FURUNO

OPERATOR'S MANUAL

INMARSAT B
MOBILE EARTH STATION

FELCOM 80A ... (For Class 1)
MODEL FELCOM 80B ... (For Class 2)

This manual contains only operating information.
For other information, please refer to the following manuals:

- Installation · · · · Installation Manual
- Servicing · · · · · Service Manual (Extra Cost)

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(TAYA) FELCOM 80A/B

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⚠ SAFETY INSTRUCTIONS

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

The level of risk appearing in the notices is defined as follows:

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

⚠ WARNING

Do not open the equipment.

Hazardous voltage which can cause electrical shock, burn or serious injury exists inside the equipment. Only qualified personnel should work inside the equipment.

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

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

Leave the equipment powered while underway.

Distress cannot be communicated unless the equipment is powered.

Wait at least 30 minutes after turning off the power before entering the radome.

The gyro motor rotates for some time after the power is turned off.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Turn off the power immediately if water leaks into the equipment or the equipment is emitting smoke or fire.

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

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

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

⚠ WARNING

Do not operate the equipment with wet hands.

Electrical shock can result.

Keep heater away from equipment.

Heat can alter equipment shape and melt the power cord, which can cause fire or electrical shock.

Any repair work must be done by a licensed radio technician.

Improper repair work can cause electrical shock or fire.

⚠ CAUTION

Use the proper fuse.

Use of a wrong fuse can result in fire or permanent equipment damage.

Do not use the equipment for other than its intended purpose.

Personal injury can result if the equipment is used as a chair or stepping stool, for example.

Do not place objects on the top of the equipment.

The equipment can overheat or personal injury can result if the object falls.

About this Manual

IMPORTANT-Read this first.

Construction of this manual

This manual mainly consists of seven parts:

PART 1: Inmarsat System and FELCOM 80 System Configuration

PART 2: Initial Settings by Terminal Unit

PART 3: The Communication Unit

PART 4: Telex communication (Class 1: FELCOM 80A only)

PART 5: Telephone and Facsimile communication

PART 6: Other equipment

PART 7 : Maintenance

Note regarding the instruction: (see page xx)

The wording "(see page xx)" appears frequently throughout this manual. If this appears without denoting the Part (e.g. PART 2, etc.), please refer to the said page in the Part of the manual you are presently reading.

- PART 1 introduces the Inmarsat system and the FELCOM 80.
- PART 2 covers how to enter initial settings, which you must do before the unit can be operated. Further, it describes how to select satellite manually.
- PART 3 discusses the Communication Unit.
- PART 4 tells you how to communicate by Telex.
- PART 5 describes how to communicate by telephone and facsimile.
- PART 6 describes the Telex Distress Alert Button (IB-350), Telephone Distress Button (IB-360) and Received Call Unit (IC-301).
- PART 7 provides information for maintenance and checking including the FELCOM 80's self-test facilities. If something appears to be wrong with your unit, conduct the self-test and report findings to a service technician.

The Telex and Telephone Country Code List and LES Access Code List are attached at the end of this manual.

Transmitting the Distress Alert

Refer to pages 4 and 5.

General Contents

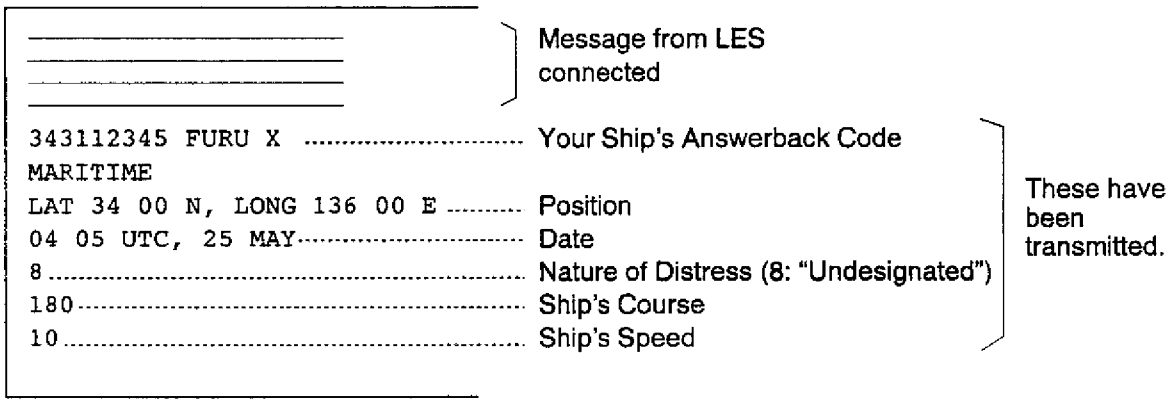
Class 1 only

DISTRESS TRANSMISSION

Transmitting the Distress Alert from IB-350

Peel off the red seal, and press and hold down the [DISTRESS] button on the IB-350 **for about six seconds** to transmit the distress alert. The unit initially beeps intermittently and then sounds continuously. When it sounds continuously, release the button.

When the connection with the LES designated (Note 1) is automatically established, continuous beep is stopped and the distress alert which has been prepared (Note 2) is automatically transmitted. The following messages appear on the Terminal Unit (PC) and are printed.



Note 1: The LES can be designated beforehand by the following key strokes.

- [F4] → [6] → [4] → [Enter] → [1] → [Enter]

  Then, select sea area and LES which is to receive distress call first.

Note2: Contents of Distress Alert (prepared beforehand)

(Press [F4], [6], [3], [Enter] to enable distress alert message setting.)

- Abbreviated Ship's Name (Enter four characters of answerback code.)
- Ship's Course (Heading)] Automatic input possible
- Ship's Speed] if navigation device is connected.
- Nature of Distress [Default Setting: "Undesignated"]

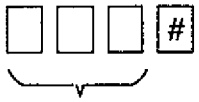
Distress Communication

After distress alert has been transmitted the line with LES remains connected. Send message to LES by direct keyboard input or by retrieving a file from a floppy disk.

Using Telephone Distress Button IB-360

The IB-360 gives DISTRESS priority to the No. 1 telephone.

Peel off the red seal, and press and hold down the [DISTRESS] button on the IB-360 **for about six seconds** to give DISTRESS priority to the No. 1 telephone. The unit initially beeps intermittently and then sounds continuously. When it sounds continuously, release the button and call LES by the No. 1 telephone as shown below. (The sound is stopped after connection with the LES is completed.)



Enter an LES number.

Note: If no key on the No. 1 telephone is pressed within 15 seconds after picking up the handset, the communication line is automatically connected with the LES which has been designated by the following key strokes (on the Terminal Unit).

- Press [F4] → [6] → [4] → [Enter] → [1] → [Enter].

  Then, select sea area and LES which is to receive distress call.

PART 1

Inmarsat B System and FELCOM 80 System Configuration

PART 1 Table of Contents

1. Inmarsat B System

1.1 Overview

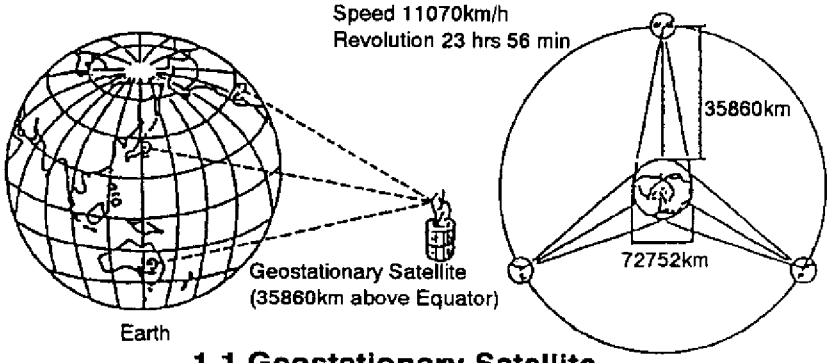
What is Inmarsat?

The International Maritime Satellite Organization (Inmarsat), bounded in 1979, is the international governing body for maritime satellite communication. Its purpose is to provide global communications for ships, land mobile and aircraft, using satellites to overcome the problems that exist with conventional radio communications.

The Inmarsat system is made up of three major components: the space segment provided by Inmarsat, the Coast Earth Stations (CES or LES) provided by Inmarsat signatories, and Mobile Earth Stations (MES).
The Operation Control Center (OCC), located at Inmarsat headquarters in London, controls the overall system.

Geostationary satellites

The type of satellites used for maritime communication are geostationary satellites. Four satellites, one for each of four ocean regions, are placed in nearly 36,000 km-high 24-hour circular orbits rotating in synchronous with the earth, providing mobile-to-land, land-to-mobile, and mobile-to-mobile communications. The satellites remain fixed over a given place on the earth's equator, so an Inmarsat subscriber is always within coverage of a satellite.



1-1 Geostationary Satellite

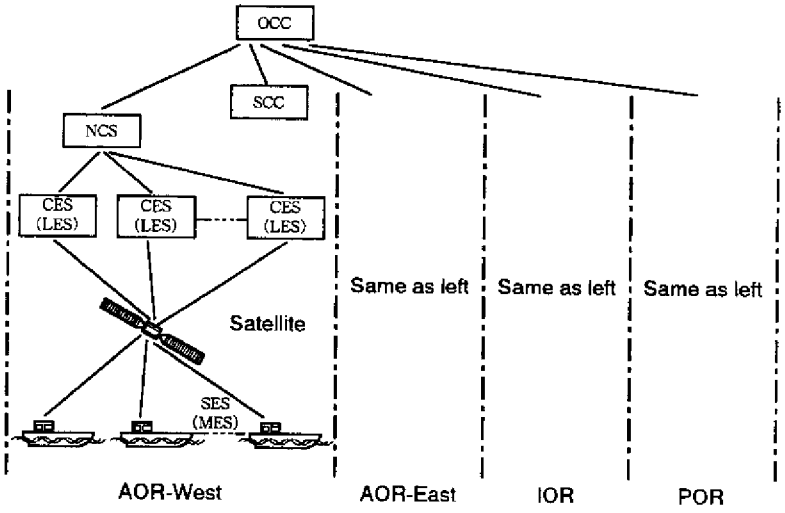
Four region service

The Inmarsat system divides the world into four regions and each region is covered by its own satellite. The regions are Atlantic Ocean Region-East (AOR-E), Atlantic Ocean Region West (AOR-W), Pacific Ocean Region (POR), and Indian Ocean Region (IOR). The reason for two regions in the Atlantic Ocean is to solve the coverage gap problem there.

Region	Satellite	Satellite Position
AOR-West	Inmarsat-2, F4	54.0° W
AOR-East	Inmarsat-2, F2	15.5° W
IOR	Inmarsat-2, F1	64.5° E
POR	Inmarsat-2, F3	178.0° E

Description of system components

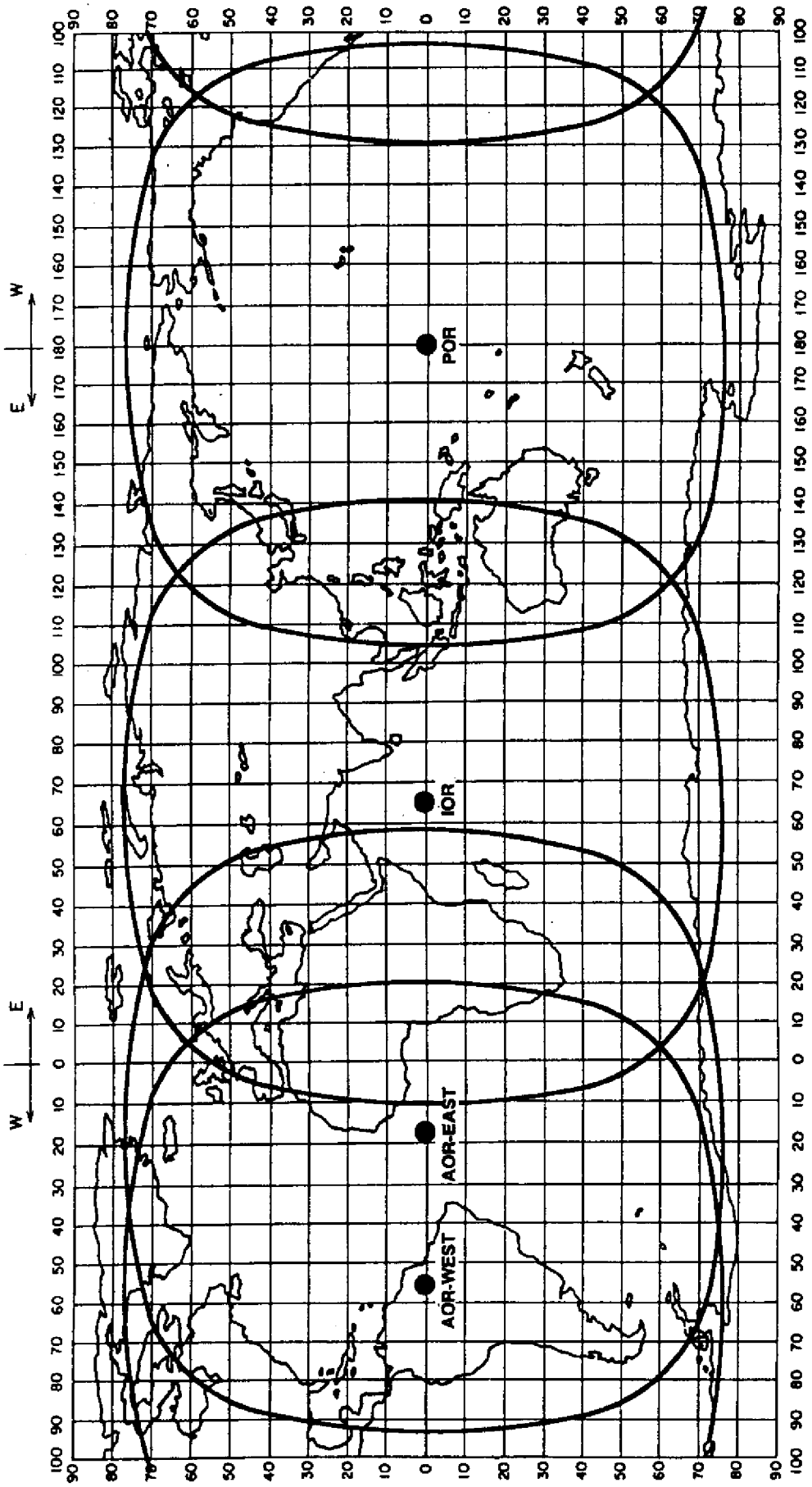
The Inmarsat system consists of the bodies shown in the following figure.



OCC : (Operation Control Center)
SCC : (Satellite Control Center)
NCS : (Network Coordination Station)
SES : (Ship Earth Station)
CES : (Coast Earth Station)

The function of each body in the Inmarsat system is as shown in the following table.

Body	Function
Operation Control Center (OCC)	The OCC is the nerve center of the system and is located at Inmarsat's London headquarters. The OCC provides continuous, 24-hours-a-day coordination for all functions in the Inmarsat system.
Satellite Control Centers (SCC)	The SCCs main function is to correct satellite rotation error.
Network Coordination Stations (NCS)	Each region has an NCS. The NCS controls the lines of communication and broadcasts information such as navigational warnings, weather reports and news.
Coast Earth Stations (CES) (Sometimes referred to as LES)	The CESs provide the link between the SES and the terrestrial telecommunications networks via satellite.
Ship Earth Stations (SES)	Shipborne Inmarsat-B stations.
Mobile Earth Stations (MES)	Mobile Inmarsat-B stations including aircraft.



AREA	SATELLITE NAME	POSITION
POR	INMARSAT-2, F3	178° E
IOR	INMARSAT-2, F1	64.5° E
AOR-EAST	INMARSAT-2, F2	15.5° W
AOR-WEST	INMARSAT-2, F4	54.0° W

Coverage Area of Satellites

1.2 Services

Overview

The Inmarsat B maritime satellite communication system provides telephone, facsimile, telex and data (9600 bps) services. Use of the latest digital technology means lower operating cost mainly due to lower transmission power from the satellites. This means that user traffic charges are lower in Inmarsat B than Inmarsat A.

Comparison of systems

Inmarsat provides worldwide communication services for both maritime and land subscribers. It consists of four systems: A, B, C and M. The following table shows the services of each system.

System Comparison List

Service	Inmarsat A	Inmarsat B	Inmarsat C	Inmarsat M
Voice	○	○	×	○
Telex	○	○	○	×
Facsimile	○	○	×	○
Data	○	○	○	○

(○ : Service
× : No service)

2. FELCOM 80 System

Overview

The FELCOM 80 (FELCOM 80A or FELCOM 80B) is an Inmarsat B mobile earth station system. It provides, by digital technology, telephone, facsimile and telex (class 1 only) communications and any services available from Inmarsat.

2.1 Features

The main features of the FELCOM 80 are

1. Non-rewinding antenna for uninterrupted communications during 360 degree course change of ship. (Highly reliable antenna design)

2. Automatic input of ship's position and heading (gyro) data to acquire satellite automatically. Simply turn on the power to start the acquiring process.

3. Polling and data reporting to transmit own ship's position data or specific file regularly to land subscriber.

4. Transmission of distress alert (distress message prepared by the Terminal Unit) through the Telex Distress Alert Button (IB-350).

5. Many inputs for external equipment: four telephones, two facsimile machines, and two personal computers.

6. Digital communications meaning reduced charges, about 60 per cent lower than Inmarsat A.

7. Facsimile communication speed (9600 bit/sec) higher than that of Inmarsat A.

8. 9600 bit/sec data communication available (option).

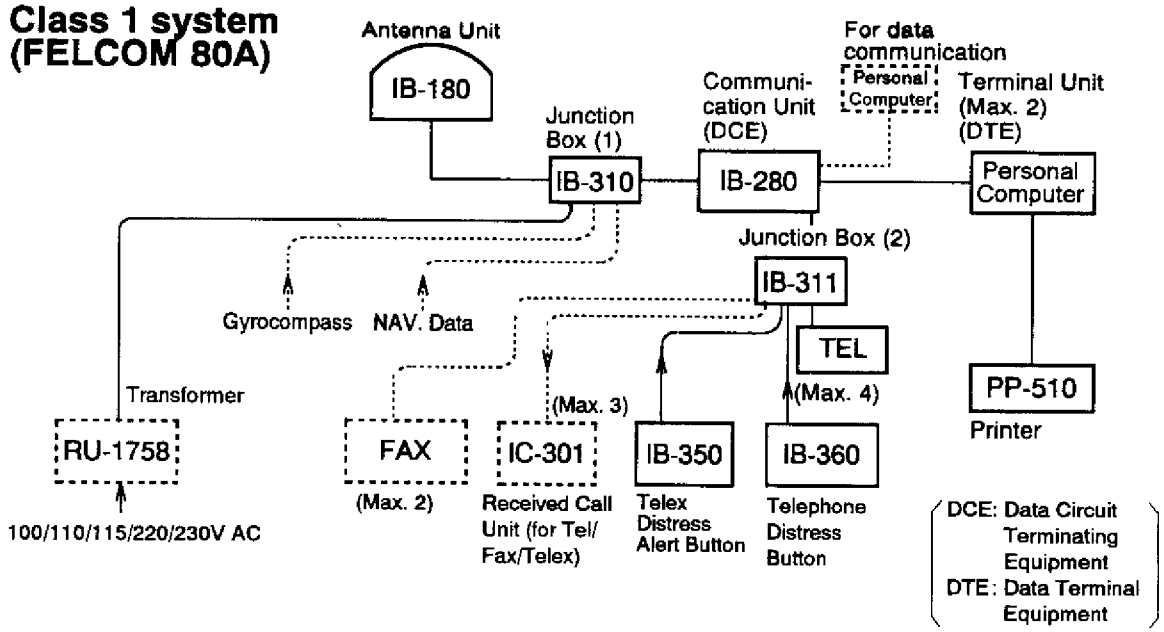
2.2 System Configuration

Overview

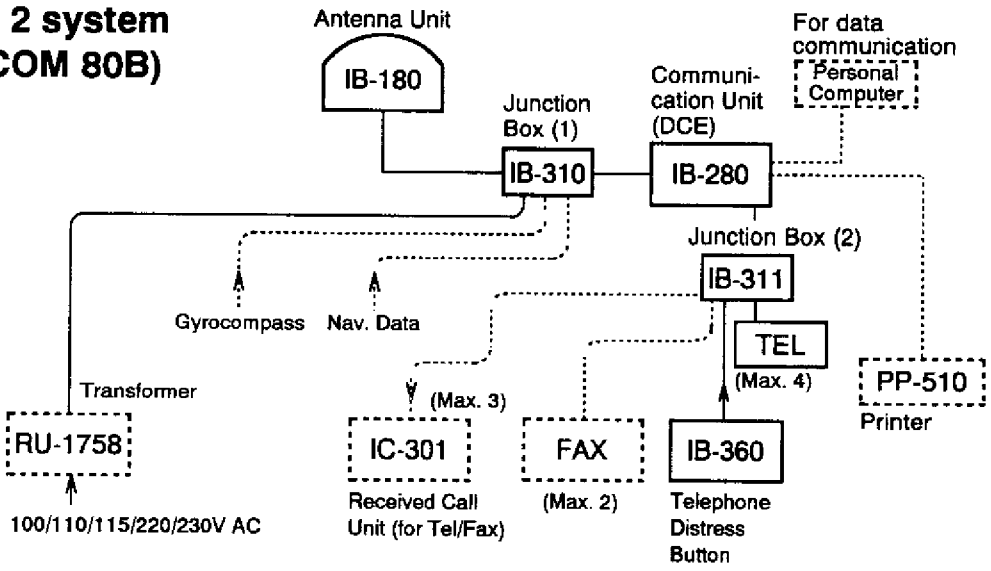
FELCOM 80 is available in two subtypes: Class 1 (FELCOM 80A) and Class 2 (FELCOM 80B). System configuration and Inmarsat services vary by subtype. The services available are shown by subtype in the following table.

System	Communication Services
Class 1	Telephone, Facsimile, Telex, Data
Class 2	Telephone, Facsimile, Data

Class 1 system (FELCOM 80A)



Class 2 system (FELCOM 80B)



NOTE 1: Dashed lines show optional equipment.

PART 2

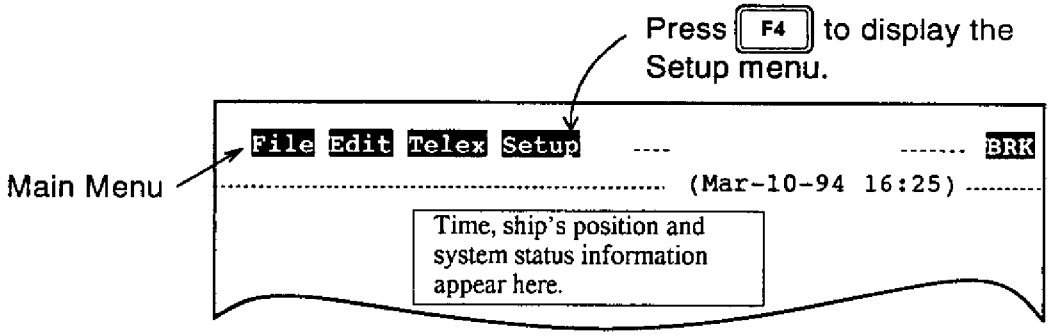
Entering Initial Settings

PART 2 Table of Contents

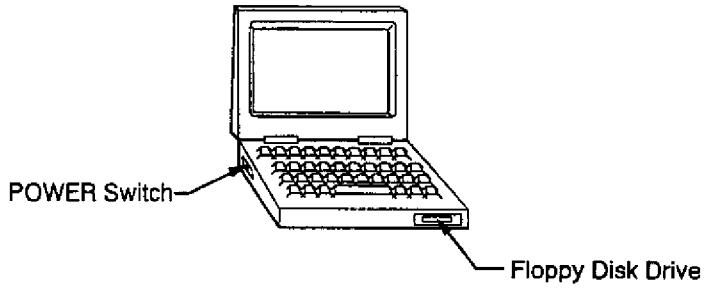
1. Displaying the Main Menu

Turning on the power

First, prepare the floppy disk which contains the system program (FELCOM 80 program plus MS-DOS). Insert it into the disk drive of the Terminal Unit, which normally is a laptop personal computer (PC, Toshiba T-2100) and then turn on the PC. After a while the Main Menu, shown below, appears. This is where you will begin telex communication. Before beginning telex communication, enter initial settings shown on the next page.



Normal Display



Terminal Unit (Toshiba T-2100)

2. System Setup (Initial Settings) by PC

2.1 Overview

The installer normally enters initial settings, on the Setup menu. For class 2 system, the Communication Unit should be setup at installation.

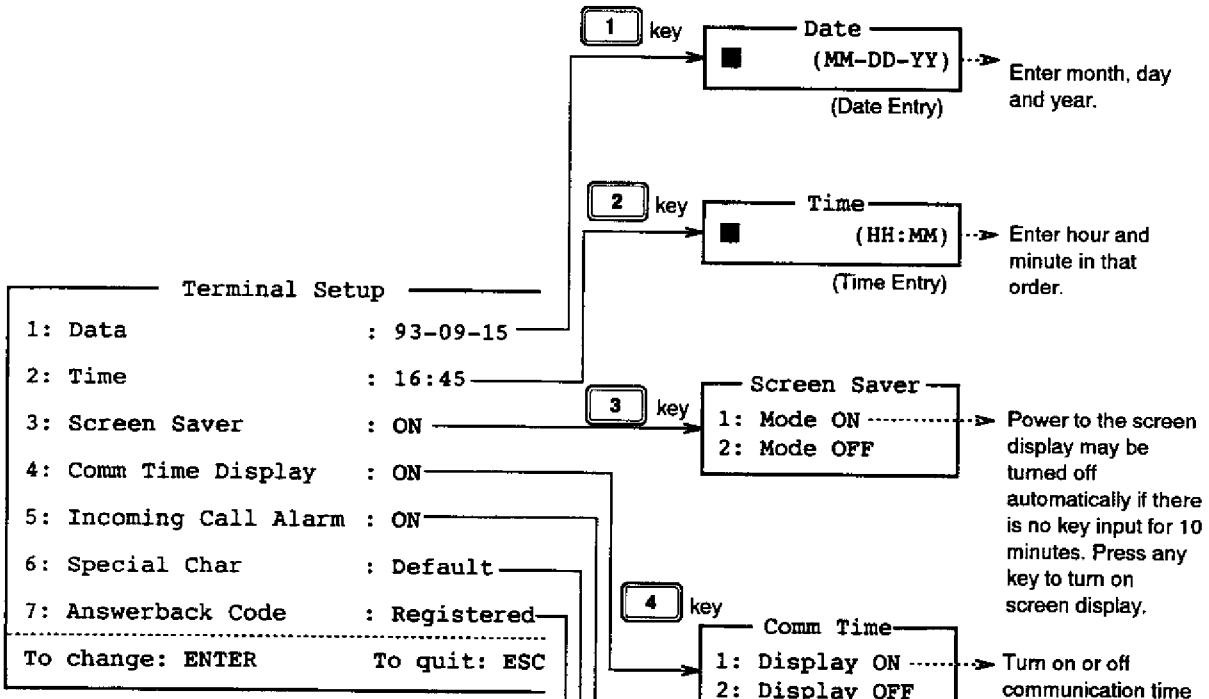
However, you may change them as necessary. In this section you will set up the following:

- Terminal Unit (PC)
- Editor screen (where you compose and edit messages), and
- Communication Unit.

2.2 Terminal Unit (PC) Setup

Procedure

To display the Terminal Setup menu, press [F4] followed by [3]. You can change settings by pressing appropriate numeric keys. After changing the setting, press the [Enter] key to register.
To escape from the Terminal Setup menu, press the [Esc] key.



Terminal Setup Menu

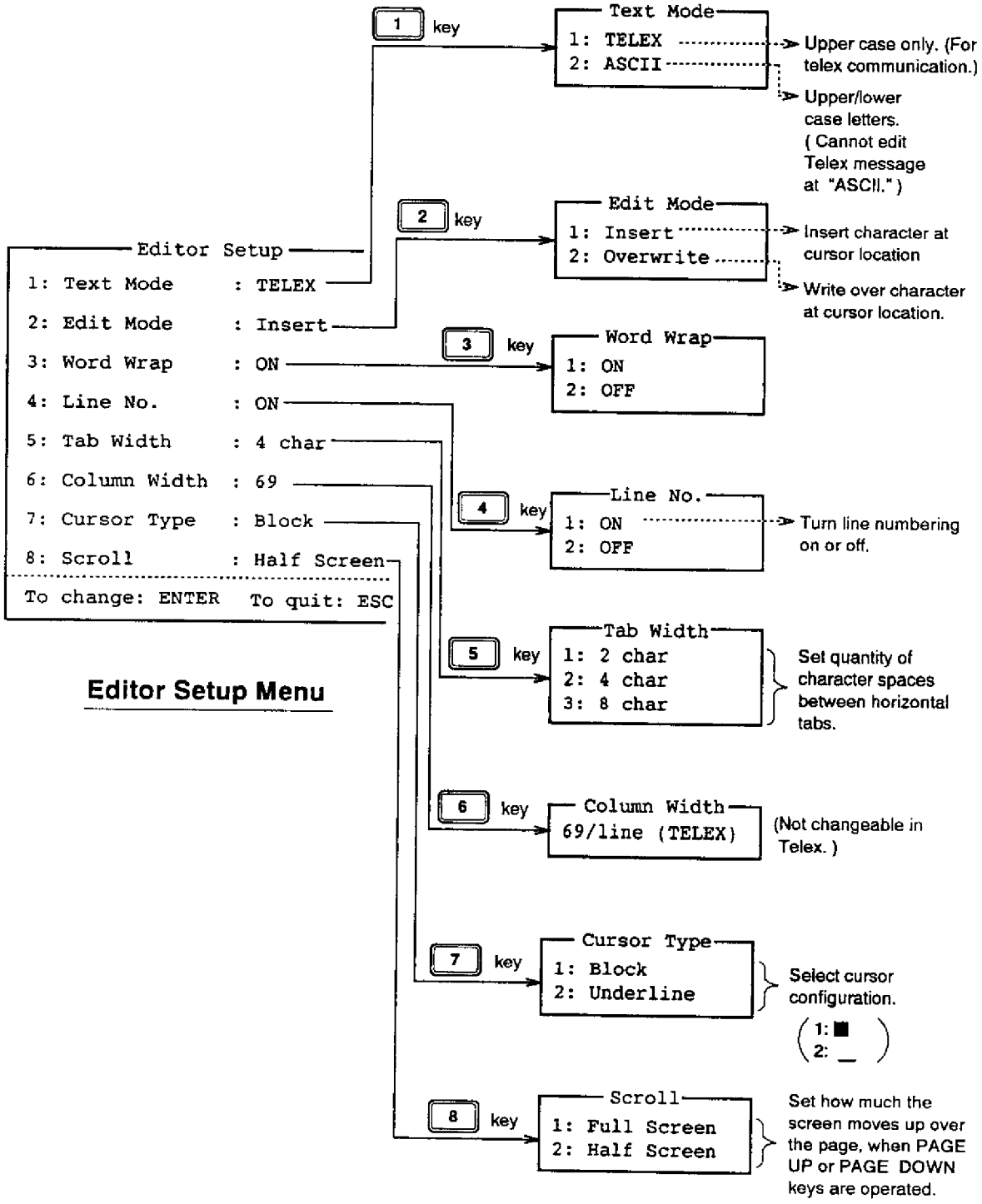
Special Characters

Default	[	]	\
Norway	Æ	Å	Ø
Sweden	Ä	Å	Ö
UK	@	%	£

2.3 Editor Setup

Overview

The "editor screen" is where you will compose and edit files. This screen can be formatted on the Editor Setup menu. Press [F4] followed by [4] to display the Editor Setup menu. You can change settings by pressing appropriate numeric keys. After changing the setting, press the [Enter] key to register.
To escape from the Editor Setup menu, press the [Esc] key.



Editor Setup Menu

2.4 Communication Unit

Overview

This section shows you how to set up the Communication Unit. Press [F4] followed by [6] to display the Communication Unit Setup menu.

```
Communication Unit Setup
[Main Menu]
1: Ocean Region        5: Selftest
2: TEL/FAX Setup
3: DMG     Setup
4: Network Setup
Enter JOB No.:
```

Communication Unit Setup Menu (Main Menu)

The menu consists of four communication setup items and the self-test. To select item, press appropriate numeric key followed by the [Enter] key. For self-test, refer to PART 7.

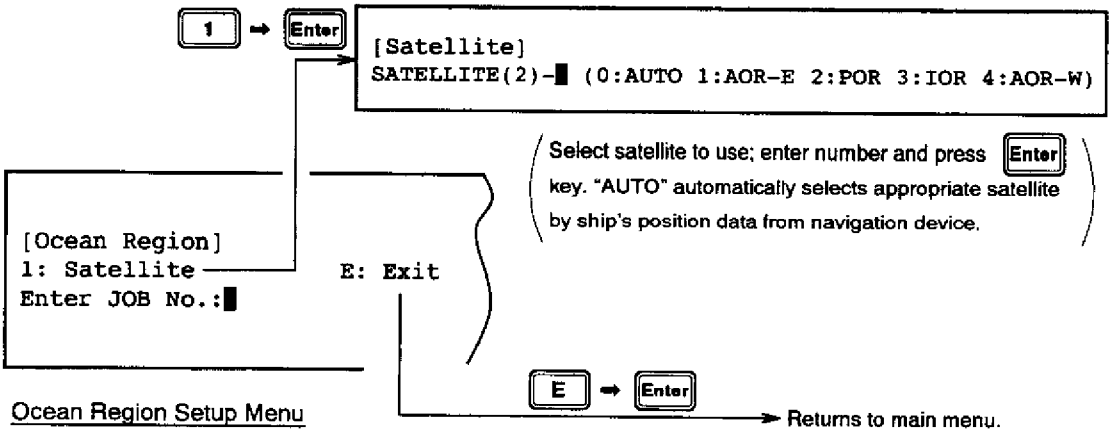
Audible alarm function of the IC-301 can be turned off by using this menu. See page 2-2 in PART 6.

Manual entry of position and gyro data

When no navigation data is input or gyro data can not be entered, enter them manually referring to page 2-9.

Ocean region setup

At the Communication Setup Menu, press [1] followed by the [Enter] key to display the Ocean Region Setup menu. Follow the instructions shown below to select satellite. Note that the Ocean Region Setup can be done through the No. 1 telephone. See page 1-4 in PART 5.



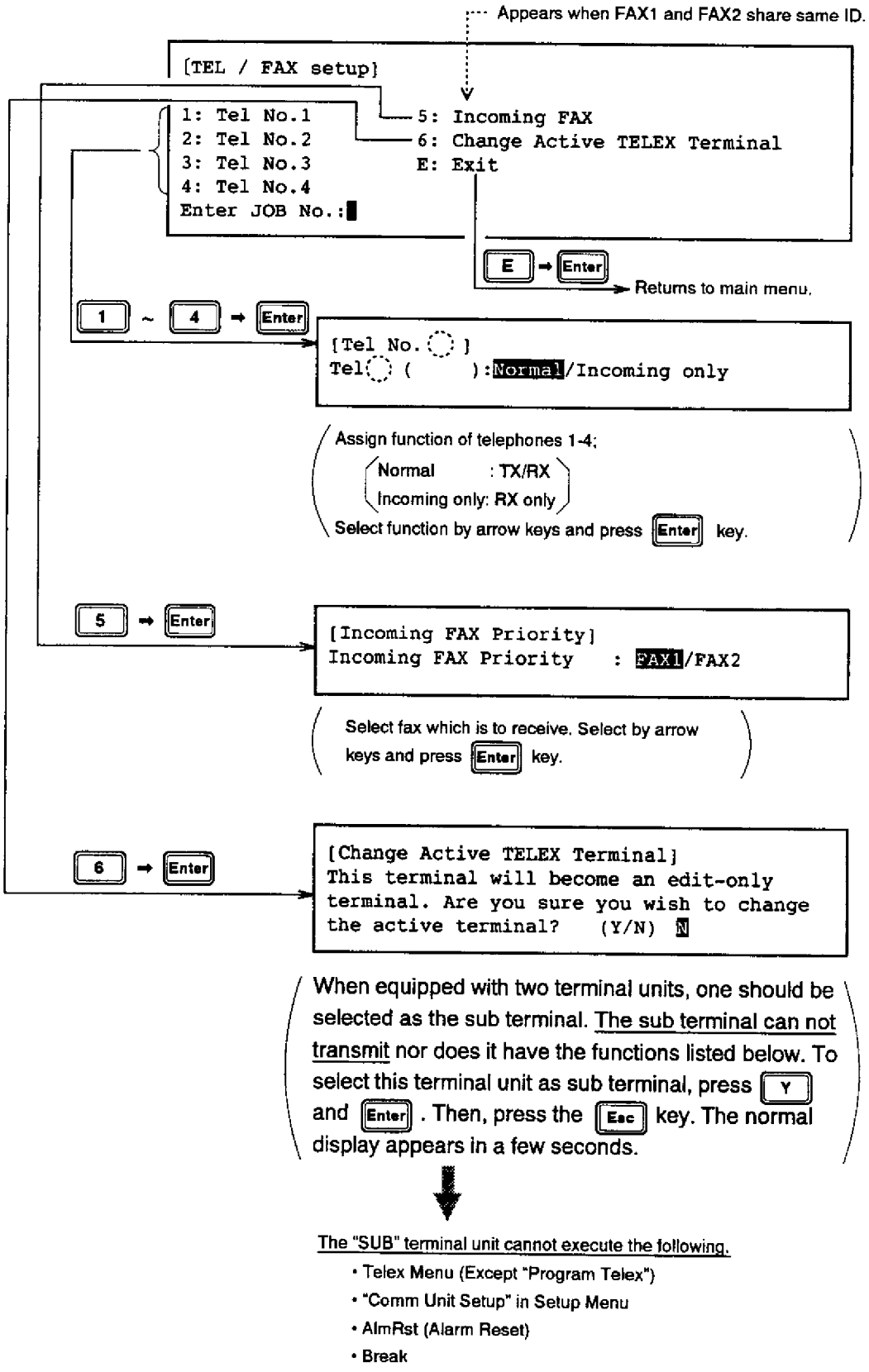
Ocean Region Setup Menu

Manual satellite selection

If you want to change the satellite manually, change the above setting.

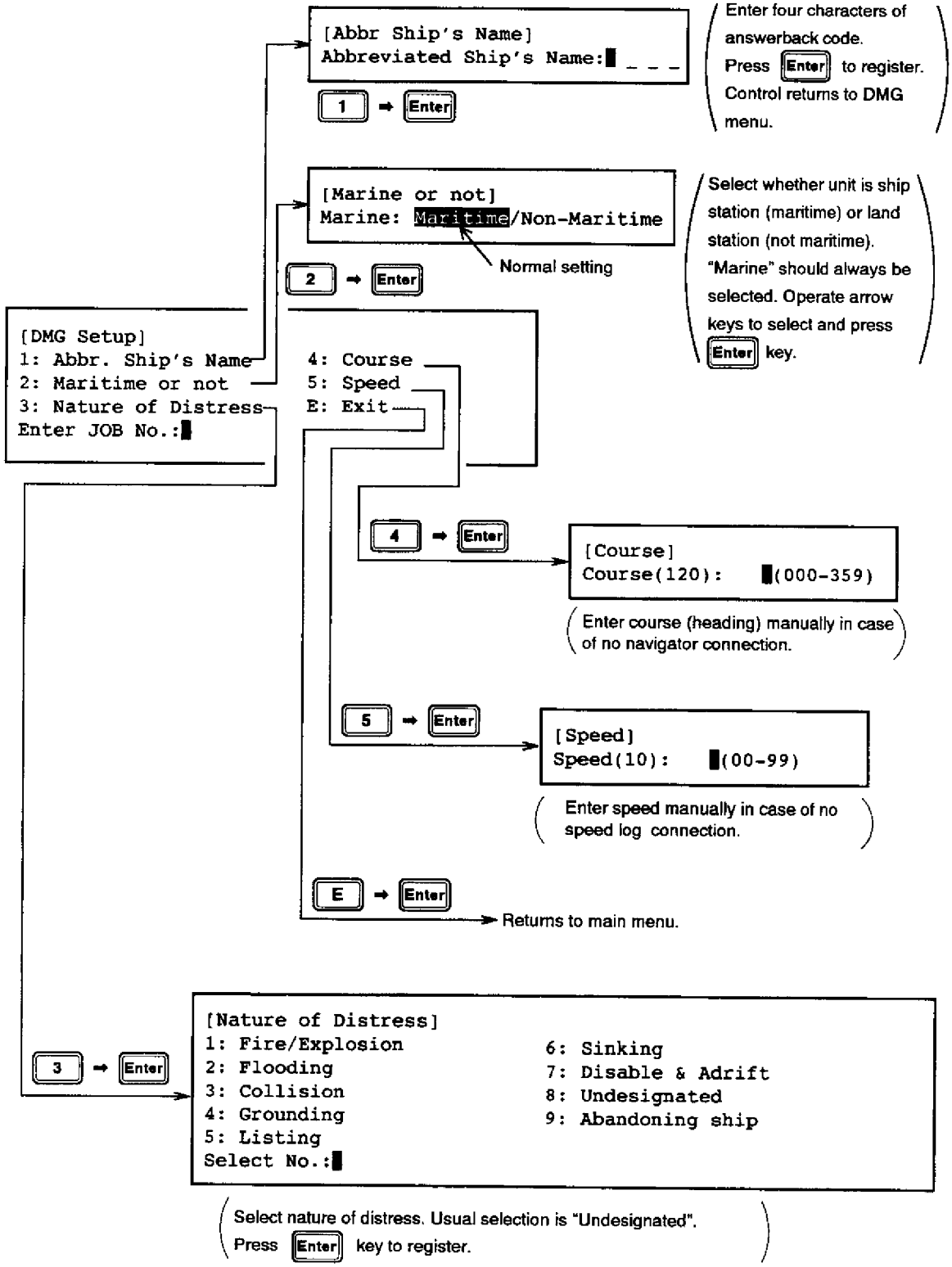
Tel/Fax setup

At the Communication Setup Menu, press [2] and the [Enter] key. (Items 1-5 in the following menu appear only when the Communication Unit is equipped with the PHONE I/F Board.)



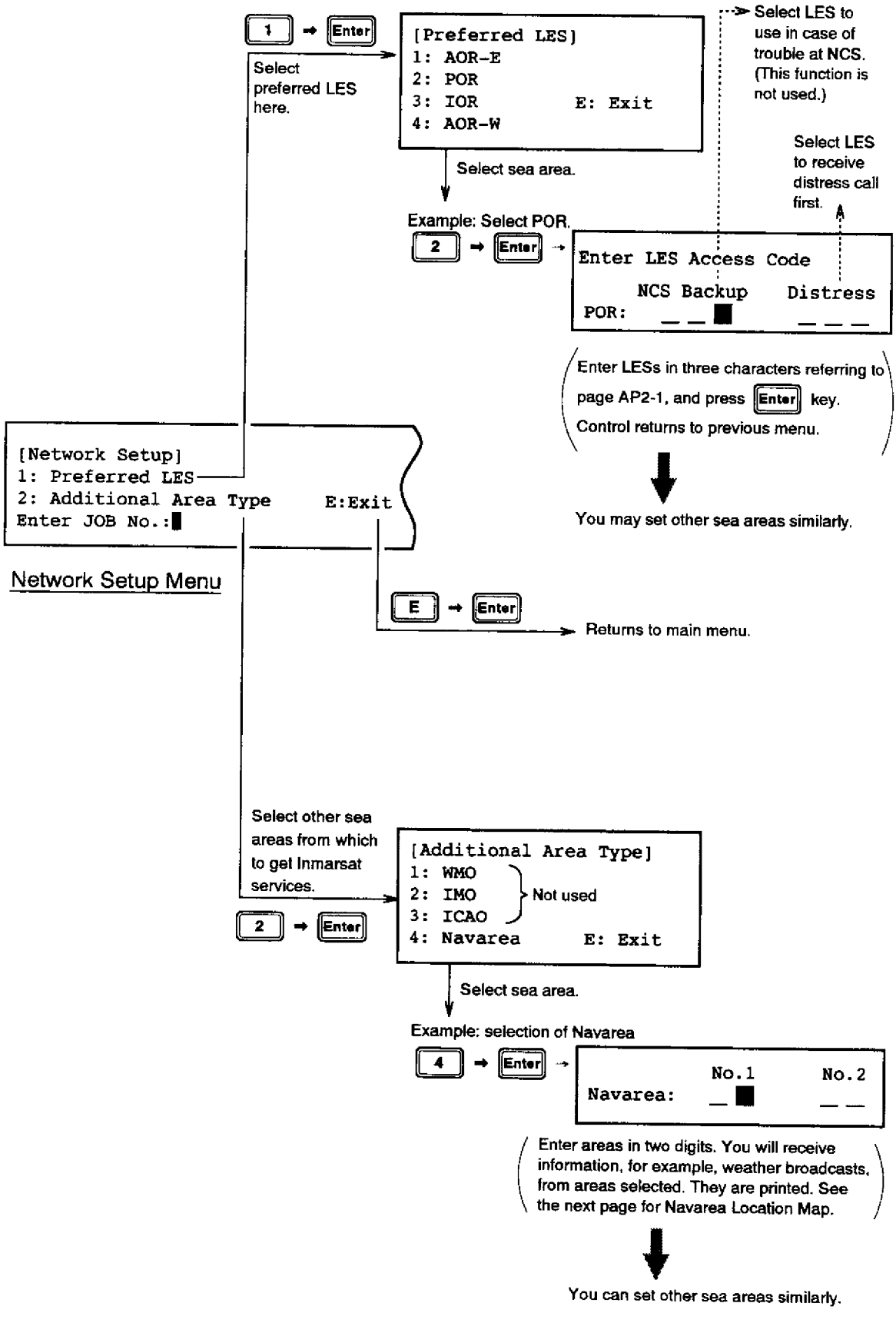
DMG (Distress Message) setup (Class 1 only)

This is where you will prepare and store your ship's distress message. To display the DMG Setup menu, press [3] and the [Enter] key at the Communication Unit Setup menu. (When the Telex Distress Alert Button IB-350 is activated, the data prepared here and position data are automatically transmitted.)

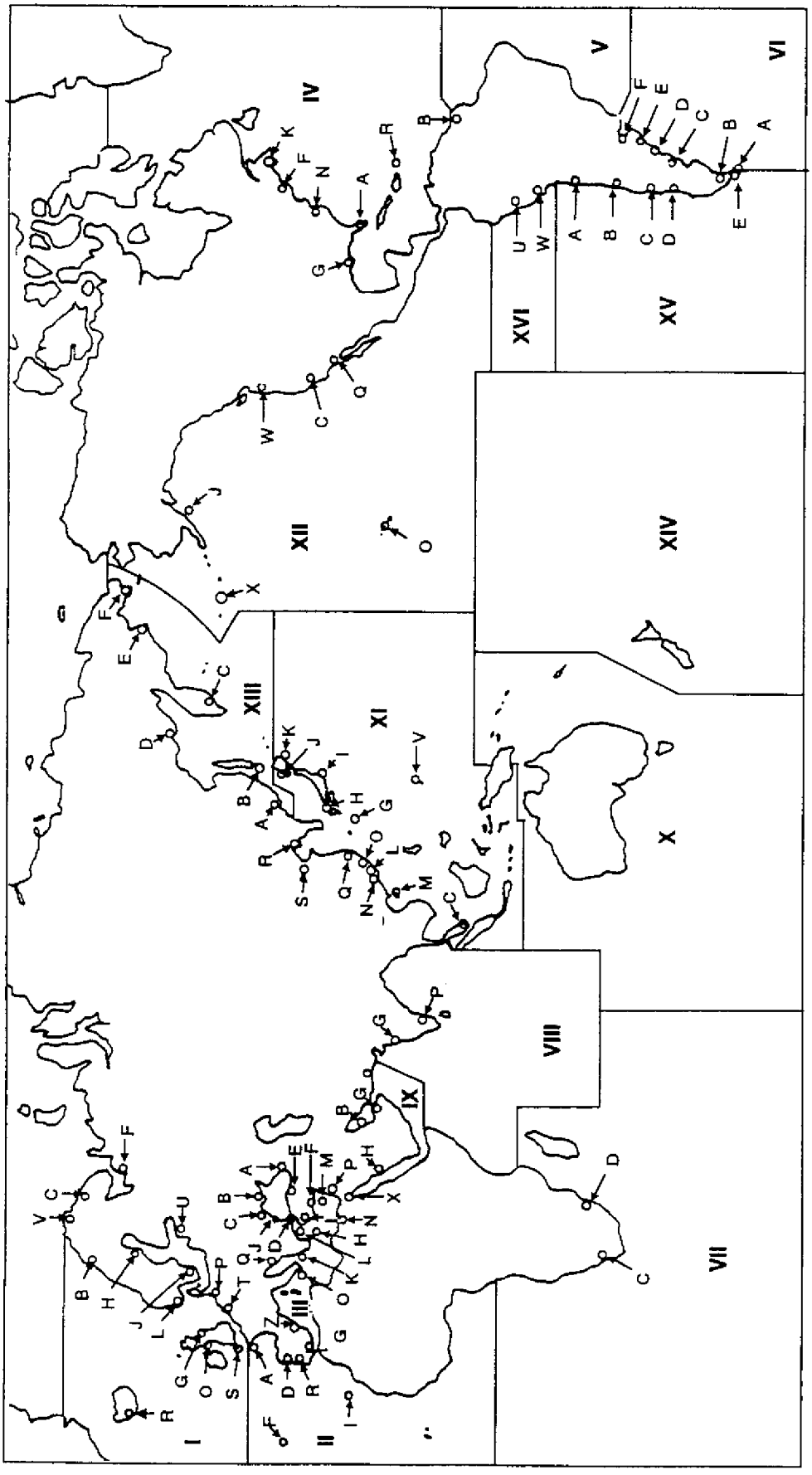


Network setup

Press [4] and the [Enter] key at the Communication Unit Setup menu to display the Network Setup Menu.



Navarea Location Map



2.5 Manual Entry of Position and Gyro Data

Caution

When the gyro data is entered manually, the antenna direction changes immediately according to the input data. Therefore, the gyro data should not be changed unnecessarily as long as it is entered correctly through gyrocompass.

Manual entry of position data

At the normal display, press F4 followed by 6 to display the Communication Unit Setup menu.

```
Communication Unit Setup
[Main Menu]
1: Ocean Region        5: Selftest
2: TEL/FAX Setup
3: DMG     Setup
4: Network Setup
Enter JOB No.:
```

Communication Unit Setup Menu (Main Menu)

Type **POS** and press the Enter key. Then, enter ship's position data. (To cancel the input data, press the Bk Sp key.)

```
[Ship Position]
LATITUDE (35N): N (00-90, N/S)
```

Enter latitude and press Enter .
(ex. South 25° : 25S → Enter)

```
[Ship Position]
LATITUDE (25S): 25S (00-90, N/S)
LONGITUDE (135E):  E (000-180, E/W)
```

Enter longitude and press Enter .
(ex. East 128° : 128 → Enter)

Returns to main menu.

Manual entry of gyro data

At the Main Menu shown above, type **HDG** and press the Enter key.

```
[Heading]
HEADING (0):  (000-359)
```

Enter gyro data and press Enter key.

Returns to main menu.

PART 3

Communication Unit

PART 3 Table of Contents

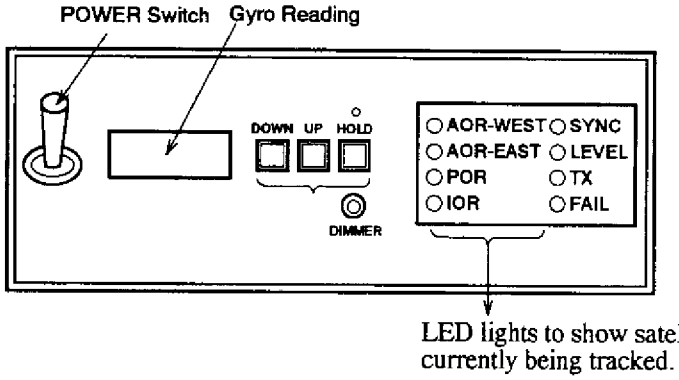
1. Overview

What is the communication unit?

The Communication Unit controls communications equipment (telephone, fax, telex, etc.). A CPU coordinates all transmitting and receiving.

The only adjustment required on the Communication Unit is the initial setting of the gyrocompass reading. See page 3-1.

Turning on the power



After completing the initial setting of the gyrocompass reading, flip up the POWER switch to turn on the unit. All circuits in the unit and the antenna unit are now powered.

When turning on the POWER switch, self-test is started. All LEDs light momentarily and then each LED blinks one by one from left-top to right-bottom. If an error is detected, the FAIL LED lights. See next page.

Note that the gyro reading appears any time even if the POWER switch is turned off. If it does not appear, turn the gyrocompass on.

Changing the satellite manually

It is possible to change the satellite manually by using a Terminal Unit (PC) or a Telephone. Refer to respective pages shown below.

- From Terminal Unit: Refer to page 2-4 in PART 2.
- From Telephone: Refer to page 1-4 in PART 5.

2. The Front Panel

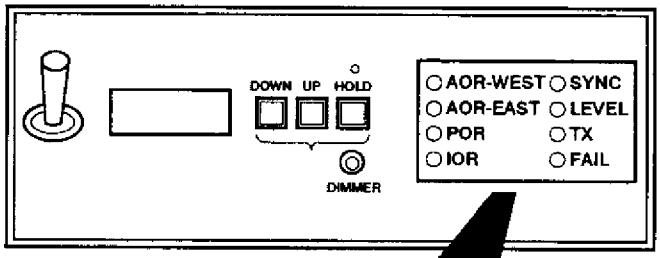
Controls

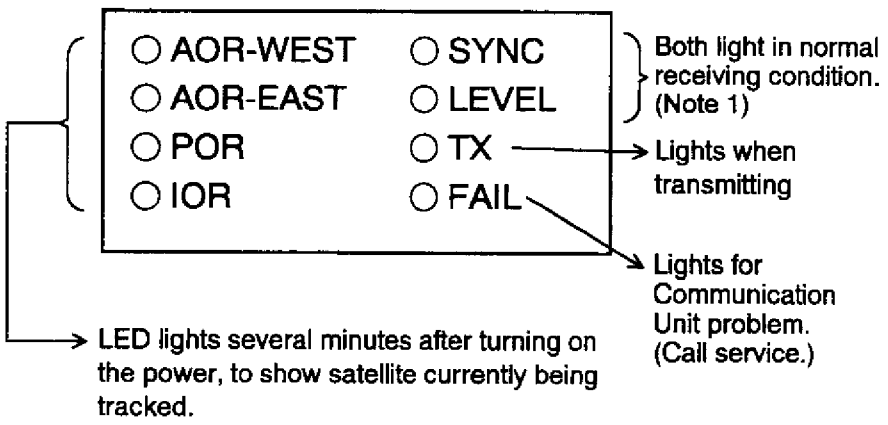
The front panel contains the POWER switch and controls for adjustment of gyrocompass reading. The next chapter explains how to adjust the gyrocompass reading.

LEDs (status indications)

The Communication Unit has LEDs showing the following status.

Communication Unit, front view





Note 1: For telephone circuit communication, they light while subscriber transmits.

As long as the SYNC LED lights even if the LEVEL LED is unstable, the communication with LES is possible.

3. Adjustment of Gyro Reading

Overview

When the unit is first installed or the gyrocompass is turned off, adjustment of the gyro reading will be necessary.

The adjustment is done with the three front panel switches: [HOLD], [UP], and [DOWN].

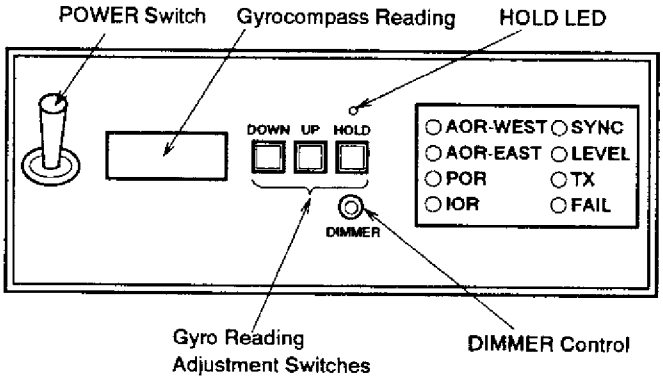
Procedure

1. Turn the DIMMER control clockwise to adjust brightness of the gyrocompass reading.

2. Press the [HOLD] switch to disengage the gyro from the Communication Unit. The "HOLD" LED lights.

3. Press the [UP] or [DOWN] switch to duplicate the gyrocompass reading on the front panel of the Communication Unit. (You may press and hold down those switches to accelerate the speed of change.)

4. Press the [HOLD] switch to engage the gyrocompass with the Communication Unit. Confirm that the "HOLD" LED goes off.



Communication Unit, front view

PART 4

Telex Communication

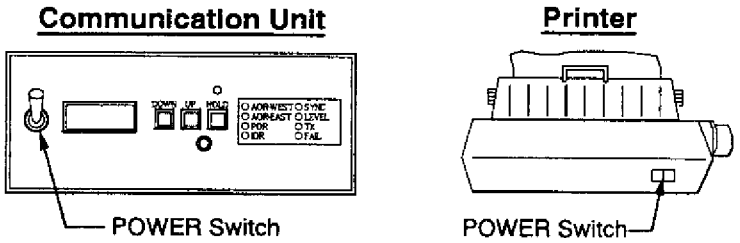
PART 4 Table of Contents

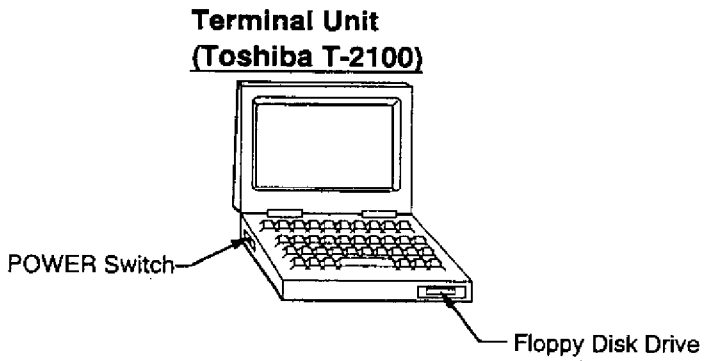
1. Basic Operation

1.1 Turning on the Units

Overview

There is no particular order for turning on the units of the system.





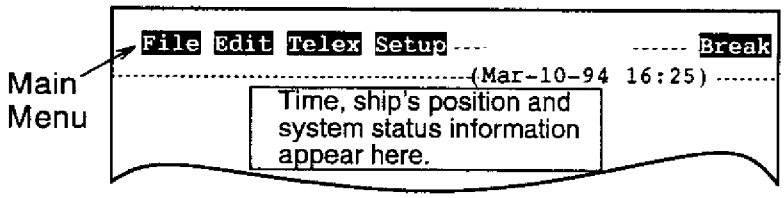
Turning on the power selects an optimum satellite according to own ship position data from navigation device and heading information from gyrocompass, and orients the antenna to the satellite in azimuth and elevation. Upon acquiring an NCS common channel, the FELCOM 80 will be in the automatic tracking mode. (The "SYNC" and "LEVEL" LEDs on the Communication Unit light.)

1.2 Displaying the Main Menu

Procedure

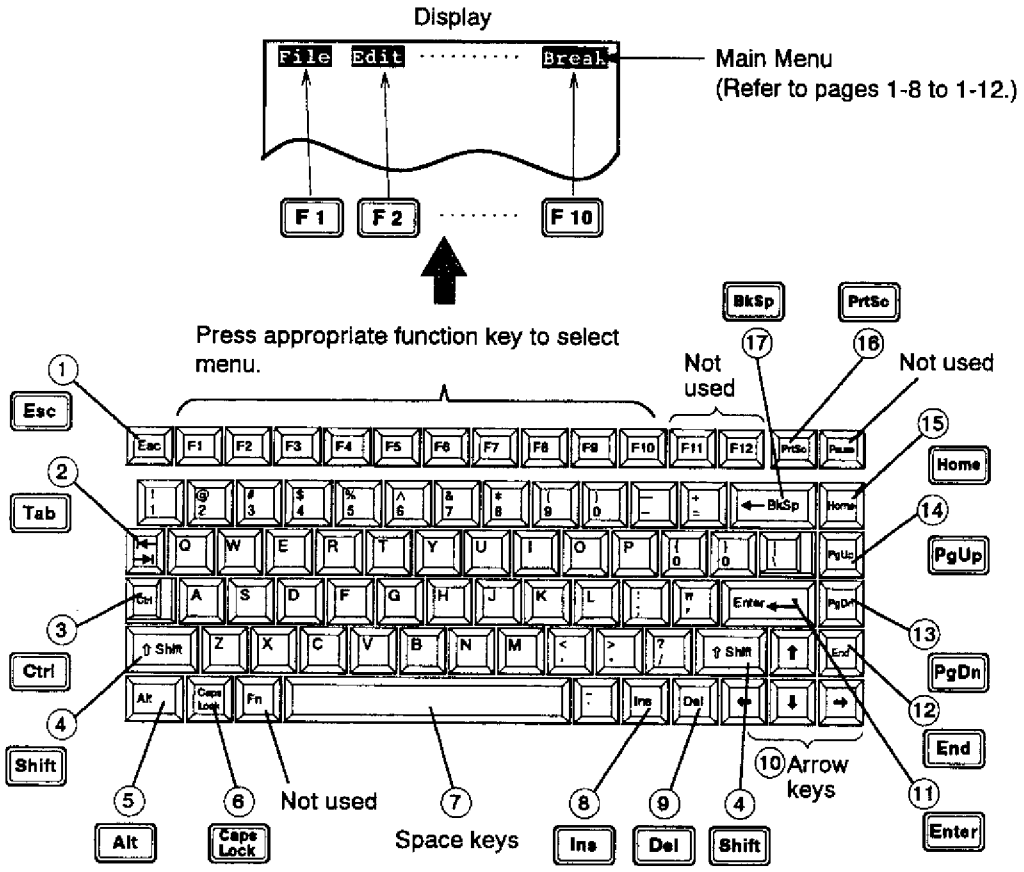
Set system program disk into the disk drive of the PC and then turn on the PC.

After a while the main menu, shown below, appears on the display. The main menu is where you will begin all phases of communication. We refer to this display as the "normal display".



Normal Display

1.3 Key Description



Note that the T-1900's keys repeat their functions when pressed and held down.

① Esc : Cancels key input and returns to previous display screen.

② Tab : Inserts horizontal tab characters. The number of tab characters the key can insert per line of text can be programmed for two, four or eight tabs.

③ Ctrl : Works as a shortcut key when combined with an alphabet key. See page 1-7 for further details.

④ Shift : Press and hold down the key to type upper case letters. Note that only upper case letters are used in Telex.

⑤ Alt : Executes the shortcut key operation when combined with an alphabet key. See page 1-6.

⑥ Caps Lock : Turns upper case letter input on or off. "CAPS" appears on the display when the keyboard is set for upper case letter input.

⑦ Space Bar : Inserts a space between characters. It also displays Station List, LES List or part of a file, depending on current display.

⑧ Ins : Works the same as "Paste" function in the Edit menu.

⑨ Del : Deletes the character on the cursor. It also works same as "Cut" function in the Edit menu.

⑩ Arrow keys : Shift the cursor.

⑪ Enter : Registers key input. In Telex it creates new paragraph.

⑫ End : Moves the cursor to the bottom of a message being edited.

⑬ Pg Dn : Goes to the next page.

⑭ Pg Up : Goes to the previous page.

⑮ Home : Moves the cursor to the top of a message being edited.

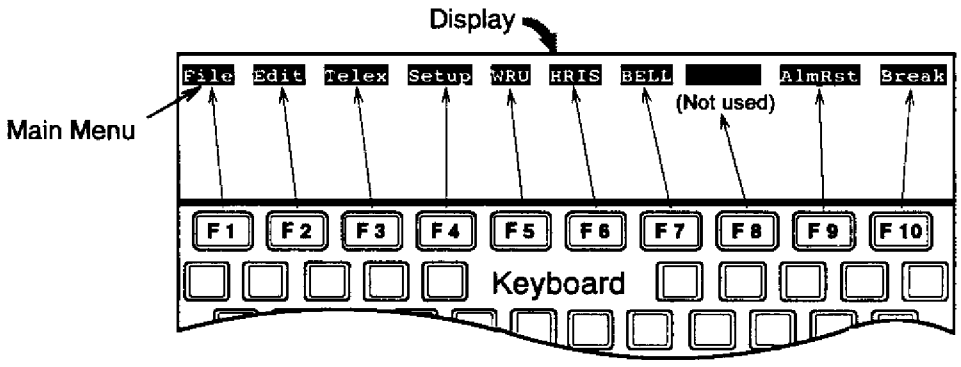
⑯ Prt Sc (Print Screen) : Prints current screen.

⑰ Bk Sp (Back Space) : Deletes the character to the left of the cursor.

1.4 Displaying Menus/Selecting Items on Menus

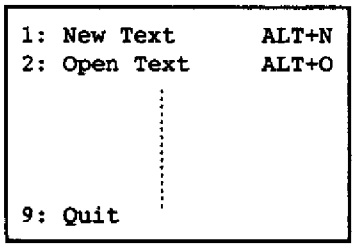
Displaying menus

The function keys (F1-F10) at the top of the keyboard select menus.



Personal Computer(PC)

For example, if you want to select the File menu press F1.



File Menu

Selecting items on menus

Using the File menu in the figure shown above as an example, you may select "Open Text" in one of two ways:

① Operate the arrow keys to select "Open Text" and then press the Enter key, or
② Press 2.

1.5 Keyboard Shortcuts

Shortcut by Alt key

You can control many of the FELCOM 80's functions directly from the keyboard with the Alt key, as shown in the following table.

key	Function Text
Alt+N	Same as New Text in File menu
Alt+O	Same as Open Text in File menu
Alt+Q	Same as Close Text in File menu
Alt+S	Same as Save Text in File menu
Alt+D	Same as Delete File in File menu
Alt+P	Same as Print File in File menu
Alt+X	Same as Undo in Edit menu
DEL	Same as Cut in Edit menu
Alt+C	Same as Copy in Edit menu
INS	Same as Paste in Edit menu
Alt+A	Same as Select All in Edit menu
Alt+F	Same as Search in Edit menu
Alt+R	Same as Replace in Edit menu
HOME	Same as Goto Top in Edit menu
END	Same as Goto Bottom in Edit menu
Alt+L	Same as Goto Line in Edit menu
Alt+V	Same as Change Text in Edit menu
Alt+B	Display Communications Memory display (where transmitted and received messages are stored) To return to normal display, do same operation.
Alt+T	Same as Auto Telex in Telex menu
Alt+W	Same as Change Window in Telex menu
Alt+Z	Escape from editor screen or telex screen to "system status display". (display of ship's position, satellite tracked, etc.) Press key again to return to previous screen.

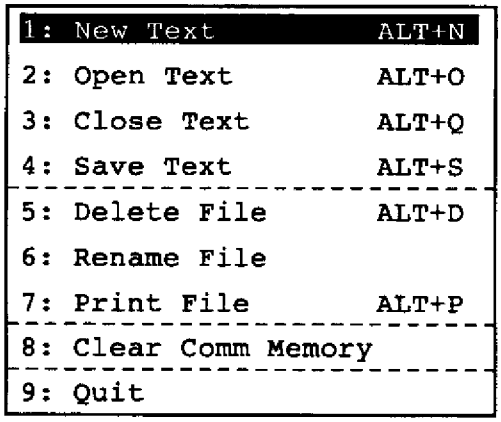
Shortcut by Ctrl key

The Ctrl key also provides shortcut key operations, as shown in the following table.

Key	Function
Ctrl+E	Same as ↑ key.
Ctrl+X	Same as ↓ key.
Ctrl+S	Same as ← key.
Ctrl+D	Same as → key.
Ctrl+A	Moves cursor one character leftward.
Ctrl+F	Moves cursor one character rightward.
Ctrl+G	Same as Del key.
Ctrl+H	Same as Bk Sp key.
Ctrl+I	Same as Tab key.
Ctrl+M	Same as Enter key.
Ctrl+C	Same as Pg Dn key.
Ctrl+R	Same as Pg Up key.
Ctrl+Z	Moves screen by one line toward the end.
Ctrl+W	Moves screen by one line toward the head.
Ctrl+[	Same as Esc key.
Ctrl+V	Same as Edit Mode in Editor Setup submenu of Setup menu. (Refer to page 2-3 in PART 2.)
Ctrl+P	Prints subscriber list, LES list, communications log, etc.

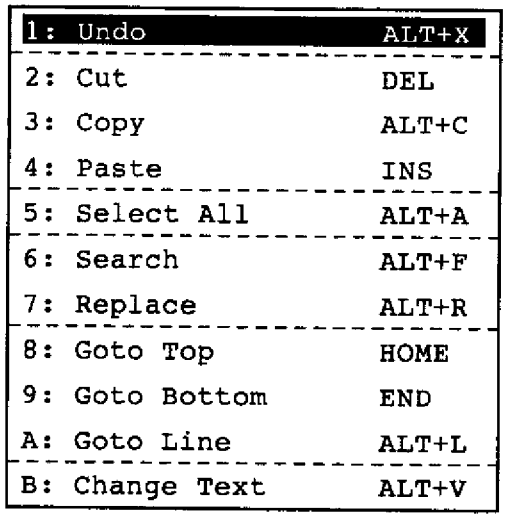
1.6 Menu Description

F1 File····· The File menu, shown below, is where you will compose messages and save them to a floppy disk. You can also print messages from this menu.



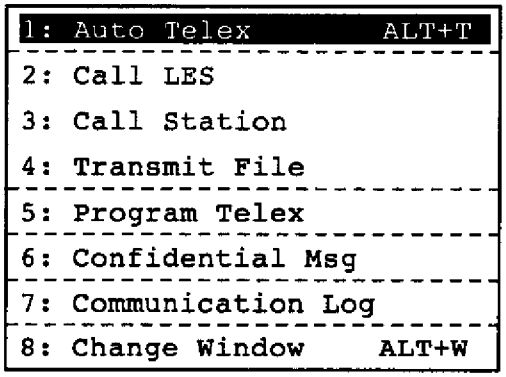
1: New Text	Opens a new file in a working area (page 2-4).
2: Open Text	Opens a file from a disk (page 2-9).
3: Close Text	Removes a file from a working area (page 2-7).
4: Save Text	Saves a file to a disk (page 2-7).
5: Del	Deletes a file from floppy disk (page 2-10).
6: Rename File	Changes file name (page 2-11).
7: Print File	Prints a file in a disk (page 2-11).
8: Clear Comm Memory	Clears all transmitted and received messages from communications memory.
9: Quit	Quits telex operation (No transmission and reception of telex message). To restart, type term (or TERM) then press Enter key. (Main menu appears.)

F2 Edit····· The Edit menu provides text editing facilities. Detailed description appears in "9. Editing Text."



1: Undo	Cancels the last change (cut, copy or paste).
2: Cut	Removes the selected text and stores it in the paste buffer.
3: Copy	Copies the selected text and stores it in the paste buffer.
4: Paste	Inserts the text stored in the paste buffer at the current location of the cursor.
5: Select All	Selects the entire current file for cut and copy.
6: Search	Searches a specified word.
7: Replace	Replaces a word with a different word or character string.
8: Goto Top	Brings the cursor to the top line of the current file.
9: Goto Bottom	Brings the cursor to the last line of the current file.
A: Goto Line	Moves the cursor to the desired line in the current file.
B: Change Text	Alternately displays two files.

F3 Telex ···· You begin all Telex communications from this menu.



1: Auto Telex — Enables fully automatic Telex transmission. See "3. Automatic Transmission".

2: Call LES — Manually connects communication line with LES.

3: Call Station — Selects a station in the Station List or enters telex number directly through keyboard.

4: Transmit File — Selects a file and transmits it.

(2, 3, 4) See "4. Manual Transmission".

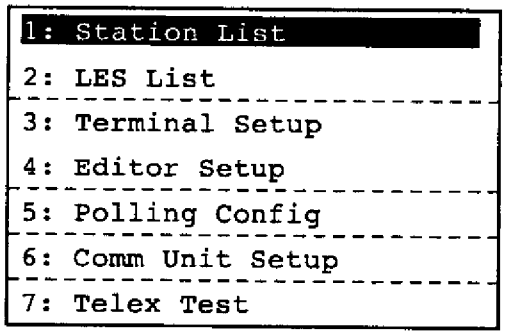
5: Program Telex — Enables timer operation and data reporting. See "5. Programmed Transmission".

6: Confidential Msg — Retrieves confidential messages (page 6-2).

7: Communication Log — Stores destination, call duration, date and time of all transmitted and received messages, up to a maximum of 25. When the log is full, the oldest message is deleted to make room for the latest. You can also print messages from this menu.

8: Change Window — Switches to editor screen or Telex screen, depending on which is the current screen. For example, a routine message arrives while you are editing a message (on the editor screen). In this case the editor screen disappears and the Telex screen appears, showing the incoming message. If you do not need to view the message and want to continue editing, select "Change Window" to replace the Telex screen with the editor screen. (The incoming message is automatically stored into the communications memory.)

F4 Setup···· This menu allows you to enter initial settings. It is also used to register LESs and subscribers.



1: Station List	Registers receiving station to Station List. 64 stations may be registered. See page 2-3.
2: LES List	Registers LES to LES List. 246 LESs may be registered. See page 2-1.
3: Terminal Setup	Enters date, time and answerback code. See page 2-2 in PART 2.
4: Editor Setup	Formats editor screen; turn on or off line numbering and select edit mode, etc. See page 2-3 in PART 2.
5. Polling Config	Selects a file to transmit when the FELCOM 80 is interrogated. Enter personal ID number. See "7. Polling".
6: Comm Unit Setup	Sets up Communication Unit. See page 2-4 in PART 2.
7: Telex Test	Transmits distress alert test. This test is conducted by the installer only. **Never do it unnecessarily.**

F5	WRU	Requests other station's ID (Who are You?). (The mark ✣ is displayed and printed.)
F6	HRIS	Transmits own ship's answerback code.
F7	BELL	Sounds bell at other station.
F8	(Not used)	
F9	Alm Rst	Silences audible alarm which sounds when a message is received.
F10	Break	Disconnects the communication line manually.

2. Preparations

2.1 Overview

Methods of Telex communication

There are three ways a Telex message can be transmitted:

- **Automatically ("3. Automatic Transmission")**
- **Manually ("4. Manual Transmission"), or**
- **Program ("5. Programmed Transmission").**

Before you can transmit a message either automatically or pre-programmed, you must first register the LES codes and Telex numbers of stations you wish to call. This is also recommended for greater convenience on Manual Transmission.

When you are ready to transmit a message, refer to appropriate chapter (3-5) for the procedure.

Preparing a message

Prepare the message and save it to a floppy disk. To transmit the message, retrieve it from the floppy disk and then transmit it. For further details, see page 2-4.

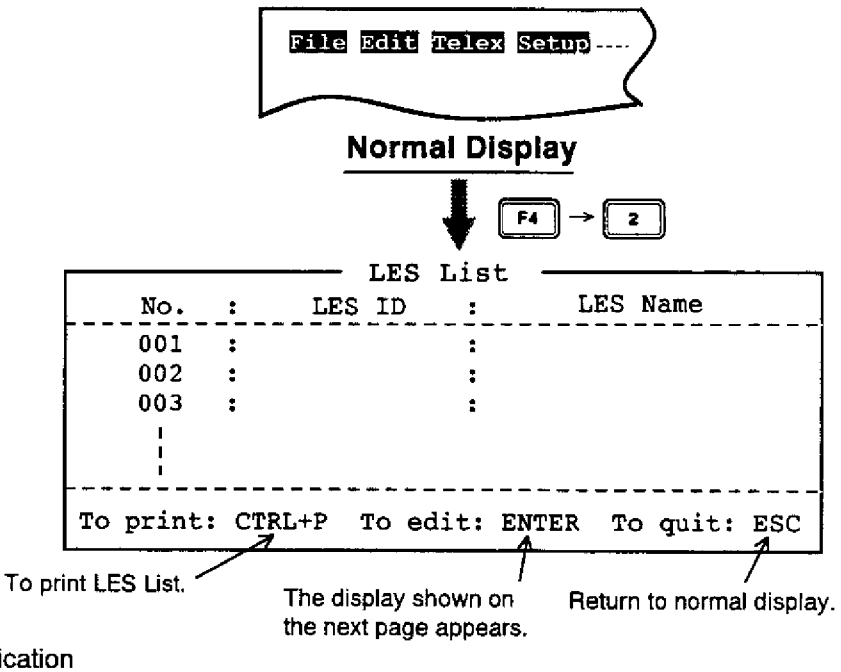
2.2 Registering LESs and Stations

Registering LESs

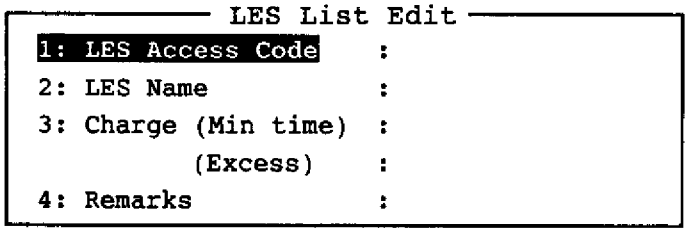
Up to 246 LES codes can be registered, by following the procedure shown below.

Procedure

1. At the normal display, press [F4] and [2] to display the LES List.



2. Operate the up and down arrow keys to select desired number on the LES List and press the Enter key. The LES List Edit display appears.

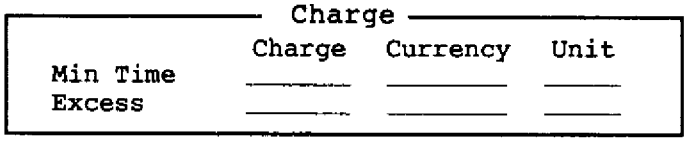


See appendix 2 for complete list of LES access codes.

3. Enter LES in three digits. For example, enter 222 for Perth, Pacific Ocean. (To change LES code, press the Bk Sp key successively, then enter LES code.)

4. Press the down arrow key and enter LES name (maximum 15 characters). For example, type PERTH for the Pacific Ocean LES.

5. Press the down arrow key. Then tap the space bar to open the "Charge" menu. (This data is for estimating charge between MES and LES. For example, minimum charge and excess charge. See note.)



Note: *The charge item is simply to provide a reminder of the selected LES's charges. It is not used to automatically calculate the charges for a particular call and may be left out at the discretion of the operator.*

6. Enter approximate charge for "Min Time" and press the right arrow key to set currency. After entering currency data, press the right arrow key to place the cursor on the "Unit".

7. Tap the space bar to open the list of unit time.

8. Select desired one by the arrow keys and press the Enter key.

9. If desired, enter excess data in the same manner as steps 6 to 8.

10. To return to the "LES List Edit" menu, press the Esc key.

11. If necessary, press the down arrow key and enter remarks (max. 25 characters).

12. Press the Esc or Enter key to finish. To enter another LES, repeat steps 2 through 11.

Deleting LESs

Delete LES Access Code (entered in step 3 above). Press the [Bk Sp] key successively to erase data. Then, press the [Enter] key.

Registering stations

The procedure which follows shows you how to register station names. You may register up to 64.

Procedure

1. At the normal display, press [F4] and [1]. The Station List appears.

```
Station List
No.  :  Station Name
01   :
02   :
To print: CTRL+P  To edit: ENTER  To quit: ESC
```

2. Operate the up and down arrow keys to select station number desired and press the [Enter] key. The Station List Edit display appears.

```
Station List Edit
1: Stn Name        :
2: Telex No.       :
3: Answerback      :
4: Remarks         :
```

3. Enter station name (ex. TOKYO).
(To change station name, press the [Bk Sp] key successively, then enter station name.)

See appendix 1 for complete list of country codes.

4. Press the down arrow key and enter subscriber's telex number (max. 20).

(Ex: Ship to Land → 00 720 5644325)

Auto Connection **(Normally enter 00.)** — Country Code — Telex Number

Sea Area Code (Location of subscriber)	581 Atlantic Ocean-E 582 Pacific Ocean 583 Indian Ocean 584 Atlantic Ocean-W

➡ For ship to ship, type 00 and enter sea area code and other ship ID number.

5. Press the down arrow key. When you use the LESs other than Yamaguchi LES, enter other station's answer back code (max. 20 characters). If you don't know other station's answer back code, enter a part of other station's answer back code or subscriber's telex number. Note that when you use Yamaguchi LES, this operation is not necessary.

6. If necessary, press the down arrow key and enter remarks (max. 25 characters).

7. Press the [Esc] or [Enter] key to finish. To enter another station, repeat steps 2 through 6.

Deleting stations

Delete Station Name (entered in step 3 above). Press the [Bk Sp] key successively to erase data. Then, press the [Enter] key.

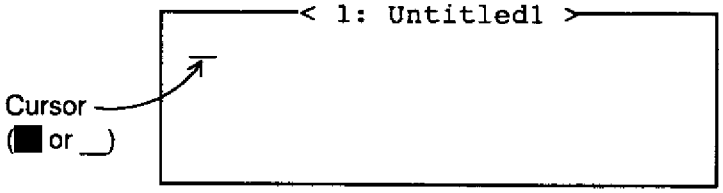
2.3 Composing Messages

Overview

There are two types of Telex messages: routine and confidential. This section shows how to compose both, beginning with routine.

Routine messages

At the normal display, press [Ft] and [1] (or [Alt] + [N]). Your display should look something like the one shown below.



Message Entry Display

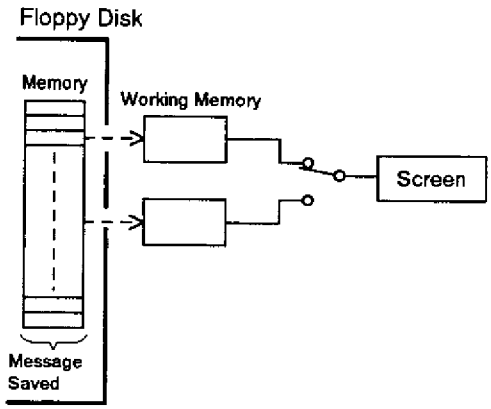
```
< 1: Untitled1 >
TO: FURUNO
ATTN: MARINE DEP.
FM: European Venture
REF: TLX94-001 MAR.15.94
SUBJECT: TEST MSG

Type your message.
RGDS/MASTER
NNNN·····
```

Example of prepared message

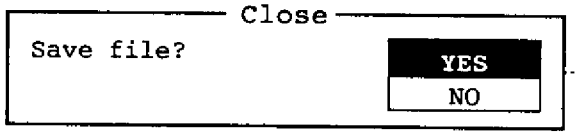
Notice that the cursor is on the far left-hand side of the first line of the display. Type your message just as you would on an ordinary word processor. At the end of the message type the characters NNNN (end of message code). By typing **five periods** after the end of the message code, you can receive notice of call duration from the LES and have the communication line disconnected automatically. This feature is available regardless of whether the message is transmitted automatically, manually or by program.

Edit memory

The FELCOM 80 has two working memories to which you can load a file.



When you try to load a file into an occupied memory, by pressing [F1] and [1], the display asks you if you want to save the current file before clearing the display.



This display asks you if you want to save current file before clearing the display.

To save, press the [Enter] key. If saving is not required, press the down arrow key to select "NO" and then press the [Enter] key. One of two working memories is cleared and then the message entry display appears.

Confidential messages

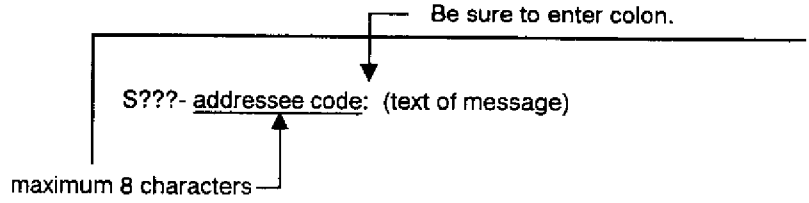
Press F1 and 1 at the normal display. The message entry display appears.

If communicating with another FELCOM 80, you can prepare a confidential message by entering S???-addressee code (-password): in first line of message text.
You can also receive confidential messages containing this header from a land subscriber or any other MES.
Confidential messages, unlike routine messages, are neither displayed nor printed when received. You will learn how to display and print confidential messages in a later chapter. (page 6-2)

There are two types of confidential message; message with addressee code (no password) and message with both addressee code and password.

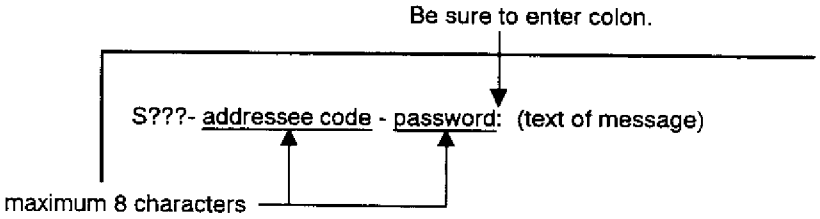
Preparing message with addressee code

To prepare, enter S, 3 question marks, hyphen, addressee code, colon and text of message.



Preparing message with both addressee code and password

To prepare, enter S, 3 question marks, hyphen, addressee code, hyphen, password, colon and text of message.



2.4 Saving Messages

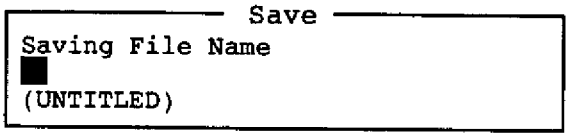
You can save message to a floppy disk in two ways:

- By the Save menu (message remains on the display), or
- By the Close menu (message is saved and display is cleared).

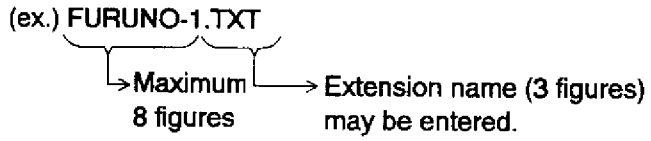
By Save menu

Procedure

1. After preparing the message, press [F1] and [4]. The display should look something like the figure shown below. (If name is already entered, press the [Bk Sp] key successively to erase data.)



2. Enter file name, using up to eight characters. Press the [Enter] key.

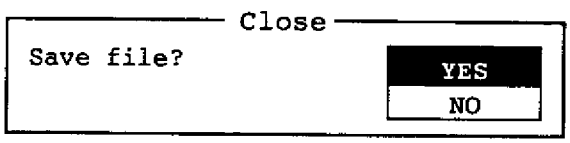


During saving the access lamp (green) on the drive is on. To prevent damage to disk or loss of disk contents, do not remove the disk while the lamp is on.

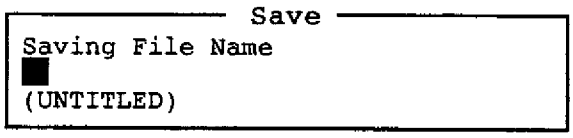
By Close menu

Procedure

1. After preparing the message, press [F1] and [3]. The display should look something like the figure shown below.



2. Press the Enter key.



3. Enter file name and press the Enter key.

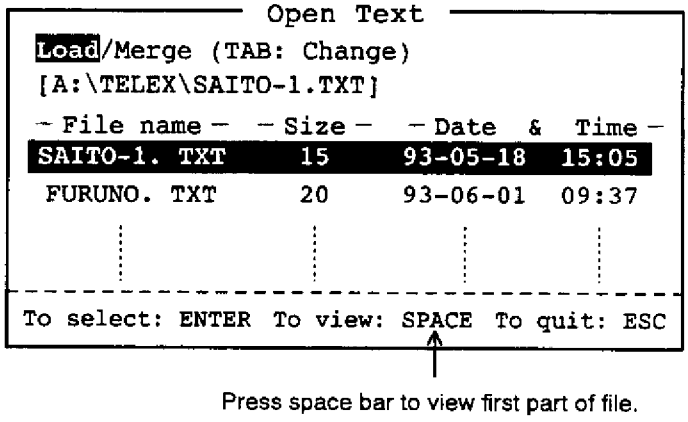
When saving is completed, the drive access lamp goes off and the message disappears from the screen.

2.5 Retrieving Files

Procedure

To retrieve a file from a floppy disk;

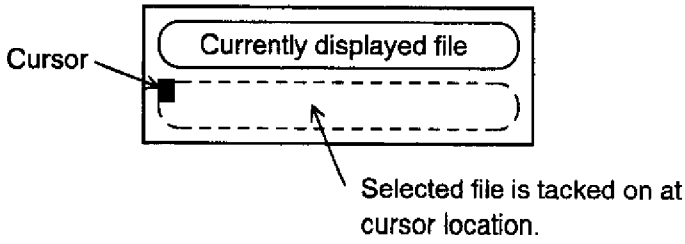
1. At the normal display, press [F1] and [2]. The display shows a list of files stored on the disk.



Load and Merge

The [Tab] key toggles between "Load" and "Merge".

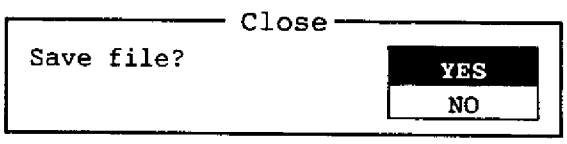
Load : Open new file.
Merge : Tack file at cursor location onto currently displayed file.



2. Select a file by operating the up and down arrow keys. (To view the first part of a file, tap the space bar.)

3. Press the [Enter] key.

- If both working memories are occupied, the following appears.



Save the file in a working memory by pressing the Enter key, or select "NO" and press the Enter key to clear the display.

- When the working memory is unoccupied, the selected file immediately appears on the display.

2.6 Filing Operations (File Menu)

Overview

This section covers filing operations on floppy disks. All procedures in this section assume that a floppy disk is inserted in the disk drive.

Deleting files

Procedure

1. Press F1 and 5 to display file list.
2. Press the up and down arrow keys to select file to delete. (If you want to view the first part of a file, press the space bar.)
3. Press the Enter key. The display asks you if it is alright to delete the file.

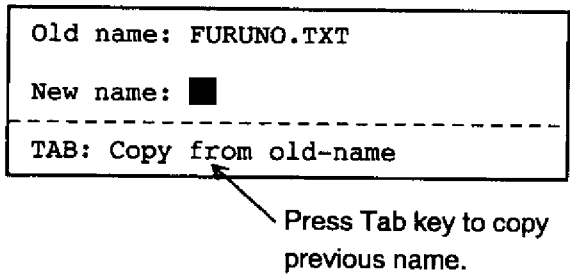
4. To delete the file, press the Enter key. To escape, select "NO" and press the Enter key.

Changing file name

Procedure

1. Press [F1] and [6].

2. Press the up and down arrow keys to select file then press the [Enter] key.



3. Enter new file name and press the [Enter] key.

Printing files

Procedure

1. Press [F1] and [7].

2. Press the up and down arrow keys to select file and press the [Enter] key. Printing begins.

Clearing the communications memory

There are times you may want to clear the entire communications memory of transmitted and received messages. You can do this by pressing [F1] and [8].

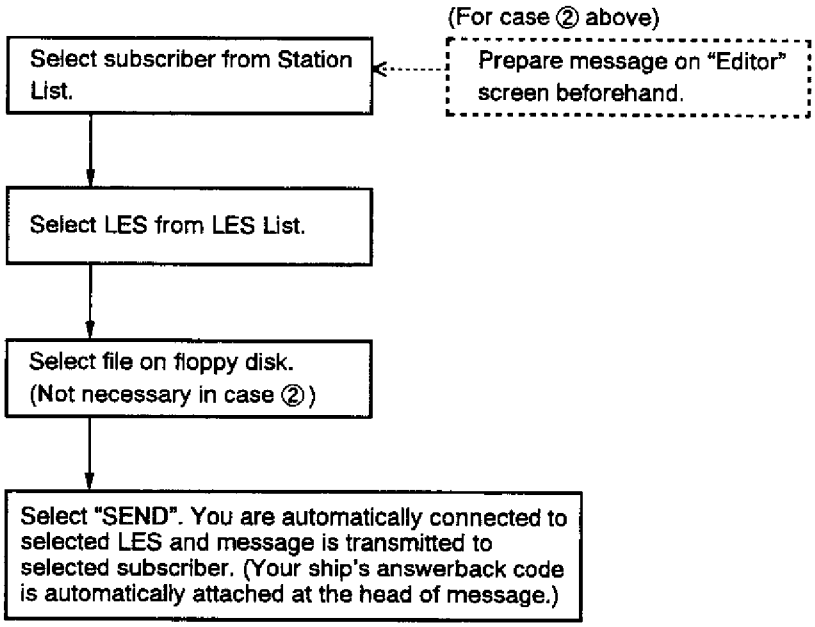
3. Automatic Transmission

Basic procedure

There are two ways to prepare a message:

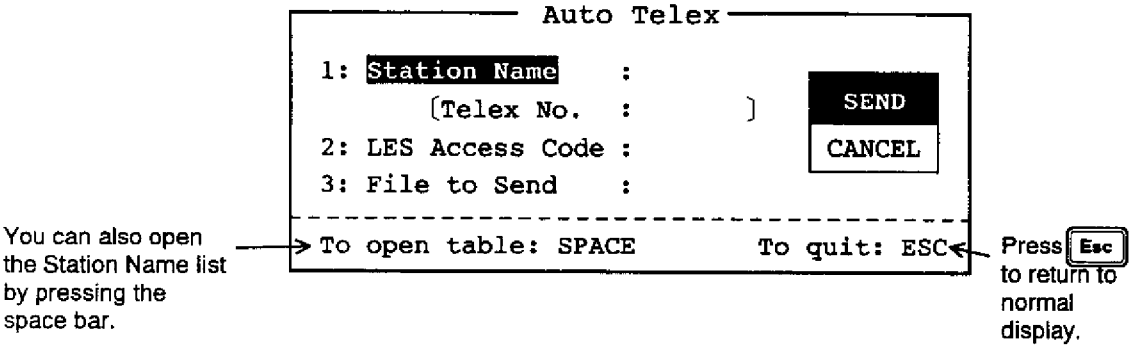
① Select message stored in floppy disk

② Prepare message on the "Editor" screen



Detailed procedure

1. At the normal display (or "Editor" screen), press [F3] and [1]. The Auto Telex display appears.

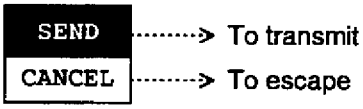


2. Press [1] or the space bar to display the station name list. Operate arrow keys to select station and press the [Enter] key.

3. The Auto Telex display reappears. Press [2] to display the LES List. Operate arrow keys to select LES and press the [Enter] key.

4. Insert floppy disk which stores the message you want to transmit in the drive. Press [3] to display file list. Operate the up and down arrow keys to select file and press the [Enter] key. (This operation is not necessary when preparing a message on "Editor" screen.

5. Press right arrow key to select "SEND".



6. Press the [Enter] key to transmit selected file.

You are automatically connected to the LES and your message is sent to station selected. After the message transmission is completed, the line with the LES is automatically disconnected without notice of call duration.
If five periods are typed at the end of the message, notice of call duration appears prior to disconnection of the line.

Disconnecting line with LES manually

Press [F10] (Break). Notice of call duration does not appear.

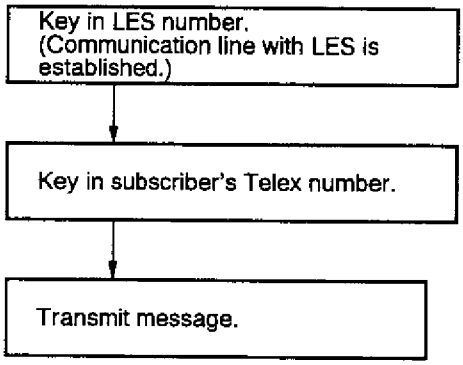
Returning to normal display

After the line with the LES is disconnected, press [Esc] key first then press [F3] and [8] (or [Alt] + [W]) to change the display from Telex screen to normal display.

If you wish to connect newly the line with an LES, wait for 16 seconds after the line has been disconnected, otherwise the error message appears, resulting in no connection.

4. Manual Transmission

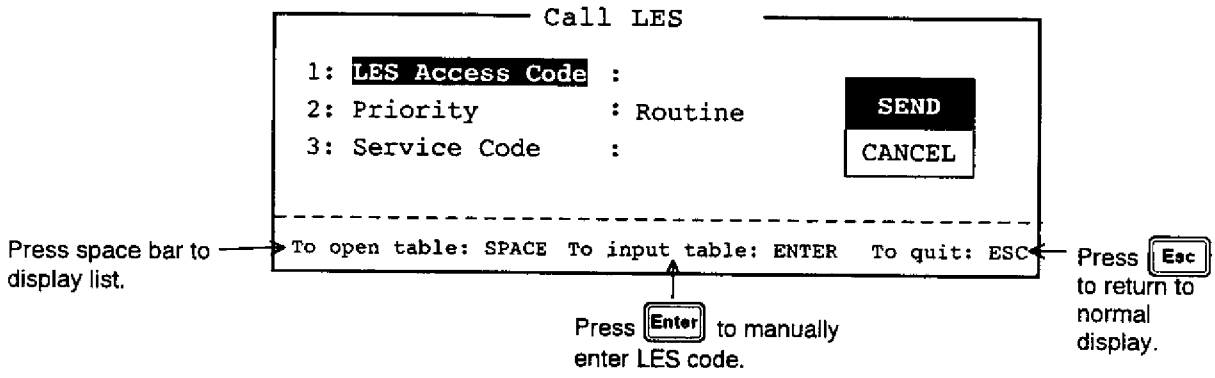
Basic procedure



Connecting with LES

Procedure

1. At the normal display, press F3 and 2. The Call LES display appears.



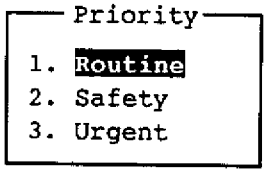
2. Select appropriate LES, by one of two methods:

See appendix 2 for complete list of LES access codes.

① Press the Enter key to retrieve the entry display of the LES access code and key in LES number in three digits followed by the Enter key, or
② Press the space bar to display the LES List. Operate the up and down arrow keys to select LES and press the Enter key.

3. Press the down arrow key to select "Priority".

4. Press the space bar.

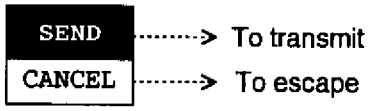


5. Enter communications priority by pressing appropriate key among 1-3. (Normally, press [1] for Routine.)

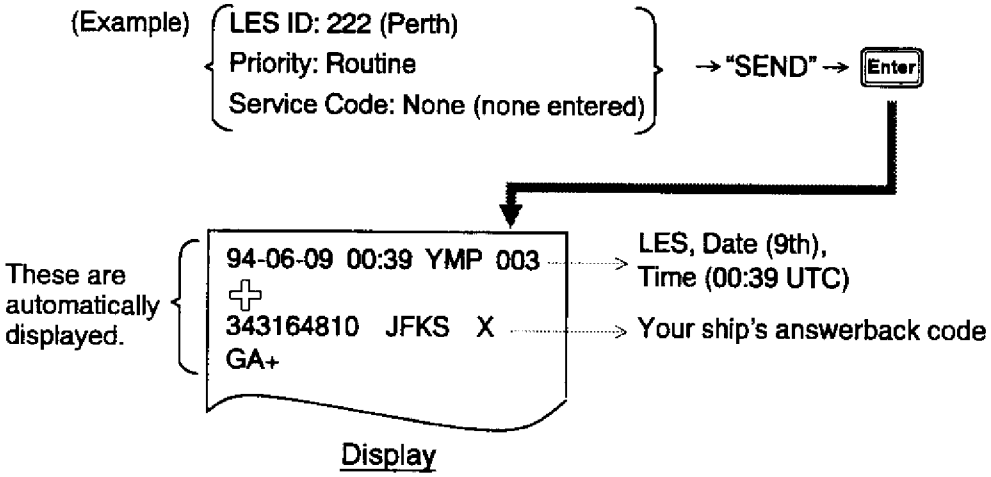
   If necessary, select service code. Set the cursor on Service Code and press the space bar to retrieve the entry display of service code. Then, key in service code in two digits and press the [Enter] key. Note that some services may not be available depending on LES.

Service Code	Function
11	Operator's Assistance
12	Dial Guide
33	Technical Assistance
91	Automatic Telex Test
⋮	⋮

6. Press the right arrow key to set the cursor on "SEND".



7. Press the [Enter] key to transmit. You are now connected with LES selected. ➡ Enter subscriber's telex number immediately referring to next page.



Entering subscriber's Telex number

You must enter subscriber's Telex number within 15 seconds after "GA+" is output from LES. Otherwise, the line with LES is disconnected.
Therefore, after "Call LES" operation on the previous page is completed, do the following at once.

1. At the normal display, press [F3] and [3]. The Call Station display appears.

```
Call Station
No.  :  Station Name
01   :     FURUNO
02   :      KOBE
```

2. Press the up and down arrow keys to select station. Wait for "GA+" from LES.

3. After "GA+" is displayed, press the [Enter] key. Selected station's Telex number appears on the display as shown below. If the number is wrong, press [F10] to disconnect the line. Enter correct number by referring to page 2-3.

4. After other station's answerback code is displayed (charge calculation begins), press the [F6] (HRIS) key to send your ship's answerback code. ➡ Transmit message right away referring to next page.

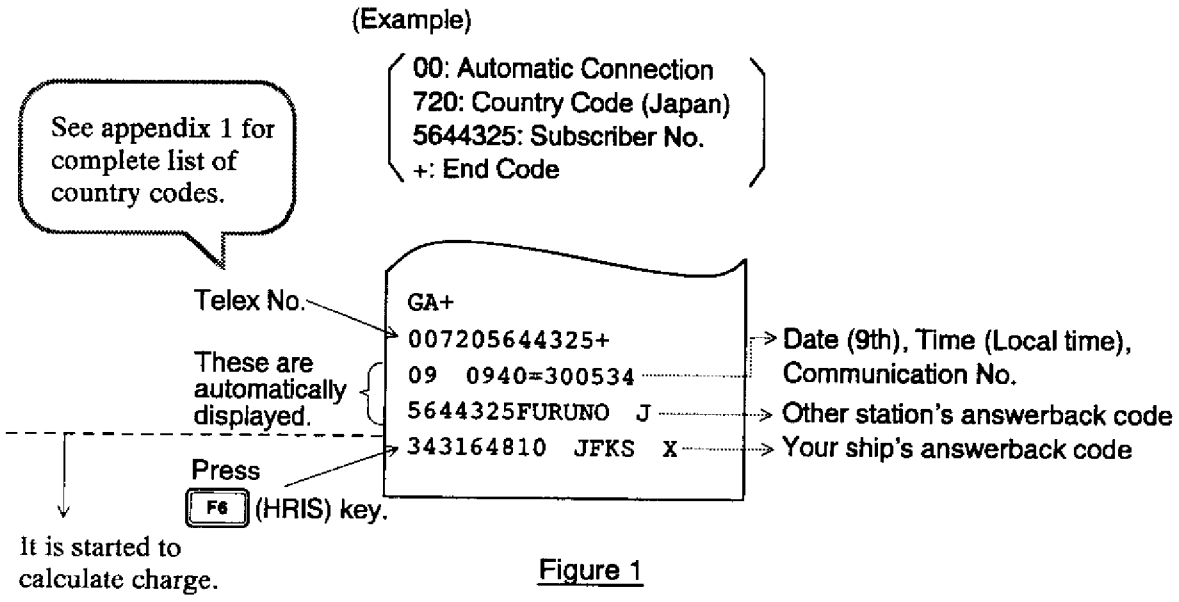


Figure 1

Transmitting messages

There are two ways in which you can manually transmit a Telex message.

① By direct keyboard input, or
② Retrieve file from floppy disk and send it.

For ② above;

1. Insert floppy disk containing file you want to send into the disk drive. At the normal display, press [F3] and [4]. The Transmit File display appears.

```
Transmit File
- File name -   - Size -   - Date  &  Time -
  SAITO-1        <DIR>     93-03-20   09:18
```

2. Press the up and down arrow keys to select file. (To display first part of file, press the space bar.)

3. Press the [Enter] key to transmit the file. (Transmit messages appear at the bottom of the display.)

4. After the message transmission is completed, press [F10] to disconnect the line.

NOTE: *The line can be disconnected automatically by typing five periods at the end of the message. For further details see page 2-4.*

Returning to normal display

After the line with the LES is disconnected, press the [Esc] key first then press [F3] and [8] (or [Alt] + [W]) to change the display from Telex screen to normal display.

If you wish to connect newly the line with an LES, wait for 16 seconds after the line has been disconnected, otherwise the error message appears, resulting in no connection.

5. Programmed Transmission

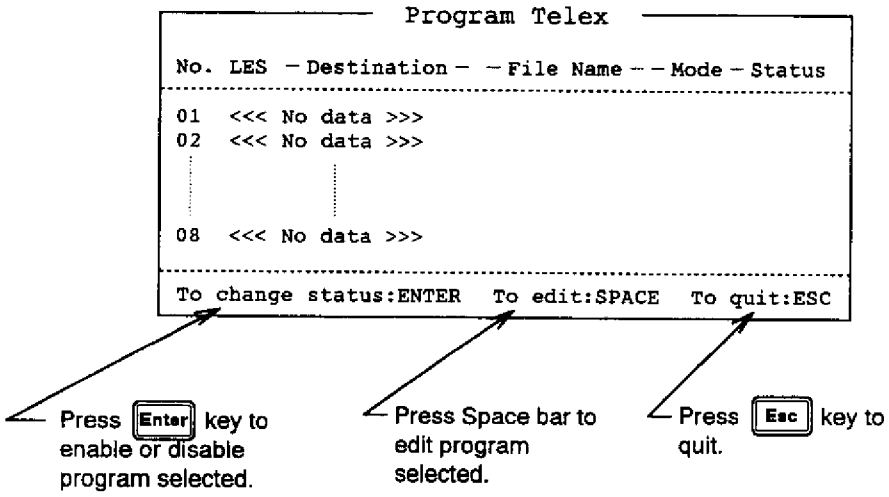
Overview

The FELCOM 80 can be programmed to send a message at a specific time or at regular intervals. Eight programs can be entered. (Your ship's answerback code is automatically attached at the head of message.)
You do not need to worry even if your communication line is busy when the programmed time arrives: The FELCOM 80 waits for the line to become free and then automatically sends the message two minutes afterward.

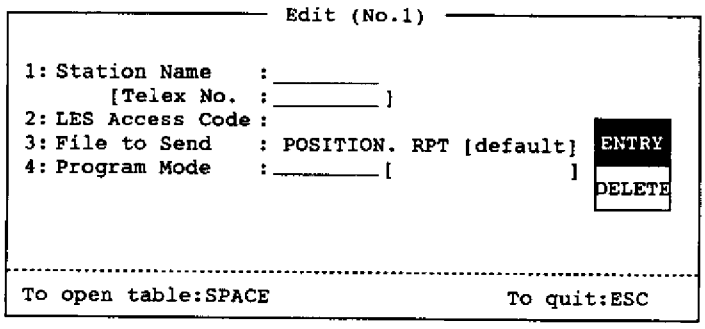
Programming

Displaying the program telex display

1. Press F3 and 5. The Program Telex Display appears. If there are no programs stored, the display looks like the following figure.



2. Press the space bar to enable entry of program data.



You set these four items to compose a program.

Selecting station

3. Press [1] (or tap the space bar) to display the Station List.

```
Station List

No.  :   Station Name
-------------------------
01   :   FURUNO
02   :    KOBE
```

4. Operate the up and down arrow keys to select station and then press the [Enter] key.

Selecting LES

5. At the Edit display (shown on the previous page), press [2].

```
LES List

No.    :    LES Code:    LES Name
-------------------------------------
001    :    001     :    Santa Paula
002    :    222     :      Perth
```

6. Operate the up and down arrow keys to select LES and then press the [Enter] key.

Selecting file

7. Set floppy disk containing file you want to send into the disk drive. At the Edit display, press [3] to display file list.

NOTE: *If no file is specified, the file "POSITION RPT" is automatically selected. That is, position information will be sent when the time entered in step 9 on the next page is reached.*

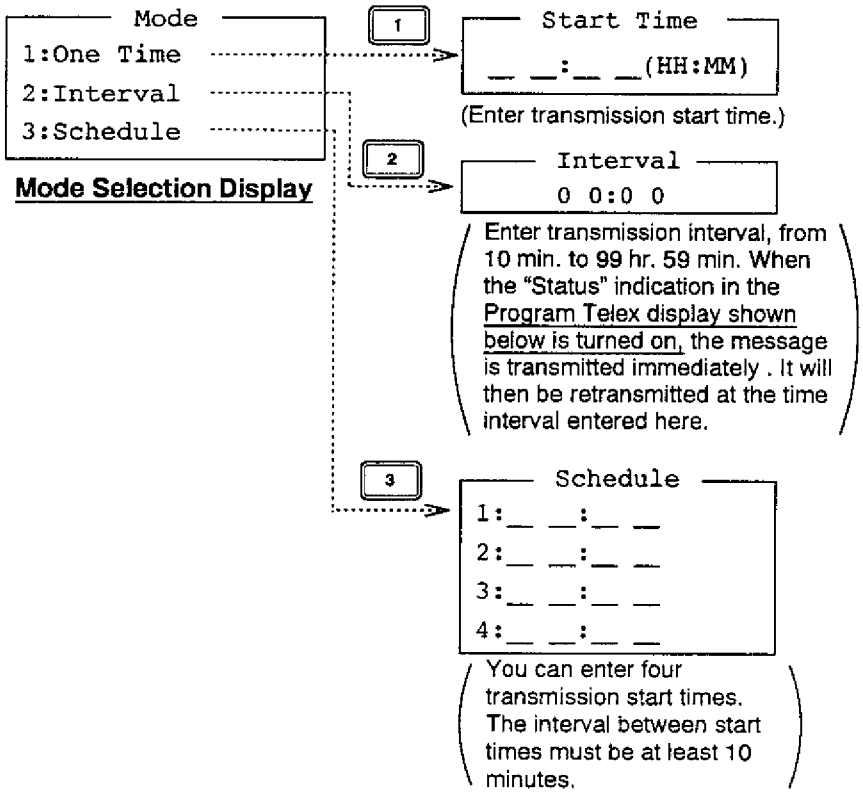
```
LAT 32:08:35N
LON 140:56:87E
```

Format of "POSITION RPT" file

8. Operate the up and down arrow keys to select file and then press the [Enter] key.

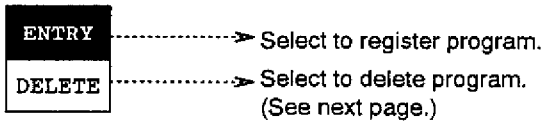
Selecting program mode, entering time data

9. At the Edit display, press [4]. The Mode selection screen appears. Select desired mode, enter transmission start and stop times or transmission interval and then press the [Enter] and [Esc] keys. The Edit display appears.

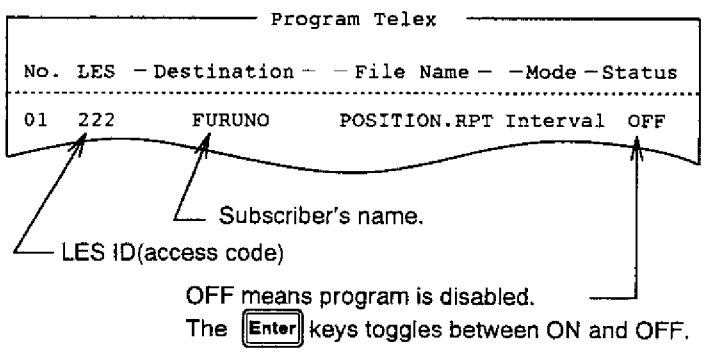


Registering program

10. Press the right arrow key to select "ENTRY".



11. Press the [Enter] key to register program.



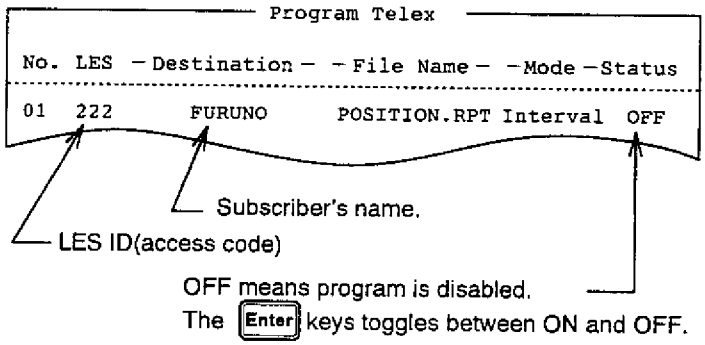
12. To enable program, press the Enter key.

To register another program, repeat steps 2 through 12.
To return to the normal display, press Esc key twice.

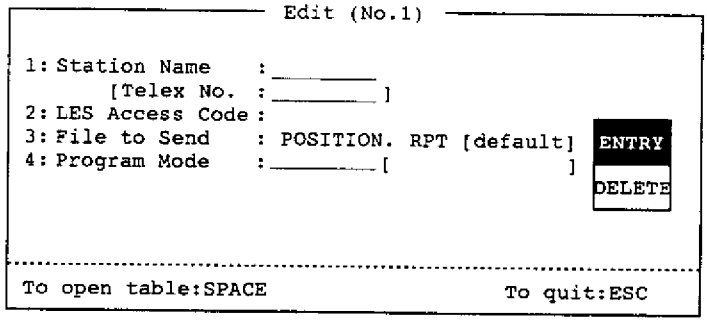
Deleting programs

Procedure

1. At the normal display, press F3 and 5.



2. Operate the up and down arrow keys to select program to erase and tap the space bar.



3. Press the right arrow key and then press the down arrow key to select "DELETE".

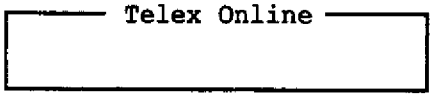
4. Press the Enter key to delete program.

6. Receiving

6.1 Receiving Routine Messages

Overview

When you receive a routine message the aural alarm normally sounds. (The alarm does not sound when it is disabled on the alarm menu; press [F4], [3] and [5]. See page 2-2 in PART 2.) The receive message fills the "Telex Online" display shown below and is printed. You can silence the alarm by pressing [F9].



Communications memory

All received routine messages are stored in the communications memory (16K byte). To see a message in the communications memory, press the [B] key while pressing and holding down the [Alt] key. You can scroll the screen (log) by the [Pg Up] and [Pg Dn] keys (or up and down arrow keys).

If you want to retrieve a message from the communications memory and print it, see page 9-6.

To return to the normal display immediately after receiving messages, press the [Esc] key and then press the [W] key while pressing and holding down the [Alt] key.

Note: *Once the power of PC is turned off, all contents of the communications memory (transmitted and received messages) are cleared.*

6.2 Receiving Confidential Messages

Overview

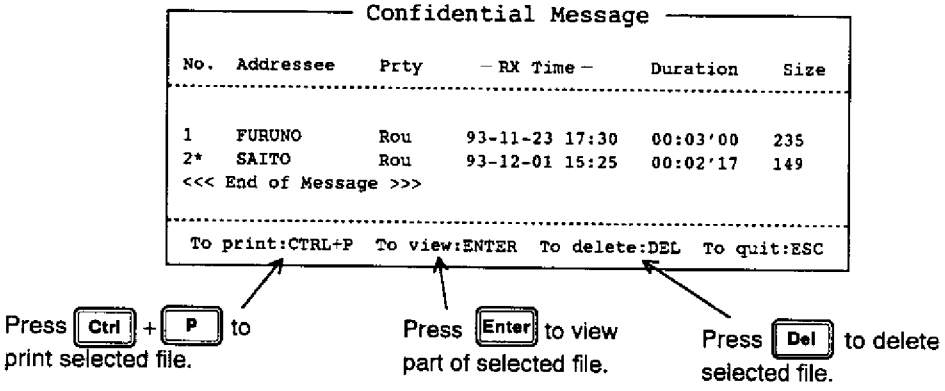
When you receive a confidential message the aural alarm normally sounds. (The alarm does not sound when it is disabled on the alarm menu; press [F4], [3] and [5]. See page 2-2 in PART 2.) To silence the alarm, press [F9].

The display shows "Confidential message received". Confidential messages are neither displayed nor printed. They are stored in the confidential message memory which has a storage capacity of 16 kilobytes. When the memory is full, the oldest message is deleted to make room for the latest.

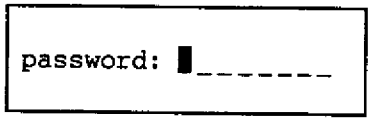
Retrieving confidential messages

Procedure

1. At the normal display, press [F3] and [6]. The Confidential Message display appears.



2. Press the up and down arrow keys to select the message you want to retrieve. (If the message contains a password, the display shown below appears. Enter a password. Messages marked with an asterisk in the Confidential Message display contain a password.)
   Password is entered. (It is not displayed during or after entry.)



3. Press the [Enter] key to retrieve the message.

Printing

Procedure

1. Press [F3] and [6] to display the Confidential Message display.
2. Operate the up and down arrow keys to select file.
3. If the message contains a password, enter a password and then press [Ctrl] + [P].

Deleting

Procedure

1. Press [F3] and [6] to display the Confidential Message display.
2. Operate the up and down arrow keys to select message to delete.
3. If the message contains a password, enter a password and then press the [Del] key.
4. Select "YES" and then press the [Enter] key.

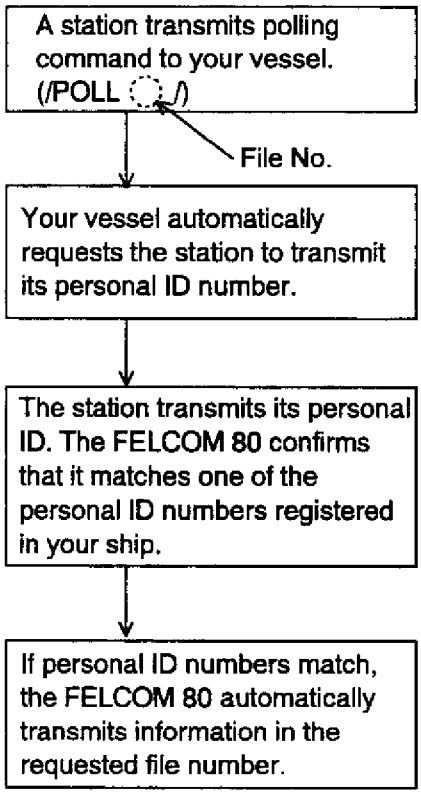
7. Polling

Overview

Polling means one station (the polling station), interrogating another or others (the polled station or group of stations). The polling station may be a ship station (MES) or a shore subscriber, while the polled station is always an MES.

When a polled MES finds the polling command in the received message, it requests the station sending the polling command to transmit its ID number. In this way, the authenticity of the polling station is confirmed. The polled MES then responds automatically in a predetermined manner, either with a data reporting message or by initiating a ship-to-shore or ship-to-ship message transfer.

The basic polling response procedure is as follows.

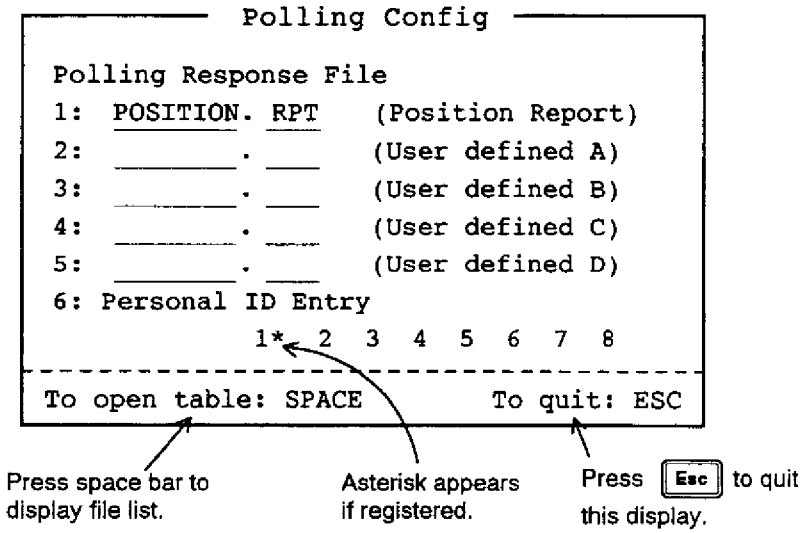


Personal ID number

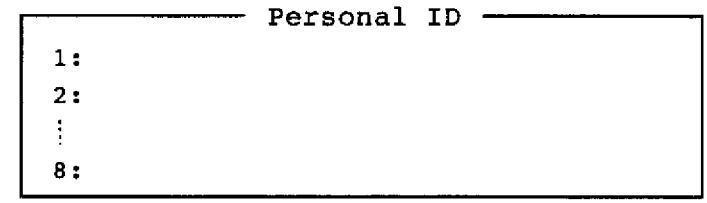
A personal ID number consists of up to eight digits. Eight sets of IDs may be entered corresponding to eight different stations. The ID number can be any combination of numbers or letters and should be agreed on by both the polled and polling stations beforehand.

Procedure

1. At the normal display, press F4 and 5. The Polling Configuration display appears.



2. Press 6.



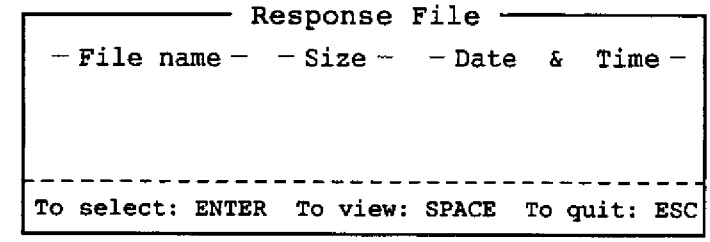
3. Place the cursor on appropriate number using the arrow keys.

4. Enter personal ID number (maximum eight characters) followed by the Enter key.

Setting up polling response file

Procedure

1. Insert floppy disk in disk drive. At the Polling Configuration display, press one of the keys 2 to 5 to select polling response file number. (You can also select it by operating the arrow keys followed by the space bar.)



2. Operate the up and down arrow keys to select file on floppy disk. (To display first part of a file, tap the space bar.)

3. Press the Enter key.

To select a different response file number and file, repeat steps 1 through 3.

File number 1 is reserved for your ship's position information. When a subscriber requests this information, your ship's position data input by navaid, is sent to the subscriber.

Transmitting the polling command

Your ship transmits the polling command to retrieve a file from other station.

- Automatic transmission
  For automatic transmission, type the polling command (/POLL file no./) at the beginning of the file and save file to a floppy disk. When you operate automatic transmission, retrieve the file containing the polling command and transmit it.

- Manual transmission
  When you are connected with an LES, type the polling command shown above.

Example: /POLL2/

→ You request station to send text of file no. 2.

The other station requests you to transmit your personal ID number. Type it in, then the other station will automatically transmit information requested.

8. Transmission of Distress Alert

8.1 Transmitting the Distress Alert from IB-350

General

Distress alert prepared in the DMG setup menu (page 2-6 in PART 2) can be transmitted using the Telex Distress Alert Button IB-350.

Procedure

Distress alert will be transmitted by peeling off the seal and pressing and holding down the DISTRESS button on the IB-350 for five seconds. **Never do it except for distress.**

When your vessel is in distress, press and hold down the DISTRESS button on the IB-350 **for six seconds** to make sure the alert will be transmitted to the LES designated in the Network setup menu (page 2-7 in PART 2).

8.2 Distress Communication

General

After distress alert has been transmitted, the LES connection remains in place. Send messages to the LES through the keyboard or by retrieving a file from a floppy disk.

9. Editing Text

9.1 Overview

You can delete, move and copy text by using the Cut, Copy and Paste functions in the Edit menu (F2).

1: Undo	ALT+X
2: Cut	DEL
3: Copy	ALT+C
4: Paste	INS
5: Select All	ALT+A
6: Search	ALT+F
7: Replace	ALT+R
8: Goto Top	HOME
9: Goto Bottom	END
A: Goto Line	ALT+L
B: Change Text	ALT+V

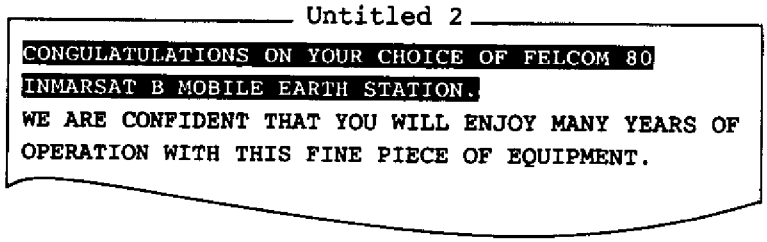
9.2 Cutting and Pasting

Cutting

Procedure

1. Place the cursor on the first character of the text to be cut.

2. Highlight the text to be cut by pressing and holding the Shift key while pressing the right arrow key (or down arrow key). If you highlight text which you do not want to cut, press the left arrow key to adjust the highlight.



3. Press [F2] and [2] . The highlighted text is cut and the remaining text is reformatted.

If a mistake is made, you can restore the text by immediately selecting Undo in the Edit menu.

Pasting

Procedure

To paste the cut text to a new location;

1. Place the cursor at the exact spot in the message where the cut text is to start.

2. Press [F2] and [4] (or the [Ins] key).

9.3 Copying and Pasting

Overview

You may copy a portion of text and paste it elsewhere.

Procedure

1. Select the text to copy (see the "cutting" procedure on page 9-1).

2. Press [F2] and [3] (or [Alt] + [C])

   The text selected is copied in the paste buffer memory where the cut or copied text is stored. The display returns to the normal screen.

3. Place the cursor at the exact spot in the message where the copied text is to start.

4. Press [F2] and [4] (or the [Ins] key).

9.4 Other Editing Features

Undo

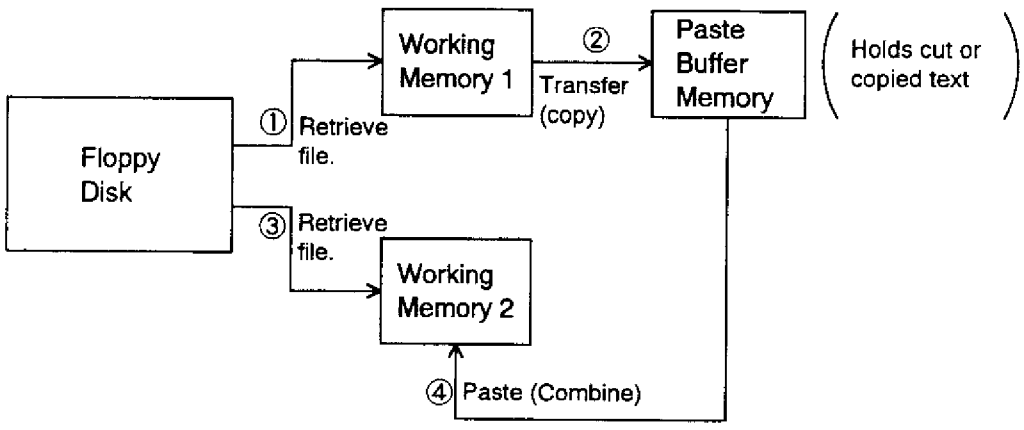
Use the Undo feature to return the file to its most recent state. For example, you have cut text but want to restore it. Then, you would select Undo in the Edit menu to restore the text to its most recent location. (Note that Alt + X are shortcut keys for the Undo function.)

Select All

The Select All feature lets you select an entire file. This feature can be useful when you want to combine files. The procedure below explains how to tack the file loaded in working memory 1 onto the end of the file loaded in working memory 2.

Procedure

1. Load a file to be copied from a floppy disk. Suppose it is loaded in working memory 1.
2. Press F2 and 5 (or Alt + A). The entire file appears in inverse video.
3. Press F2 and 3 (or Alt + C). The file is placed in the paste buffer memory.
4. Load a file to be combined. Suppose it is loaded in working memory 2.
5. Place the cursor at the exact spot in the message where the text now in the paste buffer memory is to start and press the Ins key.

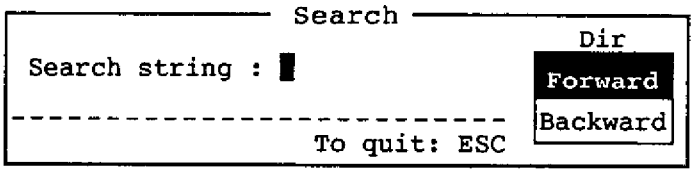


Searching text

The Search feature lets you search for text in a forward or backward direction.

Procedure

1. Display a text and press [F2] and [6] (or [Alt] + [F]). The Search display appears.



2. Type the word you want to find. Select Forward or Backward to search the file in a forward or backward direction respectively from the cursor position. Press the [Enter] key to begin the search.

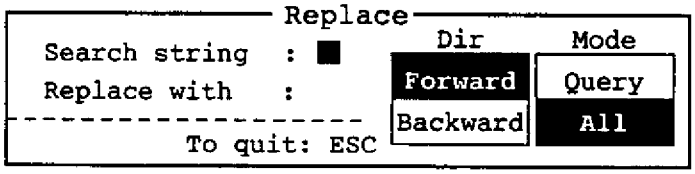
When the unit finds the word, the cursor stops at the first character of the word. Press the [Enter] key to continue the search.

Replacing text

The Replace feature helps you replace every occurrence of a word or phrase with another word or phrase in a file.

Procedure

1. Press [F2] and [7] (or [Alt] + [R]). The Replace display appears.



2. Type the word you want to replace on the "Search string" line.

3. Press the down arrow key to select "Replace with". Type the new word.

4. Select Forward or Backward to search the file in a forward or backward direction respectively from the cursor position.

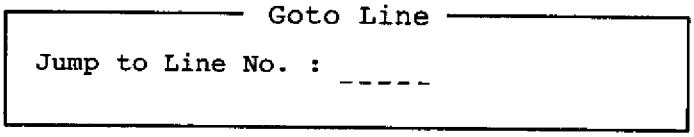
5. Select whether you want to be queried or not each time the word is found.

Query: Stop at each occurrence of word to answer yes or no to replacement.
All: Replace every occurrence of word without stopping to confirm.

6. Press the Enter key to start the replacement.

Goto Line

This feature places the cursor at the head of a line desired. Press F2 and A (or Alt + L). The following display appears.



Key in line number and press the Enter key. The cursor shifts to the head of the line selected.

10. Menu Tree

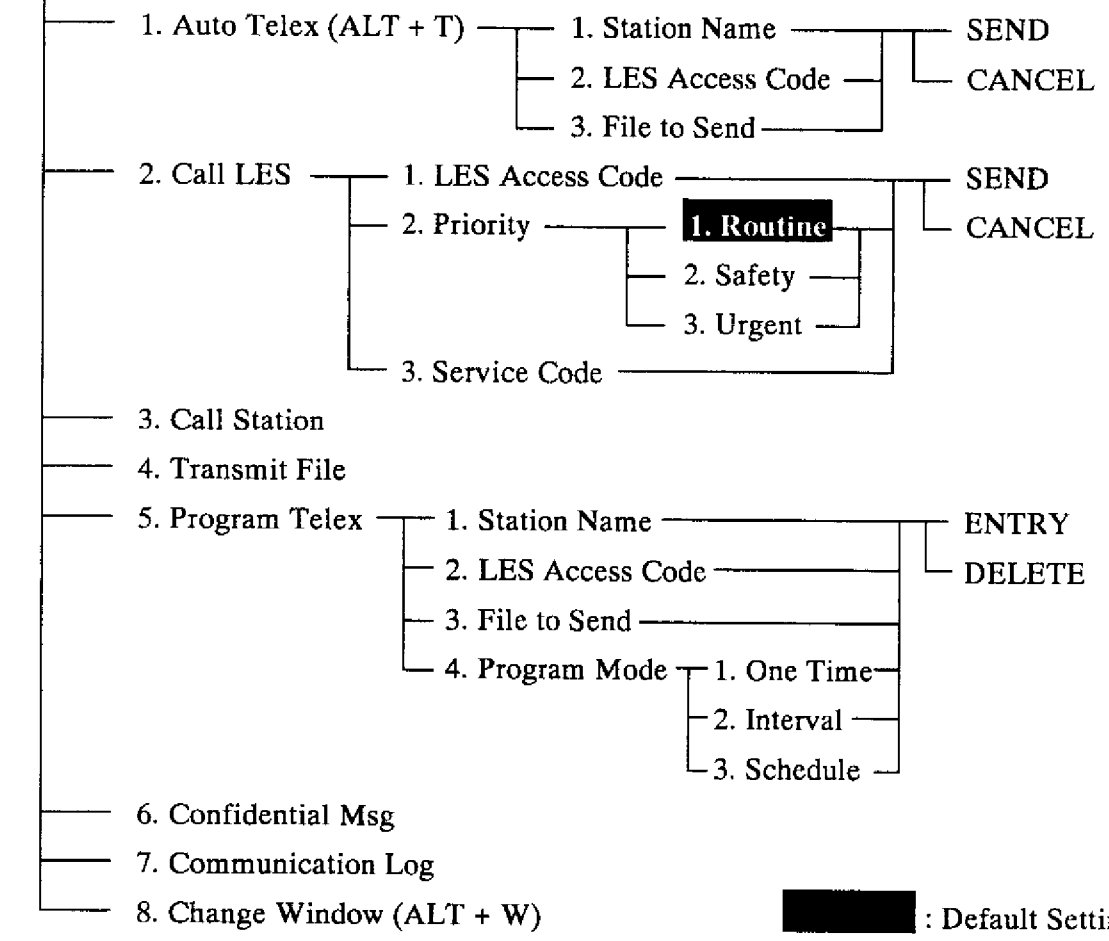
F1 (File) ····· Refer to page 1-8.

- 1. New Text (ALT + N)
- 2. Open Text (ALT +O)
  - Load
  - Merge
- 3. Close Text (ALT + Q)
- 4. Save Text (ALT + S)
- 5. Delete File (ALT + D)
- 6. Rename
- 7. Print File (ALT + P)
- 8. Clear Comm Memory
- 9. Quit

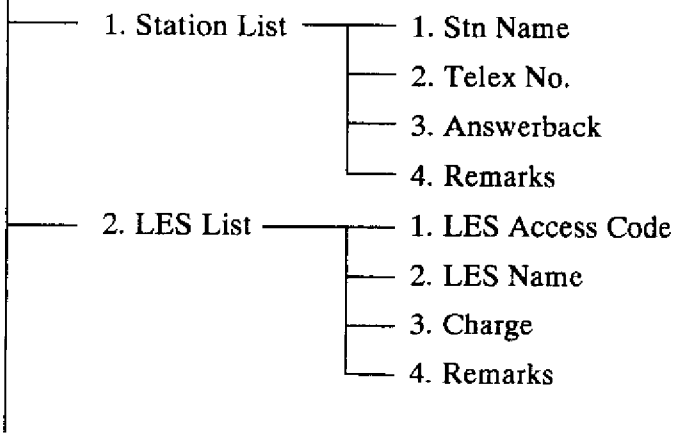
F2 (Edit) ····· Refer to page 1-9.

- 1. Undo (ALT + X)
- 2. Cut (DEL)
- 3. Copy (ALT + C)
- 4. Paste (INS)
- 5. Select All (ALT + A)
- 6. Search (ALT + F)
  - Forward
  - Backward
- 7. Replace (ALT + R)
  - Forward
    - Query
    - All
  - Backward
    - Query
    - All
- 8. Goto Top (HOME)
- 9. Goto Bottom (END)
- A. Goto Line (ALT + L)
- B. Change Text (ALT + V)

F3 (Telex) ····· Refer to page 1-10.

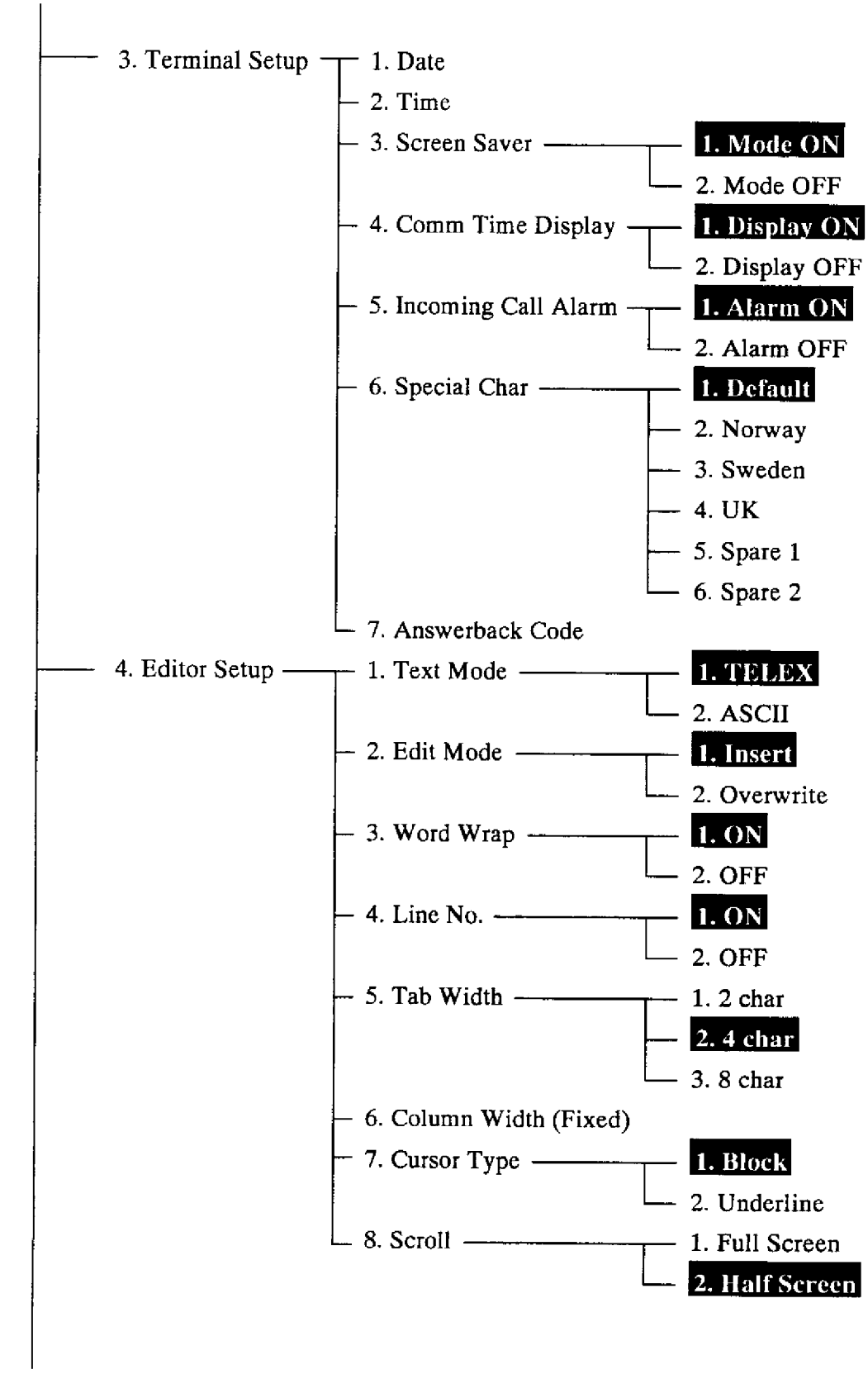


F4 (Setup) ····· Refer to page 1-11.



(Continued on next page)

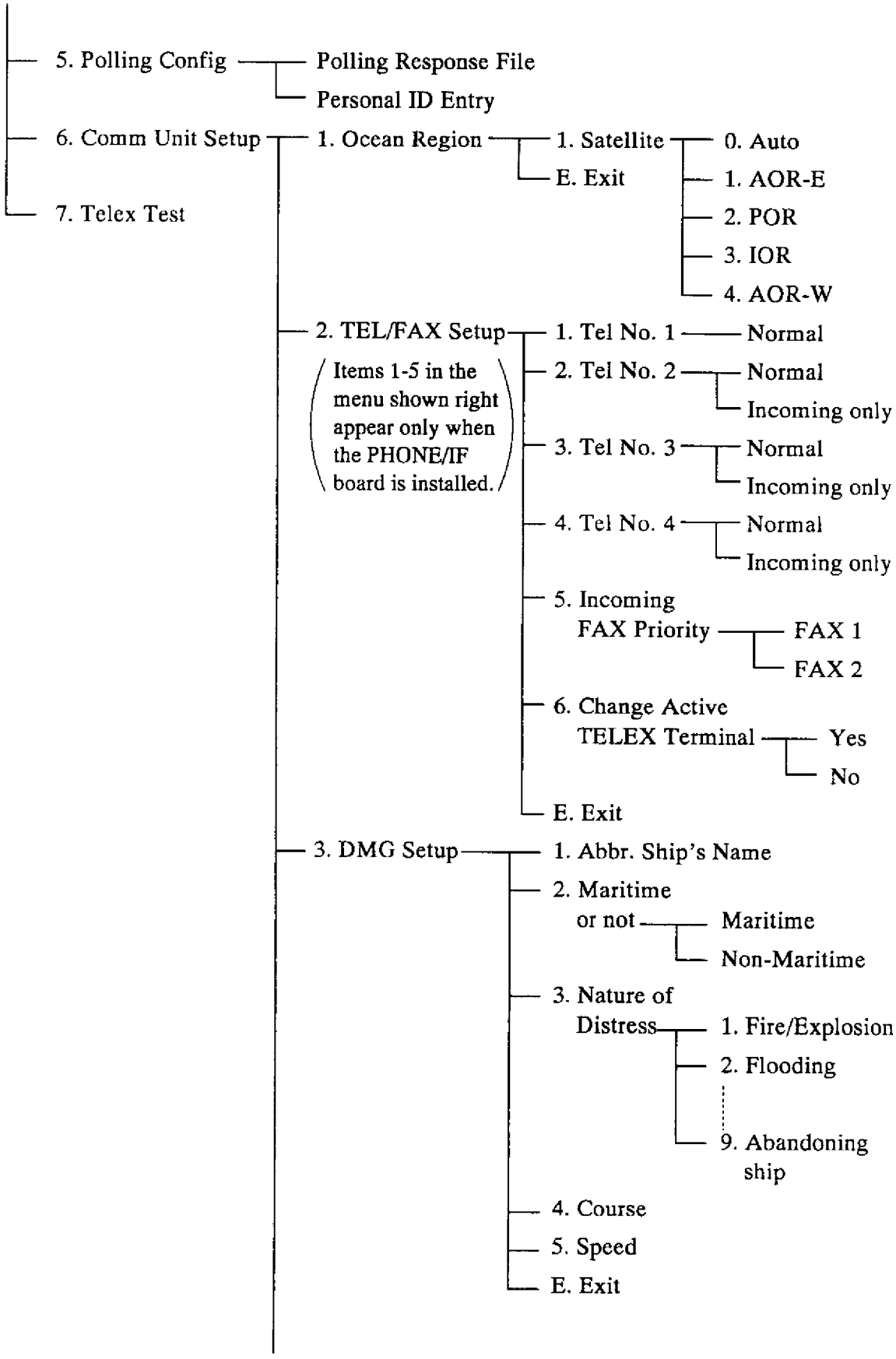
(From previous page)



(Continued on next page)

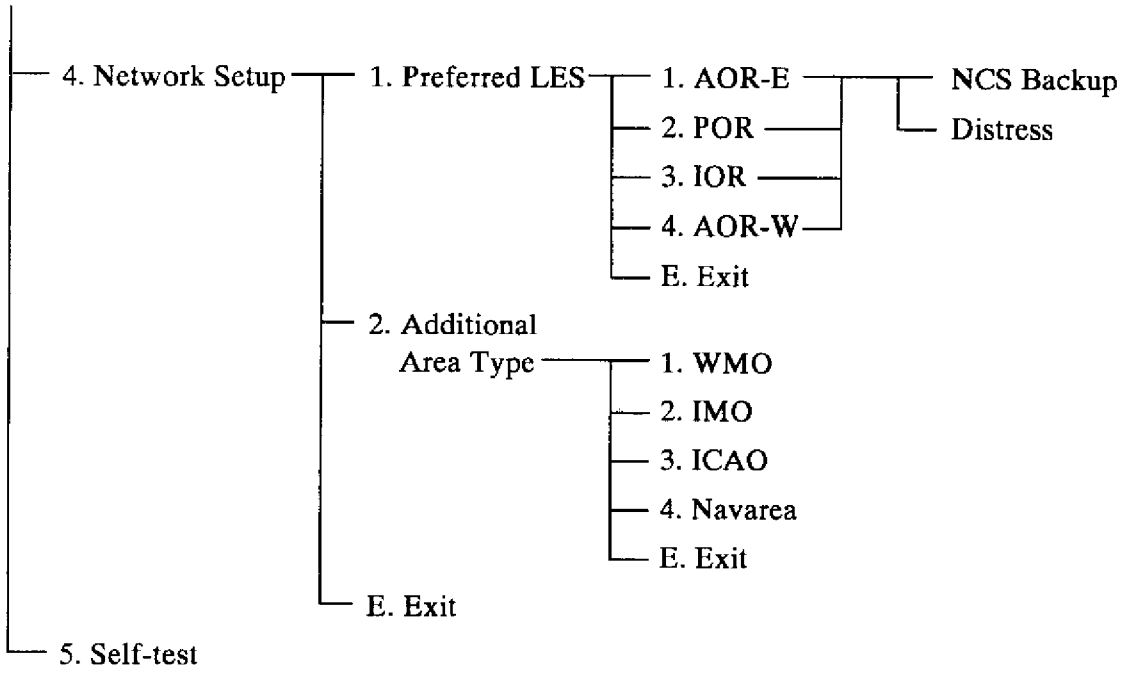
: Default Setting

(From previous page)



(Continued on next page)

(From previous page)



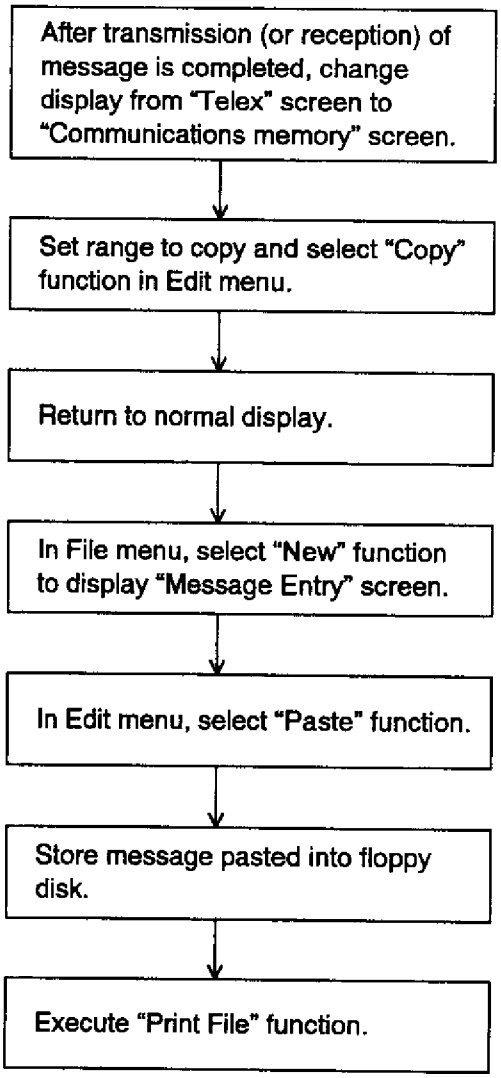
11. Printing Transmitted/ Received Messages

General

All transmitted and received (routine) messages are stored in the communications memory (16K byte). Note that once the PC is turned off, all contents of the communications memory are cleared.

Follow the procedure below to reprint a received or transmitted message.

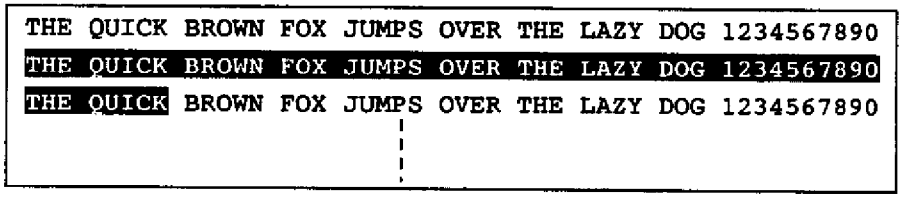
Basic procedure



Operating procedure

1. After transmission (or reception) of message is completed, press [B] while pressing and holding down [Alt] to change the display from "Telex" screen to "Communications memory" screen.

2. To set the range to copy, place the cursor on the first character of the text to be copied and highlight the text to be copied by pressing and holding down [Shift] while pressing [→] (or [↓]).

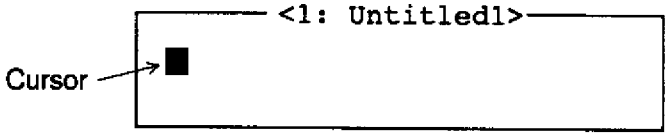


Communications Memory

3. Press [F2] and [3] (Copy). ("Cut" function not available.)

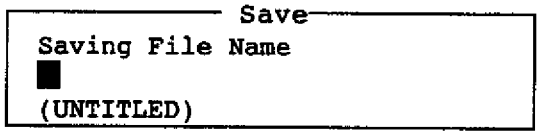
4. To return to normal display, press [B] while pressing and holding down [Alt].

5. Press [F1] and [1] (New). The Message Entry display appears.



6. Press [F2] and [4] (Paste). The copy text selected in step 3 is pasted in the Message Entry display.

7. Press [F1] and [4] (Save Text).



8. To save, enter file name and press [Enter].

9. Press [F1] and [7] (Print File). The display shows a list of files stored on the disk.

10. Select a file to print with the arrow keys and press [Enter]. Printing begins. To stop printing, press [Esc].

PART 5

Telephone and Facsimile Communication

PART 5 Table of Contents

1. Telephone Communication

Overview

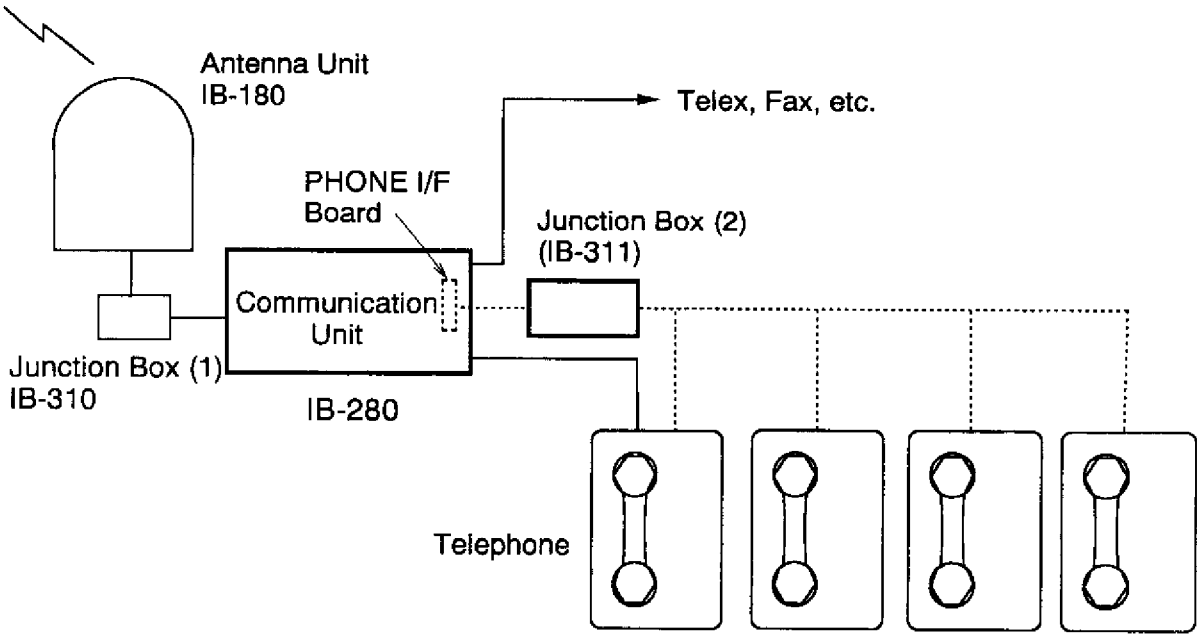
This chapter describes the procedures necessary for telephone communications in the Inmarsat B system. Four telephones can be connected using the junction box (IB-311). Note that the PHONE I/F board (option) is required in the Communication Unit when using more than two telephones.

Telephones have the following functions:

- Communicating with land or maritime subscribers
- Forwarding a call to other telephones on board
- Intercommunicating with other telephone sets in the MES network on board the vessel
- Dialing a subscriber's number in two digits (abbreviated dialing)
- Dialing previous number (redialing)
- Distress communication

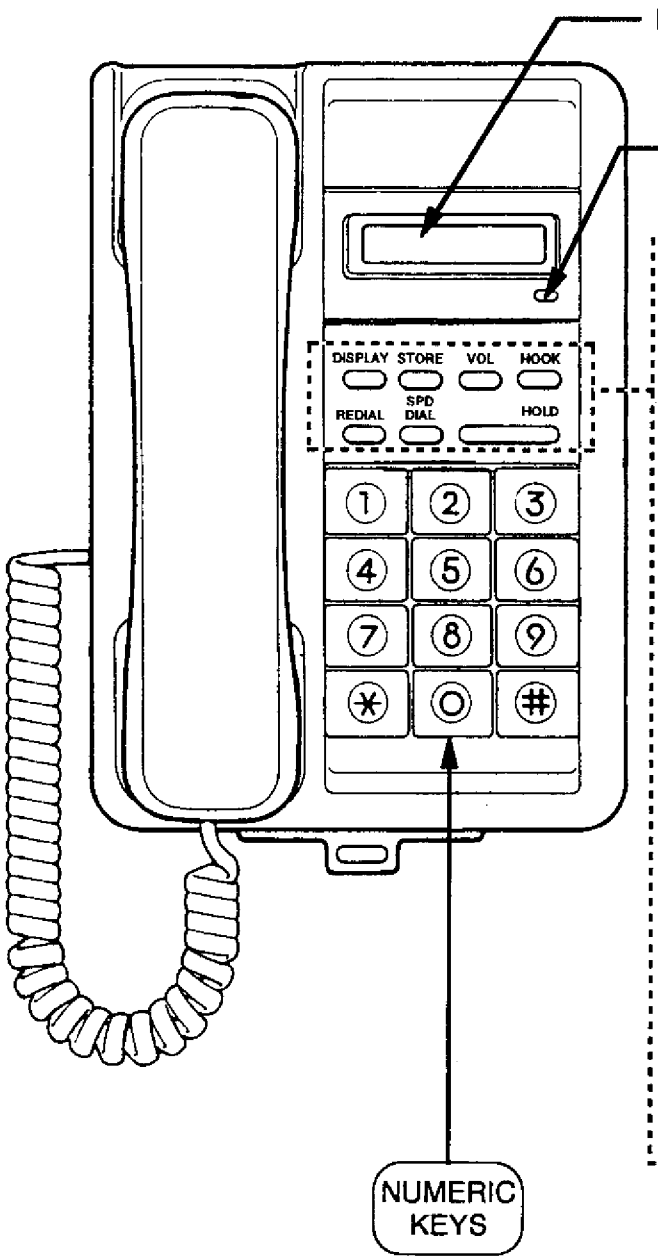
NOTE: *If you wish to connect newly the line with an LES, wait for 16 seconds after the line has been disconnected, otherwise the error message appears, resulting in no connection.*

Telephone connection



1.1 Telephone Controls

Front panel



Display — Shows number being dialed and settings.

RCV Lamp — Blinks when call is received.

DISPLAY — Alternates dialing display and communication time.

STORE — Registers data such as abbreviated dialing number.

VOL — Adjusts volume of receiver. Also deletes abbreviated dialing numbers from memory. (See page 1-9.)

HOOK — Stops/cancels forwarding. (See page 1-8.)

REDIAL — Redials subscriber last called. (See page 1-6.)

SPD DIAL — Registers or dials abbreviated dialing numbers. (See page 1-8.)

HOLD — Holds (suspends) a call. (See page 1-8.)

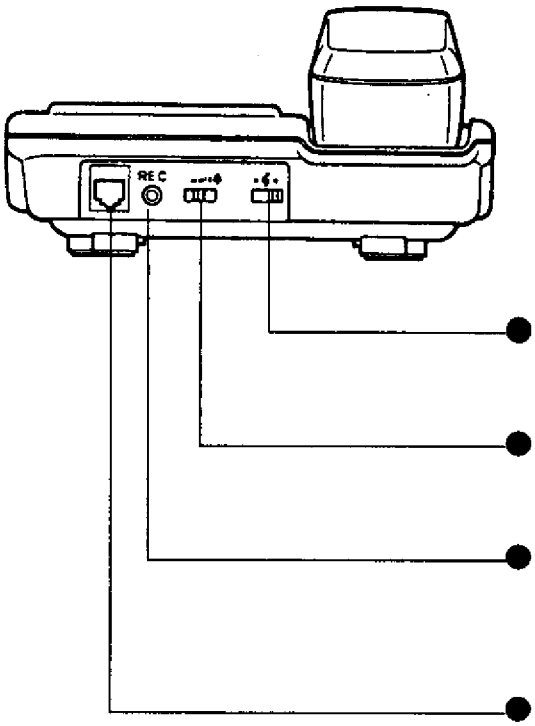
NUMERIC KEYS

[1] ~ [9], [0] — Manually dials telephone number.

[*] — Enables Hold/Forward/Intercom functions.

[#] — Enters "end code".

Rear panel



TONE Switch
Selects ringer tone.

VOL Switch
Selects ringer volume.

REC Terminal
Connect tape recorder plug here, to record conversation.

Telephone Jack
Connect telephone cord here.

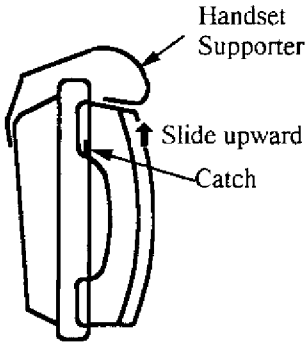
Preparation before use

Confirming dial tone

Detach the handset from the hanger and confirm the dial tone.

Remarks for detaching handset

Slide the handset upward to prevent the catch in the receiver cradle from being damaged, and then lift handset.



1.2 Calling

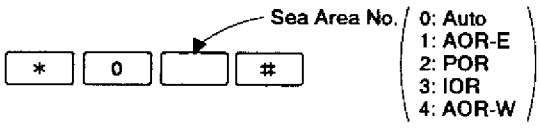
Overview

The Inmarsat B system provides telephone services for both land and maritime subscribers. For multiple telephone connection in an MES network, you may place a call from any telephone. The telephone operated or answered first takes priority.

Selecting sea area

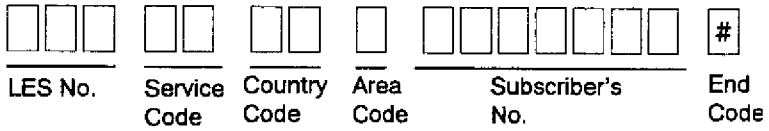
For class 2, sea area can be specified by telephone (telephone no. 1 only). This is the same function as mentioned on page 2-4 in PART 2.

1. Pick up the handset.
2. Confirm the dial tone.
3. Press the keys as follows.



4. Hang up the handset.

Calling a land subscriber



(Example) Automatic call to subscriber no. 12345678 in Tokyo (03) via Pacific Ocean LES (Perth)

222 00 81 3 12345678 #

LES No.	001 Santa Paula (POR) 003 Yamaguchi (POR/IOR) 001 Southbury (AOR-E/W) 002 Goonhilly (AOR-E/W)	Refer to page AP2-1.
Service Code	00 Automatic Call 34 Person-to-person Call 35 Collect Call 36 Credit Card Call 37 Time and Charges Call	Available only for USA
	Other services (Some services may not be available depending on LES.) 11 International Operator 12 International Information Service (Only for Yamaguchi LES, you can ask about call duration and charge after automatic call (00) is completed.) 13 National Operator Tests 14 National Information Service 32 Medical Advice 33 Technical Assistance 38 Medical Assistance 91 Loop Around Test 92 LES Commissioning	

Operator-assisted call

1. □□□□□#
   LES No. Service Code 11: International Call
   34: Person-to-person Call
   35: Collect Call

2. When the operator answers, give the following information.
   - your ship's name or MES ID
   - whether the call is operator-assisted or collect call (national, area code or Maritime Country Code)
   - if person-to-person call, name of subscriber

   Note: *If you are connected to a wrong subscriber, hang up the handset, re-call the operator and request reconnection.*

Calling an MES

Sea Area No. (Select subscriber's sea area.)	871: AOR-E 872: POR 873: IOR 874: AOR-W

- **Ship (Inmarsat-B) → Ship (Inmarsat-B)**

□□□ □□ □□□ □□□□□□□ #

LES No. | Service Code | Sea Area No. | Vessel ID No. | End Code

(ex.) 222 (Perth) 00 (Automatic call) 872 POR (Subscriber's sea area) 343112210 #

- **Ship (Inmarsat-B) → Ship (Inmarsat-A)**

□□□ □□ □□□ □ ---- □ #

LES No. | Service Code | Sea Area No. | Vessel ID (Inmarsat-A) No.

When a land calls an MES

Example of Japan

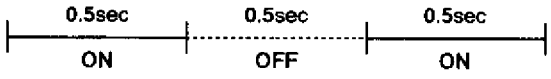
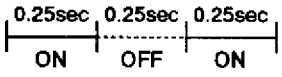
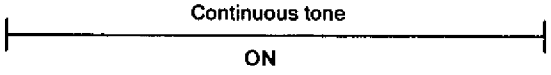
001 (KDD) 872 (POR) 343112210 (Vessel ID No.)

*(This varies depending on countries.)

Detailed procedure

1. Pick up the handset. (Dial within 20 seconds.)
2. Dial LES and subscriber's numbers referring to procedure shown above. (If you misdial, hang up the handset and dial again.) Do not interrupt dialing for more than 5 seconds at any point, otherwise control is returned to the normal display.

3. Press [#].
4. Wait for call from LES and talk with subscriber. (If line with LES is not connected, you can hear tone signal from handset. See the table below.)
5. Hang up the handset upon completion of call.

Reason why connection is not established	Interval of Tone Signal from LES
BUSY	
CONGESTION	
No Service	

Note that the reason of no connection is printed out.

Redialing

The redialing feature automatically redials number last dialed.

Procedure

1. Pick up the handset.
2. Press the REDIAL key.

1.3 Receiving

Overview

Receiving a telephone call in the Inmarsat system is exactly the same as with a conventional telephone: simply pick up the handset and talk with party. If plural telephones are assigned the same ID number, they all ring when receiving a call. Pick up one of their handsets.

Procedure

1. When the telephone rings, pick up the handset and talk.
2. Hang up the handset upon completion of call.

Ringer format and type of call

Ringer format depends on type of call as shown in the following table.

Type	Ringing time (sec)	Stop time (sec)
Distress	4	1
Urgent	Beep Beep Beep	1
Safety	Beep Beep	1.6
Routine	1	2

1.4 Intercom

Overview

In the MES network on board the vessel you can communicate with another telephone by dialing its intercom number.

Procedure (∗ → No. → #)

1. Pick up the handset and confirm the dial tone.
2. Press [∗], dial intercom number and then press [#]. (If you dial wrong number, you will hear the "busy tone". Hang up the handset and dial again.)
3. Talk with party.
4. Hang up the handset upon completion of call.

When receiving a call during intercom use

When you receive a call from an LES while talking via the intercom, you hear the "busy tone". Conclude communications and hang up the handset, then pick it up again to talk with LES.

1.5 Forwarding/Holding a Call

Holding a call

1. Press the HOLD key.
2. Hang up the handset on the rest. (See note.)
3. Pick up the handset to talk.

Note: *If you don't hang up the handset, press the* HOLD *key again to talk.*

Forwarding a call

You can forward a call to another telephone by dialing its intercom number.

Procedure

1. When you receive a call which is for another telephone, press [*], dial intercom number and then press [#].
2. After confirming connection, hang up the handset. (If you misdial intercom number, you will hear the "busy tone". Press the HOOK key and repeat steps 1 and 2. If there is no answer, press the HOOK key to cancel forwarding.

1.6 Abbreviated Dialing

Overview

The abbreviated dialing feature lets you dial a subscriber's number in just two digits. You may register 20 abbreviated dialing telephone numbers, numbered 00 to 19.

Notes on registration

- Press key within one minute of each other, otherwise key input is cancelled.
- The DISPLAY key serves to delete characters mistakenly entered.
- If you receive a call while registering telephone numbers, press the STORE key to escape from this job and then pick up the handset.
- You may write over unnecessary telephone numbers.
- Handset should be hung up on the hanger.

Registering numbers

1. Press and hold down the STORE key until some characters appear on the display.
2. Press the SPD DIAL key.
3. Enter abbreviated dialing number (00 – 19).
4. Enter telephone number (maximum 32 figures).
5. To register another abbreviated telephone dialing number, repeat steps 2 to 4.
6. Press the STORE key to register.

Changing telephone numbers

Enter new telephone number at step 4 in previous procedure.

Deleting abbreviated dialing numbers

1. Press the STORE key.
2. Press the SPD DIAL key.
3. Enter abbreviated dialing number to delete.
4. Press the VOL key to delete number. To delete another abbreviated dialing number, repeat steps 2 through 4.
5. Press the STORE key.

Abbreviated dialing procedure

1. Pick up the handset.
2. Press the SPD DIAL key.
3. Key in abbreviated dialing number.

1.7 Urgent/Safety Communication

General

Urgent or safety communication is possible by setting the type of call before calling.

Priority

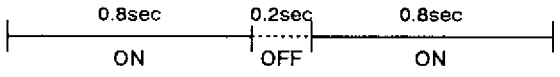
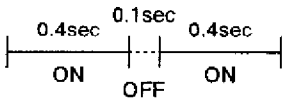
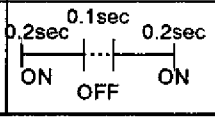
Before you call a subscriber, you can set the priority. When hanging up the handset upon completion of call, the priority automatically becomes "ROUTINE".

Type of call	Key Operation
Urgent	* 8 2 *
Safety	* 8 1 *

↑ Higher priority

Procedure

1. Pick up the handset.
2. Set the type of call.
   (Example) Safety
   * → 8 → 1 → *
   Tone signal can be heard. See the table shown on the next page.
3. Call an LES. (☐☐☐#)
   LES No.
4. Talk with party.
5. Hang up the handset upon completion of call.

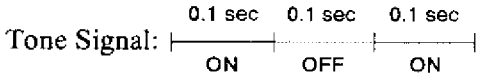
Type of Call	Tone Signal Interval
Routine	
Safety	
Urgent	

1.8 Distress Communication

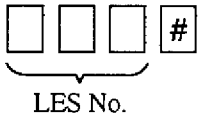
Procedure

1. Peel off the red seal, and press and hold down the [DISTRESS] button on the IB-360 (Telephone Distress Button) for six seconds. (The priority of No. 1 telephone automatically becomes "DISTRESS".)

2. Pick up the handset of No. 1 telephone. (See note.)



3. Enter an LES number and press the [#] key to connect the line with the LES.



3. Commence voice (distress) communication.

Note: *If a key is not pressed for 15 seconds after picking up the handset, the line is atutomatically connected with the LES designated in the Network setup menu (page 2-7 in PART 2).*

2. Facsimile Communication

Overview

The Inmarsat B system uses the G3 type fax.

Differences between office use facsimile

Operation is nearly identical, however the Inmarsat B system uses different communication lines and an Inmarsat use facsimile contains only basic facsimile functions as follows. (Reception mode should be set to "Fax only", referring to owner's manual.)

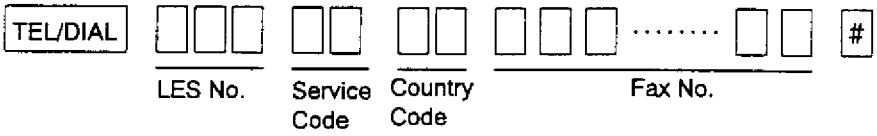
1. Automatic transmission (Direct dialing)
2. Abbreviated dialing
3. One-touch dialing
4. Memory transmission
5. Multistation transmission
6. Redialing

NOTE: *After transmission has been completed, wait for 16 seconds to connect newly the line with an LES, otherwise the error message appears, resulting in no connection.*

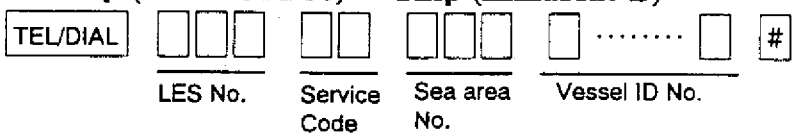
Dialing subscribers

(Example) Direct dialing

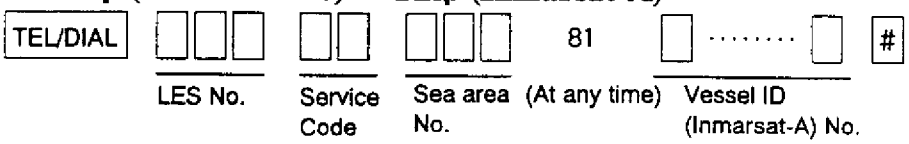
- **Ship (FELCOM 80) → Land**



- **Ship (FELCOM 80) → Ship (Inmarsat-B)**

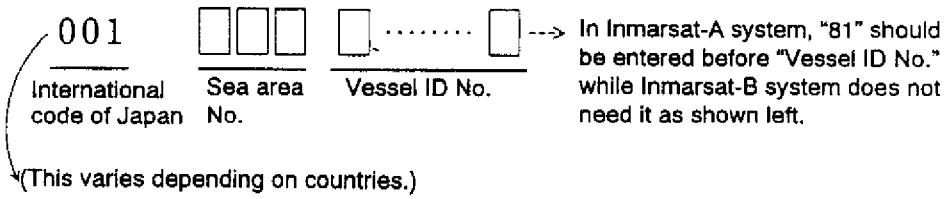


- **Ship (FELCOM 80) → Ship (Inmarsat-A)**



- **Land → Ship (FELCOM 80)**

Example of Japan



For further details

Refer to owner's manual for respective facsimile.

Changing system settings

If power is turned off for a long time (ex. one month), system settings may be restored to the default setting. Change the following system settings for proper operation.

PX-150/UF-128M Key Stroke
(The unit should be in stand-by.)

- Mode Selection (Push Button mode should be selected.)

[#] → [*] → [0] → [7] → [1] (PB selected) → [Start] → [Stop]

Then press [FAX/TELEPHONE] key successively to light LED located at left-hand side of the key. (Reception mode is set to "Fax only".)

- Modem Speed & TX Level

[#] → [TEL/DIAL] (4 times, slowly) → [*] → [1] → [Start] → [0] → [2] → [0] → [1] → [5] (TX Lebel: -15 dBm) → [Start] (Twice) → (00 for 2400 bps fax, 03 for 9600 bps fax) → [Start] → (00 for 2400 bps fax, 03 for 9600 bps fax) → [Start] (Twice) → To *1

- RX/TX Equalizers

*1 → [0] → [0] (RX EQ: 0 km) → [Start] → [0] → [1] (TX EQ: 7.2 km) → [Start] (**See note 1.**) → To *2

- Panasonic Function

*2 → Move cursor to extreme left by [<]. → [0] → [3] → [2] → [0] → [1] (set to CCITT standard) → [Start] → [Stop] (Twice) → Returns to stand-by display.

Note1: *If the facsimile does not transmit data in good order, change TX EQ setting from [0] [1] (7.2 km) to [0] [0] (0 km). Then attempt transmitting facsimile data.*

Printing list of system settings (parameter list)

Procedure

[#] → [TEL/DIAL] (4 times, slowly) → [*] → [3] → [Start] (Printing begins. 2 sheets of lists will be printed.) → [Stop]

Monitoring RX line

Procedure

[#] → [TEL/DIAL] (4 times, slowly) → [*] → [1] → [Start] → [0] → [5] → [8] → [0] → [1] (Monitoring: Enable) → [Start] → [Stop] (Twice)

PART 6

Other Equipment

PART 6 Table of Contents

1. Overview

This chapter describes the following equipment.

- **Telex Distress Alert Button (IB-350)**
- **Telephone Distress Button (IB-360)**
- **Received Call Unit (IC-301, option)**

For the printer PP-510, refer to the Operator's Manual attached to the PP-510.

2. Other Equipment

2.1 Telex Distress Alert Button IB-350 (Class 1 only)

This unit is used to transmit the distress alert prepared in the DMG setup menu (page 2-6 in PART 2). Since this is physically identical to the Telephone Distress Button (IB-360), please take care not to mistake the IB-350 for the IB-360.

When your vessel is in distress, peel off the red seal, and press and hold down the DISTRESS button on the IB-350 **for six seconds** to transmit the alert to the LES designated in the Network setup menu (page 2-7 in PART 2). Note that the distress alert which was once transmitted can not be canceled.

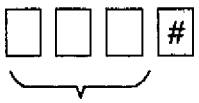
After the distress alert has been transmitted, the LES connection remains in place. Send distress messages to the LES through the Terminal Unit (PC).

2.2 Telephone Distress Button IB-360

This unit is to allow the priority of the No. 1 telephone to become "DISTRESS".

Peel off the red seal, and press and hold down the DISTRESS button on the IB-360 **for six seconds** only in a distress situation on your vessel.

After that, call an LES by operating the No. 1 telephone as follows.



Enter an LES number.

Note: *If a key of the No. 1 telephone is not pressed for 15 seconds after picking up the handset, the line is atutomatically connected with the LES designated in the Network setup menu (page 2-7 in PART 2).*

2.3 Received Call Unit IC-301 (option)

This unit sounds an audible alarm when telex, telephone or facsimile message is received. To silence the audible alarm, press the [RESET] button on the IC-301.

Ringer format depends on the unit received as shown in table which follows.

Unit	Ringer Format (Interval)
Telex	1 sec ON (Beep) — 1 sec OFF — 1 sec ON (Beep)
Telephone (2400 bps Fax)	0.5 sec ON — 0.1 sec ON — 1.5 sec OFF — 0.5 sec ON — 0.1 sec ON
Facsimile (9600 bps Fax)	* ON * ON * ON — 1.5 sec OFF — * ON * ON * ON (* : 0.1 sec)

Receiving a telex message

The alarm will be automatically off one minute after receiving a telex message.

Receiving a telephone call

The alarm will be off when the handset of the ringing telephone is picked up.

Turning IC-301's function off

The function of the IC-301 (all IC-301s if connected) can be turned off (no alarm when receiving a message) by using a PC.

Referring to page 2-4 in PART 2, display the Communication Unit Setup menu. (Press [F4] and [6] at normal display.)

```
Communication Unit Setup
[Main Menu]
1: Ocean Region        5: Selftest
2: TEL/FAX Setup
3: DMG     Setup
4: Network Setup
Enter JOB No.:
```

Communication Unit Setup Menu

Procedure

1. Type ALMEXT 1 and press [Enter].

```
<External1>
External1: ON / OFF
```

2. Press [→] and [Enter].

3. To return to normal display, press [Esc] twice.

PART 7

Maintenance

PART 7 Table of Contents

1. Regular Checks

⚠ DANGER

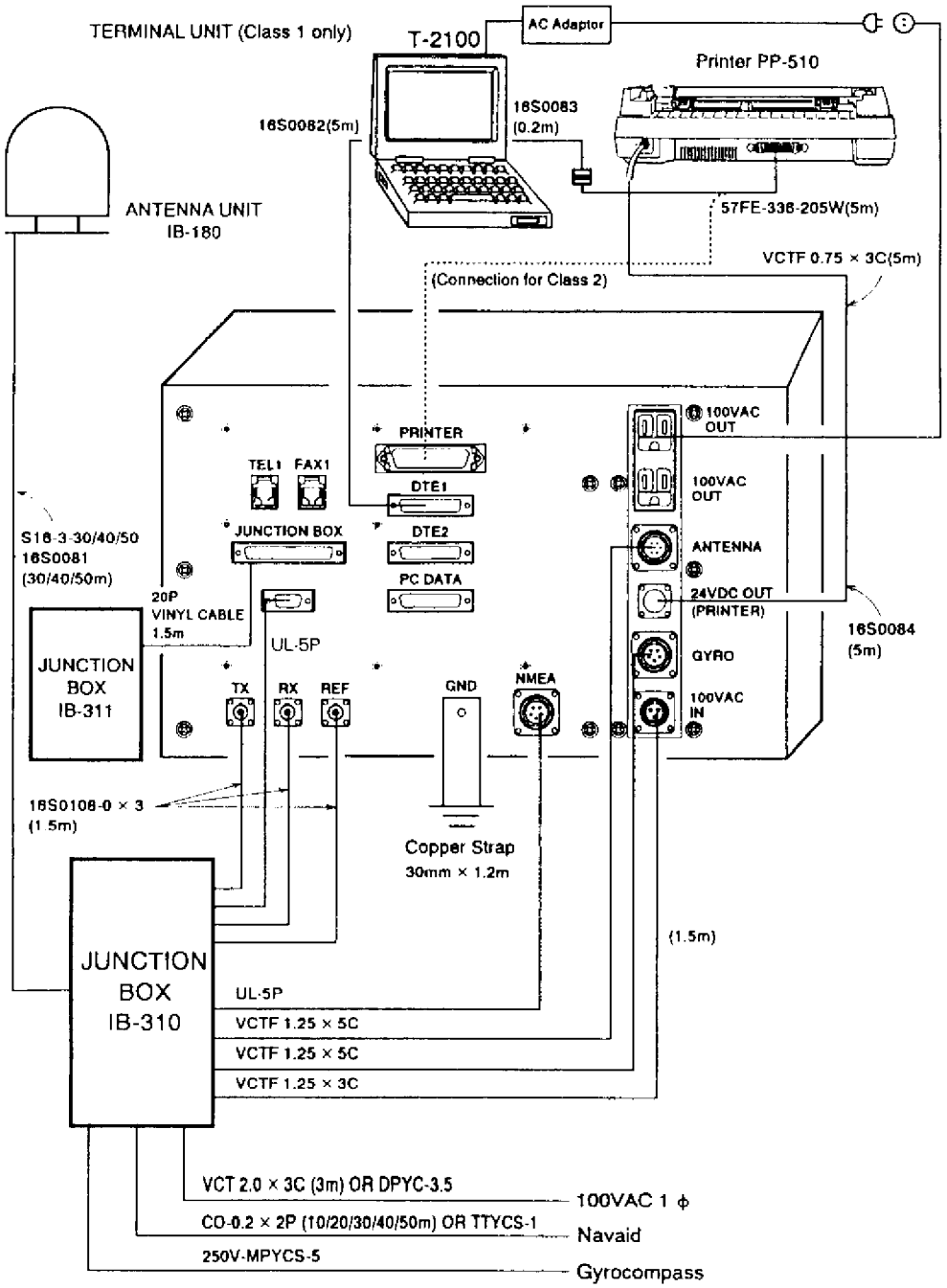
Do not open the cover of the equipment

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

1.1 Overview

The FELCOM 80 mainly consists of Antenna Unit, Communication Unit, Junction Box, Terminal Unit (Class 1 only), Telephone, and Printer.

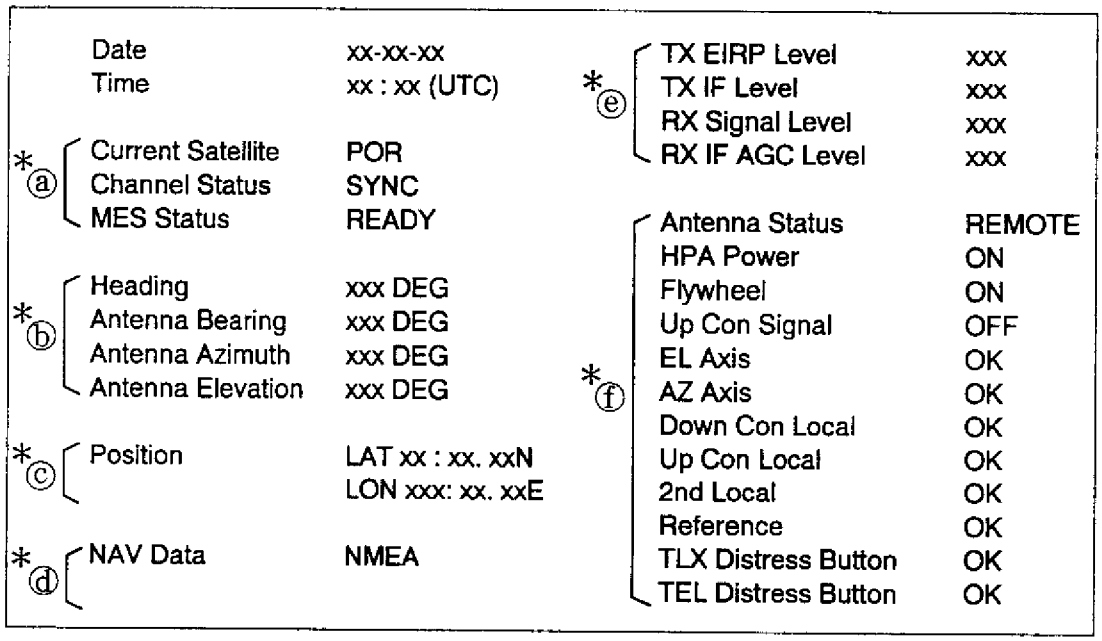
These units are connected at the rear panel of the Communication Unit. Check periodically that their connectors are properly seated.


TERMINAL UNIT (Class 1 only)
T-2100
AC Adaptor
Printer PP-510
16S0082(5m)
16S0083
(0.2m)
ANTENNA UNIT
IB-180
57FE-338-205W(5m)
VCTF 0.75 × 3C(5m)
(Connection for Class 2)
100VAC OUT
PRINTER
TEL1
FAX1
DTE1
100VAC OUT
S16-3-30/40/50
16S0081
(30/40/50m)
JUNCTION BOX
DTE2
ANTENNA
PC DATA
24VDC OUT
(PRINTER)
20P
VINYL CABLE
1.5m
UL-5P
16S0084
(5m)
JUNCTION
BOX
IB-311
GYRO
TX
RX
REF
GND
NMEA
100VAC IN
16S0108-0 × 3
(1.5m)
Copper Strap
30mm × 1.2m
(1.5m)
JUNCTION
BOX
IB-310
UL-5P
VCTF 1.25 × 5C
VCTF 1.25 × 5C
VCTF 1.25 × 3C
VCT 2.0 × 3C (3m) OR DPYC-3.5
100VAC 1 ϕ
CO-0.2 × 2P (10/20/30/40/50m) OR TTYCS-1
Navaid
250V-MPYCS-5
Gyrocompass

1.2 System Status Monitor Check

From terminal unit (class 1 only)

The system status information display always appears at the center of the normal display when turning on the power. If "NG" appears on this display, request service.



* See next page for description.

System Status Monitor Display

To print screen

Press the [Prt Sc] (Print Screen) key.

From no. 1 telephone

Using the No. 1 telephone, you can check system status and print out the results by doing the following. (Both Class 1 and Class 2 available)

Procedure

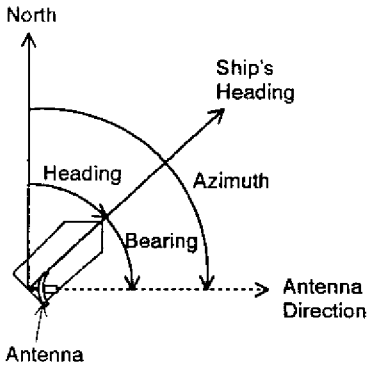
1. Pick up the handset of the No. 1 telephone.
2. Press [*], [9], [1] and [#] in this order to print. [Note that the communication log list (max. 50 logs) is also printed.]

A sample printout is shown on the next page.

```
---------------- Status Print XX-XX-XX XX:XX (UTC) ----------------
 Satellite: [POR SYNC]        MES Status: [Ready]    NAV Data: [NMEA]
 Tx EIRP Level: [XXX]         Tx IF Level: [XXX]
 Rx Signal Level: [XXX]       Rx AGC Level: [XXX]
 Position LAT: [34:40.00N]    Heading: [XXX DEG]     Bearing: [XXX DEG]
          LON: [135:20.00E]   Azimuth: [XXX DEG]     Elevation: [XXX DEG]
 Antenna Status: [REMOTE]     El AXIS: [OK]          Az AXIS: [OK]
 HPA Power: [ON]              Flywheel: [OK]         Up Con Signal: [OFF]
 Down Con Local: [OK] Up Con Local: [OK] 2nd Local: [OK] Reference: [OK]
 TLX Distress Button: [OK]    TEL Distress Button: [OK]
-------------------------------------------------------------------
```

System status printout by No. 1 telephone

Explanation of status monitor display



ⓐ : The satellite being tracked and synchro status are displayed. To send a message, the MES Status display should be "Ready".

ⓑ : Antenna status (bearing, angle) is displayed.

ⓒ : Ship's position from navigational device.

ⓓ : Input format of navigation data.

ⓔ : Transmitter and receiver sections are monitored.

- TX EIRP Level...Monitors output power from the Antenna Unit. (HPA board checking: Normal value is 31 or more at transmission.)
- TX IF Level...Monitors output power from the Communication Unit. (TX/RX IF board checking: Normal value is 90 or more at transmission.)
- RX Signal Level (60 or more)
- RX IF AGC Level (About 200 to 255)

... Checks the receiver of the TX/RX IF board in the Communication Unit.

ⓕ : The Antenna Status display should be "REMOTE" while the Communication Unit is controlling the Antenna Unit to track satellite.

The other displays should be "OK" or "ON" except for Up Con Signal display if associated functions are normal.

The Up Con Signal display is always "OFF" at stand-by status. It changes to "ON" at transmission.
For TLX/TEL Distress Button display, "OK" appears if wire connections of the IB-350 (for telex) or the IB-360 (for telephone) are not shortcircuited.

2. Self-Test

Note that you can not establish the communication line with an LES during testing, and further the self-test cannot be conducted while communicating with an LES.

2.1 Self-test by Terminal Unit (PC)...Class 1 only

Self-test for the Communication Unit and the Antenna Unit can be conducted by the Terminal Unit (PC).

If something appears to be wrong, request service.

Procedure

1. At the normal display, press [F4] and [6] to display the Communication Unit Setup menu.

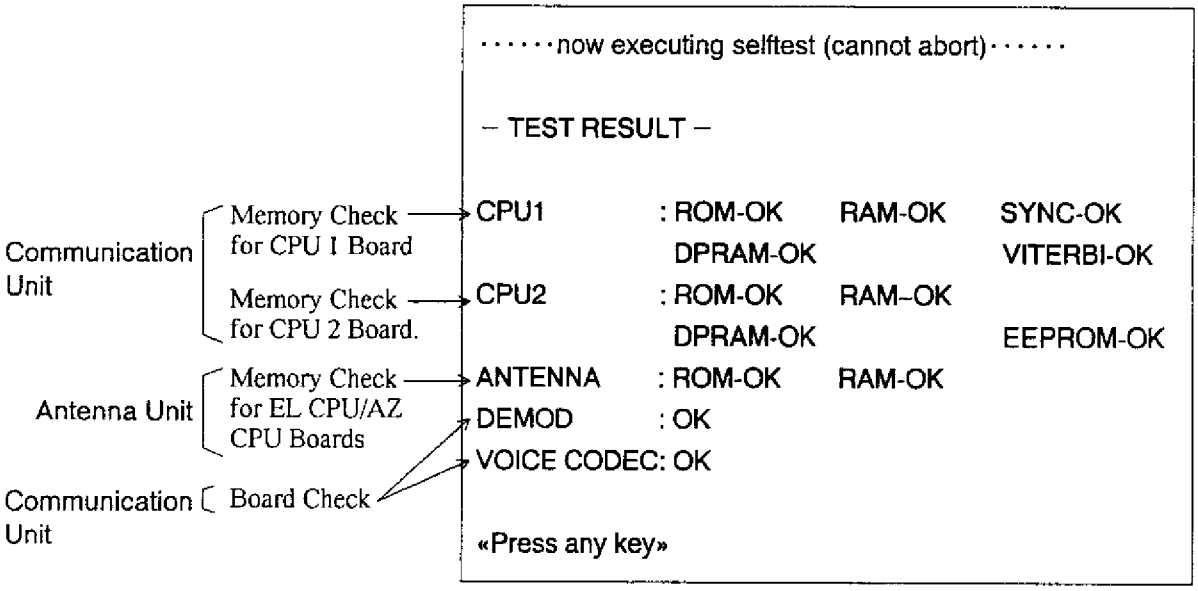
```
Communication Unit Setup
[Main Menu]
1: Ocean Region        5: Selftest
2: TEL/FAX Setup
3: DMG      Setup
4: Network Setup
Enter JOB No.:
```

Setup Menu Display

2. Press [5] and [Enter] to display program number. The display should look something like the following figure.

```
«Program No.»
CPU1   (TX)xxx...x          (RX)xxx...x
CPU2   (SYS CPU)xxx...x     (I/O)xxx...x
ANTENNA (AZ)xxx...x         (EL)xxx...x
Start selftest OK? <Y/N>
```

3. Press [Y] and [Enter].



Self-test Result

To print the self-test result, press the [Prt Sc] (Print Screen) key.

4. To escape from the self-test screen, press any key. Control is returned to the Communication Unit Setup menu.

2.2 Self-test by No. 1 Telephone

The Communication Unit and the Antenna Unit can be checked by the No. 1 telephone. (Both Class 1 and Class 2 available)

Procedure

1. Pick up the handset of the No. 1 telephone.
2. Press [*], [9], [0] and [#]. The self-test results are printed out.

3. Error Message, Fuse Replacement

3.1 Error Message

If an error is detected in the unit, or communication error occurs while communicating with an LES, an error message appears.

If an error message "ALARM · · · · " appears, this means internal error. Contact a FURUNO agent for service.

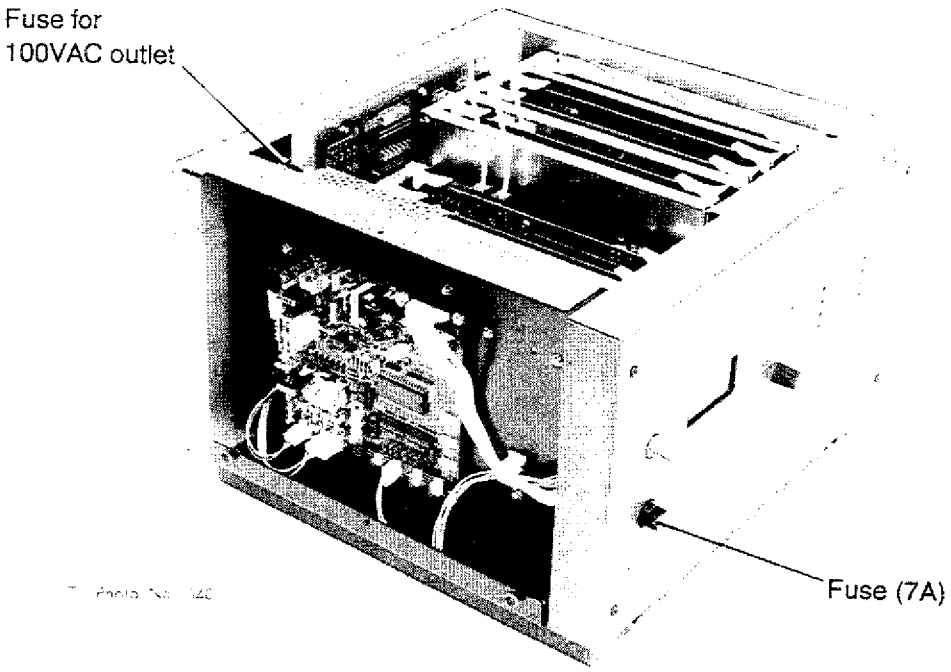
(Ex.) **"ALARM: ADE RF Abnormality-No TX power detected"**

Note: *When call fails or communication error occurs, wait for more than 16 seconds and try to call an LES again.*

3.2 Fuse Replacement (For qualified person)

A fuse (7A) is located on the front panel of the Communication Unit. If power can not be supplied when turning the POWER switch upward, check the fuse. If the fuse has blown find out the cause before replacing it. Use only a 7A fuse. Use of a wrong fuse can cause permanent damage to the unit and void the warranty.

If the fuse blows again after replacement, request service. Do not attempt to check inside the unit.



A fuse for 100VAC outlet is provided in the Communication Unit. See the figure shown above.

APPENDIX 1

International Telex/Telephone Country Code List

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Afghanistan	93	79	
Alaska	1	200	
Albania	355	604	
Algeria	21	408	
American Samoa	684	770	
American Virgin Is.	1	208	Telex calls to former WUI subscribers, insert the figure "9" after the destination code "208".
Andorra	33	590	
Angola	244	991	
Anguilla	1	391	
Antigua & Barbuda	2	393	
Argentina	54	33	Disregard the figure "0" at head of subscriber number.
Armenia	7	684	
Aruba	297	303	Subscriber numbers are 2XXX or 5XXX
Ascension	247	939	Manual calls 3XXX
Australia	61	71	
Australian External Territories	672	766	
Austria	43	47	
Azerbaijani	994	784	
Azores Is.	351	404	Destination code is the same as for Portugal.
Bahamas	1	297	
Bahrain	973	490	
Bangladesh	880	780	
Barbados	1	392	
Belarus	7	681	
Belgium	32	46	
Belize	501	371	
Benin	229	972	
Bermuda	1	290	
Bhutan	975	890	
Bolivia (Rep. of)	591	371	
Bolivia (ENTAL)		309	
Bosnia-Hercegovina	387	600	
Botswana	267	962	
Brazil	55	38	Disregard the figure "0" at head of subscriber number.
British Virgin Is.	1	292	
Brunei Darussalam	673	809	
Bulgaria	359	67	
Burkina Faso	226	978	
Burundi	257	903	

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Cambodia	855	807	Kampuchea Rep.
Cameroon	237	970	
Canada	1	21	Disregard the figure "0" at head of subscriber number.
		26	
Canary Is.	34	52	Destination code is the same as for Spain.
Cape Verde	238	993	
Cayman Is.	1	293	
Central Africa Rep.	236	971	
Chad	235	976	
Chile	56	34	TCH subscribers 2XXXXX ENTEL subscribers 5XXXXX TRA subscribers 3XXXXX TECOM subscribers 6XXXXX VTR CM subscribers 4XXXXX
China	86	85	
Christmas Is. (Aus)	672	766	
CIS (formerly USSR)	7	64	
Cocos-Keeling Is.	672	766	
Colombia	57	35	Disregard the figure "0" at head of subscriber number.
Comoros	269	994	Manual calls
Congo	242	981	
Cook Is.	682	772	
Costa Rica	506	376	
Cote d' Ivoire	225	983	Ivory Coast
Croatia	385	599	
Cuba	53	28	
Cyprus	357	605	
Czechoslovakia	42	66	
Denmark	45	55	
Diego Garcia	246	938	
Djibouti	253	979	
Dominica	1	394	
Dominican Rep.	1	201	RCA subscribers 4XXXXX
		202	For subscriber number beginning with 346, disregard "346" at head of subscriber number.
		241	AGEM IR subscribers 61XX
Ecuador	593	308	
Egypt	20	91	
El Salvador	503	373	
Estonia (formerly USSR)	372	537	
Ethiopia	251	980	
Falkland Is. (Malvinas)	500	306	
Faroe Is.	298	502	
Fiji	679	701	
Finland	358	57	

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
France	33	42	
French Guiana	594	300	
French Polynesia	689	702	
Gabon	241	973	
Gambia	220	996	
Georgia	7	683	
Germany (Fed. Rep. of)	49	69	formerly East Germany
	49	41	formerly West Germany
Ghana	233	94	
Gibraltar	350	405	
Greece	30	601	
Greenland	299	503	
Grenada	1	395	
Guadeloupe	590	299	
Guam (RCA)	671	700	
Guatemala	502	372	
Guiana	594	300	
Guinea Conakry	224	995	Manual calls
Guinea Bissau	245	969	
Guyana	592	295	
Haiti	509	203	RCA subscribers 9XXX
		704	RCA subscribers 8XXX or 2968XX
		705	ITT subscribers 743XXX
Hawaii	1	708	WUI subscribers 63XXX or 63XXXX
		709	WUH subscribers 39XXXX
		(773)	Telex calls to HTC subscribers can be made using Semi-automatic calls.
Honduras	504	374	
Hong Kong	852	802	
Hungary	36	61	
Iceland	354	501	
India	91	81	
Indonesia	62	73	Disregard the figure "0" at head of subscriber number.
Iran	98	88	
Iraq	964	491	
Ireland	353	500	
Israel	972	606	Disregard the figure "0" at head of subscriber number.
Italy	39	43	
Jamaica	1	291	
Japan		72	KDD (for 5 digits)
	81	720	NTT
Jordan	962	493	

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Kazakhstan	7	785	
Kenya	254	987	
Kiribati	686	761	Subscriber numbers are 770XX
Korea (Demo, People's Rep. of)	850	(899)	
Korea (Rep. of)	82	801	
Kuwait	965	496	
Kyrgyzstan	7	788	
Lao	856	804	
Latvia (formerly USSR)	371	538	
Lebanon	961	494	
Lesotho	266	963	
Liberia	231	997	
Libya	21	901	
Liechtenstein	41	45	
Lithunia (formerly USSR)	370	539	
Luxembourg	352	402	
Macao	853	808	
Macedonia	389	597	
Madagascar	261	986	Subscriber number beginning with 4, 5, 7, 8 and 9 can be reached by Manual Calls.
Madeira Is.	351	404	Destination code is the same as for Portugal.
Malawi	265	904	
Malaysia	60	84	
Maldives Is.	960	896	
Mali	223	985	
Malta	356	406 403	Subscriber number beginning with 11XX can be reached by Semi-automatic calls.
Mariana Is.	671	760	
Marshall Is.	692	765	
Martinique	596	298	
Mauritania	222	974	
Mauritius	230	966	
Mexico	52	22	Disregard the figure "0" at head of subscriber number.
Micronesia	691	764	
Moldova	373	682	
Monaco	33	42	Destination code is the same as for France.
Mongolia	976	800	
Montserrat	1	396	
Morocco	21	407	
Mozambique	258	992	
Myanmar (formerly Burma)	95	83	
Namibia	264	908	
Nauru	674	775	

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Nepal	977	891	
Netherlands	31	44	
Netherlands Antilles	599	390	
New Caledonia	687	706	
New Zealand	64	74	
Nicaragua	505	375	
Niger	227	975	2XXXX other numbers are for Semi-automatic calls.
Nigeria	234	905	
Niue Is.	683	776	
Northern Mariana Is.	670		
Norfolk Is.	672	766	
Norway	47	56	
Oman	968	498	
Pakistan	92	82	
Palau	680	763	
Panama	507	377	TRT subscribers
		378	AACR subscribers
		379	INTEL subscribers
Papua New Guinea	675	703	
Paraguay	595	305	
Peru	51	36	
Philippines	63	75	PHILCOM subscribers 2XXXX RCPI subscribers 7XXXX GMCR subscribers 4XXXX ETPI subscribers 6XXXX CAPWIRE subscribers 1XXXX For PTT subscribers, insert the figure "8" after the destination code "75".
Poland	48	63	Disregard the figure "0" at head of subscriber number.
Portugal	351	404	
Puerto Rico	1	205	RCA subscribers 2XXX
		206	ITT subscribers 345XXX
		207	C&W, WUI subscribers
		209	ACPR (PRCA) subscribers
Qatar	974	497	
Reunion	262	961	Subsciriber numbers are 916XXX
Romania	40	65	Disregard the figure "0" at head of subscriber number.
Russian Federation	7	64	
Rwanda	250	909	
Saipan	670	760	
San Marino	378	505	
Sao Tome & Principe	239	967	Manual calls

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Saudi Arabia	966	495	
Senegal	221	906	
Seychelles	248	965	
Sierra Leone	232	998	
Singapore	65	87	
Slovak	42	66	
Slovenia	386	598	
Solomon Is.	677	778	
Somalia	252	900	
South Africa	27	95	Cape Town subscribers XXXXXX Bophuthatswana subscribers 08XXXX Transkei subscribers 09XXX
Spain	34	52	
Spanish North Africa	34	52	
Sri Lanka	94	803	
St. Helena	290	(960)	Manual calls 4XXX
St. Kitts & Nevis	1	397	
St. Lucia	1	398	
St. Pierre & Miquelon	508	204	
St. Vincent & the Grenadines	1	399	
Sudan	249	984	
Suriname	597	304	
Swaziland	268	964	
Sweden	46	54	
Switzerland	41	45	
Syria	963	492	
Tajikistan	7	787	
Taiwan	886	769	
Tanzania	255	989	
Thailand	66	86	
Togo	228	977	
Tokelau	690	762	
Tonga	676	777	
Trinidad & Tobago	296	294	
Tunisia	21	409	
Turkey	90	607	
Turkmenistan	7	789	
Turks & Caicos Is.	1	296	
Tuvalu	688	774	
U. A. E.	971	893	
Abu Dhabi			2XXXX, 3XXXX, 5XXXX
Ajman			695XX
Dubai			4XXXX
Fujairah			8XXXX
Ras Al Khaimah			9XXXX

Area and Country	Telephone Country Code	Telex Country Code	Remarks for Telex Code
Sharjah			68XXX
Umm Al Qaiwain			697XX
Uganda	256	988	
Ukraine	7	680	
United Kingdom	44	51	
United Arab Emirates	971	893	
Upper Volta	226	978	Same as "Burkina Faso".
Uruguay	598	32	
Uzbekistan	7	786	
U. S. A.	1	23	CCI subscribers 7XXXXXX ITT subscribers 4XXXXX, 4XXXXXX, 4XXXXXXXXX RCA subscribers 2XXXXX WUI subscribers 6XXXX, 6XXXXX, 6XXXXXX
U. S. A. (Mainland)		23	TRT subscribers 1XXXXX, 1XXXXXXXXX FTCC subscribers 8XXXX, 8XXXXX GRPHNET subscribers 36XXXXX, 37XXXXX For WUT subscribers, insert the figure "0" after the destination code "23".
		25	Telex calls to TWX subscribers whose numbers do not contain "0" as the third figure of the 10 figure code can be made as Semi-automatic calls.
U. S. S. R. (Former)	7	640	Russian Federation
Vanuatu	678	771	
Vatican	379	504	
Venezuela	58	31	
Viet Nam	84	805	Subscriber number beginning with 561XXX can be made using manual calls
Wallis & Futuna Is.	681	707	
Western Samoa	685	779	
Yemen	969	806	Formerly Yemen (P. D. Rep. of)
(Rep. of)	967	895	Formerly Yemen (Arab Rep.)
Yugoslavia (Former)	381	62	
Zaire	243	982	Telex calls to places other than Kinshasa Subscriber beginning with 2XXXX can be made as Semi-automatic calls.
Zambia	260	902	
Zanzibar	259	990	
Zimbabwe	263	907	

Ocean Area	Telephone Ocean Region Access Code	Telex Ocean Region Access	Remarks
AOR – W	874	584	Atlantic Ocean-W
AOR – E	871	581	Atlantic Ocean-E
POR	872	582	Pacific Ocean
IOR	873	583	Indian Ocean

APPENDIX 2

LES Access Code List

(Information from Inmarsat)

(*1) (*2) (*3) (*4): Operational as of Aug. '95. See note below.

LES Name	AOR-E	POR	IOR	AOR-W	Remarks
Southbury (*2)(*5)	001			001	USA
Santa Paula (*3)		001			USA
Goonhilly (*3)	002			002	UK
Yamaguchi (*3)		003	003		Japan
Eik (*3)			004		Norway
Aussaguel (*3)	011		011		France
Burum (*3)	012		012		Netherland
Laurentides (*3)	013			013	Canada
Cape d'Aguilar (*3)		118	118		Hong Kong
Kuantan (*2)			060		Malaysia
Sentosa (*3)		210	210		Singapore
Perth (*3)		222	222		Australia
Comsat Eurasia (*2)(*5)			001		
Brunei (*1)		888	888		
UAE (*3)			123		

Note: (*1) TEL (Voice) service only
(*2) TEL & B-FAX service available
(*3) TEL, TLX, B-FAX service available
(*4) TEL & TLX service available
(*5) High Speed Data service available

Reference

NCS List

Sea Area	NCS Name	Operator
AOR-W	Southbury	Comsat
AOR-E	Southbury	Comsat
IOR	Thermopylae	OTE SA
POR	Santa Paula	Comsat