

# FURUNO

## OPERATOR'S MANUAL

NAVTEX RECEIVER

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MODEL NX-300

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**FURUNO ELECTRIC CO., LTD.**  
NISHINOMIYA, JAPAN

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\* O M E 5 6 2 9 0 H 0 0 \*



# SAFETY INSTRUCTIONS

## Safety Instructions for the Operator



### WARNING



**Do not open the cover of the equipment.**

Only qualified personnel should work inside the equipment.

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

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

**Do not disassemble or modify the equipment.**

Fire, electrical shock or serious injury can result.



### CAUTION

**Keep heater away from equipment.**

A heater can melt the equipment's power cord, which can cause fire or electrical shock.

**Use the proper fuse.**

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

**Do not operate the equipment with wet hands.**

Electrical shock can result.

## **Safety Instructions for the Installer**

**WARNING**



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

Improper handling can result in electrical shock.

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

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

**CAUTION**



Ground the equipment to prevent mutual interference.

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

Connection to the wrong power supply can cause fire or equipment damage. The voltage rating appears on the label at the rear of the equipment.

**Observe the following compass safe distances to prevent interference to a magnetic compass:**

|        | Standard compass | Steering compass |
|--------|------------------|------------------|
| NX-300 | 0.5 m            | 0.3 m            |

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# FOREWORD

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## A Word to NX-300 Owners

Congratulations on your choice of the FURUNO NX-300 NAVTEX Receiver. We are confident that you will enjoy many years of operation with this fine piece of equipment.

For over 50 years FURUNO Electric Company has enjoyed an enviable reputation for quality and reliability throughout the world. Our extensive global network of agents and dealers furthers this dedication to excellence.

The NX-300 is just one of the many FURUNO developments in the field of marine radio communication. The NX-300 provides cost-effective price, high sensitivity and simple operation in one compact and light-weight unit. In addition to its fundamental function of receiving NAVTEX broadcasts, this unit can also function as nav data display when connected to navigation equipment.

This unit is designed and constructed to ensure the user many years of trouble-free operation. To obtain full performance from the equipment, however, you should carefully read and follow the recommended procedures for installation, operation and maintenance. No machine can perform its intended functions unless it is installed and maintained properly.

Thank you for considering and purchasing FURUNO equipment.

# Features

NAVTEX (Navigational Telex) is a worldwide coastal telex broadcasting system. Coastal NAVTEX broadcasting stations with specific ID's transmit Navigational warnings, Meteorological warnings, Search and Rescue (SAR) information and other navigational information for NAVTEX receiver-equipped vessels sailing in coastal waters.

The FURUNO NX-300 NAVTEX receiver receives NAVTEX messages and automatically displays them together with station ID and message category information.

The service range of a NAVTEX station is typically 200-400 nautical miles. A NAVTEX station normally broadcasts every 4 hours.

The NAVTEX message is relevant for all types and sizes of vessels. The NX-300 is shipped from the factory equipped to receive 7 specific types of NAVTEX messages from all NAVTEX stations. However unnecessary stations can be rejected or necessary stations can be added by the "manual station selection" facility.

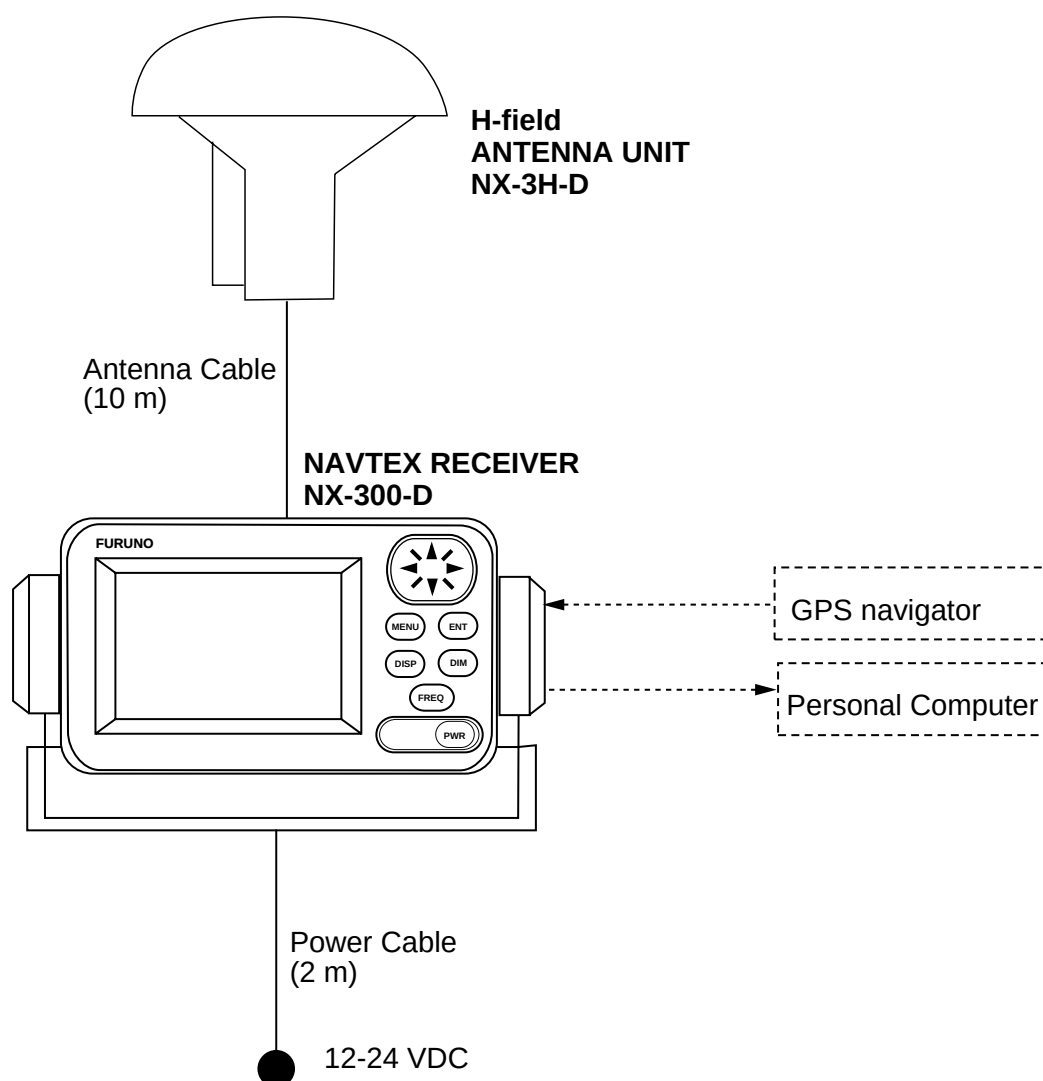
If ship's position data is fed from navigation equipment, the NX-300 automatically decides in which NAVAREA the vessel is navigating, and selects stations. (NAVAREAs are geographical zones defined by the International Maritime Organization.)

- Unattended operation once required data is entered.
- Received data is not saved nor displayed when the error rate exceeds the percentage you set (max 39%).
- No paper required
- Designed for small boats and fishing vessels
- Compact, stylish display and antenna units
- Memory of up to 28,000 characters for last 72 hours
- Navigation data can be fed through external input (connection with navigation aid required).
- Bright 95 x 60 mm LCD with adjustable contrast and brilliance
- Memory backup with a long-life lithium battery
- Low power consumption



# SYSTEM CONFIGURATION

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*NX-300 System configuration*

# EQUIPMENT LISTS

## Standard supply

| Name                   | Type     | Qty   | Remarks                                                                                                                                                   |
|------------------------|----------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| NAVTEX Receiver        | NX-300-D | 1     | Including hanger and knob bolts                                                                                                                           |
| Antenna Unit           | NX-3H-D  |       | H-field type with 10 m cable                                                                                                                              |
| Installation Materials |          | 1 set | Power/Data cable (Type: MJ-A7SPF0005-020, Code No.: 000-139-384)<br>Tapping screw (4 pcs., for fixing NAVTEX receiver, Type: 5x20, Code No.: 000-802-081) |
| Spare Parts            |          | 1 set | Fuse (2 pcs., Type: FGMB 1A, Code No.: 000-114-805)                                                                                                       |
| Accessories            |          | 1 set | Hard cover (Type: 20-016-1091, Code No.: 100-297-032)                                                                                                     |

## Optional equipment

| Name                     | Type          | Code No.    | Remarks                                |
|--------------------------|---------------|-------------|----------------------------------------|
| Right Angle Antenna Base | No. 13-QA330  | 000-803-239 | For antenna unit                       |
| L-type Antenna Base      | No. 13-QA310  | 000-803-240 |                                        |
| Handrail Antenna Base    | No. 13-RC5160 | 000-806-114 |                                        |
| Mast Mount Kit           | CP20-01111    | 004-365-780 |                                        |
| Flush Mount Kit S        | OP-20-17      | 000-040-720 | For flush mounting the NAVTEX receiver |
| Flush Mount Kit F        | OP-20-29      | 000-041-405 |                                        |

# 1. PRINCIPLE OF NAVTEX SYSTEM

## 1.1 How NAVTEX Works

There are many types of navigational and meteorological information available on radio, such as NAVAREA, HYDROPAC, etc. However, these systems rely heavily upon the operator's experience and skill in tuning the radio and interpreting messages. In addition, constant monitoring to pick up wanted information among a vast volume of messages is not practical with a limited radio staff.

To provide all mariners with up-to-the-minute information automatically, the NAVTEX system was developed.

NAVTEX is an acronym meaning Navigational Telex, and as its name shows, it is a kind of narrow band radio teletype system for sending (by frequency shift keying) text messages expressed in a 7-unit code. The difference is that a NAVTEX transmitter transmits nine control characters (header code) ahead of the main message, so that the receiver can identify the station, message type and serial number automatically.

## 1.2 NAVTEX System Operation

For navigation purposes, the world is divided into 16 areas (called Navareas) as shown in the figure below. Each Navarea has multiple NAVTEX stations and each NAVTEX station has an identification code, from "A" to "Z." The frequency assigned to NAVTEX is only one (518 kHz), and many stations exist in the same Navarea. (Some stations use 490 kHz also.)

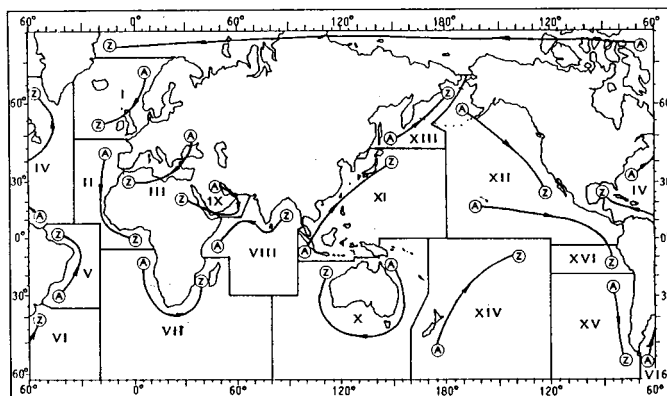


Figure 1-1 NAVTEX area

If the stations were to transmit without any rule, the system would collapse due to mutual interference. To avoid this problem, the following rules apply.

- The transmission schedule is determined so that two or more stations having a common service area may not overlap in time.
- Each station transmits with minimum required power to cover its service area (200 nautical miles nominal).

## 1.3 Message Format

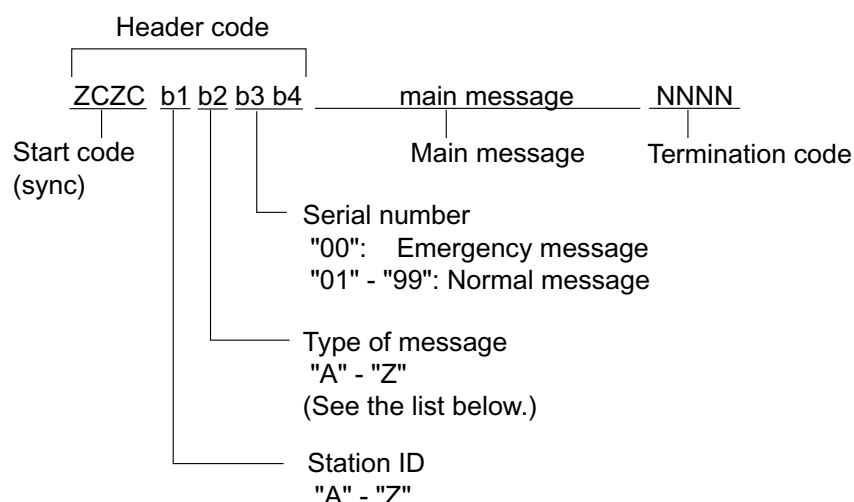
For automatic identification of messages, each message starts with eight control characters, called "Header codes".

The first four characters are always "ZCZC" and common to all messages. This part is used for message synchronization. The latter four characters are designated as b1, b2, b3 and b4 to indicate origin, category and serial number of the message.

Character b1 is the identification letter of the NAVTEX station; "A" to "Z". Character b2 indicates the type of message, "A" to "Z", as listed below. Character b3 and b4 indicate the serial number of the message. The serial numbers are counted up from "01" to "99", and start from "01" again. Number "00" is specially reserved for important emergency messages, such as a search and rescue (SAR) message.

The end of each message is indicated by "NNNN" (four successive N's).

General message format is summarized below.



[Type of message (category)]

|    |                                                            |         |                                                  |
|----|------------------------------------------------------------|---------|--------------------------------------------------|
| A: | Navigational warning                                       | I:      | OMEGA message                                    |
| B: | Meteorological warning                                     | J:      | Differential OMEGA message                       |
| C: | Ice report                                                 | K:      | Other electronic navigational aid system message |
| D: | Search and rescue information/<br>piracy and armed robbery | L:      | Navigational warning (additional)                |
| E: | Meteorological forecast                                    | M to U: | Reserve-presently not used                       |
| F: | Pilot message                                              | V:      | Notice to Fishermen (U. S. only)                 |
| G: | DECCA message                                              | W to Y  | Reserve-presently not used                       |
| H: | LORAN-C message                                            | Z:      | QRU (no message on hand)                         |

## 1.4 Display Indications

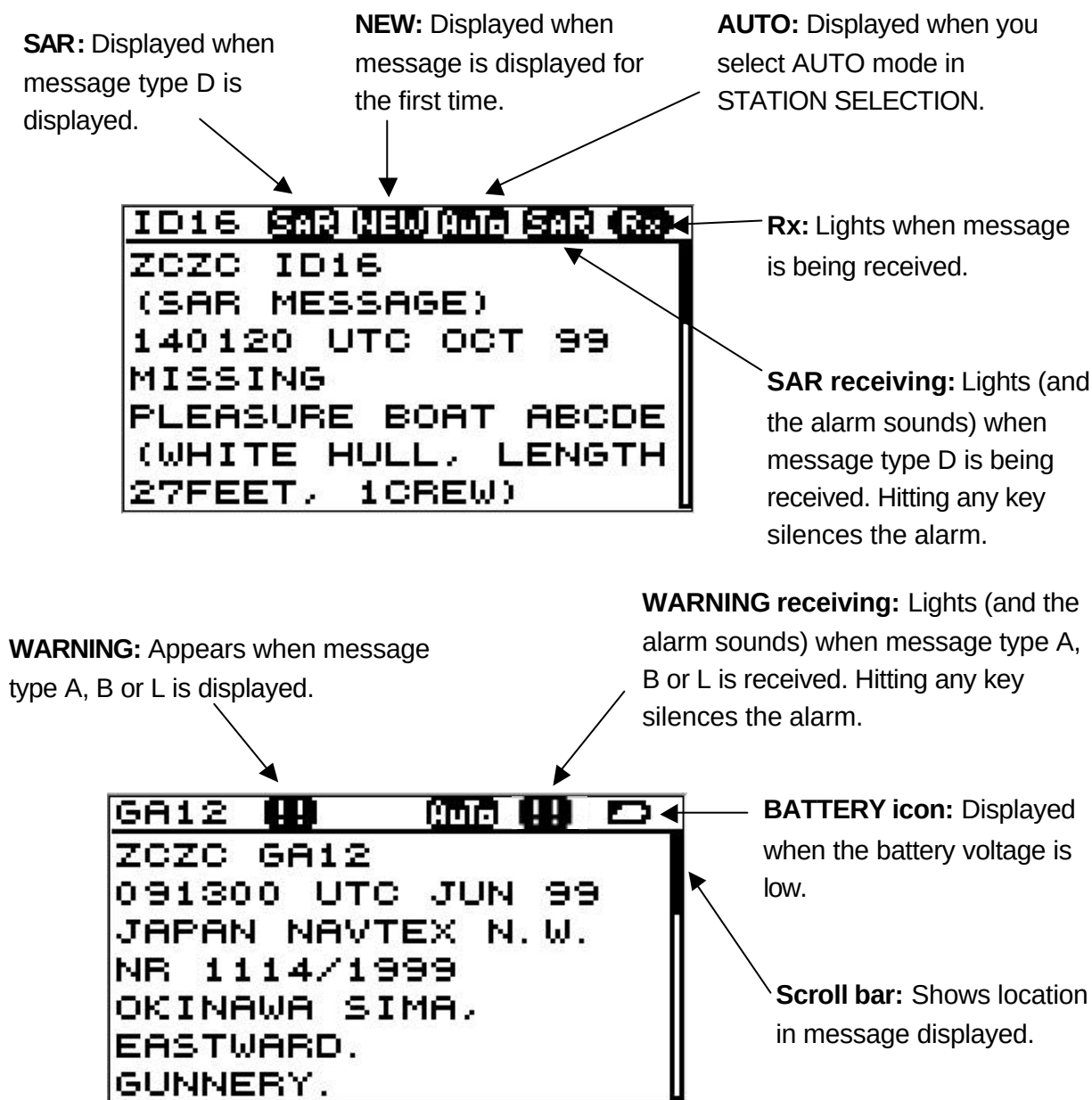
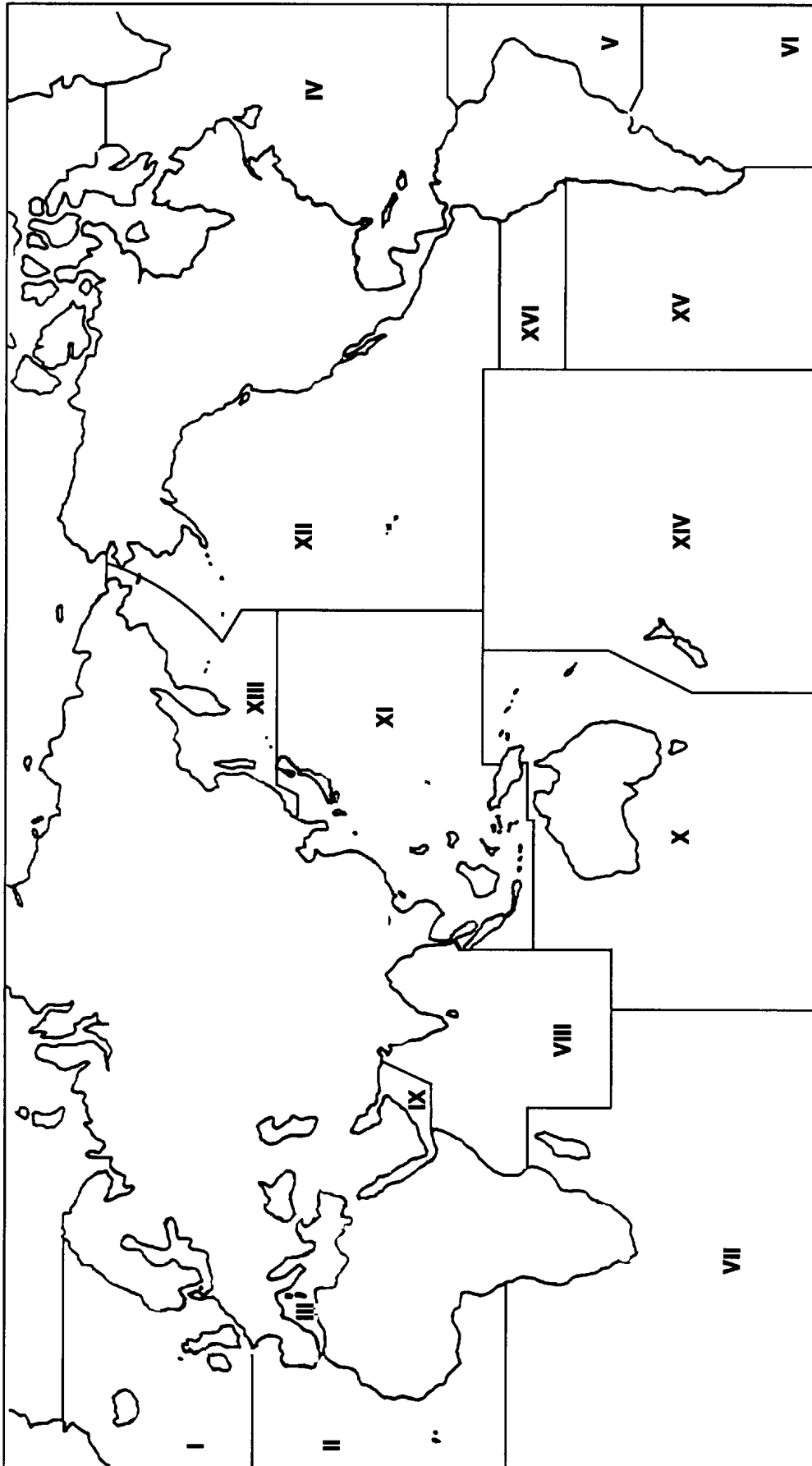


Figure 1-2 Display indications

## 1.5 NAVTEX Station Map



## 1.6 NAVTEX Station List

| NAV<br>area        | Country            | Station                 | Latitude | Longitude | 518kHz<br>B1 | 490kHz<br>B1 |
|--------------------|--------------------|-------------------------|----------|-----------|--------------|--------------|
| I                  | Belgium            | Oostende                | 51 11N   | 02 48E    | M,T          |              |
|                    | Estonia            | Tallinn                 | 59 30N   | 24 30E    | E,U          |              |
|                    | Iceland            | Reykjavik Radio         | 64 05N   | 21 51W    | R,X          |              |
|                    | Ireland            | Valencia                | 51 56N   | 10 21W    | W            |              |
|                    |                    | Malin Head              | 55 22N   | 07 21W    | Q            |              |
|                    | Netherlands        | Netherlands Coast Guard | 52 06N   | 04 15E    | P            |              |
|                    | Norway             | Bodo Radio              | 67 16N   | 14 23E    | B            |              |
|                    |                    | Rogaland Radio          | 58 39N   | 05 36E    | L            |              |
|                    |                    | Vardoe Radio            | 70 22N   | 31 06E    | V            |              |
|                    |                    | Svalbard                | 78 02N   | 13 40E    | A            |              |
|                    | Sweden             | Harnosand               | 64 28N   | 21 36E    | H            |              |
|                    |                    | Karlskrona              | 55 29N   | 14 19E    | J            |              |
|                    |                    | Stockholm Radio         | 59 16N   | 18 43E    | U,D          |              |
|                    | United Kingdom     | Cullercoats             | 55 02N   | 01 26W    | G            | I,U          |
| Portpatrick        |                    | 54 51N                  | 05 07W   | O         | C            |              |
| Niton              |                    | 50 35N                  | 01 18W   | K,S       | A,I          |              |
| Russian Federation | Murmansk           | 68 58N                  | 33 05E   | C         |              |              |
|                    | Archangel          | 64 33N                  | 40 32E   | F         |              |              |
| II                 | Cameroon           | Douala                  | N.I.     |           | N.I.         |              |
|                    | Cape Verde         | Sao Vicente Radio       | N.I.     |           | N.I.         |              |
|                    | France             | Cross Corsen            | 48 28N   | 05 03E    | A            | E            |
|                    | Mauritania         | Nouadhibou Radio        | N.I.     |           | N.I.         |              |
|                    | Morocco            | Casablanca Radio        | 33 36N   | 07 38W    | M            |              |
|                    | Portugal           | Horta Radio             | 38 32N   | 28 38W    | F            | J            |
|                    |                    | Monsanto Radio          | 38 44N   | 09 11W    | R            | G            |
|                    | Spain              | Corunna                 | 42 54N   | 09 16W    | D            |              |
|                    |                    | Tarifa                  | 36 01N   | 05 34W    | G            |              |
| Las Palmas         |                    | 28 10N                  | 15 25W   | I         |              |              |
| III                | Bulgaria           | Varna                   | 43 04N   | 27 46E    | J            |              |
|                    | Croatia            | Split                   | 43 30N   | 16 29E    | Q            |              |
|                    | Cyprus             | Cyprus                  | 35 03N   | 33 17E    | M            |              |
|                    | Egypt              | Serapeum                | 30 28N   | 32 22E    | X            |              |
|                    |                    | Alexandria              | 31 12N   | 29 52E    | N            |              |
|                    | France             | Cross La Garde          | 43 06N   | 05 59E    | W            | S            |
|                    | Greece             | Heraklion               | 35 20N   | 25 07E    | H            |              |
|                    |                    | Corfu                   | 39 37N   | 19 55E    | K            |              |
|                    |                    | Lemnos                  | 39 52N   | 25 04E    | L            |              |
|                    | Israel             | Haifa                   | 32 49N   | 35 00E    | P            |              |
|                    | Italy              | Roma                    | 41 37N   | 12 29E    | R            |              |
|                    |                    | Augusta                 | 37 14N   | 15 14E    | S,V          |              |
|                    |                    | Cagliari                | 39 13N   | 09 14E    | T            |              |
|                    |                    | Trieste                 | 45 40N   | 13 46E    | U            |              |
|                    | Malta              | Malta                   | 35 49N   | 14 32E    | O            |              |
|                    | Russian Federation | Novorossiysk            | 44 42N   | 37 44E    | A            |              |
|                    |                    | Astrakhan               | 46 18N   | 47 58E    | W            |              |
|                    | Spain              | Cabo de la Nao          | 38 43N   | 00 09E    | X            |              |
|                    | Turkey             | Istanbul                | 41 04N   | 28 57E    | D            |              |
|                    |                    | Samsun                  | 41 17N   | 36 20E    | E            |              |
|                    |                    | Antalya                 | 36 53N   | 30 42E    | F            |              |
|                    |                    | Izmir                   | 38 22N   | 26 36E    | I            |              |
|                    | Ukraine            | Mariupol                | 47 06N   | 37 33E    | B            |              |
|                    |                    | Odessa                  | 46 29N   | 30 44E    | C            |              |

| NAV area | Country                       | Station             | Latitude | Longitude | 518kHz B1 | 490kHz B1 |
|----------|-------------------------------|---------------------|----------|-----------|-----------|-----------|
| IV       | Bermuda(UK)                   | Bermuda             | 32 23N   | 64 41W    | B         |           |
|          | Canada                        | Sept Iles           | 50 12N   | 66 07W    | C,D       |           |
|          |                               | Prescott            | 44 56N   | 81 14W    | H         |           |
|          |                               | St. Johns           | 47 37N   | 52 40W    | O         |           |
|          |                               | Thunder Bay         | 48 34N   | 88 39W    | P         |           |
|          |                               | Sydney, Nova Scotia | 46 11N   | 59 54W    | Q,J       |           |
|          |                               | Yarmouth            | 43 44N   | 66 07W    | U,V       |           |
|          |                               | Montreal            | 45 41N   | 73 16W    | W,T       |           |
|          |                               | Labrador            | 53 42N   | 57 02W    | X         |           |
|          | Denmark(Greenland-West Coast) | Godthaab(Nuuk)      | 64 04N   | 52 01W    | W         |           |
|          | United States                 | Miami               | 25 37N   | 80 23W    | A         |           |
|          |                               | Boston              | 41 39N   | 70 33W    | F         |           |
|          |                               | New Orleans         | 29 53N   | 89 57W    | G         |           |
|          |                               | Chesapeake          | 36 35N   | 76 01W    | N         |           |
|          |                               | San Juan            | 18 28N   | 67 07W    | R         |           |
|          | Netherlands Antilles          | Curacao             | 12 10N   | 68 52W    | H         |           |
| V        | Uruguay                       | Colonia             | N.I.     |           | N.I.      |           |
|          |                               | Laguna del Sauce    | N.I.     |           | N.I.      |           |
|          |                               | La Paloma           | 34 40S   | 54 09W    | F         | A         |
|          |                               | Montevideo          | N.I.     |           | N.I.      |           |
|          |                               | Punta del Este      | N.I.     |           | N.I.      |           |
|          |                               | Salto               | N.I.     |           | N.I.      |           |
| VI       | Argentina                     | Ushaia              | 54 48S   | 68 08W    | A,M       |           |
|          |                               | Rio Gallegos        | 51 37S   | 65 03W    | B,N       |           |
|          |                               | Comodoro Rivadavia  | 45 51S   | 67 25W    | C,O       |           |
|          |                               | Bahia Blanca        | 38 43S   | 62 06W    | D,P       |           |
|          |                               | Mar del Plata       | 38 03S   | 57 32W    | E,Q       |           |
|          |                               | Buenos Aires        | 34 36S   | 58 22W    | F,R       |           |
| VII      | Namibia                       | Walvis Bay          | 23 03S   | 14 37E    | B         |           |
|          | South Africa                  | Cape Town           | 33 40S   | 18 43E    | C         |           |
|          |                               | Port Elizabeth      | 34 02S   | 25 33E    | I         |           |
|          |                               | Durban              | 30 00S   | 31 30E    | O         |           |
| VIII     | India                         | Bombay              | 19 05N   | 72 50E    | G         |           |
|          |                               | Madras              | 13 05N   | 80 17E    | P         |           |
|          | Mauritius                     | Mauritius Radio     | 20 26S   | 57 41E    | C         |           |
| IX       | Bahrain                       | Hamala              | 26 09N   | 50 28E    | B         |           |
|          | Egypt                         | Serapeum (Ismailia) | 30 28N   | 32 22E    | X         |           |
|          | Iran                          | Bushehr             | 28 59N   | 50 50E    | A         |           |
|          |                               | Bandar Abbas        | 27 07N   | 56 04E    | F         |           |
|          | Saudi Arabia                  | Dammam              | 26 26N   | 50 06E    | G         |           |
|          |                               | Jeddah              | 21 23N   | 39 10E    | H         |           |
|          | Oman                          | Muscat              | 23 36N   | 58 30E    | M         |           |
|          | Pakistan                      | Karachi             | 24 51N   | 67 03E    | P         |           |
| X        |                               |                     |          |           | NONE      |           |



| NAV area | Country                 | Station          | Latitude | Longitude | 518kHz B1 | 490kHz B1 |
|----------|-------------------------|------------------|----------|-----------|-----------|-----------|
| XI       | China                   | Sanya            | 18 15N   | 109 30E   | M         |           |
|          |                         | Guangzhou        | 23 09N   | 113 29E   | N         |           |
|          |                         | Fuzhou           | 26 02N   | 119 18E   | O         |           |
|          |                         | Shanghai         | 31 07N   | 121 33E   | Q         |           |
|          |                         | Dalian           | 38 51N   | 121 31E   | R         |           |
|          | Indonesia               | Jayapura         | 02 31S   | 140 43E   | A         |           |
|          |                         | Ambon            | 03 42S   | 128 12E   | B         |           |
|          |                         | Makassar         | 05 06S   | 119 26E   | D         |           |
|          |                         | Jakarta          | 06 06S   | 106 54E   | E         |           |
|          | Japan                   | Otaru            | 43 19N   | 140 27E   | J         |           |
|          |                         | Kushiro          | 42 57N   | 144 36E   | K         |           |
|          |                         | Yokohama         | 35 14N   | 139 55E   | I         |           |
|          |                         | Moji             | 34 01N   | 130 56E   | H         |           |
|          |                         | Naha             | 26 05N   | 127 40E   | G         |           |
|          | Korea, Republic of      | Chukpyun         | 37 03N   | 129 25E   | V         |           |
|          |                         | Pyonsan          | 35 36N   | 126 29E   | W         |           |
|          | Malaysia                | Penang           | 05 25N   | 100 24E   | U         |           |
|          |                         | Miri             | 04 25N   | 114 01E   | T         |           |
|          |                         | Sandakan         | 05 54N   | 118 00E   | S         |           |
|          | Philippines             | Manila           | 14 35N   | 121 03E   | J         |           |
|          |                         | Puerto Princesa  | 09 44N   | 118 43E   | I         |           |
|          |                         | Davao            | 07 04N   | 125 36E   | K         |           |
|          | Singapore               | Singapore        | 01 25N   | 103 52E   | C         |           |
|          | Thailand                | Bangkok Radio    | 13 44N   | 100 34E   | F         |           |
|          | United States           | Guam             | 13 29N   | 144 50E   | V         |           |
|          | Vietnam                 | Ho Chi Minh City | 10 47N   | 106 40E   | X         |           |
|          |                         | Haiphong         | 20 44N   | 106 44E   | P         | W         |
|          |                         | Danang           | 16 05N   | 108 13E   | W,P       |           |
|          | Taiwan                  | Chilung          | 25 09N   | 121 44E   | P         |           |
|          | Associate Member of IMO | Hong Kong        | 22 13N   | 114 15E   | L         |           |
| XII      | Canada                  | Prince Rupert    | 54 18N   | 130 25W   | D         |           |
|          |                         | Tofino           | 48 55N   | 125 33W   | H         |           |
|          | United States           | San Francisco    | 37 56N   | 122 44W   | C         |           |
|          |                         | Kodiak           | 57 46N   | 152 34W   | J,X       |           |
|          |                         | Honolulu         | 21 16N   | 158 09W   | O         |           |
|          |                         | Cambria          | 35 31N   | 121 03W   | Q         |           |
|          |                         | Astoria          | 46 12N   | 123 57W   | W         |           |
|          |                         | Adak             | 51 54N   | 176 38W   | X         |           |
| XIII     | Russian Federation      | Vladivostok      | 43 07N   | 131 53E   | A         |           |
|          |                         | Kholmsk          | 47 02N   | 142 03E   | B         |           |
|          |                         | Petropavlovsk    | 53 00N   | 158 40E   | C         |           |
|          |                         | Magadan          | 59 40N   | 151 01E   | D         |           |
|          |                         | Beringovskiy     | 63 03N   | 179 20E   | E         |           |
|          |                         | Provideniya      | 64 40N   | 173 10W   | F         |           |
|          |                         | Astrakhan        | 44 20N   | 48 02W    | W         |           |
| XIV      |                         |                  |          |           | NONE      |           |

| NAV area | Country | Station        | Latitude | Longitude | 518kHz B1 | 490kHz B1 |
|----------|---------|----------------|----------|-----------|-----------|-----------|
| XV       | Chile   | Antofagasta    | 23 39S   | 70 25W    | A,H       |           |
|          |         | Valparaiso     | 32 48S   | 71 29W    | B,I       |           |
|          |         | Talcahuano     | 36 43S   | 73 06W    | C,J       |           |
|          |         | Puerto Montt   | 41 30S   | 72 58W    | D,K       |           |
|          |         | Punta Arenas   | 53 12S   | 70 56W    | E,L       |           |
|          |         | Isla de Pascua | 27 09S   | 109 25W   | F,G       |           |
| XVI      | Peru    | Paíta          | 05 05S   | 81 07W    | S         |           |
|          |         | Callao         | 12 03S   | 77 09W    | U         |           |
|          |         | Mollendo       | 17 01S   | 72 01W    | W         |           |
|          | Ecuador | Guayaquil      | 02 17S   | 79 52W    | M         |           |

**Note:** The list shows the stations listed at Longwave Navtex Broadcasts (2001-04-16). For details, see the Web side <http://www.globalserve.net/~hepburnw/dx/navtex.htm>

## 2. OPERATION

### 2.1 Control Description

All operation of the NX-300 is carried out with the controls on the front panel of the display unit.

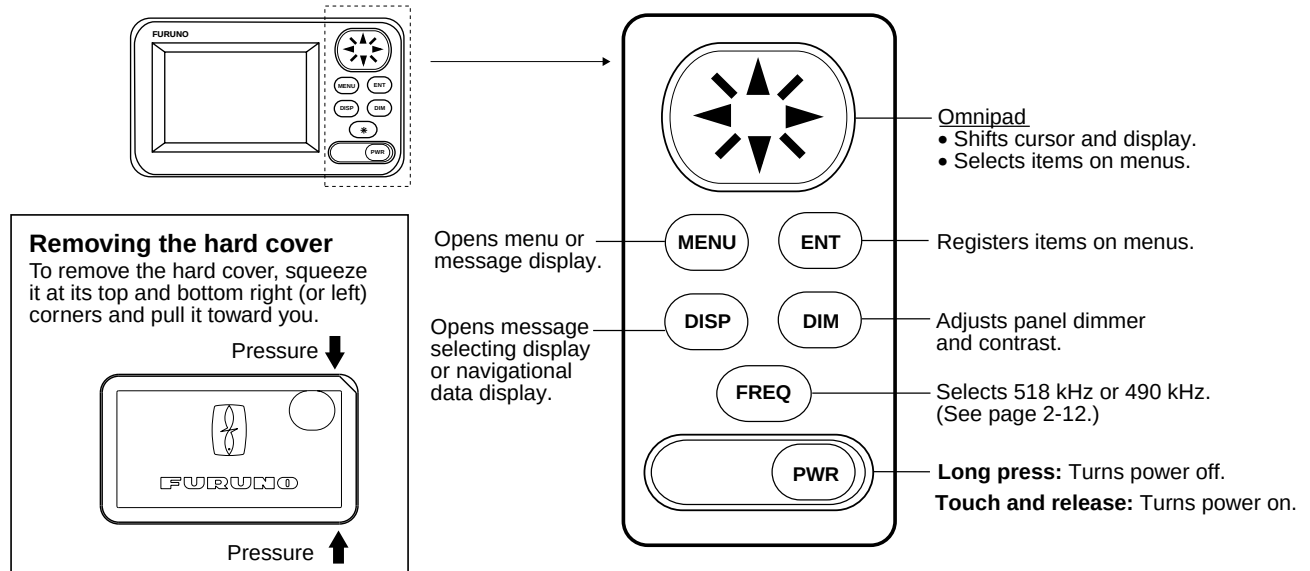


Figure 2-1 Control panel

### 2.2 Turning the Power On/Off

**Turning on:** Press the [PWR] key. "NO MESSAGE" (message waiting screen) appears. When a message is received, it appears on the screen and in case of a long message, it scrolls continuously.

To confirm version number of the equipment, press the [PWR] key a little longer. Release the key when the following window appears.

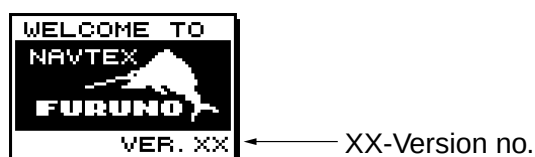


Figure 2-2 TURNING ON window

**Turning off:** Press the [PWR] key for 3 seconds.



Figure 2-3 TURNING OFF window

**Note:** The NX-300 should be turned on for the duration of a voyage so that important warning messages will not be missed.

## 2.3 Adjust Dimmer and Contrast

1. Press the [DIM] key to show the dimmer and contrast setting window.



Figure 2-4 DIMMER and CONTRAST setting window

2. Press ▲ or ▼ for best illumination of the control panel and LCD.
3. Press ◀ or ▶ for best contrast of the LCD.
4. Press the [ENT] key to close the dimmer and contrast setting window.

**Note:** If you turn off the power with contrast less than 36, contrast is automatically set to 36 when you turn on the power again.

## 2.4 Menu Operation Overview

The menu allows you to custom tailor the NX-300 according to your needs. You can select which categories of message you wish to receive, specify which data to display, etc.

1. Press the [MENU] key to open the main menu.



Figure 2-5 Main menu

**Note:** If you press the [MENU] key again at the main menu, the message waiting screen appears.

2. Press ▲ or ▼ to select menu item. As you operate ▲ or ▼, the selected item appears in reverse video. For example, select FUNCTIONS.
3. Press the [ENT] key to open menu selected.

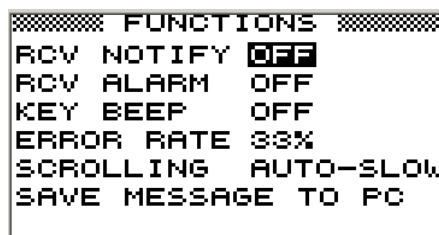


Figure 2-6 FUNCTIONS menu

4. Press ▲ or ▼ to select menu item and press the [ENT] key. For example, select RCV ALARM. Corresponding option menu appears.



Figure 2-7 ON/OFF window

5. Press ▲ or ▼ to select option desired.
6. Press the [ENT] key to register your selection.
7. Press the [MENU] key once to return to the menu or twice to quit the menu.

## 2.5 Selecting Stations

The STATION SELECTION menu allows you to select what stations to receive, automatically or manually. In the AUTO mode stations are automatically selected according to the distance between own ship and NAVTEX stations. External navigational data is required to use the AUTO mode. If it is not input, all stations are selected. In the MANUAL mode you can select what stations you wish to receive. Default setting is the AUTO mode.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select STATION SELECTION.
3. Press the [ENT] key. The MODE window appears.

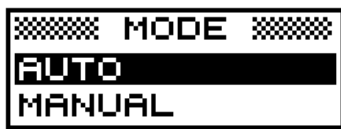


Figure 2-8 MODE window

4. Press ▲ or ▼ to select AUTO or MANUAL as desired.
5. For the AUTO mode, press the [ENT] key to close the menu.  
For the MANUAL mode, do the following:
  - a) Press the [ENT] key. The STATION SELECTION menu appears.

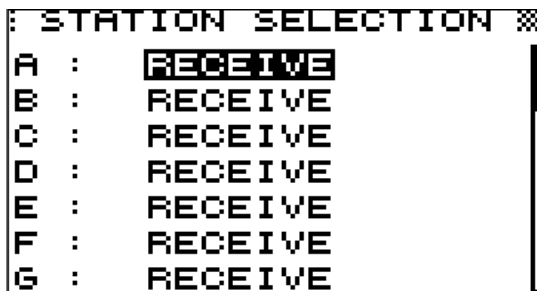


Figure 2-9 STATION SELECTION menu

- b) Press ▲ or ▼ to select a station you want to change the current setting.
  - c) Press the [ENT] key to show the following window.



Figure 2-10 RECEIVE/IGNORE window

- d) Press ▲ or ▼ to select RECEIVE or IGNORE depending on whether you want to select or deselect the station.
- e) Press the [ENT] key.
- f) Repeat steps b) to e) to select or deselect other stations.
- g) Press the [MENU] key or [DISP] key to close the STATION SELECTION menu.

## 2.6 Selecting Messages

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select MESSAGE SELECTION.
3. Press the [ENT] key to show the MESSAGE SELECTION menu.

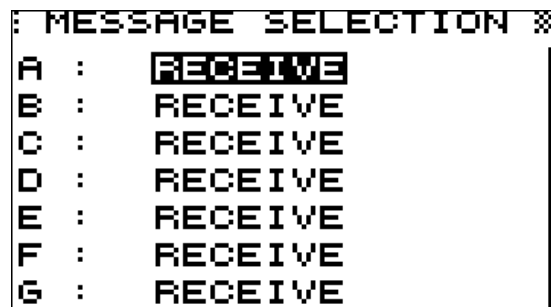


Figure 2-11 MESSAGE SELECTION menu

4. Press ▲ or ▼ to select a message you want to change the current setting.
5. Press the [ENT] key to show the following window.



Figure 2-12 RECEIVE/IGNORE window

6. When you change RECEIVE into IGNORE for message type A, B, D or L, the following window appears to confirm. For all other message types proceed to step 8.

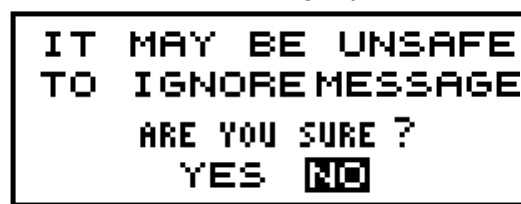


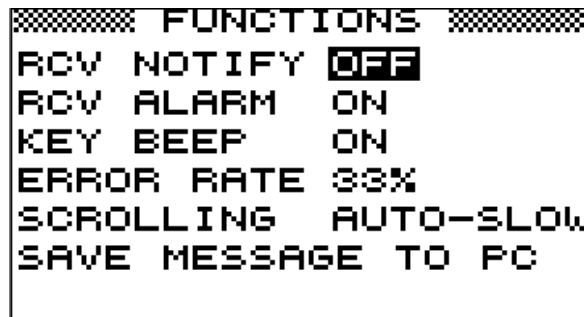
Figure 2-13 Ignore message window

7. Press ◀ or ▶ to select YES or NO. Select YES to change the current setting, or NO not to change.
8. Press the [ENT] key.
9. Repeat steps 4 to 8 to select or deselect other message types.
10. Press the [MENU] key or [DISP] key to close the MESSAGE SELECTION menu.

## 2.7 Setting Functions (FUNCTIONS menu)

See menu description below for detailed information.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select FUNCTIONS.
3. Press the [ENT] key to display the FUNCTIONS menu.



*Figure 2-14 FUNCTIONS menu*

4. Press ▲ or ▼ to select menu item and press the [ENT] key.
5. Press ▲ or ▼ to select option desired.
6. Press the [ENT] key to register your selection.
7. Press the [MENU] key twice to close the menu.

### 2.7.1 FUNCTIONS menu description

**RCV NOTIFY:** The raw NAVTEX signal can be monitored through the monitor speaker by turning RCV NOTIFY on. The default setting is OFF.

**RCV ALARM:** The audible alarm may be generated when message type A, B, D or L is received. The default setting is ON.

**KEY BEEP:** The equipment can emit a beep tone when a control is operated. The default setting is ON.

**ERROR RATE:** When character error occurs due to noise interference during signal propagation, erroneous character is displayed as “\*”.

Error Rate means character error rate and is calculated as followed:

Error Rate = number of erroneous characters ÷ total number of characters received × 100 (%)  
(Total number of characters includes space, line feed, carriage returns, etc.)

When the character error rate is within the percentage you set (0-39%), the NX-300 displays the message and stores it. When it exceeds the percentage you set, the NX-300 neither displays nor stores the message. You may set the threshold level of character error rate as desired and the default setting is 33%.

**SCROLLING:** This menu item lets you select how to scroll the message display. The default setting is AUTO-SLOW.

AUTO-SLOW: Long press of ▲ or ▼ scrolls line-by-line slowly automatically. Touch and release ▼ to scroll manually.

AUTO-FAST: Long press of ▲ or ▼ scrolls line-by-line automatically, faster than AUTO-SLOW. Touch and release ▼ to scroll manually.

SKIP-\$\$: The U.S. National Weather Service broadcasts weather information via the U.S. Coast Guard NAVTEX stations. Their messages contain \$\$, the continue indicator. You can quickly jump to the next continue indicator. Long press of ▲ or ▼ skips to \$\$.

**SAVE MESSAGE TO PC:** Select to download message to a PC. See the next paragraph.

## 2.7.2 Downloading Messages to a PC

### Wiring

Your equipment provides a wiring diagram that shows how to connect to a PC using a DSUB 9-pin connector. Refer to the interconnection diagram for details.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key to show the SYSTEM MENU.
4. Press ▼ to select WIRING INFO?.
5. Press the [ENT] key to show the wiring info display.

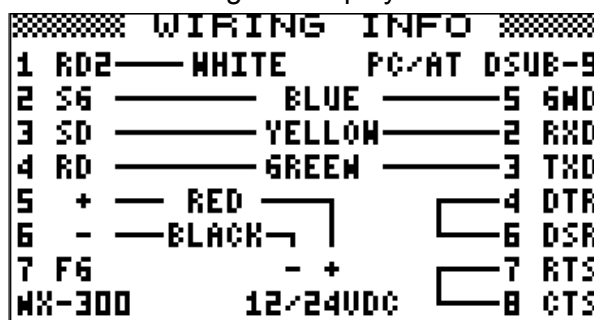


Figure 2-15 Connection to PC using a DSUB 9-pin connector

A DSUB 25-pin (EIA-232) may also be used to make the connection. In this case the wiring diagram is as follows.

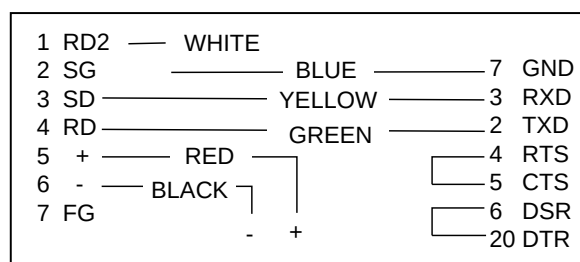


Figure 2-16 Connection to PC using a DSUB 25-pin connector



### Setting for communication software on PC

|                   |          |
|-------------------|----------|
| Baud Rate:        | 4800 bps |
| Character Length: | 8 bit    |
| Stop Bit:         | 1 bit    |
| Parity:           | None     |
| X Control:        | XON/XOFF |

### Downloading messages to a PC

Set up the computer to receive data. Messages are downloaded to a PC character by character during reception.

To download all messages saved in NX-300, do the following;

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select FUNCTIONS.
3. Press the [ENT] key to show the FUNCTIONS menu.
4. Press ▼ to select SAVE MESSAGE TO PC.
5. Press the [ENT] key. The following display appears.



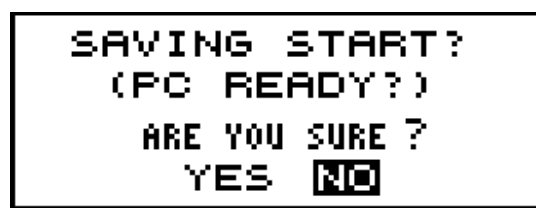
```
SAVE MESSAGE TO PC
ALL MESSAGES WILL
BE SAVED TO PC.

SET PC PORT TO 4800
8BIT,P-N,S1,XON/OFF.

CONTINUE?
```

*Figure 2-17 SAVE MESSAGE TO PC display*

6. Press the [ENT] key.

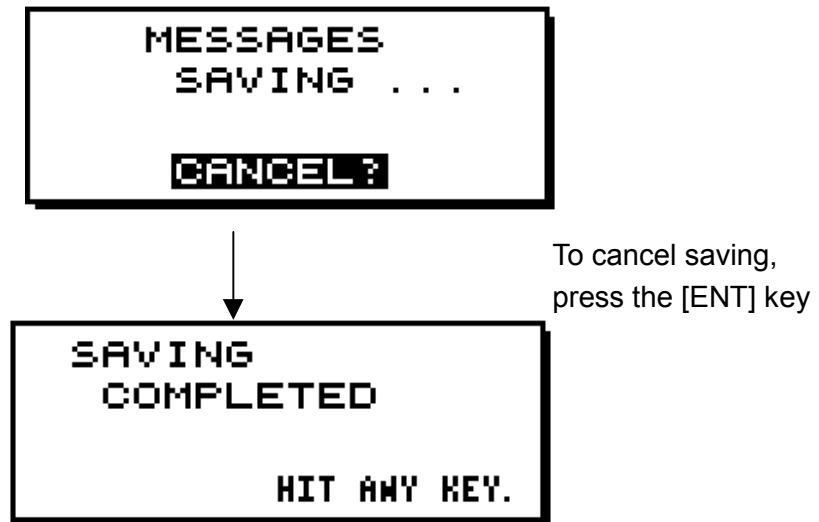


```
SAVING START?
(PC READY?)
ARE YOU SURE ?
YES NO
```

*Figure 2-18 SAVING START window*

7. Set up the computer to receive data.
8. Press ◀ to select YES and press the [ENT] key.

9. Press the [ENT] key to save. The following messages appear in order.



*Figure 2-19 SAVING MESSAGES window*

10. Press any key to escape.

**Note1:** No message is received during downloading.

**Note2:** When a PC or a serial printer is connected to the NX-300, received messages are displayed on a PC or printed on a serial printer but not displayed or saved to the NX-300 in the following cases;

- The NX-300 receives a message it has already saved.
- A message is interrupted to receive.

## 2.8 Selecting Language

You can select language displayed on the NX-300. Languages are English, French, German, Italian, Spanish, Dutch, Danish, and Portuguese.

1. Press the [MENU] key to open the main menu.
2. Press ▼ to select LANGUAGE.
3. Press the [ENT] key. The following menu appears. (ENG: English, FRA: French, GER: German, ITA: Italian, SPA: Spanish, DUT: Dutch, DEN: Danish, POR: Portuguese)



Figure 2-20 LANGUAGE menu

4. Use the Omnipad to select language desired.
5. Press the [ENT] key to register your selection and press the [MENU] key to close the menu.

## 2.9 Display Messages

The NX-300 automatically saves and stores up to 132 received messages (However, the memory capacity is limited to 28,000 characters). If memory of the NX-300 is full, messages are deleted on order of time.

1. Press the [DISP] key to show the received messages log. Messages (numbers) are arranged in the order received from latest to earliest, Left to right.

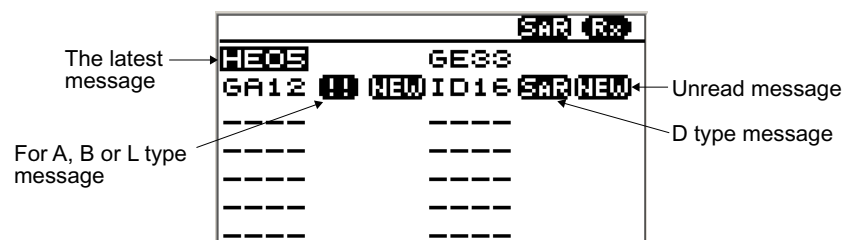


Figure 2-21 Received messages log

2. Operate the Omnipad to select the message to display. If more than 15 messages are saved, the scroll bar appears at the right side of the display. Press ▲ or ▼ to scroll the display.
3. Press the [ENT] key to display the message selected.

**Note:** If you want to see the received frequency (518 kHz or 490 kHz) also, change the window mode as shown on page 4-2.

## 2.10 Sample Messages

When message is displayed, press ▲ or ▼ to scroll message and press ◀ or ▶ to display the other message. When the oldest or newest message is displayed, the beep sounds.

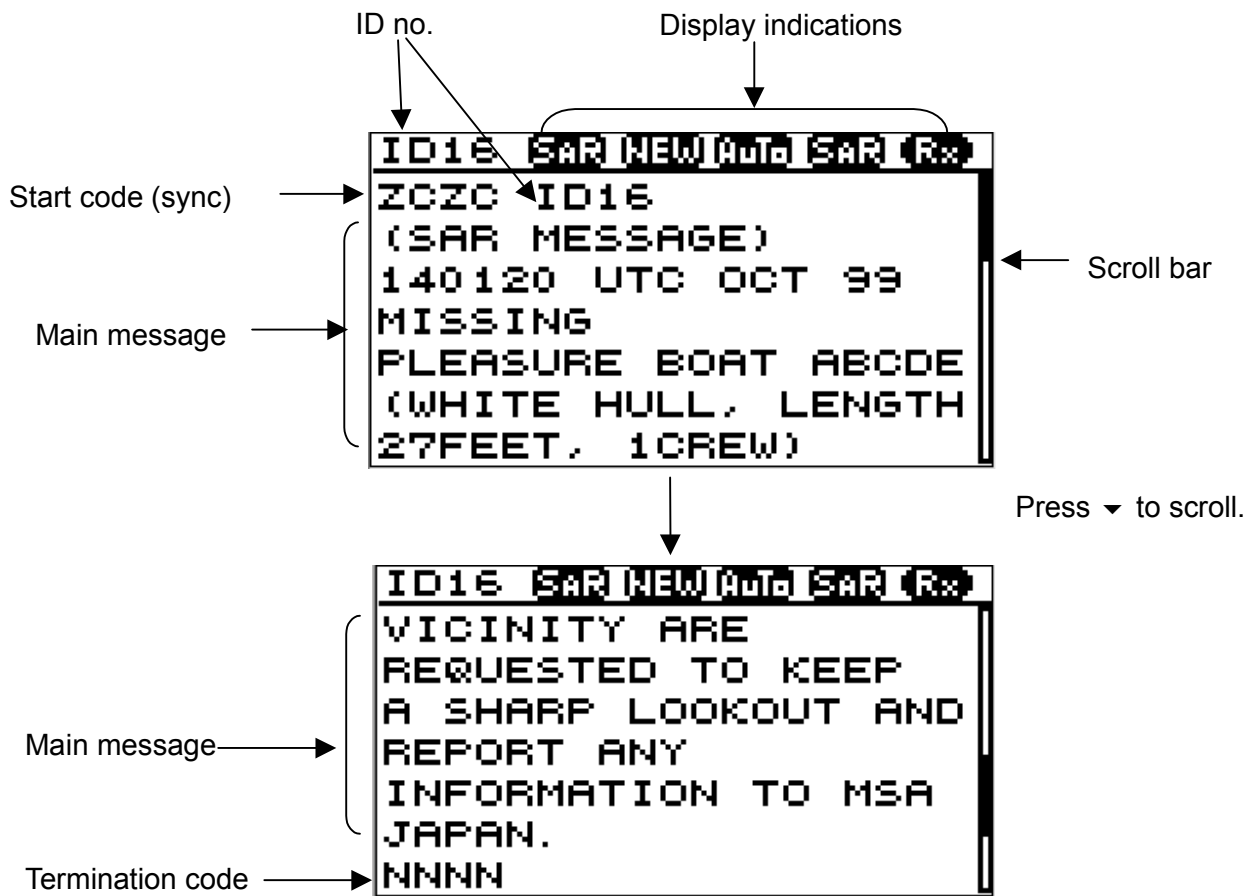
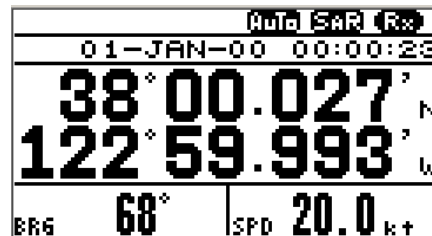


Figure 2-22 Sample messages

## 2.11 Displaying Navigation Data

With navigation data input the NX-300 can display navigation data, in addition to its primary function.

1. Press the [DISP] key to display the receiving messages log.
2. Press the [DISP] key again to display navigation data.

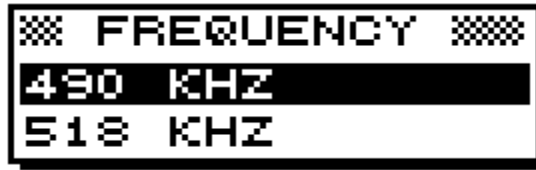


*Figure 2-23 Nav data display*

3. To return to the receiving message log, press the [DISP] key again.

## 2.12 Selecting Receive Frequency

1. Press the [FREQ] key to show the frequency window.



(Default setting is 518 kHz)

*Figure 2-24 Frequency window*

2. Press ▲ or ▼ to select receive frequency as appropriate.
3. Press the [ENT] key to close the frequency window.

## 3. SYSTEM MENU

### 3.1 Units of Measurement

When navigational data is fed to the NX-300, you can select units of distance and speed to use. Distance/speed can be displayed in nautical miles/knots, kilometers/kilometers per hour, or miles/ miles per hour. The default setting is nautical miles/knots.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key. The SYSTEM MENU appears.

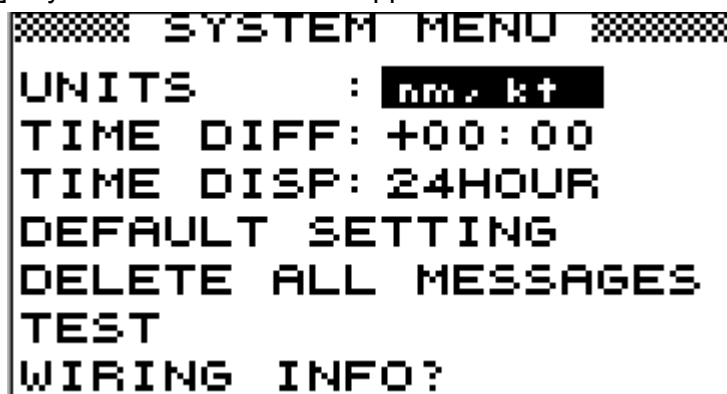


Figure 3-1 SYSTEM MENU

4. Press the [ENT] key. The following window appears.



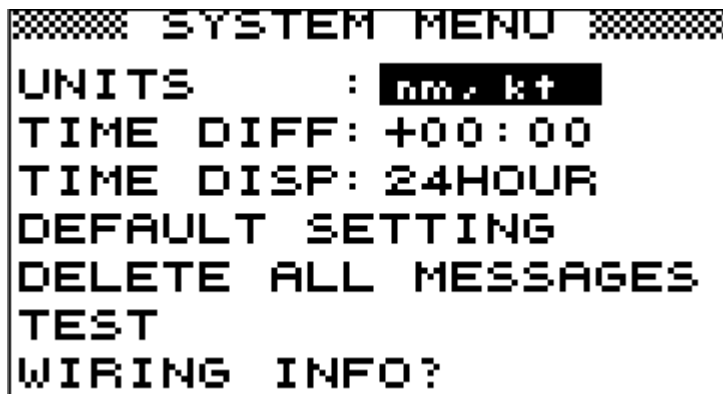
Figure 3-2 UNITS window

5. Press ▲ or ▼ to select combination desired; nm, kt; km, km/h; mi, mi/h.
6. Press the [ENT] key.
7. Press the [MENU] key or [DISP] key to close the SYSTEM MENU.

## 3.2 Time Difference (using local time)

GPS uses UTC time. If a GPS receiver feeds nav data to the NX-300 and you would rather use local time, enter the time difference (range: -13:30 to +13:30) between local time and UTC time.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key to open the SYSTEM MENU.



*Figure 3-3 SYSTEM MENU*

4. Press ▼ to select TIME DIFF.
5. Press the [ENT] key. A cursor circumscribes + or -. This cursor appears whenever selected data can be changed with Omnipad.
6. Press ▲ or ▼ to display + or -.
7. Press ► to move the cursor to the next column.
8. Press ▲ or ▼ to select number desired.
9. Repeat steps 7 and 8 to complete.
10. Press the [ENT] key.
11. Press the [MENU] key or [DISP] key to close the SYSTEM MENU.



### 3.3 Time Display

When navigational data is fed to the NX-300, you may display the time in 12-hour or 24-hour notation. The default setting is 24-hour notation. AM or PM is shown when 12-hour notation is selected.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key. The SYSTEM MENU appears.
4. Press ▼ to select TIME DISP.
5. Press the [ENT] key. The following window appears.



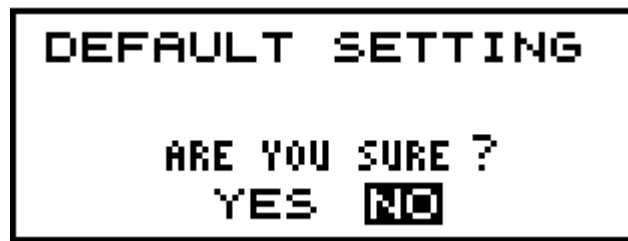
*Figure 3-4 TIME DISP window*

6. Press ▲ or ▼ to select 12HOUR or 24HOUR as appropriate.
7. Press the [ENT] key.
8. Press the [MENU] key or [DISP] key to close the SYSTEM MENU.

### 3.4 Default Setting

This function restores all default settings.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key to show the SYSTEM MENU.
4. Press ▼ to select DEFAULT SETTING.
5. Press the [ENT] key. The following window appears.



*Figure 3-5 DEFAULT SETTING window*

6. Press ◀ to select YES. If you want to cancel, press the [ENT] key to select NO before pressing ◀.
7. Press the [ENT] key.
8. Press the [MENU] key or [DISP] key to close the SYSTEM MENU.

## 3.5 Delete All Messages

This function deletes all messages NX-300 saves.

1. Press the [MENU] key to open the main menu.
2. Press ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key to show the SYSTEM MENU.
4. Press ▼ to select DELETE ALL MESSAGES.
5. Press the [ENT] key. The following window appears.



*Figure 3-6 DELETE ALL MESSAGES window*

6. Press ◀ to select YES.
7. Press the [ENT] key.
8. Press the [MENU] key or [DISP] key to close the SYSTEM MENU.

## 3.6 User Display of Navigation Data

The NX-300 can function as nav data display when connected to navigation equipment.

You may choose what data to display in the three cells below the date and time indications on the nav data display. The choices of data are speed, course, range, bearing, power source voltage and position in latitude and longitude (not available for “LEFT” or “RIGHT”).

|           |  |          |  |
|-----------|--|----------|--|
| 01-JAN-00 |  | 15:37:40 |  |
| LARGE     |  |          |  |
| LEFT      |  | RIGHT    |  |

*Figure 3-7 Location of nav data indications*

1. Press the [MENU] key to open the main menu.
2. Press ▼ to select USER DISPLAY.

- Press the [ENT] key to show the USER DISPLAY menu. The cursor is now on the LARGE field. LARGE means the center indication on the nav data display.

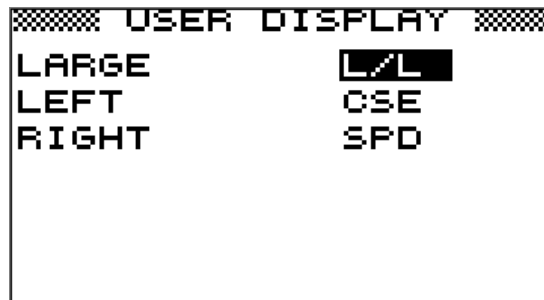


Figure 3-8 USER DISPLAY

- Press the [ENT] key. The following window appears.

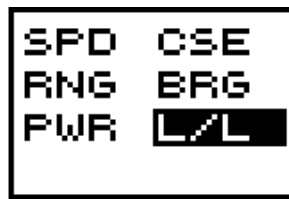


Figure 3-9 Options for LARGE window

- Operate the Omnipad to select item desired. (SPD: Speed, CSE: Course, RNG: Range to destination, BRG: Bearing to destination, PWR: Power source voltage, L/L: position in latitude and longitude)
- Press the [ENT] key.
- Select the items LEFT and RIGHT and set their options like you did for LARGE, referring to Figure 3-12 for location of indications.

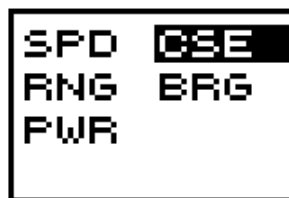


Figure 3-10 Options for LEFT, RIGHT

- Press [DISP] key twice to display the navigation data.

The figure below shows display appearance for the setting shown in Figure 3-8.

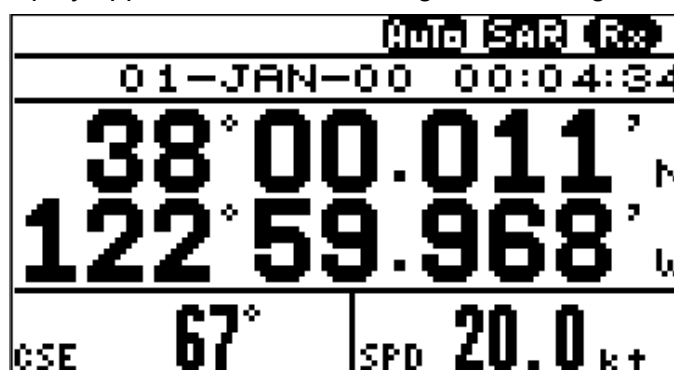


Figure 3-11 Nav data display

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## 4. OTHER FUNCTIONS

### 4.1 DEMO Mode

The DEMO mode provides simulated operation of this unit. Connection of antenna is not necessary. You may select stations and messages manually or automatically and demo messages are received. All controls are operative.

**Note:** Turning on the DEMO mode erases all messages.

Press the [PWR] key while pressing ► to turn the power on. "SET DEMO MODE!" appears momentarily. "DEMO" appears at the top of the screen when the DEMO mode is active.

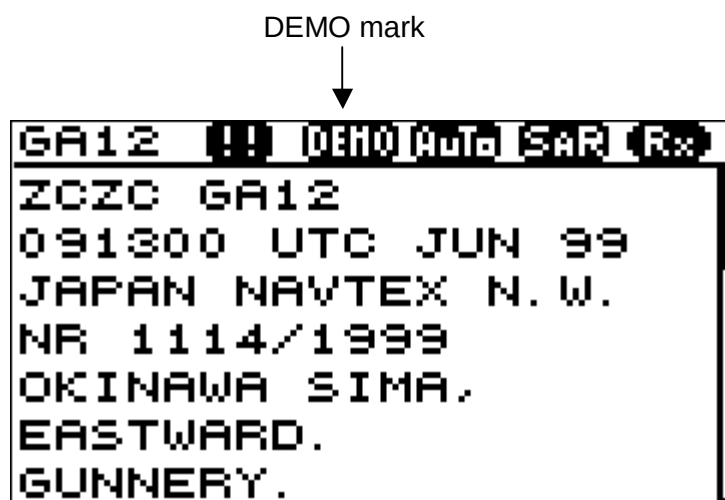


Figure 4-1 Message display

To escape the DEMO mode, press the [PWR] key while pressing ►. "RESET DEMO MODE!" appears momentarily.

### 4.2 VIEW Mode

The NX-300 ordinarily displays messages in their entirety. The VIEW mode, however displays messages character by character.

Press the [PWR] key while pressing ▼ to turn the power on. "SET VIEW MODE!" appears momentarily. "VIEW" is displayed at the upper left corner of the display.

To quit the VIEW mode, repeat above procedure. "RESET VIEW MODE!" appears.

### 4.3 All Clear

This function deletes all messages and restores default settings. When the NX-300 is first installed, you should clear all data.

Press the [PWR] key while pressing ▲ to turn the power on. "RESET BACKUP DATA!" appears momentarily while data is being cleared. Then, all default settings are restored.

## 4.4 Changing Received Message Log Window

You can show received frequency on the received message log as shown below.

1. Press the [PWR] key while pressing ◀ to turn the power on and release the keys after display appears.
2. Press the [DISP] key to show the received message log. The received frequencies (518 kHz and 490 kHz) are displayed on the window.

|        |    |          |          |
|--------|----|----------|----------|
| SAR RX |    |          |          |
| HE05   |    | GE33     |          |
| GA12   | !! | NEW ID16 | SAR NEW  |
| CE72   |    | 518      | CE71 518 |
| CE70   |    | 518      | CE69 518 |
| CE68   |    | 518      | CE67 490 |
| CE66   |    | 490      | CE65 490 |
| CE64   |    | 490      | CE63 490 |

Figure 4-2 Received message log

3. To restore it, do step 1.

## 5. MAINTENANCE & TROUBLESHOOTING



### WARNING

**Do not open the equipment.**

Only qualified personnel should work inside the equipment. Further, watertightness may be reduced.

### 5.1 Maintenance

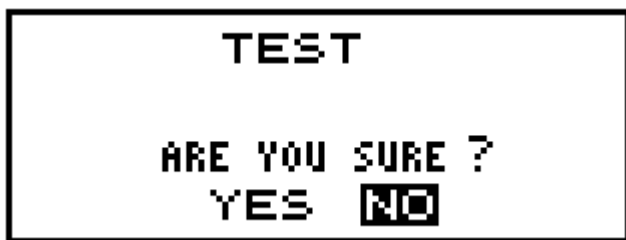
Check the following points regularly to maintain performance:

- Check that connectors on the rear panel are firmly tightened and free of rust.
- Check that the ground system is free of rust and the ground wire is tightly fastened.
- Check that battery terminals are clean and free of rust.
- Check the antenna for damage. Replace if damaged.
- Dust and dirt on the keyboard and display screen may be removed with a soft cloth. Do not use chemical cleaners to clean the equipment; they may remove paint and markings.

### 5.2 Diagnostic Test

The diagnostic test checks ROM, RAM, data port, battery, keyboard and LCD for proper operation and displays program numbers.

1. Press the [MENU] key to open the main menu.
2. Press the ▲ or ▼ to select SYSTEM MENU.
3. Press the [ENT] key to show the SYSTEM MENU.
4. Press ▲ or ▼ to select TEST.
5. Press the [ENT] key. You are asked if you are ready to start the test.



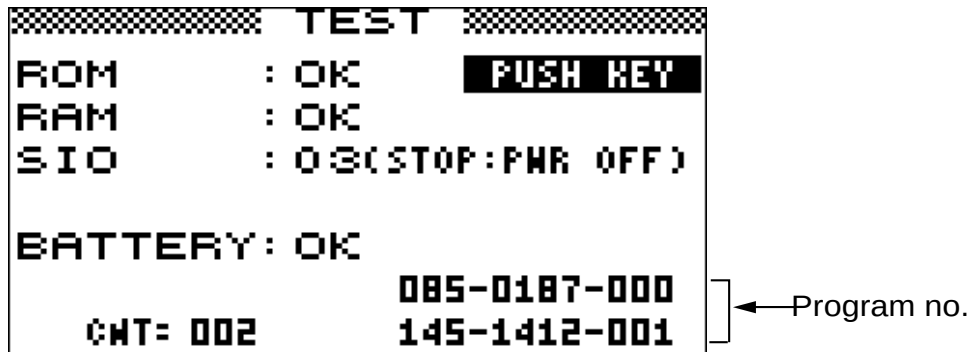
*Figure 5-1 TEST window*

6. Press the ◀ to select YES.

7. Press the [ENT] key to start the test. The equipment checks ROM, RAM, SIO and internal battery, and the results are individually displayed as OK or NG (No Good). Program numbers appear at the bottom of the display.

**Note 1:** SIO requires a special connector to check. "03" appears as the result when no connector is connected.

**Note 2:** CNT is the number of times test has been consecutively executed.

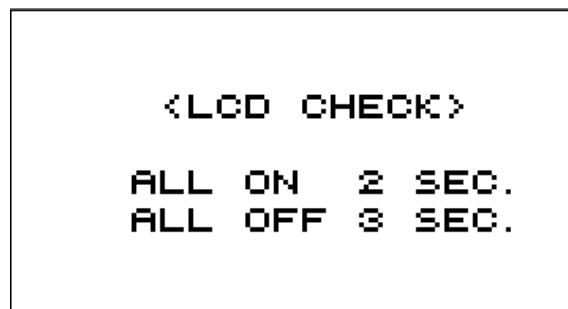


*Figure 5-2 TEST display*

After the equipment has checked the items shown in Figure 5-2, a beep sounds and the message PUSH KEY appears at the top right-hand corner.

8. Press each key one by one. The name of the key pressed momentarily appears at the top of right-hand corner if the key is functioning properly.

**Note:** If no key is pressed within approx. five seconds, the equipment automatically displays the following message to inform you that it is now going to check the LCD.



*Figure 5-3 LCD CHECK display*

9. The test repeats. Turn off the power to stop the test.

## 5.3 When the Battery Icon Appears

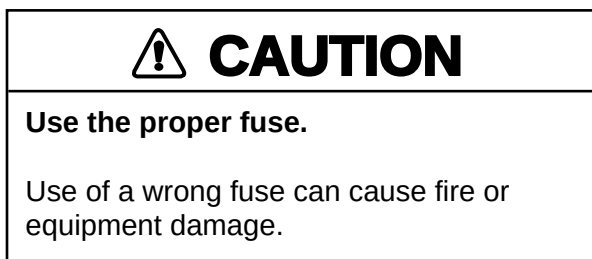
A lithium battery (type: CR2354-1F2, code no.: 000-142-305) is installed on the circuit board inside the display unit, and it preserves data when the power is turned off. The life of the battery is about 5-10 years. Its voltage is checked when the power is turned on. When its voltage is low the battery icon appears on the display to alert you. When this happens, contact your dealer to request replacement of the battery.

**Note:** When the battery is dead, all default settings are restored.



## 5.4 Replacement of Fuse

The 1 A fuse in the snap-in fuse holder on the power cable protects the equipment from equipment fault and reverse polarity of the ship's mains. If the fuse blows find out the cause before replacing it. If the fuse blows again after replacement, contact a FURUNO agent or dealer for advice. Use only a 1 A fuse – use of a different fuse will damage the equipment and void the warranty.



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## 6. INSTALLATION

### 6.1 Installation of Display Unit

#### Mounting considerations

The display unit can be installed on a tabletop, on the overhead, or in a panel (optional flush mounting kit required). Refer to the outline drawings at the end of this manual for installation instructions. When selecting a mounting location, keep in mind the following points:

- Locate the unit away from exhaust pipes and vents.
- The unit is waterproof thus it can be installed outdoors. However, locate it of direct sunlight, (or in a suitable, ventilated enclosure) to prevent heat which can build up inside the cabinet.
- The mounting location should be well ventilated.
- Mount the unit where shock and vibration are minimal.
- Allow sufficient maintenance space at the sides and rear of the unit and leave sufficient slack in cables, to facilitate maintenance and servicing.
- Observe the following compass safe distances to prevent deviation of a magnetic compass; Standard compass, 0.5 m, Steering compass, 0.3 m.
- After you install this equipment, perform All Clear as in paragraph 4.3 on page 4-1.

#### Tabletop overhead mounting

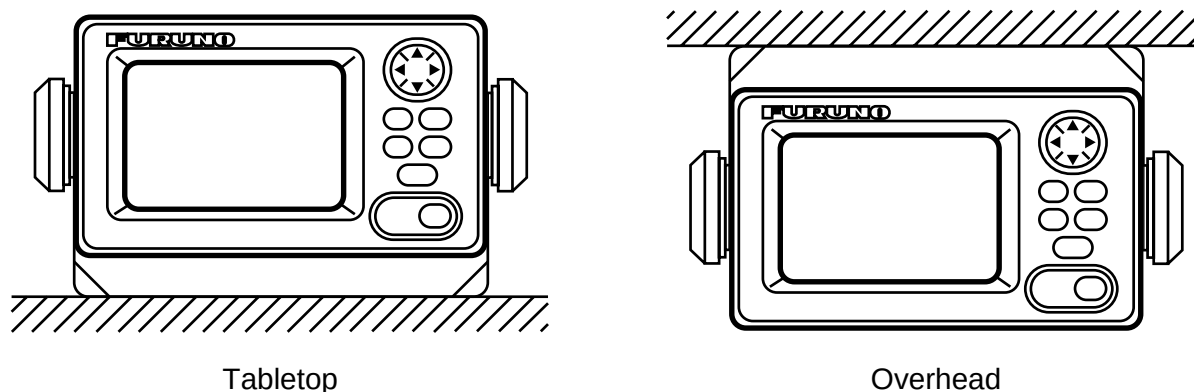


Figure 6-1 Tabletop and overhead mounting methods

#### Flush mounting

There are two types of flush mounting kits. For details, see the outline drawings at the end of this manual.

## 6.2 Installation of Antenna Unit

### Mounting considerations

Install the antenna unit referring to the antenna installation diagram at the end of this manual. When selecting a mounting location for the antenna unit, keep in mind the following points:

- Do not shorten the antenna cable (10 m cable fitted to the antenna).
- The length of the whip antenna for the NX-3E should be no longer than 1.2 m and no larger than 5 mm in diameter to prevent antenna damage. Do not use a 2.5 m whip antenna. Use spring washer (supplied) for whip antenna.
- The NX-300 contains a very sensitive receiver. To avoid mutual interference with other radio equipment, do not install this unit near an SSB/VHF/CB radiotelephone.
- If the antenna cable is to be passed through a hole which is not large enough to pass the connector, you may unfasten the connector with a needle nose pliers and 3/8-inch open-end wrench. Refasten it as shown in Figure 6-2, after running the cable through the hole.
- If you install the antenna unit except the NX-3E and the NX-3H, contact your dealer.

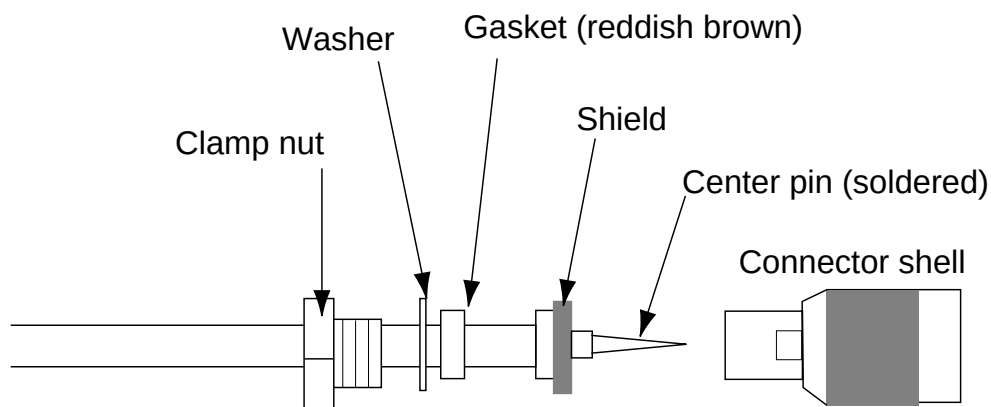


Figure 6-2 How to assemble the connector

## 6.3 Wiring

The figure below shows where to connect cables on the rear of the display unit.

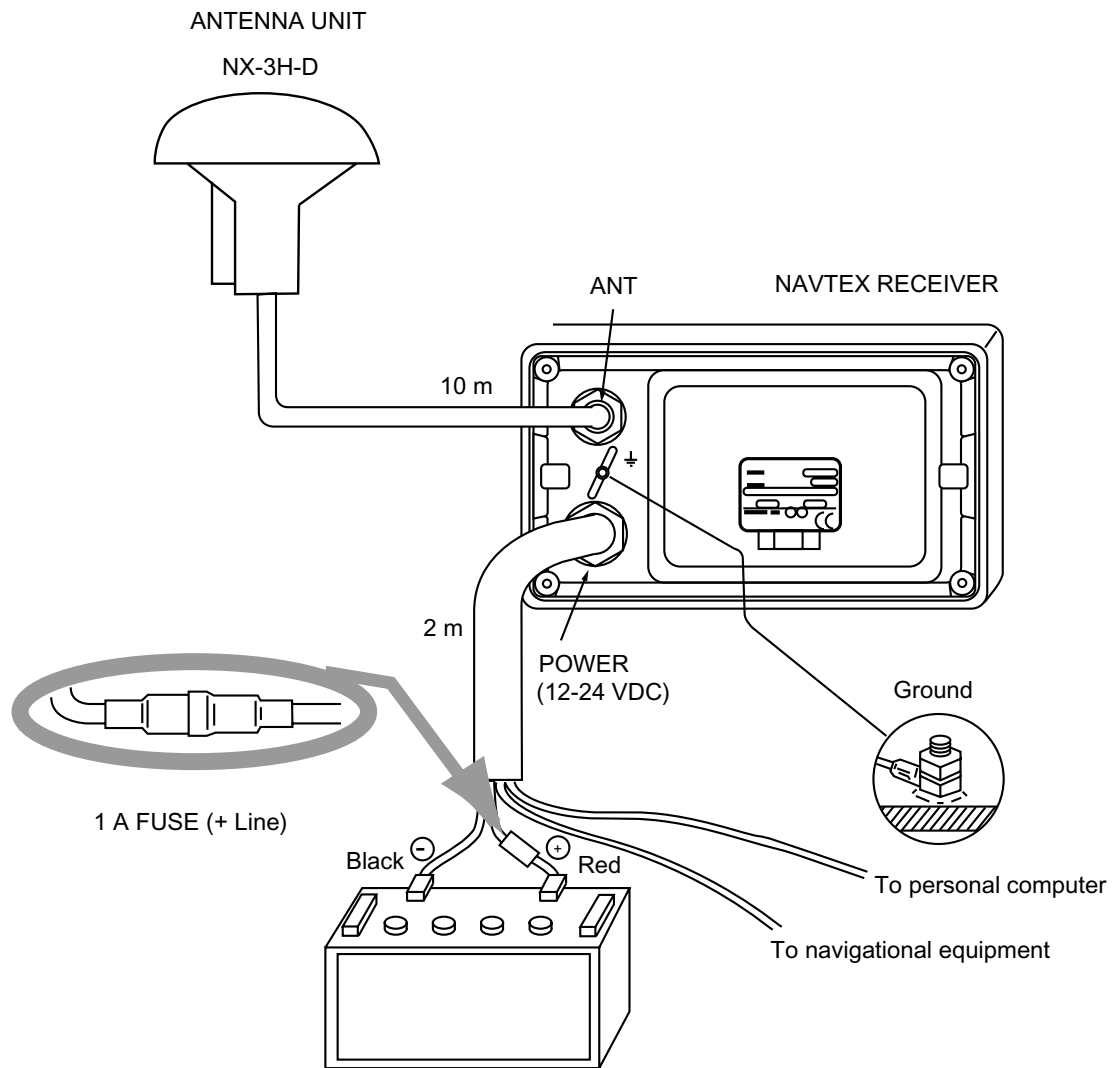


Figure 6-3 Wiring

**Note:** The fuse holder contains a spring that fixes the fuse. To prevent detachment of the spring, which would cause loss of power, tie the line as shown in Figure 6-4.

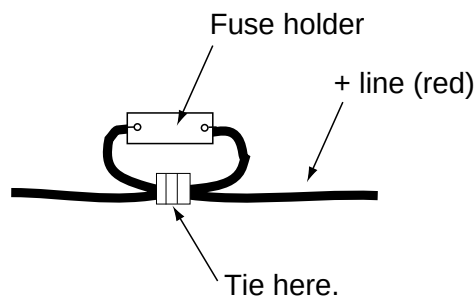


Figure 6-4 How to fix spring in fuse holder

## Grounding

- The ground wire (local supply) should be 1.25 sq or larger for Navtex Receiver. The ground wire should be as short as possible.
- The signal ground and frame ground are separated, however the power line is not isolated. Therefore, if connecting other equipment which has signal ground connected to frame ground, the earth lamp will light. Especially, for positive ground battery separate the frame ground of the external equipment from the earth. If not, the equipment may be damaged.

## External equipment

The power supply port is commonly used for connection of external equipment such as navigation equipment or a PC. Refer to the interconnection diagram on page S-1 for connection.

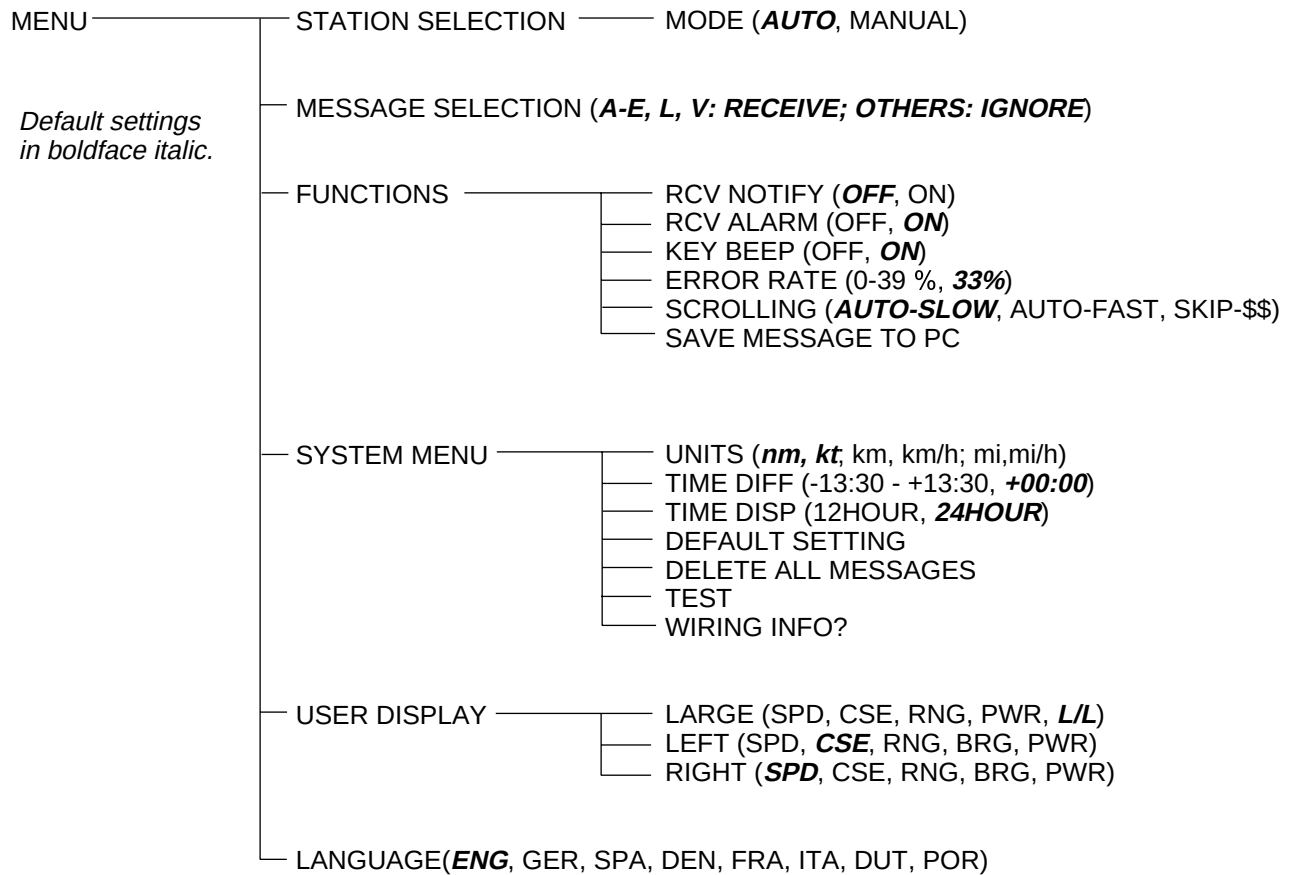
## 6.4 Interfacing

This equipment can receive navigation data in RS-232C format. For example, it can receive position data from GPS navigator GP-31/GP-36 for display on its screen. If you want to connect equipment which outputs data in a format other than RS-232C, a level converter is required for interface. Consult FURUNO dealer for details.

### Input data sentence description

- GGA: GPS position fixing condition (time of fix, latitude, longitude, receiving condition, number of satellites used, DOP)
- GLL: Latitude and longitude
- RMB: Generic navigational information (cross track error, steering direction, starting waypoint no., destination waypoint no., latitude and longitude of starting waypoint, latitude and longitude of destination waypoint, range and bearing to waypoint, range and bearing from present position to destination waypoint, velocity to destination, arrival alarm)
- ZDA: Time and date

# MENU TREE



# **SPECIFICATIONS OF THE NAVTEX RECEIVER NX-300**

## **1. RECEIVER UNIT**

- 1.1. Receiving Frequency 518 kHz or 490 kHz
- 1.2. Mode of Reception F1B
- 1.3. Sensitivity 2  $\mu$ V e.m.f. (50 ohms), 4% error rate
- 1.4. Message Category
  - A: Navigation warning
  - B: Meteorological warning
  - C: Ice report
  - D: Search and rescue information/ piracy and armed robbery
  - E: Meteorological forecast
  - F: Pilot message
  - G: Decca message
  - H: Loran-C message
  - I: Omega message
  - J: Differential omega message
  - K: Other electronic navigational aid and system message
  - L: Navigational warning (additional)
  - M to Y: Reserved – presently not used
  - V: Notice to Fishermen (US only)
  - Z: QRU (no message on hand)

## **2. DISPLAY UNIT**

- 2.1. Display System 4.5-inch (95 x 60 mm) Monochrome LCD, 120 x 64 pixels
- 2.2. Display Modes Message Selection Mode, NAV Data Mode, Message Display Mode
- 2.3. Message Storage 28,000 Characters

## **3. ANTENNA UNIT**

- 3.1. Selectable Antenna
  - NX-3H-D: H-field antenna for NX-300-H-D
  - Others: Local supply antenna for NX-300-N-D
- 3.2. Input Impedance 50 ohms
- 3.3. Power supply +5.0 VDC

## **4. INTERFACE**

- 4.1. Input Data
  - NMEA0183 Ver.1.5/2.0, RS-232C, 4800 bps
  - GGA, GLL, RMB, ZDA



4.2. Output Data                      Message data for personal computer, RS-232C, 4800 bps  
Data length: 8, Stop bit: 1, Parity: None  
T/R Code: CR+LF, XON/XOFF Control, Local echo: ON

## 5. POWER SUPPLY

12-24 VDC: 130-70 mA

## 6. ENVIRONMENTAL CONDITION

6.1. Ambient Temperature    Antenna unit: -25°C to +70°C  
                                         Display Unit: -15°C to +55°C  
6.2. Relative Humidity        95% at 40°C  
6.3. Water proofing            Antenna unit: IEC-IPX6  
                                         Display unit: IEC-IPX5  
6.4. Vibration                    ±1 mm ±10%, 5 to 13.2 Hz,  
                                         Maximum acceleration 7 m/s<sup>2</sup>, 13.2 to 100 Hz (IEC 60945)

## 7. COATING COLOR

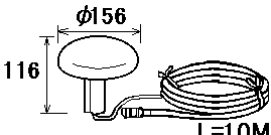
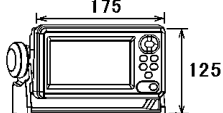
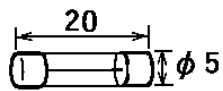
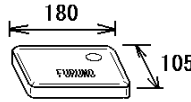
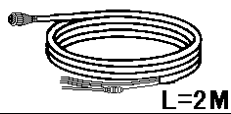
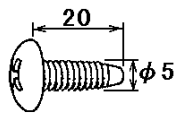
7.1. Display Unit                Chassis: 2.5GY5/1.5, Panel N3.0  
7.2. Antenna Unit                N9.5

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# PACKING LIST

08AU-X-9852 -2 1/1

NX-300-H-D

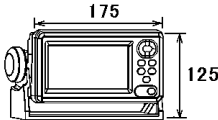
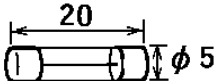
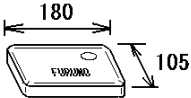
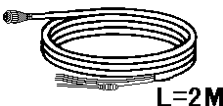
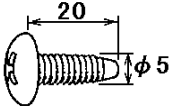
| NAME                               | OUTLINE                                                                             | DESCRIPTION/CODE No.            | Q'TY |
|------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|------|
| <b>ユニット UNIT</b>                   |                                                                                     |                                 |      |
| 空中線部<br>ANTENNA UNIT               |    | NX-3H-D<br>000-059-204          | 1    |
| ナビテックス受信機<br>NAVTEX RECEIVER       |    | NX-300-D<br>000-059-205         | 1    |
| <b>予備品 SPARE PARTS</b>             |                                                                                     |                                 |      |
| ヒューズ<br>FUSE                       |    | FGMB 1A 125V<br>000-114-805     | 2    |
| <b>付属品 ACCESSORIES FP14-02801</b>  |                                                                                     |                                 |      |
| 保護カバー<br>COVER                     |   | 20-016-1091-2<br>100-297-032    | 1    |
| <b>工事材料 INSTALLATION MATERIALS</b> |                                                                                     |                                 |      |
| ケーブル組品MJ<br>CABLE ASSY.            |  | MJ-A7SPF0005-020<br>000-139-384 | 1    |
| +トラスタッピングネジ<br>+TAPPING SCREW      |  | 5X20 SUS304 1シュ<br>000-802-081  | 4    |

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

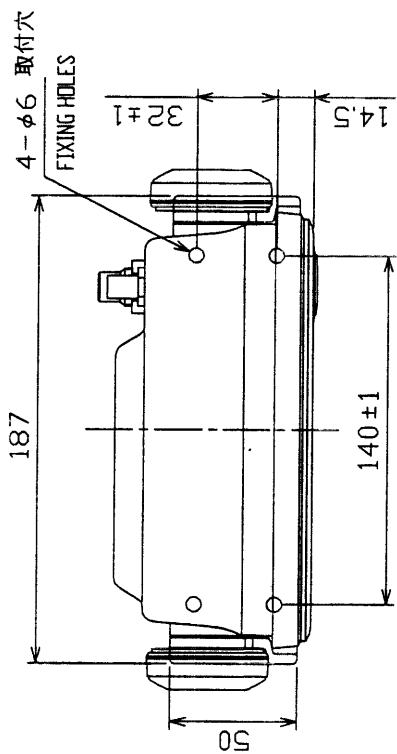
# PACKING LIST

08AU-X-9853 -3 1/1

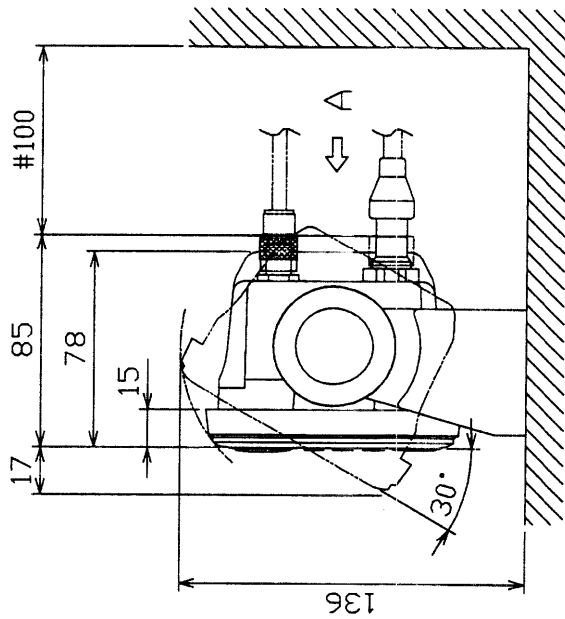
NX-300-N-D

| N A M E                                                                     | O U T L I N E                                                                       | DESCRIPTION/CODE No.            | Q' TY |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|-------|
| <b>ユニット UNIT</b>                                                            |                                                                                     |                                 |       |
| ナヴィックス受信機<br>NAVTEX RECEIVER                                                |    | NX-300-D<br>000-059-205         | 1     |
| <b>予備品 SPARE PARTS</b>                                                      |                                                                                     |                                 |       |
| ヒューズ<br>FUSE                                                                |    | FGMB 1A 125V<br>000-114-805     | 2     |
| <b>付属品 ACCESSORIES</b> <span style="float: right;"><b>FP14-02801</b></span> |                                                                                     |                                 |       |
| 保護カバー<br>COVER                                                              |    | 20-016-1091-2<br>100-297-032    | 1     |
| <b>工事材料 INSTALLATION MATERIALS</b>                                          |                                                                                     |                                 |       |
| ケーブル組品MJ<br>CABLE ASSY.                                                     |   | MJ-A7SPF0005-020<br>000-139-384 | 1     |
| +トラスタッピングネジ<br>+TAPPING SCREW                                               |  | 5X20 SUS304 1シュ<br>000-802-081  | 4     |

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



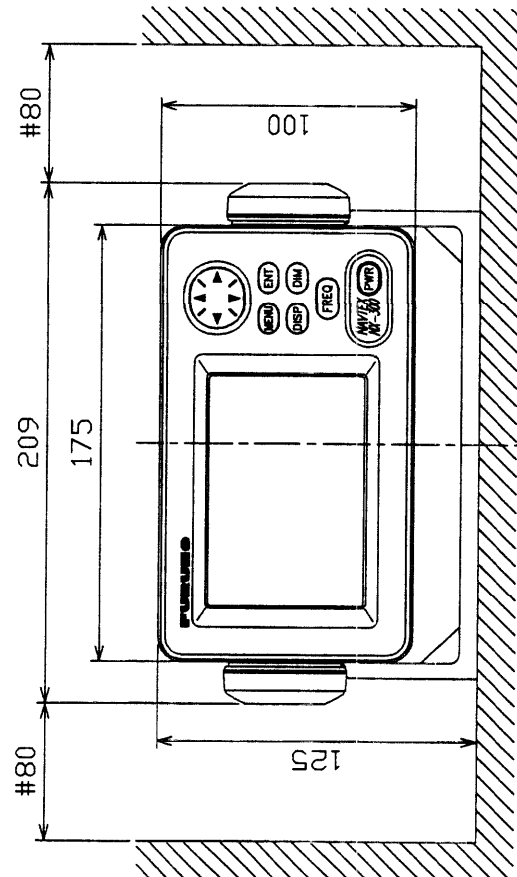
矢視A VIEW A



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

型式銘板  
NAMEPLATE  
表 1  
TABLE 1

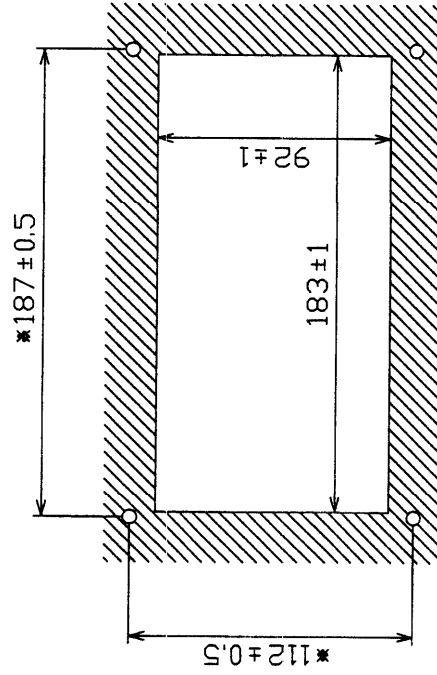
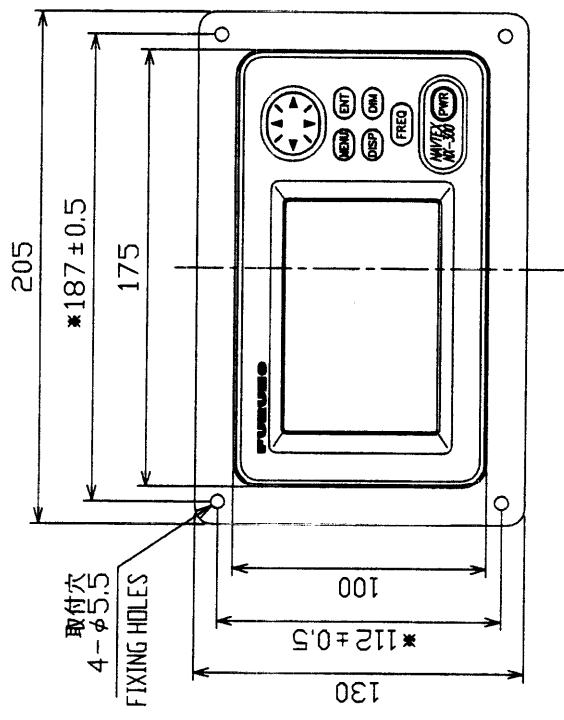
アース端子  
GND TERMINAL  
電源コネクタ  
SOURCE



注 記 1) 装備ケーブルはサービス時、本体を前方に十分引き出せるよう余裕を持たせること。  
2) 取付用ネジはトラスタッピングネジ呼び径5×20を使用のこと。  
3) 指定外寸公差は表1による。  
4) #印寸法は最小サービス空間寸法とする。

NOTE 1. KEEP SUFFICIENT CABLE LENGTH BEHIND THE UNIT.  
2. USE TAPPING SCREWS 5 x 20 FOR FIXING THE UNIT.  
3. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.  
4. # INDICATES SERVICE CLEARANCE.

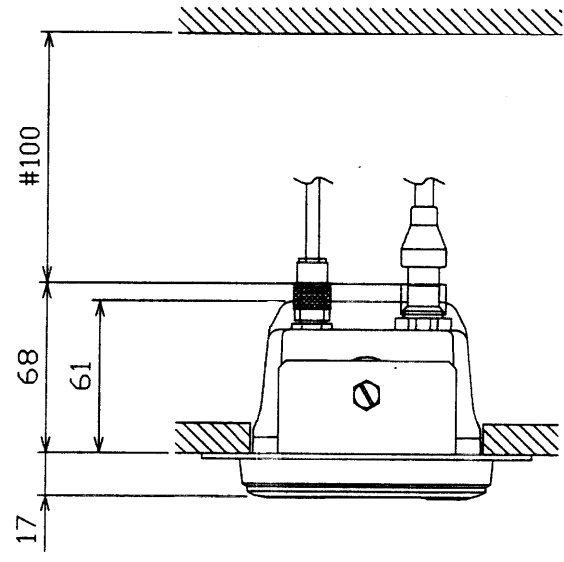
|          |                       |                 |                               |
|----------|-----------------------|-----------------|-------------------------------|
| DRAWN    | May 9 '01 T. YAMASAKI | TITLE           | NX-300-D                      |
| CHECKED  | May 10 '01 Y. Kuroki  | 名 義             | 受信機 (卓上装備)                    |
| APPROVED | May 10 '01 S. Yoshida | 外寸図             |                               |
| SCALE    | 1/3                   | NAME            | RECEIVER UNIT (DESKTOP MOUNT) |
| INCHES   | C5629-G01-B           | OUTLINE DRAWING |                               |



取付穴寸法図 (参考図)  
CUTOUT DIMENSIONS

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|------------------------|----------------------|
| $L \leq 50$            | $\pm 1.5$            |
| $50 < L \leq 100$      | $\pm 2.5$            |
| $100 < L \leq 500$     | $\pm 3$              |

表 1  
TABLE 1

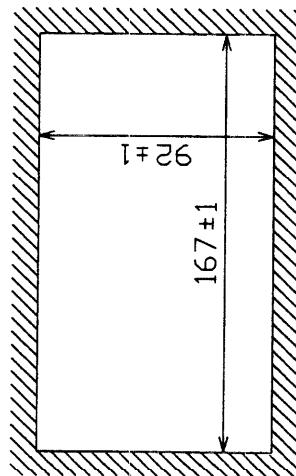
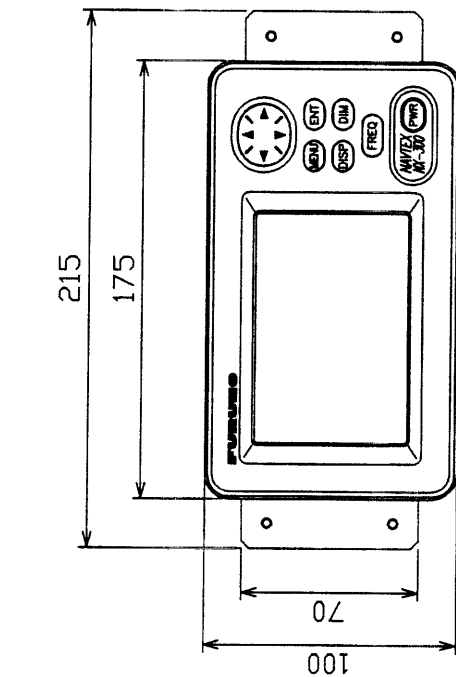


- 注 記
- 1) \*印寸法は取付穴位置寸法とする。
  - 2) 取付用ネジはタッピングネジ呼び径5×20を使用のこと。
  - 3) 指定外の寸法公差は表1による。
  - 4) #印寸法は最小サービスイ間寸法とする。

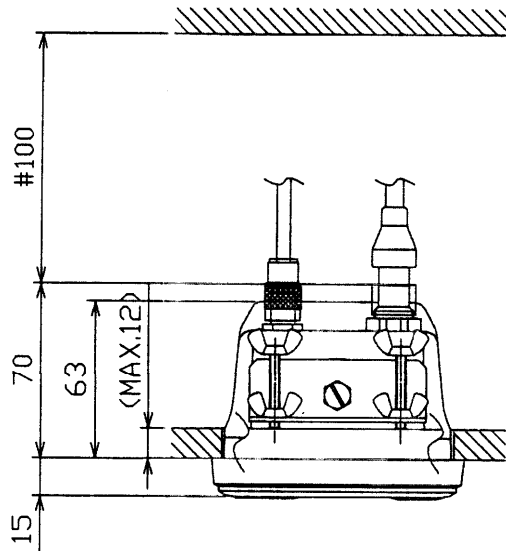
NOTE

1. "\*" INDICATES DIMENSION OF FIXING HOLES PITCH.
2. USE TAPPING SCREWS 5 x 20 FOR FIXING THE UNIT.
3. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
4. #: RECOMMENDED SERVICE CLEARANCE.

|          |                       |       |                               |
|----------|-----------------------|-------|-------------------------------|
| DRAWN    | May 9 '01 T. YAMASAKI | TITLE | NX-300-D                      |
| CHECKED  | May 10 '01 Y. Kishino | 名     | 受信機 (埋込装備 F)                  |
| APPROVED | May 10 '01 S. Yoshida | 外寸図   |                               |
| SCALE    | 1/3 MASS 0.67 kg      | NAME  | RECEIVER UNIT (FLUSH MOUNT F) |
| FIG. No. | C5629-G03-B           |       | OUTLINE DRAWING               |
|          | 08-021-111G-0         |       |                               |



取付穴寸法図 (参考図)  
CUTOUT DIMENSIONS



| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|------------------------|----------------------|
| $L \leq 50$            | $\pm 1.5$            |
| $50 < L \leq 100$      | $\pm 2.5$            |
| $100 < L \leq 500$     | $\pm 3$              |

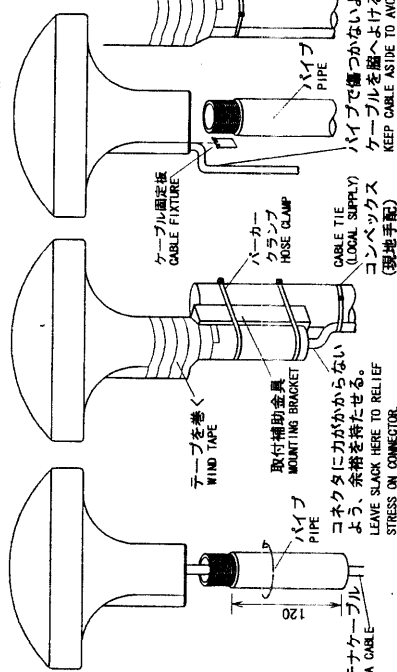
表 1  
TABLE 1

- 注 記 1) 指定外の寸法公差は表 1 による。  
2) # 印寸法は最小サージス空間寸法とする。
- NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.  
2. # RECOMMENDED SERVICE CLEARANCE.

|                                  |                                       |
|----------------------------------|---------------------------------------|
| DRAWN<br>May 9 '01 T. YAMASAKI   | TITLE<br>NX-300-D                     |
| CHECKED<br>May 10 '01 Y. Kishi   | 名 称<br>受信機 (埋込装置 S)                   |
| APPROVED<br>May 10 '01 S. Ishida | 外寸図                                   |
| SCALE<br>1/3 MASS 0.69 kg        | NAME<br>RECEIVER UNIT (FLUSH MOUNT S) |
| DWG. No.<br>C5629-G04-B          | 08-021-121G-0                         |
|                                  | OUTLINE DRAWING                       |

A) マストへの取付け

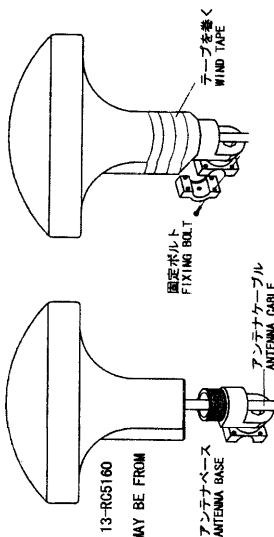
マスト取付金具CP20-01111(工事材料)でマストに固定する。  
USE MAST MOUNTING KIT CP20-01111.



エ  
アンテナケーブル  
ANTENNA CABLE

B)スタンションやパルピットにつけるととき

レール用アンテナベース No. 13-RC5160 (取付可能レール直径:  $\phi 19 \sim \phi 32$ )  
(コード番号: 000-806-114)



USE HANDRAIL MOUNTING BASE No. 13-RC5160  
(CODE No. 000-806-114, OPTION).  
THE DIAMETER OF THE HANDRAIL MAY BE FROM  
 $\phi 19\text{mm}$  TO  $\phi 32\text{mm}$ .

注記 1) パイプ(アンテナベース)はアンテナユニットにねじ込んだ後に固定する。

2) アンテナを固定するときはパイプ（アンテナベース）をアンテナにねじ込むこと。アンテナ側をねじるとコネクタ部やケーブルに無理がかかり、故障の原因となる。

- NOTE 1. FASTEN PIPE(ANTENNA BASE) TO ANTENNA UNIT FIRST THEN FIX THEM TO MAST OR HANDRAIL.
2. WHEN FIXING ANTENNA, TURN PIPE OR ANTENNA BASE: NOT THE ANTENNA.

c) 取付け場所が傾斜しているとき ANTENNA BASE MOUNTING

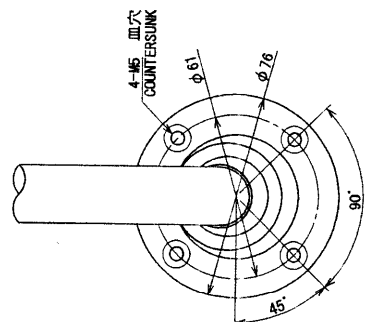
オプションのアンテナベースを使う。

USE OPTIONAL ANTENNA BASE NO. 13-QA330/QA310.

|                                       |                                                                                       |                                                                                       |                                                                                       |
|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 傾斜<br>INCLINATION                     | −5° − 33°                                                                             | 32° − 65°                                                                             | 65° − 98°                                                                             |
| 装置方法<br>MOUNTING<br>METHOD            |  |  |  |
| アンテナ<br>ベース型式<br>ANTENNA BASE<br>TYPE | 直射アンテナベース<br>No. 13-Q4330                                                             | U型アンテナベース<br>No. 13-Q4310                                                             | U型アンテナベース<br>No. 13-Q4310                                                             |
| コード番号<br>CODE No.                     | 000-803-239                                                                           | 000-803-240                                                                           | 000-803-240                                                                           |

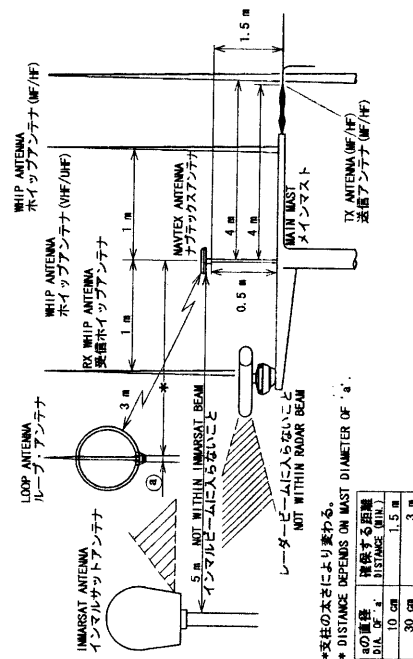
アンテナベース基盤部

### MOUNTING DIMENSIONS OF ANTENNA BASE



## 取付場所

他の機器のアンテナから下の図の距離以上離す。



\*支柱の太さにより変わる。

\* DISTANCE DEPENDS ON MAST DIAMETER OF "a".

| aの直径<br>DIA. OF "a" | 確保する距離<br>DISTANCE (MIN.) |
|---------------------|---------------------------|
| 10 mm               | 1.5 m                     |
| 30 mm               | 3 m                       |

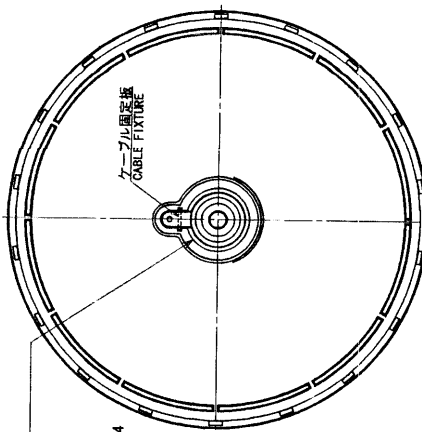
| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|------------------------|----------------------|
| $0 < L \leq 50$        | $\pm 1.5$            |
| $50 < L \leq 100$      | $\pm 2.5$            |
| $100 < L \leq 500$     | $\pm 3$              |

表 1 TABLE 1

1-14UNS1B

|                  |           |
|------------------|-----------|
| ねじ山数 (25.4mmにつき) | 14        |
| ピッチ              | 1.8143 mm |
| オネジの有効長さ         | 15.17 mm  |
| オネジの有効径          | 24.17 mm  |

THREAD PER 25.4mm (1 INCH): 14  
PITCH: 1.8143 mm  
THREAD LENGTH: 15.17 mm  
PITCH DIAMETER: 24.17 mm



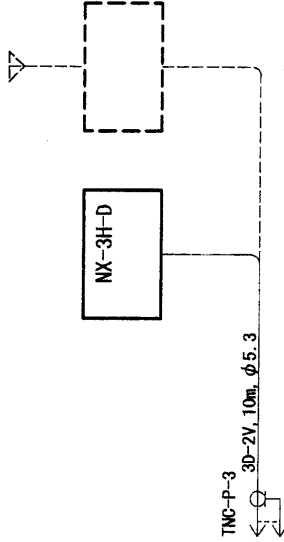
1) 指定なき寸法公差は表 1 による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

|                         |                                             |                                                       |                      |
|-------------------------|---------------------------------------------|-------------------------------------------------------|----------------------|
| DRAWN<br>MAY 9 '01      | T. YAMASAKI                                 |                                                       | TITLE<br>NX-3H-D     |
| CHECKED<br>MAY 12 1901  | Y. K.                                       |                                                       | 名称<br>空中線部           |
| APPROVED<br>MAY 12 1901 | S. Yoshida                                  |                                                       | 外寸図                  |
| SCALE<br>1/2            | ±10%<br>MASS W/ 10m CABLE<br>質量は10mケーブルを含む。 | NX-300<br>±10%<br>MASS W/ 10m CABLE<br>質量は10mケーブルを含む。 | NAME<br>ANTENNA UNIT |
| ORDER No.               | C5629-005-D                                 | 08-021-3000-G1                                        | OUTLINE DRAWING      |



空中線部  
ANTENNA UNIT



ナビテックス受信機  
NAVTEX RECEIVER  
NX-300-D

ANT

TNC-P-3  
30-2V, 10m, φ5.3

12-24VDC  
IN/OUT

RS-232C  
(NMEA0183 Ver1.5/2.0)  
SD  
RD  
NAVTEX DATA  
10.8-31.2VDC

J1  
RD2  
SG  
SD  
RD  
(+)  
(-)  
FG

MJ-A7SPFD  
シロ  
アオ  
キ  
ミドリ  
アカ  
クロ  
WHT  
BLU  
YEL  
GRN  
RED  
BLK

\*3  
航法装置など  
NAVIGATION DEVICE, ETC.  
GP-31/36  
パーソナルコンピュータ  
PERSONAL COMPUTER  
電源  
POWER SUPPLY  
12-24 VDC

GROUND  
\*1  
1V-1.25SQ

注記  
\*1) 現地手配。  
\*2) コネクタは工場にて取付済み。  
\*3) RC-232C以外のフォーマットの場合はレベル変換器が必要。

NOTE  
\*1. LOCAL SUPPLY.  
\*2. CONNECTOR FITTED AT FACTORY.  
\*3. LEVEL CONVERTER REQUIRED FOR FORMAT OTHER THAN RS-232C.

|                                    |                         |
|------------------------------------|-------------------------|
| DRAWN<br>May. 9 '01 T. YAMASAKI    | TITLE<br>NX-300         |
| CHECKED<br>May 10 '01 Y. Kikuchi   | 名称<br>ナビテックス受信機         |
| APPROVED<br>May 10 '01 S. Ishimura | 相互結線図                   |
| SCALE<br>1/1000                    | NAME<br>NAVTEX RECEIVER |
| DWG. No.<br>C5629-C01-C            | INTERCONNECTION DIAGRAM |

FURUNO ELECTRIC CO., LTD.

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Pub NO. DOC-390

**Declaration of Conformity**We **FURUNO ELECTRIC CO., LTD.**

(Manufacturer)

9-52 Ashihara-Cho, Nishinomiya City, 662-8580, Hyogo, Japan

(Address)

declare under our sole responsibility that the product

**NAVTEX receiver Model NX-300**  
(Serial No. 3519-0001 & 3519-0005)

(Model name, serial number)

is in conformity with the essential requirements as described in the Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment (R&TTE Directive) and satisfies all the technical regulations applicable to the product within this Directive

**EN 60945: 1997-01 (IEC 60945 Third edition: 1996-11)**

(title and/or number and date of issue of the standard(s) or other normative document(s))

For assessment, see

- Statement of Opinion N° 01214017/AA/01 of 4 June 2001 issued by KTL Certification, The Netherlands
- EMS Test Report FLI 12-01-026 of 26 April 2001 prepared by Furuno Labotech International Co., Ltd.

On behalf of Furuno Electric Co., Ltd.

**Hiroaki Komatsu**  
Manager,  
International Rules and Regulations**Nishinomiya City, Japan**  
**June 11, 2001**

(Place and date of issue)

(name and signature or equivalent marking of  
authorized person)