-C 0.2x1P cable (option, 1-pair cable, 10/20/30/40/50m) or TTYCS-1 (Japan Industrial Standard (JIS) cable, or equivalent, local supply) between the modular jack box and junction box. Attach two crimp-on lugs (FV1.25-3 red, supplied with modular jack box) to the modular jack box side of the above cable.



(Sectional view)

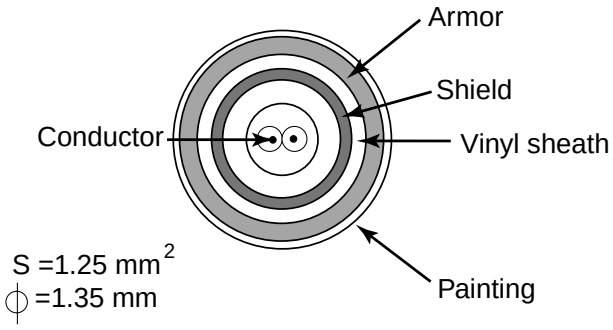
TTYCS-1 cable (Twisted pair)



Connecting telephone to junction box

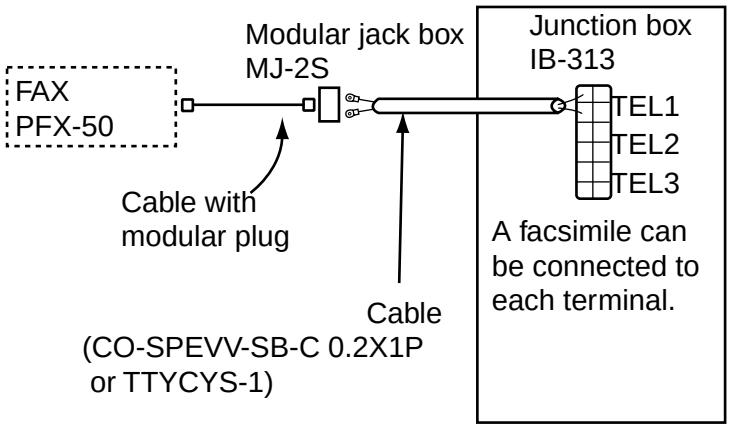
2.6 Facsimile PFX-50 (option)

Connect the cable from the facsimile to TEL1, 2, or 3 in the junction box. Use the modular jack box (supplied as installation material). Connect the CO-SPEVV-SB-C 0.2x1P cable (option, 1-pair cable, 10/20/30/40/50m) or TTYCS-1 (Japan Industrial Standard (JIS) cable, or equivalent, local supply) between the modular jack box and junction box. Attach two crimp-on lugs (FV1.25-3 red, supplied with modular jack box) to the modular jack box side of the above cable.

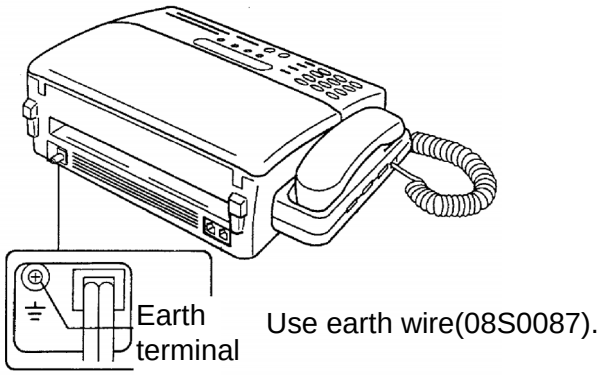


(Sectional view)

TTYCS-1 cable (Twisted pair)



Wiring of facsimile



Facsimile PFX-50, rear view

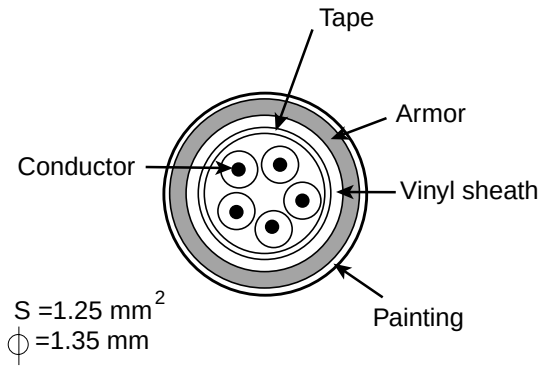
2.7 Incoming Indicator IB-372 (option)

Three IB-372 units can be mounted. For connections on the terminal board, see the interconnection diagram at the back of this manual.

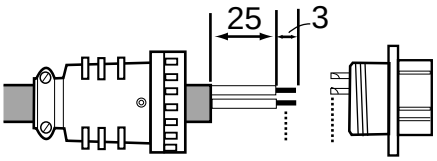
1. Unfasten four screws to remove the cover.
2. Pass the cable (CO-SPEVV-SB-C 0.2x5P, option) trough the cable entry at the bottom or back of the indicator.
3. Attach crimp-on lugs (FV1.25-3 red x5, FV2-3 x1) to cable cores. Crimp-on lug FV2-3 is for ground (#6 on the terminal board).

2.8 Gyrocompass

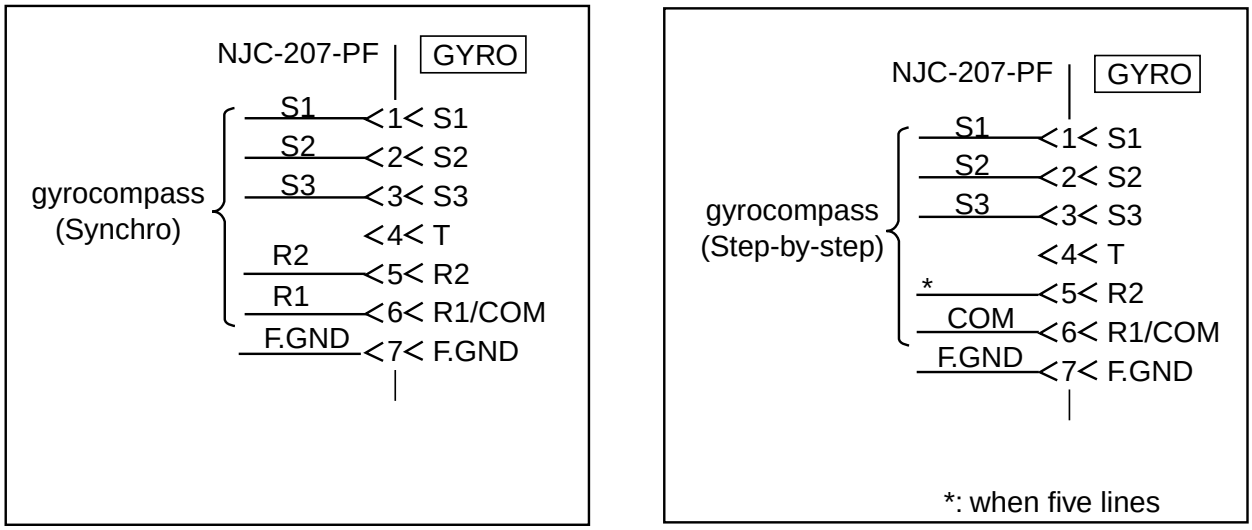
Connect the gyrocompass to the GYRO port at the rear of the communication unit by using NJC-207-PF connector (supplied as installation material for communication unit) and MPYC-5 cable (Japan Industrial Standard (JIS) cable or equivalent).



(Sectional view)



Fabrication of MPYC-5

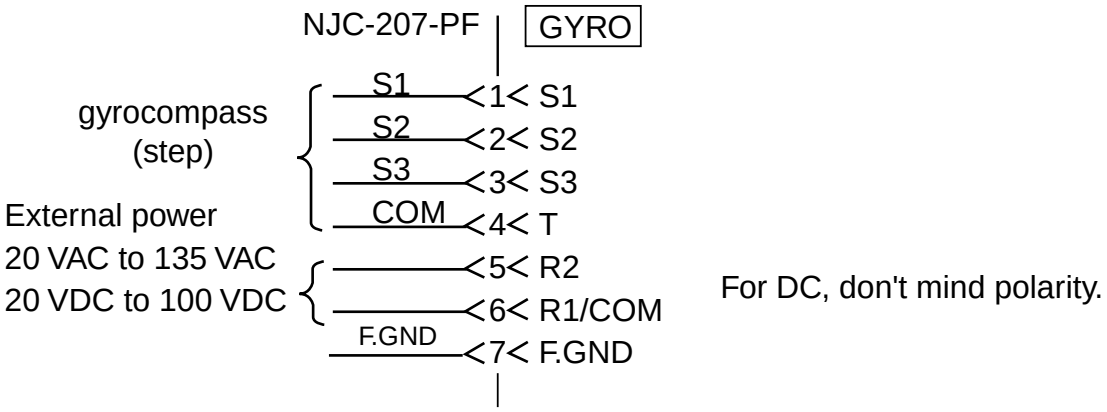


Gyrocompass connection

External power supply

An external power supply is required when a DC Step-by-step gyrocompass is used since it cannot supply 5W or 20V.

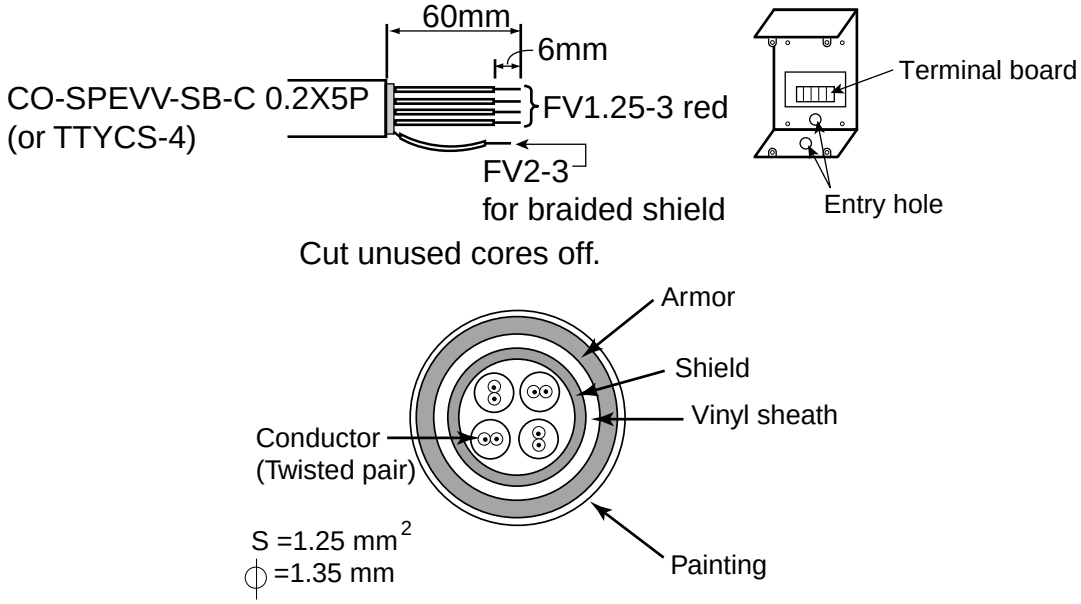
1. When using the external power, remove the jumper wire JP1 from the GYRO PROCESSOR Board. For location of JP1, see page 45.
2. Arrange the gyro cable and power cable as shown below.



Wiring of gyro for external power

2.9 Telex Distress Alert Button IB-352/Telephone Distress Button IB-362

1. Unfasten four screws to remove the cover.
2. Pass the cable through the entry hole, and then attach it to the terminal board with crimp-on lugs.
3. Fasten for screws to attach the cover. Attach the hole plug to unused entry hole.



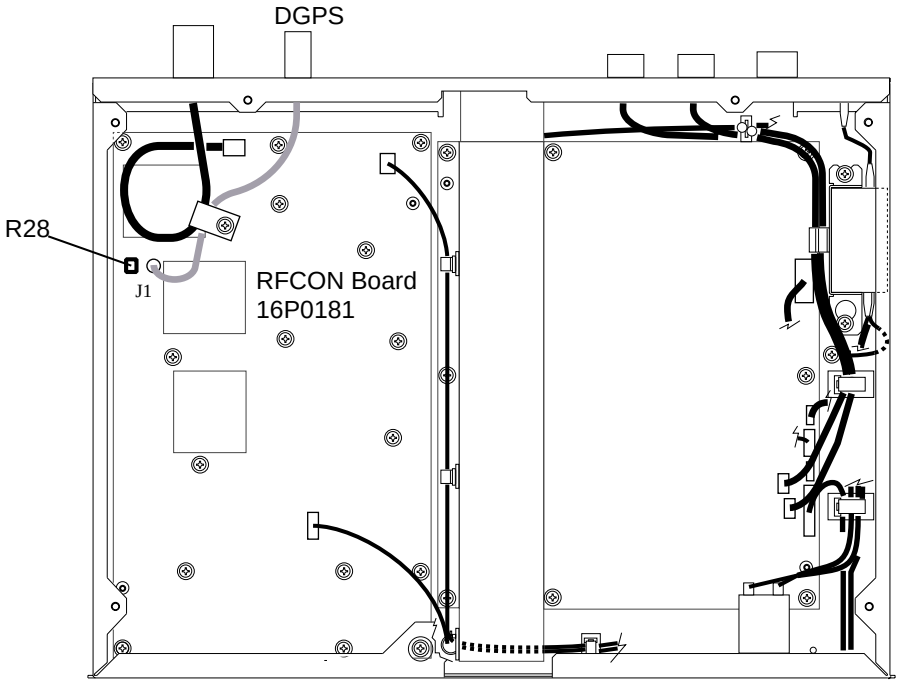
(Sectional view)

Wiring of IB-352, 362, TTYCS-4 cable

2.10 DGPS Decoder

DGPS decoder (L band) can be connected to DGPS port by using a BNC connector.
When connecting DGPS decoder, remove R28 (51Ω) on the RFCON Board (16P0181) in the communication unit.

1. Remove the lower cover from the communication unit.
2. Remove R28 from the RFCON Board in the communication unit.



Communication unit, lower cover removed

3. Reassemble the communication unit.

2.11 Checking the Installation

Before turning on the system, check for proper installation, following the procedure shown below.

Standard Equipment

Antenna unit

Is the unit properly grounded?
Are all connectors firmly fastened?
Are drain holes provided on the mounting base?

Communication unit

Are all connectors firmly fastened?
Is the copper strap firmly fastened?

Terminal unit

Are all connectors firmly fastened?
Is the unit properly grounded?

Junction box

Are all connections on the terminal board correctly made?
Are all cables properly grounded by cable clamp?
Is the unit properly grounded?

Handset

Is the unit firmly fastened to the mounting location (bulkhead, tabletop)?

Telex Distress Alert Button/Telephone Distress Button

Are all connections on the terminal board correctly made?
Is there a “click” when you press the [DISTRESS] button momentarily?
Note: Do not press and hold down the [DISTRESS] button five seconds. If you press and hold down the [DISTRESS] button five seconds, Distress alert is transmitted.

Printer

Is the unit firmly fastened by mounting fixtures?

Optional Equipment

Facsimile

Is the unit firmly fastened?

Telephone

Is the unit firmly fastened to the mounting location (bulkhead, tabletop)?

Received call unit

Are all connections on the terminal board correctly made?

A-D Converter

Is the connector firmly fastened?

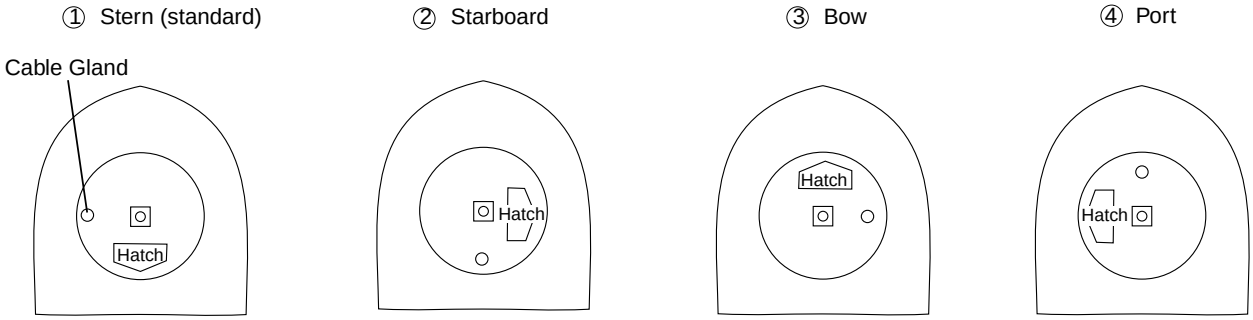
Navigation Data

Are all connections on the terminal board of Junction box correctly made?

3 INITIAL SETTINGS

3.1 Hatch Direction and Heading Adjustment

Adjust heading as follows when the hatch direction is not stern.

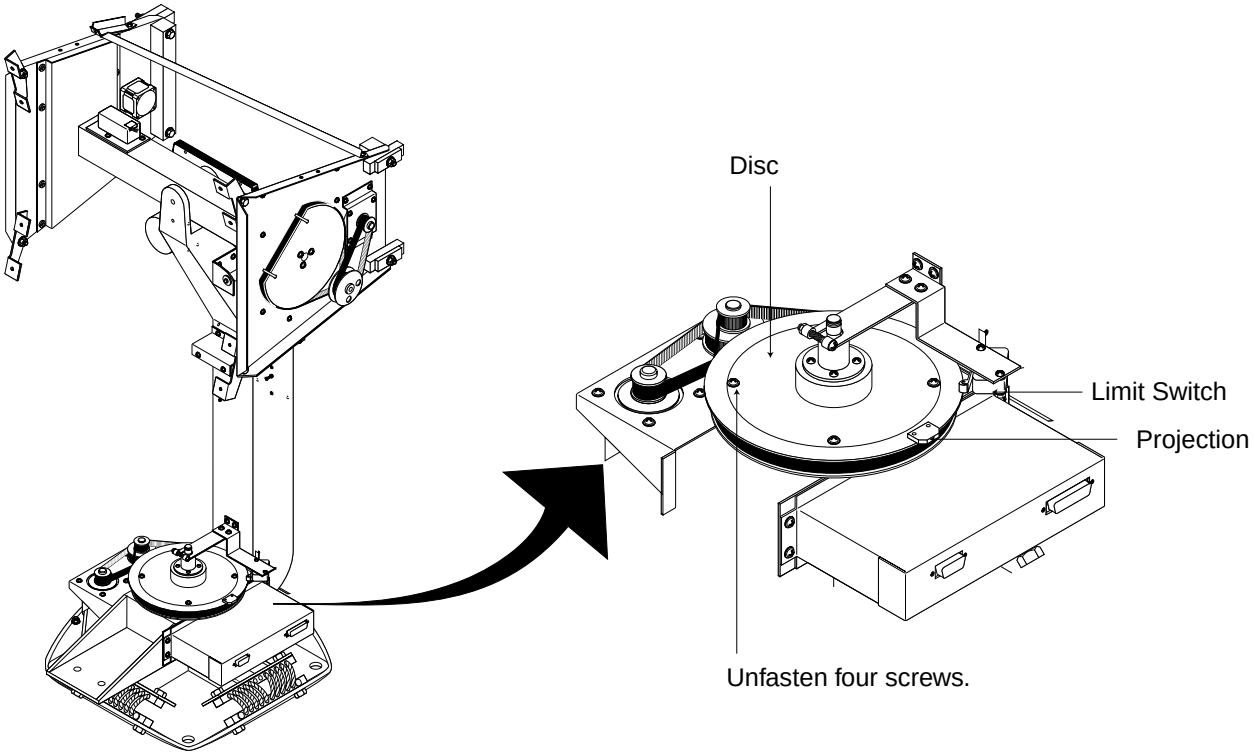


Hatch directions (view: top view)

In case of 2, 3 and 4 above, rotate the disc so that the limit switch turns on when the parabola antenna comes to bow.

Procedure

1. Rotate the parabola antenna to bow direction.
2. Unfasten four screws on the disc.
3. Rotate the disc so that the projection hits the limit switch and turns it on.
4. Fasten screws on disc.

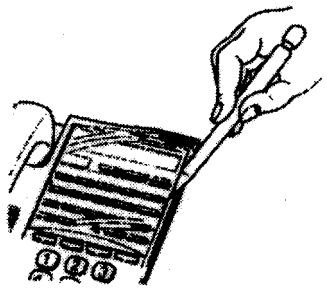


Antenna unit, inside view

3.2 Setting of Telephone (option)

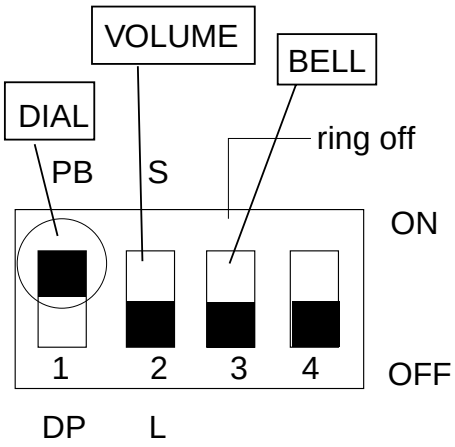
Change dialing format from dial to pushbutton as follows.

1. Insert tip of a mechanical pencil under plastic cover to remove cover, and then remove memo paper.



Telephone, removing cover

2. Using the tip of the mechanical pencil, set DIP Switch #1 to ON (PB).



Dip switch setting

DIAL:	Selects dialing format, dial tone (20PPS) or push button.
VOLUME:	Sets receive volume, Soft or Loud.
BELL:	Turns receive ringer on or off.

3. Restore memo paper and plastic cover.

3.3 Facsimile PFX-50 Setting

3.3.1 Initializing memory and initial setting

Turn on the power while pressing [*], [1] and [3] simultaneously to initialize the PFX-50's memory. Set line type to PB (MF) as folows:

1. Turn on the fax while pressing and holding down [1] [3] and [*].
2. Press [AUTO RCV/YES].
3. Enter ship's name by referring character code list in the operator's manual.
4. Press [AUTO RCV/YES].
5. Enter the fax number of own station.
6. Press [AUTO RCV/YES] twice.
7. Press [FUNCTION/NO] to change line type from DP 20 PPS to PB.
8. Press [AUTO RCV/YES] twice.
9. Enter Year/month/date and time. For example, type [0], [1], [0], [2], [1], [0], [1], [2], [3], [0] for 12:30, February 10, 2001.
10. Press [AUTO RCV/YES]. After 2 seconds, "TEL xxxx" appears.
11. Press [FUNCTION/NO] three times.
12. Press [YES], [NO], and then [NO].
13. Press [YES], and then [NO] four time.
14. Press [YES].
15. Press [YES].
16. Change receiving mode to FAX or FAX/TEL by pressing [AUTO RCV/YES] several times.

3.3.2 Display the LCD in English

At the date display, press the [NO], [NO], [NO], [NO], [NO], [NO], [YES], [YES], [NO], [YES], [NO] [RESET], in order.

3.3.3 Changing facsimile speed

When using FAX on voice channel, the modem speed of FAX should be changed from 9600 bps to 2400 bps.

Procedure (for PFX-50)

1. Turn the power on while pressing and holding down the [1] and [3] keys.
2. Press the [NO], [8], [NO], [NO], [NO], [YES] keys in order to select SET FUNCTION.
3. After the confirmation of FUNC0=00010010 appears, press [0], [0], [0], [1], [0], [0], [0], [0], [YES] in order. If you fail to enter, press the [NO] key to reenter.
4. Press the [RESET] key to finish.
5. Turn the power off and on again to cancel the test mode.

To return to 9600 bps, press the [0] [0] [0] [1] [0] [0] [1] [0] [YES] keys in order at step 3.

3.3.4 How to turn off ECM (Changing from EC mode to G3 mode)

Depending on fax data (multi-pages and large image data), turn ECM (Error Correction Mode) on or off as below.

1. Turn on the fax while pressing and holding down [1] and [3].
2. Press [NO], [8], [NO], [NO], [NO], [YES] in this order. Now the screen should show the FUNCTION display.
3. Press [YES] several times until FUNC 18=00000110.
4. Press [0], [0], [0], [0], [0], [0], [1], [0] to turn off ECM (change EC mode to G3 mode).
5. Press [YES], [RESET] in order.
6. Turn off the unit and turn it on again.

4. SYSTEM SETUP

4.1 Setting Up

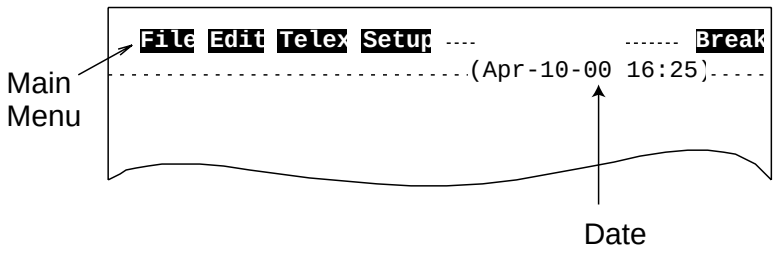
Setting may be done at the terminal unit or handset.

Overview

Set up the terminal unit, editor screen (Class 1) and communication unit by handset (Class 1 and 2).

When there is no navigation input or gyro input, enter them manually referring to operator's manual.

Turn on the Communication Unit and Terminal Unit. After a while, the Main Menu, shown below, appears.



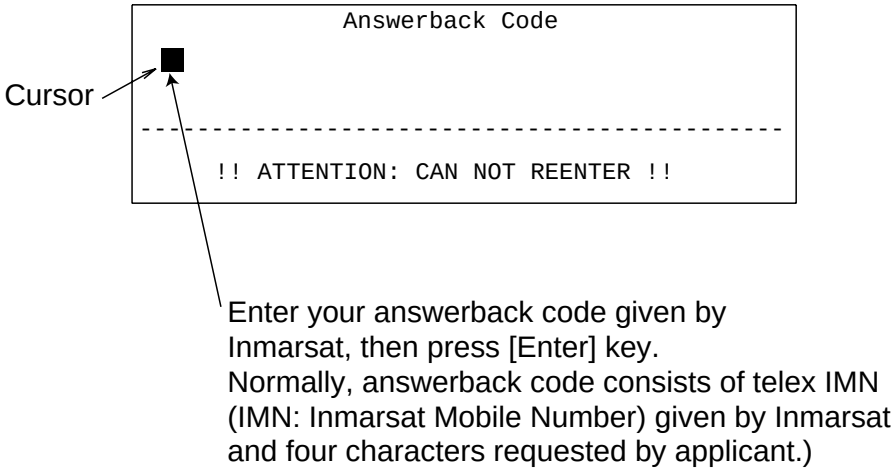
Main menu, terminal unit

4.2 Registering Answerback Code (Class 1 only)

Note: The answerback code cannot be changed once registered. Confirm the code before pressing the [Enter] key.

Procedure

At the terminal unit, press the [F4], [3] and [8] keys in order.



Screen for entry of answerback code

Answer code format

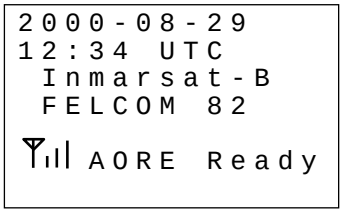
Telex IMN No. (9 digits) + space + 4 characters + space + X + [Enter] key

Ex.: 343164830 JFKS X

4.3 OID/DID Setting

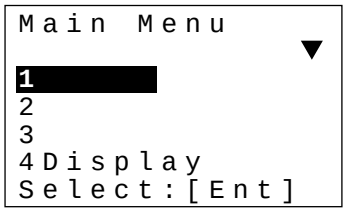
OID/DID settings are entered through the handset. **These settings should only be entered by authorized personnel.**

1. Turn the power of the communication unit on to display the startup screen on the handset. The startup screen changes to the standby screen after three seconds.



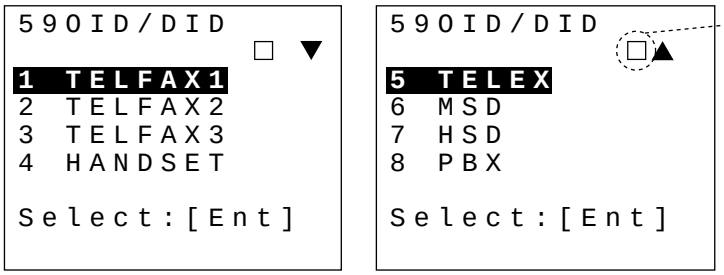
Standby screen

2. Press the [FUNC/Quit] key on the handset to show the main menu.



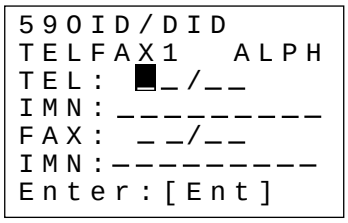
Main menu

3. Press [5], [9] in order to show the “OID/DID” menu.

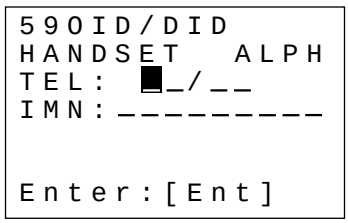


OID/DID menu

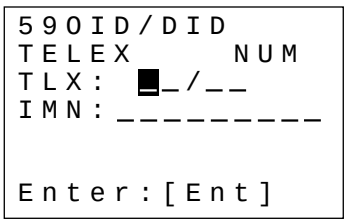
4. Select a menu item to set, and then press the [Ent] key.
   Appropriate setting menu appears as shown below.



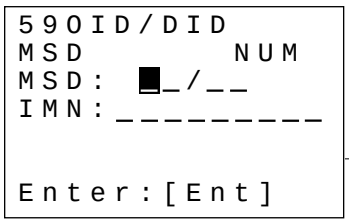
TELFAX1 OID/DID



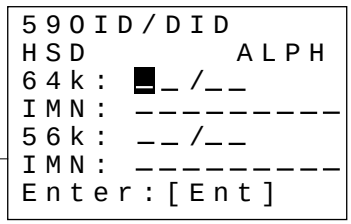
HANDSET OID/DID



TELEX OID/DID (Class 1 only)



MSD OID/DID
(For 9.6K Data communication)



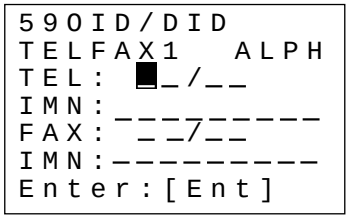
HSD OID/DID
(For high speed data communication)

OID/DID menus

5. Enter OID/DID and IMN (Inmarsat Mobile Number) as below.

   Note: When using FAX on voice channel, set OID/DID in TEL field (Refer to page 35).

   a) Select TELFAX1 on the OID/DID menu.



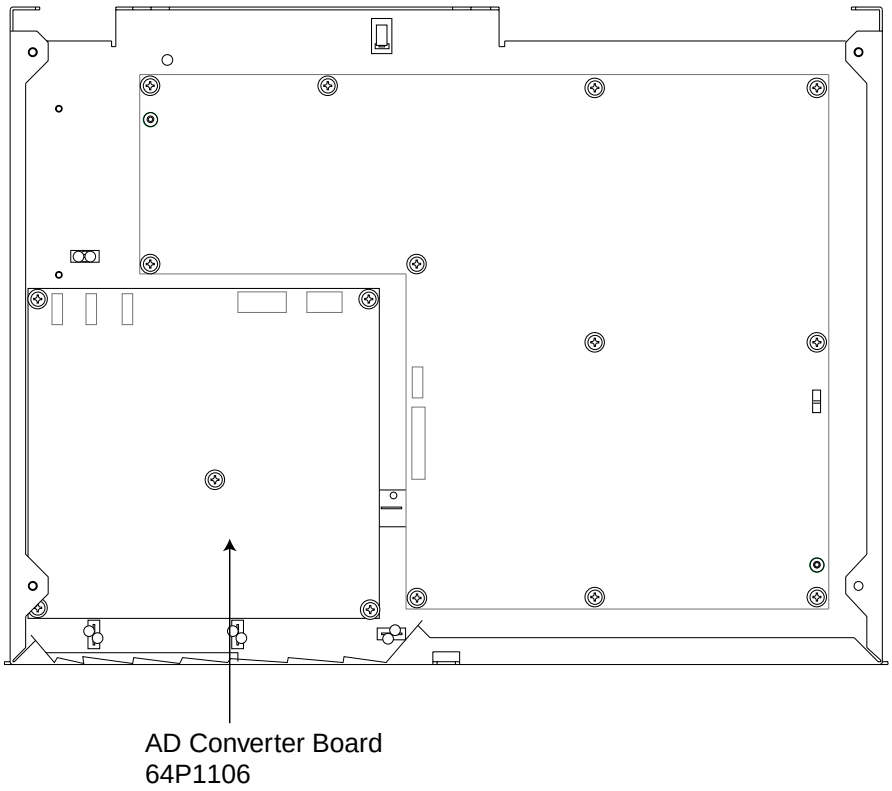
TELFAX1 menu

   b) Enter OID and DID number.
      The OID/DID are hexadecimal number. Change the input mode between numeric and alphabet by using the [Mode] key.
   c) Press the [≻] key to select IMN.
   d) Enter IMN.
   e) Press the [Ent] key to finish.

6. Register passward so that only administrator can change the setting. (See operator's manual.)

4.4 Setting of Gyro Converter

The AD Converter Board in the Communication Unit accommodate various brands and specifications of gyrocompasses by means of DIP switches and jumper wires. Below are the specifications of the gyrocompass it can accommodate. For the location of DIP switch and jumper settings for various brands of gyrocompass, see page 46.



Communication Unit, top view (cover removed)

AC synchro

- Frequency : 50/60 Hz 400 Hz 500 Hz
- Rotor Voltage : ( ) VAC
- Stator Voltage : ( ) VAC
- Gear Ratio : 360x 180x 90x 36x

DC synchro

- Rotor Voltage : ( ) VDC
- Stator Voltage : ( ) VDC
- Gear Ratio : 360x 180x 90x 36x

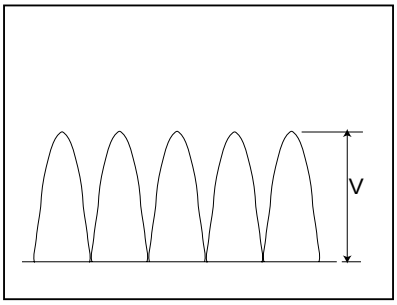
DC step-by-step

- Supplied Power : ( ) VDC
- Gear Ratio : 360x 180x 90x 36x

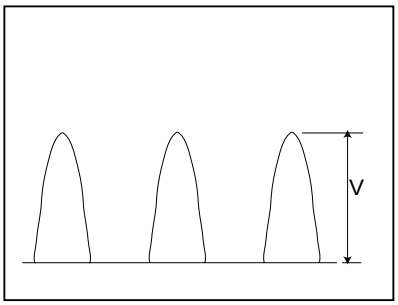
Full/Half wave pulsating current

- Frequency : 50/60 Hz 400 Hz 500 Hz
- Supplied Power : ( ) VDC
- Gear Ratio : 360x 180x 90x 36x

Full wave pulsating current



Half wave pulsating current



4.4.1 Default setting

This unit is set at factory for connection with the gyrocompass specifications tabulated below. This is the default setting for DIP switches and jumper wires; all DIP switches off, all jumper wire set for #1. If the gyrocompass' specifications are different, see the next section.

- Type : AC synchro
- Frequency : 50/60 Hz
- Rotor Voltage : Between 60 VAC and 135 VAC
- Stator Voltage : Between 60 VAC and 135 VAC
- Gear Ratio : 360x
- Supplied Power: Between 30 VAC and 135 VAC

4.4.2 Setting procedure

1) Type of gyrocompass

Gyrocompass type	SW 1-4	SW 1-5	SW 1-6	JP1
AC synchronous	OFF	OFF	OFF	#1, #2, #3
DC synchronous	OFF	OFF	OFF	#2, #3, #4
DC step	ON	OFF	OFF	#4, #5, #6
Full-wave pulsating current	OFF	ON	0FF	#4, #5, #6
Half-wave pulsating current	ON	ON	OFF	#4, #5, #6

2) Frequency

Frequency	SW 1-7	SW 1-8	Remarks
50/60 Hz	OFF	OFF	AC synchronous pulsating current
400 Hz	ON	OFF	AC synchronous pulsating current
500 Hz	OFF	ON	AC synchronous pulsating current
DC	ON	ON	DC synchronous DC step

3) Rotor Voltage (between R1 & R2)

Rotor Voltage	SW 2-1	JP3
20 to 45 VAC	ON	#2
30 to 70 VAC	OFF	#2
40 to 90 VAC	ON	#1
60 to 135 VAC	OFF	#1

4) Stator Voltage (between S1 & S2)

Stator Voltage	SW 2-2	SW 2-3	JP2
20 to 45 VAC, or 20 to 60 VDC	ON	OFF	#2
30 to 70 VAC, or 40 to 100 VDC	OFF	OFF	#2
40 to 90 VAC	ON	OFF	#1
60 to 135 VAC	OFF	OFF	#1

5) Ratio

Ratio	SW 1-1	SW 1-2	SW 1-3
360X	OFF	OFF	OFF
180X	ON	OFF	OFF
90X	OFF	ON	OFF
36X	ON	ON	OFF

6) Supply Voltage

Stator Voltage	JP4	JP5
20 to 45 VAC, or 20 to 60 VDC	#2	#2
30 to 135 VAC, or 40 to 100 VDC	#1	#1

7) AD-10 format data Tx interval

Select data transmitting interval for ports 1 to 6 with jumper wires JP6 and JP7. The Tx interval is available in 25 ms or 200 ms. Select 25 ms.

8) NMEA interval

Tx Interval	SW2-4
2 seconds	ON
1 second	OFF

4.4.3 Function of DIP switches and jumper wires

The function of each DIP switch and jumper wire is as listed below. Set them according to the specifications of the gyrocompass connected. After setting, turn the communication unit off and then on again to write setting into the CPU.

1) DIP Switch SW1

Segment	Function	Setting		
SW1-1, -2, -3	Gear Ratio	SW1-1	SW1-2	SW1-3
	x360	OFF	OFF	OFF
	x180	ON	OFF	OFF
	x90	OFF	ON	OFF
	x36	ON	ON	OFF
SW1-4, -5, -6	Type of Gyrocompass	SW1-4	SW1-5	SW1-6
	AC Synchro	OFF	OFF	OFF
	DC Synchro	OFF	OFF	OFF
	DC Step	ON	OFF	OFF
	Full Wave Pulsating Current	OFF	ON	OFF
	Half Wave Pulsating Current	ON	ON	OFF
SW1-7, -8	Frequency	SW1-7	SW1-8	
	50/60 Hz	OFF	OFF	
	400 Hz	ON	OFF	
	500 Hz	OFF	ON	
	DC	ON	ON	

2) DIP switch SW2

Segment	Function	Setting
SW2-1	Rotor Voltage 20 to 90 VAC 30 to 135 AC	SW2-1 ON OFF
SW2-2, -3	Stator Voltage 20 to 90 VAC or 20 to 60 VDC 30 to 135 VAC or 40 to 100 VDC	SW2-2 SW2-3 ON OFF OFF OFF
SW2-4	Output interval of NMEA 2 second 1 second	SW2-4 ON OFF
SW2-5	Test Continuous One Cycle	SW2-5 ON OFF
SW2-6, 7	Not used	
SW2-8	Reset CPU Normally OFF	Turn ON and OFF to reset CPU.

Jumper JP1

Segment	Function	Setting
#1, #2, #3	Type of Gyrocompass AC Synchro DC Synchro DC Step Full Wave Pulsating Current Half Wave Pulsating Current	 #1, #2, #3 #2, #3, #4 #4, #5, #6 #4, #5, #6 #4, #5, #6

Jumper JP2

Segment	Function	Setting
	Stator Voltage 20 to 70 VAC or 20 to 100 VDC 40 to 135 VAC	 #2 #1

Jumper JP3

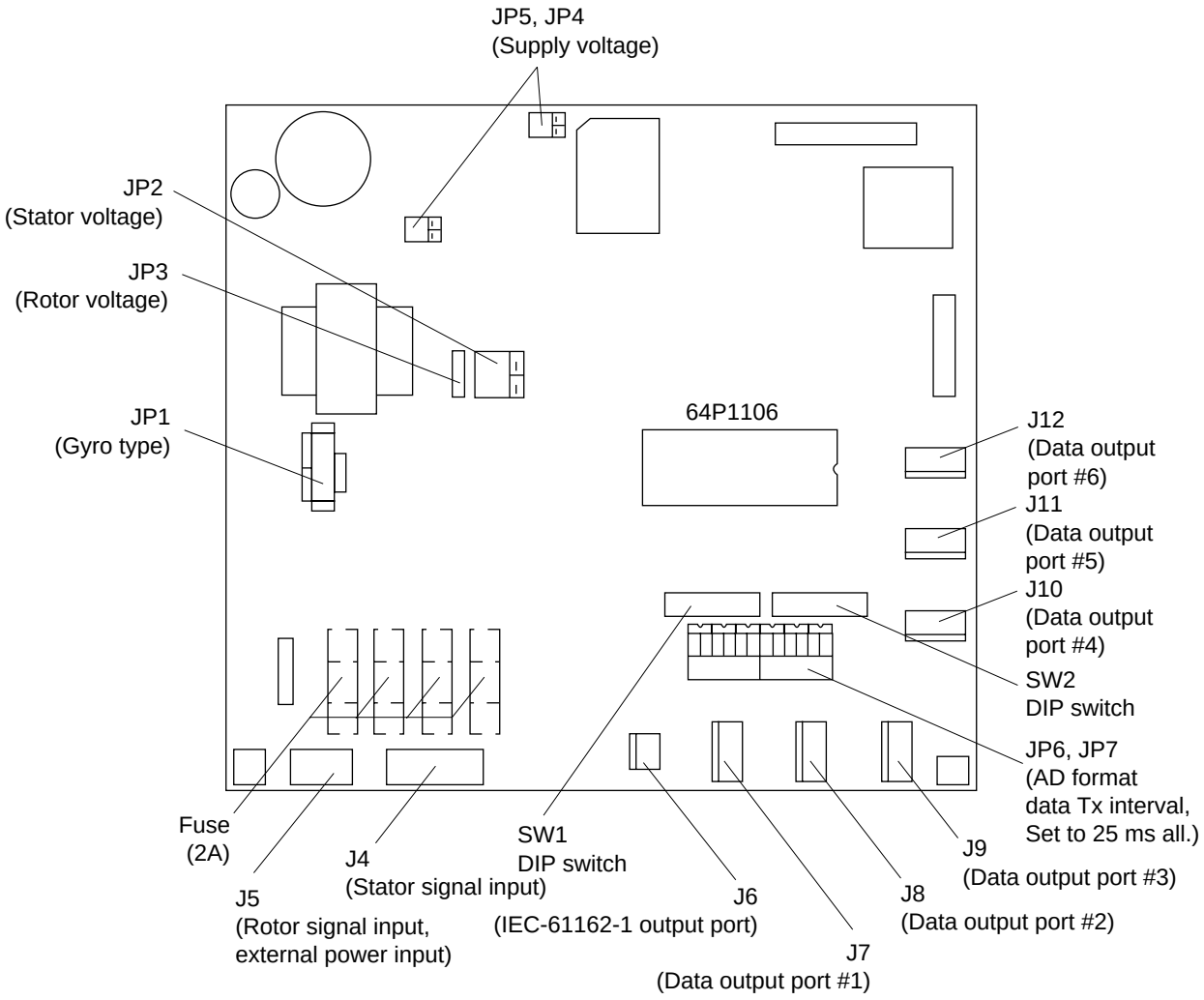
Segment	Function	Setting
	Rotor Voltage 20 to 70 VAC 40 to 135 VAC	 #2 #1

Jumper JP4

Segment	Function	Setting
	Power Supply 20 to 45 VAC or 20 to 60 VDC 30 to 135 VAC or 40 to 100 VDC	 #2 #1

Jumper JP5

Segment	Function	Setting
	Power Supply 20 to 45 VAC or 20 to 60 VDC 30 to 135 VAC or 40 to 100 VDC	 #2 #1



Processor Board 64P1106

DIP switch/jumper settings and make and model of gyrocompass

Maker	Models	Specification	SW 1-1	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	SW 2-1	SW 2-2	SW 2-3	JP1	JP2	JP3	JP4	JP5
FURUNO	GY-700	DC step 100V 180x 5-wire, open collector	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1
Anschutz	Standard 2,3	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 22V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	#1, #2,#3	#2	#2	#1	#1
	Standard 4,6	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 90V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#2	#1	#1	#1
	Standard 20	DC step 35V 180x COM(-) ,3-wire(+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2
Yokogawa Navtec (Plaith type)	C-1/1A/2/3 A-55, B-55	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 22V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	#1, #2,#3	#2	#2	#1	#1
	CMZ-700	DC step 24V 180x COM(+),3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	Remo-ve	#2	-	*	*
	CMZ-250X/ 300X/500	DC synchronous 360x	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	-	ON	OFF	Remo-ve	#2	-	*	*
		DC step 35V 180x COM(+),3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2
	CMZ-100/200/ 300 C-1Jr,D-1Z/1/3 IPS-2/3	AC synchronous 50/60Hz Rotor voltage: 100V Stator voltage: 90V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	CMZ-50 Note	step 35V 180x COM(+),3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	ON	OFF	Remo-ve	#2	–	*	*
Plaith	NAVGAT II/III	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 68V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#2	#2	#1	#1
Tokimec (Sperry type)	ES-1/2/11 GLT-101/102/ 103/106K/107	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 90V 36x	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	ES-11A/110 TG-200 PR222R/2000 PR237L/H GM 21	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 22V 90x	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	MK-14 MOD-1/2/T NK-EN,NK-EI	DC step 70V 180x COM(-), 3-wire(+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	OFF	OFF	#4, #5,#6	#2	–	#1	#1
	SR-130/140	DC step 70V 180x 5-wire, open collector	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	–	OFF	OFF	#4, #5,#6	#2	–	#1	#1
	TG-100/5000 PR-357/130/ 140, ES-17 GLT-201/202 /203	DC step 70V 180x COM(+), 3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	OFF	OFF	#4, #5,#6	#2	–	#1	#1
	TG-6000	DC step 24V 180x	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	–	#2	#2
	GM-11	AC synchronous 50/60Hz Rotor voltage: 100V Stator voltage: 90V 90x	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	SR-120,ES-16 MK-10/20/30	DC step 35V 180x	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	ON	OFF	#4, #5,#6	#2	–	#2	#2
Kawasaki	GX-81	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 90V 90x	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
Armabrown	MK-10,MKL-1 SERIES1351, MOD-4	DC step 50V 180x COM(+), 3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	OFF	OFF	#4, #5,#6	#2	–	#1	#1
Robertson	SKR-80	DC step 35V 180x COM(-), 3-wire(+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	–	ON	OFF	#4, #5,#6	#2	–	#2	#2

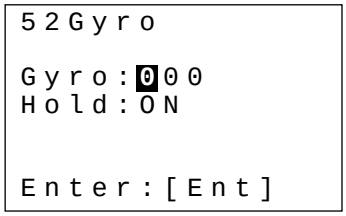
*: Set JP 4and JP5 according to the voltage of the external power supply.

Note: If CMZ-50 has 35 VDC, set JP1 to #4, #5, #6.

4.4.4 Setting of gyro heading

Set the gyro heading after the gyrocompass is stable.

1. Press [FUNC Quit], [5] and [2] to display the Gyro menu.



Gyro menu

2. Press [≫].
3. Press [⟪] to select ON.
4. Press [≪].
5. Key in current heading with the numeric keys (000 to 359).
6. Press [≫].
7. When the gyrocompass readout becomes the same as the heading entered at step 5, select the HOLD field and press [⟫] to select OFF.
8. Press the [Ent] key.
9. Press the [FUNC Quit] key several times to close the menu.

5. 9.6K DATA COMMUNICATIONS

5.1 Installation

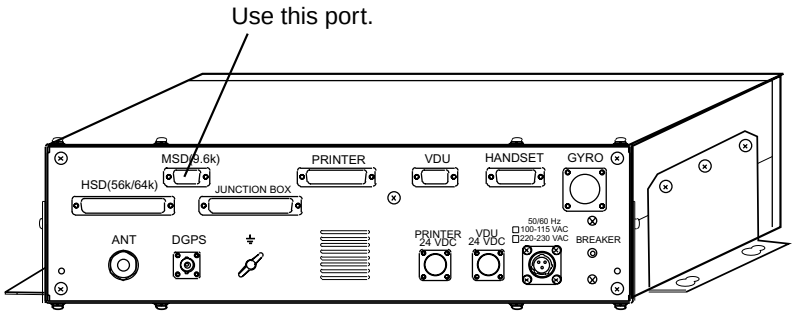
The owner of the equipment prepares a PC, running Windows 95 or 98, to run the 9.6K data communication service. This manual describes the setup using Windows 98.

5.1.1 General wiring procedure

Turn off the communication unit. Connect the personal computer to the communication unit of the FELCOM 82 by using straight cable with D-sub 9 pins connector (local supply).

- PC: Serial port (for PC/AT compatible, 9 pin male port)
- FELCOM 82: MSD (9.6k) port (D-sub 9 pin female port: RS-232C) at back of the communication unit

Note: Be sure to connect the cable correctly.



FELCOM 82 communication unit, rear view

5.2 Checking Operation

Obtain a PC, and set it up following Modem setup and Dial-up setup in the next two sections. Check it and the user's system for proper operation following the procedure below.

5.2.1 Ship-to-land call

1. Turn on the PC and FELCOM 82.
2. Set OID and DID at the handset on the FELCOM 82 referring to "4.3 OID/DID Setting" on page 37.
3. Start up PC with "Hyper Terminal" (communications software provided with Windows 98).
4. Enter "AT&H" commands. Confirm that the command table appears (serial cable check).
5. Do the following to execute call check:
   a) Contact a land station over test telephone.
   b) Key in "ATD", telephone number and <CR>. When starting call, "ORG MSD" appears on the handset of FELCOM 82,.
   d) Press any key of PC to disconnect the line.

If NO DIAL TONE is displayed, check if OID and DID settings are correct. Repeat several times until connection is established.

5.2.2 Land-to-ship call

1. Contact land station and request they call you over 9.6K data line.
2. When land station calls, confirm that RING is displayed on the PC.
3. Land station disconnects the line.

If the call fails try again.

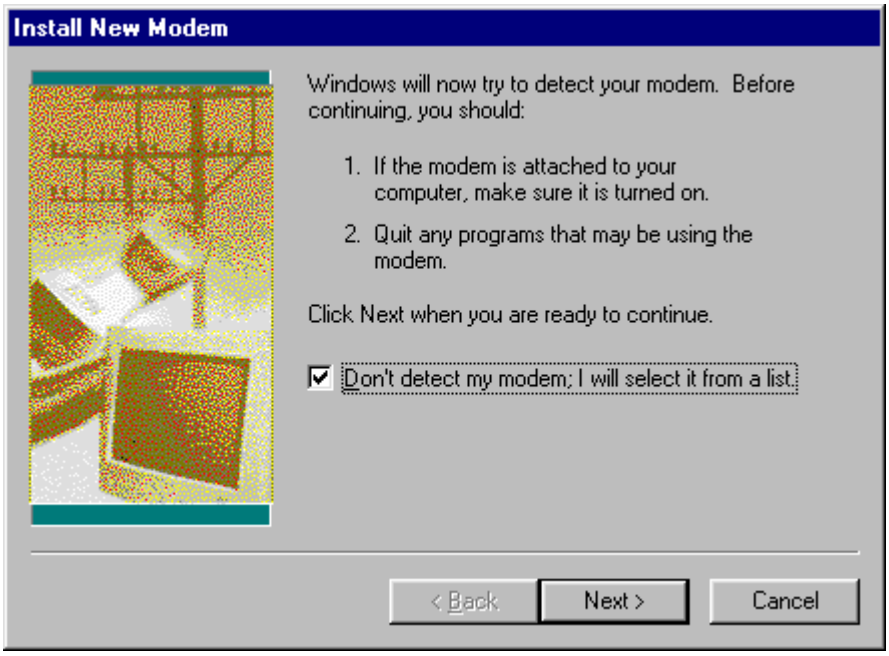
Conduct the same call checks with the user's system. Procedure may differ depending on make of computer.

5.3 Modem Setup

1. Click the "My Computer" icon on the windows 98 screen and then click the "Control Panel" icon.

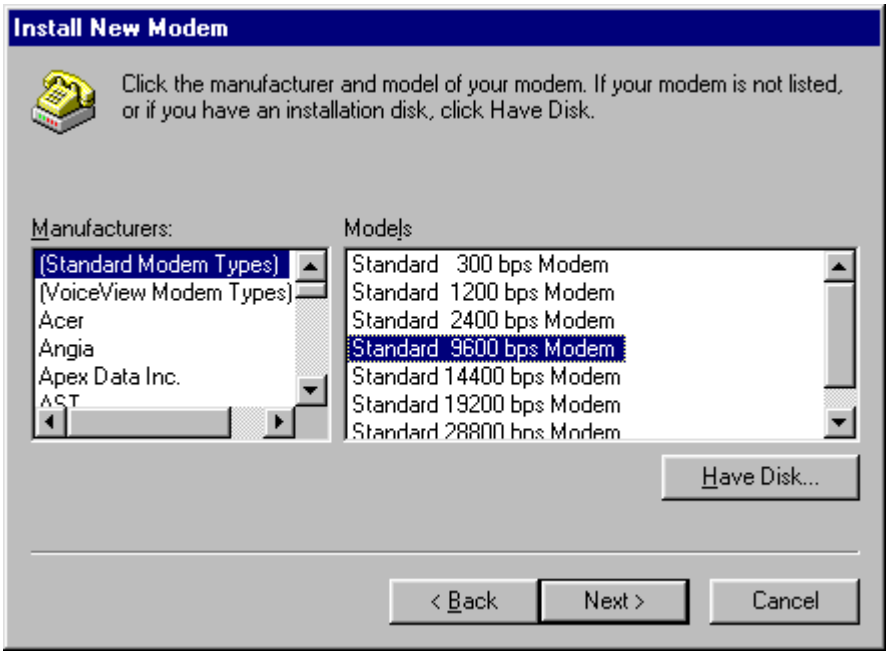
Control Panel window

2. Click the “Modems” icon to show “Install New Modem” window. If “Modem Property” window appears, click “Add”.



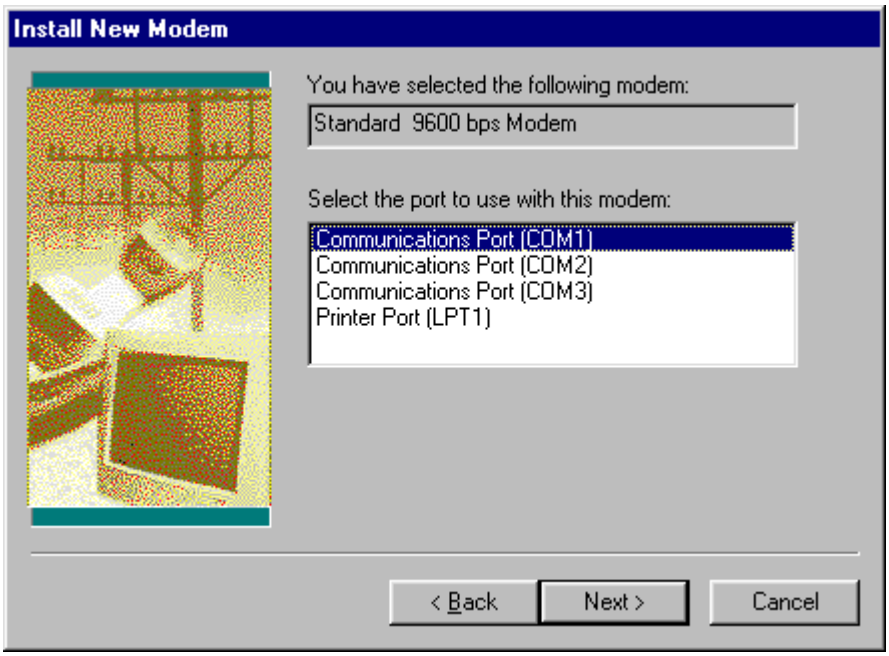
Install New Modem window

3. Modem cannot be automatically detected so check “Don’t detect my modem; I will select it from a list”.
4. Click “Next>”.



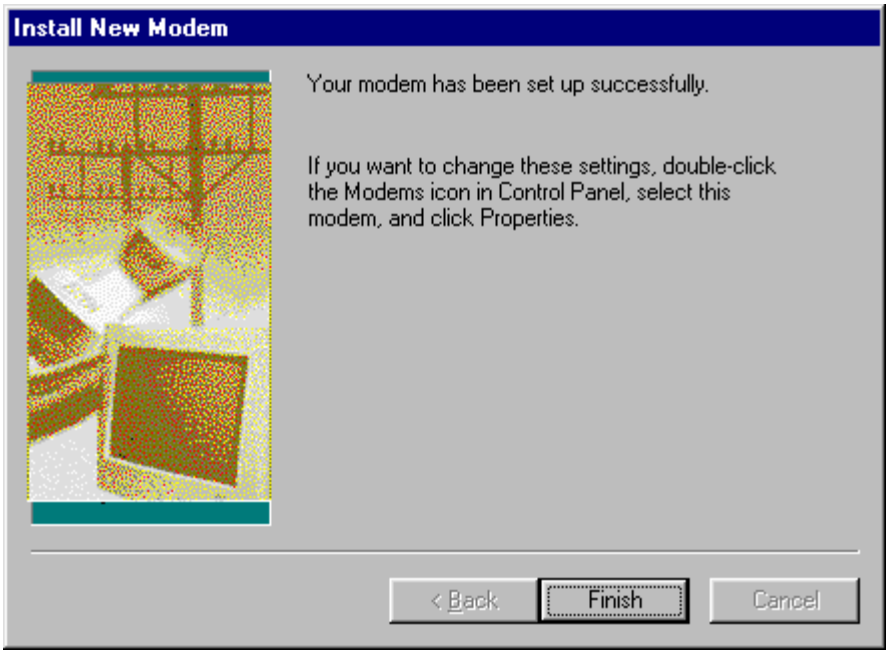
Install New Modem Window

5. Select “Standard Modem Types” from the “Manufacturers” list.
6. Select “Standard 9600 bps Modem” from the “Models” list.
7. Click “Next>”.



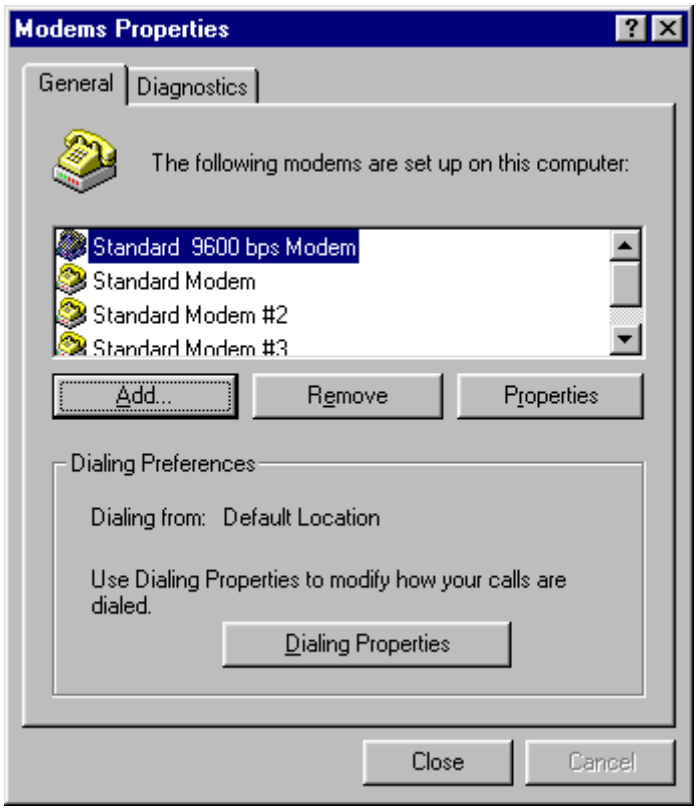
Install New Modem window

8. At “Select the port to use with this modem”, select the port connected to the FELCOM 82.
9. Click “Next>”.



Install New modem window

10. The computer now installs the modem driver. When “Your modem has been set up successfully” appears, click “Finish”.
11. At the “Modems Properties” window, confirm that “Standard 9600 bps Modem” is selected.



Modems Properties window

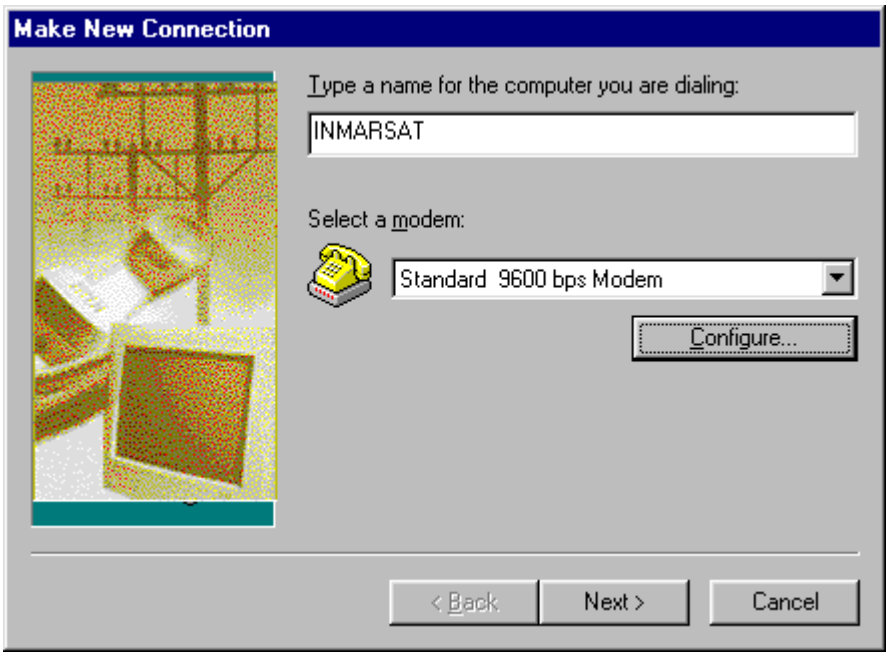
12. Click “Close” button to close the menu.

5.4 Dial-up Setup

1. Click the “My Computer” icon and then click the “Dial-Up Net-working” icon.

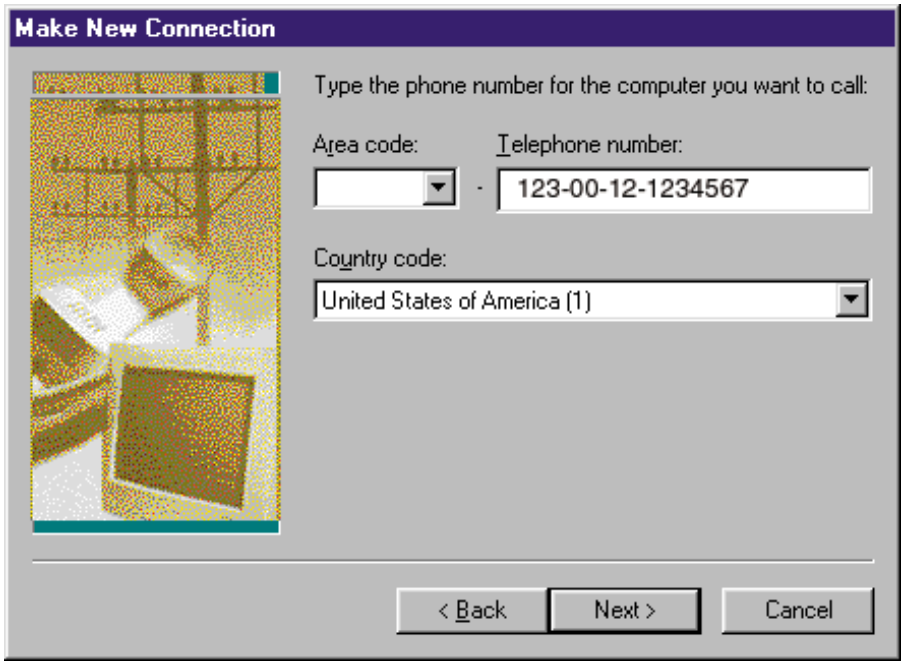
Dial-up Networking window

2. Click the “Make New Connection” icon.



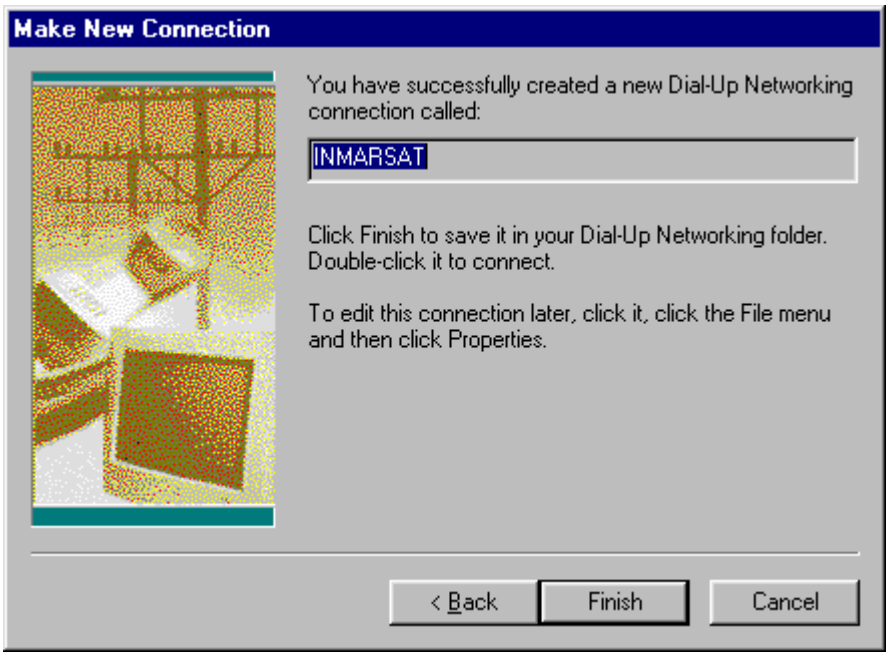
Make new Connection window

3. In the “Type a name for the computer you are dialing” box, type in a suitable name, for example, INMARSAT. Select “Standard 9600 bps Modem” in the “Select a modem” box.
4. Click “Next>”.
5. Enter party’s telephone number (LES NO. - 00 - country code - area code - phone no.) in the “Telephone number” box. (You may disregard other data which may be displayed, for example, area code or country code.)



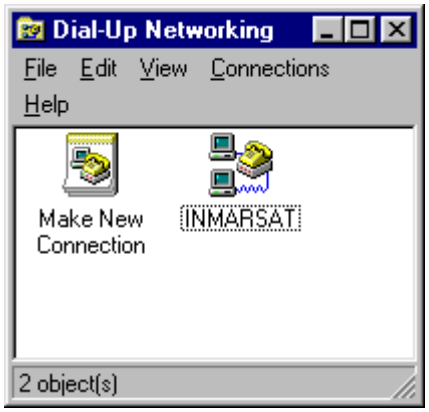
Make New Connection window

6. Click “Next>”.



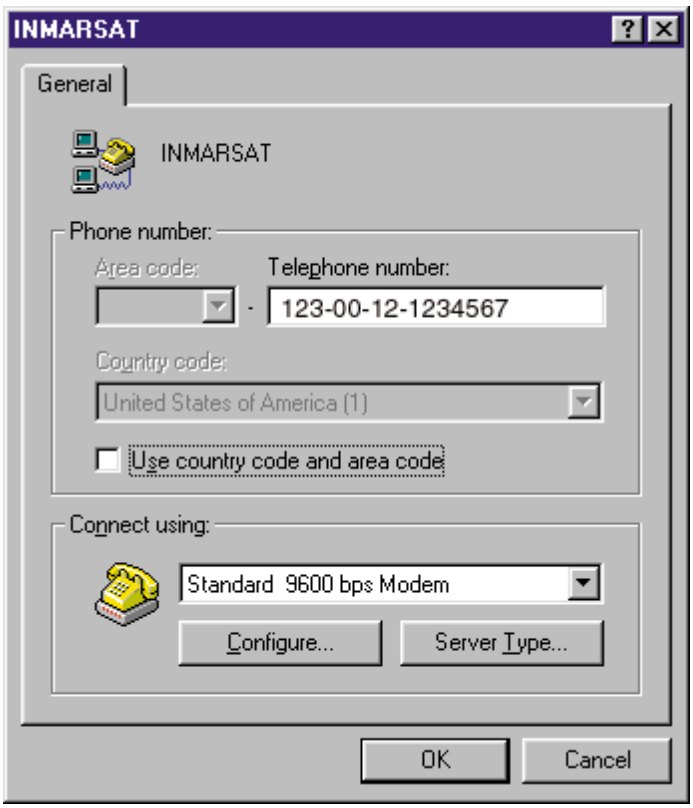
Make New Connection window

7. Click “Finish”.
8. Confirm that “INMARSAT” icon (or name specified in step 3) is present in the “Dial-up Networking” folder.



Dial-up Networking window

9. Click the “INMARSAT” icon.
10. Select “Properties” from the “File” menu.



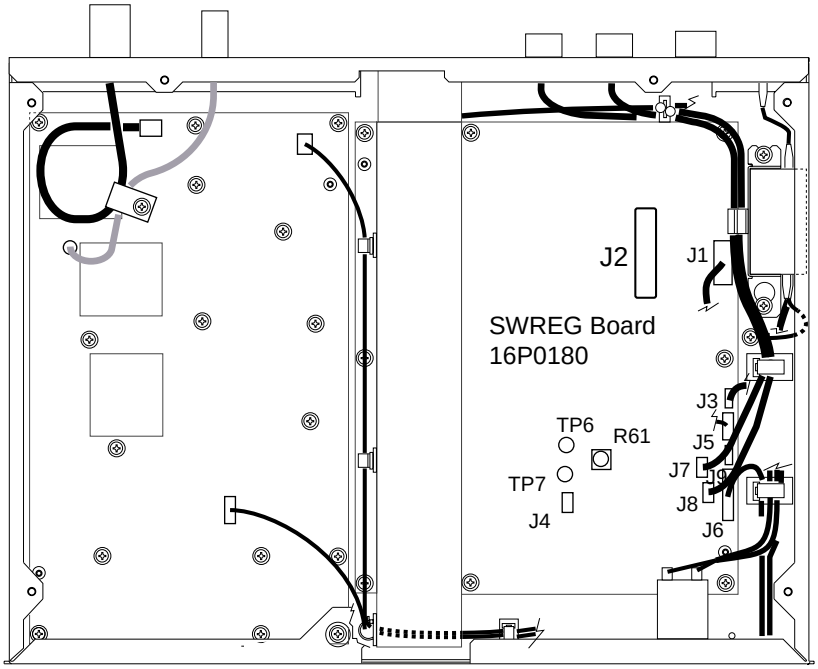
INMARSAT window

11. Confirm that the telephone number entered at step 5 appears in the “telephone number” window.
12. Check off “Use country code and area code.”
13. Click “OK” to finish.

6. CHANGING POWER SPECIFICATIONS

The equipment is shipped from the factory for use with 100 VAC line or 200 VAC line power. The power specification of the 100 V line set can be changed to 200 VAC line; the 200 V line set cannot. Below is the procedure for changing from 100 V line to 200 V line.

1. Remove the lower cover of the communication unit.
2. Remove the jumper connector J2 from the SWREG Board (16P0180).



Communication unit, lower cover removed

3. Reassemble the communication unit.

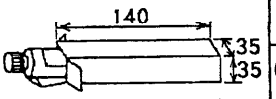
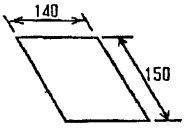
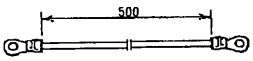
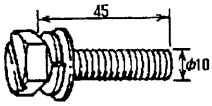
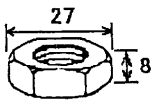
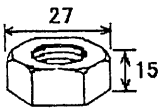
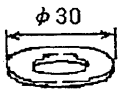
FURUNO

CODE NO.	004-441-440	16AF-X-9403-4
TYPE	CP16-01101	1/1

工事材料表

INSTALLATION MATERIALS

IB-182
IB-181

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｽﾘｰﾎﾞﾝﾄﾞ ADHESIVE		1211 50G CODE NO. 000-854-118	1	
2	放射危険ﾍﾘﾏｰｸ CAUTION LABEL		16-007-7902-0 CODE NO. 100-216-340	2	
3	ｱｰｽ線 GROUNDING WIRE ASSY.		16S0116-0 CODE NO. 000-132-825	1	
4	六角ｾﾑｽBｽﾘ割 HEX.BOLT(SLOTTED WASHER HEAD)		M10X45 SUS304 CODE NO. 000-807-931	4	
5	六角ﾅｯﾄ3種 HEX. NUT		M16 SUS304 CODE NO. 000-805-829	8	
6	六角ﾅｯﾄ1種 HEX. NUT		M16 SUS304 CODE NO. 000-863-114	8	
7	ﾐｶﾞｷ平座金 FLAT WASHER		M16 SUS304 CODE NO. 000-864-134	8	
8	ﾊﾞﾈ座金 SPRING WASHER		M16 SUS304 CODE NO. 000-864-265	8	

DWG NO.
C5609-M01- E

FURUNO ELECTRIC CO ., LTD.

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

FURUNO

CODE NO.		16AF-X-9405-2
TYPE		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	ｹｰﾌﾞﾙ（組品） CABLE ASSY.	 L=100M	12D-SFA-CV *100M* CODE NO. 000-138-866	1	選択 TO BE SELECTED
2	ｱﾝﾃﾅｹｰﾌﾞﾙ組品 ANTENNA CABLE ASSY.	 L=30M	8D-FB-CV *30M* CODE NO. 000-111-547	1	選択 TO BE SELECTED
3	ｱﾝﾃﾅｹｰﾌﾞﾙ組品 ANTENNA CABLE ASSY.	 L=50M	8D-FB-CV *50M* CODE NO. 000-117-599	1	選択 TO BE SELECTED

DWG NO.
C5609-M05- C

FURUNO ELECTRIC CO., LTD.

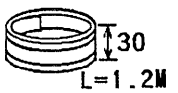
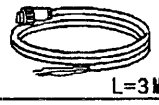
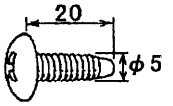
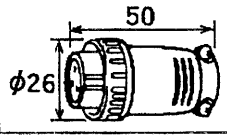
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	004-444-230	16AI-X-9405-1
TYPE	CP16-01813	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	ｱｰｽ板 COPPER STRAP		05-003-0031 CODE NO. 590-300-310	1	
2	ｺﾈｸﾀ（組品） CONNECTOR ASSY.		16S0277 CODE NO. 000-141-465	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		5X20 SUS304 1ｼｭ CODE NO. 000-802-081	4	
4	ｺﾈｸﾀ CONNECTOR		NJC-207-PF CODE NO. 000-132-815	1	

DWG NO.
C5624-M05- B

FURUNO ELECTRIC CO., LTD.

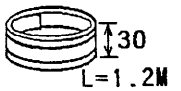
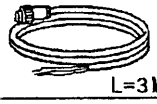
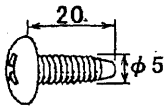
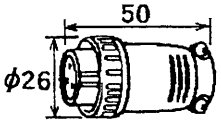
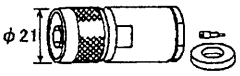
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-444-210	16AI-X-9403 -2
TYPE	CP16-01811	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	ｱｰｽ板 COPPER STRAP		05-003-0031 CODE NO. 590-300-310	1	
2	ｺﾈｸﾀ（組品） CONNECTOR ASSY.		16SO277 CODE NO. 000-141-465	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		5X20 SUS304 1ｼｭ CODE NO. 000-802-081	4	
4	ｺﾈｸﾀ CONNECTOR		NJC-207-PF CODE NO. 000-132-815	1	
5	ｺﾈｸﾀ(N) CONNECTOR		N-P-8DFB 座金付き CODE NO. 000-140-463	1	

DWG NO. C5624-M03- B

FURUNO ELECTRIC CO., LTD.

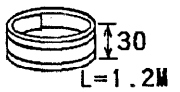
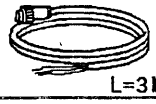
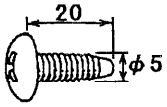
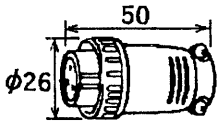
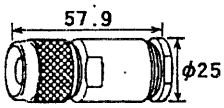
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	004-444-220	16A1-X-9404-1
TYPE	CP16-01812	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	ｱｰｽ板 COPPER STRAP		05-003-0031 CODE NO. 590-300-310	1	
2	ｺﾈｸﾀ（組品） CONNECTOR ASSY.		16S0277 CODE NO. 000-141-465	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		5X20 SUS304 1ｼｭ CODE NO. 000-802-081	4	
4	ｺﾈｸﾀ CONNECTOR		NJC-207-PF CODE NO. 000-132-815	1	
5	ｺﾈｸﾀ CONNECTOR		N-P-12DSFA CODE NO. 000-136-422	1	

DWG NO.
C5624-M04- B

FURUNO ELECTRIC CO., LTD.

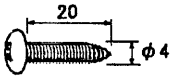
（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	005-376-110	05DX-X-9401 -2
TYPE	CP05-08002	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	ﾎﾞﾘｶﾜｯｼｬｰ WASHER		M4 CODE NO. 000-864-937	2	
2	+ﾄﾗｽﾀｯﾋﾟﾝｸﾞﾈｼﾞ TAPPING SCREW		M4X20 SUS304 CODE NO. 000-805-687	2	

DWG NO.
C5616-M01- A

FURUNO ELECTRIC CO ., LTD.

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

FURUNO

CODE NO.		16AI-X-9406 -0
TYPE		1/1

工事材料表

INSTALLATION MATERIALS

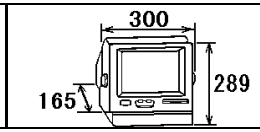
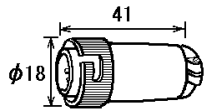
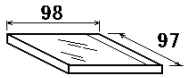
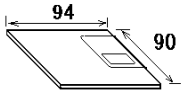
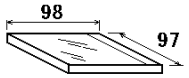
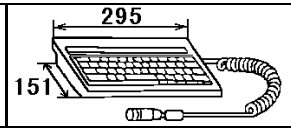
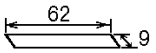
番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ｺﾈｸﾀ組品 CONNECTOR ASSY.	 10M	17JE23150-02(D8C)10M CODE NO. 000-143-843	1	選択 TO BE SELECTED
2	ｺﾈｸﾀ組品 CONNECTOR ASSY.	 20 M	17JE23150-02(D8C)20M CODE NO. 000-143-844	1	選択 TO BE SELECTED
3	ｺﾈｸﾀ組品 CONNECTOR ASSY.	 5M	17JE23150-02(D8C)5M CODE NO. 000-143-797	1	選択 TO BE SELECTED

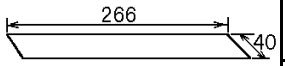
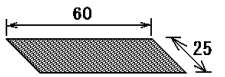
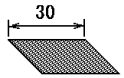
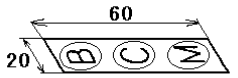
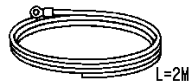
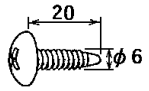
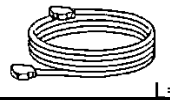
DWG NO.
C5624-M06- A

FURUNO ELECTRIC CO ., LTD.

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

PACKING LIST IB-582

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
ﾀｰﾐﾅﾙﾕﾆｯﾄ TERMINAL UNIT		IB-582 000-043-386	1
付属品 ACCESSORIES FP16-00401			
ｺﾈｸﾀ (RM) CONNECTOR		RM12BPE-2PH 000-143-738	1
ﾌﾛｯﾋﾟｰﾃﾞｨｽｸｹｰｽ FLOPPY DISK CASE		FC-305 000-141-773	1 (*2)
ﾌﾛｯﾋﾟｰﾃﾞｽｸ Floppy Disk		MF2-HD DOSI8 B40P 000-141-772	1 (*1)
ﾌﾛｯﾋﾟｰﾃﾞｨｽｸ(書込品) FLOPPY DISK		16-501-500 004-444-250	1
付属品 ACCESSORIES			
ﾐﾆｷｰﾎﾞｰﾄﾞ MINI KEYBOARD		BTC-5100C PS/2 000-138-599	1
工事材料 INSTALLATION MATERIALS CP16-01821			
ﾊﾘﾏｰｸ (C.S.D) LABEL (C.S.D)		16-011-5804-0 100-248-060	1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ﾊﾘﾏｰｸ LABEL		16-011-5803-1 100-248-051	1
ﾌｧｽﾅｰ(4) HOOK LOOP FASTENER		16-007-6815-0 100-237-680	4
ﾌｧｽﾅｰ(3) HOOK LOOP FASTENER		16-007-6814-0 100-237-670	4
ﾊﾘﾏｰｸ(INMAR) LABEL (INMAR)		16-007-6919-0 100-217-010	1
ｱｰｽ線 GROUNDING WIRE		08S0087 000-108-138	1
+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		6X20 SUS304 1ｼｭ 000-802-084	5
その他工材 OTHER INSTALLATION MATERIALS			
ｹｰﾌﾞﾙ組品 CABLE		17JE-573-10ﾊｰﾈｽ 16S0068 *5M* 000-127-108	1
電源ｹｰﾌﾞﾙDC用 POWER CABLE (FOR DC MAINS)		VCTF0.75X2C *3M* 000-112-543	1

注記）(*1),(*2)は、セットされています。
(*1) and (*2) are a set.

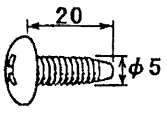
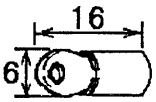
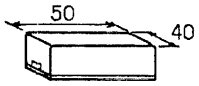
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	004-441-450	16AC-X-9422 -1
TYPE	CP16-01102	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	アース線 GROUNDING WIRE		08S0087 CODE NO. 000-108-138	1	
2	+トラスタッピンネジ +TAPPING SCREW		5X20 SUS304 1シュ CODE NO. 000-802-081	4	
3	圧着端子 CRIMP-ON LUG		FV1.25-3 アカ CODE NO. 000-538-113	6	
4	ローゼット MODULAR JACK BOX		MJ-2S *GR* CODE NO. 000-132-764	3	

DWG NO.
C5609-M03- C

FURUNO ELECTRIC CO., LTD.

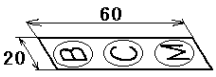
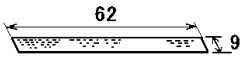
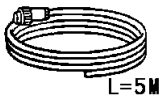
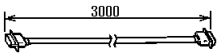
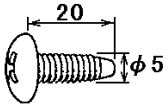
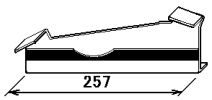
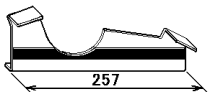
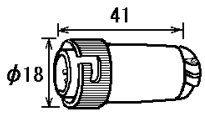
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	004-444-290	16AI-X-9402 -1
TYPE	CP16-01701	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	ﾊﾘﾏｰｸ(INMAR) LABEL (INMAR)		16-007-6919-0 CODE NO. 100-217-010	1	
2	ﾊﾘﾏｰｸ LABEL		16-007-6927-0 CODE NO. 100-222-480	1	
3	電源ｺｰﾄﾞ組品 POWER CABLE ASSY.		16S0084(VCTF-0.75X3C *5M*) CODE NO. 000-132-249	1	
4	ｹｰﾌﾞﾙ組品 CABLE ASSY.		16S0184 CODE NO. 000-138-539	1	
5	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		5X20 SUS304 1ｼｭ CODE NO. 000-802-081	4	
6	ﾌﾟﾘﾝﾀ取付板(1)組品 PRINTER FIXTURE		CP16-00501 CODE NO. 004-434-400	1	
7	ﾌﾟﾘﾝﾀ取付板(2)組品 PRINTER FIXTURE		CP16-00502 CODE NO. 004-434-410	1	
8	ｺﾈｸﾀ (RM) CONNECTOR		RM12BPE-2PH CODE NO. 000-143-738	1	

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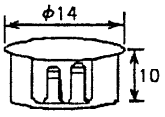
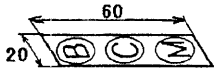
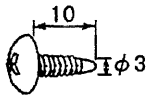
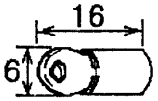
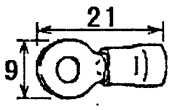
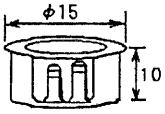
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	004-444-300	16A1-X-9401 -0
TYPE	CP16-01801	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	ﾎｰﾙﾌﾟﾗｸﾞ HOLE PLUG		0500 CODE NO. 000-802-393	1	
2	ﾊﾘﾏｰｸ(INMAR) LABEL (INMAR)		16-007-6919-0 CODE NO. 100-217-010	1	
3	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ TAPPING SCREW		3X10 SUS304 CODE NO. 000-802-079	4	
4	圧着端子 CRIMP-ON LUG		FV1.25-3 7カ CODE NO. 000-538-113	5	
5	圧着端子 CRIMP-ON LUG		FV2-3 CODE NO. 000-108-424	1	
6	ﾌﾞｯｼﾝｸﾞ BUSHING		SB-500-6 CODE NO. 000-808-099	1	

DWG NO.
C5624-M01- A

FURUNO ELECTRIC CO ., LTD.

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

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FURUNO

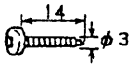
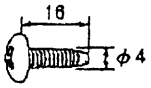
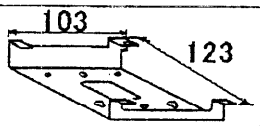
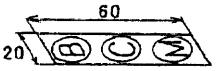
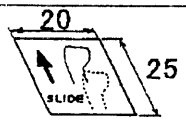
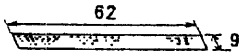
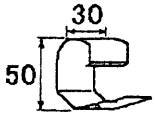
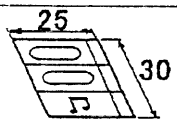
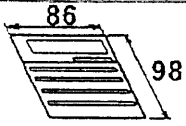
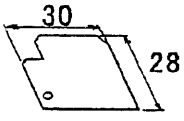
CODE NO.	004-438-410	16AG-X-9412 -0
TYPE	CP16-00511	1/1

工事材料表

INSTALLATION MATERIALS

FC755D1 電話機

TELEPHONE

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	+ナベPタイトネジ SCREW		3X14 SWCH18A MFZN-2-C CODE NO. 000-800-172	1	
2	+トラスタッピンネジ +TAPPING SCREW		4X16 SUS304 CODE NO. 000-802-080	4	
3	壁掛金具 MOUNTING BASE		FC755WM CODE NO. 000-808-704	1	
4	ハリマーク(INMAR) LABEL (INMAR)		16-007-6919-0 CODE NO. 100-217-010	1	
5	ハリマーク(SLIDE) LABEL(SLIDE)		16-007-6405-0 CODE NO. 100-222-470	1	
6	ハリマーク LABEL		16-007-6927-0 CODE NO. 100-222-480	1	
7	受話器固定具 HANDSET FIXTURE		16-011-7101-1 CODE NO. 100-273-831	1	
8	キーシール LABEL		16-011-7111-0 CODE NO. 100-273-850	1	
9	シート(TEL.) SHEAT(TEL.)		16-011-7112-0 CODE NO. 100-273-860	1	
10	接着テープ VULCANIZING TAPE		16-011-7103-0 CODE NO. 100-273-940	1	

DWG NO.
C5609-M13- A

FURUNO ELECTRIC CO., LTD

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

A-13

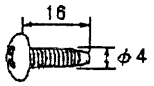
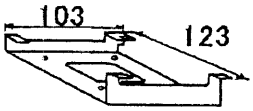
FURUNO

CODE NO.	004-438-420	16AG-X-9413 -0
TYPE	CP16-00512	1/1

工事材料表

INSTALLATION MATERIALS

FC755D1 電話機
TELEPHONE
ｵﾌﾟｼｮﾝ工事材料
FOR OPTION MOUNTING

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ +TAPPING SCREW		4X16 SUS304 CODE NO. 000-802-080	4	
2	取付板 MOUNTING BASE		16-011-7102-0 CODE NO. 100-273-840	1	

DWG NO. C5609-M14- A

FURUNO ELECTRIC CO . , LTD

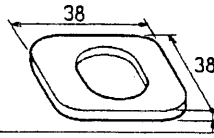
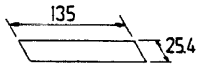
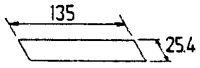
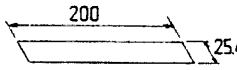
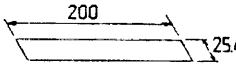
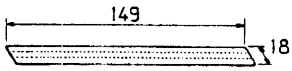
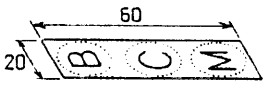
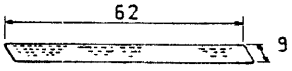
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO

CODE NO.	000-043-321	16AC-X-9414
TYPE	CP16-00590	

工事材料表 INSTALLATION MATERIALS

PFX-50 ファクシミリ FACSIMILE

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	アース線 GROUNDING WIRE	 L=2m	08S0087-0 CODE NO. 000-108-138	1	
2	フック押え板 HOOK FIXTURE	 38 38 5	16-007-6521-0 KDG1800 BLKクロ CODE NO. 100-230-510	1	
3	マジックテープ°(1) HOOK LOOP FASTENER	 135 25.4	16-007-6523-0 SJ-3571(LOOP) CODE NO. 100-230-520	2	本体底面貼りつけ用 STICKED TO BOTTOM
4	マジックテープ°(2) HOOK LOOP FASTENER	 135 25.4	16-007-6524-0 SJ-3572(HOOK) CODE NO. 100-230-530	2	卓上に貼りつけ用 STICKED TO TABLE
5	マジックテープ°(3) HOOK LOOP FASTENER	 200 25.4	16-007-6525-0 SJ-3571(LOOP) CODE NO. 100-230-540	1	本体底面貼りつけ用 STICKED TO BOTTOM
6	マジックテープ°(4) HOOK LOOP FASTENER	 200 25.4	16-007-6526-0 SJ-3572(HOOK) CODE NO. 100-230-550	1	卓上貼りつけ用 STICKED TO TABLE
7	ハリマーク(PFX) LABEL	 149 18	16-007-6931-0 CODE NO. 100-230-560	1	英文用キーラベル ENGLISH KEY LABEL
8	ハリマーク (INMAR) LABEL	 60 20 B C M	16-007-6919-0 CODE NO. 100-217-010	1	"B"マークを貼る STICK "B" LABEL
9	ハリマーク LABEL	 62 9	16-007-6927-0 CODE NO. 100-222-480	1	COMPASS SAFE DISTANCE
			CODE NO.		

（略図の寸法は、参考値です。）

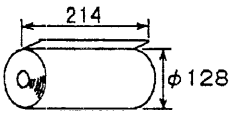
図番 DWG. NO. C5589-M15-A (1/1)

FURUNO

CODE NO.	000-043-258	16AC-X-9501 -2
TYPE	FP16-00100	1/1

付属品表

ACCESSORIES

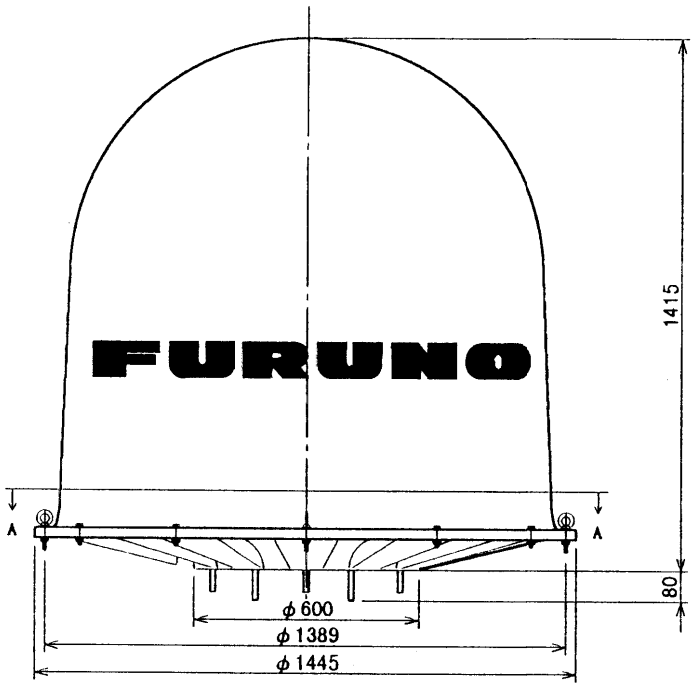
番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾌﾟﾘﾝﾀｰ用紙 RECORDING PAPER		A2 1PLY W CODE NO. 000-134-903	1	

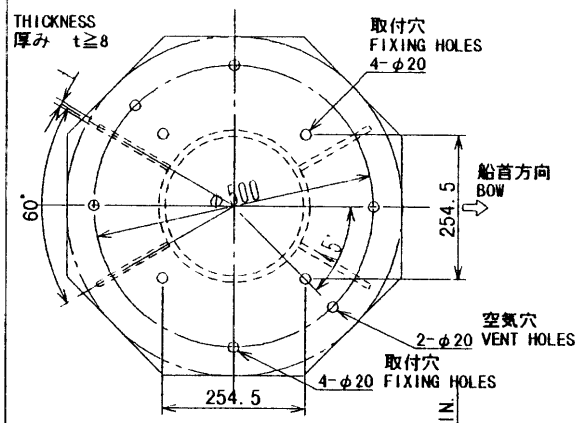
DWG NO.
C5589-F01- D

FURUNO ELECTRIC CO ., LTD.

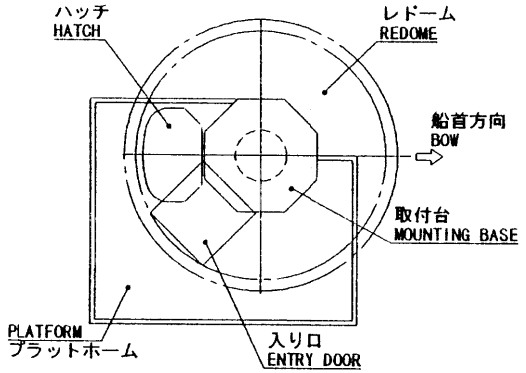
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

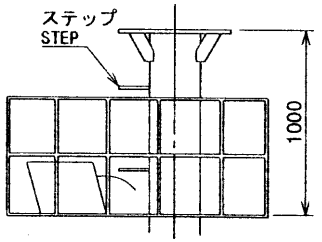
FURUNO



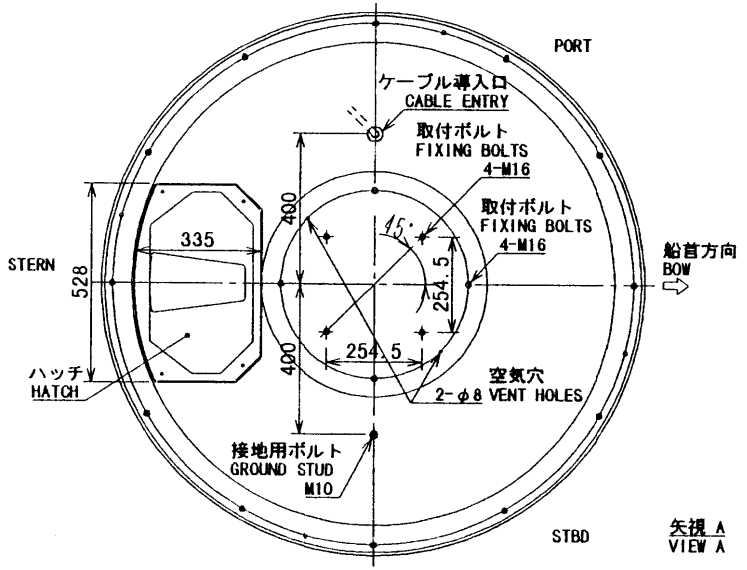


取付台（造船所手配）
MOUNTING BASE (SHIPYARD SUPPLY)

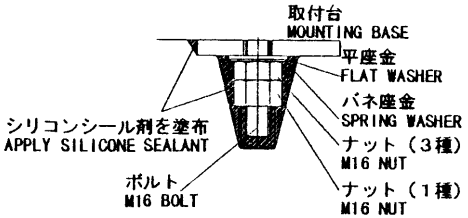




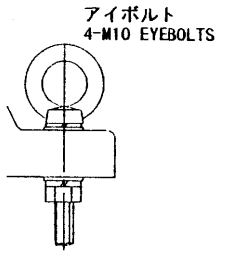
プラットホーム製作例
EXAMPLE OF PLATFORM



矢視 A
VIEW A



取付ボルト部詳細
DETAILS OF FIXING BOLT



吊り上げ用アイボルト詳細
DETAILS OF EYEBOLT

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
500 ＜ L ≦ 1000	±4
1000 ＜ L ≦ 2000	±5
2000 ＜ L ≦ 4000	±7
4000 ＜ L ≦ 8000	±10
8000 ＜ L	±15

DRAWN Jul. 3. '00 T.YAMADA		TITLE	IB-182
CHECKED		名称	アンテナユニット
APPROVED	FELCOM 82		外寸図
SCALE 1/20	MASS ±10% 90 kg	NAME	ANTENNA UNIT
DWG. No. C5624-G02- A	16-015-1000-G0		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

D-1

FURUNO

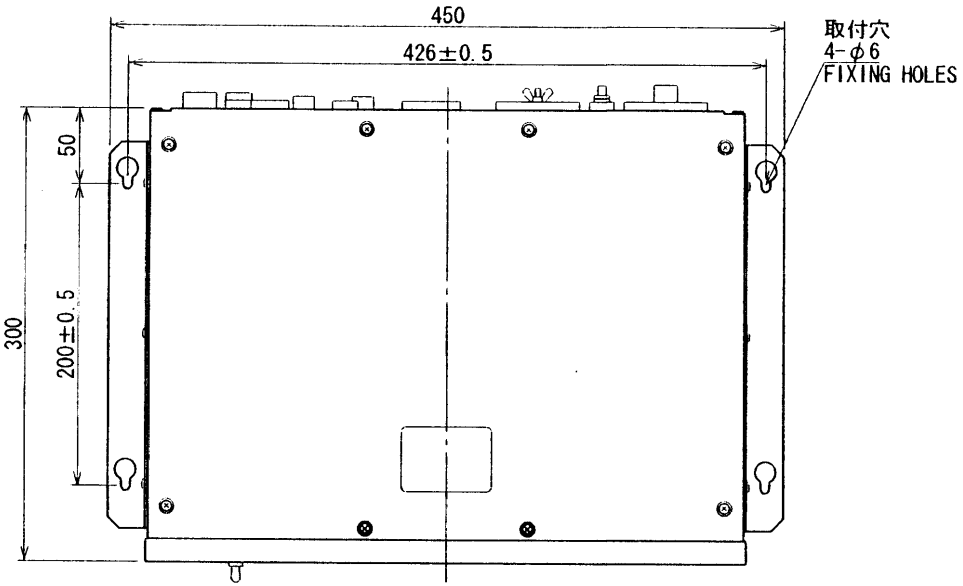
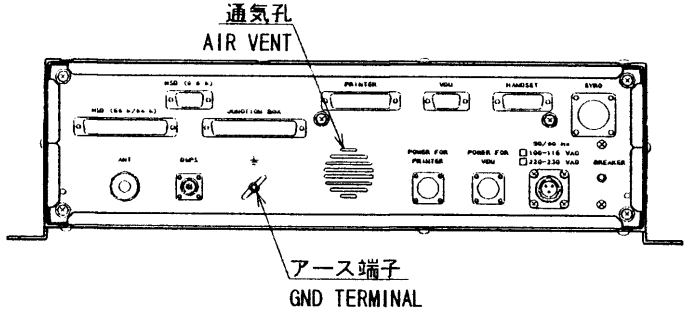
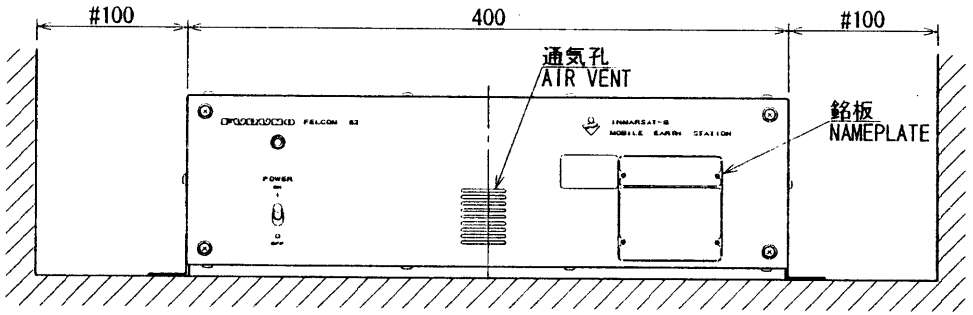


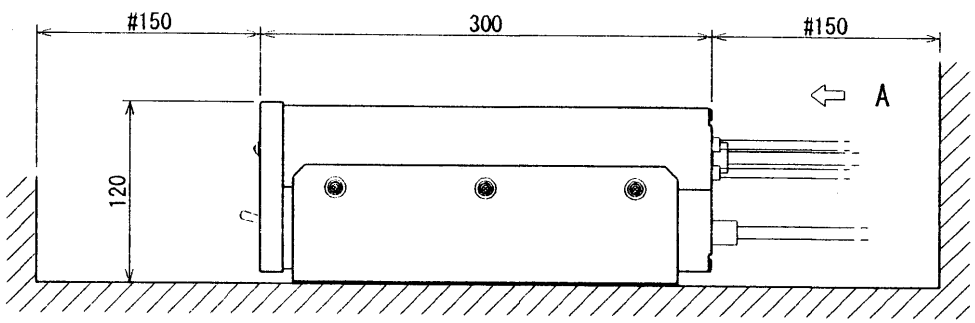
表１　TABLE 1

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



矢視 A
VIEW A





注　記

１）　#印寸法は最小サービス空間寸法とする。

２）　指定外寸法公差は表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

４）　装備ケーブルはサービス時、本体を前方に十分引き出せるよう余裕を持たせること。

NOTE

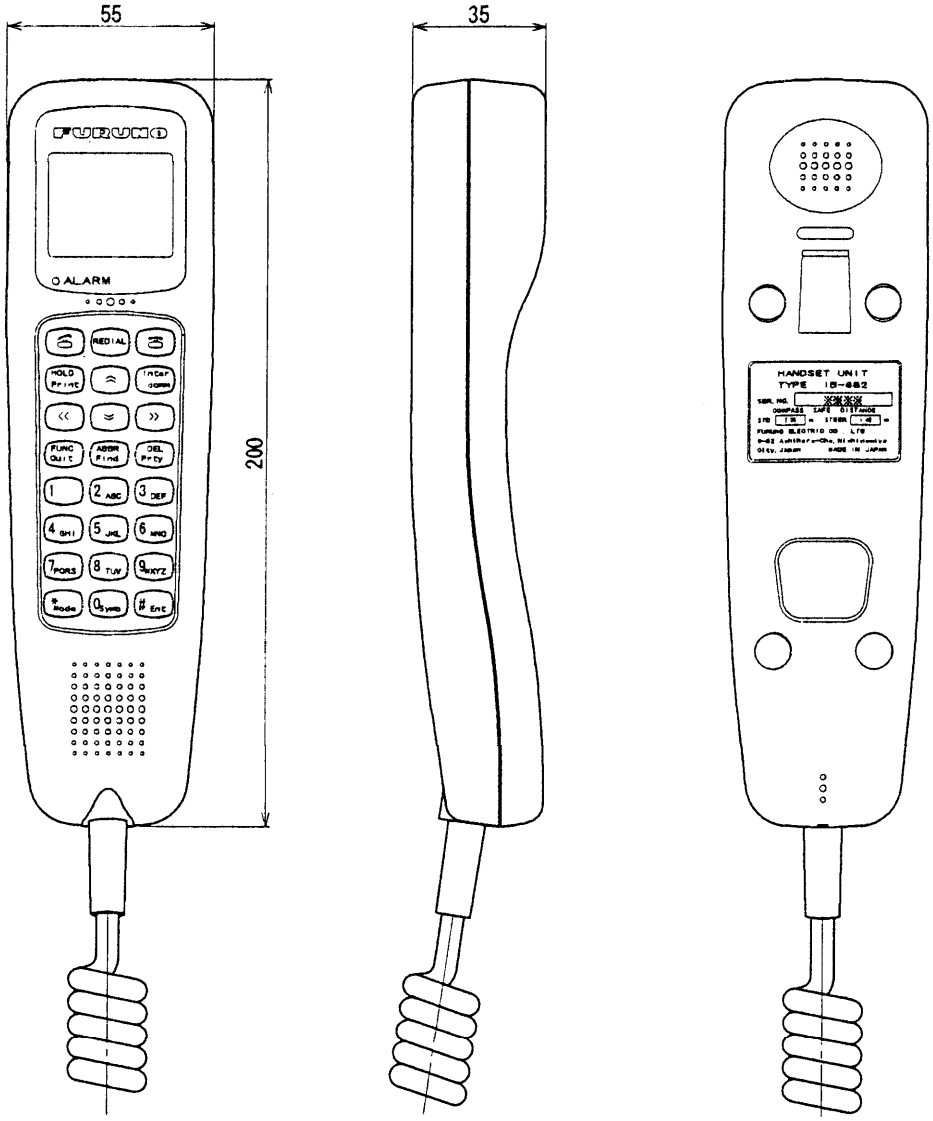
1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 5x20 FOR FIXING THE UNIT.
4. KEEP SUFFICIENT CABLE LENGTH BEHIND THE UNIT FOR MAINTENANCE.

DRAWN Aug.24.'01 T.YAMASAKI			TITLE IB-282
CHECKED Aug.28.'01 T.K			名称 通信制御ユニット
APPROVED Aug.28.'01 T.K		FELCOM 82	外寸図
SCALE 1/5	MASS ±10% 7.7 kg		NAME COMMUNICATION UNIT
DWG. No. C5624-G01- A		16-015-200G-2	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

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

表1
TABLE 1



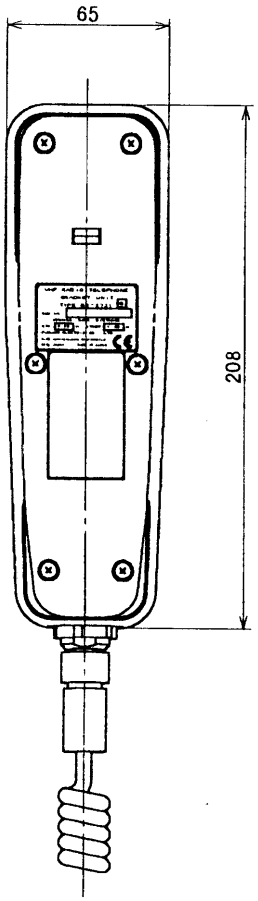
注記 1) 指定なき寸法公差は表1による。

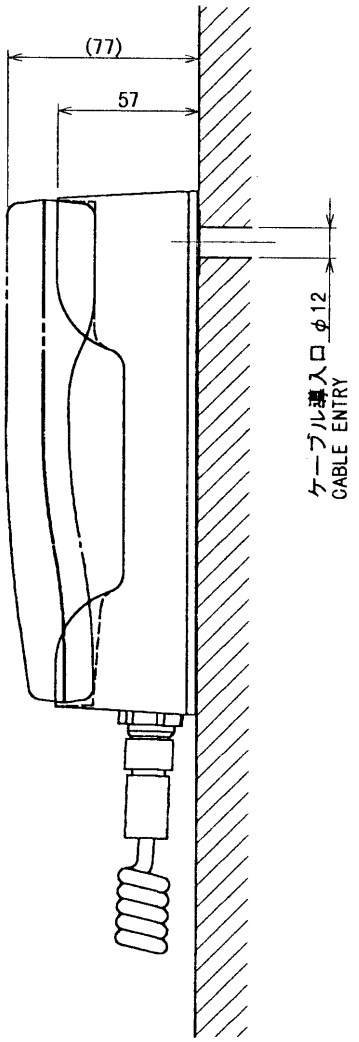
NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

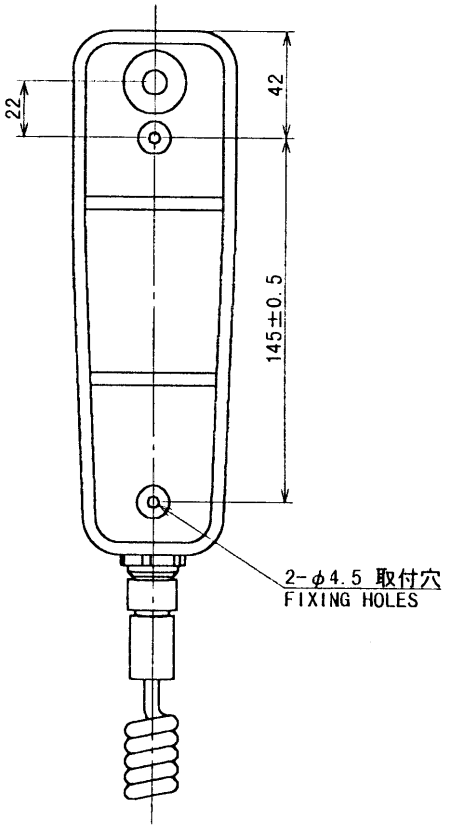
DRAWN July 7 '00 T.YAMASAKI			TITLE IB-882
CHECKED July 10 '00 Y.Kimura			名称 ハンドセット
APPROVED July 10 '00 S.Fukuhara		FELCOM 82	外寸図
SCALE 1/2	MASS 0.3 kg	質量はケーブルを含む MASS W/ CABLE.	NAME HANDSET
DWG. No. C5624-G07- 1		16-015-8000-G0	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO







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

表1
TABLE 1

注記
1）指定なき寸法公差は表1による。
2）取付用ネジはタッピンネジ4×10以上を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
2. USE TAPPING SCREWS 4x10 FOR FIXING UNIT.

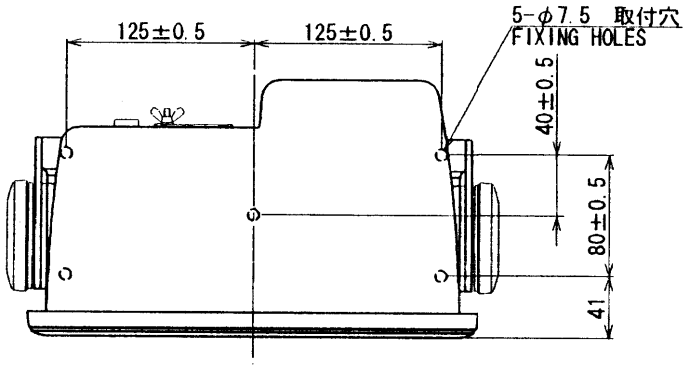
DRAWN Apr.17'00 TYAMASAKI		TITLE	RB-2721B
CHECKED Apr.17'00 Y.Kuramoto		名称	ハンドセットハンガー
APPROVED Apr.17'00 Y.Kuramoto	FM-2721		外寸図
SCALE 1/3	MASS ±10% 0.37 kg	NAME	BRACKET FOR HANDSET
DWG. No. C5616-G05- B	05-086-2100-G2		OUTLINE DRAWING

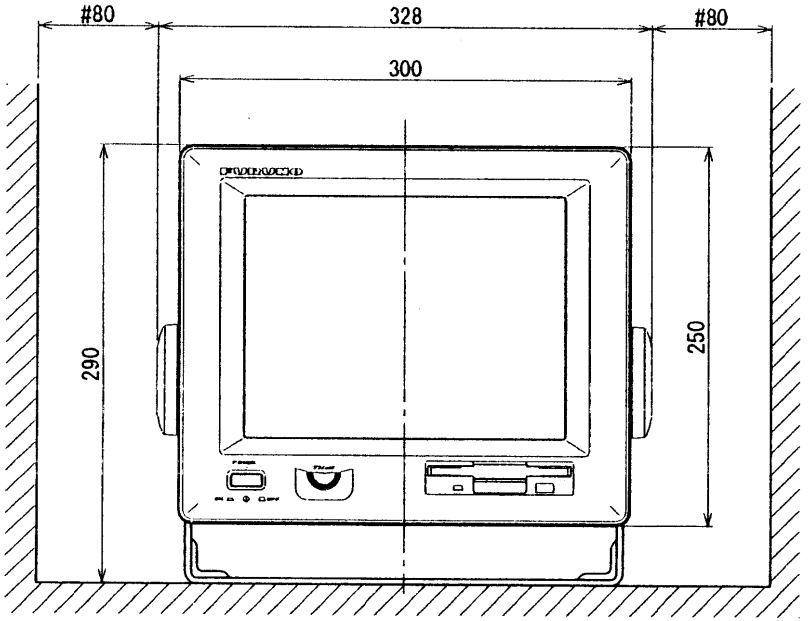
FURUNO ELECTRIC CO., LTD.

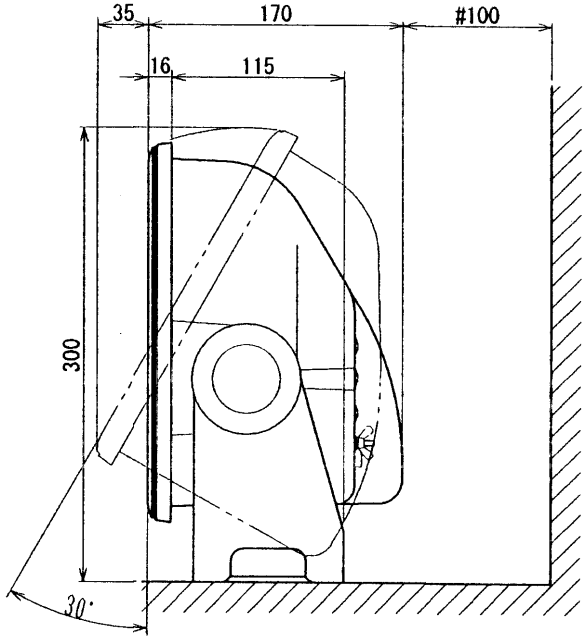
FURUNO

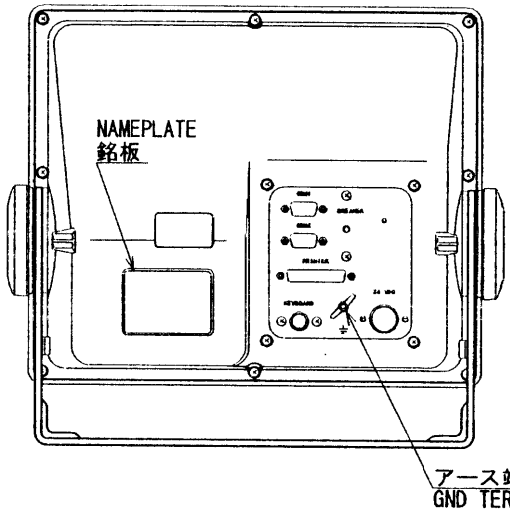
表１　TABLE 1

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









注　記

1）　#印寸法は最小サービス空間寸法とする。

2）　指定外寸法公差は表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

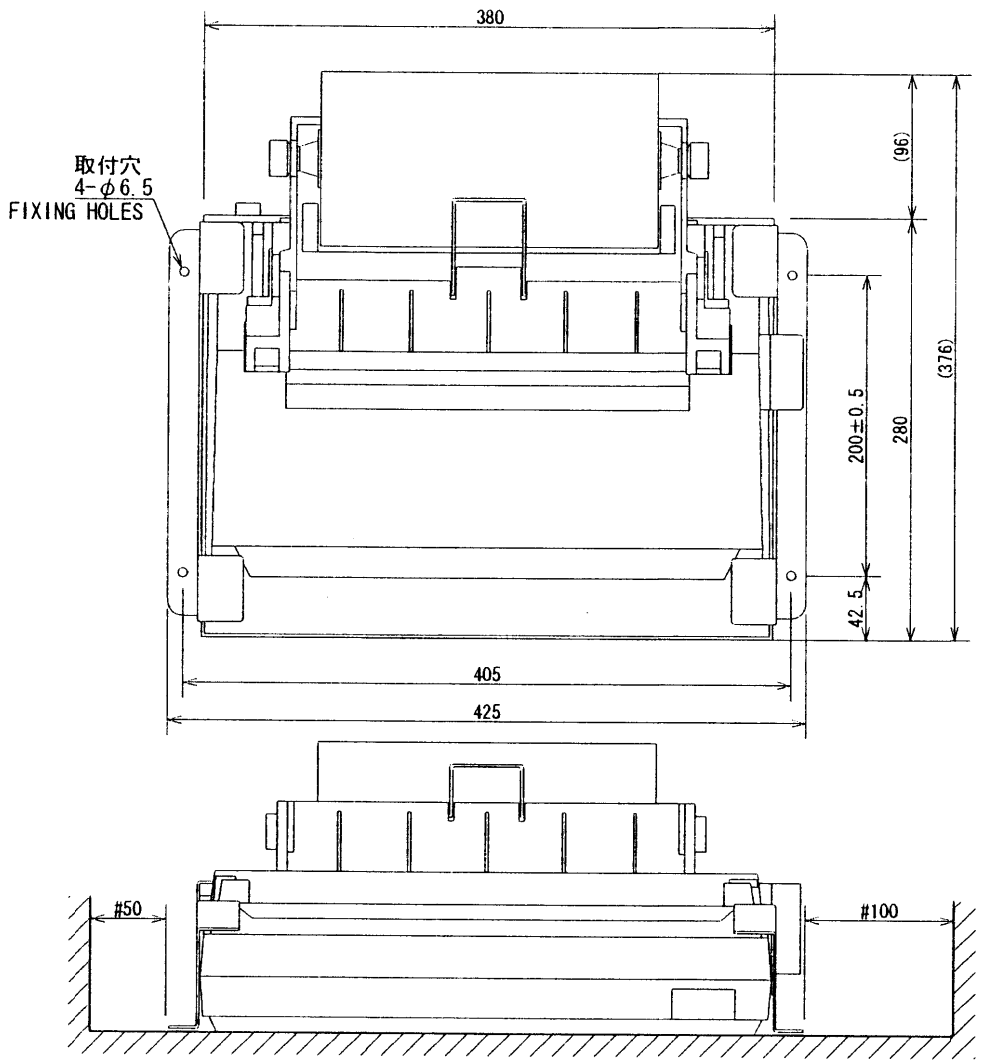
1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

DRAWN July 7 '00 T.TAKAHASHI		TITLE	IB-582
CHECKED July 10 '00 Y.K		名称	ターミナルユニット(卓上装備)
APPROVED July 11.'00 S.Yoshi	FELCOM 82		外寸図
SCALE 1/5	MASS ±10% 5.0 kg	NAME	TERMINAL UNIT (DESKTOP MOUNT)
DWG. No. C5624-G03- A	16-015-500G- 2		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

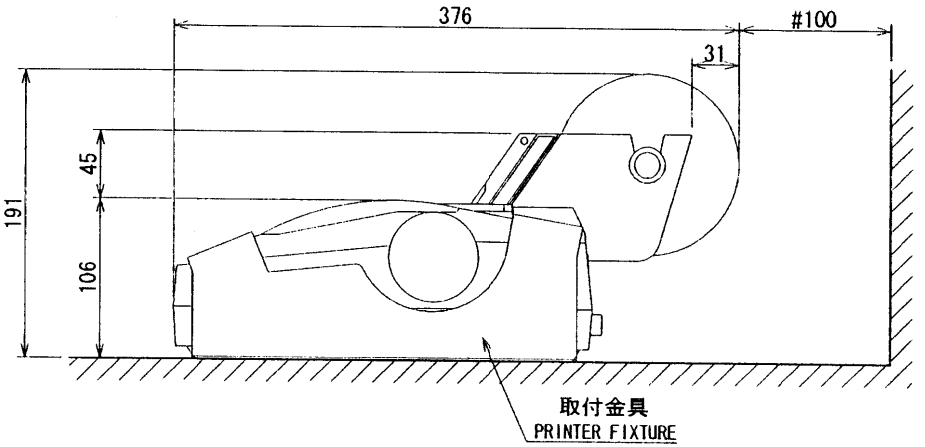
D－5

FURUNO



寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 ＜ L ≦ 50	±1．5
50 ＜ L ≦ 100	±2．5
100 ＜ L ≦ 500	±3

表 1
TABLE 1

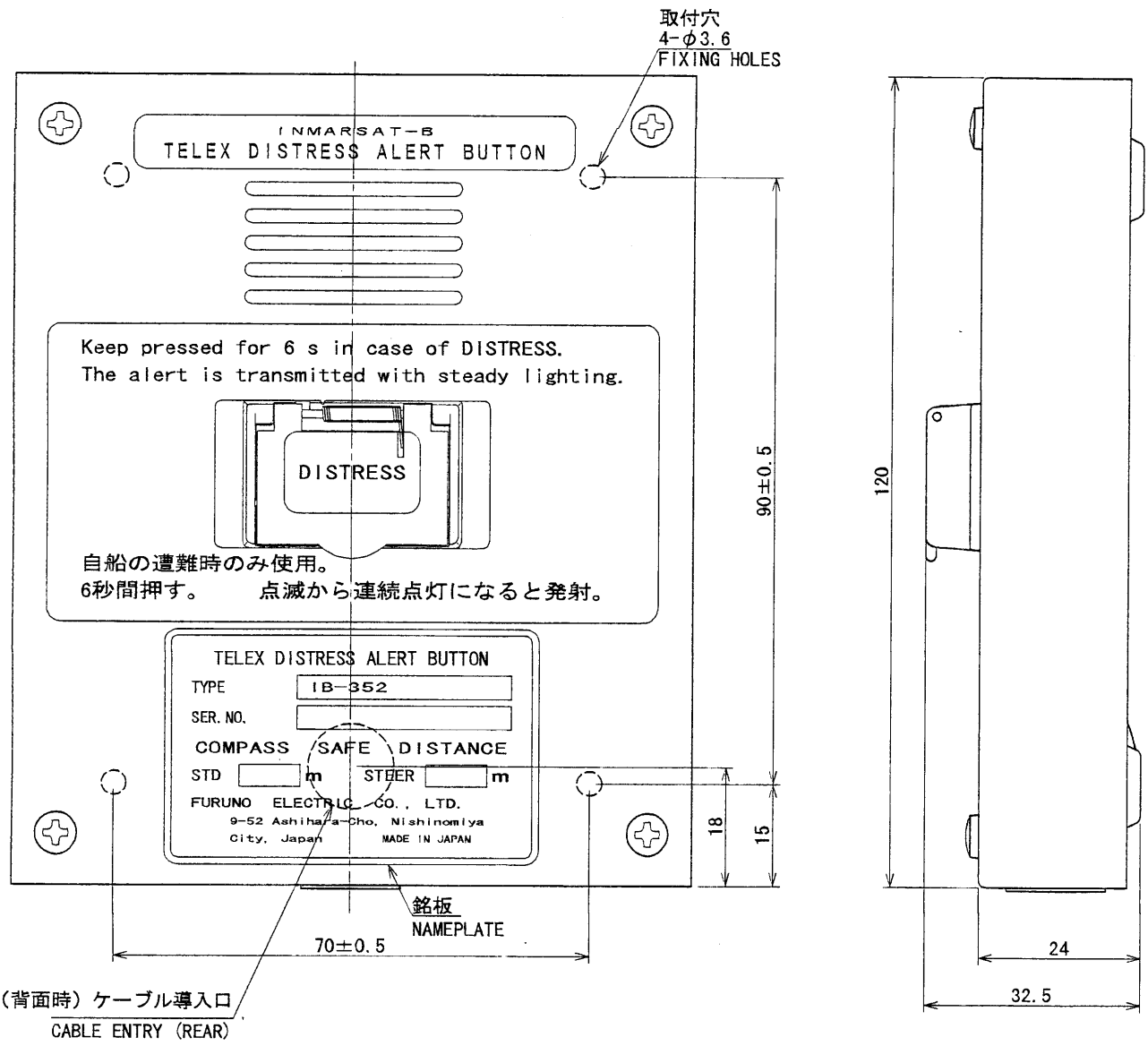


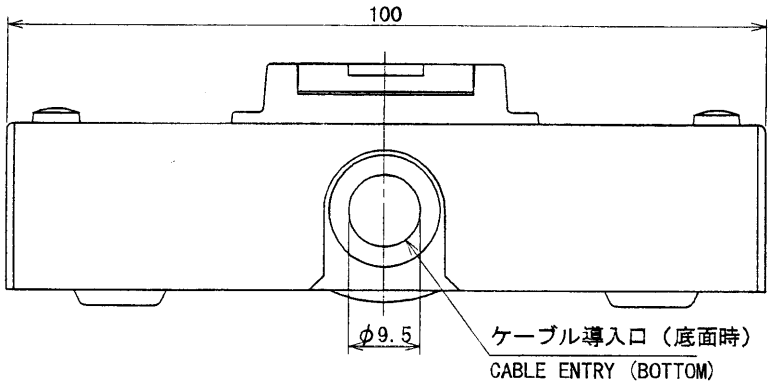
注 記 1） #印寸法は最小サービス空間寸法とする。
2） 指定外の寸法公差は表１による。
3） 取付用ネジはＭ６ボルトまたはコーチボルト呼び径６を使用のこと。

NOTE 1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE M6 BOLTS OR COACH BOLTS φ6 FOR FIXING UNIT.

DRAWN July 26'00 T.YAMASAKI			TITLE PP-510
CHECKED July 27'00 T.K			名称 プリンタ
APPROVED July 27'00 T.K			外寸図
SCALE 1/5	MASS ±10% 3.8 kg		NAME PRINTER
DWG. No. C5589-G08- H		16-007-660G- 2	OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.





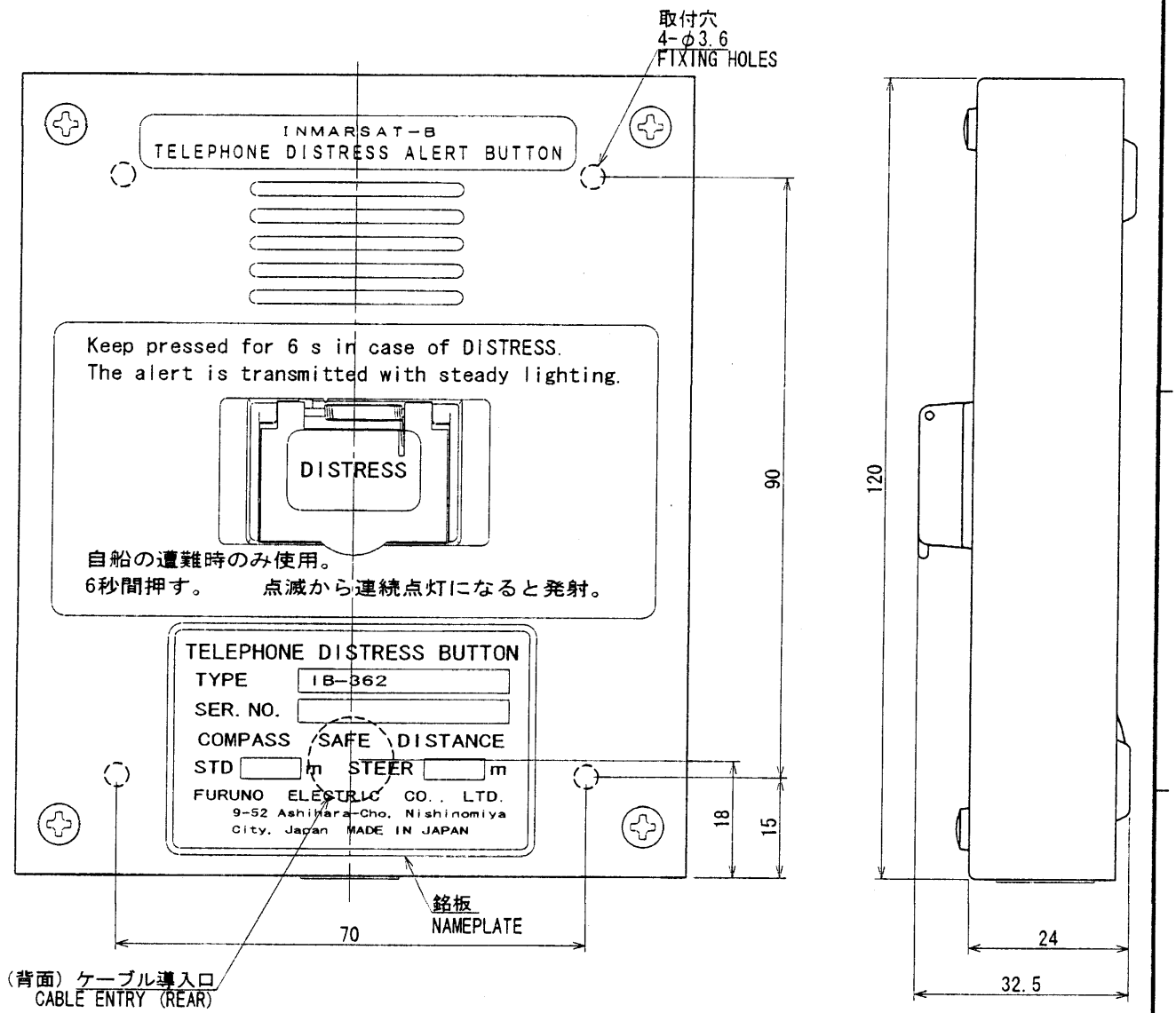
寸法区分(mm) DIMENSION	公差(mm) TOLERANCE
0 ＜ L ≦ 50	±1.5
50 ＜ L ≦ 100	±2.5
100 ＜ L ≦ 500	±3

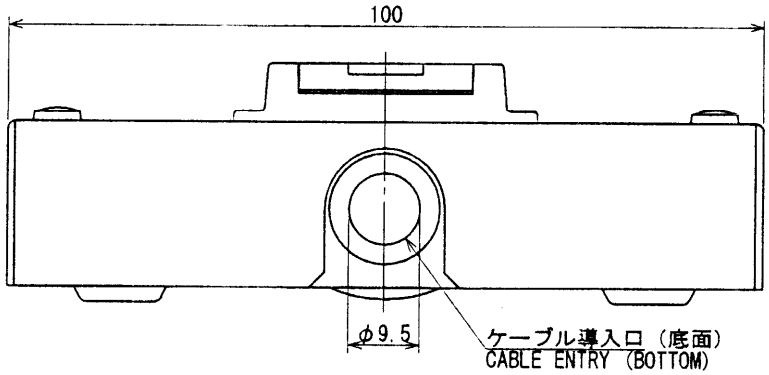
表1
TABLE 1

注記　1）指定なき寸法公差は表1による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN Mar. 22 '01 T. YAMASAKI			TITLE IB-352
CHECKED Mar 22 '01 Y. K			名称 遭難警報発呼器
APPROVED Mar 22 '01 Y. K		FELCOM 82	外寸図
SCALE 1/1	MASS ±10% 0.4 kg		NAME TELEX DISTRESS ALERT BUTTON
DWG. No. C5624-G04- B		16-015-350G- 1	OUTLINE DRAWING





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

表1
TABLE 1

注記

1）指定なき寸法公差は表1による。

NOTE

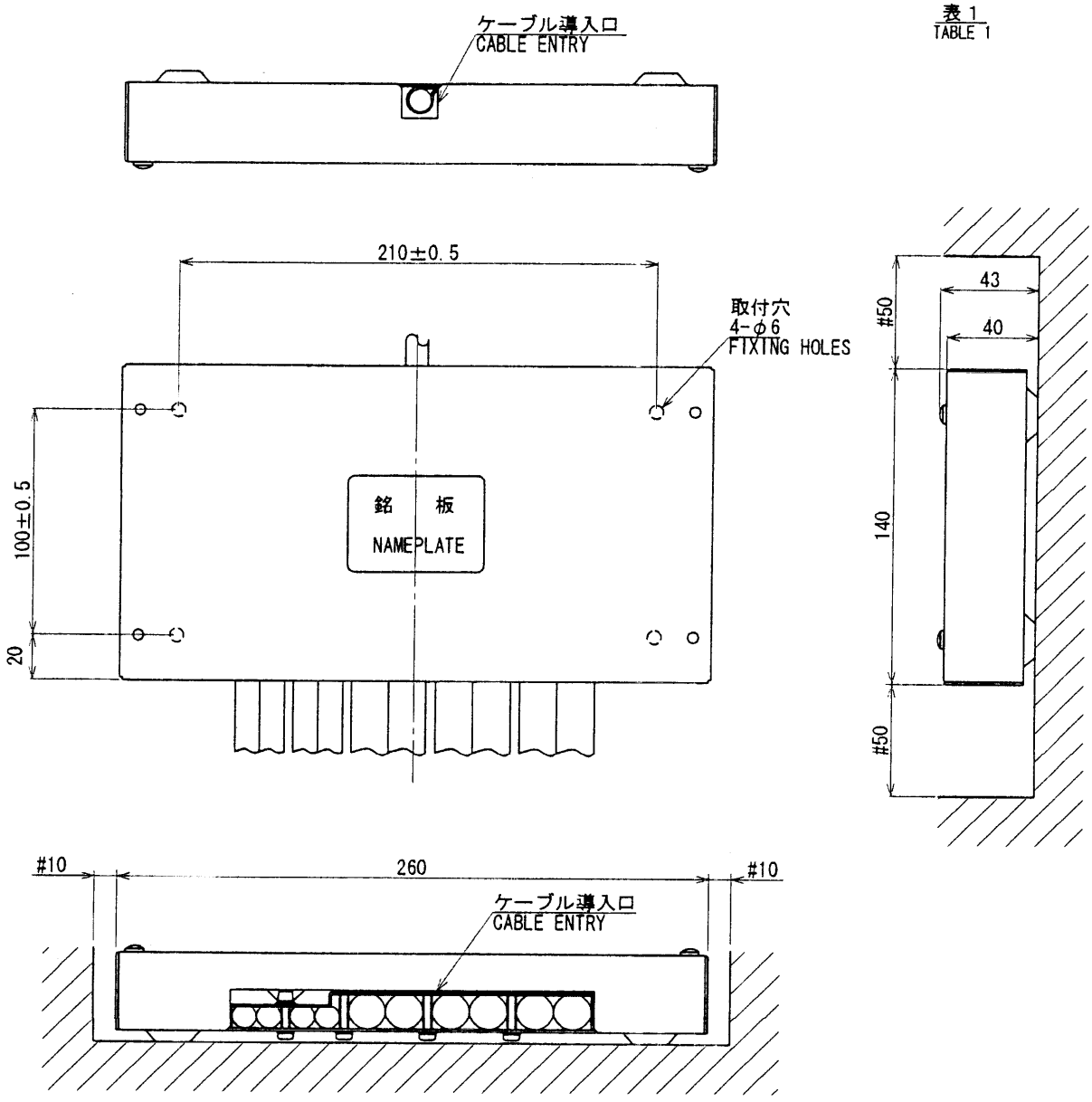
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN July 12 '00 TYAMASAKI			TITLE IB-362
CHECKED July 13 '00 T. Kin			名称 遭難電話ボタン
APPROVED July 15 '00 S. Sakamoto		FELCOM 82	外寸図
SCALE 1/1	MASS 0.33 kg ±10%		NAME TELEPHONE DISTRESS ALERT BUTTON
DWG. No. C5624-G06- A		16-015-360G- 1	OUTLINE DRAWING

FURUNO

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

表1
TABLE 1

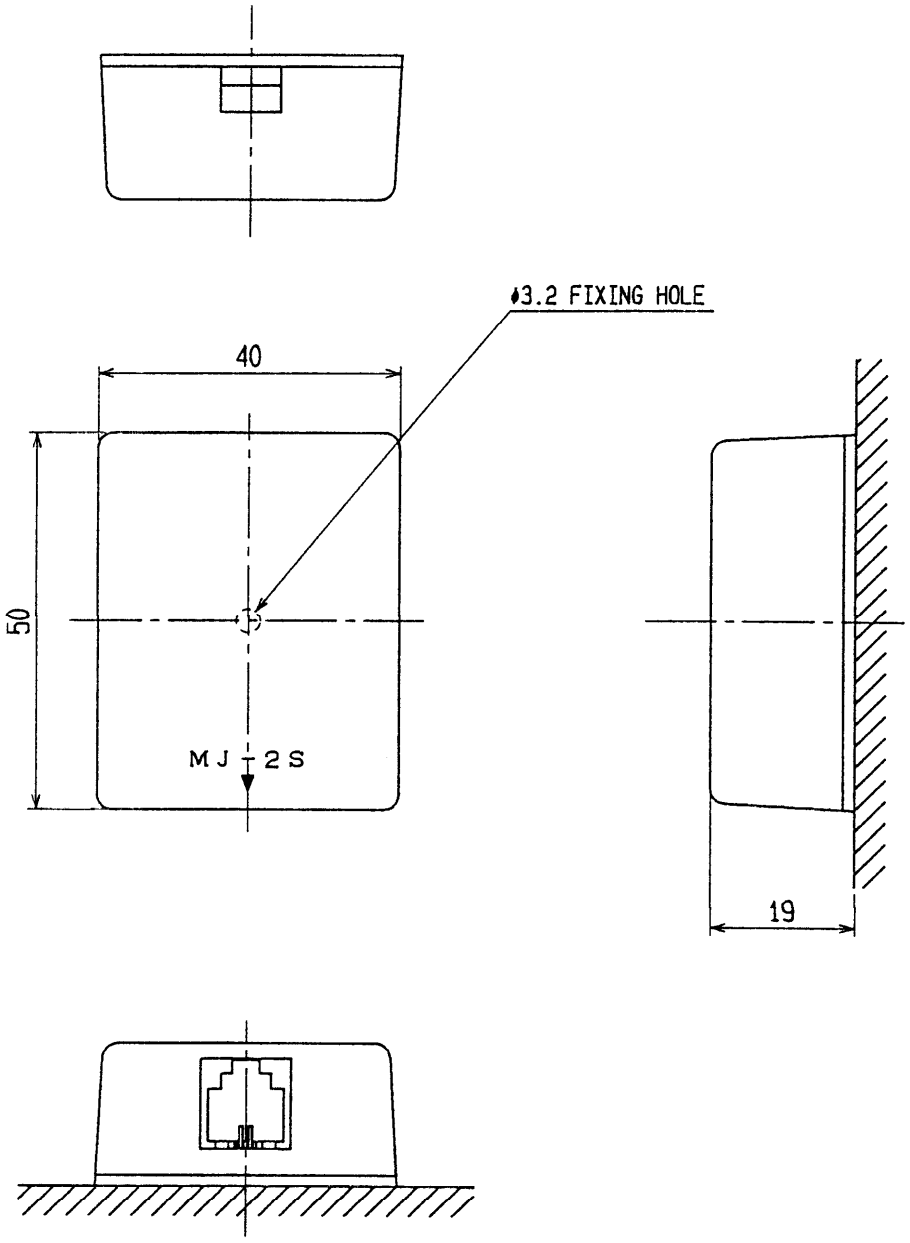


注記　1）指定なき寸法公差は表1による。
2）取付用ネジは＋トラスタッピンネジ呼び径５×20を使用のこと。
3）装備ケーブルはサービス時、指示部を十分引き出せるよう余裕をもたせること。
4）装備ケーブルの端末処理は、装備要領書参照のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
2. USE TAPPING SCREWS 5x20 FOR FIXING THE UNIT.
3. KEEP SUFFICIENT CABLE LENGTH BEHIND THE UNIT FOR MAINTENANCE.
4. FOR FABLICATION OF CABLE ENDS, REFER TO INSTALLATIION INSTRUCTIONS.

DRAWN July 12'00 T.YAMASAKI			TITLE IB-313
CHECKED July 13'00 T. Kawai			名称 接続箱
APPROVED July 14'00 S. Yamamoto		FELCOM 82	外寸図
SCALE 1/3	MASS 1.5 kg ±10%		NAME JUNCTION BOX
DWG. No. C5624-G05- A		16-015-310G- 1	OUTLINE DRAWING

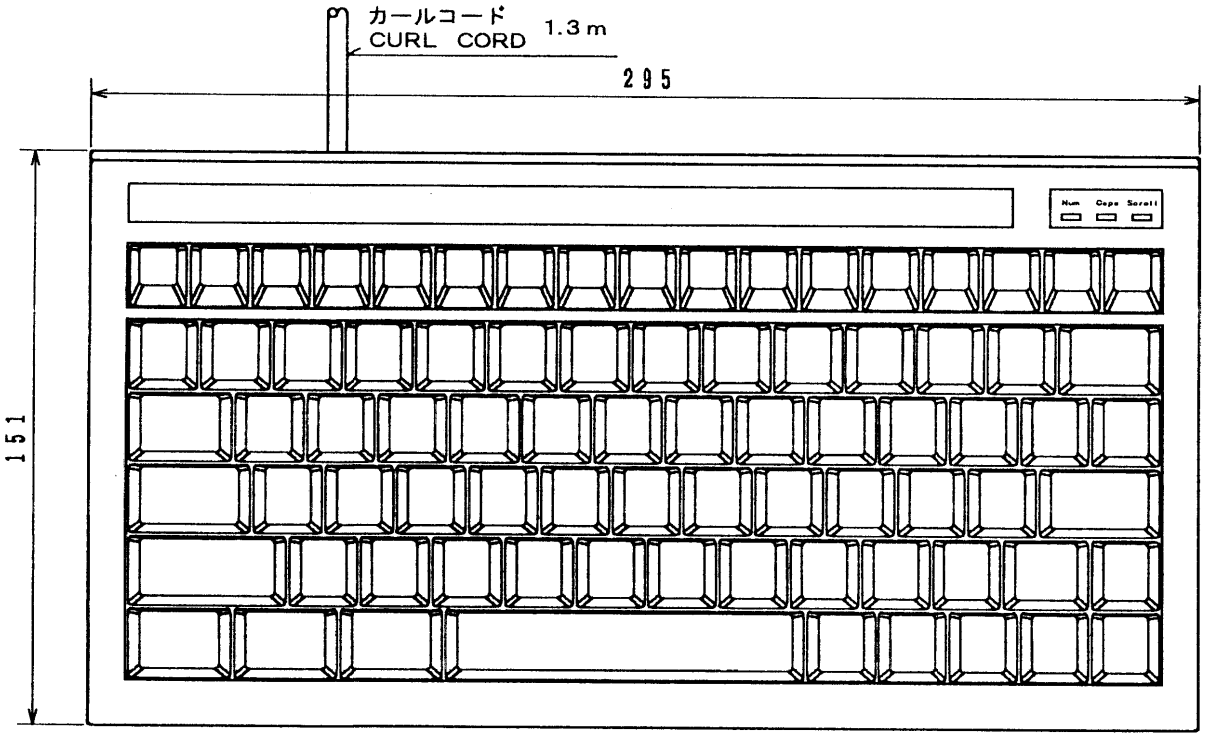
FURUNO ELECTRIC CO., LTD.

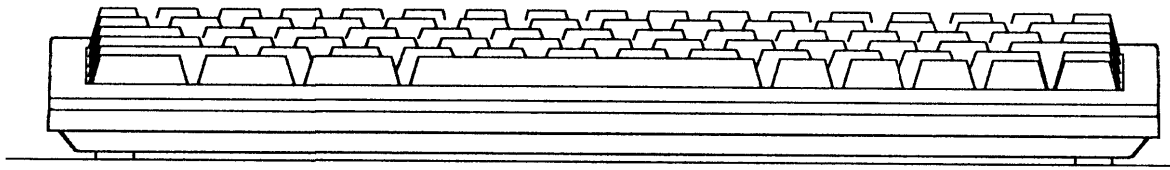


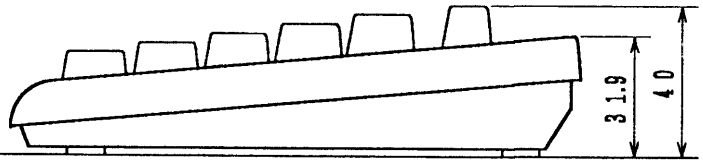
		品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	適要 REMARKS
承認 APPROVED	Nov. 26,'93 K. Ota	三角法 THARD ANGLE PROJECTION		名称 TITLE	OP16－8／OP16－13 (MJ2S) ロ－ゼット MODULAR JACK BOX		
検図 CHECKED	Nov. 26,'93 K. Kusunoki	尺度 SCALE	／				
製図 DRAWN		質量 WEIGHT	0.05kg	図番 DWG. NO.	C5079-G03-C		

FURUNO ELECTRIC CO., LTD.

FURUNO







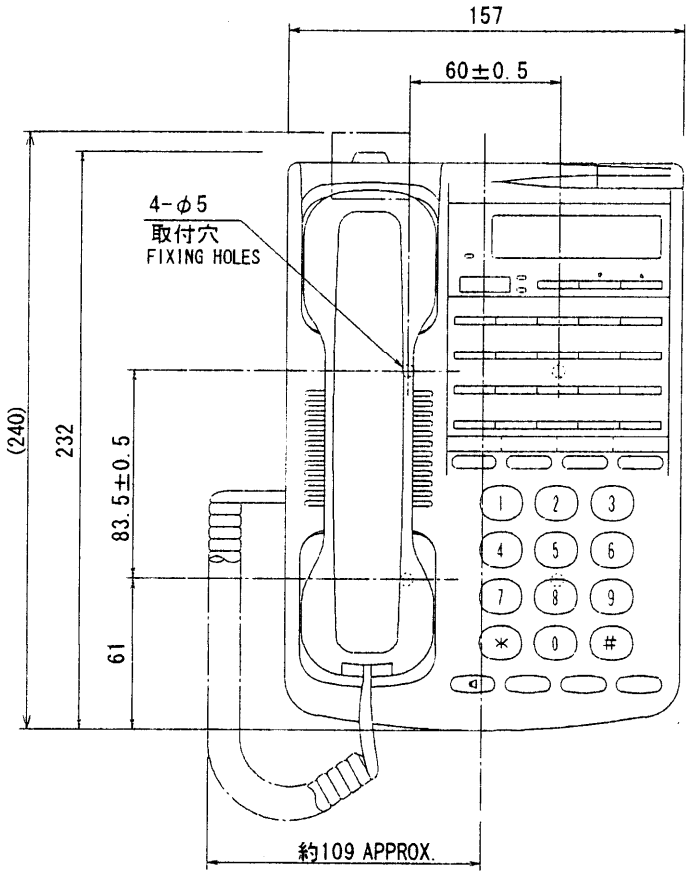
DRAWN Dec.5'97 T.YAMASAKI		TITLE BTC-5100C PS/2
CHECKED Dec 5'97 K.MATSUMOTO		名称 キーボード
APPROVED Dec 5'97 H.Yamaguchi		外寸図
SCALE 1/2 MASS 0.7 kg		NAME KEYBOARD
DWG No. C5609-G05- B		OUTLINE DRAWING

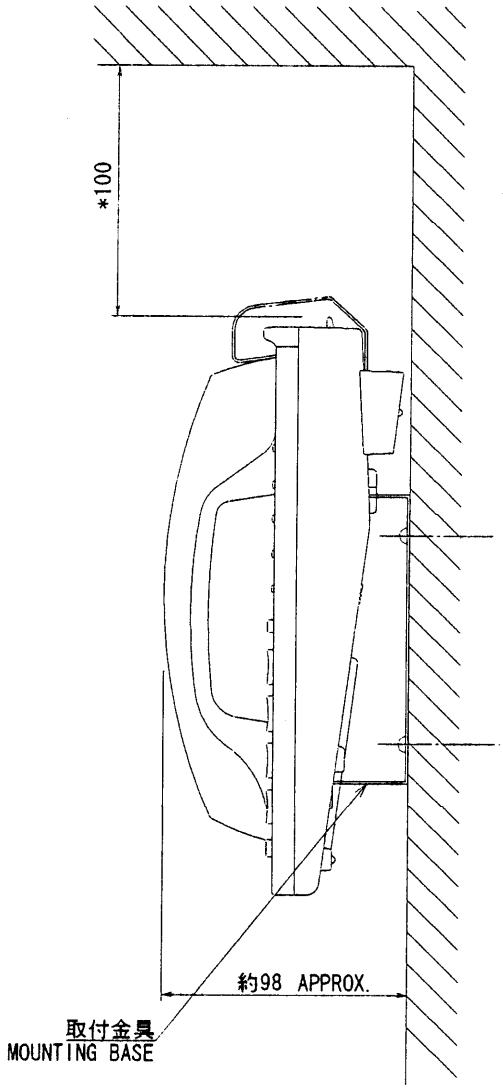
FURUNO ELECTRIC CO., LTD.

FURUNO

範囲 DEMENSION	公差 TOL.
L≦50	±1mm
50<L≦100	±1mm
100<L≦500	±1mm

表 1
TABLE 1





注 記
1）指定外の寸法公差は表1による。
2）＊：推奨するサービス空間寸法。
3）取付にはトラスタッピンネジ4x16 SUS304を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
2. *:RECOMMENDED SERVICE CLEARANCE.
3. USE TAPPING SCREWS 4x16 SUS304 FOR FIXING THE UNIT.

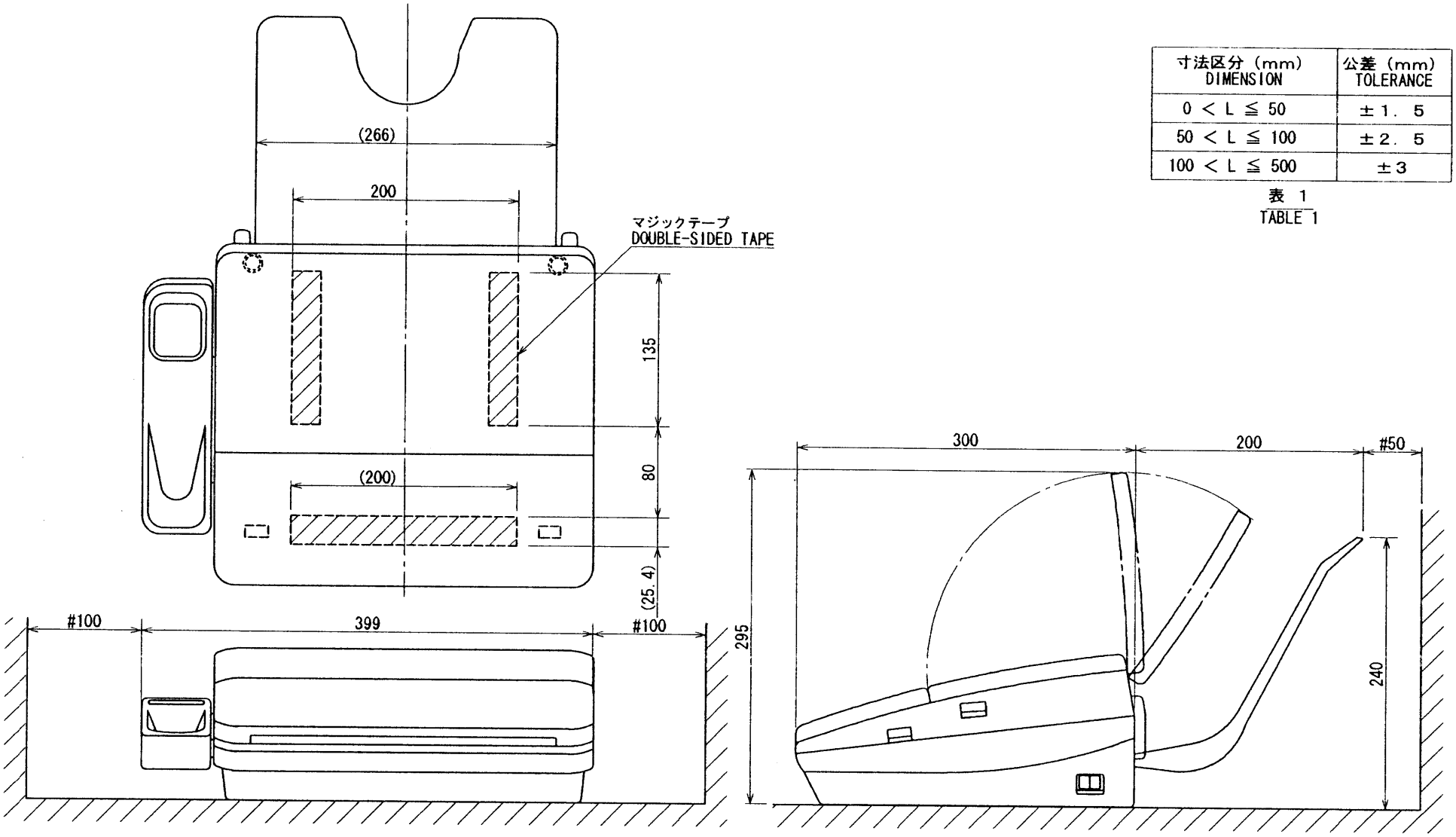
DRAWN July26'00 T.YAMASAKI		TYPE	FC755D1
CHECKED July27'00 Y.K		名称	電話機（壁掛装備）
APPROVED July27'00 Y.K	FELCOM 81		外寸図
SCALE 1/3	MASS 0.83 ±10% kg	NAME	TELEPHONE (BULKHEAD MOUNT)
DWG. No. C5589-G19- B	16-011-710G- 0		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 ＜ L ≦ 50	±1．5
50 ＜ L ≦ 100	±2．5
100 ＜ L ≦ 500	±3

表 1
TABLE 1



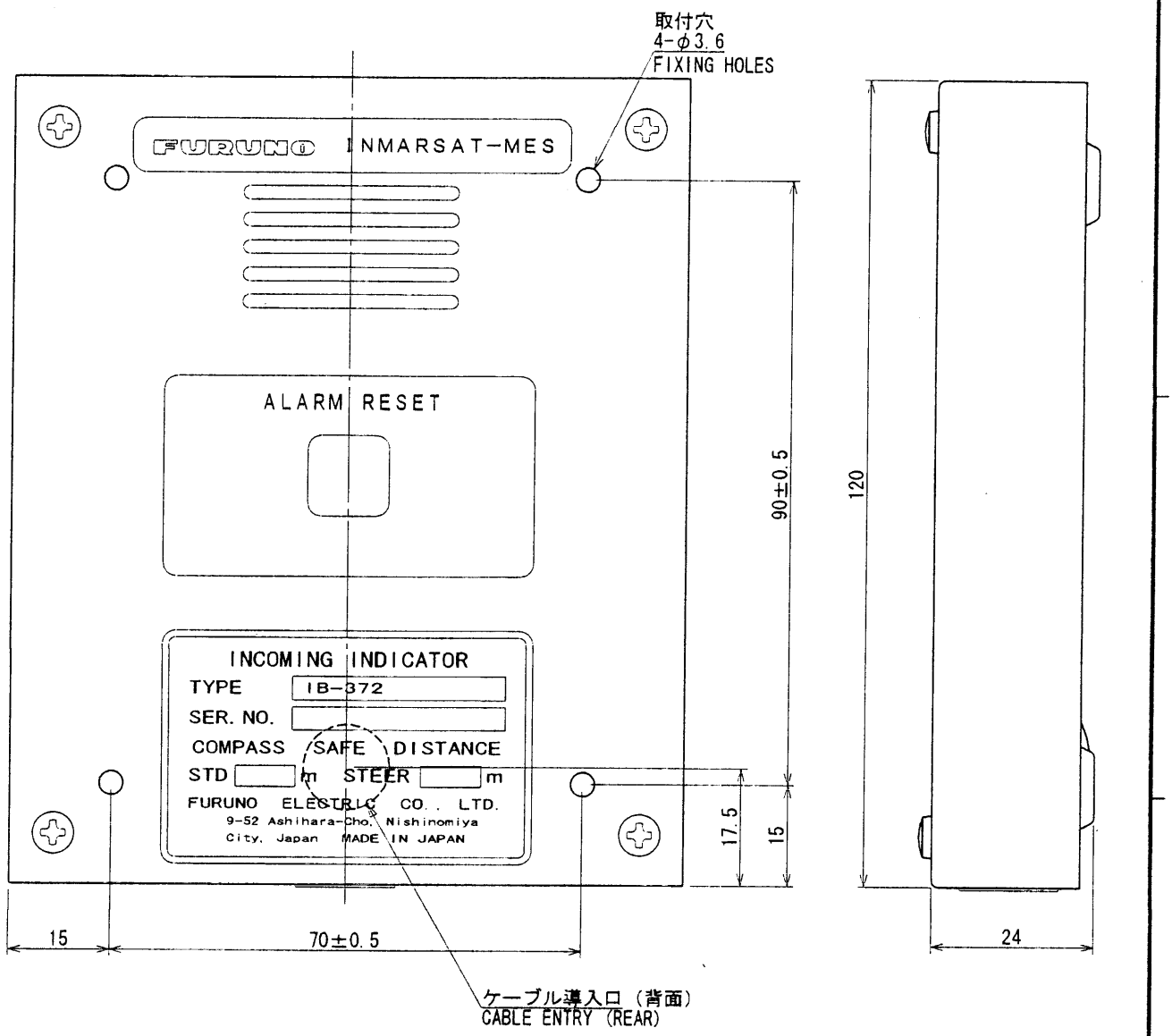
注　記　1）　#印寸法は最小サービス空間寸法とする。
　　2）　指定外の寸法公差は表１による。

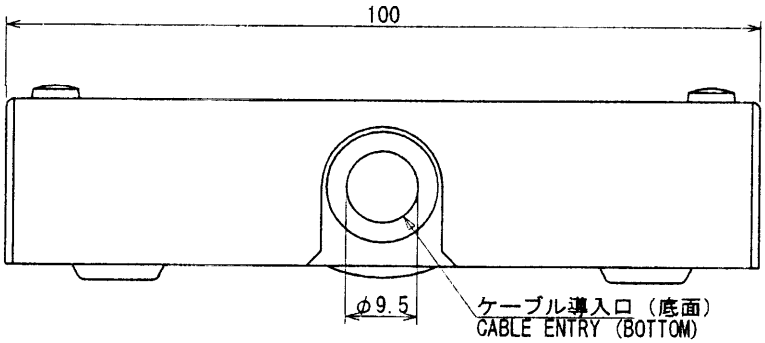
NOTE　1. #: RECOMMENDED SERVICE CLEARANCE.
　　2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN July 7 '00 T.YAMASAKI		TITLE PFX-50
CHECKED		名称 ファクシミリ
APPROVED July 10 '00 Y.K		外寸図
SCALE 1/5	MASS 8 ±10% kg	NAME FACSIMILE
DWG. No. C5589-G13- B		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO





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

表1
TABLE 1

注記

1）指定なき寸法公差は表1による。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN July 12'00 T.YAMASAKI		TITLE	IB-372
CHECKED July 13'00 Y.K		名称	着信指示器
APPROVED July 14'00 S.	FELCOM 82		外寸図
SCALE 1/1	MASS ±10% 0.33 kg	NAME	INCOMING INDICATOR
DWG. No. C5624-G08- A	16-015-370G- 0		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

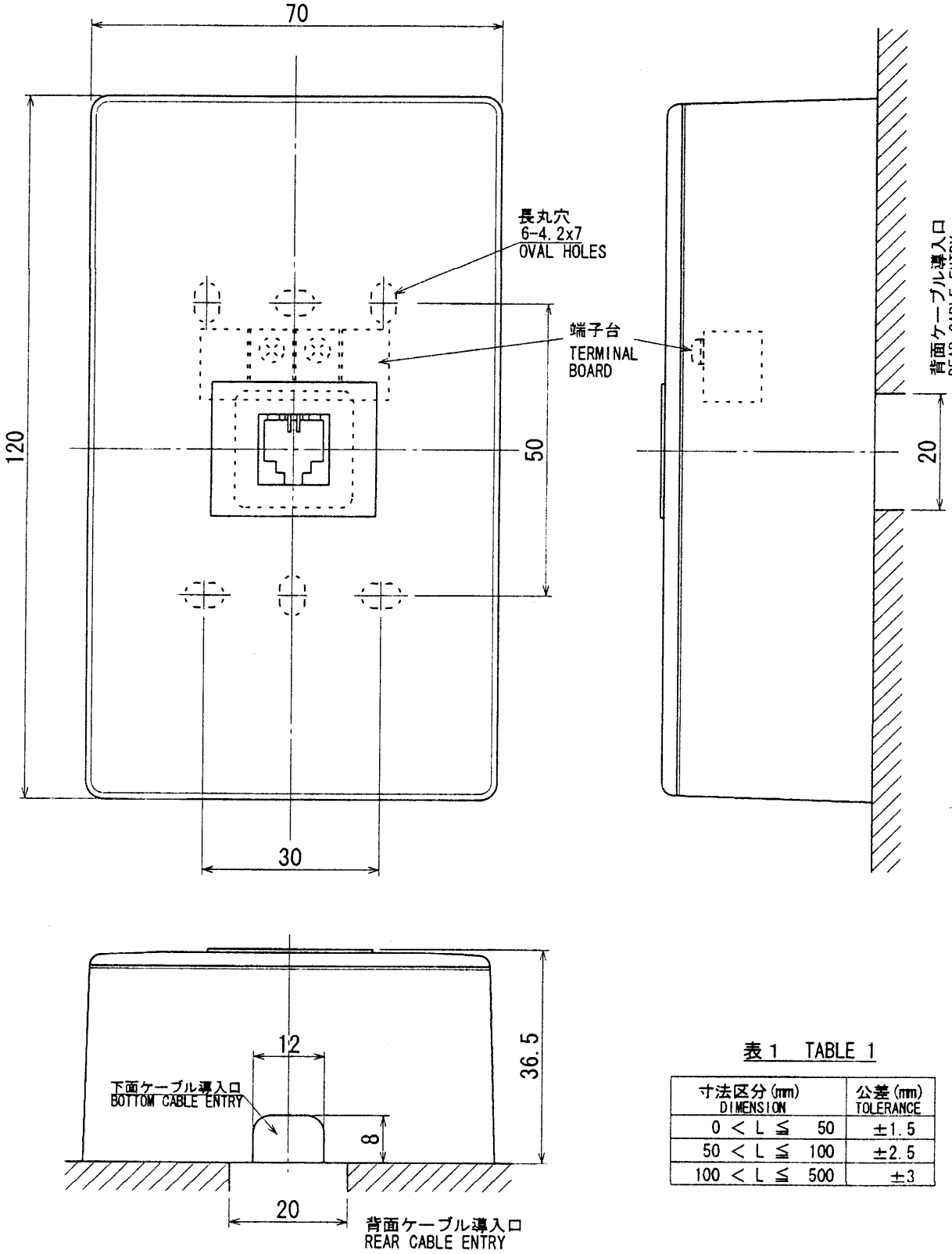


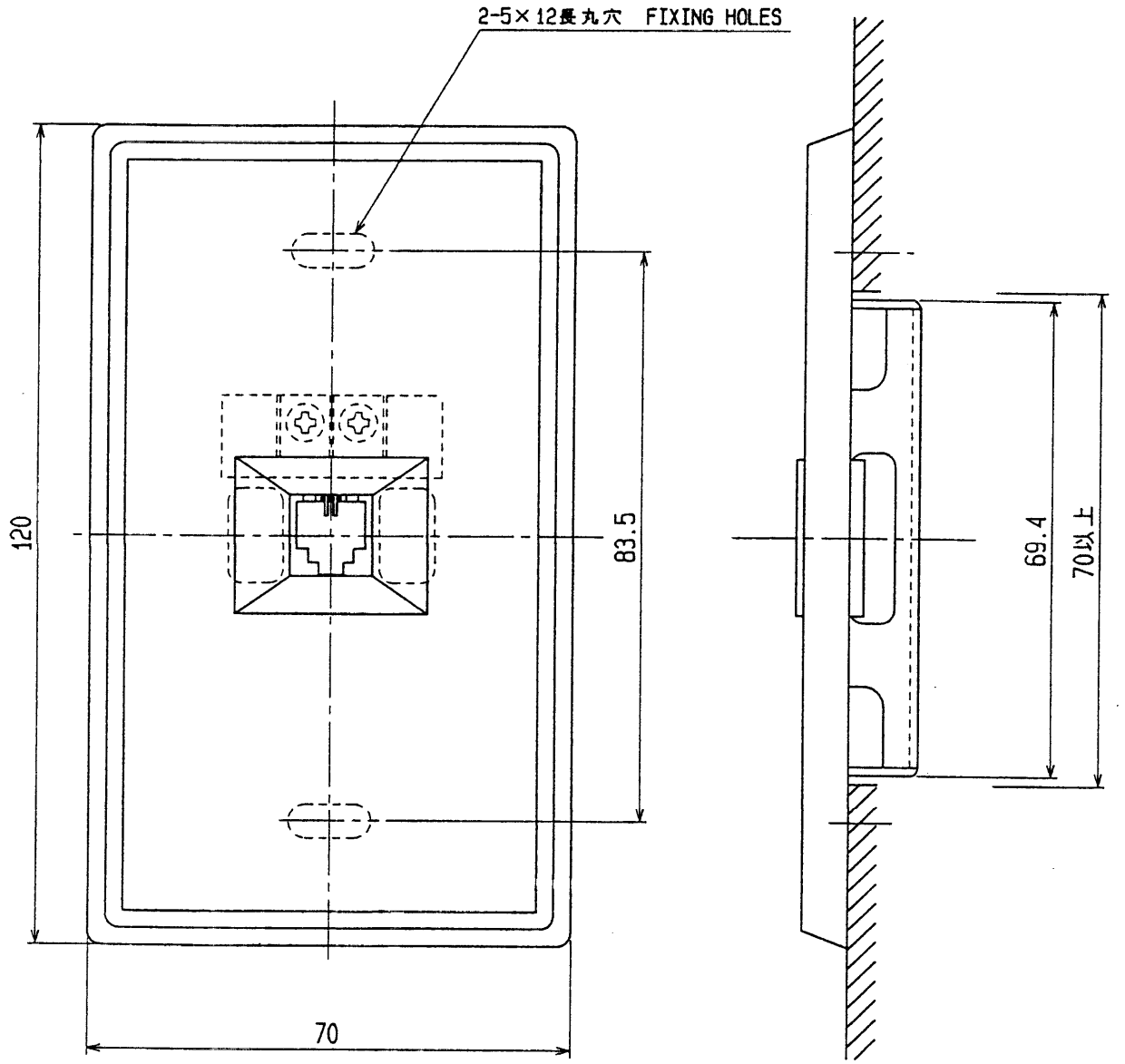
表1 TABLE 1

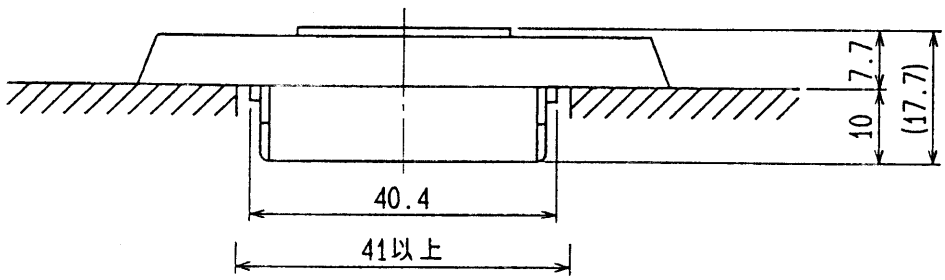
寸法区分(mm) DIMENSION	公差(mm) TOLERANCE
0 < L ≦ 50	±1.5
50 < L ≦ 100	±2.5
100 < L ≦ 500	±3

DRAWN July 6'00 T.KAMASAKI		TITLE	OP16-10(BJ-2W/WV7011W)
CHECKED July 7'00 Y.K		名称	ボックスローゼット
APPROVED July 7'00 Y.K	FELCOM 81		外寸図
SCALE 1/1	MASS ±10% 0.14 kg	NAME	MODULAR JACK BOX (EXPOSED TYPE)
DWG. No. C5079-G02- F			OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO



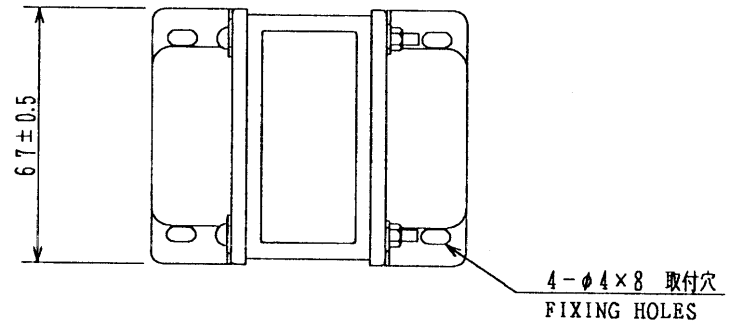


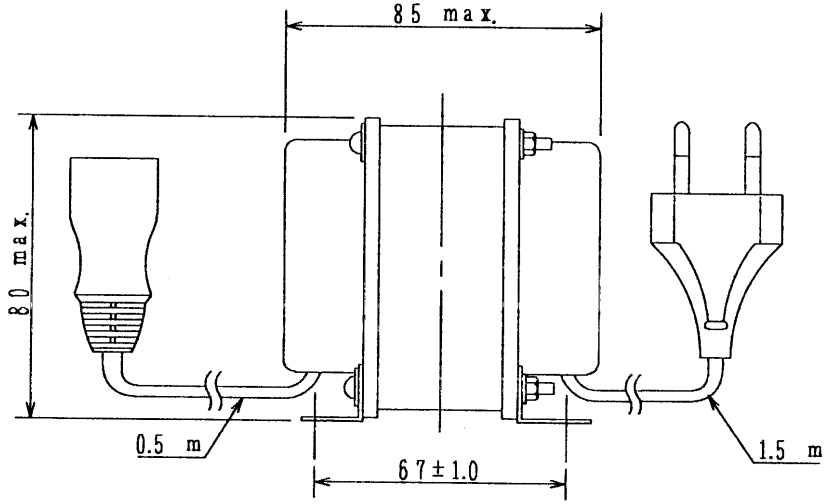
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	適要 REMARKS

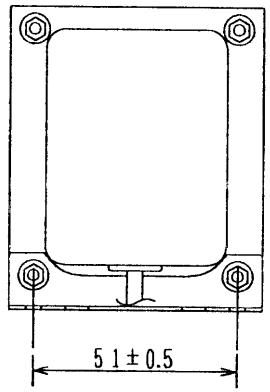
承認 APPROVED	Nov. 26,' 93 K. Ota	三角法 THARD ANGLE PROJECTION	名称 TITLE	OP16-11 (BJ-2W) 埋込みローゼット MODULAR JACK BOX (FLUSH TYPE)
検図 CHECKED	Nov. 26,' 93 K. Kusunoki	尺度 SCALE	/	
製図 DRAWN		質量 WEIGHT	0.1kg	図番 DWG. NO. C5079-G01-C

FURUNO ELECTRIC CO., LTD.

FURUNO







DRAWN Mar. 22 '97 T. YAMASAKI			TITLE FIT-100
CHECKED Mar 22. '97 T. SHISHIDO			名称 ステップダウントランス
APPROVED Mar 24. '97 H. Yamaguchi		FELCOM 81	外寸図
SCALE 1/2	MASS 1.7 kg		NAME STEP-DOWN CONVERTER
DWGNo. C5609-G07-A			OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

S－1

PP-510 プリンタ
PRINTER

キーボード
KEYBOARD
BTC-5100 PS/2

IB-182
アンテナユニット
ANTENNA UNIT

ターミナルユニット
TERMINAL UNIT
IB-582

通信制御ユニット
COMMUNICATION CONTROL UNIT
IB-282

TO DATA PC

TO HSD I/F

接続箱
JUNCTION BOX
IB-313

ハンドセットハンガー
HANDSET HANGER
RB-2721B

ハンドセット
HANDSET
IB-882

IB-352
遭難警報発呼器
TELEX DISTRESS ALERT BUTTON

IB-362
遭難電話ボタン
TELEPHONE DISTRESS ALERT BUTTON

IB-372
着信指示器
INCOMING INDICATOR

IB-372
着信指示器
INCOMING INDICATOR

IB-372
着信指示器
INCOMING INDICATOR

PFX-50
ファクシミリ
FACSIMILE

FC755D1
電話機
TELEPHONE

FC755D1
電話機
TELEPHONE

FC755D1
電話機
TELEPHONE

航法装置
NAV. EQUIPMENT

FIT-100
ステップダウン
トランス
STEPDOWN TRANS.

マルチコミュニケーションユニット
MULTI-COMMUNICATION UNIT
IB-782 *6

選択 SELECT

注記： NOTE:

- ⟨99⟩: コネクタ CONNECTOR
- [99]: 端子台 TERMINAL BOARD
- ツイストペア線 TWISTED-PAIR
- 銅板にて接地 GROUNDING COPPER STRAP
- IV-8sq. あるいは同等品にて接地 GROUNDING WIRE IV-8sq.

—— : オプション支給 OPTIONAL SUPPLY

CO-0.2x1P : CO-SPEVV-SB-C 0.2x1P
CO-0.2x2P : CO-SPEVV-SB-C 0.2x2P, φ10.5
CO-0.2x5P : CO-SPEVV-SB-C 0.2x5P, φ13.5
CO-0.2x10P : CO-SPEVV-SB-C 0.2x10P, φ16.5

＊：造船所殿手配 SHIPYARD SUPPLY

*2: 工場にて取付済 FITTED AT FACTORY.

*3: コネクタのクランプでアースに落とす。 GROUND THROUGH CONNECTOR CLAMP.

*4: [太]は太線を示す。 [B] REPRESENTS THICKER WIRES.

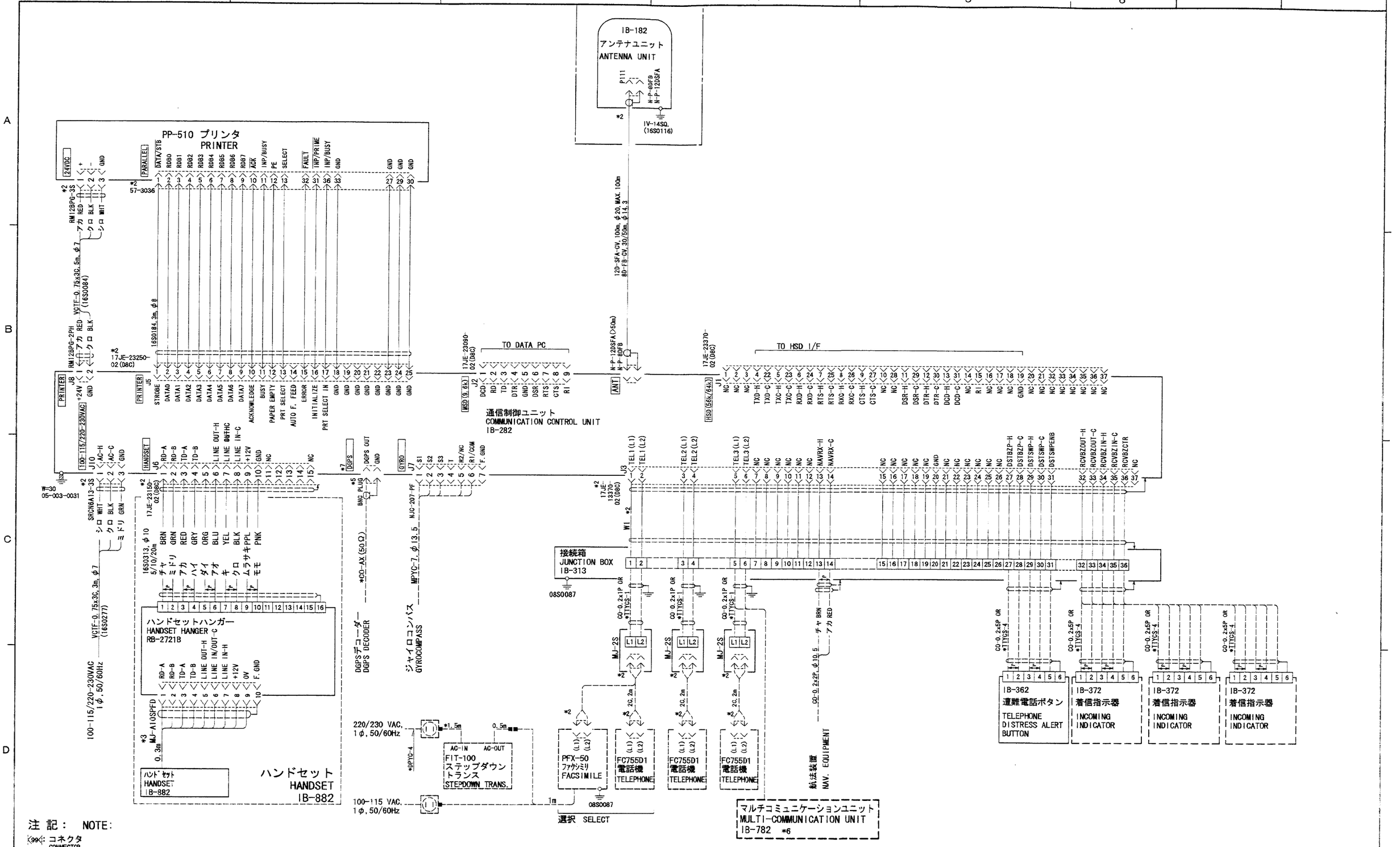
*5: BNCプラグは同軸ケーブルに適合したものを使用。 USE A BNC PLUG ADAPTABLE THE CO-AX CABLE.

*6: 電話機増設用（国内のみ支給）。 SUPPLY FOR MULTIPLE PHONES (DOMESTIC ONLY).

*7: デコーダー接続時、改造が必要。 DECORDER CONNECTION REQUIRES MODIFICATION.

DRAWN	Aug. 28 '01 T. YAMASAKI	TITLE	FELCOM 82A
CHECKED		名称	インマルサット-B 船舶地球局（クラス1）
APPROVED			相互結線図
SCALE	MASS	NAME	INMARSAT-B MES (CLASS 1)
DWG. No.	C5624-C01-E		INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.



注記： NOTE:

- K99 : コネクタ CONNECTOR
- 99 : 端子台 TERMINAL BOARD
- : ツイストペア線 TWISTED-PAIR
- : 鋼板にて接地 GROUNDING COPPER STRAP
- : IV-8sq. あるいは同等品にて接地 GROUNDING WIRE IV-8sq.

--- : オプション支給 OPTIONAL SUPPLY

CO-0.2x1P : CO-SPEVV-SB-C 0.2x1P
CO-0.2x2P : CO-SPEVV-SB-C 0.2x2P, φ10.5
CO-0.2x5P : CO-SPEVV-SB-C 0.2x5P, φ13.5
CO-0.2x10P : CO-SPEVV-SB-C 0.2x10P, φ16.5

* : 造船所殿手配 SHIPYARD SUPPLY

*2: 工場にて取付済 FITTED AT FACTORY.

*3: コネクタのクランプでアースに落とす。 GROUND THROUGH CONNECTOR CLAMP.

*4: [太]は太線を示す。 [B] REPRESENTS THICKER WIRES.

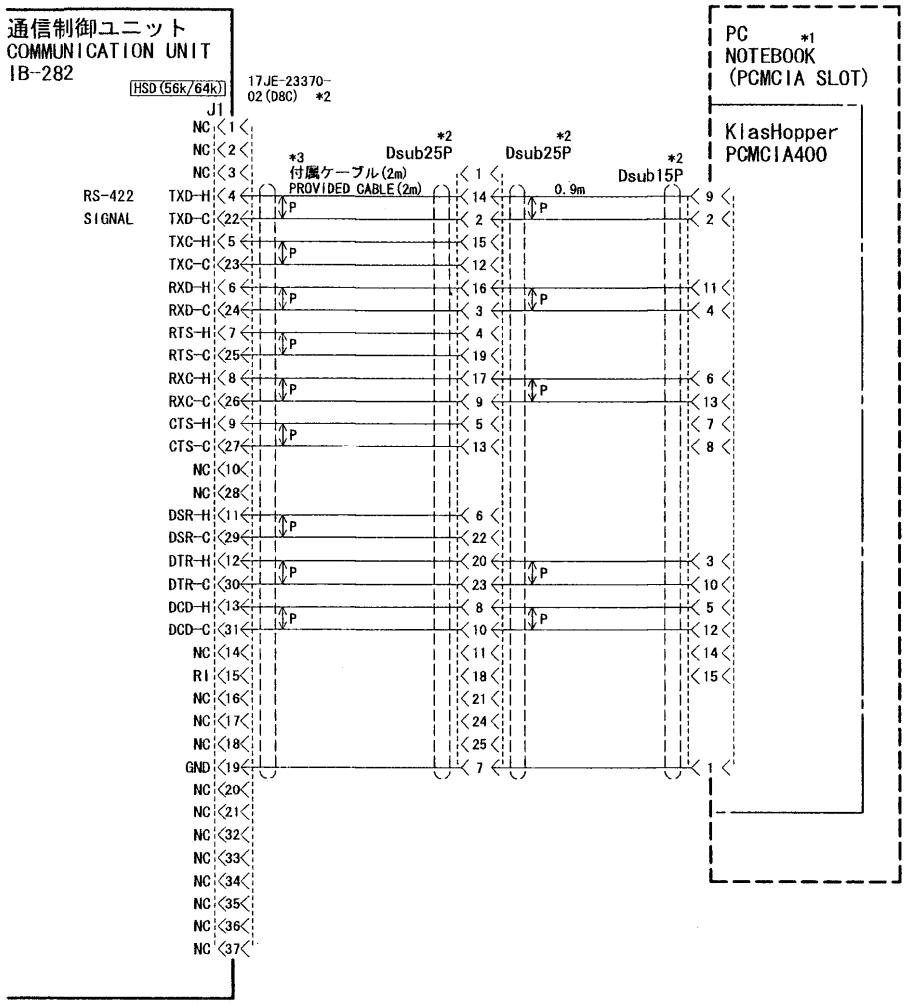
*5: BNCプラグは同軸ケーブルに適合したものを使用。 USE A BNC PLUG ADAPTABLE THE CO-AX CABLE.

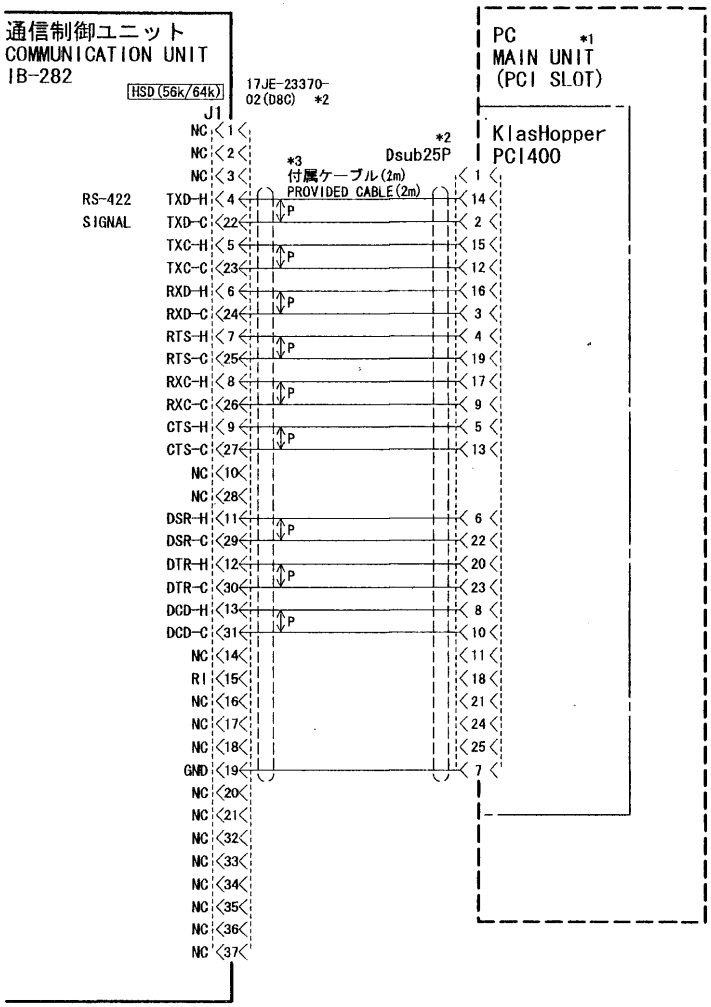
*6: 電話機増設用（国内のみ支給）。 SUPPLY FOR MULTIPLE PHONES (DOMESTIC ONLY).

*7: デコーダー接続時、改造が必要。 DECORDER CONNECTION REQUIRES MODIFICATION.

DRAWN Aug. 28 '01 T. YAMASAKI		TITLE	FELCOM 82B
CHECKED Aug.28 '01		名称	インマルサット-B 船舶地球局（クラス２）
APPROVED Aug.28 '01			相互結線図
SCALE	MASS	NAME	INMARSAT-B MES (CLASS 2)
DWG. No. C5624-C03- C			INTERCONNECTION DIAGRAM

FURUNO



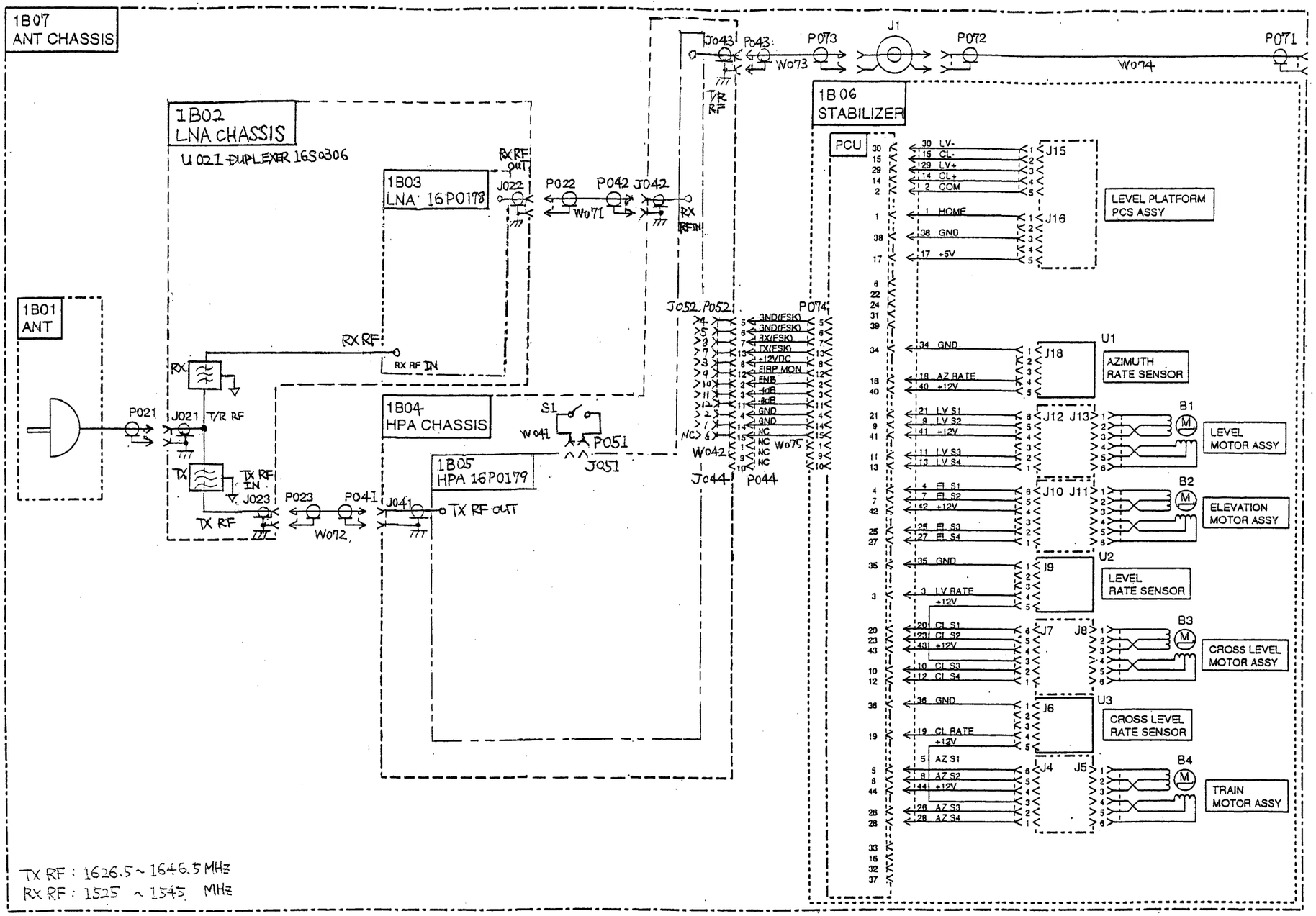


注記
＊１）現地手配
＊２）コネクタは工場にて取付済み。
＊３）延長時はCO-SPEVV-SB-C 0.2x10P, φ16.5を使用のこと。

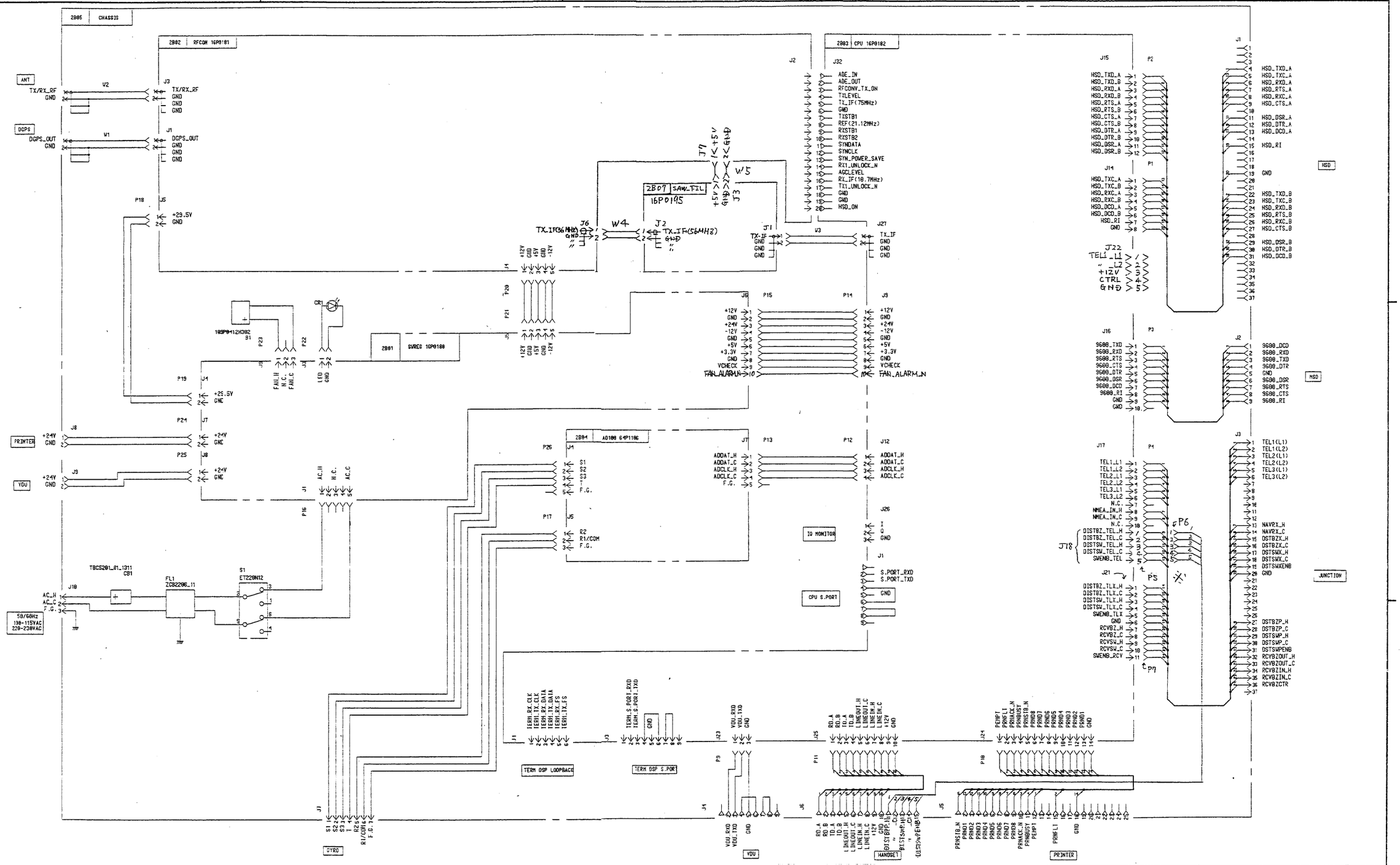
NOTE
*1. LOCAL SUPPLY.
*2. CONNECTOR PLAG FITTED AT FACTORY.
*3. USE CO-SPEVV-SB-C 0.2x10P, φ16.5 FOR EXTENSION.

DRAWN Mar. 28 '01 T. YAMASAKI			TITLE PCMCIA400/PCI400 (OPTION)
CHECKED Masaaki Y. Kuno			名称 HSDインターフェイス
APPROVED		FELCOM 82	相互結線図
SCALE	MASS ±10% kg		NAME HSD INTERFACE
DWG. No. C5624-C07- A			INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.



DRAWN Aug 17 '00 T.YAMASAKI				TYPE IB-182
CHECKED Aug 18 '00 Y.K				名称 アンテナユニット
APPROVED Aug 18 '00 Y.K		FELCOM82		回路図
SCALE /	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME ANTENNA UNIT
DWG NO. C5624-K02- A		16-001-3175- 0		SCHEMATIC DIAGRAM



注記

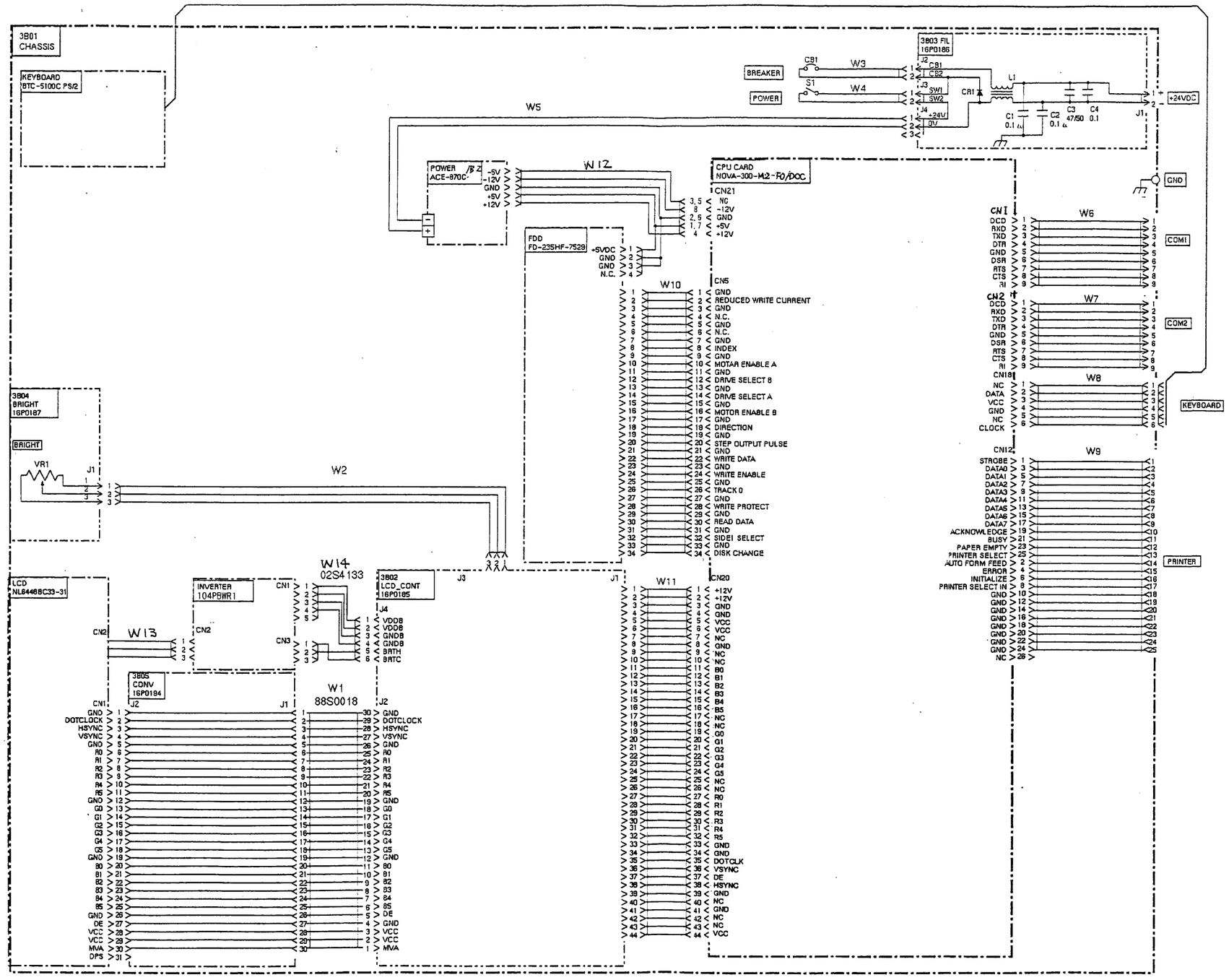
1）IB-882 使用時は J18 に P5 を接続、IB-882-362 使用時は J18 に P6 を接続する。

NOTE

1. WHEN IB-882 IS USED, CONNECT P5 PLUG TO J18. WHEN IB-882-362 IS USED, CONNECT P6 PLUG TO J18.

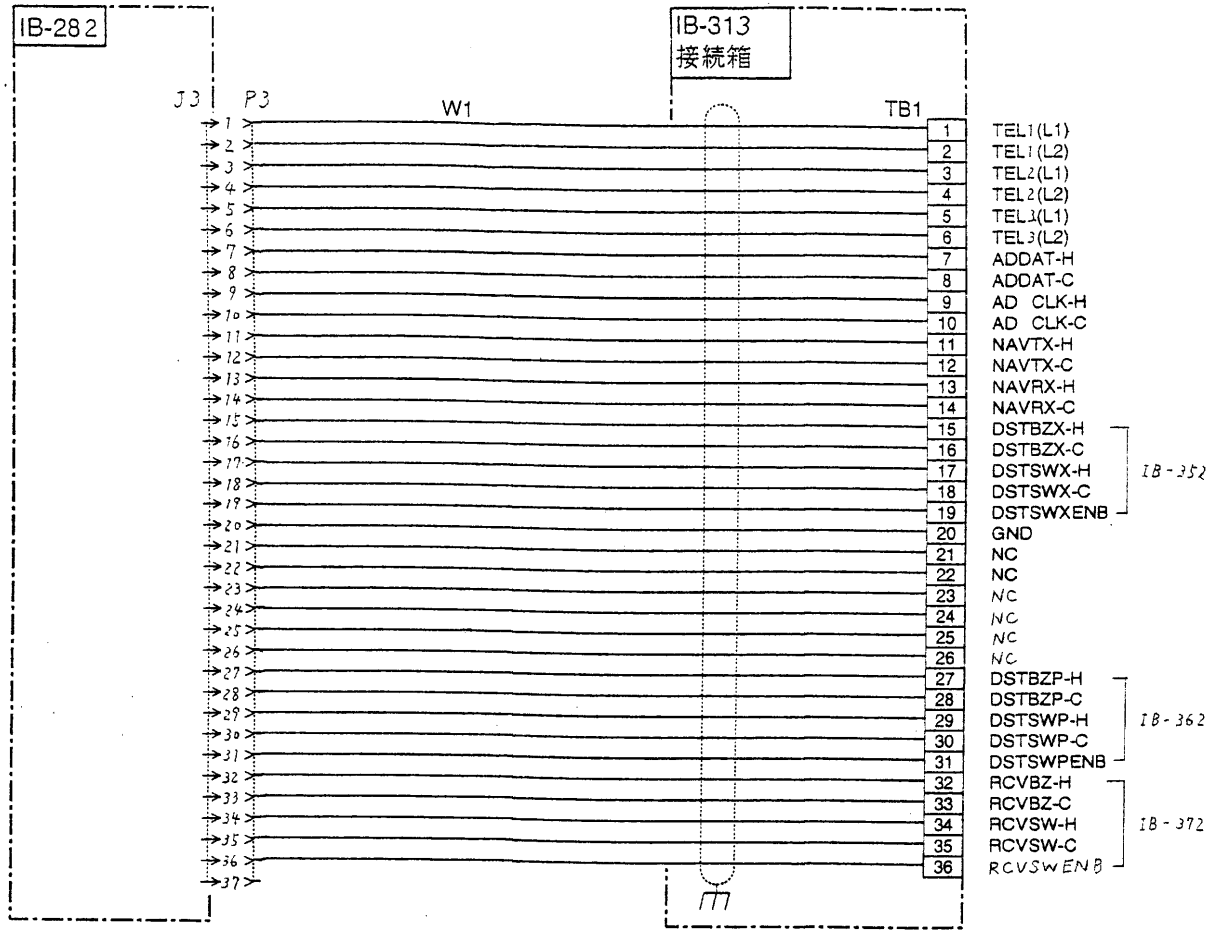
DRAWN Feb.2'01 T.YAMASAKI				TYPE IB-282
CHECKED Feb2'01 Y.K				名称 通信制御ユニット
APPROVED Feb2'01 Y.K		FELCOM82		回路図
SCALE /	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME COMMUNICATION UNIT
DWG NO. C5624-K01- B		16-001-2041- 1		SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.



DRAWN 02/04/22 T. YAMASAKI		TYPE	IB-582
CHECKED 02/4/22 Y.K		名称	ターミナルユニット
APPROVED 02/4/22 Y.K	FELCOM 82		回路図
SCALE / MASS	MODEL / BLOCK No.	NAME	TERMINAL UNIT
Dwg No. C5624-K03- C	16-001-3184-3		SCHEMATIC DIAGRAM

FURUNO



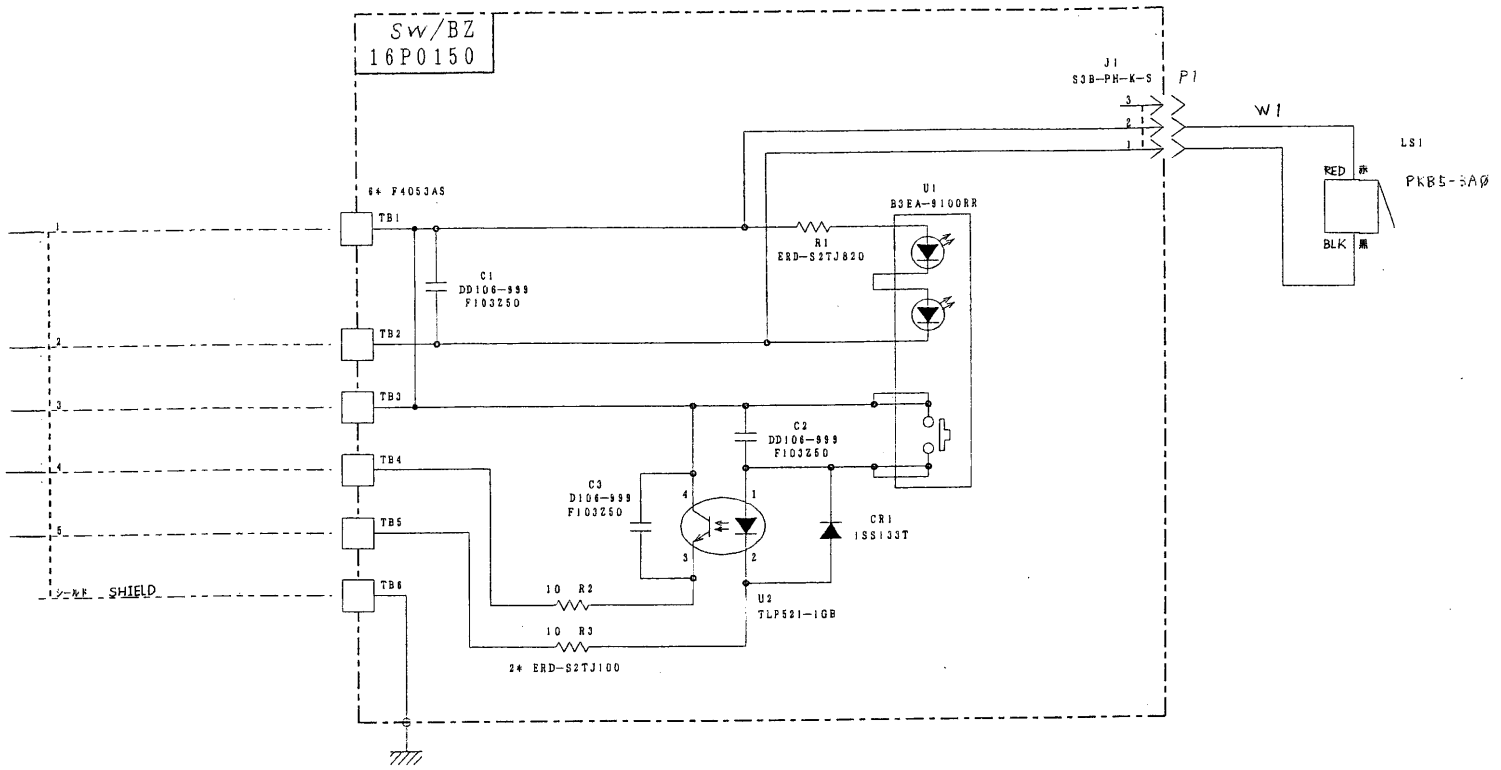
DRAWN Aug/7'00 T.YAMASAKI			TYPE IB-313
CHECKED Aug/8'00 T.K			名称 接続箱
APPROVED Aug/8'00 T.K	FELCOM82		回路図
SCALE / MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME JUNCTION BOX
DWG NO. C5624-K04- A	16-001-3181- 0		SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.

FURUNO

IB-313

IB-352	IB-362	IB-372
DSTBZX-H	DSTBZP-H	RCVBZ-H
DSTBZX-C	DSTBZP-C	RCVBZ-C
DSTSWX-H	DSTSWP-H	RCVSW-H
DSTSWX-C	DSTSWP-C	RCVSW-C
DSTSWXENB	DSTSWPENB	RCVSWENB



DRAWN Feb. 2'01 T. YAMASAKI			TYPE IB-352/362/372
CHECKED Feb 2'01 Y. K~			名称 遭難警報発呼器、遭難電話釦、着信指示器
APPROVED Feb 2'01 Y. K~	FELCOM82		回路図
SCALE / MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME DISTRESS ALART/INCOMING IND.
DWG NO. C5624-K05- B	16-001-3182- 1		SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.