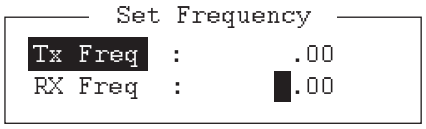
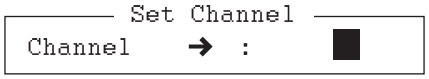
For IB-585:

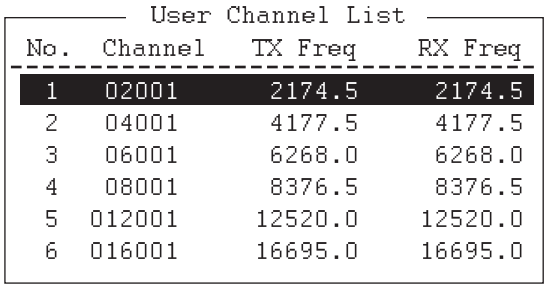
- To enter the frequency, press the **9** key to select [Set Frequency]. Go to step 3.



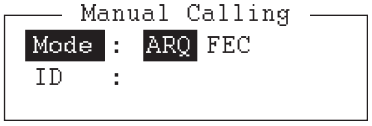
- To enter the ITU or user channel, press the **0** key to select [Set Channel]. Go to step 4.



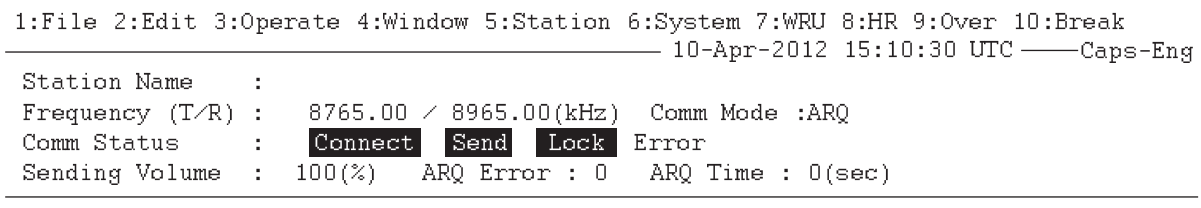
3. Input a pair of TX and RX frequencies. Go to step 5.
4. Input the user channel. To select the user channel from the list, press the → key to display [User Channel List]. Press the ↑ or ↓ key to select the desired user channel.



5. Press the **Enter** key.
   Note: You can not set frequency or user channel in the following cases;
   - When opening the menu from the control panel (FS-2575C).
   - When communicating by radiotelephone.
   - When the DSC scan screen is displayed.
   - When sending DSC calls.
6. Press the function key **F3** then the **8** key to select [Manual Calling].



7. Press the ← or → key to select a communication mode.
8. Press the ↓ key then input party's ID number.
9. Press the **Enter** key to connect the communication line. "Channel Busy Check" appears. If the line is free, "Connect", "Send" and "Lock" appear in highlight as below.



For the ARQ mode, go to step 10. For the FEC mode, type your message then go to step 13.

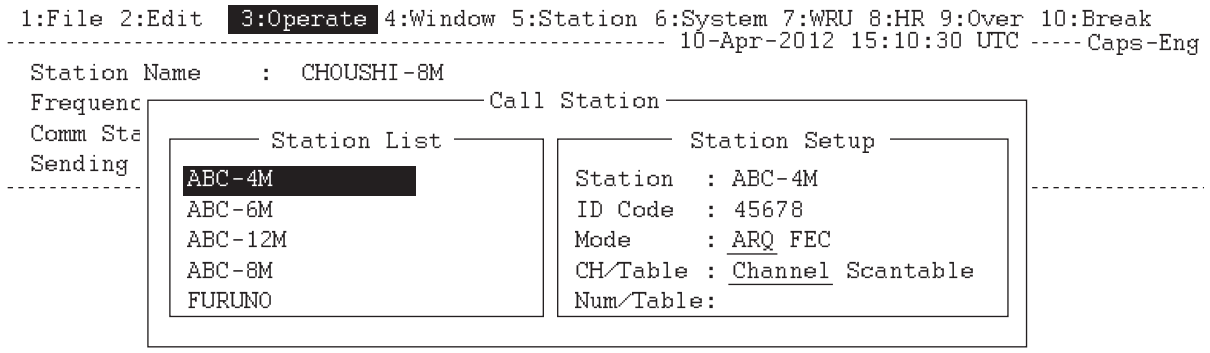
10. Press the function key **F7**. The party's answerback code appears on the screen.
    Note: Step 10 and 11 are needed for ship-to-ship calling only.
11. Press the function key **F8**. Your ship's answerback code is sent to the party.
12. Press the **Enter** key and type your message.
13. If you want to receive other party's response, press the function key **F9**.
14. Press the function key **F10** to disconnect the line.

10.2 ARQ Mode Operation

In ARQ operation, one station (information sending station) sends data to another block by block, then listens for the acknowledge signal between blocks from the information receiving station which requests either the next block or retransmission of the last block if there is an error. The request can be repeated up to 32 times until the complete block is received free of error.

How to establish connection

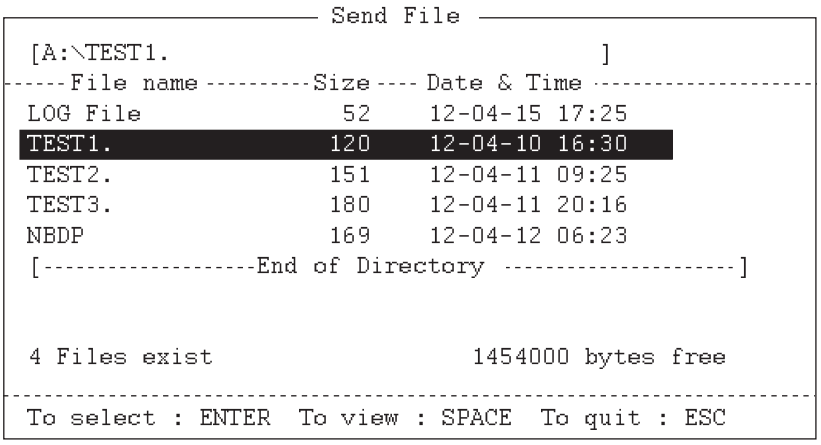
1. Press the function key **F3** to open the [Operate] menu.
2. Press the **1** key to select [Call Station].



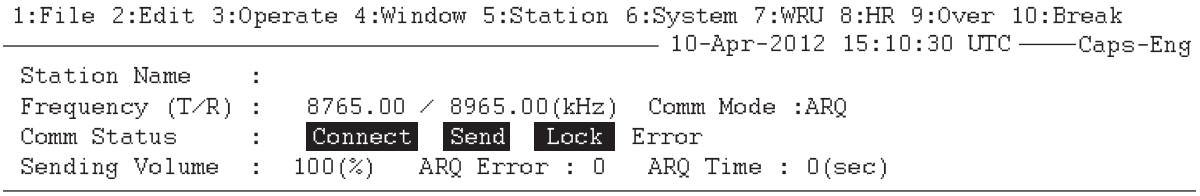
3. Select a station. (Station must be registered for use in the ARQ mode).
4. Press the **Enter** key. The message "Calling Station" appears. If the message shown below appears, check both the power of the radiotelephone and the connections between the radiotelephone and the NBDP terminal unit.
   Message: "Station calling suspended. Check interconnections between the terminal and main units. Press any key to escape."
   When an acknowledge signal is detected, "Connect" appears in reverse video on the [Comm Status] line.
   Note: If the signal conditions are poor, connection can take a while. If the line could not be connected in one minute, the calling stops. The message "Station calling suspended" appears. Try step 3 again, one minute later. Should the signal conditions worsen during message transmission, "Error" appears in reverse video on the [Comm Status] line and the line is disconnected.
5. Transmit message by one of the following methods:

How to send a file stored on a floppy disk or an SD card

1. Press the function key **F7** to request the answerback code of the other station. Verify that the code from the station called is correct.
2. Press the function key **F8** to transmit your own identity (answerback code).
3. Press the function key **F3** then the **3** key to open the [Send File] window.
4. Press the ↑ or ↓ key to select the file to send and press the **Enter** key.
5. Press the **Enter** key again.



Sending volume (percentage of message transmitted, counts upward as the message is being transmitted), ARQ error count and ARQ transmission time appear on the screen. "Lock" appears in reverse video when the mark and space signals in the received signal are normal. [ARQ Error] shows the number of errors found during transmission. [ARQ Time] is the time in seconds the communication connected.



6. After the message is transmitted, press the function key **F10** to disconnect the line.

How to type a message from the keyboard

1. After exchanging answerback code by the function keys **F7** and **F8**, type your message directly from the keyboard.
2. To change the direction of traffic, press the function key **F9**, or **+** and **?** in order. The other station becomes the information sending station, your station becomes the information receiving station. Receive a message from the sending station.
3. After you have completed communications, press the function key **F7** to request the answerback code of the other station.
4. Press the function key **F8** to transmit your own answerback code.
5. Press the function key **F10** to disconnect the line.

Note: When you are requested to change the direction of traffic while transmitting a message, or communication is interrupted because of an error, some of the final characters on the screen may not be sent to the receiving station.

How to stop transmission

1. Press the function key **F3** then the **4** key. The message "Send Canceled" appears on the screen. Transmission is stopped but the line is still connected.
2. Press the function key **F10** to disconnect the line.

10.3 FEC Mode Operation

The FEC mode transmits the same data twice for less errors. Compared with the ARQ mode, the FEC mode is better for communication when the signal is weak.

1. Press the function key **F3**.
2. Press the **1** key to open the [Call Station] menu.
3. Press the ↑ or ↓ key to select a station which is registered for the FEC mode.
4. Press the **Enter** key. "Connect" appears in reverse video.
5. Transmit a message directly input from the keyboard, or do the following to transmit a message stored on a floppy disk or an SD card:
   1) Press the function key **F3** then the **3** key to select [File to Send].
   2) Press the ↑ or ↓ key to select the file to send then press the **Enter** key.
6. After the message is transmitted, press the function key **F10** to disconnect the line.

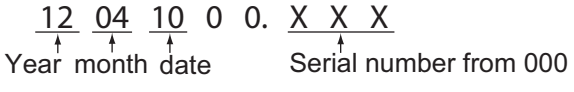
Note 1: When communication is force-quitted by control display, some of the final characters may not be sent to the receiving station.

Note 2: When the continuous transmission by FEC mode exceeds one minutes, the output power reduces to low automatically to prevent overheating.

10.4 How to Select Reception Mode

1. Press the function key **F3** then the **6** key to open the [Manual Reception] menu.
2. Press the ← or → key to select the reception mode:
   [AUTO]: Automatic reception in ARQ or FEC mode
   [ARQ]: International radiotelex ARQ mode
   [FEC]: International radiotelex FEC mode
3. Press the **Enter** key. The reception mode appears on the screen.

All received (and transmitted) messages are saved to a floppy disk or an SD card when [TX/RX MSG Save] is [ON] in the [System] menu. The file is automatically named (see the figure).



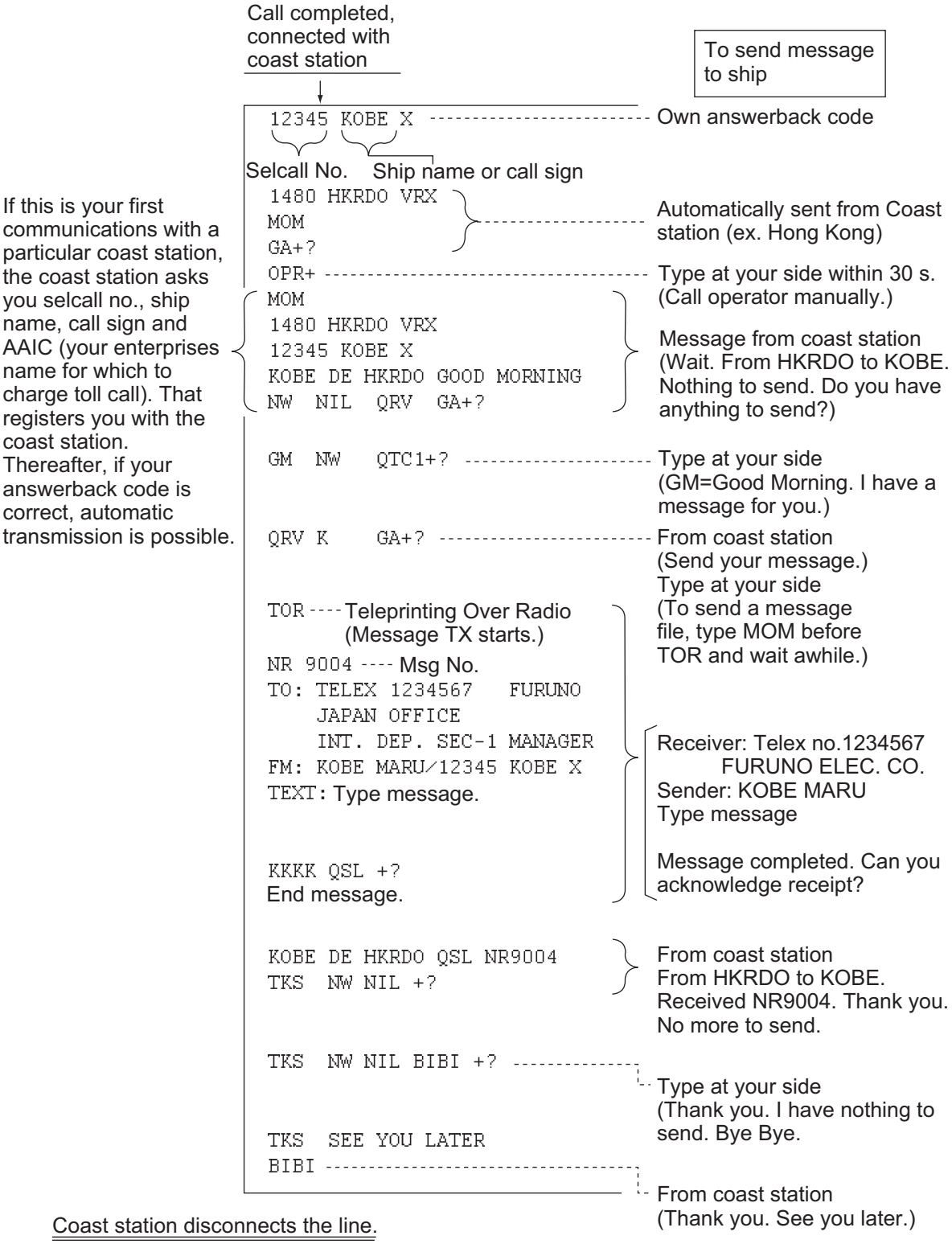
Note 1: Press the function key **F10** to cancel NBDP reception (quit waiting for connection).

Note 2: For NBDP procedure controlled by DSC function, the function key **F10** is not available to cancel NBDP reception. Select [QUIT] option on the control panel to cancel NBDP reception.

Note 3: During reception in FEC mode, the characters which are not detected because of reception error are displayed as "*".

10.5 Communication Example

Call the coast station following the procedure in section 10.2. Then, communicate with the coast station. Below is a communication example.



Communications example

Table of abbreviations

Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	My station name is ...
QRC	By what private enterprise are the accounts for charges for your station settled?	The accounts for my station are settled by the private enterprise ...
QRU	Have you any thing for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRX	When will you call me again?	I will call you again at ... hours [on ... kHz].
QSJ	What is the charge to be collected to ... including your internal charge?	The charge to be collected to ... including my internal charge is ...
QSL	Can you acknowledge receipt?	I can acknowledge receipt.
QSX	Will you listen to ... [call sign] on ... kHz?	I am listening to ... [call sign] on ... kHz.
QTA	Shall I cancel message number ...?	Cancel message number ...
QTC	How many messages have you to send?	I have ... message for you.
QTU	What are the hours your station is open?	My station is open from ... to ... hours.
Abbreviation	**Definition**	
BK	Signal used to interrupt a transmission progress.	
CFM	Confirm	
DE	From ...	
K	Invitation to transmit.	
NIL	I have noting to send to you.	
NW	Now	
PSE	Please	
R	Received	
REF	Reference to ...	
SVC	Prefix indicating a service telegram.	

Command and abbreviation

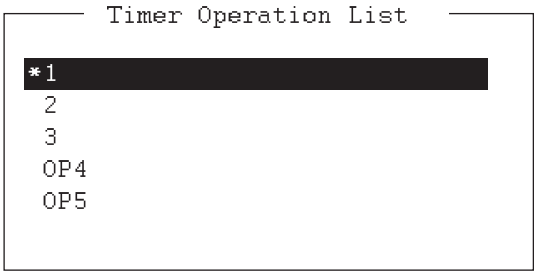
Command	Function
TGM+	To indicate that the following message is a radiotelegram.
MSG+	To indicate that the ship station needs to be connected immediately any message held.
OPR+	Call operator.
URG+	Safety, urgency and distress message.
MED+	Request medical advice.
TEST+	Request coast station to send a test message for checking the ship station.
BRK+	To clear the connection with the coast station.
Abbreviation	**Function**
GA+	I am ready. Transmit your command.
MOM	Wait a moment.
MSG+	Request pending messages from the shore.
KKKK or NNNN	Terminate a message.
XXXXX	Typo

10.6 Timer Operation

A built-in timer permits automatic transmission and reception of telex messages.

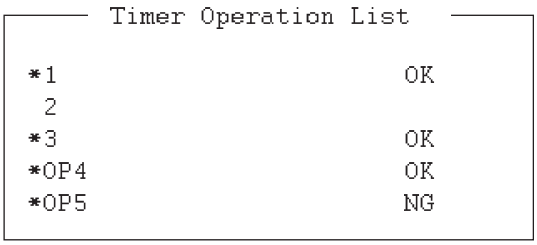
10.6.1 How to enable timer operation

1. Press the function key **F3** to open the [Operate] menu.
2. Press the **7** key to open the [Timer Operation List].
3. Press the ↑ or ↓ key to select the operation (name) to execute.
4. Press the **Enter** key. An asterisk appears beside the operation selected and "T. Op" appears in reverse video on the communication status screen. If a file stored on a floppy disk or an SD card is to be sent, be sure the floppy disk or the SD card containing the file is inserted in the drive.



5. If desired, select another operation (name) then press the **Enter** key.
6. Press the **Esc** key.

When the predetermined time passed, the NBDP terminal unit automatically sends or receives the message. The results of timer operation are displayed as either [OK] or [NG] (No Good) on the [Timer Operation List] window.



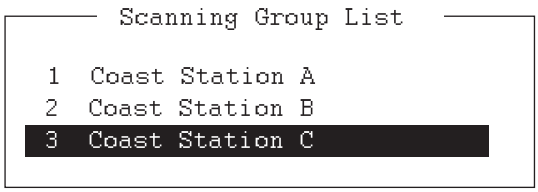
10.6.2 How to stop timer operation

1. Press the function key **F3**.
2. Press the **7** key.
3. Press the ↑ or ↓ key to select the operation (name) which has an asterisk attached to it then press the **Enter** key. Remove all asterisks to cancel all timer programs. "T. Op" disappears from the communication status screen.

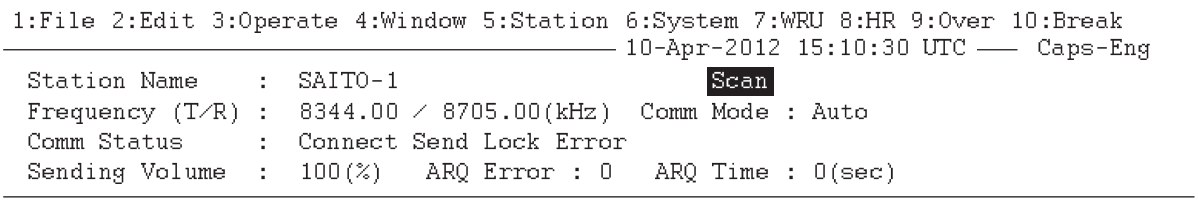
10.7 Scanning

The radio equipment scans a group of operator-selected frequencies (channels), and stops scanning when a signal is received. See section 8.5 for registeration of scan group.

1. Press the function key **F3** then the **5** key to open [Scanning Group List]. You can confirm the scan channel by pressing the ↑ or ↓ key while pressing the **Shift** key.



2. Press the ↑ or ↓ key to select a scan group then press the **Enter** key. The scanning starts and the indication "Scan" appears in reverse video. Further, the name of the scan group appears in the [Station Name] field.



Communication status screen

3. Press the function key **F3** then the **5** key to stop scanning. "Scan" disappears from the communication status screen.

10.8 Communication Buffer

The communication buffer is a temporary memory which stores the transmitted and received messages. To display the contents of the communication buffer, do the following:

1. If necessary, close the [Edit] window 1 or 2, pop-up, or menu.
2. Press the **Pg Up** or **Page Up**, or **Pg Dn** or **Page Down** key. The contents of the communication buffer are displayed.

Press the **P** key while pressing the **Ctrl** key to print them. Press the function key **F1** then the **9** key to erase the contents of the buffer. To erase the contents from the screen, do one of the following:

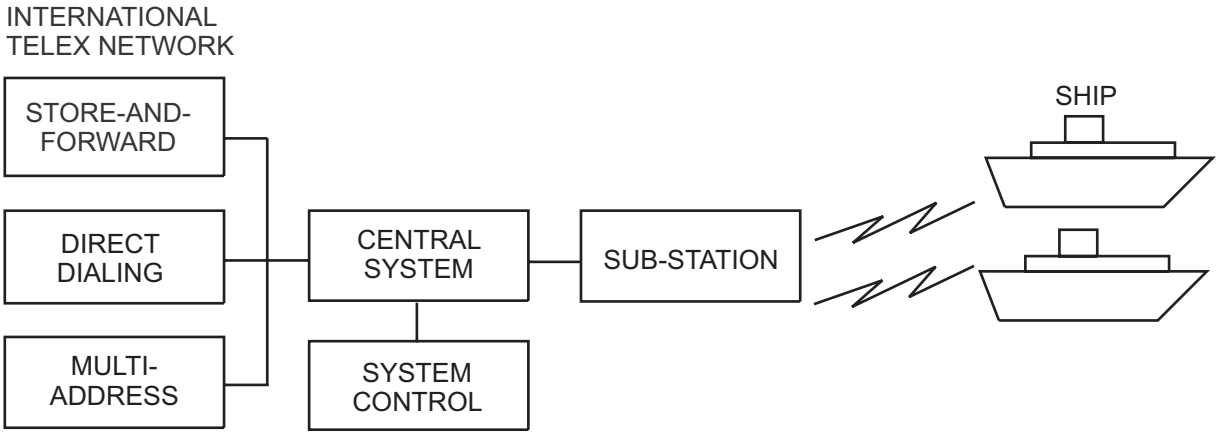
- Press the **Pg Dn** or **Page Down** key on the last page.
- Press the ↓ key at the bottom line.
- Press the **Esc** key.

10.9 Preparation of Macrofiles for Automatic Telex

10.9.1 Automatic telex overview

This section shows you how to communicate with a coast station which handles automatic telex transmission, using macrofiles. You need to register communication channels and stations, and prepare macrofiles.

The coast stations using automatic telex are MCI Marine Services (North America), Sydney Radio (Australia), Lyngby Radio (Denmark), and others. The procedure is mostly common to all coast stations, however refer to the coast station's traffic manual for details.



Sample of automatic telex network

The services available in automatic telex are

- Message transfer between ship and coast station (store-and-forward)
- Connection with landline telex (direct dialing)
- Multi address

10.9.2 Preparations

You need to register the following three items to use automatic telex.

- Answerback code
- Scan groups
- Station names

How to register answerback code

The coast station assigns a telex number. This number functions as an answerback code. An answerback code contains the following:

OOOOO SHIP X

OOOOO: Coast station-assigned five-digit telex code
SHIP: Ship name
X: For shipboard station, normally X is entered

The procedure to register the answerback code is the same as which appears in paragraph 8.1.1. If an answerback code was registered before the commissioning of

the coast station, a new answerback code must be entered. Contact FURUNO or an authorized FURUNO agent or dealer to enter a new answerback code.

How to register scan groups

The central system emits a free-signal to indicate a coast station radio channel is in idle condition and available for ship-to-shore calls. The free-signal is detected and recognized by the shipboard equipment as a permission to start the transmission. Then, the shipboard operator initiates a call.

You can automatically scan search for the free-signal by registering coast station radio channels in scan group(s). The procedure to register scan groups for coast station use is the same as that which appears in paragraph 8.5.1.

How to register stations

The next step is to enter station name. The procedure is the same as that shown in paragraph 8.3.1.

10.9.3 Commands

The following tables describe the commands for macro operation.

Command (Prefixed with @)	Parameter	Content
CALL	S: Station Name	Calling station name and ID on assigned parameter
FREE (support command for CALL)	Two digits, 0-99 min	Free-channel signal searching time according to assigned parameter (default setting: 10 min)
	R	Detect free-channel signal of 200 ms dot pattern
	RR	Detect free-channel signal of 300 ms dot pattern
	RRR	Detect free-channel signal of 400 ms dot pattern
	$RRRR$	Detect free-channel signal of 500 ms dot pattern
	$RRRRR$	Detect free-channel signal of 600 ms dot pattern
	$RRRRRR$	Detect free-channel signal of 700 ms dot pattern
	$RRRRRRR$	Detect free-channel signal of 800 ms dot pattern
	$RRRRRRRR$	Detect free-channel signal of 900 ms dot pattern
	The combination of two capital letters and "c". For example: EcR	Detect free-channel signal like ARQ call block E, RQ, R "c" for repetition signal RQ.

Command (Prefixed with @)	Parameter	Content
RETRY (support command for CALL)	Two digits, 0-99 min	Calling according to assigned parameter (default setting: 10 min)
CASE	Text	For receiving a message (designated by parameter) transmitted by coast station
TIMEOUT (support command for CALL)	Two digits, 0-99 min	Time allotted for reception of message by CASE command
SEND	Text	Text transmitted according to assigned parameters
	A: file name	Send a file from floppy disk
WRU HR OVER BREAK	None	Function keys **F7** - **F10**
DISPLAY	Text	Text of message appears
INPUT	None	Waiting for keyboard input. Transmit keyboard input message.

Example: Commands

Command	Function
BRK+	Disconnect communications line
DIRTLX ..... +	Direct dialing telex (receive only)
KKKK	Terminate message
LTR+	For telex letters mailed from Operations Station to destinations worldwide
MED+	Request medical advice
OPR+	Request operating assistance
POS+	Send position data
STA+	Status requested on a store-and-forward message
TLX ..... +	Store-and-forward method

For details, see the coast station's traffic manual.

10.9.4 Store-and-forward method

The following is the sequence of events for transmission of a file by the store-and-forward method.

1. Ship station sends message to coast station.
2. Coast station stores message in memory buffer.
3. Ship station and coast station clear the radio circuit.
4. Coast station sends message to subscriber designated.

Actual procedure for store-and-forward telex

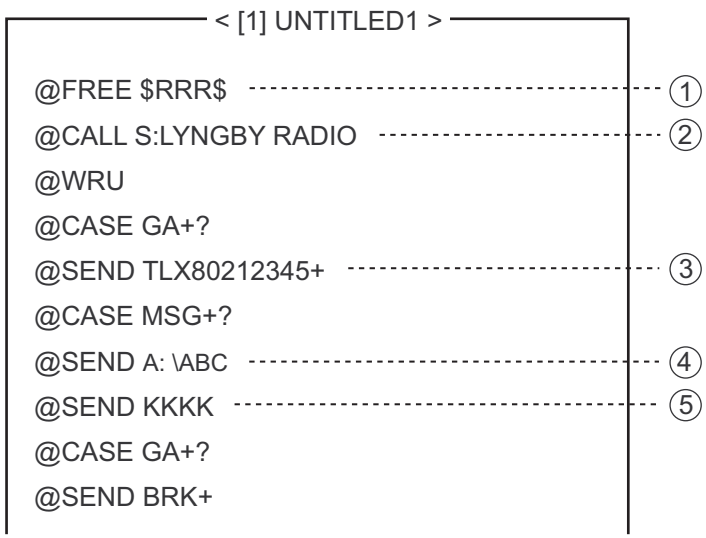
No.	Procedure	Display	Remarks
1	Call a coast station.	"Connect" appears in reverse video and bell sounds.	Free-signal found; radio circuit ready.
2	Transmit WRU signal.	00190 TLG DK 26XXX SHIP X GA+?	Initial identity exchange between coast station and shipboard station.
3	Key in subscriber's telex number. Example: (Hong Kong) 12345 TLX80212345+	MSG+?	Request to start message transmission.
4	Transmit file.		Message transmission.
5	When transmission is completed, type KKKK.	26XXX SHIP X 00190 TLG DK GA+?	Transmit your answerback code. Receive other party's answerback code.
6	Transmit BREAK command to clear radio circuit.		

Procedure to prepare a macrofile for store-and-forward method

You need a macrofile to enable automatic message transmission by store-and-forward method. After preparing it, save it to a floppy disk for future use.

1. Press the function key **F1** to open the [File] menu.
2. For IB-585, press the **B** key. For IB-583, press the **1** key.

3. Prepare the macrofile. Below is a simple example.



① Search dot pattern free signal until it is found

② Station name (Example: LYNGBY RADIO)
Who are you?
Station identity exchange

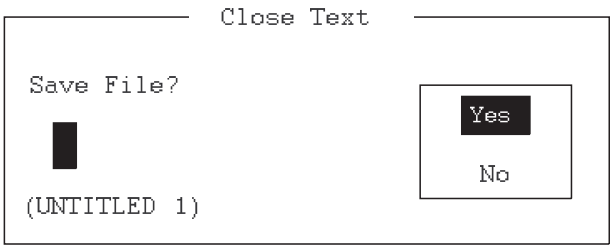
③ Subscriber's telex number (in example, 802 is country code of Hong Kong) for store-and-forward method

④ Location and name of file message
A: \ABC

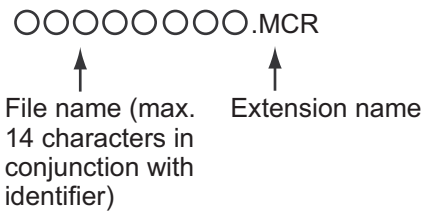
⑤ Request for termination of message

Sample macrofile for store-and-forward method

4. Press the function key **F1** to open the [File] menu.
5. Press the **3** key. The [Close Text] appears.



6. Press the **Enter** key then enter a file name as follows:



7. Press the **Enter** key.

DIRTLX macrofile

Sample DIRTLX macrofile

```
< [1] UNTITLED1 >

@FREE $RRR$ ---------- ①
@CALL S:LYNGBY RADIO ---------- ②
@WRU
@CASE GA+?
@SEND DIRTLX725644325+ ---------- ③
@CASE MSG+?
@SEND A: \ABC ---------- ④
@SEND KKKK ---------- ⑤
@CASE GA+?
@SEND BRK+
```

① Search dot pattern free signal until it is found

② Station name (Example: LYNGBY RADIO)
Who are you?
Station identity exchange

③ Subscriber's telex number (in example, 72 is country code of Japan) for direct dialing mode

④ Location and name of file message
A: \ABC

⑤ Request for termination of message

Sample DIRLTX macrofile

10.10 Automatic Telex Using Macrofile

This section describes how to transmit a telex message using a macrofile.

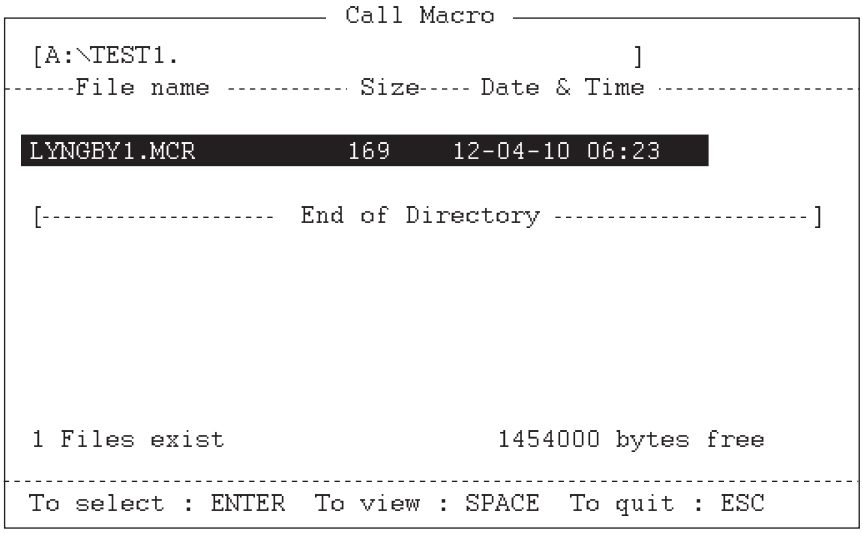
Basic procedure

1. Register an answerback code (telex number assigned by the coast station).
2. Register the coast station frequency and channel to a scan group.
3. Register the station name including the scan group name.
4. Retrieve a macrofile. Include the station name and the message file name. Type the message and save the file.
5. Open the macro operation menu and select a macrofile. Your message will be transmitted automatically. Below is the sequence of automatic message transmission to a coast station.
   1) Search for free-signal
   2) Call coast station on one of its radio channels
   3) After connection is established, identity exchange
   4) Transmission of service category and subscriber's address
   5) Transmission of message

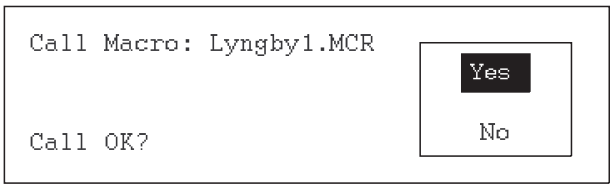
6) Transmission of termination of message signal
7) Identity exchange
8) Clearing of radio circuit

Actual procedure

1. Press the function key **F3** to open the [Operate] menu.
2. Press the **2** key to open the [Call Macro] window.



3. Press the ↓ key to select a macrofile.
4. Press the **Enter** key.



5. Press the **Enter** key to confirm the macrofile selected. The message "Wait for Free Signal" appears. Your message is transmitted automatically.

11. MAINTENANCE & TROUBLESHOOTING

⚠ WARNING

ELECTRICAL SHOCK HAZARD
Do not open the equipment.

Only qualified personnel should work inside the equipment.

NOTICE

Do not apply paint, anti-corrosive sealant or contact spray to plastic parts or equipment coating.

Those items contain products that can damage plastic parts and equipment coating.

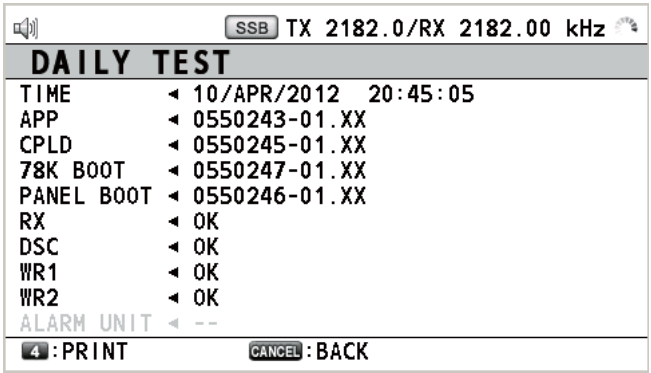
11.1 Test

Do the following tests to check the radiotelephone for proper operation.

Daily test

1. Rotate the **ENTER** knob to select [TEST] on the [MENU] screen then push the knob.

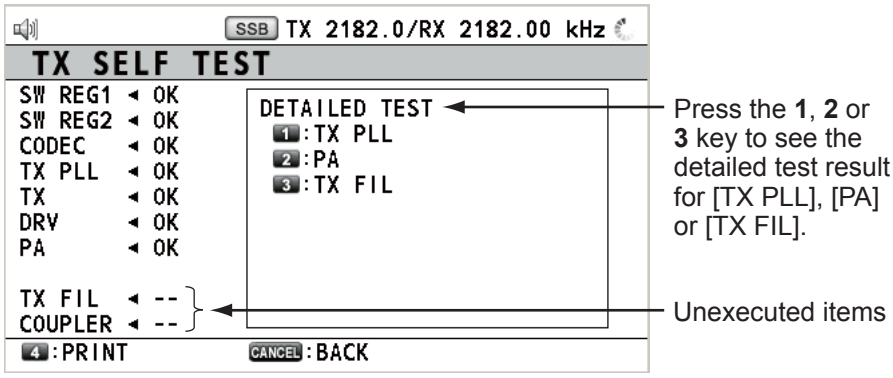
2. With [DAILY TEST] selected, push the **ENTER** knob to start the test. After completing the test, the audio alarm sounds and the screen shown below appears. This screen shows:
   - Program version numbers.
   - Test results for RX, DSC, WR1 and WR2, shown as [OK] or [NG] (No Good). For NG, contact your dealer for advice. The DSC test checks, using a DSC signal, the encode and decode functions of the signal processor.



To print out the test result manually, press the **4** key. Automatic printing of the daily test is available. See section 6.6.

TX self test

1. Rotate the **ENTER** knob to select [TEST] on the [MENU] screen then push the knob.
2. Rotate the **ENTER** knob to select [TX SELF TEST] then push the knob. [OK] or [NG] (No Good) appears as the test result for each item. For [NG], contact your dealer for advice.

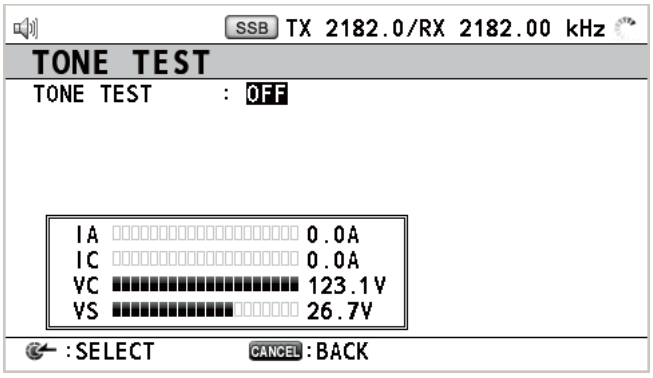


[SW REG1], [SW REG2]: For FS-2575/5075
[DRV]: For FS-2575/5075
[PA2], [COMB] ([DETAILED TEST] for [PA]): For FS-5075
Others: For FS-1575/2575/5075

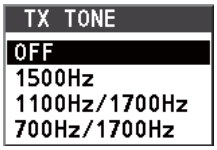
Tone test (SSB mode)

You can execute tone test with lowering transmission power.

1. Rotate the **ENTER** knob to select [TEST] on the [MENU] screen then push the knob.
2. Rotate the **ENTER** knob to select [TONE TEST] then push the knob.



3. With [OFF] selected, push the **ENTER** knob.



4. Rotate the **ENTER** knob to select the item desired then push the knob. Press the **PTT** switch of the handset to output the tone signal from the speaker.

11.2 Maintenance

Regular maintenance helps to keep your equipment in good condition and prevents future problems. Check the items shown in the table below.

Item	Check point	Remedy/Remarks
Antenna	Check for physical damage and corrosion.	Replace damaged parts.
Wire antenna	Check that the antenna is properly spanned and separated sufficiently from metallic structures.	If necessary, re-span antenna.
Insulators for antenna	Check for salt water deposits on insulators. Check that connection at the lead-in insulator is tight and rust-free.	Replace damaged insulator(s). Remove salt water deposits. Clean with fresh water, then dry. Remove rust, then tighten bolts and lock nuts. Cover metallic surface with sealing compound.
Antenna coupler	• Check condition of antenna terminal, ground, coaxial cable and control cable. • Check that coupler lid and cable glands are firmly secured. • Check for physical damage, corrosion and salt water deposits.	• Tighten the loosened connections. • Fasten the lid firmly and evenly to prevent water leakage. • Replace if damaged.
Control unit	• Check ground connection, control cable, and external equipment. • Confirm that there are no objects on the top of the control unit. • Remove dust from control unit with soft cloth. **Note:** Do not use chemical cleaners to clean the control unit; they can remove paint or markings and deform the equipment.	• Tighten the loosened connections; remove foreign materials from connectors. • Remove any objects. • Wipe the LCD carefully to prevent scratching, using tissue paper and an LCD cleaner. To remove dirt or salt deposits, use an LCD cleaner, wiping slowly with tissue paper so as to dissolve the dirt or salt. Change paper frequently so the salt or dirt does not scratch the LCD.
Transceiver unit	• Check connection at signal cable, coaxial cable, control cable, power cable, and navigator. • Confirm that there are no objects on the top of the cabinet.	• Tighten loosened connections; remove foreign materials from connectors. • Remove any objects.
Power supply	Check that the supply voltage at transmission is within the rated range (21.6 to 31.2 VDC at the power connector).	If not within the range, check power source. Low voltage may cause erratic operation.

11.3 Simple Troubleshooting

The table below provides possible problems and the means with which to restore normal operation. If normal operation cannot be restored, do not attempt to check inside the equipment. Any servicing should be referred to a qualified technician.

Problem	Probable cause	Remedy
Power cannot be turned on.	• Mains switchboard is off. • (DC) voltage is too high. • Battery has discharged, or poor contact at terminals.	• Turn on the mains switchboard. • Check supply voltage. • Recharge the battery and tighten the battery terminals.
Display indications do not appear.	Display brilliance is too low.	Press the **BRILL** key to adjust the display brilliance.
Power is on but no sound from the main speaker.	Main speaker is off.	Press the key to turn on the main speaker.
Poor articulation	Wrong class of emission.	Class of emission should match that of incoming signal.
Output power reduced to LOW	Power is automatically reduced to protect against overheating due to continuous transmission.	Wait until the unit cools.
Antenna coupler cannot tune antenna	• Antenna is disconnected or shorted to ground. • Antenna is out of tunable length. • Poor grounding of antenna coupler. • Breaker in coupler has tripped. • Connection cable loosened or disconnected.	• Check the antenna connection. • Recommended length is 10 to 18 meters. • Check coupler ground. • Check mains voltage and polarity. If normal, reset the breaker. • Check the cable.

11.4 Error Messages

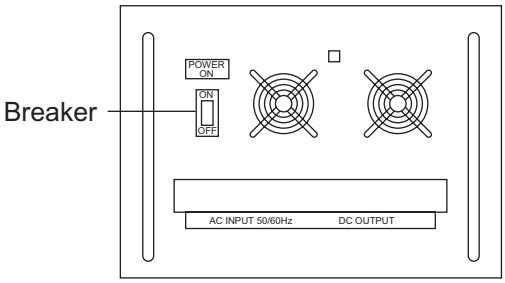
The table below shows error messages, their meanings, and remedies. To delete the messages, press the **CANCEL** key. If other error occurs, contact your dealer.

Error message	Meaning	Remedy
ERROR: TX PLL UNLOCK [CANCEL]: Stop alarm	TX PLL is unlocked. Transmission is stopped.	Contact your dealer.
ERROR: RX PLL UNLOCK [CANCEL]: Stop alarm	RX PLL is unlocked. Reception is stopped.	Contact your dealer.
ERROR: WR1(2) PLL UNLOCK [CANCEL]: Stop alarm	WR1(2) PLL is unlocked. Reception is stopped.	Contact your dealer.
ERROR: Tx power reduced. Main AMP heated. [CANCEL]: Stop alarm	Power amplifier is too hot. Transmission power is reduced to one level lower.	Allow amplifier to cool.
ERROR: Tx power reduced. Ship's main failure. [CANCEL]: Stop alarm	AC power is interrupted and replaced with DC power (only when connecting PR-850A).	Can use DC power with low transmission power. Check AC power and decrease the transmission power to the minimum.
System was rebooted.	Unusual event is detected.	System restarts automatically.

Error message	Meaning	Remedy
ERROR: VC error! Please restart the power supply. [CANCEL]: Stop alarm	VC voltage decreases. Transmission is stopped.	Reset the power. If normal operation is not restored, contact your dealer.

11.5 Breaker on PR-850A

The AC-DC power supply unit PR-850A has a circuit breaker. If the breaker has tripped, find the reason before resetting the breaker.



11.6 Test Call

This function sends a test signal to a coast or ship station, over one of six distress and safety frequencies. For that reason, it should not be executed unnecessarily. You can prepare a test call beforehand (see paragraph 6.16.5).

1. Press the **OTHER DSC MSG** key to open the [COMPOSE MESSAGE].
2. Rotate the **ENTER** knob to select [MSG TYPE] then push the knob.
3. Rotate the **ENTER** knob to select [TEST MSG] then push the knob. [PRIORITY] is automatically set to [SAFETY].
4. With [TO] selected, push the **ENTER** knob.
5. Rotate the **ENTER** knob to select [DIRECT INPUT] or [ADDRESS BOOK DATA] then push the knob.
   [ADDRESS BOOK DATA]: Select a MMSI from the [ADDRESS BOOK] (see section 6.15) then push the **ENTER** knob.
   [DIRECT INPUT]: Enter the MMSI of the station where to send the test message then push the **ENTER** knob.
6. With [DSC FREQ] selected, push the **ENTER** knob.
7. Rotate the **ENTER** knob to select DSC frequency then push the knob.
8. With [GO TO CALL] selected, push the **ENTER** knob to send the test message. The screen is changed to one for transmission. After the call is sent, the equipment waits for acknowledgement of the call. The timer starts counting up the time to wait for acknowledgement.
9. Do one of the following.

Test acknowledge message received

The audio alarm sounds and the message "TEST ACK received! [CANCEL]: Stop alarm" appears. Press the **CANCEL** key to silence the alarm.

No response

Re-send call: Rotate the **ENTER** knob to select [RESEND] in the user options area then push the knob.

Cancel call: Rotate the **ENTER** knob to select [QUIT] in the user options area then push the knob.

11.7 NBDP Terminal Unit Maintenance

Regular maintenance is important for good performance. A regular maintenance program should be established and should at least include the items mentioned below.

11.7.1 Cleaning the equipment

Wipe the LCD carefully to prevent scratching, using tissue paper and an LCD cleaner. To remove dirt or salt deposits, use an LCD cleaner, wiping slowly with tissue paper so as to dissolve the dirt or salt. Change paper frequently so the salt or dirt does not scratch the LCD. Do not use solvents such as thinner, acetone or benzene for cleaning. Also, do not use degreaser or antifog solution, as they can strip the coating from the LCD.

11.7.2 Connectors and earth connection

Periodically check the connectors for proper seating and the earth connection for rust. Remove rust to maintain a good ground system.

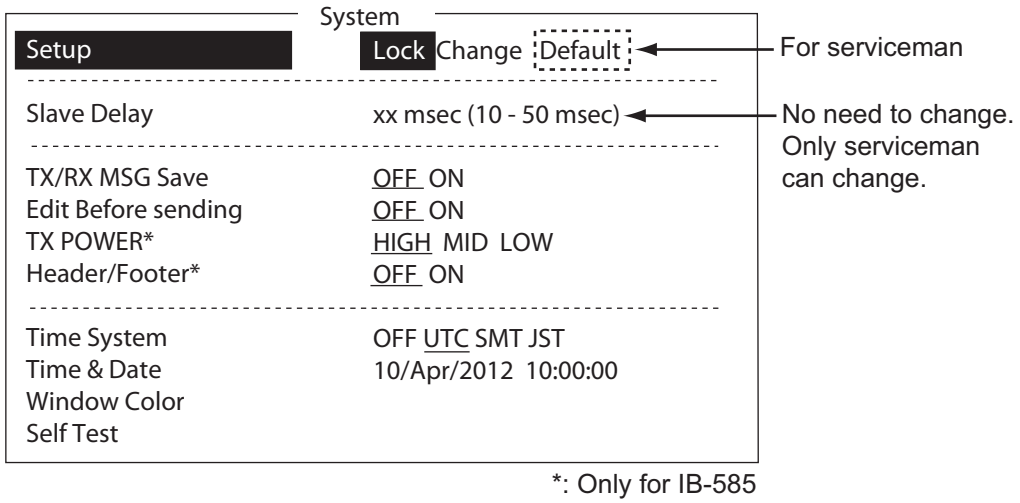
11.7.3 Floppy disk drive

Foreign materials on the floppy disk drive head can scratch the magnetic materials on the floppy, resulting in loss of data. Clean the floppy disk drive head regularly with a floppy disk drive cleaning disk to prevent erasure of information stored on disks.

11.7.4 Diagnostics

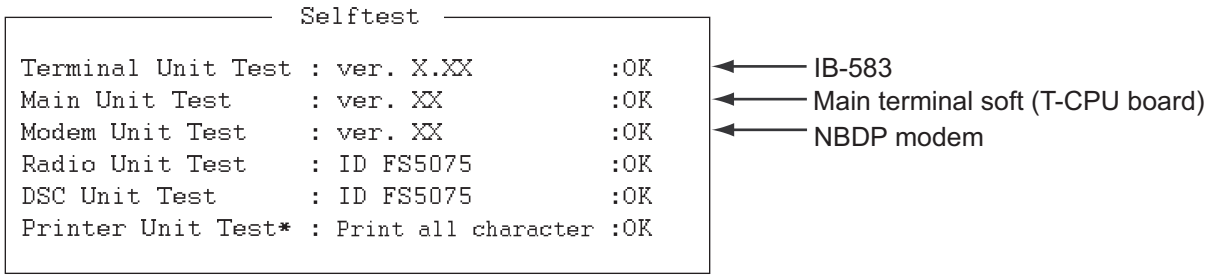
General diagnostics

1. Press the function key **F6** to open the [System] menu.



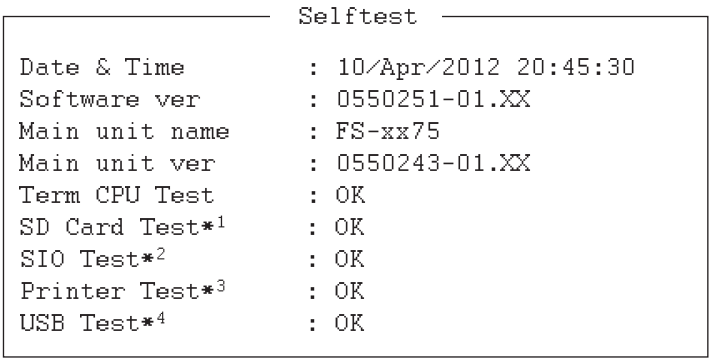
*: Only for IB-585

2. Select [Change] at [Setup].
3. Select [Self Test] at the bottom of the screen.
4. Press the **Enter** key. The results of the self test are displayed a short time later.



X.XX: Version No.
*: "NG" and "Printer not ready" when printer is off or abnormal.

Selftest results for IB-583



XX: Version No.
xx: FS-1575, FS-2575 or FS-5075
*1: “NG” when the SD card is not inserted.
*2: “NG” when FS-xx75 is turned off.
*3: "NG" and "Printer not ready" when printer is off or abnormal.
*4: The message “Press 3 keys” appears. Press any three keys.

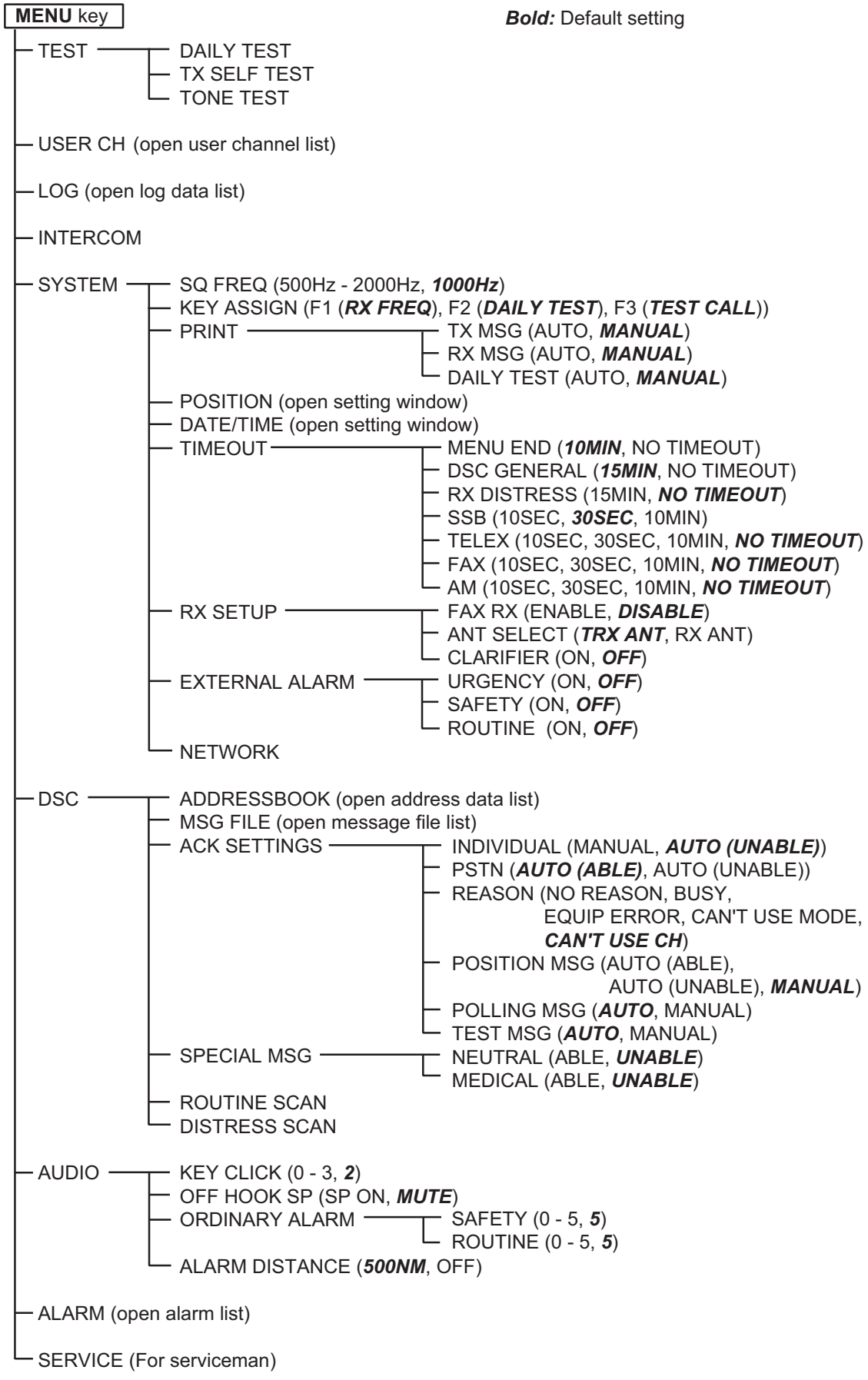
Selftest results for IB-585

Self test results

The test results are shown as [OK] or [NG] (No Good). For any [NG], check the connection of the equipments then try the self test again. If it appears again, call for service. When the test is completed, the message "Selftest Completed. Press any key to escape." appears.

This page is intentionally left blank.

APPENDIX 1 MENU TREE



NBDP terminal unit (telex)

Bold: Default setting

- F1: File
  - 1: New
  - 2: Open
  - 3: Close
  - 4: Delete
  - 5: Rename
  - 6: Real Time Printing
  - 7: File to Print
  - 8: Cancel Priniting
  - 9: Clear Buffer
  - 0: Floppy Disk Format*1 or SD Card Format*2
  - A: Remove SD Card*2
  - B: New Macro*2
- F2: Edit
  - 1: Undo
  - 2: Cut
  - 3: Copy
  - 4: Paste
  - 5: Select All
  - 6: Search
  - 7: Replace
  - 8: Goto Top
  - 9: Goto Bottom
  - 0: Goto Line
  - A: Change Text
- F3: Operate
  - 1: Call Station
  - 2: Macro Operation
  - 3: File to Send
  - 4: Cancel Sending
  - 5: Scan (Start/Stop)
  - 6: Manual Reception
  - 7: Timer Operation
  - 8: Manual Calling
  - 9: Set Frequency
  - 0: Set Channel*2
- F4: Window
  - 1: Calendar
  - 2: Distress Frequency Table
  - 3: Screen Saver*2 (***OFF***, ON)
- F5: Station
  - 1: Station Entry
  - 2: Timer Operation (Entry)
  - 3: Scan Entry
  - 4: User Channel Entry*1
  - 5*3: Answerback Code Entry
  - 6*3: Group ID Entry (4/5 digit)
  - 7*3: Group ID Entry (9 digit)
  - 8*3: Select ID Entry (4/5 digit)
  - 9*3: Select ID Entry (9 digit)

- F6: System*1
  - Setup (***Lock***, Change, Default)
  - Slave Delay (0-50 msec, ***8***)
  - TX/RX MSG Save (***OFF***, ON)
  - Edit Before Sending (***OFF***, ON)
  - Time System (OFF, ***UTC***, SMT, JST)
  - Time & Date
  - Window Color
    - Window Color Setup
      - Window
        - Window: BASE WINDOW, BACK SCROLL, EDIT 1-2, FUNCTION, SUB MENU 1-3, MESSAGE
        - Fore Color / Back Color: L-WHITE, YELLOW, L-MAGENTA, L-RED, L-CYAN, L-GREEN, L-BLUE, GRAY, WHITE, BROWN, MAGENTA, RED, CYAN, GREEN, BLUE, BLACK
      - Default Color
  - Self Test

- F6: System*2
  - Setup (***Lock***, Change, Default)
  - Slave Delay (10-50 msec, ***12***)
  - TX/RX MSG Save (***OFF***, ON)
  - Edit Before Sending (***OFF***, ON)
  - TX Power (***HIGH***, MID, LOW*4, (LOW1, LOW2)*5)
  - Header/Footer (***OFF***, ON)
  - Time System (OFF, ***UTC***, SMT, JST)
  - Time & Date
  - Window Color
    - Window Color Edit
    - Target Present (1, 2, 3)
    - Load Default
    - Window: BASE WINDOW, BACK SCROLL, EDIT 1-2, FUNCTION, SUB MENU 1-3, MESSAGE
    - Fore Color / Back Color: WHITE, BLACK, L-WHITE, GRAY, L-BLUE, BLUE, L-GREEN, GREEN, L-CYAN, CYAN, L-RED, RED, L-MAGENTA, MAGENTA, L-YELLOW, YELLOW
    - Brightness (0 - 10, ***10***)
  - Self Test

*1: For IB-583
*2: For IB-585
*3: For IB-585, the numbers after 5 are moved up.
*4: For FS-1575/2575
*5: For FS-5075

F7: WRU (Who are you?)
F8: HR (Here is)
F9: Over
F10: Break
F11: Setup*2 (For serviceman)

APPENDIX 2 FREQUENCY TABLES

DSC frequency table

TX (kHz)	RX (kHz)	Remarks	File Name
2187.5	2187.5	Distress and Safety Frequencies	
4207.5	4207.5		
6312.0	6312.0		
8414.5	8414.5		
12577.0	12577.0		
16804.5	16804.5		
2189.5 (2177.0*)	2177.0	International Frequencies	INTL-2M
4208.0	4219.5		INTL-4M
6312.5	6331.0		INTL-6M
8415.0	8436.5		INTL-8M
12577.5	12657.0		INTL-12M
16805.0	16903.0		INTL-16M
18898.5	19703.5		INTL-18M
22374.5	22444.0		INTL-22M
25208.5	26121.0		INTL-25M
4208.5	4220.0	Local-1 Frequencies	LOCAL1-4M
6313.0	6331.5		LOCAL1-6M
8415.5	8437.0		LOCAL1-8M
12578.0	12657.5		LOCAL1-12M
16805.5	16903.5		LOCAL1-16M
18899.0	19704.0		LOCAL1-18M
22375.0	22444.5		LOCAL1-22M
25209.0	26121.5		LOCAL1-25M
4209.0	4220.5	Local-2 Frequencies	LOCAL2-4M
6313.5	6332.0		LOCAL2-6M
8416.0	8437.5		LOCAL2-8M
12578.5	12658.0		LOCAL2-12M
16806.0	16904.0		LOCAL2-16M
18899.5	19704.5		LOCAL2-18M
22375.5	22445.0		LOCAL2-22M
25209.5	26122.0		LOCAL2-25M

*: Ship-to-ship

Custom channels (to be programmed by FURUNO dealers)

CH NO	Ship Receive (kHz)	Ship Transmit (kHz)	Remarks

MF band working carrier frequencies (ref. US CFR 47 Part 80.371)

Region	Ship Transmit (kHz)	Ship Receive (kHz)
East Coast	2031.5 2118.0 2126.0 2142.0 2166.0 2198.0 2366.0 2382.0 2390.0 2400.0 2406.0	2490.0 2514.0[1] 2522.0 2538.0 2558.0 2590.0 2450.0 2482.0 2566.0 2400.0 2506.0
West Coast	2003.0 2009.0 2009.0 2031.5 2126.0 2206.0 2382.0 2406.0 2430.0	2450.0 2442.0 2566.0 2566.0 2522.0 2598.0 2466.0 2506.0 2482.0

Region	Ship Transmit (kHz)	Ship Receive (kHz)
Gulf Coast	2009.0 2134.0 2142.0 2158.0[1] 2166.0 2206.0 2366.0 2382.0 2430.0 2458.0	2466.0 2530.0 2538.0 2550.0[1] 2558.0 2598.0 2450.0 2482.0 2572.0 2506.0
Great Lakes[2]	2118.0 2158.0 2206.0	2514.0 2550.0 2582.0
Alaska	2131.0 2134.0 2237.0 2240.0	2309.0 2312.0 2397.0 2400.0
Hawaii	2134.0	2530.0
Caribbean	2009.0 2086.0[3] 2134.0	2506.0 2585.0 2530.0
Guam	2009.0	2506.0

Above frequencies are not programmed. Contact a FURUNO representative.

1 = Unlimited use December 15 to April 1
2 = 2206 kHz for distress only
3 = Limited to pep of 150 W

MF band SSB working carrier frequencies

CH NO	Ship Receive (kHz)	Ship Transmit (kHz)
241	1635	2060
242	1638	2063
243	1641	2066
244	1644	2069
245	1647	2072
246	1650	2075
247	1653	2078
248	1656	2081
249	1659	2084
250	1662	2087
251	1665	2090
252	1668	2093
253	1671	2096
254	1674	2099
255	1677	2102
256	1680	2105
257	1683	2108
258	1686	2111
259	1689	2114
260	1692	2117
261	1695	2120
262	1698	2123
263	1701	2126
264	1704	2129
265	1707	2132
266	1710	2135
267	1713	2138
268	1716	2060
269	1719	2063
270	1722	2066

CH NO	Ship Receive (kHz)	Ship Transmit (kHz)
271	1725	2069
272	1728	2072
273	1731	2075
274	1734	2078
275	1737	2081
276	1740	2084
277	1743	2087
278	1746	2090
279	1749	2093
280	1752	2096
281	1755	2099
282	1758	2102
283	1761	2105
284	1764	2108
285	1767	2111
286	1770	2114
287	1773	2117
288	1776	2120
289	1779	2123
290	1782	2126
291	1785	2129
292	1788	2132
293	1791	2135
294	1794	2138
295	1797	2060

4/6 MHz ITU SSB carrier frequencies (ITU RR Appendix 16)

4 MHz SSB (J3E)		
ITU CH NO	Ship RX	Ship TX
401	4357	4065
402	4360	4068
403	4363	4071
404	4366	4074
405	4369	4077
406	4372	4080
407	4375	4083
408	4378	4086
409	4381	4089
410	4384	4092
411	4387	4095
412	4390	4098
413	4393	4101
414	4396	4104
415	4399	4107
416	4402	4110
417	4405	4113
418	4408	4116
419	4411	4119
420	4414	4122
421	4417	4125
422	4420	4128
423	4423	4131
424	4426	4134
425	4429	4137
426	4432	4140
427	4435	4143
428	4351	4351
429	4354	4354
430	4146	4146
431	4149	4149
432 (01)	4000	4000
433 (02)	4003	4003
434 (03)	4006	4006
435 (04)	4009	4009
436 (05)	4012	4012
437 (06)	4015	4015
438 (07)	4018	4018
439 (08)	4021	4021
440 (09)	4024	4024
441 (10)	4027	4027
442 (11)	4030	4030
443 (12)	4033	4033
444 (13)	4036	4036
445 (14)	4039	4039
446 (15)	4042	4042
447 (16)	4045	4045
448 (17)	4048	4048
449 (18)	4051	4051
450 (19)	4054	4054
451 (20)	4057	4057
452 (21)	4060	4060

CH NOs in ( ) are ITU NOs (RR Section C-1).

6 MHz SSB (J3E)		
ITU CH NO	Ship RX	Ship TX
601	6501	6200
602	6504	6203
603	6507	6206
604	6510	6209
605	6513	6212
606	6516	6215
607	6519	6218
608	6522	6221
609	6224	6224
610	6227	6227
611	6230	6230

These frequencies are factory programmed.

8 MHz ITU SSB carrier frequencies (ITU RR Appendix 16)

8 MHz SSB (J3E) - Duplex		
ITU CH NO	Ship RX	Ship TX
801	8719	8195
802	8722	8198
803	8725	8201
804	8728	8204
805	8731	8207
806	8734	8210
807	8737	8213
808	8740	8216
809	8743	8219
810	8746	8222
811	8749	8225
812	8752	8228
813	8755	8231
814	8758	8234
815	8761	8237
816	8764	8240
817	8767	8243
818	8770	8246
819	8773	8249
820	8776	8252
821	8779	8255
822	8782	8258
823	8785	8261
824	8788	8264
825	8791	8267
826	8794	8270
827	8797	8273
828	8800	8276
829	8803	8279
830	8806	8282
831	8809	8285
832	8812	8288
833	8291	8291
834	8707	8707
835	8710	8710
836	8713	8713
837	8716	8716
838	8294	8294
839	8297	8297

8 MHz SSB (J3E) - Simplex		
ITU CH NO	Ship RX	Ship TX
840 (01)	8101	8101
841 (02)	8104	8104
842 (03)	8107	8107
843 (04)	8110	8110
844 (05)	8113	8113
845 (06)	8116	8116
846 (07)	8119	8119
847 (08)	8122	8122
848 (09)	8125	8125
849 (10)	8128	8128
850 (11)	8131	8131
851 (12)	8134	8134
852 (13)	8137	8137
853 (14)	8140	8140
854 (15)	8143	8143
855 (16)	8146	8146
856 (17)	8149	8149
857 (18)	8152	8152
858 (19)	8155	8155
859 (20)	8158	8158
860 (21)	8161	8161
861 (22)	8164	8164
862 (23)	8167	8167
863 (24)	8170	8170
864 (25)	8173	8173
865 (26)	8176	8176
866 (27)	8179	8179
867 (28)	8182	8182
868 (29)	8185	8185
869 (30)	8188	8188
870 (31)	8191	8191

CH NOs in ( ) are ITU NOs (RR Section C-1).

12/16 ITU SSB carrier frequencies (ITU RR Appendix 16)

12 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
1201	13077	12230
1202	13080	12233
1203	13083	12236
1204	13086	12239
1205	13089	12242
1206	13092	12245
1207	13095	12248
1208	13098	12251
1209	13101	12254
1210	13104	12257
1211	13107	12260
1212	13110	12263
1213	13113	12266
1214	13116	12269
1215	13119	12272
1216	13122	12275
1217	13125	12278
1218	13128	12281
1219	13131	12284
1220	13134	12287
1221	13137	12290
1222	13140	12293
1223	13143	12296
1224	13146	12299
1225	13149	12302
1226	13152	12305
1227	13155	12308
1228	13158	12311
1229	13161	12314
1230	13164	12317
1231	13167	12320
1232	13170	12323
1233	13173	12326
1234	13176	12329
1235	13179	12332
1236	13182	12335
1237	13185	12338
1238	13188	12341
1239	13191	12344
1240	13194	12347
1241	13197	12350
1242	12353	12353
1243	12356	12356
1244	12359	12359
1245	12362	12362
1246	12365	12365

16 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
1601	17242	16360
1602	17245	16363
1603	17248	16366
1604	17251	16369
1605	17254	16372
1606	17257	16375
1607	17260	16378
1608	17263	16381
1609	17266	16384
1610	17269	16387
1611	17272	16390
1612	17275	16393
1613	17278	16396
1614	17281	16399
1615	17284	16402
1616	17287	16405
1617	17290	16408
1618	17293	16411
1619	17296	16414
1620	17299	16417
1621	17302	16420
1622	17305	16423
1623	17308	16426
1624	17311	16429
1625	17314	16432
1626	17317	16435
1627	17320	16438
1628	17323	16441
1629	17326	16444
1630	17329	16447
1631	17332	16450
1632	17335	16453
1633	17338	16456
1634	17341	16459
1635	17344	16462
1636	17347	16465
1637	17350	16468
1638	17353	16471
1639	17356	16474
1640	17359	16477
1641	17362	16480
1642	17365	16483
1643	17368	16486
1644	17371	16489
1645	17374	16492
1646	17377	16495
1647	17380	16498
1648	17383	16501
1649	17386	16504
1650	17389	16507

16 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
1651	17392	16510
1652	17395	16513
1653	17398	16516
1654	17401	16519
1655	17404	16522
1656	17407	16525
1657	16528	16528
1658	16531	16531
1659	16534	16534
1660	16537	16537
1661	16540	16540
1662	16543	16543
1663	16546	16546

Above is factory programmed.

18/19, 22, 25/26 ITU SSB carrier frequencies (ITU RR Appendix 16)

18/19 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
1801	19755	18780
1802	19758	18783
1803	19761	18786
1804	19764	18789
1805	19767	18792
1806	19770	18795
1807	19773	18798
1808	19776	18801
1809	19779	18804
1810	19782	18807
1811	19785	18810
1812	19788	18813
1813	19791	18816
1814	19794	18819
1815	19797	18822
1816	18825	18825
1817	18828	18828
1818	18831	18831
1819	18834	18834
1820	18837	18837
1821	18840	18840
1822	18843	18843

22 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
2201	22696	22000
2202	22699	22003
2203	22702	22006
2204	22705	22009
2205	22708	22012
2206	22711	22015
2207	22714	22018
2208	22717	22021
2209	22720	22024
2210	22723	22027
2211	22726	22030
2212	22729	22033
2213	22732	22036
2214	22735	22039
2215	22738	22042
2216	22741	22045
2217	22744	22048
2218	22747	22051
2219	22750	22054
2220	22753	22057
2221	22756	22060
2222	22759	22063
2223	22762	22066
2224	22765	22069
2225	22768	22072
2226	22771	22075
2227	22774	22078
2228	22777	22081
2229	22780	22084
2230	22783	22087
2231	22786	22090
2232	22789	22093
2233	22792	22096
2234	22795	22099
2235	22798	22102
2236	22801	22105
2237	22804	22108
2238	22807	22111
2239	22810	22114
2240	22813	22117
2241	22816	22120
2242	22819	22123
2243	22822	22126
2244	22825	22129
2245	22828	22132
2246	22831	22135
2247	22834	22138
2248	22837	22141
2249	22840	22144
2250	22843	22147

22 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
2251	22846	22150
2252	22849	22153
2253	22852	22156
2254	22159	22159
2255	22162	22162
2256	22165	22165
2257	22168	22168
2258	22171	22171
2259	22174	22174
2260	22177	22177

25/26 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
2501	26145	25070
2502	26148	25073
2503	26151	25076
2504	26154	25079
2505	26157	25082
2506	26160	25085
2507	26163	25088
2508	26166	25091
2509	26169	25094
2510	26172	25097
2511	25100	25100
2512	25103	25103
2513	25106	25106
2514	25109	25109
2515	25112	25112
2516	25115	25115
2517	25118	25118

MF band telex frequency table

CH NO	Ship TX (NBDP, DSC)	Ship RX (NBDP, DSC)	
2001	2142.0	1607.0	
2002	2142.5	1607.5	
2003	2143.0	1608.0	
2004	2143.5	1608.5	
2005	2144.0	1609.0	
2006	2144.5	1609.5	
2007	2145.0	1610.0	
2008	2145.5	1610.5	
2009	2146.0	1611.0	
2010	2146.5	1611.5	
2011	2147.0	1612.0	
2012	2147.5	1612.5	
2013	2148.0	1613.0	
2014	2148.5	1613.5	
2015	2149.0	1614.0	NBDP/DSC
2016	2149.5	1614.5	
2017	2150.0	1615.0	
2018	2150.5	1615.5	
2019	2151.0	1616.0	
2020	2151.5	1616.5	
2021	2152.0	1617.0	
2022	2152.5	1617.5	
2023	2153.0	1618.0	
2024	2153.5	1618.5	
2025	2154.0	1619.0	
2026	2154.5	1619.5	
2027	2155.0	1620.0	
2028	2155.5	1620.5	
2029	2156.0	1621.0	
2030	2156.5	1621.5	
2031	2157.0	1622.0	
2032	2157.5	1622.5	DSC
2033	2158.0	1623.0	
2034	2158.5	1623.5	
2035	2159.0	1624.0	
2036	2159.5	1624.5	

ITU Telex frequency table (1/4)

FURUNO

ITU TELEX FREQUENCY TABLE (1/4)

4 MHz BAND			6 MHz BAND			8 MHz BAND			12 MHz BAND			16 MHz BAND			18/19 MHz BAND			22 MHz BAND			25/26 MHz BAND		
No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX
4001	4172.5	4210.5	6001	6263.0	6314.5	8001	8376.5	8376.5	12001	12477.0	12579.5	16001	16683.5	16807.0	18001	18870.5	19681.0	22001	22284.5	22376.5	25001	25173.0	26101.0
4002	4173.0	4211.0	6002	6263.5	6315.0	8002	8377.0	8417.0	12002	12477.5	12580.0	16002	16684.0	16807.5	18002	18871.0	19681.5	22002	22285.0	22377.0	25002	25173.5	26101.5
4003	4173.5	4211.5	6003	6264.0	6315.5	8003	8377.5	8417.5	12003	12478.0	12580.5	16003	16684.5	16808.0	18003	18871.5	19682.0	22003	22285.5	22377.5	25003	25174.0	26102.0
4004	4174.0	4212.0	6004	6264.5	6316.0	8004	8378.0	8418.0	12004	12478.5	12581.0	16004	16685.0	16808.5	18004	18872.0	19682.5	22004	22286.0	22378.0	25004	25174.5	26102.5
4005	4174.5	4212.5	6005	6265.0	6316.5	8005	8378.5	8418.5	12005	12479.0	12581.5	16005	16685.5	16809.0	18005	18872.5	19683.0	22005	22286.5	22378.5	25005	25175.0	26103.0
4006	4175.0	4213.0	6006	6265.5	6317.0	8006	8379.0	8419.0	12006	12479.5	12582.0	16006	16686.0	16809.5	18006	18873.0	19683.5	22006	22287.0	22379.0	25006	25175.5	26103.5
4007	4175.5	4213.5	6007	6266.0	6317.5	8007	8379.5	8419.5	12007	12480.0	12582.5	16007	16686.5	16810.0	18007	18873.5	19684.0	22007	22287.5	22379.5	25007	25176.0	26104.0
4008	4176.0	4214.0	6008	6266.5	6318.0	8008	8380.0	8420.0	12008	12480.5	12583.0	16008	16687.0	16810.5	18008	18874.0	19684.5	22008	22288.0	22380.0	25008	25176.5	26104.5
4009	4176.5	4214.5	6009	6267.0	6318.5	8009	8380.5	8420.5	12009	12481.0	12583.5	16009	16687.5	16811.0	18009	18874.5	19685.0	22009	22288.5	22380.5	25009	25177.0	26105.0
4010	4177.0	4215.0	6010	6267.5	6319.0	8010	8381.0	8421.0	12010	12481.5	12584.0	16010	16688.0	16811.5	18010	18875.0	19685.5	22010	22289.0	22381.0	25010	25177.5	26105.5
4011	4177.5	4177.5	6011	6268.0	6268.0	8011	8381.5	8421.5	12011	12482.0	12584.5	16011	16688.5	16812.0	18011	18875.5	19686.0	22011	22289.5	22381.5	25011	25178.0	26106.0
4012	4178.0	4215.5	6012	6268.5	6319.5	8012	8382.0	8422.0	12012	12482.5	12585.0	16012	16689.0	16812.5	18012	18876.0	19686.5	22012	22290.0	22382.0	25012	25178.5	26106.5
4013	4178.5	4216.0	6013	6269.0	6320.0	8013	8382.5	8422.5	12013	12483.0	12585.5	16013	16689.5	16813.0	18013	18876.5	19687.0	22013	22290.5	22382.5	25013	25179.0	26107.0
4014	4179.0	4216.5	6014	6269.5	6320.5	8014	8383.0	8423.0	12014	12483.5	12586.0	16014	16690.0	16813.5	18014	18877.0	19687.5	22014	22291.0	22383.0	25014	25179.5	26107.5
4015	4179.5	4217.0	6015	6270.0	6321.0	8015	8383.5	8423.5	12015	12484.0	12586.5	16015	16690.5	16814.0	18015	18877.5	19688.0	22015	22291.5	22383.5	25015	25180.0	26108.0
4016	4180.0	4217.5	6016	6270.5	6321.5	8016	8384.0	8424.0	12016	12484.5	12587.0	16016	16691.0	16814.5	18016	18878.0	19688.5	22016	22292.0	22384.0	25016	25180.5	26108.5
4017	4180.5	4218.0	6017	6271.0	6322.0	8017	8384.5	8424.5	12017	12485.0	12587.5	16017	16691.5	16815.0	18017	18878.5	19689.0	22017	22292.5	22384.5	25017	25181.0	26109.0
4018	4181.0	4218.5	6018	6271.5	6322.5	8018	8385.0	8425.0	12018	12485.5	12588.0	16018	16692.0	16815.5	18018	18879.0	19689.5	22018	22293.0	22385.0	25018	25181.5	26109.5
4019	4181.5	4219.0	6019	6272.0	6323.0	8019	8385.5	8425.5	12019	12486.0	12588.5	16019	16692.5	16816.0	18019	18879.5	19690.0	22019	22293.5	22385.5	25019	25182.0	26110.0
4020	4202.5	4202.5	6020	6272.5	6323.5	8020	8386.0	8426.0	12020	12486.5	12589.0	16020	16693.0	16816.5	18020	18880.0	19690.5	22020	22294.0	22386.0	25020	25182.5	26110.5
4021	4203.0	4203.0	6021	6273.0	6324.0	8021	8386.5	8426.5	12021	12487.0	12589.5	16021	16693.5	16817.0	18021	18880.5	19691.0	22021	22294.5	22386.5	25021	25183.0	26111.0
4022	4203.5	4203.5	6022	6273.5	6324.5	8022	8387.0	8427.0	12022	12487.5	12590.0	16022	16694.0	16817.5	18022	18881.0	19691.5	22022	22295.0	22387.0	25022	25183.5	26111.5
4023	4204.0	4204.0	6023	6274.0	6325.0	8023	8387.5	8427.5	12023	12488.0	12590.5	16023	16694.5	16818.0	18023	18881.5	19692.0	22023	22295.5	22387.5	25023	25184.0	26112.0
4024	4204.5	4204.5	6024	6274.5	6325.5	8024	8388.0	8428.0	12024	12488.5	12591.0	16024	16695.0	16695.0	18024	18882.0	19692.5	22024	22296.0	22388.0	25024	25184.5	26112.5
4025	4205.0	4205.0	6025	6275.0	6326.0	8025	8388.5	8428.5	12025	12489.0	12591.5	16025	16695.5	16818.5	18025	18882.5	19693.0	22025	22296.5	22388.5	25025	25185.0	26113.0
4026	4205.5	4205.5	6026	6275.5	6326.5	8026	8389.0	8429.0	12026	12489.5	12592.0	16026	16696.0	16919.0	18026	18883.0	19693.5	22026	22297.0	22389.0	25026	25185.5	26113.5
4027	4206.0	4206.0	6027	6281.0	6327.0	8027	8389.5	8429.5	12027	12490.0	12592.5	16027	16696.5	16819.5	18027	18883.5	19694.0	22027	22297.5	22389.5	25027	28186.0	26114.0
4028	4206.5	4206.5	6028	6281.5	6327.5	8028	8390.0	8430.0	12028	12490.5	12593.0	16028	16697.0	16820.0	18028	18884.0	19694.5	22028	22298.0	22390.0	25028	25186.5	26114.5
4029	4207.0	4207.0	6029	6282.0	6328.0	8029	8390.5	8430.5	12029	12491.0	12593.5	16029	16697.5	16820.5	18029	18884.5	19695.0	22029	22298.5	22390.5	25029	25187.0	26115.0
4030	4207.5	4207.5	6030	6282.5	6328.5	8030	8391.0	8431.0	12030	12491.5	12594.0	16030	16698.0	16821.0	18030	18885.0	19695.5	22030	22299.0	22391.0	25030	25187.5	26115.5
4031	4208.0	4219.5	6031	6283.0	6329.0	8031	8391.5	8431.5	12031	12492.0	12594.5	16031	16698.5	16821.5	18031	18885.5	19696.0	22031	22299.5	22391.5	25031	25188.0	26116.0
4032	4208.5	4220.0	6032	6283.5	6329.5	8032	8392.0	8432.0	12032	12492.5	12595.0	16032	16999.0	16822.0	18032	18886.0	19696.5	22032	22300.0	22392.0	25032	25188.5	26116.5
4033	4209.0	4220.5	6033	6284.0	6330.0	8033	8392.5	8432.5	12033	12493.0	12595.5	16033	16999.5	16822.5	18033	18886.5	19697.0	22033	22300.5	22392.5	25033	25189.0	26117.0
			6034	6284.5	6330.5	8034	8393.0	8433.0	12034	12493.5	12596.0	16034	16700.0	16823.0	18034	18887.0	19697.5	22034	22301.0	22393.0	25034	25189.5	26117.5
			6035	6300.5	6300.5	8035	8393.5	8433.5	12035	12494.0	12596.5	16035	16700.5	16823.5	18035	18887.5	19698.0	22035	22301.5	22393.5	25035	25190.0	26118.0
			6036	6301.0	6301.0	8036	8394.0	8434.0	12036	12494.5	12597.0	16036	16701.0	16824.0	18036	18888.0	19698.5	22036	22302.0	22394.0	25036	25190.5	26118.5
			6037	6301.5	6301.5	8037	8394.5	8434.5	12037	12495.0	12597.5	16037	16701.5	16824.5	18037	18888.5	19699.0	22037	22302.5	22394.5	25037	25191.0	26119.0
			6038	6302.0	6302.0	8038	8395.0	8435.0	12038	12495.5	12598.0	16038	16702.0	16825.0	18038	18889.0	19699.5	22038	22303.0	22395.0	25038	25191.5	26119.5
			6039	6302.5	6302.5	8039	8395.5	8435.5	12039	12496.0	12598.5	16039	16702.5	16825.5	18039	18889.5	19700.0	22039	22303.5	22395.5	25039	25192.0	26120.0
			6040	6303.0	6303.0	8040	8396.0	8436.0	12040	12496.5	12599.0	16040	16703.0	16826.0	18040	18890.0	19700.5	22040	22304.0	22396.0	25040	25192.5	26120.5
			6041	6303.5	6303.5	8041	8396.5	8396.5	12041	12497.0	12599.5	16041	16703.5	16826.5	18041	18890.5	19701.0	22041	22304.5	22396.5	25041	25193.0	25193.0
			6042	6304.0	6304.0	8042	8397.0	8397.0	12042	12497.5	12600.0	16042	16704.0	16827.0	18042	18891.0	19701.5	22042	22305.0	22397.0	25042	25193.5	25193.5
			6043	6304.5	6304.5	8043	8397.5	8397.5	12043	12498.0	12600.5	16043	16704.5	16827.5	18043	18891.5	19702.0	22043	22305.5	22397.5	25043	25194.0	25194.0
			6044	6305.0	6305.0	8044	8398.0	8398.0	12044	12498.5	12601.0	16044	16705.0	16828.0	18044	18892.0	19702.5	22044	22306.0	22398.0	25044	25194.5	25194.5
			6045	6305.5	6305.5	8045	8398.5	8398.5	12045	12499.0	12601.5	16045	16705.5	16828.5	18045	18892.5	19703.0	22045	22306.5	22398.5	25045	25195.0	25195.0
			6046	6306.0	6306.0	8046	8399.0	8399.0	12046	12499.5	12602.0	16046	16706.0	16829.0	18046	18893.0	18893.0	22046	22307.0	22399.0	25046	25195.5	25195.5
			6047	6306.5	6306.5	8047	8399.5	8399.5	12047	12500.0	12602.5	16047	16706.5	16829.5	18047	18893.5	18893.5	22047	22307.5	22399.5	25047	25196.0	25196.0
			6048	6307.0	6307.0	8048	8400.0	8400.0	12048	12500.5	12603.0	16048	16707.0	16830.0	18048	18894.0	18894.0	22048	22308.0	22400.0	25048	25196.5	25196.5
			6049	6307.5	6307.5	8049	8400.5	8400.5	12049	12501.0	12603.5	16049	16707.5	16830.5	18049	18894.5	18894.5	22049	22308.5	22400.5	25049	25197.0	25197.0
			6050	6308.0	6308.0	8050	8401.0	8401.0	12050	12501.5	12604.0	16050	16708.0	16831.0	18050	18895.0	18895.0	22050	22309.0	22401.0	25050	25197.5	25197.5
			6051	6308.5	6308.5	8051	8401.5	8401.5	12051	12502.0	12604.5	16051	16708.5	16831.5	18051	18895.5	18895.5	22051	22309.5	22401.5	25051	25198.0	25198.0
			6052	6309.0	6309.0	8052	8402.0	8402.0	12052	12502.5	12605.0	16052	16709.0	16832.0	18052	18896.0	18896.0	22052	22310.0	22402.0	25052	25198.5	25198.5
			6053	6309.5	6309.5	8053	8402.5	8402.5	12053	12503.0	12605.5	16053	16709.5	16832.5	18053	18896.5	18896.5	22053	22310.5	22402.5	25053	25199.0	25199.0
			6054	6310.0	6310.0	8054	8403.0	8403.0	12054	12503.5	12606.0	16054	16710.0	16833.0	18054	18897.0	18897.0	22054	22311.0	22403.0	25054	25199.5	25199.5
			6055	6310.5	6310.5	8055	8403.5	8403.5	12055	12504.0	12606.5	16055	16710.5	16833.5	18055	18897.5	18897.5	22055	22311.5	22403.5	25055	25200.0	25200.0
			6056	6311.0	6311.0	8056	8404.0	8404.0	12056	12504.5	12607.0	16056	16711.0	16834.0	18056	18898.0	18898.0	22056	22312.0	22404.0	25056	25200.5	25200.5
			6057	6311.5	6311.5	8057	8404.5	8404.5	12057	12505.0	12607.5	16057	16711.5	16834.5	18057	18898.5	19703.5	22057	22312.5	22404.5	25057	25201.0	25201.0
			6058	6312.0	6312.0	8058	8405.0	8405.0	12058	12505.5	12608.0	16058	16712.0	16835.0	18058	18899.0	19704.0	22058	22313.0	22405.0	25058	25201.5	25201.5
			6059	6312.5	6331.0	8059	8405.5	8405.5	12059	12506.0	12608.5	16059	16712.5	16835.5	18059	18899.5	19704.5	22059	22313.5	22405.5	25059	25202.0	25202.0
			6060	6313.0	6331.5	8060	8406.0	8406.0	12060	12506.5	12609.0	16060	16713.0	16836.0				22060	22314.0	22406.0	25060	25202.5	25202.5
			6061	6313.5	6332.0	8061	8406.5	8406.5	12061	12507.0	12609.5	16061	16713.5	16836.5				22061	22314.5	22406.5	25061	25203.0	25203.0
						8062	8407.0	8407.0	12062	12507.5	12610.0	16062	16714.0	16837.0				22062	22315.0	22407.0	25062	25203.5	25203.5
						8063	8407.5	8407.5	12063	12508.0	12610.5	16063	16714.5	16837.5				22063	22315.5	22407.5	25063	25204.0	25204.0
						8064	8408.0	8408.0	12064	12508.5	12611.0	16064	16715.0	16838.0				22064	22316.0	22408.0	25064	25204.5	25204.5
						8065	8408.5	8408.5	12065	12509.0	12611.5	16065	16715.5	16838.5				22065	22316.5	22408.5	25065	25205.0	25205.0

ITU Telex frequency table (2/4)

FURUNO

ITU TELEX FREQUENCY TABLE (2/4)

4 MHz BAND			6 MHz BAND			8 MHz BAND			12 MHz BAND			16 MHz BAND			18/19 MHz BAND			22 MHz BAND			25/26 MHz BAND		
No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX
						8066	8409.0	8409.0	12066	12509.5	12612.0	16066	16716.0	16839.0				22066	22317.0	22409.0	25066	25205.5	25205.5
						8067	8409.5	8409.5	12067	12510.0	12612.5	16067	16716.5	16839.5				22067	22317.5	22490.5	25067	25206.0	25206.0
						8068	8410.0	8410.0	12068	12510.5	12613.0	16068	16717.0	16840.0				22068	22318.0	22410.0	25068	25206.5	25206.5
						8069	8410.5	8410.5	12069	12511.0	12613.5	16069	16717.5	16840.5				22069	22318.5	22410.5	25069	25207.0	25207.0
						8070	8411.0	8411.0	12070	12511.5	12614.0	16070	16718.0	16841.0				22070	22319.0	22411.0	25070	25207.5	25207.5
						8071	8411.5	8411.5	12071	12512.0	12614.5	16071	16718.5	16841.5				22071	22319.5	22411.5	25071	25208.0	25208.0
						8072	8412.0	8412.0	12072	12512.5	12615.0	16072	16719.0	16842.0				22072	22320.0	22412.0	25072	25208.5	26121.0
						8073	8412.5	8412.5	12073	12513.0	12615.5	16073	16719.5	16842.5				20073	22320.5	22412.5	25073	25209.0	26121.5
						7074	8413.0	8413.0	12074	12513.5	12616.0	16074	16720.0	16843.0				22074	22321.0	22413.0	25074	25209.5	26122.0
						8075	8413.5	8413.5	12075	12514.0	12616.5	16075	16720.5	16843.5				22075	22321.5	22413.5			
						8076	8414.0	8414.0	12076	12514.5	12617.0	16076	16721.0	16844.0				22076	22322.0	22414.0			
						8077	8414.5	8414.5	12077	12515.0	12617.5	16077	16721.5	16844.5				22077	22322.5	22414.5			
						8078	8415.0	8436.5	12078	12515.5	12618.0	16078	16722.0	16845.0				22078	22323.0	22415.0			
						8079	8415.5	8437.0	12079	12516.0	12618.5	16079	16722.5	16845.5				22079	22323.5	22415.5			
						8080	8416.0	8437.5	12080	12516.5	12619.0	16080	16723.0	16846.0				22080	22324.0	22416.0			
									12081	12517.0	12619.5	16081	16723.5	16846.5				22081	22324.5	22416.5			
									12082	12517.5	12620.0	16082	16724.0	16847.0				22082	22325.0	22417.0			
									12083	12518.0	12620.5	16083	16724.5	16847.5				22083	22325.5	22417.5			
									12084	12518.5	12621.0	16084	16725.0	16848.0				22084	22326.0	22418.0			
									12085	12519.0	12621.5	16085	16725.5	16848.5				22085	22326.5	22418.5			
									12086	12519.5	12622.0	16086	16726.0	16849.0				22086	22327.0	22419.0			
									12087	12520.0	12622.5	16087	16726.5	16849.5				22087	22327.5	22419.5			
									12088	12520.5	12623.0	16088	16727.0	16850.0				22088	22328.0	22420.0			
									12089	12521.0	12623.5	16089	16727.5	16850.5				22089	22328.5	22420.5			
									12090	12521.5	12624.0	16090	16728.0	16851.0				22090	22329.0	22421.0			
									12091	12522.0	12624.5	16091	16728.5	16851.5				22091	22329.5	22421.5			
									12092	12522.5	12624.5	16092	16729.0	16852.0				22092	22330.0	22422.0			
									12093	12523.0	12625.0	16093	16729.5	16852.5				22093	22330.5	22422.5			
									12094	12523.5	12625.5	16094	16730.0	16853.0				22094	22331.0	22423.0			
									12095	12524.0	12626.0	16095	16730.5	16853.5				22095	22331.5	22423.5			
									12096	12524.5	12626.5	16096	16731.0	16854.0				22096	22332.0	22424.0			
									12097	12525.0	12627.0	16097	16731.5	16854.5				22097	22332.5	22424.5			
									12098	12525.5	12627.5	16098	16732.0	16855.0				22098	22333.0	22425.0			
									12099	12526.0	12628.0	16099	16732.5	16855.5				22099	22333.5	22425.5			
									12100	12526.5	12628.5	16100	16733.0	16856.0				22100	22334.0	22426.0			
									12101	12527.0	12629.0	16101	16733.5	16856.5				22101	22334.5	22426.5			
									12102	12527.5	12629.5	16102	16739.0	16857.0				22102	22335.0	22427.0			
									12103	12528.0	12630.0	16103	16739.5	16857.5				22103	22335.5	22427.5			
									12104	12528.5	12630.5	16104	16740.0	16858.0				22104	22336.0	22428.0			
									12105	12529.0	12631.0	16105	16740.5	16858.5				22105	22336.5	22428.5			
									12106	12529.5	12631.5	16106	16741.0	16859.0				22106	22337.0	22429.0			
									12107	12530.0	12632.0	16107	16741.5	16859.5				22107	22337.5	22429.5			
									12108	12530.5	12632.5	16108	16742.0	16860.0				22108	22338.0	22430.0			
									12109	12531.0	12633.0	16109	16742.5	16860.5				22109	22338.5	22430.5			
									12110	12531.5	12633.5	16110	16743.0	16861.0				22110	22339.0	22431.0			
									12111	12532.0	12634.0	16111	16743.5	16861.5				22111	22339.5	22431.5			
									12112	12532.5	12634.5	16112	16744.0	16862.0				22112	22340.0	22432.0			
									12113	12533.0	12635.0	16113	16744.5	16862.5				22113	22340.5	22432.5			
									12114	12533.5	12635.5	16114	16745.0	16863.0				22114	22341.0	22433.0			
									12115	12534.0	12636.0	16115	16745.5	16863.5				22115	22341.5	22433.5			
									12116	12534.5	12636.5	16116	16746.0	16864.0				22116	22342.0	22434.0			
									12117	12535.0	12637.0	16117	16746.5	16864.5				22117	22342.5	22434.5			
									12118	12535.5	12637.5	16118	16747.0	16865.0				22118	22343.0	22435.0			
									12119	12536.0	12638.0	16119	16747.5	16865.5				22119	22343.5	22435.5			
									12120	12536.5	12638.5	16120	16748.0	16866.0				22120	22344.0	22436.0			
									12121	12537.0	12639.0	16121	16748.5	16866.5				22121	22344.5	22436.5			
									12122	12537.5	12639.5	16122	16749.0	16867.0				22122	22345.0	22437.0			
									12123	12538.0	12640.0	16123	16749.5	16867.5				22123	22345.5	22437.5			
									12124	12538.5	12640.5	16124	16750.0	16868.0				22124	22346.0	22438.0			
									12125	12539.0	12641.0	16125	16750.5	16868.5				22125	22346.5	22438.5			
									12126	12539.5	12641.5	16126	16751.0	16869.0				22126	22347.0	22439.0			
									12127	12540.0	12642.0	16127	16751.5	16869.5				22127	22347.5	22439.5			
									12128	12540.5	12642.5	16128	16752.0	16870.0				22128	22348.0	22440.0			
									12129	12541.0	12643.0	16129	16752.5	16870.5				22129	22348.5	22440.5			
									12130	12541.5	12643.5	16130	16753.0	16871.0				22130	22349.0	22441.0			

ITU Telex frequency table (3/4)

FURUNO

ITU TELEX FREQUENCY TABLE (3/4)

4 MHz BAND			6 MHz BAND			8 MHz BAND			12 MHz BAND			16 MHz BAND			18/19 MHz BAND			22 MHz BAND			25/26 MHz BAND		
No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX
									12131	12542.0	12644.0	16131	16753.5	16871.5				22131	22349.5	22441.5			
									12132	12542.5	12644.5	16132	16754.0	16872.0				22132	22350.0	22442.0			
									12133	12543.0	12645.0	16133	16754.5	16872.5				22133	22350.5	22442.5			
									12134	12543.5	12645.5	16134	16755.0	16873.0				22134	22351.0	22443.0			
									12135	12544.0	12646.0	16135	16755.5	16873.5				22135	22351.5	22443.5			
									12136	12544.5	12646.5	16136	16756.0	16874.0				22136	22352.0	22352.0			
									12137	12545.0	12647.0	16137	16756.5	16874.5				22137	22352.5	22352.5			
									12138	12545.5	12647.5	16138	16757.0	16875.0				22138	22353.0	22353.0			
									12139	12546.0	12648.0	16139	16757.5	16875.5				22139	22353.5	22353.5			
									12140	12546.5	12648.5	16140	16758.0	16876.0				22140	22354.0	22354.0			
									12141	12547.0	12649.0	16141	16758.5	16876.5				22141	22354.5	22354.5			
									12142	12547.5	12649.5	16142	16759.0	16877.0				22142	22355.0	22355.0			
									12143	12548.0	12650.0	16143	16759.5	16877.5				22143	22355.5	22355.5			
									12144	12548.5	12650.5	16144	16760.0	16878.0				22144	22356.0	22356.0			
									12145	12549.0	12651.0	16145	16760.5	16878.5				22145	22356.5	22356.5			
									12146	12549.5	12651.5	16146	16761.0	16879.0				22146	22357.0	22357.0			
									12147	12555.0	12652.0	16147	16761.5	16879.5				22147	22357.5	22357.5			
									12148	12555.5	12652.5	16148	16762.0	16880.0				22148	22358.0	22358.0			
									12149	12556.0	12653.0	16149	16762.5	16880.5				22149	22358.5	22358.5			
									12150	12556.5	12653.5	16150	16763.0	16881.0				22150	22359.0	22359.0			
									12151	12557.0	12654.0	16151	16763.5	16881.5				22151	22359.5	22359.5			
									12152	12557.5	12654.5	16152	16764.0	16882.0				22152	22360.0	22360.0			
									12153	12558.0	12655.0	16153	16764.5	16882.5				22153	22360.5	22360.5			
									12154	12558.5	12655.5	16154	16765.0	16883.0				22154	22361.0	22361.0			
									12155	12559.0	12656.0	16155	16765.5	16883.5				22155	22361.5	22361.5			
									12156	12559.5	12656.5	16156	16766.0	16884.0				22156	22362.0	22362.0			
									12157	12560.0	12560.0	16157	16766.5	16884.5				22157	22362.5	22362.5			
									12158	12560.5	12560.5	16158	16767.0	16885.0				22158	22363.0	22363.0			
									12159	12561.0	12561.0	16159	16767.5	16885.5				22159	22363.5	22363.5			
									12160	12561.5	12561.5	16160	16768.0	16886.0				22160	22364.0	22364.0			
									12161	12562.0	12562.0	16161	16768.5	16886.5				22161	22364.5	22364.5			
									12162	12562.5	12562.5	16162	16769.0	16887.0				22162	22365.0	22365.0			
									12163	12563.0	12563.0	16163	16769.5	16887.5				22163	22365.5	22365.5			
									12164	12563.5	12563.5	16164	16770.0	16888.0				22164	22366.0	22366.0			
									12165	12564.0	12564.0	16165	16770.5	16888.5				22165	22366.5	22366.5			
									12166	12564.5	12564.5	16166	16771.0	16889.0				22166	22367.0	22367.0			
									12167	12565.0	12565.0	16167	16771.5	16889.5				22167	22367.5	22367.5			
									12168	12565.5	12565.5	16168	16772.0	16890.0				22168	22368.0	22368.0			
									12169	12566.0	12566.0	16169	16772.5	16890.5				22169	22368.5	22368.5			
									12170	12566.5	12566.5	16170	16773.0	16891.0				22170	22369.0	22369.0			
									12171	12567.0	12567.0	16171	16773.5	16891.5				22171	22369.5	22369.5			
									12172	12567.5	12567.5	16172	16774.0	16892.0				22172	22370.0	22370.0			
									12173	12568.0	12568.0	16173	16774.5	16892.5				22173	22370.5	22370.5			
									12174	12568.5	12568.5	16174	16775.0	16893.0				22174	22371.0	22371.0			
									12175	12569.0	12569.0	16175	16775.5	16893.5				22175	22371.5	22371.5			
									12176	12569.5	12569.5	16176	16776.0	16894.0				22176	22372.0	22372.0			
									12177	12570.0	12570.0	16177	16776.5	16894.5				22177	22372.5	22372.5			
									12178	12570.5	12570.5	16178	16777.0	16895.0				22178	22373.0	22373.0			
									12179	12571.0	12571.0	16179	16777.5	16895.5				22179	22373.5	22373.5			
									12180	12571.5	12571.5	16180	16778.0	16896.0				22180	22374.0	22374.0			
									12181	12572.0	12572.0	16181	16778.5	16896.5				22181	22374.5	22444.0			
									12182	12572.5	12572.5	16182	16779.0	16897.0				22182	22375.0	22444.5			
									12183	12573.0	12573.0	16183	16779.5	16897.5				22183	22375.5	22445.0			
									12184	12573.5	12573.5	16184	16780.0	16898.0									
									12185	12574.0	12574.0	16185	16780.5	16898.5									
									12186	12574.5	12574.5	16186	16781.0	16899.0									
									12187	12575.0	12575.0	16187	16781.5	16899.5									
									12188	12575.5	12575.5	16188	16782.0	16900.0									
									12189	12576.0	12576.0	16189	16782.5	16900.5									
									12190	12576.5	12576.5	16190	16783.0	16901.0									
									12191	12577.0	12577.0	16191	16783.5	16901.5									
									12192	12577.5	12657.0	16192	16784.0	16902.0									
									12193	12578.0	12657.5	16193	16784.5	16902.5									
									12194	12578.5	12658.0	16194	16785.0	16785.0									
												16195	16785.5	16785.5									

ITU Telex frequency table (4/4)

FURUNO

ITU TELEX FREQUENCY TABLE (4/4)

4 MHz BAND			6 MHz BAND			8 MHz BAND			12 MHz BAND			16 MHz BAND			18/19 MHz BAND			22 MHz BAND			25/26 MHz BAND		
No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX	No.	TX	RX
												16196	16786.0	16786.0									
												16197	16786.5	16786.5									
												16198	16787.0	16787.0									
												16199	16787.5	16787.5									
												16200	16788.0	16788.0									
												16201	16788.5	16788.5									
												16202	16789.0	16789.0									
												16203	16789.5	16789.5									
												16204	16790.0	16790.0									
												16205	16790.5	16790.5									
												16206	16791.0	16791.0									
												16207	16791.5	16791.5									
												16208	16792.0	16792.0									
												16209	16792.5	16792.5									
												16210	16793.0	16793.0									
												16211	16793.5	16793.5									
												16212	16794.0	16794.0									
												16213	16794.5	16794.5									
												16214	16795.0	16795.0									
												16215	16795.5	16795.5									
												16216	16796.0	16796.0									
												16217	16796.5	16796.5									
												16218	16797.0	16797.0									
												16219	16797.5	16797.5									
												19220	16798.0	16798.0									
												16221	16798.5	16798.5									
												16222	16799.0	16799.0									
												16223	16799.5	16799.5									
												16224	16800.0	16800.0									
												16225	16800.5	16800.5									
												16226	16801.0	16801.0									
												16227	16801.5	16801.5									
												16228	16802.0	16802.0									
												16229	16802.5	16802.5									
												16230	16803.0	16803.0									
												16231	16803.5	16803.5									
												16232	16804.0	16804.0									
												16233	16804.5	16804.5									
												16234	16805.0	16903.0									
												16235	16805.5	16903.5									
												16236	16806.0	16904.0									

APPENDIX 3 LIST OF ABBREVIATIONS

Control unit

Abbreviations

Abbreviation	Term	Abbreviation	Term
ACK	Acknowledge	LV	Level
AGC	Automatic Gain Control	MAR	March
ANT	Antenna	MMSI	Maritime Mobile Services Identity number
APP	Application	MSG	Message
APR	April	NB	Noise Blanker
ATT	Attenuator	NBDP	Narrow Band Direct Printing
AUG	August	NF	Notch Filter
BRILL	Brilliance	NOV	November
COMM	Communication	NR	Noise Reduction
DEC	December	OCT	October
DSC	Digital Selective Calling	PSTN	Public Switched Telephone Networks
DUP	Duplex	PWR	Power
ENT	Enter	REF	Reference
EQUIP	Equipment	RF	Radio Frequency
FEB	February	RX	Receive
FREQ	Frequency	S-DUP	Semi-Duplex
GMDSS	Global Maritime Distress and Safety System	SEP	September
GNSS	Global Navigation Satellite System	SIMP	Simplex
INFO	Information	SP	Speaker
INTERCOM	Intercommunication System	SQ	Squelch
INTL	International	TLX	Telex
JAN	January	TRX	Transmit and Receive
JUL	July	TX	Transmit
JUN	June	UTC	Coordinated Universal Time/ Universal Time, Coordinated
LAT	Latitude	WR	Watch Receiver
LON	Longitude		

Icons

Icon	Meaning	Icon	Meaning
	Speaker ON	NB	Noise blanker ON
	Speaker OFF	NF	Notch filter ON
	Unread message	0 1 2 3 4 5 6 7 8 9	Number keys
	Send a distress alert of your ship.		Name of the ship registerd in address book
	• Receive a distress alert from a ship in distress. • Send a distress relay on behalf of a ship in distress.		Auto ACK for individual message is ON.
	Send a general (safety, urgency or routine) message.		Data is being updated regularly.
	Receive a general (safety, urgency or routine) message.		Unsolved error
RT RT	Communicate via radiotelephone	SSB	Class of emission is SSB.
	Turn down the handset volume.	TLX	Class of emission is TLX.
	Turn up the handset volume.	AM	Class of emission is AM.
SQ	Squelch ON	FAX	Class of emission is FAX.
NR1 NR2	Noise reduction: NR1 (Low), NR2 (High)	1 NBDP 2 NBDP 3 NBDP	Class of emission is NBDP. 1: Watch 2: Scan 3: Communication
ATT	Attenuator ON		**ENTER** knob

Telex (NBDP)

Abbreviation	Meaning	Abbreviation	Meaning
ACK	Acknowledge	CFM	Confirm
ADV	Advise	CH	Channel
AGN	Again	COL	Collation
Alt	Alternative	Comm Mode	Communication Mode
Apr	April	Comm Status	Communication Status
ARQ	Automatic Repetition request	CRV	How do you receive?
Aug	August	Ctrl	Control
BI (GS)	Good bye	Dec	December
BK	I cut off.	DER	Out of order
Caps	Capital and Small	Dir	Direction
CFEC	Collective FEC	DSC	Digital Selective Call

Abbreviation	Meaning	Abbreviation	Meaning
DWN	Down	Over	Change-over
EEE	Error	P (or 0)	Stop your transmission.
Eng	English	PLS (PSE)	Please
Esc	Escape	PPR	Paper
Feb	February	Prt Scr	Print Screen
FEC	Forward Error Correcting	R (RCD)	Received
FM	From	RAP	I will call you again.
Fn	Function	RD	Read
Freq	Frequency	RE	Referring to
Fri	Friday	RPT	Repeat
GA	Go ahead.	Rus	Russian
HR	Here is	RX	Receiving
ID	Identification Data	Sat	Saturday
Jan	January	ScrLk	Scroll Lock
JST	Japanese Standard Time	SD	Secure Digital
Jul	July	sec	second
Jun	June	Sep	September
Mar	March	SFEC	Selective FEC
MNS	Minutes	SIO	Serial Input and Output
MOM	Wait (Waiting)	SMT	Ship's Mean Time
Mon	Monday	SRY	Sorry
msec	milli second	Sun	Sunday
MSG	Message	SVP	Please
MUTI	Mutilated	TAX	What is the charge?
NA	Correspondence to this sub-scriber is not admitted.	TEST MSG	Please send a test message?
NBDP	Narrow Band Direct Print	THRU	You are in communication with telex position.
NC	No circuits	Thu	Thursday
NCH	Subscriber's number has been changed.	TKS (TNX)	Thanks
NG	Non-Good	TLX	Telex
Nov	November	T.op	Timer Operation
NP	The called party is not or no longer is a subscriber.	Tue	Tuesday
NR	Indicate your call number.	TX	Transmission
Num	Number	USB	Universal Serial Bus
NumLk	Numerical Key Lock	UTC	Coordinated Universal Time/ Universal Time, Coordinated
OCC	Subscriber is engaged.	Ver	Version
Oct	October	Wed	Wednesday
OK	Okey	WRU	Who are you

APPENDIX 4 DIGITAL INTERFACE (IEC 61162-1)

I/O Sentences

Input sentences (IEC 61162-1)

GGA, GLL, ZDA, GNS, RMC

Input sentence description

- GGA - Global positioning system (GPS) fix data

```
$**GGA,hhmmss.ss,llll.lll,a,yyyyy.yyy,a,x,xx,x.x,x.x,M,x.x,M,x.x,xxxx*hh<CR><LF>
                  1         2  3       4        5 6 7   8    9  10 11 12 13  14
```

1. UTC of position (000000.00 - 235959.99)
2. Latitude (0000.0000 - 9000.0000)
3. N/S
4. Longitude (00000.0000 - 18000.0000)
5. E/W
6. GPS quality indicator (1 - 7)
7. Number of satllite in use (no use)
8. Horizontal dilution of precision (no use)
9. Antenna altitude above/below mean sealevel (no use)
10. Unit, m
11. Geoidal separation (no use)
12. Unit, m
13. Age of differential GPS data (no use)
14. Differential reference station ID (no use)

- GLL - Geographic position - latitude/longitude

```
$**GLL,llll.lll,a,yyyyy.yyy,a,hhmmss.ss,a,x*hh<CR><LF>
          1    2       3       4       5         6 7
```

1. Latitude (0000.0000 - 9000.0000)
2. N/S
3. Longitude (00000.0000 - 18000.0000)
4. E/W
5. UTC of position (000000.00 - 235959.99)
6. Status (A=data valid V=data invalid)
7. Mode indicator (A=Autonomous D=Differential
   E=Estimated (dead reckoning) mode M=Manual input mode
   N=No fix S=Simulator mode

- ZDA - Time and date

```
$**ZDA,hhmmss.ss,xx,xx,xxxx,xx,xx*hh<CR><LF>
                  1        2  3   4    5  6
```

1. UTC (000000.00 - 235959.99)
2. Day (01 - 31)
3. Month (01 -12)
4. Year (2000 - 2049)
5. Local zone, hours (no use)
6. Loca zone, minutes (no use)

- GNS - GNSS fix data

$**GNS,hhmmss.ss,llll.lll,a,lllll.lll,a,c--c,xx,x.x,x.x,x.x,x.x,x.x,x.x,a*hh<CR><LF>
1 2 3 4 5 6 7 8 9 10 11 12 13

1. UTC of position (000000.00 - 235959.99)
2. Latitude (0000.0000 - 9000.0000)
3. N/S
4. Longitude (00000.0000 - 18000.0000)
5. E/W
6. Mode indicator
   N=No fix A=Autonomous D=Differential P=Precise R=Real Time Kinematic
   F=Float RTK E=Estimated Mode M=Manual Input Mode S=Simulator Mode
7. Total number of satellites in use (00 - 99)
8. HDOP (no use)
9. Antenna altitude, meters (no use)
10. Geoidal separation (no use)
11. Age of differential data (no use)
12. Differential reference station ID (no use)
13. Navigational status indicator (S=Safe C=Caution U=Unsafe V=Navigational status not valid)

- RMC - Recommended minimum specific GNSS data

$**RMC,hhmmss.ss,A,llll.ll,a,yyyyy.yy,a,x.x,x.x,ddmmyy,x.x,a,a,a*hh<CR><LF>
1 2 3 4 5 6 7 8 9 10 11 12 13

1. UTC of position fix (000000.00 - 235959.99)
2. Status (A=data valid, V=navigation receiver warning)
3. Latitude (0000.0000 - 9000.0000)
4. N/S
5. Longitude (00000.0000 - 18000.0000)
6. E/W
7. Speed over ground, knots (no use)
8. Course over ground, degrees true (no use)
9. Date (010100 - 311249)
10. Magnetic variation, degrees (no use)
11. E/W
12. Mode indicator (A= Autonomous D= Differential E=Estimated (dead reckoning) mode
    F=Float RTK M=Manual input mode N=No fix P=Precise R=Real time kinematic S= Simulator mode
13. Navigational status indicator (S=Safe C=Caution U=Unsafe V=Navigational status not valid)

Output sentences (IEC 61162-1)

DSC, DSE

Output sentence description

- DSC - Digital selective calling information

$CTDSC,xx,xxxxxxxxxx,xx,xx,xx,x.x,x.x,xxxxxxxxxx,xx,a,a*hh<CR><LF>
1 2 3 4 5 6 7 8 9 10 11

1. Format specifier (2 digits)
2. Address (10 digits)
3. Category (2 digits or NULL)
4. Nature of Distress or first telecommand (2 digits or NULL)
5. Type of Communication or second telecommand (2 digits)
6. Position or Channel /Frequency (Max. 4 digits)
7. Time or Tel. No. (Max. 16 digits)
8. MMSI of ship in distress (10 digits or NULL)
9. Nature of distress (2 digits or NULL)
10. Acknowledgement (R=Acknowledge request B=Acknowledgement S=Neither (end of sequence)
11. Expansion indicator (E or NULL)

- DSE - Expanded digital selective calling

$CTDSE,x,x,a,xxxxxxxxxx,xx,c--c,.....,xx,c--c*hh<CR><LF>
1 2 3 4 5 6 7 8 9

1. Total number of sentences (fixed value)
2. Sentence number (fixed value)
3. Query/reply flag (fixed value A=Automatic)
4. Vessel MMSI (10 digits)
5. Data set ‘1’ (code field, fixed value 00)
6. Data set ‘1’ (data field, Enhanced position resolution, Max. 8 characters)
7. Additional data sets*
8. Data set ‘n’ (code field)*
9. Data set ‘n’ (data field)*

*: This equipment outputs only “Data set 1”.

P - sentences

pireq (input), pidat (output)

P - sentence description

- PFEC,pireq - Equipment information request

  $ PFEC, pireq *hh<CR><LF>

  When this sentence is input, the equipment outputs the PFEC,pidat sentence.

- PFEC,pidat - Equipment information

  $ PFEC,pidat, 0, FS-xxxx *hh<CR><LF>
  1 2

  1. ID (fixed value)
  2. Model name (FS-1575, FS-2575, FS-5075)

  $ PFEC,pidat, 1, 01.01 *hh<CR><LF>
  1 2

  1. ID (fixed value)
  2. Software version (00.00 - 99.99)

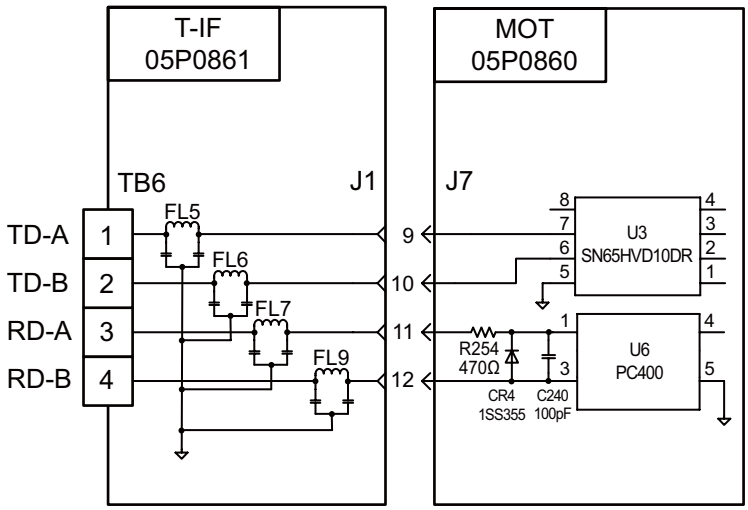
  $ PFEC,pidat, 4, 0000, 0000, 4000, 0000, 0000, 0000, 0000, 0000 *hh<CR><LF>
  1 2 3 4 5 6 7 8 9

  1. ID (fixed value)
  2 to 9. Unit division code (fixed value)

  $ PFEC,pidat, 5, 0, *hh<CR><LF>
  1 2

  1. ID (fixed value)
  2. Browser control (fixed value)

Schematic diagram



Load requirements as a listener

Isolation: Optocoupler Input impedance: 470Ω Max. voltage: ±15 V Threshold: 4 mA

APPENDIX 5 PARTS LIST

This equipment contains complex modules in which fault diagnosis and repair down to component level are not practical (IMO A.694(17)/8.3.1). Only some discrete components are used. FURUNO Electric Co., Ltd. Believes identifying these components is of no value for shipboard maintenance; therefore, they are not listed in this manual. Major modules can be located on the parts location photos on pages AP-25 thru AP-27.

Transceiver unit FS-1575T

ELECTRICAL PARTS LIST

Model	FS-1575
Unit	Transceiver Unit FS-1575T

PRINTED CIRCUIT BOARD	Code No.
05P0868, PA	—
05P0874, PWR	—
05P0864, LF	—
05P0871, P-SW	—
05P0847A, WR1	—
05P0847B, WR2	—
05P0856, TX	—
05P0842, RX	—
05P0862B, RX-FIL	—
05P0876A, TX-FIL	—
05P0861, T-IF	—
05P0860, MOT	—
05P0859, T-CPU	—

Transceiver unit FS-2575T

ELECTRICAL PARTS LIST

Model	FS-2575
Unit	Transceiver Unit FS-2575T

PRINTED CIRCUIT BOARD	Code No.
05P0867B, PA	—
05P0874, PWR	—
05P0866B, DRV	—
05P0873, SW-REG	—
05P0871, P-SW	—
05P0864, PA-IF	—
05P0847A, WR1	—
05P0847B, WR2	—
05P0856, TX	—
05P0842, RX	—
05P0862B, RX-FIL	—
05P0870B, TX-FIL	—
05P0861, T-IF	—
05P0860, MOT	—
05P0859, T-CPU	—

Transceiver unit FS-5075T

ELECTRICAL PARTS LIST

Model	FS-5075
Unit	Transceiver Unit FS-5075T

PRINTED CIRCUIT BOARD	Code No.
05P0866A, DRV	—
05P0873, SW-REG	—
05P0869, COMB	—
05P0872, FET	—
05P0871, P-SW	—
05P0867A, PA	—
05P0874, PWR	—
05P0864, PA-IF	—
05P0847A, WR1	—
05P0847B, WR2	—
05P0856, TX	—
05P0842, RX	—
05P0863, DUP-FIL	—
05P0862A, RX-FIL	—
05P0870A, TX-FIL	—
05P0861, T-IF	—
05P0860, MOT	—
05P0859, T-CPU	—

Control unit FS-2575C

ELECTRICAL PARTS LIST

Model	FS-1575, FS-2575, FS-5075
Unit	Control Unit FS-2575C

PRINTED CIRCUIT BOARD	Code No.
05P0844, PANEL	—
05P0853, C-IF	—
05P0852, C-CPU	—

Antenna Coupler AT-1575

ELECTRICAL PARTS LIST

Model	FS-1575
Unit	Antenna Coupler AT-1575

PRINTED CIRCUIT BOARD	Code No.
05P0883, COUP	—

Antenna Coupler AT-5075

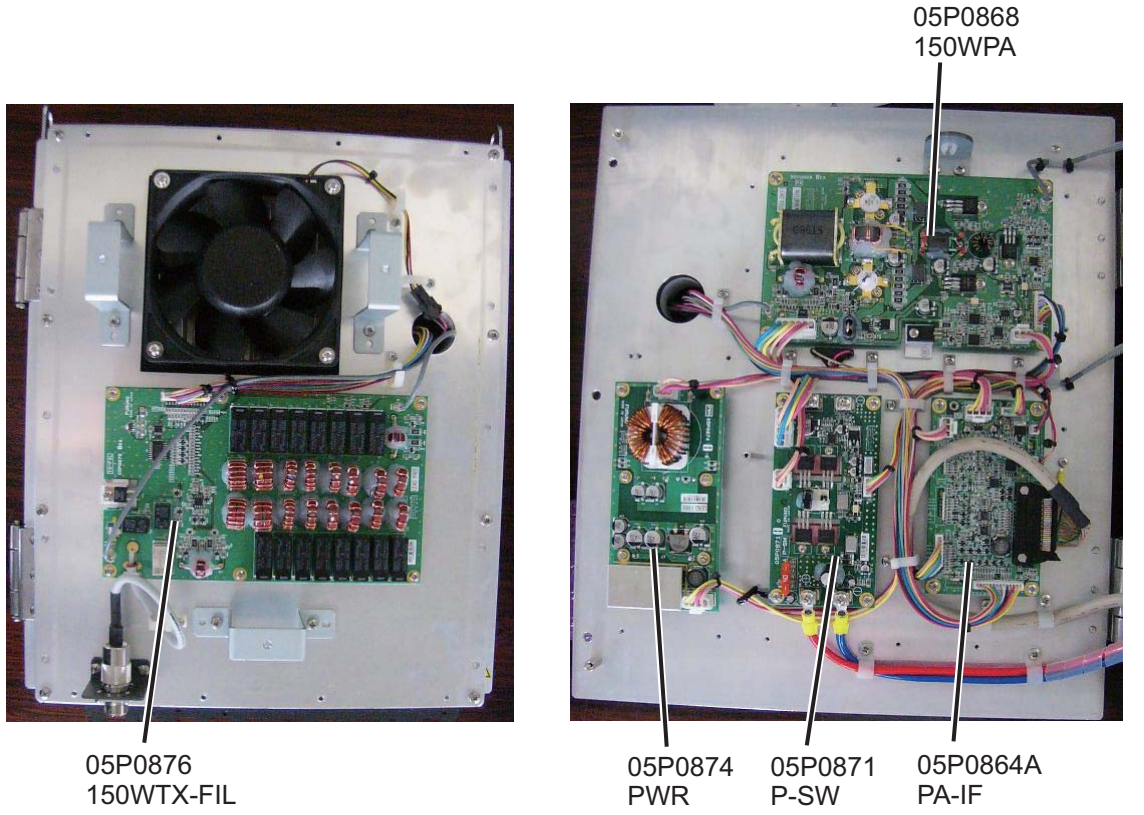
ELECTRICAL PARTS LIST

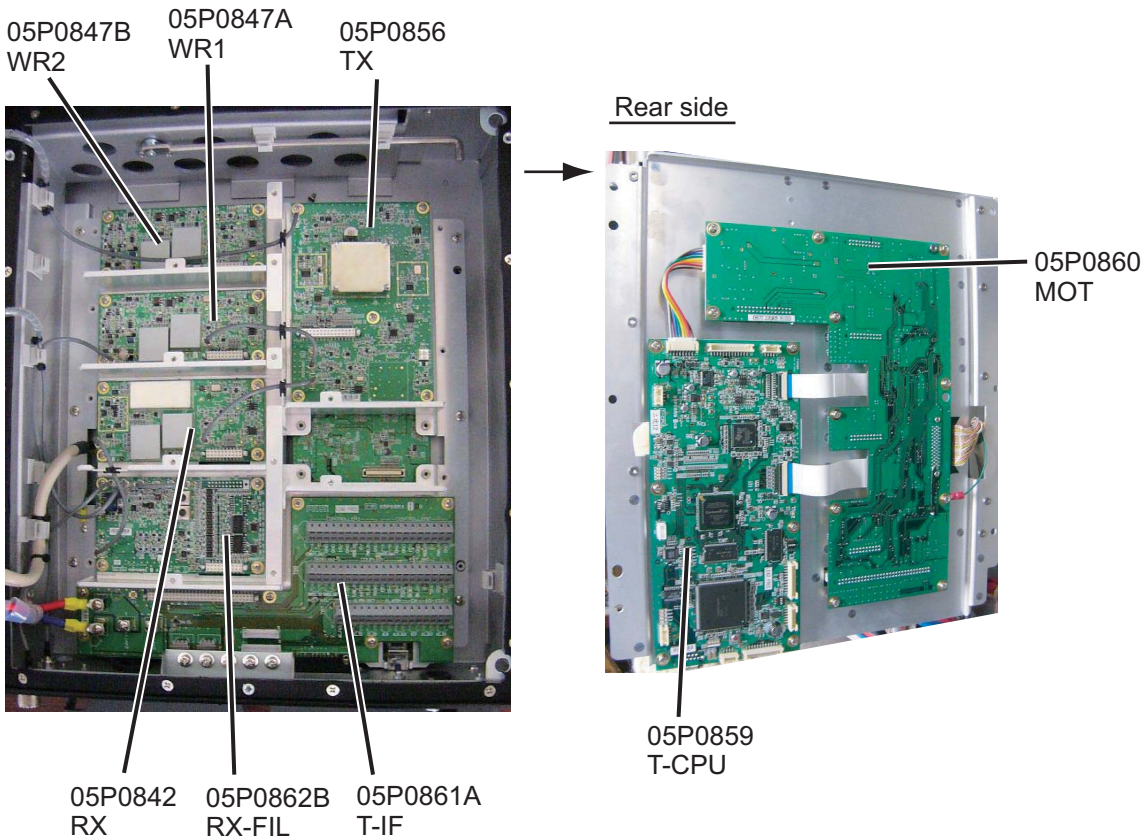
Model	FS-2575, FS--5075
Unit	Antenna Coupler AT-5075

PRINTED CIRCUIT BOARD	Code No.
05P0875, COUP	—

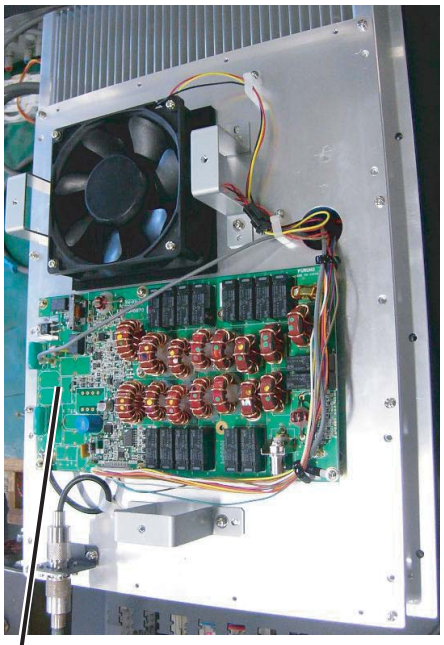
APPENDIX 6 PARTS LOCATION

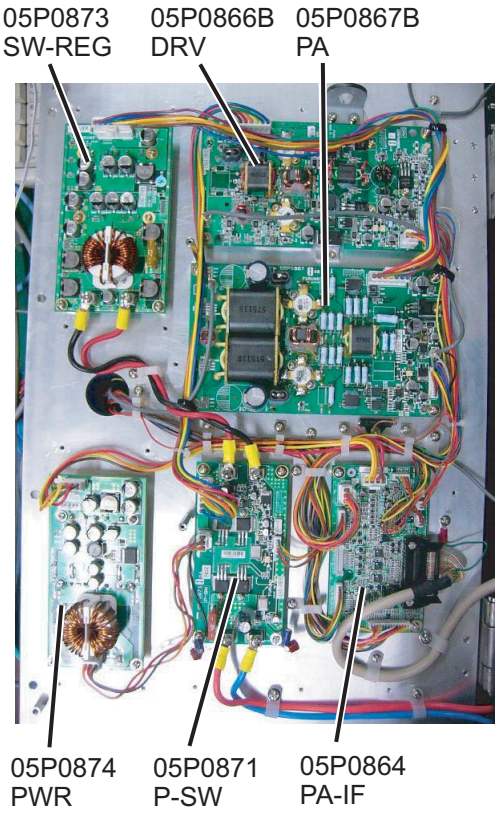
Transceiver unit FS-1575T

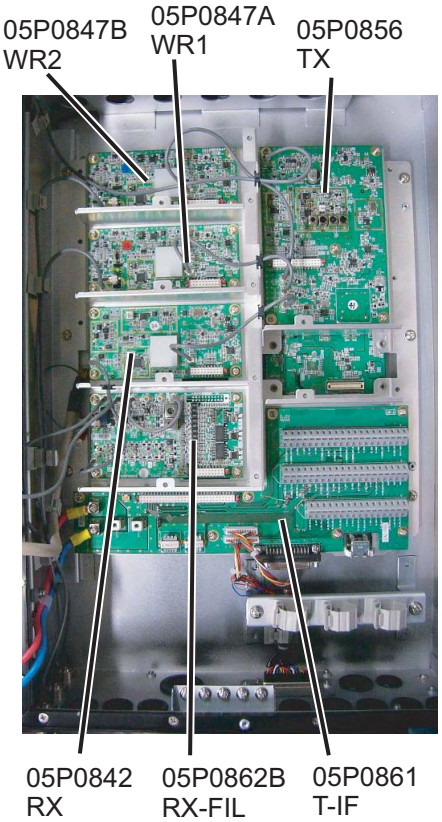




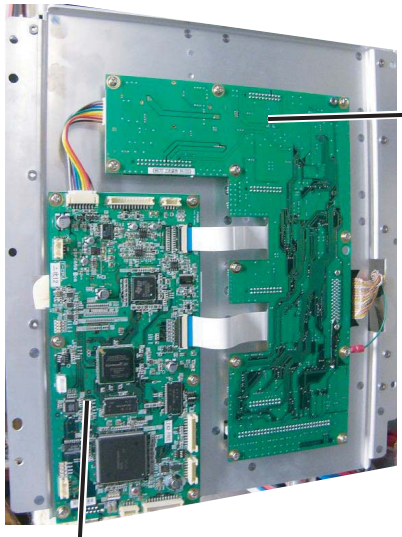
Transceiver unit FS-2575T



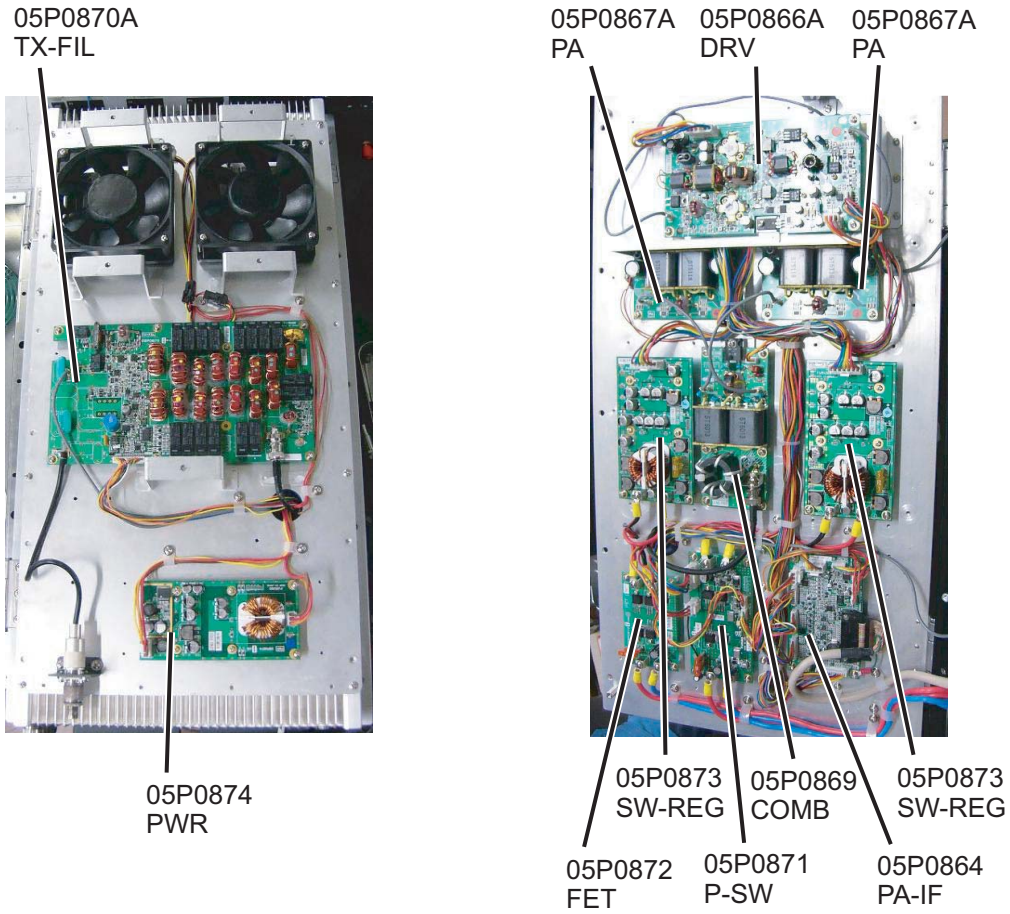




Rear side

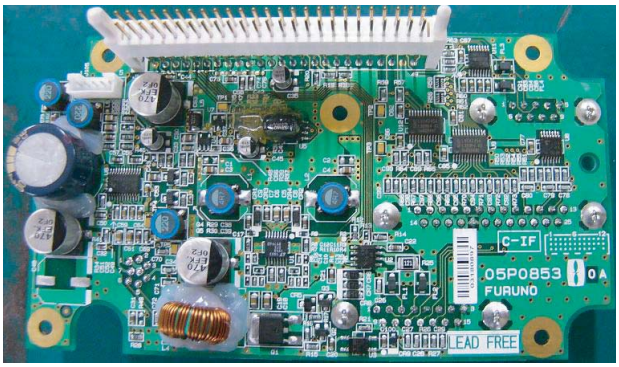


Transceiver unit FS-5075T

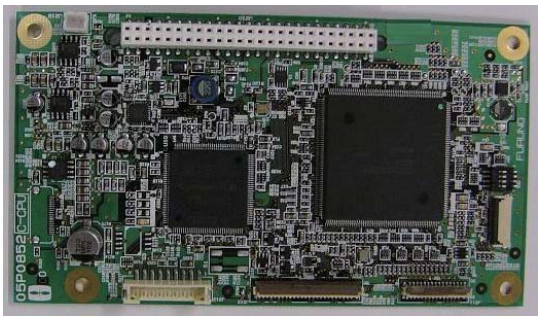


Control unit FS-2575C

05P0844 (PANEL)



05P0853 (C-IF)

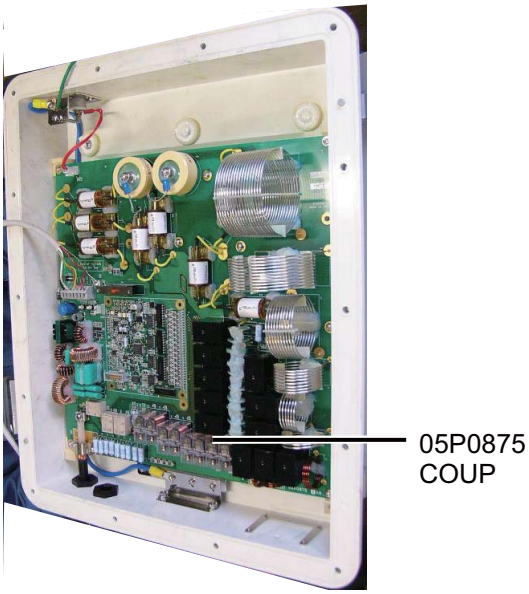


05P0852 (C-CPU)

Antenna coupler AT-1575

05P0883
COUP

Antenna coupler AT-5075



SPECIFICATIONS OF SSB RADIOTELEPHONE FS-1575/2575/5075

1 MF/HF DIGITAL RADIOTELEPHONE

1.1 GENERAL

1.1.1	Communication system	
	FS-1575/2575	Semi-duplex or simplex
	FS-5075	Full-duplex (option required), semi-duplex or simplex
1.1.2	Class of emission	J3E: Telephone
		F1B (J2B): DSC and NBDP
		H3E: reception only
		A1A, F3C: requires settings for communications
1.1.3	Number of channel	User programmable: 256 TX/RX pairs
		All ITU channels incorporated (include DSC/NBDP), SSB, TLX, CW
1.1.4	Warming up	1 minute approx. (oven 15 minutes approx.)

1.2 TRANSMITTER

1.2.1	Frequency range	1,605 kHz to 27.5 MHz (100 Hz step)
1.2.2	RF output power	
	FS-1575	MF/HF: 150 Wpep
	FS-2575	MF/HF: 250 Wpep
	FS-5075	MF: 400 Wpep, HF: 500 Wpep
1.2.3	Frequency stability	±10 Hz
1.2.4	MIC in sensitivity	1 kHz, 94 dBA maximum power: -9 dB to -3 dB
1.2.5	Line in sensitivity	1 kHz, -16 dBm maximum power: -9 dB to -3 dB
1.2.6	Audio frequency range	350 Hz to 2.7 kHz (within 6dB)

1.3 RECEIVER

1.3.1	Receiving system	Double-conversion superheterodyne
1.3.2	Frequency range	100 kHz-29,999.99 kHz (10 Hz step)
1.3.3	Sensitivity (SINAD 20 dB)	

Frequency Range	J3E
100 kHz to 300 kHz	35 dBμV
300 kHz to 1.6 MHz	25 dBμV
1.6 MHz to 4.0 MHz	13 dBμV
4.0 MHz to 30 MHz	7 dBμV

1.3.4	Intermediate frequency	1st: 53.964 kHz, 2nd: 36 kHz
1.3.5	Spurious response	Better than 60 dB
1.3.6	Audio output power	Speaker: 3 W/4 ohm
		Handset: 10 mW/150 ohm
		Line output: 0 dBm/600 ohm
1.3.7	Standard features	AGC, Noise blanker, Voice-activated squelch, Noise reduction, Notch filter, Attenuator

2 DSC/WATCH KEEPING RECEIVER

2.1 DIGITAL SELECTIVE CALLING

2.1.1	Frequency shift	Mark: F-85Hz, Space: F+85 Hz (F: assigned frequency)
2.1.2	Baud rate	100 bps ± 30 x 10^{-6}
2.1.3	Protocol	ITU-R Rec.493-13, 541-9
2.1.4	Modulation	FSK

2.2 DSC/WATCH RECEIVER (DISTRESS)

2.2.1	Frequency range	2187.5/ 4207.5/ 6312.0/ 8414.5/ 12577.0/ 16804.5 kHz
2.2.2	Class of emission	F1B (J2B)
2.2.3	Antenna impedance	50 ohm
2.2.4	Sensitivity	0 dBμV or less
2.2.5	Intermediate frequency	1st: 35.964 MHz, 2nd: 36 kHz
2.2.6	Frequency stability	±10 Hz
2.2.7	Output power for preamp	12 VDC: 0.15 A max.
2.2.8	Spurious response	Better than 60 dB

2.3 DSC/WATCH RECEIVER (GENERAL FREQUENCY, OPTION)

2.3.1	Frequency range	1605 kHz to 27.5 MHz
2.3.2	Class of emission	F1B (J2B)
2.3.3	Antenna impedance	50 ohm
2.3.4	Sensitivity	0 dBμV or less
2.3.5	Intermediate frequency	1st: 44.964 MHz, 2nd: 36 kHz
2.3.6	Output power for preamp	12 VDC: 0.15 A max.
2.3.7	Spurious response	Better than 60 dB

3 NBDP FUNCTION (OPTION)

3.1	Communication mode	ARQ, FEC
3.2	Protocol	ITU-R M625-3, M476-5, M490, M491-1, M492-6
3.3	Modulation	FSK

4 CONTROL UNIT

4.1	Display system	4.3-inch color dot matrix
4.2	Pixel	480 x 272 dots
4.3	Brilliance	18 steps (off to maximum brightness)
4.4	Built-in speaker	4 ohms
4.5	Alarm volume	80 to 85 dB(A)
4.6	Visible distance	0.7 m nominal

5 ANTENNA COUPLER

5.1	Tuning system	CPU controlled fully automatic tuning system
5.2	Frequency range	1605 kHz to 27.5 MHz
5.3	Input impedance	50 ohm
5.4	Antenna	10 m to 18 m wire or 10 m whip, or 8 m whip + horizontal feeder 2 m or more

5.5	Tuning time	Within 15 seconds

6 TERMINAL UNIT (OPTION)

6.1	Display	
	IB-583	10.4” color TFT LCD, 640 x 480 dots (VGA)
	IB-585	10.4” color TFT LCD, 800 x 600 dots (SVGA)
6.2	Brilliance	IB-583: 8 steps, IB-585: 11 steps
6.3	External memory	
	IB-583	3.5” floppy disk
	IB-585	SD card: 2 GB max.
6.4	Visible distance	0.7 m nominal

7 INTERFACE

7.1	Input data sentences	IEC 61162-1 Ed.4 (2010-11)
	Ship’s Position (L/L)	GGA, GLL, GNS, RMC
	Time	ZDA
7.2	LAN	Ethernet 10Base-T/100Base-TX

8 POWER SUPPLY

8.1	Transceiver/control unit	
	FS-1575	24 VDC: 5A (RX), 20 A max. (TX)
	FS-2575	24 VDC: 5A (RX), 40 A max. (TX)
	FS-5075	24 VDC: 5A (RX), 60 A max. (TX)
8.2	Terminal unit	24 VDC: 0.6 A (IB-583), 12-24 VDC: 0.5-0.3 A (IB-585)
8.3	Printer (PP-510, option)	24 VDC: 1.5 A
8.4	AC/DC power supply unit	
	PR-300 (for FS-1575, option)	100/110/200/220VAC, 1 phase, 50/60 Hz
	PR-850A (for FS-2575/5075, option)	100/110/120/200/220/240VAC, 1 phase, 50/60 Hz

9 ENVIRONMENTAL CONDITION

9.1	Ambient temperature	
	Antenna coupler	-25°C to +55°C
	Indoor units	-15°C to +55°C
9.2	Relative humidity	93% or less at 40°C
9.3	Degree of protection	
	Antenna coupler	IP56
	Transceiver unit	IP22 (bulkhead mount only)
	Terminal unit	IP22
	Control unit	IP20 (IP22: option required)
9.4	Vibration	IEC60945 Ed.4

10 COATING COLOR

10.1	Antenna coupler	N9.5 (white)
10.2	Transceiver/control unit	N3.0

INDEX