FURUNO

OPERATOR'S MANUAL

DSC TERMINAL

MODEL **DSC-5/DSC-5R**

(Incl. Installation Instructions)

[ROM Version No.: 40]

For the sake of brevity, we use the term "DSC-5 (R)" to refer to both the DSC-5 (hanger type) and DSC-5R (rack mount type).

FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

9-52, Ashihara-cho,
Nishinomiya, Japan 662

Telephone: 0798-65-2111
Telefax: 0798-65-4200

·Your Local Agent/Dealer

FIRST EDITION : APR 1991
T : OCT. 29, 1997

PUB. No. OME-55220
(TATA) DSC-5/5R

000802158 00

INSTRUCTIONS FOR CANCELLING A FALSE DISTRESS ALERT

VHF DSC

1. Switch off transmitter immediately.
2. Switch equipment on and set to Channel 16.
3. Make broadcast to "All Stations" giving your vessel's name, callsign and DSC number, and cancel the false distress alert.

Example message:

All Stations, All Stations, All Stations
This is NAME, CALLSIGN,
DSC NUMBER, POSITION.

Cancel my distress alert of
DATE, TIME, UTC.
=Master, NAME, CALLSIGN.
DSC NUMBER, DATE, TIME UTC.

PUB.NO.E59-60030-0
(9610,) FM8500 DSC5/8V

INSTRUCTIONS FOR CANCELLING A FALSE DISTRESS ALERT

DSC MF

1. Switch off equipment immediately
2. Switch equipment on and tune for radiotelephony transmission on 2, 182 kHz
3. Make broadcast to "All Stations" giving the vessel's name, callsign and DSC number, and cancel the false distress alert.

Example message:

All Stations, All Stations, All Stations
This is NAME, CALLSIGN,
DSC NUMBER, POSITION.

Cancel my distress alert of
DATE, TIME, UTC.
=Master, NAME, CALLSIGN.
DSC NUMBER, DATE, TIME UTC.

DSC HF

Same as for MF but the alert must be cancelled on all the frequency bands on which it was transmitted. Hence, in stage 2.2 the transmitter should be tuned consecutively to the radiotelephony distress frequencies in the 4, 6, 8, 12 and 16 MHz bands, as necessary.

PUB.NO.E59-60040-0
(9610,) DSC-5/5A/6/6A

⚠ SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator and installer of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

⚠ **DANGER**	This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.
⚠ **WARNING**	This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **CAUTION**	This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.

SAFETY INFORMATION FOR THE OPERATOR

⚠ WARNING

Do not open the cover of the equipment.

This equipment uses high voltage electricity which can shock, burn, or cause death. Only qualified personnel should work inside the equipment.

Do not dissasemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Immediately turn off the power at the ship's mains switchboard if water or foreign object falls into the equipment or the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire, electrical shock or serious injury.

⚠ CAUTION

Do not place liquid-filled containers on the top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

Do not place heater near the equipment.

Heat can melt the power cord, which can result in fire or electrical shock.

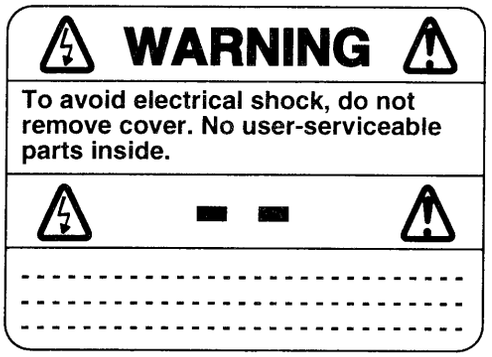
Do not operate the unit with wet hands.

Electrical shock can result.

Use the correct fuse.

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

WARNING Label attached



Name : Warning Label (1)
Type : 86-003-1011-0
Code No. : 100-236-230

SAFETY INFORMATION FOR THE INSTALLER

WARNING

Only qualified personnel should work inside the equipment.

This equipment uses high voltage electricity which can shock, burn, or cause death.

Turn off the power at the ship's mains switchboard before beginning the installation. Post a warning sign near the switchboard to ensure that the power will not be applied while the equipment is being installed.

Serious injury or death can result if the power is not turned off, or is applied while the equipment is being installed.

CAUTION

Ground the equipment.

Ungrounded equipment can give off or receive electro-magnetic interference or cause electrical shock.

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 equipment.

Table of Contents

SPECIFICATIONS OF DSC-5/DSC-5R DSC TERMINAL

The DSC-5/DSC-5R Digital Selective Calling (DSC) Terminal provides distress and general calling in the GMDSS network. In addition, it can relay distress calls from ships to coast stations.

1. Type

DSC-5	Trunnion mount
DSC-5R	Rack mount

2. Communication

Protocol	Complies with CCIR Rec. 493 and 541 (Class A).
Baud rate	MF/HF ····· 100 baud ± 30 × 10^{-6}
	VHF ····· 1200 baud ± 30 × 10^{-6}
Modulation	AFS
Frequency shift	MF/HF·· Mark: 1615Hz, Space: 1785Hz
	VHF ·· Mark: 1300Hz, Space: 2100Hz
Frequency deviation	MF/HF·· within ± 0.5Hz
	VHF ····± 10Hz
Tone frequency tracking range	± 80Hz
Line I/O	600 ohms balanced, -30 to +10dBm(MF/HF)
	Input: -20 to +10dBm(VHF)
	Ouput: -11 to +10dBm(VHF)

3. Communication Features

1) Two touch 【Break protection cover then press DISTRESS.】 distress call transmission (automatic input of ship's position and time)
2) Automatic call acknowledge
3) Automatic frequency setting (dialing)
4) Frequency scanning
5) Monitoring of TX frequency

4. Other Features

1) Remote control of NBDP and SSB radiotelephone (MIF)
2) Message memory
3) Abbreviated calling
4) Re-calling
5) Printer connection
6) Self-test

5. Display

LCD (amber, backlighted)
24 characters × 2 lines (1 character: 5 × 7 dot)

6. Power Supply

Main unit

DSC-5/5R.....10 – 40VDC floating mains, less than 15W
DSC-5R ..... 90 – 132VAC, 180 – 264VAC, less than 15VA
(DSC-5 can operate by 100/110/220/230VAC power by optional Rectifier PR-62.)

Printer PP-500 (option)

100/120/220/240VAC (24VDC operation available with optional Inverter TR-2407.)

7. Dimensions & Weight

Model	Width (mm)	Height (mm)	Depth (mm)	Weight (kg)
DSC-5	250	100	250	3.3
DSC-5R	480	100	370	6.5

8. Environment

Temperature
Relative humidity

-15° to +55℃
93% (40℃)

9. Color

DSC-5

Panel····· N3.0
Cover ····· 2.5GY 5/1.5

DSC-5R

Panel····· 2.5Y 8/2

10. Equipment Connectable (for fully automatic remote control)

SSB Radiotelephone ····· FS-5000/8000 series
VHF Radiotelephone ···· FM-7000
All Wave Receiver ····· RV-107/128/117/118
Rack Console (DSC-5R)·· RC-X new series
NBDP Terminal ····· DP-5
Distress Message Controller ...DMC-5
MF/HF DSC Receiver ...AA-50/50R
Equipment connectable to CIF/NMEA data output terminal:
LC-90, GP-300, GP-500, LA-300, FSN-70, and more

NOTE

1. The connection examples given in this manual use the FS-5000/8000. For other FURUNO SSBs with fully automatic remote control function (for example, FS-1500 series), replace "FS-5000/8000" with model number.

2. When combined with the DMC-5, either the DMC-5 or the DSC-5(R) can transmit the distress alert. Note also that the DMC-5 also provides for distress relay and distress acknowledgement.

INTRODUCTION

The FURUNO DSC-5(R) DSC Terminal provides the full range of distress and general calls on MF/HF or VHF bands, in full compliance with GMDSS requirements for CLASS A DSC terminals. Fully automatic setting of class of emission, working frequency and DSC frequency possible if the DSC-5(R) is connected to FURUNO SSB or VHF with remote control capability as shown below.

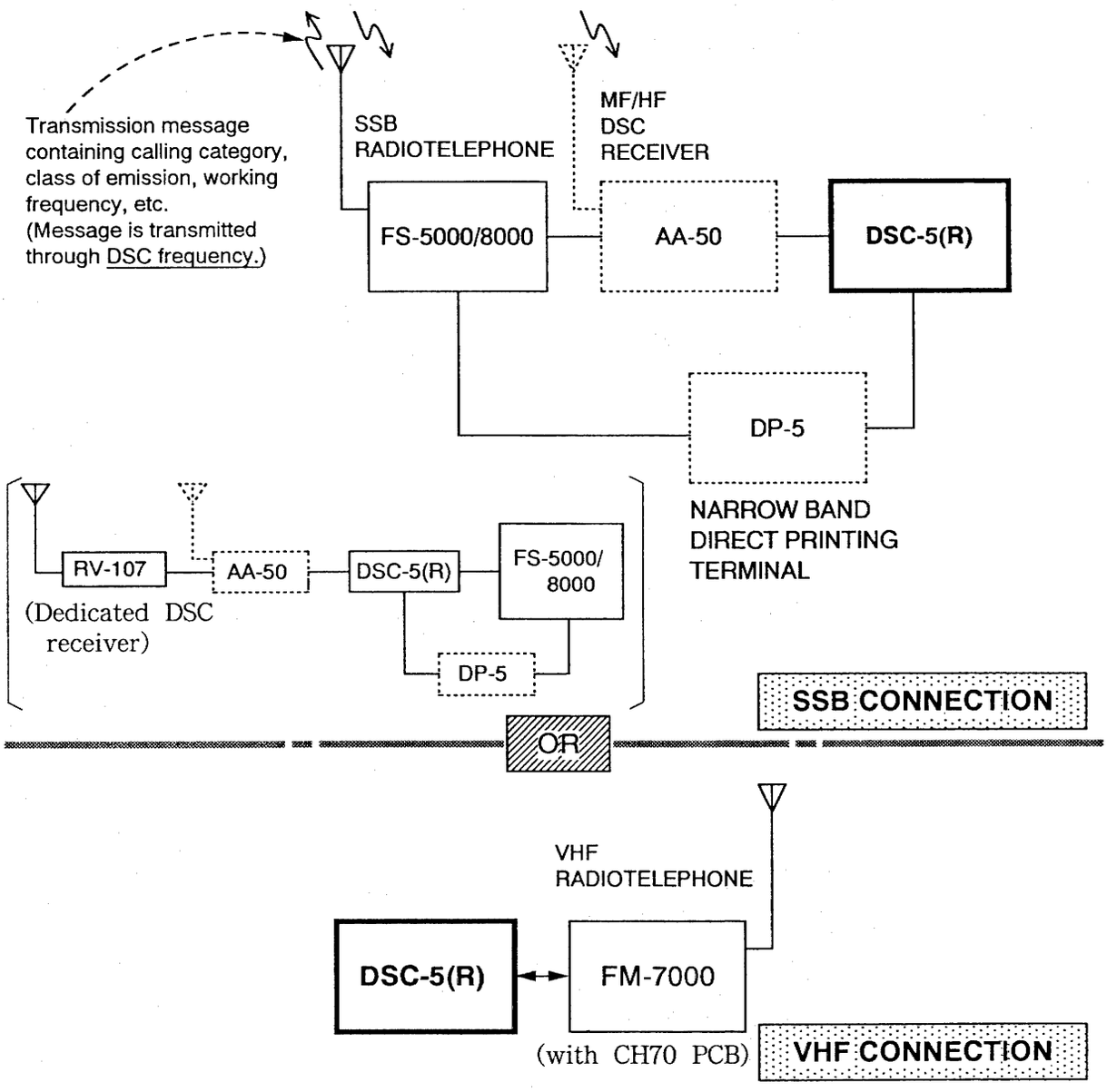


Figure 1 System Configuration

A DSC message contains the following information:

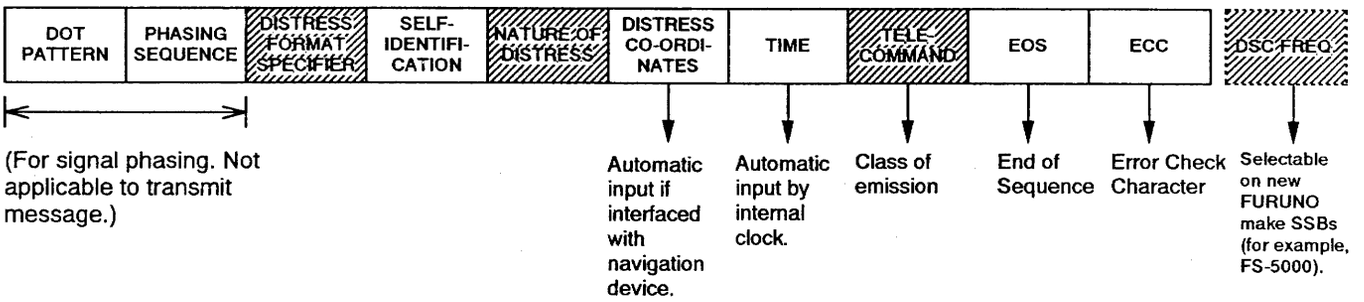
1. **Format specifier (calling category)**
2. **Address (own ship ID and other station ID)**
3. **Category (communication priority)**
4. **Telecommand (class of emission)**
5. **TX and RX working frequencies**
6. **Ship's co-ordinates**

To transmit the distress alert, peel off the red seal, and then, press the [DISTRESS] switch.
To transmit all other messages, press the [CALL] switch.

When own ship receives a message (distress alert, individual call, etc.) the audible alarm sounds. (To silence the alarm, press [3] key.) In addition, the message is saved to the memory and can be printed out (optional printer required) when desired.

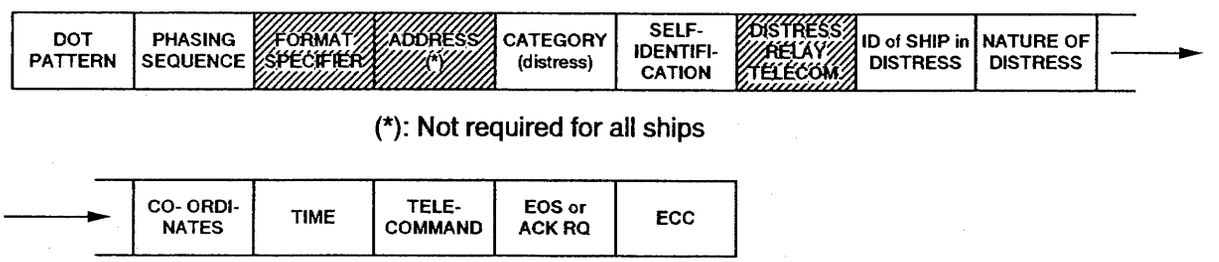
Below are the call sequences for each type of DSC call (distress call, distress relay, individual, telephone, all ships, group and geographic area). How to prepare and transmit these messages are explained in chapter 1.

1. DISTRESS CALL sequence (by [DISTRESS] switch)



2. DISTRESS RELAY sequence (by [CALL] switch)

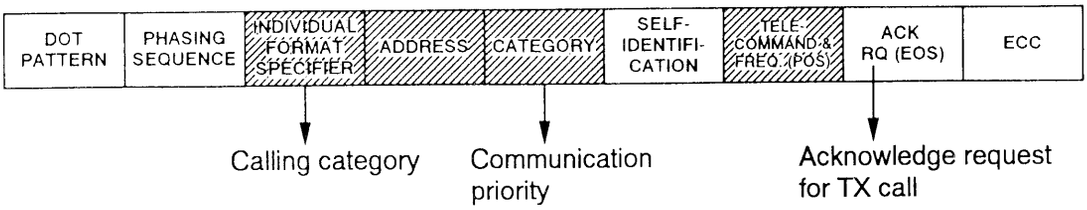
There are two ways to relay distress alert. Refer to pages 1-19 and 1-19a . Message shown below is transmitted when pressing the [CALL] switch after receiving distress alert (on HF band) from ship in distress.



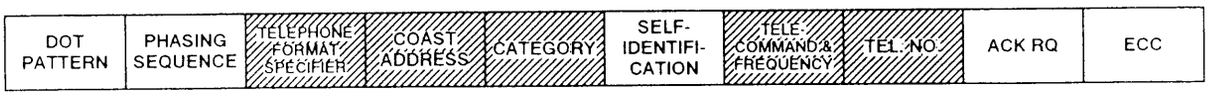
(*): Not required for all ships

NOTE: Hatched items to be set by operator.

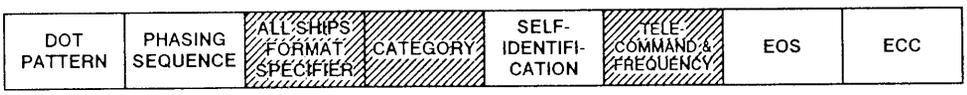
3. INDIVIDUAL CALL sequence (by CALL switch) .....includes ACK RQ signal



4. TELEPHONE CALL sequence (by CALL switch)



5. ALL SHIPS CALL sequence (by CALL switch)

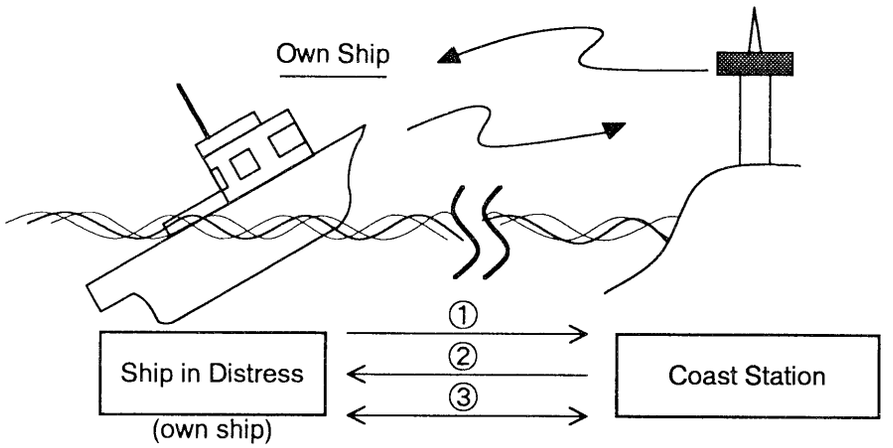


6. GROUP CALL sequence (by CALL switch)

7. GEOGRAPHIC CALL sequence (by CALL switch)

NOTE: Hatched items to be set by operator.

DISTRESS CALL AND REPLY.....(pages 1-7 and 1-13)



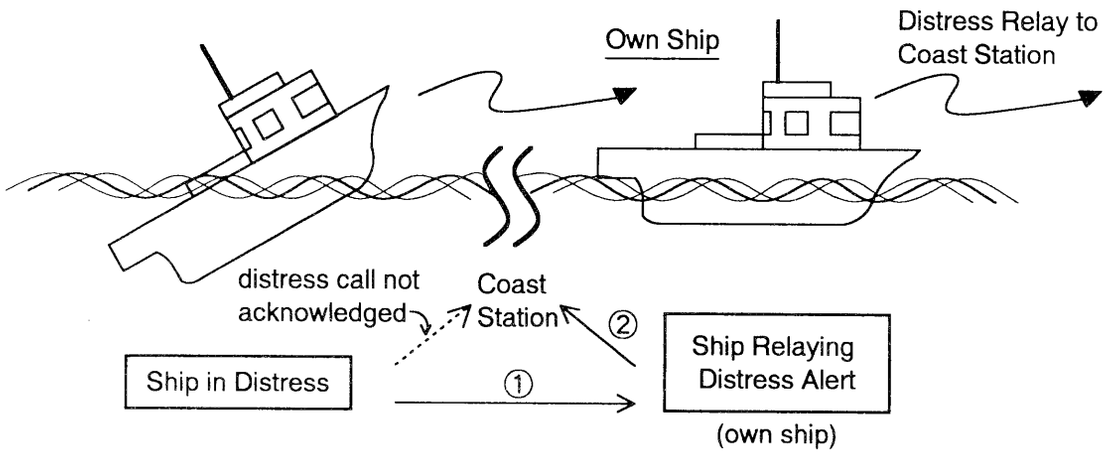
① Peel off the red seal, and then, press the [DISTRESS] switch to transmit the distress alert. (If you are not pressed for time, prepare and transmit a distress message.)

② Receive the distress acknowledge (DIST ACK) signal from a coast station. (See NOTE.)

③ After receiving DIST ACK signal, communicate with coast station over class of emission and working frequency (automatic settings) designated by own ship.

NOTE: If the distress call is not acknowledged within 3.5 – 4.5 minutes it is retransmitted automatically.

DISTRESS RELAY CALL (In case of HF).....(page 1-19)



① Receive distress alert. (Audible alarm sounds.)

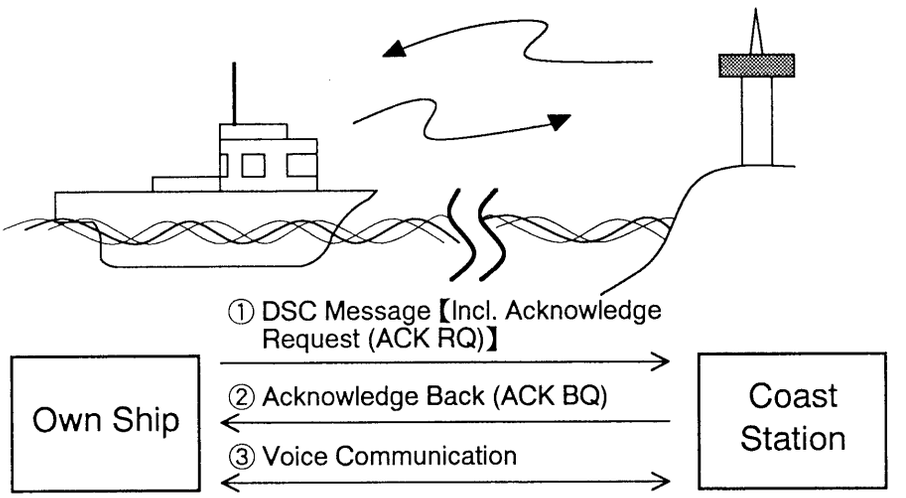
② If coast station does not acknowledge distress call within 3 minutes relay it to coast station.

Note that you can relay distress alert immediately(VHF/MF/HF).

Refer to page 1-19a.

INDIVIDUAL CALL AND REPLY.....pages 1-8, 1-14 and 1-22

1. Own Ship ⇨ Coast Station (or other ship)



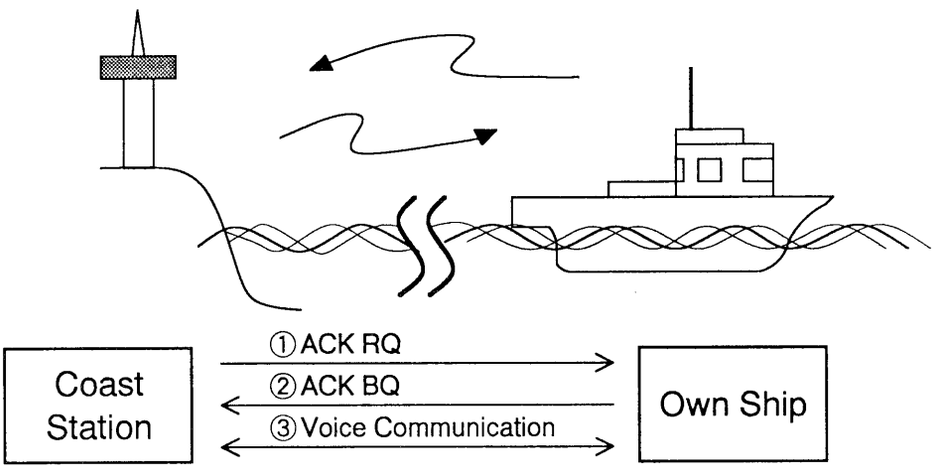
① Prepare message then transmit by pressing [CALL] switch (acknowledge request (ACK RQ) signal also transmitted).

② Receive acknowledge back (ACK BQ) signal. (See NOTE.)

③ After receiving ACK BQ signal, communicate with coast station.

NOTE: If ACK BQ is not received within 5 minutes, retransmit message (see page 6-2).

2. Coast Station (or other ship) ⇨ Own Ship



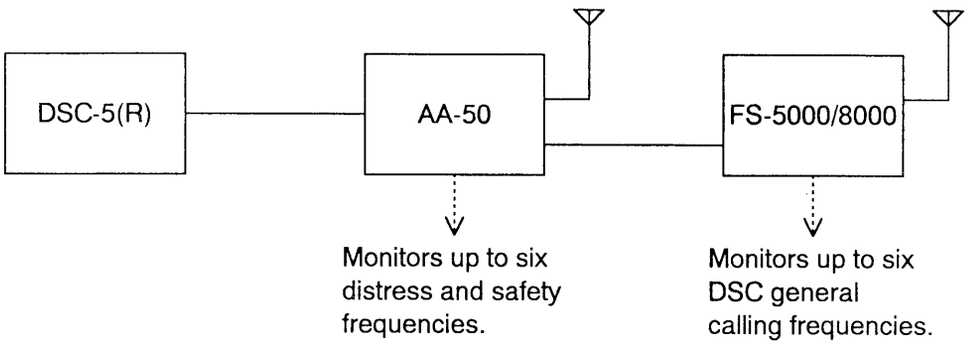
① Receive message (message contains ACK RQ signal).

② After 5 seconds to 4 minutes 30 seconds delay, own ship transmits reply message (ACK BQ signal). Automatic acknowledge (Auto Ack) call possible (see page 6a).

③ Communicate with coast station.

(Example)

Calling Operation with FS-5000 Series Radiotelephone and MF/HF DSC Receiver AA-50



GENERAL CALLING (Auto Ack: ON ·····> "auto" appears on the screen. Refer to page 6a.)

1. Receiving

1) The FS-5000 receives DSC message. A DSC message contains class of emission and working frequency proposed by transmitting station.
2) This message passes through the AA-50 (see NOTE 1) and is decoded by the DSC-5(R). You can view the contents of the message by monitoring the LCD or by printing out the message.
3) If own ship is able to comply with proposal of transmitting station (see NOTE 2) the acknowledge back signal is automatically transmitted through the FS-5000. (AUTO ACK function)
4) The DSC-5(R) commands the FS-5000 what working frequency and class of emission to set. Then, you can begin communicating with transmitting station by the FS-5000.

NOTE 1: When the AA-50 receives a distress message while receiving a general message, it stops receiving the general message to receive the distress message.

NOTE 2: If unable to comply, "unable" signal is automatically transmitted. Then prepare a message with different proposal and transmit it by pressing the CALL switch.

2. Transmitting

1) Prepare message then transmit it by pressing the CALL switch. (The DSC-5(R) commands the FS-5000 what calling frequency to set, then the message is transmitted. The DSC-5(R) waits for acknowledgement of the message.)
2) After receiving the "able" signal from the receiving station, the DSC-5(R) commands the FS-5000 what working frequency and class of emission to set. Then, you can begin communicating with receiving station.

Remote Function and Automatic Acknowledge(AUTO ACK)

AUTO ACK

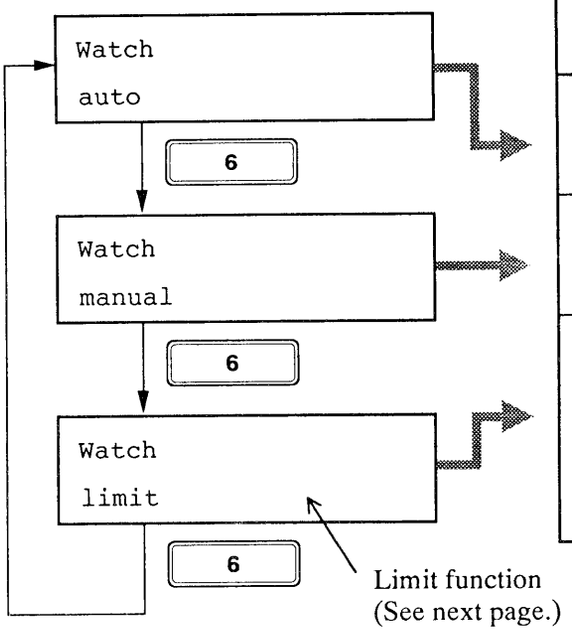
The auto acknowledge feature automatically transmits the acknowledge back (ACK BQ) signal when an individual call is received. With the auto acknowledge feature turned on the remote control function is also turned on.

Remote control function

The remote control function lets the DSC-5(R) set DSC frequencies, working frequencies and class of emission for the radiotelephone.

Turning remote (& AUTO ACK) on/off

To enable or disable AUTO ACK and remote control, use the [6] key. Each press of the key enables/disables auto acknowledge and remote control function in the sequence shown below.



Automatic Acknowledge Call	Remote Control Function	
	At transmission (Note 1)	At reception
ON	ON	ON
OFF	OFF (Note 2)	OFF
OFF	ON	• When receiving all ships call or calls relative to distress: ON • When receiving calls other than the above: OFF

Note 1: The [CALL] switch is pressed.

Note 2: When the [DISTRESS] switch is pressed, the remote function turns on.

LIMIT FUNCTION

The limit setting provides restricted use of the remote control function. It is useful when the following situations occur at the same time.

1. Automatically set working frequencies when receiving an all ship's call, so as **not to miss initial voice** from the transmitting station.

2. Prevent automatic transmission of the acknowledge back (ACK BQ) signal, in response to an individual call, **when no operator is present.**

3. Prevent automatic transmission of **own ship's position data,** in response to an individual call which requests such data.

Remarks on General Calling

If the error message shown in Fig. 1 or Fig. 2 appears when trying to transmit a DSC message by pressing the CALL switch, do the following. (Message is not transmitted.)

Error Message ...(Note 1) *Operation*

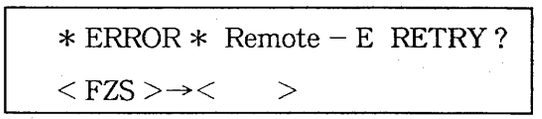


Fig. 1

Error Message ②

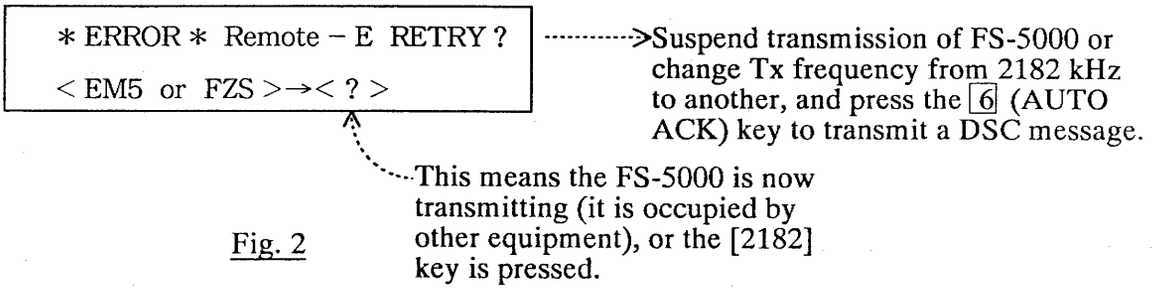


Fig. 2

Note 1: This means the remote function (refer to page 1-32) does not operate in good order. If the message can not be transmitted after checking the FS-5000, execute the following procedure.

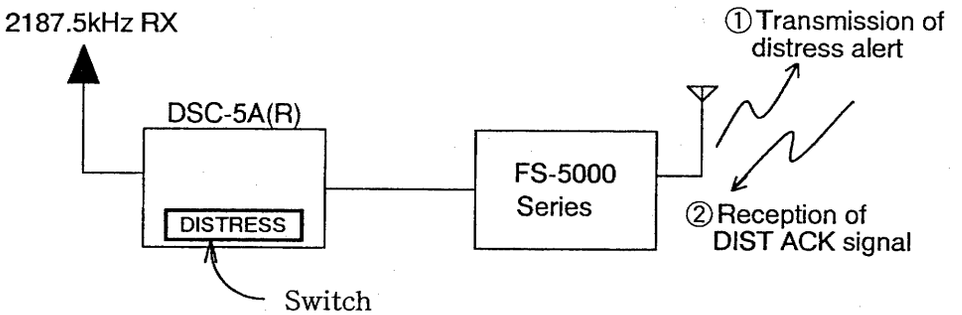
Procedure

1. Press CANCEL key to return to the default display.
2. Press 6 (AUTO ACK) key to turn the remote function off. ("**manual**" appears on the LCD.)
3. Set the DSC frequencies at the FS-5000 side manually.
4. Recall the message then press CALL switch.

Remedy for tune error : When the CALL switch is pressed, "**<TUNE> → <?>**" appears on the LCD if tune error is detected. This occurs when the antenna is disconnected, or the transceiver could not be tuned within prescribed tuning time (FS-5000:15sec). To transmit message, after connecting the antenna correctly, press the 6 key.

DISTRESS CALLING

1) Peel off the red seal, break the cover and press the [DISTRESS] switch on the DSC-5A(R), and the distress alert is transmitted by the FS-5000. If you are not pressed for time, prepare a distress message (nature of distress, class of emission, DSC frequency) at the DSC-5A(R) then transmit it by pressing the [DISTRESS] switch.
2) After the DSC-5A(R) receives the distress acknowledge (DIST ACK) signal from coast station through the FS-5000, you can now begin distress communication with coast station.



Note: **Pressing the [DISTRESS] switch turns the remote function on, causing the FS-5000 to be set at DSC frequencies determined by the DSC-5A(R) and the distress alert to be transmitted. If the error message shown below appears, however, check whether the FS-5000 is turned on or off. If off, turn it on and press the [CANCEL] key then press the [DISTRESS] switch again to transmit alert.. If on, set the DSC frequencies at the FS-5000 side manually and press the [DISTRESS] switch to transmit alert.**

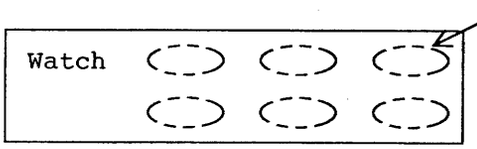
```
* ERROR * Remote - E RETRY ?
< FT     >→<     >
```

CHAPTER 1. OPERATION

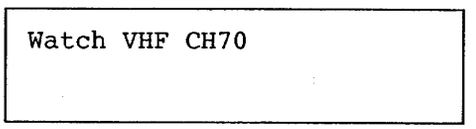
1. BASIC OPERATION

This section provides information necessary for basic operation of this unit. Most operations are carried out through an easy-to-understand menu system. **When the power is first turned on a prompt asks you to enter own ship's ID.** Enter ID referring to page 5-2.
For your reference Appendix 1 provides the complete menu tree.

1.1 Default Display with SSB (MF/HF) Connection



1.2 Default Display with VHF Connection



Should you get lost in operation you can return to the default display screen by pressing the CANCEL key several times.

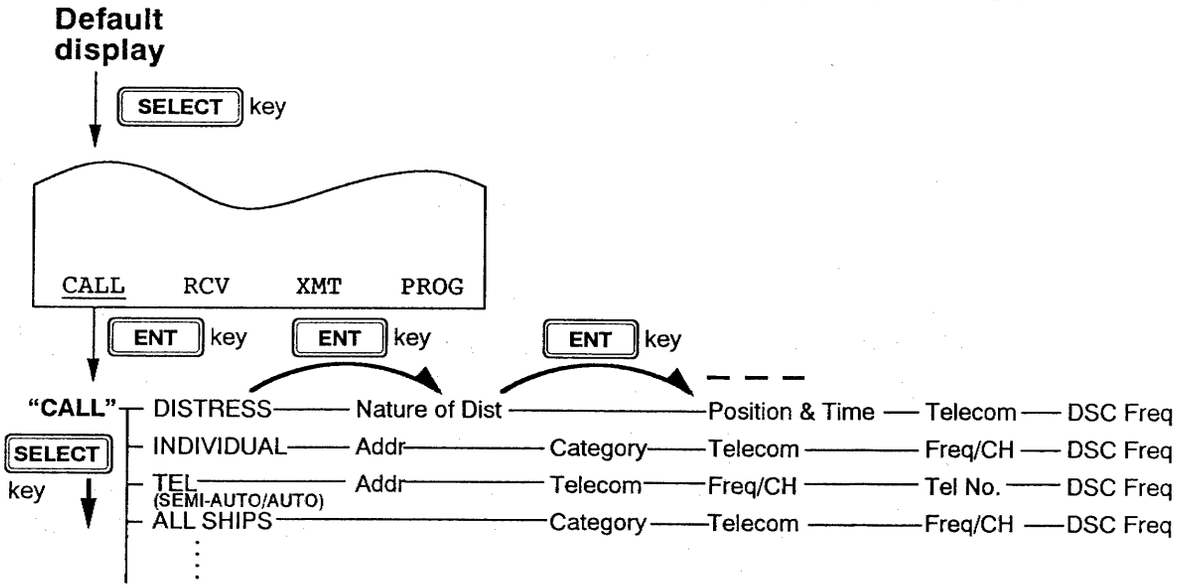
1.3 Preparing and Transmitting Message ····· *IMPORTANT!!*

There are two ways to prepare and transmit message in the DSC system.

❶ For distress calls, you prepare the distress message and then transmit it by pressing the DISTRESS switch. (pages 1-7 and 1-13)

❷ For other messages, you can transmit a just prepared message (pages 1-8 to 1-12, 1-14 to 1-18) or one stored in the memory (Max. 99 files, pages 1-24 to 1-27), by pressing the CALL switch.

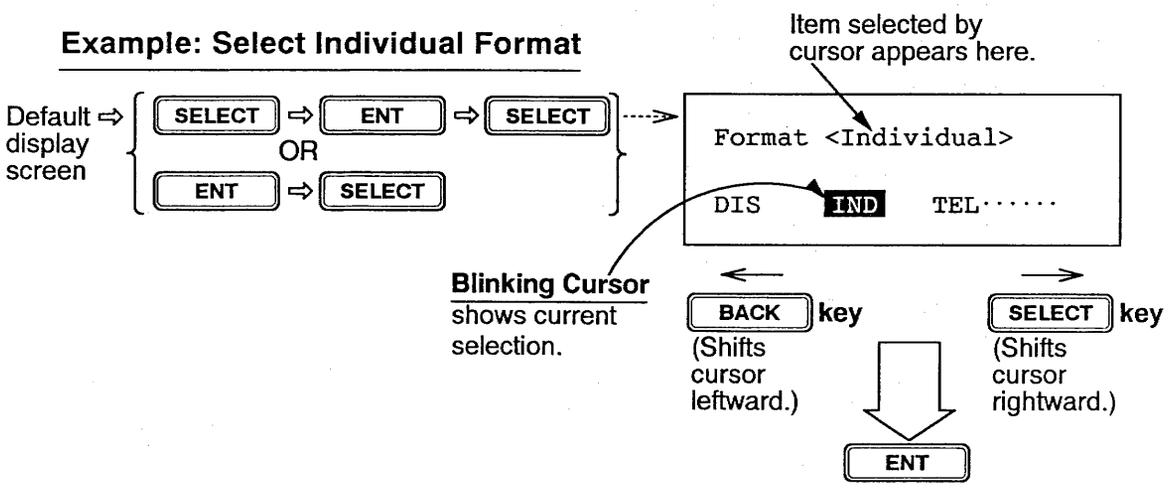
The following shows the tree in the CALL menu. (for preparing a message)



1.4 Selecting Items on the LCD

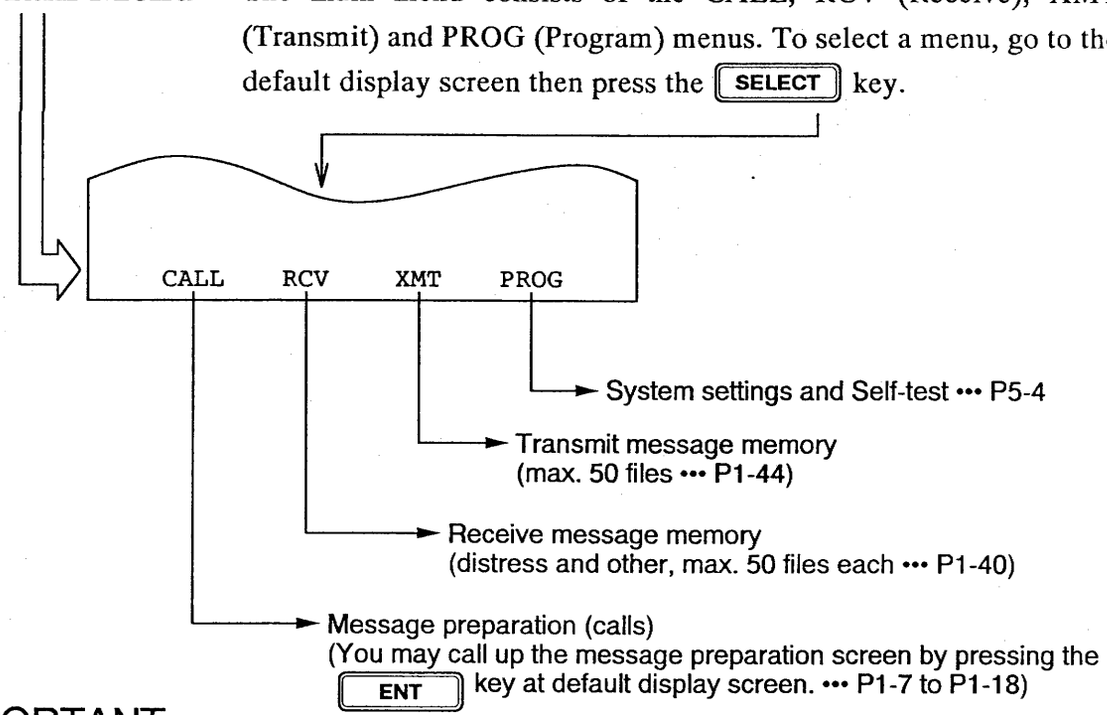
The [SELECT] and [BACK] keys function to select items on the LCD. After making a selection you press the [ENT] key to register it.

Example: Select Individual Format



1.5 Main Menu

The main menu consists of the CALL, RCV (Receive), XMT (Transmit) and PROG (Program) menus. To select a menu, go to the default display screen then press the [SELECT] key.

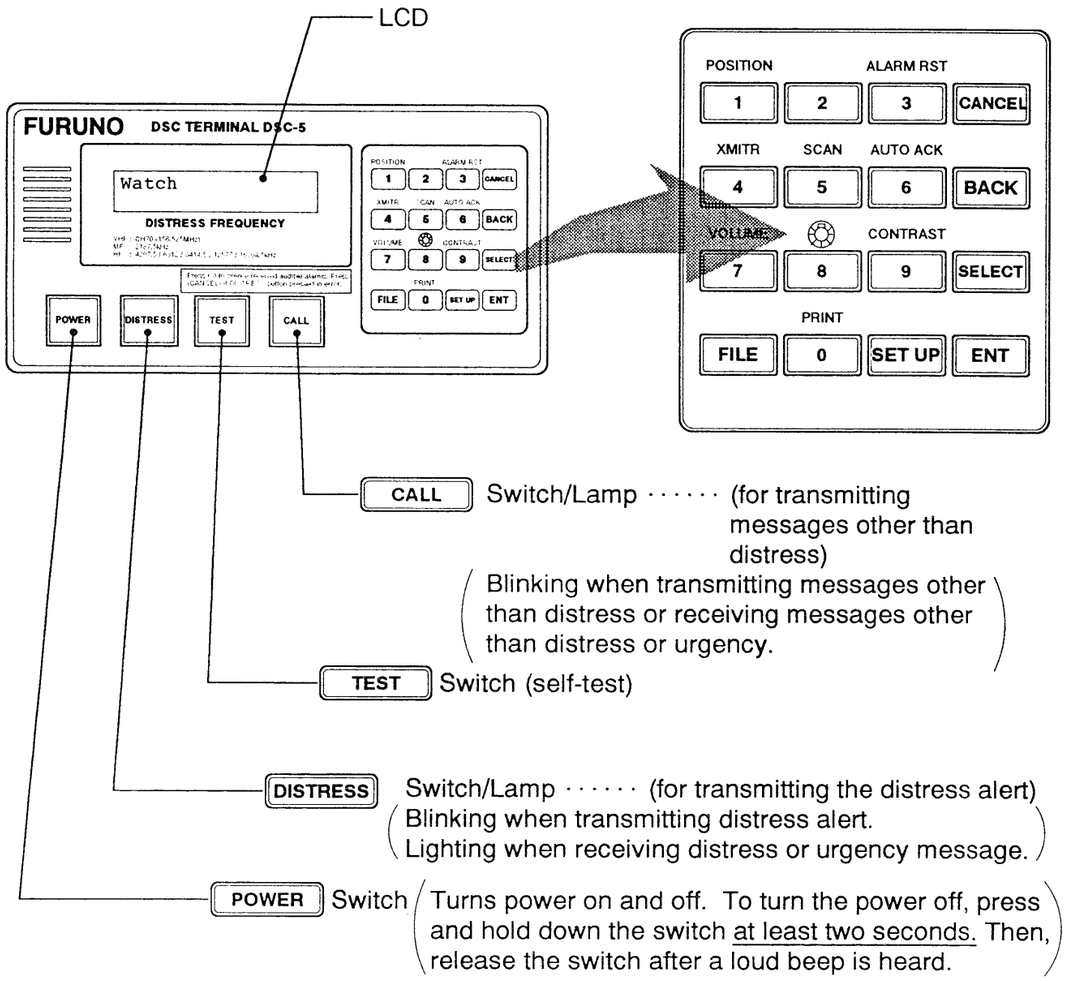


=IMPORTANT=

1. When the DSC-5(R) is connected to a radiotelephone with remote control capability (new Furuno radiotelephone such as the FS-5000 series, FM-7000 etc.), the [6] (AUTO ACK) key turns on or off **the remote control.** See page 1-32.

2. **The radiotelephone (FS-5000, FM-7000, etc.) keyboard is disabled during the transmission of DSC messages. It automatically unlocks when the acknowledge back signal (ACK BQ) is received.** To unlock it manually, if necessary, press the [CANCEL] key.

2. DESCRIPTION OF FRONT PANEL CONTROLS



Key	Function/Purpose	Remarks
0 ~ 9	Enters numeric data.	Entering frequency, etc.
SELECT	1. Selects main menus ("CALL," "RCV," "XMT," "PROG"). 2. Changes settings of items with blinking question mark. 3. Shifts the cursor, which selects items on the display, rightward.	
BACK	Restores previous display when pressed at displays with a blinking question mark. Shifts the cursor leftward.	
ENT	Registers key input.	Blinking item is registered when key is pressed.
CANCEL	Cancels wrong data and stops transmission of calls.	
POSITION 1	Ship's position and time are shown while pressed and held down.	
ALARM RST 3	Silences the audible alarm. (For calls except distress and urgency the alarm stops automatically after five seconds.)	
SCAN 5	Starts and stops frequency scanning (MF/HF).	When scanning, receive frequencies appear on the screen in sequential order and blink.
AUTO ACK 6	Turns automatic call acknowledge and transceiver remote on or off. (Refer to page 6a.) Auto acknowledge not available for distress alert reception.	When "AUTO ACK" is ON, "AUTO" appears on the LCD.
VOLUME 7	Adjusts volume of speaker in eight steps. (Distress and urgency alarm always sounds at maximum volume.)	
☼ 8	Adjusts illumination of LCD, switches and keys in four steps.	
CONTRAST 9	Adjusts contrast of LCD in eight steps.	
PRINT 0	Printing.	
FILE	Retrieves files.	Refer to page 1-26.

Functions Available by the [SET UP] Key

The [SET UP] key functions to select the secondary function of keys so equipped. To select a secondary function, press the [SET UP] key then press desired key within 2 – 3 seconds. (If a key is not pressed within 2 – 3 seconds after pressing the [SET UP] key, control is returned to the previous display screen.)

Key Operation		Function	Remarks	Page
[SET UP] ⇨ ("SET UP" appears on the LCD.)	POSITION [1]	For manual entry of ship's position and time.		page 1-39
	XMITR [4]	Selects communication equipment (MF/HF or VHF) or selects VHF receiver (CH70 or VHF).		page 5-3/ 5-3a
	SCAN [5]	Sets scan frequency.	Up to six frequencies can be programmed.	page 1-31
	AUTO ACK [6]	Selects "ABLE" (able to comply) or "UNABLE" (unable to comply), for reply to other station's proposal.	Automatic acknowledge function is used only when receiving an individual call.	page 1-32
	PRINT [0]	Automatic or manual printing.		page 1-34
	VOLUME [7]	Turns key response beep and receive alarm on or off and selects distress and urgency alarm tone.		page 1-37
	[FILE]	Registers transmit messages, other station IDs, working/DSC frequencies, etc. It also displays distress frequencies and own ship's ID.		page 1-24/ 1-28/ 1-46

3. CALLING PROCEDURES FOR MF AND HF BANDS

3.1 Distress Call

If the DISTRESS switch is accidentally pressed, press the CANCEL key within five seconds to cancel the distress call.

Nature of distress can be entered with numeric keys. See next page.

Example Call

- **Nature of Distress:** UNDESIGNATED
- **Telecommand:** J3E
- **DSC Frequency:** 8MHz band

```
Watch  [ ] [ ] [ ]        <- Scan frequencies
Auto   [ ] [ ] [ ]        <- Default display
```

6 key : ON

ENT

```
*MF/HF call message*
Format?
```

Format selected before appears. If other than "DISTRESS" appears here, press SELECT key and then select "DIS" as shown below.

CANCEL

If DISTRESS format was selected beforehand, or when the power is turned on, "DISTRESS" screen appears as below.

SELECT (To select format.)

```
Format <          >
DIS IND TEL ALL GRP SPC
```

Place the cursor on "DIS".

SELECT : Moves cursor rightward.
BACK : Moves cursor leftward.

ENT

```
*MF/HF call message*
Format?     DISTRESS
```

BACK

ENT

```
Nature of distress?
                UNDESIGNATED
```

To select other nature of distress, press SELECT.

ENT

```
Position? N34° 40 E135° 20
UTC? 15:20
```

ENT

(＊1)

If there is no automatic input of position enter it manually by pressing the SELECT key.

Normal (Recommended) Setting
1. Nature of Distress: UNDESIGNATED
2. Telecommand: J3E TP
3. DSC Frequency: Auto

```
Position <          >
NORTH=__° __  S  E=___° __  W  UTC=__:__
```

ENT → (*1)

Enter 1st co-ordinate. ① ① Enter 2nd co-ordinate. ① ① Enter time.

① = SELECT

If 6 key (remote function) is off, you can't select DSC frequency. (P.1-7toP.1-12)

(＊1)

```
Telecom1?
DSC freq:
```

If telecom 1 is OK, press ENT.

SELECT (To select telecommand 1 (class of emission).)

```
Telecom1 <      >
  J3E      H3E      F1B
```

Select J3E.

ENT

```
Telecom1:  J3E TP
DSC freq?
```

If DSC freq. is OK, press ENT.

If 6 key is off, DSC freq. is fixed to previous setting.

SELECT (To select DSC freq.)

```
DSC freq <    >
 2  4  6  8  12  16  AUTO
```

For AUTO, distress alert is transmitted on 2M, 8M, 16M, 4M ... in order automatically until acknowledged by coast station.

Select 8(M).

ENT

```
*Ready for calling*
 DISTRESS   CALL   8414.5kHz
```

(＊2)

MF/HF

(＊2)

Press DISTRESS switch to transmit the distress alert. (Switch blinks.)

```
DISTRESS CALL 8414.5kHz
34° 40N 135° 20E at 15:20
```

5 seconds later at least (depending on tuning time)

```
*Call in progress*
DISTRESS CALL 8414.5kHz
```

(Distress alert transmitted 5 times.)

(Transmission time about 40 seconds) → Radiotelephone unlocks.

"Wait for dist ack" screen (Details on page 1-21.)

```
*Wait for dist ack*
Next 8414.5kHz  3.0 min
```

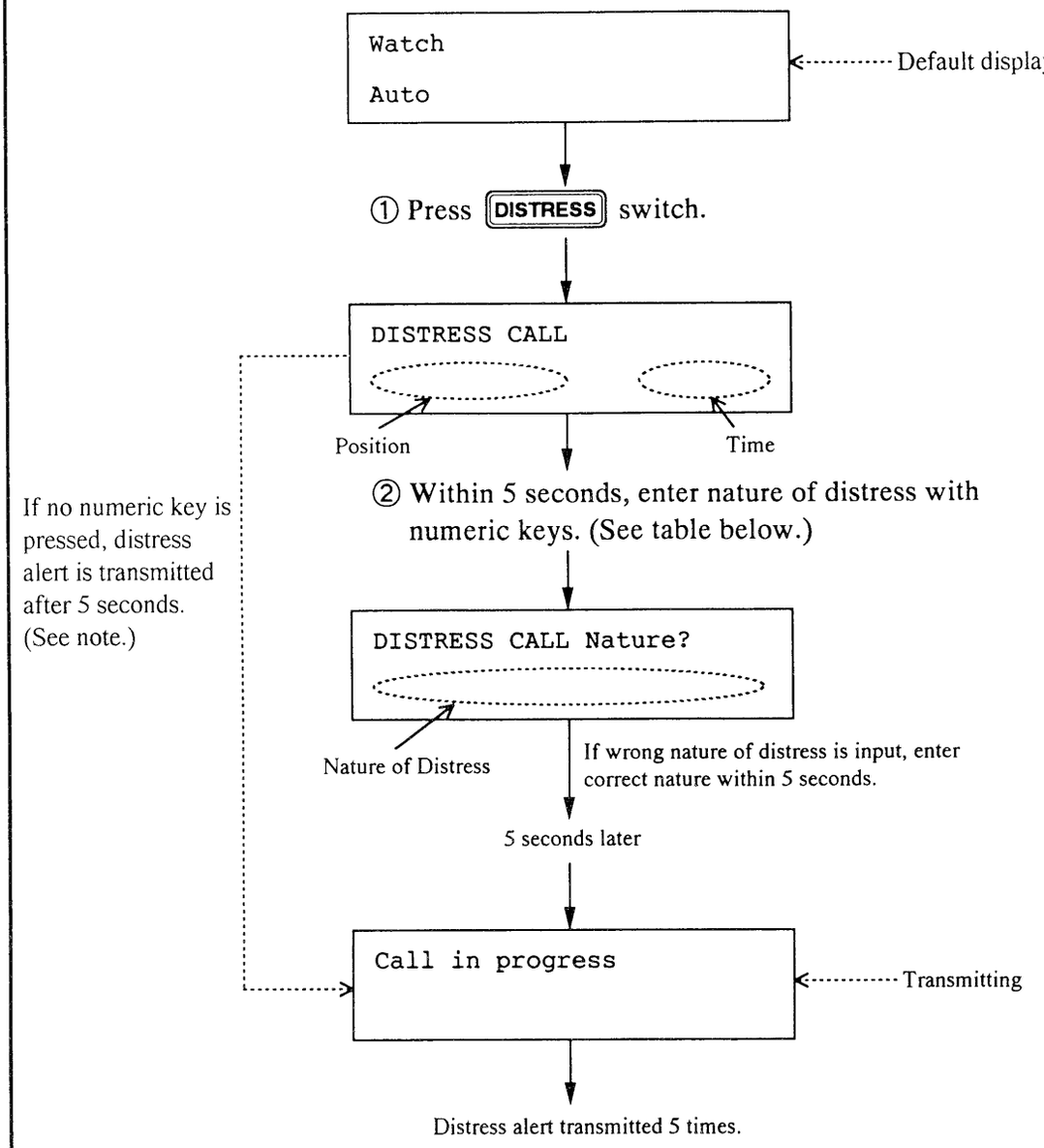
Counts down. If distress call is not acknowledged it is automatically retransmitted, until acknowledged. To cancel distress call, press CANCEL key.

To change distress frequency at next distress calling, press SELECT and choose a desired DSC frequency.

This completes the procedure for preparing a distress message.

To transmit the message, press the DISTRESS switch (see next column). To return to the default display, press the CANCEL key. (The distress message is stored in the memory, so, in case of distress, just press the DISTRESS switch to transmit it.)

Selecting "Nature of Distress" with numeric keys



Note: In this case, nature of distress selected by menu (p. 1-7) is transmitted.

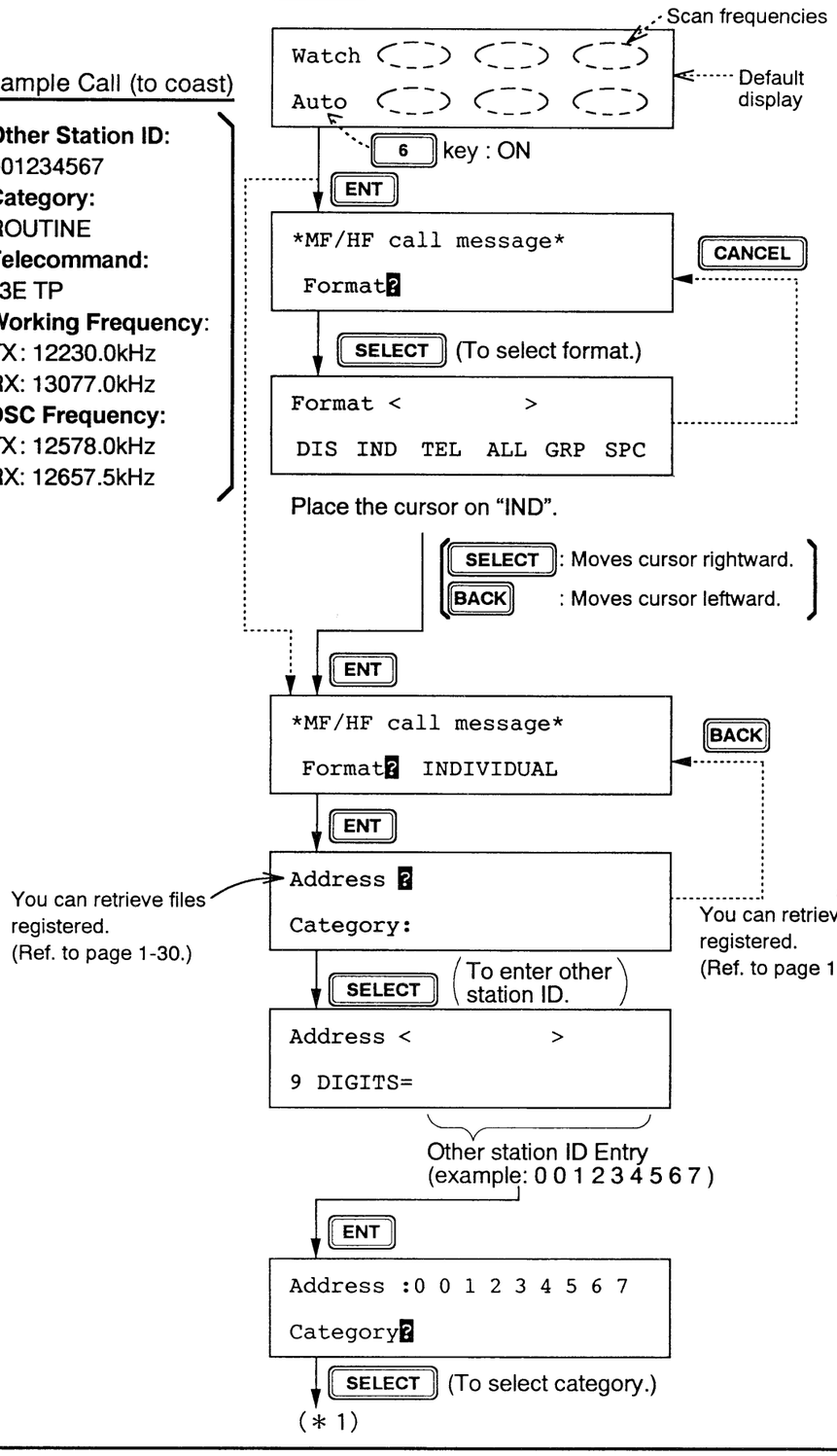
Nature of Distress
[1]: Fire, explosion
[2]: Flooding
[3]: Collision
[4]: Grounding
[5]: Listing, capsizing
[6]: Sinking
[7]: Disabled & adrift
[8]: Abandoning
[0]: Undesignated

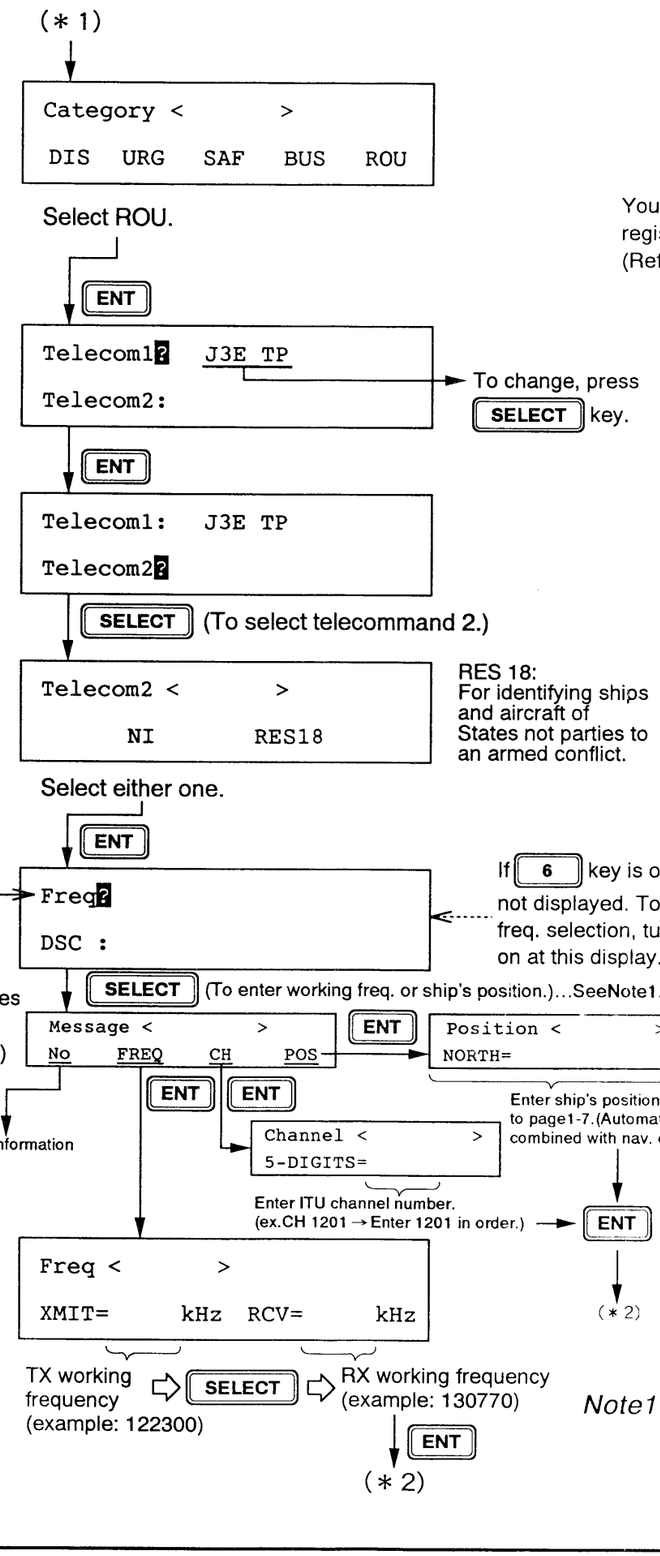
3.2 Individual Call

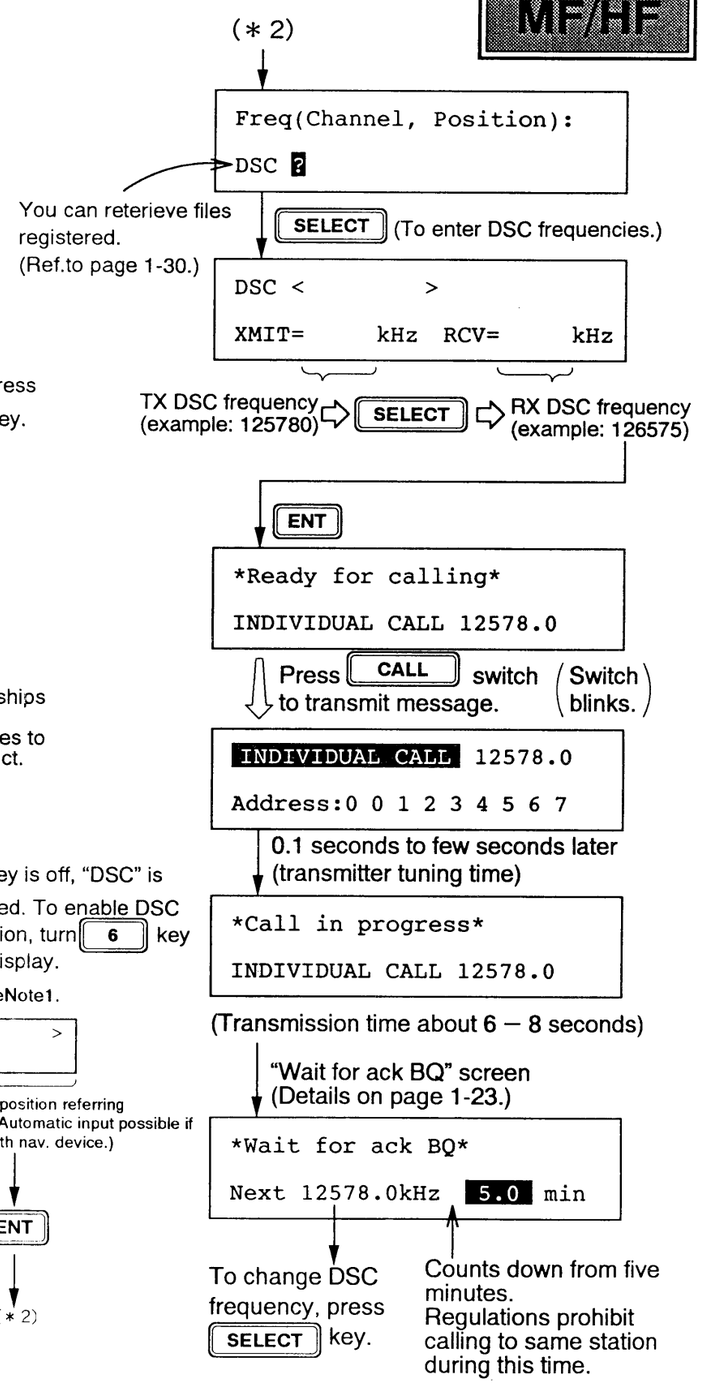
MF/HF

Example Call (to coast)

- **Other Station ID:** 001234567
- **Category:** ROUTINE
- **Telecommand:** J3E TP
- **Working Frequency:** TX: 12230.0kHz RX: 13077.0kHz
- **DSC Frequency:** TX: 12578.0kHz RX: 12657.5kHz







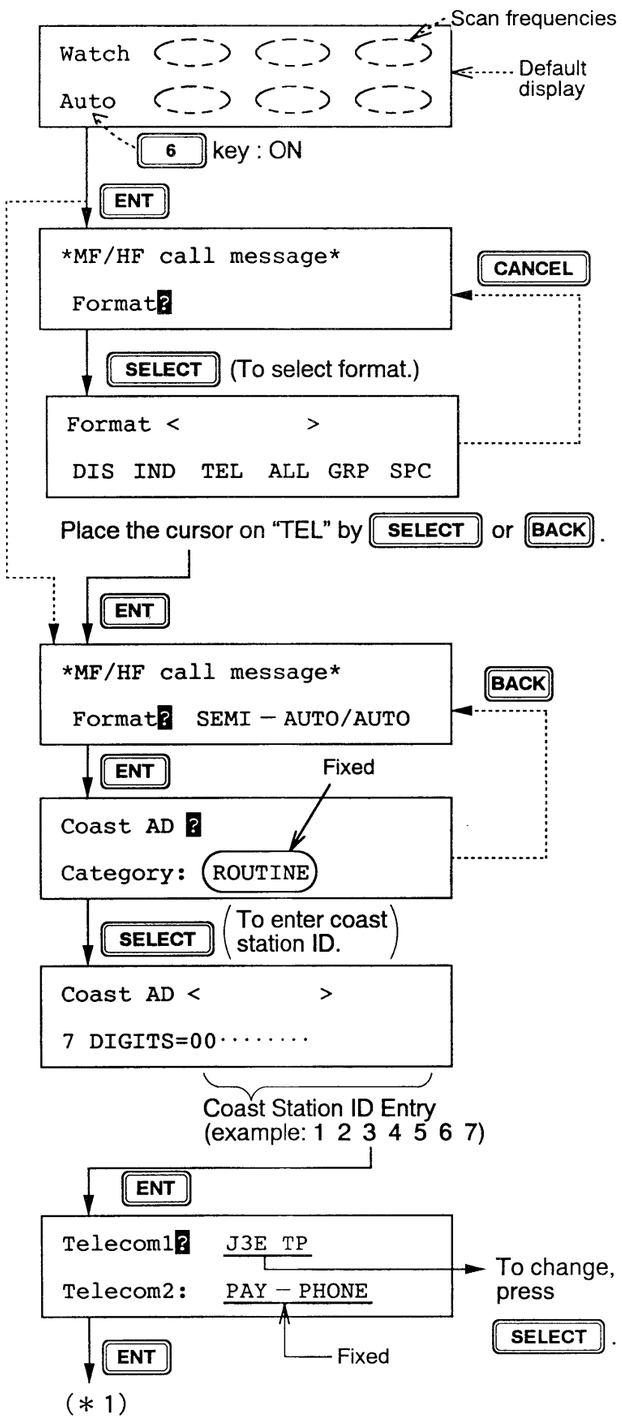
Note1: Working frequencies are normally set by coast station. Therefore, select "No information" or enter ship's position.

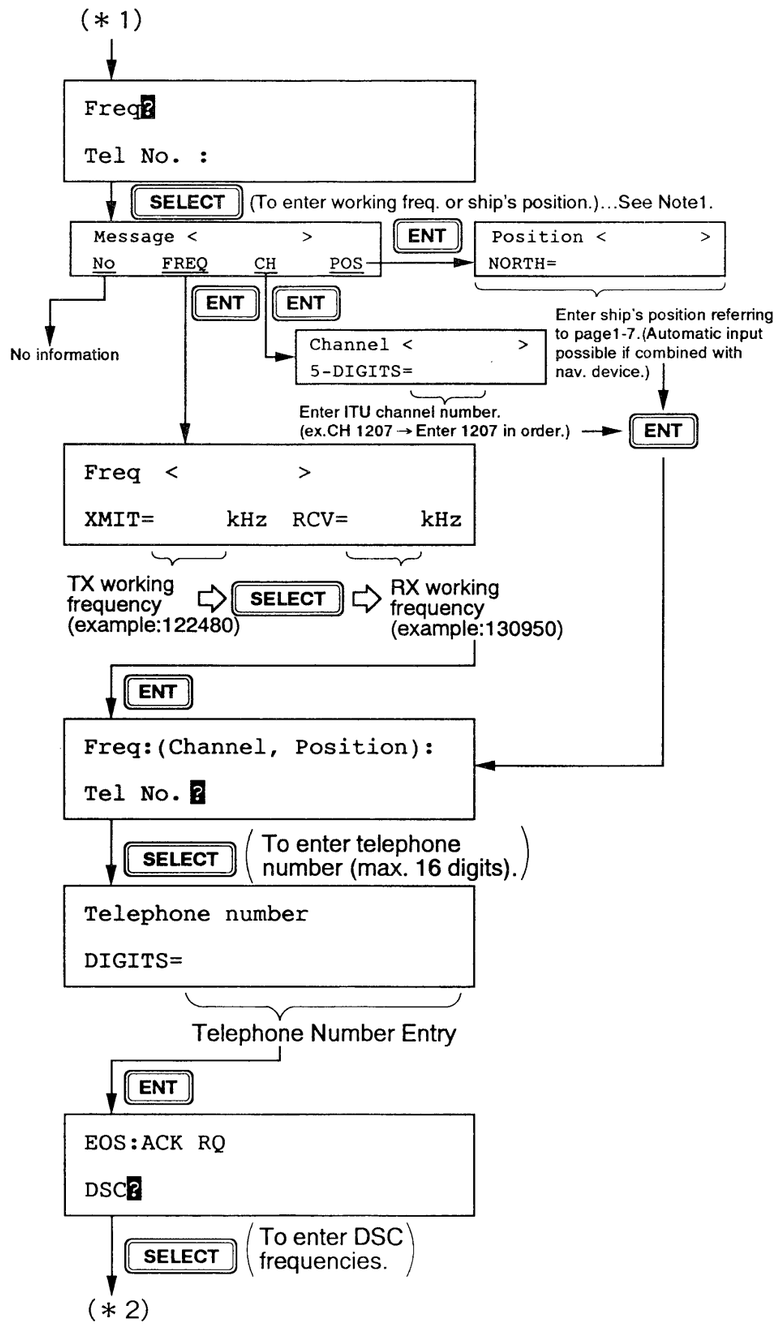
3.3 Telephone Call

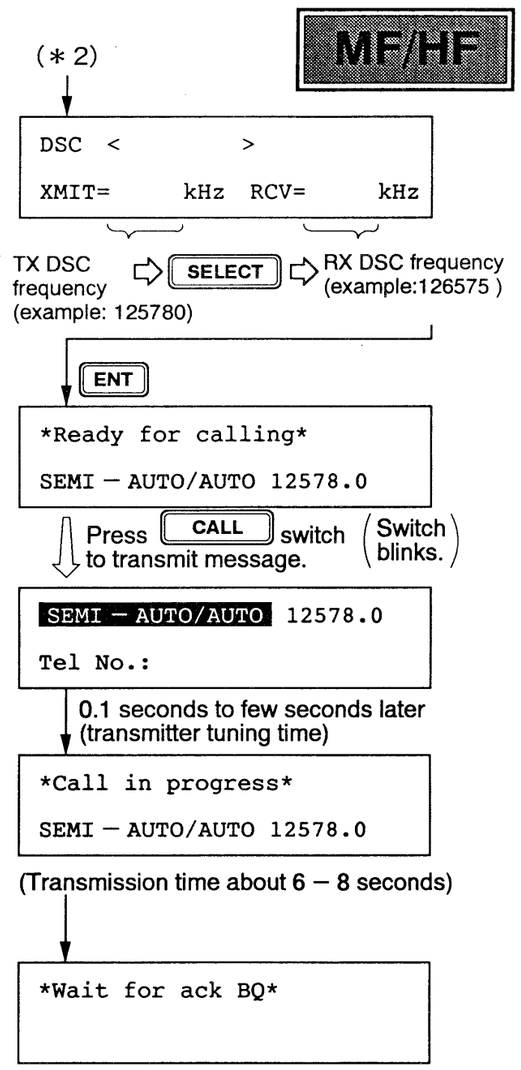
MF/HF

Example Call

- **Coast Station ID:**
  0 0 1 2 3 4 5 6 7
- **Telecommand:**
  J3E TP
- **Working Frequency:**
  TX: 12248.0kHz
  RX: 13095.0kHz
- **DSC Frequency:**
  TX: 12578.0kHz
  RX: 12657.5kHz
- **Telephone No.:**
  Max. 16 digits







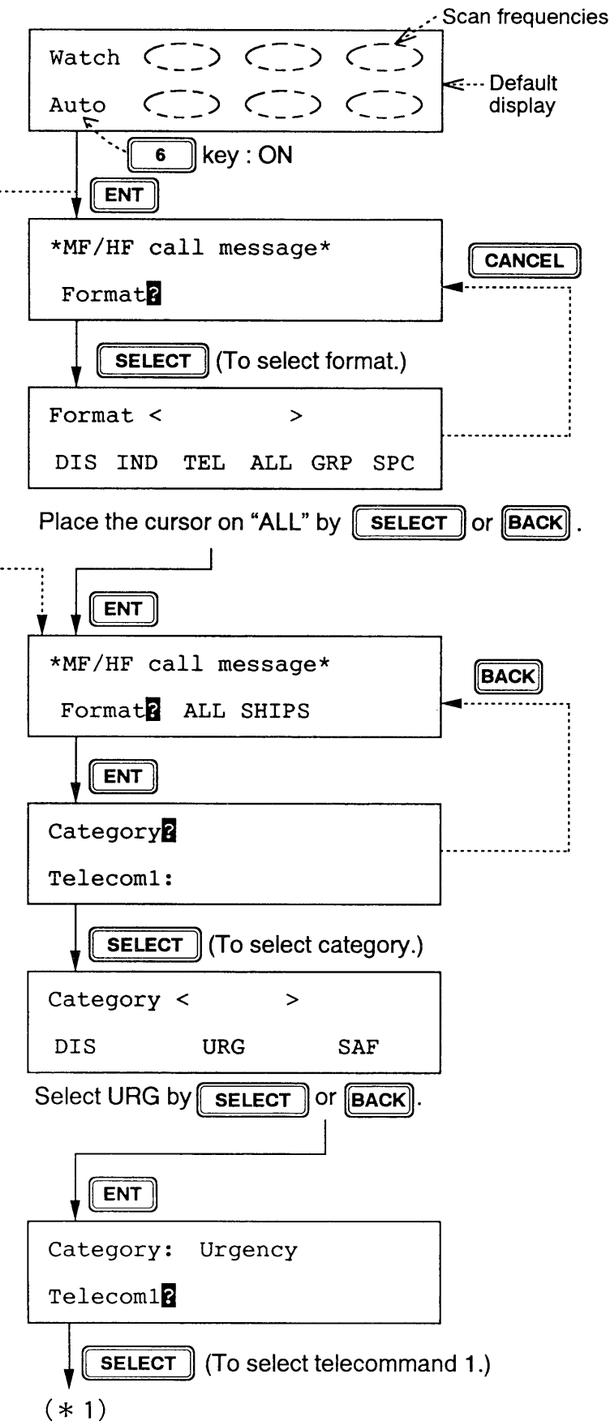
After receiving acknowledge back (ACK BQ) signal, communicate with coast station.

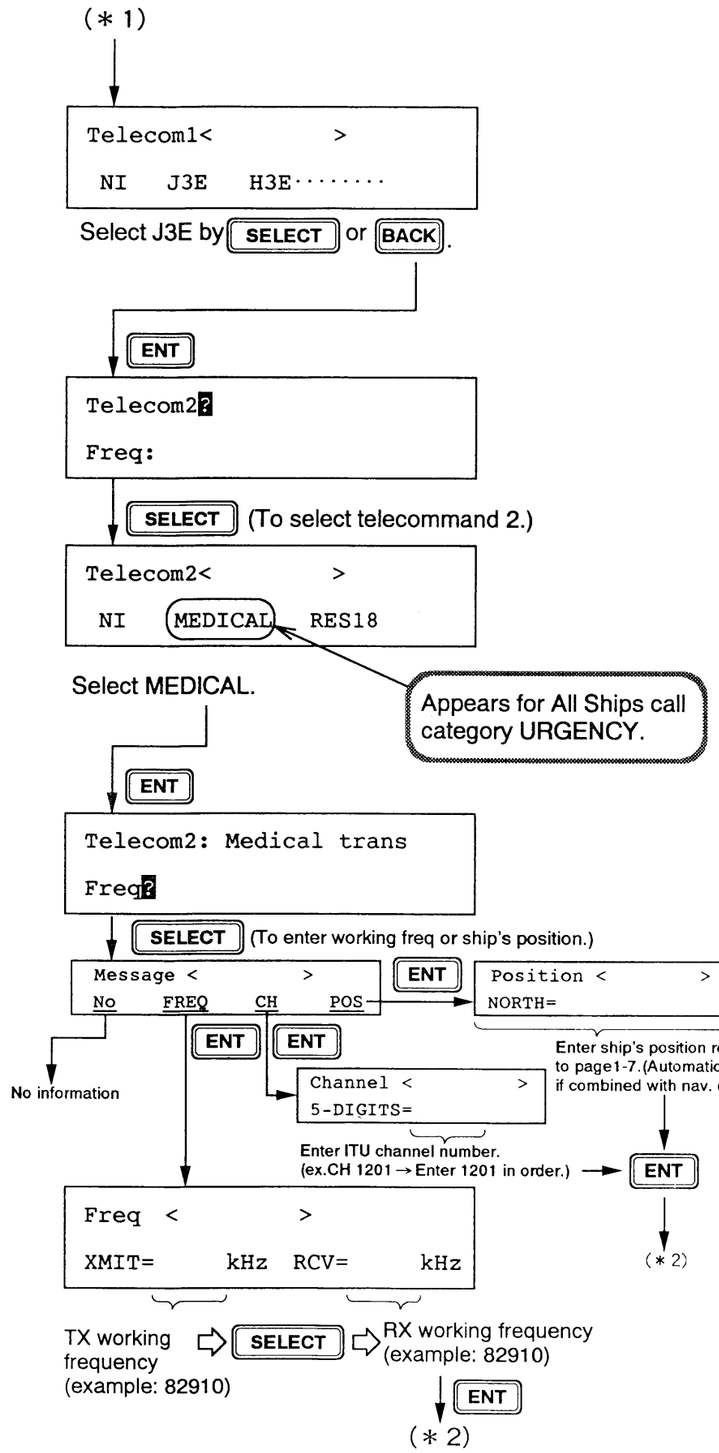
Note 1: Working frequencies are normally set by coast station. Therefore, select "No information" or enter ship's position.

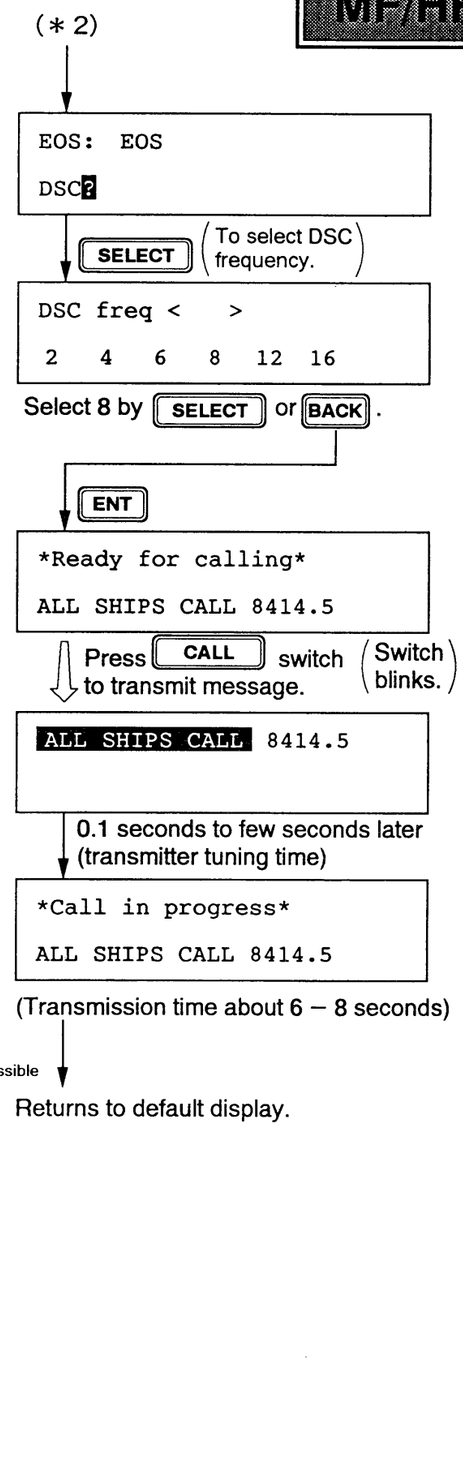
3.4 All Ships Call

Example Call

- **Category:** URGENCY
- **Telecommand 1:** J3E TP
- **Telecommand 2:** MEDICAL TRANSPORT
- **Working Frequency:** TX: 8291.0kHz RX: 8291.0kHz
- **DSC Frequency:** 8MHz band





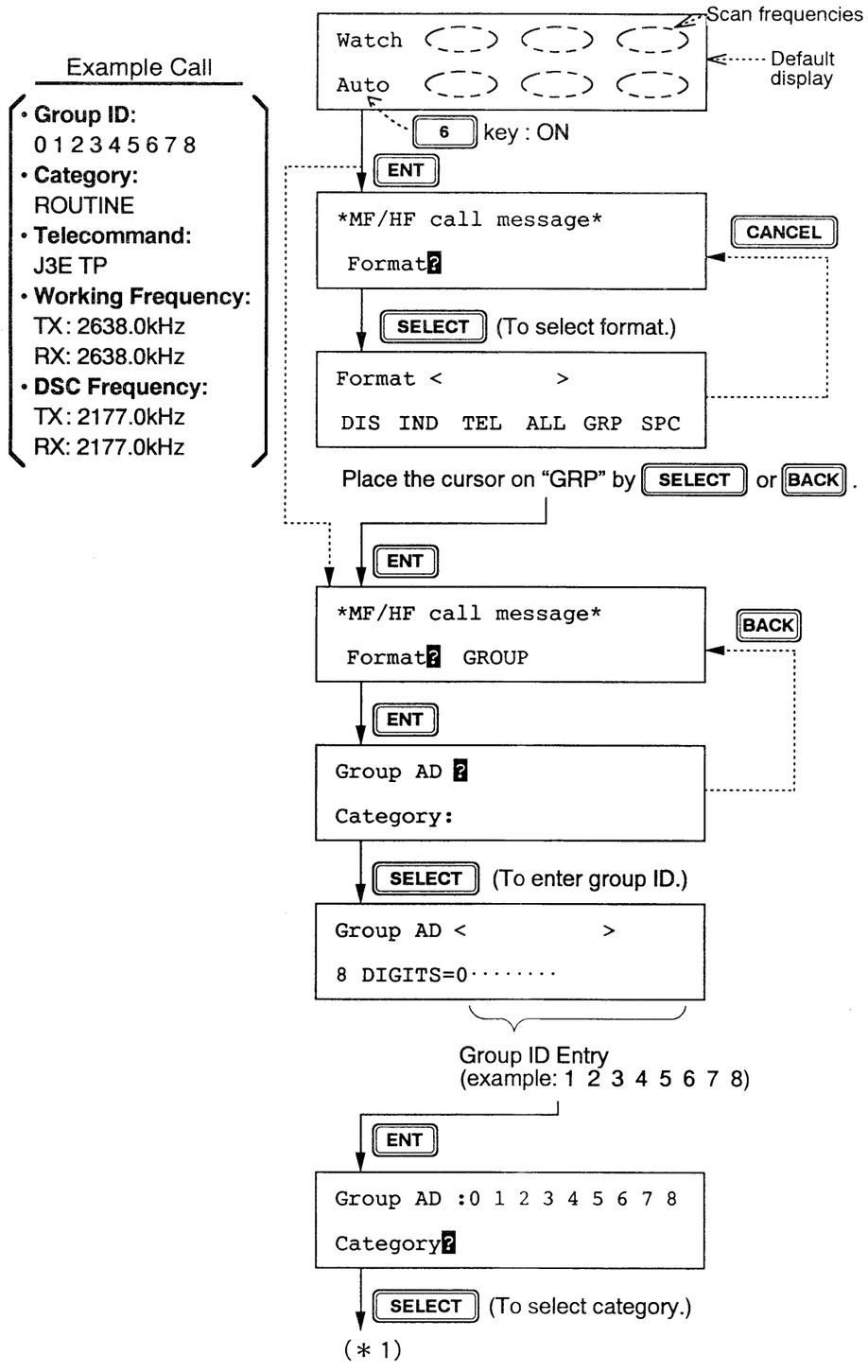


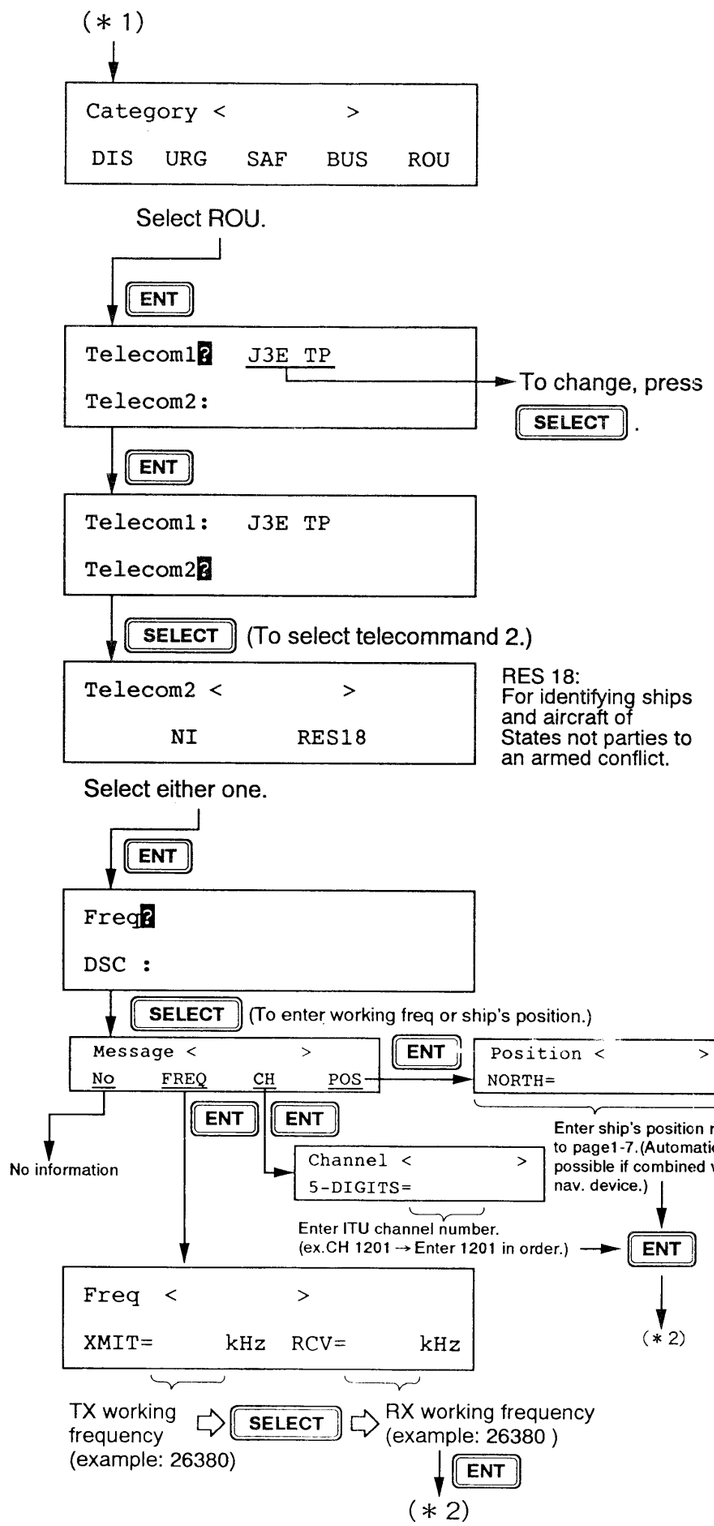
3.5 Group Call

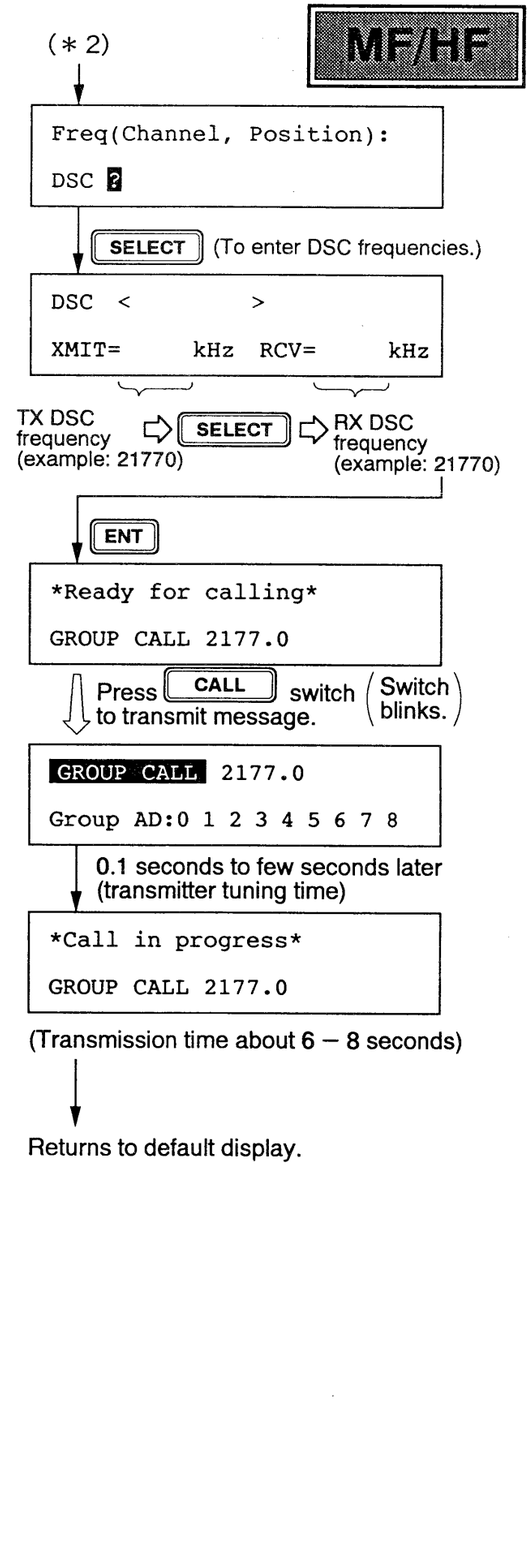
MF/HF

Example Call

- **Group ID:**
  0 1 2 3 4 5 6 7 8
- **Category:**
  ROUTINE
- **Telecommand:**
  J3E TP
- **Working Frequency:**
  TX: 2638.0kHz
  RX: 2638.0kHz
- **DSC Frequency:**
  TX: 2177.0kHz
  RX: 2177.0kHz



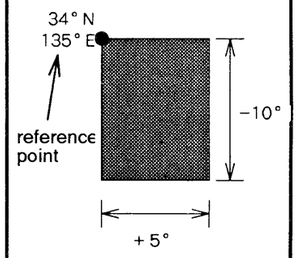




3.6 Geographic Area Call

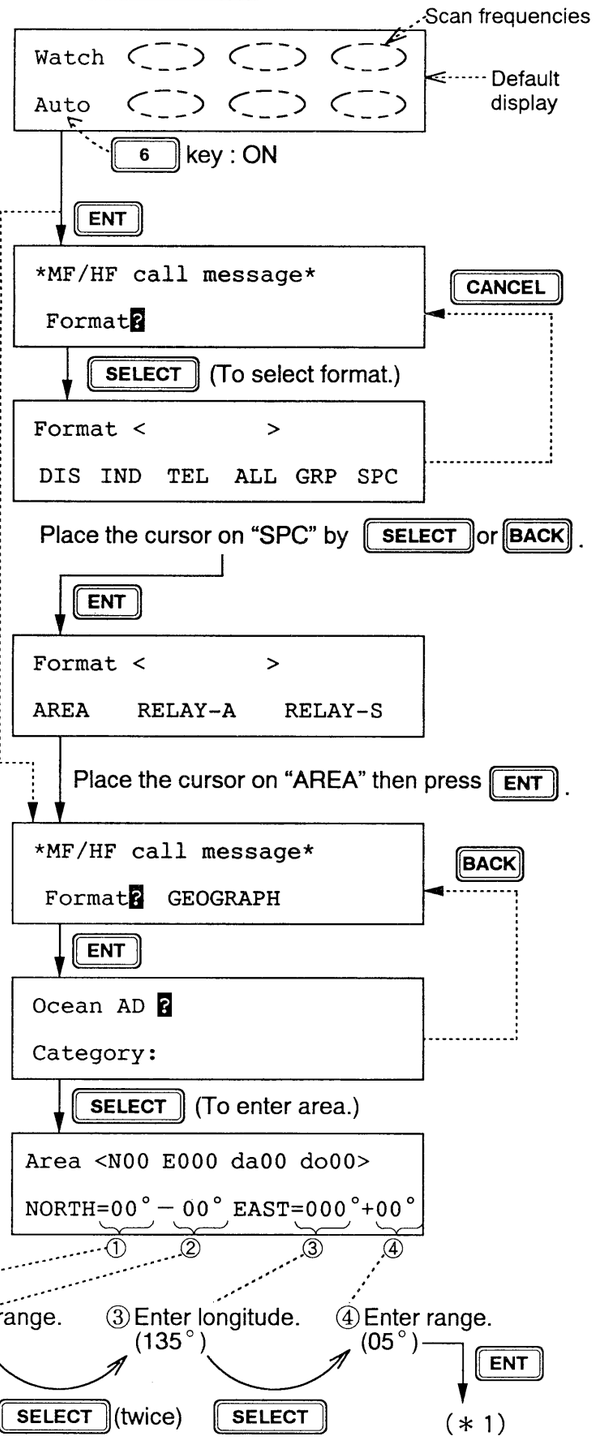
Example Call

- **Ocean Area:** 34° N 135° E

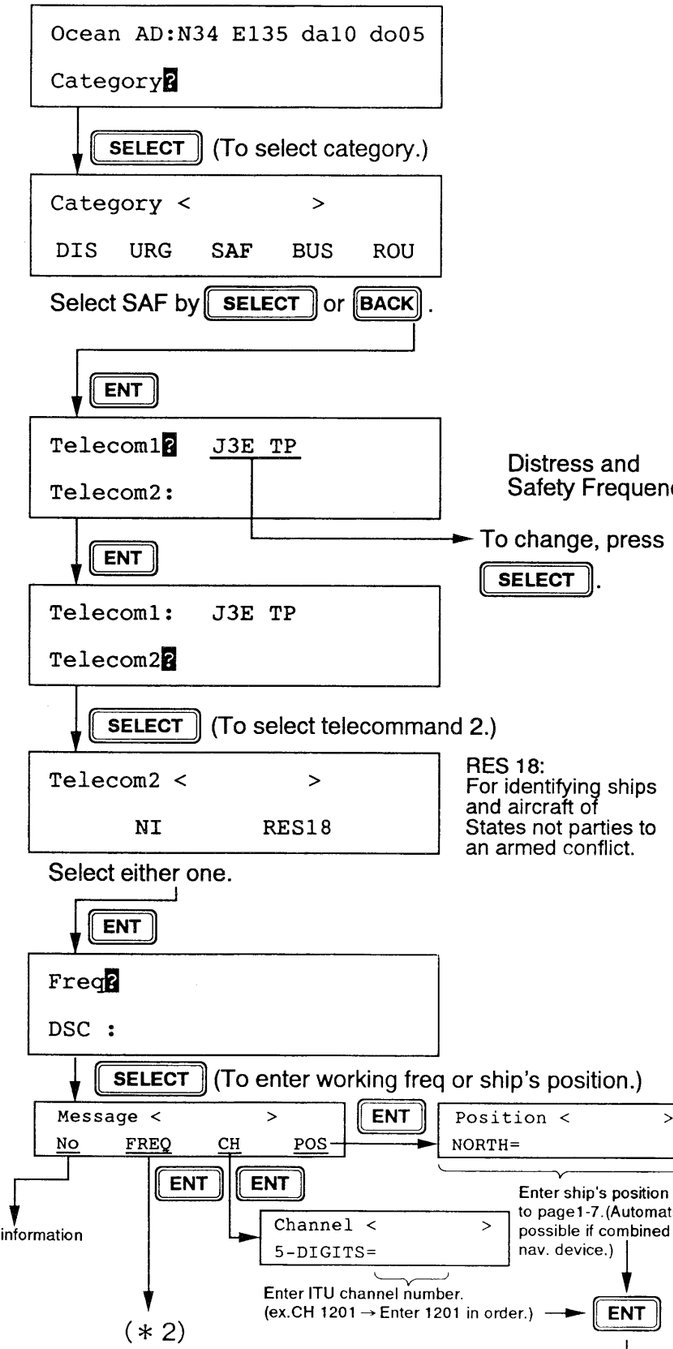


- **Category:** SAFETY
- **Telecommand:** J3E TP
- **Working Frequency:** TX: 4125.0kHz RX: 4125.0kHz
- **DSC Frequency:** TX: 4207.5kHz RX: 4207.5kHz

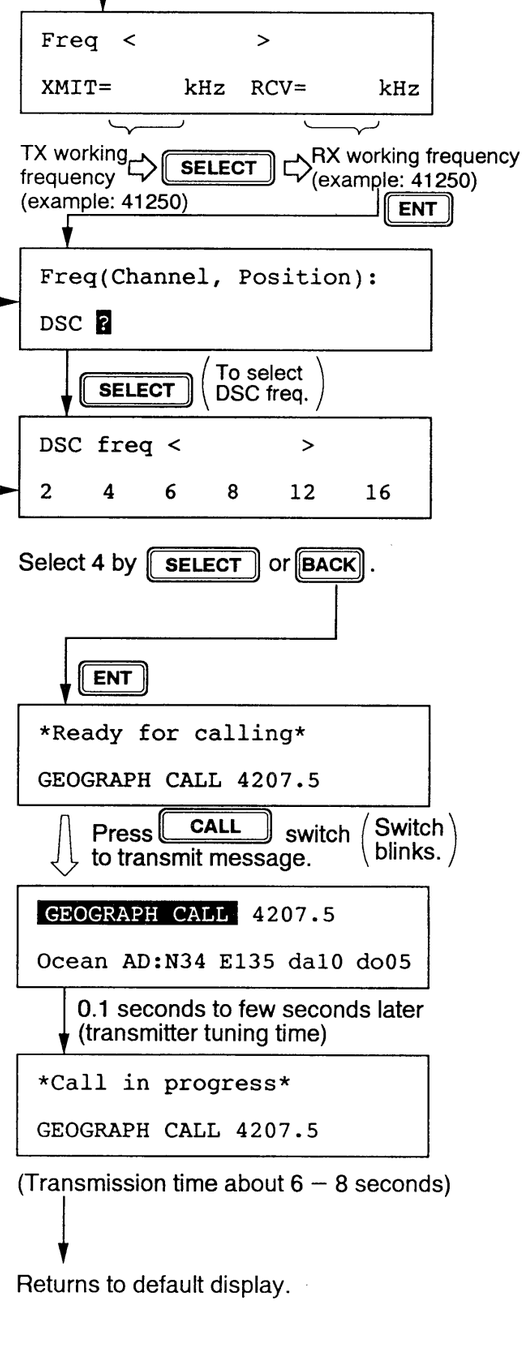
〔**Calling for the ships within the area selected above.**〕



(* 1)



(* 2)



4. CALLING PROCEDURES FOR VHF BAND

4.1 Distress Call

Nature of distress can be entered with numeric keys. See page 1-7a.

If the DISTRESS switch is accidentally pressed, press the CANCEL key within five seconds to cancel the distress call.

Example Call

- **Nature of Distress:** UNDESIGNATED
- **Telecommand:** SIMPLEX (fixed)
- **DSC Channel:** CH70 (fixed)

If DISTRESS format was selected beforehand, or when the power is turned on, "DISTRESS" screen appears as below.

```
Watch VHF CH70
Auto
```
Default display

6 key : ON

ENT

Format selected before appears. If other than "DISTRESS" appears here, press SELECT key and then select "DIS" as shown below.

```
*VHF call message*
Format? [          ]
```
CANCEL

SELECT (To select format.)

```
Format <          >
DIS  IND  TEL  ALL  GRP  SPC
```

Place the cursor on "DIS".

ENT

SELECT : Moves cursor rightward.
BACK : Moves cursor leftward.

Normal (Recommended) Setting
1. Nature of Distress: UNDESIGNATED

```
*VHF call message*
Format? DISTRESS
```
BACK

ENT

```
Nature of distress?
                UNDESIGNATED
```
To select other nature of distress, press SELECT.

ENT

```
Position? N34° 40 E135° 20
UTC? 15:20
```

ENT

(*1)

If there is no automatic input of position enter it manually by pressing the SELECT key.

(*1)

```
Telecom1: SIMPLEX TP
DSC ch: 70
```

ENT

```
*Ready for calling*
 DISTRESS   CALL    CH70
```

This completes the procedure for preparing a distress message.
To transmit the message, press the DISTRESS switch.
To return to the default display, press the CANCEL key. (The distress message is stored in the memory, so, in case of distress, just press the DISTRESS switch to transmit it.)

Press DISTRESS switch to transmit the distress alert. (Switch blinks.)

```
DISTRESS CALL CH70
34° 40N 135° 20E at 15:20
```

5 seconds later

```
*Call in progress*
DISTRESS CALL CH70
```

(Distress alert transmitted 5 times.)

Transmission time about 3 seconds

"Wait for dist ack" screen
(For further details, see page 1-21.)

```
*Wait for dist ack*
Next CH70      3.0 min
```

After transmitting a distress call, you can immediately commence voice communications, however note that the DIST ACK signal may not be received during voice communications.

Counts down. If distress call is not acknowledged it is automatically retransmitted, until acknowledged (own ship receives DIST ACK). To cancel distress call, press the CANCEL key.

```
Position <          >
NORTH=__° __  S  E=___° __  W  UTC=__:__
```
Enter 1st co-ordinate. ① ① Enter 2nd co-ordinate. ① ① Enter time.

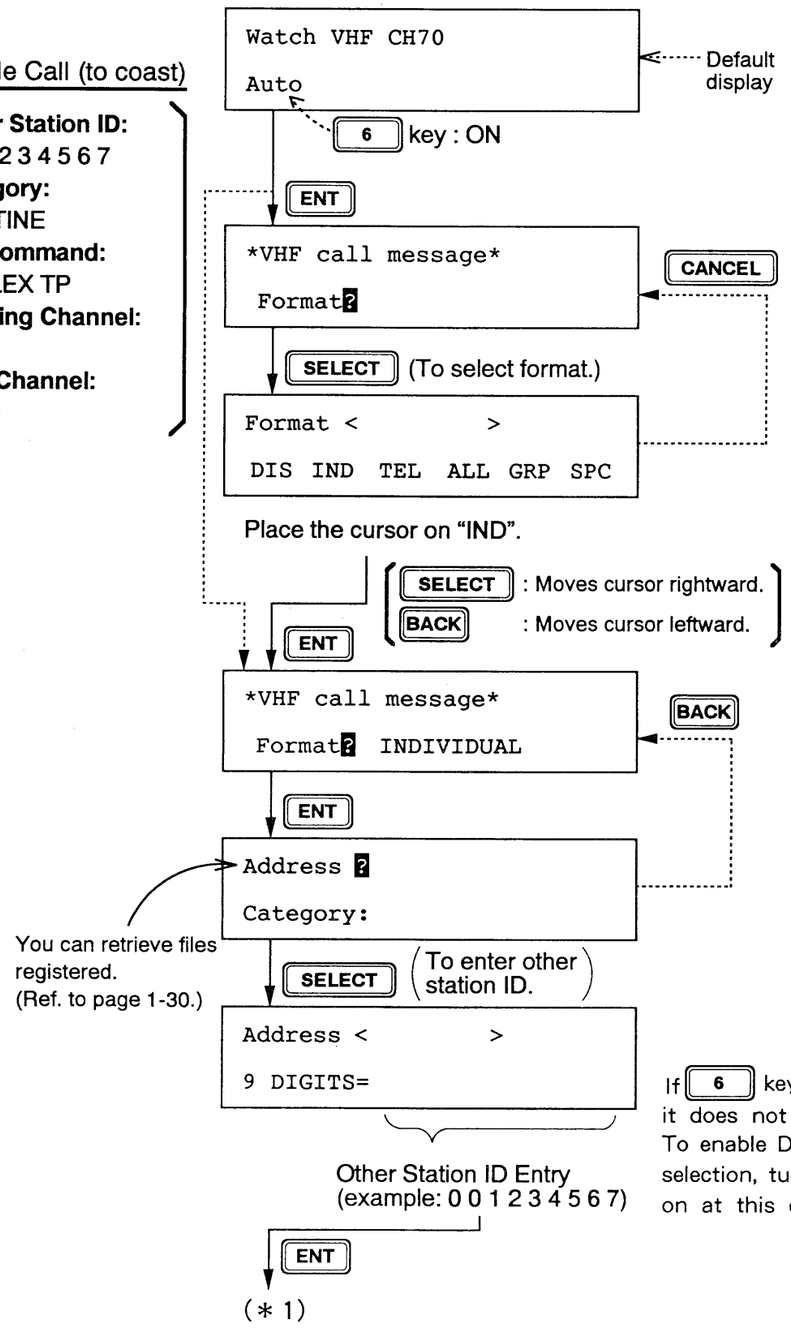
① = SELECT

ENT (*1)

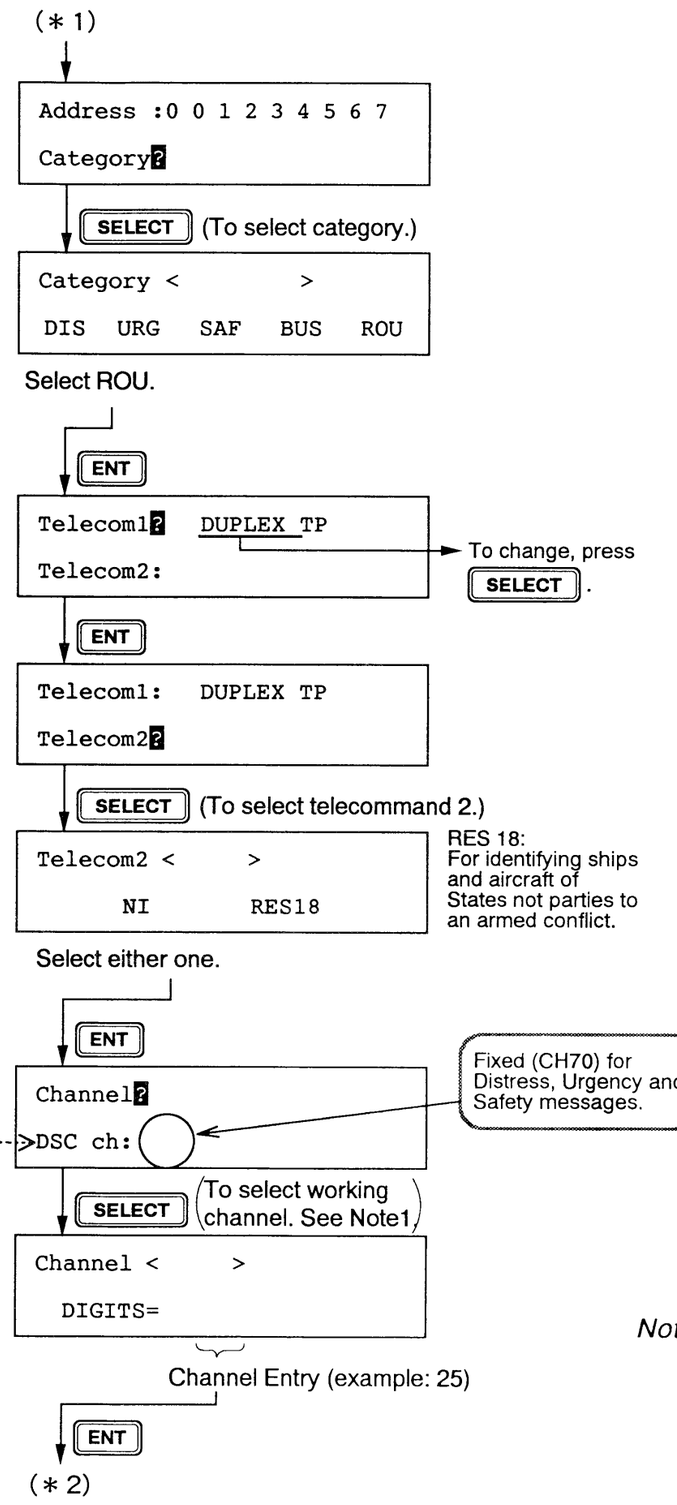
4.2 Individual Call

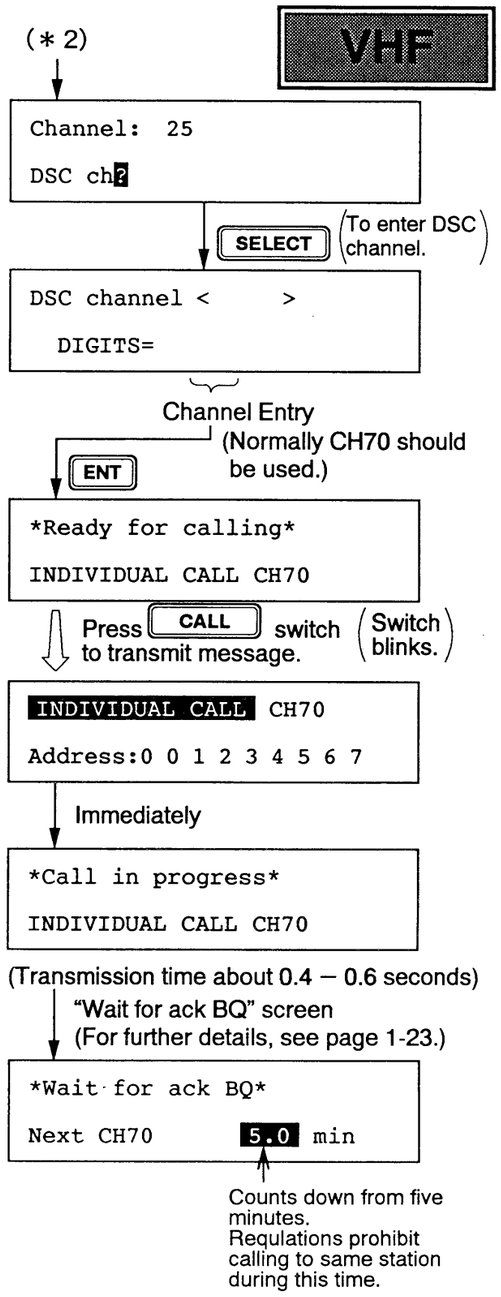
Example Call (to coast)

- **Other Station ID:** 0 0 1 2 3 4 5 6 7
- **Category:** ROUTINE
- **Telecommand:** DUPLEX TP
- **Working Channel:** CH25
- **DSC Channel:** CH70



If 6 key is off, it does not appear. To enable DSC channel selection, turn 6 key on at this display.





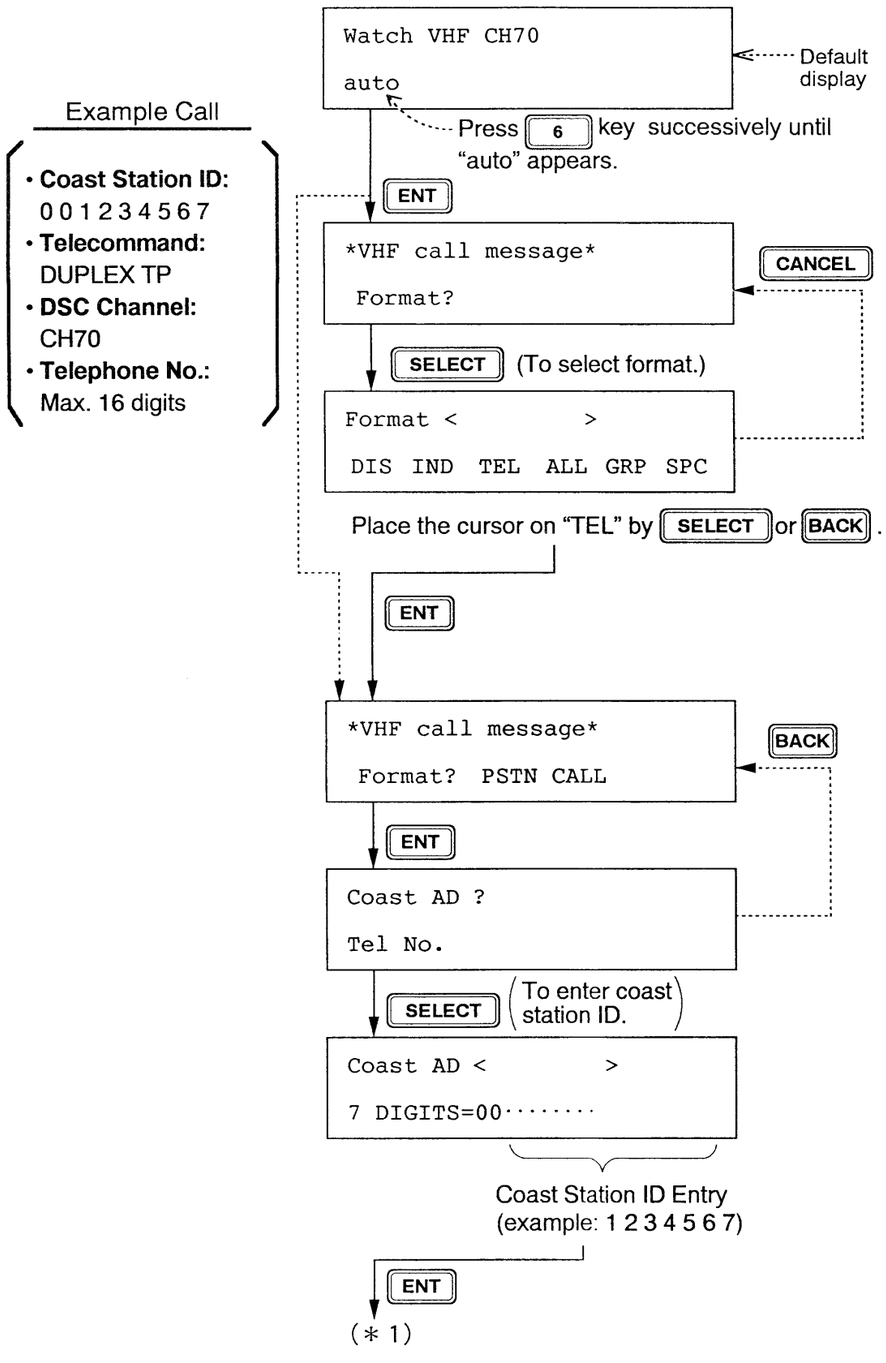
Note 1: Working channel is normally set by coast station. Therefore, set up for "No information" by setting the working channel as 9999.

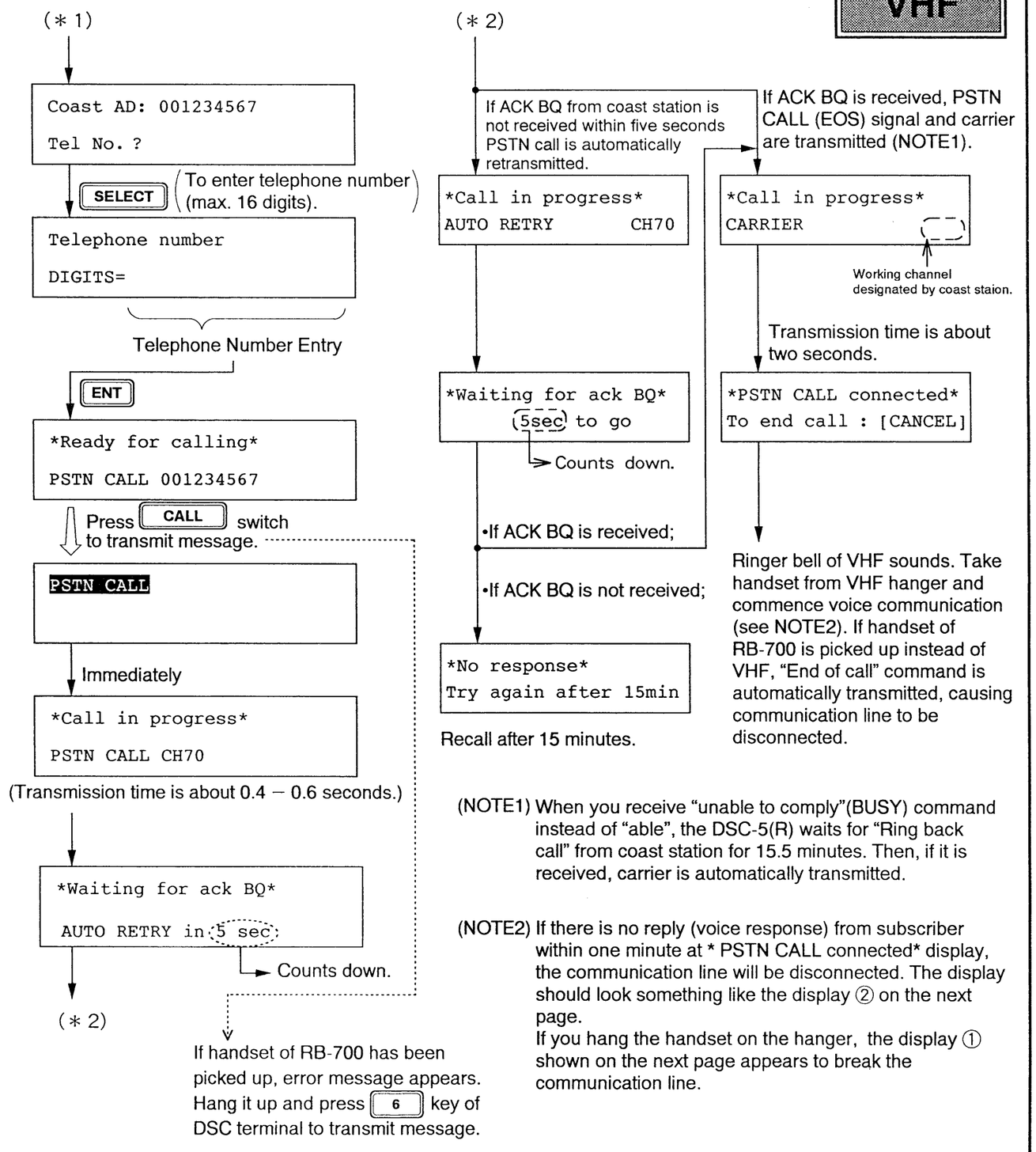
4.3 Telephone Call

VHF

Example Call

- **Coast Station ID:** 0 0 1 2 3 4 5 6 7
- **Telecommand:** DUPLEX TP
- **DSC Channel:** CH70
- **Telephone No.:** Max. 16 digits





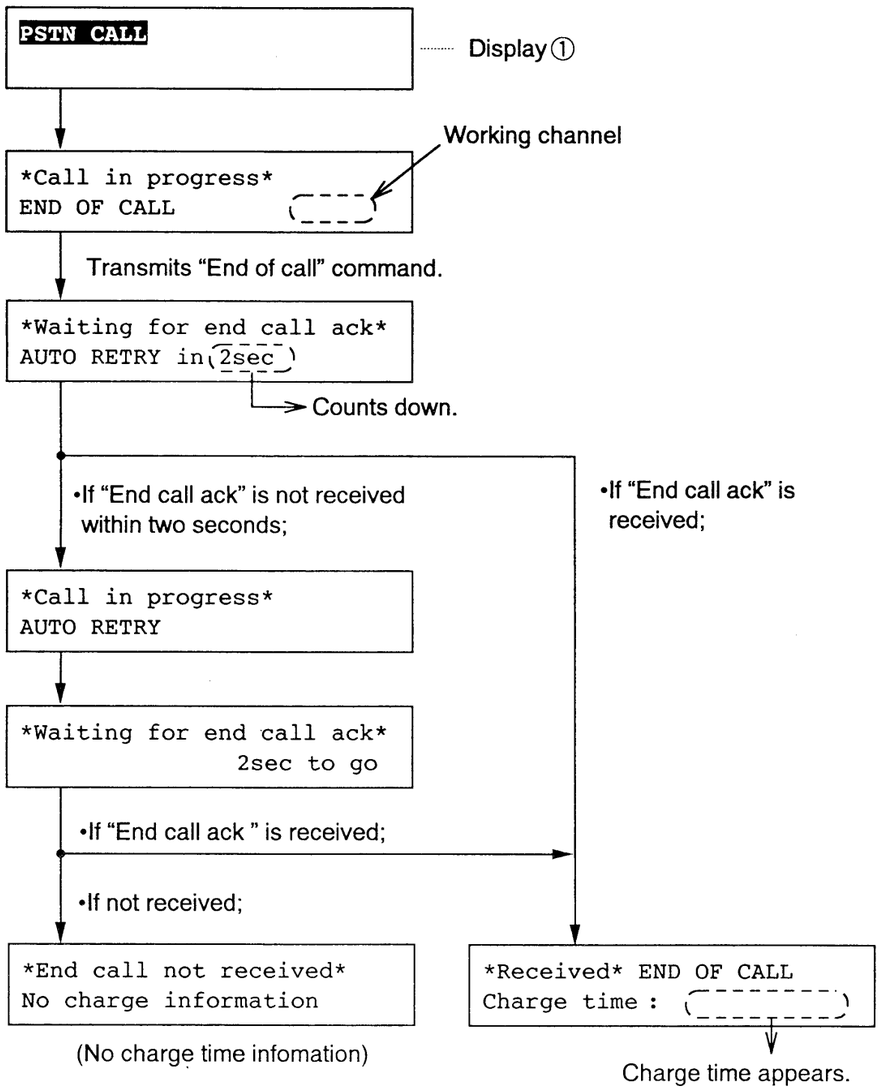
(NOTE1) When you receive "unable to comply"(BUSY) command instead of "able", the DSC-5(R) waits for "Ring back call" from coast station for 15.5 minutes. Then, if it is received, carrier is automatically transmitted.

(NOTE2) If there is no reply (voice response) from subscriber within one minute at * PSTN CALL connected* display, the communication line will be disconnected. The display should look something like the display ② on the next page.
If you hang the handset on the hanger, the display ① shown on the next page appears to break the communication line.

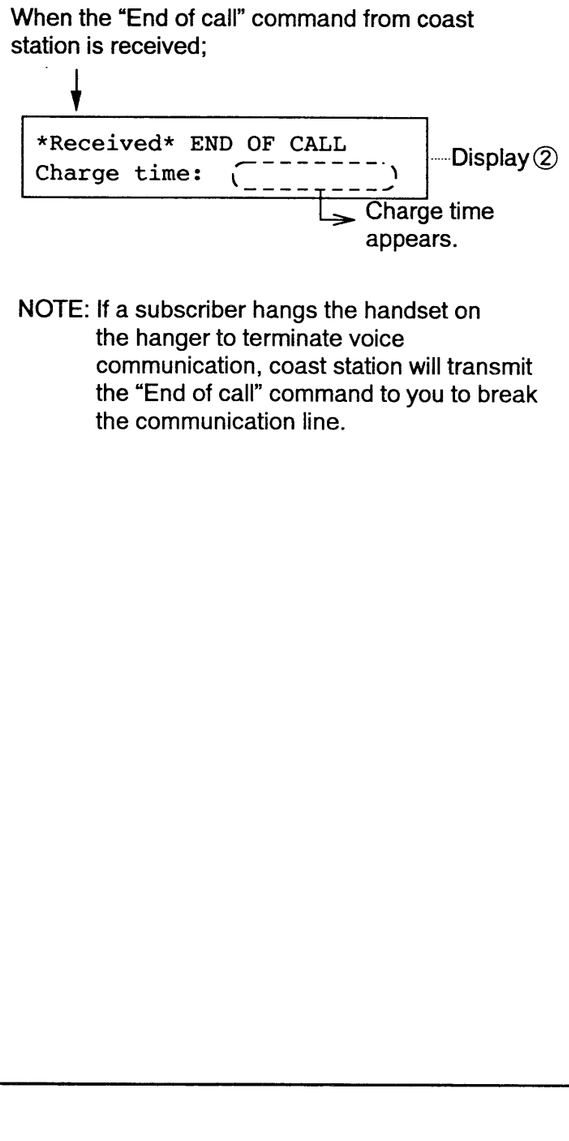
Operation after making DSC call

Voice communication is started. (Press and hold the PTT switch during communicaton to send carrier continuously. If carrier transmission is interrupted for five seconds, the communication line is disconnected and the display ② shown below appears. If the handset of the RB-700 (only when RB-700 has higher priority than VHF) is picked up while communicating with a subscriber by the VHF, "End of call" command is automatically transmitted.) After completion of communication, the display changes as shown in (1) or (2) below depending on how voice communication is terminated.

(1) When you end voice communication by pressing the CANCEL key or hanging the handset on the hanger of the VHF, the display of the DSC-5(R) changes as follows.

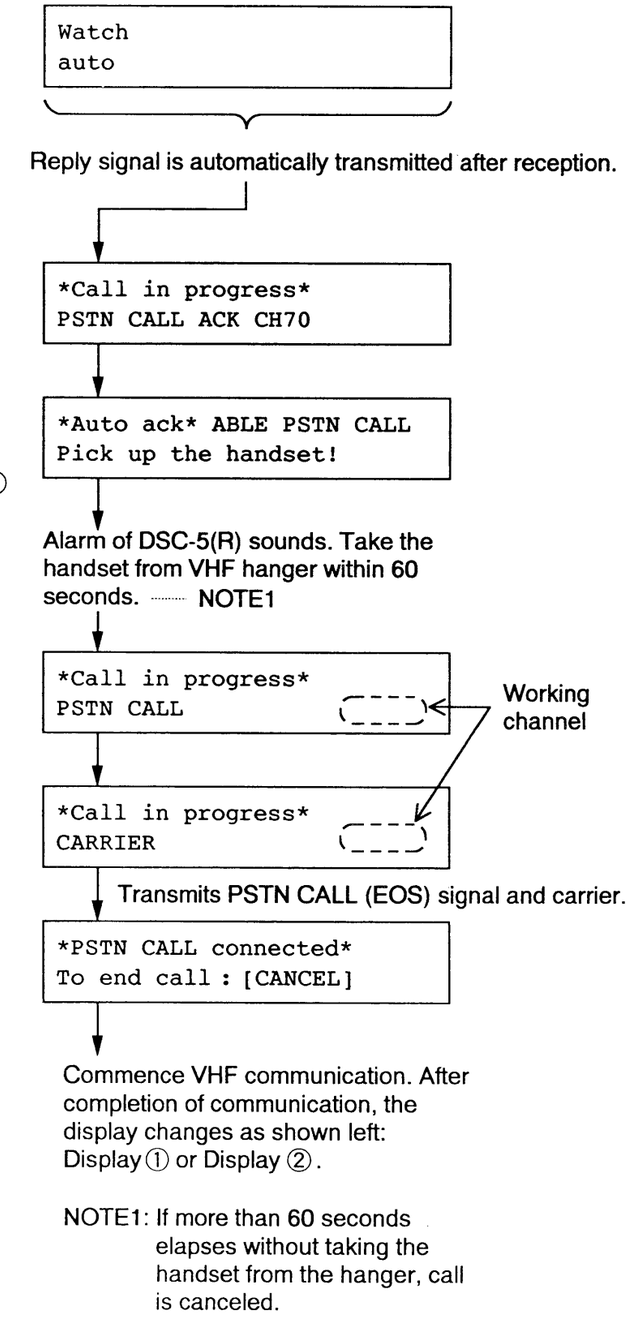


(2) When coast station terminates communication, the display of the DSC-5(R) is as follows.



NOTE: If a subscriber hangs the handset on the hanger to terminate voice communication, coast station will transmit the "End of call" command to you to break the communication line.

4.3a Receiving Telephone Call from Coast Station



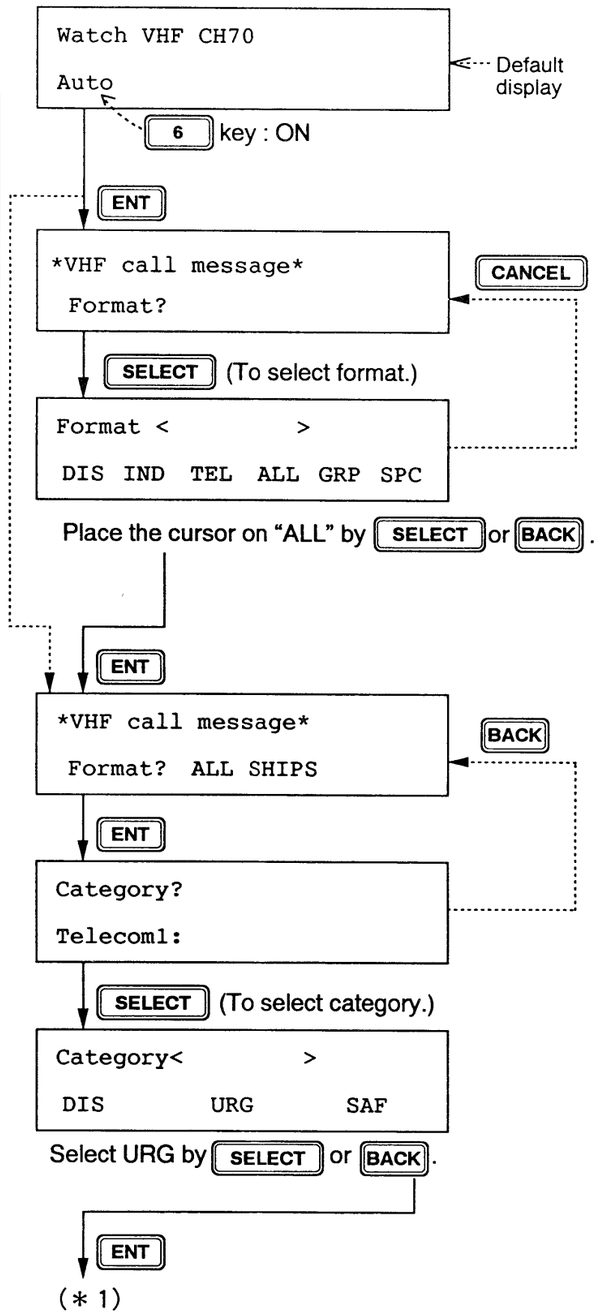
NOTE1: If more than 60 seconds elapses without taking the handset from the hanger, call is canceled.

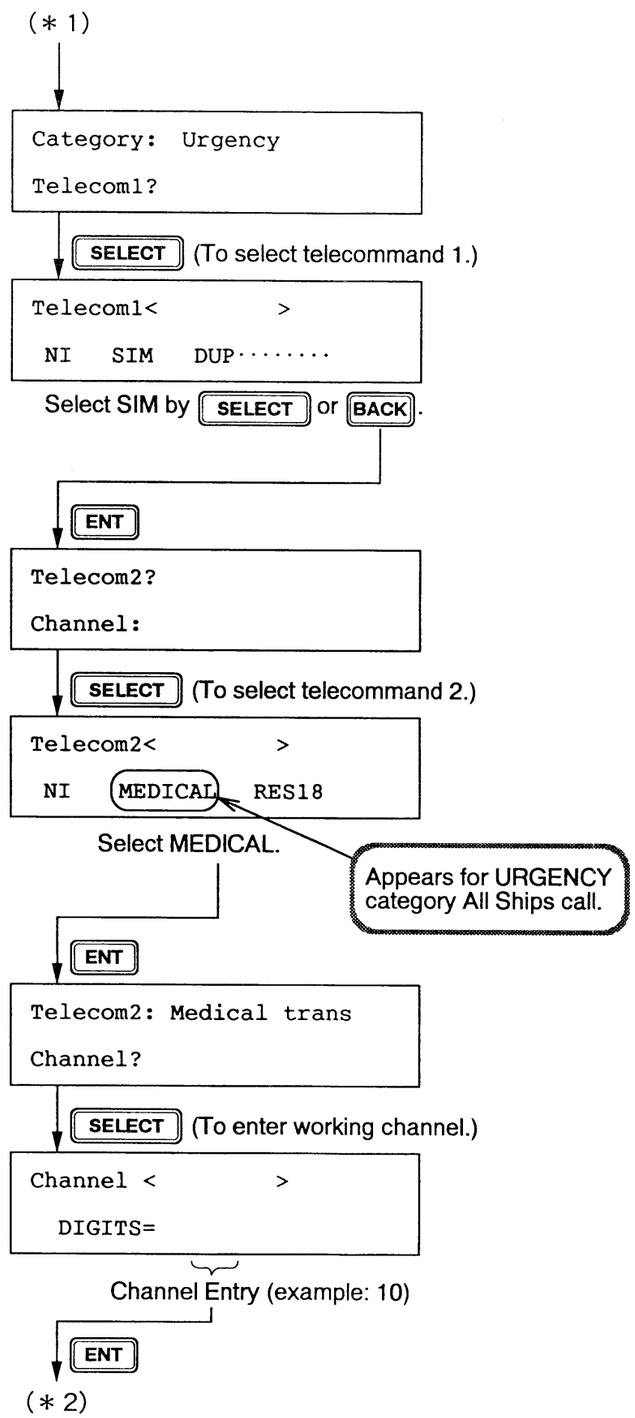
4.4 All Ships Call

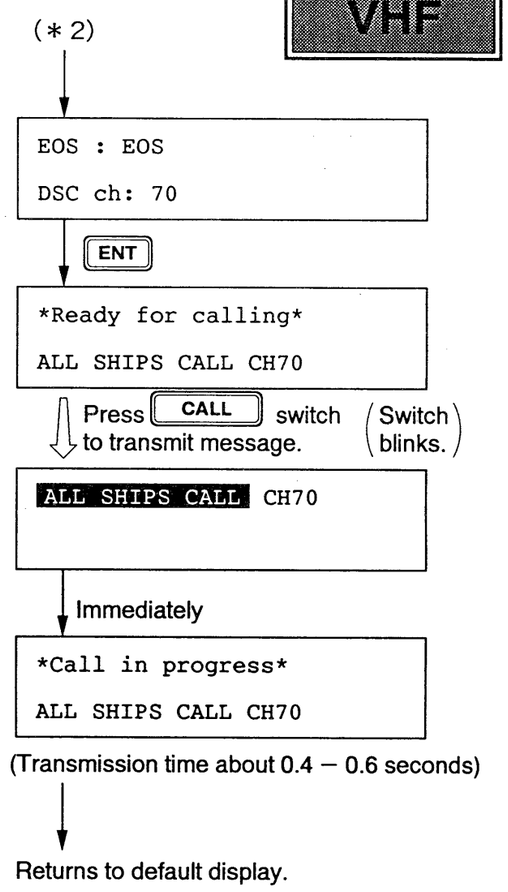
VHF

Example Call

- **Category:** URGENCY
- **Telecommand 1:** SIMPLEX TP
- **Telecommand 2:** MEDICAL TRANSPORT
- **Working Channel:** CH10
- **DSC Channel:** CH70 (fixed)



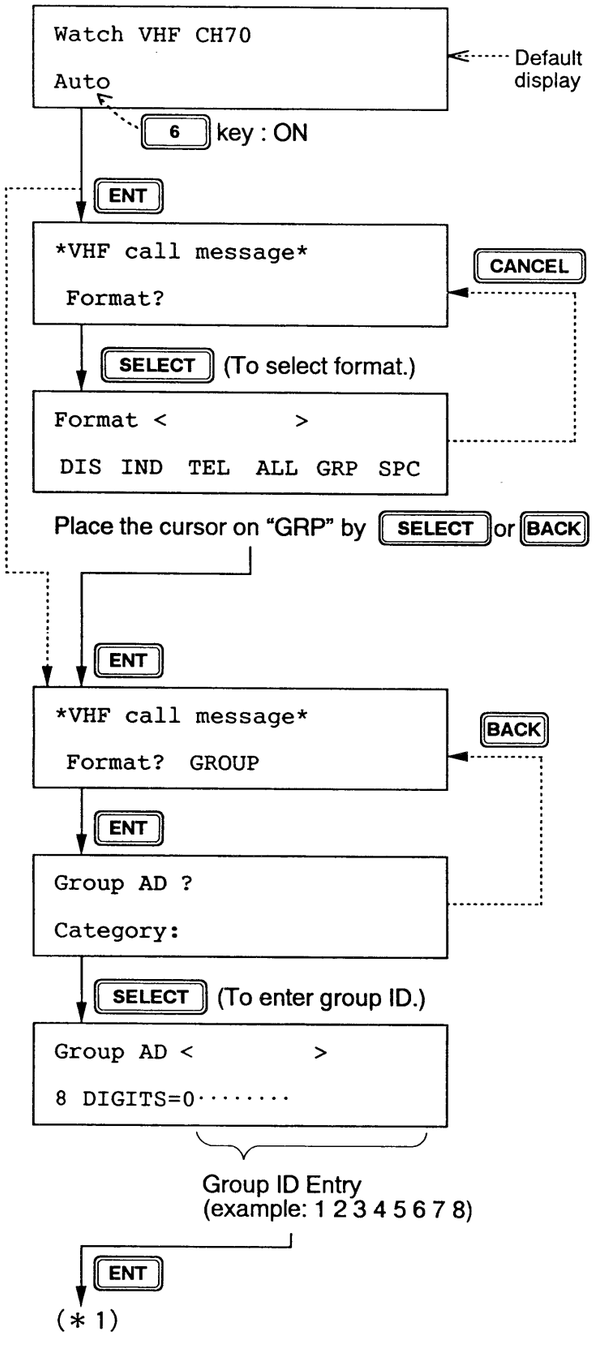


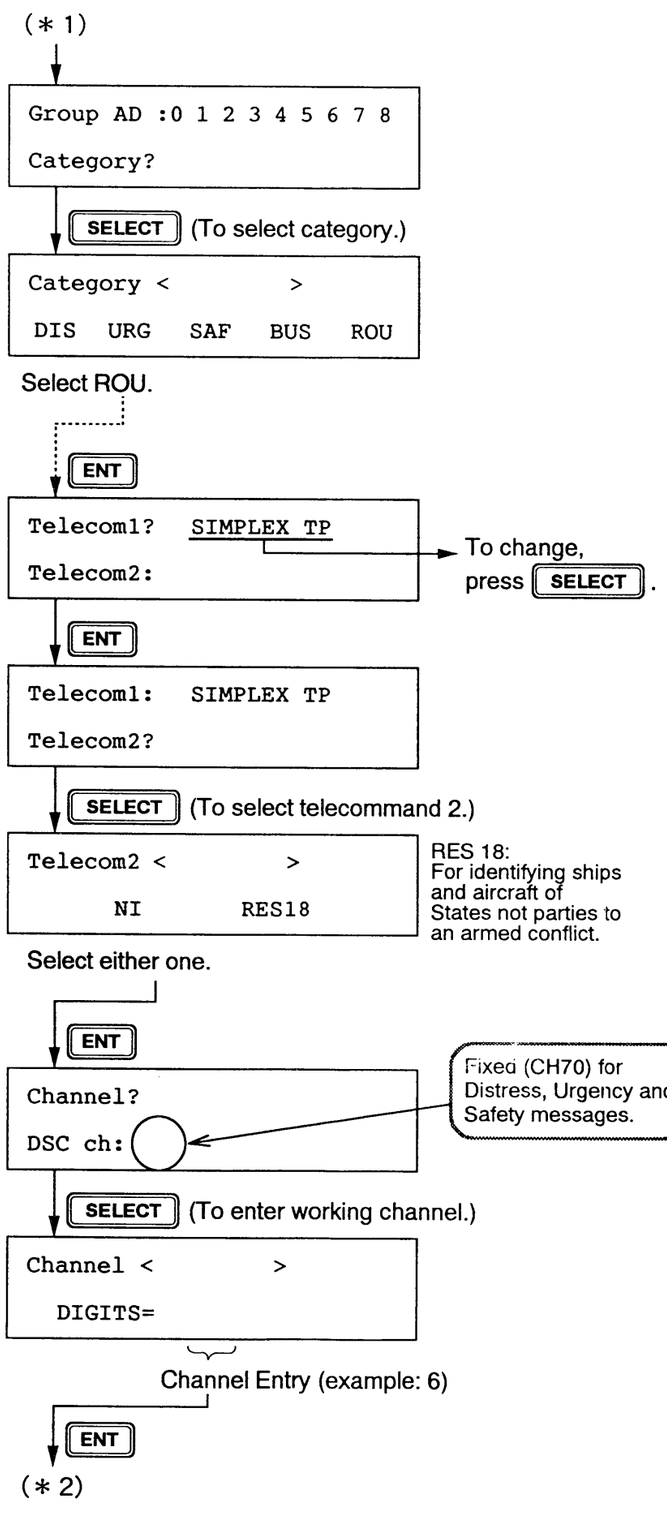


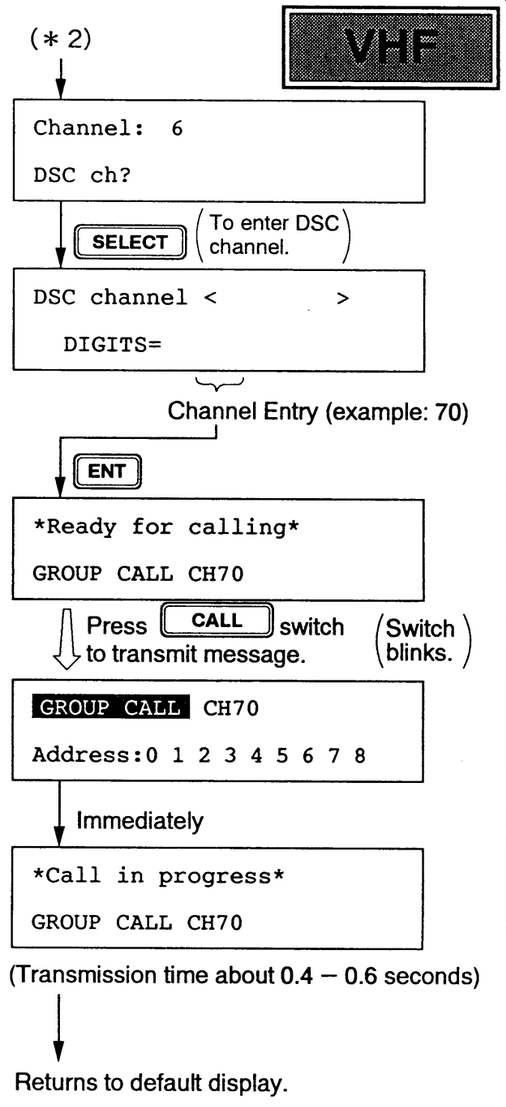
4.5 Group Call

Example Call

- **Group ID:** 0 1 2 3 4 5 6 7 8
- **Category:** ROUTINE
- **Telecommand:** SIMPLEX TP
- **Working Channel:** CH6
- **DSC Channel:** CH70



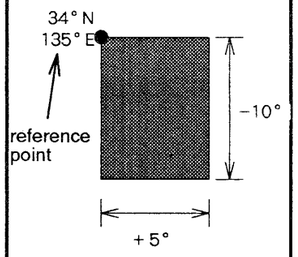




4.6 Geographic Area Call

Example Call

- **Ocean Area:** 34° N 135° E



- **Category:** SAFETY
- **Telecommand:** SIMPLEX TP
- **Working Channel:** CH16
- **DSC Channel:** CH70 (fixed)

〔**Calling for the ships within the area selected above.**〕

It should be at the upper left-hand corner of the range.

(reference point 34°N 135°E)

```
Watch VHF CH70
Auto
```
Default display

6 key : ON

ENT

```
*VHF call message*
 Format?
```
CANCEL

SELECT (To select format.)

```
Format <          >
 DIS  IND  TEL  ALL  GRP  SPC
```

Place the cursor on "SPC" by SELECT or BACK.

ENT

```
Format <          >
AREA    RELAY-A    RELAY-S
```

Place the cursor on "AREA" then press ENT.

```
*VHF call message*
 Format?  GEOGRAPH
```
BACK

ENT

```
Ocean AD ?
Category:
```

SELECT (To enter area.)

```
Area <N00 E000 da00 do00>
NORTH=00°— 00° EAST=000°+00°
                ①  ②   ③   ④
```

①Enter latitude. (34°) — SELECT
②Enter range. (10°) — SELECT (twice)
③Enter longitude. (135°) — SELECT
④Enter range. (05°) — ENT

(＊1)

(＊1)

```
Ocean AD:N34 E135 da10 do05
Category?
```

SELECT (To select category.)

```
Category <          >
 DIS  URG  SAF  BUS  ROU
```

Select SAF by SELECT or BACK.

ENT

```
Telecom1?  SIMPLEX TP
Telecom2:
```
To change, press SELECT.

ENT

```
Telecom1:  SIMPLEX TP
Telecom2?
```

SELECT (To select telecommand 2.)

```
Telecom2 <          >
      NI        RES18
```

RES 18: For identifying ships and aircraft of States not parties to an armed conflict.

Select either one.

ENT

```
Channel?
DSC ch:  70
```
Fixed (CH70) for Distress, Urgency and Safety messages.

SELECT (To enter working channel.)

```
Channel <          >
  DIGITS=
```

Channel Entry (example: 16)

ENT

(＊2)

(＊2)

VHF

```
*Ready for calling*
GEOGRAPH CALL CH70
```

Press CALL switch to transmit message. (Switch blinks.)

```
GEOGRAPH CALL  CH70
Ocean AD:N34 E135 da10 do05
```

Immediately

```
*Call in progress*
GEOGRAPH CALL CH70
```

(Transmission time about 0.4 − 0.6 seconds)

Returns to default display.

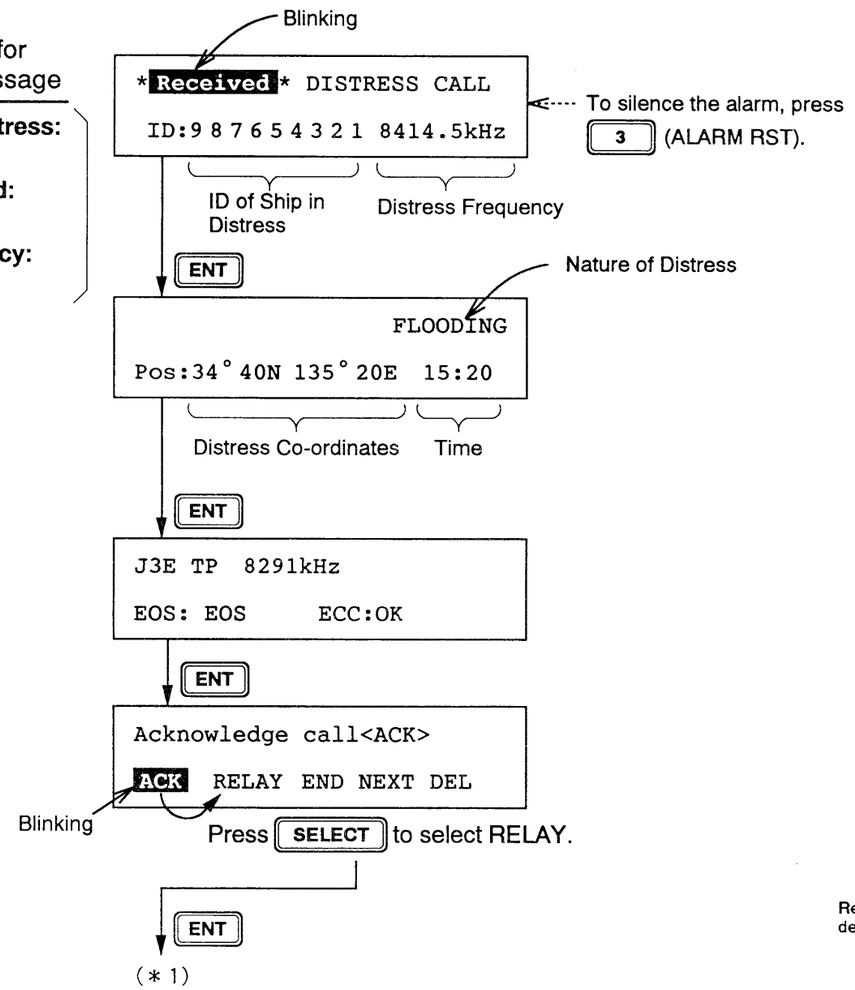
5. PROCEDURES FOR OTHER CALLS

5.1 Distress Relay Call ····· ① (In case of HF band)

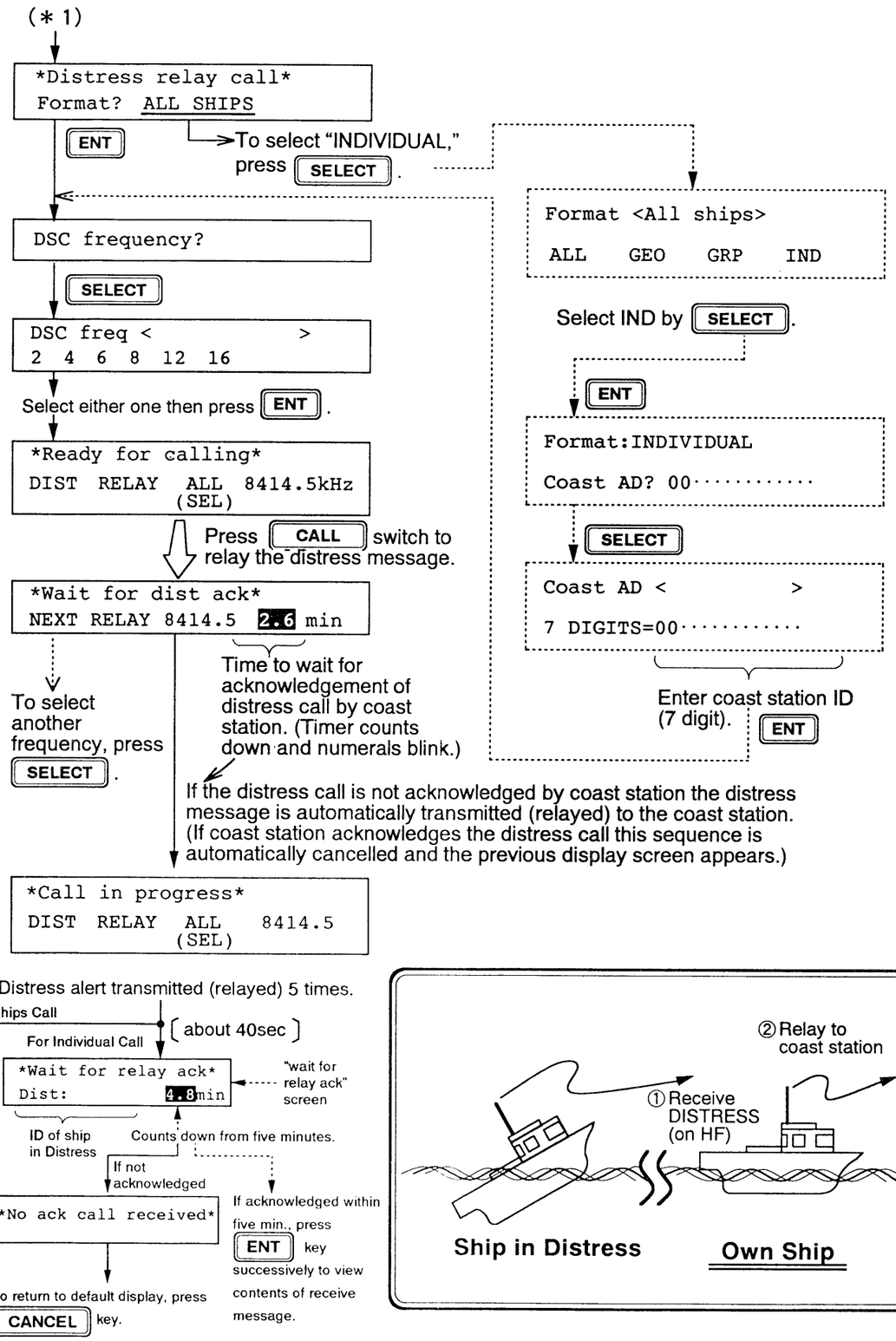
When you receive the distress alert the audible alarm sounds and the DISTRESS CALL screen appears. If the call is not acknowledged by a coast station relay it (to a coast station) as follows.

Example for Receive Message

- **Nature of Distress:** FLOODING
- **Telecommand:** J3E TP
- **DSC Frequency:** 8MHz band

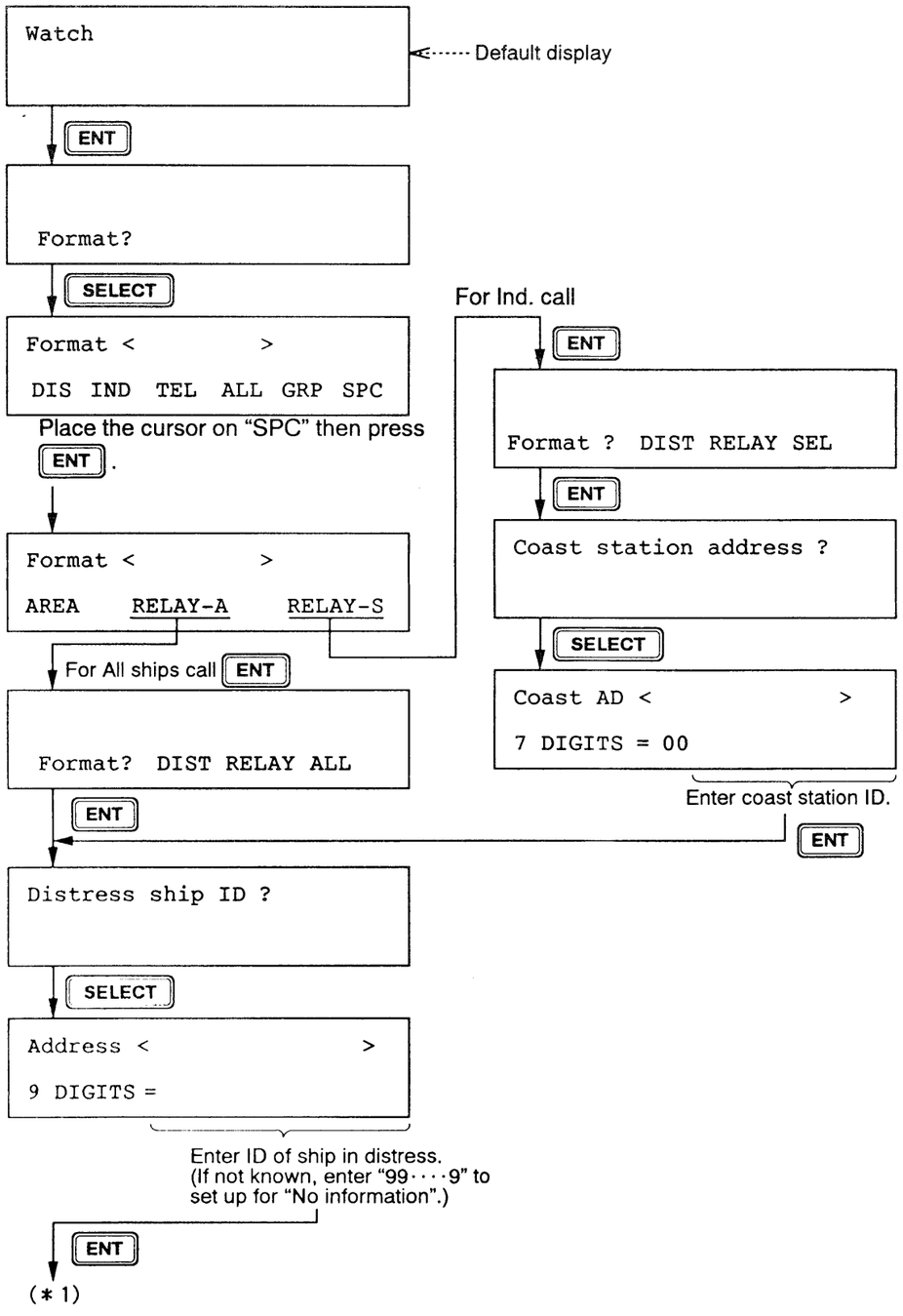


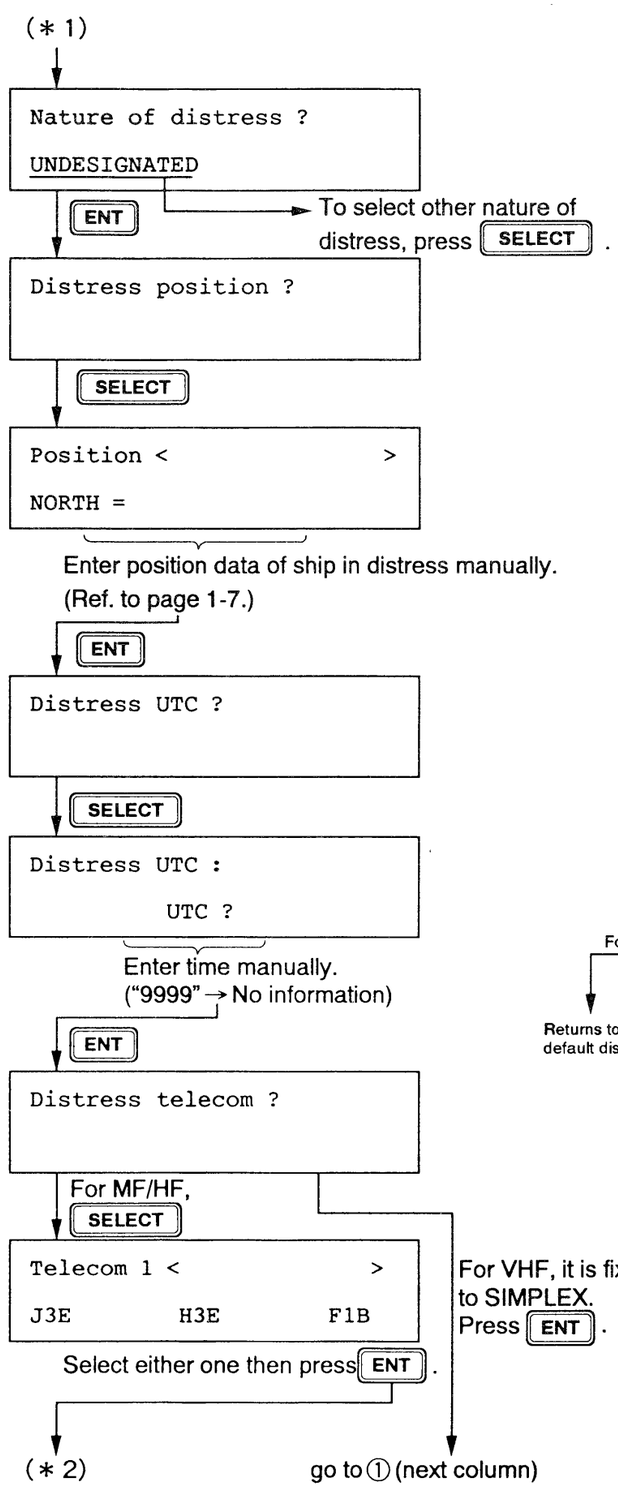
E N D: Returns to default display.
NEXT: Recalls received message.
D E L: Deletes received message from file.

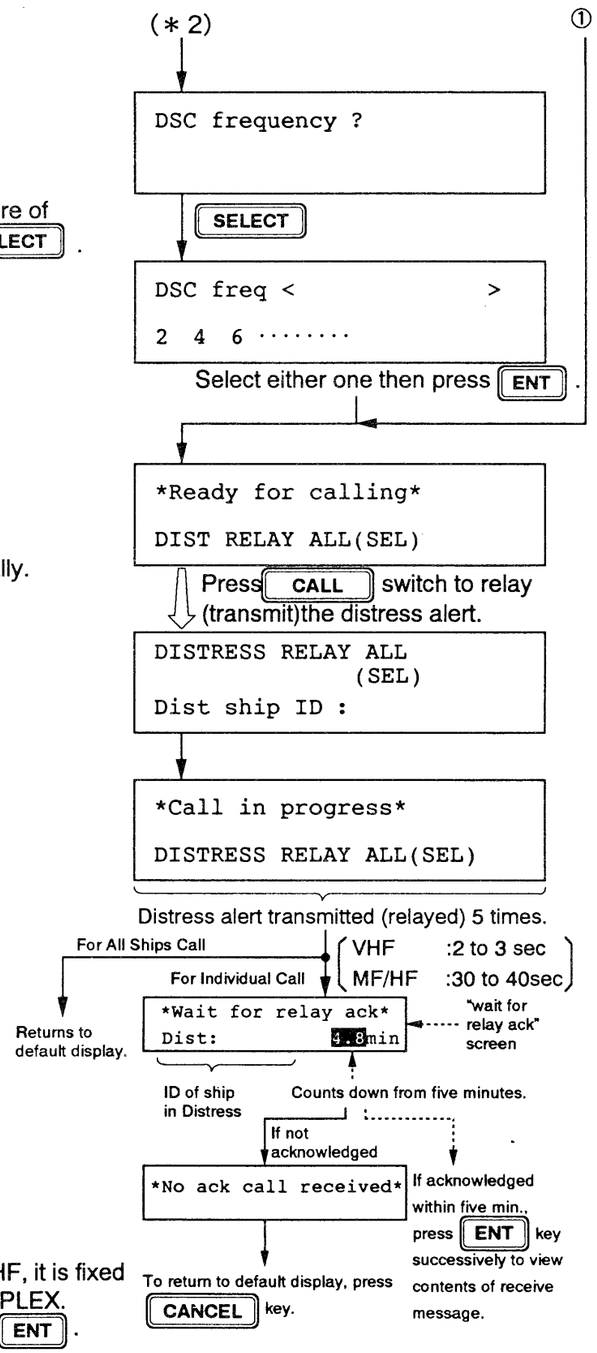


Distrees Relay Call·····② (VHF/ MF/ HF)

You can relay (transmit) distress alert immediately to coast station in behalf of ship in distress which is not able to transmit the alert by itself.





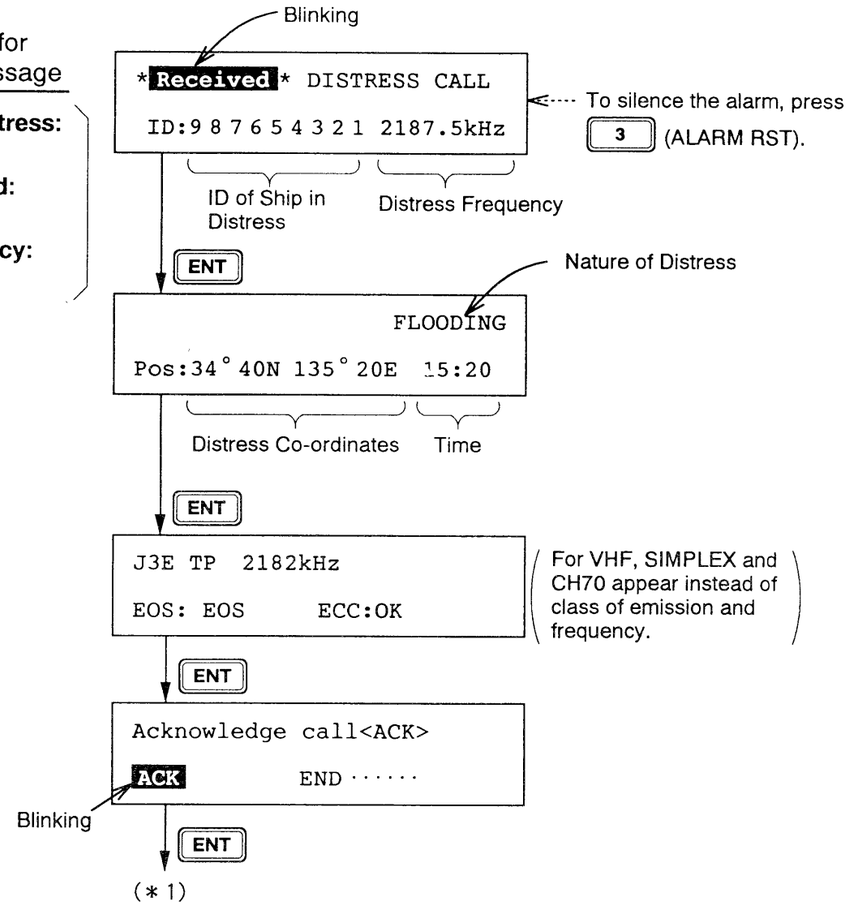


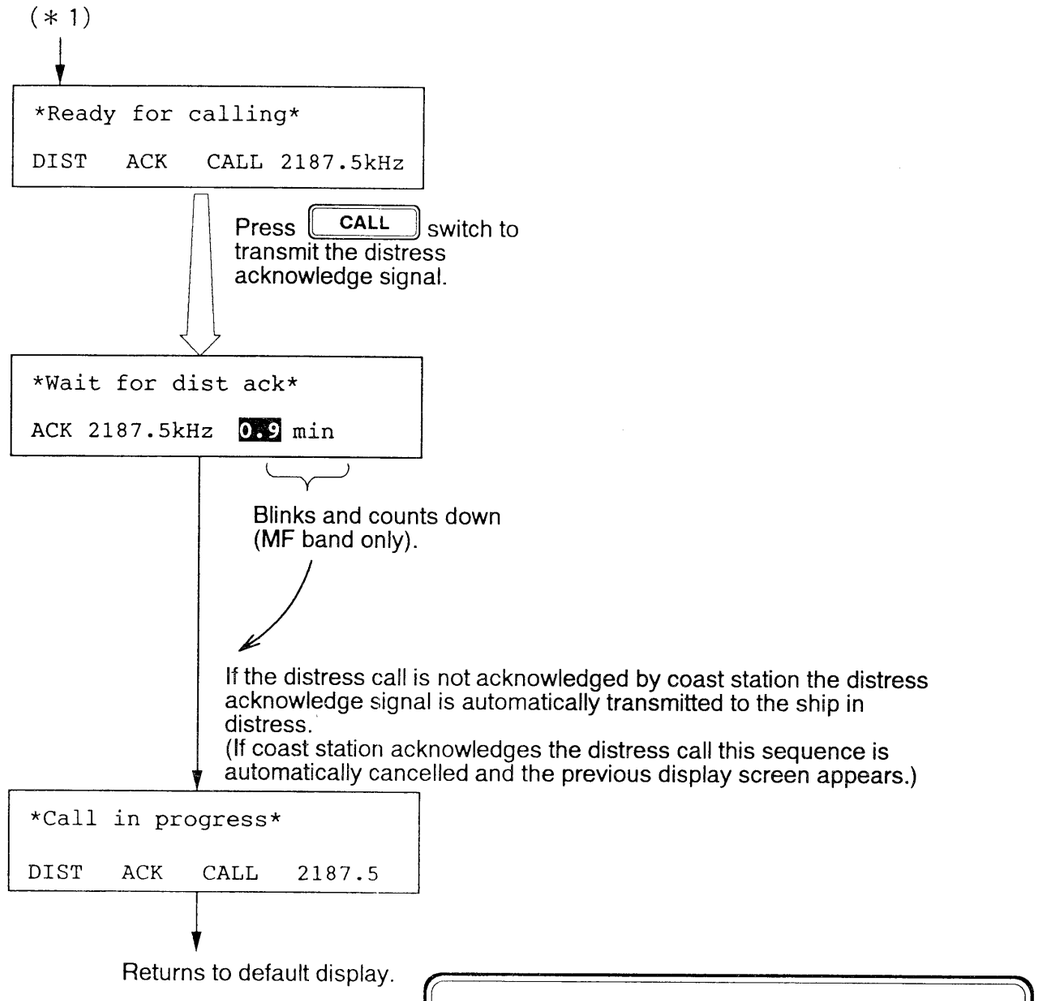
5.2 Transmitting Distress Acknowledge (DIST ACK) Signal ····· VHF or MF band only

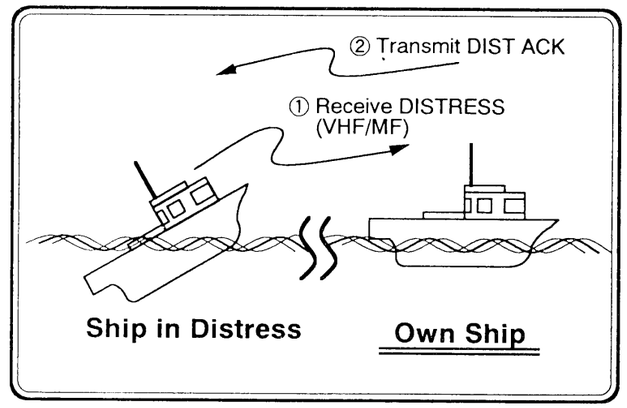
When you receive the distress alert the audible alarm sounds and the DISTRESS CALL screen appears. A ship can acknowledge the call under certain conditions (see page 6-2). If necessary, transmit the DIST ACK signal as follows.

Example for Receive Message

- **Nature of Distress:** FLOODING
- **Telecommand:** J3E TP
- **DSC Frequency:** 2MHz band







5.3 Receiving Distress Acknowledge (DIST ACK) Signal (by ship in distress)

Example for Receive Message

- **Nature of Distress:** FLOODING
- **Telecommand:** J3E TP
- **DSC Frequency:** 8MHz band

After transmitting the distress alert the "Wait for dist ack" screen appears. Then, you would receive the DIST ACK signal from a coast station.

```
*Wait for dist ack*
Next 8414.5kHz  1.5 min
```

Blinking and counting down

When "DIST ACK" is received;

```
*Received* DISTRESS ACK
 ID:0 0 1 2 3 4 5 6 7  8414.5kHz
```

Blinking

You can commence voice communication.

To silence the alarm, press [3] (ALARM RST).

ID of station transmitting "DIST ACK"

Distress Frequency

[ENT]

Own Ship's ID

```
Dist ship:  9 8 7 6 5 4 3 2 1
                      FLOODING
```

[ENT]

Distress Co-ordinates

```
Pos:
J3E TP                 8291kHz
```

[ENT]

```
EOS:  EOS              ECC:OK
```

[ENT]

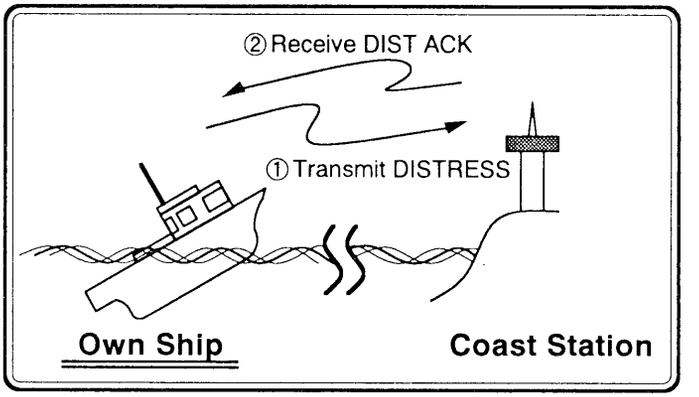
```
Received call<End>
END   NEXT   DEL ·····
```

Blinking

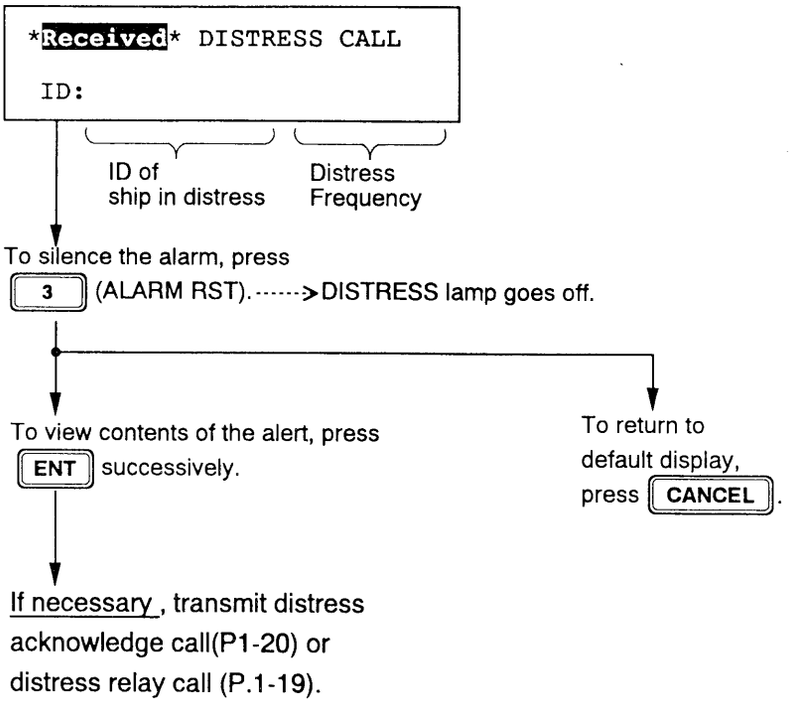
[ENT]

Returns to default display.

E N D : Returns to default display.
NEXT : Recalls received message.
D E L : Deletes received message from file.



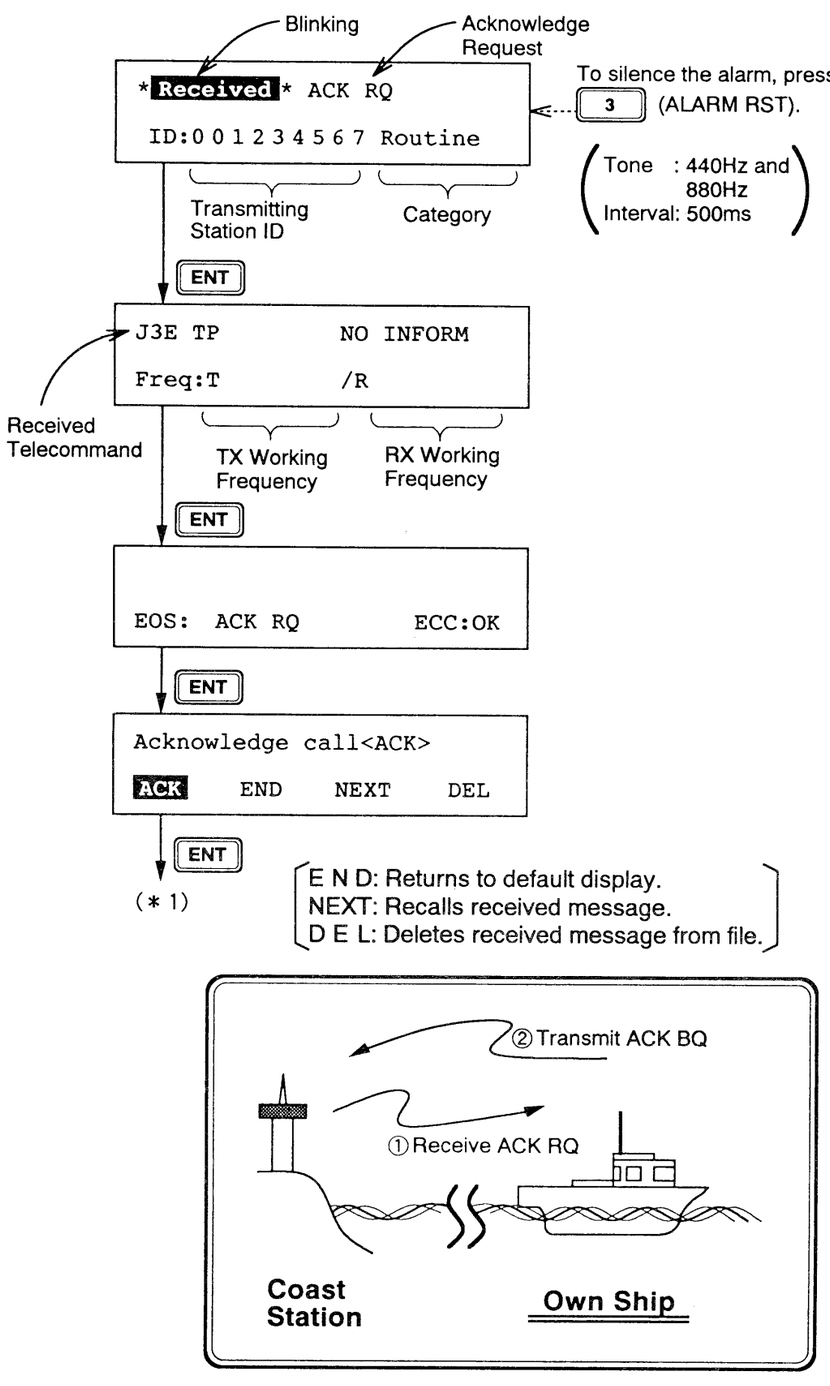
5.3a Receiving Distress Alert

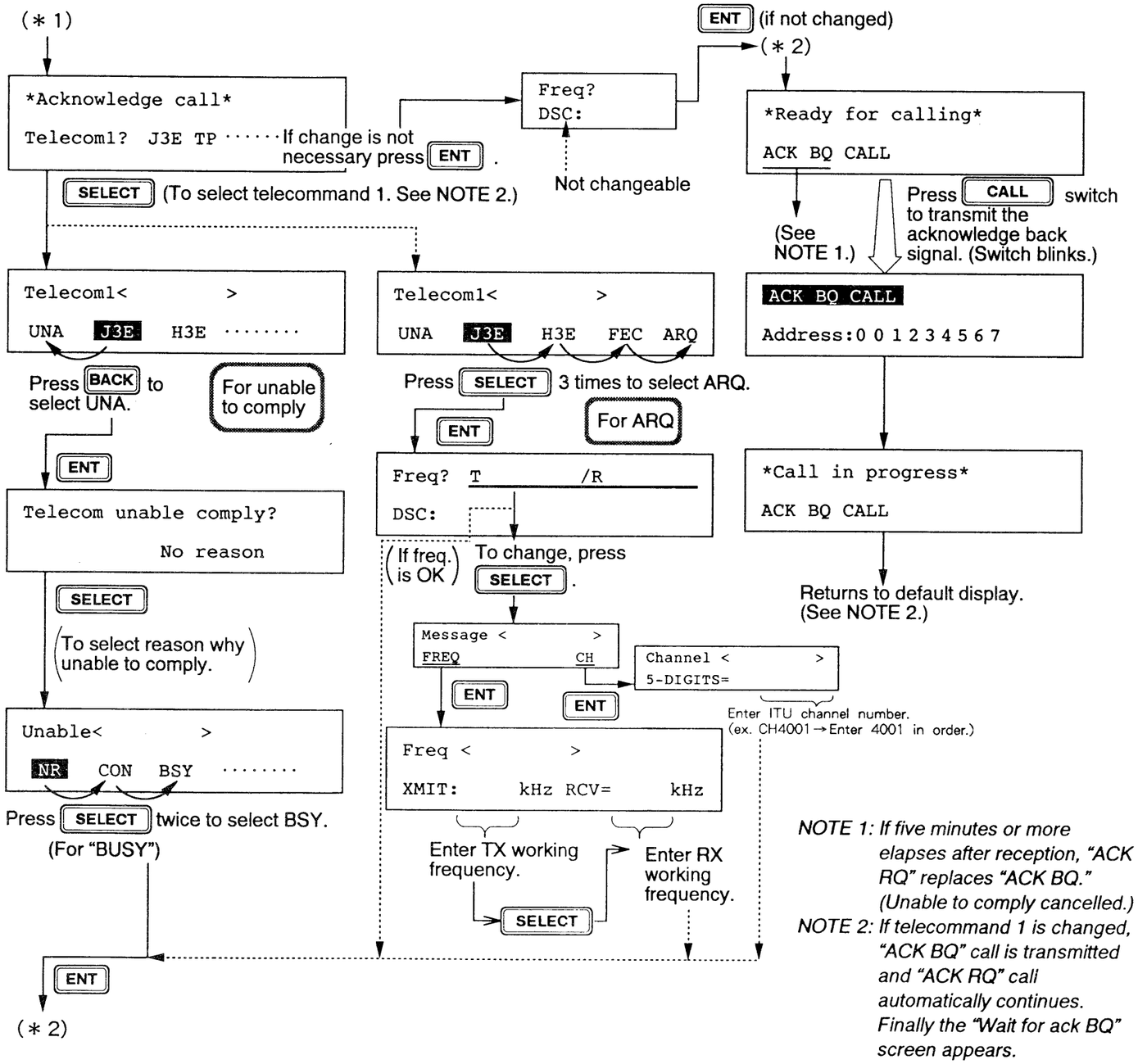


5.4 Receiving Individual Call

Transmitting Acknowledge Back (ACK BQ) Signal
(Automatic call acknowledge possible. For further details, see page 1-32.)

When you receive an individual call message, acknowledge it as follows.



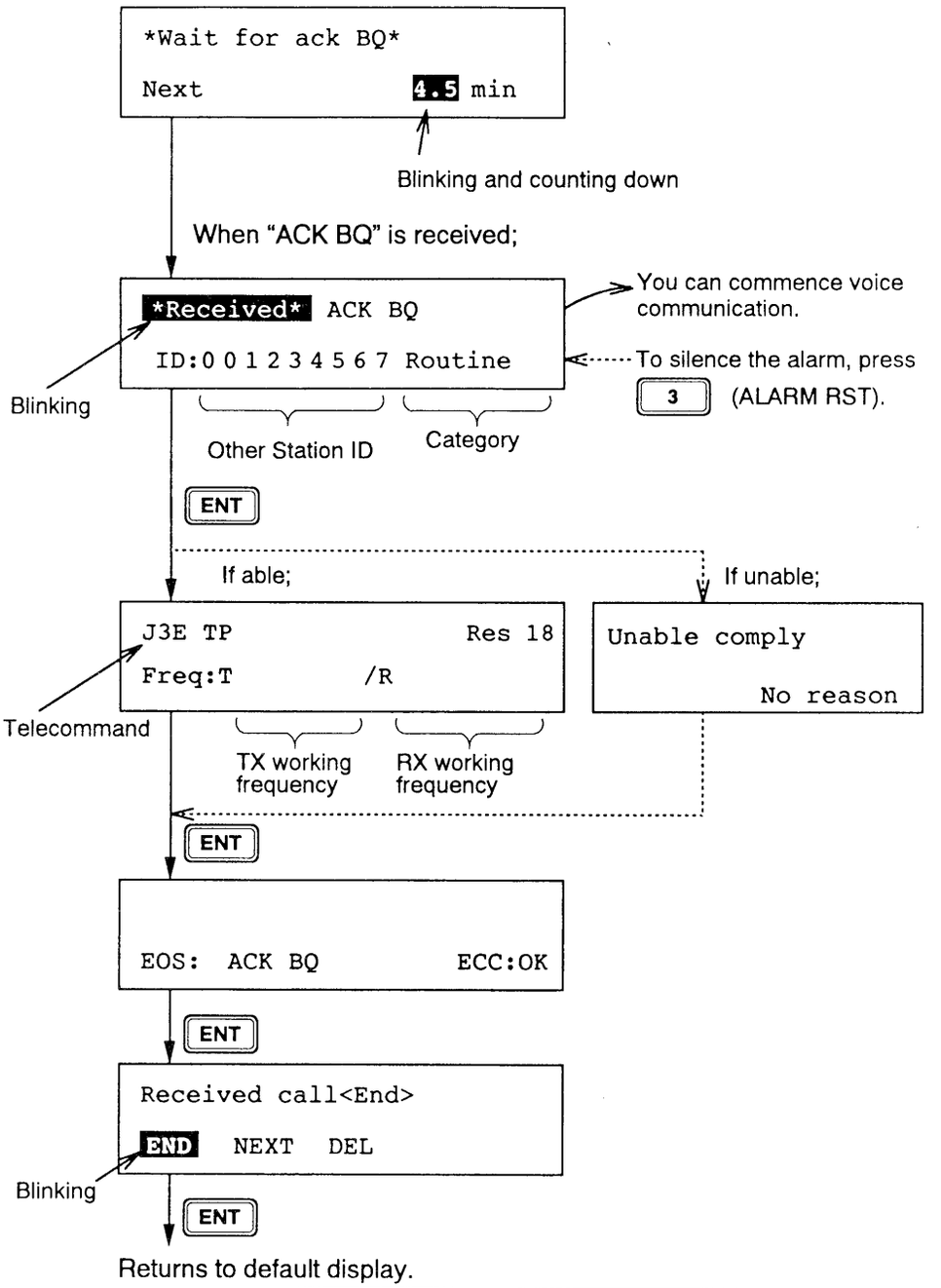


NOTE 1: If five minutes or more elapses after reception, "ACK RQ" replaces "ACK BQ." (Unable to comply cancelled.)

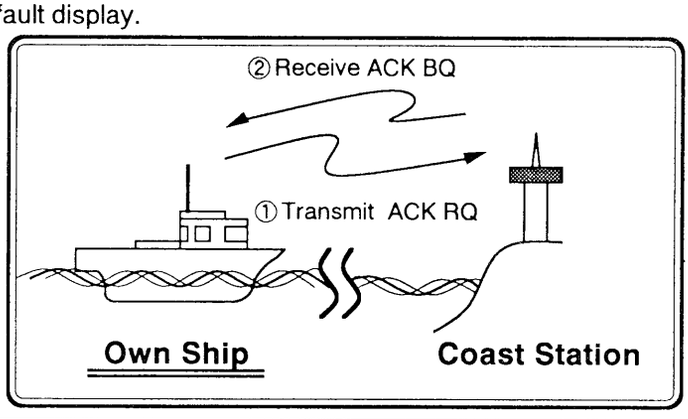
NOTE 2: If telecommand 1 is changed, "ACK BQ" call is transmitted and "ACK RQ" call automatically continues. Finally the "Wait for ack BQ" screen appears.

5.5 Receiving Acknowledge Back (ACK BQ) Signal

After transmitting an individual call (Routine), receive the ACK BQ from the receiving station as follows.



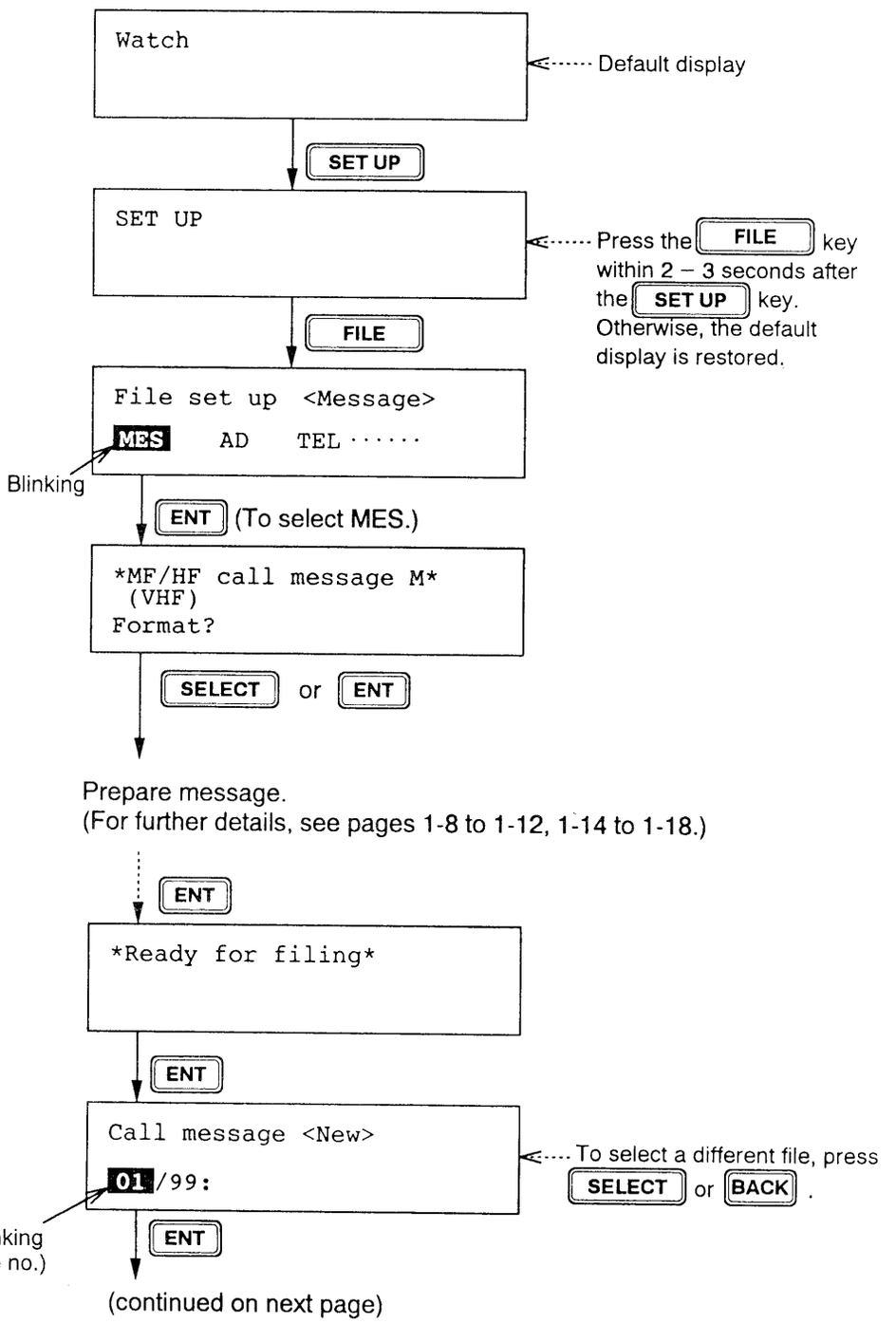
E N D : Returns to default display.
NEXT : Recalls received message.
D E L : Deletes received message from file.

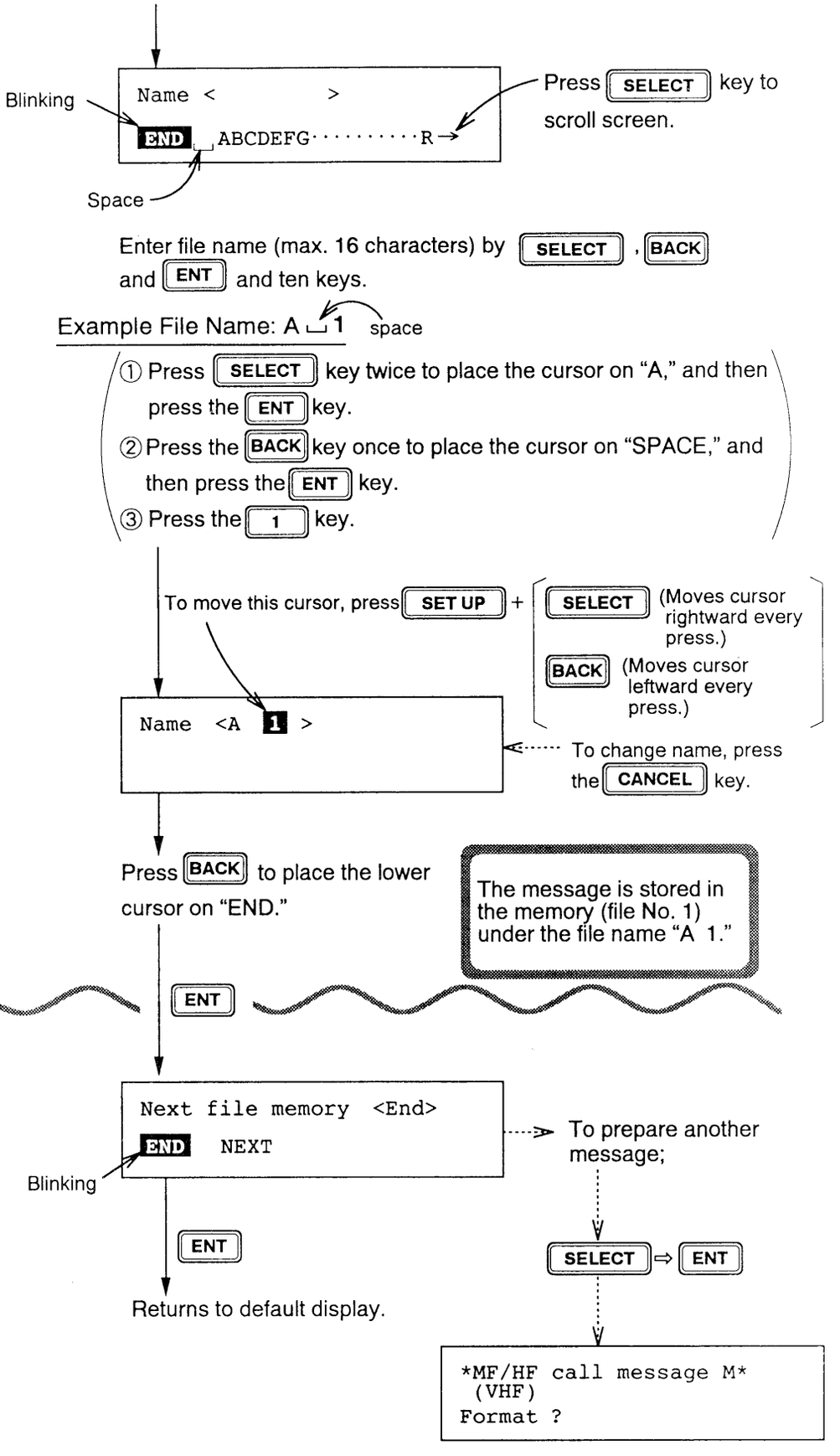


6. SAVING AND RETRIEVING TRANSMIT MESSAGES

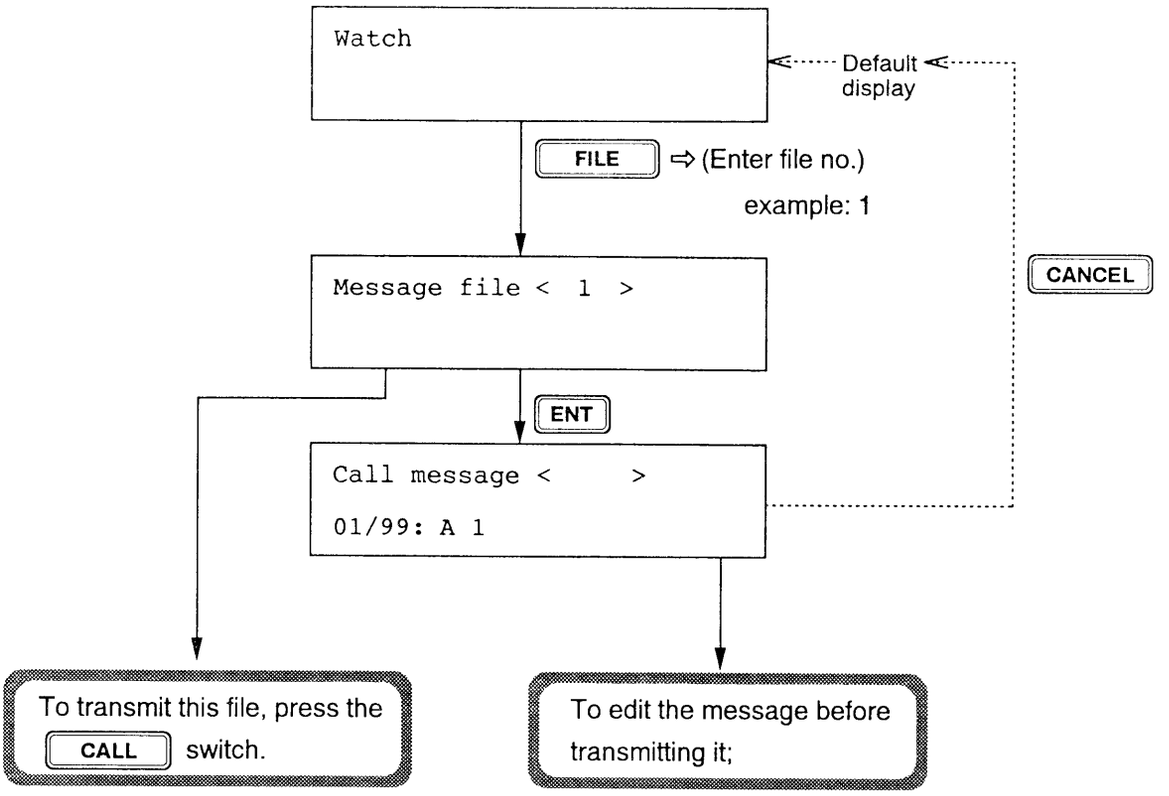
This section shows you how to save and retrieve a transmit message. You can save **up to 99 transmit messages** to the memory. Distress messages cannot be saved to the memory.

6.1 Saving a Message (SET UP ⇨ FILE)

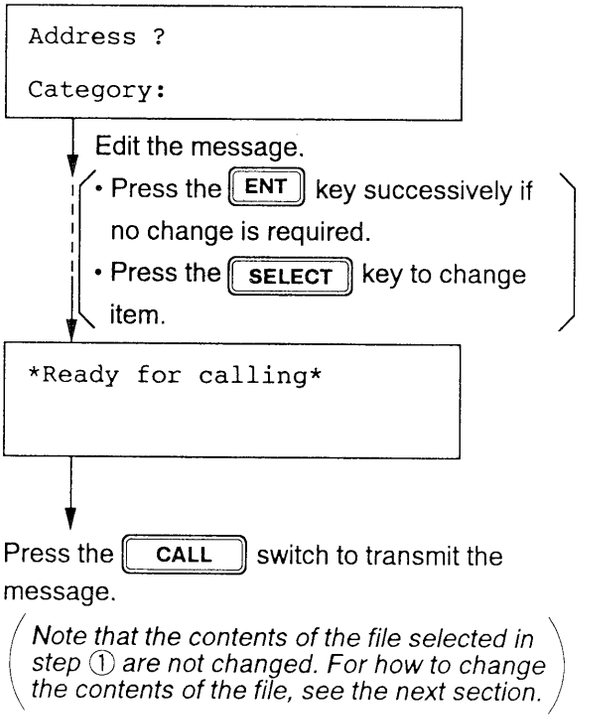



Name <
>
END ABCDEFG·····R→
Blinking
Space
Press SELECT key to scroll screen.
Enter file name (max. 16 characters) by SELECT , BACK and ENT and ten keys.
Example File Name: A ␣ 1
space
① Press SELECT key twice to place the cursor on "A," and then press the ENT key.
② Press the BACK key once to place the cursor on "SPACE," and then press the ENT key.
③ Press the 1 key.
To move this cursor, press SET UP +
SELECT (Moves cursor rightward every press.)
BACK (Moves cursor leftward every press.)
Name <A 1 >
To change name, press the CANCEL key.
Press BACK to place the lower cursor on "END."
The message is stored in the memory (file No. 1) under the file name "A 1."
ENT
Next file memory <End>
END NEXT
Blinking
To prepare another message;
SELECT ⇨ ENT
ENT
Returns to default display.
MF/HF call message M
(VHF)
Format ?

6.2 Retrieving a File



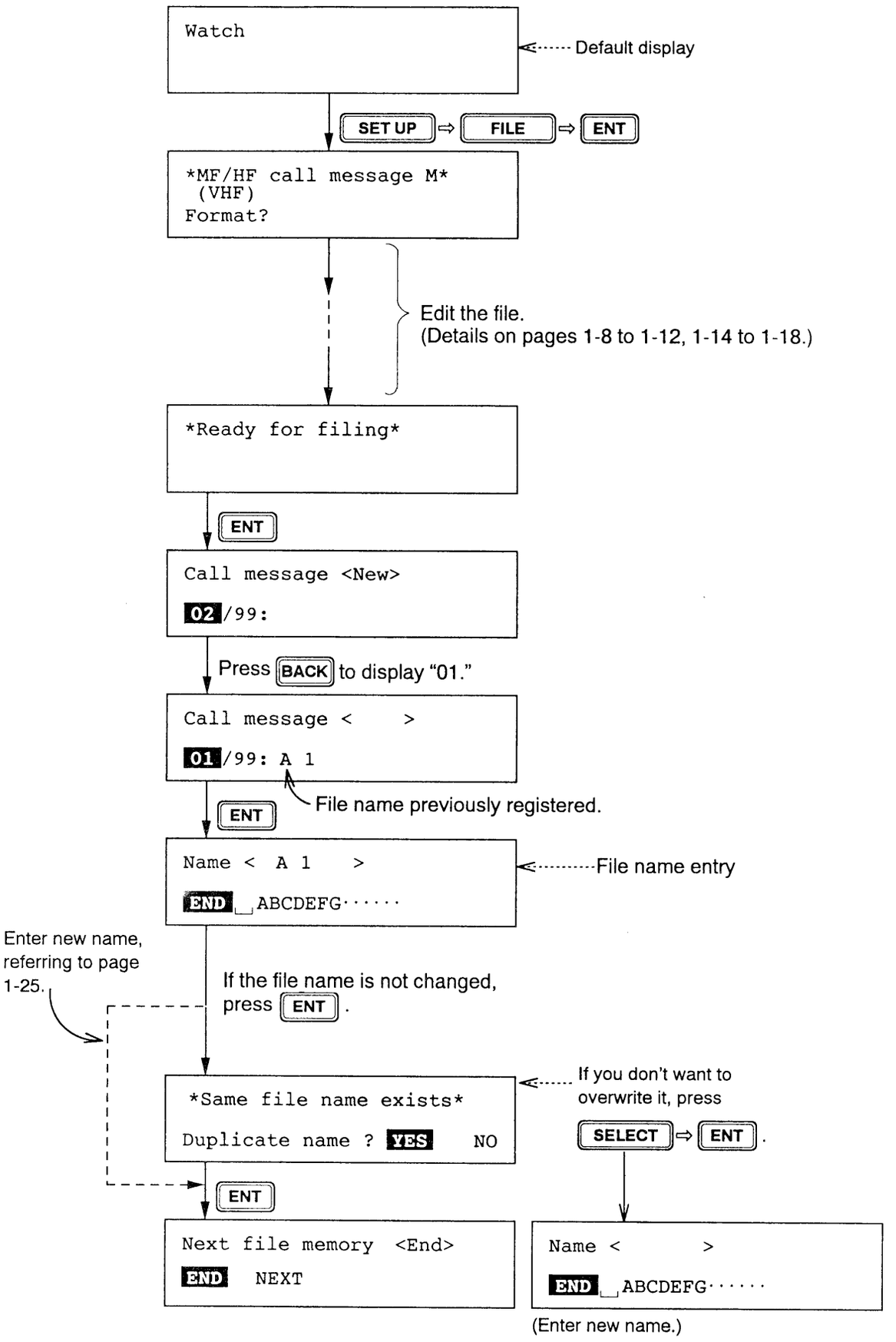
① Select desired file name by pressing SELECT or BACK .
② Press the ENT key.



Press the CALL switch to transmit the message.

Note that the contents of the file selected in step ① are not changed. For how to change the contents of the file, see the next section.

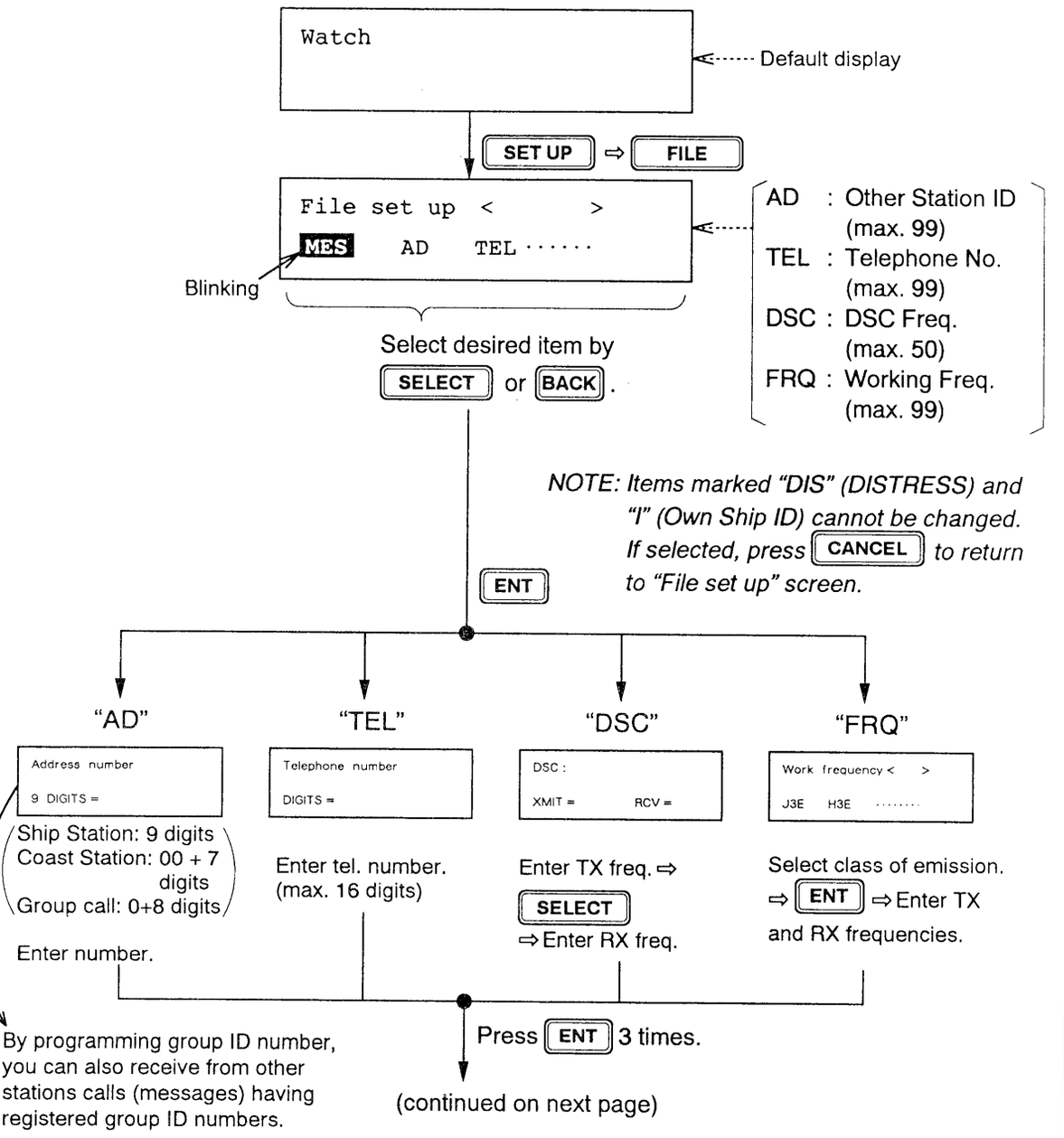
6.3 Changing Contents of a File (example: file no. 1)

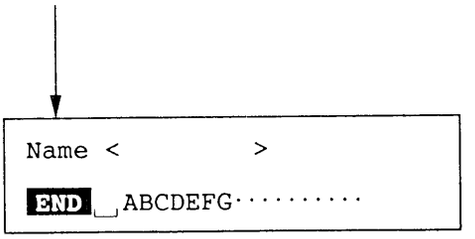


7. PROGRAMMING OTHER STATION ID'S, TELEPHONE NOS., DSC FREQUENCIES AND WORKING FREQUENCIES

The user can program important station IDs, telephone numbers, and frequencies, each under a file name. Note that frequencies cannot be programmed for VHF.

7.1 Saving a File





Assign file name by SELECT ,
BACK and ENT and numeric
keys.

After assigning file name, place cursor
on "END" then press the ENT key.

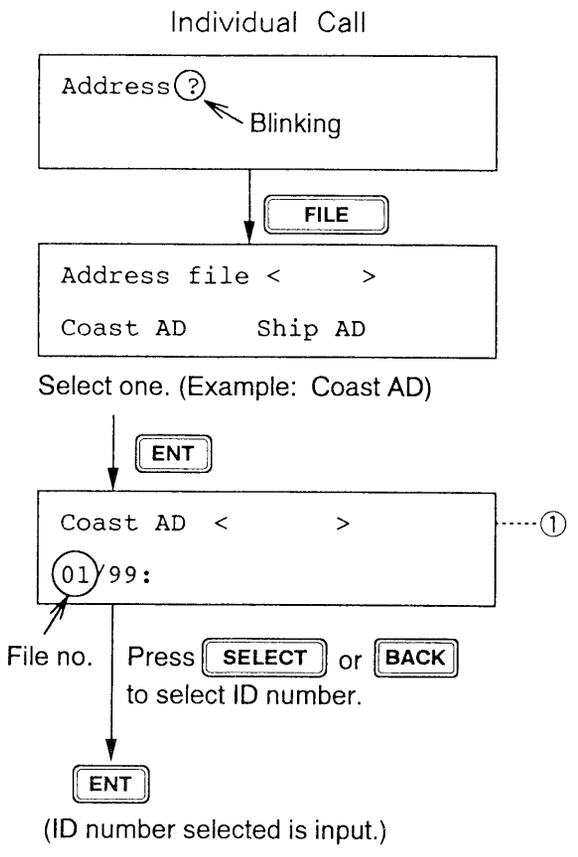
7.2 Retrieving a File

You can retrieve a file which contains other station ID, telephone number, DSC or working frequency, and use it to transmit a message.

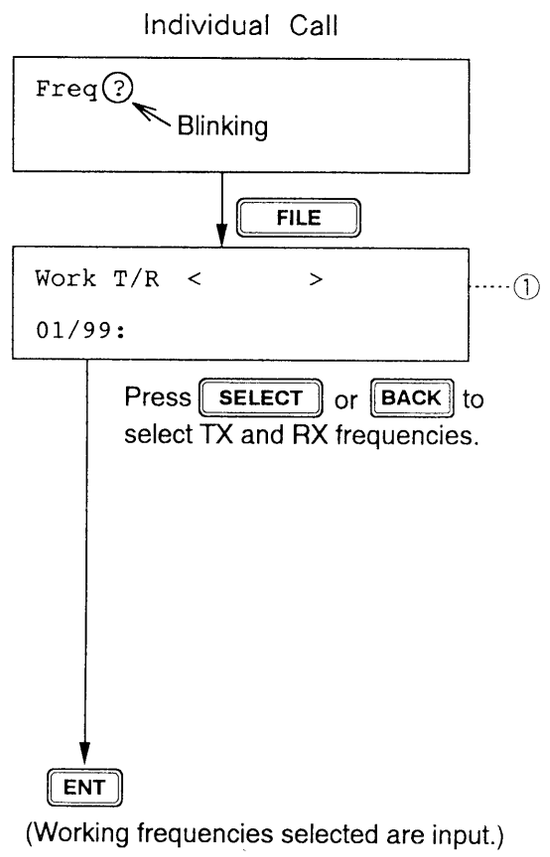
To retrieve a file, **press the [FILE] key on a display where the blinking question mark appears.**

(Example)

1. Retrieving Other Station ID

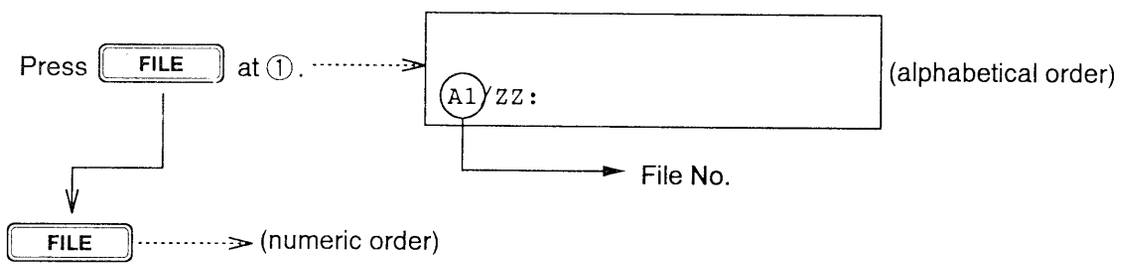


2. Retrieving Working Frequency



NOTE 1: Programmed DSC frequencies can only be retrieved for SHIPS BUSINESS and ROUTINE.

NOTE 2: Each press of the [FILE] key alternates numeric and alphabet prefixed file number.

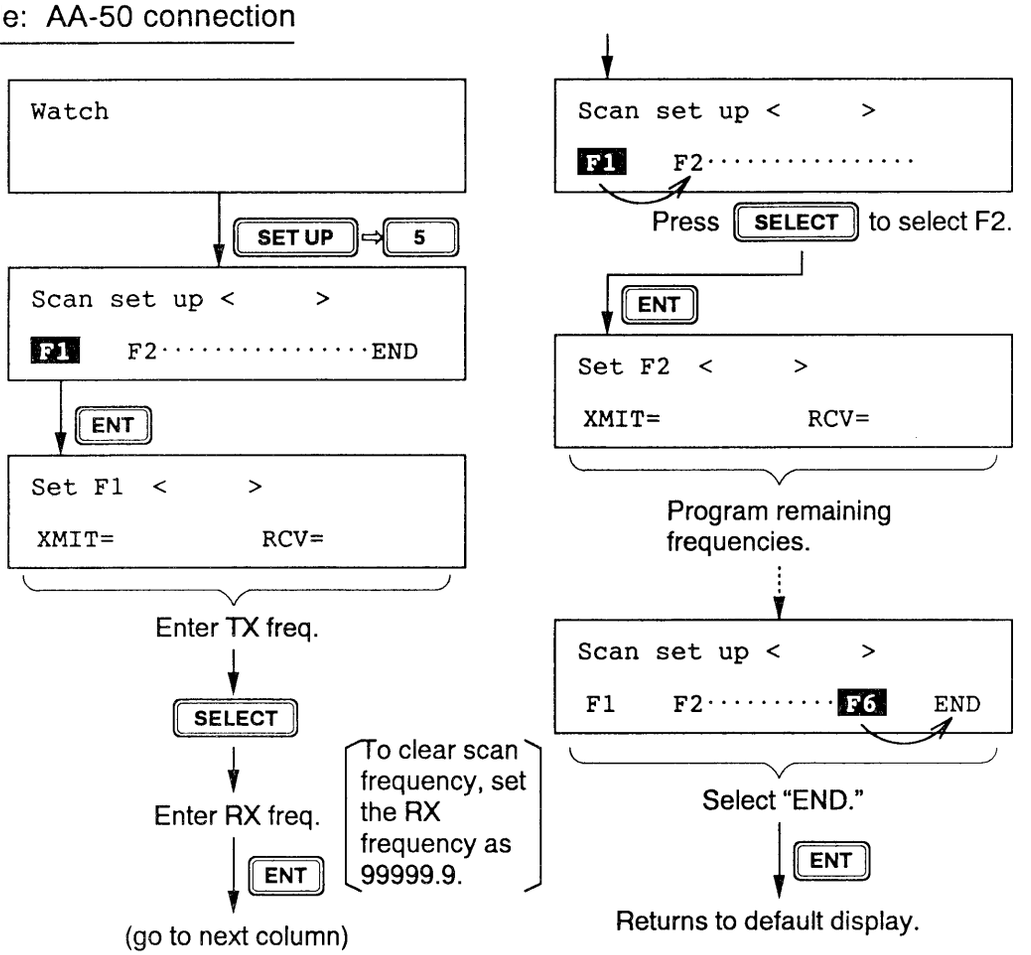


8. PROGRAMMING SCAN FREQUENCIES (MF AND HF ONLY) • • • • SET UP ⇨ 5

This section shows you how to program scan frequencies. The quantity of scan frequencies the user can program depends on equipment connected. To enter scan frequencies, refer to AP3-1.

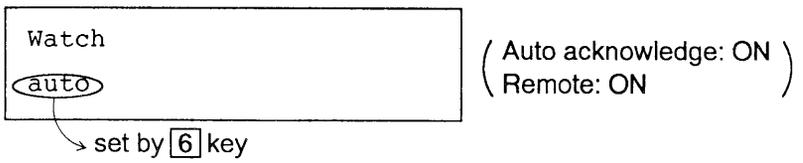
	With MF/HF DSC Receiver (AA-50)	No AA-50 (All wave receiver only)
Of the six frequencies programmable, three must be distress and safety.	Six general DSC frequencies (F1 – F6) can be programmed. (Distress and safety frequencies programmable at the AA-50.)	F1: 2187.5 F2: 8414.5 Fixed F3: Distress and Safety frequency

Example: AA-50 connection



9. AUTOMATIC CALL ACKNOWLEDGE (AUTO ACK) · · · · · · SET UP ⇨ 6

The DSC-5(R) can transmit the "acknowledge signal" automatically to a transmitting station, to acknowledge a call. On/off of the signal is controlled by the 6 (AUTO ACK) key. Refer to page 6a. This key turns the remote function on or off. (See note1.)
(Note however that this key does not function when the DSC-5(R) is interfaced with transceivers which do not have remote control capability. For further details, see page 5-6.)



(Auto acknowledge not available when receiving or relaying distress alert or when ECC error is received.)

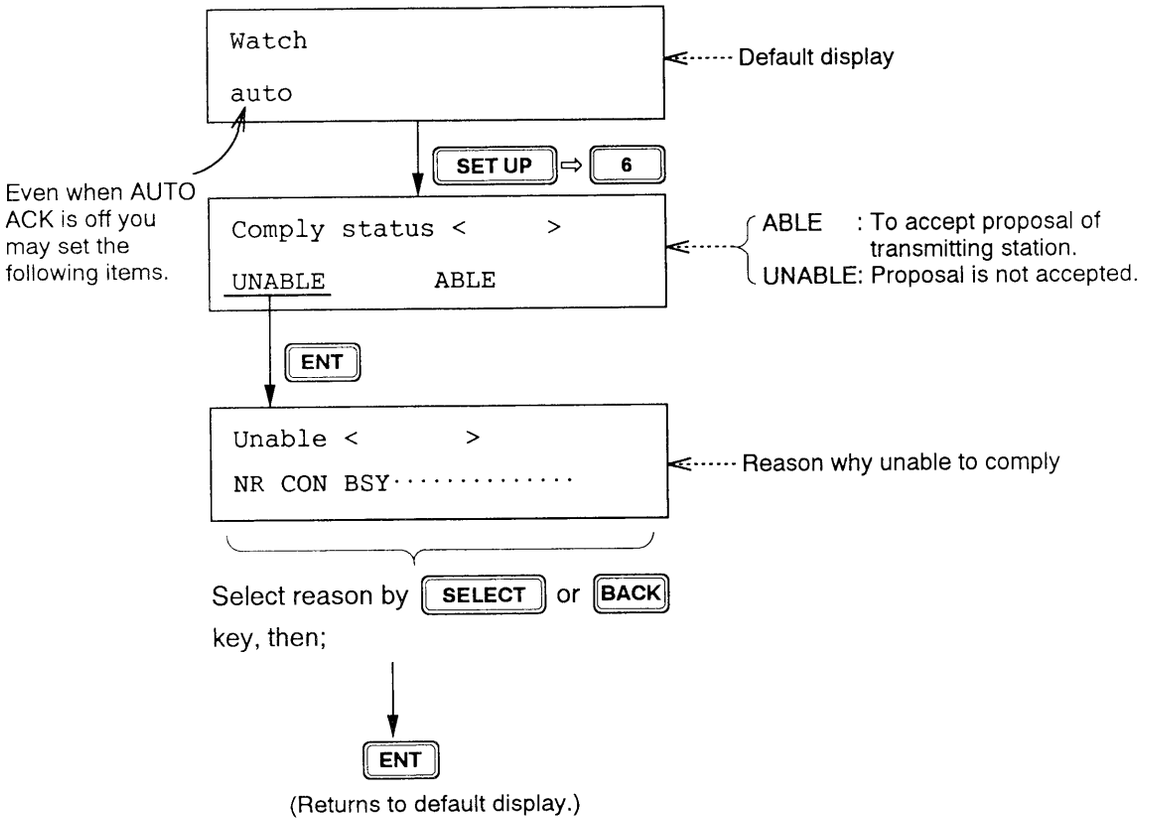
ECC error: This appears when an error is detected in the receive messages.

Note1: Remote function · · · · DSC and working frequencies and class of emission can be automatically set by DSC-5(R).

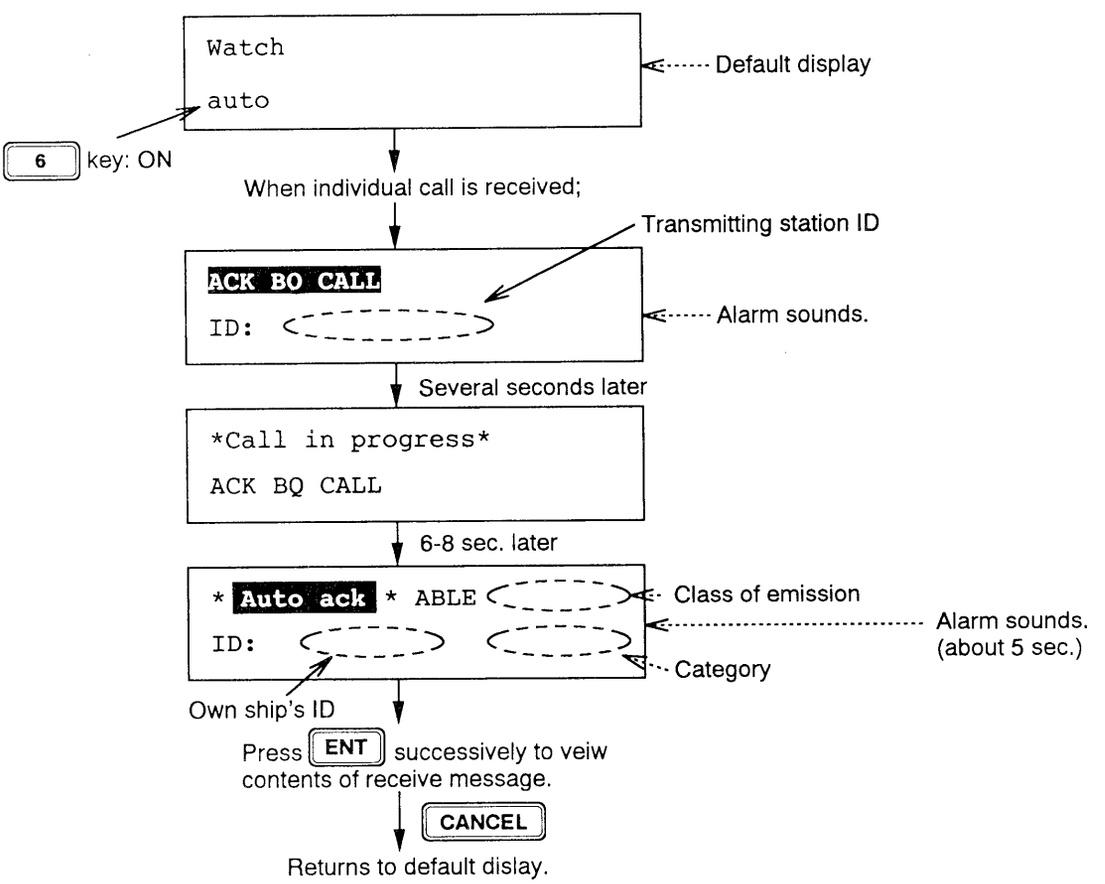
Notes on usage of 6 (AUTO ACK) Key

1) When calling or awaiting receiving (by the DSC-5(R)), be sure AUTO ACK key is on. This enables the transceiver to operate as a DSC terminal.
2) To use telephone, TELEX, or FAX, when the function of the DSC-5(R) is not required, turn AUTO ACK key off ("manual" or "limit"). Otherwise, when the DSC-5(R) receives an individual call, for example, the TX frequency of the radiotelephone is changed to the DSC frequency and the acknowledge call (ACK BQ) signal is automatically transmitted.

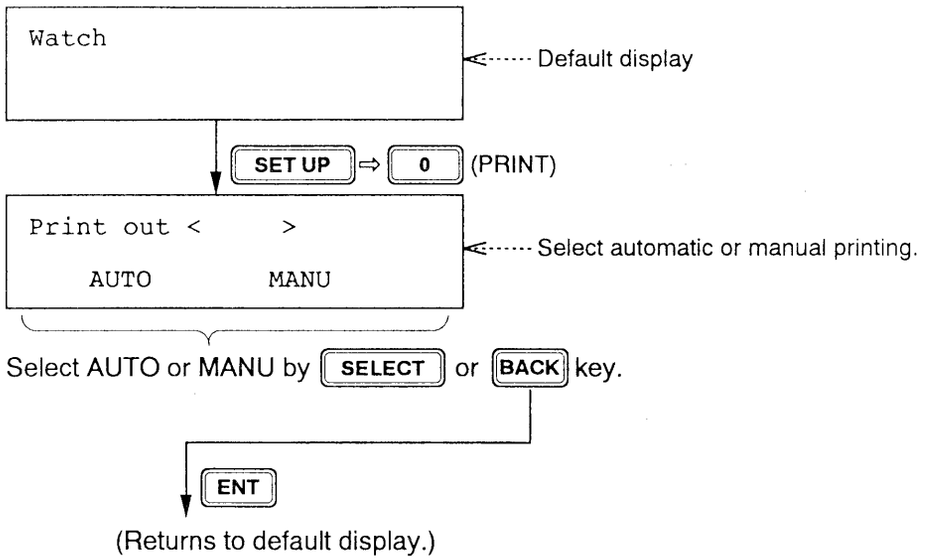
When "AUTO ACK" function is on, you can select either able or unable by SET UP ⇨ 6. Further, you can select the reason why unable to comply. This procedure is shown on the next page.



Example of Auto Ack Function



10. PRINTING · · · · · · SET UP ⇨ 0



Note that manual printing is possible any time.

Automatic Printing (AUTO) Setting

Conditions to be printed

· · · · · · · · · · · Nothing. (Messages printed out automatically.)

Contents to be printed

1. Transmitted message
2. Received message

Manual Printing (MANU) Setting

· · · · · · · · · · · · Press 0 key.

No.	Printing	Timing of 0 key pressing	Example Printout
1	Contents of {MF/HF call message} (VHF) (Select on "CALL" menu.)	During "MF/HF call message" diplay to (VHF) "Ready for calling" display.	ⓐ
2	Contents of all transmitted logs {Xmitted log No. < >} (Select on "XMT" menu.)	Displayed ⌜Xmitted log No. < >⌟ (To stop printing, press CANCEL .)	ⓑ

No.	Printing	Timing of [0] key pressing	Example printout
3	Contents of specific log no. (for example, log no. 1) {Xmitted log No. <1/50>} (Select on "XMT" menu.) [ENT]	During "「Xmitted...」⇨[ENT]" display to "EOS" display.	ⓒ

3a	Call message (again)
	`Call again`
	`CALL END …`
	[ENT]
		`Freq?`
		`DSC:`
		to
		`Ready for calling`
		} During these displays
			ⓐ

4	Contents of all received logs {Ordinary log No. < >} (Distress) (Select on "RCV" menu.)	Displayed「Ordinary log No. < >」(Distress) (To stop printing, press [CANCEL] key.)	ⓓ
5	Contents of specific log no. (for example, log no. 1) {Ordinary log No. <1/50>} (Distress) (Select on "RCV" menu.)	「Ordinary ...」display⇨[ENT]	ⓔ

6	① Currently received message
	`*Received*`
	[ENT]
		`* Received *`
		to
		`ECC: OK`
		} During these displays	

	② Acknowledge message `Acknowledge call <  >`	Displayed "Ready for calling".	ⓕ
7	Contents of currently prepared {MF/HF call message M} (VHF)	During "MF/HF call message M" display (VHF) to "Ready for filing" display.	ⓖ

8	Contents of all {Address, Tel No., DSC freq. or Work freq.} files or all lists of {saved messages}
	At the display below ([SET UP] ⇨ [FILE]) the distress frequencies and self-ID code, as well as the above contents, can be printed.
	`File set up <  >`
	`MES AD ···· DIS I`
	→ Select item desired, then press [0].
	(To stop printing, press [CANCEL].)
		• Press the [FILE] key on the display where the blinking question mark appears while preparing a message. (Ref. to page 1-30.)
		`Tel No.`
		`(coast AD)`
		`01/ZZ:`
		→ Press [0] key at this display.
		• All lists of {saved messages}
		(Default display) ⇨ [FILE] ⇨ [ENT]
		→ Press [0] key.
			ⓗ (*1)

(*1= Example of "Address")

Example Printouts

ⓐ

```
Format   : INDIVIDUAL
Address  : 000000000
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK RQ
ECC      : ····

DSC freq: T12578.5/R12658.0
```

ⓑ

```
*****Xmitted log*****
Xmt message JAN01 12:34
Format   : INDIVIDUAL
Address  : 004310000
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK BQ

DSC freq: T12578.5/R12658.0
```

ⓒ

```
Xmt message JAN01 00:09
Format   : INDIVIDUAL
Address  : 004310000
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK BQ

DSC freq: T12578.5/R12658.0
```

ⓓ

```
*****Ordinary log*****
Rcv message JAN01 02:04
Format   : ALL SHIPS
Category: Safety
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T02182.0/R02182.0
EOS      : EOS
ECC      : OK

DSC freq: T02187.5/R02187.5


Rcv message JAN01 02:03
Format   : INDIVIDUAL
Address  : 004310001
Category: Safety
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : No information
EOS      : ACK RQ
ECC      : OK

DSC freq: T02187.5/R02187.5
```

ⓔ

```
Rcv message JAN01 00:07
Format   : INDIVIDUAL
Address  : 431000001
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK RQ
ECC      : OK

DSC freq: T12578.5/R12658.0
```

ⓕ

```
Format   : INDIVIDUAL
Address  : 431000001
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK BQ
ECC      : ····

DSC freq: T12578.5/R12658.0
```

ⓖ

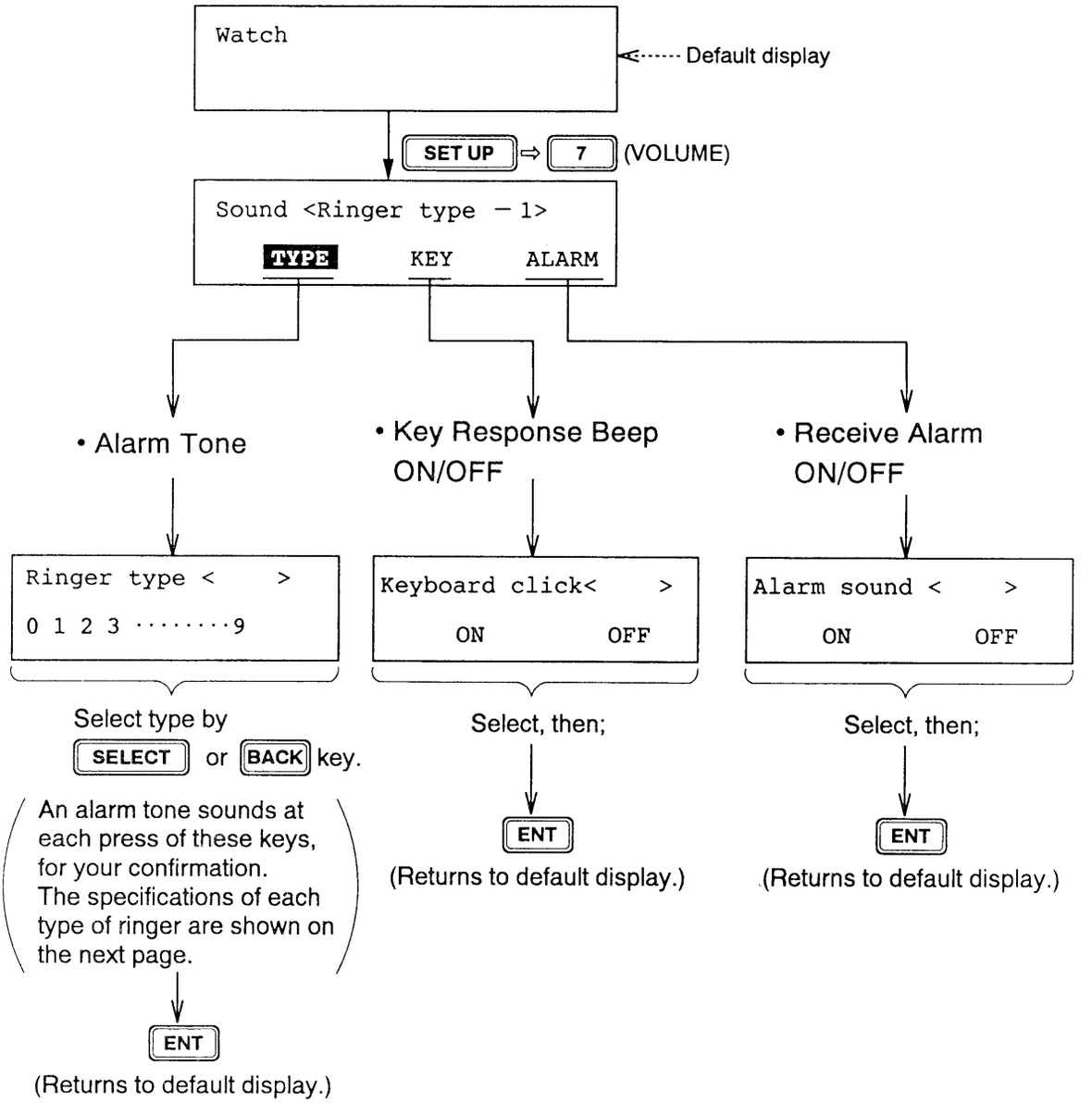
```
Format   : INDIVIDUAL
Address  : 000000000
Category: Routine
Telecom1: J3E  TP
Telecom2: RES No.18
Freq     : T12230.0/R13077.0
EOS      : ACK RQ
ECC      : OK

DSC freq: T12578.5/R12658.0
```

ⓗ

```
******* Address file *******
01: A              222222222
02: B              111111111
```

11. RECEIVE ALARM AND KEY RESPONSE SETTINGS · · · · [SET UP] ⇨ [7]

The user can select the alarm tone (frequencies) for the distress and urgency receive alarm, and turn the key response beep and receive alarm (except distress and urgency) on or off.



NOTE 1: The distress and urgency receive alarm sounds at maximum volume regardless of receive alarm setting.

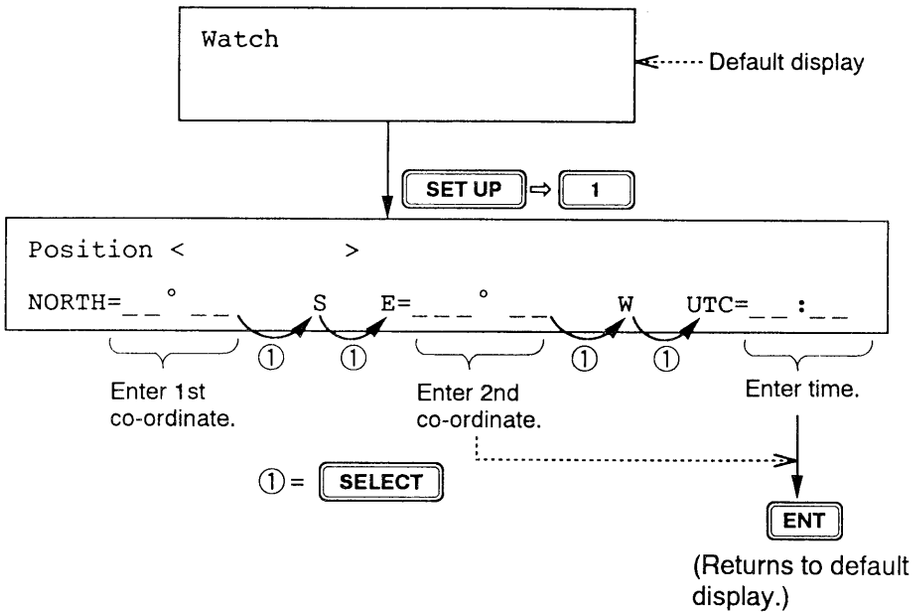
NOTE 2: The safety receive alarm frequencies are 2200Hz and 0Hz (interval: 250ms), and the individual receive alarm frequencies are 440Hz and 880Hz(500ms), and the distress warning alarm (five seconds) frequencies are 2200Hz and 0Hz (125ms). Note that these cannot be changed.

Ringer type	Specification	
	Frequency (Hz)	Interval (ms)
0	2200	Continuous
1	1300 and 2200	250
2	1300 and 2200	125
3	3290	Continuous
4	1945 and 3290	250
5	1945 and 3290	125
6	1100	Continuous
7	650 and 1100	250
8	650 and 1100	125
9	2200 and 0	250

NOTE: Key input response beep frequency is 1800Hz (50ms).

12. MANUAL ENTRY OF SHIP'S POSITION AND TIME · · · · SET UP ⇨ 1

To manually enter ship's position and time, press SET UP ⇨ 1 (POSITION).

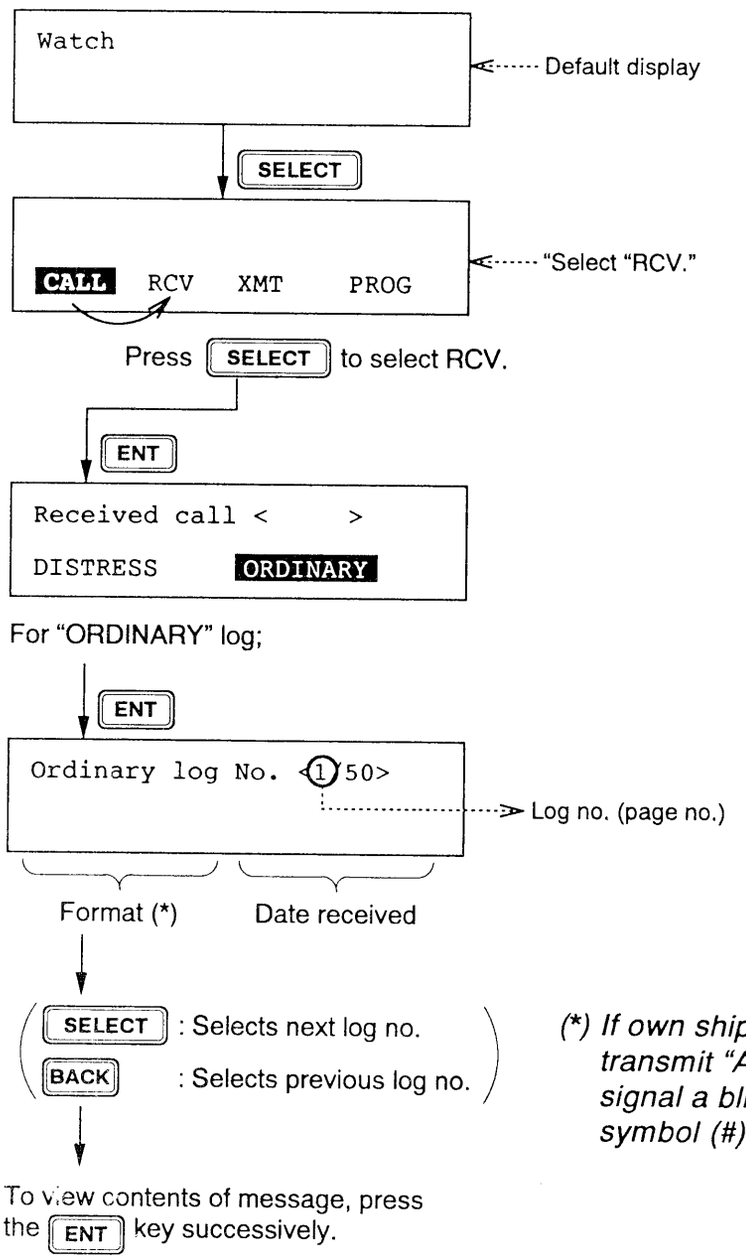


Note: To cancel manually entered data, enter 9999 for the time(UTC data entry). Note that manually entered data are automatically erased 12 hours after entry.

When ship's position data is entered manually, ship's position data entry from navigational device is suspended (Automatic entry possible 12 hours after manual entry). Therefore, after entering the data temporarily as shown above, be sure to enter "9999" for the time to cancel the manually entered data.

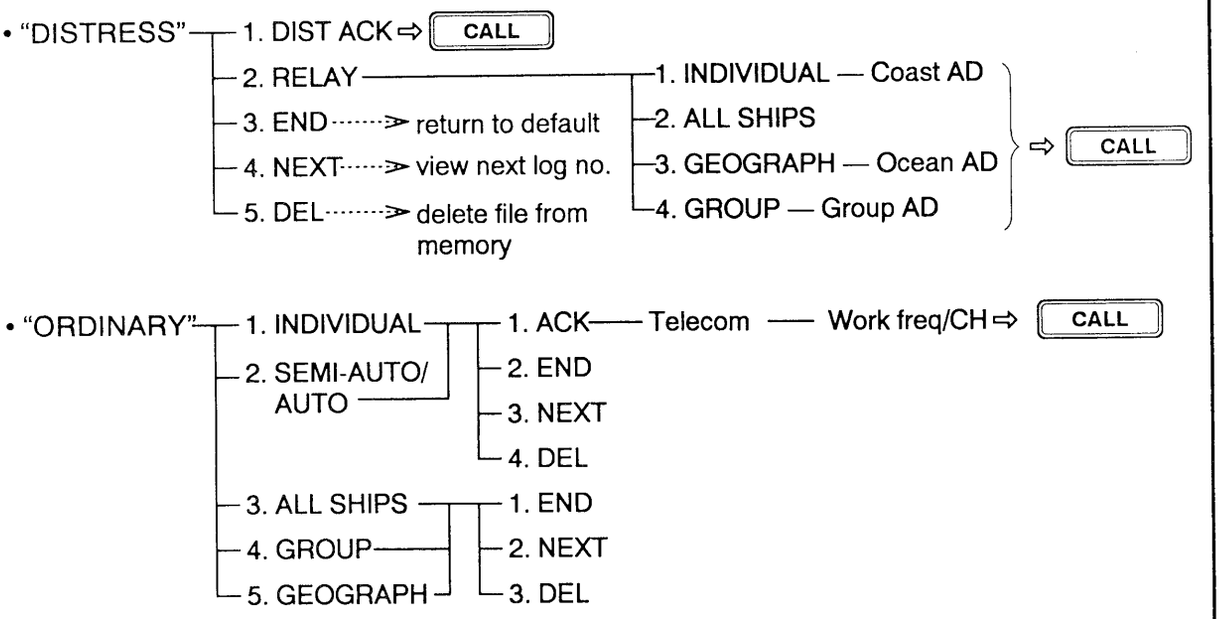
13. RECEIVE ("RCV") MESSAGE MEMORY

All received messages are automatically saved to the memory and filed according to category, DISTRESS or ORDINARY. The receive message memory can store **up to 50 messages** (numbered 1 to 50) of each category of receive message on a first-in, first-out basis. This means each time the unit receives a message it saves it as log no. 1 and changes the log no. of all previously received messages by one. When the memory is fulled the oldest file is deleted. When you want to view the contents of a receive message;

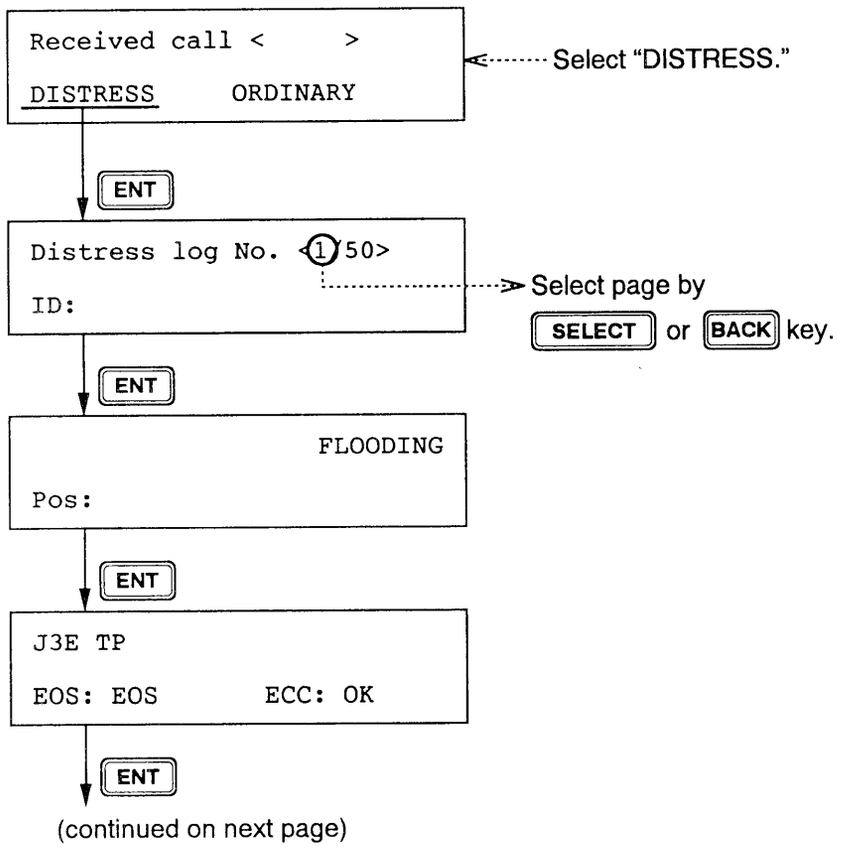


(*) If own ship did not transmit "ACK BQ" signal a blinking sharp symbol (#) appears.

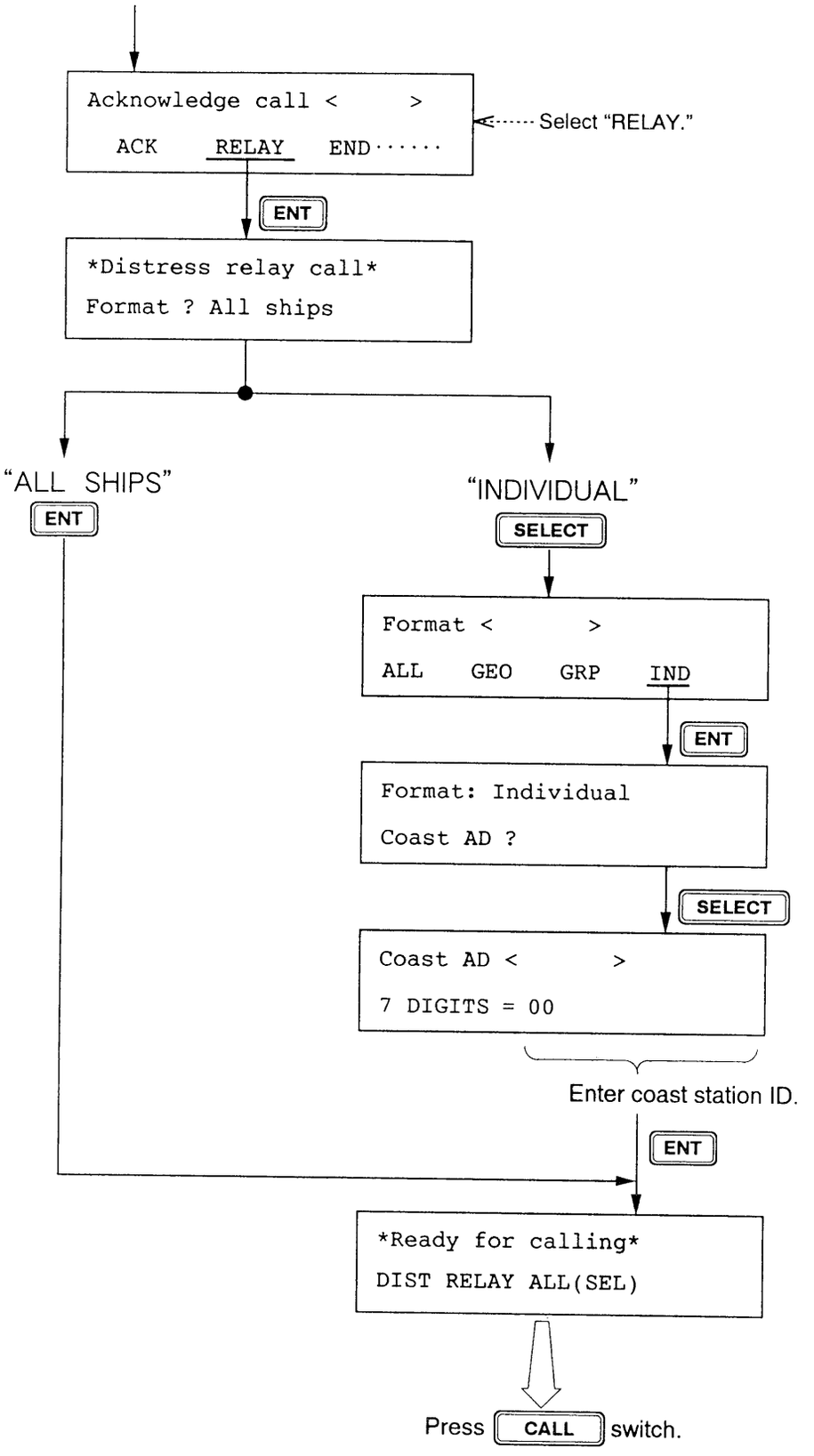
Note that acknowledge call and distress relay call can be done while in the RCV menu. The "DISTRESS" and "ORDINARY" menu trees are shown below. Calls can be made in either menu by pressing the CALL switch.



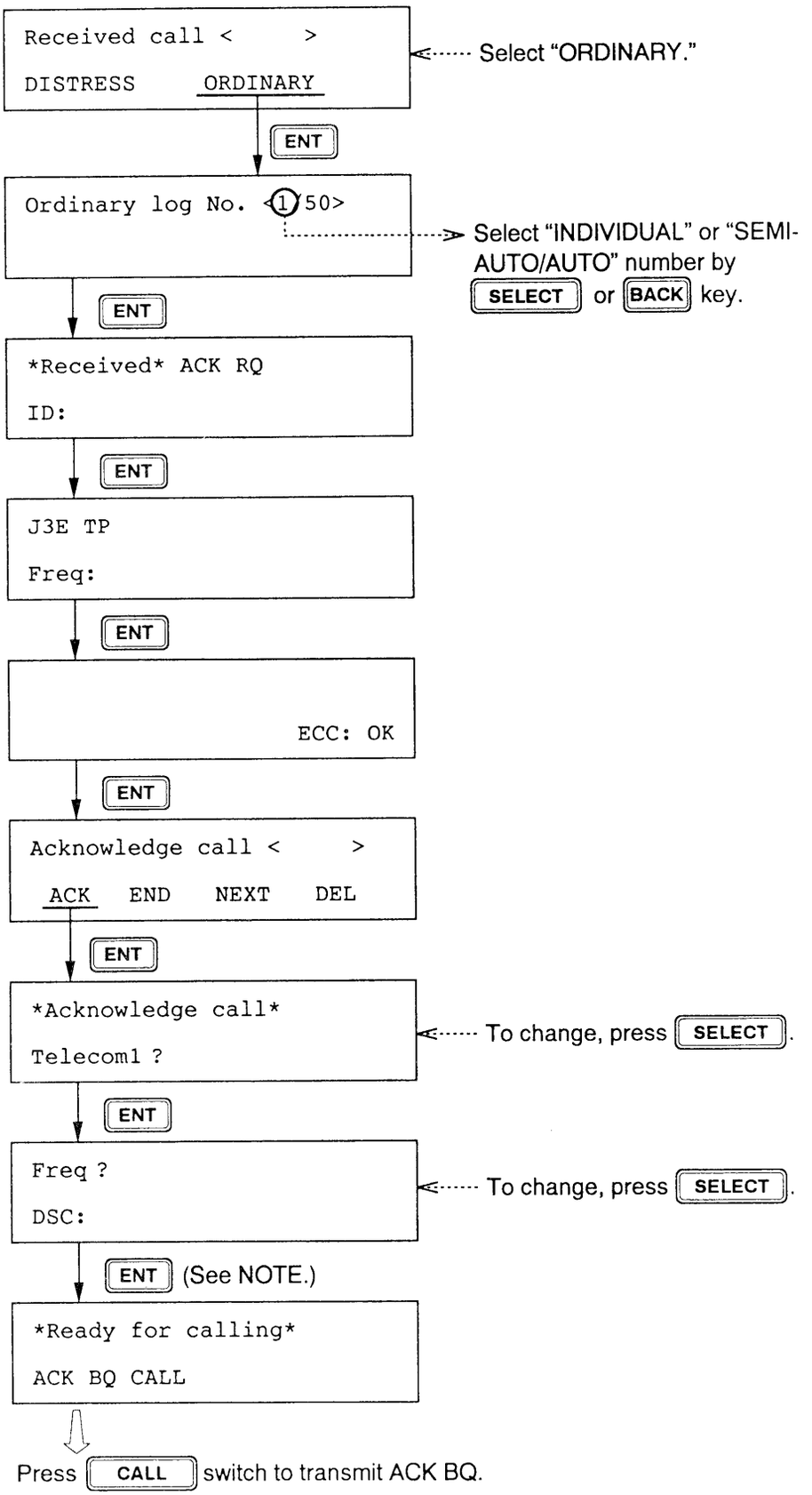
Example 1: Relaying Distress Alert (same call as described on page 1-19)



(continued on next page)


Acknowledge call < >
ACK RELAY END·····
Select "RELAY."
ENT
Distress relay call
Format ? All ships
"ALL SHIPS"
ENT
"INDIVIDUAL"
SELECT
Format < >
ALL GEO GRP IND
ENT
Format: Individual
Coast AD ?
SELECT
Coast AD < >
7 DIGITS = 00
Enter coast station ID.
ENT
Ready for calling
DIST RELAY ALL(SEL)
Press CALL switch.

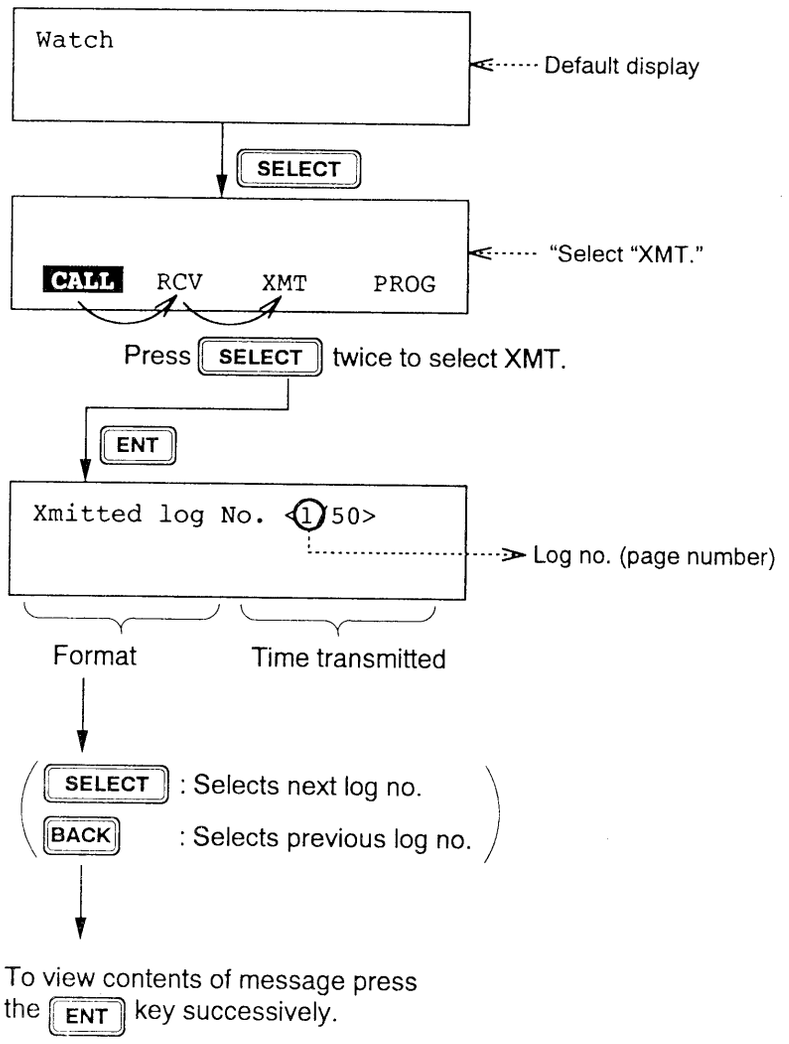
Example 2: Transmitting ACK BQ (same procedure as described on page 1-22)



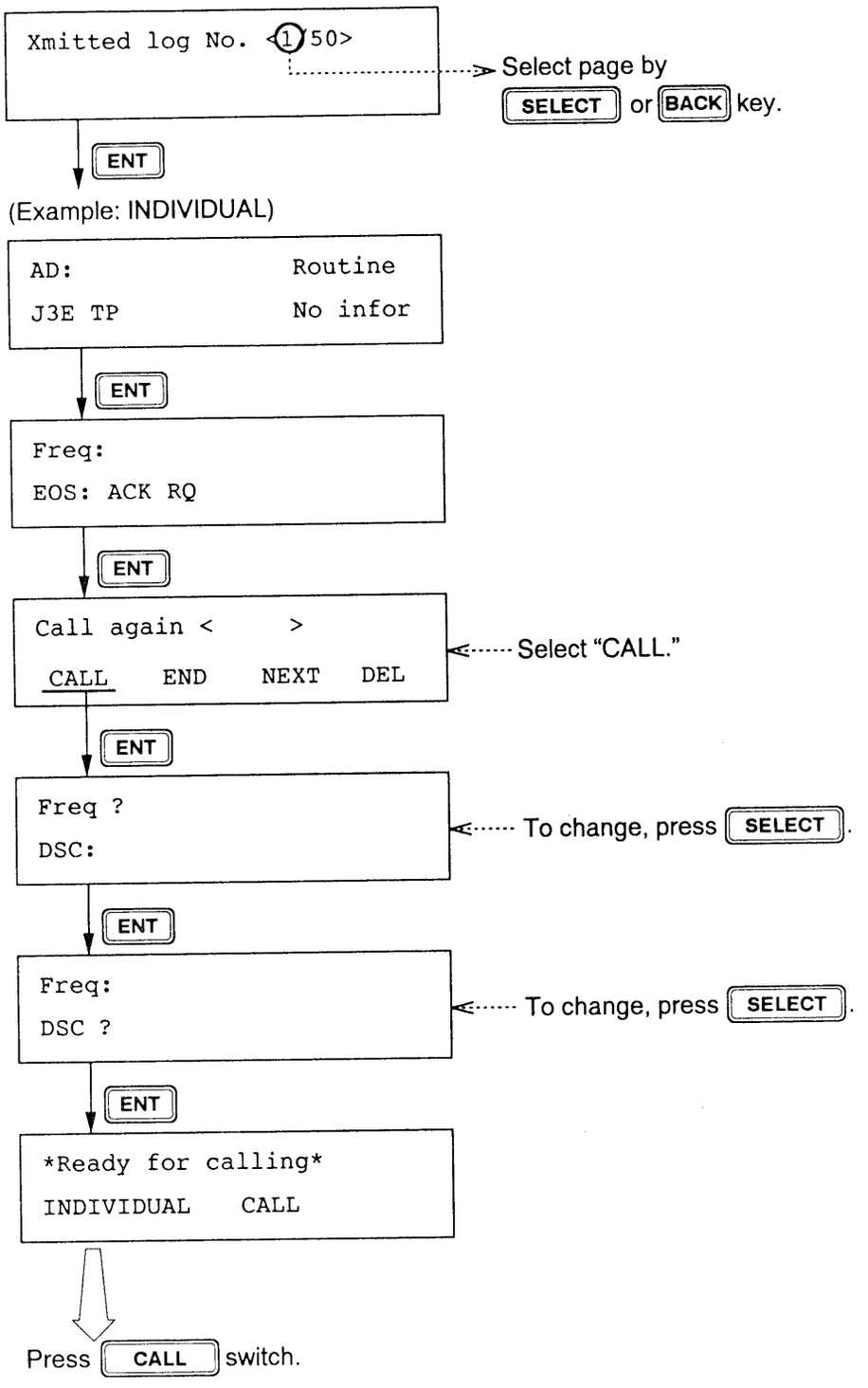
NOTE: If more than five minutes elapses, DSC frequency can be changed, since status changes to ACK RQ.

14. TRANSMIT ("XMT") MESSAGE MEMORY

The transmit message memory stores **up to 50 transmitted messages** (numbered 1 to 50) on a first-in, first-out basis. This means each time you save a transmitted message it is filed as log no. 1 and the log no. of all previously stored transmit messages changes by one. When the memory is fulled the oldest file is deleted.
To view the contents of a transmit message;

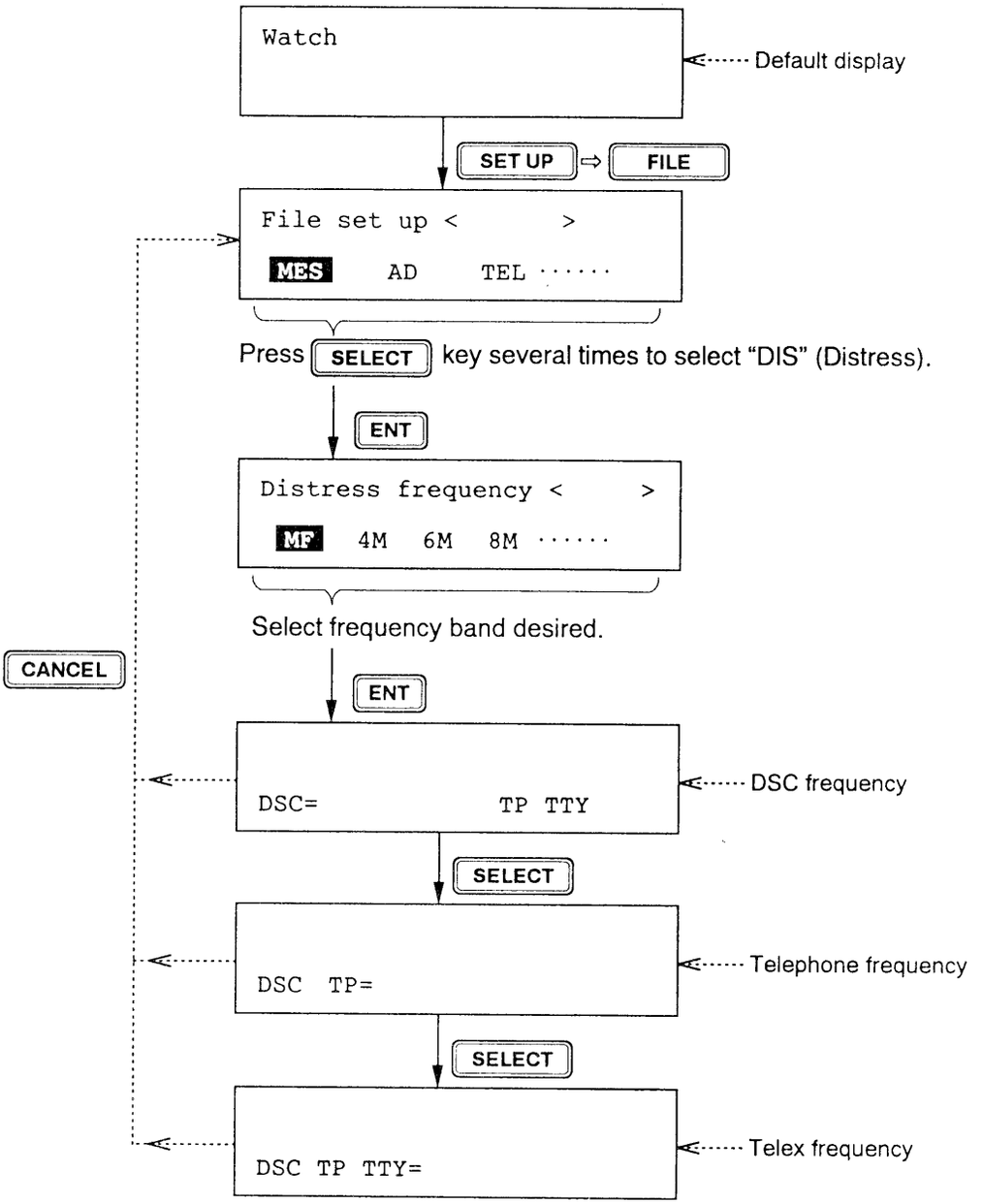


You can make calls except distress while in the XMT menu.

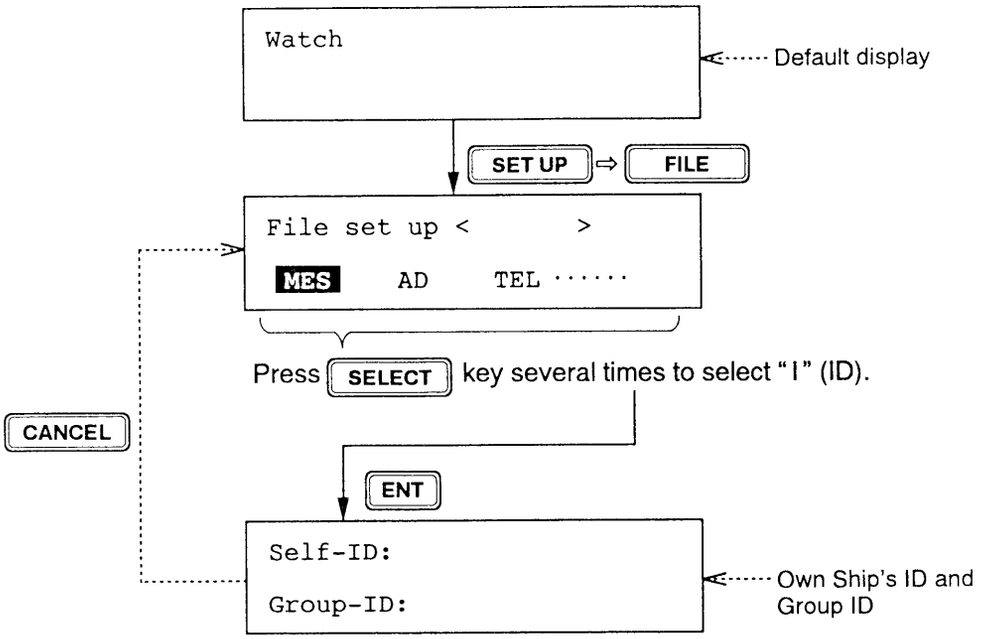


15. DISPLAYING DISTRESS FREQUENCIES AND OWN SHIP'S ID

15. 1 DISTRESS Frequencies (DSC, Telephone and Telex)



15.2 Own Ship's ID



CHAPTER 2. MAINTENANCE

This unit can perform its intended functions only when properly maintained. Following the procedures below will help keep it in top operating condition. BE SURE TO TURN OFF THE POWER BEFORE PERFORMING ANY MAINTENANCE PROCEDURES (except cleaning the display unit). To check performance of this unit periodically, do self-test referring to page 3-2.

DANGER

Work inside this unit involves exposure to hazardous voltages which can shock, burn, or cause death. Only personnel familiar with these electrical circuits and correct electrical safety procedures should work inside this unit.

1. Cleaning the Display Unit

Accumulated dust can be removed with a soft, dry cloth. Do not use gasoline, thinner, benzine or other solvents to clean the display unit. These may remove paint and markings.

2. Inspecting Connectors and Earth Terminal

Periodically inspect the connectors and earth terminal on the rear of the unit for tightness. Check connectors inside the unit at least every six months for proper seating.

3. Replacement of the Ni-cd Battery

The Ni-cd battery on the CONTROL board stores the contents of S-RAMs and time data (see list below) for about five years.

① **Prepared transmit messages ("MES" memory)**
② **All received messages ("RCV" memory)**
③ **All transmitted messages ("XMT" memory)**
④ **Internal clock (page 5-5)**

To be sure important information will not be lost, periodically check battery voltage. It should be at least 3.6V when the power is off.
If battery voltage is low print out all required data. Note that the unit automatically erases all memories if the power is off about one month.

Procedure

(1) Remove jumper wire JP3 on the CONTROL board.

(2) Dismount battery.

(3) Install new battery (code no. 000-835-126).

(4) Reinstall jumper wire JP3.

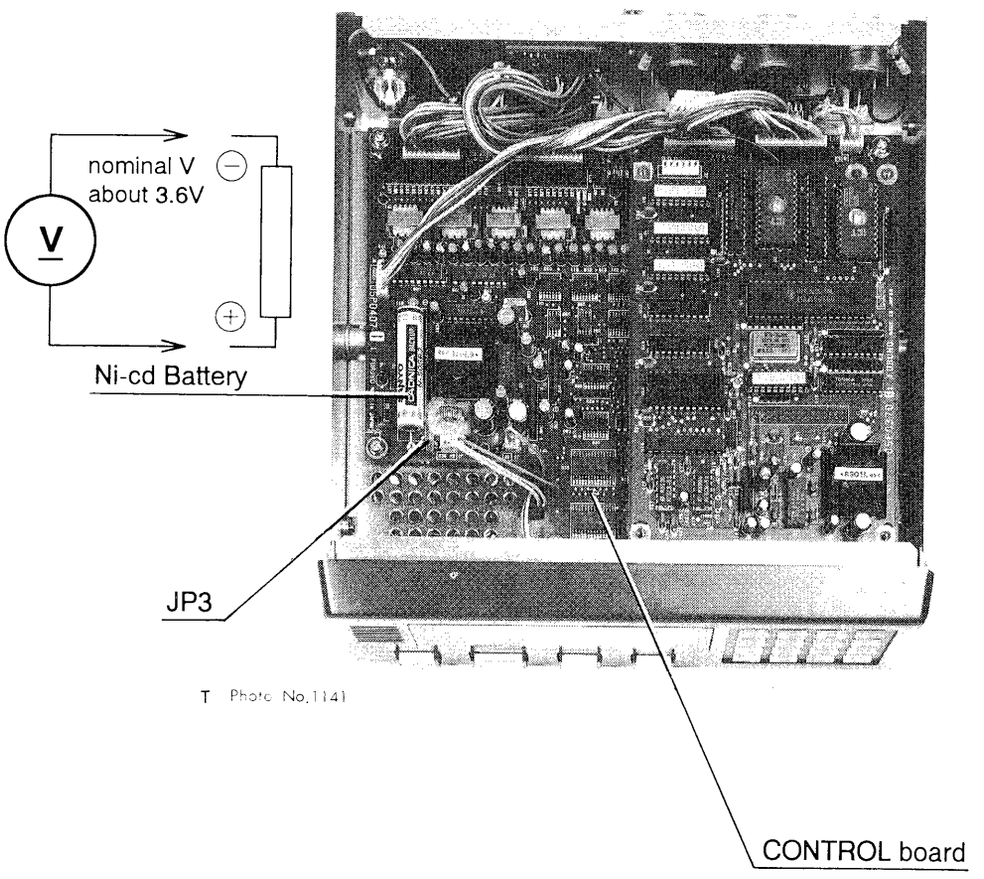
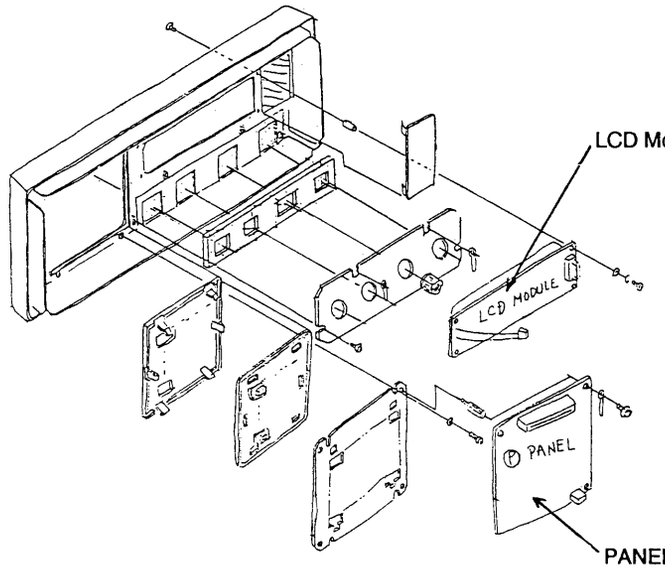
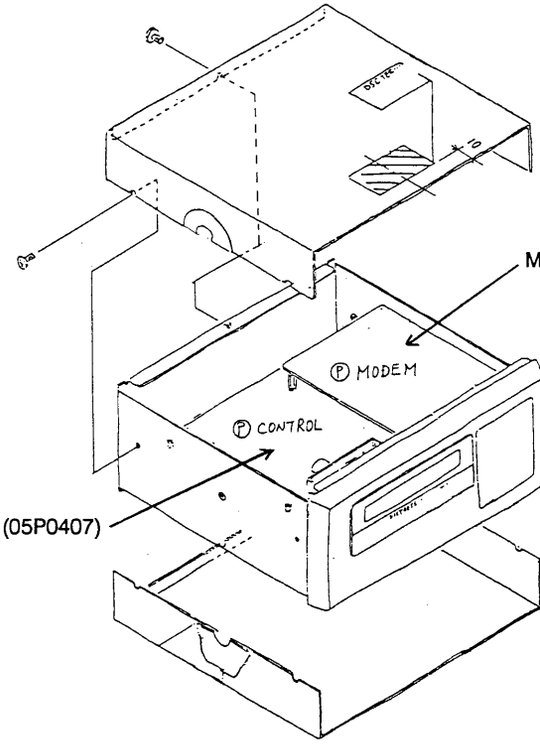
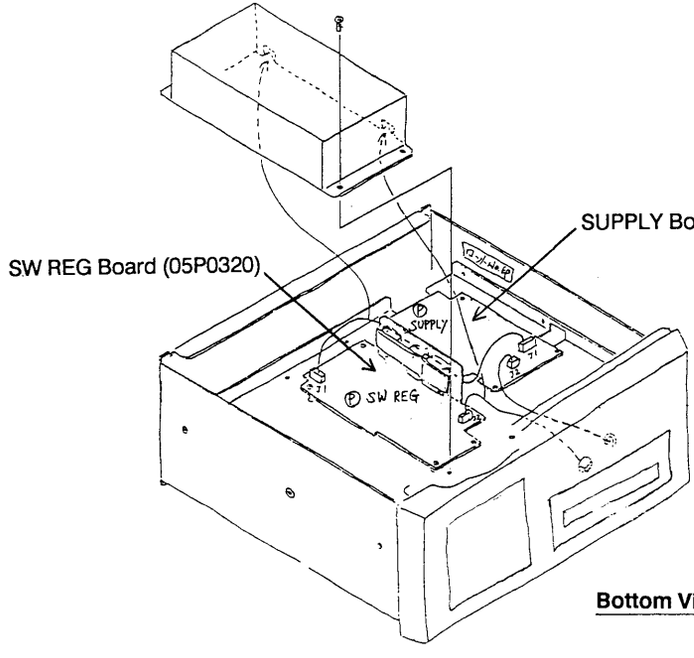


Figure 2-1 CONTROL board, top view

FURUNO





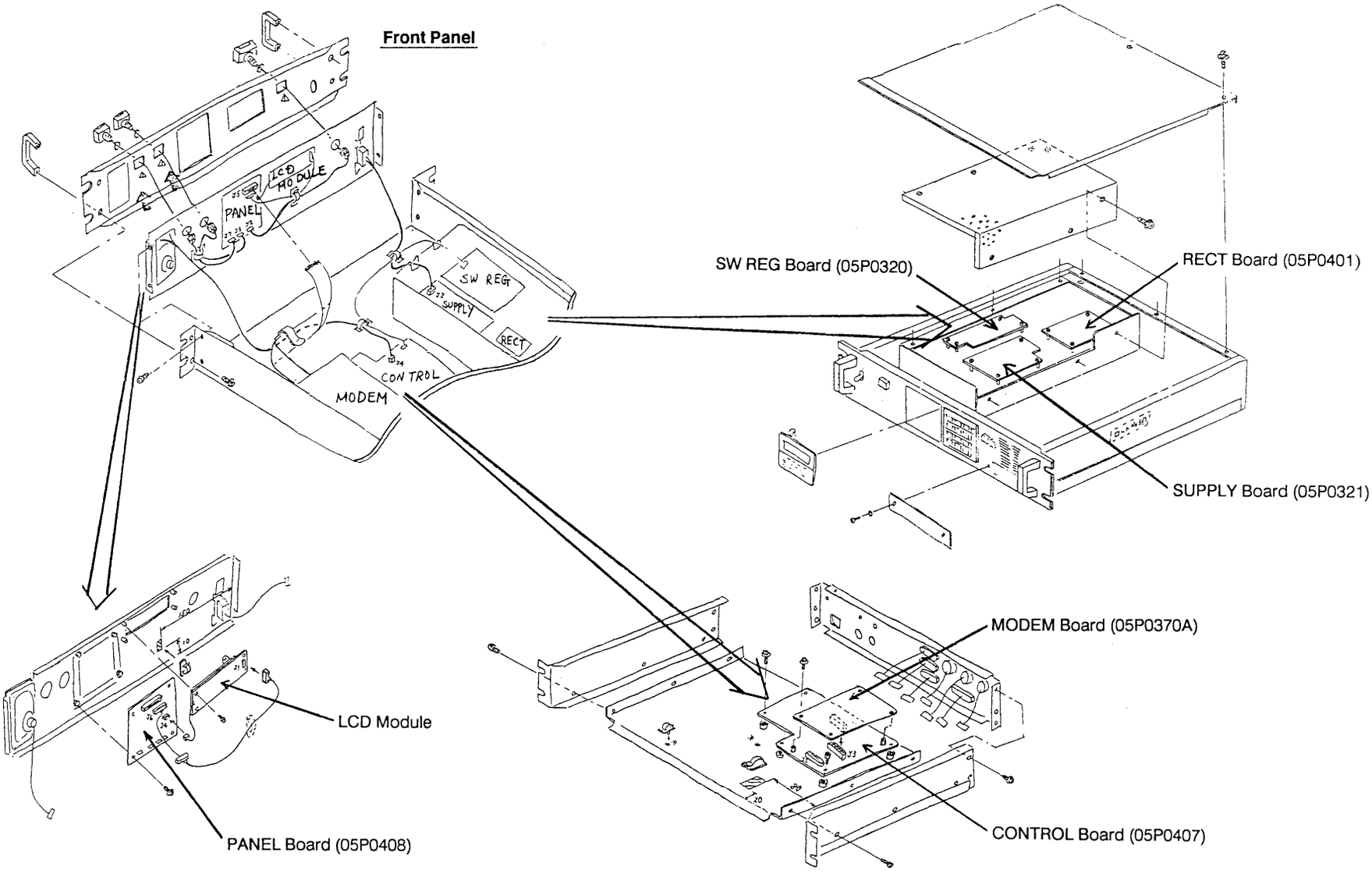


Bottom View

承認 APPROVED		名称 TITLE	**DSC-5 PCB's Location**
検図 CHECKED			
製図 DRAWN		図番 DWG. NO.	

FURUNO ELECTRIC CO., LTD.

FURUNO



承認 APPROVED		名称 TITLE: **DSC-5R PCB's Location**
検図 CHECKED		
製図 DRAWN		図番 DWG. NO.

FURUNO ELECTRIC CO., LTD.

CHAPTER 3. TROUBLESHOOTING

1. SELF-TEST

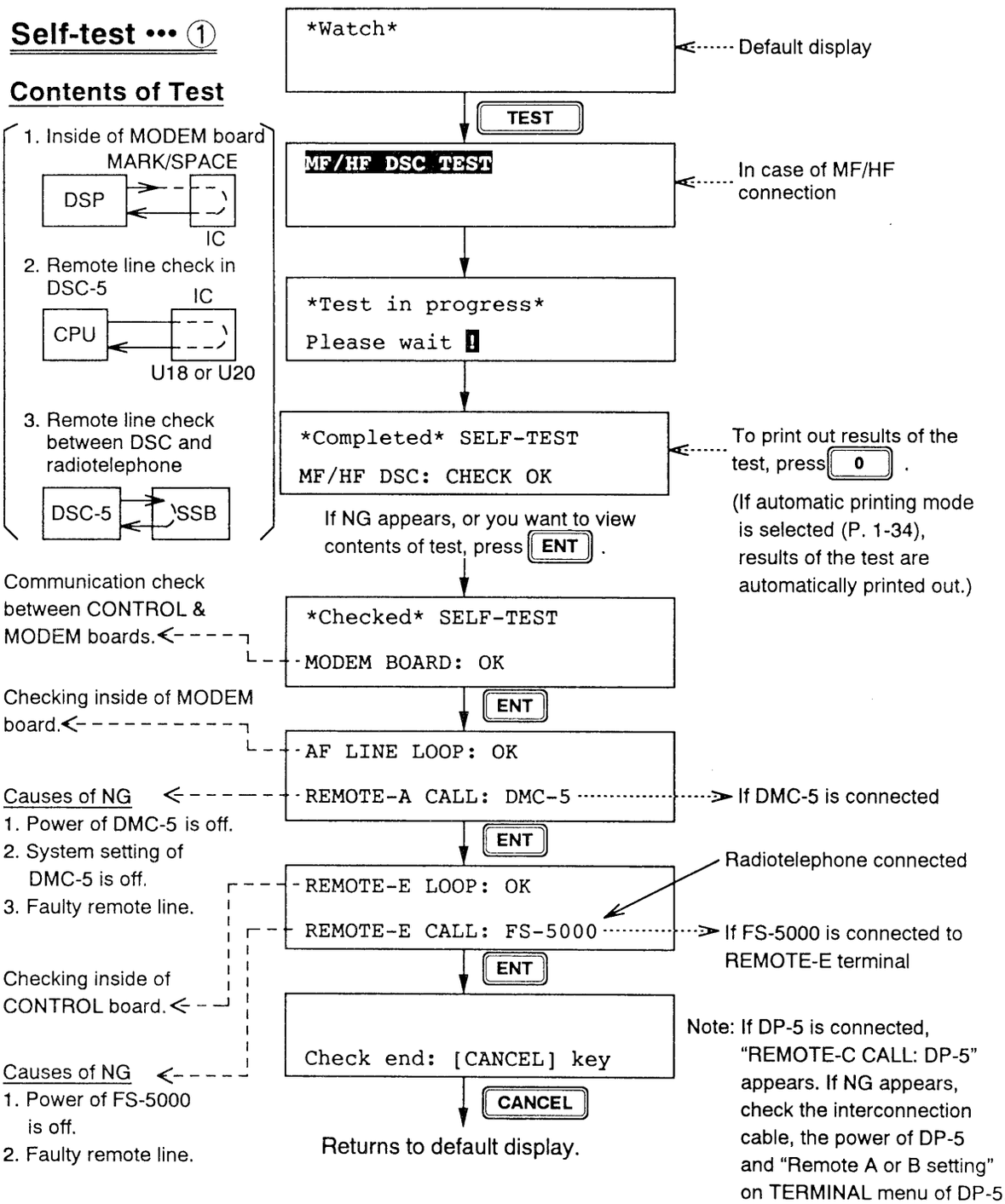
This unit is equipped with two types of self tests. The first test checks for proper exchange of remote line data inside the DSC-5, and between the DSC-5 and radiotelephone. To conduct this test, press the [TEST] switch at the default display. **You should conduct the test shown below daily** to ensure proper transmission in case of distress.

The second type of test is a series of tests which you select through the menu to identify the cause of operating problems. If you cannot restore normal operation do not attempt to check inside the unit. Any repair is best left to a qualified technician.

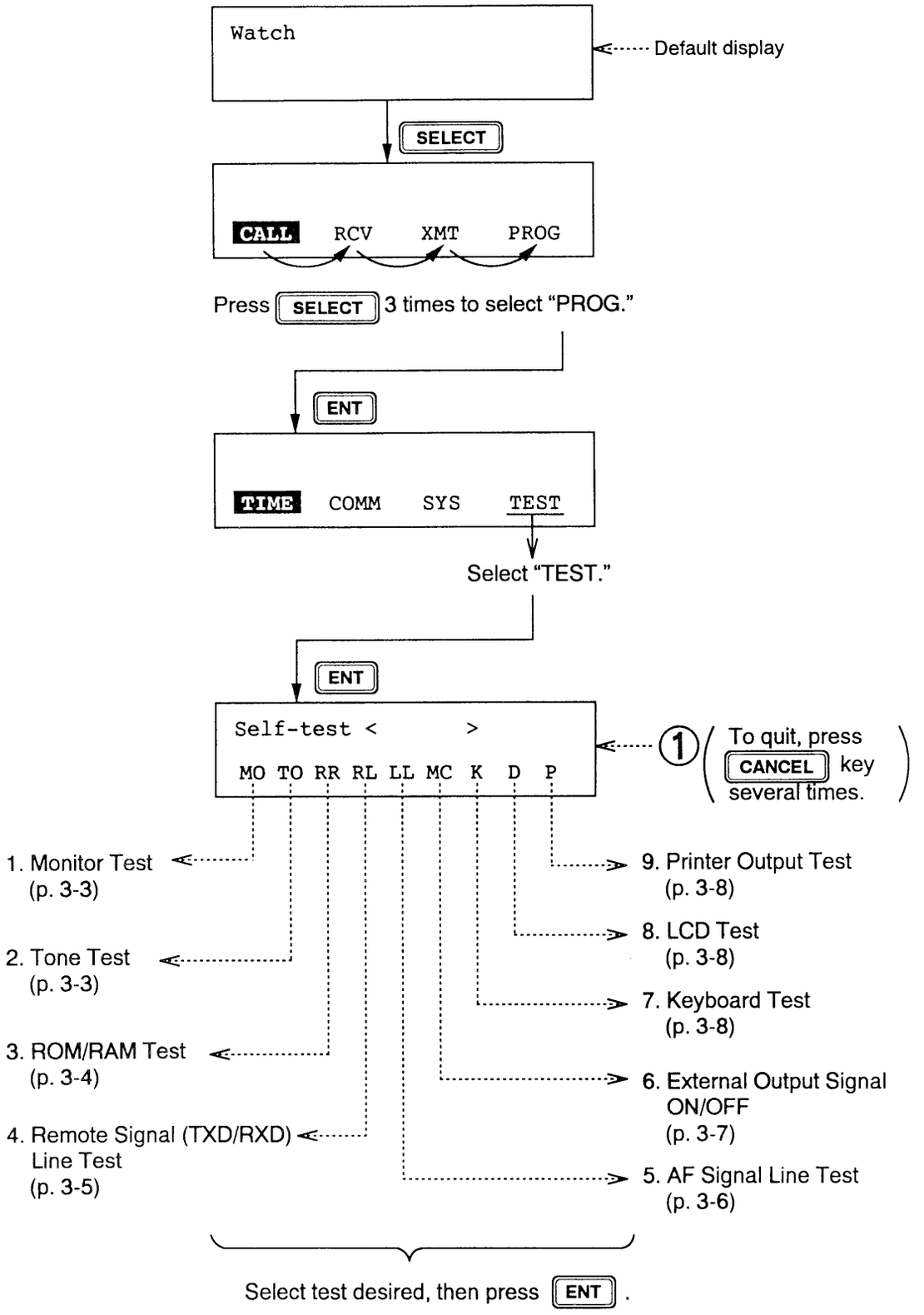
Self-test ••• ①

Contents of Test

1. Inside of MODEM board
   MARK/SPACE
   DSP → IC
2. Remote line check in DSC-5
   CPU → IC (U18 or U20)
3. Remote line check between DSC and radiotelephone
   DSC-5 → SSB

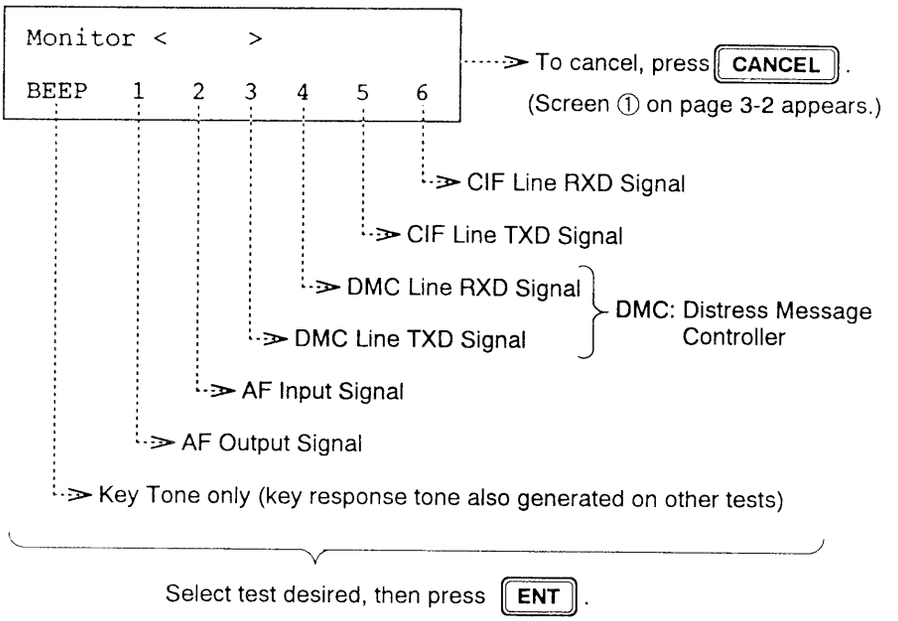


Self-test ••• ②


Watch
Default display
SELECT
CALL RCV XMT PROG
Press SELECT 3 times to select "PROG."
ENT
TIME COMM SYS TEST
Select "TEST."
ENT
Self-test < >
MO TO RR RL LL MC K D P
① To quit, press CANCEL key several times.
1. Monitor Test (p. 3-3)
2. Tone Test (p. 3-3)
3. ROM/RAM Test (p. 3-4)
4. Remote Signal (TXD/RXD) Line Test (p. 3-5)
5. AF Signal Line Test (p. 3-6)
6. External Output Signal ON/OFF (p. 3-7)
7. Keyboard Test (p. 3-8)
8. LCD Test (p. 3-8)
9. Printer Output Test (p. 3-8)
Select test desired, then press ENT .

1. "MO" (Monitor Test)

This test checks tone of all signal lines.

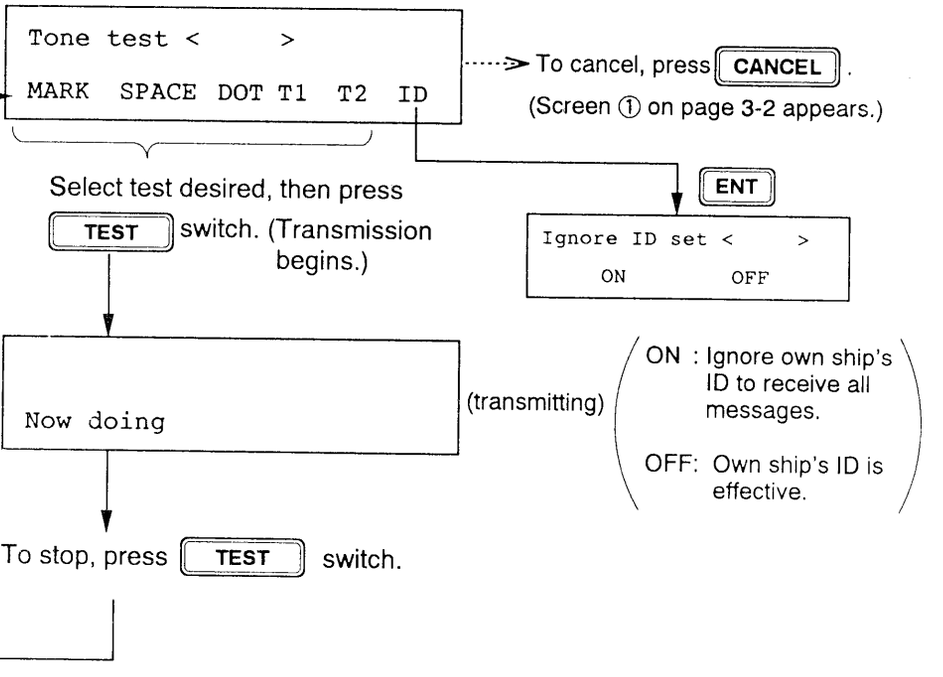


2. "TO" (Tone Test)

· · · · Only for factory adjustment. (Not selectable in normal operation.)

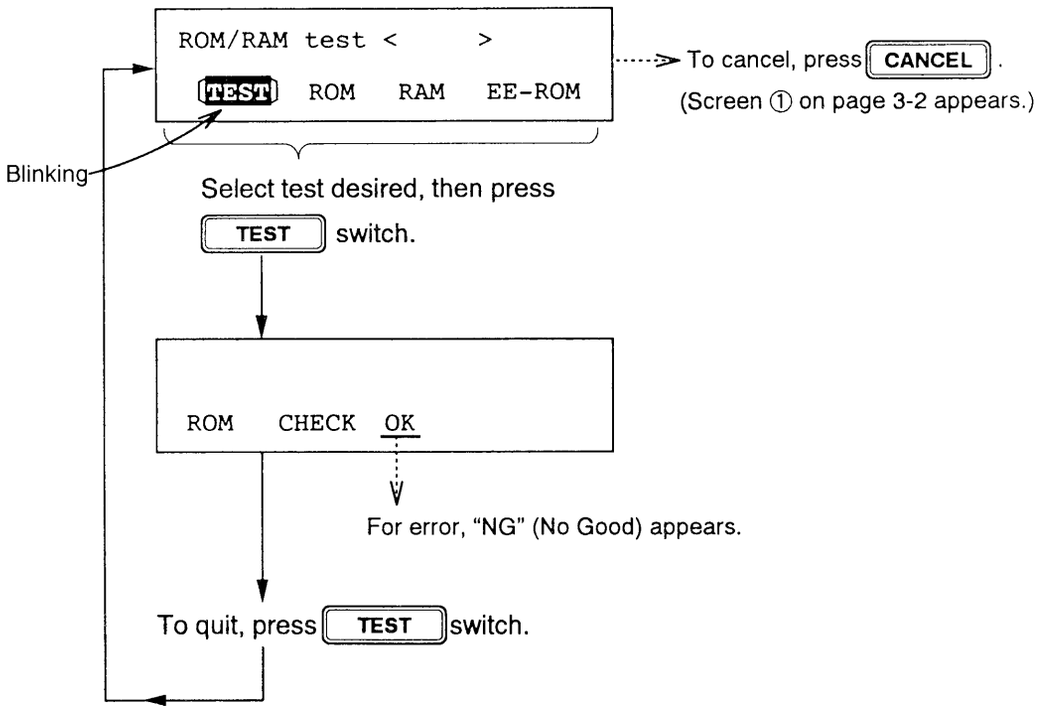
This test transmits mark, space and dot pattern on the AF line, as shown below. Further, own ship's ID can be ignored to receive all messages.

MARK : Mark signal
SPACE : Space signal
DOT : Dot pattern
} You may measure them at DSC – 5 output terminal.
T1 : Continuous transmission of "call message"
T2 : Error code

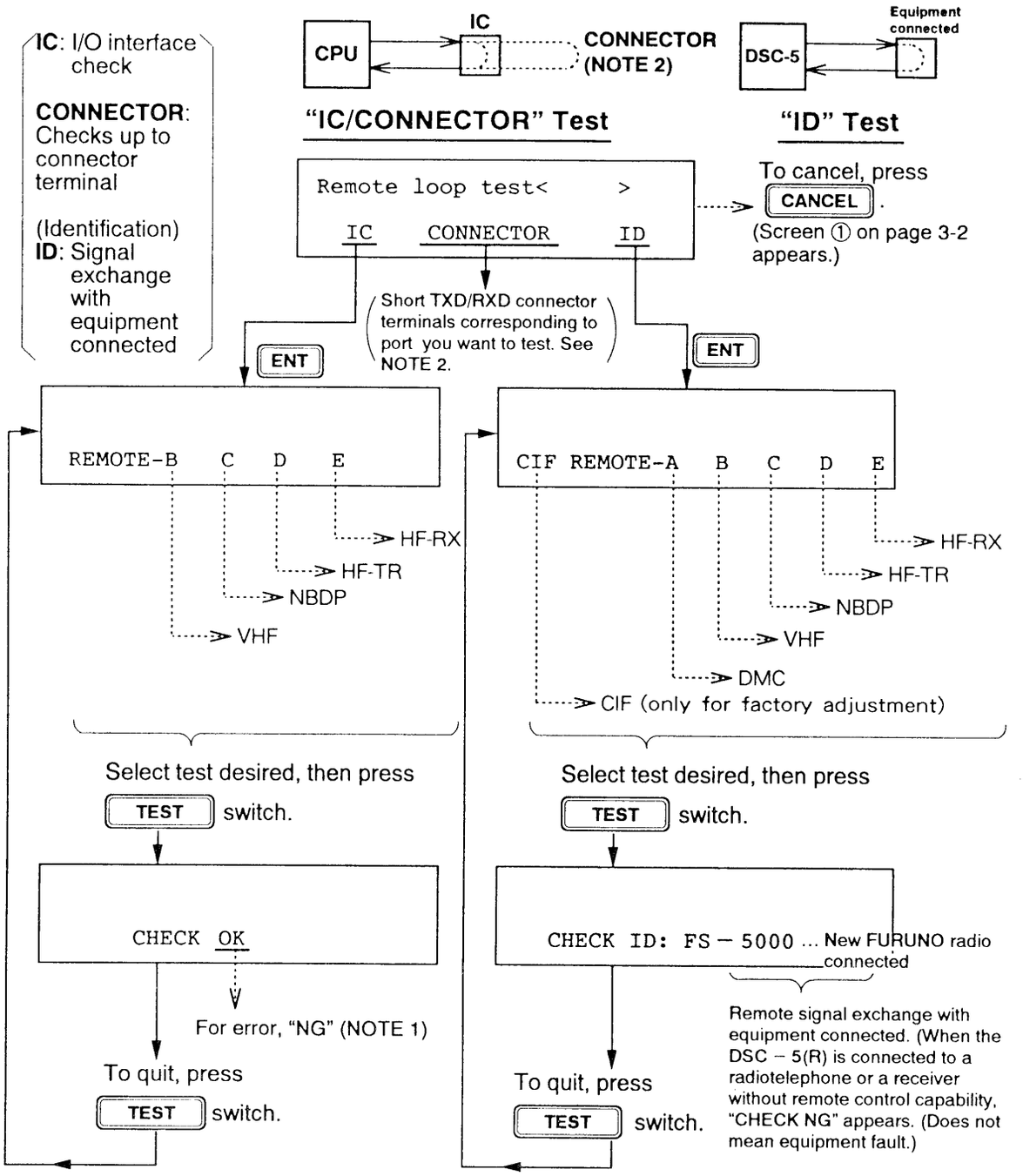


3. "RR" (ROM/RAM Test)

This test checks the ROM (U8), RAM (U9 and U10) and E^2PROM (U11) on the CONTROL board for proper operation.



4. "RL" (Remote Loop: Remote Signal (TXD/RXD: Class of Emission/Frequency Data, etc.) Line Test)



CONTROL board

NOTE 1: ① For "NG" at "REMOTE-B" or "REMOTE-C" ⇨ defective U18 (SIO)
② For "NG" at "REMOTE-D" or "REMOTE-E" ⇨ defective U20 (SIO)

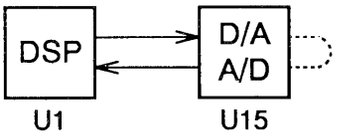
NOTE 2:

Port	Connector terminals (rear panel) to short
CIF	J1 # 1 – # 3, # 2 – # 4
REMOTE-A	J3 # 1 – # 3, # 2 – # 4
REMOTE-B	J4 # 1 – # 3, # 2 – # 4

Port	Connector terminals (rear panel) to short
REMOTE-C	J5 # 2 – # 3
REMOTE-D	J6 # 2 – # 3
REMOTE-E	J7 # 2 – # 3

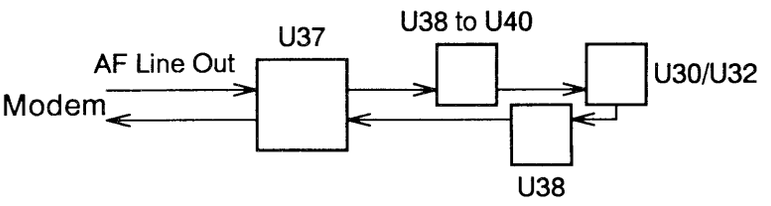
5. "LL" (Line Loop: AF Line Test)

① **MF/HF Connection**····· "CONNECTOR" test is not available. ("OK" is displayed.)

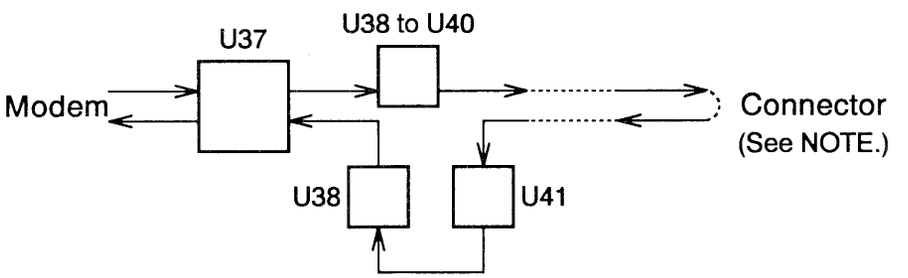


"IC" Test

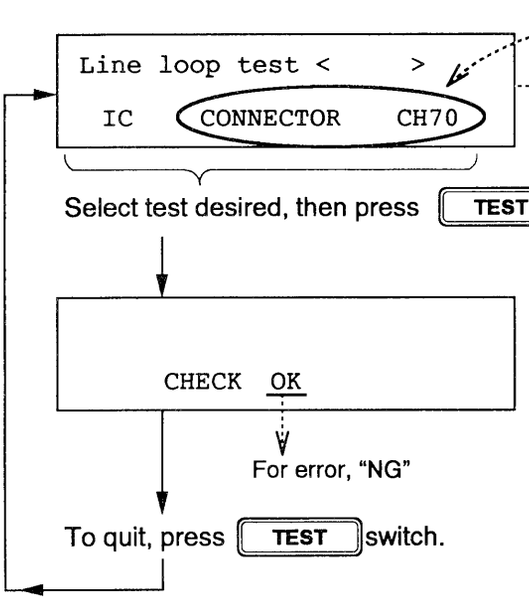
② **VHF Connection**



"IC" Test



"CONNECTOR" or "CH70" Test



VHF only

To cancel, press CANCEL.
(Screen ① on page 3-2 appears.)

Select test desired, then press TEST switch (See NOTE).

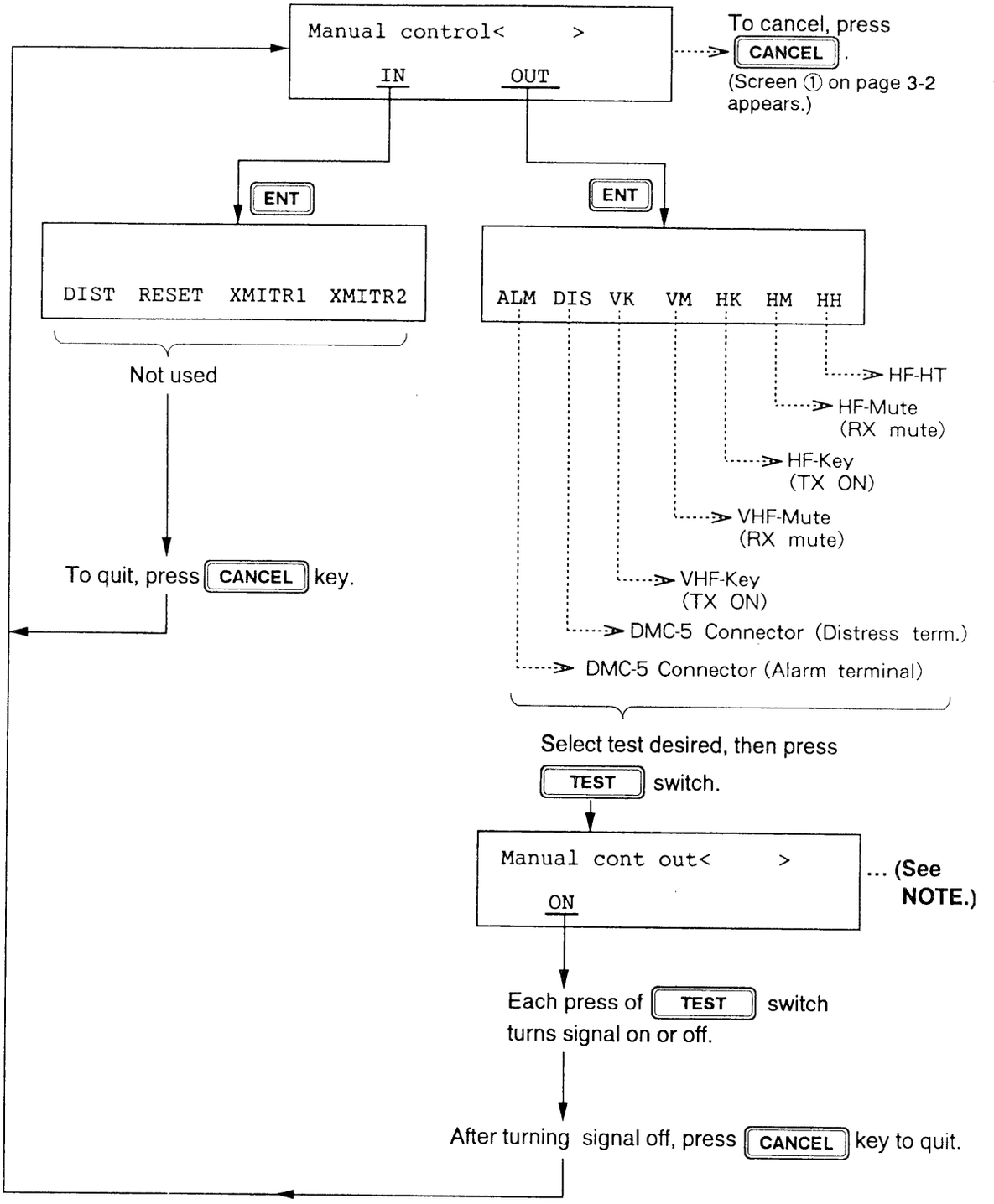
To quit, press TEST switch.

NOTE: For "CONNECTOR" or "CH70" test, short connector terminals (on rear panel) as follows:

Item	Terminals to short
"CONNECTOR"	J4 (# 10 – # 12, # 11 – # 13)
"CH70"	J4 # 7 – # 10, # 8 – # 11

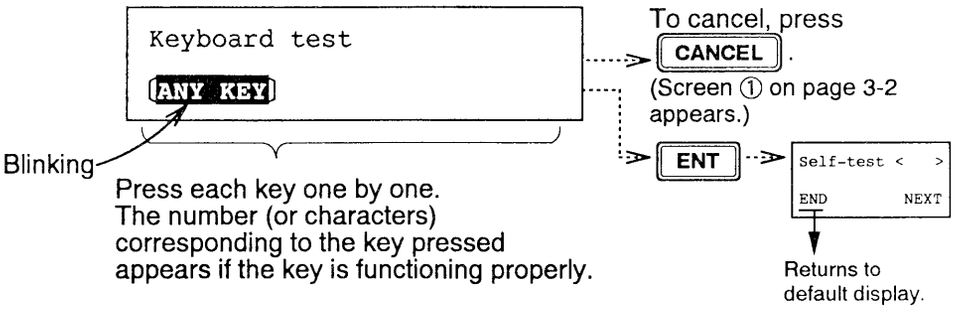
6. "MC" (Manual Control: External Output Signal ON/OFF)

The output signal (command) to other equipment can be turned on or off ("OUT" selection).

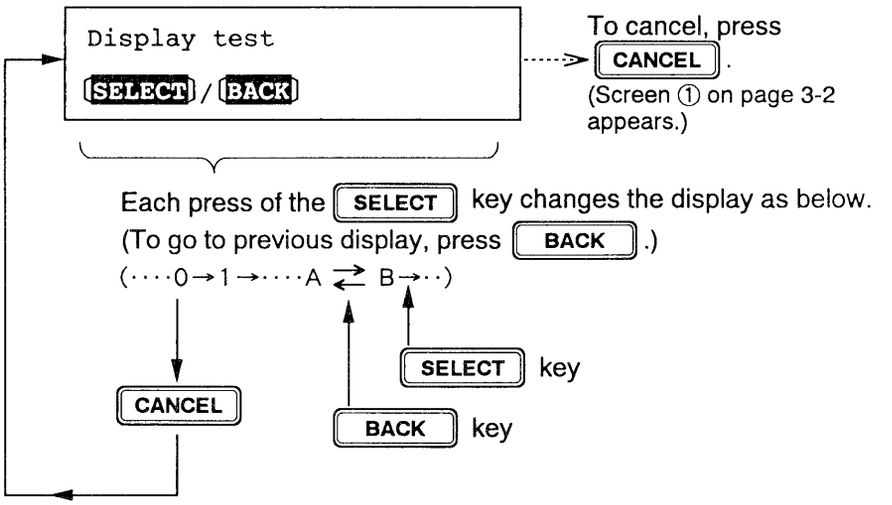


NOTE: "ON" means the output level goes low.

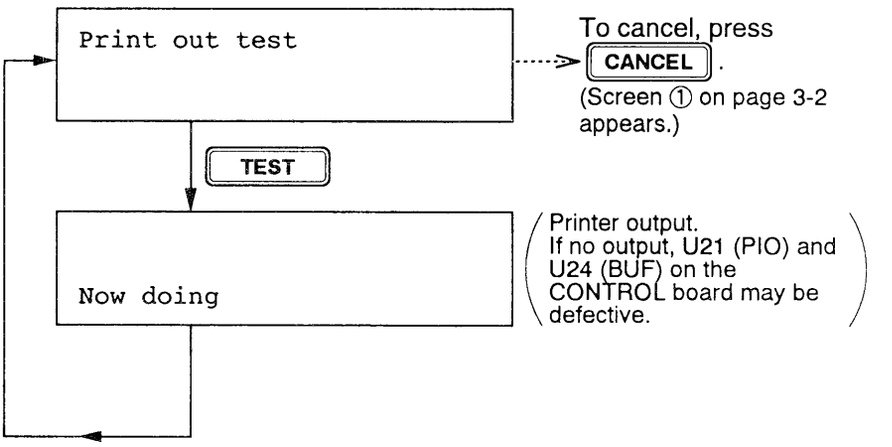
7. "K" (Keyboard Test)



8. "D" (LCD Test)...48 segments test

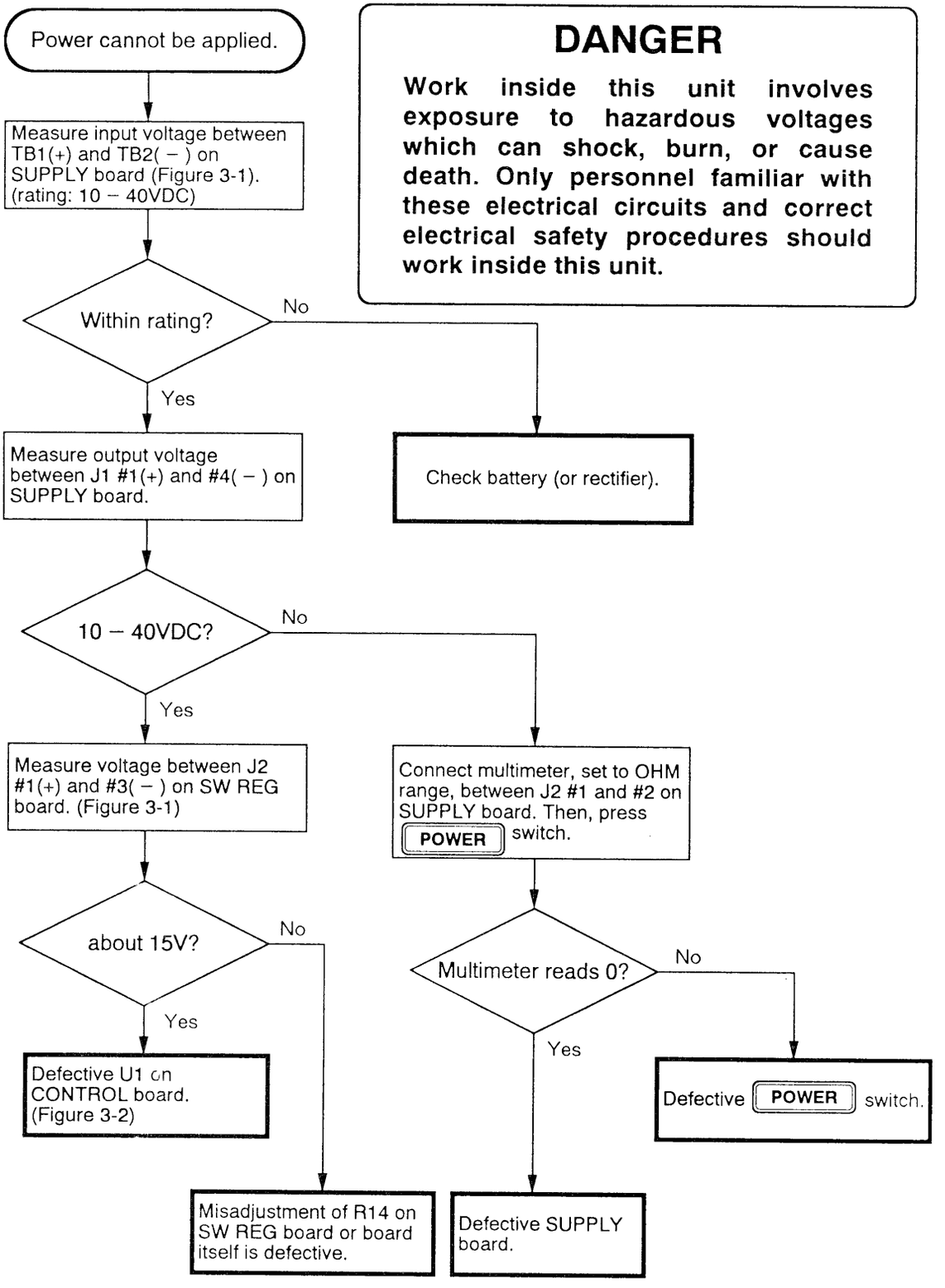


9. "P" (Printer Output Test)



2. TROUBLESHOOTING

This section shows how to check the power circuit. Before checking the power circuit, be sure the breaker (2A) on the rear panel has not tripped. (Power cannot be applied if it has tripped.)



DANGER

Work inside this unit involves exposure to hazardous voltages which can shock, burn, or cause death. Only personnel familiar with these electrical circuits and correct electrical safety procedures should work inside this unit.

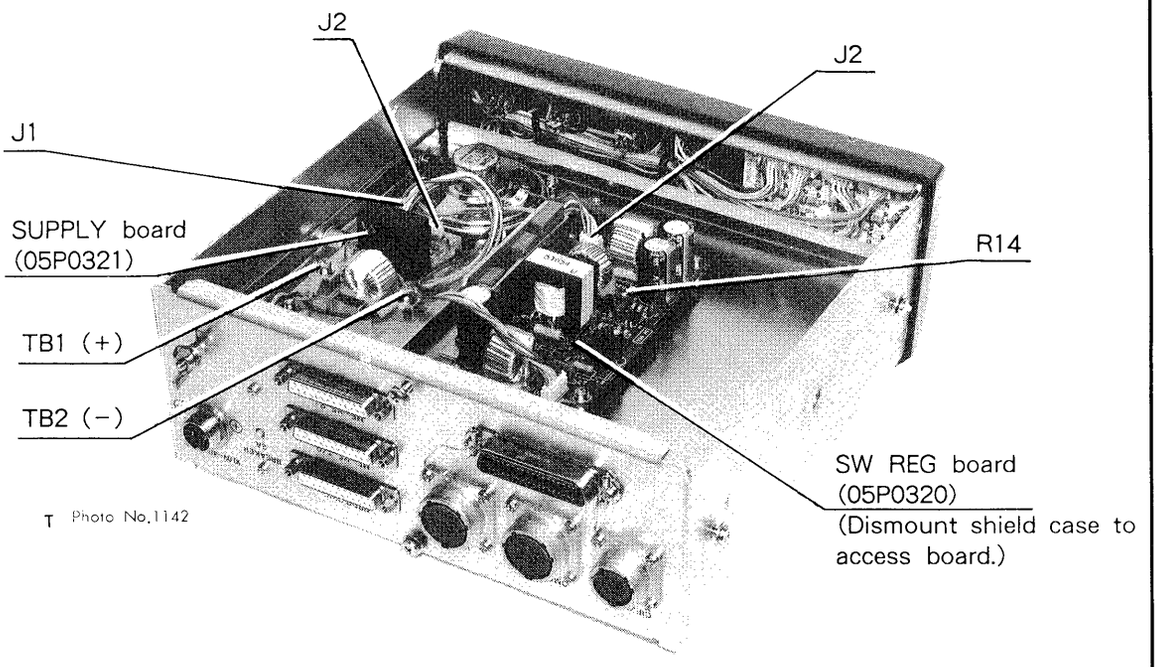


Figure 3-1 Bottom View

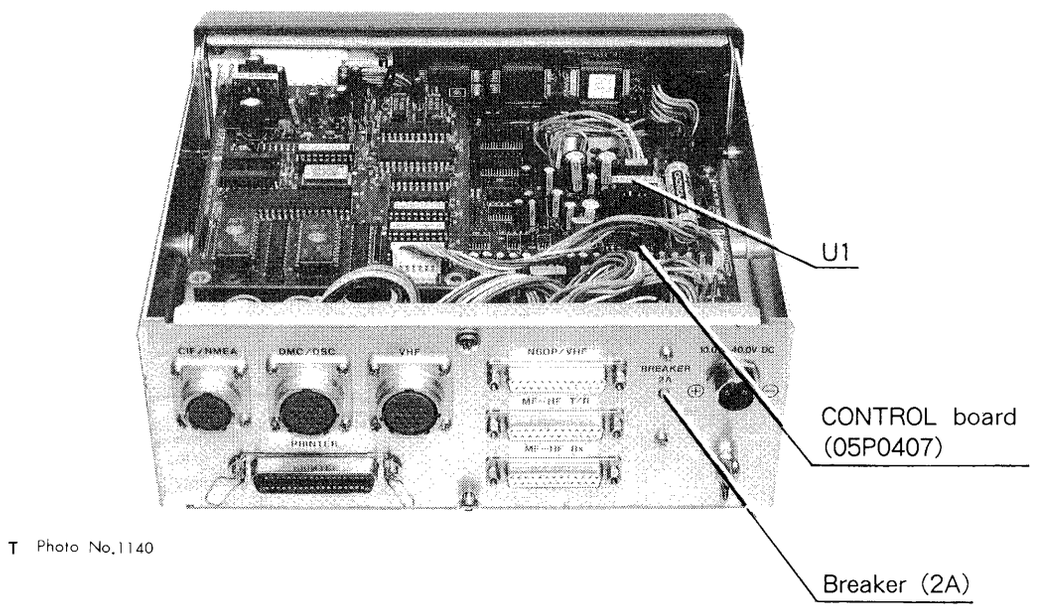


Figure 3-2 Top View

CHAPTER 4. INSTALLATION

1. MOUNTING LOCATION

The DSC-5 can be mounted on the overhead, on a tabletop, to a bulkhead, or in a panel (flush mount). Select a location where the controls can easily be operated and where maintenance and checking can be easily performed. Be sure to provide enough space around the unit so connectors on the rear panel can be easily reached for checking and maintenance. Also, be sure the mounting location is strong enough to support the weight of the unit (3.9kg w/hanger). Other important points to keep in mind when selecting a mounting location are as follows:

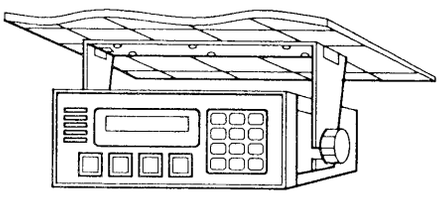
- Select a place free from water splash and rain.
- Avoid places where humidity and temperature change regularly.
- Locate the unit away from exhaust vents.
- Select a well-ventilated area.
- Select a location where vibration and shock are minimal.

The DSC-5R is designed for rack mounting.

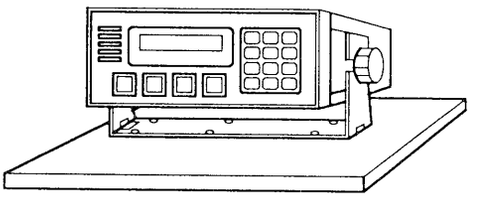
Compass Safe Distance

The performance of a magnetic gyrocompass will be affected if it is too near this unit.
The following are the minimum distances the gyrocompass should be separated from the DSC-5/5R:

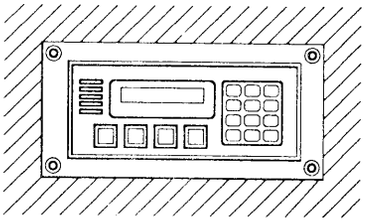
(Standard compass: 0.8m
Steering compass: 0.5m)



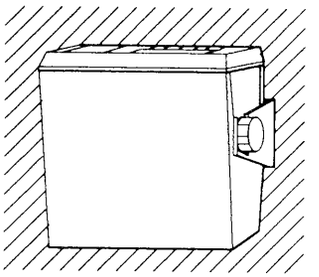
Overhead



Tabletop

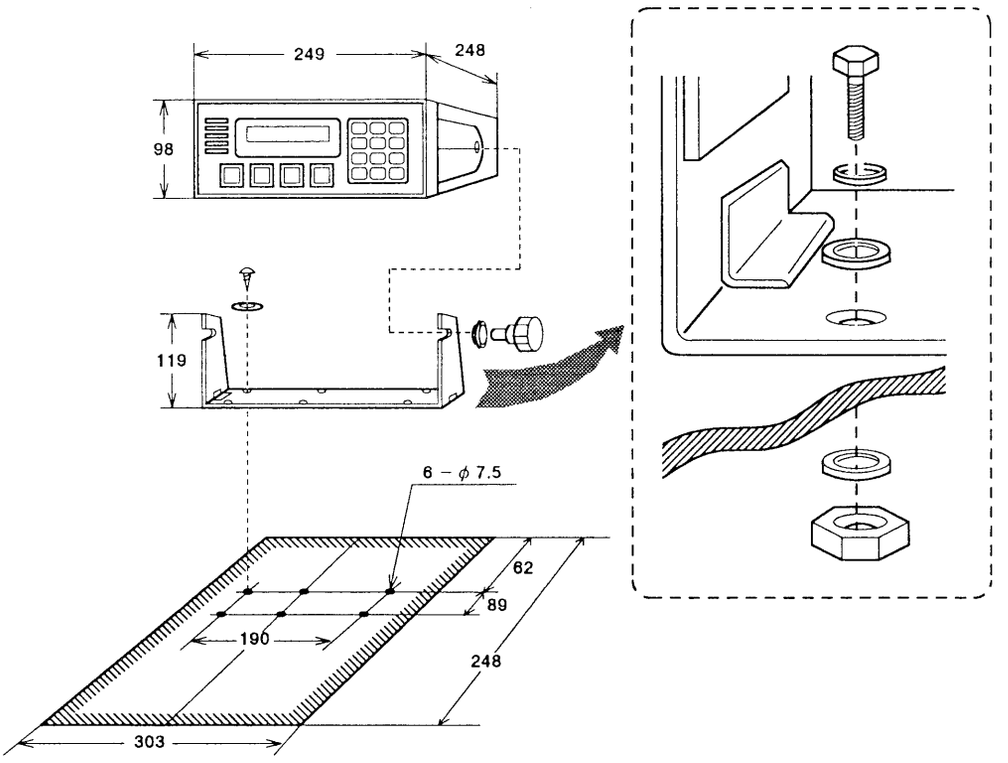


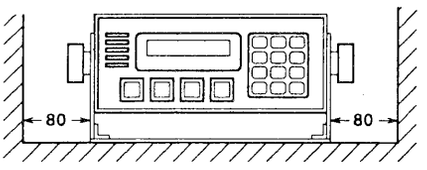
Panel

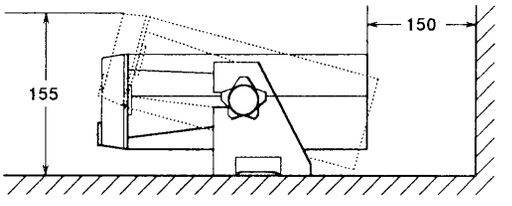


Bulkhead

2. MOUNTING







◇ All dimensions in millimeters.
◇ Leave sufficient space at the sides and rear of the unit for maintenance and checking.
◇ For thin bulkheads or overhead, use nuts and bolts instead of woodscrews.

3. PANEL MOUNTING

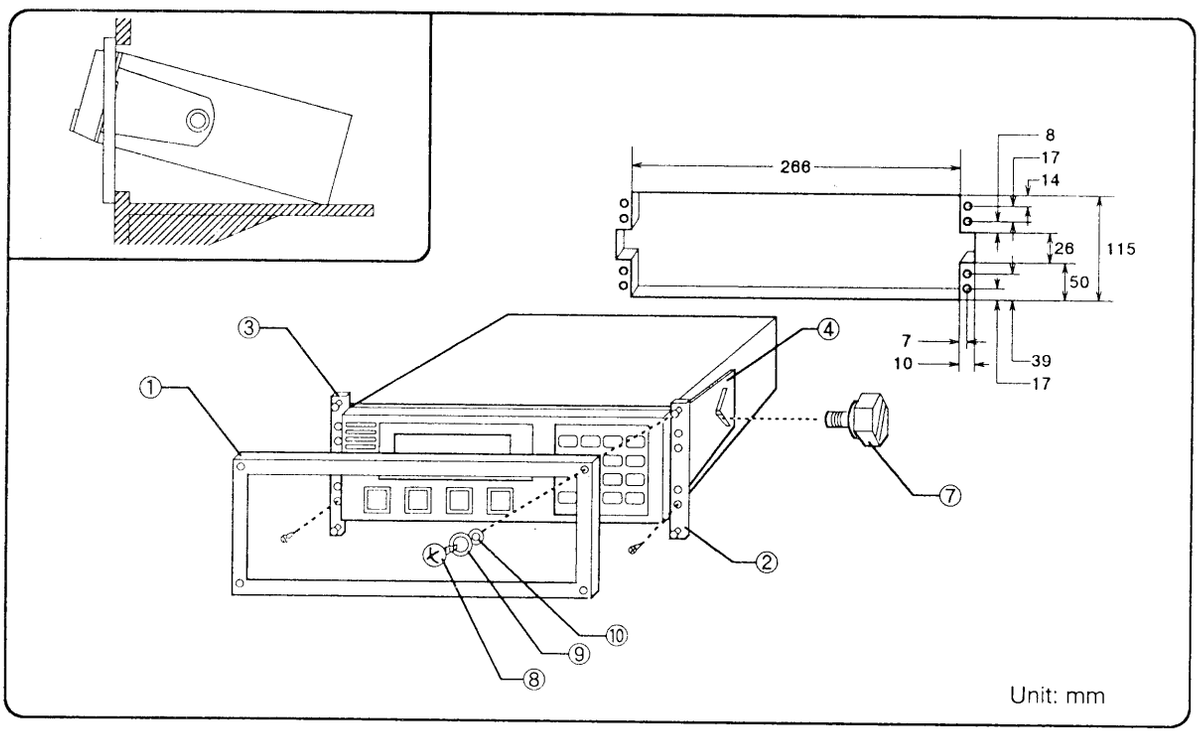
For panel mounting the optional flush mount kit (OP05-16, code no. 005-923-960) is required. Note that the kit does not provide the screws for fixing the left and right chassis (② and ③ in the table below).

Although the DSC-5 weighs just 3.3kg, be sure the mounting location is strong enough to support the weight of the unit. The figure below shows how to reinforce the mounting location.

Contents of Flush Mount Kit

No.	Name	Type	Code No.	Qty
①	Flush Mount Panel		100-105-470	1
②	Flush Mount Chassis (R)		100-105-480	1
③	Flush Mount Chassis (L)		100-105-490	1
④	Flush Mount Liner		100-105-500	2
⑤	Hex Head Screw	M8 × 16	000-882-160	2
⑥	Hex Head Screw	M8 × 20	000-802-248	2
⑦	Hex Head Screw	M8 × 25	000-882-161	2
⑧	Round Head Screw	M3 × 8	000-861-495	4
⑨	Rosette Washer	M3	000-864-900	4
⑩	Nylon Washer	2.8 × 7 × 0.5	000-800-728	4

NOTE: This kit is common to other FURUNO equipment. Six hex head screws are supplied, but the DSC-5 uses only hex head screw no. ⑦.



4. CONNECTIONS

All connectors are on the rear panel.

1. Power Cable

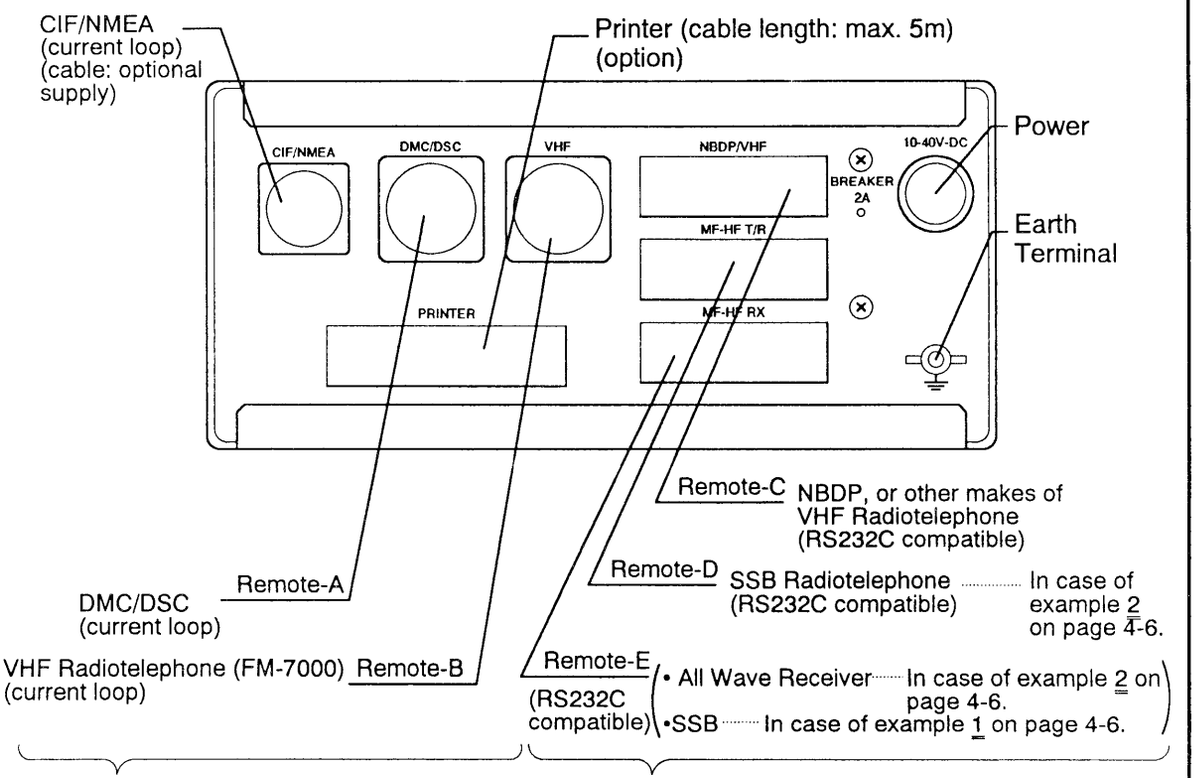
A power cable w/connector (length: 3m) comes with the DSC-5. The DSC-5R comes with power cables for both AC and DC mains.

2. Earth

Run the copper strap (supplied) between the nearest grounding point and the earth terminal on the rear of the unit.

3. External Equipment

DSC-5 Rear View

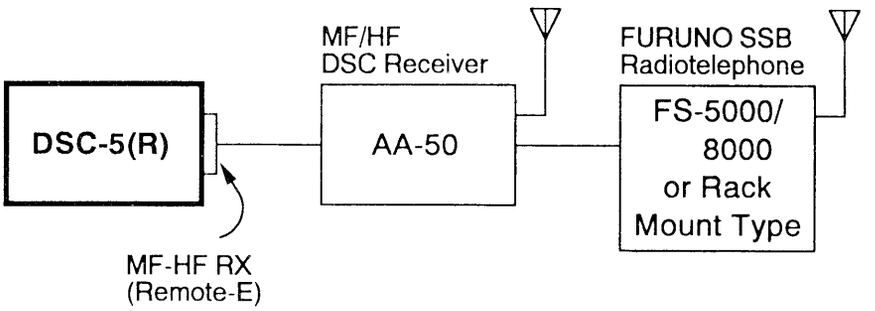


Connection cable (10 pair cable) optionally supplied and available in lengths from 1 to 50m. (armor cable can also be supplied.) Connection cable with connector at both ends also available.

Connection cable (13 pair cable) optionally supplied and available in lengths of 1m, 3m or 5m. Connection cable with connector at both ends also available.

Note: After installing the unit initialize it referring to chapter 5 (SYSTEM INITIALIZATION).

Connection Example 1 (MF/HF)

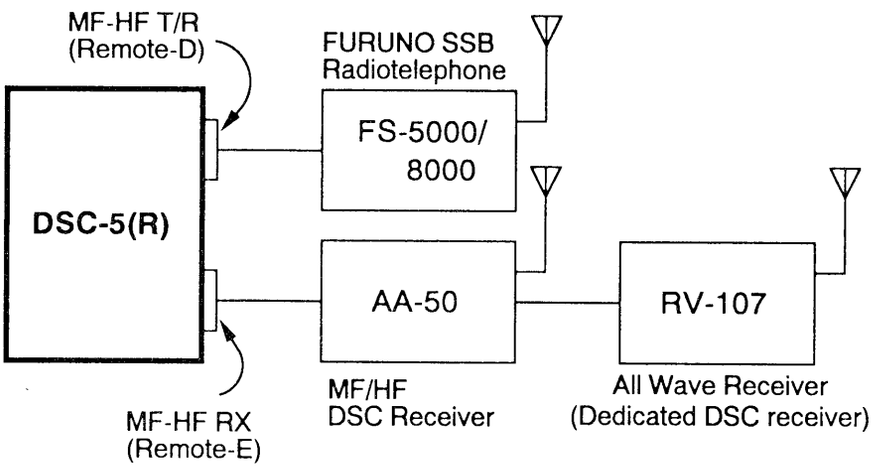


Output Port	Output Data
Remote-E	①Key Lock Command (FZ/DR) ②Class of Emission ③TX and RX DSC Frequency ④Working Frequency (TX and RX) ⑤Tuning Command (TU)

If frequency scanning is initiated at the DSC-5(R), the FS-5000/8000 monitors RX DSC general frequency.

(The above data are set automatically only on new FURUNO equipment.)

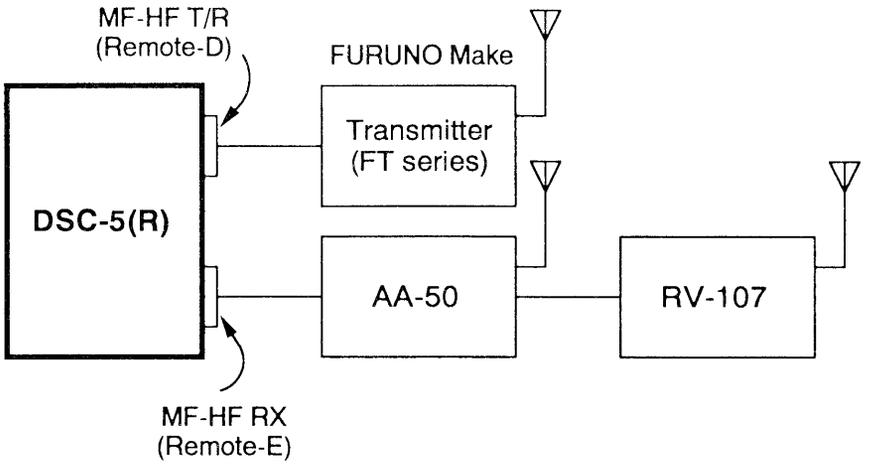
Connection Example 2 (MF/HF)



Output Port	Output Data
Remote-D	①Key Lock Command (FZ/DR) ②Class of Emission ③TX DSC (calling) Frequency ④Working Frequency (TX and RX) ⑤Tuning Command (TU)
Remote-E	①Class of Emission ②RX DSC Frequency

(The above data are set automatically only on new FURUNO equipment.)

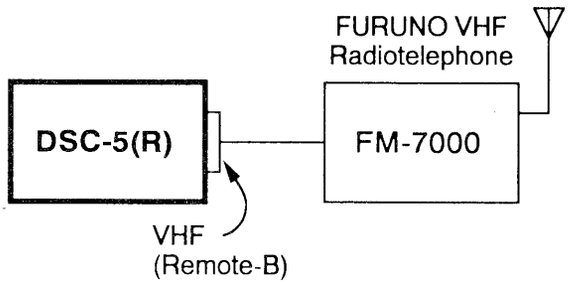
Connection Example 3 (MF/HF)



Output Port	Output Data
Remote-D	①Key Lock Command (FZ/DR) ②Class of Emission ③TX DSC Frequency ④TX Working Frequency ⑤Tuning Command (TU)
Remote-E	①Class of Emission ②RX DSC Frequency ③RX Working Frequency

(The above data are set automatically only on new FURUNO equipment.)

Connection Example 4 (VHF)



Output Port	Output Data
Remote-B	①Key Lock Command (FZ/DR) ②Type of Communication ③DSC Channel ④Working Channel

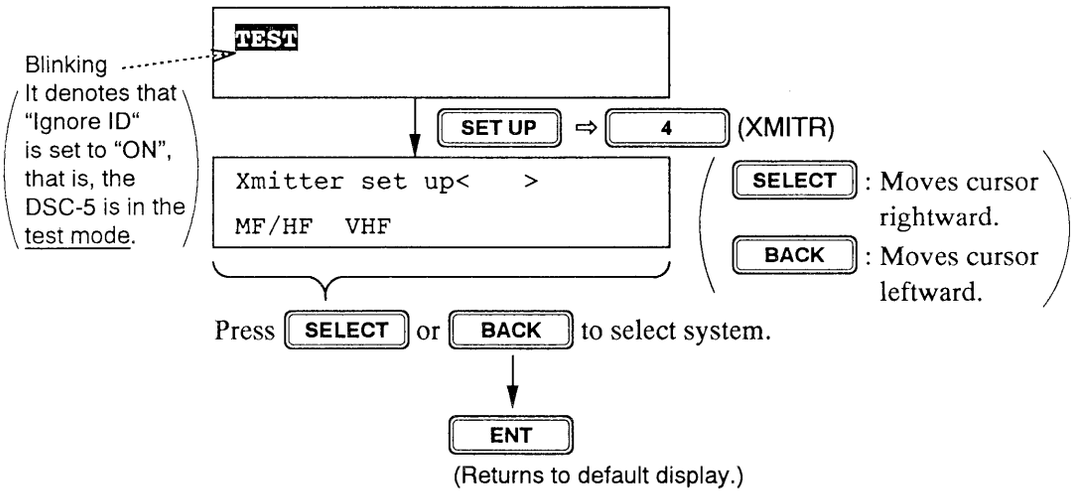
CHAPTER 5. SYSTEM INITIALIZATION

1. REGISTERING OWN SHIP'S ID

Own ship's ID Code is registered by authorized Furuno agents and dealers. (How to register Own ship's ID Code is described in the Service Manual of DSC-5/5R.)

2. SELECTING COMMUNICATION SYSTEM · · · · · · [SET UP] ⇨ [4]

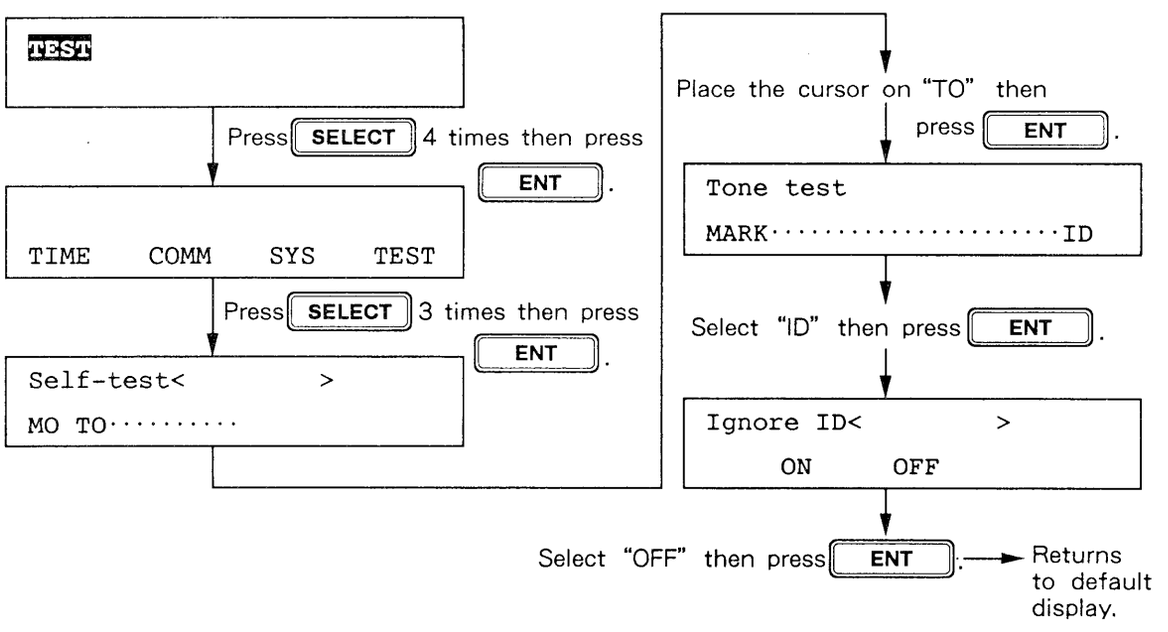
Select the communication system (MF/HF or VHF) to be used with the DSC-5(R).
Note that if "Ignore ID" in the self-test is set to "OFF" by following the procedure shown on the lower half of this page, the screen should look something like the figure shown on the next page, when pressing the [SET UP] and [4] keys to select VHF receiver.



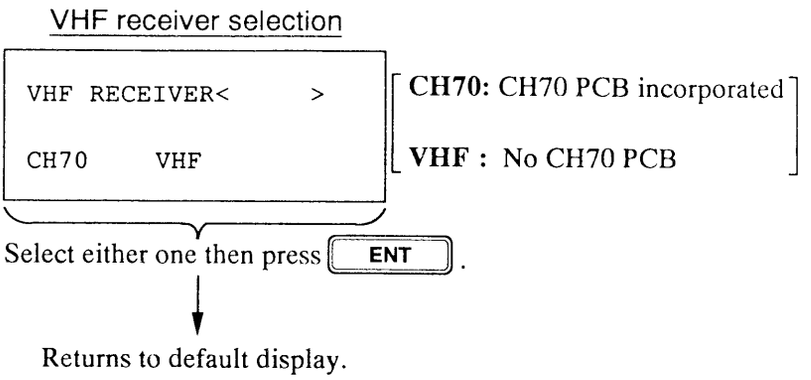
IMPORTANT **...After terminating above setting and System Setting on page 5 – 4, set the "Ignore ID" in the self-test to "OFF" by following the procedure below.**

Following this procedure inhibits access to the following **four settings**. Therefore, **confirm the settings before following this procedure.**

1. Communication system selection.
2. Settings in the "COMM" menu.
3. Tx-key timing setting in the "SYS" menu.
4. Tone test operation in the self-test.



When "Ignore ID" is set to "OFF" (normal condition), the following display appears when pressing the SET UP and 4 keys in this order, if VHF is connected.



When you change the setting here the "REMOTE-B" setting on page 5-6 is also changed automatically.

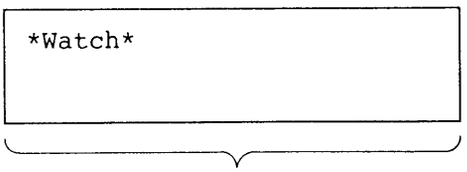
If two VHF radiotelephones are installed, you should select this setting as follows:

Main (No.1)VHF····"CH70"
Sub (No.2)VHF····"VHF"
⇒ When No. 1 VHF fails, use No. 2 VHF, after interchanging these settings.

Note: When you select both No. 1 and No. 2 VHFs to "CH70," No. 2 VHF receives messages (except for individual call) from the No.1 VHF.

3. SYSTEM SETTINGS

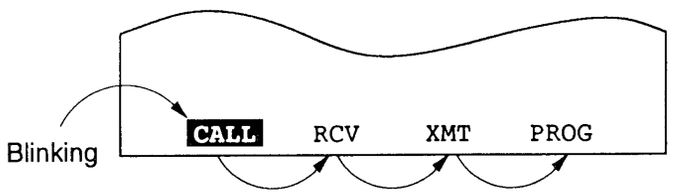
Prior to system settings shown below, set scan frequencies for MF/HF connection, referring to page 1-31.



DEFAULT DISPLAY

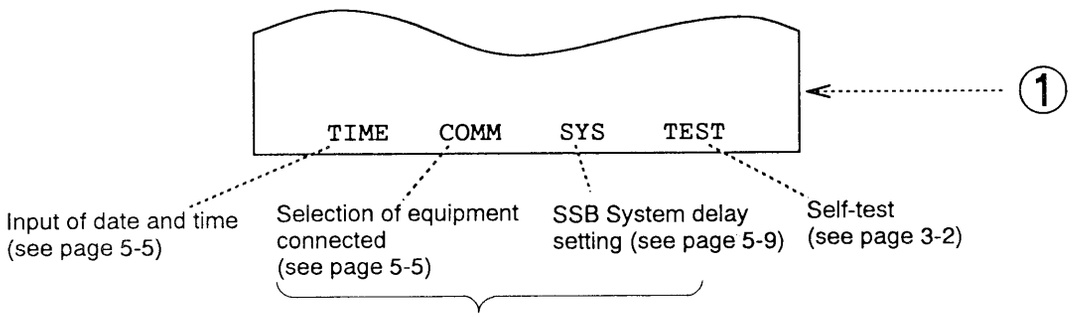
(Procedure)

(1) Press the SELECT key at the default display.



Press the SELECT key 3 times to select "PROG."

(2) Press the ENT key.

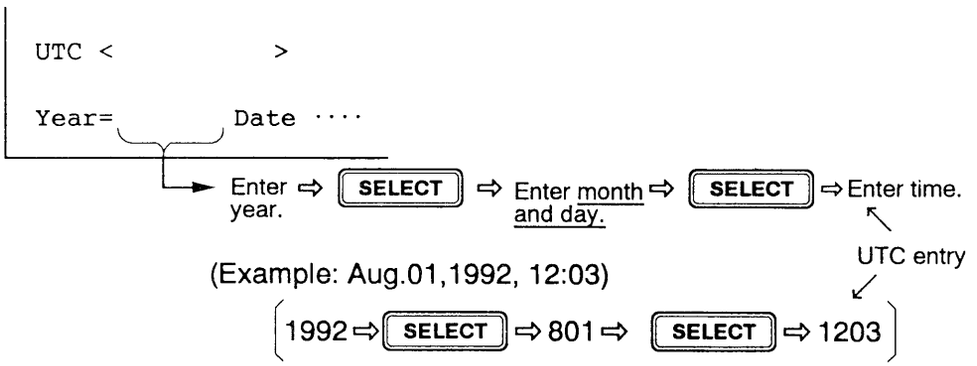


Select item desired by SELECT or BACK.

TIME

(Procedure)

(1) Select "TIME" at screen ① on page 5-4 then press the [ENT] key.

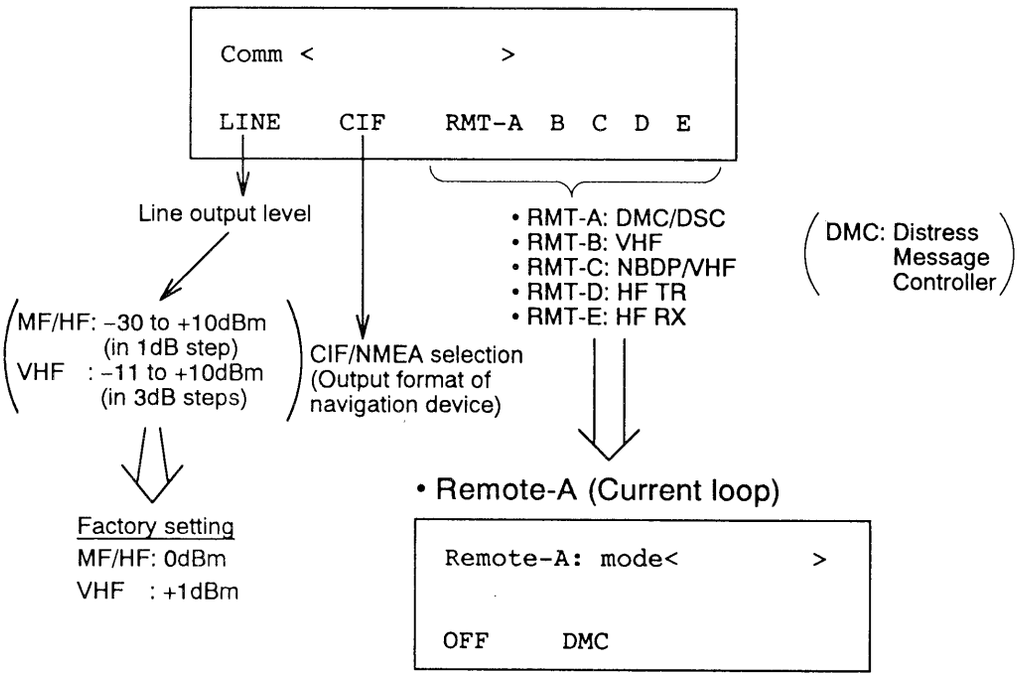


(2) Press the [ENT] key. The default display appears.

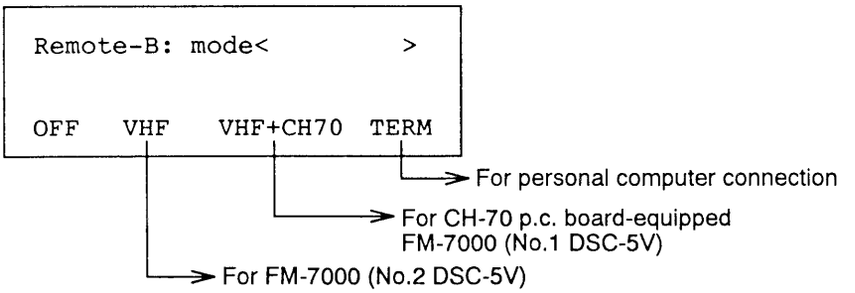
COMMUNICATION

(Procedure)

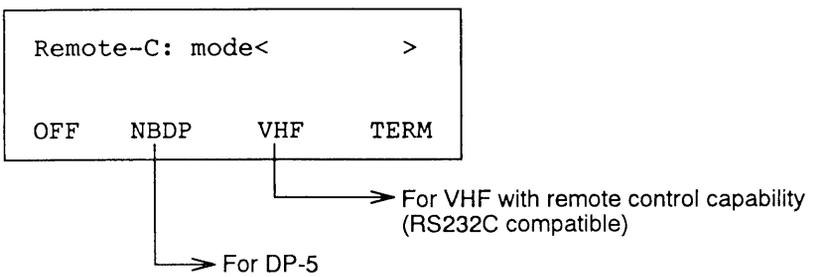
(1) Select "COMM" at screen ① on page 5-4 then press the [ENT] key.



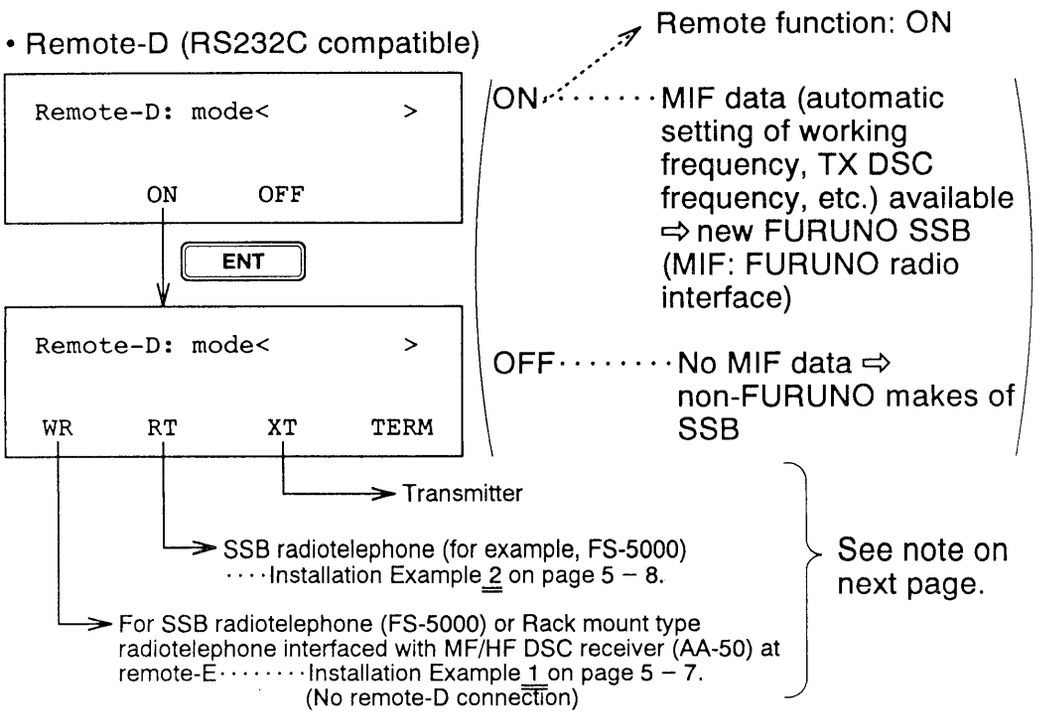
• Remote-B (Current loop)



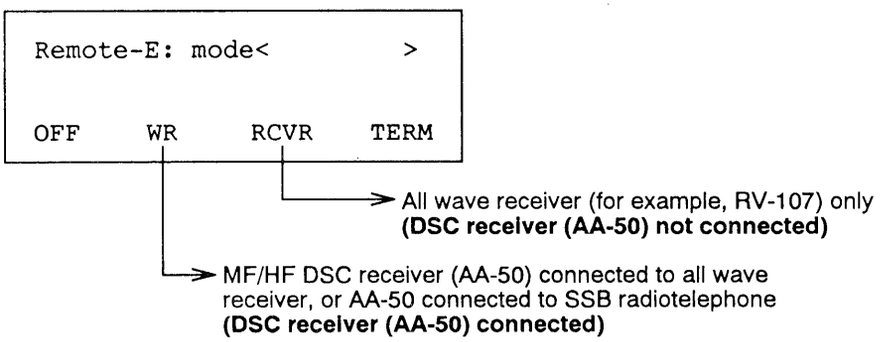
• Remote-C (RS232C compatible)



• Remote-D (RS232C compatible)



• Remote-E (RS232C compatible)

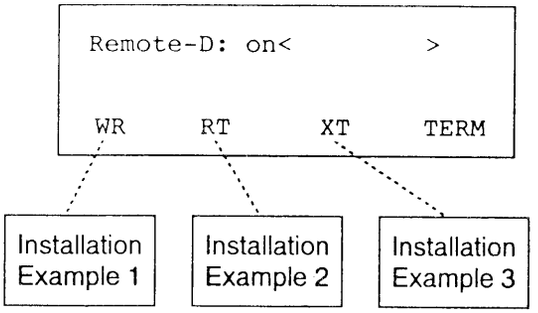


(2) Select item desired (LINE, CIF, Remote-A/B/C/D/E) then press the ENT key. Note that if equipment is not connected to the remote terminal (ex. no connection of DP-5 to Remote-C terminal), the terminal should be set to "OFF".

(3) Select setting then press the ENT key. The default display appears.

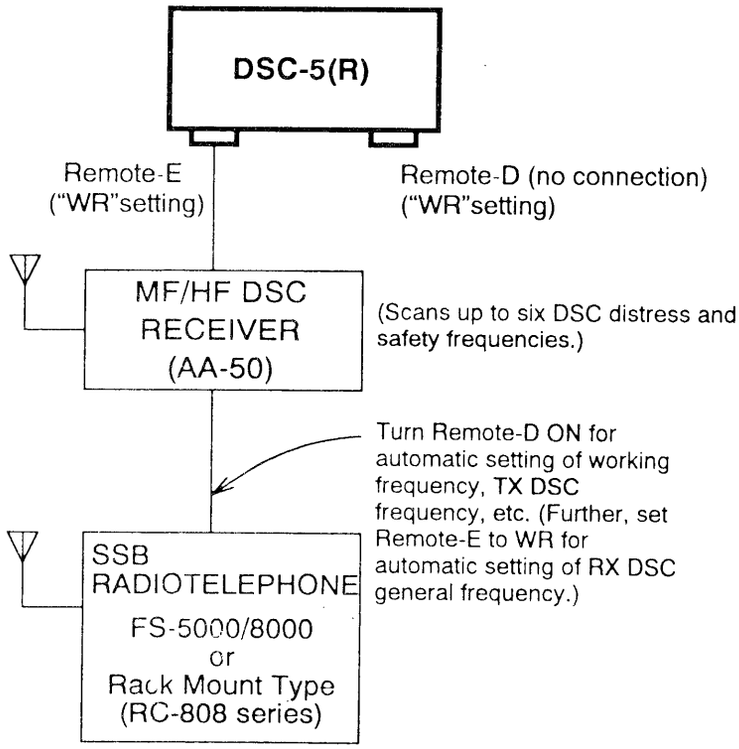
(4) To select other items, return to step 1.

NOTE: Select "Remote-D" setting depending on installation.
"Remote-D" setting changes the output data from both the remote-D and remote-E terminals.



Installation Example 1

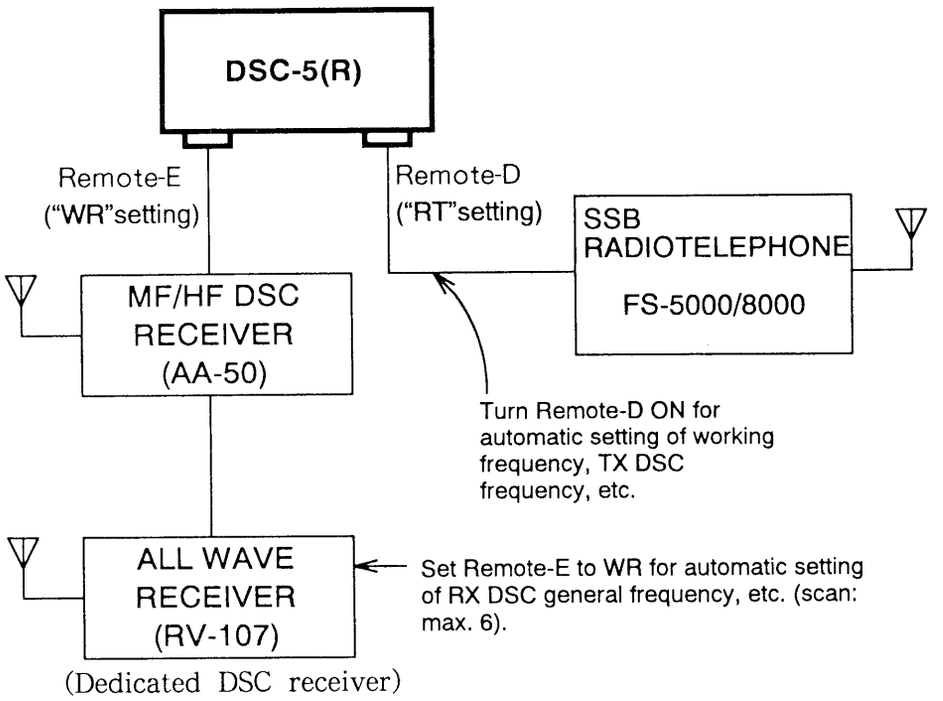
(Transmission and reception of DSC and working frequencies by one FS-5000.)



(In this configuration, the SSB transmits and receives DSC frequencies. Namely, it can monitor up to six DSC general frequencies.)

Installation Example 2

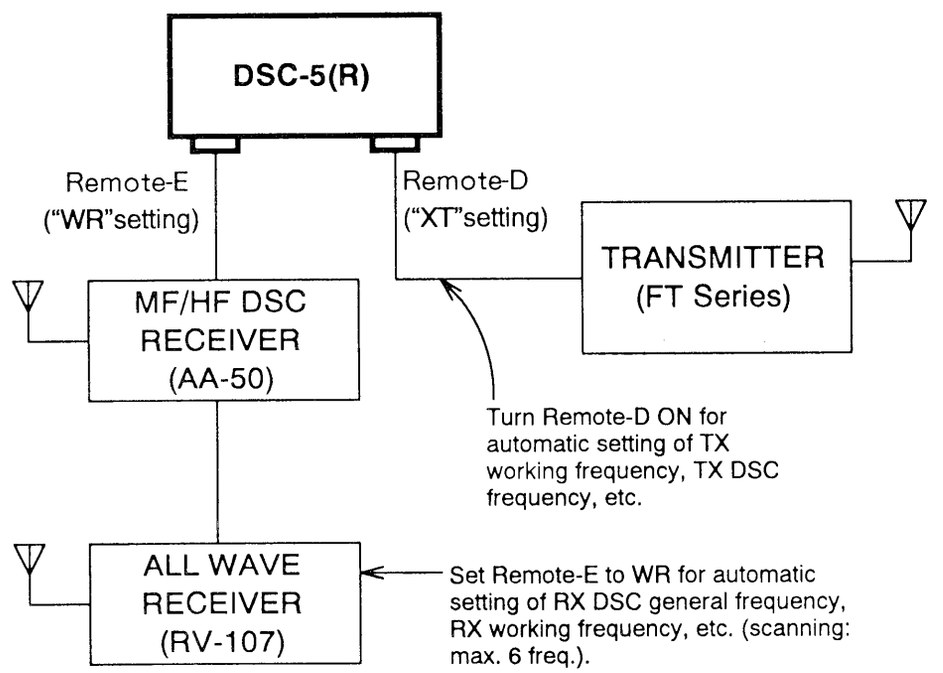
(Dedicated DSC receiver · · · · For DSC general frequency)



(Dedicated DSC receiver)

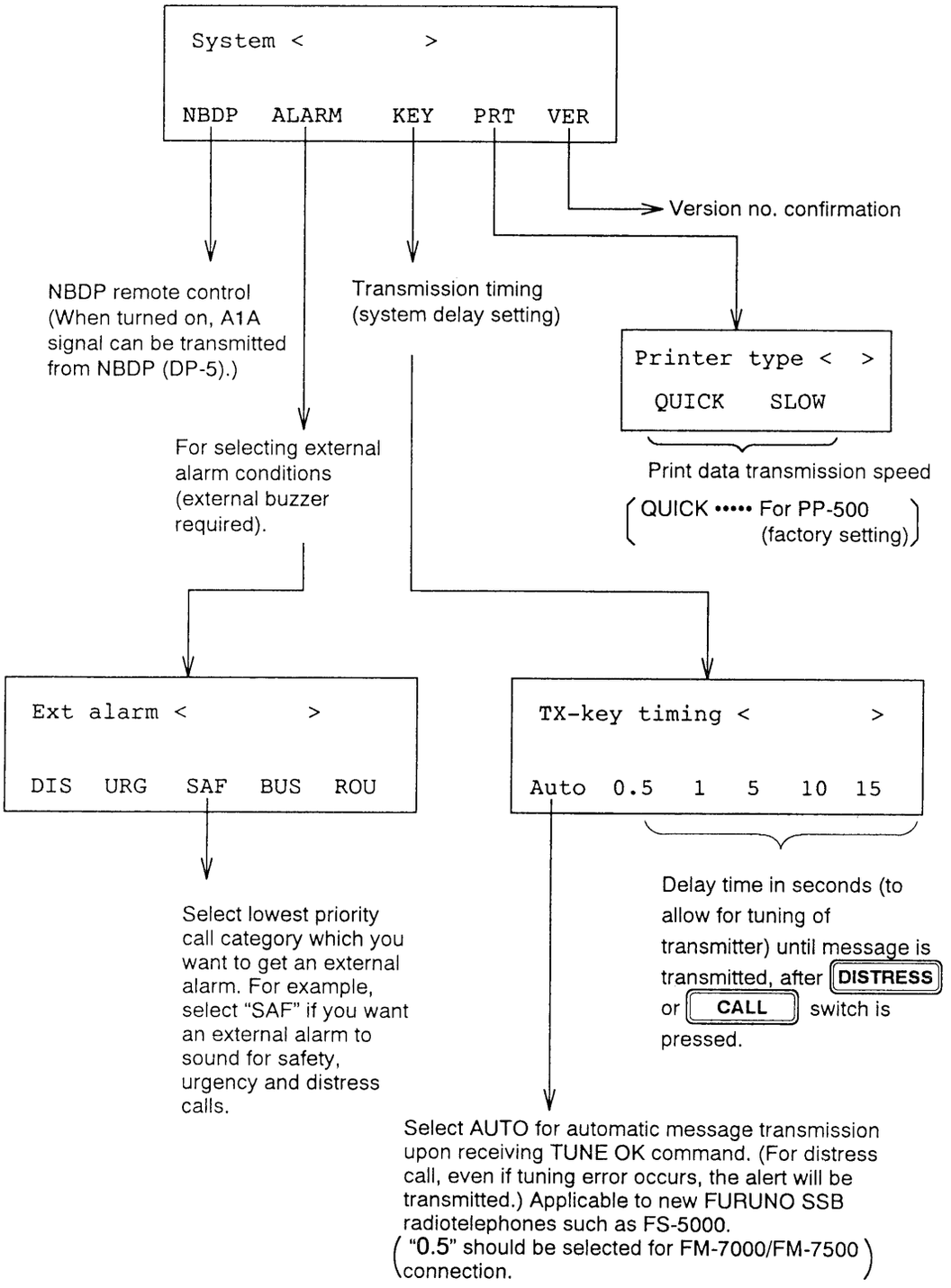
Installation Example 3

(Separate receiver and transmitter)



SYSTEM SETTINGS

(1) Select "SYS" at screen ① on page 5-4 then press ENT key.



(2) Select item desired (NBDP, ALARM, KEY, VER) then press the ENT key.

(3) Select setting then press the ENT key. The default display appears.

NOTE: Tune distress and safety frequencies beforehand (first time tuning: within 15 seconds).

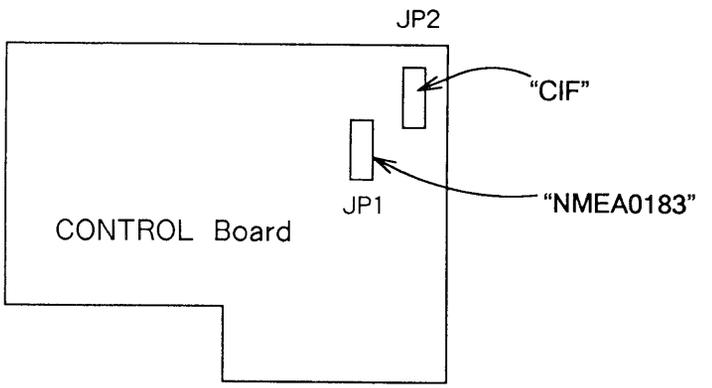
DISTRESS AND SAFETY FREQUENCIES (kHz)

DSC	J3E	TELEX
2187.5	2182	2174.5
4207.5	4125	4177.5
6312	6215	6268
8414.5	8291	8376.5
12577	12290	12520
16804.5	16420	16695

4. SELECTING NAVIGATION DATA INPUT FORMAT (NMEA/CIF)

The DSC-5(R) can receive L/L position data from a navigation device which outputs such data in NMEA or CIF format. Set up the DSC-5(R) according to the output format of the navigation device connected.

1. Jumper Setting on CONTROL Board



Input Format	JP1	JP2	
CIF	Open	Short	
NMEA	Short	Open	<·····Factory setting

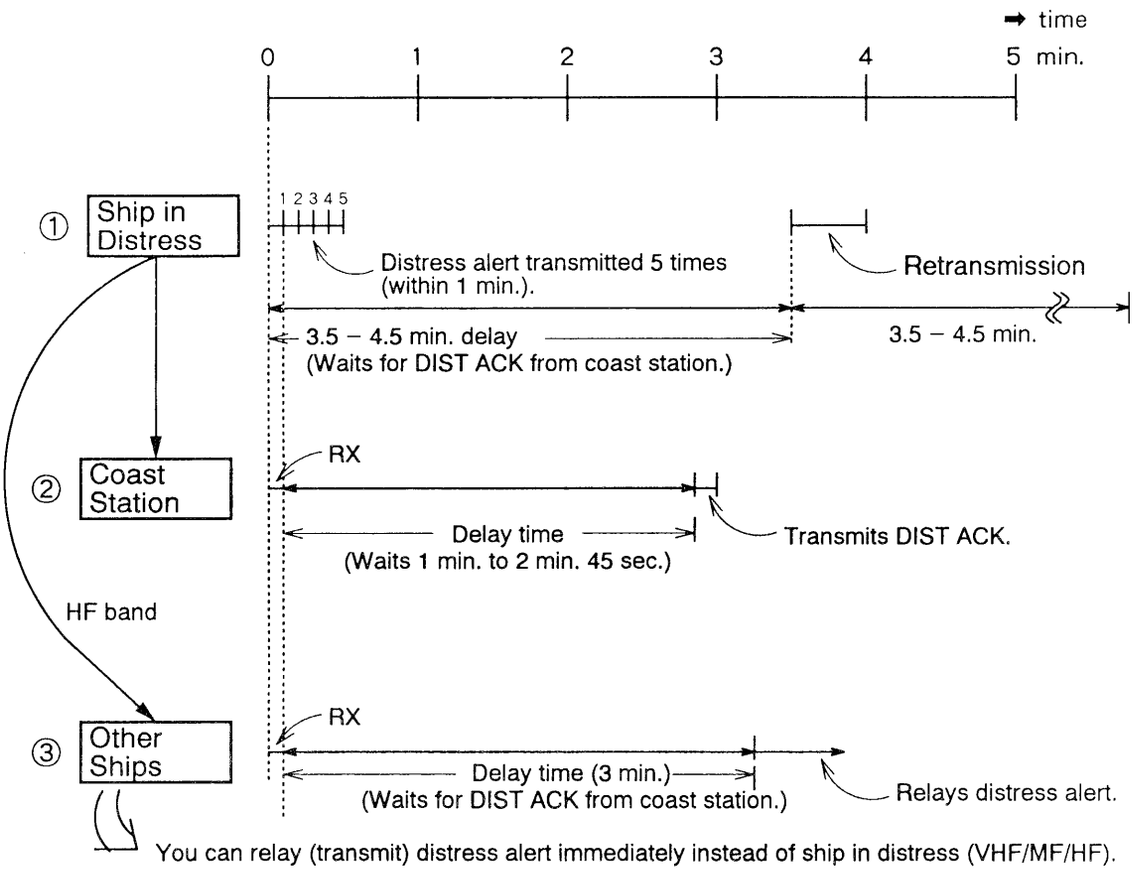
2. System Setting

Select NMEA (or CIF) at "COMM" menu (see page 5-5).

CHAPTER 6.
DSC SYSTEM REGULATIONS

This chapter presents the regulations of the Digital Selective Calling system.

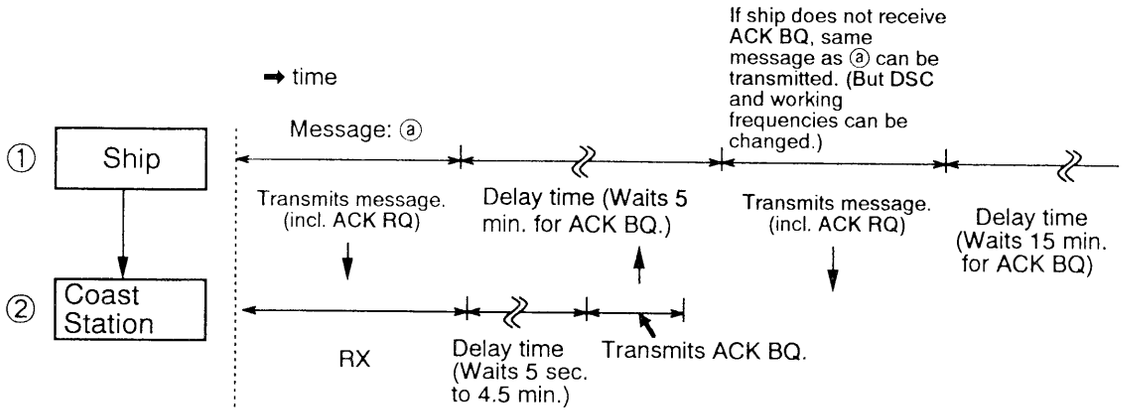
1. Distress Call (MF and HF bands)



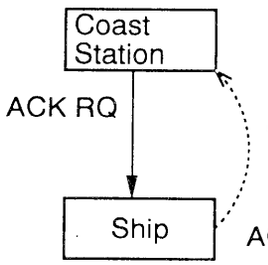
	Regulation
① Ship in distress	The time between first and subsequent transmissions of the distress alert is 3.5 – 4.5 minutes and is set randomly. If the distress call is not acknowledged within that interval it is retransmitted automatically, until acknowledged (distress acknowledge (DIST ACK) signal is received by ship in distress).
② Coast station	After receiving distress alert, coast station waits 1 minute to 2 minutes 45 seconds before transmitting DIST ACK signal. (For VHF, coast station transmits DIST ACK signal as soon as practical.)
③ Other ships (distress relay) (For reception on HF band)	After receiving distress alert, ship automatically waits 3 minutes for acknowledgement of alert by coast station. If coast station does not acknowledge the call within that interval ship relays it to coast station. Of course, if ship in distress receives DIST ACK signal from coast station within that interval distress relay by other ships is not necessary.

2. Individual (routine) Call

(Format Specifier: "INDIVIDUAL"
Category: "SHIPS BUSINESS" or "ROUTINE")



	Regulation
①Ship	After transmitting acknowledge request (ACK RQ) signal ship waits 5 minutes for acknowledge back (ACK BQ) signal from coast station. If ship does not receive ACK BQ signal within 5 minutes, it can retransmit message (ACK RQ signal) by pressing the CALL switch. Then the ship waits for 15 minutes for ACK BQ signal. In both cases the timer counts down time remaining. (But if the ship transmits the message to a different station, "Wait" time (5 minutes/15 minutes) is not necessary.)
②Coast station	After receiving ACK RQ signal, coast station waits 5 seconds to 4 minutes 30 seconds before transmitting ACK BQ signal to ship. (For DSC-5 (R), if more than 5 minutes elapses after reception, coast station transmits message as ACK RQ signal (not ACK BQ).)



⇨ Similar to the above situation, a ship, after receiving ACK RQ signal, waits 5 seconds to 4 minutes 30 seconds before transmitting ACK BQ signal to coast station. (For DSC-5 (R), if more than 5 minutes elapses after reception, ship transmits message as ACK RQ signal (not ACK BQ).)

3. Ship Transmitted Distress Acknowledge (VHF and MF only)

Your vessel can transmit the distress acknowledge **only in the following circumstances.**

If you receive a distress call on a frequency band other than HF;

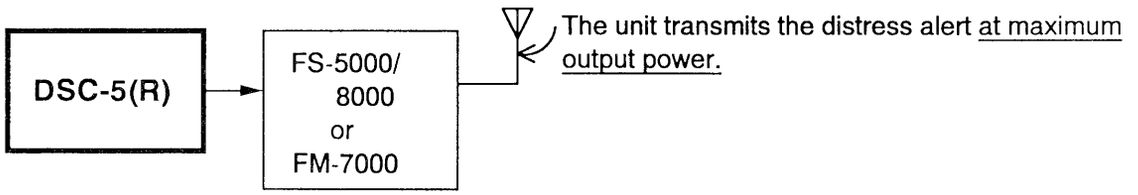
① For A1 and A2 ocean areas where it is possible to communicate with coast station

Wait a reasonable amount of time for the coast station to transmit the distress acknowledge to the ship in distress. If the coast station does not respond, first try to transmit the distress acknowledge to ship in distress by radiotelephone. If it does not succeed, transmit it by the DSC-5.

② For A3 and A4 ocean areas where it may not be possible to communicate with coast station

If the ship in distress is near own ship and obviously cannot communicate with the coast station on the frequency it called on, your vessel should first try to transmit the distress acknowledge to ship in distress by radiotelephone. If not successful, transmit it by the DSC-5. After transmitting the distress acknowledge, relay the distress call to coast station on HF band.

4. Output Power of Distress Alert (FURUNO SSB/VHF)



5. Distress and Safety Frequency Monitoring Regulations (MF and HF)……A3/A4 sea area

Of the six distress and safety frequencies, three must be continuously monitored (Of the three, two must be 2187.5kHz and 8414.5kHz.) (A1: CH70 only, A2: 2187.5kHz only)

6. Transmission Flow of a Message

(for example, individual call…… 「Installation Example 2」 on page 5-8)

① Press the CALL switch.
② Transceiver sets TX DSC frequency.
③ Transceiver is tuned.
④ Receiver stops scanning and TX DSC frequency is set on receiver. (To check if TX DSC frequency is occupied. See NOTE.)
⑤ If unoccupied, receiver sets RX DSC frequency.
⑥ "RX MUTE" and "TX KEY" go ON in that order.
⑦ Message is transmitted.
⑧ "TX KEY" and "RX MUTE" go OFF in that order. Then, the unit awaits the ACK BQ signal.
⑨ After receiving ACK BQ signal, receiver restarts scanning and transceiver sets working frequencies.

NOTE: For distress call it is not necessary to monitor TX DSC frequency before transmitting.

7. EQUIPMENT LISTS

Page

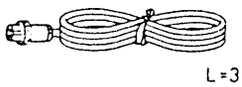
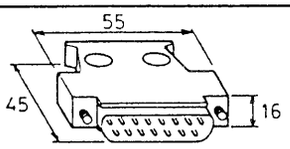
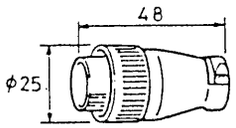
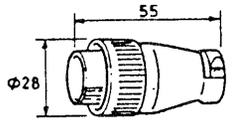
DSC-5 COMPLETE SET

No.	Name	Type	Wt.	Qty	Remarks
1	Main Unit	DSC-5	3.3kg	1	Weight w/hanger: 3.9kg
2	Installation Materials			1 set	
3	Accessories			1 set	
4	Rectifier	PR-62	3kg		Option (AC → DC)
5	Printer	PP-500	5kg		Option
6	Transistor Inverter	TR-2407			Option (to operate printer on DC)
7	Flush Mount Kit	OP05-16			Option (for flush mounting main unit)

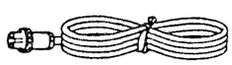
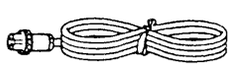
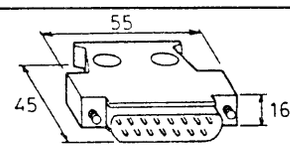
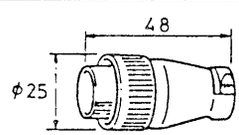
DSC-5R COMPLETE SET

No.	Name	Type	Wt.	Qty	Remarks
1	Main Unit	DSC-5R	6.5kg	1	
2	Installation Materials			1 set	
3	Printer	PP-500	5kg		Option

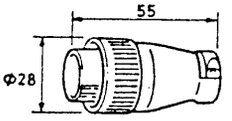
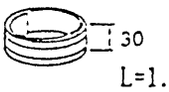
DSC-5 INSTALLATION MATERIALS

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	電源ケーブル DC用 POWER CABLE		VCTF0.75×2C *3m* 05S0441-1 CODE No. 000-112-543	1	
2	コネクタ CONNECTOR		17JE23250-02(D8C) CODE No. 000-120-946	3	"NBDP/VHF"(J5) "MF~HF T/R"(J6) "MF~HF RX"(J7)用 FOR J5,J6 & J7
3	コネクタ CONNECTOR		SRCN6A16-10P CODE No. 000-508-663	1	"NMEA/CIF"(J1)用 FOR J1
4	コネクタ CONNECTOR		SRCN6A21-16P CODE No. 000-508-664	2	"DMC/DSC"(J3) "VHF"(J4) 用 FOR J3 & J4
5	アース板 COPPER STRAP		05-003-0031-0 CODE No. 590-300-310	1	

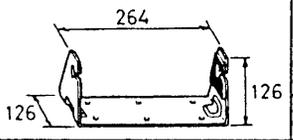
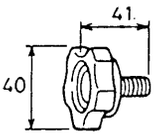
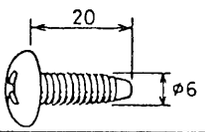
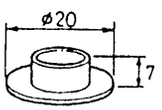
DSC-5R INSTALLATION MATERIALS

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	電源ケーブル AC用 POWER CABLE		VCTF0.5 ×3C *3m* 05S0442-1 CODE No. 000-112-542	1	
2	電源ケーブル DC用 POWER CABLE		VCTF0.75×2C *3m* 05S0441-1 CODE No. 000-112-543	1	
3	コネクタ CONNECTOR		17JE23250-02(D8C) CODE No. 000-120-946	3	"NBDP/VHF"(J5) "MF~HF T/R"(J6) "MF~HF RX"(J7)用 FOR J5,J6 & J7
4	コネクタ CONNECTOR		SRCN6A16-10P CODE No. 000-508-663	1	"NMEA/CIF"(J1)用 FOR J1

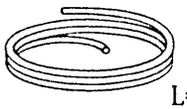
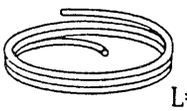
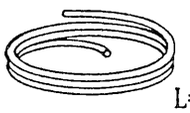
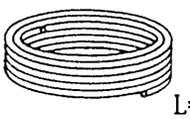
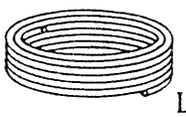
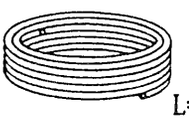
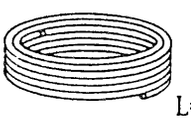
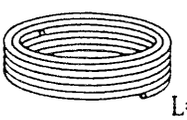
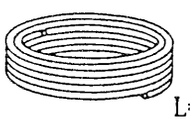
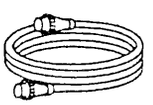
DSC-5R INSTALLATION MATERIALS

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
5	コネクタ CONNECTOR		SRCN6A21-16P CODE No. 000-508-664	2	"DMC/DSC" (J3) "VHF" (J4) 用 FOR J3 & J4
6	アース板 COPPER STRAP		05-003-0031-0 CODE No. 590-300-310	1	

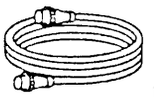
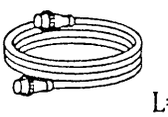
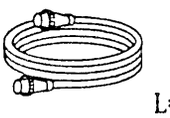
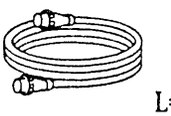
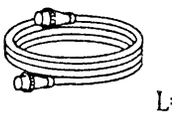
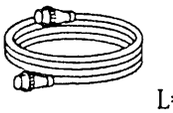
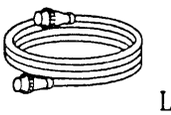
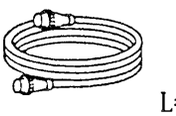
ACCESSORIES (DSC-5 only)

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ハンガー組品 HANGER ASSY.		FP05-02001 CODE No. 005-922-690	1	
2	ノブボルト KNOB BOLT		KG-B2 M8×25 CODE No. 000-801-934	2	
3	⊕トラスタッピングネジ ⊕TAPPING SCREW		6 ×20 SUS304 1種 CODE No. 000-802-084	6	
4	ハンガーワッシャ HANGER WASHER		05-029-0132-1 CODE No. 100-087-911	2	
5	ミガキ平座金 FLAT WASHER		M6 SUS304 CODE No. 000-864-129	6	

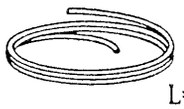
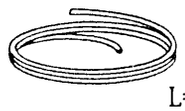
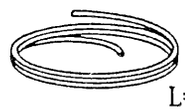
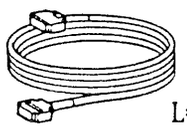
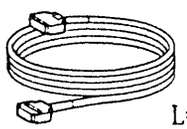
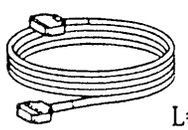
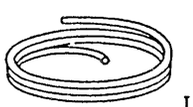
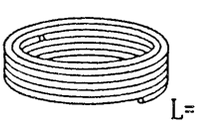
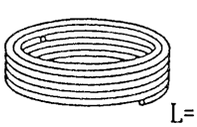
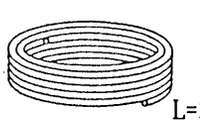
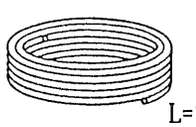
OPTIONAL INSTALLATION MATERIALS (DSC-5／5R)

番号 No.	名　称 N A M E	略　図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 R E M A R K S
1	複合10対ケーブル 10P TWISTED PAIR CABLE	 L= 1m	05S0719-0　＊ 1m ＊ CODE No. 000-122-884		何れかを選択 TO BE SELECTED (No.1－No.18)
2	複合10対ケーブル 10P TWISTED PAIR CABLE	 L= 3m	05S0719-0　＊ 3m ＊ CODE No. 000-122-885		
3	複合10対ケーブル 10P TWISTED PAIR CABLE	 L= 5m	05S0719-0　＊ 5m ＊ CODE No. 000-122-886		
4	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L= 5m	13S4012-0　＊ 5m ＊ CODE No. 000-560-421		
5	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L=10m	13S4012-0　＊ 10m ＊ CODE No. 000-560-422		
6	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L=20m	13S4012-0　＊ 20m ＊ CODE No. 000-560-423		
7	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L=30m	13S4012-0　＊ 30m ＊ CODE No. 000-560-424		
8	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L=40m	13S4012-0　＊ 40m ＊ CODE No. 000-560-425		
9	複合10対ケーブル (鎧装付き) 10P TWISTED PAIR CABLE (W/ARMOR)	 L=50m	13S4012-0　＊ 50m ＊ CODE No. 000-560-426		
10	両端コネクター付き10対ケーブル 10P CABLE W/CONNECTORS	 L= 1m	05S0720-0　＊ 1m ＊ CODE No. 000-122-887		

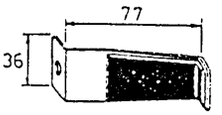
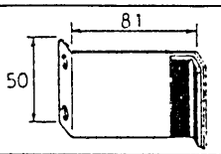
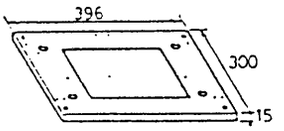
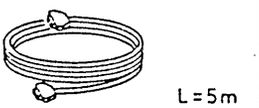
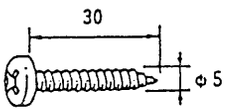
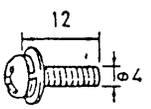
OPTIONAL INSTALLATION MATERIALS (DSC-5／5R)

番号 No.	名　称 N A M E	略　図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 R E M A R K S
11	両端コネクター付き10対ケーブル 10P CABLE W/CONNECTORS	 L= 3m	05S0720-0 * 3m * CODE No. 000-122-888	□	何れかを選択 TO BE SELECTED (No.1－No.18)
12	両端コネクター付き10対ケーブル 10P CABLE W/CONNECTORS	 L= 5m	05S0720-0 * 5m * CODE No. 000-122-889	□	
13	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L= 5m	05S0721-0 * 5m * CODE No. 000-122-890	□	
14	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L=10m	05S0721-0 * 10m * CODE No. 000-122-891	□	
15	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L=20m	05S0721-0 * 20m * CODE No. 000-122-892	□	
16	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L=30m	05S0721-0 * 30m * CODE No. 000-122-893	□	
17	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L=40m	05S0721-0 * 40m * CODE No. 000-122-894	□	
18	両端コネクター付き10対ケーブル（鎧装付き） 10P CABLE W/CONNECTORS (W/ARMOR)	 L=50m	05S0721-0 * 50m * CODE No. 000-122-895	□	

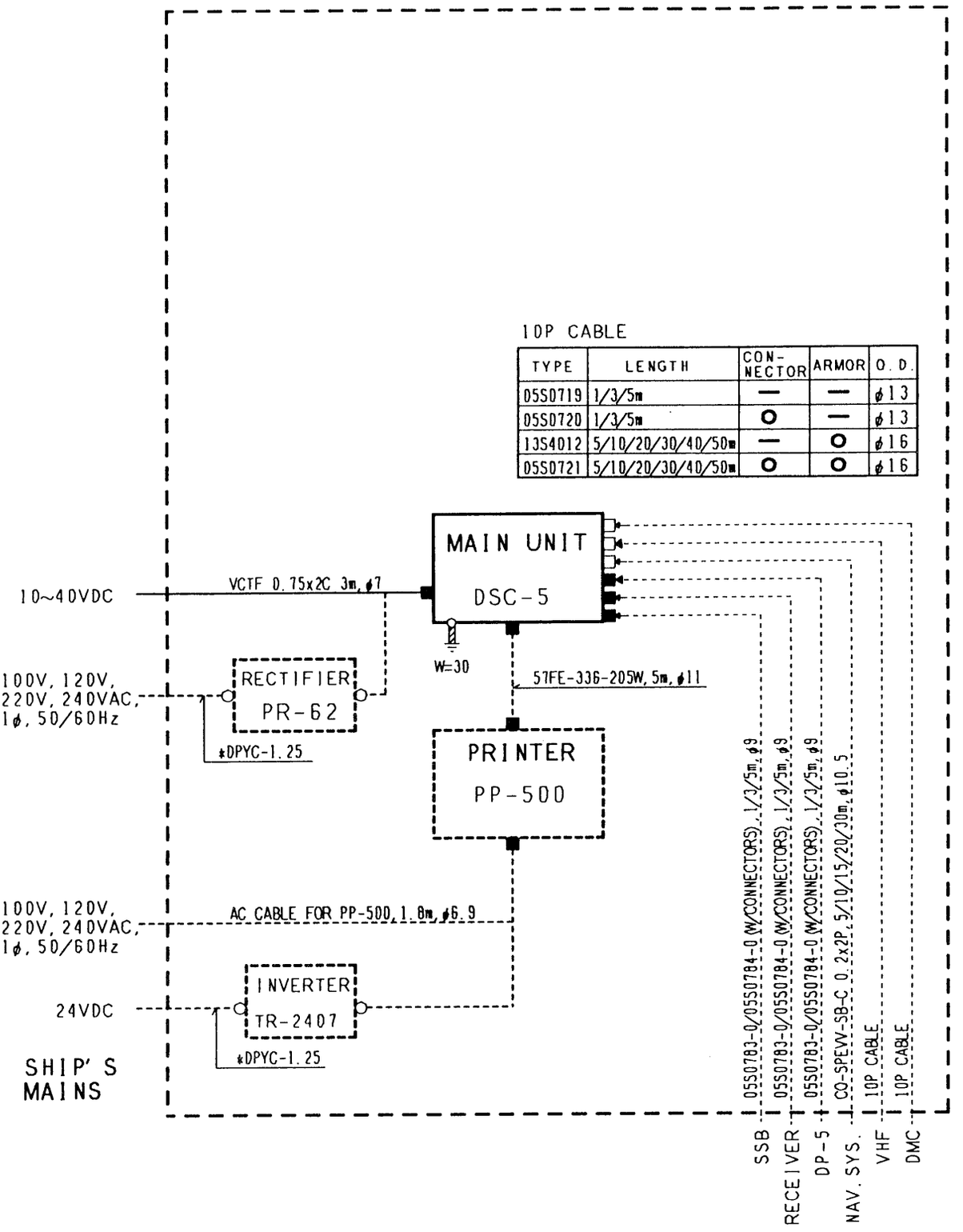
OPTIONAL INSTALLATION MATERIALS (DSC-5／5R)

番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
19	複合13対ケーブル 13P TWISTED PAIR CABLE	 L= 1m	05S0783-0 * 1m * CODE No. 000-123-571	□	何れかを選択 TO BE SELECTED (No.19－No.24)
20	複合13対ケーブル 13P TWISTED PAIR CABLE	 L= 3m	05S0783-0 * 3m * CODE No. 000-123-574	□	
21	複合13対ケーブル 13P TWISTED PAIR CABLE	 L= 5m	05S0783-0 * 5m * CODE No. 000-123-581	□	
22	両端コネクター付き13対ケーブル 13P CABLE W/CONNECTORS	 L= 1m	05S0784-0 * 1m * CODE No. 000-123-582	□	
23	両端コネクター付き13対ケーブル 13P CABLE W/CONNECTORS	 L= 3m	05S0784-0 * 3m * CODE No. 000-123-583	□	
24	両端コネクター付き13対ケーブル 13P CABLE W/CONNECTORS	 L= 5m	05S0784-0 * 5m * CODE No. 000-123-584	□	
25	複合2対ケーブル（鎧装付き） 2P TWISTED PAIR CABLE (W/ARMOR)	 L=5m	14S4231 * 5m * CODE No. 000-111-680	□	CIF/NMEA用 For CIF/NMEA
26	複合2対ケーブル（鎧装付き） 2P TWISTED PAIR CABLE (W/ARMOR)	 L=10m	14S4231 * 10m * CODE No. 000-120-792	□	
27	複合2対ケーブル（鎧装付き） 2P TWISTED PAIR CABLE (W/ARMOR)	 L=15m	14S4231 * 15m * CODE No. 000-120-793	□	何れかを選択 TO BE SELECTED (No.25－No.29)
28	複合2対ケーブル（鎧装付き） 2P TWISTED PAIR CABLE (W/ARMOR)	 L=20m	14S4231 * 20m * CODE No. 000-120-794	□	
29	複合2対ケーブル（鎧装付き） 2P TWISTED PAIR CABLE (W/ARMOR)	 L=30m	14S4231 * 30m * CODE No. 000-120-214	□	

PRINTER (PP-500) 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	プリンター押え (1) PRINTER FIXTURE 1		CP05-03610 CODE No. 005-925-550	4	
2	プリンター押え (2) PRINTER FIXTURE 2		CP05-03620 CODE No. 005-925-560	1	
3	プリンター取付台 MOUNTING BED		05-038-0212-0/0213-0 CODE No. 100-122-300	1	
4	ケーブル組品 CABLE ASSY.		57FE-336-205W CODE No. 000-566-966	1	
5	⊕ナベタッピンUIネジ TAPPING SCREW		5 ×30 SUS304 CODE No. 000-802-002	4	
6	ミガキ平座金 FLAT WASHER		M5 SUS304 CODE No. 000-864-128	4	
7	⊕⊖ナベセムスネジB WASHER HEAD SCREW		4 ×12 SUS304 C2700W CODE No. 000-881-447	6	

DSC-5 DSC TERMINAL



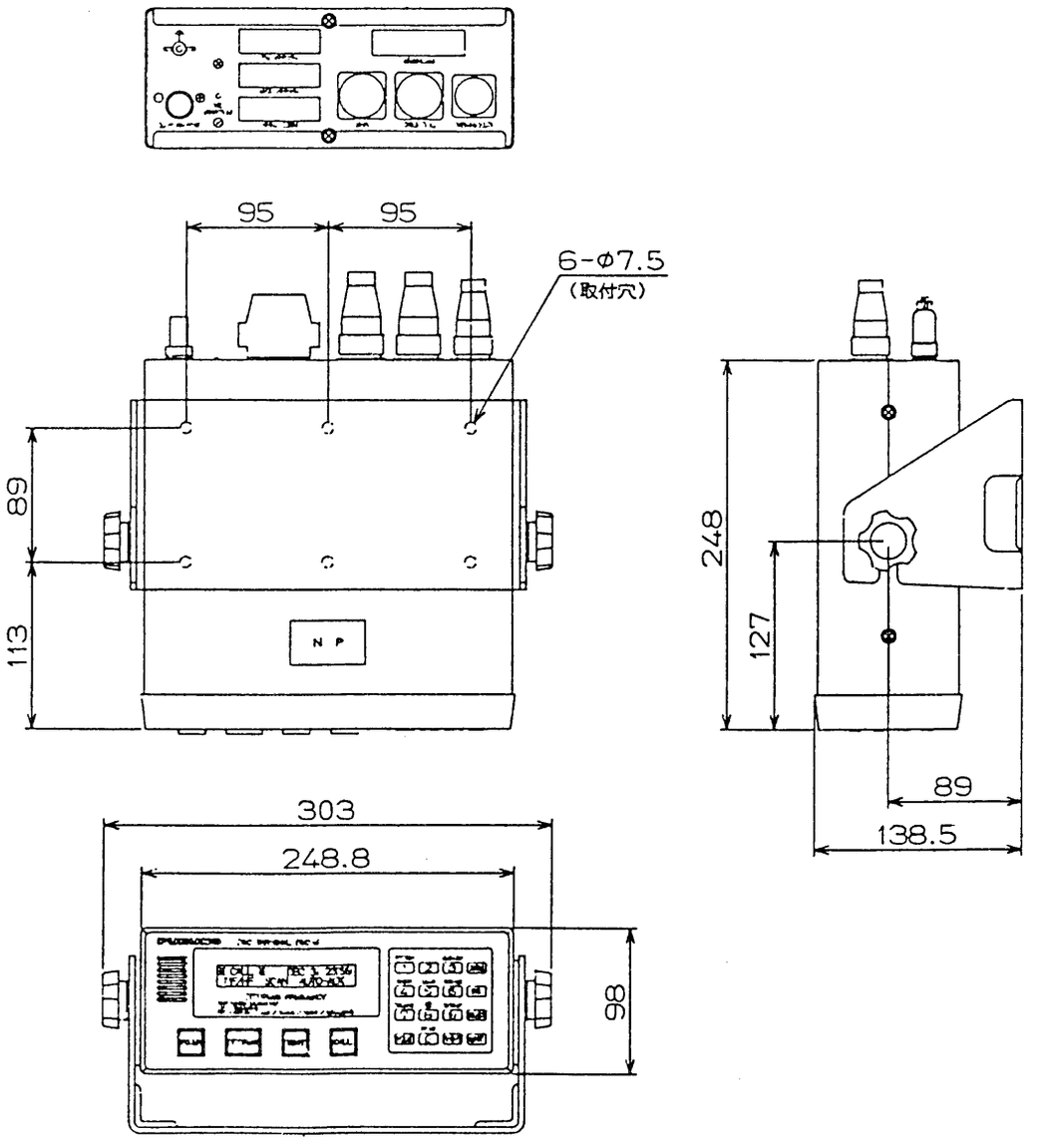
NOTE

- * : SHIPYARD SUPPLY
- : CONNECTOR (: FACTORY-FITTED)
- : CRIMP-ON LUG (: FACTORY-FITTED)
- : GROUNDING COPPER STRAP
- : GROUNDING WIRE IV-8sq.
- : CABLE SUPPLY SIDE
- ---: OPTIONAL SUPPLY

APPROVED	JUN.26.'91 T.NAKAJO	TITLE	DSC-5 DSC TERMINAL
CHECKED	June.26.'91 M.IKEDA		
DRAWN	June.26.'91 T.SAITO	DWG. NO.	E5522D01C000

FURUNO

D－2



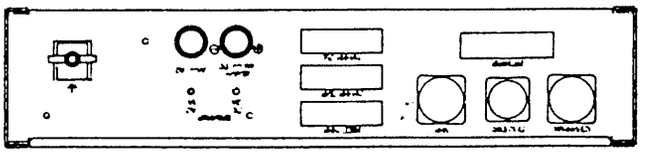
(W/HANGER : 3.9kg)	品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

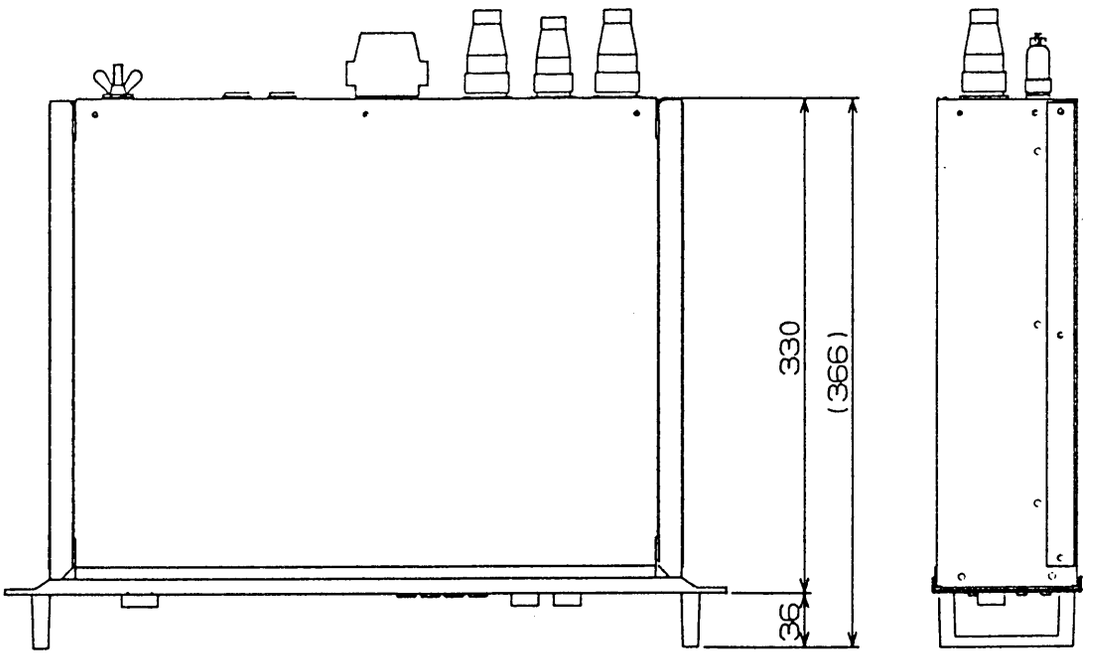
承認 APPROVED	JUN.25.'90 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	DSCターミナル DSC-5 DSC TERMINAL
検図 CHECKED	JUNE.25.'90 M.IKEDA	尺度 SCALE	1/5		
製図 DRAWN	JUN.25.'90 TAKAHASHI	重量 WEIGHT	3.3 kg	図番 DWG.NO.	C5522-G01-B

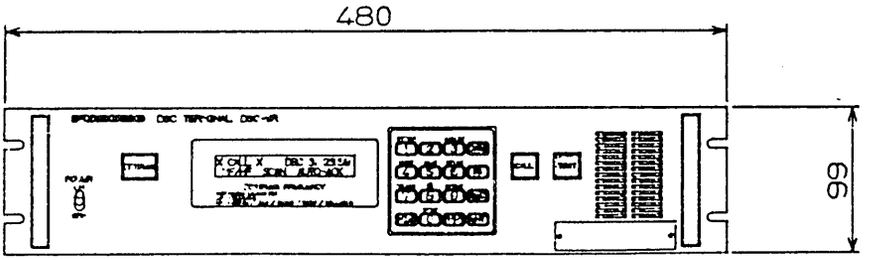
FURUNO ELECTRIC CO., LTD.

FURUNO

D－3







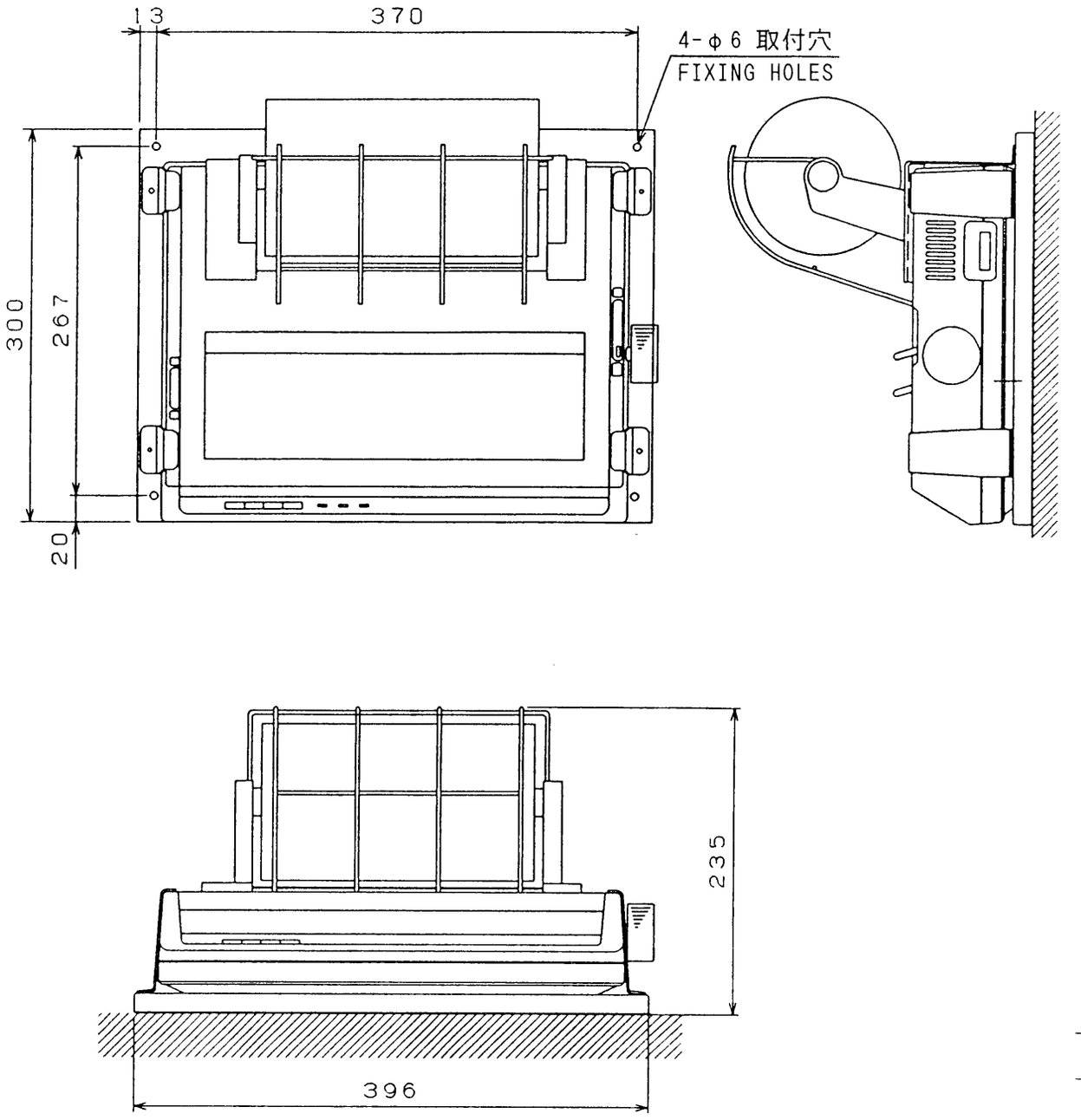
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	JUN.25.'90 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	DSC－5R　DSCターミナル DSC TERMINAL
検図 CHECKED	JUNE.25.'90 M.IKEDA	尺度 SCALE	1/5		
製図 DRAWN	JUN.25.'90 TAKAHASHI	重量 WEIGHT	6.5 kg	図番 DWG.NO.	C5522－G02－B

FURUNO ELECTRIC CO., LTD.

FURUNO

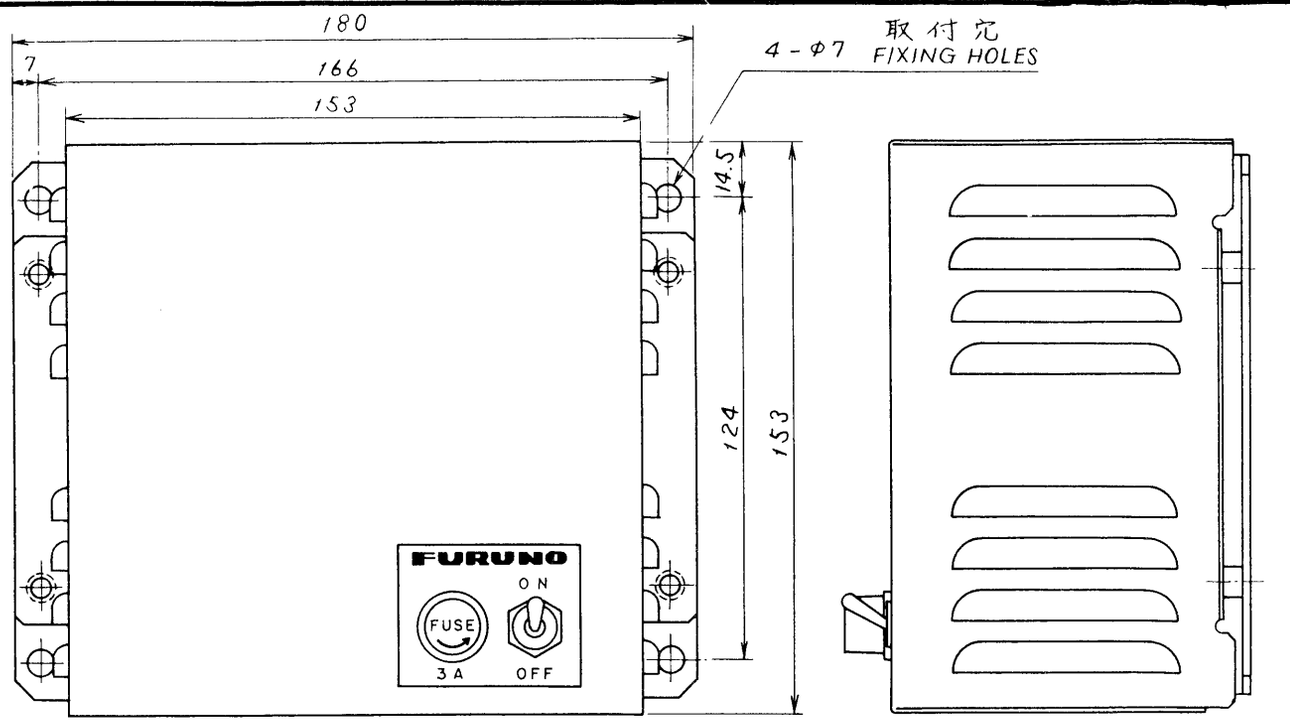
D－4

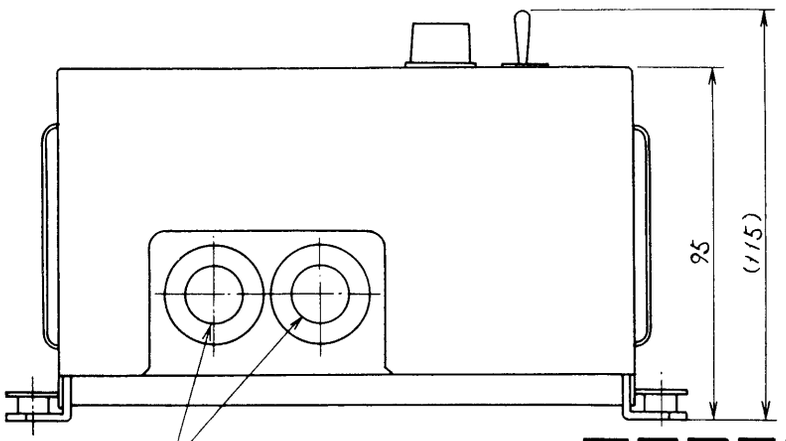


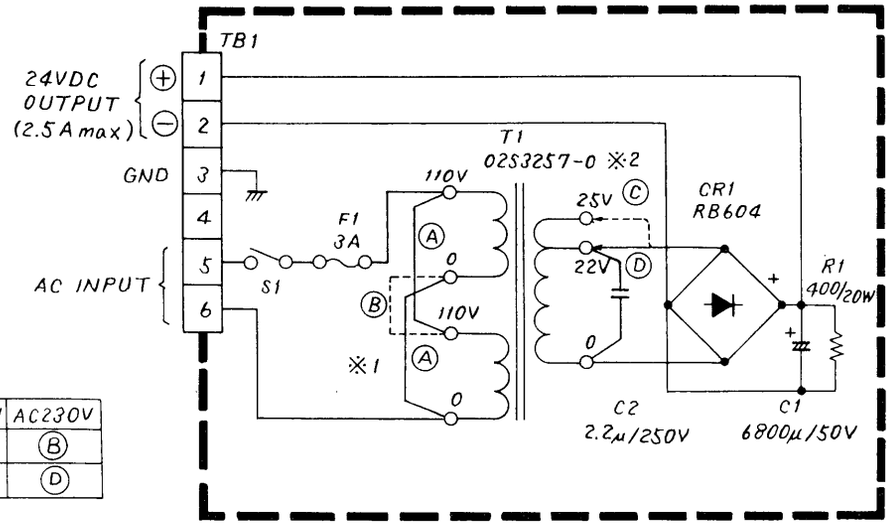
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	M. Oshima	三角法 THIRD ANGLE PROJECTION		名称 TITLE	PP-500 プリンタ PRINTER
検図 CHECKED	Jun. 4. '92 M. Oshihara	尺度 SCALE	1/5		
製図 DRAWN	JUN. 4. '92 Fujiwara	重量 WEIGHT	5 kg	図番 DWG.NO.	C5520-G03-C

FURUNO ELECTRIC CO., LTD.







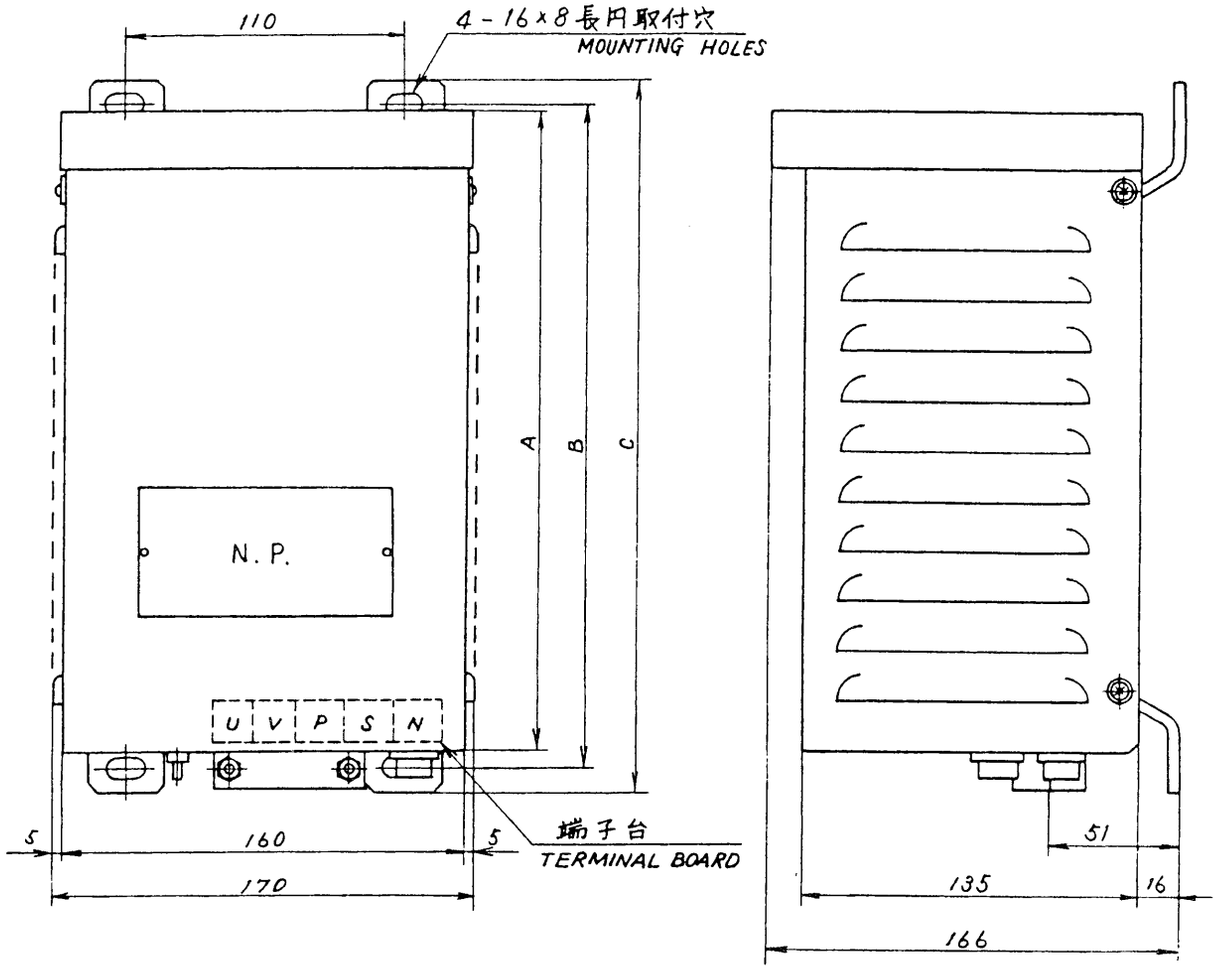
	AC100V	AC110V	AC220V	AC230V
※1	Ⓐ	Ⓐ	Ⓑ	Ⓑ
※2	Ⓒ	Ⓓ	Ⓓ	Ⓓ

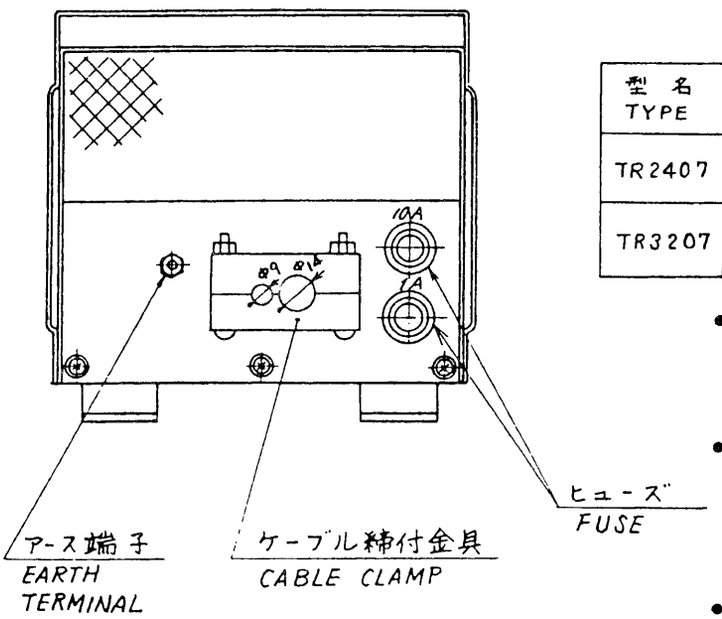
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	JUN.14.'89	三角法 THIRD ANGLE PROJECTION		名称 TITLE	PR-62 整流器外観図 RECTIFIER UNIT
検図 CHECKED		尺度 SCALE	1/2		
製図 DRAWN		重量 WEIGHT	3 kg	図番 DWG.NO.	C5003-034-C

FURUNO

D－6





型名 TYPE	入力 INPUT	出力 OUTPUT	寸法 DIMENSIONS A	B	C
TR2407	20～30V DC Max. 7A	100±10VAC 60Hz, 0.7A Max. 85VA	255	265	285
TR3207	28～38V DC Max. 5.5A		305	315	335

- コンパス安全距離
  COMPASS SAFETY DISTANCE
  標準 STANDARD : 2.1m
  操舵 STEERING : 1.5m
- 両側及びケーブル導入側に150mm以上のサービススペースをとること。
  MINIMUM SERVICE CLEARANCE FROM BOTH SIDES & WIRING SIDE : 150 mm
- 塗装色 COATING COLOR : MUNSELL 2.5G 7/2

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

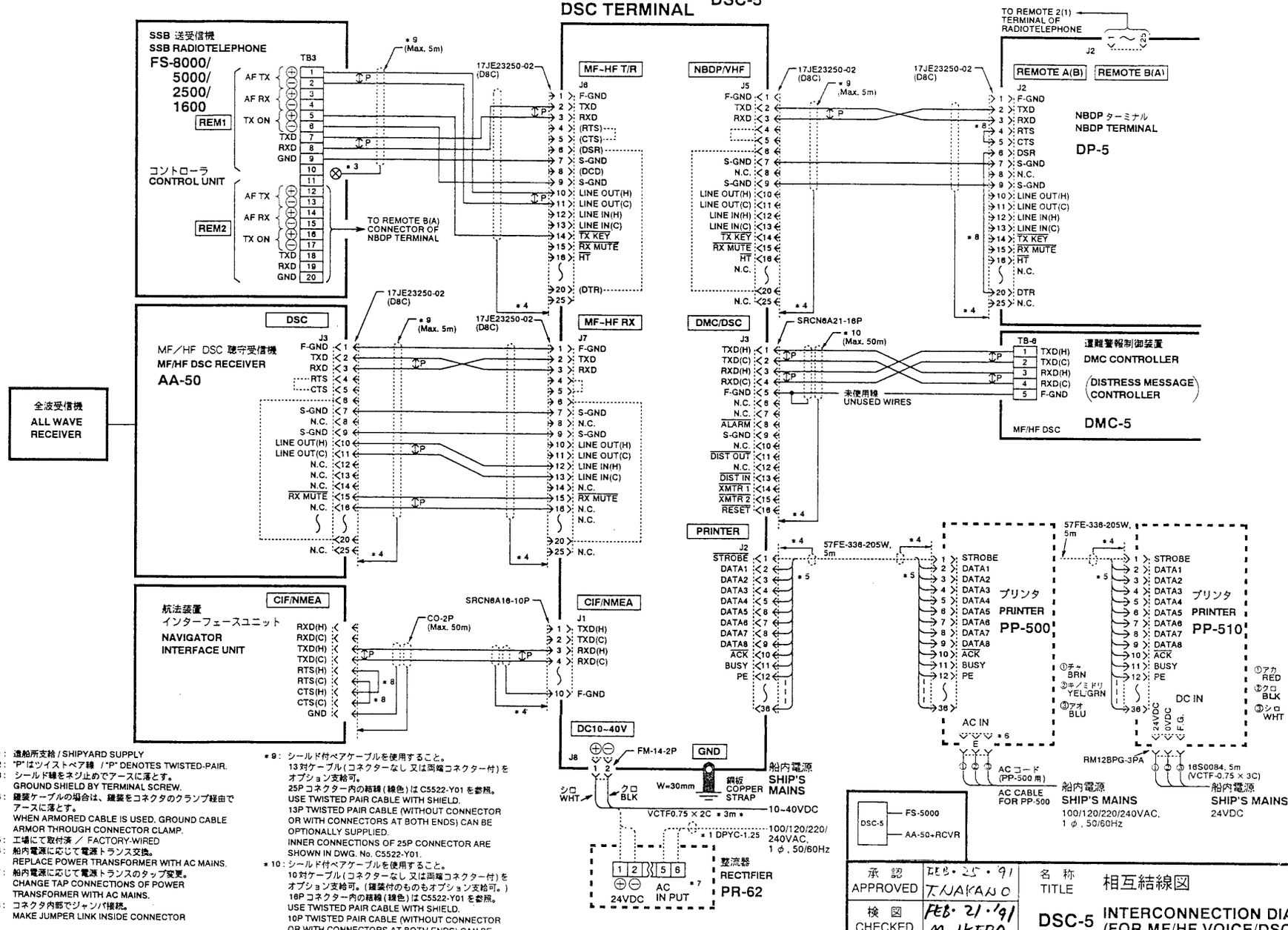
承認 APPROVED	SEP. 14. '77	三角法 THIRD ANGLE PROJECTION		名称 TITLE	TR2407/TR3207 (70VA) トランジスタインバータ外観図 TRANSISTORIZED INVERTER OUTLINE
検図 CHECKED	Nov. 19. '77	尺度 SCALE	∝		
製図 DRAWN	Oct. 17. '77	重量 WEIGHT	8.5 kg	図番 DWG. NO.	C2007-017-B

FURUNO ELECTRIC CO., LTD.

LIST OF SCHEMATIC DIAGRAMS

FURUNO

DSC ターミナル
DSC TERMINAL DSC-5



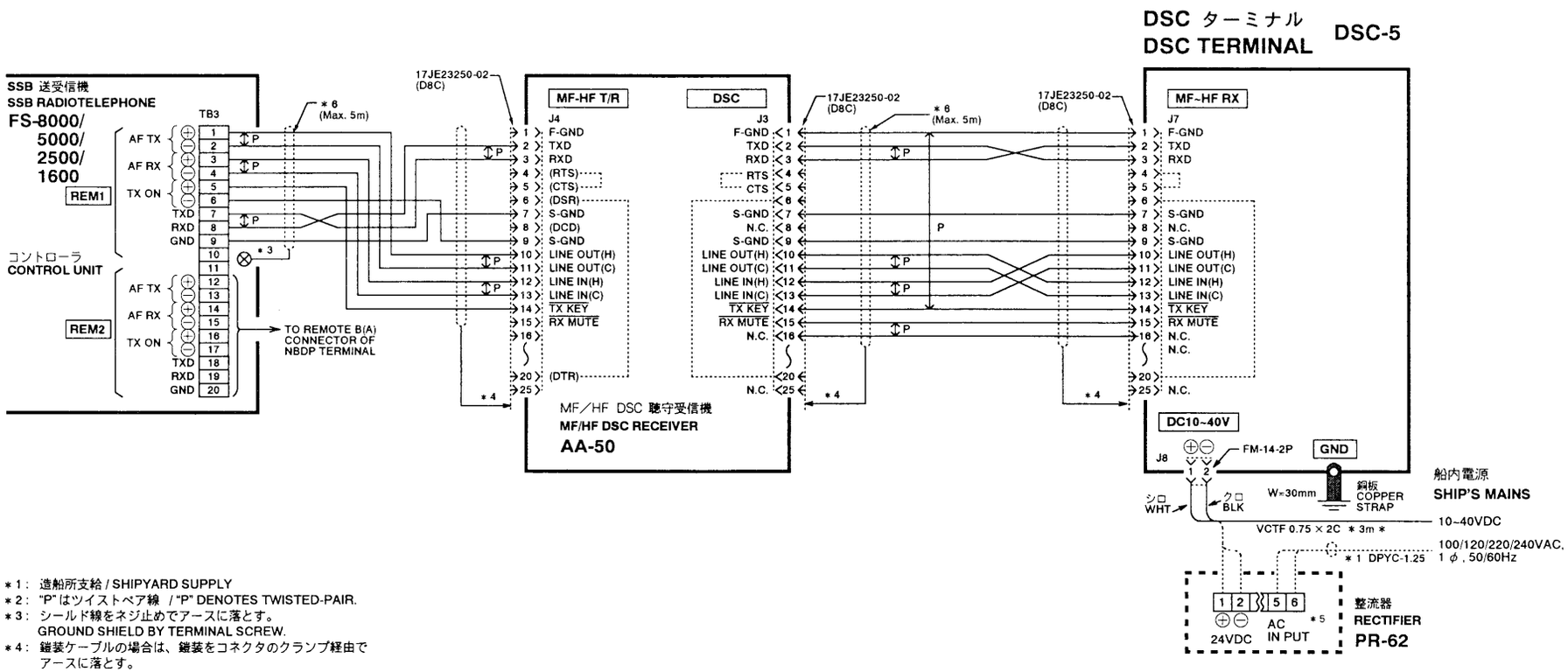
*1: 造船所支給 / SHIPYARD SUPPLY
*2: "P" はツイストペア線 / "P" DENOTES TWISTED-PAIR.
*3: シールド線をネジ止めでアースに落とす。
GROUND SHIELD BY TERMINAL SCREW.
*4: 鎧装ケーブルの場合は、鎧装をコネクタのクランプ経由でアースに落とす。
WHEN ARMORED CABLE IS USED, GROUND CABLE ARMOR THROUGH CONNECTOR CLAMP.
*5: 工場にて取付済 / FACTORY-WIRED
*6: 船内電源に応じて電源トランス交換。
REPLACE POWER TRANSFORMER WITH AC MAINS.
*7: 船内電源に応じて電源トランスのタップ変更。
CHANGE TAP CONNECTIONS OF POWER TRANSFORMER WITH AC MAINS.
*8: コネクタ内部でジャンパ接続。
MAKE JUMPER LINK INSIDE CONNECTOR
*9: シールド付ペアケーブルを使用すること。
13対ケーブル(コネクターなし 又は両端コネクター付)をオプション支給可。
25P コネクター内の結線(線色)は C5522-Y01 を参照。
USE TWISTED PAIR CABLE WITH SHIELD.
13P TWISTED PAIR CABLE (WITHOUT CONNECTOR OR WITH CONNECTORS AT BOTH ENDS) CAN BE OPTIONALLY SUPPLIED.
INNER CONNECTIONS OF 25P CONNECTOR ARE SHOWN IN DWG. No. C5522-Y01.
*10: シールド付ペアケーブルを使用すること。
10対ケーブル(コネクターなし 又は両端コネクター付)をオプション支給可。(鎧装付のものもオプション支給可。)
18P コネクター内の結線(線色)は C5522-Y01 を参照。
USE TWISTED PAIR CABLE WITH SHIELD.
10P TWISTED PAIR CABLE (WITHOUT CONNECTOR OR WITH CONNECTORS AT BOTH ENDS) CAN BE OPTIONALLY SUPPLIED(ARMORED CABLE CAN ALSO BE SUPPLIED.). INNER CONNECTIONS OF 18P CONNECTOR ARE SHOWN IN DWG. No.C5522-Y01.

承認 APPROVED	FEB・25・'91 T.NAKANO	名称 TITLE	相互結線図
検図 CHECKED	FEB・21・'91 M. IKEDA	DSC-5	INTERCONNECTION DIAGRAM (FOR MF/HF VOICE/DSC)
製図 DRAWN	FEB・22・'91 T. SAITO	図番 DWG.NO.	C5522-C05-D

FURUNO ELECTRIC CO., LTD.

S-2

FURUNO

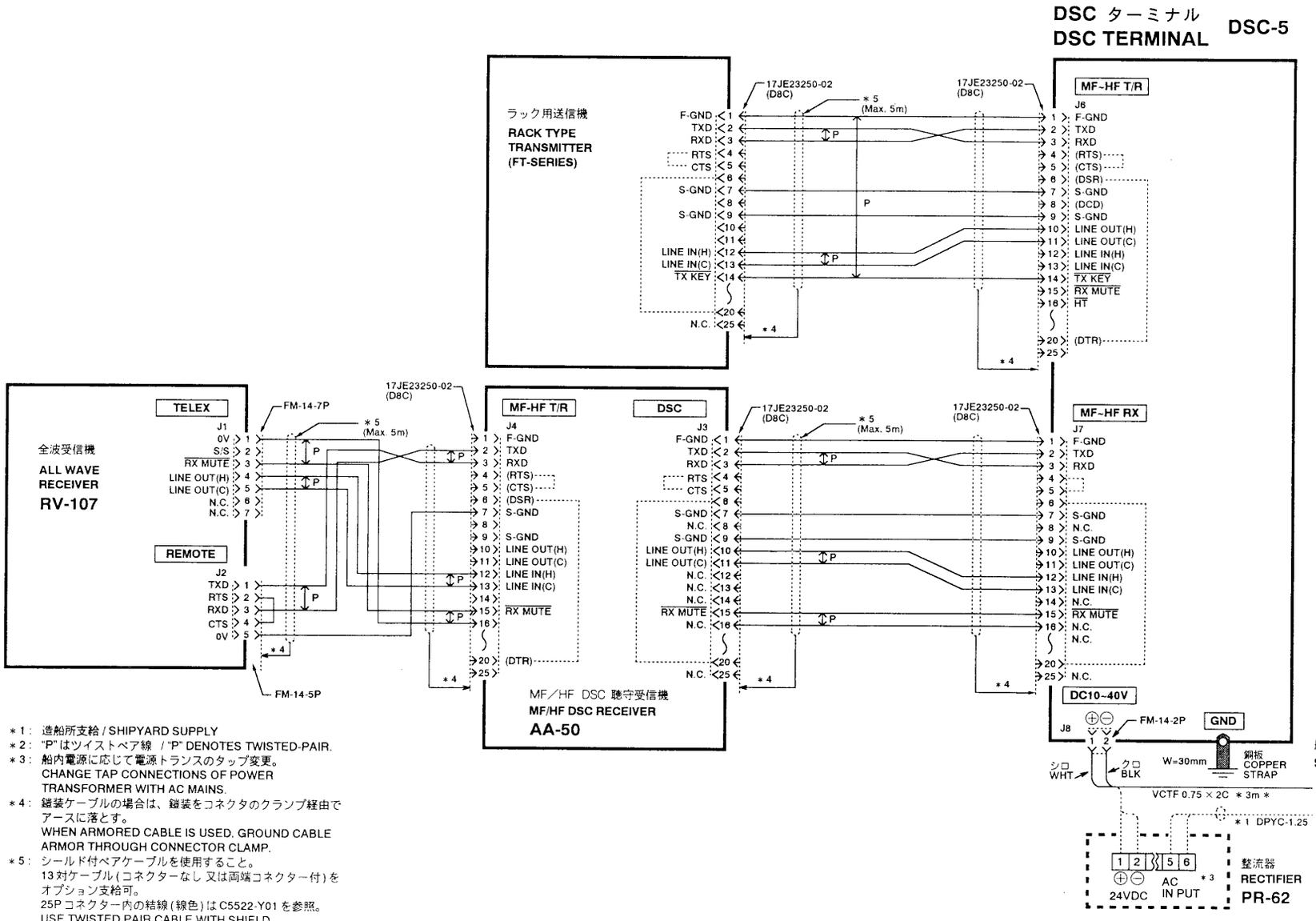


＊1： 造船所支給 / SHIPYARD SUPPLY
＊2： "P" はツイストペア線 / "P" DENOTES TWISTED-PAIR.
＊3： シールド線をネジ止めでアースに落とす。
GROUND SHIELD BY TERMINAL SCREW.
＊4： 鎧装ケーブルの場合は、鎧装をコネクタのクランプ経由でアースに落とす。
WHEN ARMORED CABLE IS USED, GROUND CABLE ARMOR THROUGH CONNECTOR CLAMP.
＊5: 船内電源に応じて電源トランスのタップ変更。
CHANGE TAP CONNECTIONS OF POWER TRANSFORMER WITH AC MAINS.
＊6: シールド付ペアケーブルを使用すること。
13対ケーブル(コネクターなし又は両端コネクター付)をオプション支給可。
25P コネクター内の結線(線色)は C5522-Y01 を参照。
USE TWISTED PAIR CABLE WITH SHIELD.
13P TWISTED PAIR CABLE (WITHOUT CONNECTOR OR WITH CONNECTORS AT BOTH ENDS) CAN BE OPTIONALLY SUPPLIED.
INNER CONNECTIONS OF 25P CONNECTOR ARE SHOWN IN DWG. No. C5522-Y01.

承認 APPROVED	FEB・25・'91 T.NAKANO	名称 TITLE	DSC-5 ↔ AA-50 ↔ FS-5000 SERIES 相互結線図 INTERCONNECTION DIAGRAM
検図 CHECKED	FEB・21・'91 M.IKEDA		
製図 DRAWN	FEB・22・'91 T.SAITO	図番 DWG.NO.	C5522-C03-C

FURUNO ELECTRIC CO., LTD.

FURUNO



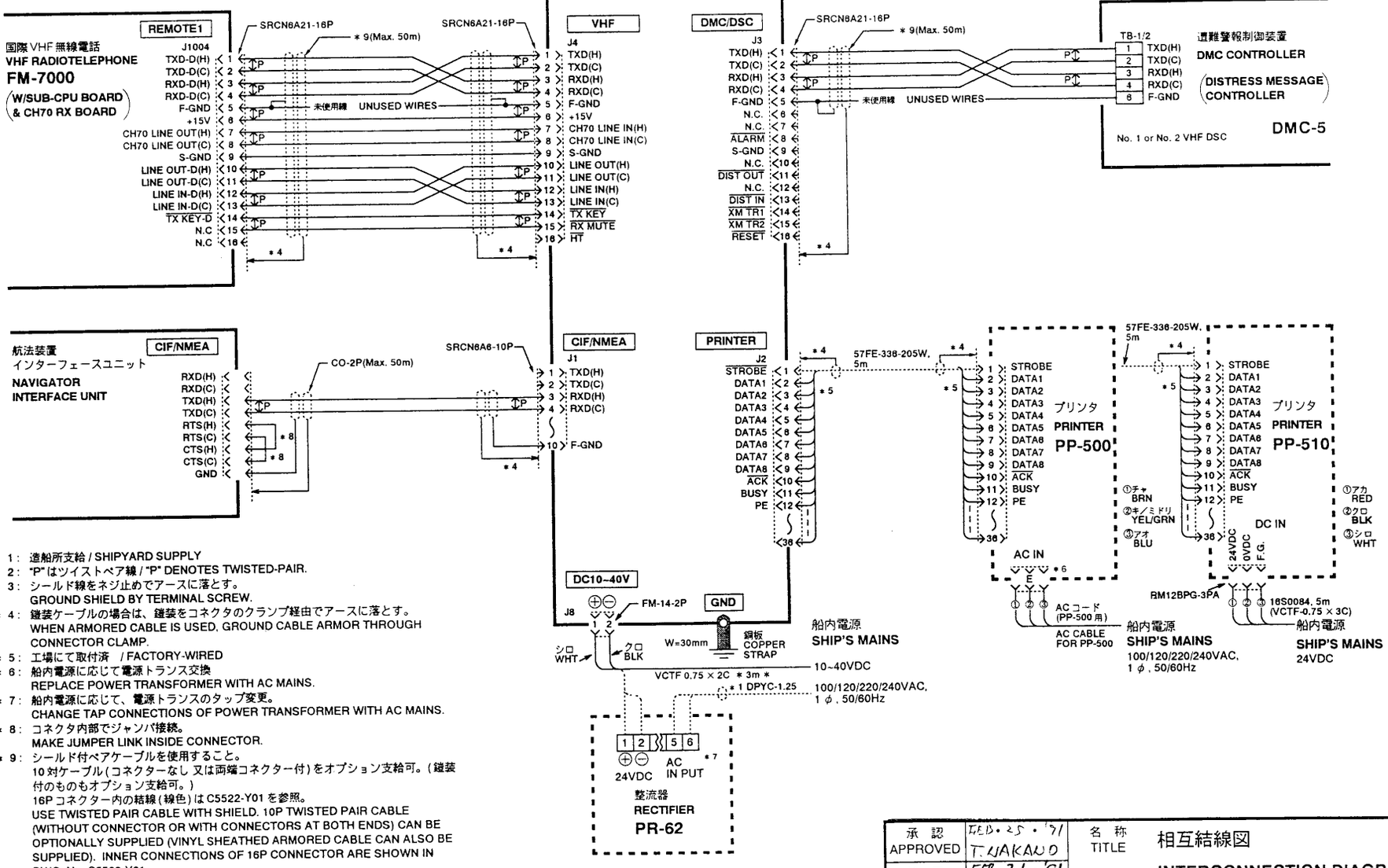
＊1： 造船所支給 / SHIPYARD SUPPLY
＊2： "P" はツイストペア線 / "P" DENOTES TWISTED-PAIR.
＊3： 船内電源に応じて電源トランスのタップ変更。
CHANGE TAP CONNECTIONS OF POWER TRANSFORMER WITH AC MAINS.
＊4： 鎧装ケーブルの場合は、鎧装をコネクタのクランプ経由でアースに落とす。
WHEN ARMORED CABLE IS USED, GROUND CABLE ARMOR THROUGH CONNECTOR CLAMP.
＊5： シールド付ペアケーブルを使用すること。
13対ケーブル(コネクターなし 又は両端コネクター付)をオプション支給可。
25P コネクター内の結線(線色)は C5522-Y01 を参照。
USE TWISTED PAIR CABLE WITH SHIELD.
13P TWISTED PAIR CABLE (WITHOUT CONNECTOR OR WITH CONNECTORS AT BOTH ENDS) CAN BE OPTIONALLY SUPPLIED.
INNER CONNECTIONS OF 25P CONNECTOR ARE SHOWN IN DWG. No. C5522-Y01.

承認 APPROVED	FEB・25・'91 T.NAKAGO	名称 TITLE	DSC-5 + FT シリーズ送信機 SERIES XMTR 相互結線図 INTERCONNECTION DIAGRAM
検図 CHECKED	FEB・21・'91 M.IKEDA		
製図 DRAWN	FEB・22・'91 T.SAITO	図番 DWG.NO.	C5522-C04-B

FURUNO ELECTRIC CO., LTD.

FURUNO

DSC ターミナル
DSC TERMINAL DSC-5



＊1： 造船所支給 / SHIPYARD SUPPLY
＊2： "P" はツイストペア線 / "P" DENOTES TWISTED-PAIR.
＊3： シールド線をネジ止めでアースに落とす。
GROUND SHIELD BY TERMINAL SCREW.
＊4： 鎧装ケーブルの場合は、鎧装をコネクタのクランプ経由でアースに落とす。
WHEN ARMORED CABLE IS USED, GROUND CABLE ARMOR THROUGH CONNECTOR CLAMP.
＊5： 工場にて取付済 / FACTORY-WIRED
＊6： 船内電源に応じて電源トランス交換
REPLACE POWER TRANSFORMER WITH AC MAINS.
＊7： 船内電源に応じて、電源トランスのタップ変更。
CHANGE TAP CONNECTIONS OF POWER TRANSFORMER WITH AC MAINS.
＊8： コネクタ内部でジャンパ接続。
MAKE JUMPER LINK INSIDE CONNECTOR.
＊9： シールド付ペアケーブルを使用すること。
10対ケーブル(コネクターなし 又は両端コネクター付)をオプション支給可。(鎧装付のものもオプション支給可。)
16P コネクター内の結線(線色)は C5522-Y01 を参照。
USE TWISTED PAIR CABLE WITH SHIELD. 10P TWISTED PAIR CABLE (WITHOUT CONNECTOR OR WITH CONNECTORS AT BOTH ENDS) CAN BE OPTIONALLY SUPPLIED (VINYL SHEATHED ARMORED CABLE CAN ALSO BE SUPPLIED). INNER CONNECTIONS OF 16P CONNECTOR ARE SHOWN IN DWG. No. C5522-Y01.

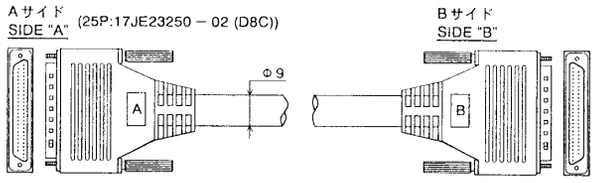
承認 APPROVED	FEB・25・'91 T.NAKANO	名称 TITLE	相互結線図
検図 CHECKED	FEB・21・'91 M.IKEDA	DSC-5	INTERCONNECTION DIAGRAM (FOR VHF VOICE/DSC)
製図 DRAWN	FEB・22・'91 T.SAITO	図番 DWG.NO.	C5522-C06-D

FURUNO ELECTRIC CO., LTD.

S-15

FURUNO

複合13対ケーブル　13P TWISTED PAIR CABLE



結　線

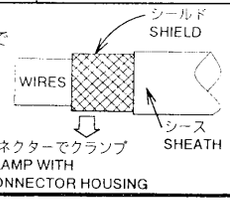
ペアNo.	"A" サイド ピンNo.	線色	ドットマーク	"B" サイド ピンNo.
①	1	茶	■ 黒	1
	14		□ 赤	14
②	2	黄	■	3
	3		□	2
③	4	若草	■	5
	5		□	4
④	6	灰	■	20
	20		□	6
⑤	7	白	■	7
	7		□	7
⑥	8	茶	■■	8
	9		□□	9
⑦	10	黄	■■	12
	11		□□	13
⑧	12	若草	■■	10
	13		□□	11
⑨	15	灰	■■	15
	16		□□	16
⑩	17	白	■■	17
	18		□□	18
⑪	19	茶	■■■	19
	21		□□□	21
⑫	22	黄	■■■	22
	23		□□□	23
⑬	24	若草	■■■	24
	25		□□□	25

WIRING

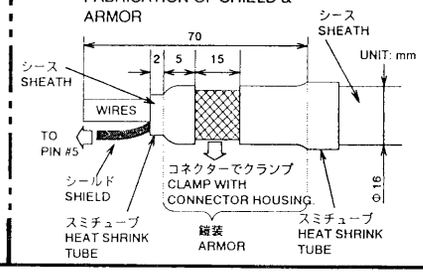
Pair No.	Side "A" Pin No.	Wire color	Marking	Side "B" Pin No.
①	1	BRN	■BLK	1
	14		□RED	14
②	2	YEL	■	3
	3		□	2
③	4	GRN	■	5
	5		□	4
④	6	GRY	■	20
	20		□	6
⑤	7	WHT	■	7
	7		□	7
⑥	8	BRN	■■	8
	9		□□	9
⑦	10	YEL	■■	12
	11		□□	13
⑧	12	GRN	■■	10
	13		□□	11
⑨	15	GRY	■■	15
	16		□□	16
⑩	17	WHT	■■	17
	18		□□	18
⑪	19	BRN	■■■	19
	21		□□□	21
⑫	22	YEL	■■■	22
	23		□□□	23
⑬	24	GRN	■■■	24
	25		□□□	25

型式/TYPE	ケーブル長/LENGTH	コネクタ/CONNECTORS
05S0783	1m / 3m / 5m	×
05S0784	1m / 3m / 5m	○

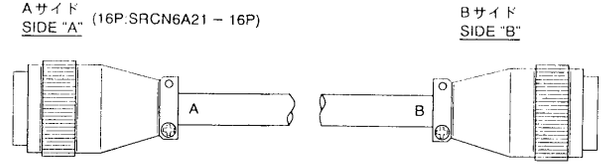
(注) シールド線はコネクターでクランプする。
CLAMP SHIELD WITH CONNECTOR HOUSING.



シールド/鎧装の処理
FABRICATION OF SHIELD & ARMOR



複合10対ケーブル　10P TWISTED PAIR CABLE



鎧装なしケーブルの時　VINYL SHEATHED CABLE

型名 TYPE	05S0719	05S0720
ケーブル名 CABLE	CO-SPEV-SB-(A) 0.3 × 10P	CO-SPEV-SB-(A) 0.3 × 10P
鎧装 ARMOR	×	×
コネクタ CONNECTOR	×	○
ケーブル長 LENGTH	1/3/5m	1/3/5m
ケーブル径 DIAMETER	φ13	φ13

Pair No.	Side "A" Pin No.	Wire Color	Side "B" Pin No.
①	N.C.	黒 BLK	N.C.
	N.C.	茶 BRN	N.C.
②	N.C.	黒 BLK	N.C.
	N.C.	赤 RED	N.C.
③	1	黒 BLK	3
	2	橙 ORG	4
④	3	黒 BLK	1
	4	黄 YEL	2
⑤	5	黒 BLK	5
	6	緑 GRN	6
⑥	12	黒 BLK	10
	13	青 BLU	11
⑦	14	黒 BLK	14
	15	紫 PPL	15
⑧	16	黒 BLK	16
	9	灰 GRY	9
⑨	10	黒 BLK	12
	11	白 WHT	13
⑩	7	茶 BRN	7
	8	赤 RED	8

鎧装ケーブルの時　ARMORED CABLE

型名 TYPE	13S4012	05S0721
ケーブル名 CABLE	CO-SPEVV SB-C 0.2 × 10P	CO-SPEVV-SB-C 0.2 × 10P
鎧装 ARMOR	○	○
コネクタ CONNECTOR	×	○
ケーブル長 LENGTH	5/10/20/30/40/50m	5/10/20/30/40/50m
ケーブル径 DIAMETER	φ16	φ16

Pair No.	Side "A" Pin No.	Wire Color	Side "B" Pin No.
①	N.C.	黄 YEL	N.C.
	N.C.	黒 BLK	N.C.
②	N.C.	青 BLU	N.C.
	N.C.	黒 BLK	N.C.
③	1	赤 RED	3
	2	黒 BLK	4
④	3	緑 GRN	1
	4	黒 BLK	2
⑤	5	黄 YEL	5
	6	白 WHT	6
⑥	12	青 BLU	10
	13	白 WHT	11
⑦	14	赤 RED	14
	15	白 WHT	15
⑧	16	緑 GRN	16
	9	白 WHT	9
⑨	10	黄 YEL	12
	11	灰 GRY	13
⑩	7	青 BLU	7
	8	灰 GRY	8

DSC-5 SERIES,
DMC-5, AA-50(R), DP-5

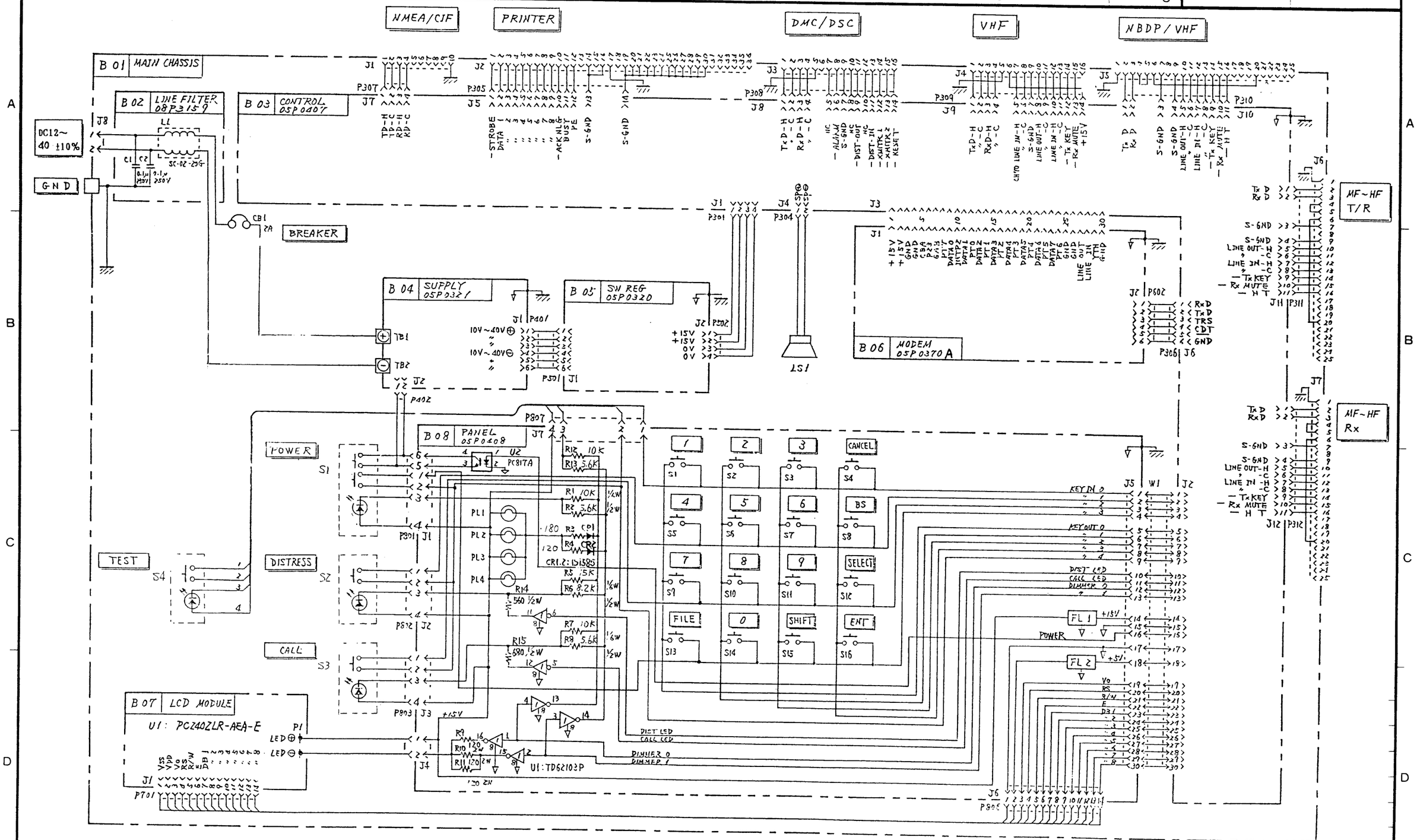
REVISION 91/9

承認 APPROVED	[illegible] TAKAGI	名称 TITLE	10対/13対 ケーブル接続図
検図 CHECKED	FEB 25 '91 M. IKEDA		10P/13P CABLE FABRICATION
製図 DRAWN	[illegible]	図番 DWG.NO.	C5522-Y01-C

FURUNO ELECTRIC CO., LTD

FURUNO

S - 7

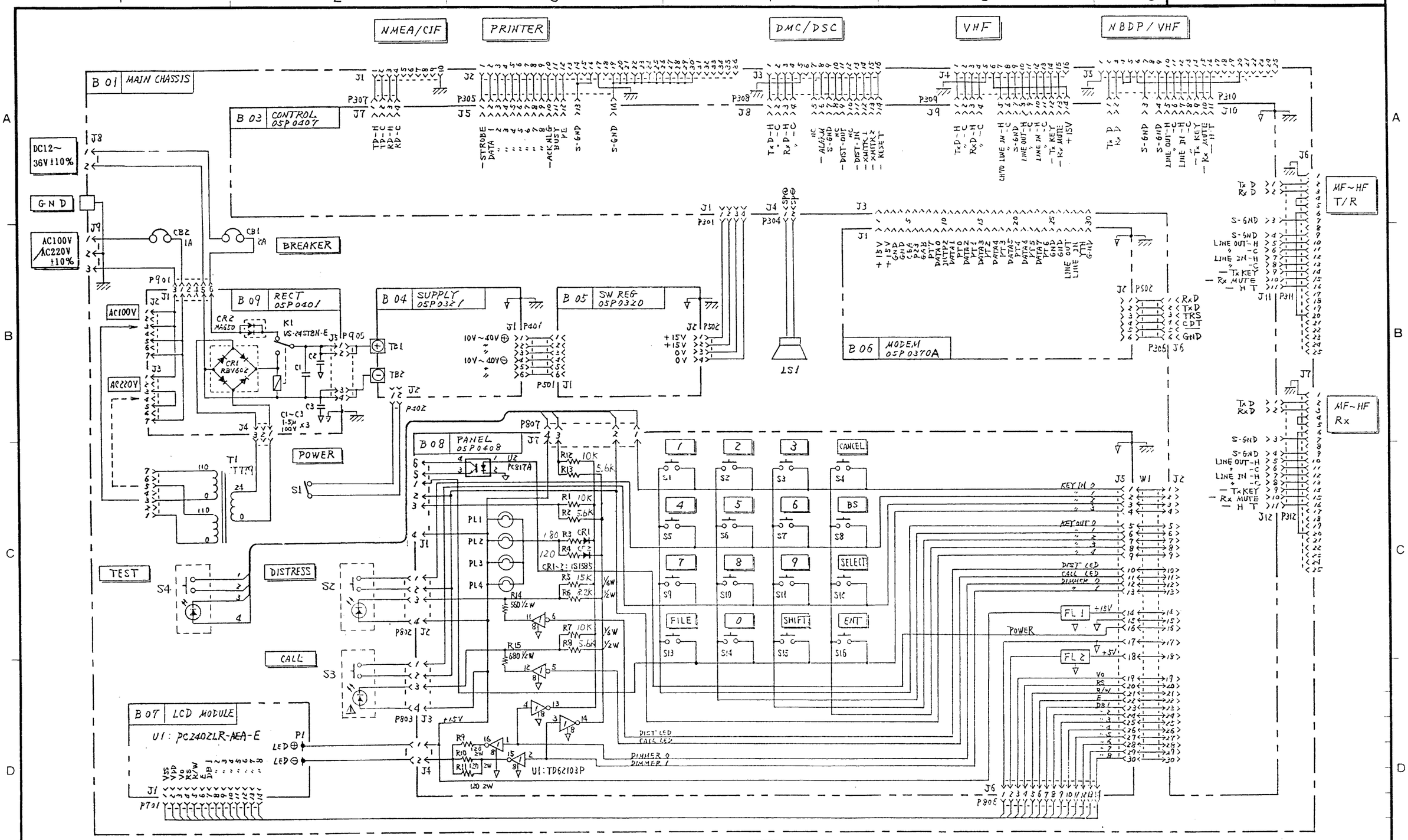


承認 APPROVED	JAN.18.'91 T.KAWAGUCHI	三角法 THIRD ANGLE PROJECTION	名称 TITLE: DSC-5 総合回路図 GENERAL
検図 CHECKED	Jan.17.'91 M.IKEDA	尺度 SCALE	
製図 DRAWN	17.JAN.'91 T.SAITO	重量 WEIGHT kg	図番 DWG. NO. C5522-K02-D

FURUNO ELECTRIC CO., LTD.

FURUNO

S - 8

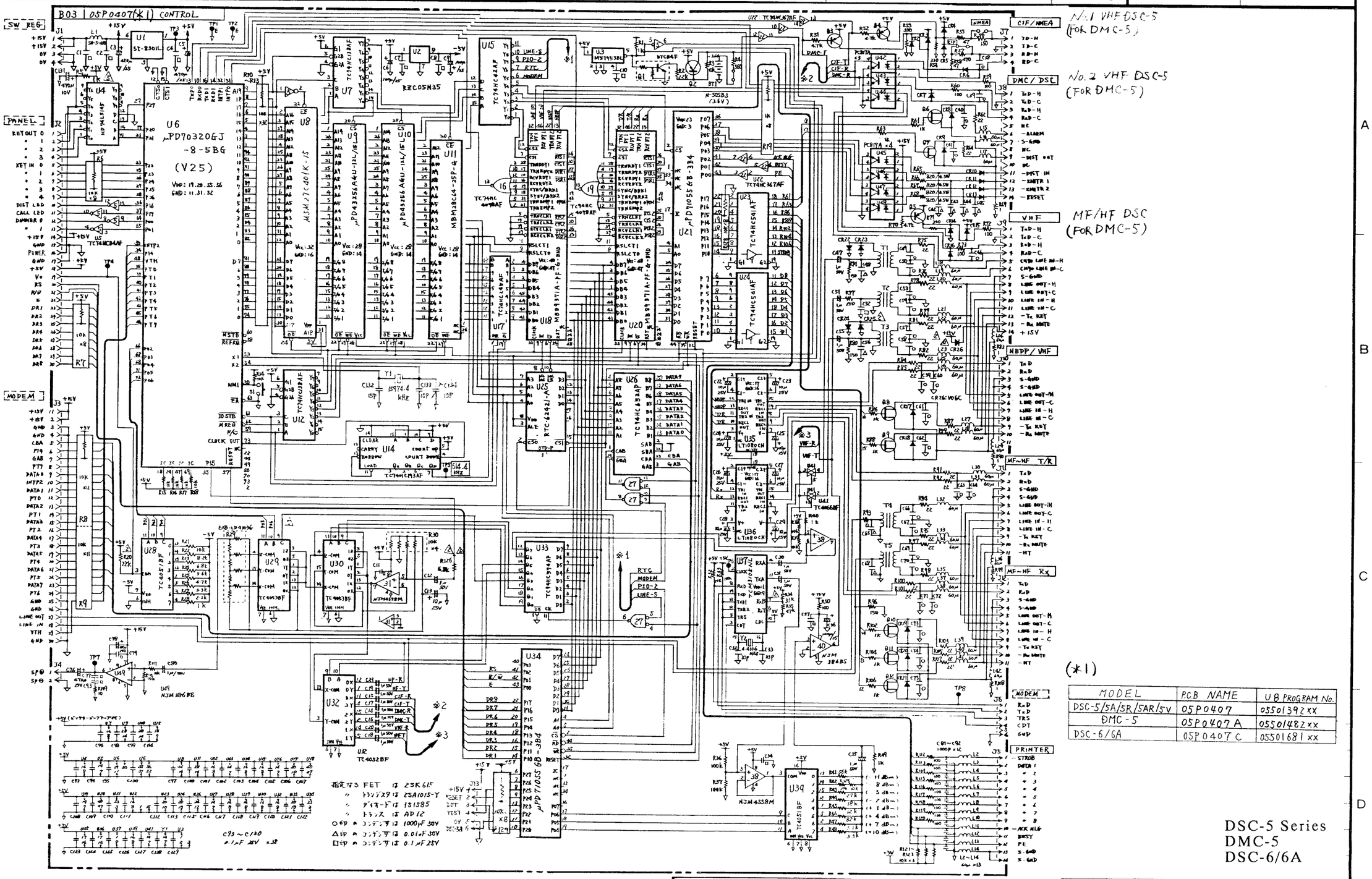


承認 APPROVED	JAN.18.'91 T.SAKAGUCHI	三角法 THIRD ANGLE PROJECTION	名称 TITLE	DSC-5R 総合回路図 GENERAL
検図 CHECKED	Jan.17.'91 M.IKEDA	尺度 SCALE		
製図 DRAWN	17.JAN.'91 T.SAITO	重量 WEIGHT kg	図番 DWG.NO.	C5522-K01-D

FURUNO ELECTRIC CO., LTD.

FURUNO

S - 9



(※1)

MODEL	PCB NAME	UB PROGRAM No.
DSC-5/5A/5R/5AR/5-V	05P0407	05501392XX
DMC-5	05P0407A	05501482XX
DSC-6/6A	05P0407C	05501681XX

NOTE:

Capacitor

Marks ○ 1000pF/50V
△ 0.01μF/50V
□ 0.1μF/25V

FET: 2SK615
Transistor: 2SA1015-Y
Diode: 1S1585
Transformer: AD12
} unless otherwise noted.

DSC-5 Series
DMC-5
DSC-6/6A

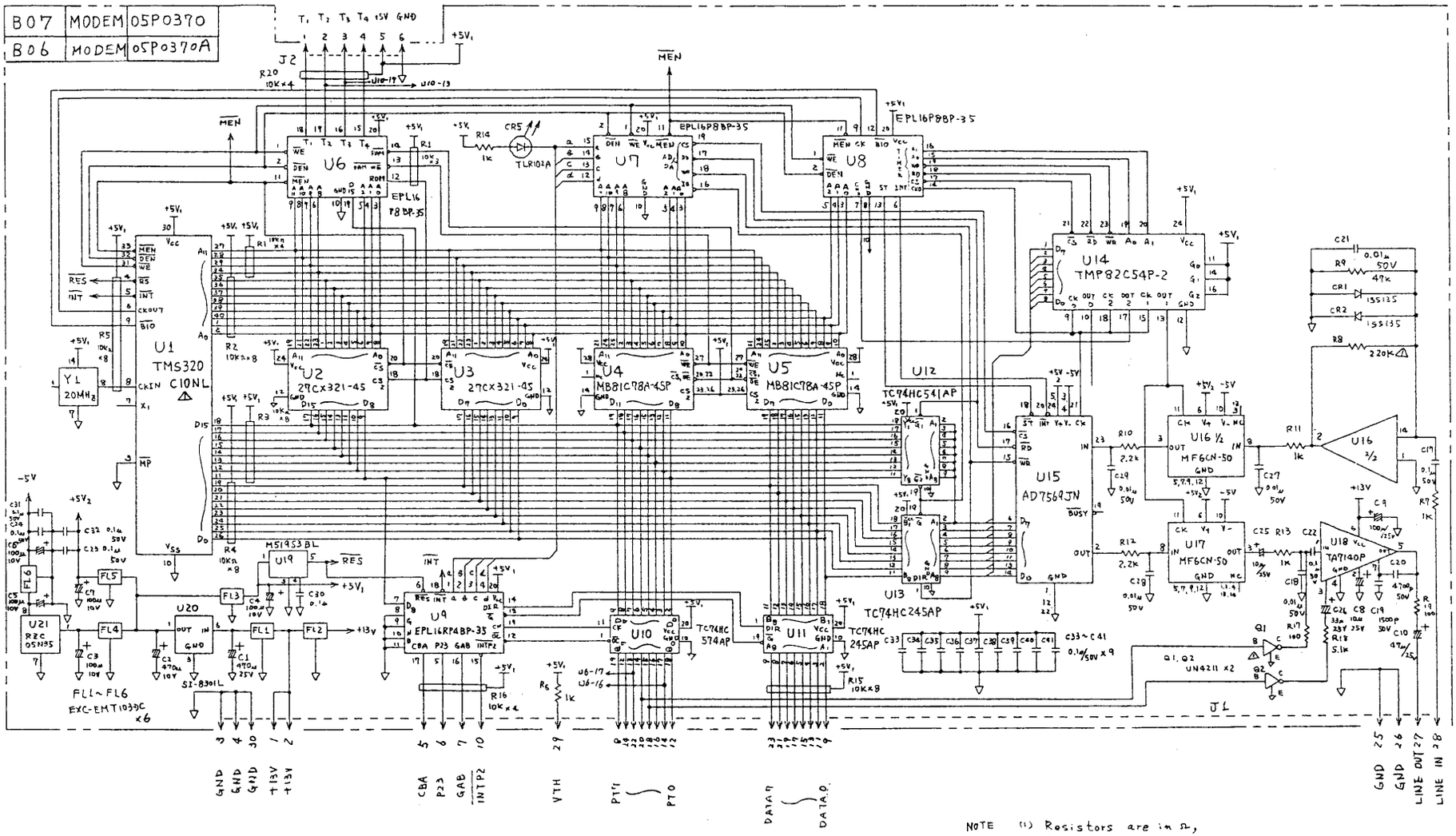
承認 APPROVED		三角法 THIRD ANGLE PROJECTION	名称 TITLE: コントロール基板 CONTROL PCB
検図 CHECKED		尺度 SCALE	05P0407
製図 DRAWN		中量 WEIGHT kg	図番 DWG.NO. C5522 – K03 – F

REVISION

FURUNO ELECTRIC CO., LTD.

FURUNO

B07	MODEM	05P0370
B06	MODEM	05P0370A



NOTE (1) Resistors are in Ω,
Capacitors are in F,
unless otherwise noted.

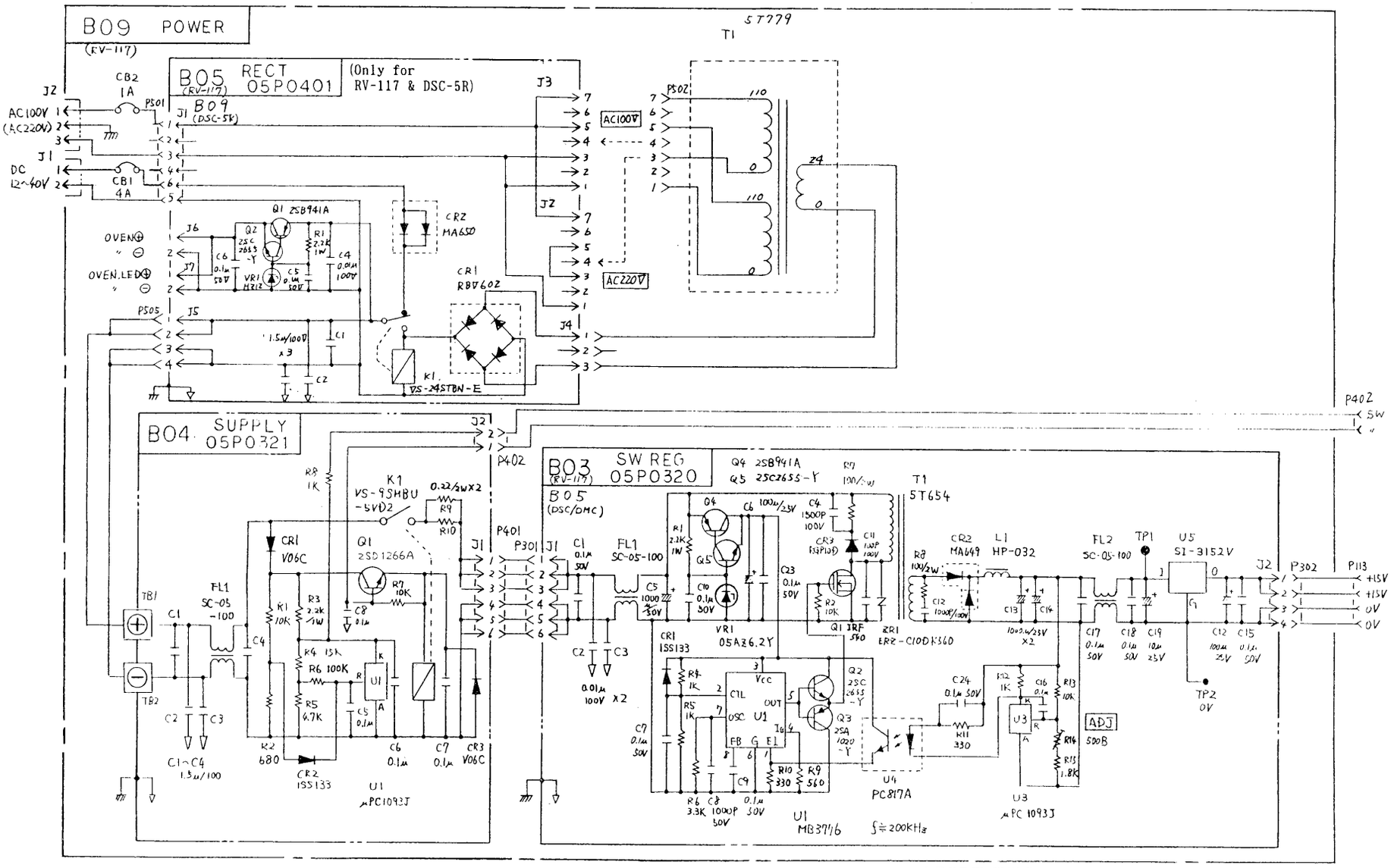
Model	PCB Name	U2 Program No.	U3 Program No.
DP-5/6/10	05P0370	05501331**	05501332**
DSC-5 Series FM-7500	05P0370A	05501401**	05501402**

ITEM	NAME	MATERIAL	Q'TY	DWG.NO.	REMARKS

承認 APPROVED	Nov.12.'96 TAKAHASHI	三角法 THIRD ANGLE PROJECTION	名称 TITLE: 05P0370(A) モデム部 MODEM BOARD
検図 CHECKED	NOV.12.'96 K.Okamoto	尺度 SCALE	
製図 DRAWN	Nov.12.'96 K.Okamoto	重量 WEIGHT kg	図番 DWG.NO. C5520 – K05 – F

FURUNO ELECTRIC CO., LTD.

FURUNO



ITEM	NAME	MATERIAL	Q'TY	DWG NO	REMARKS

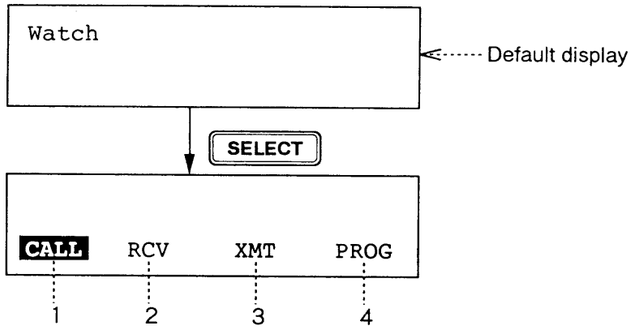
APPROVED	T.OKADA	THIRD ANGLE PROJECTION	TITLE 電源部 POWER SUPPLY
CHECKED	Jan.17.'91 M.IKEDA	SCALE	
DRAWN	17.JAN.'91 T.SAITO	WEIGHT kg	DWG.NO C5508-K07-F

RV-117
DSC-5 Series
DMC-5

FURUNO ELECTRIC CO., LTD.

S-11

APPENDIX 1 MENU TREE



1. "CALL" (Transmit message preparation and calling)

- DISTRESS — Nature of Dist — Position & Time — Telecom — DSC Freq ⇨ DISTRESS
- INDIVIDUAL — Addr — Category — Telecom — Freq/CH — DSC Freq
- TEL (SEMI-AUTO/AUTO) — Addr — Telecom — Freq/CH — Tel No. — DSC Freq
- ALL SHIPS — Category — Telecom — Freq/CH — DSC Freq
- GROUP — Group Addr — Category — Telecom — Freq/CH — DSC Freq ⇨ CALL
- SPECIAL
  - AREA — GEOGRAPH — Ocean Addr — Category — Telecom — Freq/CH — DSC Freq
  - RELAY-A — DISTRESS RELAY ALL — Dist ship ID — Nature of Dist ····
  - RELAY-S — DISTRESS RELAY SEL — Coast station addr — Dist ship ID ····

2. "RCV" (Receive message memory and call acknowledge)

- 1. DISTRESS LOG No. (1 – 50)
  - 1. DIST ACK
  - 2. RELAY
    - 1. INDIVIDUAL — COAST AD
    - 2. ALL SHIPS
    - 3. GEOGRAPH-OCEAN AD
    - 4. GROUP-GROUP AD
  - 3. END
  - 4. NEXT
  - 5. DEL

  ⇨ CALL
- 2. ORDINARY LOG No. (1 – 50)
  - 1. INDIVIDUAL
  - 2. SEMI-AUTO/AUTO

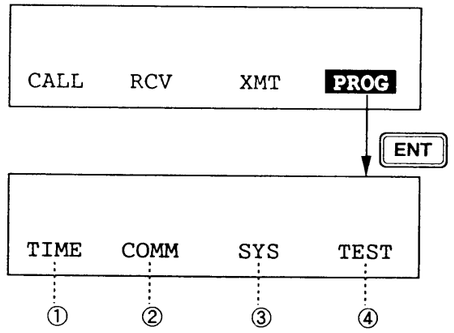
    1. ACK — TELECOM1 — WORK FREQ/CH ⇨ CALL
    2. END
    3. NEXT
    4. DEL
  - 3. ALL SHIPS
  - 4. GROUP

    1. END
    2. NEXT
    3. DEL
  - 5. GEOGRAPH

3. "XMT" (Transmit message memory and re-calling)

- 1. XMITTED LOG No. (1 – 50)
  - 1. CALL — WORK FREQ/CH — DSC FREQ/CH ⇨ CALL
  - 2. END
  - 3. NEXT
  - 4. DEL

4. "PROG" (System initialization and self-test)



① "TIME" (Input of date and time)

② "COMM" (Selection of external equipment) ····· (See Note.)

- 1. LINE-OUT LEVEL — (MF/HF : –30 to +10dBm····1dB step; VHF : –11 to +10dBm····3dB steps)
- 2. CIF — CIF/NMEA
- 3. REMOTE-A — OFF/DMC ····→ (DMC : Distress Message Controller)
- 4. REMOTE-B — OFF/VHF/VHF+CH70/TERM
- 5. REMOTE-C — OFF/NBDP/VHF/TERM
- 6. REMOTE-D — 1. ON / 2. OFF — WR/RT/XT/TERM ···→ (WR : Watch Receiver (when SSB connected to watch receiver); RT : Radiotelephone (SSB connection); XT : Transmitter; TERM: Terminal (Personal computer connection))
- 7. REMOTE-E — OFF/WR/RCVR/TERM

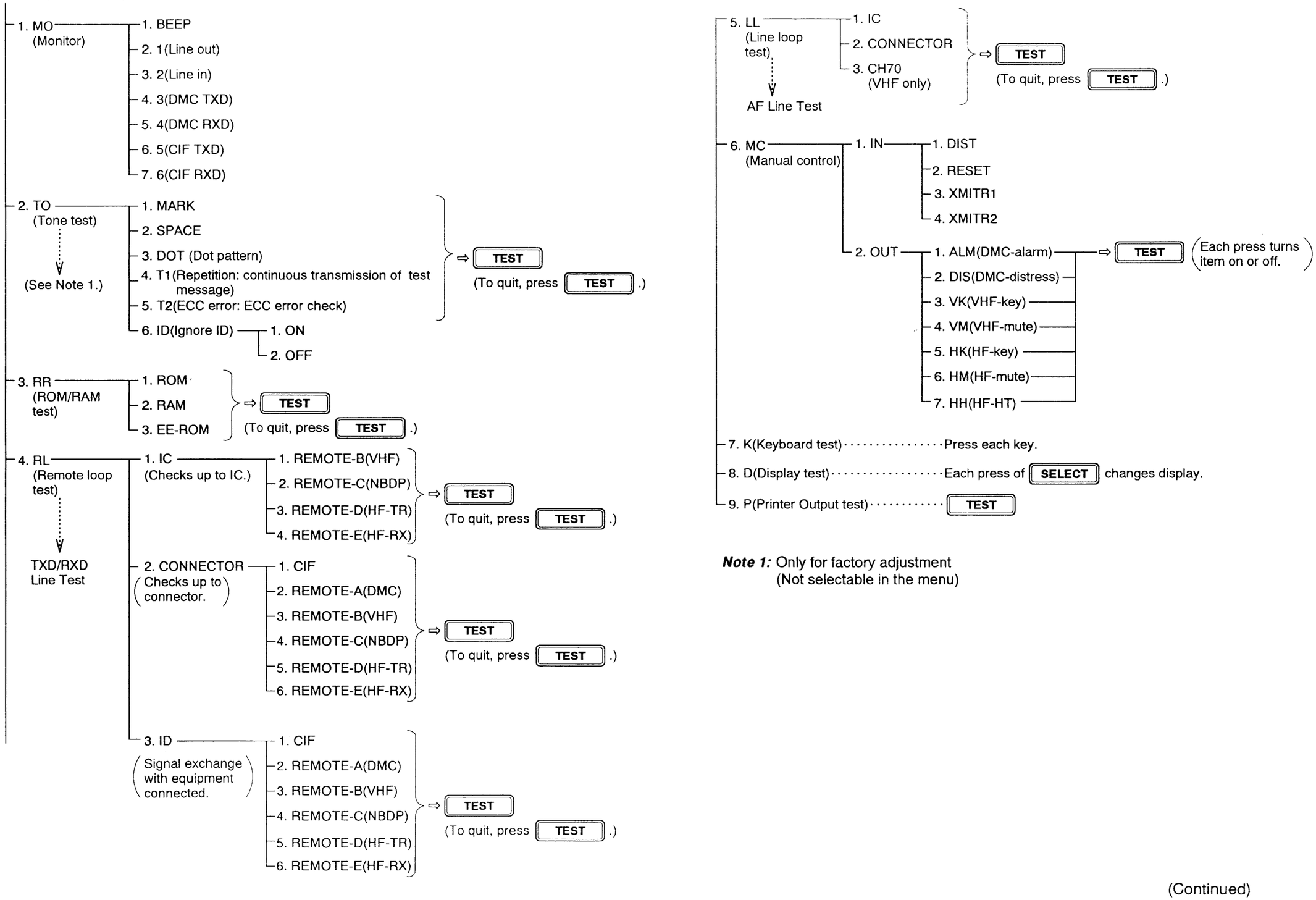
③ "SYS" (System settings)

- 1. NBDP (NBDP remote setting) — 1. ON / 2. OFF
- 2. ALARM (External alarm setting)
  1. DIS
  2. URG
  3. SAF
  4. BUS
  5. ROU
- 3. PRT (Printer type selection) — 1. QUICK / 2. SLOW
- 4. KEY (TX key timing setting) ····· (See Note.)
  1. AUTO(FURUNO SSB)
  2. 0.5 (sec)····FM-7000/FM-7500
  3. 1 (sec)
  4. 2 (sec)
  5. 3 (sec)
  6. 5 (sec)
  7. 10 (sec)
  8. 15 (sec)
- 5. VERSION no.

Note: *These settings can not be changed once registered by FURUNO technician. (Not selectable in the menu)*

(Continued)

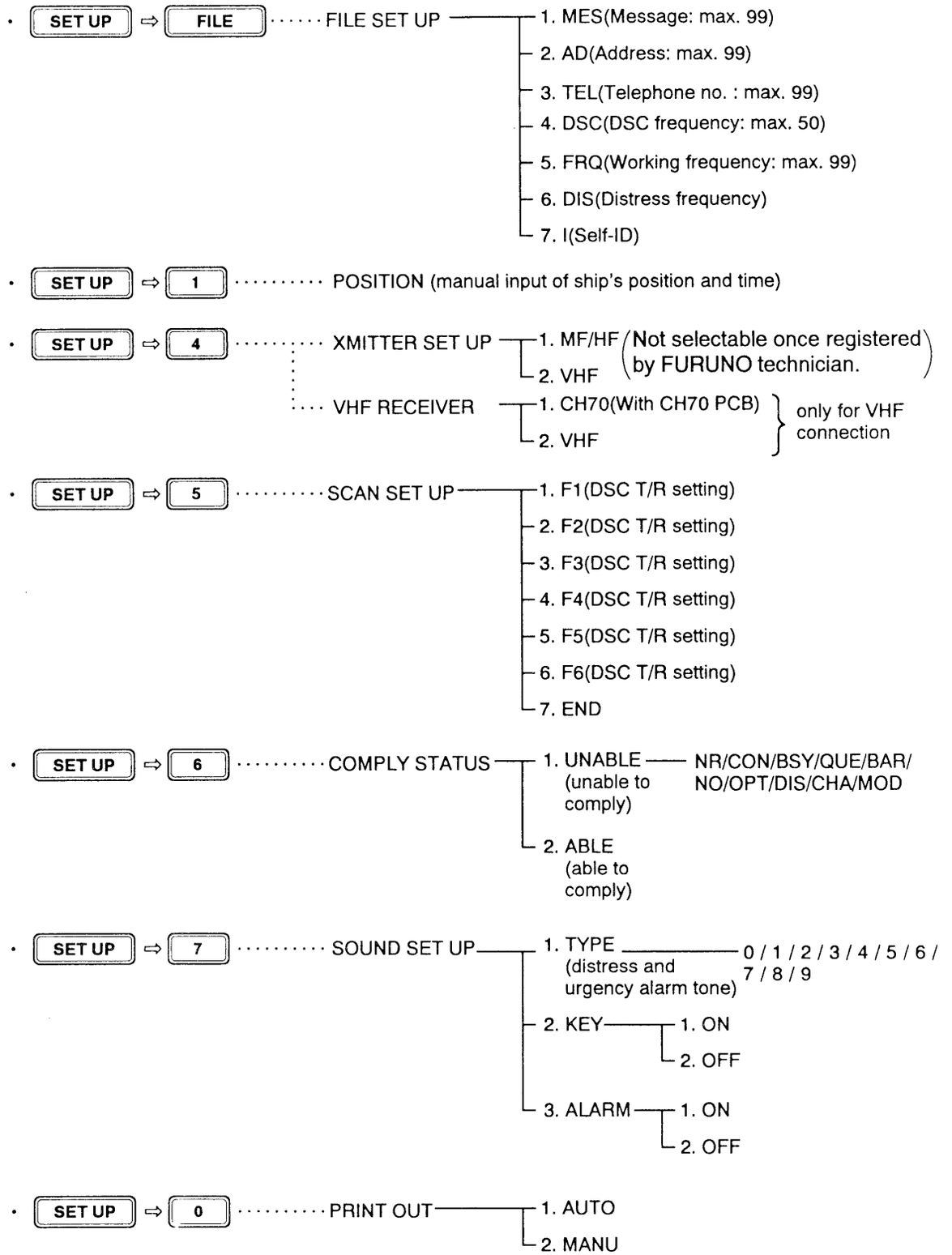
④ "TEST" (Self-Test)



Note 1: Only for factory adjustment
(Not selectable in the menu)

(Continued)

Menus available with SET UP key



APPENDIX 2 GLOSSARY

Letter	LCD Indication	Meaning
A	ABA	Abandoning
	ACK BQ	Acknowledge back
	ACK RQ	Acknowledge request
	ADR	Adrift
	ALL	All ships
	ARQ	Automatic re-transmission request
B	BAR	Station barred
	BSY	Busy
	BUS	Ships business
C	CATEGORY	Communication priority
	CHA	Unable to use proposed channel
	COL	Collision
	CON	Congestion at maritime switching center
D	DAT	Data (VHF only, Selection of Modem)
	DIS	Distress
	DIS	Equipment disabled (one of reason why unable to comply)
	DIST ACK	Distress acknowledge
	DUP	Duplex (VHF only)
E	ECC	Error check character
	EPI	EPIRB
	EOC	End of call (used at telephone call)
	EOS	End of sequence
F	FEC	Forward error correcting
	FIR	Fire, explosion
	FLO	Flooding
G	GEO	Geographic
	GRO	Grounding
	GRP	Group (call)
I	IND	Individual (call)
L	LIS	Listing

Letter	LCD Indication	Meaning
M	MEDICAL	Medical transport
	MOD	Unable to use proposed mode
	MTR	A1A Morse tape recorder
N	NI	No information
	NO	No operator available
	NR	No reason
O	OPT	Operator temporarily unavailable
P	POL	Polling
	POS	Ship position
Q	QUE	Queue indication
R	RES18	For identifying ships and aircraft of States not parties to an armed conflict (WARC Resolution 18 (Mob-83))
	ROU	Routine
S	SAF	Safety
	SEMI-AUTO/ AUTO	Telephone call
	SIM	Simplex (VHF only)
	SIN	Sinking
T	TEL	Telephone (call)
	TELECOM1	Class of emission
	TELECOM2	Telecommand 1 plus additional information
	TEST	Selectable at telecommand 1, to conduct communication test with coast station, under the following conditions. 1. Equipment ····· SSB radiotelephone 2. Format ·····INDIVIDUAL 3. Category ·····SAFETY 4. Address ····· Coast station no. (00 + 7 digits)
	TTY	F1B TTY-R (TELEX except FEC/ARQ mode, RX only)
	TTY	F1B TTY (TELEX except FEC/ARQ mode, both TX and RX)
U	UNA	Unable to comply
	UND	Undesignated
	URG	Urgency

NOTE: For VHF, following modem can be selected at telecommand 2 only when setting telecommand 1 at "DAT."

V21 (Data V21)
V22 (Data V22)
22B (Data V22 bis)
V23 (Data V23)
26B (Data V26 bis)
26T (Data V26 ter)
27T (Data V27 ter)
V32 (Data V32)

} Modem

APPENDIX 3 DSC FREQUENCY LIST

Effective from July 1991

TX (kHz)	RX (kHz)	REMARKS
2187.5 4207.5 6312.0 8414.5 12577.0 16804.5	2187.5 4207.5 6312.0 8414.5 12577.0 16804.5	DISTRESS/SAFETY FREQUENCIES
458.5 2189.5 4208.0 6312.5 8415.0 12577.5 16805.0 18898.5 22374.5 25208.5	455.5 2177.0 4219.5 6331.0 8436.5 12657.0 16903.0 19703.5 22444.0 26121.0	INTERNATIONAL FREQUENCIES
4208.5 6313.0 8415.5 12578.0 16805.5 18899.0 22375.0 25209.0	4220.0 6331.5 8437.0 12657.5 16903.5 19704.0 22444.5 26121.5	LOCAL FREQUENCIES (DEPENDING ON COUNTRY)
4209.0 6313.5 8416.0 12578.5 16806.0 18899.5 22375.5 25209.5	4220.5 6332.0 8437.5 12658.0 16904.0 19704.5 22445.0 26122.0	

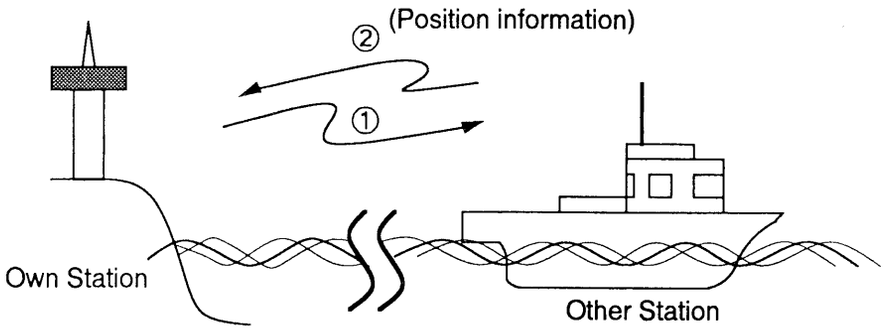
Note 1: TX: 2177.0kHz, RX: 2177.0kHz ----- For intership calling

APPENDIX 4 APPLICATION

Beside its primary function of providing distress and general calling on MF/HF or VHF bands, the DSC-5(R) can also perform several other useful functions.

1. Finding Position of Other Station

To find the position (incl. time data) of other station; for example, your scout boat, do the following:



Settings

Format ····· INDIVIDUAL
Address ····· Other Station ID (9 digits)
Category ····· ROUTINE
Telecommand 1 ···· POS

Procedure (p. 1-8/1-14)

1. Set up the unit as prescribed above then press the CALL switch. The "Wait for ack BQ" screen appears.

```
Wait for ack BQ
```

·····> "Wait for ack BQ" screen

2. Receive acknowledge back signal from other station.

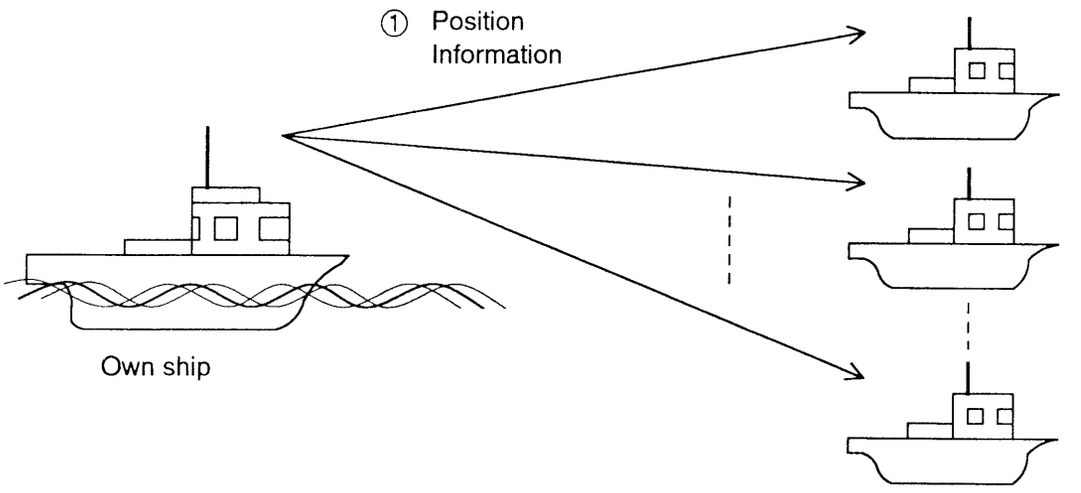
```
*Received* SHIP POSITI
ID:
```

ENT

```
SHIP POSITION
Pos: 34° 40N 135° 20E 12:35
```

·····> Other station's position and time

2. Transmitting Own Ship's Position to Other Stations



Settings

Format ····· GROUP or GEOGRAPH

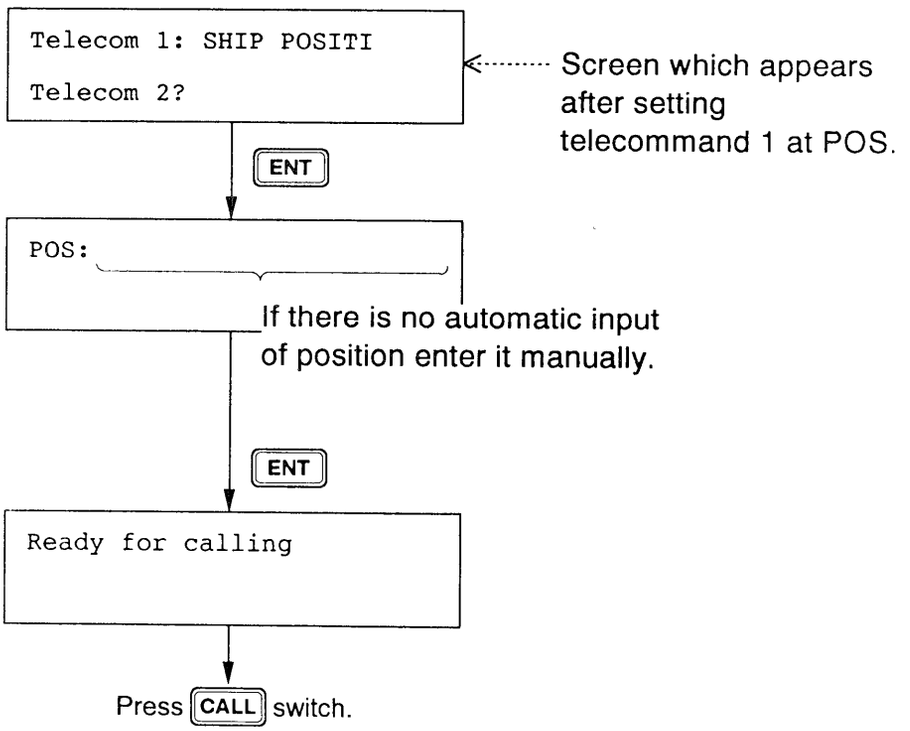
Address ····· GROUP ID Number (0 + 8 digits) or Input of geographic area

Category ····· ROUTINE

Telecommand 1 ···· POS

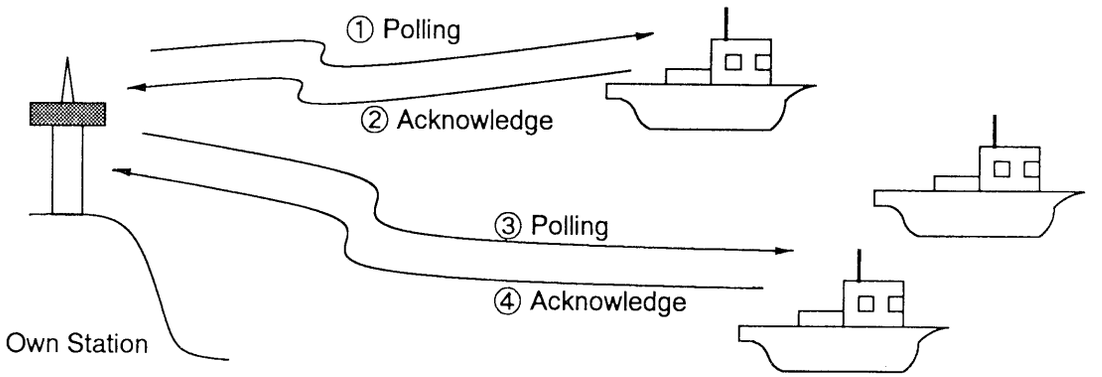
Procedure (p. 1-11/1-17, p. 1-12/1-18)

1. Set up the unit as prescribed above. Key in own ship's position (if necessary) then press the CALL switch.



3. Polling

Polling means confirming if own station is within communicating range with other station. This function provides only affirmative or negative response; it does not provide position information. Note also that simultaneous polling to more than one station is not possible.

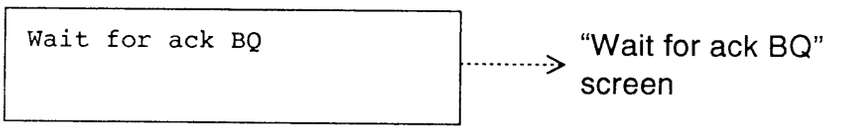


Settings

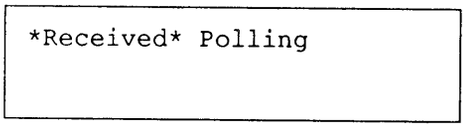
Format ····· INDIVIDUAL
Address ····· Other Station ID (9 digits)
Category ····· ROUTINE
Telecommand 1 ···· POL

Procedure (p. 1-8/1-14)

1. Set up the unit as prescribed above then press the CALL switch. The "Wait for ack BQ" screen appears.

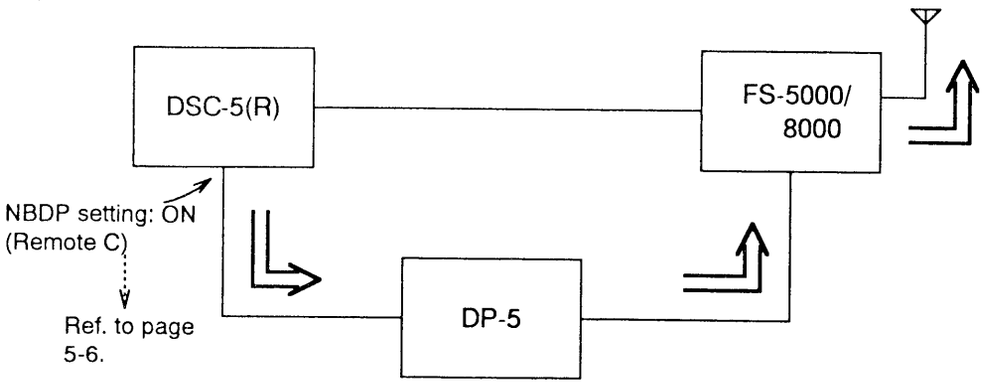


2. Receive the acknowledge back signal from the other station. If the following screen appears **your station is within communicating range** with the other station.



4. Telex Operation with the DP-5

The figure below shows how to connect the DP-5 to the DSC-5(R) and SSB radiotelephone for telex communication.



When the DSC-5(R) transmits individual call message with a TELEX telecommand and receives ACK BQ signal, it automatically relays (transfers) **other station ID, class of emission (FEC, ARQ, TTY) and Working frequency** to the DP-5. (The 9 digit-select ID code of the DP-5 should be entered. Otherwise, they are not transferred.) Then to begin TELEX communication by the DP-5, simply select that station name on the station list menu. That station which is denoted by "DSC plus data/time the message was received," should be at the top of the list.

For all ships, group and geographic area calls, after the DSC-5(R) transmits a message with a TELEX command, the same data as shown above are automatically transferred from the DSC-5(R) to the DP-5.

NOTE: For A1A input at the DP-5, turn on "A1A morse" setting at the system settings menu (page 5-9) of the DSC-5(R).