

**NCR-330
NAVTEX RECEIVER
INSTRUCTION MANUAL**

JRC *Japan Radio Co., Ltd.*

PREFACE

Thank you for purchasing the NCR-330 JRC NAVTEX Receiver.

The NAVTEX receiver automatically receives and prints out NAVTEX service broadcasts supplied in English.



- Before using the receiver, carefully read this INSTRUCTION MANUAL so as to fully understand the proper usage and handling.
- Keep the INSTRUCTION MANUAL in an appropriate place so that you can readily refer to it when necessary.
- If you are uncertain about any operations of the receiver or encounter any problems during operation, refer to this manual. You will find solutions to common problems and useful hints and suggestions.

BEFORE OPERATION

Alert Symbols

A number of alert symbols are used in this manual and labeled on the product itself to ensure safe and proper usage, and to prevent possible injury to you or others and to avoid possible property damage during operation or maintenance. Some of these alert symbols and their meanings are shown below.

Before reading the remainder of this manual, familiarize yourself with the following symbols and messages:

	WARNING	Indicates a situation that could result in death or serious personal injury if ignored or if the product is mishandled.
	CAUTION	Indicates a situation that could result in personal injury and/or property damage if ignored or if the product is mishandled.

Examples of alert symbols



The triangular symbol (Δ) means “caution” (danger and/or other warning). The specific type of hazard (not specified in this example) is depicted in the warning box.



This symbol signifies an action that is prohibited. The specific type of prohibited action (in this example, disassembly) is depicted in or near the symbol.



This symbol signifies a required action. The specific type of required action (in this example, removing the power plug from the outlet) is depicted in the symbol.

OPERATING PRECAUTIONS



WARNING



Do not place heavy objects on the receiver unit. Failure to observe this warning could result in the unit becoming unbalanced and thus causing injury if it falls.



Do not place heavy objects on the power cable or the antenna cable. Failure to observe this warning could result in fire, electrical shock, product trouble, and/or receiver signal deterioration.



Do not operate at voltages other than 10.8 - 35.0 VDC. Failure to observe this warning could result in fire, electrical shock, and/or malfunction.



If an unusual smell, smoke, or other abnormality is detected, immediately turn off the power to the unit and then turn off the power on the power distribution panel of the vessel. After confirming that the unusual smell, smoke, or other abnormality has cleared up, consult your dealer or nearest JRC service/sales representative for repair. Continued use while the abnormality persists may cause fire and/or electrical shock.

OPERATING PRECAUTIONS



CAUTION



Do not place the receiver unit on an unstable surface. If placed on an unstable table or an uneven surface, it could fall and result in personal injury and/or damage or malfunction of the unit.

Secure the unit sturdily using the supplied screws.



Do not expose to water or moisture. Placement on exposed decks or in humid places may cause electrical shock or product malfunction.



Do not open or remove the cover of the unit. Touching the parts inside could result in electrical shock. If it is absolutely necessary to check the interior of the unit for maintenance purposes, turn off the power switch on the power distribution panel supplying its power.



Avoid exposure to direct sunlight, heat, moisture, and dust. Failure to do so may cause fire, malfunction, and/or deterioration of print-out quality.



Always use the JRC-recommended printer paper. The use of any other paper may cause printer trouble and/or deterioration of print-out quality.



When cleaning, do not use benzene, alcohol, thinner, or other volatile solvents. These solvents may damage or cause deterioration to the coated surface. Wipe the surface lightly with a soft cloth.

AFTER UNPACKING

After unpacking, make sure that the following components and accessories are all present.
If any components or accessories are missing, please contact your dealer or the nearest JRC sales representative in your area:

NCR-330 NAVTEX Receiver		
Component	Model/Part Number	Quantity
NAVTEX receiver unit	NCR-330	1
Mounting screws	MPTG02024	4
Printer paper	H-7ZPJD0044	1
Instruction manual	H-7ZPJD0067	1
Operating card	H-7ZPJD0069	1
Spare fuse	H-6ZXAF00021	1
Ship Registration Form	H-7ZPJD0065	1

NAW-330 NAVTEX Antenna		
Component	Model/Part Number	Quantity
Antenna coupler	NAW-330	1
Whip antenna	CODE315	1
Plain washer	BRTG00404	1
Spring lock washer	BRTG00402	1
Spacer	MTV002473	1
Fitting bands	MPBP30274	2
Self bonding tape	9645	1

AFTER INSTALLATION

After completing the installation, please fill out the enclosed Ship Registration Form and return it to the following address by facsimile:

Marine Service Department, Japan Radio Co., Ltd.
17-8, Osaki 1-chome, Shinagawa-ku, Tokyo, JAPAN 141-0032
Facsimile No. +81-33-492-2777

EXTERNAL VIEW OF EQUIPMENT



CONTENTS

	PAGE
PREFACE	i
BEFORE OPERATION	ii
OPERATING PRECAUTIONS.....	iii
AFTER UNPACKING.....	v
EQUIPMENT APPEARANCE.....	vi
GLOSSARY	x
CHAPTER 1 EQUIPMENT OVERVIEW	
SECTION	
1.1 FUNCTIONS.....	1
1.2 FEATURES.....	1
1.3 CONFIGURATION.....	2
1.4 STRUCTURE.....	3
1.5 OVERALL FLOW CHART DIAGRAM	5
CHAPTER 2 NAMES AND FUNCTIONS OF COMPONENTS	
SECTION	
2.1 FRONT PANEL.....	7
2.2 REAR PANEL	10
CHAPTER 3 INSTALLATION	
SECTION	
3.1 FASTENING THE RECEIVER	13
3.1.1 Site selection	13
3.1.2 Installation procedure.....	15
3.2 FASTENING THE ANTENNA.....	16
3.2.1 Site selection	16
3.2.2 Installation procedure.....	18
3.3 EQUIPMENT COMPONENT CONNECTION	19
3.3.1 When the power unit is to be used.....	19

3.3.2	When battery power is to be used	21
3.4	CABLE CONNECTION.....	23
3.4.1	Connecting the antenna cable	23
3.4.2	Connecting the power cable	24

CHAPTER 4 NAVTEX MESSAGE RECEIVING OPERATIONS

SECTION

4.1	TURNING POWER ON	25
4.2	LOADING PRINTER PAPER	25
4.3	FEEDING THE PRINTER PAPER	27
4.4	PRINTING RECEIVED MESSAGES	28
4.5	DEACTIVATING THE ALARM.....	30
4.6	ADJUSTING THE BRIGHTNESS OF LAMPS.....	31
4.7	TURNING POWER OFF	31

CHAPTER 5 NAVTEX RECEIVING OPERATIONS

SECTION

5.1	DEFAULT SETTINGS.....	32
5.2	RESTORING DEFAULTS.....	33
5.3	FUNCTION SETTING	34
5.3.1	Starting the function-setting operations	34
5.3.2	Selecting a receiving station	35
5.3.3	Selecting the type of message to be received	37
5.3.4	Selecting receiver status	40
5.3.5	Ending function settings editing session.....	42
5.4	STATUS PRINTING.....	43
5.5	SELF-DIAGNOSTIC TESTS	44
5.6	COAST STATION MODE	45

CHAPTER 6 MAINTENANCE CHECK

SECTION

6.1	MAINTENANCE CHECK.....	47
6.1.1	Routine check.....	47
6.1.2	Periodic check.....	47
6.1.3	Other general maintenance and check items	51
6.2	IF PAPER BECOMES JAMMED	53
6.3	FUSE/CIRCUIT BOARD REPLACEMENT	54
6.3.1	Removing the casing (Preparation for fuse/circuit board replacement)	54
6.3.2	Replacing fuses.....	56
6.4	MAINTENANCE COMPONENT LISTS.....	57
6.4.1	Maintenance units	57
6.4.2	Maintenance parts.....	57

CHAPTER 7	AFTER-SALE SERVICES	58
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CHAPTER 8	DISPOSAL.....	60
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CHAPTER 9 SPECIFICATIONS

SECTION

9.1	NCR-330 RECEIVER	62
9.1.1	Electrical specifications	62
9.1.2	Mechanical specifications	63
9.2	NAW-330 ANTENNA.....	64
9.2.1	Electrical specifications	64
9.2.2	Mechanical specifications	64

GLOSSARY

(1) **NAVTEX Broadcasts**

Maritime safety information that consists of navigational alert information, meteorological alert information, and search-and-rescue information broadcast from coastal stations at a frequency of 518 kHz.

Alpha-numeric characters are broadcast narrow-band direct printing telegraphy in accordance with predetermined transmission schedules.

These broadcasts cover a range of 400 nautical miles from coasts.

(2) **Total Navigator (ECDIS)**

Electronic chart system for navigational surveillance.

(3) **Integrated Radio Communications System (IRCS) for Vessels**

A system that connects GMDSS (Global Marine Disaster Safety System) equipment to a digital interface network and provides integrated communications management using a GMDSS workstation.

CHAPTER 1

EQUIPMENT OVERVIEW

1.1 FUNCTIONS

- o The receiver (usually referred to as the equipment in this manual) executes the NAVTEX function that automatically receives and prints out NAVTEX service broadcasts supplied in English.
- o The NAVTEX function receives and prints out the various types of information broadcast at a frequency of 518 kHz, such as: navigational alert information, meteorological alert information, search-and-rescue information, and other types of information. The equipment also provides a method of programming so that you can select the type of information to be received and from which receiving station to receive it.

1.2 FEATURES

- o Receiving NAVTEX broadcasts
The equipment receives NAVTEX broadcasts automatically.
- o Reduced consumption of printer paper
Since the equipment has the capability of storing up to 128 message identification codes in memory for up to 72 hours, duplicate printing of messages is avoided.
- o Permanent storage of data settings
Once the types of messages to be received and their receiving stations have been set, these settings are automatically stored into the internal memory (EEPROM) of the equipment. The data, therefore, does not require re-setting, even after power has been turned off.
- o High reliability based on digital demodulation
JRC's unique digital demodulation circuit ensures high reliability.
- o Dual voltage supply input
The equipment can be used on either 24-VDC vessels or those with 12-VDC.
- o Self-diagnostics
The equipment contains self-diagnostic tools, making it easy to service.
- o Connection to external equipment
The equipment can be used in conjunction with Integrated Radio Communications System (IRCS) for vessels and the Total Navigator (ECDIS).

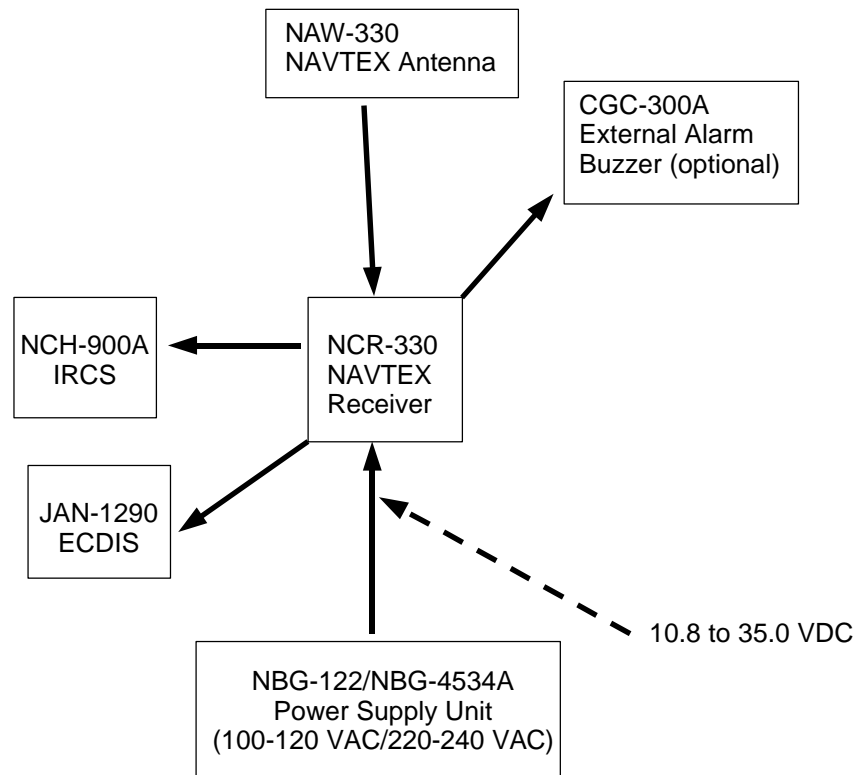
1.3 CONFIGURATION

The equipment consists of a main unit (NCR-330) and an antenna (NAW-330).

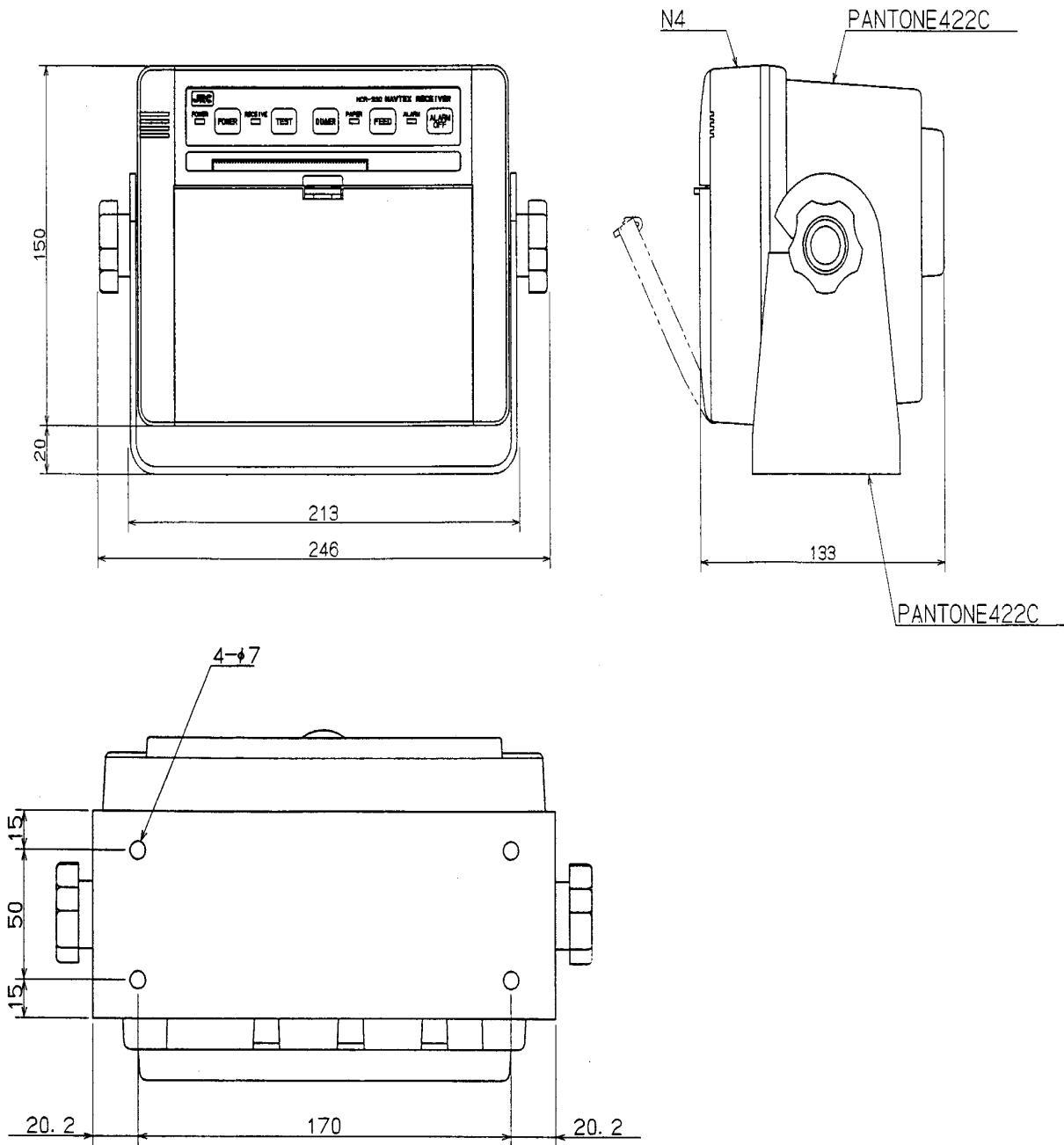
Although it operates on DC power, operation on AC power is also possible with an optional power supply unit (NBG-4534A or NBG-122). Also, an external alarm buzzer can be attached so that the alarm can be heard at remote locations when search-and-rescue information is received through NAVTEX broadcasts.

In addition, it can be used in conjunction with the Integrated Radio Communications System (IRCS) for vessels and the Total Navigator (ECDIS).

The overall configuration of the equipment, including major peripherals, is shown below.

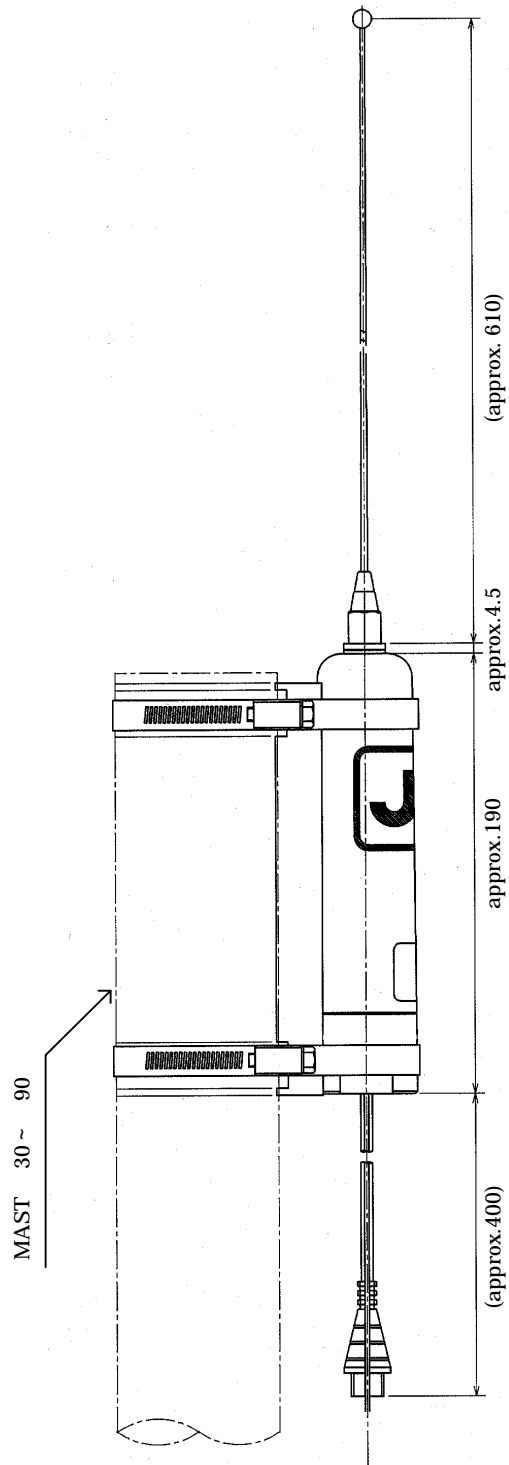


1.4 STRUCTURE



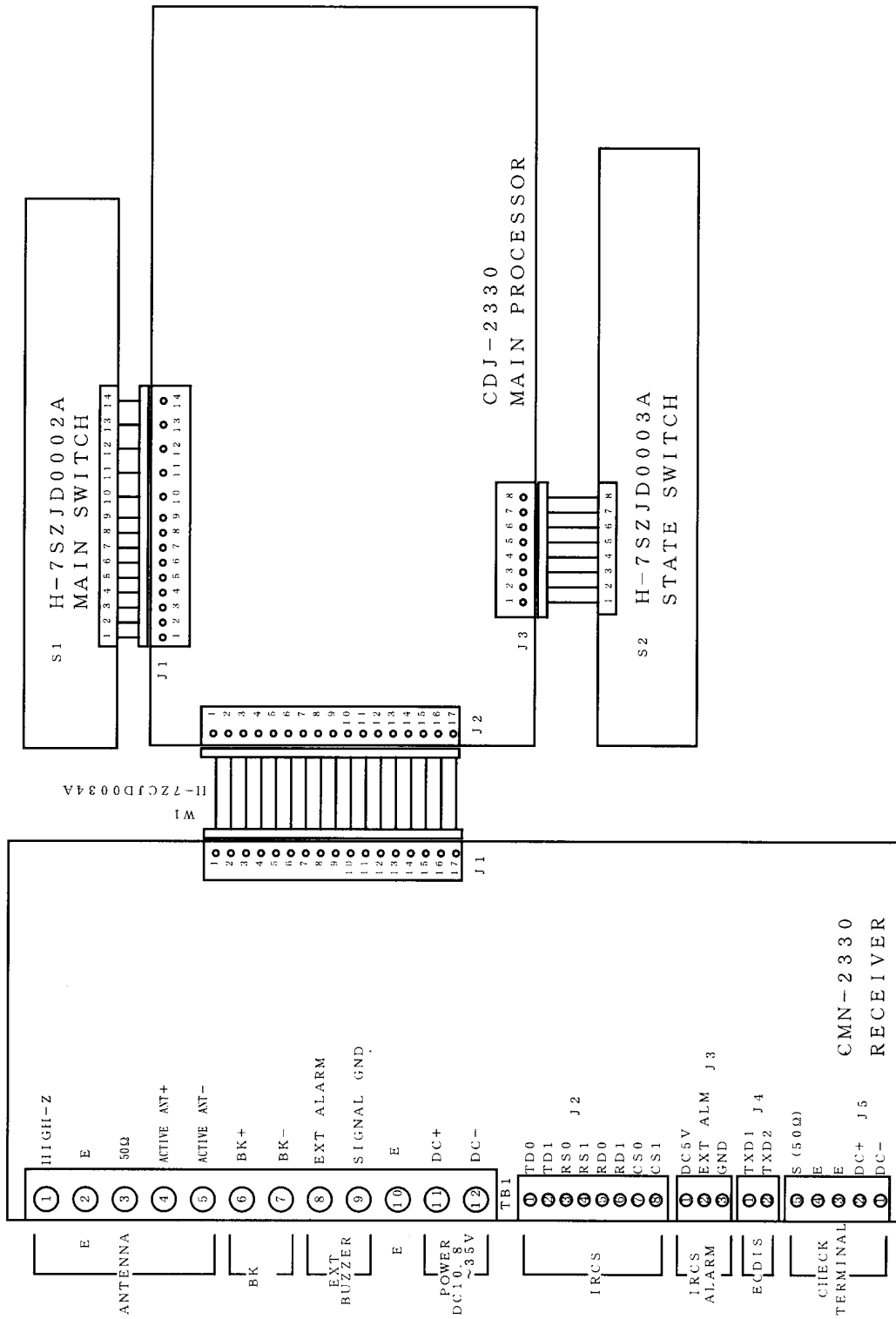
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External diagram of the NCR-330 NAVTEX Receiver

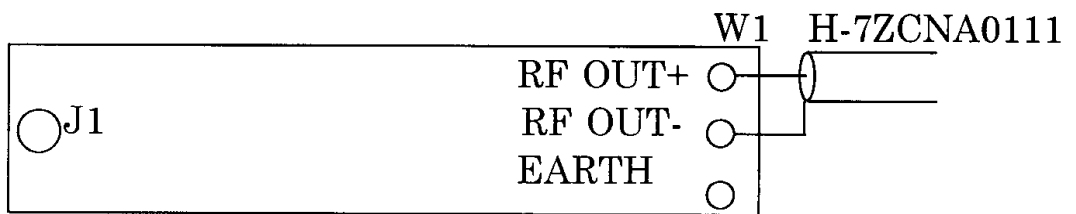


External diagram of the NAW-330 NAVTEX Antenna

1.5 OVERALL FLOW CHART DIAGRAM



Overall Flow Chart Diagram of the NCR-330 NAVTEX Receiver



CFG-2330 ANTENNA COUPLER

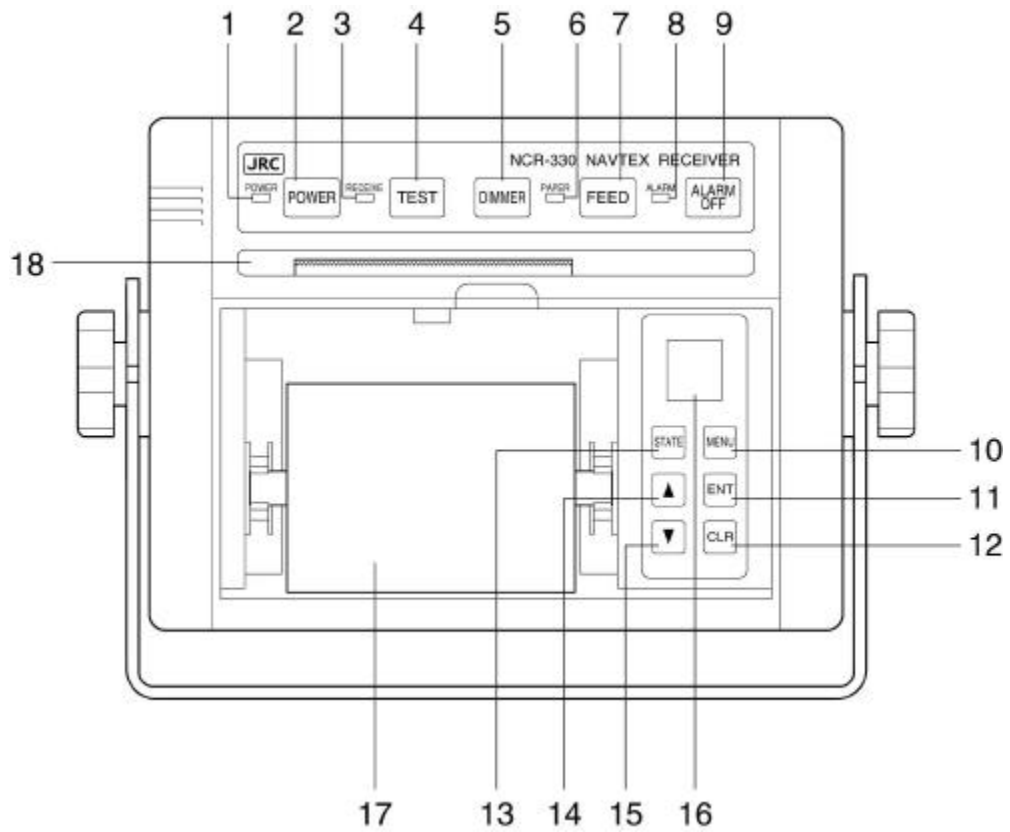
Overall Flow Chart Diagram of the NAW-330 NAVTEX Antenna

CHAPTER 2

NAMES AND FUNCTIONS OF COMPONENTS

2.1 FRONT PANEL

View of equipment with printer paper storage cover opened:



- 1: **POWER lamp**
Pressing the POWER switch activates the green POWER lamp to indicate that the power has been turned on.
- 2: **POWER switch**
Turns the receiver on and off.
- 3: **RECEIVE lamp**
This lamp turns on during signal detection and blinks during message text receiving.
- 4: **TEST switch**
Activates the receiver's self-diagnostic function.
- 5: **DIMMER switch**
Adjusts the brightness of the status lamps.
Each time the switch is pressed, the brightness changes in the following order:
High → Medium → Low → Off
This switch, however, does not change the brightness of the **PAPER** and **ALARM** lamps described below.
- 6: **PAPER lamp**
This orange lamp blinks to indicate that the equipment has run short of printer paper.
- 7: **FEED switch**
Pressing this switch feeds printer paper from the printer.
Paper is fed, line by line, with each press of the switch. Pressing and holding it down feeds the paper continuously.
- 8: **ALARM lamp**
This red lamp blinks to indicate that an alert message is being received.
- 9: **ALARM OFF switch**
This switch turns off the alarm that indicates that the equipment is receiving an alert message(s) or running short of printer paper.

10: MENU switch

This switch starts/stops receiver status setting mode.

Pressing the MENU switch allows you to set the receiver status to select the receiving station and message type in accordance to the operational instructions printed by the printer.

Press the switch again to end the setting operations.

11: ENT (enter) switch

Sets the receiver status for selection of the receiving station and message type. To select the setting, press this switch in accordance to the operational instructions printed by the printer.

12: CLR (clear) switch

Clears the current receiver status setting of receiving station/message type. To de-select a setting, press the switch in accordance to the operational instructions printed by the printer.

13: STATE switch

Pressing this switch prints out the currently set receiver status settings.

14: Δ switch

Displays receiving station and message type status in ascending alphabetical order.

15: ∇ switch

Displays receiving station and message type status in descending alphabetical order.

16: Symbol Alphabet indicator

Indicates the selected letter(B1 or B2).

17: Printer paper

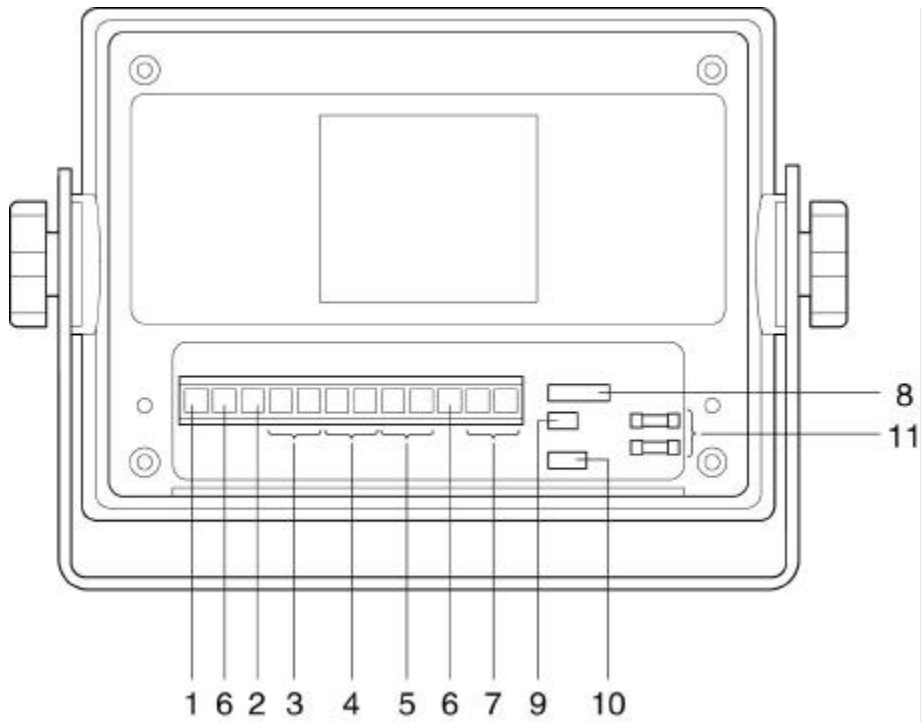
Messages are printed out on paper. When the paper runs short, a red line will appear at both edges of the paper.

18: Printer

This unit prints out messages.

2.2 REAR PANEL

View of the equipment with rear cover removed:



- 1: High-impedance antenna terminal (HIGH-Z ANT)**
Connect a wire antenna cable to this terminal.
- 2: 50-ohm antenna terminal (50OHM ANT)**
Connect a wide-band antenna cable to this terminal.
- 3: NAVTEX antenna terminal (ACTIVE ANT)**
Connect the antenna cable of NAW-330 Active Antenna to this terminal.
- 4: Key line terminals (BK+/BK-)**
If needed, connect the key lines leading from the transmitter to be used to these terminals.
- 5: External alarm buzzer terminals (EXT.ALARM/SIGNAL.GND)**
If needed, connect an optional CGC-300A buzzer to these terminals.
- 6: Grounding terminal (EARTH)**
This terminal is for electrical grounding to the hull of the vessel.
- 7: Power terminals (DC+/DC-)**
Connect the power supply to these terminals.
The voltage range of the power supply is from 10.8 to 35.0 VDC.
- 8: IRCS data input/output connector (IRCS)**
This connector sends received messages to the Integrated Radio Communications System (IRCS) for vessels and allows the NAVTEX Receiver to be set and controlled from the IRCS. Input and output are of the current-loop specifications. Data formats comply with the JRC commands.
- 9: ECDIS data output connector (ECDIS)**
This connector sends received messages to the Total Navigator (ECDIS). Output is of the RS-422A specifications. The data format complies with the JRC commands.
- 10: Test terminals**
These terminals are for in-factory testing only.
- 11: Fuses**
A pre-arcing fuse rated at 3.15 A is connected to each the DC(+) and DC(-) lines.

CHAPTER 3

INSTALLATION



WARNING



Never carry out the receiver installation by a user.

Ask your nearest branch, business office or a dealer for inspection and repair.

3.1 FASTENING THE RECEIVER

3.1.1 Site selection

The receiver is designed so that it can be installed on either a desk, a wall, or the ceiling of the vessel. Select an installation location that satisfies the criteria listed on the following page.



WARNING



Do not place the receiver unit on an unstable surface. If placed on an unstable table or an uneven surface, it could fall and result in personal injury and/or damage or malfunction of the unit.



Do not place heavy objects on the receiver unit. Failure to observe this warning could result in the unit becoming unbalanced and thus causing injury if it falls.



Do not place heavy objects on the power cable or the antenna cable. Failure to observe this warning could result in fire, electrical shock, product trouble, and/or receiver signal deterioration.



CAUTION



Do not expose to water or moisture. Placement on exposed decks or in humid places may cause electrical shock or product malfunction.



Avoid exposure to direct sunlight, heat, moisture, and dust. Failure to do so may cause fire, malfunction, and/or deterioration of print-out quality.



Avoid routing the antenna cable near other cables such as power cable, transmission antenna cables, or radar waveguides. Close proximity to such cables could cause interference (electronic “noise”) whereby the signal to the receiver may deteriorate.

Criteria for site selection

- (a) The distance from the magnetic compass should be at least 1 meter.
- (b) The length of the grounding wire should be minimized.
- (c) The installation location should be as free as possible from direct sunlight.
- (d) The installation location should also be: free from excessive heat, moisture, and vibration; in case of installation on the ceiling, free from the stagnant heat as well as the above, and; in case of installation near a window, free from salt water spray as well as the above.
- (e) The clearances as shown in the figure below should be confirmed.

The antenna cable, power cable, and grounding wire should be routed so as not to be in close proximity with transmitter, radar, and other sources of electronic noise, as well as the cables of these external units.

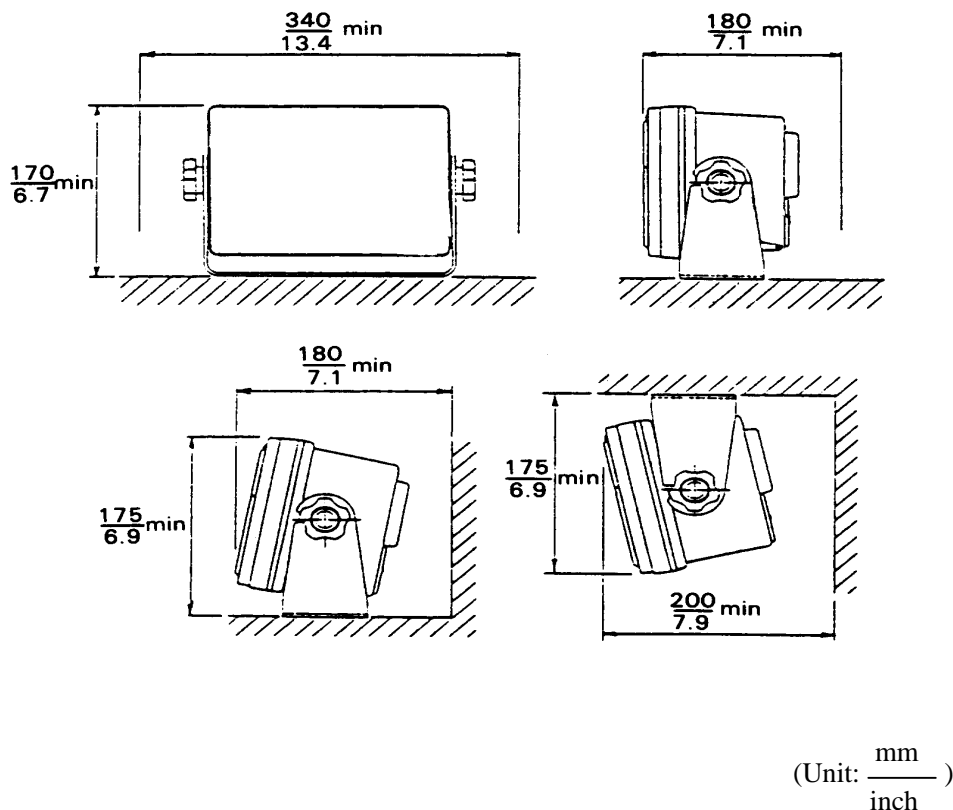


Fig. 3-1 Space required for receiver installation

3.1.2 Installation procedure

The following are the procedures for installing the receiver:

- (1) Loosen the knobs of the receiver and remove it from the mounting base.
- (2) Screw down the mounting base at the desired location.
- (3) Remount the receiver onto the mounting base and then tighten the knobs to lock the receiver in place.

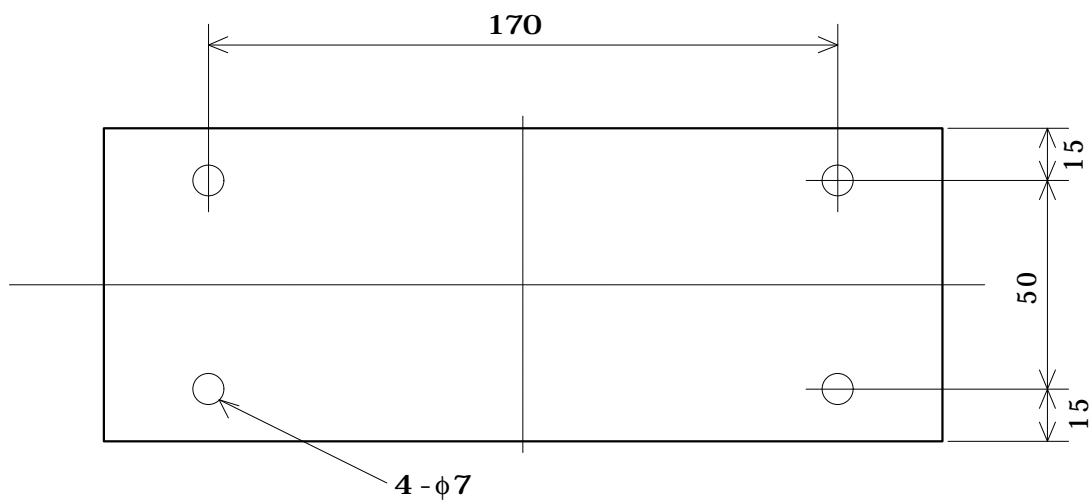


Fig. 3-2 Mounting dimensions

3.2 FASTENING THE ANTENNA

3.2.1 Site selection

Select an installation location that satisfies the criteria listed on the following page.



WARNING



The connectors of the antenna cable and the case mounting section of the whip antenna must be waterproofed. Failure to do so could cause fire, electrical shock, and/or deterioration of the signal to the receiver due to moisture or faulty electrical contact.



Keep the whip antenna away from any obstructions within a radius of one meter. Failure to do so could cause injury due to contact with human body. Antenna damage might result from possible contact with the human body or obstructions.



CAUTION



Avoid bundling the antenna of the NAW-330 together with any other antennas. Failure to observe this caution may cause deterioration of the signal to the receiver due to noise radiated from other antennas. Further, noise radiated from the antenna of the NAW-330 could cause signal deterioration to other equipment.



Avoid routing the antenna cable near other cables such as power cable, transmission antenna cables, or radar waveguides. Noise induced to the antenna cable could deteriorate the receiver signal.



Do not install the whip antenna in a place exposed to strong vibration. Antenna damage could result.



The connectors of the antenna cable must be waterproofed. Further, the antenna connectors of the NAW-330 float from the ship earth could cause turn on the earth lamps due to contact with the ship earth use battery power source.

Criteria for antenna site

- (a) Using a pole up to 9 cm in diameter and resistant to hull vibration
If the antenna is to be mounted using a pole such as a handrail, reinforce the pole by providing stays so that the antenna can maintain its initial anti-vibration characteristics.
- (b) There should be no obstructions within a radius of 1 meter of the installation location. The presence of any obstructions may bring the whip antenna into contact with them if it is swung significantly by the wind.
- (c) The installation location should enable the antenna to be completely waterproofed.
- (d) The installation location should be sufficiently distanced from the antenna of the transmitter.

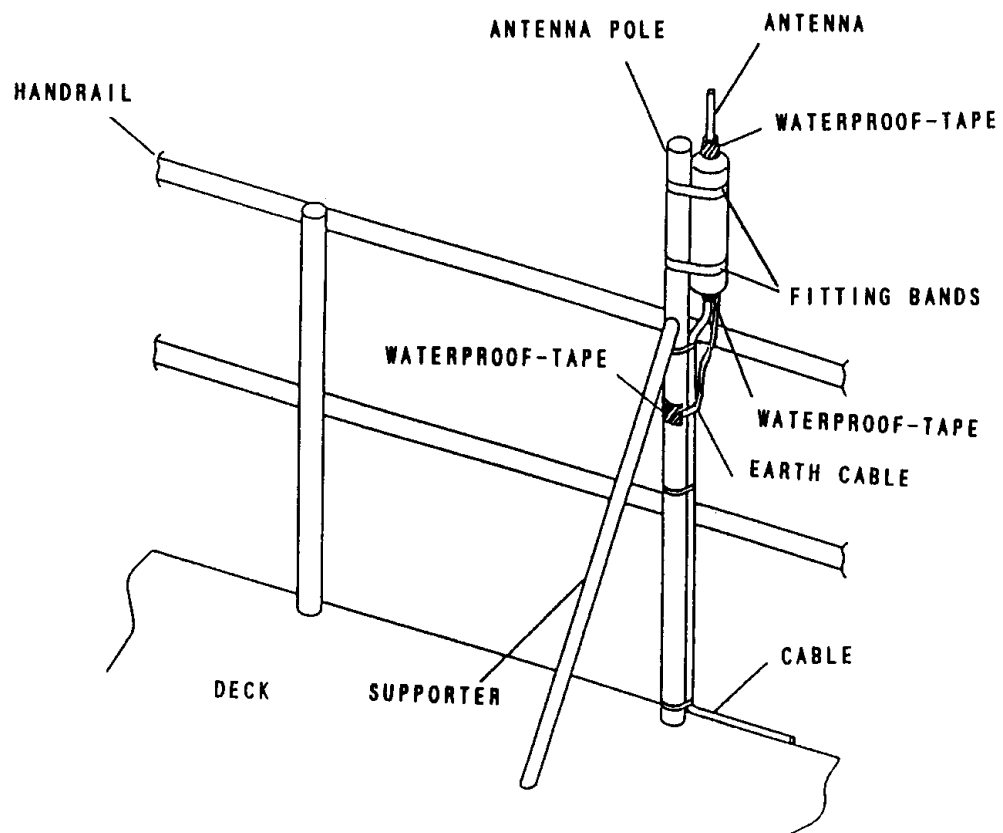


Fig. 3-3 Antenna installation location

3.2.2 Installation procedure

The following are the procedures for installing the antenna:

- (1) Thread the antenna element into the antenna coupler via the supplied plain washer and spring lock washer, and tighten securely with a wrench.
- (2) Fix the antenna coupler securely to the mast or perpendicular pole of the vessel using the supplied coupler spacer and mounting bands. The maximum diameter for the pole is 9 cm.
- (3) Connect the antenna cable connector and the receiver cable connector.
- (4) Wind the self-fusing adhesive tape or an equivalent waterproofing tape around the following sections:
 - 1) Connectors
 - 2) Whip antenna mounting case

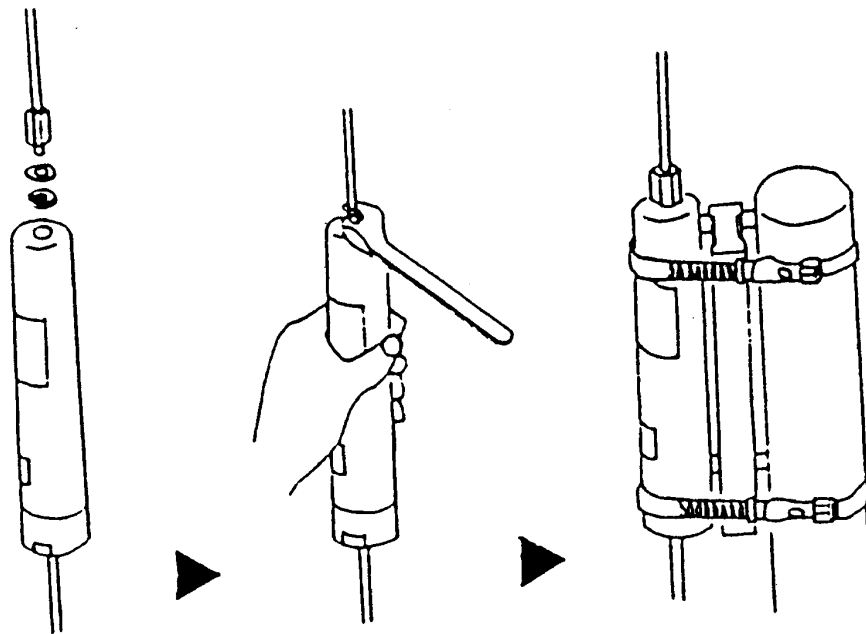


Fig. 3-4 Antenna installation

3.3 EQUIPMENT COMPONENT CONNECTION

Depending on whether the built-in or optional power unit is to be used, connect the equipment components correctly as shown in one of the following figures:

3.3.1 When the power unit is to be used

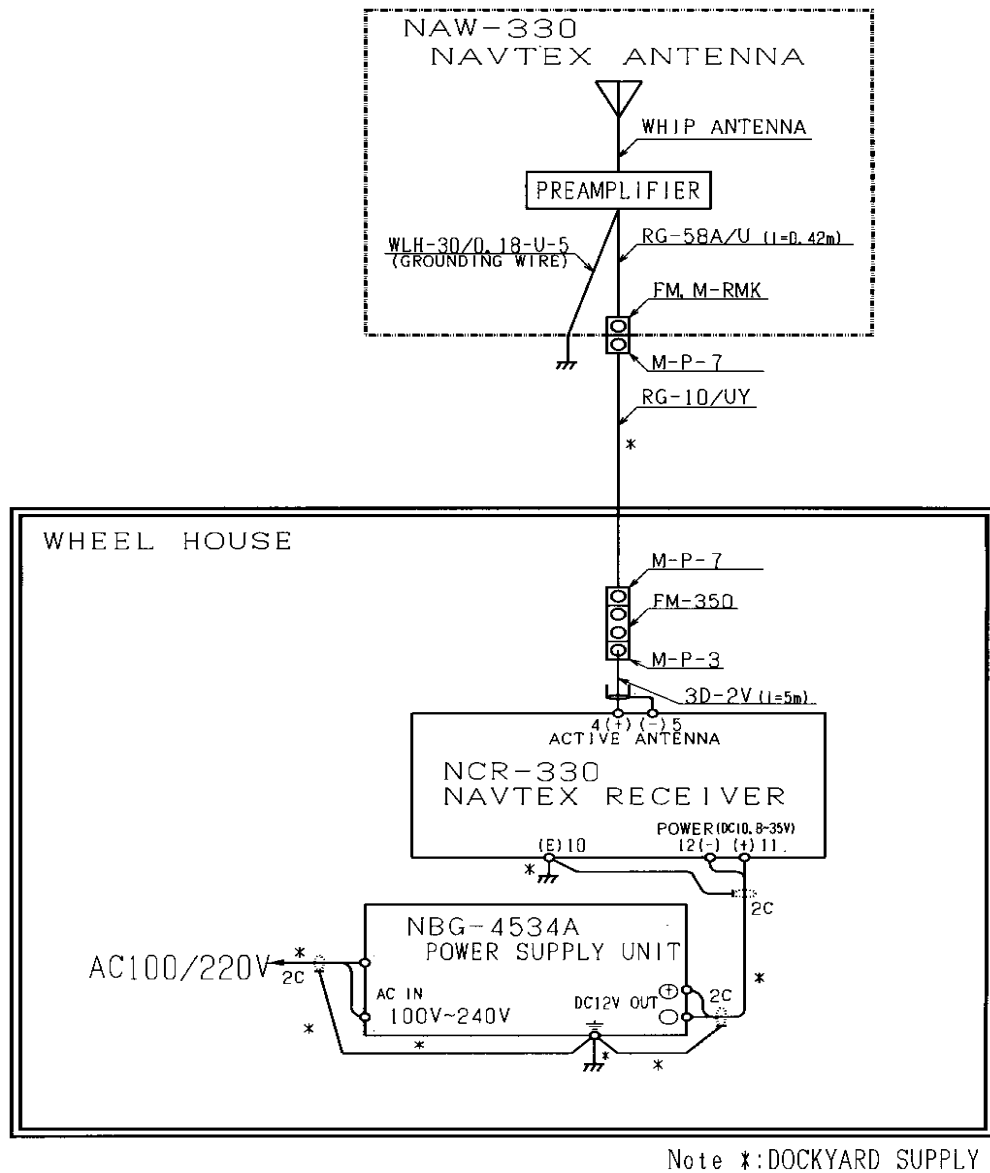


Fig. 3-5-1 Component connection diagram - Only when the power unit is to be used

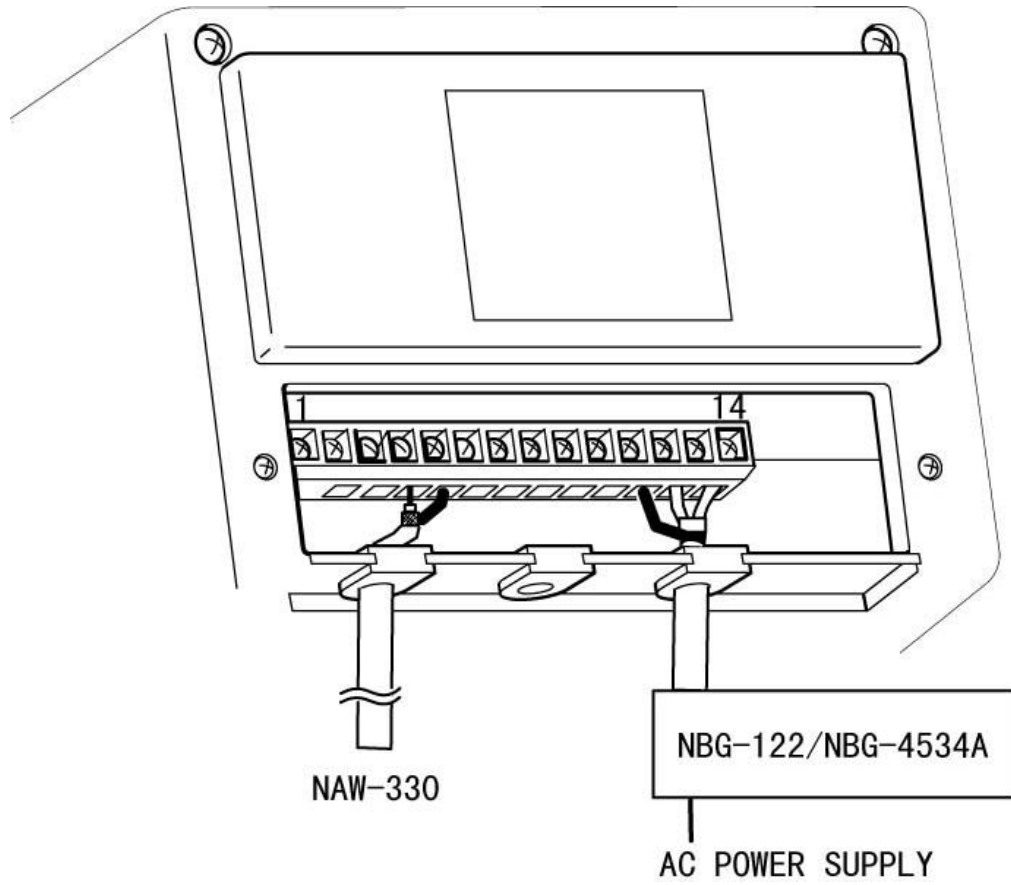
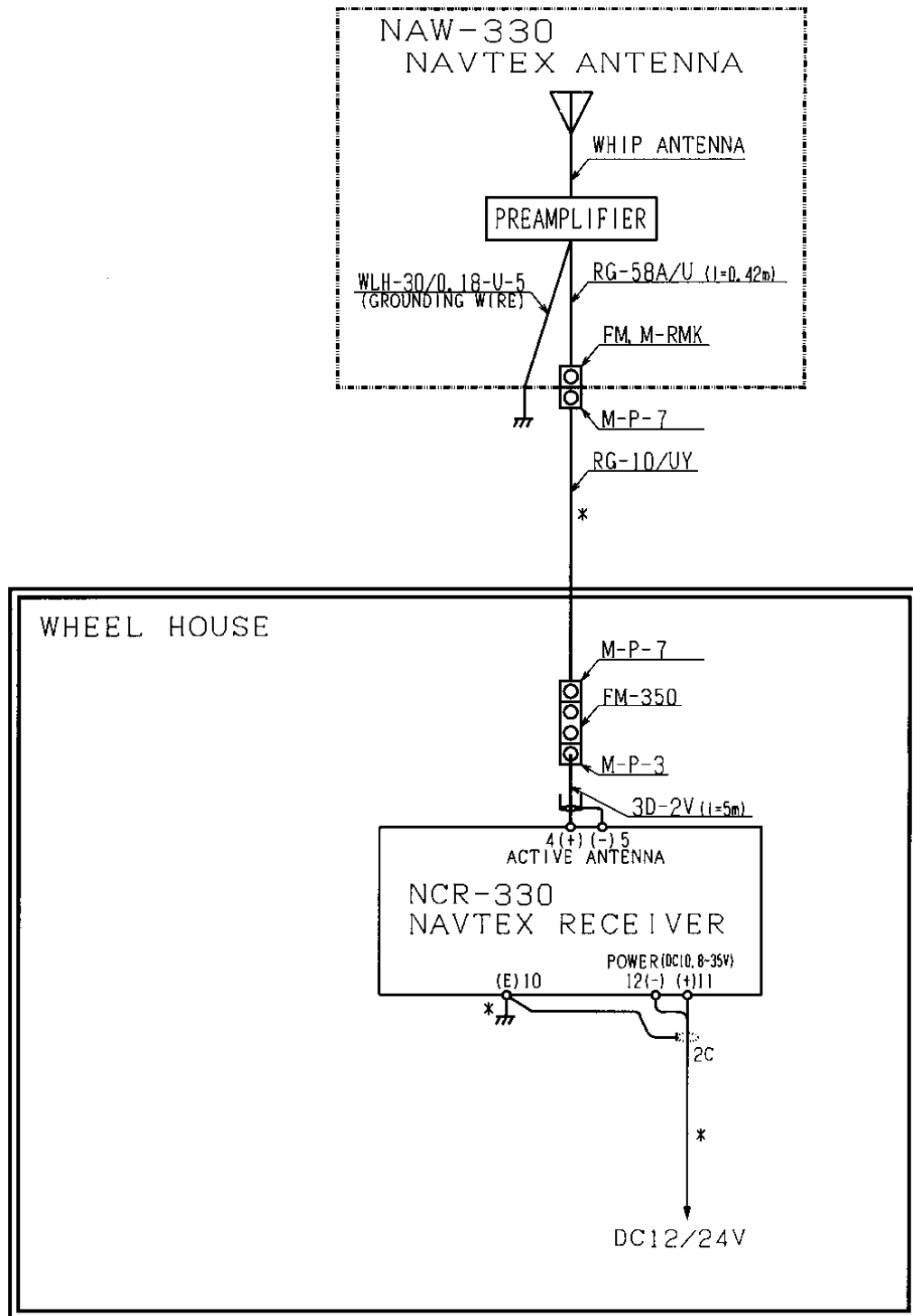


Fig. 3-5-2 Wiring the rear terminal board - Only when the power unit is to be used

3.3.2 When battery power is to be used



Note *: DOCKYARD SUPPLY

Fig. 3-6-1 Component connection diagram - Only when battery power is to be used

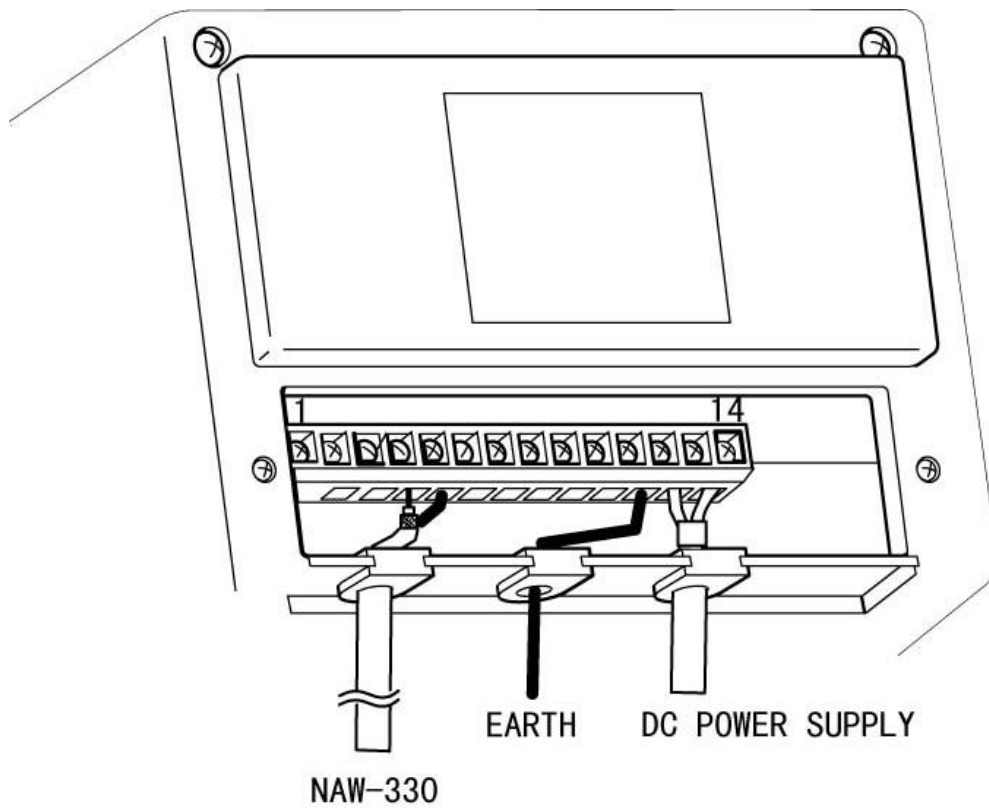






Fig. 3-6-2 Wiring the rear terminal board - Only when battery power is to be used

3.4 CABLE CONNECTION

Remove the cover from the rear bottom of the receiver, and connect the antenna cable, power cable, and all other necessary cables to the terminal board. All cables can be connected using either a Phillips or flap-tip screwdriver.

3.4.1 Connecting the antenna cable

Connect the antenna cable to the appropriate antenna terminal on the terminal board.

 CAUTION	
	When connecting the antenna cable to the terminal board, be careful not to connect the conductor wire and the shield wire to the wrong terminals. Incorrect wiring may cause equipment and/or antenna trouble or deterioration of the receiver signal.
	Direct-current power is supplied to the antenna cable. Be careful not to short-circuit the conductor wire and the shield wire. Short-circuiting could lead to equipment and/or antenna failures or deterioration of the signal to the receiver.
	If a ground-meter or a ground-lamp is connected to the DC power of the vessel, do not connect the shield wire of the antenna cable to the frame grounding terminal on the vessel. DC power to the antenna cable may cause the ground-meter to deflect or the ground-lamp to light up.

- ◆ Recommended cable: Armored 50-ohm coaxial cable
Model RG-10U/Y or equivalent

Procedure

- (1) Loosen the screw of the antenna cable input terminal on the terminal board.
- (2) Pass the cable through the gaskets.
- (3) Insert the conductor of the cable into the first hole from the left of the terminal board, and the shield wire into the second hole.
- (4) Tighten the screw to fix the cable.

3.4.2 Connecting the power cable

Connect the power cable to the power terminals on the terminal board.



WARNING



Do not operate at voltages other than 10.8 - 35.0 VDC. Failure to observe this warning could result in fire, electrical shock, and/or malfunction.



CAUTION



Do not reverse the polarity of the power supply connection. This could result in equipment malfunction.

- ◆ Recommended cable: Two-wire shielded cable
Model DPYC-1.25 or equivalent

Procedure

- (1) Loosen the screws of the DC+ and DC- power input terminals on the terminal board.
- (2) Pass the cable through the gaskets.
- (3) Connect the plus wire of the cable to the DC+ terminal, and the minus wire to the DC- terminal, and then tighten the screws to fix the cable.

CHAPTER 4

NAVTEX MESSAGE RECEIVING OPERATIONS

4.1 TURNING POWER ON

POWER

Press and hold the POWER switch for at least two seconds.



POWER

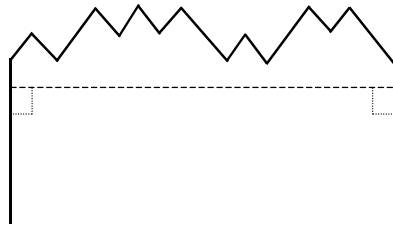
The green POWER lamp will turn on.



4.2 LOADING PRINTER PAPER

Proceed as follows to set printer paper:

- (1) Cut the leading edge of the paper straight across.



CAUTION



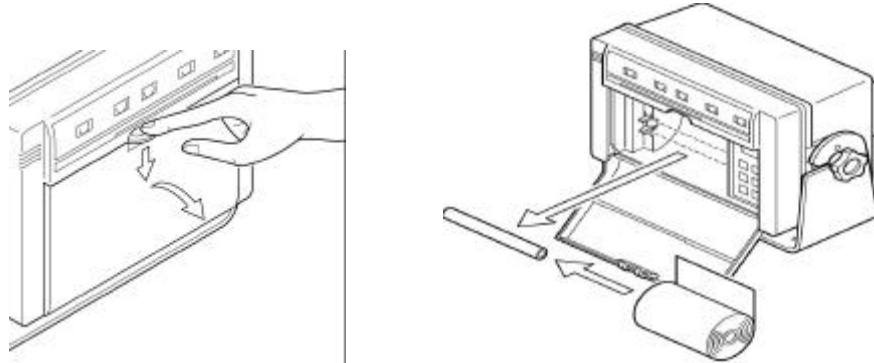
Cut the leading edge of the paper straight. Uneven cutting may cause the paper to jam.



If the paper jams in the printer, do not use force to pull it out from the opposite end. Forcing may result in loading trouble the next time the printer is loaded with paper. If forcing is the only option, pull the paper out in the opposite direction slowly and gently.

- (2) Set the printer paper into the printer.

Pull out about 30 cm of the paper.



Manually feed the paper through the slot until the edge of the paper reaches the mouth.



FEED

Press the FEED switch while holding the paper by hand.



(3) Insert the paper into the paper holder.

When the leading edge of the paper comes out through the printer,



insert the paper shaft into the roll of paper



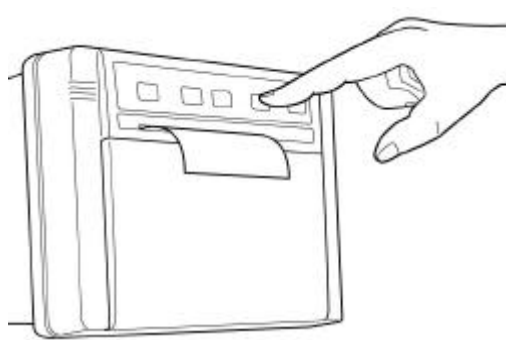
and set the paper in the holder.

4.3 FEEDING THE PRINTER PAPER

FEED Press the FEED switch .



The paper is fed, line by line, with each press of the switch . Depressing and holding the switch feeds the paper continuously.



4.4 PRINTING RECEIVED MESSAGES

Messages are automatically received and printed.

After a message has once been printed, it will not be printed out again, even if a message bearing the same identification code (described later) is received again, if the character error ratio of the printed message is 4% or less.

- Status of equipment when receiving

RECEIVE



lamp on: Indicates that the equipment is detecting signals.

RECEIVE



lamp blinking: Indicates that the equipment is receiving a message.

ALARM



lamp blinking: Indicates that the equipment has received an important message (navigational alert information, meteorological alert information, or search-and-rescue information).

- Printing format

---	ZCZC IA01	---	→	1) Message identification code
000000	UTC JAN 00	}	→	2) Text
××NAVTEX AREA	•••			
NNNN			→	3) End-of-message code
--	End of message CER=*. *%	--	→	4) End-of-message guidance

1) Message identification code

This code consists of four alpha-numeric characters which denote the coast station originating the message, the message type, and the report number.

(a) First character

The coast station that has transmitted the message is identified by a character from A to Z.

(b) Second character

This character identifies the type of message.

A: Navigational alert

B: Meteorological alert

C: Iceberg report

D: Search-and-rescue information

E: Weather forecasts

F: Pilot information

G: Decca information

H: Loran information

I: Omega information

J: Satellite navigational information

K: Electronic navigation equipment information

L: Navigational alert (Supplement to message A above)

V, W, X, and Y: Special services

Z: Indicates no information.

(c) Third and fourth characters

These characters denote the report number assigned to the message by the coast station where the message originated.

The four-character identification code is stored in memory only when the message is received at a character error ratio of 4% or less. When an incoming message has the same identification code as one already stored in memory, it will not be printed.

The above, however, does not apply to report number '00'. For report number '00', the code is not held in memory and messages are printed each time they are received.

2) Text

Text of the message

3) End-of-message code

This code denotes the end of transmission of one message.

4) End-of-message guidance

Denotes the end of the message itself. There are three types of guidance codes:

(a) --- End of Message CER=*.*% ---

Indicates that message transmission ended normally with [NNNN].

(b) --- Ended by 2 Alpha CER=*.*% ---

Indicates that the end-of-transmission code was received during message receiving.

(c) --- Incomplete Message CER=*.*% ---

Indicates that message receiving was interrupted.

4.5 DEACTIVATING THE ALARM

- (a) When alert messages are received

When alert messages are received, an alarm buzzer will sound and the alarm lamp will blink.



ALARM OFF

Press the ALARM OFF switch.



The alarm buzzer will stop sounding and alarm lamp will stop blinking.

- (b) If the printer paper runs short

PAPER



If the printer paper runs short, an alarm buzzer will sound and the alarm lamp will blink.



ALARM OFF

Press the ALARM OFF switch.



The alarm buzzer will stop sounding. The alarm lamp will continue blinking.
Supply the printer with paper.



PAPER



The alarm lamp will stop blinking.

4.6 ADJUSTING THE BRIGHTNESS OF LAMPS

DIMMER

Press the DIMMER switch.



Each time the switch is pressed, the brightness of the POWER and RECEIVE lamps changes in the following order:

High → Medium → Low → Off

4.7 TURNING POWER OFF

POWER

Press and hold the POWER switch for at least two seconds.



POWER



The green POWER lamp will go out to indicate that power has been turned off.

CHAPTER 5

NAVTEX RECEIVING OPERATIONS

5.1 DEFAULT SETTINGS

When the NAVTEX receiver is operated for the first time after purchase or when the restore-defaults sequence is executed (see next page), the equipment will be set to the following status:

Programmed Navtex Receiver Status

**Disabled Area:

**Disabled Message Type:

**Alarm(for Message type A,B&L):

Enabled

**Character size : Large

**Illumination : Bright

**Stored MSG ID :

None

5.2 RESTORING DEFAULTS

Restore the equipment to the factory-defaults by the following procedure:

POWER

Turn power off by pressing the POWER switch.



TEST

While holding down the TEST switch:



POWER

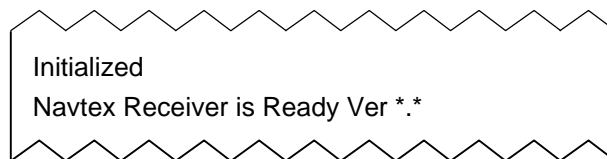
Turn power back on by pressing the POWER switch.



After the equipment has been turned back on and the printer has started operating, release the following switch:

TEST

The printer will respond by printing:



Initialized
Navtex Receiver is Ready Ver *.*

5.3 FUNCTION SETTING

The equipment allows you to select a receiving coast station, a message type, and receiver status. Make these selections as indicated by the guidance messages printed out by the printer.

5.3.1 Starting the function-setting operations

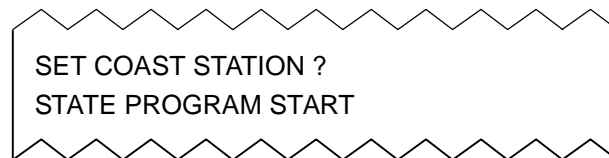
Open the paper cover.



MENU Press the MENU switch .



The printer will respond by printing:

A rectangular box with a decorative, serrated border, representing a printer's output message. The text inside is centered and reads:

SET COAST STATION ?
STATE PROGRAM START

5.3.2 Selecting a receiving station

After the printer has printed:



- (a) If you wish to select a station, first press the **ENT** (enter) switch .

This allows you to select a coast station.

The display unit displays 26 coast stations (A to Z). Select the desired one from among those displayed.

NOTE: For a list of stations and their broadcasting schedules, see Appendix 2, NAVTEX Broadcast Stations and Schedules, at the end of this manual.

→ Selecting the receiving mode

Press the **ENT** switch . The lamp at the bottom right of the display unit will turn on.

→ Receiving mode not selected

Press the **CLR** (clear) switch . The lamp at the bottom right of the display unit will turn off.

→ Changing the station

Press the **Δ** switch . The display will be sorted in ascending order.

→ Changing the station

Press the **∇** switch. The display will be sorted in descending order.

→ Ending selection

Press the **MENU** switch . The printer will print out the list of non-selected stations followed by:

```
SET MESSAGE TYPE ?
**Disabled Area :
-----H--K-----
```

The message type can now be selected.

(b) If you do not wish to select a station, press the **CLR** switch .

The printer will respond with:

```
SET MESSAGE TYPE ?
```

and to ask you to select a message type.

(c) To end the settings editing session, press the **MENU** switch .

The printer will respond with:

```
STATE END
```

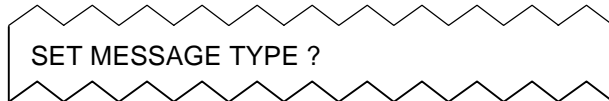
to indicate that the function settings editing session has ended.

Settings that have been selected will be stored in memory.

5.3.3 Selecting the type of message to be received

NOTE Navigational alerts (A and L), meteorological alerts (B), and search-and-rescue information (D) can not be de-selected.

After the printer has printed:



- (a) To select a message type, first press the **ENT** switch .
This allows you to select a message type.
The display unit will show 22 message types.
Select one from among those displayed.
- Selecting the receiving mode
Press the **ENT** switch . The lamp at the bottom right of the display unit will turn on.
 - Receiving mode not selected
Press the **CLR** (clear) switch . The lamp at the bottom right of the display unit will turn off.
 - Changing the message type
Press the **Δ** switch . The display will be sorted in ascending order (Z to C).
 - Changing the message type
Press the **∇** switch . The display will be sorted in descending order (C to Z).

→ Ending selection
Press the **MENU** switch.

NOTE: *The 22 types of messages that can be selected/de-selected are as follows:*

- C: Iceberg report*
- E: Weather forecasts*
- F: Pilot information*
- G: Decca information*
- H: Loran information*
- I: Omega information*
- J: Satellite navigational information*
- K: Electronic navigation equipment information*
- M to U: Other information*
- V, W, X, and Y: Special services*
- Z: No information*

After selection of the message type, the printer will print out a list of non-selected messages followed by:

```
SET STATE ?  
**Disabled Message Type :  
  --C---H-----
```

Receiver status can now be selected.

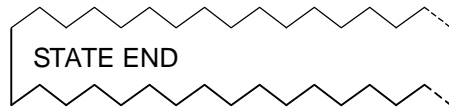
(b) If you do not wish to select a message type, press the **CLR** switch.

The printer will respond with:

```
SET STATE ?
```

and ask you to select receiver status.

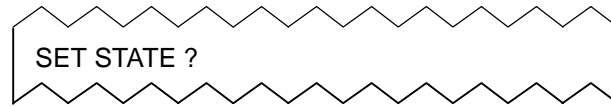
- (c) If you wish to end the settings editing session, press the **MENU** switch. The printer will respond with:



to indicate that the function settings editing session has ended.
Settings that have been selected will be stored in memory.

5.3.4 Selecting receiver status

After the printer has responded with:



- (a) To select receiver status, first press the **ENT** switch .

This allows you to select receiver status.

The printer prints out receiver status selection items. Select one from among those printed out.

- (a-1) Alarm buzzer on/off

The alarm buzzer can be set to automatically give an alarm whenever navigational alerts A or L or meteorological alerts B is received.

NOTE: *Regardless of the above selection, the alarm will always sound when search-and-rescue information D is received.*

→ Activating the alarm

Press the **ENT** switch. The printer will respond by printing “ON”.

→ Deactivating the alarm

Press the **CLR** switch. The printer will respond by printing “OFF”.

(a-2) Character size change

The size of the characters printed out can be set to either normal size or double-width size.

Printing at the double-width size

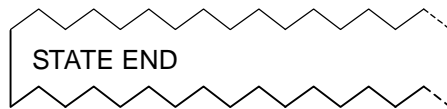
→ Press the **ENT** switch. The printer will print “Large”.

Printing at the normal size

→ Press the **CLR** switch. The printer will print “Normal”.

(b) If you do not wish to select receiver status, press the **CLR** switch.

The printer will respond by printing:



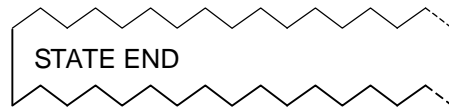
to indicate that the function settings editing session has ended.

5.3.5 Ending function settings editing session

To end the function settings editing session, press this switch.:

MENU

The printer will print:



STATE END

to indicate that the function settings editing session has ended.
Settings that have been selected will be stored in memory.

5.4 STATUS PRINTING

Printing the list of current settings

You can print out a list of all the settings that are currently active.

Press this switch.:

STATE

The printer will print out a list of settings similar to this:

```
Programmed Navtex Receiver Status
**Disabled Area :
    -----
**Disabled Message Type :
    -----
**Alarm (for Message type A,B&L) :
    Enabled
**Character size : Large
**Illumination : Bright
**Stored MSG ID :
    None
    _____
```

5.5 SELF-DIAGNOSTIC TESTS

Executing self-diagnostic tests

The self-diagnostic tests begin with receiver/demodulator circuit tests and end with message-processing tests, and confirm whether or not the internal circuits of the equipment are operating normally.

Press this switch.:

TEST

If the self-diagnostic tests do not detect any abnormalities, data will be printed out as follows and the alarm buzzer will sound:

```
----- Press "ALARM OFF " -----
----- Self Test End -----
----- ZCZC ID00 -----
THE QUICK BROWN FOX JUMPS OVER THE
LAZY DOG 1234567890 . , ? ( ) = / + - :
NNNN
--- End of Message CER = 0.0% ---
----- Overall Test Start -----
ABCDEFGHIJKLMN OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 . , ? ( ) = / + - : * %
----- Printer Test Start -----
---- Main Processor : Good ----
---- 518kHz Receiver : Good ----
----- Self Test Start -----
```

Press this switch.:

ALARM OFF

The alarm buzzer will stop sounding and the alarm lamp will stop blinking.

If any abnormalities are detected, replace parts as directed in Section 6.

NOTE: *The self-diagnostic tests can not be executed while the printer is in use.*

5.6 COAST STATION MODE

The coast station mode is intended for use by coast stations in order to monitor their own NAVTEX transmissions. When this mode is set, the receiving station and message type can not be selected. All receiving stations and message types (A to Z) are selected by default. Since message identification codes are not stored into the memory, the same message is printed repeatedly.

(a) Selecting the coast station mode

Following the procedures below to set coast station mode:

POWER Turn power off by pressing the POWER switch.



ALARM OFF Next, while depressing this switch., press:



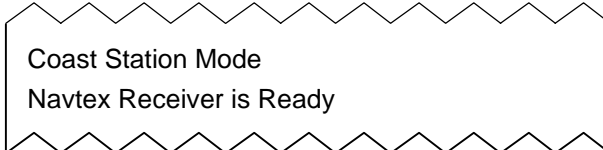
POWER Power will be turned back on.



After the power has been turned back on and the printer has started operating, release:

ALARM OFF

The printer will respond with:



Coast Station Mode
Navtex Receiver is Ready

(b) Clearing the coast station mode

Following these procedures to clear the coast station mode:

POWER

Turn power off by pressing the POWER switch.



FEED

Next, while depressing this switch., press:



POWER

Power will be turned back on.



After the power has been turned back on and the printer has started operating, release:

FEED

The printer will respond with:



CHAPTER 6

MAINTENANCE AND INSPECTION

6.1 MAINTENANCE

To maintain the equipment always in its best condition, it is important to perform maintenance checks and record the results. Thus, potential problems can be detected early and trouble can be avoided.

6.1.1 Daily check

Without printer paper, you cannot obtain necessary information. Therefore, check the remaining quantity of printer paper as follows:

- (1) Open the paper cover on the front panel.
- (2) Check the quantity of printer paper remaining. If red lines appear at the edges of the paper, replace it with a new roll (the red lines indicate there is one meter or less remaining).
- (3) If there is a sufficient quantity of paper, or after a new roll of paper has been set, close the paper storage cover.

6.1.2 Periodic check

The self-diagnostic tests check the status of each function of the equipment on a per-block basis. Conduct periodic checks as directed below.

- (a) Operating procedure

See Section 5.5, Self-Diagnostic Tests, for further details.

(b) Self-diagnostic tests

Self-diagnostic tests begin with testing of the receiver/demodulator circuit and end with testing of message-processing. The results are printed out, and if the tests detect no abnormalities, the print-out will look like this:

```
..... Press "ALARM OFF" .....  
..... Self Test End.....  
..... ZCZC ID00.....  
THE QUICK BROWN FOX JUMPS OVER THE  
LAZY DOG 1234567890 . , ? ( ) = / + - :  
NNNN  
..... End of Message CER = 0.0%.....  
..... Overall Test Start .....  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
1234567890 . , ? ( ) = / + - : * %  
..... Printer Test Start.....  
..... Main Processor : Good.....  
..... 518kHz Receiver : Good.....  
..... Self Test Start.....
```

The contents and results of diagnosis are in the following.

1) Receiver/demodulator circuit tests

A loop test of the receiver circuit is executed. When this check is completed correctly, it prints as following:

“518kHz Receiver: Good”

If any errors are found, the following error message is printed:

“518kHz Receiver: Failed”

```
..... 518kHz Receiver : Failed.....
```

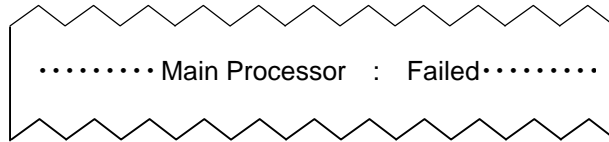
2) ROM tests

A test of the computer and memories are executed. When this check is completed correctly, it prints as following:

“Main Processor: Good”

If any errors are found, the following error message is printed:

“Main Processor: Failed”



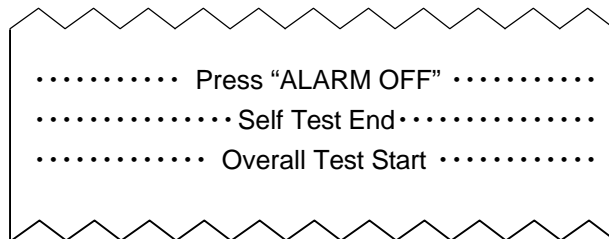
3) Message-processing tests

Loop tests are carried out to check for normal operation of the processes from NAVTEX message receiving to printing. The RECEIVE and ALARM lamps blink during normal execution of the tests.

When this check is completed correctly, it prints message identification code as following:

“ID00”

If any errors are found, the message is not printed.



4) Other checks by the self-diagnostic tests

a. Checking the receiving tone

During tests, if the equipment is normal, a soft tone will be heard. If this tone is not heard, or if the tone is unusually loud, either the CMN-2330 receiver board or the CDJ-2330 is likely to be malfunctioning.

b. Checking the alarm buzzer sound

During message-processing tests, if the equipment is normal, the alarm buzzer will sound. This alarm can be deactivated by pressing the ALARM OFF switch. If the alarm does not sound or if it is unusually loud, either the CMN-2330 receiver board or the CDJ-2330 main processor board is likely to be malfunctioning.

After the alarm has sounded, if it cannot be deactivated using the ALARM OFF switch, either the H-7SZJD0002A main switch or the CDJ-2330 main processor board is likely to be malfunctioning.

c. Lamp tests

The lamps on the front panel blink for about three seconds prior to the start of the message-processing tests.

During the tests, if the equipment is normal, all LEDs other than POWER will blink at intervals of about 0.5 seconds. If blinking is abnormal, the H-7SZJD0002A main switch or the CDJ-2330 main processor board is likely to be malfunctioning.

Also, the alphabetic display unit will display characters A to Z. If the display is abnormal, the CDJ-2330 main processor board is likely to be malfunctioning.

6.1.3 Other general maintenance and check items

In addition to periodic checks by the self-diagnostic tests, it is recommended to check the following periodically.



CAUTION






When loading the printer paper, cut the leading edge straight. Uneven cutting may cause the paper to jam.

NOTE: *If the “out of paper” alarm activates to warn of paper outage, the receiver cannot be reset to stand-by status just by adding paper. The alarm must be cleared by pressing the ALARM OFF switch after adding paper.*

Check Items	Contents
Antenna	<ol style="list-style-type: none"> 1) Is the antenna mounted properly? 2) Is the whip antenna free from damage or other abnormalities? 3) Is the self-fusing adhesive tape wound properly around the antenna connectors? 4) Is the antenna cable connected properly to the terminal board on the rear panel? 5) Is a DC voltage between the plus and minus antenna terminals 9 volts?
NAVTEX receiver	<ol style="list-style-type: none"> 1) Does the receiver produce the receiving tone at normal sound level? 2) Is the tone soft? Or is it a loud beeping?
Printer	<ol style="list-style-type: none"> 1) Does the printer feed paper one line at a time with each press of the FEED switch? 2) Are there any missing dots in the print-out? 3) Is printing density normal? 4) Are there any abnormal sounds when the printer is operating? 5) Can printer paper be added smoothly?
Out-of-paper sensor	<p>When the printer paper is cut off at the loading port, and the remaining stub of the paper is removed from the printer:</p> <ol style="list-style-type: none"> 1) Does the paper alarm lamp blink? 2) Does the paper alarm sound? <p>When there is no paper, and the ALARM OFF switch is pressed:</p> <ol style="list-style-type: none"> 3) Does the alarm stop sounding? 4) Does the PAPER lamp remain blinking? <p>When printer paper is added:</p> <ol style="list-style-type: none"> 5) Can the paper be fed by the FEED switch? 6) Does the PAPER lamp go out when the ALARM OFF switch is pressed?

6.2 IF PAPER BECOMES JAMMED

If the paper jams near the printer head, ask your nearest branch, business office or a dealer for inspection and repair.

 CAUTION	
	If the paper in the printer jams, do not continue pressing the FEED switch.
	When loading paper into the printer, cut the leading edge straight. Uneven cutting may cause the paper to jam.

6.3 FUSE/CIRCUIT BOARD REPLACEMENT

6.3.1 Removing the casing (Preparation for fuse/circuit board replacement)



WARNING



The power switch on the power distribution panel must be turned off during disassembly of the equipment. Failure to observe this warning could cause electrical shock and/or malfunction.



CAUTION



Wiring must be disconnected from the terminal board during disassembly of the equipment. Failure to observe this caution could cause electrical shock and/or malfunction.

The procedure for removing the case is as follows:

- (1) Turn power off.
- (2) Cut off power to the receiver by turning off the power switch on the power distribution panel.
- (3) Remove screws 1 and 2 and then remove the rear cover.
- (4) Disconnect the wiring from the terminal board on the rear panel of the equipment.
- (5) Remove screws 4, 5, 6, and 7.
- (6) Holding both sides of the casing, press terminal strip 9 with the thumb, and lift off the casing.

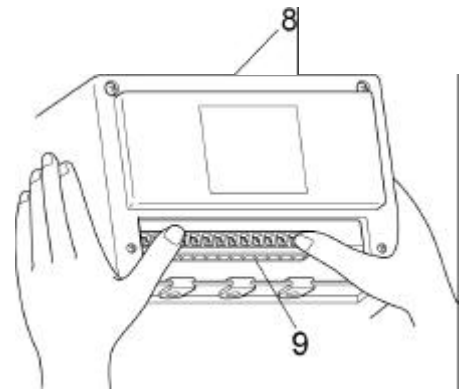
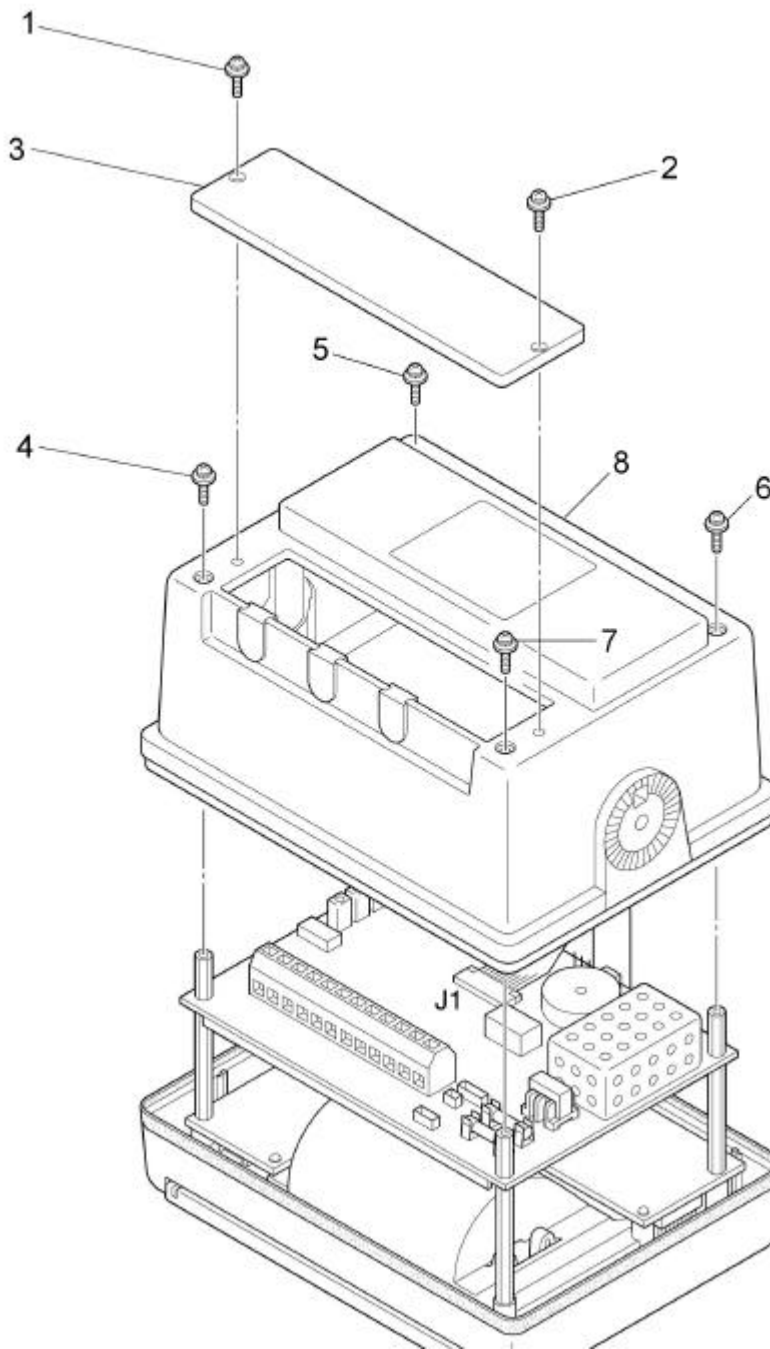

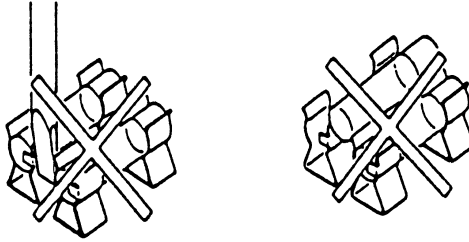



Fig. 6-3 Removing the casing

6.3.2 Replacing fuses

WARNING

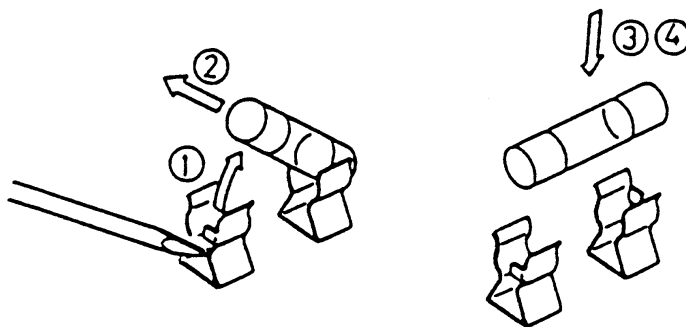
-  The power switch on the power distribution panel must be turned off during replacing a fuse. When replacing a fuse, use extreme caution not to bring it into contact with adjacent ones. Short-circuiting due to making contact may cause power and/or circuit board damage.



-  Use only MF51NN-3.15A fuses (normal pre-arcing type, rated at 3.15 A). The use of other fuse may cause fire and/or damage.

The replacement procedure is as follows:

- (1) Lift one end of the blown fuse using a tool such as a thin tip screwdriver.
- (2) Remove the fuse.
- (3) Place a new fuse in the fuse holder.
- (4) Push the new fuse into position.



6.4 MAINTENANCE COMPONENT LISTS

6.4.1 Maintenance units

NCR-330 NAVTEX Receiver Board Unit		
Name of the unit	Model number	JRC part code
Receiver board	CMN-2330	CMN-2330
Main processor board	CDJ-2330	CDJ-2330
Main switch	H-7SZJD0002A	7SZJD0002A
State switch	H-7SZJD0003A	7SZJD0003A

NAW-330 NAVTEX Antenna Board Unit		
Name of the unit	Model number	JRC part code
Antenna coupler	CFG-2330	CFG-2330

6.4.2 Maintenance parts

Parts for the NCR-330 NAVTEX Receiver		
Part name	Model number	JRC part code
Fuse	MF51NN-3.15A	5ZFAD00227
Front panel	MPBC32211	MPBC32211
Printer paper	H-7ZPJD0044	7ZPJD0044

Parts for the NAW-330 NAVTEX Antenna		
Part name	Model number	JRC part code
Whip antenna	CODE315	MPAE30101

CHAPTER 7

AFTER-SALES SERVICE

◆ When Requesting Repair

- (1) If you suspect that a problem has occurred, take the appropriate remedial action after completing the following diagnostic :
 - a) Check the rear terminal board of the equipment for loose or disconnected cables.
 - b) Check that the required voltage is supplied to the power input terminals on the rear terminal board of the equipment. The required voltage ranges from 10.8 to 35.0 VDC.
 - c) Check the antenna for damage.
 - d) Check the equipment interior for blown-out fuses.
 - e) Check for loose or disconnected cables between the internal components of the equipment.
 - f) Check the relay connectors of the antenna cable for loose or disconnected cable.

 - (2) If the above checks uncover any abnormalities, stop operations of the receiver immediately after that contact our dealer, service representative or JRC sales.
- Repairs within the warranty period will be performed free of charge in accordance with the provisions of the relevant specification.
 - After the expiry of the warranty period, if the corresponding function can be restored by repair, out-of-warranty repairs will be performed at your request. Please note that this repair is not free of charge.
 - When requesting repair, give the following information to the service:
 - Product name, model number, date of manufacture, and serial number
 - How and why the trouble occurred
 - 1) The nature of the problem, and what happened as a result?
 - 2) The state or type of operation when the trouble occurred?
 - 3) Installation status of the equipment when the trouble occurred? (conditions of wiring, electrical grounding, and so on).
 - 4) Was any unusual or abnormal condition observed during operation before the trouble occurred?
 - Name, address, and phone number of your company or institution, and your name

◆ Optional Maintenance Checks

Over a period of time, the performance of various components will deteriorate. The actual rate of deterioration will vary according to the operating conditions and environment. It is therefore recommended for your equipment to undergo optional maintenance and servicing in addition to your own checks.

Please contact your dealer or JRC sales or service representative for optional services.

A fee is charged for these services.

If you have any questions about after-sale services, please contact your dealer or JRC sales or service representative.

◆ JRC Sales/Service Representatives

See the List of JRC Product Dealers and JRC Sales/Service Representatives at the end of this manual.

CHAPTER 8

DISPOSAL

If this product is to be disposed of, process it in accordance with the legal regulations of the local government having jurisdiction. For further details, please contact your dealer or JRC sales/service representative or the local government having jurisdiction.

Materials · · See mechanical parts list of appendix 1 at the appendix of this manual.

CHAPTER 9

SPECIFICATIONS

9.1 NCR-330 RECEIVER

9.1.1 Electrical specifications

(1) NAVTEX receiver unit

a. Receiver

Receiving frequency	518 kHz
Receiving scheme	STRAIGHT
Receiving mode	F1B
Gain	Max. character error ratio: 1% at an antenna input of $1\mu\text{V}$
Antenna input	Special antenna (NAW-330)
BK	12 VDC or 24 VDC
External alarm interface	Open-collector type Max: 500 mA at 35VDC Recommended product: CGC-300A (Max. power consumption: 20 mA) (Audio output level: 85 dB/m)
Receiving format	7-bit error detection code based on the NAVTEX broadcasting format

b. Printer

Printing scheme	Thermosensitive 7×6 or 7×5 dot matrix
Total characters/line	35 or 40
Printer paper	TF50KS-E3, 80 mm \times 60 mm across \times 40 m
Out-of-paper warning	Alarm buzzer Operating panel lamp blinking Red end-of-paper line marks on printer paper (the red lines indicate there is one meter or less remaining).

c. Control switches

Power on/off
Coast station selection
Message type selection
Receiver status selection
Alarm buzzer manual turn-off
Receiver status information printing

Brightness control
Self-diagnostic tests
Paper feeding

- d. Display/indicator unit
 - Power-on indicator
 - Visual alarm on important message receiving
 - Out-of-paper alarm
 - Receiving indicator

(2) Power unit

Input voltage	12 to 24 VDC(Tolerance +30%,-10%)
Power consumption	(Standby) at 12 VDC: Approx. 4 W (Operating) at 12 VDC: Approx. 6 W (max.) (Standby) at 24 VDC: Approx. 5 W (Operating) at 24 VDC: Approx. 7 W (max.)

9.1.2 Mechanical specifications

- (1) Minimum and maximum temperature range
 - Operating: -15 to +55°C
 - Storage: -25 to +75°C
- (2) Relative humidity
 - Up to 95% at 40°C
- (3) Dimensions
 - 246 mm wide×170 mm high×131.5 mm deep
(with mounting base)
- (4) Installation
 - Wall-mounting, desk-mounting, or ceiling-mounting
- (5) Mass
 - 2.0 kg (with mounting base)

9.2 NAW-330 ANTENNA

9.2.1 Electrical specifications

Receiving frequency	518 kHz
Bandwidth	5 kHz
Gain	Min. antenna coupler output: 60 dB μ V (at an electric field intensity of 60 dB μ V/m)
Power consumption	6 mA at 9 VDC
Impedance	50 Ω

9.2.2 Mechanical specifications

Installation	Mountable on a pole up to 9 cm across using the supplied mounting band.
Mass	0.5 kg