

FURUNO

OPERATOR'S MANUAL

NAVTEX RECEIVER

MODEL NX-700A/B



FURUNO ELECTRIC CO., LTD.

www.furuno.co.jp

ECF

(Elemental Chlorine Free)

The paper used in this manual
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IMPORTANT NOTICE

- No part of this manual may be copied or reproduced without written permission.
- If this manual is lost or worn, contact your dealer about replacement.
- The contents of this manual and equipment specifications are subject to change without notice.
- The example screens (or illustrations) shown in this manual may not match the screens you see on your display. The screen you see depends on your system configuration and equipment settings.
- This manual is intended for use by native speakers of English.
- FURUNO will assume no responsibility for the damage caused by improper use or modification of the equipment or claims of loss of profit by a third party.
- Please carefully read and follow the operation and maintenance procedures set forth in this manual.
- Store this manual in a convenient place for further reference.



SAFETY INSTRUCTIONS

Safety information for the Operator



WARNING



ELECTRICAL SHOCK HAZARD
Do not open the equipment.

Only qualified personnel should work inside the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Immediately turn off the power at the switchboard if the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock. Contact a FURUNO agent for service.

Keep heater away from equipment.

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

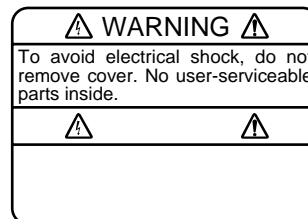
Use the proper fuse.

Fuse rating is shown on the equipment. Use of a wrong fuse can result in damage to the equipment.



CAUTION

A warning label is attached to the equipment. Do not remove the label. If the label is missing or damaged, contact a FURUNO agent or dealer about replacement.






Name: Warning Label (1)


Type: 86-003-1011-1

Code No.: 100-236-231

Safety information for the Installer

|  WARNING | |
|---|---|
|  | Do not open the equipment unless totally familiar with electrical circuits and service manual. |
| ELECTRICAL SHOCK HAZARD | Only qualified personnel should work inside the equipment. |
| Turn off the power at the mains switchboard before beginning the installation. | |
| Fire, electrical shock or serious injury can result if the power is left on or is applied while the equipment is being installed. | |

|  CAUTION | | | |
|---|---------|----------|----------|
| Observe the following compass safe distances to prevent deviation of a magnetic compass. | | | |
| | | Standard | Steering |
| Display unit | NX-700A | 1.45 m | 0.95 m |
| | NX-700B | 0.30 m | 0.30 m |
| Receiver unit NX-7001 | | 1.15 m | 0.75 m |

| | |
|---|---|
|  | Attach securely protective earth to the ship's body. |
| | The protective earth is required to the power supply to prevent electrical shock. |

FORWARD

Congratulations on your choice of the FURUNO NX-700A/B 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-700A/B is just one of the many Furuno developments in the field of marine radio communication.

NX-700A: Display unit w/printer

NX-700B: Display unit w/o printer

This NX-700A/B 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 world wide 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-700 NAVTEX receiver receives NAVTEX messages and automatically displays them together with station ID and message category information.

If ship's position data is fed from navigation equipment, the NX-700 automatically decides in which NAVAREA the vessel is navigating, and selects stations. (NAVAREAs are geographical zones defined by the international Maritime Organization.)

-Meets the following standards and regulations

MSC.148 (77) IMO A.694 (17)
IEC61097-6 Ed. 2 (2005-12)

IEC 60945 Ed. 3 and 4
IEC 61162-1 and 2
EN 300 065 V 1.1.3
EN 301 011 V 1.1.1 (1998-09)
ITU-R M.540-2
ITU-R M.625-3

-Receives 518 kHz and another (490 or 4209.5 kHz) at the same time

-5" LCD display

-Prints out the message selected

-Bright 76 x 100 mm, monochrome LCD, 240 x 320 dots with adjustable contrast and brilliance

-Low power consumption

-Displays the NAV data (date, own ship's position, speed and course) or distance (distance between own ship's position and information mentioned in the message) at the bottom of screen

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EQUIPMENT LISTS

Standard Supply

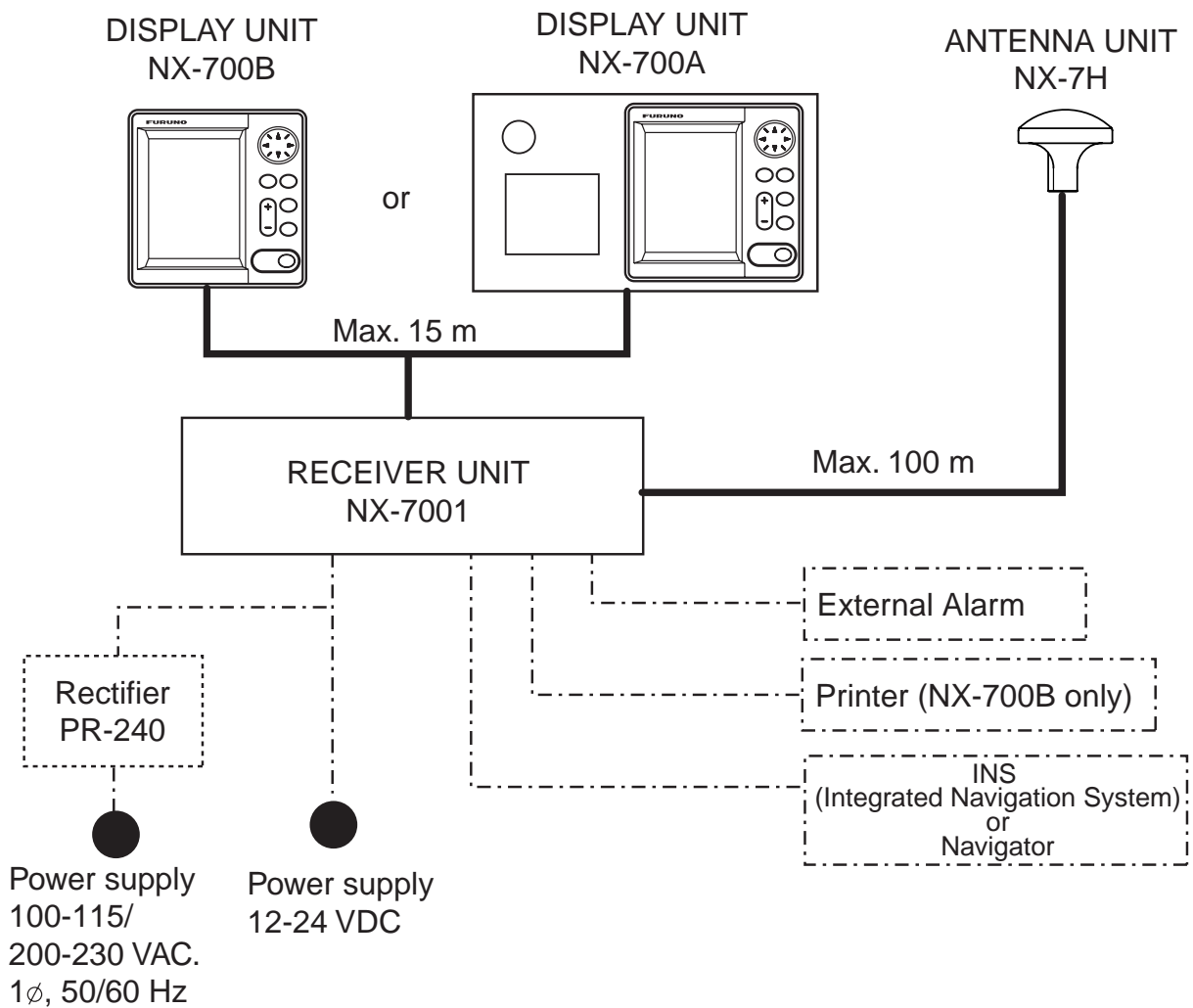
| Name | Type | Code No. | Qty | Remarks |
|------------------------|-------------|-------------|-----|---|
| Display Unit | NX-700A | - | 1 | w/printer |
| | NX-700B | - | | w/o printer |
| Receiver Unit | NX-7001 | - | 1 | |
| Antenna Unit | NX-7H | - | 1 | |
| Installation Materials | CP08-01810 | 000-040-180 | 1 | 10 m cable, CP08-01811 |
| | CP08-01820 | 000-040-210 | | 20 m cable, CP08-01811* |
| | CP08-01870 | 000-040-350 | | 30 m cable, CP08-01811* |
| | CP08-01880 | 000-040-362 | | 40 m cable, CP08-01811* |
| | CP08-01890 | 000-040-363 | | 50 m cable, CP08-01811* |
| | CP08-01860 | 000-040-349 | 1 | DSUB25P cable, between Display and Receiver Units |
| | CP08-01863* | 004-514-530 | 1 | For Antenna Unit w/o antenna cable |
| | CP08-01864* | 004-514-540 | | For Antenna Unit w/ antenna cable. |
| | CP08-01861* | 004-514-350 | 1 | For Display Unit |
| Spare Parts | SP08-02101* | 004-514-370 | 1 | Fuse for Receiver Unit* |
| Accessories | FP08-00800* | 000-040-396 | 1 | For NX-700A |

*: See the back of this manual.

Optional Supply

| Name | Type | Code No. | Qty | Remarks |
|---------------------------|-----------------|-------------|-------|------------------------|
| Thermal Paper | TP058-30CL | 000-154-047 | 1 set | For NX-700A |
| Flush Mount Kit | OP08-19 | 004-515-260 | 1 | For NX-700A |
| | OP08-20 | 004-515-270 | 1 | For NX-700B |
| AC-DC Power | PR-240 | 000-053-373 | 1 | |
| Extension Cable Kit | OP04-2 | 000-041-174 | 1 | 10 m, w/connector |
| | | 000-041-175 | 1 | 20 m, w/connector |
| | | 000-041-176 | 1 | 30 m, w/connector |
| | | 000-041-177 | 1 | 40 m, w/connector |
| | | 000-041-178 | 1 | 50 m, w/connector |
| | OP08-12 | 005-948-250 | 1 | 10 m |
| | | 005-948-260 | 1 | 20 m |
| | | 005-948-270 | 1 | 30 m |
| | | 005-948-280 | 1 | 40 m |
| | | 005-948-290 | 1 | 50 m |
| Coaxial Cable | RG-10/U-Y | 000-563-048 | 1 | 30 m |
| | | 000-126-000 | 1 | 40 m |
| | | 000-126-001 | 1 | 50 m |
| Cable Assy | DSUB25P-DSUB25P | 000-152-698 | 1 | 3 m |
| | | 000-152-699 | 1 | 5 m |
| | | 000-152-700 | 1 | 10 m |
| | | 000-152-701 | 1 | 15 m |
| Right Angle Mounting Base | No.13-QA330 | 000-803-239 | 1 | For antenna unit NX-7H |
| L-Angle Mounting Base | No.13-QA310 | 000-803-240 | 1 | |
| Handrail Mounting Base | No.13-RC5160 | 000-806-114 | 1 | |
| Mast Mounting Kit | CP20-01111 | 004-365-780 | 1 | |
| Display Unit | NX-700A | - | 1 | |
| | NX-700B | - | | |

SYSTEM CONFIGURATIONS



- : Standard
- : Option
- - - - - : User supply

Environmental Category

| | |
|-------------------------------|-------------------------------------|
| Antenna unit | To be installed in an exposed area |
| Display unit Receiver unit | To be installed in a protected area |

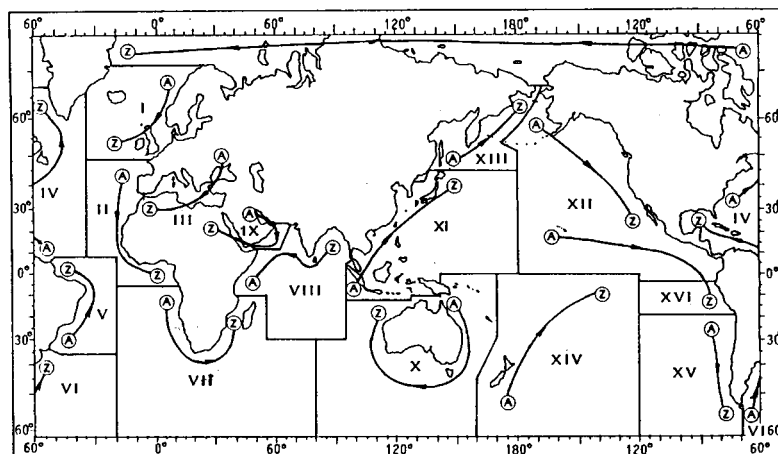
1. PRINCIPLE OF NAVTEX SYSTEM

1.1 How NAVTEX Works

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 as shown in the figure below. Each Navtex station has an identification code, from "A" to "Z". The frequency assigned to Navtex are 518 kHz and another (490 or 4209.5 kHz), and many stations exist in the same service coverage.



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 to 400 nautical miles nominal).

1.3 Message Format

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

The first five characters are always "ZCZC_" and common to all messages. This part is used for message synchronization. The latter four characters are designed as B1, B2, B3 and B4 indicate origin, category and serial number of the message.

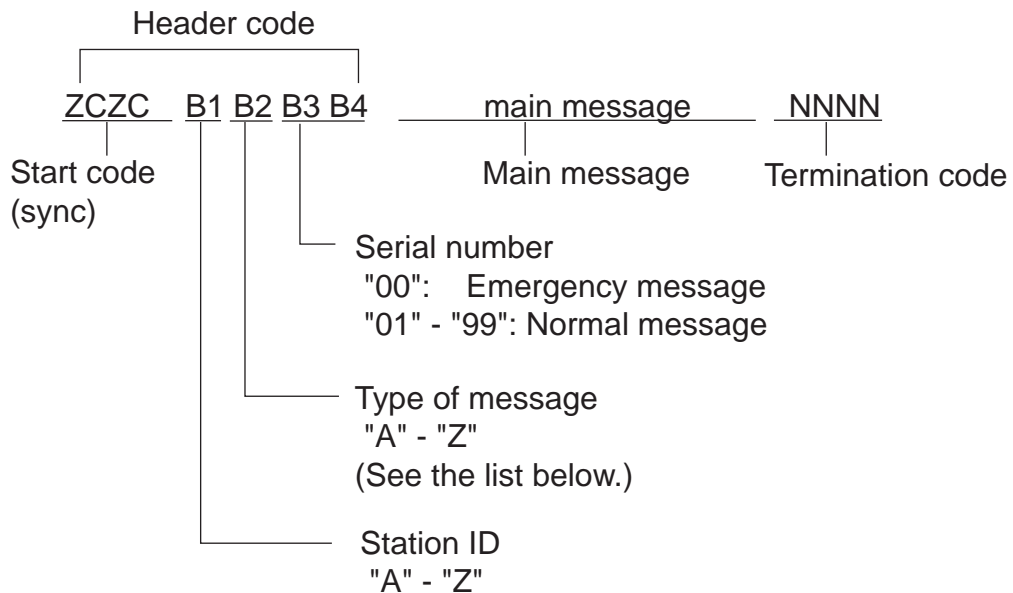
Character B1 is the identification letter of the Navtex station "A" thru "Z".

Character B2 indicates the type of message. "A" thru "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 starts from "01" again. Number "00" is specially reserved for important emergency messages.

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

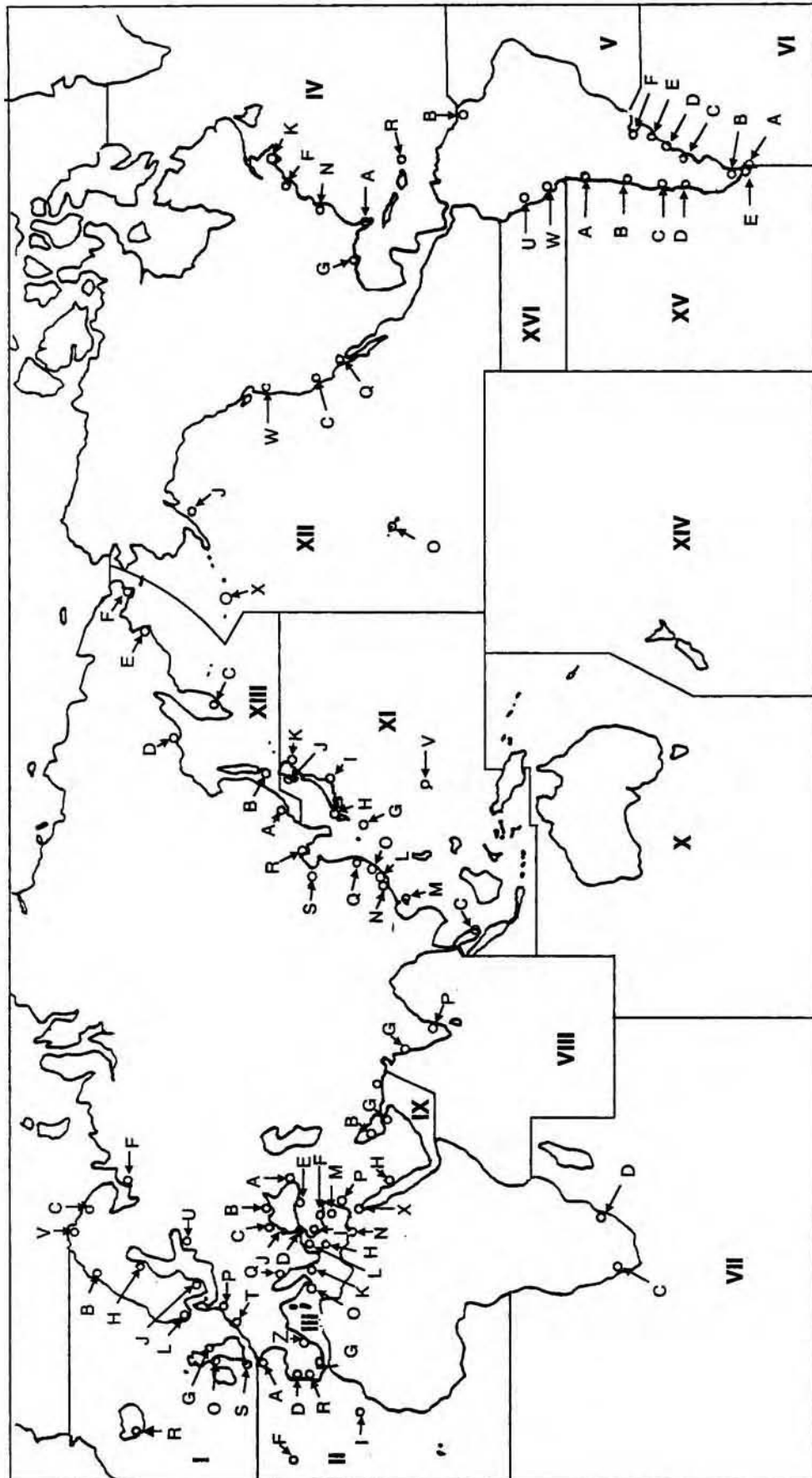
General message format is summarized below.



[Type of message (category)]

| | | | |
|----|--|---------|--|
| A: | navigational warning | I: | reserved presently not used |
| B: | meteorological warning | J: | SATNAV message |
| C: | ice report | K: | other electronic navigational aid system message |
| D: | search and rescue information/piracy and armed robbery | L: | navigational warning (additional) |
| E: | meteorological forecast | M to Y: | reserved presently not used |
| F: | pilot message | | |
| G: | AIS | | |
| H: | LORAN-C message | Z: | QRU (no message on hand) |

1.4 NAVTEX Station Map



1. PRINCIPLE OF NAVTEX SYSTEM

1.5 NAVTEX Station List

| NAV area | Country | Station | Latitude | Longitude | Freq. (kHz) | Area (nm) | Station ID | Broadcast schedule (UTC) |
|----------|----------------|-----------------|----------|-----------|-------------|------------------------------------|------------------------------------|------------------------------------|
| I | Belgium | Oostende | 51 11 N | 02 48 E | 518 | 55 | T | 0310, 0710, 1110, 1510, 1910, 2310 |
| | Estonia | Tallinn | 59 30 N | 24 30 E | 518 | 250 | U | 0320, 0720, 1120, 1520, 1920, 2320 |
| | Iceland | Reykjavik Radio | 64 05 N | 21 51 W | 518 | 550 | R | 0250, 0650, 1050, 1450, 1850, 2250 |
| | | | | | 490 | 550 | R | 0318, 0718, 1118, 1518, 1918, 2318 |
| | Ireland | Valentia | 51 27 N | 09 49 W | 518 | 400 | W | 0340, 0740, 1140, 1540, 1940, 2340 |
| | | Malin Head | 55 22 N | 07 21 W | 518 | 400 | Q | 0240, 0640, 1040, 1440, 1840, 2240 |
| | France | Niton | 50 35 N | 01 18 W | 518 | 270 | K | 0140, 0540, 0940, 1340, 1740, 2140 |
| | Netherlands | Den Helder | 52 06 N | 04 15 E | 518 | 110 | P | 0230, 0630, 1030, 1430, 1830, 2230 |
| | Norway | Bodo Radio | 67 16 N | 14 23 E | 518 | 450 | B | 0010, 0410, 0810, 1210, 1610, 2010 |
| | | Rogaland Radio | 58 48 N | 05 34 E | 518 | 450 | L | 0150, 0550, 0950, 1350, 1750, 2150 |
| | | Vardoe Radio | 70 22 N | 31 06 E | 518 | 450 | V | 0330, 0730, 1130, 1530, 1930, 2330 |
| | | Svalbard | 78 04 N | 13 38 E | 518 | 450 | A | 0000, 0400, 0800, 1200, 1600, 2000 |
| | | Orlandet | 63 40 N | 09 33 E | 518 | 450 | N | 0210, 0610, 1010, 1410, 1810, 2210 |
| | Sweden | Bjuroklubb | 64 28 N | 21 36 E | 518 | 300 | H | 0110, 0510, 0910, 1310, 1710, 2110 |
| | | Gislovshammar | 55 29 N | 14 19 E | 518 | 300 | J | 0130, 0530, 0930, 1330, 1730, 2130 |
| | | Grimeton | 57 06 N | 12 23 E | 518 | 300 | D | 0030, 0430, 0830, 1230, 1630, 2030 |
| | United Kingdom | Cullercoats | 55 02 N | 01 26 W | 518 | 270 | G | 0100, 0500, 0900, 1300, 1700, 2100 |
| | | | | | 490 | 270 | U | 0320, 0720, 1120, 1520, 1920, 2320 |
| | | Portpatrick | 54 51 N | 05 07 W | 518 | 270 | O | 0220, 0620, 1020, 1420, 1820, 2220 |
| | | | | | 490 | 270 | C | 0020, 0420, 0820, 1220, 1620, 2020 |
| | | Niton | 50 35 N | 01 18 W | 518 | 270 | E | 0040, 0440, 0840, 1240, 1640, 2040 |
| 490 | | | | | 270 | I | 0120, 0520, 0920, 1320, 1720, 2120 | |
| Oostende | 51 11 N | 02 48 E | 518 | 150 | M | 0200, 0600, 1000, 1400, 1800, 2200 | | |
| II | France | Cross Corsen | 48 28 N | 05 03 W | 518 | 300 | A | 0000, 0400, 0800, 1200, 1600, 2000 |
| | | | | | 490 | 300 | E | 0040, 0440, 0840, 1240, 1640, 2040 |
| | | Niton | 50 35 N | 01 18 W | 490 | 270 | T | 0310, 0710, 1110, 1510, 1910, 2310 |
| | Portugal | Horta | 38 32 N | 28 38 W | 518 | 640 | F | 0050, 0450, 0850, 1250, 1650, 2050 |
| | | Monsanto | 38 44 N | 09 11 W | 518 | 530 | R | 0250, 0650, 1050, 1450, 1850, 2250 |
| | | | | | 490 | 530 | G | 0100, 0500, 0900, 1300, 1700, 2100 |
| | Spain | Coruna | 43 21 N | 08 27 W | 518 | 400 | D | 0030, 0430, 0830, 1230, 1630, 2030 |
| | | Tarifa | 36 01 N | 05 34 W | 518 | 400 | G | 0100, 0500, 0900, 1300, 1700, 2100 |
| | | Las Palmas | 28 10 N | 15 25 W | 518 | 400 | I | 0120, 0520, 0920, 1320, 1720, 2120 |

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1. PRINCIPLE OF NAVTEX SYSTEM

| NAV area | Country | Station | Latitude | Longitude | Freq. (kHz) | Area (nm) | Station ID | Broadcast schedule (UTC) | |
|----------|--------------------|-------------------|------------|-----------|-------------|-----------|------------------------------------|--|------------------------------------|
| III | Bulgaria | Varna | 43 04 N | 27 46 E | 518 | 350 | J | 0130, 0530, 0930, 1330, 1730, 2130 | |
| | Croatia | Split radio | 43 30 N | 16 29 E | 518 | 85 | Q | 0240, 0640, 1040, 1440, 1840, 2240 | |
| | Cyprus | Cypradio | 35 03 N | 33 17 E | 518 | 200 | M | 0200, 0600, 1000, 1400, 1800, 2200 | |
| | Egypt | Alexandria | 31 12 N | 29 52 E | 518 | 350 | N | 0210, 0610, 1010, 1410, 1810, 2210 | |
| | | Serapeum | 30 28 N | 32 22 E | 4209.5 | 400 | X | 0750, 1150 | |
| | France | Toulon | 43 06 N | 05 59 E | 518 | 250 | W | 0340, 0740, 1340, 1540, 1940, 2340 | |
| | | | | | 490 | 250 | S | 0300, 0700, 1100, 1500, 1900, 2300 | |
| | Greece | Iraklion | 35 20 N | 25 07 E | 518 | 280 | H | 0110, 0510, 0910, 1310, 1710, 2110 | |
| | | Kerkyra | 39 37 N | 19 55 E | 518 | 280 | K | 0140, 0540, 0940, 1340, 1740, 2140 | |
| | | Limnos | 39 52 N | 25 04 E | 518 | 280 | L | 0150, 0550, 0950, 1350, 1750, 2150 | |
| | Israel | Haifa | 32 49 N | 35 00 E | 518 | 200 | P | 0020, 0420, 0820, 1220, 1620, 2020 | |
| | Italy | Roma | 41 48 N | 12 31 E | 518 | 320 | R | 0250, 0650, 1050, 1450, 1850, 2250 | |
| | | Augusta | 37 14 N | 15 14 E | 518 | 320 | V | 0330, 0730, 1130, 1530, 1930, 2330 | |
| | | Cagliari | 39 14 N | 09 14 E | 518 | 320 | T | 0310, 0710, 1110, 1510, 1910, 2310 | |
| | | Trieste | 45 41 N | 13 46 E | 518 | 320 | U | 0320, 0720, 1120, 1520, 1920, 2320 | |
| | Malta | Malta | 35 49 N | 14 32 E | 518 | 400 | O | 0220, 0620, 1020, 1420, 1820, 2220 | |
| | Russian Federation | Novorossiysk | 44 42 N | 37 44 E | 518 | 300 | A | 0300, 0700, 1100, 1500, 1900, 2300 | |
| | Spain | Cabo de la Nao | 38 43 N | 00 09 E | 518 | 300 | X | 0350, 0750, 1150, 1550, 1950, 2350 | |
| | Turkey | Istanbul | 41 04 N | 28 57 E | 518 | 300 | D | 0030, 0430, 0830, 1230, 1630, 2030 | |
| | | Samsun | 41 17 N | 36 20 E | 518 | 300 | E | 0040, 0440, 0840, 1240, 1640, 2040 | |
| Antalya | | 36 53 N | 30 42 E | 518 | 300 | F | 0050, 0450, 0850, 1250, 1650, 2050 | | |
| Izmir | | 38 22 N | 26 36 E | 518 | 300 | I | 0120, 0520, 0920, 1320, 1720, 2120 | | |
| Ukraine | Mariupol | 47 06 N | 37 33 E | 518 | 280 | B | 0100, 0500, 0900, 1300, 1700, 2100 | | |
| | Odessa | 46 29 N | 30 44 E | 518 | 280 | C | 0230, 0630, 1030, 1430, 1830, 2230 | | |
| IV | Bermuda (UK) | Bermuda | 32 23 N | 64 41 W | 518 | 280 | B | 0010, 0410, 0810, 1210, 1610, 2010 | |
| | Canada | Riviere-au-Renard | 50 11 N | 66 07 W | 518 | 300 | C D | 0020, 0420, 0820, 1220, 1620, 2020 0035, 0435, 0835, 1235, 1635, 2035 | |
| | | Wiaraton | 44 20 N | 81 10 W | 518 | 300 | H | 0110, 0510, 0910, 1310, 1710, 2110 | |
| | | St. Johns | 47 30 N | 52 40 W | 518 | 300 | O | 0220, 0620, 1020, 1420, 1820, 2220 | |
| | | Thunder Bay | 48 25 N | 89 20 W | 518 | 300 | P | 0230, 0630, 1030, 1430, 1830, 2230 | |
| | | Sydney, NS | Sydney, NS | 46 10 N | 60 00 W | 518 | 300 | Q | 0240, 0640, 1040, 1440, 1840, 2240 |
| | | | | | | | | J | 0255, 0655, 1055, 1455, 1855, 2255 |
| Yarmouth | Yarmouth | 43 45 N | 66 10 W | 518 | 300 | U | 0320, 0720, 1120, 1520, 1920, 2320 | | |
| | | | | | | V | 0335, 0735, 1135, 1535, 1935, 2335 | | |

(Continued on next page)

1. PRINCIPLE OF NAVTEX SYSTEM

| NAV area | Country | Station | Latitude | Longitude | Freq. (kHz) | Area (nm) | Station ID | Broadcast schedule (UTC) |
|--------------|----------------------|--------------------|----------|-----------|-------------|-----------|------------------------------------|------------------------------------|
| IV | Canada | Labrador | 53 42 N | 57 01 W | 518 | 300 | X | 0350, 0750, 1150, 1550, 1950, 2350 |
| | | Iqaluit, NU | 63 43 N | 68 33 W | 518 | 300 | T | 0310, 0710, 1110, 1510, 1910, 2310 |
| | | | | | 490 | 300 | S | 0300, 0700, 1100, 1500, 1900, 2300 |
| | United States | Miami | 25 37 N | 80 23 W | 518 | 240 | A | 0000, 0400, 0800, 1200, 1600, 2000 |
| | | Boston | 41 43 N | 70 30 W | 518 | 200 | F | 0445, 0845, 1245, 1645, 2045, 0045 |
| | | New Orleans | 29 53 N | 89 57 W | 518 | 200 | G | 0300, 0700, 1100, 1500, 1900, 2300 |
| | | Portsmouth | 36 43 N | 76 00 W | 518 | 280 | N | 0130, 0530, 0930, 1330, 1730, 2130 |
| | | Isabella | 18 28 N | 67 04 W | 518 | 200 | R | 0200, 0600, 1000, 1400, 1800, 2200 |
| | | Savannah, GA | 32 08 N | 81 42 W | 518 | 200 | E | 0040, 0440, 0840, 1240, 1640, 2040 |
| | Netherlands Antilles | Curacao | 12 10 N | 68 52 W | 518 | 400 | H | 0110, 0510, 0910, 1310, 1710, 2110 |
| V | NIL | | | | | | | |
| VI | Argentina | Ushaia | 54 48 S | 68 18 W | 518 | 280 | M | 0200, 0600, 1000, 1400, 1800, 2200 |
| | | Rio Gallegos | 51 37 S | 65 03 W | 518 | 280 | N | 0210, 0610, 1010, 1410, 1810, 2210 |
| | | Comodoro Rivadavia | 45 51 S | 67 25 W | 518 | 280 | O | 0220, 0620, 1020, 1420, 1820, 2220 |
| | | Bahia Blanca | 38 43 S | 62 06 W | 518 | 280 | P | 0230, 0630, 1030, 1430, 1830, 2230 |
| | | Mar del Plata | 38 03 S | 57 32 W | 518 | 280 | Q | 0240, 0640, 1040, 1440, 1840, 2240 |
| | | Buenos Aires | 34 36 S | 58 22 W | 518 | 560 | R | 0250, 0650, 1050, 1450, 1850, 2250 |
| | Uruguay | La Paloma | 34 40 S | 54 09 W | 518 | 280 | F | 0050, 0450, 0850, 1250, 1650, 2050 |
| | | | | 490 | 280 | A | 0000, 0400, 0800, 1200, 1600, 2000 | |
| VII | Namibia | Walvis Bay | 23 03 S | 14 37 E | 518 | 378 | B | 0010, 0410, 0810, 1210, 1610, 2010 |
| | South Africa | Cape Town | 33 40 S | 18 43 E | 518 | 500 | C | 0020, 0420, 0820, 1220, 1620, 2020 |
| | | Port Elizabeth | 34 02 S | 25 33 E | 518 | 500 | I | 0120, 0520, 0920, 1320, 1720, 2120 |
| | | Durban | 30 00 S | 31 30 E | 518 | 500 | O | 0220, 0620, 1020, 1420, 1820, 2220 |
| VIII | India | Mumbai | 19 05 N | 72 50 E | 518 | 250 | G | 0100, 0500, 0900, 1300, 1700, 2100 |
| | | Madras | 13 08 N | 80 10 E | 518 | 400 | P | 0230, 0630, 1030, 1430, 1830, 2230 |
| | Mauritius | Mauritius Radio | 20 10 S | 57 28 E | 518 | 400 | C | 0020, 0420, 0820, 1220, 1620, 2020 |
| IX | Bahrain | Hamala | 26 09 N | 50 28 E | 518 | 300 | B | 0010, 0410, 0810, 1210, 1610, 2010 |
| | Egypt | Serapeum | 30 28 N | 32 22 E | 518 | 200 | X | 0350, 0750, 1150, 1550, 1950, 2350 |
| | | | | | 4209.5 | 200 | X | 0750, 1150 |
| | | Kosseir | 26 06 N | 34 17 E | 518 | 400 | V | 0330, 0730, 1130, 1530, 1930, 2330 |
| | Iran | Bushehr | 28 59 N | 50 50 E | 518 | 300 | A | 0000, 0400, 0800, 1200, 1600, 2000 |
| Bandar Abbas | | 27 07 N | 56 04 E | 518 | 300 | F | 0050, 0450, 0850, 1250, 1650, 2050 | |

(Continued on next page)

1. PRINCIPLE OF NAVTEX SYSTEM

| NAV area | Country | Station | Latitude | Longitude | Freq. (kHz) | Area (nm) | Station ID | Broadcast schedule (UTC) | |
|---------------|--------------------|---------------|----------|-----------|-------------|-----------|------------------------------------|--|------------------------------------|
| IX | Saudi Arabia | Jeddah | 21 23 N | 39 10 E | 518 | 390 | H | 0705, 1305, 1905 | |
| | Oman | Muscat | 23 36 N | 58 30 E | 518 | 270 | M | 0200, 0600, 1000, 1400, 1800, 2200 | |
| | Pakistan | Karachi | 24 51 N | 67 03 E | 518 | 400 | P | 0230, 0630, 1030, 1430, 1830, 2230 | |
| X | NIL | | | | | | | | |
| XI | China | Sanya | 18 14 N | 109 30 E | 518 | 250 | M | 0200, 0600, 1000, 1400, 2200 | |
| | | Guangzhou | 23 08 N | 113 32 E | 518 | 250 | N | 0210, 0610, 1010, 1410, 2210 | |
| | | Fuzhou | 26 01 N | 119 18 E | 518 | 250 | O | 0220, 0620, 1020, 1420, 2220 | |
| | | Shanghai | 31 08 N | 121 33 E | 518 | 250 | Q | 0240, 0640, 1040, 1440, 2240 | |
| | | Dalian | 38 52 N | 121 31 E | 518 | 250 | R | 0250, 0650, 1050, 1450, 2250 | |
| | Indonesia | Jayapura | 02 31 S | 140 43 E | 518 | 300 | A | 0000, 0400, 0800, 1200, 1600, 2000 | |
| | | Ambon | 03 42 S | 128 12 E | 518 | 300 | B | 0010, 0410, 0810, 1210, 1610, 2010 | |
| | | Makassar | 05 06 S | 119 26 E | 518 | 300 | D | 0030, 0430, 0830, 1230, 1830, 2030 | |
| | | Jakarta | 06 06 S | 106 54 E | 518 | 300 | E | 0040, 0440, 0840, 1240, 1640, 2040 | |
| | Japan | Otaru | 43 19 N | 140 27 E | 518 | 400 | J | 0130, 0530, 0930, 1330, 1730, 2130 | |
| | | Kushiro | 42 57 N | 144 36 E | 518 | 400 | K | 0140, 0540, 0940, 1340, 1740, 2140 | |
| | | Yokohama | 35 14 N | 139 55 E | 518 | 400 | I | 0120, 0520, 0920, 1320, 1720, 2120 | |
| | | Moji | 34 01 N | 130 56 E | 518 | 400 | H | 0110, 0510, 0910, 1310, 1710, 2110 | |
| | | Naha | 26 05 N | 127 40 E | 518 | 400 | G | 0100, 0500, 0900, 1300, 1700, 2100 | |
| | Korea, Republic of | Chukpyong | | 37 03 N | 129 26 E | 518 | 200 | V | 0330, 0730, 1130, 1530, 1930, 2330 |
| | | | | | | 490 | 200 | J | 0130, 0530, 0930, 1330, 1730, 2130 |
| | | Pyongsan | | 35 36 N | 126 29 E | 518 | 200 | W | 0340, 0740, 1340, 1540, 1940, 2340 |
| | | | | | | 490 | 200 | K | 0140, 0540, 0940, 1340, 1740, 2140 |
| | Malaysia | Penang | 05 26 N | 100 24 E | 518 | 350 | U | 0320, 0720, 1120, 1520, 1920, 2320 | |
| | | Miri | 04 28 N | 114 01 E | 518 | 350 | T | 0310, 0710, 1110, 1510, 1910, 2310 | |
| | | Sandakan | 05 54 N | 118 00 E | 518 | 350 | S | 0300, 0700, 1100, 1500, 1900, 2300 | |
| | Singapore | Singapore | 01 25 N | 103 52 E | 518 | 400 | C | 0020-0030, 0420-0430, 0820-0830, 1220-1230, 1620-1630, 2020-2030 | |
| | Thailand | Bangkok Radio | 13 43 N | 100 34 E | 518 | 200 | F | 0050, 0450, 0850, 1250 | |
| United States | Guam | 13 29 N | 144 50 E | 518 | 100 | V | 0100, 0500, 0900, 1300, 1700, 2100 | | |

(Continued on next page)

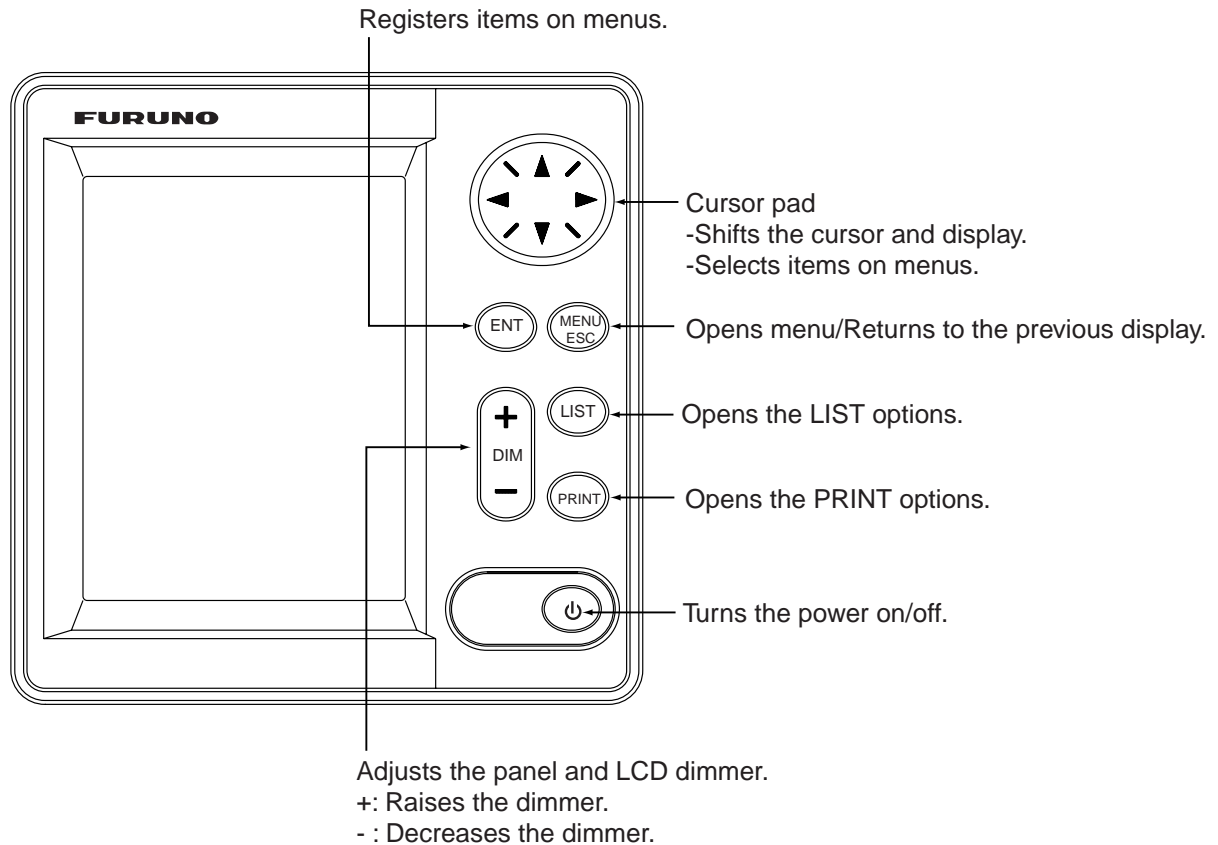
1. PRINCIPLE OF NAVTEX SYSTEM

| NAV area | Country | Station | Latitude | Longitude | Freq. (kHz) | Area (nm) | Station ID | Broadcast schedule (UTC) |
|-------------------------|--------------------|------------------|----------|-----------|-------------|------------------|------------------------------------|------------------------------------|
| XI | Vietnam | Ho Chi Minh City | 10 47 N | 106 40 E | 518 | 400 | X | 0350, 0750, 1150, 1550, 1950, 2350 |
| | | Haiphong | 20 44 N | 106 44 E | 490 | 400 | W | 0340, 1540 |
| | | | | | 4209.5 | 400 | W | 0230, 0630, 1030, 1430, 1830, 2230 |
| | Danang | 16 05 N | 108 13 E | 518 | 400 | K | 0140, 0540, 0940, 1340, 1740, 2140 | |
| | Taiwan | Kaohsiung | 22 29 N | 120 25 E | 518 | 216 | P | 0230, 0630, 1030, 1430, 1830, 2230 |
| Associate Member of IMO | Hong Kong | 22 13 N | 114 15 E | 518 | 400 | L | 0150, 0550, 0950, 1350, 1750, 2150 | |
| XII | Canada | Prince Rupert | 54 20 N | 130 20 W | 518 | 300 | D | 0030, 0430, 0830, 1230, 1630, 2030 |
| | | Tofino | 48 55 N | 125 35 W | 518 | 300 | H | 0110, 0510, 0910, 1310, 1710, 2110 |
| | United States | San Francisco | 37 55 N | 122 44 W | 518 | 350 | C | 0400, 0800, 1200, 1600, 2000, 2400 |
| | | Kodiak | 57 46 N | 152 34 W | 518 | 200 | J | 0300, 0700, 1100, 1500, 1900, 2300 |
| | | Honolulu | 21 22 N | 158 09 W | 518 | 350 | O | 0040, 0440, 0840, 1240, 1640, 2040 |
| | | Cambria | 35 31 N | 121 03 W | 518 | 350 | Q | 0445, 0845, 1245, 1645, 2045, 0045 |
| | | Astoria | 46 10 N | 123 49 W | 518 | 216 | W | 0130, 0530, 0930, 1330, 1730, 2130 |
| XIII | Russian Federation | Kholmsk | 47 02 N | 142 03 E | 518 | 300 | B | 0010, 0410, 0810, 1210, 1610, 2010 |
| | | Murmansk | 68 46 N | 32 58 E | 518 | 300 | C | 0020, 0420, 0820, 1220, 1620, 2020 |
| | | Arkhangelsk | 64 51 N | 40 17 E | 518 | 300 | F | 0050, 0450, 0850, 1250, 1650, 2050 |
| | | Astrakhan | 45 47 N | 47 33 E | 518 | 250 | W | 0340, 0740, 1140, 1540, 1940, 2340 |
| XIV | NIL | | | | | | | |
| XV | Chile | Antofagasta | 23 40 S | 70 25 W | 518 | 300 | A | 0400, 1200, 2000 |
| | | | | | | | H | 0000, 0800, 1600 |
| | | Valparaiso | 32 48 S | 71 29 W | 518 | 300 | B | 0410, 1210, 2010 |
| | | | | | | | I | 0010, 0810, 1610 |
| | | Talcahuano | 36 42 S | 73 06 W | 518 | 300 | C | 0420, 1220, 2020 |
| | | | | | | | J | 0020, 0820, 1620 |
| Puerto Montt | 41 30 S | 72 58 W | 518 | 300 | D | 0430, 1230, 2030 | | |
| | | | | | K | 0030, 0830, 1630 | | |
| Punta Arenas | 53 09 S | 70 58 W | 518 | 300 | E | 0440, 1240, 2040 | | |
| Isla de Pascua | 27 09 S | 109 25 W | 518 | 300 | F | 0450, 1250, 2050 | | |
| | | | | | | G | 0050, 0850, 1650 | |
| XVI | Peru | Paita | 05 05 S | 81 07 W | 518 | 200 | S | 0300, 0700, 1100, 1500, 1900, 2300 |
| | | Callao | 12 03 S | 77 09 W | 518 | 200 | U | 0320, 0720, 1120, 1520, 1920, 2320 |
| | | Mollendo | 17 01 S | 72 01 W | 518 | 200 | W | 0340, 0740, 1140, 1540, 1940, 2340 |

Note: The list shows the stations listed at Longwave Navtex Broadcasts (Oct. 2004).


2. OPERATION

2.1 Operating Controls

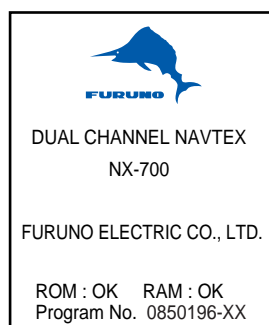


Display unit, front view

2.2 Turning the Unit On/Off

Press the  key to turn the unit on. A beep sounds and the equipment shows the start up display, where the ROM and RAM are checked for proper operation and the program no. is displayed. The results of the check are shown as OK or NG (No Good).

When the results are OK, the list display is shown after five seconds after completion of the check, with frequency last used before turning the power off.



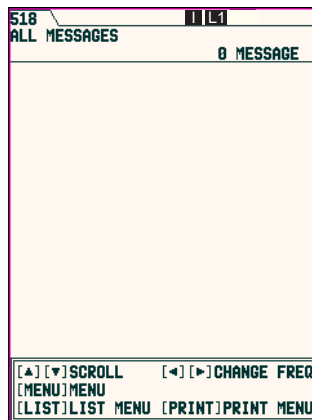
XX: Program version No.

2. OPERATION

At the default setting, the equipment functions as below;

When the results of the check are OK, ALL MESSAGE display for 518 kHz appears. This screen shows all messages received in 518 kHz.


You can switch 518 kHz (International message) and 490 kHz (local message) to display. The NX-700A is preset to print all received message out.



All message display (518 kHz)

Note 1: To display all received messages in 490 kHz, press ◀ or ▶.

Note 2: To cancel the printing all received messages out, see page 2-11.

To turn the power off, press the  key again.

Note: If NG appears for any test, try to press any key to go to the next stage. The equipment, however, may not be operated properly. Contact your dealer if the problem persists.

2.3 Adjusting LCD Dimmer

You can adjust LCD and panel dimmer with the + DIM – key. The adjustment range is 0 (dark) to 9 (bright).

+: Raises the dimmer.

-: Decreases the dimmer.

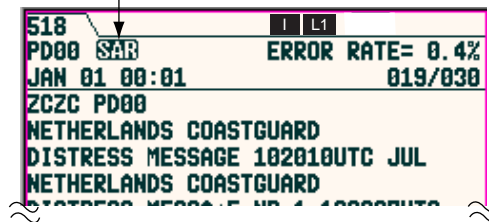
2.4 Confirming the New Message


When you receive a new message, do one of the following depending on message received.

SAR (Search and Rescue) message

1. When an SAR message is received, the audible alert sounds and details for the SAR message appear.

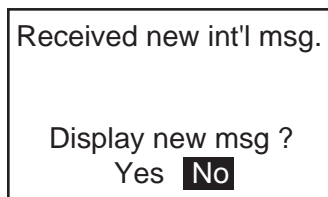
Icon for SAR message



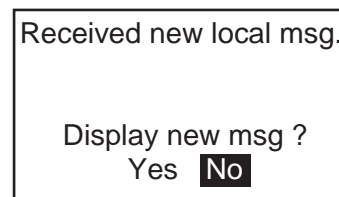
2. Press any key other than  key to silence the alarm.

Other messages


1. When a message other than an SAR message is received, the display shows one of the following windows.



International message



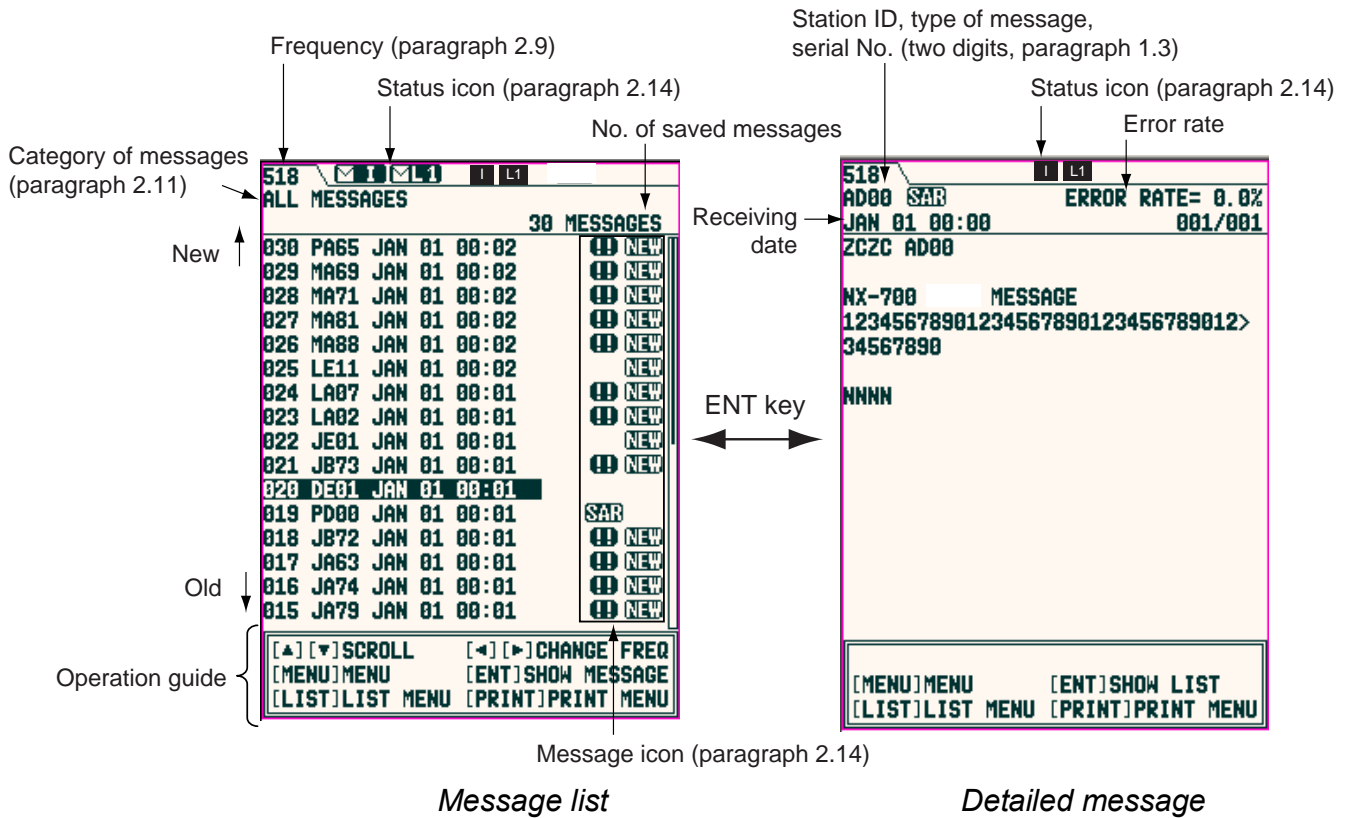
Local message

2. If you want to read the message immediately, press  to choose "Yes" and then press the **ENT** key to display the message

To read the message later, choose "No", and then press the **ENT** key to close the window.

2.5 Sample Messages

Press ▲ or ▼ on the cursor pad to choose a message, and then press the ENT key to show the detailed information for that message. The message list and detailed message displays can be switched by pressing the ENT key.



Note 1: The operation guide at the bottom of screen shows the functions of the keys available for use with the current screen.

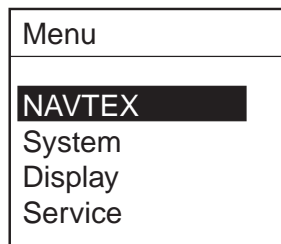
Note 2: The character size can be changed. For detail, see page 2-18.

| Key | Display mode | Function |
|-------|--------------|---|
| ▲ ▼ | List | Scrolls the list. |
| | Detailed | Scrolls the message. |
| ◀ ▶ | List | Switches the international and local lists. |
| | Detailed | Shows the newer (◀) or older (▶) message. |
| MENU | List | Shows the main menu. |
| | Detailed | |
| ENT | List | Shows the detailed message selected. |
| | Detailed | Shows the message list. |
| LIST | List | Shows the list options. |
| | Detailed | |
| PRINT | List | Shows the print options. |
| | Detailed | |

2.6 Choosing the Receive Mode

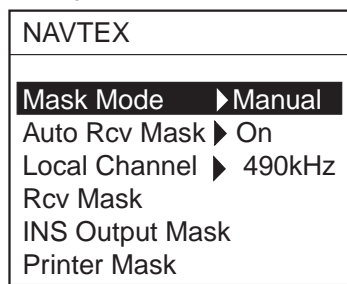
The NAVTEX menu allows you to select what station to receive, automatically, manually. The Auto mode requires navigation data, and stations are automatically selected according to the distance between own ship and NAVTEX stations. If navigation data is not input, all stations are selected. The manual mode lets you freely stations to receive. The INS mode allows you to set the station, message and local channel from the external equipment (ex. Integrated Navigation System, using NRM or PFEC sentence) connected. Note that Manual should be chosen if you intend to not use the command from the external equipment.

1. Press the **MENU/ESC** key to show the main menu.



Main menu

2. Press **▲** or **▼** to choose NAVTEX.
3. Press the **ENT** key or **▶** to open the NAVTEX menu.



NAVTEX menu

4. Press **▲** or **▼** to choose Mask Mode, and then press the **ENT** key or **▶** to show the mask mode options.



Mask mode options

5. Press **▲** or **▼** to choose INS (for INS mode) or Manual (for Auto or Manual mode) as appropriate, and then press the **ENT** key. When choosing INS, Auto Rcv Mask and Local Channel are disappeared from the NAVTEX menu.
6. For Auto and Manual modes, do the follows.
 - a) Choose Auto Rcv Mask, and then press the **ENT** key.
 - b) Press **▼** to choose "On" for Auto or "Off" for Manual, and then press **ENT** key.
7. Press the **MENU/ESC** key several times to close the menu.

2.7 Choosing the Local Frequency

You can choose 490 kHz or 4209.5 kHz as the local frequency on Auto or Manual mode.

1. Press the **MENU/ESC** key to show the main menu.
2. Press **▲** or **▼** to choose NAVTEX, and then press the **ENT** key or **▶**.
3. Press **▲** or **▼** to choose Local Channel, and then press the **ENT** key or **▶** to show the local channel options.



Local channel options

4. Press **▲** or **▼** to choose the frequency 490 kHz or 4209.5 kHz, and then press the **ENT** key.
5. Press the **MENU/ESC** key several times to close the menu.

2.8 Editing the Settings for Station and Message

Stations and messages for receiving/displaying on each station (message) can be edited as below.

(NAVTEX menu)

Rcv Mask

Station

You can receive messages by station in Manual mode.

Message

You can choose the messages to receive in Manual or Auto mode. Note that A/B/D/L cannot be rejected.

INS Output Mask

You can choose the stations and messages to output to the external equipment. Note that A/B/D/L cannot be rejected.

Printer mask

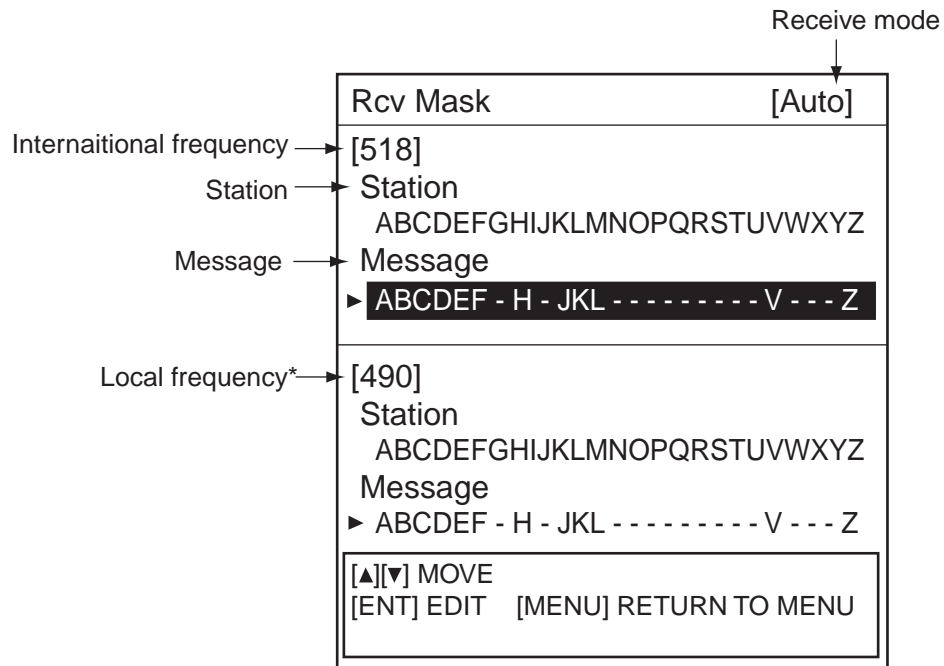
Choose the type of message to be print automatically when it is received. Note that A/B/D/L cannot be rejected.

(Display Menu)

User Select Station & Msg

You can choose the type of stations and messages to display on SELECT MESSAGES display (shown by choosing "User Selected Message" after pressing **LIST** key.) For detail, see page 2-9.

1. Press the **MENU/ESC** key to show the main menu.
2. Press **▲** or **▼** to choose NAVTEX (for Rcv Mask, INS Output Mask and Printer mask) or Display (for User Select Station & Msg), and then press the **ENT** key.
3. Press **▲** or **▼** to choose "Rcv Mask". "INS Output Mask", "Printer Mask" or "User Select Station & Msg".
4. Press the **ENT** key to open the appropriate editing window. (Below is the Rcv Mask editing window.)



*: Local channel selected at Paragraph 2.7.

Edit window (ex. Rcv Mask)

5. Press **▲** or **▼** to choose the item to edit, and then press the **ENT** key to show the alphabet selection window.



6. Press **◀** or **▶** to choose the alphabet desired, and then press **▲** or **▼** to choose to receive or not.
The alphabet you have chosen not to receive is marked with "-" (hyphen).
7. Press the **ENT** key.
8. Repeat steps 5 through 7 to complete.
9. Press the **MENU/ESC** key to close the window.

2.9 Switching the Frequency to Display

With showing the message list, you can switch the frequency to 518 kHz or 490 (or 4209.5) kHz by pressing ◀ or ▶ key.



Switching the frequency to display

2.10 Alarm Messages

The sequence of events when an alarm message is received is as shown below.

When receiving SAR (Search and Rescue) message:

The audible alarm beep sounds, and the SAR message is shown. Note that All Messages list appears if other list option is chosen when the **ENT** key is pressed. (See paragraph 2.11.) The aural alarm sounds medium beep.

When receiving WARNING message (A/B/L):

When the Warn Msg Alm on System menu is set to On, the audible alarm sounds and the message for receiving appears. The aural alarm sounds long beep.

Note: When both alarms are received, the aural alarm sounds short beeps.

Silencing audible alarm

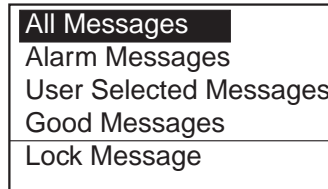
Press any key (except ⏻ key).

2.11 Processing Messages

Choosing messages to display

You can choose which category of messages to display: All, Alarm, User Selected and Good messages.

1. With the message list or detailed message shown, press the **LIST** key to show the list options.



List options

2. Press **▲** or **▼** to choose the item.

All Messages: Shows all messages received.

Alarm Messages: Shows only SAR/WARNING messages.

User Selected Messages: Shows messages arranged at User Select Station & Msg on Display menu.

Good Messages: Shows messages whose error rate is less than 4%.

3. Press the **ENT** key to close the window.

The list chosen at step 2 appears.

Note: When the following messages appear, set the List window to All Messages to show.

Urgent message:

“Message not chosen for display received; it is a int’l (or local) 00 message. Choose “All Message” (LIST menu) to display.”

Normal message:

Int’l (or local) message not chosen for display received. Choose “All Message” (LIST menu) to display.”

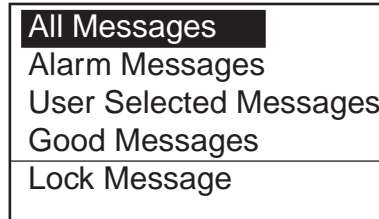
Protecting message from deleting

Messages are automatically deleted from the memory under the following conditions.

- 66 hours passed from the moment when received.
- Older than No. 200

To prevent a message from being deleted, do the follows;

1. Choose the message at the list display.
2. Press the LIST key to show the list options.



List options

3. Choose Lock Message from the list window.
The protect icon (🔒) appears next to the message selected.

Note 1: To unlock a message, choose it and then select Unlock Message in the list window. (The protect icon disappears.)

Note 2: When you unlock a message which was received 66 hours ago or a message that is older than No. 200, it will be deleted promptly when unlocked.

Note 3: Maximum each 50 messages for International and local (or 25% of each memory) can be protected.

2.12 Printing Messages

Received messages can be printed automatically or manually, from the built-in printer (NX-700A) or external printer (NX-700B).

Printing all messages displayed

All messages chosen on paragraph 2.11 can be printed out.

1. Press the **PRINT** key with showing all messages.



Print options

2. Press **▲** or **▼** to choose "Print".
3. Press the **ENT** key to print.

Note: When a message is received while printing some messages, the new one cannot be printed.

Printing each message

1. Press **▲** or **▼** to choose the desired message from the list.
2. Press the **ENT** key to show the detailed information.
3. Press the **PRINT** key.
4. Press **▲** or **▼** to choose "Print" from the window.
5. Press the **ENT** key to print.

Canceling printing

When a menu is displayed, you cannot cancel the printing.

1. Press the **PRINT** key while showing the messages to open the print window.
2. Press **▼** to choose "Cancel Print" and then press the **ENT** key.

2.13 Editing the NAVTEX Station List

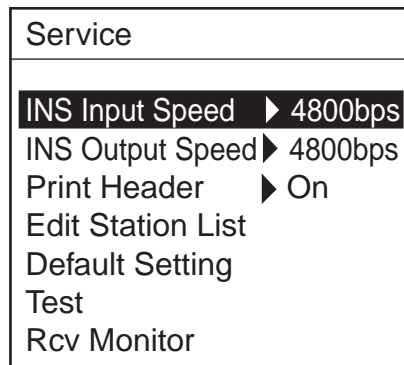
Maximum 300 NAVTEX stations can be registered into the memory.

Note: To cancel editing of a NAVTEX station, press the **MENU/ESC** key. The message “Exit without saving?” appears. Choose “Yes”, and then press **ENT** key.

Adding NAVTEX station

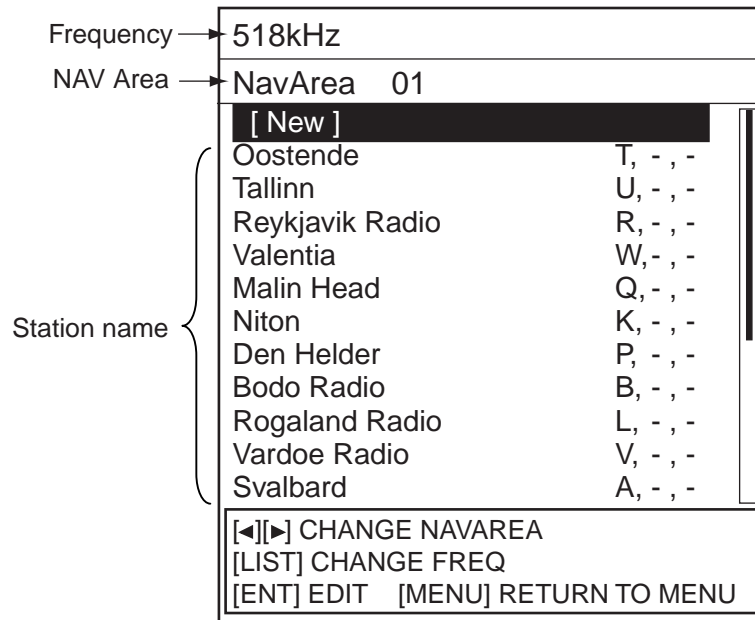
You may add a NAVTEX station to the NAVTEX station list as follows:

1. Press the **MENU/ESC** key to show the main menu.
2. Press **▲** or **▼** to choose Service, and then press the **ENT** key.



Service menu

3. Press **▲** or **▼** to choose Edit Station List, and then press the **ENT** key.



Edit station list display

4. Confirm that New is chosen, and then press the **ENT** key to show the addition window appears.

| | | | |
|-----------------|-------------|---|----------------------|
| NAV Area → | NavArea | ▶ | 1 |
| Station Name → | Station | ▶ | |
| Latitude → | Latitude | ▶ | 0° 00'N |
| Longitude → | Longitude | ▶ | 0° 00'E |
| Station ID { | 518kHz | ▶ | ID1: - ID2: - ID3: - |
| | 490kHz | ▶ | ID1: - ID2: - ID3: - |
| | 4209.5kHz | ▶ | ID1: - ID2: - ID3: - |
| Sertvice Area → | Range | ▶ | 400nm |
| | Save data ? | | |

New addition window

5. Confirm that NavArea is chosen, and then press the **ENT** key to show the area No. window.
6. Press **▲** or **▼** to choose a Nav area No. (1 to 16, and EXT), and then press the **ENT** key.
For NAV area No., see paragraph 1.4. EXT is reserved for future use.
7. Confirm that Station is chosen, and then press **ENT** key.
8. Enter a station name (Max. 18 characters), and then press the **ENT** key.
 - a) Press **▲** or **▼** to choose a character. Each press of **▲** shows A -> ... -> Z -> a -> ... -> z -> 0 -> ... -> 9 -> _ -> - -> space in that sequence.
 - b) Press **▶** to move the cursor to next digit.
 - c) Repeat steps a) and b) to complete the station name.
9. Confirm that Latitude is chosen, and then press the **ENT** key.
10. Enter the latitude for station, and then press the **ENT** key.
Use **▲** or **▼** to switch to North and South.
11. Confirm that Longitude is chosen, and then press the **ENT** key.
12. Enter the longitude for station, and then pres the **ENT** key.
Use **▲** or **▼** to switch to East and West.
13. Choose 518kHz, 490kHz or 4209.5kHz, and then press the **ENT** key.
14. Enter the station ID (A to Z), and then press the **ENT** key.
For multiple stations, fill in ID2 and ID3.
15. Confirm that Range is chosen, and then press the **ENT** key.
16. Enter the service area (1 to 999 nm), and then press the **ENT** key.
17. Confirm that Save data? is chosen, and then press the **ENT** key.
The message "Save new station?" appears.
18. Press **◀** to choose "Yes", and then press **ENT** key to close the new addition window disappears.

Note: If the station ID was not entered at step 14, the message "Enter ID data." appears. Press any key, and then enter the station ID.

19. To enter another NAVTEX station, repeat steps 4 through 18.
20. Press the **MENU/ESC** key several times to close the menu.

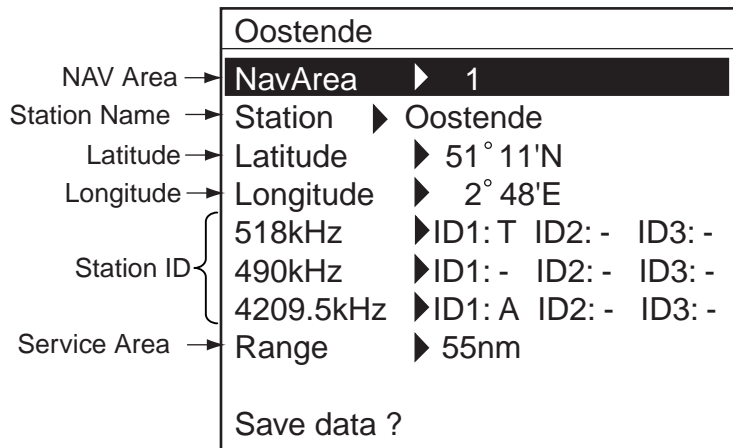
Editing NAVTEX station

Existing NAVTEX station may be edited as follows:

1. Press the **MENU/ESC** key to show the main menu.
2. Press **▲** or **▼** to choose Service, and then press the **ENT** key.
3. Press **▲** or **▼** to choose Edit Station List, and then press the **ENT** key.
4. Press **◀** or **▶** to choose the NAV area to be changed (01 to 16, EXT).
5. Press the **LIST** key to choose the frequency to be changed (518kHz, 490kHz or 4209.5kHz).
6. Press **▲** or **▼** to choose the station, and then press the **ENT** key.



7. Press **▲** to choose “Edit”, and then press **ENT** key to show the edit window appears.



Edit window (Ex. NAVTEX station Oostende)

8. Edit data as appropriate.
9. Confirm that Save station? is chosen, and then press the **ENT** key.
10. Press **◀** to choose “YES”, and then press the **ENT** key to erase the edit window.
11. Press the **MENU/ESC** key several times to close the menu.

Deleting NAVTEX stations

You may delete unnecessary NAVTEX stations as follows:

1. Press the **MENU/ESC** key to show the main menu.
2. Press **▲** or **▼** to choose Service, and then press the **ENT** key.
3. Press **▲** or **▼** to choose Edit Station List, and then press the **ENT** key.
4. Press **◀** or **▶** to choose the NAV area to be deleted. (01 to 16, EXT).
5. Press the **LIST** key to choose the frequency to be deleted (518kHz, 490kHz or 4209.5kHz).
6. Press **▲** or **▼** to choose the station name to be deleted, and then press **ENT** key.

The item window appears.



7. Press ▲ or ▼ to choose Delete, and then press the **ENT** key.
The message “Delete station?” appears.
8. Press ◀ to choose “Yes”, and then press the **ENT** key to close the edit window.
9. Press the **MENU/ESC** key several times to close the menu.

2.14 Icons

The NX-700 shows various icons to denote equipment status, and these are as shown in the table below.

| Icon | Status | Meaning |
|--|----------|---|
| Status icon (shown at the tip of display) | | |
| | Blinking | Shows that an International frequency (518 kHz) message has not been read. |
| | Blinking | Shows that a Local frequency message has not been read. L1: 490 kHz, L2: 4209.5 kHz |
| | Blinking | |
| | Blinking | While receiving a message. I: International frequency (518 kHz) L1: 490 kHz L2: 4209.5 kHz |
| | Blinking | |
| | Blinking | |
| | Lighting | Appears when the equipment is ready to receive the International frequency. |
| | Lighting | Appears when the equipment is ready to receive the local frequency (L1: 490 kHz, L2: 4209.5 kHz) |
| | Lighting | |
| | Lighting | Displayed when the voltage of the internal battery is low. The message “Battery error” also appears on the display. |
| | Lighting | Print error (no paper, not connected to the printer, etc.). The message “Printer error” also appears on the display. |
| | Lighting | While printing. |
| Message icon (shown next to messages) | | |
| | Lighting | Displayed when message is displayed for the first time. (This icon disappeared after showing the detail or 24 hours has passed.) |
| | Lighting | Displayed when message type D (SAR) is displayed. |
| | Lighting | Appears when message type A, B or L (Warning) is displayed. |
| | Lighting | Protected message |

2.15 Messages List

In addition to the message "Received new local (int'l) msg." the following message-related messages may appear on the display.

| Message | Meaning | Remedy |
|--|--|--|
| New message received. Oldest message deleted to free up memory. | Appears when the oldest message is deleted to make space for the latest one. | Press any key. |
| Same message with lower error rate received. Currently displayed message will be deleted. | Appears when two messages have the same ID are received and the latter's error rate is lower than the former. | Press any key. |
| Term of validity expired. Currently displayed message will be deleted. | Appears when 66 hours has passed after receiving the currently displayed message. | Press any key. |
| Message not chosen for display received; it is a int'l 00 message. Choose "All Message"(LIST menu) to display. | Appears when receiving an international message not specified for display (00) at the SELECT MESSAGES display. | Press any key, and then choose All Message in the List window. |
| Message not chosen for display received; it is a local 00 message. Choose "All Message"(LIST menu) to display. | Appears when receiving a local message not specified for display (00) at the SELECT MESSAGES display. | |
| Int'l message not chosen for display received. Choose "All Message"(LIST menu) to display. | Appears when receiving an international message not specified for display (Normal) at the SELECT MESSAGES display. | |
| Local message not chosen for display received. Choose "All Message"(LIST menu) to display. | Appears when receiving a local message not specified for display (Normal) at the SELECT MESSAGES display. | |

2.16 Other Functions

This paragraph describes the various options which allow you to set up your unit to suit your needs.

NAVTEX menu

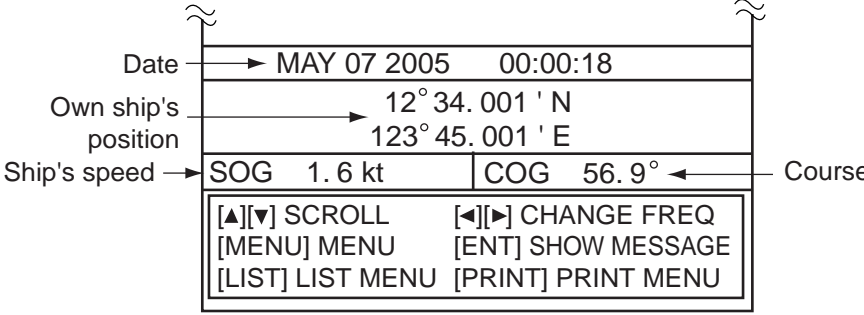
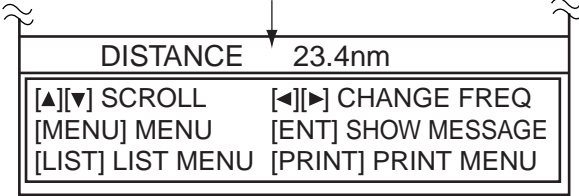
| Item | Description | Setting |
|------------------|---|-------------------|
| Mask Mode | Chooses the receiving mode. (See paragraph 2.6.) | INS, Manual |
| Auto Rcv Mask* | Turns Auto mode on/off. | Off, On |
| Local Channel* | Chooses the local channel. | 490kHz, 4209.5kHz |
| Rcv Mask* | Receives messages in the category. | - |
| INS Output Mask* | Sets the station and type of message to output to the INS. | - |
| Printer Mask* | Chooses the station and message to print out automatically (See paragraph 2.8.) | |

*: Not available on INS mode.

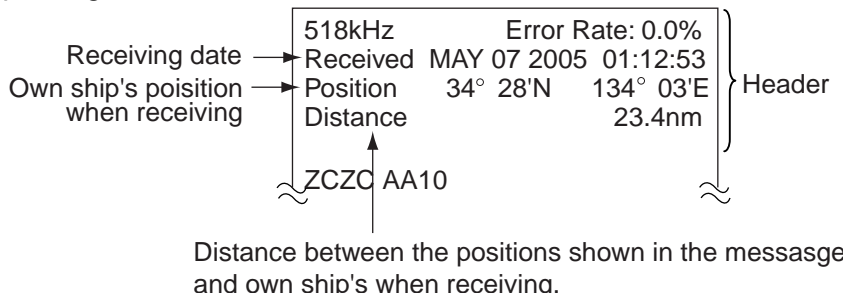
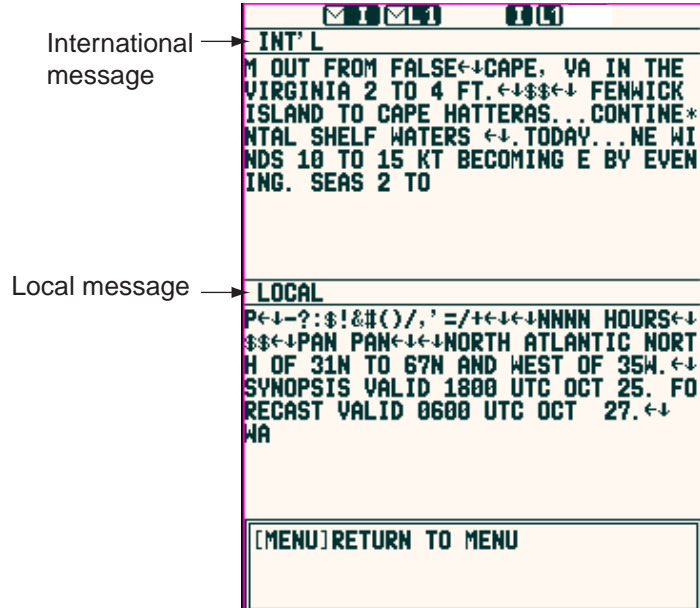
System menu

| Item | Description | Setting |
|----------------|---|----------------------------------|
| Warn Msg Alm | Turns the audible alarm on/off when receiving a Warning message (A, B, and L). | Off, On |
| Signal Monitor | Turns the audible alarm for monitoring of Rx signal on/off. Off: Disables monitoring. Int'l: Monitors international frequency. Local: Monitors local frequency. | Off, Int'l, Local |
| Key Beep | Turns key beep on/off. | Off, On |
| Time Offset | If a GPS receiver feeds nav data to the NAVTEX, you may use local time instead of UTC time. Enter the time difference between local time and UTC time. | -13:30 to +13:30 |
| Units | Chooses units of measurement (distance and ship speed) to be shown on the User Display. | nm, kt, km, km/h, mi, mi/h |
| Printer | Sets the printer type. (See paragraph 4.6.) | None, NX-700A, Upright, Inverted |

Display menu

| Item | Description | Setting |
|---------------------------|---|---------------------------------------|
| Scrolling | Selects the speed of scrolling by pressing ▲ or ▼ . Slow: Scrolls by one line. Fast: Scrolls by half of screen. Skips to \$\$: Scrolls line by line in list display; Skips to \$\$ position in detailed display. | Slow, Fast, Skip to \$\$ |
| Font Size | Selects the size of characters. | Small, Medium, Large |
| Time Display | Selects the time format. | 24 hour, 12 hour |
| Date Display | Selects the date format. | MMM DD YYYY, DD MMM YYYY, YYYY MMM DD |
| User Display | Selects the type of data as user display to be shown at the bottom of the display. Nav Data  Distance Distance between the positions shown in the message and own ship's when receiving.  | Off, Nav Data, Distance |
| Speed Display | Selects the speed format to be displayed. SOG: Speed Over Ground STW: Speed Through Water | SOG, STW |
| Contrast | Sets the display contrast. | 0 to 9 |
| User Select Station & Msg | Choose the type of messages and stations to display on SELECT MESSAGES display (shown by choosing "User Selected Message" after pressing LIST key.) For detail, see section 2.8. | - |

Service menu

| Item | Description | Setting |
|-------------------|---|------------------------------|
| INS Input Speed | Selects the data transmission speed at which to input data from INS. | 4800, 9600, 19200, 38400 bps |
| INS Output Speed | Selects the data transmission speed to output data to the INS. | 4800, 9600, 19200, 38400 bps |
| Print Header | <p>Turns the header (Own ship's position, date, frequency, error rate and distance information when receiving a message) for printing on/off.</p>  | Off, On |
| Edit Station List | Edits/deletes stations. (See paragraph 2.13.) | - |
| Default Settings | Restores all default settings. (See paragraph 3.5.) | - |
| Test | Starts the diagnostic test. (See paragraph 3.4.) | - |
| Rcv Monitor | <p>Shows the status for International and Local receiving.</p>  | - |

2. OPERATION

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3. MAINTENANCE & TROUBLESHOOTING

This chapter provides information necessary for keeping your unit in good working order and remedying simple problems.

WARNING

Do not open the equipment.

Hazardous voltage which can cause electrical shock exists inside the equipment. Only qualified personnel should work inside the equipment.

3.1 Maintenance

Regular maintenance is important for optimum performance. A maintenance program should be established and should at least include the items shown in the table below.

Maintenance program

| Item | Check point | Remedy |
|-------------------------|--|---|
| Display unit connectors | Check for tight connection. | Tighten loosened connectors. |
| LCD | The LCD will, in time, accumulate a coating of dust which tends to dim the picture. Wipe LCD lightly with soft cloth to remove dust. | Wipe the LCD carefully to prevent scratching, using tissue paper and an LCD cleaner. To remove dirt or salt deposits, use an LCD cleaner, wiping slowly with tissue paper so as to dissolve the dirt or salt. Change paper frequently so the salt or dirt will not scratch the LCD. Do not use solvents such as thinner, acetone or benzene for cleaning. |
| Ground terminal | Check for tight connection and corrosion. | Clean or replace ground wire as necessary. |

3.2 Replacement of Fuse, Battery and Thermal Paper

Fuse

The fuse inside the receiver unit protects the equipment from overcurrent or reverse polarity. If the fuse blows, contact your dealer about replacement.

| Name | Type | Code No. |
|------|------------------|----------------|
| Fuse | FGMB 125V 2A PBF | 000-157-479-10 |



Battery

A battery is installed inside the display unit, and it preserves data when the power is turned off. The life of the battery is about 5-10 years, and 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.


| Name | Type | Code No. |
|------|---------------|-------------|
| BATT | CR2450-F2ST2L | 000-144-941 |



LCD Display

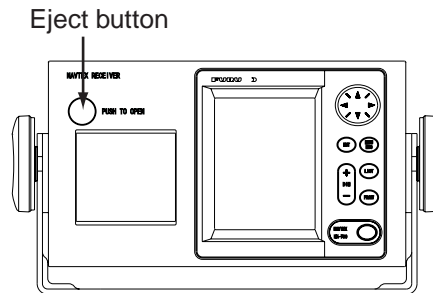
The life of the LCD is approx. 20,000 hour. When the LCD has expired, the brilliance cannot be raised.

Thermal paper (NX-700A only)

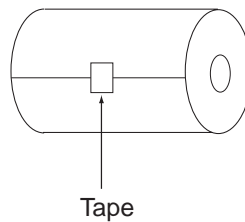
When the thermal paper runs out completely, the message "Printer error" (center of screen) and the  icon (at the right-hand top corner) appear. Replace the paper as follows.

| Name | Type | Code No. |
|---------------|------------|-------------|
| Thermal paper | TP058-30CL | 000-154-047 |

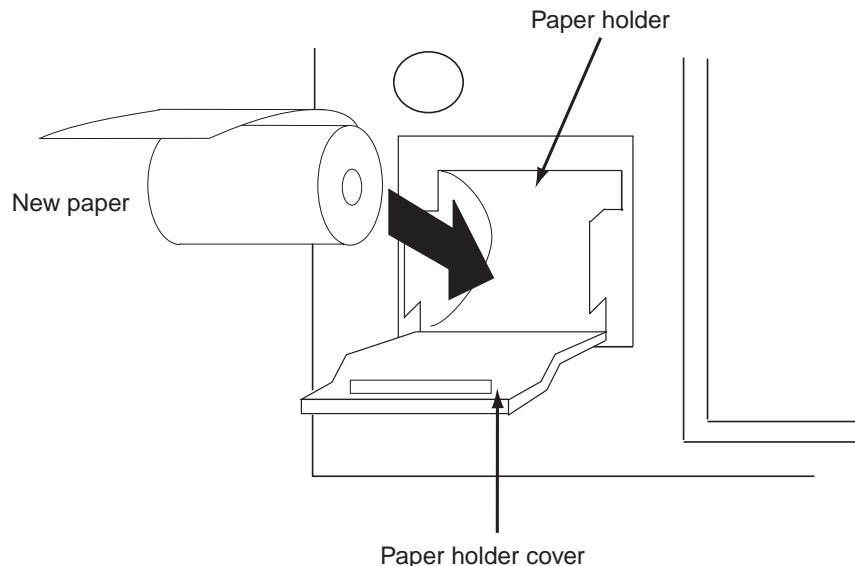
1. Turn off the power.
2. Press the button shown below to open the paper holder cover.



3. Peel the tape from the end of new paper.



4. Set the new paper in the paper container in the direction shown below.



5. Pull the end of the paper by 2 to 3 cm (as shown above), and then close the cover.

3.3 Troubleshooting

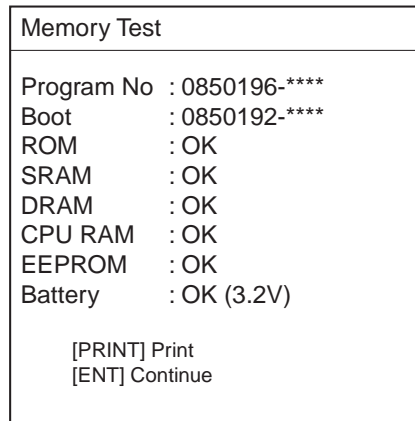
This section provides simple troubleshooting procedures which the user can follow to restore normal operation. If you cannot restore normal operation do not attempt to check inside the unit. Any trouble should be referred to a qualified technician.

| If . . . | then . . . |
|--|---|
| you cannot turn on the power | -ask serviceman to replace the blown fuse. -check battery for proper voltage output. |
| the equipment receives unwanted messages. | confirm that Manual mode is chosen. (See paragraph 2.6.) |
| NAVTEX signal cannot be received. | check equipment by the diagnostic test. |
| | check the broadcasting schedule. |
| | check that the D-sub connector is firmly fastened. |
| check that the antenna cable is firmly fastened. | |
| paper does not advance. (NX-700A only) | load paper correctly. |
| paper feeds but no recording. (NX-700A only) | check if correct thermal paper is being used. |
| paper has darkened. (NX-700A only) | keep the paper in a well-ventilated and cool place. |
| the recording is not proper for the external printer. (NX-700B only) | check the setting of Printer on the System menu. |
| | check the printer cable. |
| | check that the power of printer is turned on. |
| | check that the printer is available. |
| | check that paper is set properly. |

3.4 Diagnostics

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

1. Press the **MENU/ESC** key to open the main menu.
2. Press **▼** to choose Service, and then press the **ENT** key.
3. Press **▲** or **▼** to choose Test, and then press the **ENT** key.
The message "Start test?" appears.
4. Press **◀** to choose "Yes", and then press the **ENT** key.

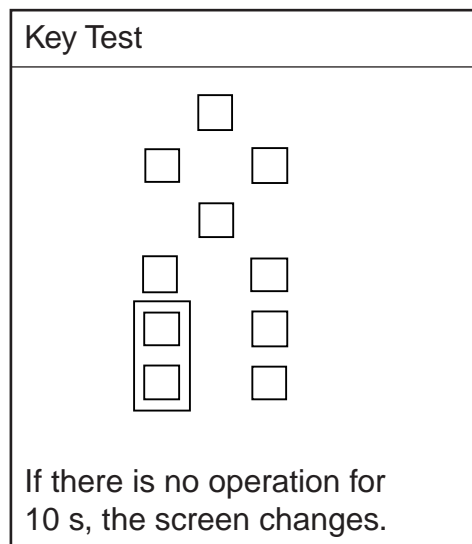


*: Program version no.


Memory test

For any NG (No Good), contact your dealer.

5. When the message "[ENT] Continue" appears at the bottom of screen, press ENT key to show the key test screen.



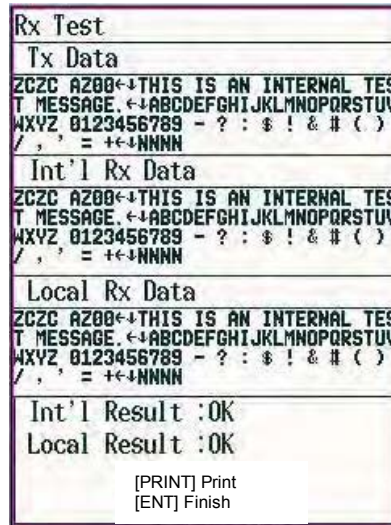
Key test

6. Press each key (except  key) one by one.
A key is functioning properly if its on-screen location fills in black when the key is pressed.
7. After all keys have been tested or no key is pressed after 10 seconds, the equipment starts the LCD test by showing the white and black display (level 0 to 9).

3. MAINTENANCE & TROUBLESHOOTING

- When the message "Hit any key" appears on the screen, press any key (except \uparrow key) to show the Rx test screen.

The alarm for receiving monitor sounds while the Rx test is being conducted.



Rx test

- When the message "[ENT] Finish" appears on the screen, press any key or wait for one minute with no operation to finish. Also the test message is printed by pressing **PRINT** key when the item other than "None" at Printer on System menu.
- Press the **MENU/ESC** key several times to close the menu.

3.5 Restoring all Default Settings

This operation restores all default settings. The following two settings, however, are not disturbed.

- Received messages
- NAVTEX stations list (See paragraph 2.13.)

- Press the **MENU/ESC** key to show the main menu.
- Press \blacktriangledown to choose Service, and then press the **ENT** key.
- Press \blacktriangle or \blacktriangledown to choose Default Setting, and then press **ENT** key. The message "Restore default settings?" appears.
- Press \blacktriangleleft to choose "Yes", and then press the **ENT** key. The Service menu appears.
- Press the **MENU/ESC** key several times to close the menu.

4. INSTALLATION

4.1 Display Unit

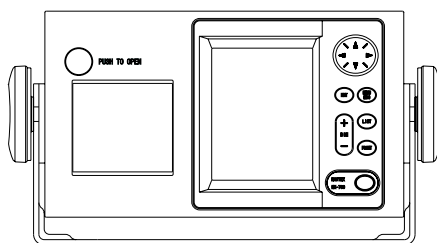
The display unit can be installed on a tabletop, on the overhead, or in a panel. Refer to the outline drawings at the back of this manual for installation instructions. When selecting a mounting location, keep in mind the following points.

- Locate the unit away from exhaust pipes and vents.
- 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.
- Compass safe distances are:
NX-700A (Standard: 1.45 m, Steering: 0.95 m)
NX-700B (Standard: 0.30 m, Steering: 0.30 m)

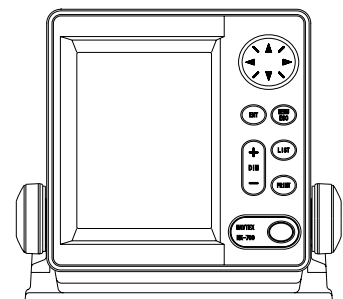
Tabletop, overhead mounting

1. Fix the hanger by using four self-tapping screws (5x20).
2. Screw knob bolts in display unit, set it to the hanger, and tighten the knob bolts.

Note: For the overhead mounting, reinforce the mounting location for the weight of the display unit (NX-700A: 3.3 kg, NX-700B: 0.7 kg) and secure the hanger, with bolts, nuts and washers (local supply).



NX-700A



NX-700B

4. INSTALLATION

Flush mounting

The display unit can be installed flush mounted in a console or panel by using the optional flush mount kit.

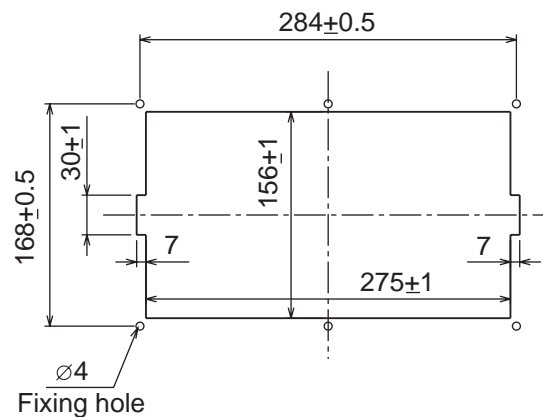
(For NX-700A)

Type: OP08-19

Code No.: 004-515-260

| Name | Type | Code No. | Qty | Remarks |
|--------------------|-------------|-------------|-----|---------|
| Mounting metal | 08-023-1019 | 100-326-960 | 1 | |
| Self-tapping screw | 5X20 | 000-802-081 | 6 | |
| Hex. bolt | M8x15 | 000-862-144 | 2 | |
| Spring washer | M8 | 000-864-262 | 2 | |

1. Cut out a hole with dimensions as shown below in the mounting location.



2. Attach the fixing metal to the display unit with two hex. bolts (M8x15, supplied with optional kit) and spring washers (supplied with optional kit).
3. Fasten six self-tapping screws to fix the display unit to the mounting location.

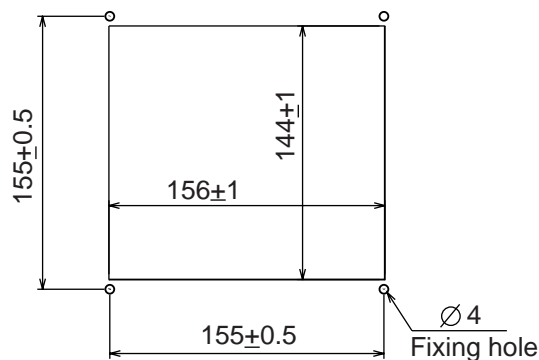
(For NX-700B)

Type: OP08-20

Code No.: 004-515-270

| Name | Type | Code No. | Qty | Remarks |
|--------------------|-------------|-------------|-----|---------|
| Mounting metal | 08-023-2011 | 100-327-010 | 1 | |
| Self-tapping screw | 5x20 | 000-802-081 | 4 | |
| Pan head screw | M4x12 | 000-802-130 | 4 | |

1. Cut out a hole with dimensions as shown below in the mounting location.



2. Attach the fixing metal to the display unit with four pan head screws (M4X12, supplied with the optional kit).
3. Fasten four self-tapping screws (supplied with the optional kit) to fix the display unit to the mounting location.

4.2 Receiver Unit

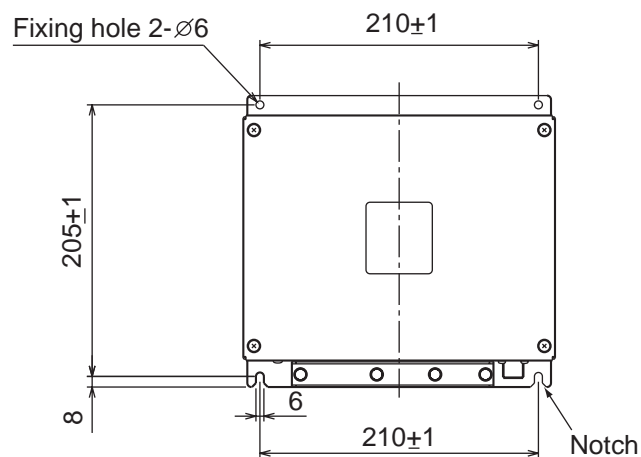
General mounting considerations

- The mounting location should be well ventilated and dry.
- The unit can be mounted on bulkhead or the desk.
- Secure the maintenance space shown in drawing at the back of this manual for ease of maintenance and service.
- Compass safe distances are:
Standard: 1.15 m, Steering: 0.75 m

Mounting Method

Fasten the receiver unit with four self-tapping screws (5x20, supplied as installation material). For bulkhead mounting, do the follows.

1. Tighten lower self-tapping screws so there is 5 mm clearance between bottom of screw head and bulkhead.
2. Hook the receiver unit on the lower screws.
3. Tighten upper screws followed by the lower screws.



4.3 Antenna Unit

Mounting considerations

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

- Do not shorten the antenna cable.
- Do not install the antenna unit within beamwidth of the radar.

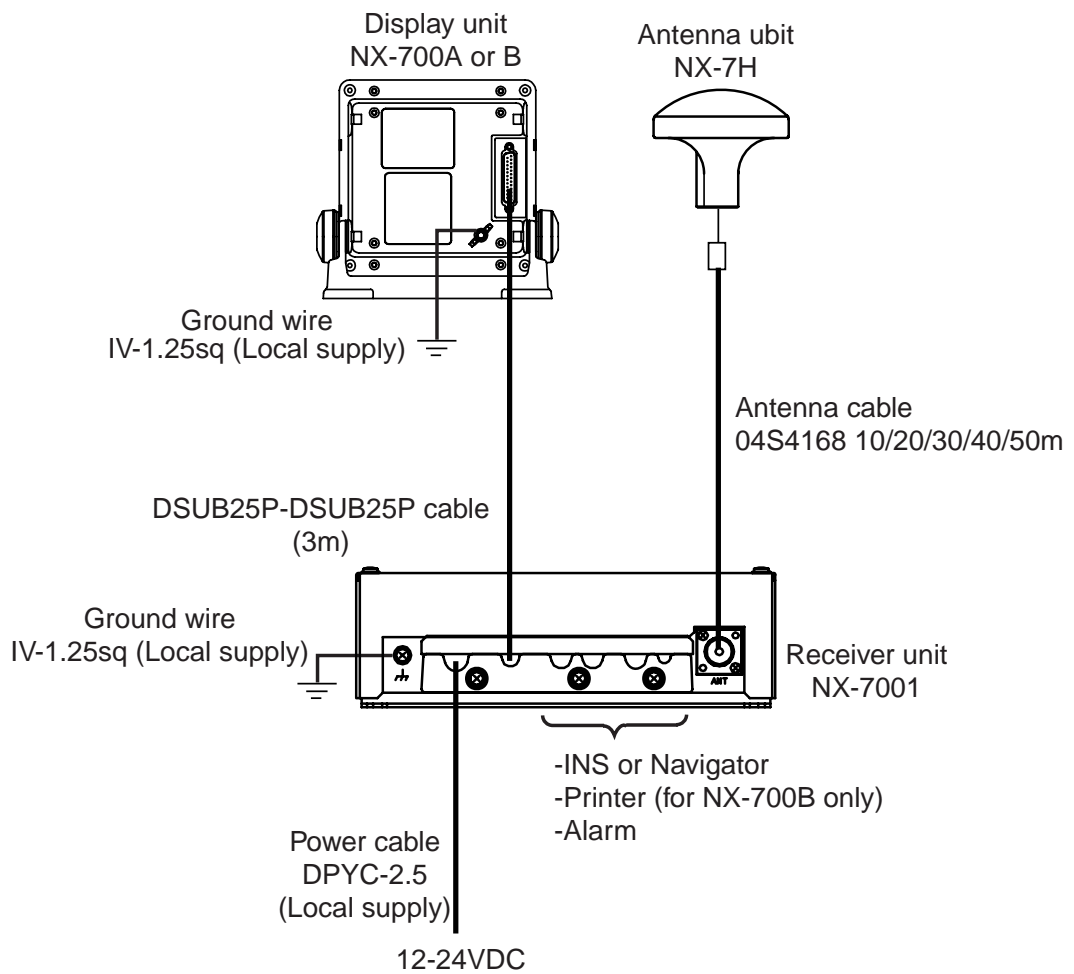


4.4 Printer (NX-700B only)

Prepare the printer by locally as shown below for the NX-700B.

- Serial RS-232C
- Serial printer
- Baud Rate: 9600 bps
- Character length: 8 bit
- Parity: No
- Flow control: Xon/Xoff
- 32 characters/line or more

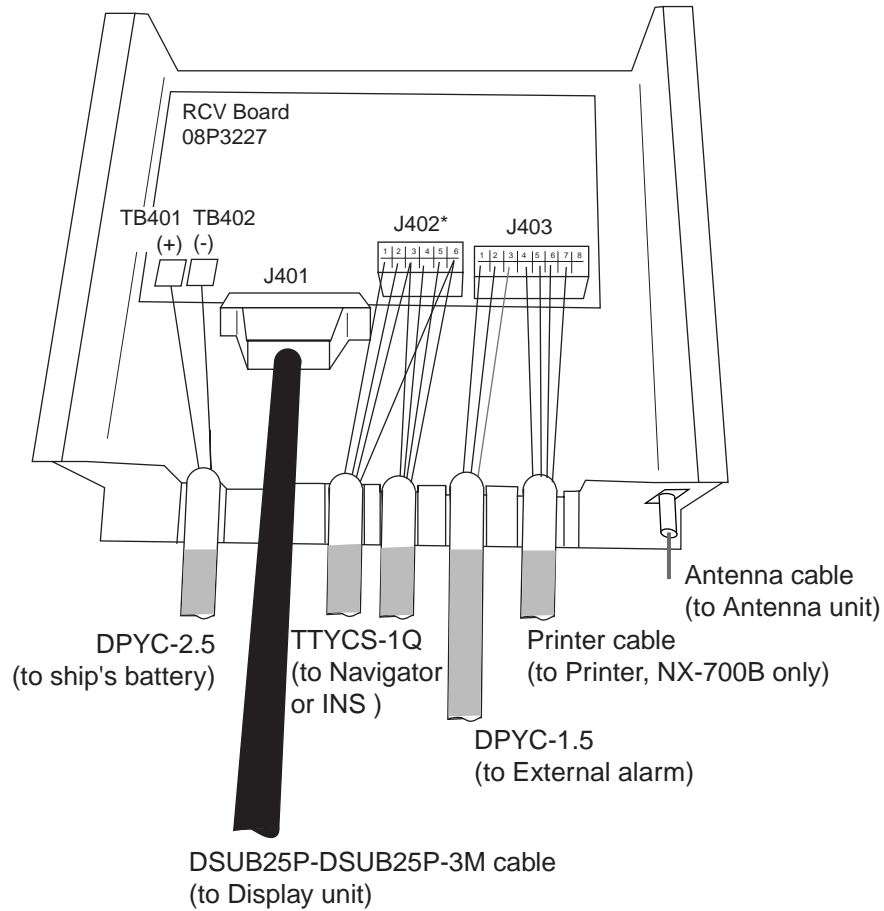
4.5 Wiring



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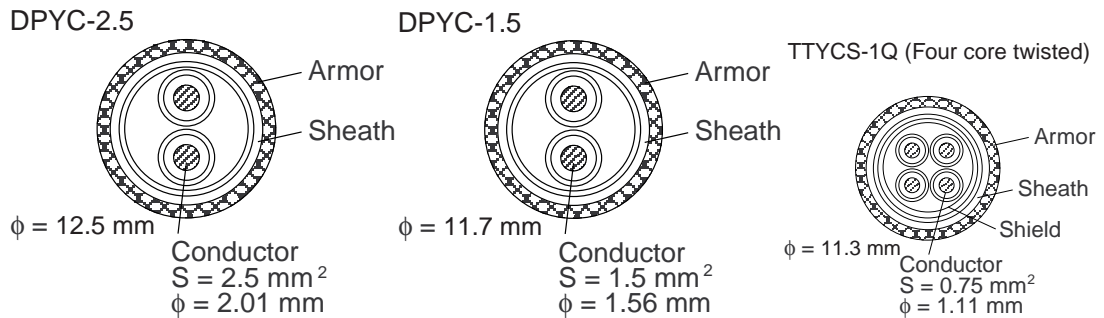
Receiver unit

All cables are gathered to the receiver unit. Connect cables at inside of the receiver unit as shown below.



Receiver unit, inside view

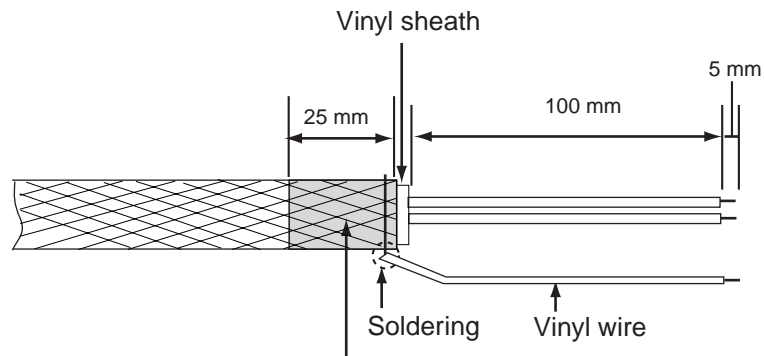
Use the following JIS cable (Japan Industrial Standard) or equivalent to connect power source, INS and external alarm appropriately.



For printer, use the cable supplied with the printer.

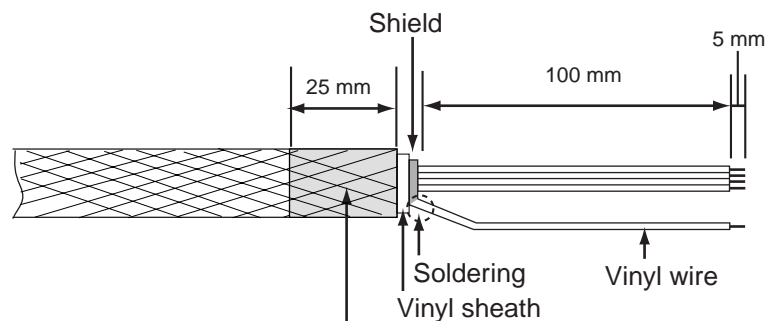
Fabricate these cables as below to connect to the receiver unit.

DPYC-1.5 (For external alarm)



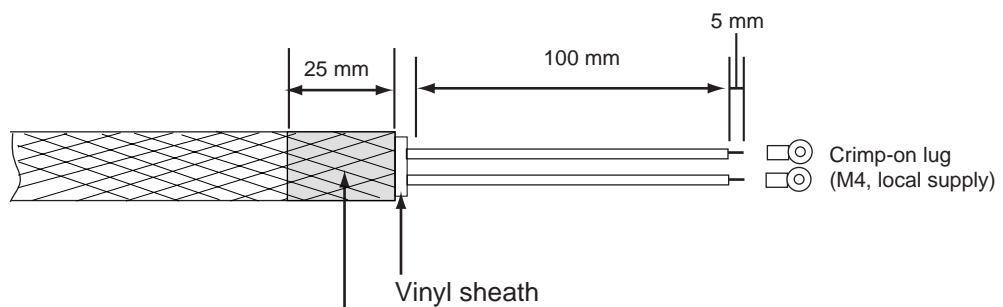
Scrape the paint off the cable where the cable contacts the cable clamp.

TTYCS-1Q (For Navigator or INS)



Scrape the paint off the cable where the cable contacts the cable clamp.

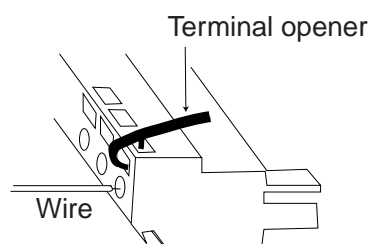
DPYC-2.5 (For ship's battery)



Scrape the paint off the cable where the cable contacts the cable clamp.

How to use J402 and 403 connector

1. Insert the terminal opener (attached in the receiver unit) into the connector.
2. Insert a wire in terminal while pressing and holding the terminal opener.
3. Release the terminal opener. Pull wire to confirm that it is connected firmly.



4. INSTALLATION

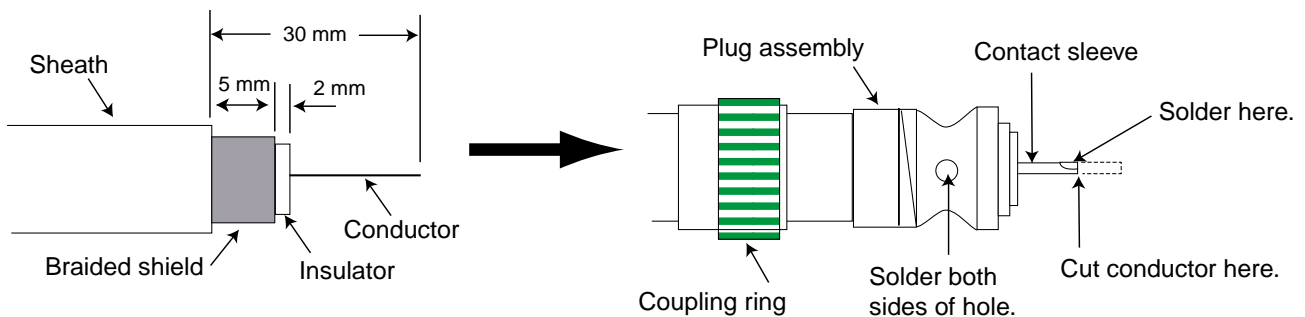
Antenna cable

Be sure to leave some slack in the cable for future service and maintenance.

For RG-10/UY, RG-214 cable

When using the coaxial cable, type RG-10/UY or RG-214, attach the FM-MP-7 connector (supplied as installation material) or PL-259 (local supply) as below.

1. Remove the sheath by 30 mm.
2. Bare 23 mm of the center conductor. Trim braided shield by 5 mm and tin.
3. Slide coupling ring onto cable.
4. Screw the plug assembly on the cable.
5. Solder plug assembly to braided shield through solder holes. Solder contact sleeve to conductor.
6. Screw coupling ring into plug assembly.



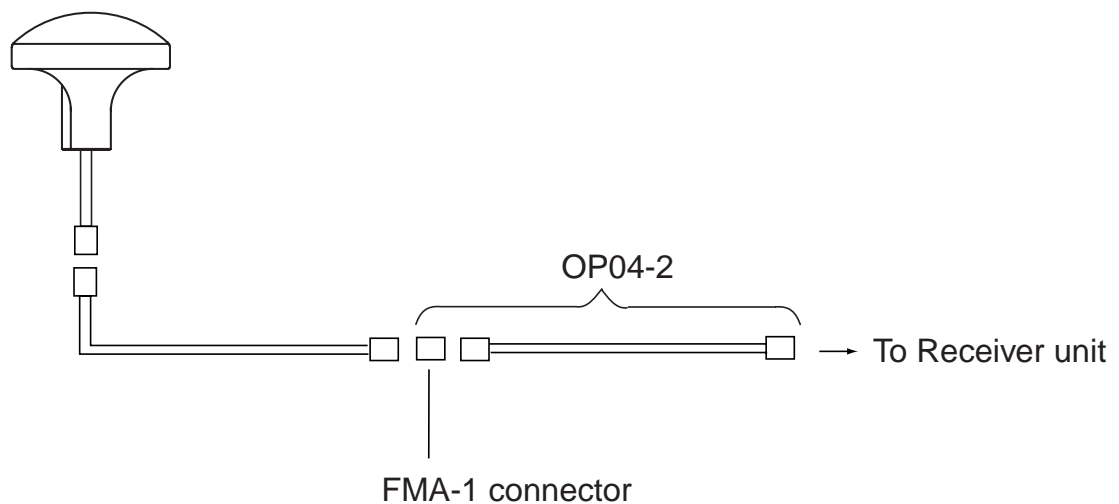
Note: When the RG-214 cable is used, care must be exercised to prevent damage to the cable as it has no armor.

Extending antenna cable length

When connecting two cables for extension, use optional extension cable kit OP-04-2.

Code No.: 000-041-174 (10 m), 000-041-175 (20 m), 000-041-176 (30 m),
000-041-177 (40 m), 000-041-178 (50 m)


| Name | Type | Code No. | Qty | Remarks |
|-----------------|------------------|----------------|-----|-------------------|
| Cable assy | 04S4168 | 005-948-320 | 1 | 10 m w/connectors |
| | | 005-948-330 | | 20 m w/connectors |
| | | 005-948-340 | | 30 m w/connectors |
| | | 005-948-350 | | 40 m w/connectors |
| | | 005-948-360 | | 50 m w/connectors |
| Connector | FMA-1 | 000-152-964-10 | 1 | |
| Insulating tape | U tape 0.5x19x5M | 000-800-985 | 1 | |

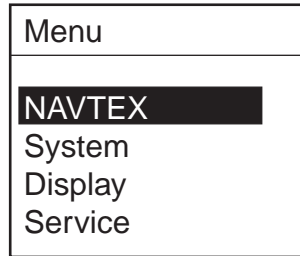
**Grounding**

The ground wire (local supply) should be 1.25 sq or larger. The ground wire should be as short as possible.

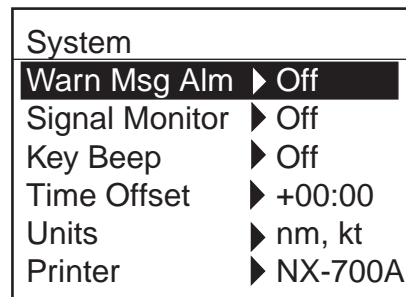
4.6 Setting of Printer

After the connection completely, the setting of printer should be done for NX-700B as shown below. (For NX-700A, use the default setting as is.)

1. Press the  key to turn the power on.
2. Press the **MENU** key to show the main menu.



3. Press **▼** to choose System, and then press the **ENT** key or **▶** to activate the System menu.



4. Press **▼** to choose Printer, and then press the **ENT** key or **▶** to show the item window.



5. Press **▲** or **▼** to choose the appropriate setting, and then press the **ENT** key.

None: When no printer is connected.

NX-700A: For NX-700A only.

Upright: When NX-700B is connected to an upright-type printer which ejects paper in bottom to top direction.

Inverted: When NX-700B is connected to a bulkhead mount printer which ejects paper in top to bottom direction.

6. Press the **MENU** key several times to close the menu.

4.7 Digital Interfacing

This equipment can receive navigation data in IEC 61162-1 Ed2/2 format.

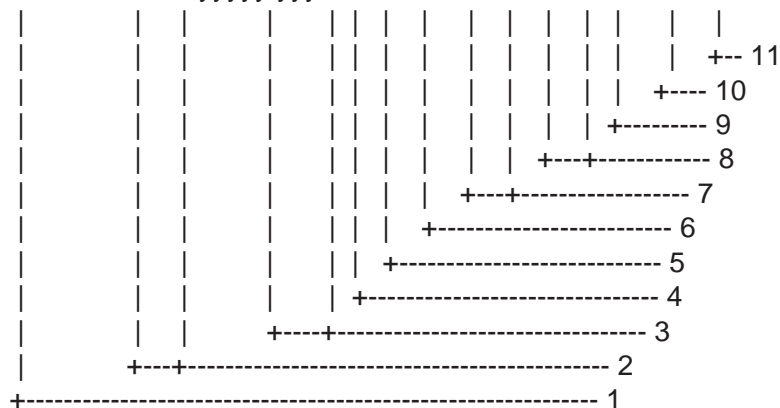
Priority

| | |
|-------------|-----------------------|
| TIME & DATE | ZDA |
| L/L | GNS > GGA > RMC > GLL |
| SOG | VTG > VBW > RMC |
| STW | VHW > VBW |
| COG | VTG > RMC |

Input data sentence description

GGA: GPS position fixing condition

\$--GGA,hhmmss.ss,llll.lll,a,yyyyy.yyy,a,x,xx,x.x,x.x,M,x.x,M,x.x,xxxx*hh<CR><LF>



1. UTC of position
2. Latitude, N/S
3. Longitude, E/W
4. GPS quality indicator (see note)
5. Number of satellite in use,00-12, may be different from the number in view
6. Horizontal dilution of precision
7. Antenna altitude above/below mean sealevel, m
8. Geoidal separation, m
9. Age of differential GPS data
10. Differential reference station ID, 0000-1023
11. Checksum

NOTE

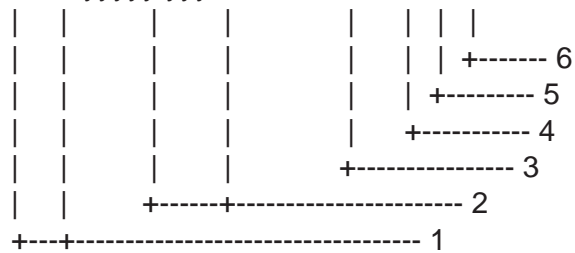
- 0 = fix not available or invalid
- 1 = GPS SPS mode, fix valid
- 2 = differential GPS, SPS mode, fix valid
- 3 = GPS PPS mode, fix valid
- 4 = Real Time Kinetic. Satellite system used in RTK mode with fixed integers
- 5 = Float RTK. Satellite system used in RTK mode with floating fingers
- 6 = Estimated (dead reckoning) mode
- 7 = Manual input mode
- 8 = Simulator mode

The GPS quality indicator shall not be a null field.

4. INSTALLATION

GLL: Latitude and longitude

\$--GLL,llll.lll,a,yyyyy.yyy,a,hhmmss.ss,A,a*hh<CR><LF>



1. Latitude, N/S
2. Longitude, E/W
3. UTC of position
4. Status: A=data valid, V=data invalid
5. Mode indicator (see note)
6. Checksum

NOTE Positioning system Mode indicator:

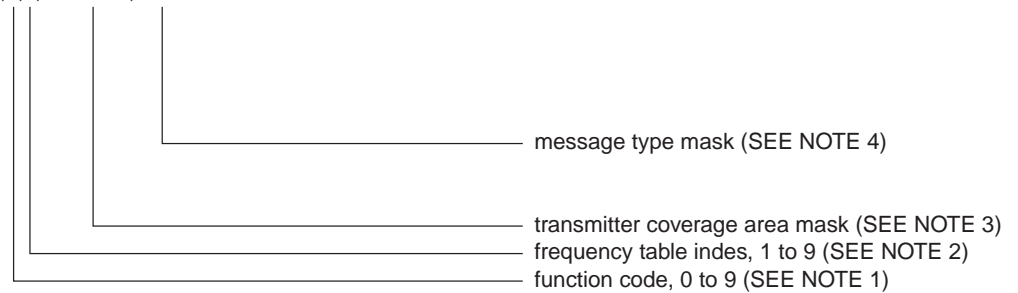
- A = Autonomous
- D = Differential
- E = Estimated (dead reckoning)
- M = Manual input
- S = Simulator
- N = Data not valid

The Mode indicator field supplements the Status field. The Status field shall be set to V=invalid for all values of Operating Mode except for A=Autonomous and D=Differential. The positioning system Mode indicator and Status field shall not be null fields.

NRM: NAVTEX receiver mask

This command is used to manipulate the configuration masks that control which messages are stored, printed and sent to the INS port of the NAVTEX receiver.

```
$--NRM,x,x,hhhhhh,hhhhhh*hh<CR><LF>
```



NOTE 1: The function code is used to further identify the purpose of the sentence. The meaning of the function code is as follows:

- 0 - request messages for the given mask
- 1 - set/report the storage mask
- 2 - set/report the printer mask
- 3 - set/report the INS mask
- 4 to 9 - reserved for future use

NOTE 2: The frequency indicator identifies the frequency that the NAVTEX message was received on:

- 1 = 490 kHz
- 2 = 518 kHz
- 3 = 4209.5 kHz
- 4 through 9 are reserved for future use

NOTE 3: The transmitter coverage area mask is defined as a 32 bit hex field where the least significant bit represents transmitter coverage area "A", the next bit is "B" and so on up to bit 25 which is "Z". Bits 31 through 26 are reserved for future use and are set to zero. To select a transmitter coverage area, its corresponding bit should be set to one. To deselect a transmitter coverage area its corresponding bit should be set to zero.

NOTE 4: The message type mask is defined as a 32 bit hex field where the least significant bit represents message type "A", the next bit is "B" and so on up to bit 25 which is "Z". Bits 31 through 26 are reserved for future use and are set to zero. To select a message type its corresponding bit should be set to one. To deselect a message type its corresponding bit should be set to zero.

When another device (for example an INS) wishes to set one or more of the bit masks it sends one or more NRM sentences to the NAVTEX receiver. When another device wishes to determine the current values of the bit masks it sends a query sentence to the NAVTEX receiver as follows:

```
$--CRQ, NRM*hh<CR><LF>
```

On receiving this query, the NAVTEX receiver will respond with one NRM sentence for each mask type and frequency combination that it supports. For example a NAVTEX receiver which supports separate storage, printer and INS masks for each of three receiver frequencies will return a total of nine NRM sentences in response to the above query.

Example

```
$INNRM,2,1,00001E1F,0000023*57
```

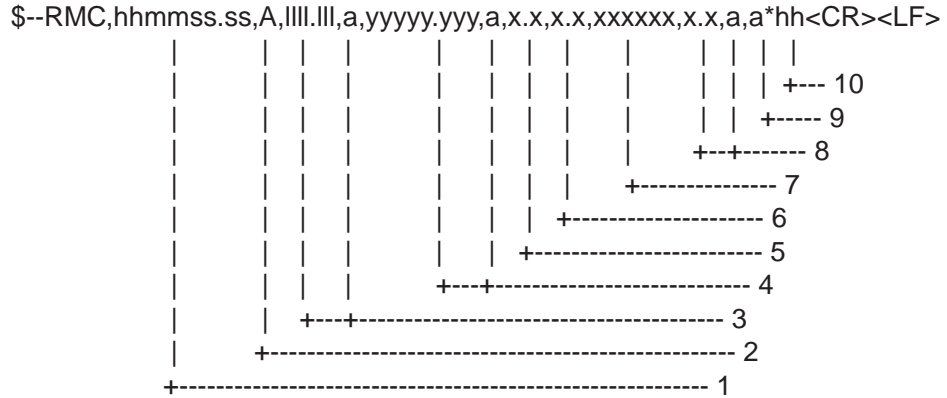
This example specifies that message identifiers "A", "B" and "F", received from transmitter areas "A" to "E" and "J" to "M" on 490 kHz should be sent to the printer port when they are received. Note that this command sets the printer mask for future use; there is no immediate output generated as a result of receiving this command.

Example

```
$INNRM,0,2,00001E1F,0FFFFFF*21
```

This example requests that all currently stored messages of all message type, received from transmitter areas "A" to "E" and "J" to "M" on 518 kHz should be immediately returned to the requesting device as a series of NRX sentences. Note that this command does not update any of the stored masks.

RMC: Recommend Minimum Specific GNSS Data



1. UTC of position fix
2. Status: A=data valid, V=navigation receiver warning
3. Latitude, N/S
4. Longitude, E/W
5. Speed over ground, knots
6. Course over ground, degrees true
7. Date: dd/mm/yy
8. Magnetic variation, degrees E/W
9. Mode indicator (see note)
10. Checksum

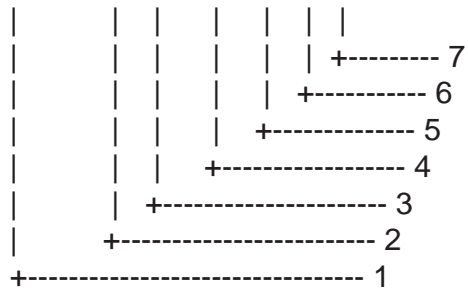
NOTE Positioning system Mode indicator:

- A = Autonomous
- D = Differential
- E = Estimated (dead reckoning)
- M = Manual input
- S = Simulator
- N = Data not valid

The Mode indicator field supplements the Status field. The Status field shall be set to V=invalid for all values of Operating Mode except for A=Autonomous and D=Differential. The positioning system Mode indicator and Status field shall not be null fields.

ZDA: Time and date

```
$--ZDA,hhmmss.ss,xx,xx,xxxx,xx,xx*hh<CR><LF>
```

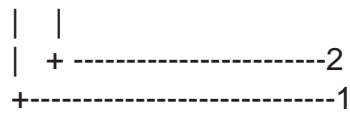


1. UTC
2. Day, 01 to 31(UTC)
3. Month, 01 to 12(UTC)
4. Year(UTC)
5. Local zone hours, 00h to +-13h
6. Local zone minutes, 00 to +59
as local hours
7. Checksum

4. INSTALLATION

ACK: Acknowledge

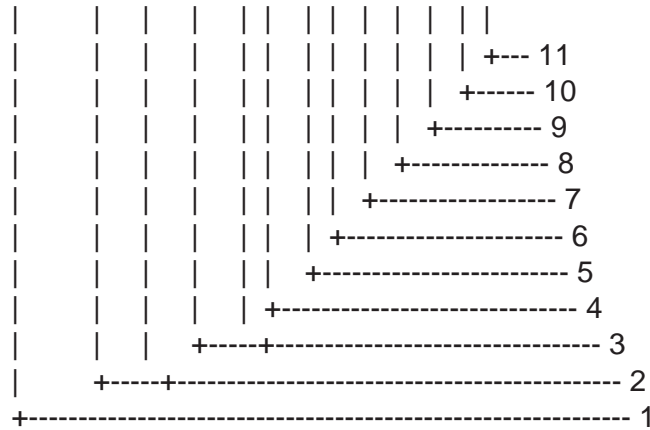
\$--ACK,xxx*hh<CR><LF>



1. Local alarm number(identifier)
2. Checksum

GNS:

\$--GNS,hhmmss.ss,llll.lll,a,yyyyy.yyy,a,c--c,xx,x.x,x.x,x.x,x.x,x.x*hh<CR><LF>



1. UTC of position
2. Latitude, N/S
3. Longitude, E/W
4. Mode indicator
5. Total number of satellite in use,00-99
6. HDOP
7. Antenna altitude, metres, re:mean-sea-level (geoid)
8. Geoidal separation
9. Age of differential data
10. Differential reference station ID
11. Checksum

VHW: Water speed and heading

```

$--VHW,x.x,T,x.x,M,x.x,N,x.x,K*hh<CR><LF>
| | | | | | | | | |
| | | | | | | | | | +----- 5
| | | | | | | | | | +--+----- 4
| | | | | | | | | | +--+----- 3
| | | | | | | | | | +--+----- 2
+--+----- 1

```

1. Heading, degrees true
2. Heading, degrees magnetic
3. Speed, knots
4. Speed, km/h
5. Checksum

VTG: Course over ground and ground speed

```

$--VTG,x.x,T,x.x,M,x.x,N,x.x,K,a*hh<CR><LF>
| | | | | | | | | |
| | | | | | | | | | +----- 6
| | | | | | | | | | +----- 5
| | | | | | | | | | +--+----- 4
| | | | | | | | | | +--+----- 3
| | | | | | | | | | +--+----- 2
+--+----- 1

```

1. Course over ground, degrees true
2. Course over ground, degrees magnetic
3. Speed over ground, knots
4. Speed over ground, km/h
5. Mode indicator (see note)
6. Checksum

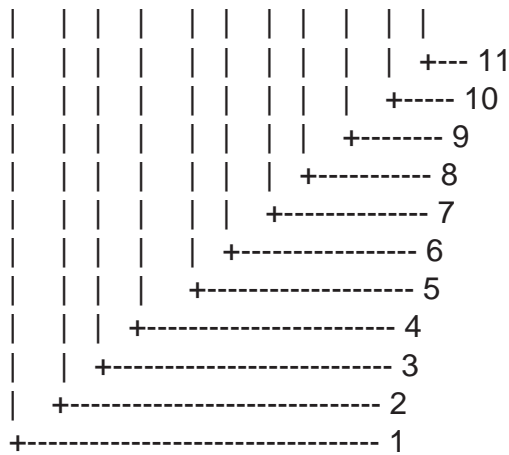
NOTE Positioning system Mode indicator:

- A = Autonomous
- D = Differential
- E = Estimated (dead reckoning)
- M = Manual input
- S = Simulator
- N = Data not valid

The positioning system Mode indicator field shall not be a null field.

VBW: Dual ground/water speed

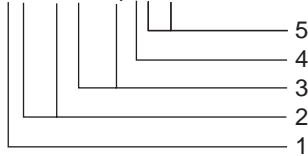
\$--VBW,x.x,x.x,A,x.x,x.x,A,x.x,A,x.x,A*hh<CR><LF>



1. Longitudinal water speed, knots
2. Transverse water speed, knots
3. Status: water speed, A=data valid V=data invalid
4. Longitudinal ground speed, knots
5. Transverse ground speed, knots
6. Status: ground speed, A=data valid V=data invalid
7. Stern transverse water speed, knots
8. Status: stern water speed, A=data valid V=data invalid
9. Stern transverse ground speed, knots
10. Status: stern ground speed, A=data valid V=data invalid
11. Checksum

PFEC,nxfrq : LOCAL FREQUENCY

\$PFEC,nxfrq,x*hh<CR><LF>



1. Proprietary sentence ID
2. Manufacturer's Mnemonic code: Furuno Electoric Co.,Ltd.
3. Manufacturer's Data: Local frequency setting command
4. Manufacturer's Data: Local frequency indicator (SEE NOTE)
5. Checksum

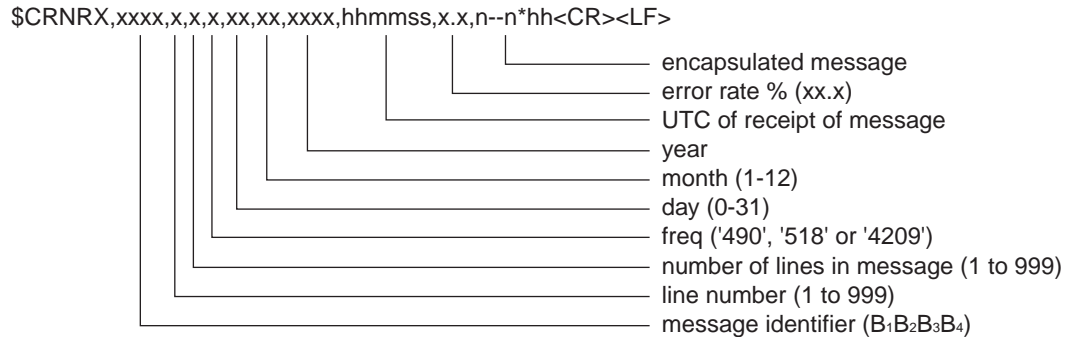
NOTE Local frequency indicator:

- 0 = 490kHz
- 1 = 4209.5kHz

Output data description

NRX: New NAVTEX received message

The NRX sentence is used to transfer the contents of a received NAVTEX message from the NAVTEX receiver to another device. As the length of a single NAVTEX message may exceed the number of characters permitted in a single sentence, many NRX sentences may be required to transfer a single NAVTEX message.



NOTE 1: The total number of sentences required to transfer the NAVTEX message from the NAVTEX radio receiver. The first field specifies the total number of sentences used for a message, minimum value 1. The Sentence Number field identifies the order of this sentence in the message, minimum value 1. All sentences contain the same number of fields. For efficiency it is recommended that null fields be used in the additional sentences where the data is unchanged from the first sentence (this applies to fields 4 through 12).

NOTE 2: The sequential message identifier provides a unique identifier for each NAVTEX message represented by a group of sentences. Though the message code (field 4) contains a NAVTEX message serial number, there are special cases when the message serial number is set to 00 and has a different meaning or when the same message code can occur more than once. When these conditions occur, the sequential message identifier can be relied upon to uniquely identify this NAVTEX message from other NAVTEX messages with the same message code.

NOTE 3: The NAVTEX message code contains three related entities. The first character identifies the transmitter coverage area and the second character identifies the type of message. Both these characters are as defined in Table I of Recommendation ITU-R M.625-3, combination numbers 1-26. Transmitter identification characters are allocated by the IMO NAVTEX manual (IMO publication 951E). The remaining two characters are restricted to numerals with a range of 00 to 99 and represent a serial number for each type of message. The value of 00 is a special case and not considered a serial number.

NOTE 4: The frequency indicator identifies the frequency that the NAVTEX message was received on:

- 0 = not received over air (eg test messages)
- 1 = 490 kHz
- 2 = 518 kHz
- 3 = 4209,5 kHz
- 4 through 9 are reserved for future use

NOTE 5: The total number of characters indicates the expected size of the message body sent in this sequence of NRX sentences. It does not include the additional overhead for reserved characters found in table 1 of IEC 61162-1.

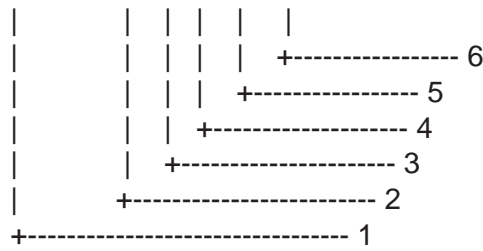
NOTE 6: Status "A" is used for syntactically correct message reception. Status "V" is used for syntactically incorrect message reception, e.g. end characters NNNN missing.

NOTE 7: The message body may contain reserved characters as defined in IEC 61162-1.

4. INSTALLATION

ALR: Set alarms

\$CRALR,hhmmss.ss,xxx,A,A,c--c*hh<CR><LF>

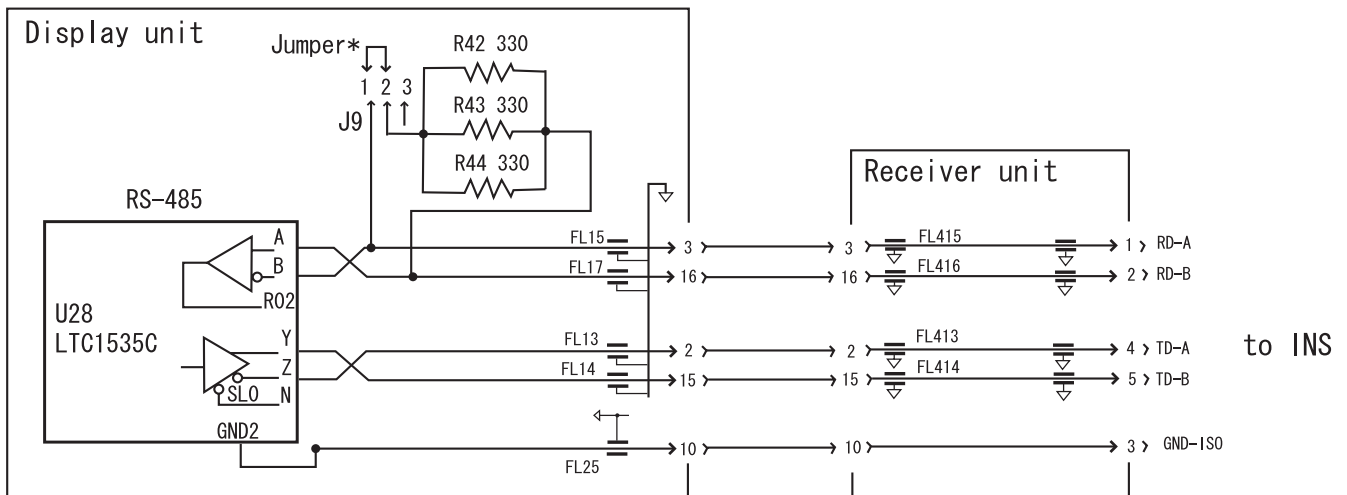


1. Time of alarm condition change, UTC
2. Local alarm number(identifier) (SEE NOTE.)
3. Alarm condition(A=threshold exceeded, V=not exceeded)
4. Alarm's acknowledge state, A=acknowledged V=unacknowledged
5. Alarm's description text
6. Checksum

NOTE Local alarm number (identifier):

- 001 = "NAVTEX: Navigational warning"
- 002 = "NAVTEX: Meteorological warning"
- 003 = "NAVTEX: Search and rescue information"
- 006 = "NAVTEX: General failure"
- 051 = "NAVTEX: Printer Error"
- 052 = "NAVTEX: Battery Error"

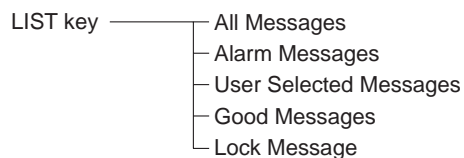
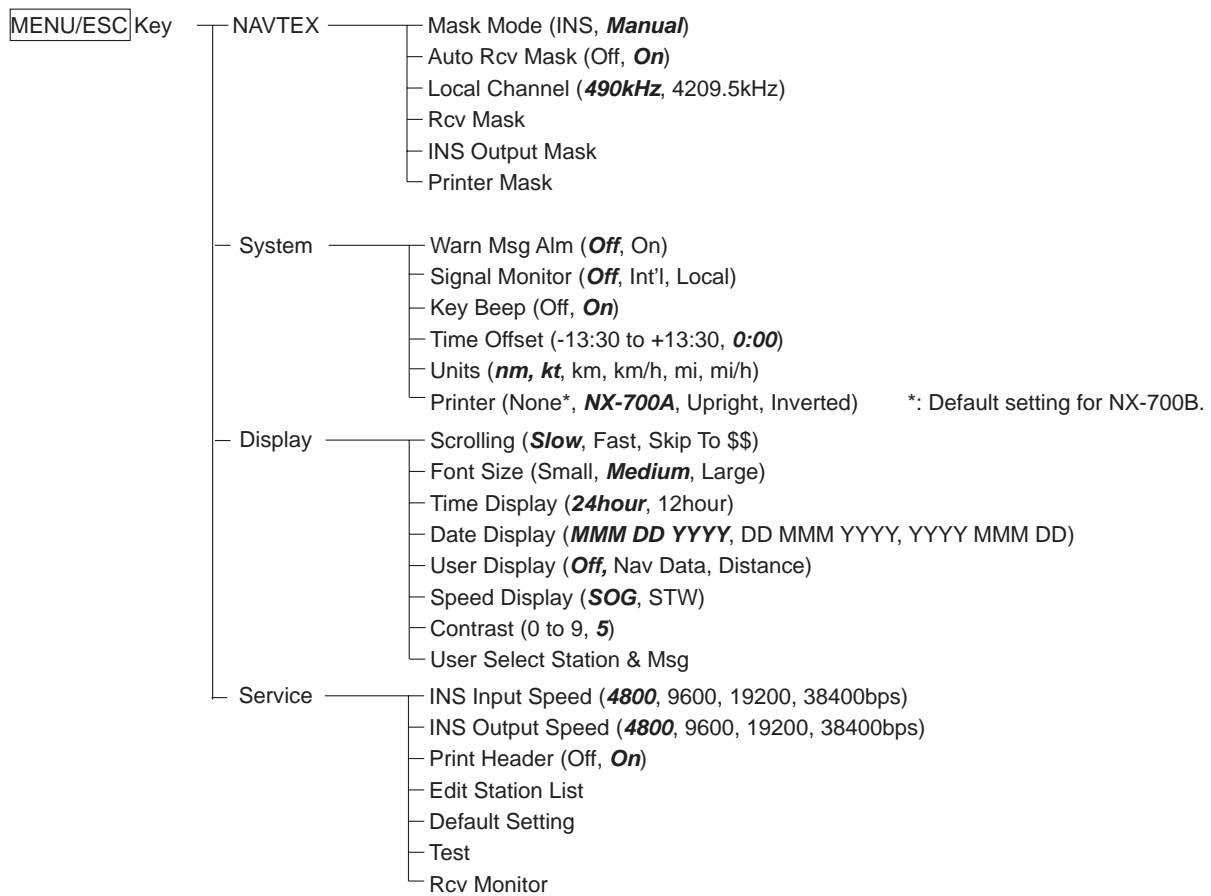
Serial Interface



*When only NX-700A/B is listener for talker:
When multiple listeners (including NX-700A/B) for talker:

Short #1 and 2 (default setting).
NX-700A/B is the end of bus; Short #1 and 2.
Besides above; Short #2 and 3.

MENU TREE



SPECIFICATIONS OF NAVTEX RECEIVER NX-700A/B

1 NAVTEX RECEIVER

- | | | |
|-----|---------------------|--|
| 1.1 | Receiving frequency | 518 kHz and 490 kHz (or 4209.5 kHz), receive both frequencies simultaneously |
| 1.2 | Mode of reception | F1B |
| 1.3 | Sensitivity | 2 μ V e.m.f. (50 ohms), 4% error rate or less |
| 1.4 | Input protection | Withstands 30 Vrms for 15 minutes or more (w/ pre-amp unit) |
| 1.5 | Spurious emission | 1nW or less |
| 1.6 | Message category | A: navigational warning B: meteorological warning C: ice report D: search and rescue information/piracy and armed robbery E: meteorological forecast F: pilot message G: AIS H: LORAN-C message I: reserved presently not used J: SATNAV message K: other electronic navigational aid system message L: navigational warning (additional) M to Y: reserved presently not used Z: QRU (no message on hand) |

2 DISPLAY UNIT

- | | | |
|-----|-----------------|--|
| 2.1 | Display system | 5-inch, 76 (W) x 100 (H) mm, monochrome LCD, 240 x 320 dots |
| 2.2 | Display modes | Message selection mode Message display mode |
| 2.3 | Message storage | 200 messages x 2 channels (100,000 characters x 2 channels) |

3 PRINTER SECTION (FOR NX-700A ONLY)

- | | | |
|-----|----------------------|-----------------------------------|
| 3.1 | Printing system | Line thermal head printing system |
| 3.2 | Printing paper | Thermal paper (58 mm x 30 m) |
| 3.3 | Printing width | 48 mm |
| 3.4 | Character format | 24 x 12 dot |
| 3.5 | Dot pitch | 8 dots/ mm |
| 3.6 | Number of characters | 32 characters/line |
| 3.7 | Print speed | Approx. 20 mm/sec. |

4 ANTENNA UNIT

- 4.1 Antenna type NX-7H: H-field antenna
- 4.2 Output impedance 50 ohms
- 4.3 Power supply +7 V to +9 V (thru co-ax cable)

5 INTERFACE

- 5.1 Input data IEC61162-1, -2
GGA, GLL, RMC, ZDA, ACK, GNS, VHW, VTG, VBW, NRM, CRQ, PFEC
- 5.2 Output data NRX, ALR, NRM
- 5.3 Alarm Normal close, contact closure signal (floating, max. 80 mA, 50 V) for SAR alert

6 POWER SUPPLY

- 6.1 NX-700A 12-24VDC: 1.5-0.8A
- 6.2 NX-700B 12-24VDC: 0.7-0.4A

7 ENVIRONMENTAL CONDITION

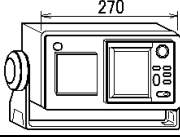
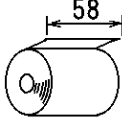

- 7.1 Ambient temperature
 - Antenna unit -25°C to +70°C
 - Receiver / Display unit -15°C to +55°C
- 7.2 Relative humidity 95% at 40°C (without dew condensation)
- 7.3 Waterproofing
 - Antenna unit IP66
 - Receiver / Display unit IP20 (NX-700B: IP25 for front panel)
- 7.4 Vibration
 - 2Hz to 5 Hz and up to 13.2 Hz with an excursion of ± 1 mm $\pm 10\%$ (7 m/s² maximum acceleration at 13.2 Hz);
 - above 13.2 Hz and up to 100 Hz with a constant maximum acceleration of 7 m/s²

8 COATING COLOR

- 8.1 Display unit N3.0
- 8.2 Receiver unit N3.0
- 8.3 Antenna unit N9.5

PACKING LIST

NX-700A/NX-700A-HK/NX-700A-R

| NAME | OUTLINE | DESCRIPTION/CODE | Q'TY |
|---------------------------------------|---|--|------|
| ユニット UNIT | | | |
| 指示部 DISPLAY UNIT |  | NX-700-A/-HK/-R 000-040-342-00 ** | 1 |
| 付属品 ACCESSORIES | | FP08-00800 | |
| 感熱記録紙 RECORDING PAPER |  | TP058-30CL 000-154-047-00 | 1 |
| 工事材料 INSTALLATION MATERIALS | | | |
| 工事材料 INSTALLATION MATERIALS |  | CP08-01861 CP08-01861 004-515-280-00 004-514-350-00 | 1 |

1.コード番号末尾の[**]は、選択品の代表コードを表します。

CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

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

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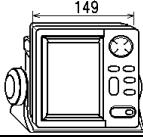
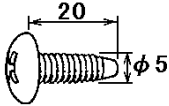
08AW-X-9862

PACKING LIST

08AW-X-9860 -3 1/1

NX-700B/NX-700B-HK/NX-700B-R

A-2

| NAME | OUTLINE | DESCRIPTION/CODE | Q'TY |
|---|---|-------------------|------|
| ユニット UNIT | | | |
| 指示部 DISPLAY UNIT |  | NX-700B/HK/R | 1 |
| | | 000-152-663-00 ** | |
| 工事材料 INSTALLATION MATERIALS CP08-01861 | | | |
| +トラスタップネジ 1シユ SELF-TAPPING SCREW |  | 5X20 SUS304 | 4 |
| | | 000-162-608-10 | |

1.コード番号末尾の[**]は、選択品の代表コードを表します。

CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

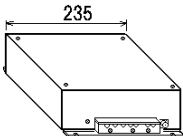

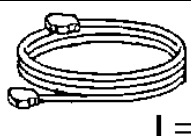

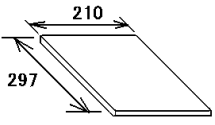
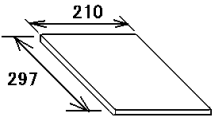
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08AW-X-9860

PACKING LIST

NX-7001-AN*/BN*/-R

| NAME | OUTLINE | DESCRIPTION/CODE | Q'TY |
|--|---|---------------------|------|
| ユニット UNIT | | | |
| 受信部 RECEIVER UNIT |  | NX-7001-* | 1 |
| | | 000-040-345-00 ** | |
| 受信部予備品 RECEIVER UNIT SPARE PARTS | | | |
| 予備品 SPARE PARTS |  | SP08-02101 | 1 |
| | | SP08-02101 | |
| | | 004-515-290-00 | |
| | | 004-514-370-00 | |
| 工事材料 INSTALLATION MATERIALS | | CP08-01860 | |
| ケーブル組品 CABLE ASSY. |  | DSUB25P-DSUB25P-3M | 1 |
| | | 000-152-698-00 | |
| 受信部工材 RECEIVER UNIT INSTALLATION MATERIALS | | | |
| 工事材料 INSTALLATION MATERIALS |  | CP08-01863 | 1 |
| | | CP08-01863 | |
| | | 004-515-300-00 | |
| | | 004-514-530-00 | |
| 図書 DOCUMENT | | | |
| 取扱説明書 OPERATOR'S MANUAL |  | OM*-56490-*/56491-* | 1 |
| | | 000-152-804-0* ** | (*1) |
| 操作要領書 OPERATOR'S GUIDE |  | OS*-56490-* | 1 |
| | | 000-152-805-0* ** | |

1.コード番号末尾の[**]は、選択品の代表コードを表します。

CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

(*1)印の図書型式「56491」はロシア向け専用となります。

THE OPERATION'S MANUAL 56491 MARKED (*1) IS USED FOR RUSSIAN MODEL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

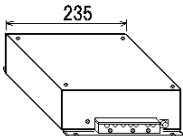

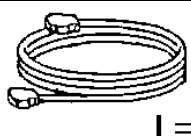

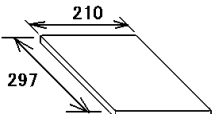
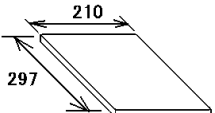
(略図の寸法は、参考値です。DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

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08AW-X-9861

PACKING LIST

NX-7001-AA-*/BA*

| NAME | OUTLINE | DESCRIPTION/CODE | Q'TY |
|--|---|--------------------|------|
| ユニット UNIT | | | |
| 受信部 RECEIVER UNIT |  | NX-7001-* | 1 |
| | | 000-040-345-00 ** | |
| 受信部予備品 RECEIVER UNIT SPARE PARTS | | | |
| 予備品 SPARE PARTS |  | SP08-02101 | 1 |
| | | SP08-02101 | |
| | | 004-515-290-00 | |
| | | 004-514-370-00 | |
| 工事材料 INSTALLATION MATERIALS | | CP08-01860 | |
| ケーブル組品 CABLE ASSY. |  | DSUB25P-DSUB25P-3M | 1 |
| | | 000-152-698-00 | |
| 受信部工材 RECEIVER UNIT INSTALLATION MATERIALS | | | |
| 工事材料 INSTALLATION MATERIALS |  | CP08-01864 | 1 |
| | | CP08-01864 | |
| | | 004-515-430-00 | |
| | | 004-514-540-00 | |
| 図書 DOCUMENT | | | |
| 取扱説明書 OPERATOR'S MANUAL |  | OM*-56490-* | 1 |
| | | 000-152-803-0* ** | |
| 操作要領書 OPERATOR'S GUIDE |  | OS*-56490-* | 1 |
| | | 000-152-805-0* ** | |

1.コード番号末尾の[**]は、選択品の代表コードを表します。

CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

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

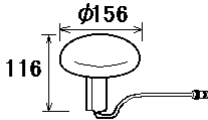

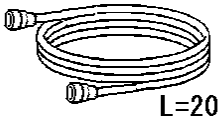
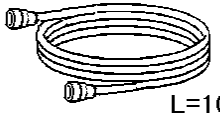
Download from www.Somanuals.com. All Manuals Search And Download.

08AW-X-9859

PACKING LIST

08AW-X-9852 -0 1/1

NX-7H-0-10/-10-HK,NX-7H-0-20/-20-HK

| NAME | OUTLINE | DESCRIPTION/CODE | Q'TY |
|--------------------------------|---|------------------------------|-----------|
| ユニット | UNIT | | |
| アンテナ ANTENNA |  | NX-7H* 000-040-214 ** | 1 |
| 工事材料 | INSTALLATION MATERIALS | CP08-01810/01820 | |
| 工事材料 INSTALLATION MATERIALS |  | CP08-01811 004-514-610 | 1 |
| ケーブル組品 CABLE ASSY. |  | 04S4168 *20M* 000-107-019 | 1 (*) |
| ケーブル組品 CABLE ASSY. |  | 04S4168 *10M* 000-106-821 | 1 (*) |

1.コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

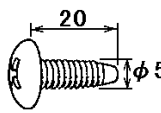
2.(*)印のケーブル組品は選択出来ます。
(*) MARKED CABLES ARE SELECTABLE.

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

08AW-X-9852

FURUNO

| | | |
|----------|----------------|----------------|
| CODE NO. | 004-515-280-00 | 08AW-X-9401 -1 |
| TYPE | CP08-01861 | 1/1 |

| 工事材料表 INSTALLATION MATERIALS | | | | | |
|---------------------------------|--|---|---|------------|------------------|
| 番号 NO. | 名称 NAME | 略図 OUTLINE | 型名/規格 DESCRIPTIONS | 数量 Q'TY | 用途/備考 REMARKS |
| 1 | +トラスタップ [®] ソネジ [®] 1種 SELF-TAPPING SCREW |  | 5X20 SUS304 CODE NO. 000-802-081-00 | 4 | |

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

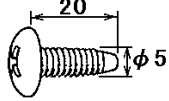
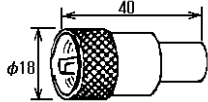
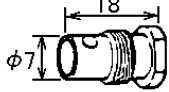
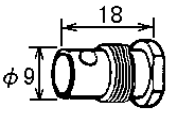
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

08AW-X-9401

FURUNO ELECTRIC CO., LTD

FURUNO

| | | |
|----------|----------------|----------------|
| CODE NO. | 004-515-300-00 | 08AW-X-9402 -3 |
| TYPE | CP08-01863 | 1/1 |

| 工事材料表 INSTALLATION MATERIALS | | | | | |
|---------------------------------|---|--|--|------------|------------------|
| 番号 NO. | 名称 NAME | 略図 OUTLINE | 型名/規格 DESCRIPTIONS | 数量 Q'TY | 用途/備考 REMARKS |
| 1 | +トラスタップ [®] ソネジ [®] 1ｼｼ SELF-TAPPING SCREW |  | 5X20 SUS304 CODE NO. 000-162-608-10 | 4 | |
| 2 | 同軸プラグ [®] COAX.PLUG |  | FM-MP-7 CODE NO. 000-161-293-10 | 2 | |
| 3 | アダプタ [®] REDUCER(S) |  | MP-M3A CODE NO. 000-161-295-10 | 2 | |
| 4 | アダプタ [®] REDUCER(L) |  | MP-M5A CODE NO. 000-161-296-10 | 2 | |

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

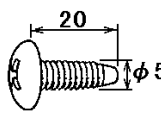
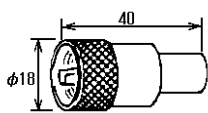
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

08AW-X-9402

FURUNO

| | | |
|----------|----------------|----------------|
| CODE NO. | 004-515-430-00 | 08AW-X-9403 -3 |
| TYPE | CP08-01864 | 1/1 |

| 工事材料表 INSTALLATION MATERIALS | | | | | |
|---------------------------------|---|---|--|------------|------------------|
| 番号 NO. | 名称 NAME | 略図 OUTLINE | 型名/規格 DESCRIPTIONS | 数量 Q'TY | 用途/備考 REMARKS |
| 1 | +トラスタップ [®] ソネジ [®] 1ｼｬ SELF-TAPPING SCREW |  | 5X20 SUS304 CODE NO. 000-162-608-10 | 4 | |
| 2 | 同軸プラグ [®] COAX.PLUG |  | FM-MP-7 CODE NO. 000-161-293-10 | 1 | |

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

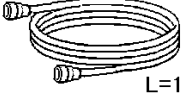
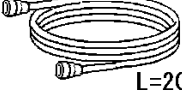
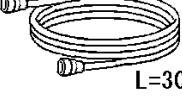
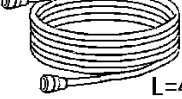
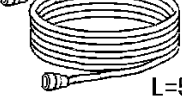
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

08AW-X-9403

FURUNO

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| CODE NO. | | 08AW-X-9407 -1 |
| TYPE | | 1/1 |

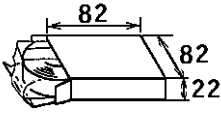
| 工事材料表 INSTALLATION MATERIALS | | NX-700A/B | | | |
|---------------------------------|-----------------------|---|-------------------------|------------|--------------------|
| 番号 NO. | 名称 NAME | 略図 OUTLINE | 型名 / 規格 DESCRIPTIONS | 数量 Q'TY | 用途 / 備考 REMARKS |
| 1 | ケーブル組品 CABLE ASSY. |  L=10M | 04S4168 *10M* | 1 | 選択 TO BE SELECT |
| | | | CODE NO. 000-106-821 | | |
| 2 | ケーブル組品 CABLE ASSY. |  L=20M | 04S4168 *20M* | 1 | 選択 TO BE SELECT |
| | | | CODE NO. 000-107-019 | | |
| 3 | ケーブル組品 CABLE ASSY. |  L=30M | 04S4168 *30M* | 1 | 選択 TO BE SELECT |
| | | | CODE NO. 000-107-020 | | |
| 4 | ケーブル組品 CABLE ASSY. |  L=40M | 04S4168 *40M* | 1 | 選択 TO BE SELECT |
| | | | CODE NO. 000-107-021 | | |
| 5 | ケーブル組品 CABLE ASSY. |  L=50M | 04S4168 *50M* | 1 | 選択 TO BE SELECT |
| | | | CODE NO. 000-107-022 | | |

08AW-X-9407

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

FURUNO

| | | |
|----------|----------------|----------------|
| CODE NO. | 004-514-610-00 | 08AW-X-9404 -1 |
| TYPE | CP08-01811 | 1/1 |

| 工事材料表 INSTALLATION MATERIALS | | | | | |
|---------------------------------|----------------------------|---|--|------------|------------------|
| 番号 NO. | 名称 NAME | 略図 OUTLINE | 型名/規格 DESCRIPTIONS | 数量 Q'TY | 用途/備考 REMARKS |
| 1 | 絶縁テープ SELF-BONDING TAPE |  | Uテープ 0.5X19X5M ----- Uテープ 0.5X19X5M ----- CODE NO. 000-165-833-10 ----- 000-800-985-00 | 1 | |

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

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

FURUNO

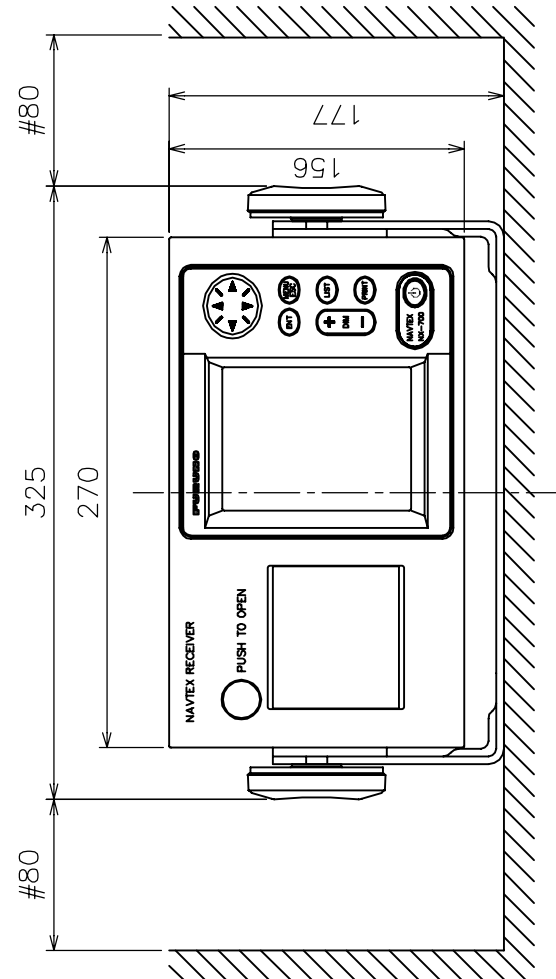
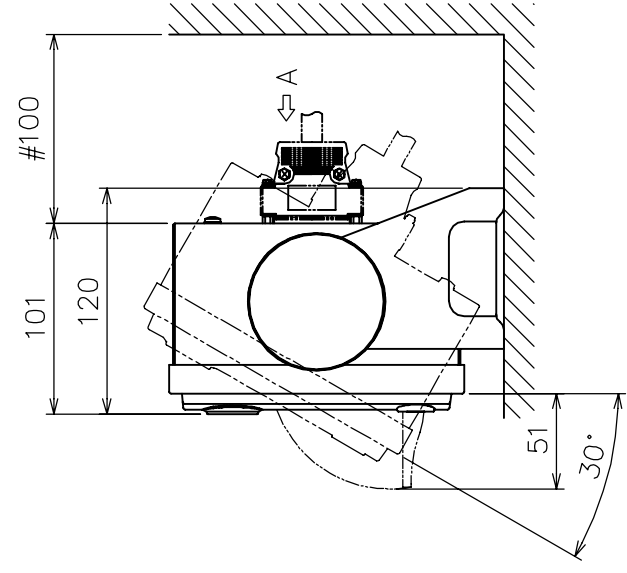
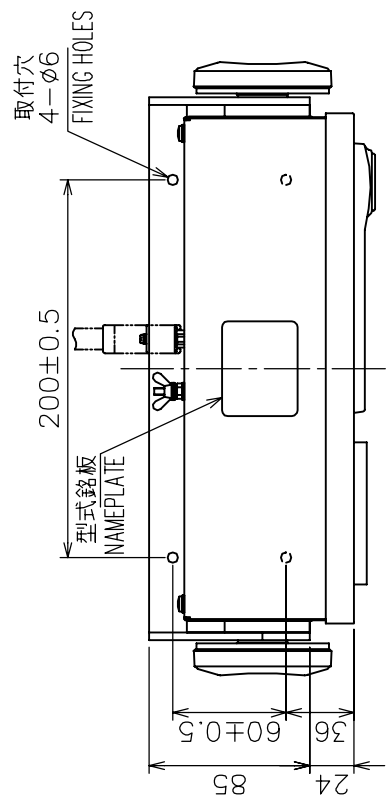
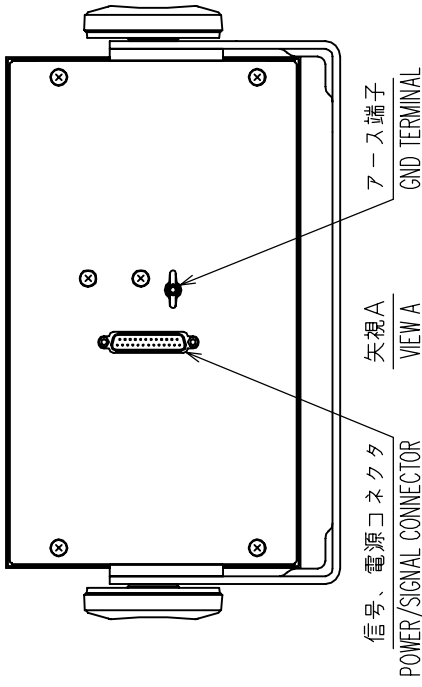
| | | |
|----------|----------------|--------------------|
| CODE NO. | 004-515-290-00 | 08AW-X-9301 -2 1/1 |
| TYPE | SP08-02101 | BOX NO. P |

| SHIP NO. | | SPARE PARTS LIST FOR | | | U S E | | | SETS PER VESSEL |
|------------|--------------------------|----------------------|----------------------|----------|-------------|-------|------------------|-----------------|
| ITEM NO. | NAME OF PART | OUTLINE | DWG. NO. OR TYPE NO. | QUANTITY | | | REMARKS/CODE NO. | |
| | | | | WORKING | | SPARE | | |
| | | | | PER SET | PER VES | | | |
| 1 | ヒューズ FUSE | | FGMB 125V 2A PBF | | | 1 | 000-157-479-10 | |
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| MFR'S NAME | FURUNO ELECTRIC CO.,LTD. | | | DWG NO. | 08AW-X-9301 | | 1/1 | |

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)
 型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。
 TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

表 1 TABLE 1

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

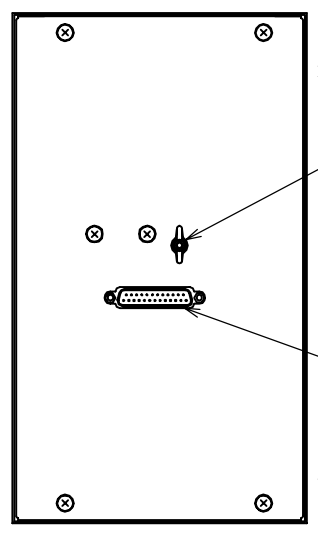


- 注記 1) #印寸法は最小サービス空間寸法とする。
 2) 指定外の寸法公差は表1による。
 3) 取付用ネジはトラスタップピンネジ呼び径5×2.0を使用のこと。
- NOTE 1. # MINIMUM SERVICE CLEARANCE.
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 3. USE SELF-TAPPING SCREWS 5x2.0 FOR FIXING THE UNIT.

| | | | | |
|----------|-------------|-----------------|-------|--|
| DRAWN | MAY 16, '05 | E. MIYOSHI | TITLE | NX-700A |
| CHECKED | | T. TAKAHASHI | 名称 | 指示部 (卓上装備、プリンタ組込型) |
| APPROVED | | | | 外寸図 |
| SCALE | 1/4 | WSS 3.3 #106 kg | NAME | DISPLAY UNIT (TABLETOP MOUNT W/ PRINTER) |
| DMG.No. | C5649-G01-B | | | OUTLINE DRAWING |
| | | | | 08-023-100G-2 |

表 1 TABLE 1

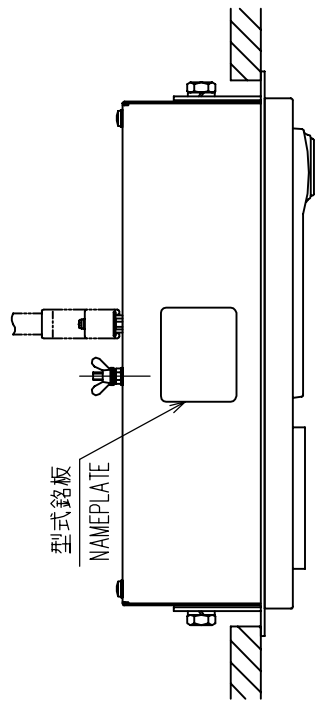
| 寸法区分 (mm) DIMENSIONS | 公差 (mm) TOLERANCE |
|-------------------------|----------------------|
| L ≤ 50 | ±1.5 |
| 50 < L ≤ 100 | ±2.5 |
| 100 < L ≤ 500 | ±3 |



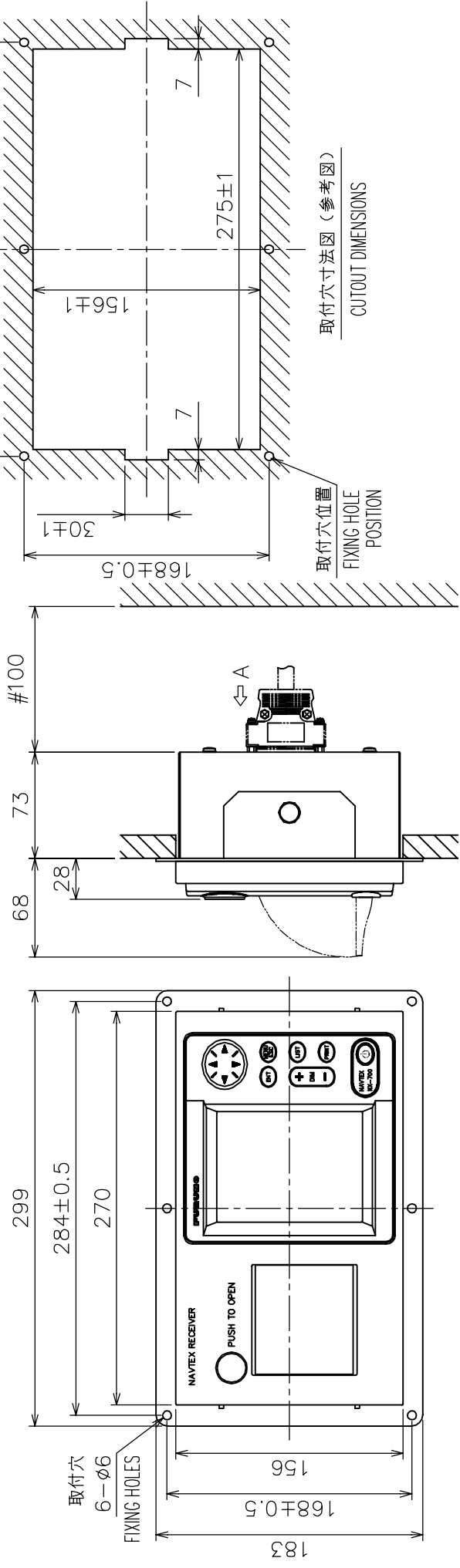
矢視A
VIEW A

信号、電源コネクタ
POWER/SIGNAL CONNECTOR

アース端子
GND TERMINAL



型式銘板
NAMEPLATE



取付穴位置 (参考図)
CUTOUT DIMENSIONS

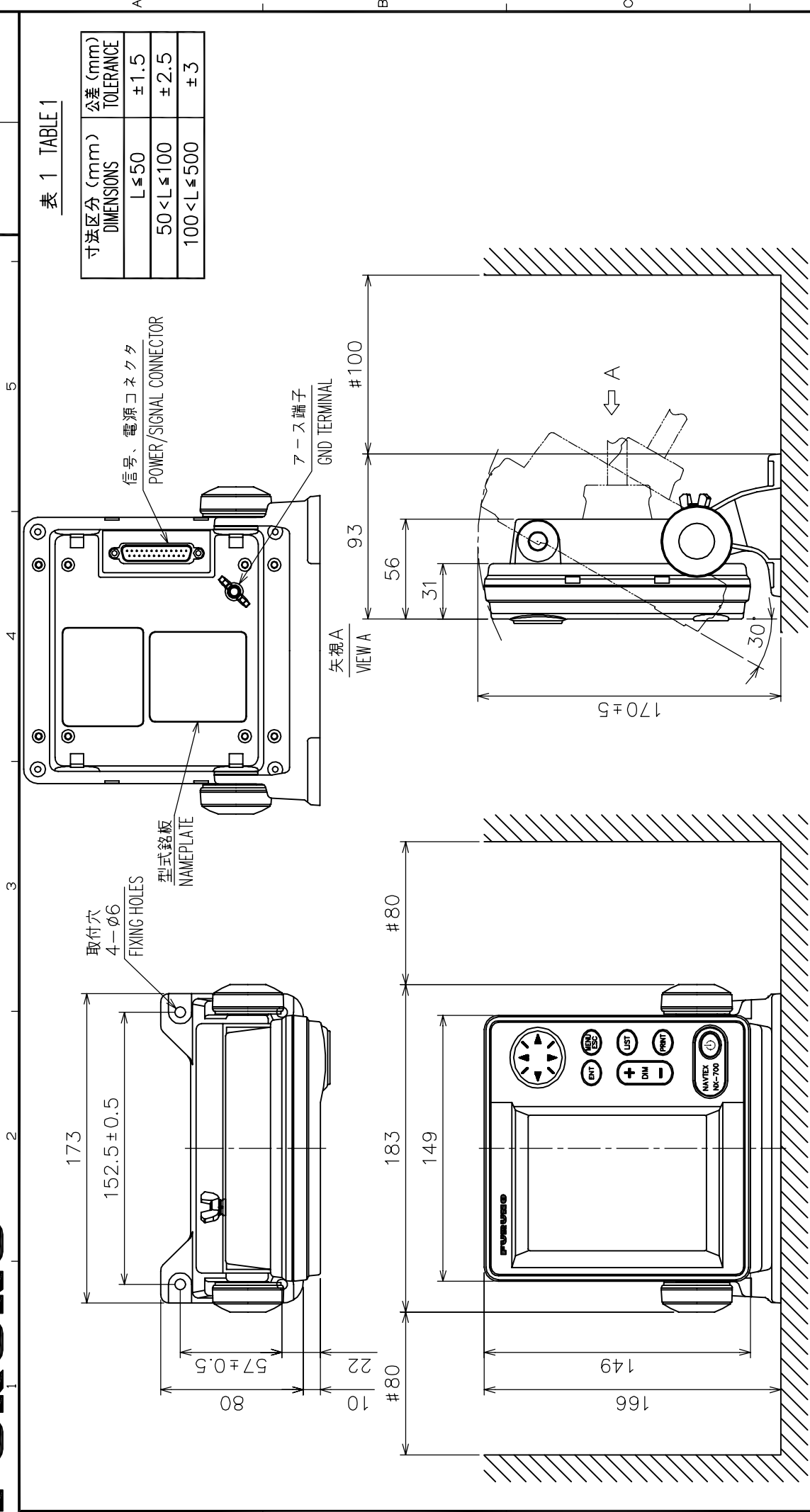
取付穴位置
FIXING HOLE POSITION

- 注 記
- 1) #印寸法は最小サービス空間寸法とする。
 - 2) 指定外の寸法公差は表1による。
 - 3) 取付用ネジはトラスタッピング呼び径5×20を使用のこと。
- NOTE
1. # MINIMUM SERVICE CLEARANCE.
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 3. USE SELF-TAPPING SCREWS 5 x 20 FOR FIXING THE UNIT.

| | | | | |
|----------|--------------|--------------|---------------|---------------------------------------|
| DRAWN | Mar. 29, '05 | E. MIYOSHI | TITLE | NX-700A |
| CHECKED | | I. TAKAHASHI | 名称 | 指示部(埋込装備、プリンタ組込型) |
| APPROVED | | Y. Hatai | 外寸図 | |
| SCALE | 1/4 | WSS 3.1 | NAME | DISPLAY UNIT (FLUSH MOUNT W/ PRINTER) |
| DATE | | C5649-G04-A | 08-023-110G-4 | OUTLINE DRAWING |

表 1 TABLE 1

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

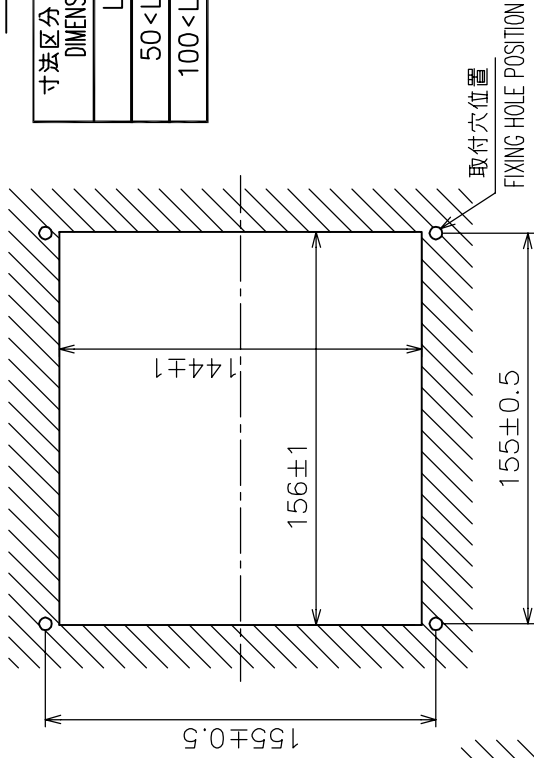


- 注 記 1) # 印寸法は最小サービス空間寸法とする。
 2) 指定外の寸法公差は表 1 による。
 3) 取付用ネジはトラスタツピンネジ呼び径 5 × 2.0 を使用のこと。
- NOTE 1. # MINIMUM SERVICE CLEARANCE.
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 3. USE SELF-TAPPING SCREWS 5 × 2.0 FOR FIXING THE UNIT.

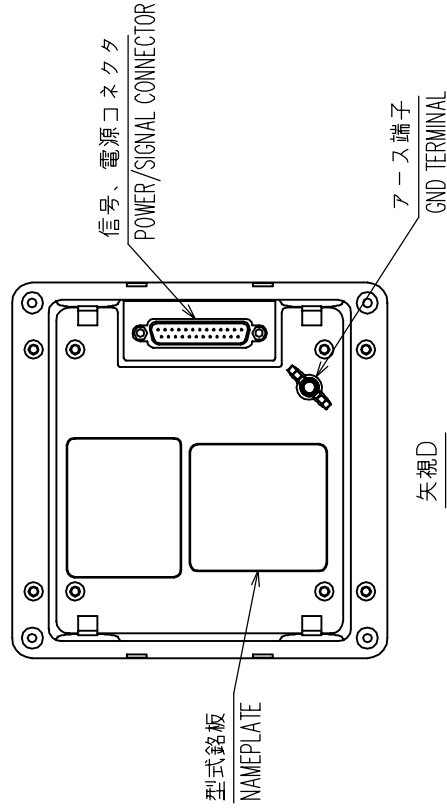
| | | | | |
|----------|-------------|--------------|-------|---|
| DRAWN | MAY 16 '05 | E. MIYOSHI | TITLE | NX-700B |
| CHECKED | | I. TAKAHASHI | 名称 | 指示部(卓上装備、LCD単体型) |
| APPROVED | | | | 外寸図 |
| SCALE | 1/3 | WASS 0.7 | NAME | DISPLAY UNIT (TABLETOP MOUNT W/O PRINTER) |
| DMG.No. | C5649-G05-B | | | OUTLINE DRAWING |
| | | | | 08-023-200G-1 |

表 1 TABLE 1

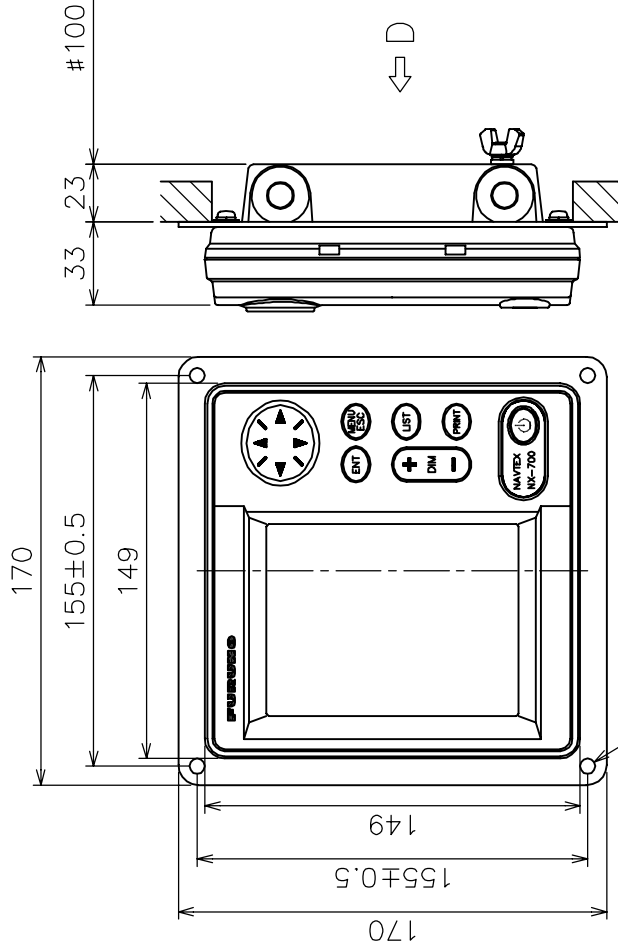
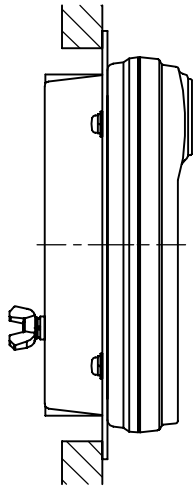
| 寸法区分 (mm) DIMENSIONS | 公差 (mm) TOLERANCE |
|-------------------------|----------------------|
| $L \leq 50$ | ± 1.5 |
| $50 < L \leq 100$ | ± 2.5 |
| $100 < L \leq 500$ | ± 3 |



取付穴寸法図 (参考図)
CUTOUT DIMENSIONS



矢視D
VIEW D



- 注 記
- 1) 指定外の寸法公差は表 1 による。
 - 2) # 印寸法は最小サービスマン寸法とする。
 - 3) 取付用ネジはトラスタックピンネジ呼び径5×20を使用のこと。
- NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 2. #: MINIMUM SERVICE CLEARANCE.
 3. USE SELF-TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

| | | | | |
|----------|-------------|-----------------|---------------|--|
| DRAWN | MAY 16, '05 | E. MIYOSHI | TITLE | NX-700B |
| CHECKED | | I. TAKAHASHI | 名称 | 指示部 (埋込装置、LCD 単体型) |
| APPROVED | | | 外寸図 | |
| SCALE | 1/3 | WSS 0.7 #104 kg | NAME | DISPLAY UNIT (FLUSH MOUNT W/O PRINTER) |
| DATE | | C5649-G07-B | 08-023-220G-1 | OUTLINE DRAWING |

取付穴 2-φ6

FIXING HOLES

210±1

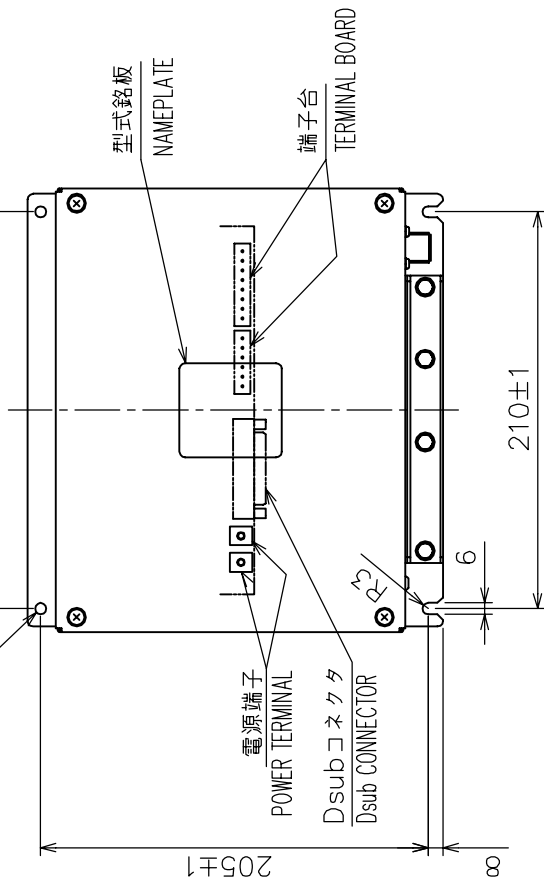
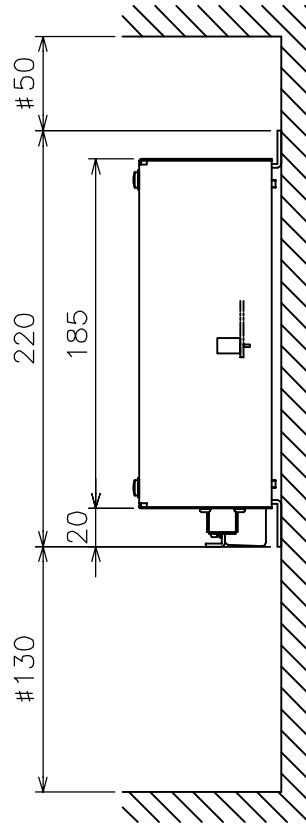
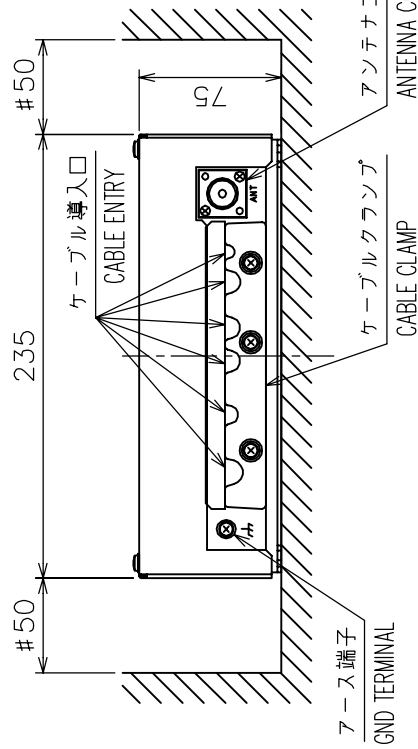


表 1 TABLE 1

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



注 記

- 1) #印寸法は最小サービスクリアランスとする。
- 2) 指定外の寸法公差は表1による。
- 3) 取付用ネジはトフスタツピネジ呼び径5×20を使用のこと。

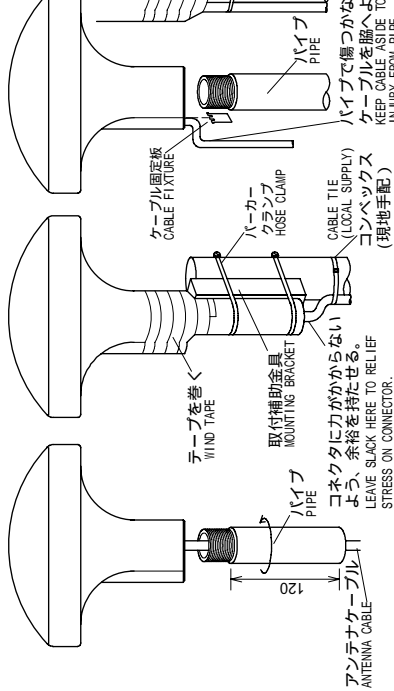
NOTE

1. # MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE SELF-TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

| | | | | |
|----------|--------------|----------------------------|-------|-----------------|
| DRAWN | Mar. 25, '05 | E. MIYOSHI | TITLE | NX-7001 |
| CHECKED | | T. TAKAHASHI | 名称 | 受信部 |
| APPROVED | | Y. Hatai | 外寸図 | |
| SCALE | 1/4 | WSS 2.0 $\frac{\#104}{kg}$ | NAME | RECEIVER UNIT |
| DWG. No. | C5649-G03-A | 08-023-300G-1 | | OUTLINE DRAWING |

A) マストへの取付け MAST MOUNTING

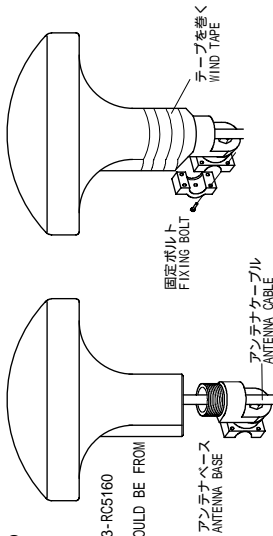
a) マスト取付金具CP20-0111(工事材料)でマストに固定する。
USE MAST MOUNTING KIT CP20-0111.



コネクタに力がかからないよう、余裕を持たせる。
LEAVE SLACK HERE TO RELIEVE STRESS ON CONNECTOR.

B) スタンションやパルピットに取付けるとき HANDRAIL MOUNTING

レール用アンテナベース No.13-RC5160 (取付可能レール直径: 19~32)
(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 SHOULD BE FROM 19mm TO 32mm.

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みだ後に固定する。
2) アンテナを固定するときパイプ(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.
TURNING THE ANTENNA MAY TWIST THE CABLE AND PLACE STRESS ON CONNECTOR.

C) 取付ける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.13-0A330/0A310.

| 傾斜角 INCLINATION | -5° - 33° | 32° - 65° | 65° - 98° |
|-----------------------------|-----------------------|-----------------------|-----------------------|
| 装備方法 MOUNTING METHOD | | | |
| アンテナベース型式 ANTENNA BASE TYPE | 直型アンテナベース No.13-0A330 | L型アンテナベース No.13-0A310 | L型アンテナベース No.13-0A310 |
| コード番号 CODE No. | 000-803-239 | 000-803-240 | 000-803-240 |

アンテナベース基部 MOUNTING DIMENSIONS OF ANTENNA BASE

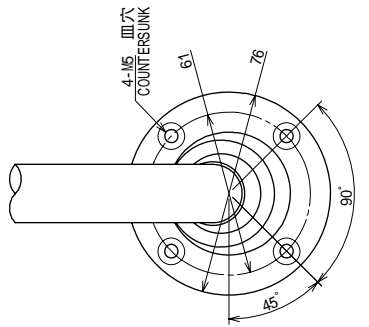
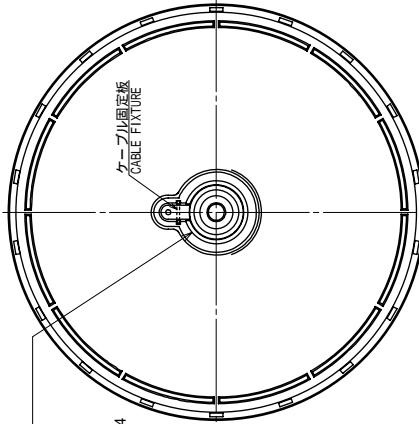
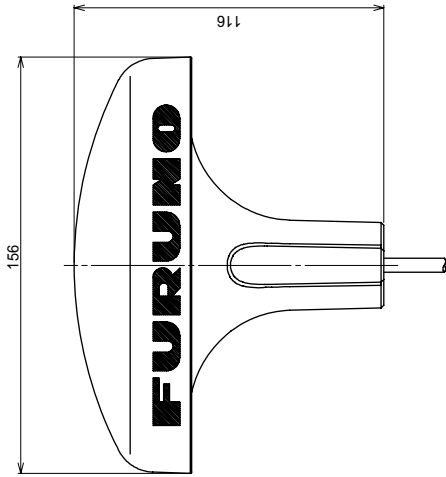


表 1 TABLE 1

| 寸法区分 (mm) DIMENSIONS | 公差 (mm) TOLERANCE |
|----------------------|-------------------|
| 0 < L 50 | ± 1.5 |
| 50 < L 100 | ± 2.5 |
| 100 < L 500 | ± 3 |

表 2 TABLE 2

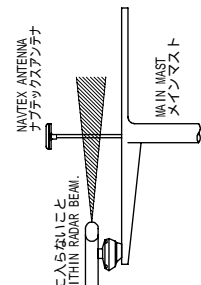
| 型式 TYPE | 質量 (kg) MASS (±10%) |
|------------------|---------------------|
| NX-3H-D (NX-300) | 0.94 |
| NX-7H (NX-700) | 0.6 |



ねじ山数 (25.4mmにつき) : 14
ねじピッチ : 1.8143 mm
オネジ有効長さ : 15.17 mm
オネジ有効径 : 24.17 mm
THREAD PER 25.4mm (1 INCH) : 14
PITCH: 1.8143 mm
THREAD LENGTH: 15.17 mm
PITCH DIAMETER: 24.17 mm

取付位置 MOUNTING LOCATION

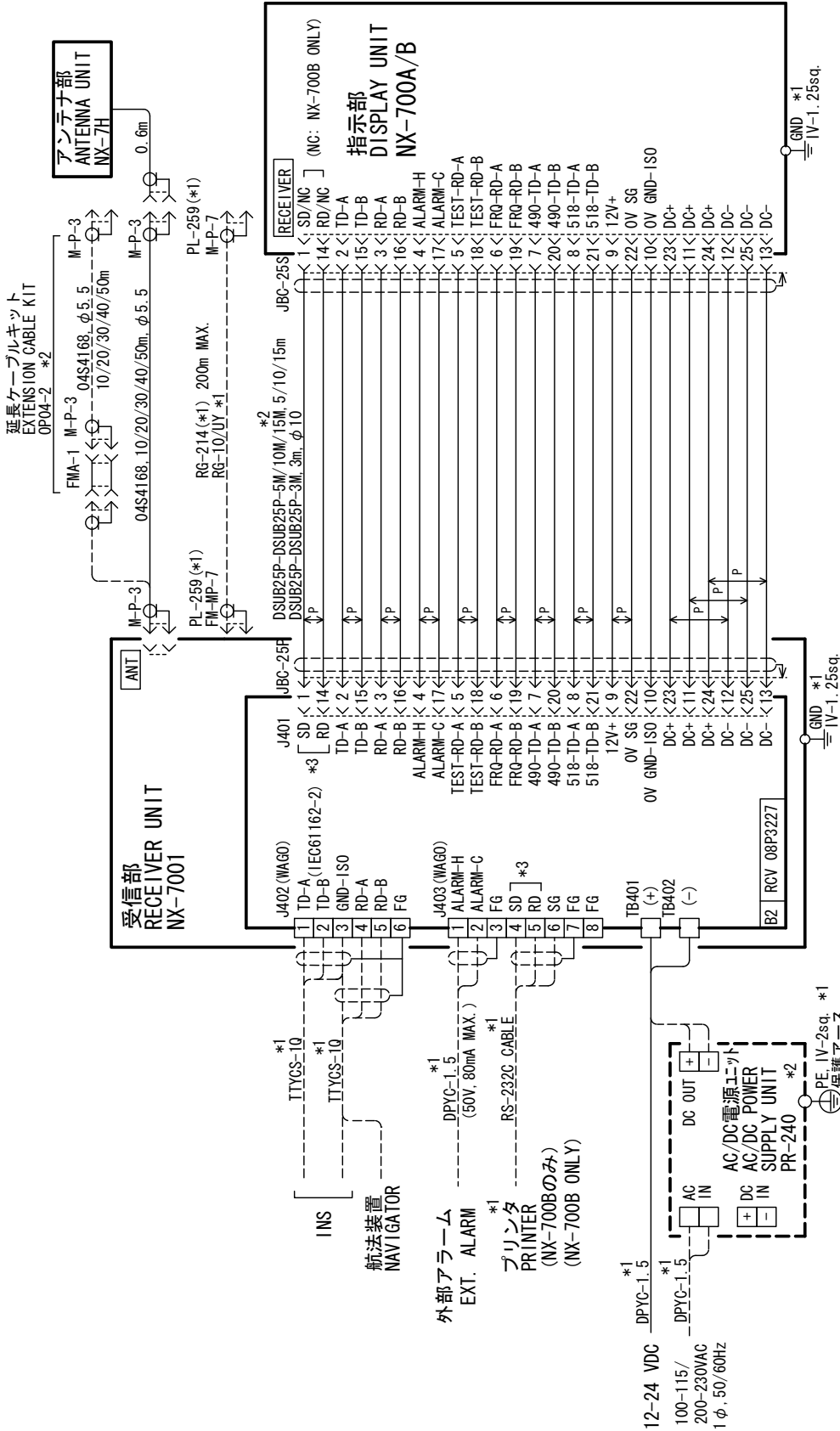
レーダービームに入らないこと
DO NOT MOUNT WITHIN RADAR BEAM.



注記 1) 指定外の寸法公差は表1による。
NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

| | | |
|----------------------|---------------|---------------------|
| DRAWN Oct. 13, '05 | E. MIYOSHI | TITLE NX-3H-D/NX-7H |
| CHECKED TAKAHASHI, T | | 名称 空中線部/アンテナ部 |
| APPROVED Y. Hatai | | 外寸図 |
| SCALE 1/2 | 質量参照 表1, 表2 | NAME ANTENNA UNIT |
| DWG. No. C5629-G05-F | 08-021-310G-1 | OUTLINE DRAWING |

2 3 4



| | | | | |
|----------|------------|-------------|-------|-------------------------|
| DRAWN | May 15 '07 | T. YAMASAKI | TITLE | NX-700A/B |
| CHECKED | May 15 '07 | T. TAKENO | 名称 | ナビテックス受信機 |
| APPROVED | May 17 '07 | R. Esumi | 相互結線図 | |
| SCALE | | MASS | NAME | NAVTEX RECEIVER |
| DWG. No. | | C5649-C01-G | | INTERCONNECTION DIAGRAM |

注記
 * 1) 造船所手配。
 * 2) オプション。
 * 3) プリント信号出力はメニューにて選択。

NOTE
 * 1. SHIPYARD SUPPLY.
 * 2. OPTION.
 * 3. SELECT OUTPUT OF PRINTER SIGNAL FROM MENU.

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Declaration of conformity**0560**We **FURUNO ELECTRIC CO., LTD.**

(Manufacturer)

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

(Address)

hereby declare under our sole responsibility that the product

NAVTEX receiver Types: NX-700A (display with printer) and NX-700B (display only) consisting of Display unit NX-700-A (for NX-700A) or NX-700-B (for NX-700B), Receiver unit NX-7001, Active ferrite loop antenna NX-7H and optional Power supply unit PR-240

(Model names, type numbers)

to which this declaration relates conforms to the following standard(s) or normative document(s)

IMO Resolution MSC.148(77)

IEC 61097-6 2nd edition: 2005-12

IMO Resolution A.694(17)

EN 61162-1: 2000-07 (IEC 61162-1 2nd edition: 2000-07)

ITU-R Recommendation M.540-2

EN 61162-2: 1998-09 (IEC 61162-2 1st edition: 1998-09)

ITU-R Recommendation M.625-3

EN 60945: 2002 (IEC 60945 4th edition: 2002-08)

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

For assessment, see

- EC type-examination (Module B) certificate N° 05212003/AA/02 of 16 May 2007 issued by Telefication, The Netherlands
- Production Quality System (Module D) certificate No. P 112 of 20 May 2005 issued by Telefication, The Netherlands
- Test reports 99624530 of 25 May 2005 and 99770230 of 6 July 2006 prepared by Telefication, The Netherlands
- Test Report No. FLI 12-05-020 of 17 May 2005 prepared by Furuno Labotech International Co., Ltd., Nishinomiya, Japan

This declaration is issued according to the provisions of European Council Directive 96/98/EC on marine equipment modified by Commission Directive 98/85/EC and amended by the Commission Directive 2002/75/EC.

On behalf of Furuno Electric Co., Ltd.

Hiroaki Komatsu
Manager,
International Rules and RegulationsNishinomiya City, Japan
May 21, 2007

(Place and date of issue)

(name and signature or equivalent marking of authorized person)

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