JHS-800S

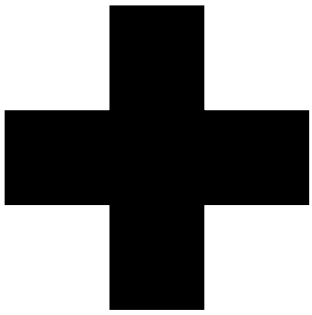
MARINE VHF RADIOTELEPHONE

Instruction Manual

7ZPJD0714

JRC Japan Radio Co., Ltd.

Safety Precautions



CAUTIONS AGAINST HIGH VOLTAGE

Radio and radar devices are operated by high voltages of anywhere from a few hundred volts up to many hundreds of thousands of volts.
Observe the following precautions to prevent the risk of electric shock.
Avoid contact with the internal parts of these devices.
Only specialized service people should do any maintenance, inspections, or adjustments inside the devices.
Falling after receiving an electric shock may lead to extensive secondary injuries, so be sure you have a safe place to stand when working.
In the event that someone receives an electric shock, immediately implement emergency procedures, such as cardiopulmonary resuscitation.

If you must reach into a device, as in the case of an emergency, you must switch off the devices and ground a terminal in order to discharge the capacitors. After making certain that all the electricity is discharged, only then can you insert your hand into the device. Wearing dry cotton work gloves is another way to reduce risks. One more necessary precaution is to not use both hands at the same time.
Although there is no danger with normal use, it is very dangerous if contact is made accidently with the internal parts of these devices. There is a very high risk of death by high voltages of tens of thousands of volts. In some cases, you could be fatally electrocuted by voltages of several hundred volts.

Precautions for rescuing victims from electrocution

If you find an electrocution victim, you must first switch off the machinery that caused the electrocution and ground all circuits.
If you are unable to immediately cut off the circuit, do not directly touch the victim. Quickly use a non-conductive material, such as a dry board or cloth, to move the victim away from the device.
If someone receives an electric shock, immediately implement emergency procedures, such as cardiopulmonary resuscitation.

When a person is electrocuted, the current passes through their heart and may cause ventricular fibrillation or cardiac arrest. Also, if the shock is mild, the victim's breathing may be restored by doing artificial respiration. An electrocution victim becomes very pale, their pulse can be very weak or even stop, and they may lose consciousness and become stiff.

First aid

☆Note points for first aid

Unless there is impending danger, leave the electrocution victim where he or she is, then begin artificial respiration. Once you begin artificial respiration, you must continue without losing rhythm.

(1) Make contact with the victim cautiously, there is a risk that you may get electrocuted.

(2) Switch off the machinery and then move the victim away slowly if you must.

(3) Inform someone immediately (a hospital or doctor, dial emergency numbers, etc.).

(4) Lay the victim on his or her back and loosen any constrictive clothing (a tie, or belt).

(5)
(a) Check the victim's pulse.
(b) Check for a heartbeat by pressing your ear against the victim's chest.
(c) Check if the victim is breathing by putting the back of your hand or face near the victim's face.
(d) Check the pupils of the eyes.

(6) Open the victim's mouth and remove any artificial teeth, cigarette or chewing gum. Leave the mouth opened and flatten the tongue with a towel or by putting something into the mouth to prevent the victim's tongue from obstructing the throat. (If he or she is clenching the teeth and it is difficult to open the mouth, use a spoon or the like to pry open the mouth.)

(7) Continually wipe the mouth to prevent the accumulation of saliva.

Flow of Cardiopulmonary Resuscitation (CPR)

A person is collapsing.
- Secure the safety of the surrounding area.
- Prevent secondary disasters.

Check for response.
− Call while tapping the shoulder.

Responding → Listen to the appeal of the injured or ill person and give the necessary first-aid treatment.

Not responding

Ask for help.
− Make an emergency call.
− Ask to bring an AED.

Open the airway.
− Check for breathing.

Breathing → Recovery position
− Lay the injured or ill person on his/her side and wait for the arrival of the emergency services.

Not breathing

Give 2 rescue breaths; omittable Note([1])

Give CPR.
− 30 chest compressions
− Give 2 rescue breaths; omittable Note([1])

Note([1]) Omission of rescue breathing:
If there is a fear of infection because the injured or ill person has an intraoral injury, you are hesitant about giving mouth-to-mouth resuscitation, or preparing the mouthpiece for rescue breathing takes too long, omit rescue breathing and proceed to the next step.

Arrival of an AED
− Turn on the power.
- Use the AED by following its voice prompts. Fitting of the electrode pads, etc.

Automatic electrocardiogram analysis
− Do not touch the injured or ill person.

Electric shock is not needed.

Electric shock is needed.

Delivery of electric shock

The AED automatically analyzes the heart rhythm every 2 min.

Resume CPR from chest compressions by following the voice prompts of the AED.

When to stop CPR → **When the injured or ill person has been handed over to the emergency services or has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.**

Specific Procedures for Cardiopulmonary Resuscitation (CPR)

1. Check the scene for safety to prevent secondary disasters

a) Do not touch the injured or ill person in panic when an accident has occurred. (Doing so may cause electric shock to the first-aiders.)

b) Do not panic and be sure to turn off the power. Then, gently move the injured or ill person to a safe place away from the electrical circuit.

2. Check for responsiveness

a) Tap the shoulder of the injured or ill and shout in the ear saying, "Are you OK?"

b) If the person opens his/her eyes or there is some response or gesture, determine it as "responding." But, if there is no response or gesture, determine it as "not responding."

3. If responding

a) Give first-aid treatment.

4. If not responding

a) Ask for help loudly. Ask somebody to make an emergency call and bring an AED.

- **Somebody has collapsed. Please help.**
- **Please call an ambulance.**
- **Please bring an AED.**
- If there is nobody to help, call an ambulance yourself.

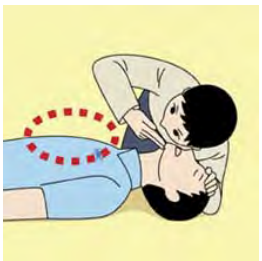
5. Open the airway

a) Touch the forehead with one hand. Lift the chin with the two fingers of the middle finger and forefinger of the other hand and push down on the forehead as you lift the jaw to bring the chin forward to open the airway. If neck injury is suspected, open the airway by lifting the lower jaw.

6. Check for breathing

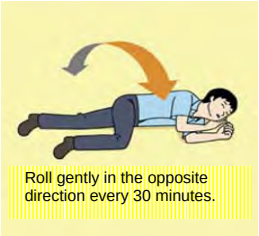
a) After opening the airway, check quickly for breathing for no more than 10 seconds. Put your cheek down by the mouth and nose area of the injured or ill person, look at his/her chest and abdomen, and check the following three points.

- Look to see if the chest and abdomen are rising and falling.
- Listen for breathing.
- Feel for breath against your cheek.



b) If the injured or ill person is breathing, place him/her in the recovery position and wait for the arrival of the emergency services.

- Position the injured or ill person on his/her side, maintain a clear and open airway by pushing the head backward while positioning their mouth downward. To maintain proper blood circulation, roll him/her gently to position them in the recovery position in the opposite direction every 30 minutes.



7. Give 2 rescue breaths (omittable)

a) If opening the airway does not cause the injured or ill person to begin to breathe normally, give rescue breaths.

b) If there is a fear of infection because the injured or ill person has an intraoral injury, you are hesitant about giving mouth-to-mouth resuscitation, or getting and preparing the mouthpiece for rescue breathing takes too long, omit rescue breathing and perform chest compressions.

c) When performing rescue breathing, it is recommended to use a mouthpiece for rescue breathing and other protective devices to prevent infections.

d) While maintaining an open airway, pinch the person's nose shut with your thumb and forefinger of the hand used to push down the forehead.

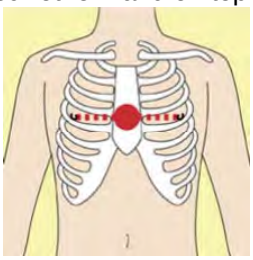
e) Open your mouth widely to completely cover the mouth of the injured or ill person so that no air will escape. Give rescue breathing **twice in about 1 second** and check if the chest rises.

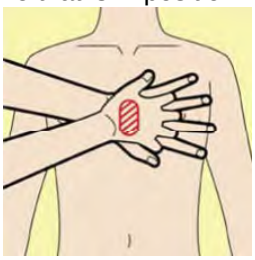
8. Cardiopulmonary resuscitation (CPR) (combination of chest compressions and rescue breaths)

a) Chest compressions

1) Position of chest compressions

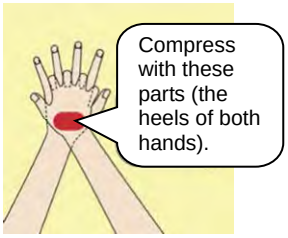
- Position the heel of one hand in the center of the chest, approximately between the nipples, and place your other hand on top of the one that is in position.





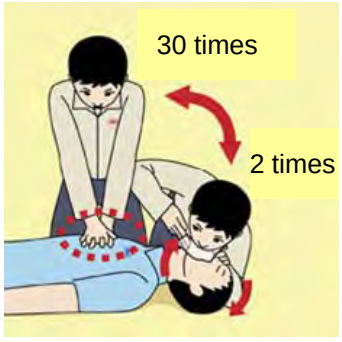
2) Perform chest compressions

- Perform uninterrupted chest compressions of **30** at the rate of about **100 times** per minute. While locking your elbows positioning yourself vertically above your hands.
- With each compression, depress the chest wall to a depth of approximately **4 to 5 cm**.



b) Combination of **30** chest compressions and **2** rescue breaths

1) After performing **30** chest compressions, give **2** rescue breaths. If rescue breathing is omitted, perform only chest compressions.
2) Continuously perform the combination of **30** chest compressions and **2** rescue breaths without interruption.
3) If there are two or more first-aiders, alternate with each other approximately every **two minutes** (five cycles of compressions and ventilations at a ratio of 30:2) without interruption.



9. When to stop cardiopulmonary resuscitation (CPR)

a) When the injured or ill person has been handed over to the emergency services
b) When the injured or ill person has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.

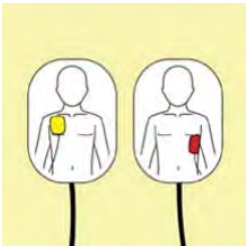
10. Arrival and preparation of an AED

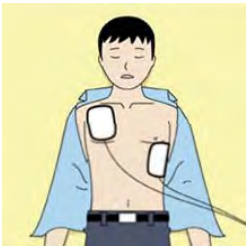
a) Place the AED at an easy-to-use position. If there are multiple first-aiders, continue CPR until the AED becomes ready.
b) Turn on the power to the AED unit. Depending on the model of the AED, you may have to push the power on button, or the AED automatically turns on when you open the cover.
c) Follow the voice prompts of the AED.

Turn on the power.

11. Attach the electrode pads to the injured or ill person's bare chest

a) Remove all clothing from the chest, abdomen, and arms.
b) Open the package of electrode pads, peel the pads off and securely place them on the chest of the injured or ill person, with the adhesive side facing the chest. If the pads are not securely attached to the chest, the AED may not function. Paste the pads exactly at the positions indicated on the pads, If the chest is wet with water, wipe dry with a dry towel and the like, and then paste the pads. If there is a pacemaker or implantable cardioverter defibrillator (ICD), paste the pads at least 3cm away from them. If a medical patch or plaster is present, peel it off and then paste the pads. If the injured or ill person's chest hair is thick, paste the pads on the chest hair once, peel them off to remove the chest hair, and then paste new pads.
c) Some AED models require to connect a connector by following voice prompts.
d) The electrode pads for small children should not be used for children over the age of 8 and for adults.





12. Electrocardiogram analysis

a) The AED automatically analyzes electrocardiograms. Follow the voice prompts of the AED and ensure that nobody is touching the injured or ill person while you are operating the AED.
b) On some AED models, you may need to push a button to analyze the heart rhythm.

13. Electric shock (defibrillation)

a) If the AED determines that electric shock is needed, the voice prompt saying, "Shock is needed" is issued and charging starts automatically.
b) When charging is completed, the voice prompt saying, "Press the shock button" is issued and the shock button flashes.
c) The first-aider must get away from the injured or ill person, make sure that no one is touching him/her, and then press the shock button.
d) When electric shock is delivered, the body of the injured or ill person may jerk.

Press the shock button.

14. Resume cardiopulmonary resuscitation (CPR).

Resume CPR consisting of **30** chest compressions and **2** rescue breaths by following the voice prompts of the AED.

15. Automatic electrocardiogram analysis

a) When **2 minutes** have elapsed since you resumed cardiopulmonary resuscitation (CPR), the AED automatically analyzes the electrocardiogram.
b) If you suspended CPR by following voice prompts and AED voice prompt informs you that shock is needed, give electric shock again by following the voice prompts.
If AED voice prompt informs you that no shock is needed, immediately resume CPR.

16. When to stop CPR (Keep the electrode pads on.)

a) When the injured or ill person has been handed over to the emergency services
b) When the injured or ill person has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.

Preface

Thank you for purchasing JRC's JHS-800S Marine VHF Radiotelephone. This radiotelephone can be used as a Global Maritime Distress and Safety System (GMDSS) radio device, compliant with international regulations, that provides emergency communications and standard communications capabilities for small and large ships.

- Please read this instruction manual thoroughly before using the equipment.
- Please keep this manual available for future reference.
  Please refer to it if any difficulties are encountered when using the equipment.

FCC Warning

Changes or modifications not expressly approved by JRC, could void your authority to operate this radiotelephone.

Radio Frequency Interference Statement

This radiotelephone has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This radiotelephone generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this radiotelephone in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF exposure compliance (MPE* compliance by FCC)

The antenna used for this transmitter must be installed to provide a separation distance of at least 0.9 meters (3 feet) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitting operating conditions for satisfying RF exposure compliance.

* Maximum Permissible Exposure (MPE): The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Before Operation

Concerning the symbols

This manual uses the following symbols to explain correct operation and to prevent injury or damage to property.

The symbols and descriptions are as follows. Understand them before proceeding with this manual.

⚠ **WARNING**	Indicates a warning that, if ignored, may result in serious injury or even death.
⚠ **CAUTION**	Indicates a caution that, if ignored, may result in injury or damage to property.

Examples of symbols

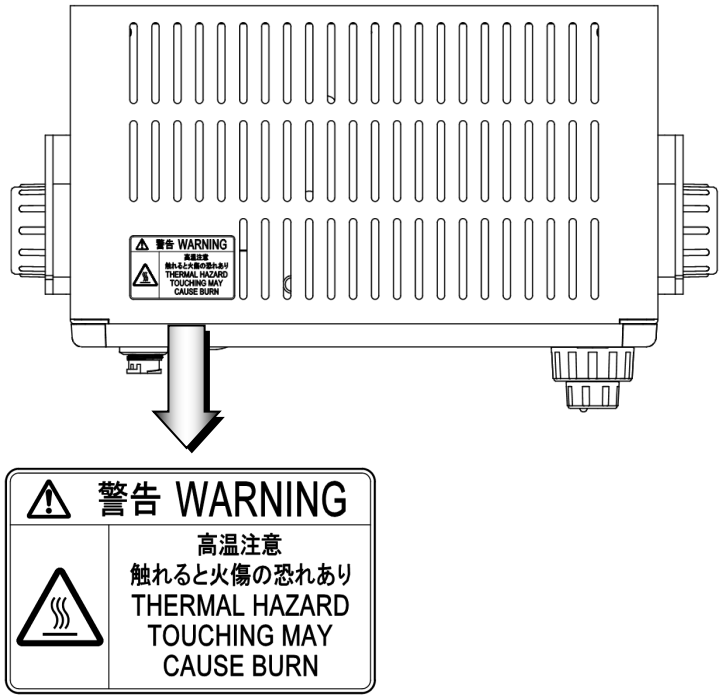
The △ symbol indicates caution (including DANGER and WARNING). The illustration inside the △ symbol specifies the content of the caution more accurately. (This example warns of possible electrical shock.)

The ⃠ symbol indicates that performing an action is prohibited. The illustration inside the ⃠ symbol specifies the contents of the prohibited operation. (in this example disassembly is prohibited.)

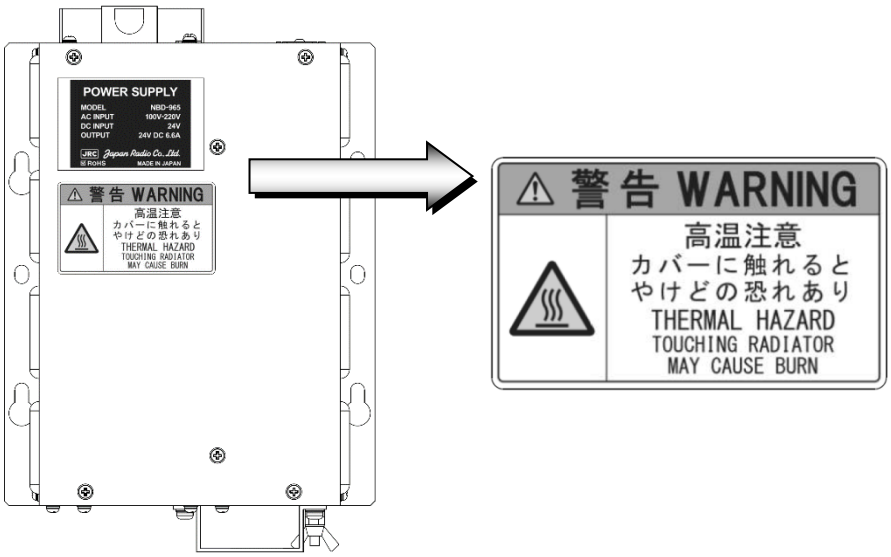
The ● symbol indicates operations that must be performed. The illustration inside the ● symbol specifies obligatory instructions. (In this example unplugging is the obligatory instruction.)

About Warning Labels

There is warning labels on the main unit (JHS-800S) and the power supply unit (NBD-980). Do not remove, damage, or alter the warning labels.



JHS-800S Marine VHF Radiotelephone



NBD-965 AC/DC Power supply

Handling precaution

⚠ WARNING

Do not open the equipment to inspect or repair it. Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction.

If internal inspection or repair is necessary, contact our service center or agents.

Do not disassemble or customize this unit. Doing so may cause fire, electrical shock, or malfunction.

Do not get this equipment wet or spill any liquids on or near this equipment.
Doing so may cause electrical shock or equipment malfunction.

Do not touch any of the areas with warning labels.
Doing so may cause burn.

Do not use a voltage other than specified.
Doing so may cause fire, electrical shock, or malfunction.

Do not remove protective covers on the high voltage terminals.
Doing so may cause electrical shock.

Do not insert anything flammable into the equipment.
Doing so may cause fire, electrical shock, or malfunction.

If a distress alert is received, make sure to inform the ship's captain or officer in charge.
Doing so may save the lives of the crews and passengers on the ship in distress.

If any problem is observed in this unit on usual operation or inspection, contact JRC or our agent. In addition to usual communication, this unit is also used for the distress communication.

Before replacing fuses of the AC/DC POWER SUPPLY (NBD-965), always turn off the AC/DC power switch and power source output to this unit.

Always use the specified fuse when replacing a fuse. Using a different fuse may result in fire or malfunction.

⚠ CAUTION

Do not use this equipment for anything other than specified.
Doing so may cause failure or malfunction.

Do not install this equipment in a place near water or in one with excessive humidity, steam, dust or soot. Doing so may cause fire, electric shock, or malfunction.

Do not test the distress alert as doing so will inconvenience local shipping and Rescue Centers.

Do NOT turn off the power of the equipment when at sea because the SOLAS Convention requires keeping CH16 watch at all times.

Always listen to the CH16 except when talking on a specific channel.

To operate DSC and ATIS functions of this equipment, ID numbers must be registered respectively. If not been registered, contact our agent or service center.

Leave installation of this equipment to our service center or agents. Special knowledge on selecting the place where the antenna is to be mounted and setting the ID number (MMSI) assigned to the ship is required besides mounting operation.

When sending a distress alert, follow the instructions of the ship's captain or officer in charge.

If a false distress alert is transmitted accidentally, use the [CANCEL] button to cancel transmission of the distress alert. Then report the false distress alert to a nearby RCC (Rescue Coordination Center). In Japan, inform the nearest Japan Coast Guard. Follow the on-screen instructions to report the following information.

Ship's name, type, nationality, and ID number, the date/time, location and reason why the false distress alert was transmitted.

Also the unit model name and manufacture number/date, if possible.

To turn off an alarm or clear a display such as a received DSC message, do NOT use the DISTRESS button. Doing so may cause a false distress alert.
(Use the [CANCEL] button to turn off the alarm and clear display.)

⚠ CAUTION

When sending a drobose call, do NOT press the DISTRESS button. Doing so may cause a false distress alert.
(Drobose calls can be sent via [Call] button displayed on the screen.)

A distress acknowledgement or a distress relay call can be transmitted from a received distress message stored in the log, but when sending such a kind of call, follow the instructions of the ship's captain or officer in charge.

Close the water-resistant cap of the waterproof type handset box after use and keep the handsets indoors.
Rain and sea breeze could cause connector malfunction.

The thermal head of the printer (option) may be very hot after printing. Do not touch it. Perform paper replacement and head cleaning only after waiting for the head to completely cool.

Do not put your finger etc. because there is a cutter blade at the paper discharge port when using printer (option). Also, do not touch the blade of the cutter when opening the paper cover.

The printing paper used in this printer (option) is a heat sensitive paper. Take the following precautions when using this paper.

- Store the paper away from heat, humidity, or heat sources.
- Do not rub the paper with any hard objects.
- Do not place the paper near organic solvents.
- Do not allow the paper to come in contact with polyvinyl chloride film, erasers, or adhesive tape for long periods of time.
- Keep away the paper from freshly copied diazo type or wet process copy paper.

Always set the expanded MMSI in the bridge of the vessel to zero (0). If setting to another value other than zero, DSC calls may not be received.

Do not use a sharp object for touch panel operation.
Otherwise, the screen may be damaged.

Keep away at least 0.6 meters from the VHF antenna to avoid radio frequency radiation hazard.

DISTRESS ALERTS

Sending a Distress Alert

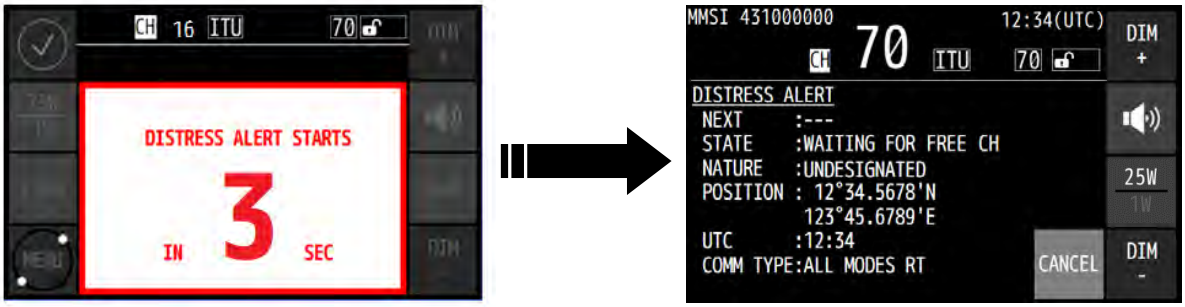
⚠ CAUTION

When sending a distress alert, follow the instructions of the ship's captain or officer in charge.

1. Open the protective cover on the DISTRESS button for the JHS-800S Marine VHF radiotelephone or NCM-980 Controller.

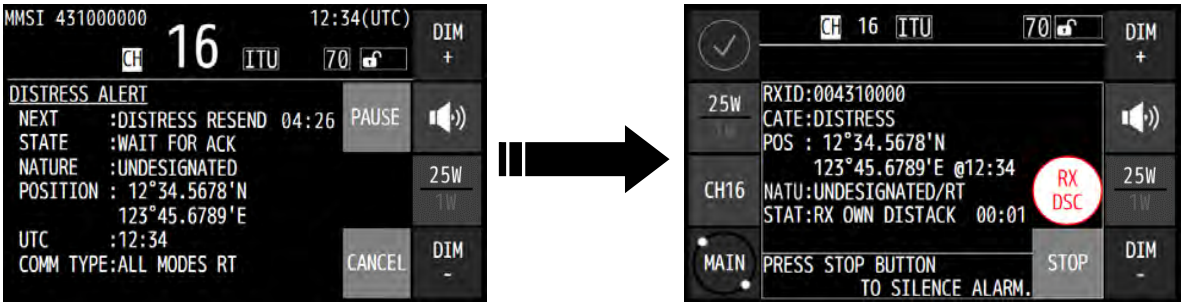
2. Press and hold the DISTRESS button for at least 3 seconds until the countdown is complete.

When the countdown is complete, the screen below on the right is displayed and after confirmed that the channel is free or after 1 second whichever occurs first, the distress alert is transmitted.



3. After sending the distress alert, wait for an acknowledgement.

The radiotelephone can be used to communicate even while waiting for an acknowledgement. When an acknowledgement is received, touch the [STOP] button to cancel the alarm on the below right screen, and communicate with the station. Unless an acknowledgement is received or the distress alert is cancelled manually, the equipment repeats the distress alert every 3 minutes 30 seconds to 4 minutes 30 seconds.



4. After receiving acknowledgement, lift the handset and request rescue using CH16 of the radiotelephone.

First, the responding station calls by radiotelephone. Communicate the following information to that station.

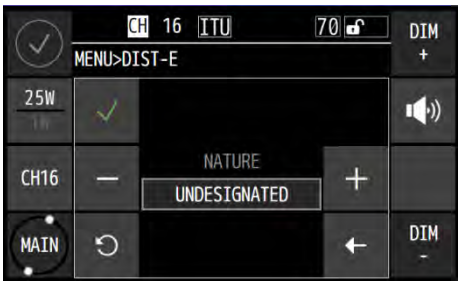
Say "MAYDAY", "This is (name of your ship)", Tell the ship's Maritime Mobile Service Identity number, call sign, ship's position, nature of distress, and rescue requests.

Note If time permits, enter the nature of the distress as follows, just before sending the distress alert. (For more details, see 4.4.5.2.)

1) On the status display, touch the [DIST-E] button.

2) On the screen at right, touch the [EDIT]→ [NATURE] buttons and then select the nature of distress.

3) Touch the [✓] button.
The nature of distress is set. If the position and time are not displayed automatically, select the [EDIT]→[POS UTC] buttons and input them manually.



4) With this DIST-E menu open, press and hold the DISTRESS button for 3 seconds to send the distress alert..
The rest of the procedure is as same as described above.

Terminating a Distress Alert

⚠ CAUTION

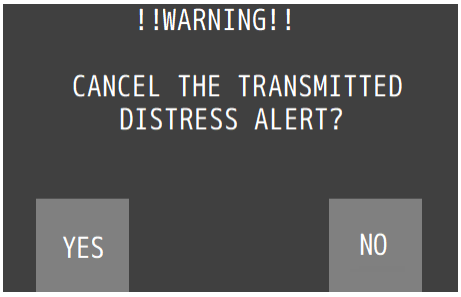
If a false distress alert is transmitted accidentally, use the [CANCEL] button to cancel transmission of the distress alert. Then report the false distress alert to a nearby RCC (Rescue Coordination Center). In Japan, inform the nearest Japan Coast Guard. Follow the on-screen instructions to report the following information.

Ship's name, type, nationality, and ID number, the date/time, location and reason why the false distress alert was transmitted.

Also the unit model name and manufacture number/date, if possible.

Touch the [CANCEL] button.

The popup shown below is displayed. Touching the [YES] button cancels transmission of the distress alert. After that, follow the on-screen instructions.
Note) For more details, see the description in the 4.4.5.1 Quick distress alerts.



Receiving a Distress Alert

⚠ WARNING

If a distress alert is received, make sure to inform the ship's captain or officer in charge.
Doing so may save the lives of the crews and passengers on the ship in distress.

1. **When a distress alert is received, the information such as the ID number of the ship in distress and the stage of the distress event are displayed.**
If the equipment is not used, i.e. there is no active procedure at that time, the CH16 is set and the Receive mark starts blinking, and the alarm gradually grows louder.

2. **Touch the [STOP] button to stop the alarm.**
Keep watch on CH16 for at least 5 minutes, and notify the coast station as appropriate.

3. **Touch the [ACK] button to respond from your own ship with the results of coordinating with the coast station and monitoring CH16.**

After sending it, commence distress traffic via radiotelephony on CH16 as follows.

- Say "MAYDAY",
- Repeat the identity (MMSI) of the ship in distress 3 times,
- Say "This is",
- Repeat the identity (MMSI) of your ship 3 times,
- Say "RECEIVED MAYDAY".

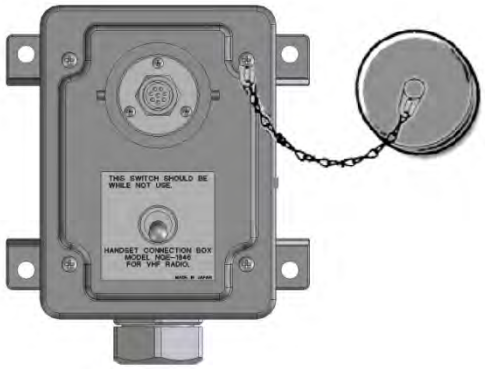
Equipment exterior

- JHS-800S Marine VHF Radiotelephone/ NQW-980 Handset

- NCM-980 Controller/ NQW-980 Handset

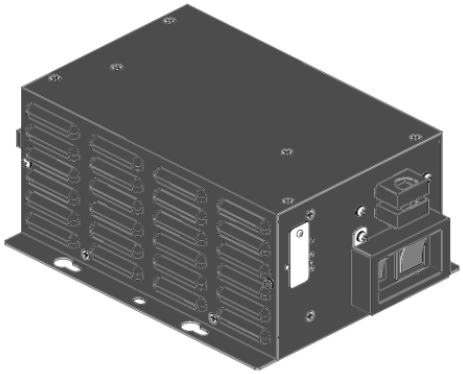
- NQE-1845 Handset Connector Box
  Waterproofed flush mount type
  (for wing console)

- NQE-1846 Handset Connector Box
  Waterproofed wing installation type

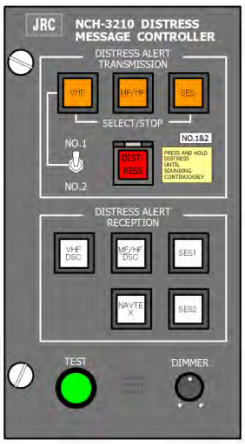


- NQE-1847B Handset Connector Box
  Indoor flush mount type

- NBD-965 AC/DC Power Unit



- NCH-3210 Distress Message Controller



- RP-D10 Printer

- NVS-423R/823R External Speaker

- BTR-155 Wireless speaker microphone

Contents

Glossary of terms

This section contains general and DSC terms related to this equipment.

● General terms

AIS
Automatic Identification System
Equipment that transmits a ship's Maritime Mobile Service Identity number, ship name, ship position, speed, orientation, and other information to and from other ships. AIS equipment is required on some ships by the International Convention for the Safety of Life at Sea (SOLAS)

ATIS
Automatic Transmitter Identification System
This is used for notification of the radio station ID to receivers when using European inland waterway (IWW) channels.

BAM
Bridge Alert Management

CCG
Canadian Coast Guard

DSC
Digital Selective Calling
Used in routine calls, safety and urgency calls, and distress alerts for rescue request.

GMDSS
Global Maritime Distress and Safety System

GPS
Global Positioning System

IMO
International Maritime Organization

Intercom
Wired communications equipment or functionality

ITU
International Telecommunication Union
The leading United Nations agency for information and communication technologies. Establishes conventions and regulations for all electrical communications. It contains internal organizations such as ITU-R and ITU-T.

ITU-R
The International Telecommunication Union (ITU) radio communications department

IWW
Inland Waterway

LT
Local Time

MMSI
Maritime Mobile Service Identity
The 9-digit Maritime Mobile Service Identity number assigned to each ship and coast station.

NMEA
National Marine Electronics Association
Maritime equipment transmission standard established by the National Marine Electronics Association

NNSS
Navy Navigation Satellite System
Doppler based satellite positioning system operated by the United States Navy.

PA
Public Address
Sound amplification equipment
In this radiotelephone equipment, it is a function for using an external public address.

PTT (Push To Talk)
Handset button to talk

RCC
Rescue Co-ordinate Center
In Japan, the Japan Coast Guard.

RMS
Remote Maintenance System
Transmits ship equipment information temporarily stored in VDR via Inmarsat to land, for use in maintenance and management of radio equipment.

RR
Radio Regulations
Intergovernmental treaty text of the ITU

SAR Convention
International Convention on Maritime Search and Rescue

SOLAS Convention
The international convention applied to all ships engaged on international voyages. A safety certificate is issued if the conditions of this convention are satisfied.

SQL (Squelch)
A function that acts to suppress the audio output of a receiver in the absence of a sufficient radio strength signal.

Station
A radio station, or a control terminal for radio equipment

USCG
United States Coast Guard

UTC
Universal Time Coordinated

VDR
Voyage Data Recorder
After a maritime accident, recovered to analyze the recorded data (speed, rudder, bridge conversation, VHF audio, etc.) to determine the cause of the accident.
It can also transmit navigation management data regularly via Inmarsat to land.

VHF
Very High Frequency (30 - 300MHz)

VOL
Loudspeaker volume

WRC
World Radiocommunication Conference

WMO
World Meteorological Organization

WKR
Watch Keeping Receiver
Dedicated receiver for CH70 to watch the DSC signals.

● DSC terms

Address
General term for Maritime Mobile Service Identity number (MMSI)
This equipment uses TO/FROM to distinguish between the sender and receiver. It also means the SELF-ID (own ship MMSI) and DIST-ID (MMSI of a ship in distress).

Category
Message code indicating priority of the call.
It contains types as below.
- ROUTINE..General calls for routine works
- SAFETY ....Safety communications call
- URGENCY Urgent communications call
- DISTRESS Distress alert

DROBOSE
Distress relay call (to individual or to area) on behalf of someone else who is in distress.

EOS (End Of Sequence)
Termination code appended to the call messages.
It contains types as below.
- EOS.....End of sequence
- ACK RQ ....Acknowledgement request
- ACK BQ.....Acknowledgement responding to the ACK RQ

ECC (Error Check Character)
Er*ror check code appended to the end of call* m*essages.*
This is not normally displayed, but if an error occurs, one of the following will be displayed.
- ECC ERROR..... Message error
- EX ECC ERROR....Expansion message error

Format
Message code indicating type of call.
It contains types as below.
- Individual call.....Individual call
- Individual ACK .....Acknowledgement response to individual call
- Individual NACK ....Negative acknowledgement response to individual call
- Semi/auto call.....PSTN connection call
- Semi/auto ACK .....PSTN call acknowledgement
- Semi/auto NACK ...PSTN call negative acknowledgement
- Group call .....Call to ships having common interest
- All ships call.....Call to all ships
- Distress.....Distress alert

Nat*ure* of Distress

Message code indicating type of distress when a distress call is issued.
It c*ontains types as below.*

- FIRE .....Fire, explosion
- FLOODING.....Flooding
- COLLISION ..... Collision
- GROUNDING ..... Grounding
- LISTING..... Risk of ship capsizing
- SINKING..... Sinking
- DISABLED..... Ship inoperable/adrift
- UNDESIGNATED .... Undesignated distress
- ABANDONING ..... Abandoning ship
- PIRACY ATTACK..... Piracy attack
- MAN OVERBOARD. Man overboard
- EPIRB EMISSION ... DSC VHF EPIRB reception

Polling

Polling is a feature for routine calling.
It is used, for example, to confirm whether a ship is existing within radio range when a coast station requests navigational information to the ship.

PSTN (Public Switched Telephone Network)

General fixed landline telephone network.

Reason

Message code indicating reason for negative acknowledgement response.

- NO REASON .....No reason
- CONGESTION .....Maritime information exchange center congested
- BUSY.....Busy
- QUEUE.....Queued
- BARRED.....Station barred
- NO OPER .....No operator
- TEMP NO OPER ...Temporarily no operator
- EQP DISABLED ....Equipment disabled
- UNABLE CH .....Indicated channel cannot be used
- UNABLE MODE… .Indicated mode cannot be used

Subject

Message code clarifying communication contents when sending an urgency call to all ships.
When sailing dangerous waters, such as political instability, these call messages with the following information are used.

- Neutral ship .....In accordance with ITU resolution 18 (Mob-83), inform all ships that own ship is of neutral nationality.
- Medical TRNSP .....Inform all ships that own ship is performing medical transportation, and is protected under the 1949 Geneva Convention.

Type

Main contents of call message.
Normally, the 1st telecommand will be indicated, but for a distress related call, it may also take into account the Format and the EOS. Displayed when message is received, as well as in LOG.

- ALL MODES RT .....All F3E/G3E radiotelephones
- SEMI-DUPLEX RT ...Semi-Duplex F3E/G3E radiotelephones
- POLLING.....Polling
- DATA .....Data transmission
- POSITION RQ.....Ship position request
- SHIP POSITION.....Ship position notification
- TEST .....Safety test call
- UNABLE TO COMPLY ....Negative acknowledgement
- DISTRESS .....Distress message
- DISTRESS ACK .....Acknowledgement of distress message
- DISTRESS RELAY...Distress relay message
- DIST-RELAY ACK.....Acknowledgement of distress relay message

Work CH

Message code indicating a work channel to communicate using radiotelephone.

1. EQUIPMENT OVERVIEW

1.1 Functions

This equipment includes marine VHF radiotelephone, Class-A DSC and DSC watchkeeping receiver required as the Global Maritime Distress and Safety System (GMDSS). It is designed as a integrated compact and lightweight unit of the RF and control circuits, including the optional controller, for easy installation in non-regulated ships under 300 tons, as well as in regulated ships (IMO regulated passenger ships and cargo vessels over 300 tons).

This equipment has functions such as the DSC (digital selective calling) for routine calls or distress alert, recording and playback function of the receiving voices, an easy-to-operate self-diagnosis function, and so on. Additionally, various optional functions are available, such as a public address function to announce onboard using the handset and the optional external speaker, an intercom function for communication between the main unit and/or controllers, and a DSC calling function using other ships information input from the AIS (automatic Identification system).

1.2 Features

- Compliant with the ITU Radio Regulations (RR), the IMO performance standards, and the ITU-R recommendations.
- Contains all channels specified in the ITU Radio Regulations (RR).
- In addition to channels specified in the ITU Radio Regulations (RR), this equipment also provides USA, Canada, European inland waterway, and weather channels. It also allows the use of up to 200 private channels.
- Contains ATIS (Automatic Transmitter Identification System) function for the inland waterway channels.
- The compact and lightweight package enables easier to install in the limited space.
- Wide angle LCD allows easy viewing and enables to install in a variety of positions for easy viewing and operability.
- The backlight of the LCD and panel buttons has the dimmer control with very wide range, and allows to operate even under the circumstance in the straight/back light or in the dark without interference while keeping night watch.
- The touch screen provides the specific operation buttons on each screen and allows intuitive easy operation.
- The DSC has the automated procedure mentioned in the Recommendation ITU-R M.493 to supply the easy operation such as the suitable menu/indication for the ongoing procedure. Therefore every DSC calls from routine calls until distress alert can be operated easily.
- When in distress, the DSC can send the distress message with the expanded position data containing the digits up to 1/10000 of minutes for both latitude and longitude to make search and rescue operation by the RCC easier.
- The received voice recording and playback function enables later confirmation or temporary saving of communications.
- An advanced digital audio amplifier with a built-in loudspeaker provides 6 W max. And also the sound is selectable by the equalizer for clear sound depending on the scene.
- By using the optional Bluetooth type wireless speaker microphone allows radiotelephony operation far from the marine VHF radiotelephone or VHF controller.
- By connecting to the our ECDIS/ RADAR, this marine VHF radiotelephone can be operate from them, e.g. to call the vessels indicated as the AIS target on their screen via DSC.
- Daily maintenance and inspections are easy to do by using the simple to operate self-diagnosis function.
- Besides printers and GPS, other peripherals such as the AIS, the VDR, and/or remote maintenance systems (RMS) can be connected to this equipment.

1.3 Basic configuration

1.3.1 Basic configuration

No.	Product Name	Model Name	Qty	Notes
1	Marine VHF Radiotelephone	JHS-800S	1	IP56 equivalent
2	Handset	NQW-980	1	Includes the cradle
3	Power cable	CFS-810	1	For power supply, 2.5 m
4	Accessary cable	CFS-820	1	For GPS and VDR, 2.5 m
5	Bridge card	7ZPJD0741	1	
6	Spare fuse	0997015.WXN	1	For power cable
7	Instruction Manual	7ZPJD0714	1	This manual

1.3.2 Options

No.	Product Name	Model Name	Notes
1	TRX Antenna	7ABJD0004	1.29m Dipole type
2	WKR Antenna	7ABJD0004	1.29m Dipole type
3	Antenna mounting bracket	MPBX41928A	Used for each antenna
4	Coaxial connector	N-P-10U	
5	AC/DC Power supply	NBD-965	IP22 equivalent (with protective covers)
5-1	Power connector cover	7ZZJD0121	
5-2	Signal connector cover	7ZZJD0122	
6	Desktop kit	MPBX50190	For Radiotelephone
7	Controller	NCM-980	Upto 4 units available, IP56 equivalent
7-1	CAN cable	CFS-830	Specific controller cable, 5 m
7-2	Desktop kit	MPBX50191	For the controller
8	Handset	NQW-980	Waterproof type/ IP66 equivalent
8-1	Handset	7UMJD0020	Handset only (without cradle)
8-2	Cradle	7ZJJD0004	Cradle only
8-3	Handset extension cable	CFQ-5530	3 m
8-4	Handset extension cable	CFQ-5397	10 m
8-5	Handset extension cable	CFQ-5398	20 m
9	Connection box	CQD-10	16 terminals (code: CQD-10DN2)
10	AUX cable	CFS-840	For Handset C/B and External speaker, 2.5 m
11	Handset connection box	NQE-1845	For Wing console, waterproof type/ IP66 equivalent
12	Handset connection box	NQE-1846	For Wing, waterproof type/ IP66 equivalent
13	Handset connection box	NQE-1847B	Indoor flush mount type
14	Wireless speaker microphone	BTR-155	Bluetooth type
15	Sensor LAN switch	NQA-2443	Switching HUB
16	Printer	RP-D10	IP22 equivalent (with a protective cover)
16-1	Roll paper	TP-B10CH	80 mm x ϕ80 mm, 65 m
16-2	Power supply	NBG-980	DC24 V output
16-3	Waterproof kit	MPBC53648	IP22 cover
17	External speaker	NVS-423R	Wall mount type
18	External speaker	NVS-823R	Flush mount type
19	Handmic	NVT-140L	
20	Distress message controller	NCH-3210	Providing LAN ports

1.3.3 System configuration

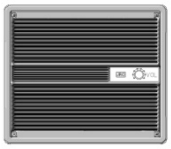
JHS-800S Marine VHF Radiotelephone

NBD-965 Power Supply

NCM-980 Controller

AIS

GPS



NVS-423R Speaker

Waterproofed Handset Connection Box

Indoor Handset Connection Box

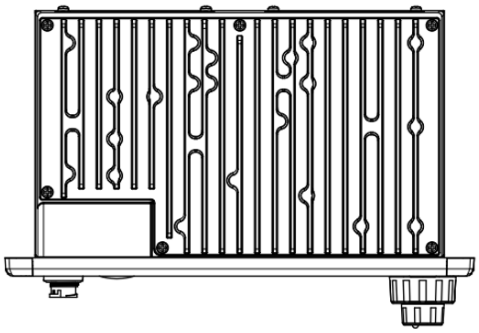
Waterproofed Handset Connection Box

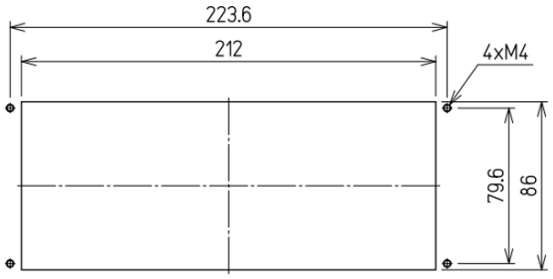
* The radiotelephone can also be used with connected remote maintenance systems, BAM, VDR and printer.

1.4 External dimensions

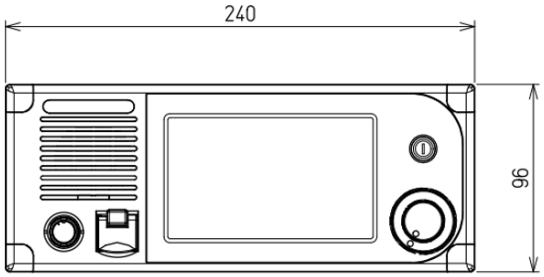
Below are the external dimensions of each unit.

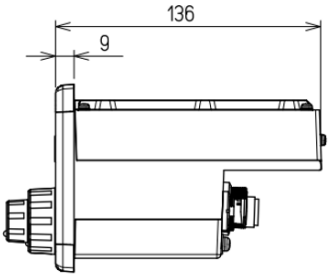
(1) Marine VHF Radiotelephone (JHS-800S)





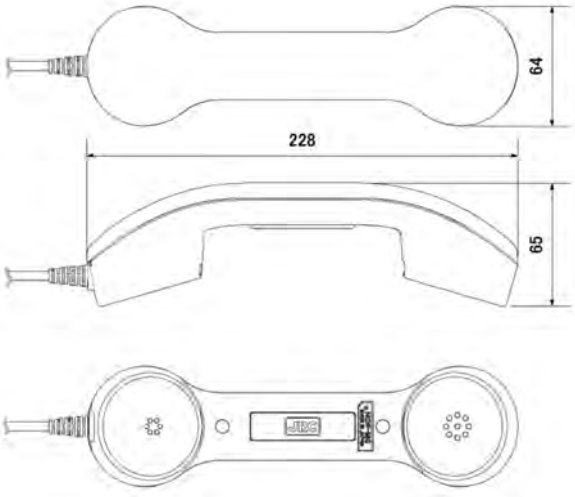
Mounting surface cut dimensions

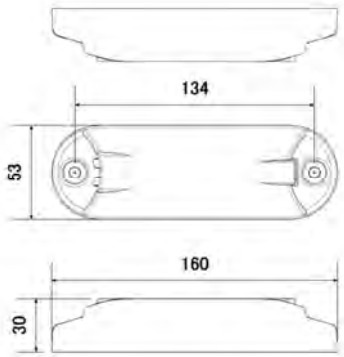




Unit: mm
Weight: Approx. 2.1 kg
Color: Munsell N2.5

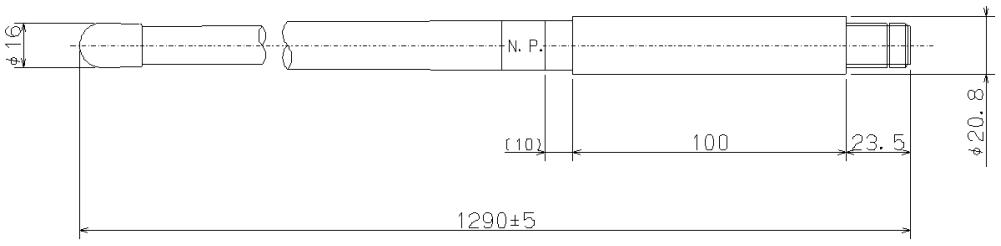
(2) Handset (NQW-980)





Unit: mm
Weight: Approx. 0.45 kg
Color: Munsell N2.5

(3) Antenna (7ABJD0004) and Mounting bracket (MPBX41928A)



Unit: mm
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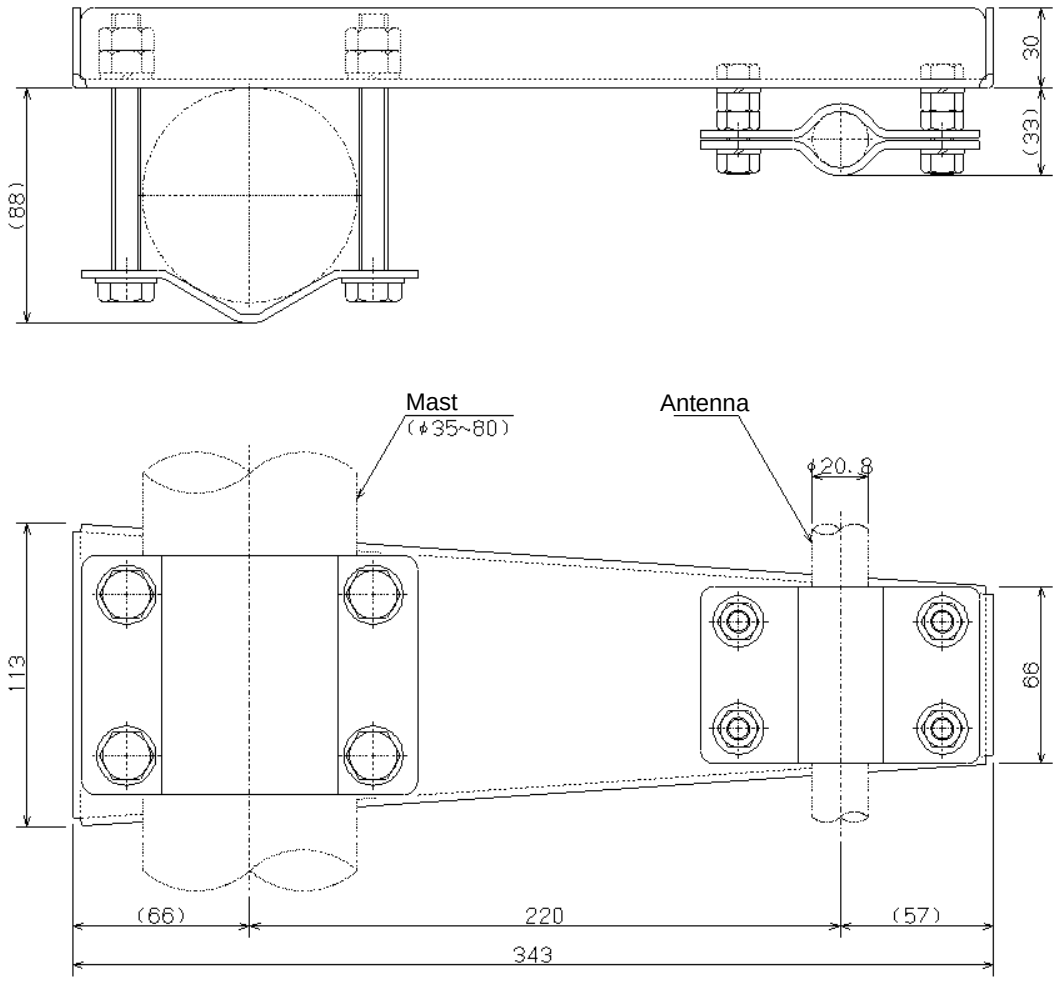
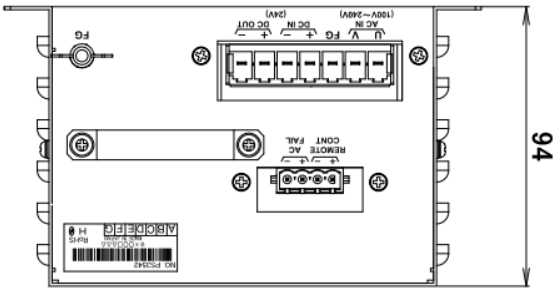
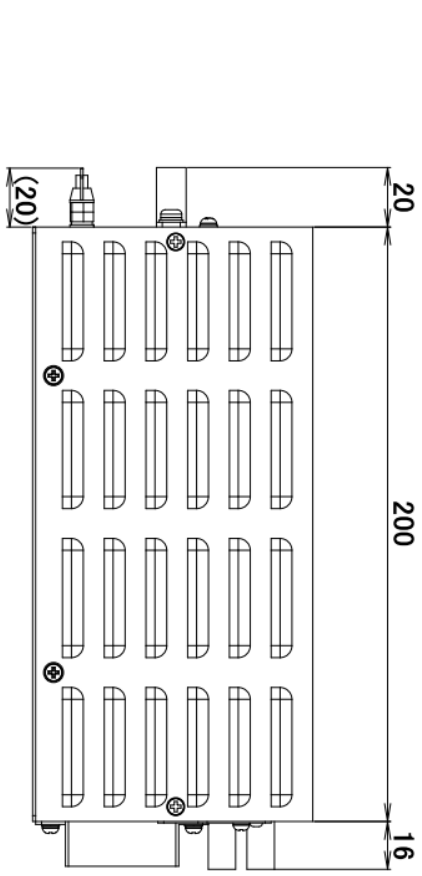
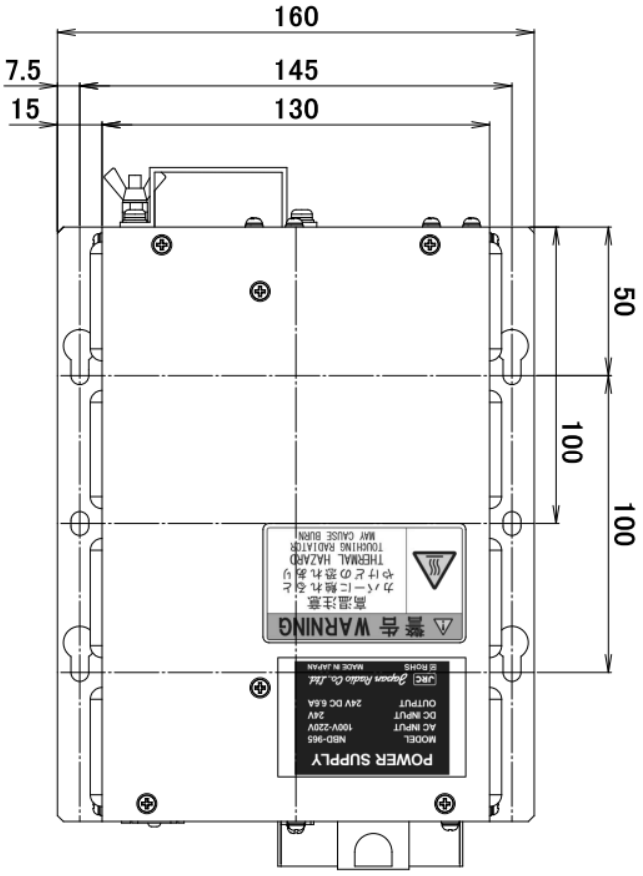


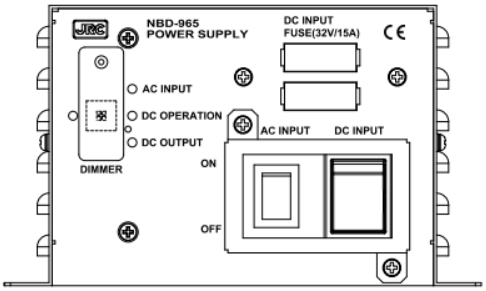
Unit: mm
Weight: Approx. 2.1 kg

(4) AC/DC power supply (NBD-965)



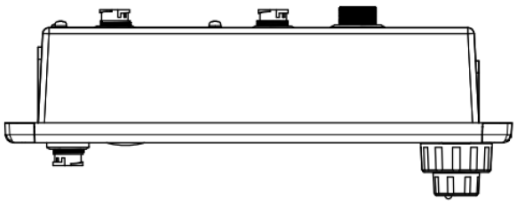


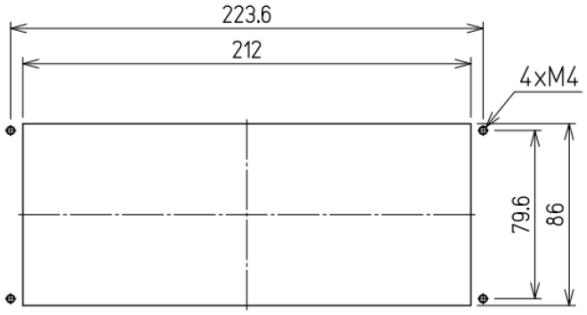




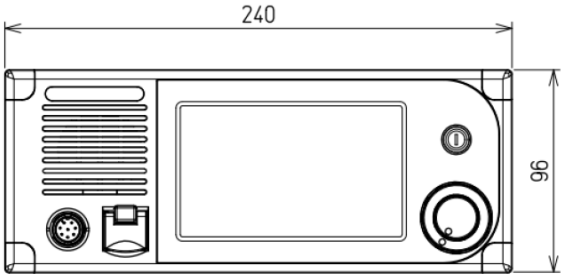
Unit: mm
Weight: Approx. 2.1 kg
Color: Munsell N2.5

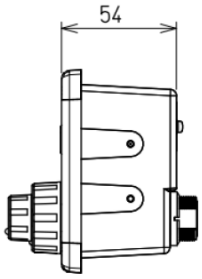
(5) Controller (NCM-980)





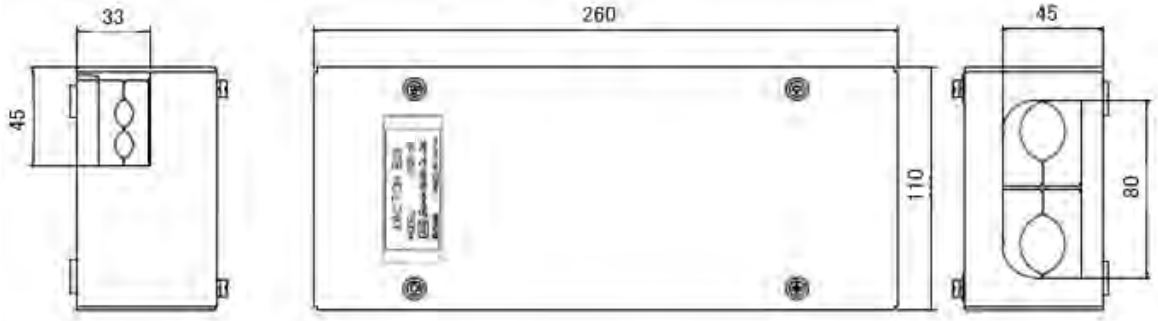
Mounting surface cut dimensions

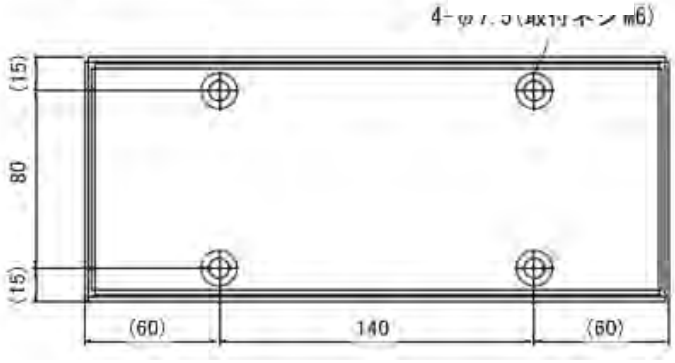




Unit: mm
Weight: Approx. 0.9 kg
Color: Munsell N2.5

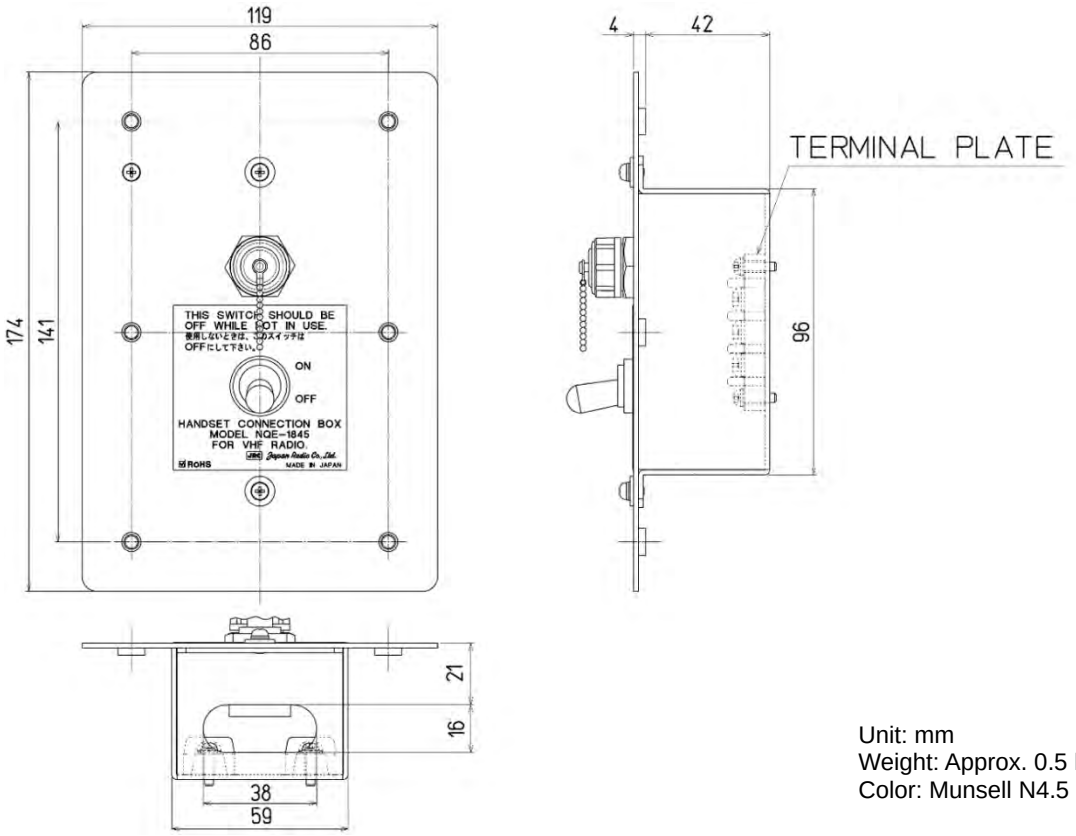
(6) Connection box (CQD-10)





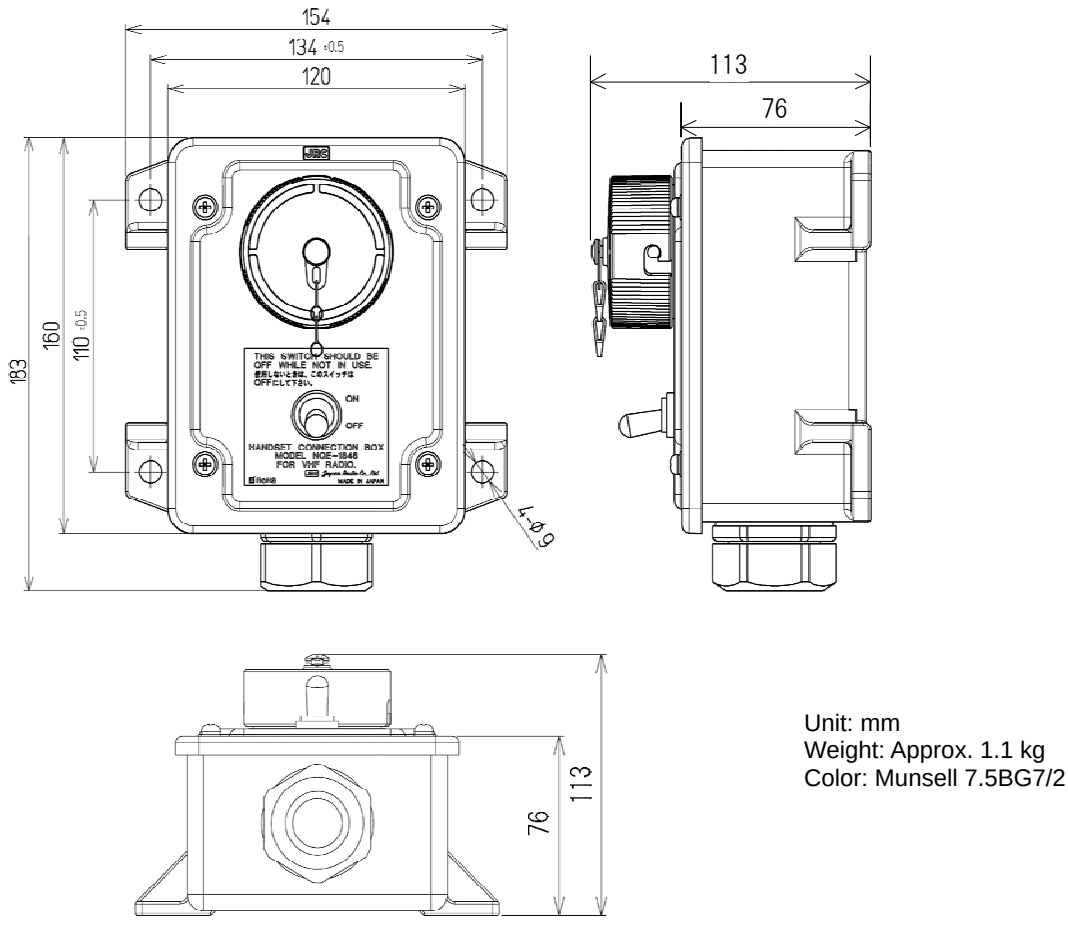
Unit: mm
Weight: Approx. 1.1 kg
Color: Munsell N2.5G7/2

(7) Handset connection box (for wing console installation) (NQE-1845)



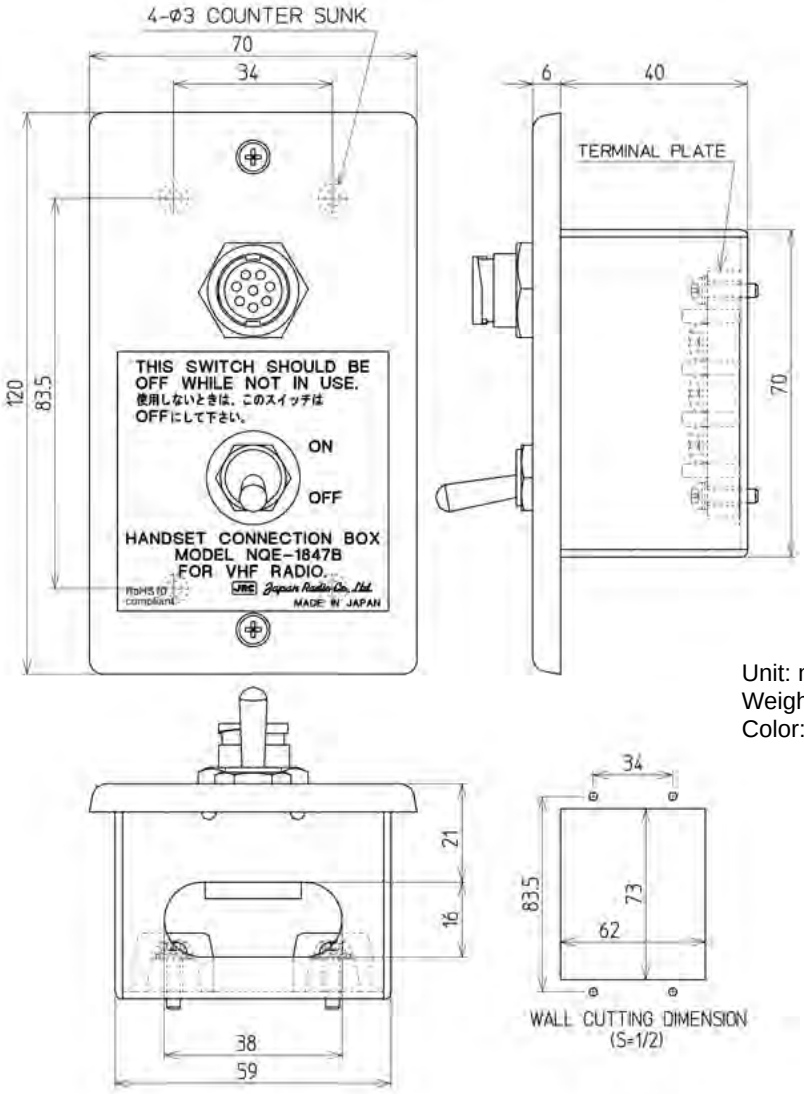
Unit: mm
Weight: Approx. 0.5 kg
Color: Munsell N4.5

(8) Handset connection box (for wing installation) (NQE-1846)



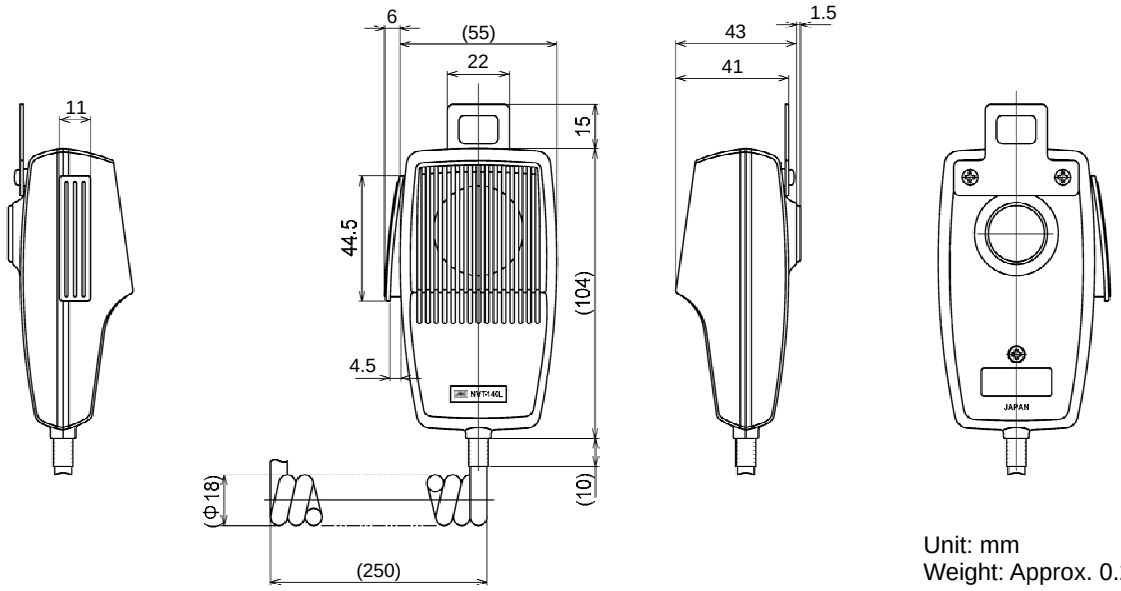
Unit: mm
Weight: Approx. 1.1 kg
Color: Munsell 7.5BG7/2

(9) Handset connection box (for indoor flush mounting) (NQE-1847B)



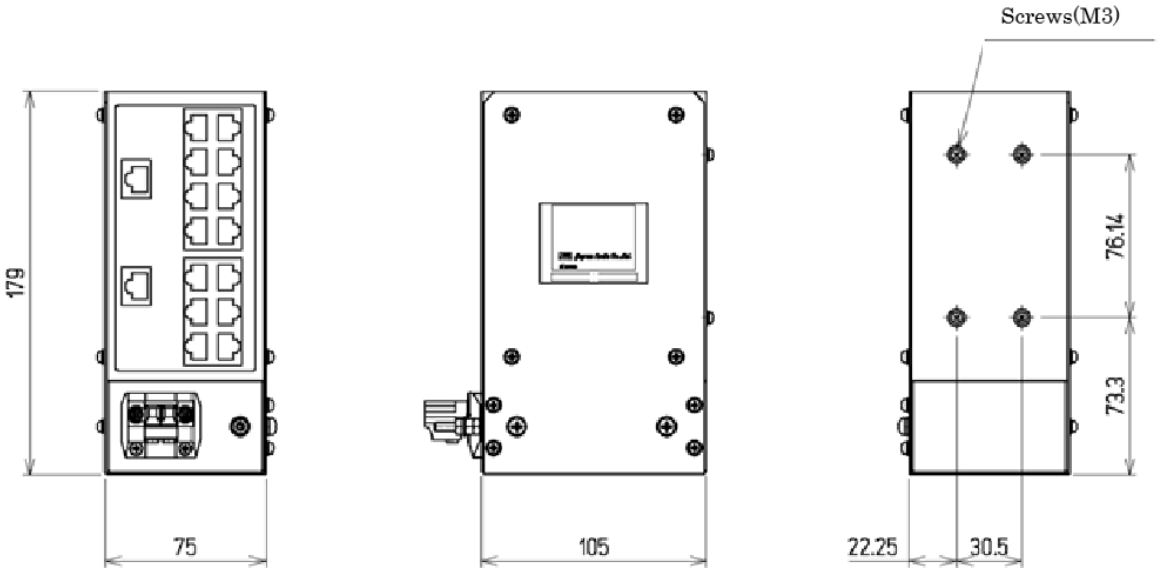
Unit: mm
Weight: Approx. 0.3 kg
Color: Munsell N2.5

(10) Handmic (NVT-140L)



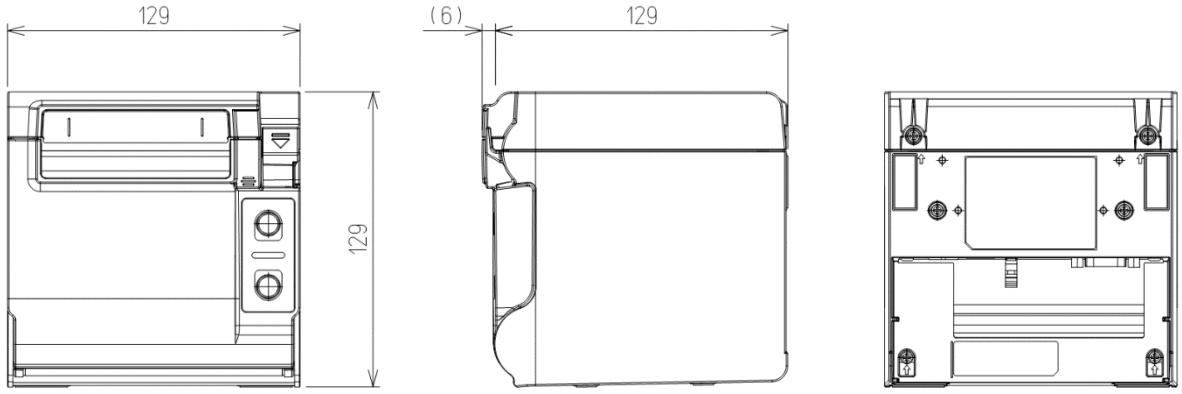
Unit: mm
Weight: Approx. 0.2 kg

(11) Sensor LAN switch (NQA-2443)



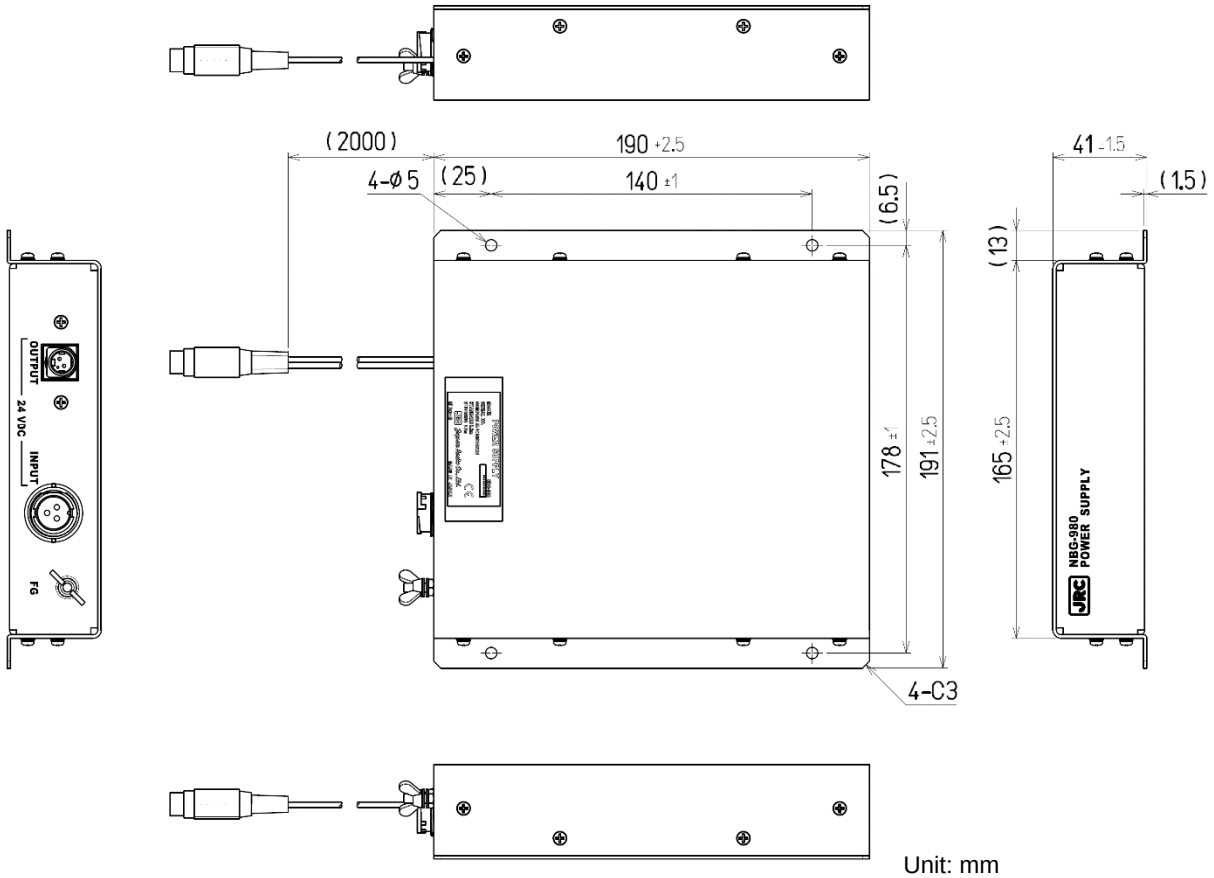
Units: mm
Weight: Approx. 1.5 kg
Color: Munsell N2.5

(12) Printer (RP-D10)



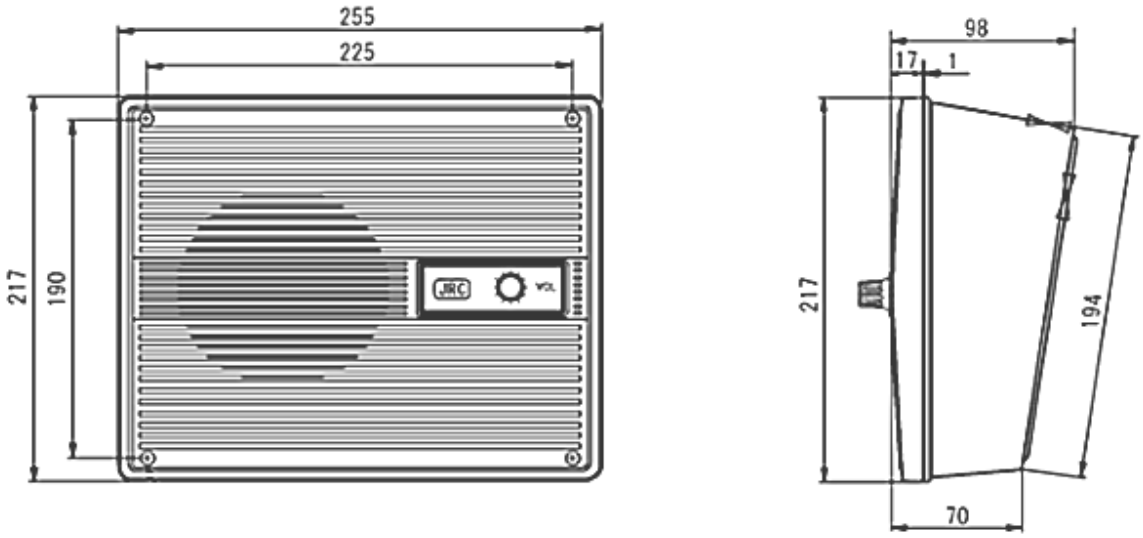
Unit: mm
Weight: Approx. 0.85 kg
Color: Munsell N2.5

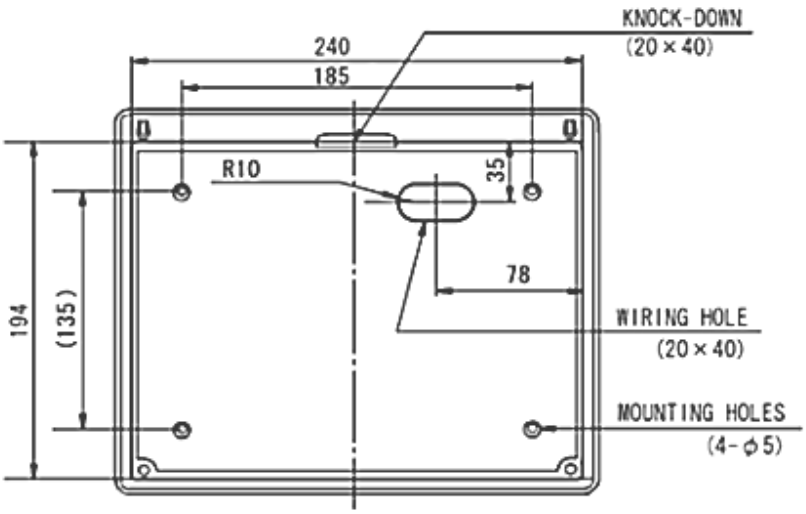
(13) Power supply (NBG-980) *For printer



Unit: mm
Weight: Approx. 1.0 kg
Color: Munsell N2.5

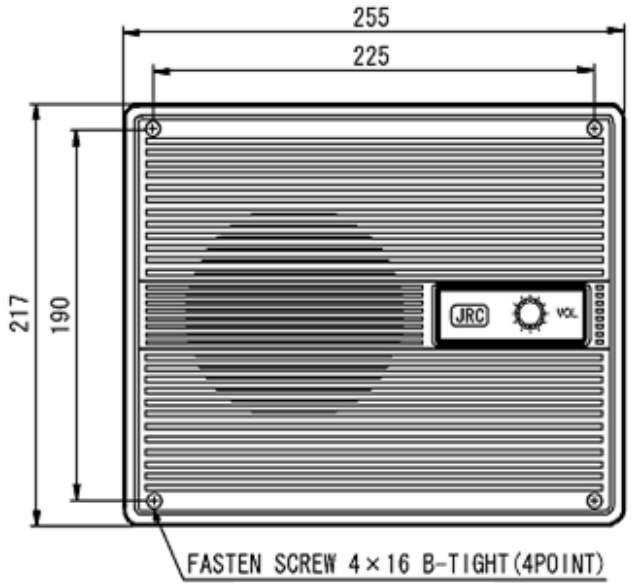
(14) External speaker (NVS-423R) *Wall mount type

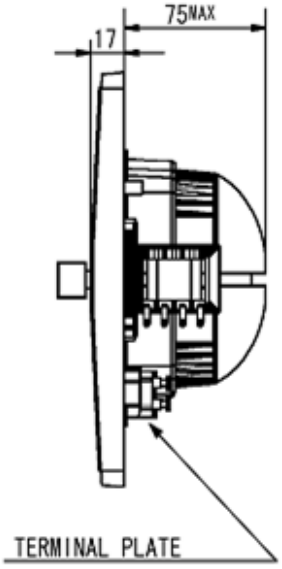


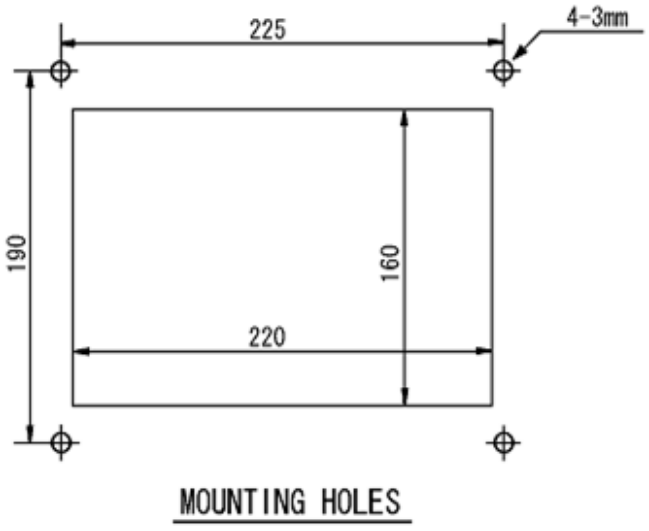


Units: mm
Weight: Approx. 1.1 kg
Color: Munsell N4 (Panel)
Munsell N7 (Case)

(15) External speaker (NVS-823R) *Flush mount type

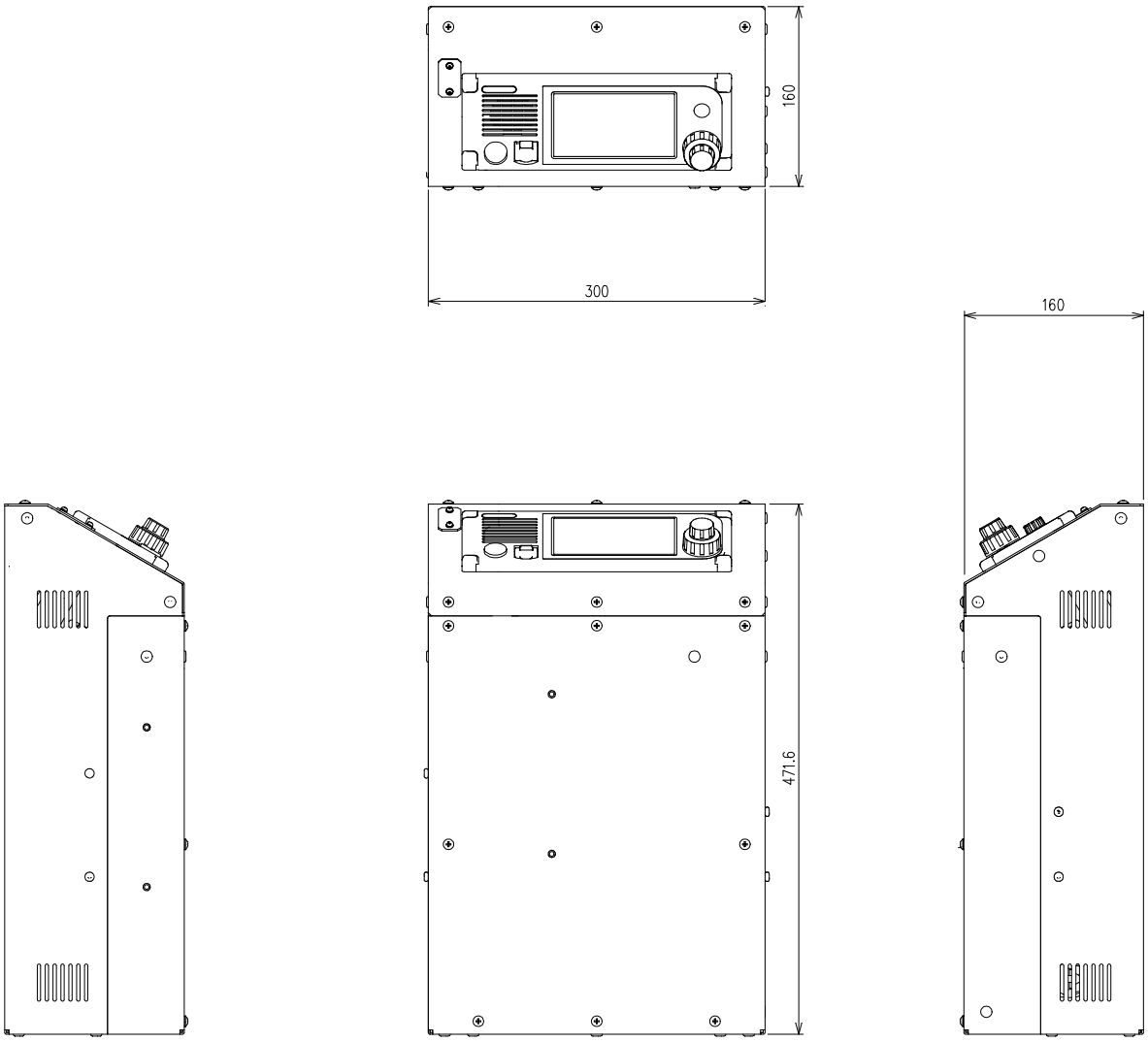






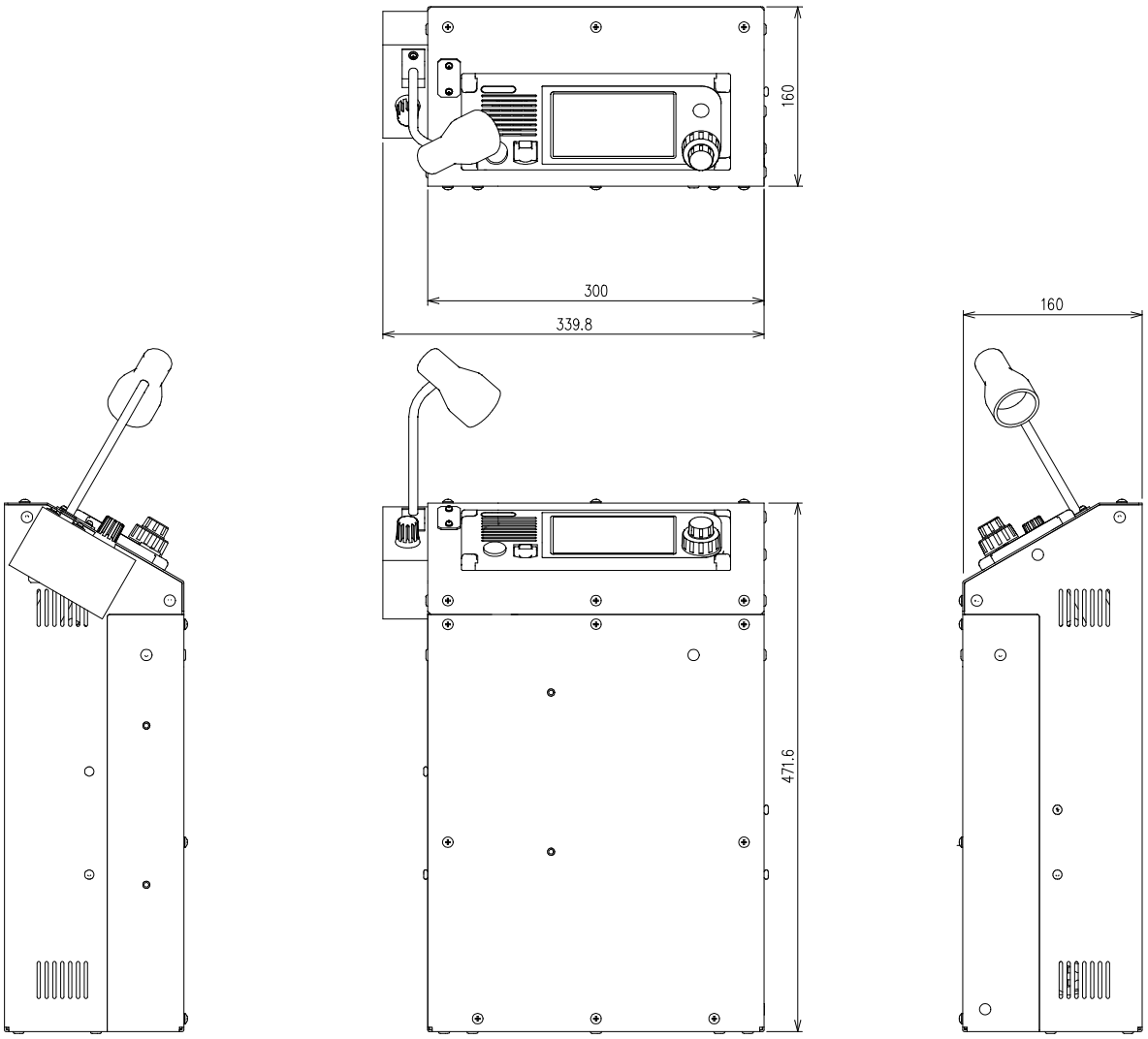
Units: mm
Weight: Approx. 1.0 kg
Color: Munsell N4

(16) Integrated console (JHS-800S-CON)



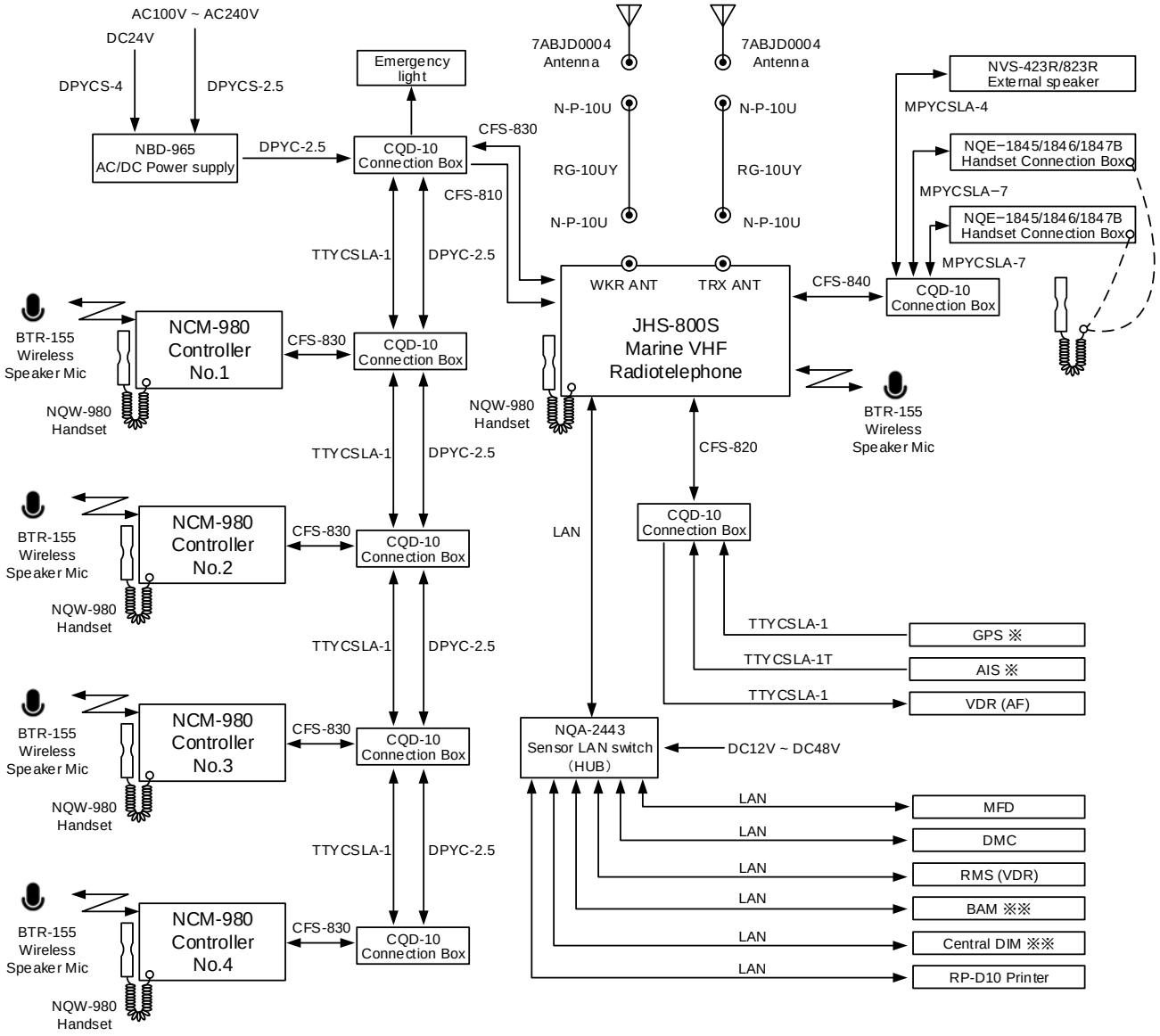
Units: mm
Weight: Approx. 15.0 kg
Color: Munsell N2.5

(17) Integrated console (JHS-800S-CON) *With NZL-1 Emergency light



Units: mm
Weight: Approx. 15.5 kg
Color: Munsell N2.5

1.5 Block diagram

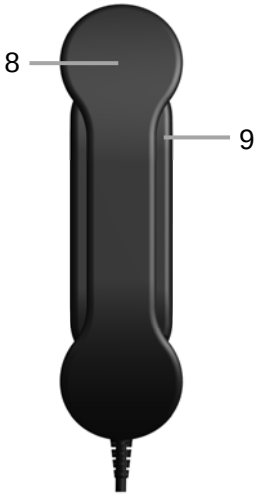


Note)
※ Connection via LAN is also available.
※※ Connection using TTYCSLA-1 is also available.
(Only one system among AIS, BAM or Central DIM is selectable.)

2. NAMES AND FUNCTIONS

2.1 Marine VHF (JHS-800S) and Controller (NCM-980)

The names and their functions are described below.



1. **Internal loudspeaker**

2. **Handset connector**

3. **DISTRESS button**
   When in distress, sends a DSC distress alert after pressing for 3 seconds.

4. **Color LCD display/ Touch panel**
   Touch the buttons on the screen for operation.

5. **PWR button**
   To power on press this button for 1 second. And to power off
   press this button and follow the menu appeared on the screen.

6. **Squelch control**
   Adjusts squelch level.

7. **Volume control**
   Adjusts built-in loudspeaker volume.

8. **Handset**
   Press and hold the PTT key to talk.

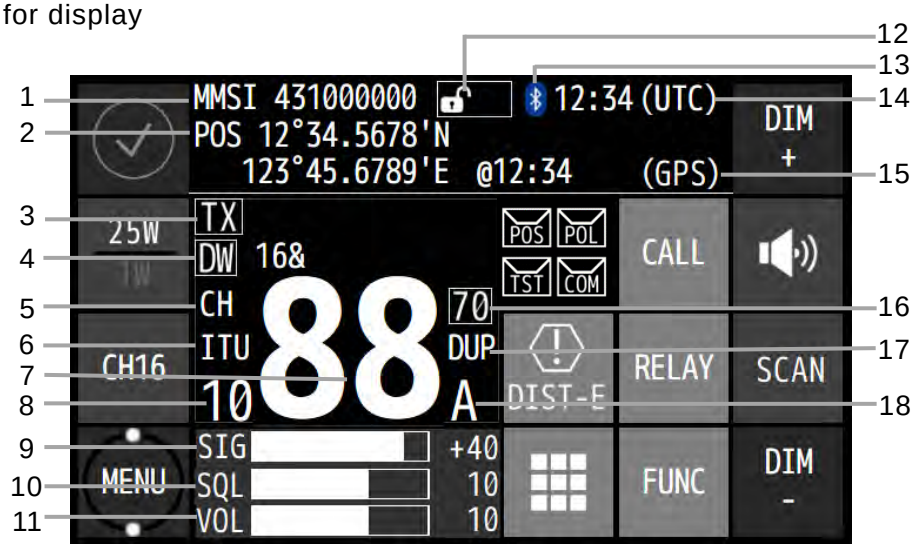
9. **Cradle (for handset)**

2.2 Main displays

The LCD screen changes according to current conditions. This section describes the status display, menu screen, and the screen for DSC messages.

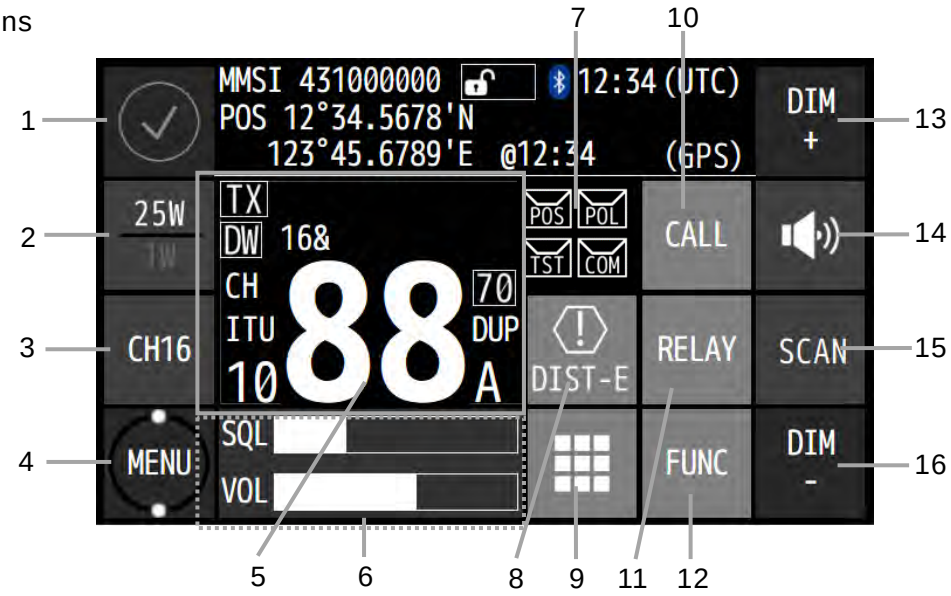
2.2.1 Status display

(1) Parts for display



1	Indicates the ship's MMSI.	10	Indicates the level of the squelch or preset squelch. Additionally, indicates highlight when the squelch is opened.
2	Indicates own ship's position and that time.	11	Indicates the level of the loud speaker volume.
3	Indicates transmitting information. • Transmitting: TX • Bad VSWR at TX: TXVSWR • PLL unlock: UNLOCK	12	Indicates the status of the access rights. • Not occupied: • Occupied: OCC
4	Indicates the current scanning condition. • Scanning: 16& • Dual Watch: DW 16& • Triple watch: TW 16&	13	Indicates the condition of the Bluetooth® wireless speaker microphone. This icon becomes blue after the pairing is finished.
5	Indicates highlight at CH16 (priority channel) or CH70	14	Indicates current time as follows. • Universal time coordinated: UTC • Local time: LT
6	Indicates the current region channel. ITU/ USA/ CAN（Canada）/ IWW（Inland water way）/ P0/P1/P2 (Private)	15	Indicates the source of the ship's position. • External device: (GPS) • Manual input: (MAN) • No input: NOGPS
7	Indicates the current channel.	16	Indicates CH70 watching continuously by the DSC watchkeeping receiver.
8	Indicates the first two digits when a four-digits channel is set.	17	Indicates that the currently selected channel is a duplex channel for communicating with coast stations.
9	Indicates the meter of receiving signal strength indicator (RSSI).	18	Indicates the channel letters (A or B) for the USA or Canada region channel mode.

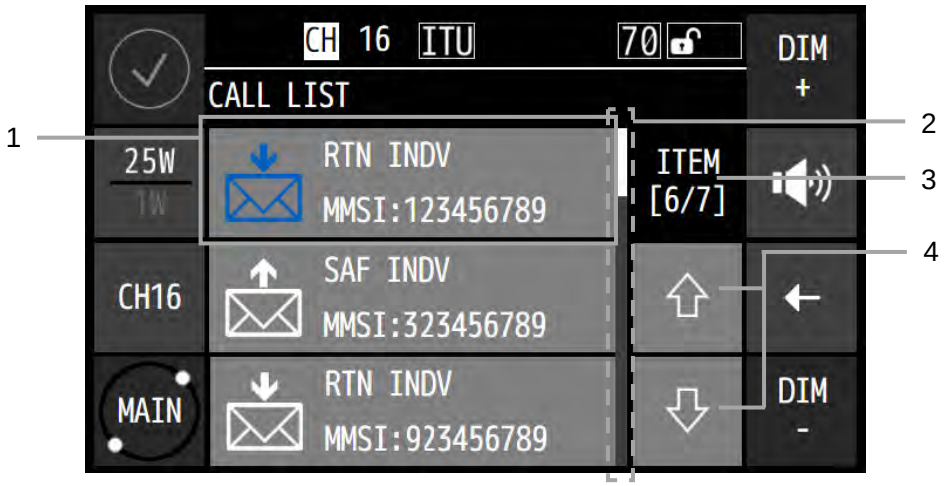
(2) Buttons



1	While there is any alarm, this button becomes the yellow “!” mark. Then if touching here, the alarm information is appeared.
2	Switches transmitting power between 25 W and 1 W. The showing value is changed each other, and is the current condition.
3	Sets the CH16 (priority channel) to the radiotelephone. While displaying OPE button, touching here obtains the access rights.
4	Displays the menus screens. And also indicates the condition that the system is operating by the rotating freeze indicator.
5	Displays the numeric key pad (input 0 to 9) for selecting channels.
6	Switches the S meter display on/off. The range of the level is as follows. SIG: -20～+50 (dBuV), SQL: 0～15, VOL: 0～15
7	Indicates the DSC auto acknowledgement conditions. • POS: Position request call • POL: Polling call • TST: Safety test call • COM: Communication request call During communicating events, this button becomes [CALL LIST] button to display the communication selection screen. (See the next page in detail.)
8	Displays a menu for editing the distress messages.
9	Displays the numeric key pad (input 0 to 9) for setting channels. (Ten-key icon button)
10	Displays the menu for sending DSC calls. Furthermore, on the status display, this button is a shortcut button for routine individual calls.
11	Displays the menu for sending distress relay calls.
12	Displays the function button keypad for various functions.
13	Increases the dimmer level in 15 steps.
14	Turns speaker on or off. (During using the equalizer function, “EQ” is displayed.)
15	User key (Programmable favorite button) Register a desired and assignable menu (e.g. frequently using) or a special function. (Factory default setting: SCAN)
16	Decreases the dimmer level in 15 steps.

- CALL LIST screen

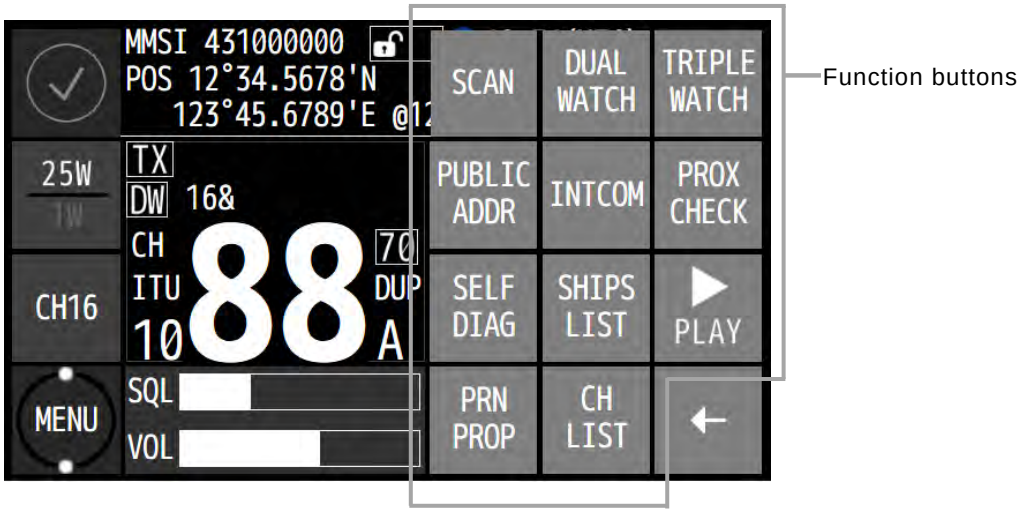
While there are active or on hold communication events, [CALL LIST] button is displayed on the status display. Touch [CALL LIST] button to display the communication event list.



1	Selection button of the DSC/non DSC call events - Icon: Sending DSC call..., Received DSC call..., Non DSC call... - Color information: Active...Blue, On hold...White - Message type: RTN(routine), SAF(safety), URG(urgency), DIST(distress), DST RLY(distress relay) - Format: INDV(individual), GRP(group), ALL(all ships) (Other than mentioned above, ACK or NACK is displayed.) - MMSI: Communication partner's identification number
2	Shows the scroll position of the list.
3	Indicates the sum of the active and on hold events. (7 is the maximum number.)
4	Scrolls the list.

- Function button keypad

When touching [FUNC] button on the status display, the function button keypad is appeared as follows.



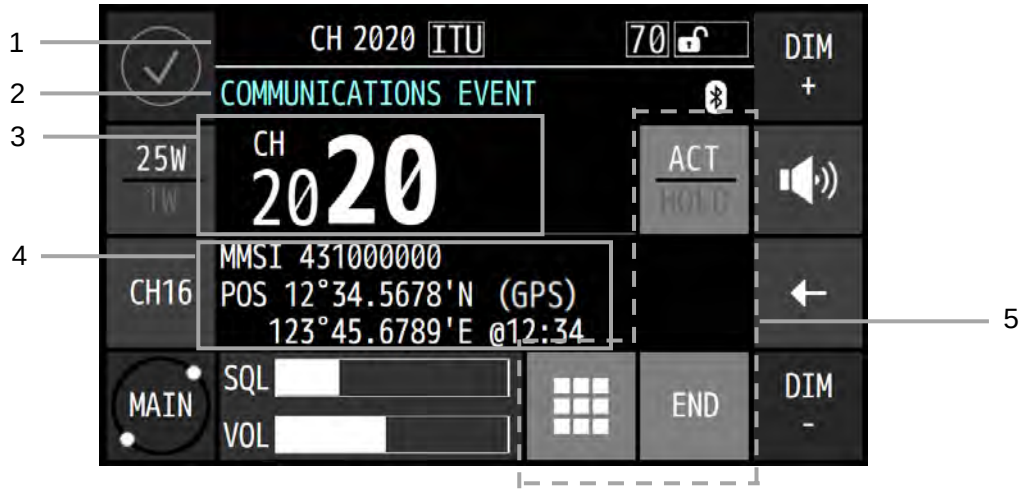
Additionally, the function buttons are programmable. Below are the factory default settings.

[SCAN]	Displays the scan menu.
[DUAL WATCH]	Starts the dual watch.
[TRIPLE WATCH]	Starts the triple watch.
[PUBLIC ADDR]	Starts the public address mode.
[INTCOM]	Displays the intercom menu.
[PROX CHECK]	Notification of registration vessel by AIS.
[SELF DIAG]	Displays the self-diagnosis menu.
[SHIPS LIST]	Display of other ship list by AIS.
[PLAY]	Starts playback the recorded data.
[PRN PROP]	Printer Properties.
[CH LIST]	Displays the memory CH list.

2.2.2 Operating screen

(1) General

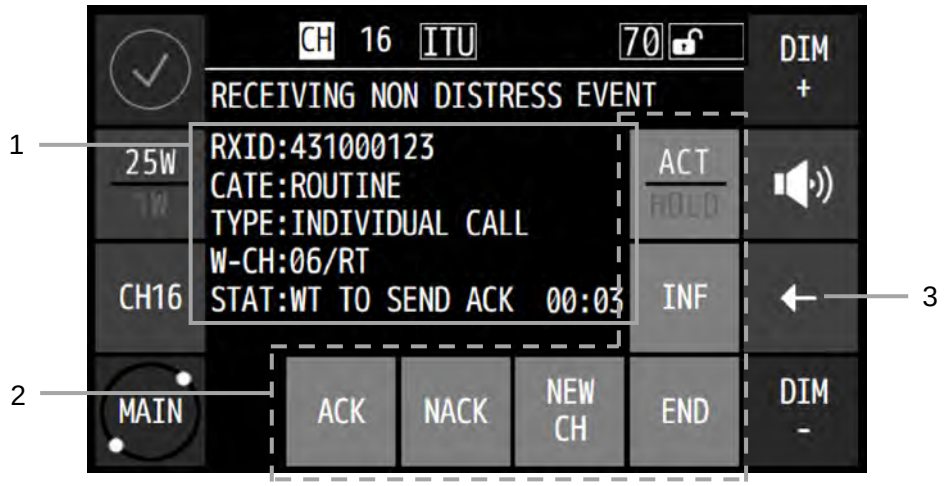
If the radiotelephone is operated by such as changing channels or opening/closing squelch condition on the status display, the communications event screen is appeared as follows.



1	Indicates the standard information such as channel operation.
2	Indicates the communication event title.
3	Indicates the current channel.
4	Indicates the own ship's MMSI, the position and that time.
5	Indicates the ten-key icon button and the following handling menu buttons concerning the communications event. [ACT/HOLD]: Switches the event state between Active and On hold. The showing description (ACK or HOLD) is changed each other, and is the current condition. [END]: Terminates the call.

(2) Operating screen for DSC calls

When communicating using DSC calls, the screen shows as follows.



1	Indicates the DSC message information. RXID or: Shows the received ID (sender MMSI) or transmitted ID (receiver MMSI). TXID Additionally, the following special marks may be indicated on this line. - Any error (ECC error) character is detected. : E - DSC event is started by a delayed acknowledgement. : D CATE: Indicates the category of the DSC message. ROUTINE, SAFETY, URGENCY, or DISTRESS TYPE: Indicates the type of the call or the acknowledgement as follows. DISTRESS, GROUP, ALL SHIPS, INDIVIDUAL, DISTRESS RELAY, or NO INFORMATION W-CH: Indicates the work channel and the communication mode if used for the call. STAT: Indicates the progress state of the DSC call event and the elapsed time.
2	Indicates the handling menu buttons concerning the DSC call event. [ACK]: Accepts the call and sends the acknowledgement. [NACK]: Sends “unable to comply”. [NEW CH]: Sends the acknowledgement with new work channel. [INF]: Displays the received message in detail. [ACT/HOLD]: Switches the event state between Active and On hold. The showing description (ACK or HOLD) is changed each other, and is the current condition. [END]: Terminates the call.
3	Touching this button displays the previous screen.

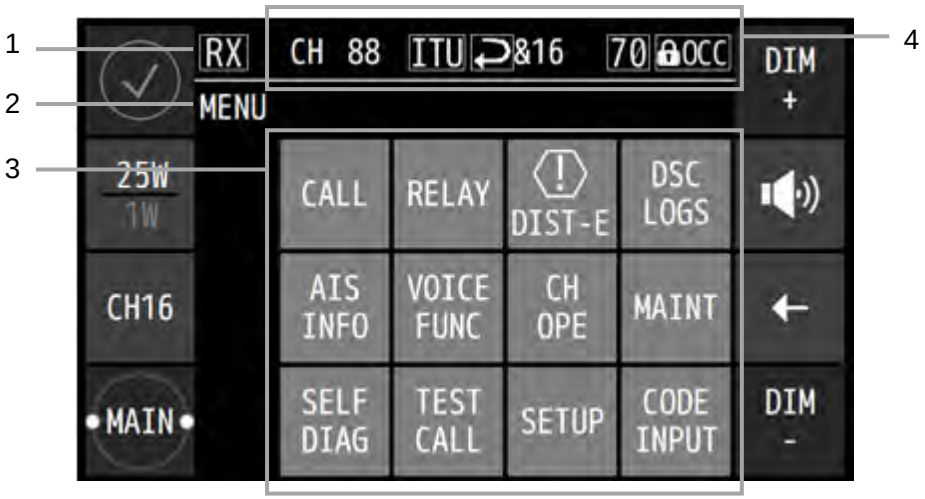
Note

- While there is an active communication event, the DSC auto ACK function is disabled to avoid disruption of the on-going communication.
- When sending the “able to comply” acknowledgement against the received message requesting the radiotelephone communication, lifting the handset is also available instead of touching the ACK button.
- When touching the NEW CH or NACK button, the dedicated popup screen is appeared.
- When sending an acknowledgement automatically to the receiving calls such as position request, safety test, polling, or the call requesting communication with an invalid channel, the above screen is shown and starts sending automatically. After finishing it, that screen is closed automatically.

2.2.3 Menu screen

(1) Menu screen

When touching [MENU] button on the status display, the main menu is appeared.

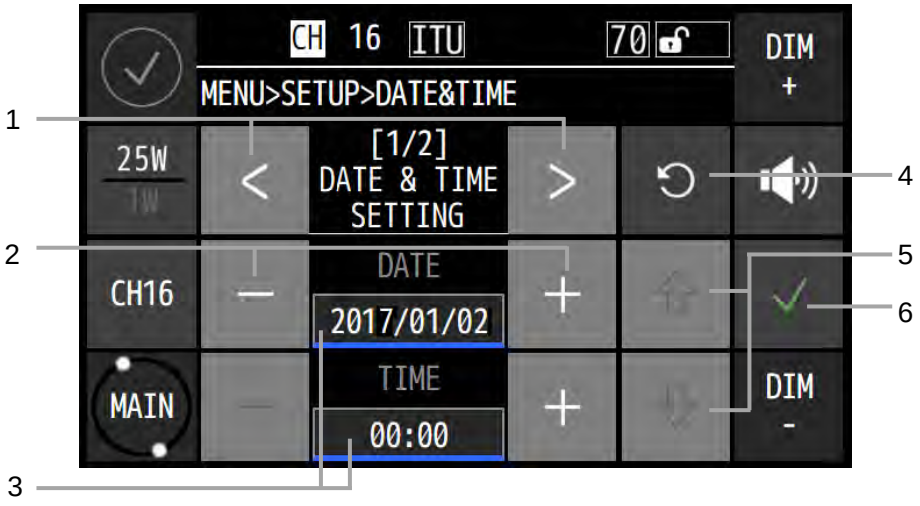


1	Indicates if opened the squelch while performing one of the VOICE FUNCTION menus. Additionally, TX appears while transmitting.
2	Indicates the current menu name.
3	Shows the menu buttons.
4	Shows the current channel and that region, scan condition, the state of the CH70 watching, and access rights.

(2) Button operations

The following buttons do the same operations in all the menu screens.

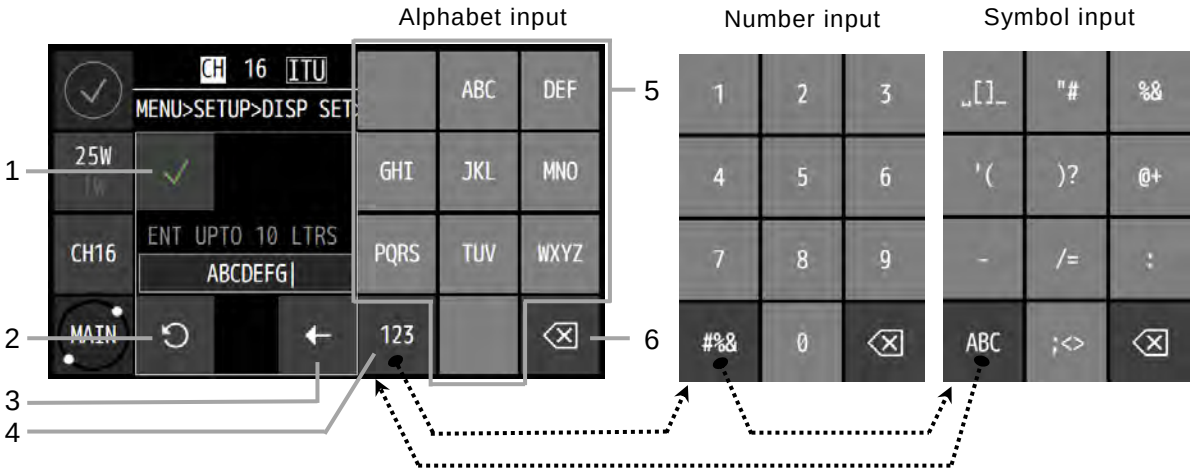
(This explanation uses an example of manually setting the date and time.)



1	Changes the menu pages.
2	Increases or decreases the value or changes selection item.
3	Changes to the text input screen when the blue underline is indicated.
4	Cancels the previous operation and returns to the previous status. (UNDO button)
5	Scrolls the setting item list.
6	Saves the new settings or changed data. However if there is no settings or changes on the menu, [←] button for returning to the previous screen is displayed.

(3) Text input operations

For text input menu, the specific keypads for alphabet, numbers or symbols are available to input them. The buttons and the functions are shown below.

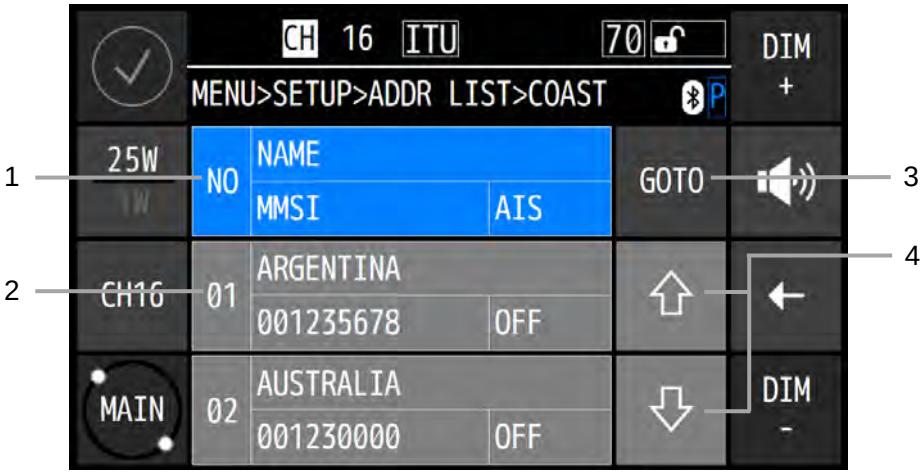


1	Saves the new settings or changed data.
2	Cancels the previous operation and returns to the previous status. (UNDO button)
3	Returns to the previous screen.
4	Changes the keypad as follows if three kinds of characters are allowed to input. ・[123]: numbers ・[#%&]: symbols ・[ABC]: alphabet (uppercase or lowercase)
5	Select characters by single or multiple touching. The input character is entered by leaving one second or inputting another character.
6	Deletes one character. (Back space button)

(4) List operations

On the list screen, touch the target item to select.

(Below is an example of operations for COAST on the CALL LIST.)



1	Becomes blue to show printable if the P is indicated on the right edge of the title line.
2	Selects from the list by touching the target item.
3	Displays the input menu to jump to that number.
4	Scrolls the list.

Note

- To make print function available, set the menu PRN PROP>STATE to ON.
- About the printable menus, refer to the menu tree in the "4.1 Overview of operations of the equipment".

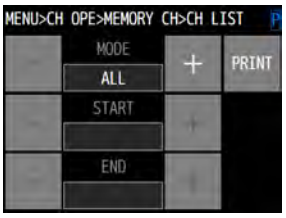
■ Printout procedure

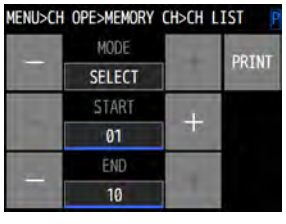
Touch the above-mentioned blue button to display the popup screen as shown at right.

- Touch OK button to start printing the list.
- Touch CANCEL to cancel printing.

■ Printout procedure with selection

In the case of the menu displaying such the screen as shown at right, the print item can be selected if SELECT is set at the MODE on the menu.





3. INSTALLATION

⚠ CAUTION
Leave installation of this equipment to our service center or agents. Special knowledge on selecting the place where the antenna is to be mounted and setting the ID number (MMSI) assigned to the ship is required in addition to mounting the equipment.

4. OPERATION

This chapter describes basic operations of the equipment, radiotelephone communications, procedures to use DSC to call another station, and other functions.

⚠ CAUTION

Do not use a sharp object for touch panel operation.
Otherwise, the screen may be damaged.

4.1 Operation overview

- This equipment is mainly operated by the control panel or the handset of the JHS-800S marine VHF radiotelephone or NCM-980 controller (option).
- Basically all the functions can be operated by using the buttons on the touchscreen, except for the knobs and buttons on the panel. See the menu tree on the next page.
- When one or more controller is connected, basically only one control panel of the main unit (JHS-800S) or controller (NCM-980) having the access rights can be operated, except for the distress alert by the DISTRESS button, changing audio volume, and changing display conditions. (Unless otherwise mentioned, the instructions below are for the control panel with the access right.)
- The DISTRESS button is always available regardless of the access right (this button has the highest priority).
- To obtain the access right at the control panel having no access right, touch the OPE button or lift the handset from the cradle, unless another control panel is in the state of such as opening the menu or PTT ON. However, the higher priority control panel can obtain the access right unless the lower priority one is in the state of PTT ON.
- Replacing the handset on-hook returns the channel to CH16 (factory default setting). Also, on-hook detection can be disabled by setting the handset menu.
- For menu operations, touch the [MENU] button to open the main menu and touch the target function menu buttons to select items or input data.
- The function buttons appeared by the [FUNC] button and the user key ([FAVORITE] button) on the right edge of the screen are programmable and the frequent use functions can be registered on them in advance.
- Touching the [MAIN] button in any menu moves the display to the status display.
- If menu screens are left without operating for a period set by the menu, the screens are closed automatically and return to the status display.
- The popup screens are opened adequately and operations by the dialog boxes are available.
- In the menu tree on the next page, the menu items indicated "OK" on the Printable column can be printed out from the connected printer by touching the blue button on that menu screen.

Menu tree

Menu	Hierarchical Menu 1	Hierarchical Menu 2	Printable	Description
CALL				DSC non-distress call
RELAY				DSC drobose call
DIST-E				Editing distress message
DSC LOGS	RX DIST		OK	Received distress call log
	RX OTHERS		OK	Received non-distress call log
	TX CALLS		OK	Transmitted call log
AIS INFO (*)	SHIPS LIST		OK	Other ships list
	PROX CHECK			Registered ships notice
VOICE FUNC	PLAY-BACK			Playback received voice msg
	PUBLIC ADDR			PA using external loudspeaker
	INTCOM			Starting intercom
CH OPE	SCAN	ALL CH		All channel scan
		MEMORY CH		Memory channel scan
		SELECT CH		Selected channel scan
	DUAL WATCH			Watching CH16 & 1 channel
	TRIPLE WATCH			Watching CH16 & 2 channels
	MEMORY CH	CH LIST	OK	Setting CH from memory CH list
		CH EDIT		Editing memory CH list
	PRIV CH		OK	Private channel
	WX CH		OK	Weather channel
	REGION	ITU		ITU channel mode
		USA		USA channel mode
		CAN		Canada channel mode
		IWW		Inland waterway mode
	CH SQL SET			Preset squelch setting
MAINT	ALARM INFO	ALARM HIST	OK	Alarm information
	SYSTEM INFO		OK	System information
	S/W VER		OK	Software version
	DSC AF CHECK			DSC signal inspection
	CERT MARK			Displaying certification mark
SELF DIAG	TRX		OK	RF CKT self diagnosis
	OWN CTRL		OK	Control CKT self diagnosis
	DSC LOOP		OK	DSC loop self diagnosis
	TRX LOG		OK	RF CKT self diagnosis log
	CTRL LOG		OK	Control CKT self diagnosis log
TEST CALL				DSC safety test call
SETUP	DATE&TIME			Setting date and time
	POS/TIME			Setting position and time
	DISP SET	LCD ADJ		LCD adjustment
		SOUND		Setting related to sound
		KEY ASSIGN		Programmable key assignment
		UNIT NAME		Unit name registration
		MENU SHTDN		Setting menu shutdown timer
		HANDSET		Setting hook and sidetone
		CH AREA		10-key assignment on CH area
		S METER		Setting RF strength meter use
		CTRL START	OK	PWR ON mode (controller only)
	BT SET	BT FUNC		Setting Bluetooth use
		BT PAIR	OK	Pairing Bluetooth SPMIC
	ADDR LIST	COAST	OK	Coast station list registration
		SHIP	OK	Ship station list registration
		GROUP	OK	Calling group list registration
		PSTN	OK	PSTN number list registration
	DSC OPE	AUTO ACK	OK	Automatic ACK
		RX ALARM	OK	Safety/Routine alarm
		MDCL USE	OK	Medical use for urgency call
		NEUT USE	OK	Neutral use for urgency call
		EXP MMSI	OK	Expanded MMSI
		GROUP ID	OK	Own ship's registration
		INACTV T/O	OK	Inactivity timer set
	AIS FUNC (*)			Setting AIS use
	PRN PROP		OK	Printer Property
CODE INPUT				

* Invisible without connecting AIS.

4.2 Basic communication procedure

The following describes basic radio communication procedures.

4.2.1 Turning ON the power

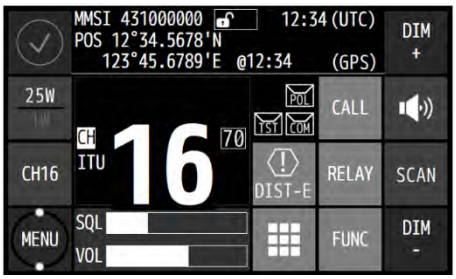
⚠ CAUTION

Do NOT turn off the power of the equipment when at sea because the SOLAS Convention requires keeping CH16 watch at all times.

■ Procedure ■

1. Press the [PWR] button for at least 1 second.

   An operational check is practiced at the main unit and optional controllers (The screen at right is of the main unit). When finished normally, the status display appears and the starts receiving at the appeared channel on the screen.



Note

- When the external power is supplied to the main unit, the main unit is automatically turned on.
- If detected errors during the memory check, the following message is appeared. Then inform JRC or our agent of the error content.

Message	Content
DETECTED MEMORY ERROR! SO PARTIALLY RESET THE MEMORY AREA OF MARINE VHF.	A part of memory was reset because a memory error was detected on the main unit.
DETECTED MEMORY ERROR! SO PARTIALLY RESET THE MEMORY AREA OF VHF CONTROLLER.	A part of memory was reset because a memory error was detected on the VHF controller.
DETECTED THIS CONTROLLER'S UNIT ID SETTING ERROR! SO SET THE UNIT ID AFTER RESTARTING AS THE MAINTENANCE MODE	A unit ID error was detected in the controller. Please set correct unit ID.
DETECTED INTERNAL FAILURE! SO REQUIRED TO CHECK AND REPAIR THE UNIT OR CONNECTION.	An error was detected inside the main unit. Please check and repair internal units and connections.
DETECTED MARINE VHF LOST! SO REQUIRED INITIAL SET AFTER RESTARTING AS THE MAINTENANCE MODE.	The controller can't communicate with the main unit. Perform initial setting such as communication speed.
DETECTED MMSI LOST! SO CONCERNED FUNCTIONS (DSC/ATIS) NO LONGER AVAILABLE NOW.	The MMSI of the ship has not been entered or has been lost. DSC and ATIS functions are disabled.

4.2.2 Turning OFF the power

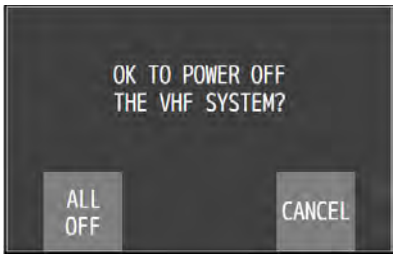
■ Procedure ■

1. Press the [PWR] button for at least 1 second.

In this case, the process varies, as shown below, according to the main unit and the status of the connected controllers.

(1) In case of the main unit, the popup screen on the right appears. Select one of the following.

- [ALLOFF]: Turns off the power to the main unit and all controllers.
- [CANCEL]: Returns to the previous screen.

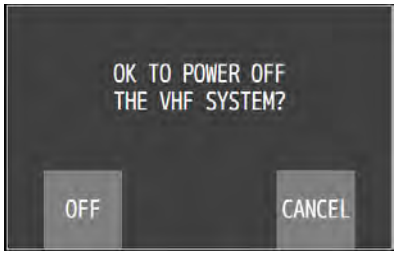


(2) In case of the controller being have the access rights, the popup screen on the right appears. Select one of the following.

- [OFF]: Turns off the power to the controller.
- [ALL OFF]: Turns off the power to the main unit and all controllers.
- [CANCEL]: Returns to the previous screen.

(3) In case of the controller not being have the access rights, the popup screen on the right appears. Select one of the following.

- [OFF]: Turns off the power to the controller.
- [CANCEL]: Returns to the previous screen.



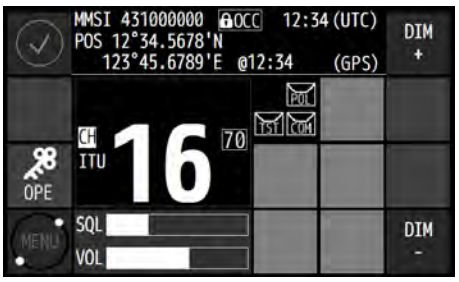
Note Pressing the [PWR] button for 8 seconds or more turns off the power forcibly.

4.2.3 Communicating with the radiotelephone

The VHF radiotelephone is operated by using the handset or the wireless speaker microphone.

■ Procedure ■

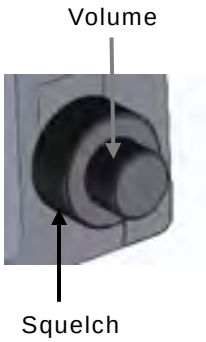
1. When operating on a control panel having no access right (OCC is displayed), touch the OPE button to obtain the access right or lift the handset from the cradle.



   Unless otherwise the other control panel is in use, the OCC is disappeared and the control panel becomes available.

   Note When the hook-switch setting is invalid, the access right cannot be obtained by lifting the handset from the cradle.

2. Adjust the volume on the loudspeaker by turning the volume control.



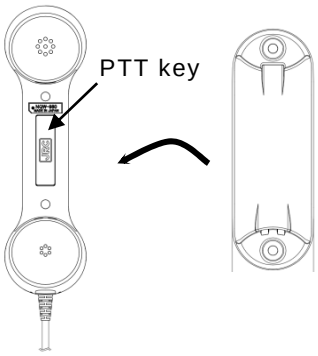
   When receiving no signal, make a noise as a guide by turning the squelch control counterclockwise until opened.

3. Turn the squelch control to an appropriate position.

   Normally, the squelch control would be adjusted to where rotated the squelch control clockwise one additional tick from the squelch closing position.

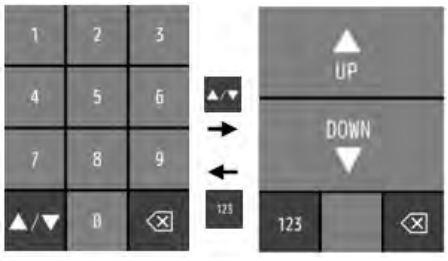
4. Lift the handset from the cradle.

5. Press the PTT key to talk.



   The TX mark is appeared on the screen to show the equipment is transmitting. Releasing the PTT key returns to the receiving condition.

6. If necessary, change the channel using the numeric keypad or UP/DOWN button.



   To indicate the numeric keypad, touch the channel display area or the ten-key icon button on the status display. When setting a new channel using the numeric keypad, incase of CH18, input [1] and then [8] continuously.

7. When finished the communication, return the handset to the cradle.

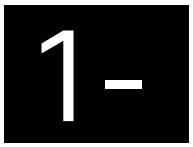
   Note Replacing the handset back on-hook returns the channel to CH16. However, if the hook-switch setting is invalid, the channel is not returned by replacing the handset to the cradle.

■ Changing the channel ■

(1) Setting a 2-digits channel (Incase of the CH18)

1. On the status display or operations screen, touch the channel display area or the ten-key icon button to indicate the numeric keypad.

2. Touch the [1] button.
   "1" is appeared. Then if left for more than 1 second, the hyphen is appeared and starts flashing as shown at right.

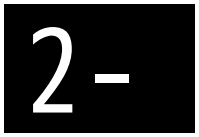


3. Touch the [8] button.
   Setting of the CH18 is finished.

(2) Setting a 2-digits channel with a letter A/B (Incase of the USA CH20A)

1. On the status display or operations screen of the USA region channel, touch the channel display area or the ten-key icon button to indicate the numeric keypad.

2. Touch the [2] button.
   "2" is appeared. Then if left for more than 2 seconds, the hyphen is appeared and starts flashing as shown at right.



3. Touch the [0] button.
   CH20 is set, and the [A] and [B] buttons appear.

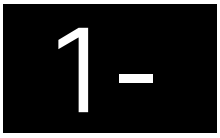
4. Touch the [A] button.
   Letter A is appeared and setting of the CH20A is finished.

(3) Setting a 4-digits channel (Incase of the CH1020)

1. On the status display or operations screen, touch the channel display area or the ten-key icon button to indicate the numeric keypad.

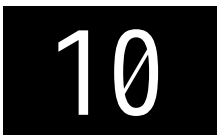
2. Touch the [1] button.

   "1" is appeared. Then if left for more than 1 second, the hyphen is appeared and starts flashing as shown at right.



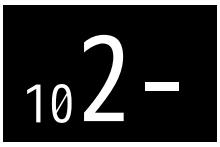
3. Touch the [0] button.

   CH10 is set, first.



4. Touch the [2] button within one second.

   The 4-digits display form at right is appeared. Then if left for more than 1 second, the hyphen is appeared and starts flashing as shown at right.



5. Touch the [0] button.

   Setting of the CH1020 is finished.

Note When the hyphen is flashing, if left without inputting a figure for 2 seconds, the channel returns to the previous value. Additionally in the above example, if the 3 digits are input and the hyphen is flashing at the ones place digit for 2 seconds, then the channel returns to the CH10 which is temporarily set in this procedure.

■ Making a radiotelephone call ■

1. Select CH16 or other agreed channel.
2. Lift the handset from the cradle.
3. Press the PTT key, and make a call as described below.
   - Say the calling station name ... Repeat 3 times.
   - "this is"
   - Say own ship name ... Repeat 3 times.
   - "over"
4. Release the PTT key to listen.
5. When answered and agree on a working channel, change to that channel.
6. After checking that no station uses the working channel, begin conversation.

Note
- When transmitting from own station, always press the PTT key while talking.
- On a simplex channel, always say "over" just before releasing the PTT key.
- Always say "out" when terminating communications.

■ Receiving a call on CH16 ■

1. Lift the handset from the cradle.
2. Press the PTT key, and respond to the call as described below.
   - Say the caller station name.
   - "this is"
   - Say own ship name.
3. Propose a channel other than 16 as described below.
   - "channel"
   - Working channel number
4. Allow the caller station to send.
   - "over"
5. Release the PTT key, wait a moment, and then switch to the proposed working channel.
6. After checking that no station uses the working channel, begin conversation.

Note
- When transmitting from own station, always press the PTT key while talking.
- On a simplex channel, always say "over" just before releasing the PTT key.
- Always say "out" when terminating communications.

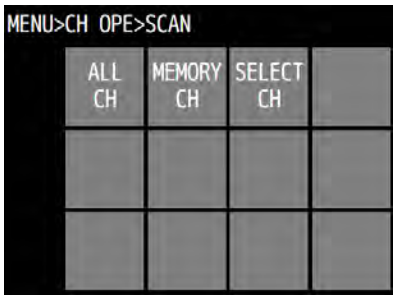
4.2.4 Receiving with scanning

Scanning function enables to watch multiple channels (additional channels) with the priority channel (CH16). If found receiving signal on the additional channels, the dwell time on that channel will be longer, but continued to watch the CH16 alternatively. The scan mode can be selected from the following modes.

- All CH scan Mode: Scans all channels in the current channel mode.
- Memory CH scan Mode: Scans all memory channels.
- Select CH scan Mode: Scans the specified range of channels.

■ Procedure ■

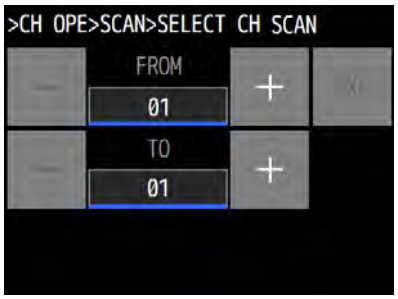
1. From the main menu, touch the [CH OPE] → [SCAN] buttons.

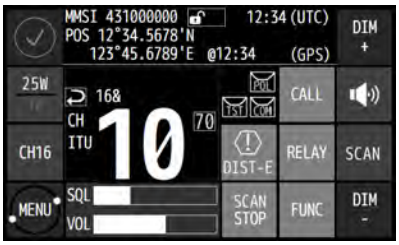


2. Touch the menu button of the scan mode to select.

- Incase of the [ALL CH] button or the [MEMORY CH] button, the scan starts immediately.
- Incase of the [SELECT CH] button, the screen at right appears and set the channel range as follows.

  1) Input the start channel (FROM:) and the stop channel (TO:).
  2) Touch the [EXE] button to start scanning as shown at right.

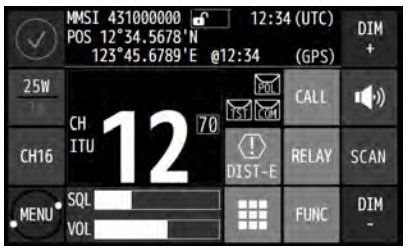




Note
- Disabled to scan when the channel region is Inland Waterways (IWW).
- CH70 is skipped, even if contained in the scanning range.

3. Touch the [SCAN STOP] button to stop scanning.

- After terminated, the radiotelephone is set on the last stopped channel. (The example at right shows when stopped on CH12.)
- Scanning is also terminated when off-hook or PTT ON is detected.



Note
- While scanning, the radiotelephone scans CH16 and the additional channels alternatively in a cycle of 0.14/0.86 seconds.
- If the squelch is opened on the CH16, paused scanning and continues to watch on the CH16. If squelch is closed again, the scanning will resume 2 seconds later.

- If the squelch is opened on an additional channel, remains on that channel and CH16 alternatively (in a cycle of 0.14/1.86 seconds). If squelch is then continuously closed (until the end of the scan cycle), the scanning will resume. Furthermore, added to the additional channel, if the squelch is also opened on the CH16, paused scanning and continues to watch on the CH16 as described above.

4.2.5 Receiving with dual watch

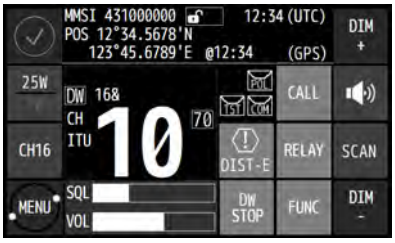
Dual watch function enables to watch an additional channel with the priority channel (CH16). If found receiving signal on the additional channel, the dwell time on that channel will be longer, but continued to watch the CH16 alternatively.

■ Procedure ■

1. From the main menu, touch the [CH OPE] → [DUAL WATCH] buttons and select the channel for dual watch.

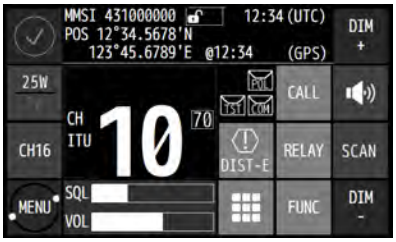
2. Touch the [EXE] button.

The dual watch starts immediately.
The example at right shows the case of CH10 selected.



Note Disabled the dual watch either when the channel region is Inland waterways (IWW) or when CH70 has been selected.

3. To terminate the dual watch, touch the [DW STOP] button.



- After terminated, the radiotelephone is set on the additional channel. (The example at right shows when stopped on CH10.)
- The dual watch is also terminated when off-hook or PTT ON is detected or a channel is set in the DSC transmission menu.

Note
- During the dual watch, the radiotelephone watches CH16 and the additional channel alternatively in a cycle of 0.14/0.86 seconds.
- If the squelch is opened on the CH16, pauses the dual watch and continues to watch on the CH16. If squelch is closed again, the dual watch will resume 2 seconds later.
- If the squelch is opened on the additional channel, the dwell time on that channel will be longer, but continues to watch the CH16 alternatively (in a cycle of 0.14/1.86 seconds). If squelch is then continuously closed (until the end of the dwell time), the dual watch will resume. Furthermore, added to the additional channel, if the squelch is also opened on the CH16, pauses the dual watch and continues to watch on the CH16 as described above.

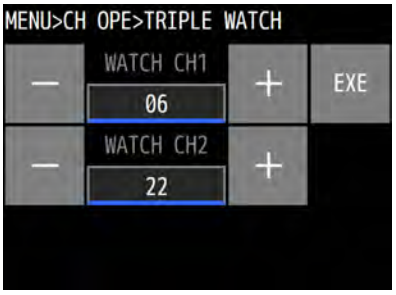
4.2.6 Receiving on triple watch

With triple watch, channel 16 and two other channels are monitored.

■ Procedure ■

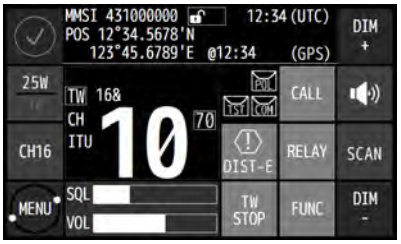
1. From the main menu, touch the [CH OPE] → [TRIPLE WATCH] buttons and select two channels for triple watch.

   CH10 and CH22 are selected in the example at right.



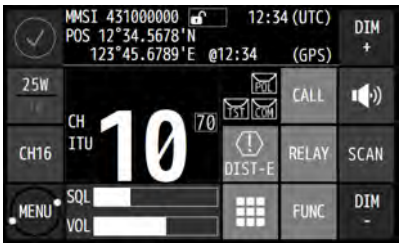
2. From the main menu, touch the [CH OPE] → [TRIPLE WATCH] buttons.

   The triple watch starts immediately.



   Note Disabled the triple watch either when the channel region is Inland waterways (IWW) or when CH70 has been selected.

3. To terminate the triple watch, touch the [TW STOP] button.



   - The channels for triple watch are stopped and the transceiver starts receiving. (The example at right shows when triple watch is stopped on channel 10.)
   - The triple watch is also terminated when off-hook or PTT ON is detected or a channel is set in the DSC transmission menu.

Note
- During the triple watch, the radiotelephone watches channel 16 and two other channels and the channels cycle in order with a dwell time of 0.14/0.43/0.43 seconds.
- If the squelch is opened on channel 16, the triple watch pauses and the watch continues on channel 16. If squelch is closed again, the dual watch resumes 2 seconds later.
- If a signal is detected and the squelch is opened on one of the other two channels in the triple watch, the dwell time changes to a cycle of 0.14/1.86 seconds and the watch continues (other channels are not scanned and watched). If squelch then remains continuously closed (until the end of the triple watch cycle time), the triple watch resumes as normal. Furthermore, if in this state a signal is detected on channel 16, then channel 16 is watched continuously as described above.

4.2.7 Using memory channels

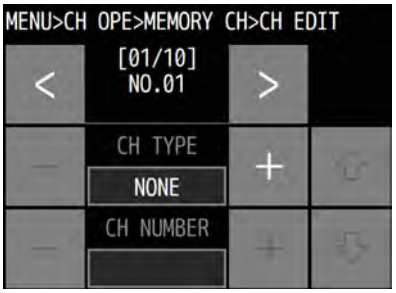
Memory channels are the original channel list. The desired channels (e.g. frequently using channel) can be registered and used for easy access.

(1) Registering memory channels

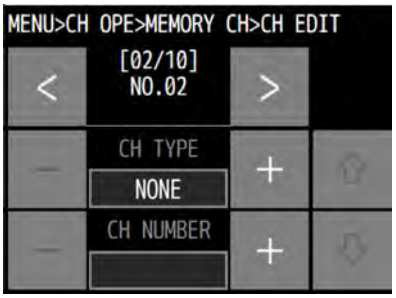
■ Procedure ■

1. From the main menu, touch the [CH OPE] → [MEMORY CH] → [CH EDIT] buttons.

   For example, the screen at right is displayed.



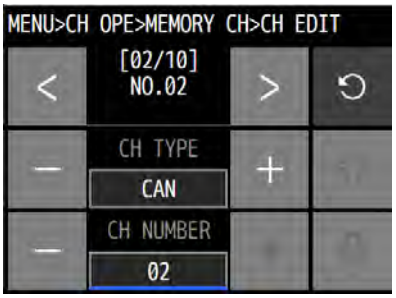
2. Select the memory number from 1 to 10 to register.



3. Select the input data on the CH TYPE and CH NUMBER respectively.

   The CH TYPE is changed such as NONE → ITU → USA → CAN → IWW → PRIVATE → WEATHER.
   - ITU/USA/CAN/IWW: Region channel
   - PRIVATE: Private channels
   - WEATHER: Weather channel

   Repeat the above step 2 and 3 on the every memory channel to be registered.



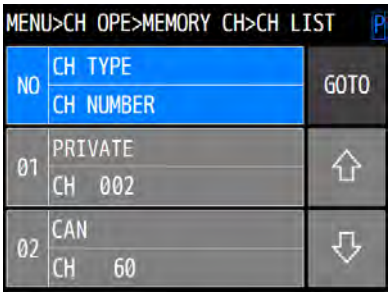
4. To finish registering the memory channels, touch the [✓] button to save.

(2) Communicating on a memory channel

Memory channels is available e.g. when setting a working channel for subsequent communication after initial contact on CH16.

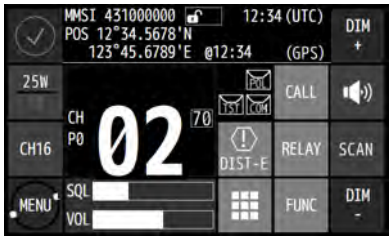
■ Procedure ■

1. From the main menu, touch the [CH OPE] → [MEMORY CH] → [CH LIST] buttons.



2. Scroll the memory channel list, if required, then touch the channel to set.

   If the memory channel number 01 on the screen above is selected, the CH P002 is set.

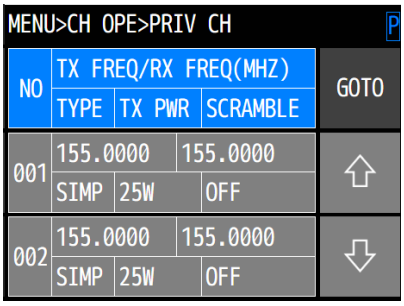


4.2.8 Communicating on a private channel

Private channels for assigned frequencies of fishing ship or other specially assigned frequencies are registered at the installation of equipment. Up to 200 channels are available for radiotelephone communications. (If required to add channels after installation, please contact JRC or our agent.)

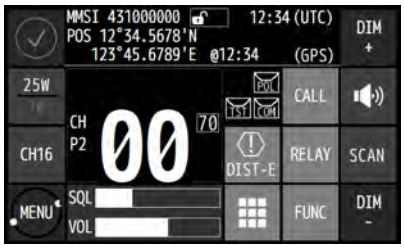
■ Procedure ■

1. From the main menu, touch the [CH OPE] → [PRIV CH] buttons.



2. Scroll the private channel list, if required, and then touch the channel to set.

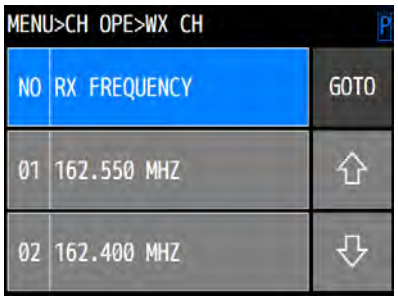
   If the channel 200 is selected, the status display appears as shown at right.



4.2.9 Receiving a weather channel

Weather channels are available to receive weather information on the North American coast.

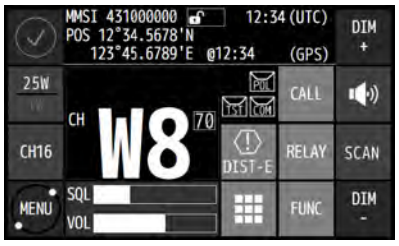
■ Procedure ■



1. From the main menu, touch the [CH OPE] → [WX CH] buttons.

2. Scroll the weather channel list, if required, then touch the channel to set.

   If the channel 08 is selected, the status display appears as shown at right.

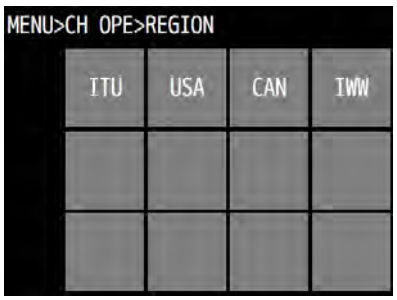


Note Disabled to send on weather channels.

4.2.10 Changing the channel region

This menu sets the channel region to ITU, USA, Canada (CAN), or Inland Waterway (IWW).

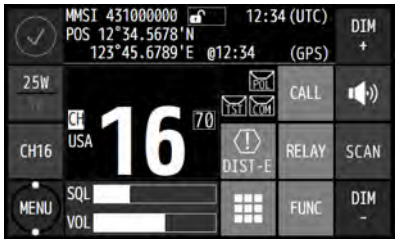
■ Procedure ■



1. From the main menu, touch the [CH OPE] → [REGION] buttons.

2. Touch the target region button to select.

   When selected the USA channel, the screen becomes as shown at right.



Note When set to the Inland Waterway (IWW), changed a few functions as follows.

- Enabled the ATIS function automatically and sends the ATIS code over the voice channel when releasing the PTT key. Also, if pressed the PTT key continuously, sends the ATIS code every five minutes automatically.
- The scan, dual watch, and triple watch functions are prohibited.
- When operating the DSC menus, a popup screen is displayed to notice that the DSC usage is not allowed on Inland Waterways.

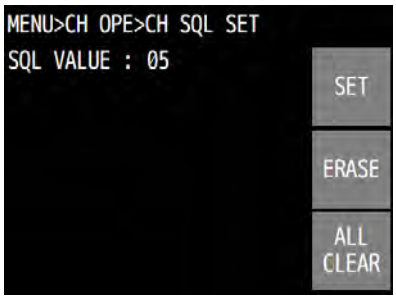
4.2.11 Squelch settings of each channel (preset squelch)

The adjusted squelch value can be stored with respect to each channel as a preset squelch. The handling of the preset squelch is as follows.

- If stored the squelch value, the preset squelch is always set just after the channel selection.
- While the preset squelch has been set, "PSQL" is indicated on the status display.
- If turned the SQL control after setting the preset channel, the preset value is canceled immediately and the SQL control is available.
- The preset squelch value can be cleared with respect to each channel or each channel region.

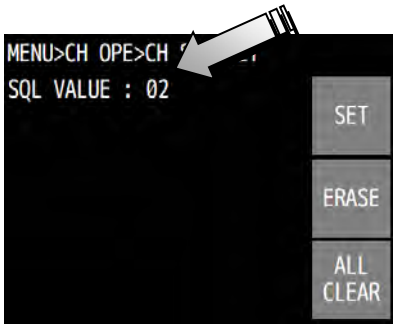
■ Procedure ■

1. After setting the target channel for presetting as the TRX channel of the marine VHF radio, from the main menu, touch the [CH OPE] → [CH SQL SET] buttons.



2. Turn the SQL control to the appropriate position.

   The SQL VALUE as shown at right is changed according to the position of the knob.



3. Touch the [SET] button to complete the preset for the squelch.

Note

- To delete a preset squelch, set that channel and then touch the [ERASE] button in the CH SQL SET menu above.
- To clear the preset squelch values for all the channels in a set region, touch the [ALL CLEAR] button in the CH SQL SET menu above.

4.3 Basic DSC operations

When calling stations, the DSC is also available for a routine/ safety/ urgency or a distress call in addition to the calling by radiotelephone described above. This section describes the procedures for basic DSC routine calls and for the AIS-linked DSC calls.

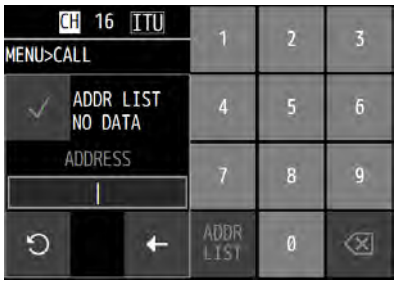
4.3.1 Routine calls to an individual station

A DSC routine call to the station to be called is initiated as follows.

■ Procedure ■

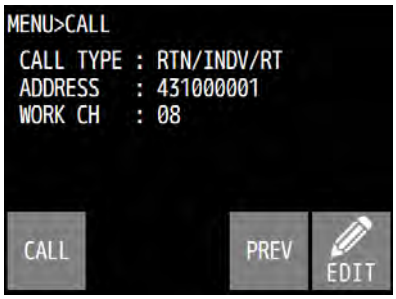
1. On the status display, touch the [CALL] button.

- The address list of the radio stations registered before is appeared as shown at right (alphabetically sorted). Then touch the station to select the address for the routine individual call.
- If the target radio station is not registered in the address list, touch the [←] button to input the address (MMSI) manually.
- If the radio station list is not registered, the screen at lower right is displayed. Then input the address (MMSI) manually.



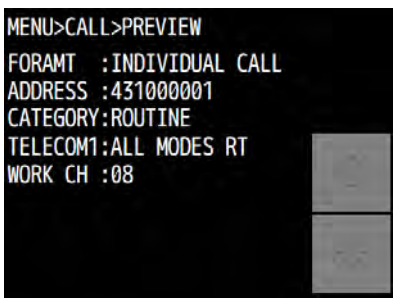
Note
- The above-mentioned [CALL] button on the status display is just the shortcut based on the [CALL] button in the main menu so that the routine individual call can be sent easily.
- The station list can be registered on the ADDR LIST menu (MENU> SETUP).

2. After inputting the address, touch the [CALL] button to make a call.

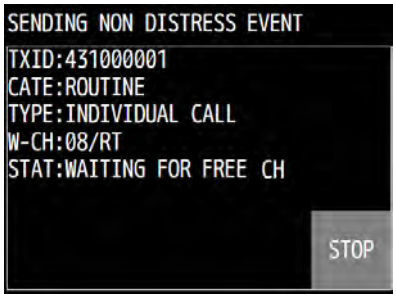


- Incase of the call to the ship station, the Work CH is selected automatically.
- Incase of the call to the coast station, the working channel is selected by the coast station and is not selectable from the ship station.

Note To check the details of the message, touch the [PREV] button to open a screen as shown at lower right.



3. The operating display is appeared and initiates the DSC call

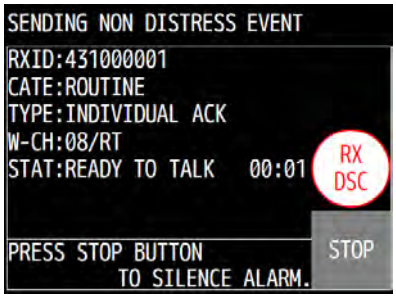


After checking the free channel condition, the equipment sends the message and then starts waiting for the acknowledgement.

Note While waiting for the acknowledgement, the following handling menus are available.

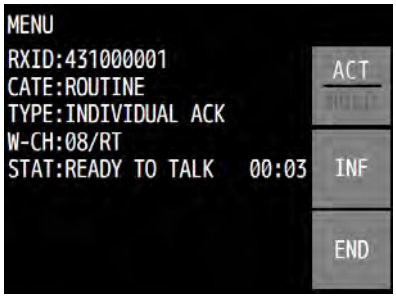
- RTRY: Resends the message.
- INF: Indicates the message contents.
- HLD: Makes the event on hold.
- END: Terminates the event.

4. When the acknowledgement is received, the RX DSC mark flashes and the alarm sounds.



- To silence the alarm, touch the [STOP] button.
- The working channel is set automatically.

5. After setting the working channel, start communications using the handset.



- The screen as shown at right is displayed.
- When completed the communications, return the handset to the cradle.

Note If the station is unable to comply with the call, own station (caller) may receive one of the following responses. In these cases, if possible according to the message, wait and retry the calling again later. (* is for the coast station only.)

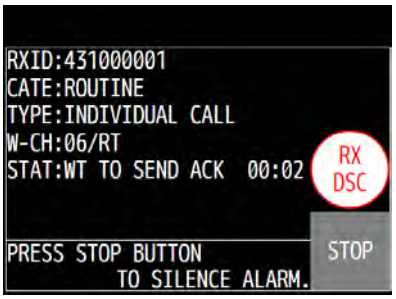
Message	Content
NO REASON	No reason.
CONGESTION*	The marine exchange center is congested.
BUSY	Busy.
QUEUE	The call has been queued.
BARRED	The station is closed.
NO OPER	Existing no operator.
TEMP NO OPER	The operator is temporarily away.
EQP DISABLED	The equipment has been disabled.
UNABLE CH	The proposed channel cannot be used.
UNABLE MODE	The proposed mode cannot be used.

4.3.2 Receiving routine individual calls

When receiving an individual DSC call from a coast or ship station, perform the following procedures as appropriate according to the message.

■ Procedure ■

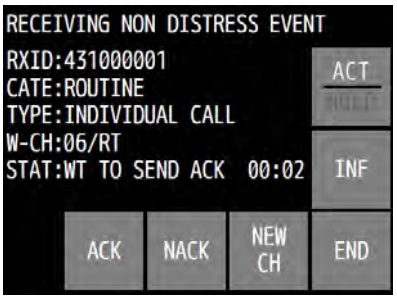
1. The receiving screen at right is displayed with the RX DSC mark flashing for a moment, and the alarm sound grows louder gradually.



This example message contains the following information.

- Message type: Individual call
- Caller's MMSI: 431000001
- Object: All modes RT on CH06

2. Touch the [STOP] button to silence the alarm and display the screen at right.



➢ The following handling menu buttons are displayed.

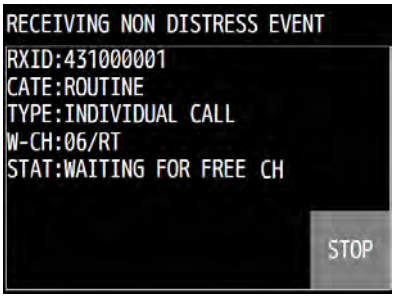
ACK:	Sends the acknowledgement.
NACK:	Sends the acknowledgement (Unable to comply).
NEW CH:	Sends the acknowledgement with a new channel.
ACT/HOLD:	Switches this event state between Active and On hold.
INF:	Displays the received message.
END:	Terminates the call.

➢ After selecting the [NACK] button, then select the reason on the UNABLE REASON menu as shown at right.

3. To send acknowledgement, touch the [ACK] button.

➢ The equipment waits for the free channel condition as shown at right, and the acknowledgement is sent.

➢ Lifting the handset operation also starts sending the acknowledgement as well.



4. After sending an acknowledgement, the working channel is set to communicate.

   Start communicating using the handset.

Note

Incase of receiving a polling call, the following screen is displayed with the RX DSC mark flashing for a moment, and the alarm sound grows louder gradually. Then touch the [STOP] button to silence alarm and select [ACK] to send the acknowledgement.

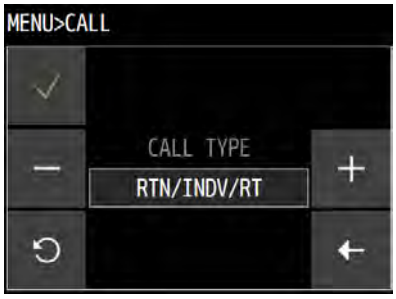
Additionally, if the polling call on the AUTO ACK menu (MENU>SETUP>DSC OPE) is set to on, and if there is no active DSC or non-DSC communication event, this polling call is acknowledged automatically.

4.3.3 Routine group calls

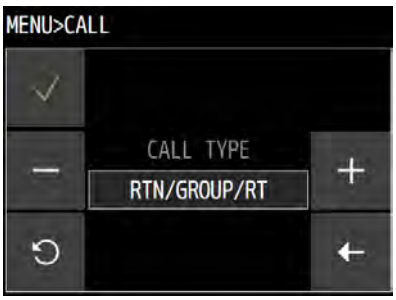
For radiotelephone broadcasting, a DSC routine call to a group of stations is available.

■ Procedure ■

1. From the main menu, touch the [CALL] → [EDIT] → [CALL TYPE] buttons.

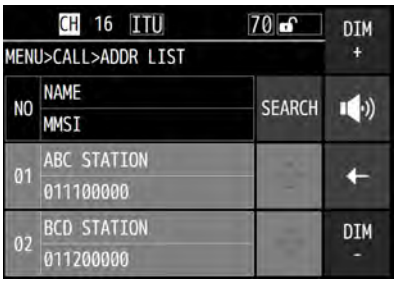


2. Set the CALL TYPE to RTN/GROUP/RT as shown at right and then touch the [✓] button.



3. The group list registered before is appeared as shown at right (alphabetically sorted) and touch the receiver group for the routine group call.

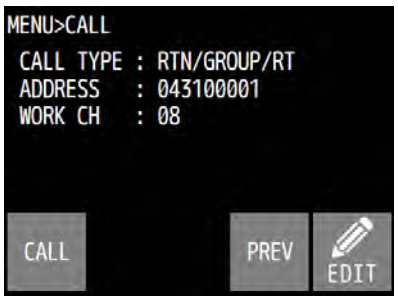
   - The working channel is set automatically.
   - If the group list is not registered, input manually.



Note The group list can be registered on the GROUP menu (MENU> SETUP> ADDR LIST).

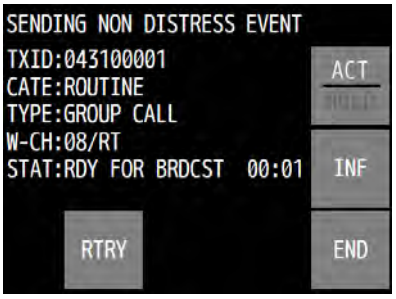
4. Touch the [CALL] button to send the group call.

   After checking the free channel condition, sends the message.



5. After sending the message, the working channel is set and the DSC calling procedure is finished.

   Start broadcasting using the handset.

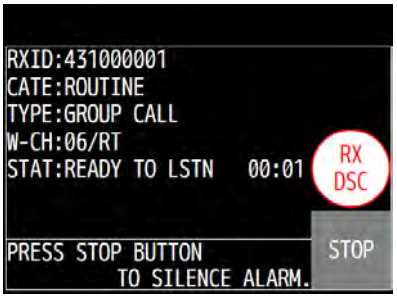


4.3.4 Receiving routine group calls

After receiving the DSC group call, the subsequent broadcast is listened on the working channel specified in the DSC message.

■ Procedure ■

The receiving screen at right is displayed with the RX DSC mark flashing for a moment and the alarm sound grows louder gradually.



- If there is no active event when receiving the group call, the working channel is immediately set automatically. Additionally, the alarm is stopped automatically, but if silencing alarm manually, touch the [STOP] button.
- The own ship's group IDs can be registered on the GROUP ID menu (MENU> SETUP> DSC OPE).

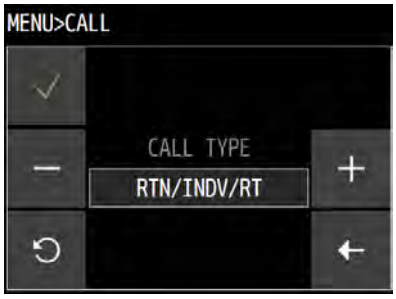
4.3.5 Communicating with a PSTN subscriber

The semi/auto mode is used to connect with a public telephone network (PSTN) via a coast station.

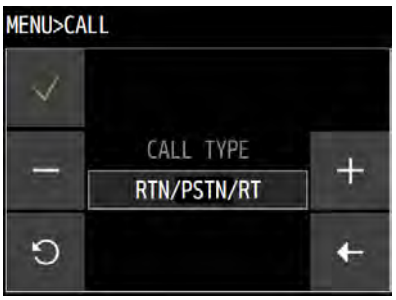
(1) Make a call to a PSTN subscriber

■ Procedure ■

1. From the main menu, touch the [CALL] → [EDIT] → [CALL TYPE] buttons.



2. Set the CALL TYPE to RTN/PSTN/RT as shown at right and then touch the [✓] button,



3. The coast station list registered before is appeared as shown at right (alphabetically sorted) and touch the receiver station for the call.

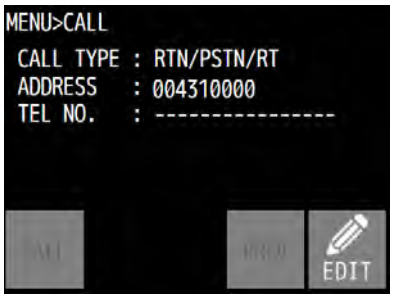
   If the coast station list is not registered, input manually.

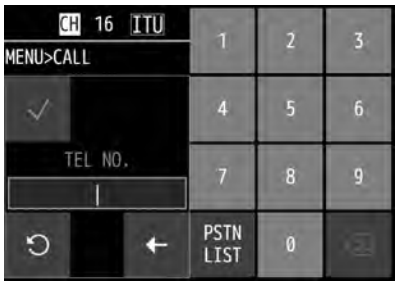
   Note: The coast station list can be registered on the COAST menu (MENU> SETUP> ADDR LIST).

4. Touch the [EDIT]→[TEL NO] buttons to display the screen at lower right, and input the telephone number to call.

   If the telephone number is registered on the PSTN list before, touch the [PSTN LIST] button to display the list.

   Note: The PSTN list can be registered on the PSTN menu (MENU> SETUP> ADDR LIST).

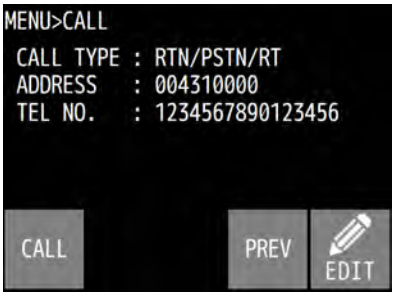




5. Touch the [CALL] button to send the call.

After checking the free channel condition, sends the message. After sending the call, waits for the acknowledgement for 5 sec.

Note If received no response within 5sec, sends the call once again. If there is still no response, this call is ceased.



6. After received the acknowledgement, the specified working channel is set.

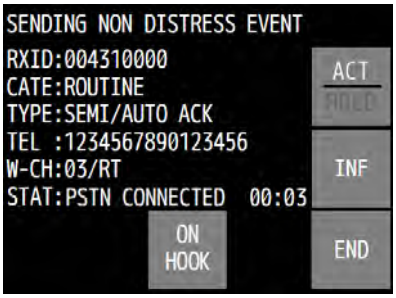
After the channel changing, a start of call is sent.

Note If the channel engaged signal is lost, this call is terminated.

7. The PSTN connection is completed.

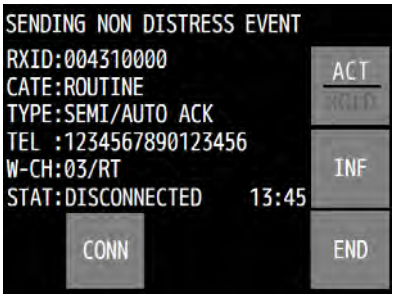
Lift the handset from the cradle and wait for the recipient answering the phone (the PSTN dial tone and ring tone from the handset is heard at this time). After answered the phone, the phone call charge is started.

Note If not answered within 1 minute, this call is terminated. (It may be similar in the case of bad radio link condition during communication.)



8. To finish the phone call, return the handset to the cradle.

Additionally, the duration is received from the coast station and is displayed as the DUR. The example at right shows 13 minutes and 45 seconds.

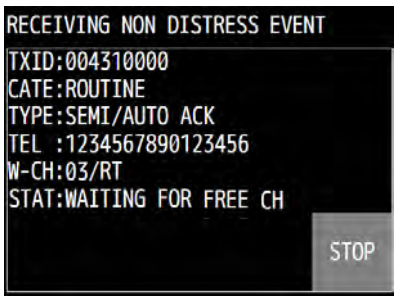


Note
- According to the coast station, the “unable to comply” acknowledgement mentioned above may be received at step 6.
- If the “unable to comply” acknowledgement indicates “Queue” reason, the wait mode can be selected. The mode enables to continue the above procedure from step 6 after receiving the ring back call. (However, if receiving no call within 15 minutes after receiving "Queue", the ring back mode is canceled. Or if the [CH16] button is touched, the ring-back mode is also cancelled.)

(2) Receiving a call from a PSTN subscriber

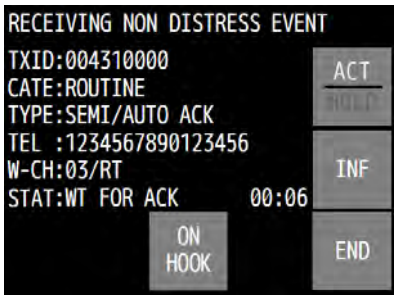
■ Procedure ■

1. When receiving a PSTN call from a coast station, if there is no active event, the screen at right is displayed and the equipment starts sending the acknowledgement immediately.



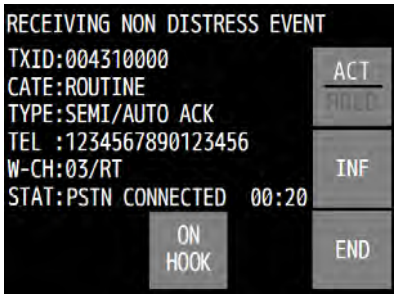
2. After sending the acknowledgement, the screen at right is displayed.

- The alarm sound grows louder gradually.
- The screen at right shows the following information.
  - Coast station ID: 004310000
  - Work Channel: CH03
  - Caller TEL No: 1234567890123456



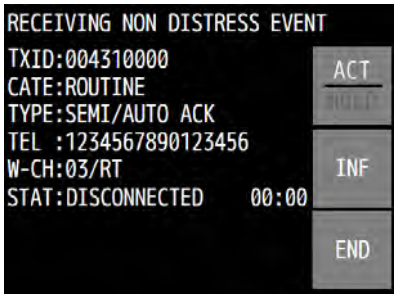
3. If able to comply, lift the handset from the cradle to send the start of call message to start the PSTN communication.

- If not answered within 1 minute, the PSTN call is cancelled automatically.
- If interrupted the receiving signal for 5 seconds during communication, the PSTN call is terminated.



4. When finished the phone call, return the handset to the cradle.

Then an end of call is received from the coast station and the PSTN call is disconnected. However, the duration of the call will not be displayed for free of charge.



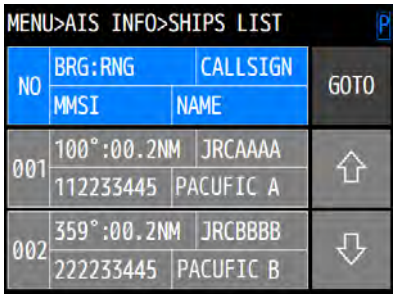
4.3.6 AIS-linked DSC calls

The AIS information (nearby ships call signs, names and identification numbers) is displayed as "Other ships list", and are available to call a listed ship via the DSC directly.

NOTE) To use this function, always set IMPORT to ON in the AIS FUNC menu (MENU> SETUP).

■ Procedure ■

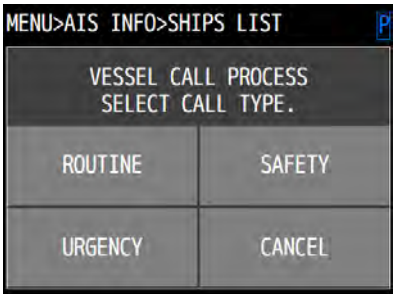
1. From the main menu, touch the [AIS INFO] → [SHIPS LIST] buttons.



   - The screen shown at right is displayed.
   - The bearings (BRG) are based on the North-up.
   - If Proximity check menu (MENU> AIS INFO> PROX CHECK) is ON and the ships checked at AIS on the station lists are detected in this ships list, the ships information become blue as the checking result.
   - If there is no AIS information for other ships, "NO DATA" is displayed.

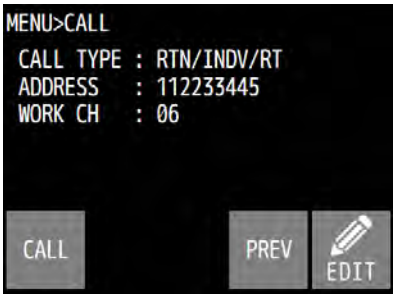
2. Scroll the shops list, if required, and then touch the ship to call.

   The category selection screen at right appears.



3. Select the category button from the routine, safety, or urgency.

   The screen at right is displayed. Touch the [CALL] button to call.



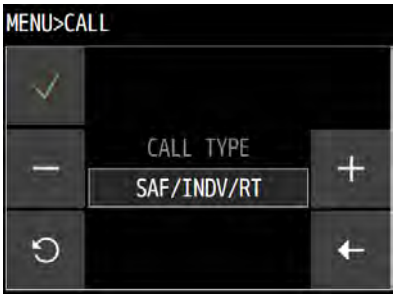
Note The rest of the procedure is the same with “4.3.1 Routine calls to an individual station” described above.

4.4 Emergency calls (DSC safety/ urgency/ distress calls)

In emergency, the DSC is available for safety/urgency/distress calls. For safety and urgency calls, either individual or all ships is selectable for the type of call. Also, there is a way to send distress alerts after selecting, or not selecting, the type of distress on the menu. In both cases, the dedicated DISTRESS button is used to send the distress alerts.

4.4.1 Safety or urgency calls to an individual station

■ Procedure ■



Individual safety and urgency calls are basically same as routine calls as described above, except for touching from the main menu, [CALL]→[EDIT]→[CALL TYPE] and then selecting SAF/INDV/RT or URG/INDV/RT.

Note Both calls of the safety test and the safety position request are described later.

4.4.1.1 Special safety individual calls (test calls and position request calls)

(1) Safety test calls

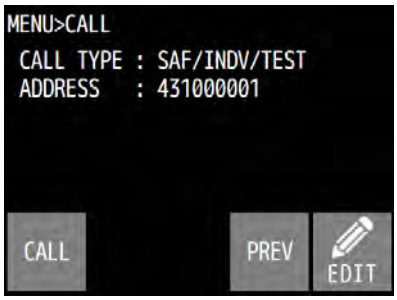
■ Procedure ■

1. Touch the [TEST CALL] button on the main menu.

- Input the address to call from the station list or manually using numeric keypad.
- The station selecting procedure such from the station lists is similar to the routine calls mentioned above.

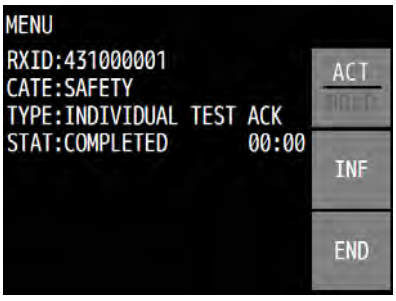
Note When operating from the main menu, touch [CALL]→[EDIT]→[CALL TYPE], and after selecting SAF/INDV/TEST, then input the address to call.

2. Touch the [CALL] button to send the test call.



The screen at right is displayed to check the free channel, and then the safety test call is sent.

3. When acknowledgement is received, the RX DSC mark flashes and the alarm sounds. After silencing it with the [STOP] button, a received screen as shown at right appears.



The safety test call process is now complete. However note that even though the call is sent normally, the acknowledgement may not be received from the called station for some reason.

(2) Safety position request calls

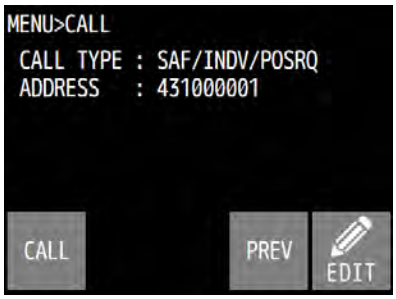
■ Procedure ■

1. From the main menu, select [CALL]→[EDIT]→[CALL TYPE] and select SAF/INDV/POSRQ in CALL TYPE.

- Input the address to call from the station list or manually using numeric keypad.
- The station selecting procedure such from the station lists is similar to the routine calls mentioned above.

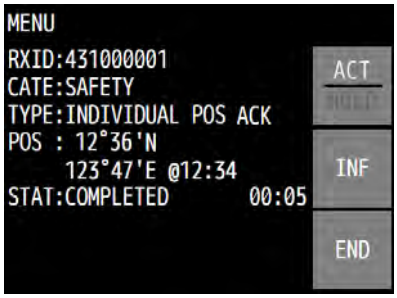
2. Touch the [CALL] button to send the position request call.

After checking the free channel, the safety position request call is sent and the screen at right is displayed.



3. When acknowledgement is received, the RX DSC mark flashes and the alarm sounds. After silencing it with the [STOP] button, a received screen as shown at right appears.

The position data of the station is indicated in the Position field usually, and this procedure is complete. However note that even though the call is sent normally, the acknowledgement may not be received from the called station for some reason.

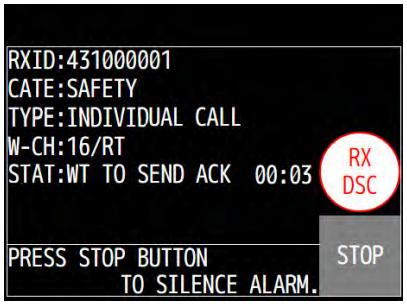


4.4.2 Receiving safety or urgency individual calls

When receiving an individual DSC call from a coast or ship station, according to the message, perform the following procedures as appropriate.

■ Procedure ■

The receiving screen at right is displayed with RX DSC mark flashing for a moment and the alarm sound grows louder gradually.



- If no procedure exists, starts operating the received message as the active procedure automatically.
- In the case of an urgency call, the alarm is stopped by touching the [STOP] button.
- After that, similar as the routine individual calls mentioned above except to use CH16 basically.

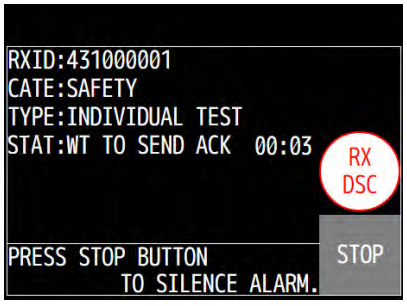
4.4.2.1 Receiving special safety individual calls

(test calls and position request calls)

(1) Receiving safety test calls

■ Procedure ■

The receiving screen at right is displayed with RX DSC mark flashing for a moment and the alarm sound grows louder gradually.

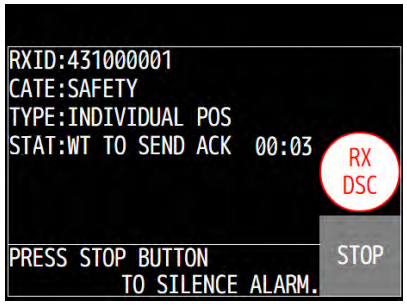


- If there is no active event, and TEST on the AUTO ACK menu (MENU>SETUP>DSC OPE) is ON, then the call is acknowledged automatically.
- To acknowledge manually, after silencing the alarm with the [STOP] button, touch the [ACK] button.

(2) Receiving safety position request calls

■ Procedure ■

The receiving screen at right is displayed with RX DSC mark flashing for a moment and the alarm sound grows louder gradually.



- If there is no active event, and POSITION RQ on the AUTO ACK menu (MENU>SETUP>DSC OPE) is ON, then the call is acknowledged automatically.
- To acknowledge manually, after silencing the alarm with the [STOP] button, touch the [ACK] button.
- To send the acknowledgement (unable to comply), touch the [NACK] button.

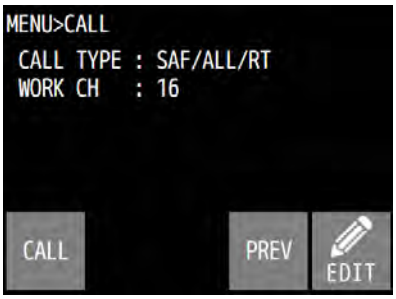
4.4.3 Safety or urgency all ships calls

The DSC safety all ships calls can be made as follows.

■ Procedure ■

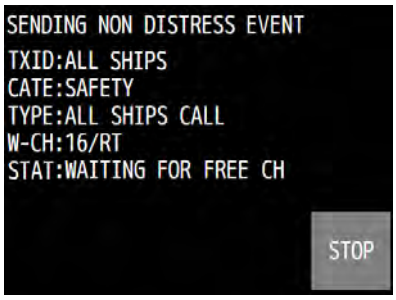
1. From the main menu, touch the [CALL]→[EDIT]→[CALL TYPE] buttons. Then select SAF/ALL/RT or URG/ALL/RT and touch the [✓] button.

   Change the working channel, if required.



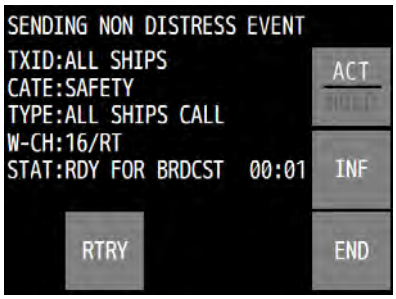
2. Touch the [CALL] button to send.

   After checking the free channel, the message is sent.



3. After sending the message, the working channel is set.

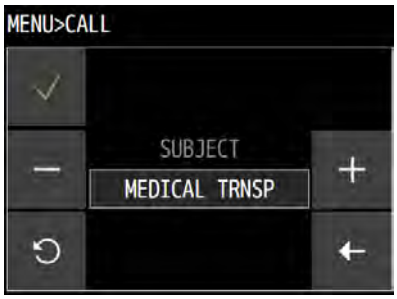
   Start broadcasting using the handset.

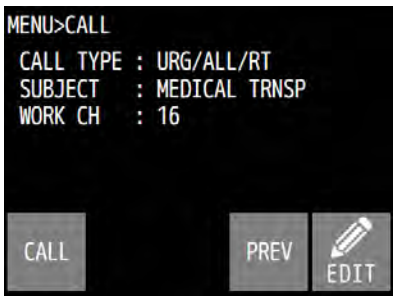


Note

For an urgency call, special subject such as either medical transport (MEDICAL TRNSP) or neutral ship (NEUTRAL SHIP) can be conveyed by adding the information in the DSC message.

To use this function, after every powering on the equipment, set either MDCL USE or NEUT USE to ON as the special subject on the DSC OPE menu (MENU> SETUP).

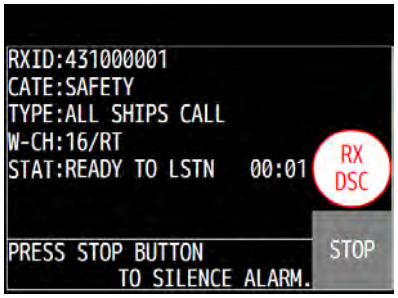




4.4.4 Receiving safety or urgency all ships calls

■ Procedure ■

The receiving screen at right is displayed with RX DSC mark flashing for a moment and the alarm sound grows louder gradually.



- If there is no active event, starts operating the received message as the active event automatically.
- To stop the urgency alarm, touch the [STOP] button.

Note To check the topic for Medical transport or Neutral ship when receiving an urgency all ships call, select INF menu to view the detail of the message.

4.4.5 Distress alerts

When in distress, press the dedicated DISTRESS button to send a distress alert. The distress alerts send own MMSI, ships position, time of the position, and the nature of distress.

⚠ CAUTION

Do not test the distress alert as doing so may inconvenience local shipping and Rescue Centers.

When sending a distress alert, follow the instructions of the ship's captain or officer in charge.

If a false distress alert is transmitted accidentally, use the [CANCEL] button to cancel transmission of the distress alert. And then report the false distress alert to a nearby RCC (Rescue Coordination Center, in Japan, inform the nearest Japan Coast Guard.) Information to be reported:

Ship's name, type, nationality, and ID number, the date/time, location and reason why the false distress alert was transmitted. Also, report the unit model name and manufacture number/date, if possible.

4.4.5.1 Quick distress alerts

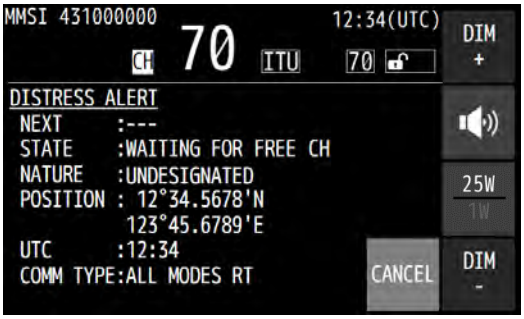
The following describes the procedure to send a distress alert immediately without using menus. In this case, the nature of distress in the message is sent as "UNDESIGNATED" by default. Further, if no information for the position and the time of position obtained within 23.5 hours, the information are composed automatically as "9999999999" and "8888" respectively.

■ Procedure ■

1. Open the DISTRESS button cover.

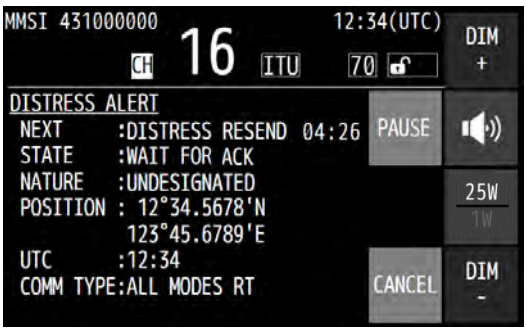
2. Press and hold the DISTRESS button for at least 3 seconds until the countdown is completed.

3. The distress alert is sent.



4. After sending the distress alert, wait for the acknowledgement in the condition of the activated distress transmission procedure.

- Unless an acknowledgement is received or the distress alert is cancelled manually, the distress alert repeats automatically in a variable interval every 3.5 to 4.5 minutes. (The time until next sending is shown at Next.)
- While waiting for the acknowledgement, the radiotelephone communication and resending the distress alert by pressing DISTRESS button are available.
- Option menus are available as follows.
  PAUSE: Makes the distress mode pause.
  CANCEL: Starts the distress alert cancelling procedure, which is needed to send the DSC acknowledgement and to broadcast from the own ship



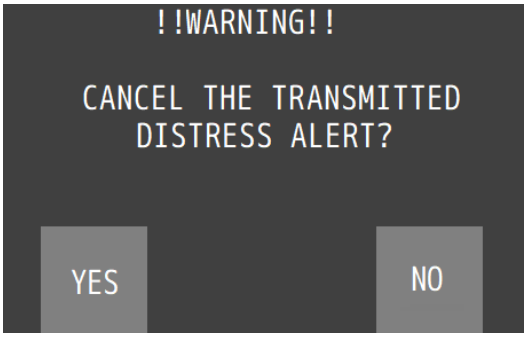
5. When acknowledged, the screen at right is displayed.

- The RX DSC mark flashes and the alarm sounds.
- Touch the [STOP] button to silence the alarm and then call for help with the handset.
- First, the responding station will call on the CH16. Then acknowledge the receipt as follows.
  - Say "MAYDAY",
  - Say "this is",
  - Own ship's MMSI and call sign, position, nature of distress, and rescue requests

Note

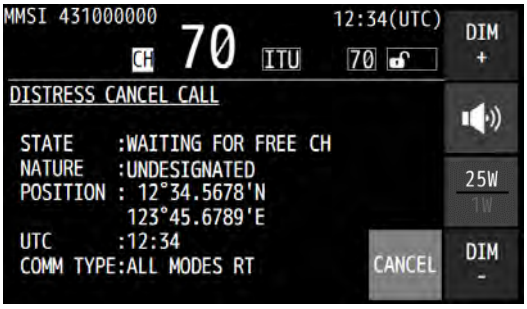
If cancelling the distress alert since a false distress alert is transmitted accidentally, perform the distress alert cancelling procedure as follows.

1. Touch the [CANCEL] button on the distress alert screen to display the popup screen at right.

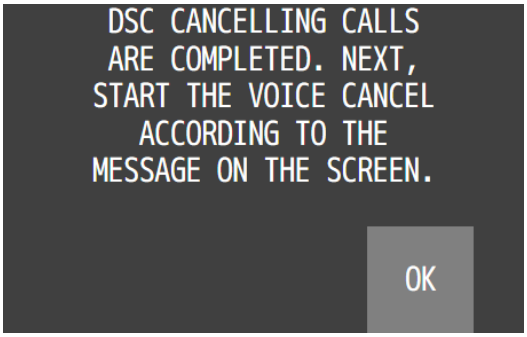


2. Touch the [YES] button.

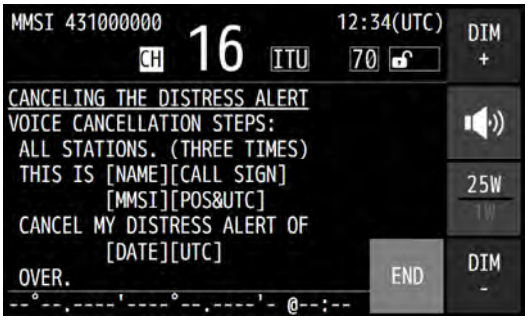
   The distress acknowledgement to own ship is sent immediately.



3. After DSC acknowledgement is complete, the popup screen at right appears.



4. Touch the [OK] button and according to the guidance on the screen, broadcast to cancel the distress alert.



5. Touch the [END] button when the broadcast to cancel the distress alert is complete.

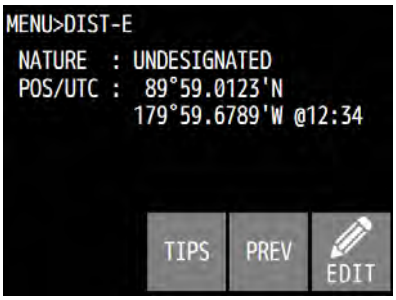
   The distress mode ends.

4.4.5.2 Distress alerts from the menu

The following describes the procedure to send a distress alert with the nature of distress selected in the menu. Also, if there is no valid information regarding the position and the time of position, the manual input is available in that menu.

■ Procedure ■

1. On the status display, touch the [DIST-E] button.



The nature of distress is displayed as UNDESIGNATED as a default value. If the position information is input automatically by a GPS type device, or has already been input manually, that information is also displayed.

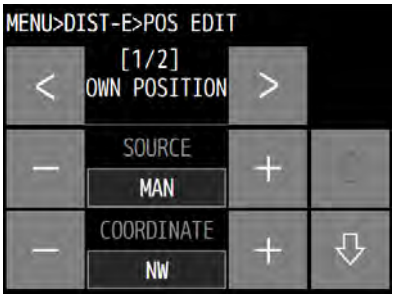
2. Touch the [EDIT]→[NATURE] buttons.

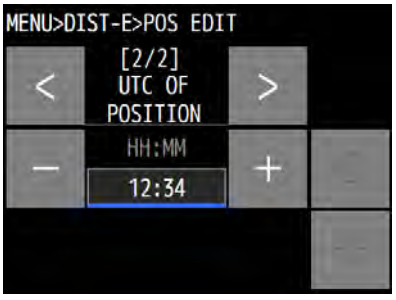
Select the nature of distress from those below and then touch the [✓] button to enter it.

Nature of distress	Contents
FIRE	Fire, explosion
FLOODING	Flooding
COLLISION	Collision
GROUNDING	Grounding
LISTING	Listing, in danger of capsizing
SINKING	Sinking
DISABLED	Disabled and adrift
UNDESIGNATED	Undesignated distress
ABANDONING	Abandoning ship
PIRACY ATTACK	Piracy/armed robbery attack
MAN OVERBOARD	Man overboard

If the valid position and time of the position are already displayed, skip to step 5 because no entry is needed.

3. Touch the [EDIT]→[POS UTC] buttons.



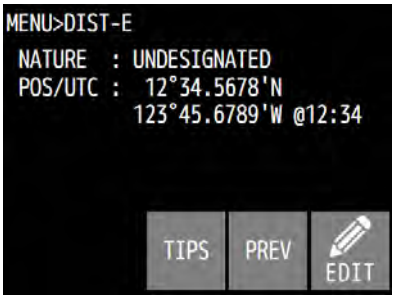


First, set the SOURCE to MAN to input manually.

1. OWN POSITION
   SOURCE: Select ship position source from below.
   MAN ···· Manual input
   GPS ···· External positioning system
   CLEAR · No selection
   COORDINATE: NE/ NW/ SE/ SW
   LATITUDE/ LONGITUDE:

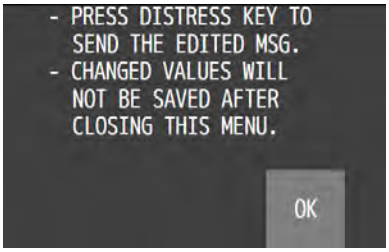
2. UTC OF POSITION

4. After editing, touch the [✓] button to enter them.

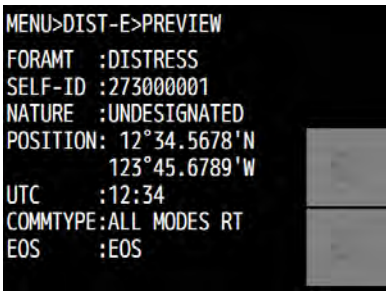


Note

- Touching the [TIPS] button shows the precautions about operations of this screen as shown at right.



- Touching the [PREV] button shows the entire distress message as shown at right.



5. Open the DISTRESS button cover.

6. Press and hold the DISTRESS button for at least 3 seconds until the countdown is completed.

The rest of the procedure is the same as described in the "Quick distress alert".

4.4.5.3 Receiving distress alerts

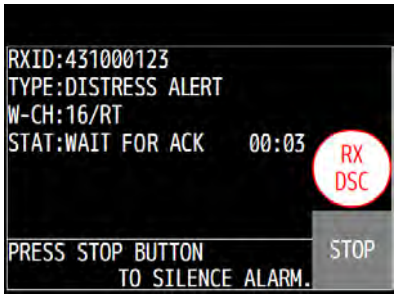
When a distress alert is received from another ship, displays the event immediately with the specific two-tone alarm sound.

⚠ WARNING

If a distress alert is received, make sure to inform the ship's captain or officer in charge. Doing so may save the lives of the crews and passengers on the ship in distress.

■ Procedure ■

1. When a distress alert is received, the distress message is displayed.



   - The RX DSC mark flashes for a moment and the alarm sound gradually grows louder.
   - If no procedure exists, starts operating the received message automatically.

2. Touch the [STOP] button to stop the alarm and display the screen at right.

   - The screen at right is displayed. Keep watch for at least 5 minutes, and then notify the coast station as appropriate.
   - Use the following handling menu, if required.

ACK:	Sends the acknowledgement.
RLY:	Sends the distress relay.
INF:	Indicates the received distress message.
ACT/HOLD:	Switches this event state between Active and On hold.
END:	Terminates the procedure.

Note

- The distress acknowledgement is normally sent from a coast station. However after consulting with the RCC or a coast station and being directed, it is possible to acknowledge the ship in distress from your own ship.
- After sending the acknowledgement, start communicating with the ship in distress according to the following procedure.
  - Say "MAYDAY".
  - Repeat the identity (MMSI) of the ship in distress 3 times
  - Say "This is..."
  - Repeat the identity (MMSI) of your ship 3 times
  - Say "RECEIVED MAYDAY".
- The distress relay calls may be received without receiving the distress alert. In this case, keep watch the CH16 and handle the message using the displayed options as appropriate.

4.4.6 Distress relay calls on behalf of someone else (DROBOSE)

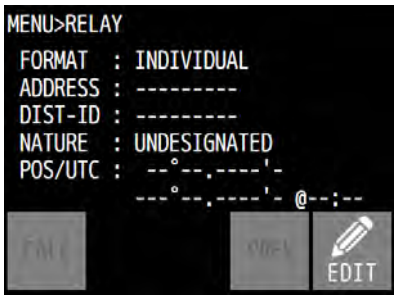
If another ship is in distress but is itself unable to make a distress alert, and the master of the ship considers that further help is necessary, the distress relay call on behalf of the ship can be transmitted using "DSC drobose call" menu. In this case, compose a distress relay call format by inputting the MMSI (if known), the ship's position and the time of position (if known), and the nature of distress to send to all ships or a coast station.

⚠ CAUTION

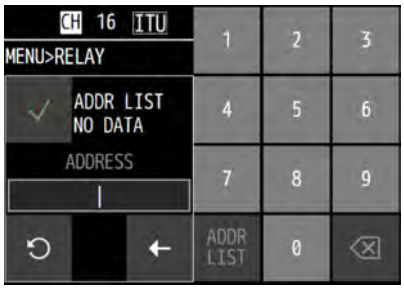
When sending a drobose call, do NOT press the DISTRESS button. Doing so may cause a false distress alert.
(Drobose calls can be sent via [Call] button displayed on the screen.)

■ Procedure ■

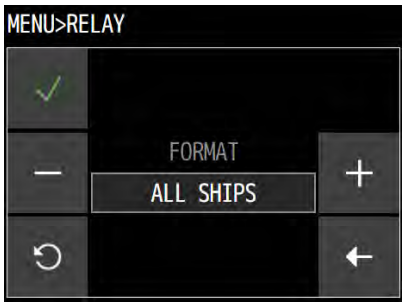
1. On the status display, touch the [RELAY] button.



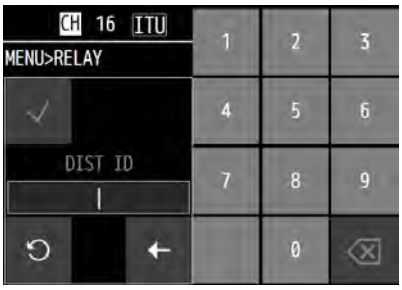
2. To individually call a coast station, touch the [EDIT]→[ADDR] buttons, and input the MMSI.
   - Input the address to call from the station list or manually using numeric keypad.
   - The station selecting procedure such from the station lists is similar to the routine calls mentioned above.



Note: For all ships calls, touch the [EDIT]→[FORMAT] buttons, and then the [✓] button.



3. Input the distress ID (MMSI) of the ship in distress, nature of distress, and the position and that time on the EDIT menu, if known, and then touch the [✓] button.

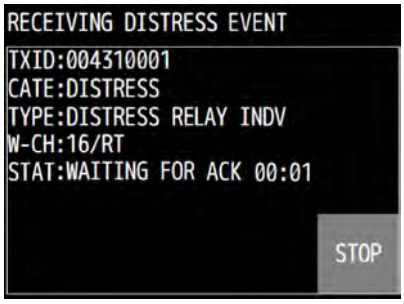


The nature of distress is selectable from below.

Nature of distress	Contents
FIRE	Fire, explosion
FLOODING	Flooding
COLLISION	Collision
GROUNDING	Grounding
LISTING	Listing, in danger of capsizing
SINKING	Sinking
DISABLED	Disabled and adrift
UNDESIGNATED	Undesignated distress
ABANDONING	Abandoning ship
PIRACY ATTACK	Piracy/armed robbery attack
MAN OVERBOARD	Man overboard
EPIRB EMISSION	Received DSC VHF EPIRB signal

4. After entering the distress information, touch the [CALL] button.

After checking the free channel condition, sends the drobose call. Incase of the coast station call, wait for the acknowledgement.



5. When the acknowledgement is received from the coast station, the screen as shown at right is displayed.

- The RX DSC mark flashes and the alarm sounds.
- After touching the [STOP] to silence the alarm, then start the distress traffic.

4.5 DSC call log

Received DSC messages are classified as distress messages and as other messages. The 20 most recent messages for both types of received and transmitted are saved in the log.

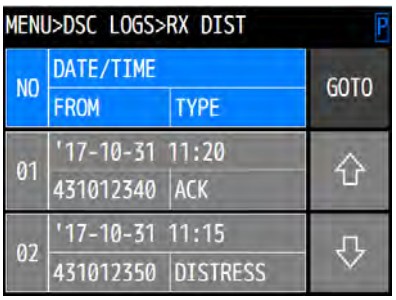
4.5.1 Received distress messages

Received messages regarding distress alerts and the acknowledgements, distress relay calls and the acknowledgements are displayed in this received distress message log. However when receiving a distress alert containing the same 5 messages, only one of those is stored.

■ Procedure ■

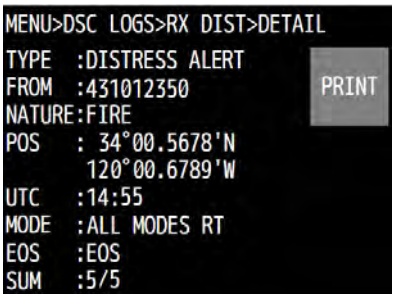
1. From the main menu, touch the [DSC LOGS]→ [RX DIST] buttons.

   - Received distress message list is displayed.
   - Incase of messages including receiving errors (ECC error), "ECC ERROR" appears in the TYPE field.



2. Scroll the list, if required, and then touch the message to display.

   - The selected message is displayed.
   - SUM is the total number of the same distress alert received as the “5 times calls”.



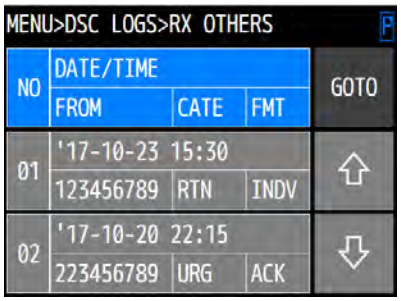
4.5.2 Received other messages

Received messages regarding routine, safety, and urgency calls or the acknowledgements is displayed in this received other message log.

■ Procedure ■

1. From the main menu, touch the [DSC LOGS]→ [RX OTHERS] buttons to display it.

   - Received non distress message list is displayed.
   - Incase of messages including receiving errors (ECC error), "ECC ERROR" appears in the TYPE field.



2. Scroll the list, if required, and then touch the message to display.

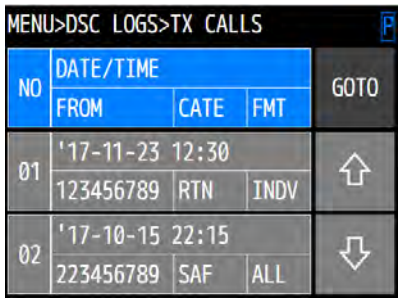
   - The selected message is displayed.
   - The caller's ID can be registered to the station list using the [MMSI REG] button.

4.5.3 Transmitted messages

Every transmitted message is displayed in this Transmitted message log.

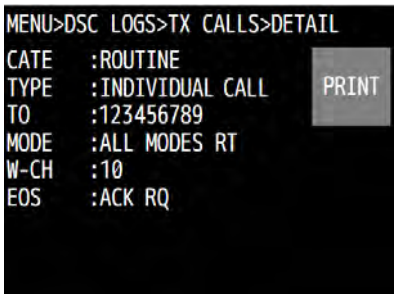
■ Procedure ■

1. From the main menu, touch the [DSC LOGS] →[TX CALLS] buttons.



2. Scroll the list, if required, and then touch the message to display

   The selected message is displayed.



4.6 Other features

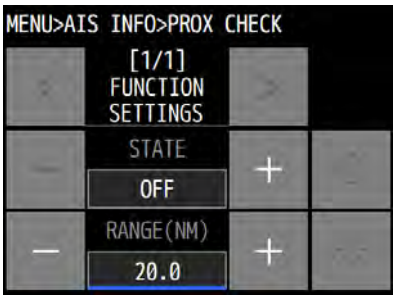
In addition to the features described above, the equipment contains useful some features as below.

4.6.1 Notification of registered ships by the AIS

If the AIS is connected and set to available by the concerned settings, when ships registered in the station list falls within the specified range, the information is noticed immediately.

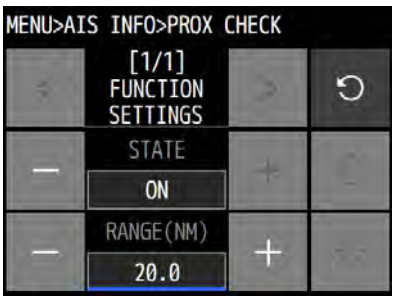
■ Procedure ■

1. From the main menu, touch the [AIS INFO] → [PROX CHEC] buttons.



2. Set the STATE to ON.

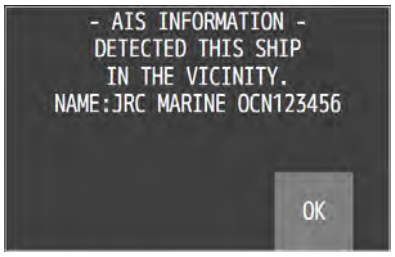
   Input the appropriate value within the range of 0.1 to 99.9NM with the numeric keypad to the RANGE as the ships search area, if required.



3. To finish registering the settings, touch the [✓] button to save.

Note When the registered ship is detected within the specified proximity range, the screen at right is appeared immediately.

However, if the AIS information does not contain the ship's name, the NAME line is replaced by the MMSI number.



4.6.2 Playback of received voice

When the squelch is opened, the received voices are automatically recorded (up to 480 seconds) and can be replayed to confirm audio communications. Recorded voices are divided into multiple tracks depending on the time for the squelch open/close, and stored until power off. If the total recorded time of all tracks reaches 480 seconds, the oldest recorded track is overwritten.

(1) Replay and stop operations

■ Procedure ■

1. From the main menu, touch the [VOICE FUNC] → [PLAY-BACK] buttons.

   - If existing any recorded tracks, replays the latest track immediately.
   - The example at right shows the following.
     - Replaying track number: 1
     - Total track numbers: 12
     - Counter value (elapsed time): 2 seconds
     - Recorded time of the track: 36 seconds

2. After finishing the playback of a track, the next track is displayed and the playback mode stops.

(2) Fast forward and rewind operations

During playback, the fast forward or rewind is available by the following procedure.

■ Procedure ■

1. Touch ▶▶ or ◀◀ during playback.
   - ➢ Touching ▶▶ fast forwards and increases the counter value.
   - ➢ Touching ◀◀ rewinds and decreases the counter value.
2. Touching ▶ starts playback from the time on the counter.

(3) Temporary track saving

Normally, when the total recorded time of all tracks reaches 480 seconds, the oldest track is overwritten by a new track. However the track can be saved temporarily using the following procedure until power off.

■ Procedure ■

1. In the stop mode, use |◀ or ▶| to display the track to save temporarily.

   The example at right shows the case of track 1 selected.

   Note Only 1 track can be saved.

2. Touch the [OPE] → [SAVE] buttons.
   - ➢ A beep sounds when saving is complete, and the track number changes from "001" to "S", as is shown at right.
   - ➢ The saved track is registered as the last number. In the example at right, it is track 12.

Note When the saving is complete, the subsequent track numbers is shifted down by 1.

(4) The saved track deletion

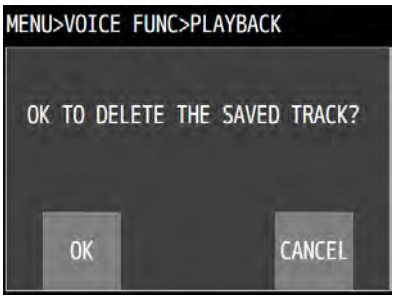
To delete a saved track, perform the following procedure. (Powering off deletes all tracks.)

■ Procedure ■

1. In the stop mode, use ⏮ or ⏭ to display the track to delete.

2. Touch the [OPE] → [ERASE] buttons.

   The confirmation message is appeared.



3. After confirming the message, touch the [OK] button to delete the saved track.

   After deleting is complete, track 1 appears, as shown at right.

4.6.3 Public Address function with an external speaker (option)

If an external speaker is connected, the Public Addresser (hereinafter the "PA") mode is available to make an announcement over the external speaker. While the PA mode is in use, the received voices are not recorded even if the squelch is opened.

■ Procedure ■

1. Lift the handset from the cradle, and then from the main menu, touch the [VOICE FUNC]→[PUBLIC ADDR] buttons.

   - The PA mode starts and enabled to make an announcement over the external speaker.
   - Press PTT key to talk.
   - To finish the PA mode and return to the status display, replace the handset on-hook.
     (Also, finish the PA mode and return to the previous screen, touch the [FINISH] button.)

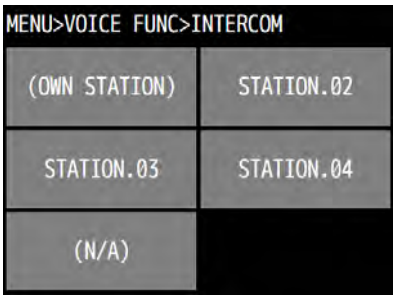
Note In this mode, pressing the PTT makes no transmission at all.

4.6.4 Intercom

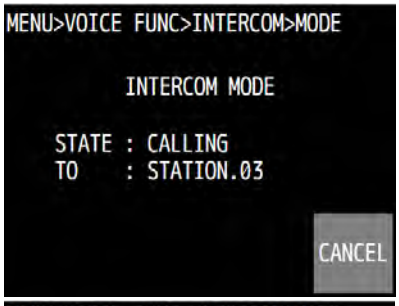
If one or more controllers (NCM-980) are connected to the main unit (JHS-800S), the intercom is available between two units of the main unit and/or the controller(s). While the intercom is in use, the received voices will not be recorded even if the squelch is opened.

(1) Calling and talking

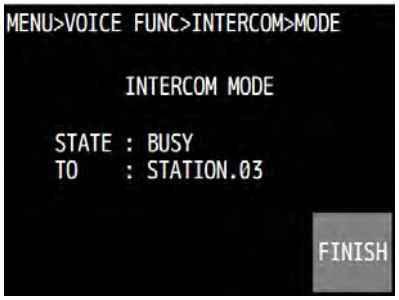
■ Procedure ■



1. Lift the handset from the cradle and then touch the [MENU]→[VOICE FUNC]→[INTCOM] buttons.
   - The main unit and controllers list is displayed.
   - The example at right shows that the following controllers are connected.
     - Address 1: Calling main unit
     - Address 2: Station.02
     - Address 3: Station.03
     - Address 4: Station.04
     - Address 5: Not connected



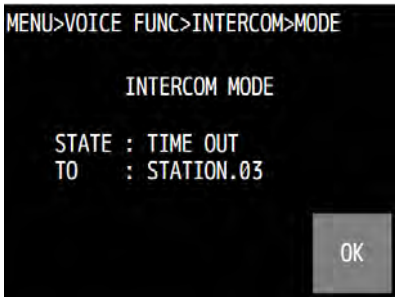
2. Touch the button of the controller to call.
   - The screen at right is displayed and the intercom call is started.
   - Replacing the handset on-hook while calling finishes calling and returns to the status display.
   - Touching the [CANCEL] button while calling finishes calling and returns the screen to the step 1.



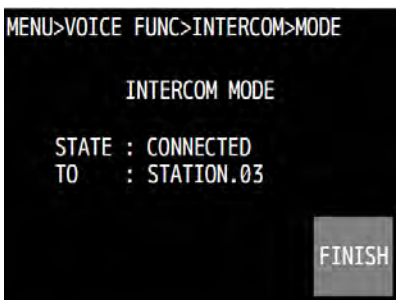
Note
- If the handset of the recipient is left off-hook, the call is not started and the screen at right is displayed. Then touch the [FINISH] button to finish calling and return to the step 1.

.

- If not answered within 30 seconds, the screen at right is displayed. Then touch the [OK] button to return to the step 1.



3. After answered the phone, the screen shown at right is displayed and enabled to start the communication.
   - Press PTT key to talk.
   - To finish the intercom, touch the [FINISH] button or replace the handset on-hook.

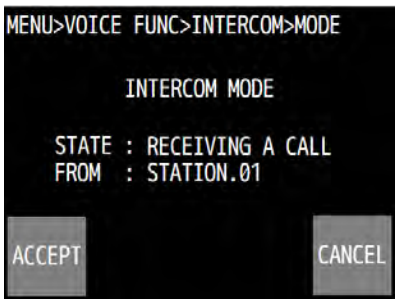


(2) Receiving a call from another controller

■ Procedure ■

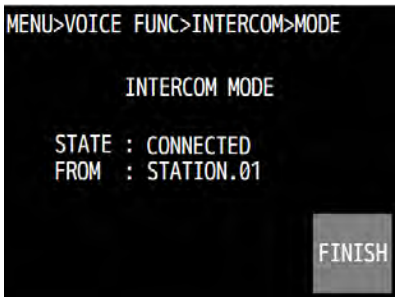
1. If received an intercom call, the screen at right is displayed and the ringing is started.

   If not answered within 30 seconds, the state changes busy. Also, touching the [CANCEL] button returns the screen to the status display. Additionally, touching the [ACCEPT] button makes the CONNECTED state.



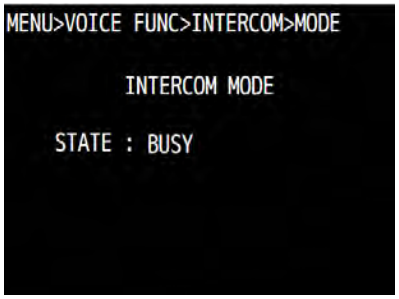
2. When answering to the call, lift the handset and start the communication.

   - Press PTT key to talk.
   - To finish the intercom, touch the [FINISH] button or replace the handset on-hook.



Note

- The OCC mark remains displayed even while talking, because the called controller (recipient) is in monitor mode.
- While using the intercom function between two control panels, if the other main unit or the other connected controllers, those screens display as shown at right.

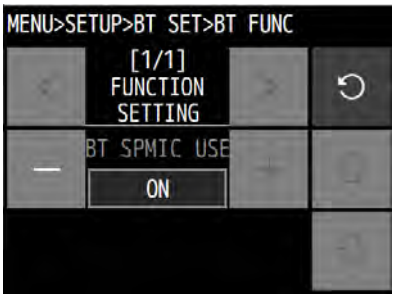


4.6.5 Talk with a wireless speaker microphone (option)

Radiotelephony communication with other stations using the Bluetooth type wireless speaker microphone is available.

(1) Pairing

■ Procedure ■

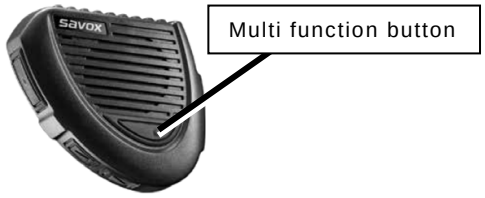


1. Check if the Bluetooth logo is indicated on the upper line of the screen

   If the logo is not indicated on the screen, from the main menu, touch the [SETUP]→ [BT-SET]→ [BT FUNC] buttons and change the BT SPMIC USE to ON, and then touch the [✓] button to save it.

2. Set the Bluetooth type wireless speaker microphone to the paring mode.

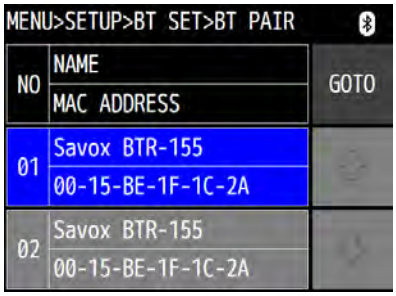
   Incase of the BTR-155 manufactured by SAVOX at right, when the device is off, press and hold the multi function button for 5 sec to start the pairing mode with flashing the blue and red light alternately. For more details, refer to the instruction manual of the BTR-155.



（BTR-155 manufactured by SAVOX）

3. From the main menu, touch the [SETUP]→ [BT SET] → [BT PAIR] buttons to start the pairing.

   - The screen at right is appeared and start searching the pairing.
   - When the search is complete, the device name and the MAC address are appeared on the screen as shown at lower right.



4. Touch the targeted wireless speaker microphone to complete the pairing.

   After the pairing is finished successfully, the Bluetooth logo becomes blue.

Note The latest paring information is registered in the control panel of the main unit (JHS-800S) or controller (NCM-980). So once the pairing is finished, after that the pairing is immediately finished just only powering on the both devices.

(2) Making calls

The communication method using the wireless speaker microphone is basically same as the handset except for the functions concerning the cradle such as on-hook and off-hook.

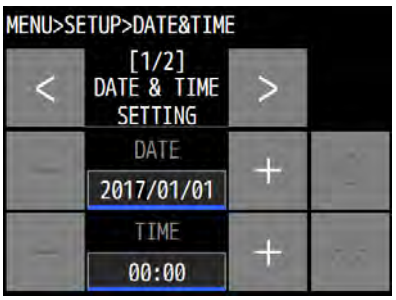
5. SETTINGS & REGISTRATIONS

This chapter describes the procedure for settings and registrations for the date and time manually, the contact lists for DSC calls, advanced DSC settings, and other settings for the equipment.

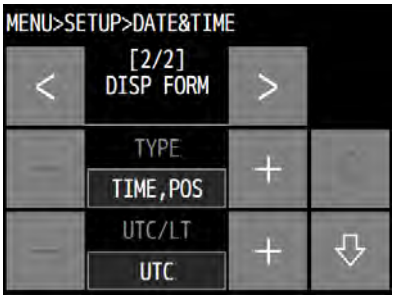
5.1 Date and time setting

Normally, the date and time are updated automatically if importing GPS information. But if necessary, input these parameters manually as follows.

■ Procedure ■



1. From the main menu, touch the [SETUP] → [DATE&TIME] buttons.



2. Input the date and time information manually and then touch the [✓] button to save them.

This menu includes the following settings

1. DATE & TIME SETTING

2. DISP FORM

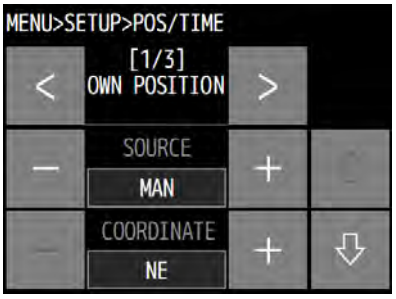
TYPE :	Indication type on the status display from below; TIME,POS/ TIME only/ POS only
UTC/LT :	Universal Time Coordinated/ Local Time
LT DIFF :	Setting of the time difference between UTC and LT
DATA FORMAT :	Date and time form on DSC messages and on an alarm history from below; 'YY-MM-DD/ MMM DD,'YY/ DD MMM,'YY

5.2 Own ship position and time setting

Normally, the ship's position and the time are updated automatically if importing GPS information. But if necessary, input these parameters manually as follows.

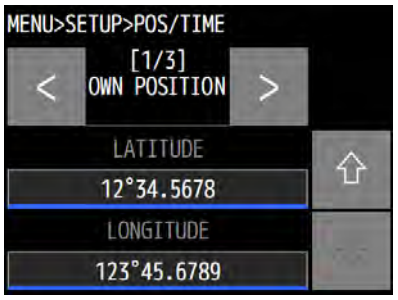
■ Procedure ■

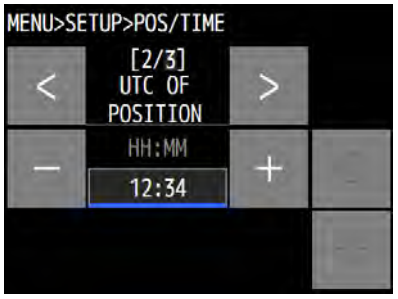
1. From the main menu, touch the [SETUP] → [POS/TIME] buttons.



2. Set the SOURCE menu to MAN to input the ship information manually.

3. After inputting the position and the time, touch the [✓] button to save them.





This menu includes the following settings

1. OWN POSITION
   SOURCE: Select ship position source from below.
   - MAN ····· Manual input
   - GPS ····· External positioning system
   - CLEAR ····· No selection

   COORDINATE: NE/ NW/ SE/ SW
   LATITUDE/ LONGITUDE:

2. UTC OF POSITION

3. STATE DISP
   DISP TYPE: Select the display type of information on the ship position source from below.
   - NORMAL··· Ship position source selected on the SOURCE menu
   - QUALITY ·· Positioning system and the type of quality (For more details, see "9.4 Peripheral interfaces (1.3)".)

Note

- After the position and the time information are input manually, that information is not overwritten with an external device, such as a GPS, automatically.
- If using the external positioning system information after manually inputting data, set the SOURCE menu to “GPS”.
- If the position and the time information are not received within 10 minutes after powering on, or after 10 minutes elapsed since interrupted, the alarm screen may appear. Further, regardless of either manually or automatically if not updated the position and the time within 4 hours after the last entry, the alarm screen also appears.
- If the position and time is not updated for over 23.5 hours, that information is automatically erased and notified by a popup display and an alarm sound.

5.3 Settings for each control panel

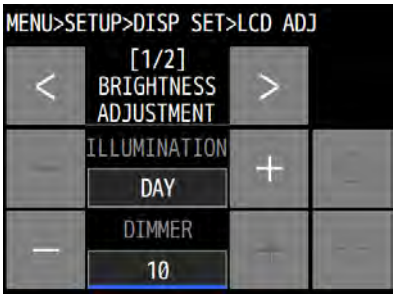
The following describes the procedure regarding individual settings such as visibility adjustment and phone volume for each control panel.

5.3.1 LCD adjustment

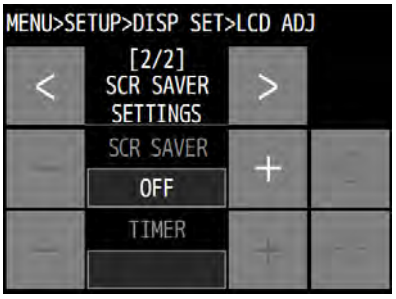
The LCD conditions for visibility are adjustable as follows.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [DISP SET] → [LCD ADJ] buttons.



2. After adjusting the LCD conditions, touch the [✓] button to save them.



This menu includes the following settings

1. BRIGHTNESS ADJUSTMENT
   - ILLUMINATION: Select the kind of range from below.
     - DAY ····· For daytime use (upto max brightness)
     - DUSK ··· For dusky environment
     - NIGHT ·· For night use
   - DIMMER: 0 - 14 steps

2. SCR SAVER SETTINGS
   - SCR SAVER: ON/OFF
   - TIME: 1 - 999 seconds

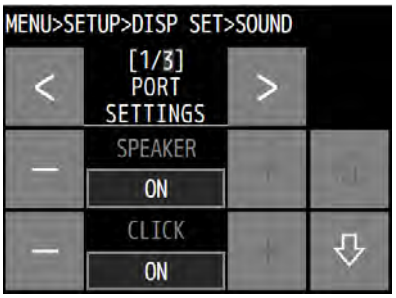
Note When setting the dimmer to 0, the screen is completely turned off. To increase the brightness in this condition, touch the DIM+ button on the right upper corner of the screen.

5.3.2 Sound settings

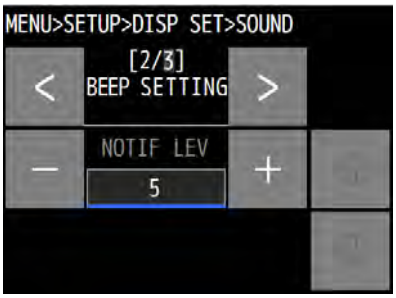
The sound settings such as the click beep are adjustable as follows.

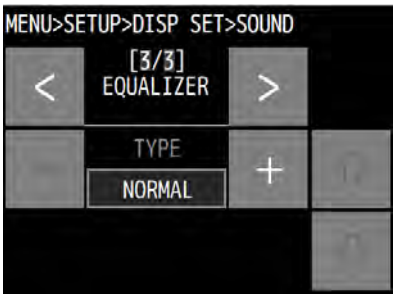
■ Procedure ■

1. From the ma in menu, touch the [SETUP]→ [DISP SET] → [SOUND] buttons.



2. After the sound settings, touch the [✓] button to save them.





This menu includes the following settings.

1. PORT SETTINGS
   - SPEAKER: Internal loudspeaker ON/OFF
   - CLICK: Beep sound ON/OFF
   - STD PHONE LV: Handset phone level 1 - 8
   - EXT PHONE LV: Ext Handset phone level 1 - 8

2. BEEP SETTING
   - NOTIF LEV: Notification sound level 1 - 8

3. EQUALIZER
   - TYPE: NORMAL ····· No equalizer
     - LARGE BASS· Emphasize the bass largely
     - MID BASS····· Emphasize the bass normally
     - SMALL BASS· Emphasize the bass slightly
     - MIDRANGE ··· Emphasize the midrange
     - TREBLE ····· Emphasize the treble

3. Finally, touch the [✓] button to confirm.

5.3.3 User key assignment

The FAVORITE button and FUNCTION buttons can be used as the programmable buttons for the shortcut menus of the desired hierarchical menus, or for the buttons of the special functions.

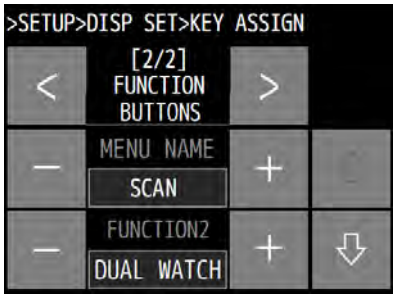
■ Procedure ■

1. From the main menu, touch the [SETUP]→ [DISP SET]→ [KEY ASSIGN] buttons.

2. To register on the [FAVORITE] button, select the target menu or function from the table below and touch [✓] to save it.

1	CALL	MENU	19	SELF DIAG	MENU
2	RELAY	MENU	20	DSC LOOP	MENU>SELF DIAG
3	DIST-E	MENU	21	ALARM INFO	MENU>MAINT
4	TEST CALL	MENU	22	SYSTEM INFO	MENU>MAINT
5	DSC LOGS	MENU	23	DSC AF	MENU>MAINT
6	SHIPS LIST	MENU>SET UP>ADDR LIST	24	DATE&TIME	MENU>SET UP
7	PROX CHECK	MENU>AIS INFO	25	POS/TIME	MENU>SET UP
8	PLAYBACK	MENU>VOICE FUNC	26	DISP SET	MENU>SET UP
9	PUBLIC ADDR	MENU>VOICE FUNC	27	BT SET	MENU>SET UP
10	INTCOM	MENU>VOICE FUNC	28	ADDR LIST	MENU>SET UP
11	SCAN	MENU>CH OPE	29	DSC OPE	MENU>SET UP
12	DUAL WATCH	MENU>CH OPE	30	AUTO ACK	MENU>SET UP>DSC OPE
13	TRPL WATCH	MENU>CH OPE	31	GROUP ID	MENU>SET UP>DSC OPE
14	CH LIST	MENU>CH OPE>MEMORY CH	32	INACTV T/O	MENU>SET UP>DSC OPE
15	PRIV CH	MENU>CH OPE	33	PRN PROP	MENU>SET UP
16	WEATHER CH	MENU>CH OPE	34	CH MONITOR	Opens the squelch temporarily.
17	REGION	MENU>CH OPE	35	BT SWITCH	Switches on/off the speaker in the BTR-155.
18	CH SQL SET	MENU>CH OPE	36	DAY SCREEN	Reverses black & white on LCD.

3. To register on the [FUNC] buttons, select the target menu or function from the ta ble on the previous page and touch [✓] to save it.



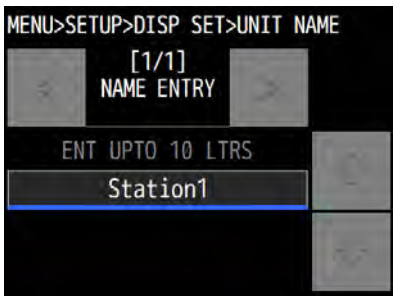
FUNC 1	FUNC 2	FUNC 3
FUNC 4	FUNC 5	FUNC 6
FUNC 7	FUNC 8	FUNC 9
FUNC 10	FUNC 11	

5.3.4 Name the device

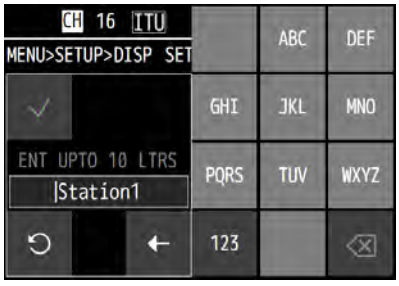
The main unit and controllers can be named respectively to make identification easier.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [DISP SET] → [UNIT NAME] buttons.



2. Touch the blue lined entry field on the NAME ENTRY menu to display the alphanumeric keypad.



- Up to 10 alphanumeric characters available.
- The following characters are available.
  Alphabet (capital and small letters)
  Numbers 0 - 9
  Following signs and space
  [ ] _ " # % & ' ( ) ? @ + - / = : ; < >

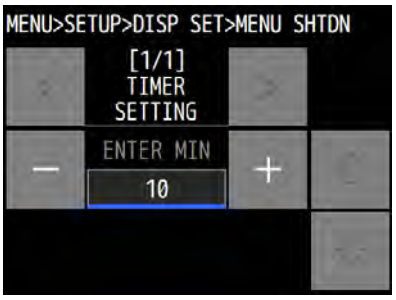
3. After inputting the name, touch the [✓] button to save it.

5.3.5 Menu shutdown timer setting

If the menu screen is displayed and left without closing, the screen is closed automatically after the specified time, which can be set as follows.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [DISP SET] → [MENU SHTDN] buttons.



2. After inputting the automatically shutdown time, touch [✓] to save it.

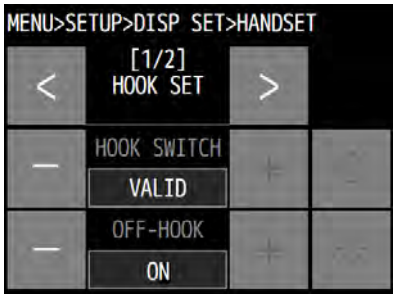
   - The timer can be set within 01 -60.
   - To disable this function, set 00.

5.3.6 Setting the handset

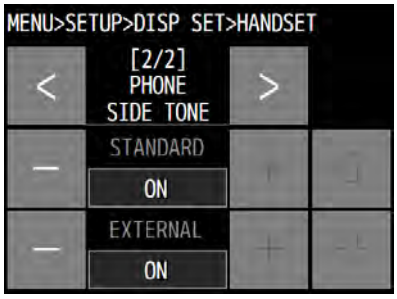
The functions concerned to the handset such as on-hook switch for CH16 setting can be set.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [DISP SET]→ [HANDSET] buttons.



2. After inputting the handset settings, touch [✓] to save it.



This menu includes the following settings.

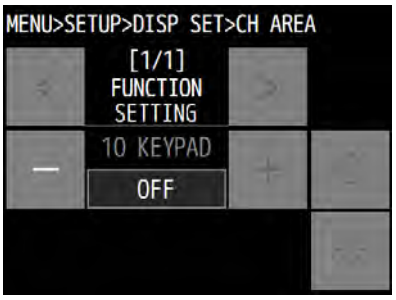
1. HOOK SET
   HOOK SWITCH: On-hook function setting
   VALID ····· CH16 is set when on-hook.
   INVALID ····· Channel is not changed when on-hook.
2. PHONE SIDE TONE
   STANDARD: Side tone setting of the standard handset.
   EXTERNAL: Side tone setting of the external handsets (for main unit only).

5.3.7 Setting the channel area

This menu can select whether the current channel indication area on the status display is used as the ten-key icon or not.

■ Procedure ■

1. From the main menu, touch the [SETUP] → [DISP SET] → [CH AREA] buttons.



   Enter the setting as follows.

   When using CH area as ten-key icon button: ON

   When not using CH area as ten-key icon button: OFF

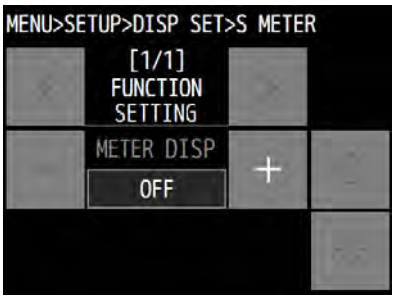
2. After inputting the setting, touch [✓] to save it.

5.3.8 Setting the S meter display

This menu can select whether the S meter, which indicates the receiving signal strength on the status display, is used or not.

■ Procedure ■

1. From the main menu, touch the [SETUP] → [DISP SET] → [S METER] buttons.



   Enter the setting as follows.

   To make the S meter function valid: ON

   To make the S meter function invalid: OFF

2. After inputting the setting, touch [✓] to save it.

5.4 Making contact lists

The following describes the procedure to make contact lists for coast stations or ship stations calls, or for group calls via DSC. Additionally, the PSTN numbers list can be made using the similar procedure.

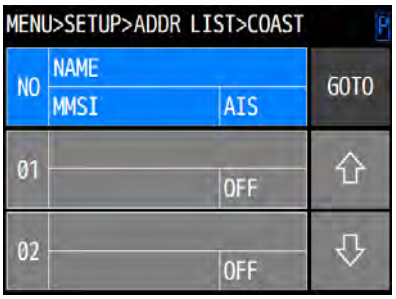
(1) Making a new list

■ Procedure ■

1. From the main menu, touch the [SETUP] → [ADDR LIST] buttons.

2. Touch the target type of the station list.

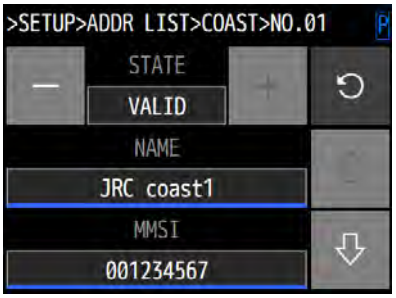
   The example at right shows the coast station list.
   The following is the procedure in the case of the coast station list, but is essentially the same with the case of the ship station list, the group list, or the PSTN number list.

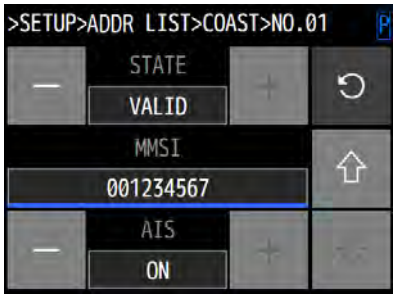


3. Touch the button to register the station information.

   The setting items are as follows.

STATE:	First, set VALID to register on this line.
NAME:	Station name (14 characters max)
MMSI:	9 digits ID
AIS:	Sets the target station to be detected by the PROX CHECK function.





4. After the registration is complete, touch the [✓] button to save them.

Follow the same procedure above to make the radio station list.

Note
- The maximum number is 80 for each of the coast station list, the ship station list, and the PSTN number list, and is 20 for the calling group list.
- On the PSTN number list, the maximum telephone number digit is 16.

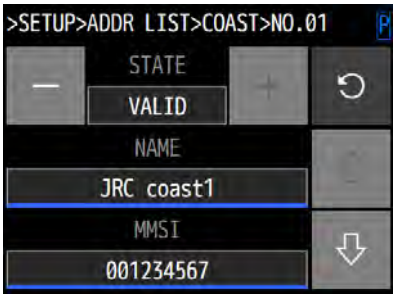
(2) Revising a list

■ Procedure ■

1. From the main menu, touch the [SETUP] → [ADDR LIST] buttons.

2. Touch the station to be revised and edit the content.

   The example at right shows No.01 coast station.



3. After the revising is complete, touch the [✓] button to save them.

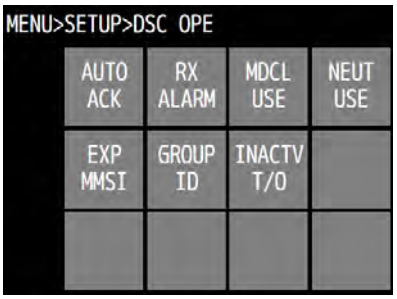
Note
- To delete the registered station, set the STATE to INVALID.
- To delete the selected type of the station list (coast station, ship station, group, or telephone), touch the [ALL CLEAR] button shown at the bottom of the list.

5.5 Advanced settings for DSC

The following describes the procedure for the advanced DSC settings such as automatic acknowledgement, as well as creating a PSTN number list.

■ Menu screen ■

From the main menu, touch the [SETUP]→ [DSC OPE] buttons.



The following describes the procedures from this screen.

5.5.1 Automatic acknowledgement

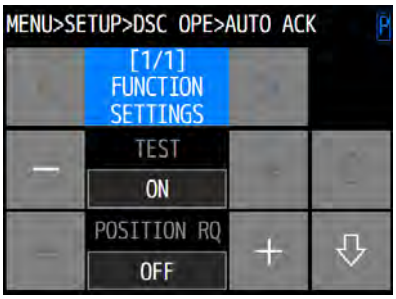
While the automatic acknowledgement is set to ON and if there is no active event, if either one of the individual calls below is received, the acknowledgement is sent automatically.

- Safety test call
- Safety position request call
- Routine polling call
- Individual call requesting communication with invalid channel (*)

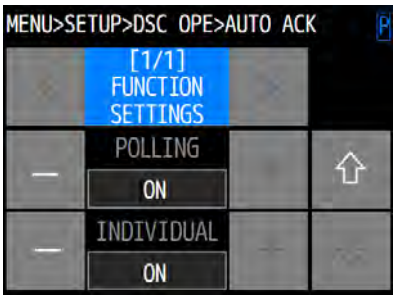
(*) In this case, the acknowledgement “unable to comply” is sent.

■ Procedure ■

1. Touch the [AUTO ACK] button.



2. After inputting the automatic acknowledgement settings, touch [✓] to save them.



The target calls are as follows.

- Safety test call: TEST
- Safety position request call: POSITION RQ
- Routine polling call: POLLING
- Individual call with invalid CH: INDIVIDUAL

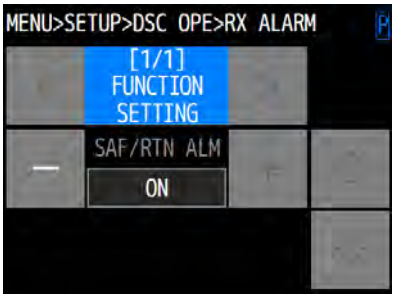
5.5.2 Disabling receiving alarms for routine and safety calls

The aural alarm for routine and safety calls can be disabled as follows.

■ Procedure ■

1. Touch [RX ALARM] button.

2. Set the SAF/RTN ALM to OFF and touch the [✓] button to save it.



5.5.3 Medical/Neutral use setting for urgency calls

The following describes the procedure to set the condition so that an urgency all ships call containing the additional subject of either "Medical transportation" or "Neutral nationality" can be sent. It is useful for the situation when sailing dangerous waters such as in areas of political instability, and needed to inform receivers of the additional information if any of the following apply.

- Own ship is performing medical transportation and protected under the 1949 Geneva Convention.
- Own ship is of neutral nationality in accordance with ITU resolution 18 (Mob-83).

■ Procedure ■

When making an special urgency call, touch the [MDCL USE] button for medical transportation or [NEUT USE] button for neutral nationality and input the setting to ON.

Note This input data returns to the default setting (OFF) if the power is turned off.

5.5.4 Expanded MMSI registration

⚠ CAUTION

Always set the expanded MMSI in the bridge of the vessel to zero (0). If setting to another value other than zero, DSC calls may not be received.

If there are multiple DSC devices having the same 9-digit MMSI on board a ship, setting the 10th digit of the MMSI number to a non-zero value is available to distinguish them in the case of routine individual calls.
The handling of 10-digit MMSI is as follows.

- When sending a routine individual call, the caller ID (own ship station's MMSI) is 10-digit MMSI.
- When receiving a routine individual call, the DSC having the identical address only treats the message, i.e. mainly the DSC having "0" as the 10th digit of MMSI receives an individual call addressed to the own station.
- When sending an acknowledgement to a received individual call, the address of the call is entered the caller's ID of the individual call as it is, i.e. if the 10th digit of the caller's ID is not "0", the address is 10-digit MMSI automatically.

■ Procedure ■

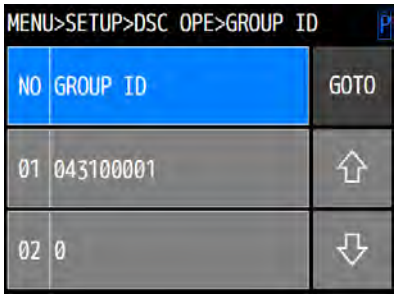
When changing the 10th digit of the MMSI other than zero (0), touch the [EXP MMSI] button to input the value.

5.5.5 Registering the ship's group ID

Register the group ID (group ship ID number) for receiving group calls.

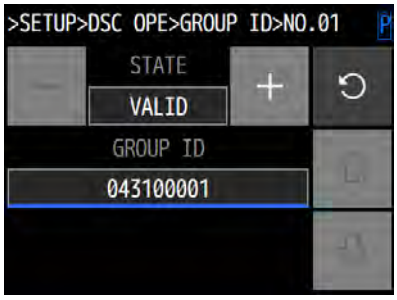
■ Procedure ■

1. Touch the [GROUP ID] button to display the screen as shown at right.



2. Touch the button of the line to be registered.

   Up to 20 groups, set the item below.
   STATE: First, set VALID to register on this line.
   MMSI: 9 digits ID



Note
- To delete the group ID, set the STATE to INVALID.
- To delete the every group ID, touch the [ALL CLEAR] button shown at the bottom of the list.

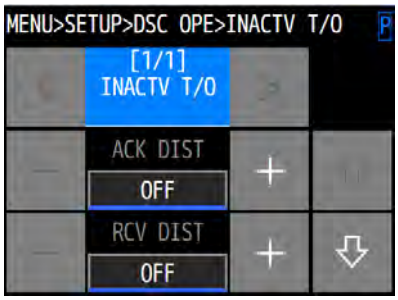
3. After the registration is complete, touch the [✓] button to save them.

5.5.6 Setting the inactivity timeout timer

If a call event is left without operation for a while, the call event is automatically ended after the setting time is elapsed. The inactivity timeout timer can be set as follows.

■ Procedure ■

1. Touch the [INACTV T/O] button to display the screen as shown at right.



2. Change the timer settings as appropriate.

   This menu includes the following settings. Furthermore, set to OFF if making the inactivity timeout timer invalid

ACK DIST:	The acknowledged distress alert events (00 (OFF) - 60 minutes)
RCV DIST:	The distress events of other ships (00 (OFF) - 60 minutes)
NON DIST:	Routine, safety and urgency events (00 (OFF) - 60 minutes)
OTHER COMM:	Communications without using DSC. (10 - 600 seconds, No off-setting)

3. After the settings is complete, touch the [✓] button to save them.

5.6 Other settings

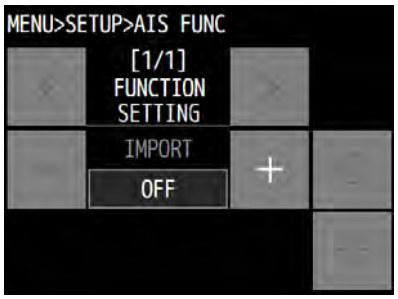
The following describes concerning the AIS, printer and controllers.

5.6.1 Enabling the AIS function

When connecting the AIS to use the information for such as a DSC call, set the import condition to ON as follows.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [AIS FUNC] buttons to display the screen as shown at right.



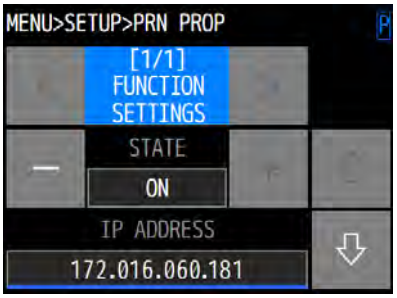
2. After setting the IMPORT to ON, touch the [✓] button to save it.

5.6.2 Setting printer property

When connecting the printers, configure the conditions as follows.

■ Procedure ■

1. From the main menu, touch the [SETUP]→ [PRN PROP] buttons to display the screen as shown at right.



This menu includes the following settings.

STATE:	Printer use or not
IP ADDRESS:	Change the value if appropriate. (172.016.060.181 as factory default setting)
PORT:	Change the value if appropriate. (09100 as factory default setting)
DATA OUT	Printout setting of DSC messages (AUTO or MANUAL)
DIRECTION:	Printout direction (INVERT or UPRIGHT)

2. After the setting is complete, touch the [✓] button to save them.

5.6.3 Setting of the controller start

When the external power is supplied to the main unit, the main unit is turned on automatically. This menu sets whether the controller is turned on at once with the main unit then, or the controller returns to the previous state of just before turned off.

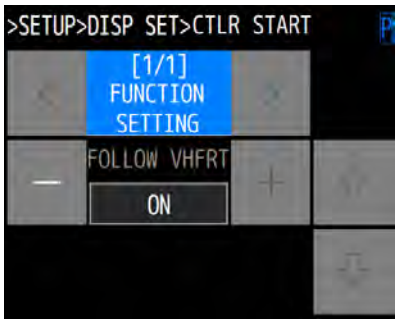
■ Procedure ■

1. From the main menu, touch the [SETUP] →[DISP SET]→[CTLR START] buttons.

   Enter the setting as follows.

   To turn on with the main unit: ON

   To return to the previous state: OFF



2. After the setting is complete, touch the [✓] button to save it.

Note This function is the individual for the controller and cannot be displayed on the main unit.

6. MAINTENANCE & INSPECTION

The performance and lifetime of the equipment depend on the appropriate maintenance. This chapter describes the maintenance and inspection, self diagnosis, and outline of adjustment.

6.1 General maintenance & inspection

In order to operate the equipment under optimum conditions, it is vital to perform regular inspections and also, to keep accurate records. Inspections enable problems to be identified before they become major malfunctions.
The following inspections should be made regularly.

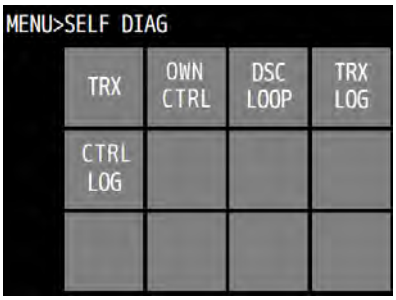
Inspection sequence	Inspection items	Procedure
1	Antenna system	Check that antennas and the connectors are secure.
2	Squelch operation	On the control panel with access right, turn the SQ control fully counterclockwise and check if the noise is output from the speaker. And also check if the noise is suppressed by turning the SQ control clockwise.
3	Receiver condition checked by speaker output.	Check if the voice level and noise level are abnormally loud or soft.
4	Handset PTT switch	Press PTT to check if the **TX** mark is displayed on the screen and the unit transmits immediately.
5	Transmission and reception check by performing radio communication.	Check if the normal radiotelephony communication is possible.

6.2 Self diagnosis inspection

The following describes the procedure to perform inspections through self-diagnosis.

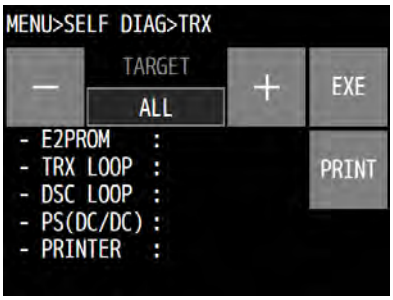
■ Procedure ■

1. From the main menu, touch the [SELF DIAG] button to display the screen as shown at right.



2. Select either button of [TRX] for the RF circuit, [OWN CTRL] for the control circuit of the unit now operating, or [DSC LOOP] for DSC TX-RX loop.

   The example at right shows TRX checking screen.



3. Select the target test item and touch the [EXE] button to start the self diagnosis.

   The following test items are available.

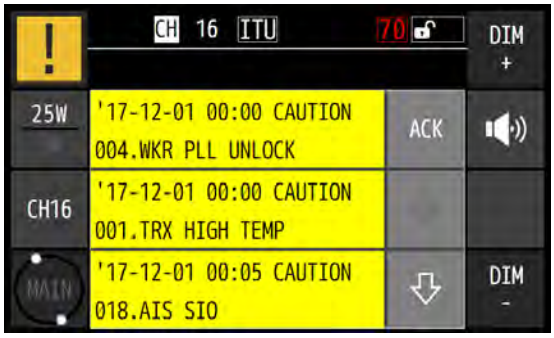
TRX:	ALL ..... All items E2PROM.....Non-volatile memory TRX LOOP .....TX-RX/WKR RF circuit DSC LOOP.....DSC TX-RX/WKR loop PS(DC/DC).....Internal DC/DC converter PRINTER .....Test printing
OWN CTRL:	ALL ..... All items E2PROM.....Non-volatile memory SDRAM.....Volatile memory EMMC.....Non-volatile memory LCD.....Display condition SOUND.....Loudspeaker output

Note
- The PRINTER item is available only if the STATE setting (MENU>SETUP>PRN PROP) is ON.
- To cancel the self-diagnosis during performing, touch the [CANCEL] button.
- The results of the self-diagnosis are saved as history and the latest 10 logs are referable. (MENU>SELF DIAG>TRX LOG or MENU>SELF DIAG> CTRL LOG)
- The self-diagnosis test contents and results are as shown below.

Menu	Test Item	Contents	Results
TRX	E2PROM	・E2PROM read/write	OK: Normal NG: Error
	TRX LOOP	• Loop1 (TX-RX) loopback test • Loop2 (TX-WKR) loopback test	OK: Normal NG-LOOP1: LOOP1 error NG-LOOP2: LOOP2 error NG-LP1/LP2: LOOP1 & 2 error NG-TXVCO: TX VCO error NG-RXVCO: RX VCO error NG-WKRVCO: WKR VCO error NG-TRXVCO: VCO error of TX & RX NG-TX/WKRVCO: VCO error of TX & WKR NG-RX/WKRVCO: VCO error of RX & WKR NG-ALLVCO: All VCO error NG-LP2/RX: RX VCO & LOOP2 error NG-LP1/WKR: WKR VCO & LOOP1 error
	DSC LOOP	•DSC1 (TX-WKR) loopback test •DSC2 (WKR-RX) loopback test	OK: Normal NG-TX/WKR: DSC1 error NG-WKR/RX: DSC2 error NG-ALL: DSC1 & 2 error
	PS (DC/DC)	•DC/DC PWR output voltage check	OK: Normal NG: Error
	PRINTER	• Printout test for printer	- Only data output to the printer is done. Check the print results. - After output is complete, "DONE" appears.
OWN CTRL	E2PROM	• E2PROM read/write	OK: Normal NG: Error
	EMMC	• EMMC read/write	OK: Normal NG: Error
	SDRAM	• SDRAM read/write	OK: Normal NG: Error
	LCD	• Screen display test	- The fill display for all dots shows for 2 seconds each in the order of white → black → red → green → blue; this is done twice. Check for missing dots. - After the test is complete, "DONE" appears.
	SOUND	• Sound test	- Check aurally that a single tone sounds for 30 seconds.. - After the test is complete, "DONE" appears.

6.3 System alarm indication

If errors regarding the equipment are detected, the screen immediately shows the alarm as follows.

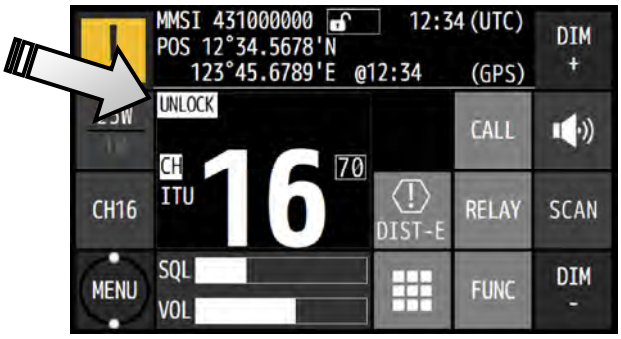


Note

- According to the alarm type, some functions may be automatically restricted. The alarm information is formatted as follows.

> [Alarm date and time], [Alarm category]
> [Alarm number], [Information]

- As the alarm category, only CAUTION is used for the marine VHF radio.
- Scroll using the [↑]/[↓] buttons if there are more than 3 alarms.
- By touching the [ACK] button, the alarm indication is closed.
- When 002.TRX PLL alarm occurring, a blinking UNLOCK mark is additionally indicated. In this case, that mark is remained as shown below until restored to the normal condition.



- When 004. WKR PLL UNLOCK alarm occurring, the 70 icon becomes red to show that the CH70 watchkeeping is abnormal.
- When high temperature is detected in the JHS-800S marine VHF, the VOL indication on the status display becomes yellow and the maximum speaker output is restricted to deduce the power consumption.

6.3.1. Alarm list

The following list shows the types of system alarm and contents.

(Alarm categories are CAUTION only.)

No.	Display	Contents	Countermeasure
001	TRX HIGH TEMP	Detected a temperature in the main unit that is higher than the specified values.	Stop transmission, or reduce the power to 1W
002	TRX PLL UNLOCK	Detected PLL Unlock in the transmitter or receiver.	*Please contact JRC or our agency.*
004	WKR PLL UNLOCK	Detected PLL Unlock in the CH70 watch keeping receiver.	*Please contact JRC or our agency.*
005	TRX MEMORY	Detected a memory error in the main unit.	*Please contact JRC or our agency.*
006	CTRL1 MEMORY	Detected a memory error in controller 1.	*Please contact JRC or our agency.*
007	CTRL2 MEMORY	Detected a memory error in controller 2.	*Please contact JRC or our agency.*
008	CTRL3 MEMORY	Detected a memory error in controller 3.	*Please contact JRC or our agency.*
009	CTRL4 MEMORY	Detected a memory error in controller 4.	*Please contact JRC or our agency.*
011	CTRL1 SIO	Detected a serial communication error in controller 1.	*Please contact JRC or our agency.*
012	CTRL2 SIO	Detected a serial communication error in controller 2.	*Please contact JRC or our agency.*
013	CTRL3 SIO	Detected a serial communication error in controller 3.	*Please contact JRC or our agency.*
014	CTRL4 SIO	Detected a serial communication error in controller 4.	*Please contact JRC or our agency.*
016	GPS SIO	Detected the GPS communication error.	*Please contact JRC or our agency.*
017	AIS SIO	Detected the AIS communication error.	*Please contact JRC or our agency.*
018	BAM SIO	Detected the BAM communication error.	*Please contact JRC or our agency.*
019	PRINTER	Detected an error in the printer.	Check the printer power or the LAN.
020	MMSI LOST	The MMSI has not been registered yet, or has been lost.	*Please contact JRC or our agency.*
024	TRX PS (DC/DC)	Detected DC/DC power supply error.	*Please contact JRC or our agency.*
026	ABNORMAL RF POWER	Detected an error in the automatic power control (APC) or the peripherals.	*Please contact JRC or our agency.*
027	POWER-OFF FAIL	Detected malfunction regarding power supply control circuit in the main unit.	*Turn off the external PS, and then please contact JRC or our agency.*
028	DMC SIO	Detected the DMC communication error.	*Please contact JRC or our agency.*
029	MFD SIO	Detected the MFD communication error.	*Please contact JRC or our agency.*

6.3.2. Viewing the alarm history

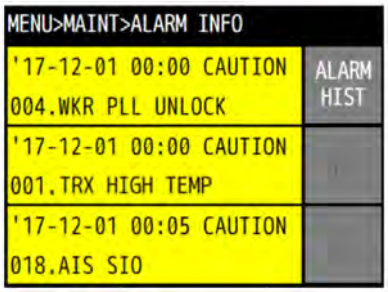
You can check the history of alarms that occurred in the past.

■ Procedure ■

1. From the main menu, touch the [MAINT]→ [ALARM INFO] buttons.

   If any alarm occurring, the screen at right is displayed.

   If no current alarm, "NO DATA" is displayed.



Note

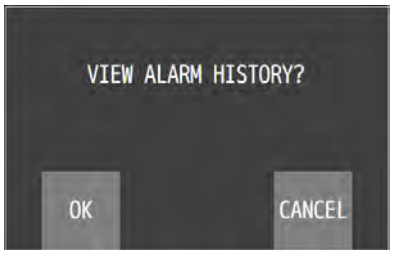
- The displayed alarm information is formatted as follows.

  [Date and time], [Alarm category]
  [Alarm number], [Information]

- As the alarm category, only CAUTION is used for the marine VHF radio

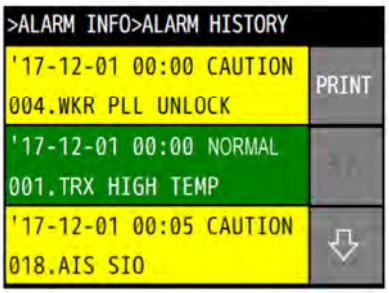
2. To check the alarm content, touch the [ALARM HIST] button.

   Also touch the [OK] button on the popup screen at right.



3. The alarm history is displayed.

   Upto 100 histories are saved. Use the [↑]/[↓] buttons to scroll if required.



Note

- The displayed alarm history is formatted as follows.

  [Alarm and recovery date and time], [Current condition]
  [Alarm number], [Information]

- As the current condition, CAUTION or NORMAL (after recovery) is indicated.

6.4 Checking the setup condition

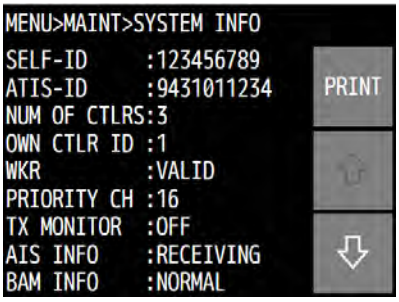
The system information can be confirmed for use in maintenance and inspection.

6.4.1 System information

The following describes the procedure to display such as the ID numbers or peripheral connection conditions.

■ Procedure ■

1. From the main menu, touch the [MAINT]→ [SYSTEM INFO] buttons.



Note The confirmable information are as below.

Item Name	Contents	Notes
SELF-ID	Own ship's identification number (MMSI)	
ATIS-ID	The ATIS number for European inland waterways	
NUM OF CTLRS	The number of connected controllers Number of main unit and connected controllers	
OWN CTLR ID	The address number of this controller	
WKR	The setting status to use the watch-keeping receiver	Default setting: Valid
PRIORITY CH	The registered priority channel number	Default setting: CH16
TX MONITOR	The setting status to monitor communications of a controller at the other controllers and the external speaker	Default setting: ON
AIS INFO	The AIS connection status (RECEIVING/DISRUPTED/INVALID)	
BAM INFO	The BAM connection status (NORMAL/CS ERROR/INVALID)	
S/N(RT)	Device's serial number	
S/N(OWN)	Device's serial number (Only for the controller.)	
PRN FUNC	The setting status to use the printer functions	Default setting: OFF
PRN PORT	Printer's port number	
UDP IP ADDR	Device's UDP IP address	
ETH IP ADDR	Device's IP address	
ETH MAC ADDR	Device's MAC address	
BT PAIRING	Names of devices paired with Bluetooth	
BT MAC ADDR	Bluetooth's MAC address	
GROUP-ID xx	The identification number of the group own ship belongs to	xx: 01 - 20

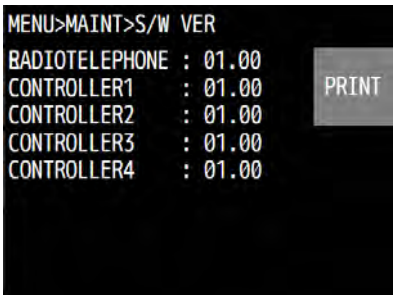
6.4.2 Software version

The following describes the procedure to display the software version.

■ Procedure ■

From the main menu, touch the [MAINT]→ [S/W VER] buttons.

The software versions of the RADIOTELEPHONE (JHS-800S) and CONTROLLER (NCM-980) are displayed as shown at right.



6.4.3 Certification mark

The following describes the procedure to display the certification marks.

■ Procedure ■

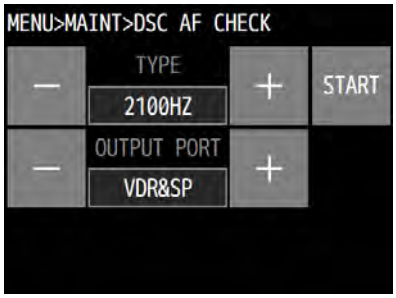
From the main menu, touch the [MAINT]→ [CERT MARK] buttons.

6.5 DSC AF inspection

DSC AF modulation frequencies can be checked for periodic inspections etc.

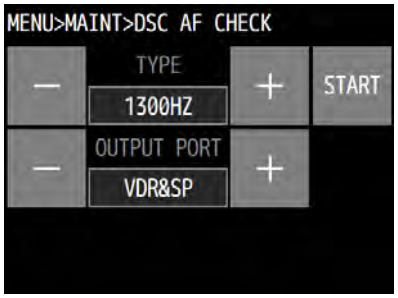
■ Procedure ■

1. From the main menu, touch the [MAINT]→ [DSC AF CHECK] buttons to display the screen as shown at right.



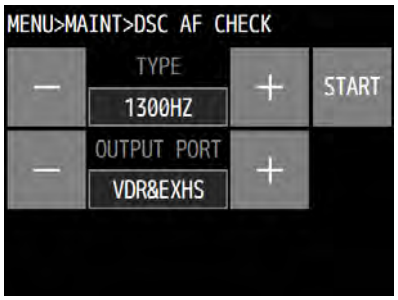
2. Select the TYPE of DSC modulation signal.

   The following types are selectable.
   - 2100 Hz: Space frequency (B)
   - 1300 Hz: Mark frequency (Y)
   - DOT: Dot pattern



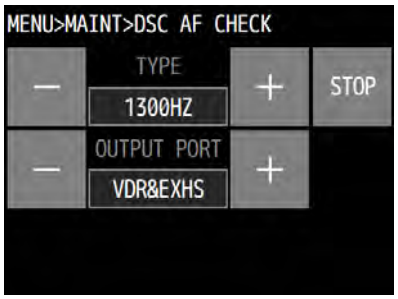
3. Select the OUTPUT PORT of DSC modulation signal.

   The following output ports are selectable.
   - VDR&SP: VDR output and internal speaker
   - VDR&EXHS: VDR output and external handset
   - VDR&EXSP: VDR output and external speaker terminal



4. Touch the [START] button to output the DSC modulation signal.

   The [START] button becomes the [STOP] button.
   To stop the signal, touch the [STOP] button.



6.6 Troubleshooting

⚠ WARNING

If any problem is observed in this unit on usual operation or inspection, contact JRC or our agent. In addition to usual communication, this unit is also used for the distress communication.

Always use the specified fuse when replacing a fuse. Using a different fuse may result in fire or malfunction.

Do not open the equipment to inspect or repair it. Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction.

If internal inspection or repair is necessary, contact our service center or agents.

6.6.1. Procedures for locating malfunctions

1) First, check the power supply voltage, fuses, and connectors.
2) If there are no problems with the above, use a tester to check for errors.

The following table shows the instruments required for effect repairs and the severity of the malfunctions.
If required to locate the malfunction, with the exception of qualified service personnel, perform the following No. 1 and 2 only.

No.	Type of Malfunction	Examples
1	Faults requiring no instrument to locate	• Blown power supply fuse • Faulty contacts • Broken antenna cables • Defective switches, volume, etc. • Other problems that can be visually detected
2	Malfunctions that can be fixed with a tester and repaired	• Power supply voltage confirmation • Breaks in internal wiring
3	Malfunctions requiring special instrument	• Crystal oscillator frequency error • Decrease in transmitting power and reception sensitivity • Decrease in transmitter modulation level • Malfunctions in semiconductors, ICs, and similar equipment

6.6.2. Guide to locating faults

Use the following table as a guide to locating the causes of malfunctions in the equipment. Additionally, when contacting JRC or our agency, please provide the malfunction condition.

No.	Symptom	Typical causes
1	Nothing appears on the screen.	• Abnormal power supply voltage • Main unit's power supply fuse is blown • Defective power supply switch, display circuit, or control circuit • Defective controller cable
2	TX is displayed but no voice is transmitted.	• Malfunction in the handset • Malfunction in the controller cable • Malfunction in the AF signal transmission circuit
3	TX is not displayed, and transmission is not possible.	• Malfunction in the handset PTT switch • Malfunction in the hook detection circuit • Malfunction in the transmission circuit
4	Reception sensitivity is poor.	• Antenna damage • Break or short circuit of antenna cable • Faulty contact in antenna connectors
5	No sound from the speaker even when squelch is opened without reception.	• Malfunction in the speaker • Defective SQ control circuit or harness • Malfunction in the receiver circuit
6	Noise is output from the speaker, but own ship cannot receive any calls.	• Antenna damage • Break or short circuit in antenna cable • Faulty contact in antenna connectors • Malfunction in the receiver
7	Turning SQ does not suppress noise.	• Malfunction in the SQ control • Malfunction in the receiver

Note The following are not faults.

Symptom	Possible causes	Handling
No response from other station via radiotelephone or DSC call.	No operator in that station, or unavailable to respond due to other duties.	Wait and retry later.
Cannot control the radiotelephone or DSC, but can control VOL, dimmer and PWR buttons.	Operations are limited due to no access right.	Press OPE button to obtain the access right and after that, retry the operation.
Cannot obtain the access right even if pressing OPE button on a main unit or controller with no access right when there is one or more controllers.	The main unit or another controller with higher priority is in use for communicating or performing menu operations.	After operations are complete on the main unit or other controller, retry again.
If the system is left on a screen other than the status display for a while, returns to the status display.	After leaving the specified period, the inactivity timer would be activated and returned to the status display.	Do not leave the system when operating the menu.
Received distress call logs have been erased without operating.	Received distress calls are automatically deleted after 48 hours.	To save the received distress messages, print out them.
When a portable transceiver is brought close to the main unit or the controller, noise comes out from the portable transceiver.	The influence of the radio frequency noise occurs, which is slightly generated from the lighting circuit of the LCD.	Turn off the light for the LCD or keep the portable transceiver at least 1 m away.
The VHF operation on the MFD (ECDIS or Marine radar) screen is not available.	The main unit is turned off and on again and the link with the MFD is not established normally.	On the MFD screen, restart the VHF Call dialog/ menu.
Incase of the multiple VHF radio onboard, when transmitting from the one VHF radio, the squelch of another VHF radio setting different channel is opened.	The radio interference occurs by the excessive RF input level because the antennas are not mounted directly above or below each other.	Turn the squelch control clockwise so that the squelch is not opened when receiving such an excessive radio wave.

6.6.3. Consumables

The following shows consumables. Please contact JRC or our agency to order parts.

Location	Name	Part number	Replacement guide
RP-D10 PRINTER	Printer paper	TP-B10CH	Indicating red mark on the paper edge.

6.6.4. Repair units/parts

The repair units and replacement part units are as follows.

● JHS-800S MARINE VHF RADIOTELEPHONE

Name	Unit/Part number	Notes
CONTROL UNIT	CDJ-2800	
RF UNIT	CMN-2800-1	
POWER UNIT	CBD-2800	
POWER CABLE	CFS-810	
FUSE	0997015.WXN	15 A, Blade type

● NCM-980 CONTROLLER (option)

Name	Unit/Part number	Notes
CONTROL UNIT	CDJ-9800	
POWER UNIT	CBD-9800	
CAN CABLE	CFS-830	

● NBD-965 AC/DC POWER SUPPLY (option)

Name	Unit/Part number	Notes
FUSE	1044	15 A, Blade type

6.6.5. Regular replacement parts

The following shows the part to be replaced regularly. Please contact JRC or our agency to order it.

Name	Unit/Part number	Replacement Period
Panel unit	CML-980	LCD backlight: Approx 30,000 to 40,000 hours of continued use at maximum brightness Touch panel: Approx 10 million times (2 times / second)

7. AFTER-SALES SERVICE

★ Warranty

The warranty period is determined by JRC's warranty regulations, but is normally 1 year from the date of purchase. Additionally, the warranty except for the body text is submitted to contractual agreements.

★ Repair Part Inventory Period

Parts necessary for proper functioning of this equipment will be kept available for 10 years after product discontinuation.

★ When Requesting Repairs

If what appears to be a defect is detected, refer to "6.6 Troubleshooting" to check if the equipment is actually defective.

If the problem is due to a defect, immediately stop use of the system and contact the store at which you purchased the system, or one of our branches.

- During the warranty period, if a malfunction occurs with the equipment while in standard usage in accordance with this instruction manual, we or our agencies will repair the malfunction at no charge at the store where the equipment was purchased or another location specified by JRC. If the malfunction occurs due to improper usage, fault, or any external abnormal condition such as fire, pollution, abnormal voltage, natural disaster (ex. thunder storms, earthquake) etc., JRC will repair the equipment for a fee. Furthermore, regardless of the warranty period, orders of consumables will be charged.
- After the warranty expires, we will repair the malfunction for a fee, if repair is possible.
- Please inform us of the following :
  - ☆ Product name, model name, manufactured date, serial number
  - ☆ As much information as you can provide about the malfunction. (Alarm number, whether transmission is possible or not, etc.)
  - ☆ Your company or organization name, address, and phone number

★ Periodical Maintenance Recommendation

Depending on usage conditions, with extended use, the performance of this equipment may degrade over time, and externally installed parts such as the antenna may degrade due to vibration, so we recommend periodical maintenance in addition to the standard maintenance.

Please contact the store where you purchased the equipment, or one of our branches, to request periodical maintenance. Periodical maintenance requires a service charge.

If you have any questions regarding after-sales service, please contact the store where you purchased the equipment, or one of our branches.

Refer to the inside of the back cover for contact numbers and locations.

8. DISPOSAL

Observe all rules and regulations of the local authorities when disposing of this equipment.

9. SPECIFICATIONS

9.1 JHS-800S Marine VHF Radiotelephone

● General Specifications

Transmission frequency	Simplex/semi-duplex: 155.000 MHz - 163.500 MHz
Reception frequency	Simplex/semi-duplex: 155.000 MHz - 163.500 MHz
Number of channels	ITU/USA/Canada/IWW channels: Maximum 65 ch Weather channels: 10 ch Private channels: Maximum 200 ch Memory channels: Maximum 10 ch
Channel spacing	25 kHz
Communication modes	Simplex and semi-duplex press talk system
Type of emission	Radiotelephone communications: F3E (G3E) DSC/ATIS: F2B (G2B)
Antenna impedance	50 Ω unbalanced
Tx/Rx switching interval	300 ms or less
Channel switching interval	5 s or less
Interface	IEC61162-1 Ed.4 (2010-11) (GPS) IEC61162-2 Ed.1 (1998-09) (AIS/BAM/DIM)) IEC61162-450 Ed.1 (2011-06) (GPS/AIS/BAM/DIM/RMS/DMC) 600 Ω balanced (VDR) 600 Ω unbalanced (Ext SP)
Main controls	DSC call transmitting/receiving, channel settings, TX power settings, squelch/ volume adjustment, screen adjustment
Performance criteria	IMO A.803 (19), A.694 (17), MSC.68 (68), MSC/Circ.862 IEC 60945 Ed.4 (2002-08)
Power supply voltage	24 VDC (21.6 VDC - 31.2 VDC)
Current consumption /Power(24VDC)	25 W when transmitting: Maximum 4.5 A/108 W When receiving: Maximum 1.5 A/36 W
Operating temperature range	-25 °C - +55 °C
Storage temperature range	-40 °C - +80 °C
Humidity resistance	No abnormalities after left for 10 hours at +40°C, 93% RH
Vibration resistance (3 axis)	2 Hz - 5 Hz to 13.2 Hz: Full amplitude ±1 mm, ±10% 13.2 Hz to 100 Hz: Maximum acceleration of 7 m/s^2 fixed No abnormality after testing resonance points or at 30 Hz for more than 2 hours.
Continuous operation (Phone)	No abnormalities after operating continuously for 8 hours
Continuous operation (DSC, WKR)	No abnormalities after operating continuously for 24 hours
Category type of the weather resistance	Waterproofed handset connection box: Exposed Other units: Protected
Protection rating	IP56 (Dustproof, Waterproof)
Dimensions and mass	240 mm (W) x 96 mm (H) x 136 mm (D) [excluding projections] Approx. 2.1 kg

● Transmitter

Antenna output power	12.5 W - 25 W (when reducing: 0.5 W - 1 W)
Deviation of antenna power	Within +20 % and -50 %
Oscillation method	Frequency synthesizer
Modulation method	FM/FSK
Carrier frequency error	±10 x 10^{-6} or less
Maximum frequency deviation	±5 kHz or less
Occupied bandwidth	16 kHz or less
Pre-emphasis characteristics	6 dB/oct within +1 dB, -3 dB
Overall distortion	10 % or less
Adjacent channel power	-70 dB or 0.2 µW or less
Unwanted emissions in the out-of-band domain	3.125 µW or less
Unwanted emissions in the spurious domain	3.125 µW or less
Spurious emissions	9 kHz - 1 GHz: 0.25 µW or less 1 GHz - 4 GHz: 0.25 µW or less
Residual modulation	-40dB or less

● Receiver

Receiving system	Double superheterodyne
1st IF	58.05 MHz
2nd IF	450 kHz
Local oscillation frequency	Receiving frequency + 58.05 MHz
Local oscillation method	Frequency synthesizer
Frequency accuracy	±10 x 10^{-6} or less
Sensitivity (Phone)	6 dBµV or less (SINAD=20dB)
Sensitivity (DSC)	1 % or lower symbol error rate at 0 dBµV
Selectivity	6 dB bandwidth: 12 kHz or more, 70 dB selectivity: 25 kHz or less
Signal-to-Noise ratio	40 dB or more
Audio output variance	3 dB or less
De-emphasis characteristics	6 dB/oct, within +1 dB, -3 dB
Co-channel selectivity	-10 - 0 dB
Adjacent channel selectivity	70 dB or more
Desensitization effect (Phone)	80 dBµV or more
Desensitization effect (DSC)	4.47 mV during interference input; 1 % or lower CER
Spurious response (Phone)	80 dB or more
Spurious response (DSC)	4.47 mV during interference input; 1 % or lower CER
Intermodulation characteristics (Phone)	70 dB or more
Intermodulation characteristics (DSC)	2.5 mV during interference input; 1 % or lower CER
Blocking characteristics	90 dBµV or more
Radiation	9 kHz - 1 GHz: 2 nW or less, 1 GHz - 4 GHz: 20 nW or less
Squelch mute	-40 dB or less
Squelch open level	+6 dBµV or less
Overall distortion	10 % or less

● CH70 Watchkeeping Receiver

Receiving frequency	156.525 MHz (CH70)
Receiving system	Double superheterodyne
1st IF	50.85 MHz
2nd IF	450 kHz
Local oscillation frequency	Receiving frequency + 50.85 MHz
Local oscillation method	Frequency synthesizer
Local oscillation freq. variance	±10 x 10^{-6} or less
Sensitivity	1% or lower symbol error rate at 0dBμV
Selectivity	6dB bandwidth: 12kHz or more, 70dB selectivity: 25kHz or less
De-emphasis characteristics	6dB/oct, within +1dB, -3dB
Co-channel selectivity	SER is less than 10^{-2} when -8 dB of interference is added
Adjacent channel selectivity	4.47 mV during interference input; 1% or lower CER
Desensitization effect	4.47 mV during interference input; 1% or lower CER
Spurious response	4.47 mV during interference input; 1% or lower CER
Intermodulation characteristics	2.5 mV during interference input; 1% or lower CER
Blocking characteristics	BER is less than 10^{-2} when 90 dB of interference is added
Radiation	9 kHz - 2 GHz: 2 nW or less

● DSC/ATIS Modem

Modulation rate	1200 baud (within 600 Hz ± 30 ppm)
Modulation method	FSK
Modulation index	DSC: 2.0 ±10 % or less ATIS: 1.0 ±10 % or less:
Mark frequency (Y)	1300 Hz ±10 Hz or less
Space frequency (B)	2100 Hz ±10 Hz or less
DSC protocol	ITU-R Recommendation M.493-14 (Class A)
DSC operation standards	ITU-R Recommendation M.541-9, M.689-2, M.821-1, M.1080-0
ATIS protocol, standards	ETSI EN 300 698 V2.2.1

● Display control panel

Microphone input impedance	2.2 kΩ balanced (NQW-980 use)
Standard modulation input	-40 dBm
Audio output	Built-in speaker (4 Ω): 6 W or more Handset phone (150 Ω): 1 mW or more
LCD	5-inch TFT color, 800x480 pixels, LED backlight, Maximum brightness 1000 cd/m^2
Operation buttons	Touch panel, power button, DISTRESS button, volume control, SQ control

9.2 Channel assignment tables

(1) ITU Channels (ITU-RR Appendix18)

CH	TX (MHz)	RX (MHz)	Simplex	Semi-duplex	Notes
01	156.050	160.650		●	
02	156.100	160.700		●	
03	156.150	160.750		●	
04	156.200	160.800		●	
05	156.250	160.850		●	
06	156.300	156.300	●		For inter-ship communications
07	156.350	160.950		●	
08	156.400	156.400	●		For inter-ship communications
09	156.450	156.450	●		For inter-ship communications
10	156.500	156.500	●		For inter-ship communications
11	156.550	156.550	●		
12	156.600	156.600	●		
13	156.650	156.650	●		For inter-ship communications
14	156.700	156.700	●		
15	156.750	156.750	●		For inter-ship communications
16	156.800	156.800	●		Distress, Safety and Calling
17	156.850	156.850	●		For inter-ship communications
18	156.900	161.500		●	
19	156.950	161.550		●	
1019	156.950	156.950	●		
2019		161.550	●		Transmission prohibited
20	157.000	161.600		●	
1020	157.000	157.000	●		
2020		161.600	●		Transmission prohibited
21	157.050	161.650		●	Digital data comm has priority.
22	157.100	161.700		●	Digital data comm has priority.
23	157.150	161.750		●	Digital data comm has priority.
24	157.200	161.800		●	Digital data comm has priority.
25	157.250	161.850		●	Digital data comm has priority.
26	157.300	161.900		●	Digital data comm has priority.
1027	157.350	157.350	●		
1028	157.400	157.400	●		
60	156.025	160.625		●	
61	156.075	160.675		●	
62	156.125	160.725		●	
63	156.175	160.775		●	
64	156.225	160.825		●	
65	156.275	160.875		●	
66	156.325	160.925		●	
67	156.375	156.375	●		
68	156.425	156.425	●		
69	156.475	156.475	●		For inter-ship communications
70	156.525	156.525	●		For DSC operation only
71	156.575	156.575	●		
72	156.625	156.625	●		For inter-ship communications
73	156.675	156.675	●		
74	156.725	156.725	●		
75	156.775	156.775	●		Fixed at 1W
76	156.825	156.825	●		Fixed at 1W
77	156.875	156.875	●		For inter-ship communications
78	156.925	161.525		●	
1078	156.925	156.925	●		
2078		161.525	●		Transmission prohibited
79	156.975	161.575		●	
1079	156.975	156.975	●		
2079		161.575	●		Transmission prohibited
80	157.025	161.625		●	Digital data comm has priority.
81	157.075	161.675		●	Digital data comm has priority.
82	157.125	161.725		●	Digital data comm has priority.
83	157.175	161.775		●	Digital data comm has priority.
84	157.225	161.825		●	Digital data comm has priority.
85	157.275	161.875		●	Digital data comm has priority.
86	157.325	161.925		●	Digital data comm has priority.
87	157.375	157.375	●		
88	157.425	157.425	●		

(2) USA Channels (FCC 47 CFR Part 80: 80.215, 80.371 and 80.373)

CH	TX (MHz)	RX (MHz)	Simplex	Semi-duplex	Notes
01A	156.050	156.050	●		
02					Unused
03					Unused
04					Unused
05A	156.250	156.250	●		
06	156.300	156.300	●		For inter-ship communications
07A	156.350	156.350	●		
08	156.400	156.400	●		For inter-ship communications
09	156.450	156.450	●		
10	156.500	156.500	●		
11	156.550	156.550	●		
12	156.600	156.600	●		
13	156.650	156.650	●		1W default (momentary 25W)
14	156.700	156.700	●		
15		156.750			Transmission prohibited
16	156.800	156.800	●		Distress, Safety and Calling
17	156.850	156.850	●		
18A	156.900	156.900	●		
19A	156.950	156.950	●		
20	157.000	161.600		●	
20A	157.000	157.000	●		For inter-ship communications
21A	157.050	157.050	●		For USCG (General use prohibited)
22A	157.100	157.100	●		
23A	157.150	157.150	●		For USCG (General use prohibited)
24	157.200	161.800		●	
25	157.250	161.850		●	
26	157.300	161.900		●	
27	157.350	161.950		●	
28	157.400	162.000		●	
60					Unused
61					Unused
62					Unused
63A	156.175	156.175	●		
64					Unused
65A	156.275	156.275	●		
66A	156.325	156.325	●		
67	156.375	156.375	●		1W default (momentary 25W)
68	156.425	156.425	●		
69	156.475	156.475	●		
70	156.525	156.525	●		For DSC operation only
71	156.575	156.575	●		
72	156.625	156.625	●		For inter-ship communications
73	156.675	156.675	●		
74	156.725	156.725	●		
75	156.775	156.775	●		Fixed at 1W
76	156.825	156.825	●		Fixed at 1W
77	156.875	156.875	●		For inter-ship communications, fixed at 1W
78A	156.925	156.925	●		
79A	156.975	156.975	●		
80A	157.025	157.025	●		
81A	157.075	157.075	●		General use prohibited
82A	157.125	157.125	●		General use prohibited
83A	157.175	157.175	●		For USCG (General use prohibited)
84	157.225	161.825		●	
85	157.275	161.875		●	
86	157.325	161.925		●	
87	157.375	161.975		●	
88	157.425	157.425	●		For inter-ship communications

Note The "Unused" channels listed above cannot be set while in the USA channel mode.

(3) Canada Channels (INDUSTRY CANADA RBR-2)

CH	TX (MHz)	RX (MHz)	Simplex	Semi-duplex	Notes
01	156.050	160.650		●	
02	156.100	160.700		●	
03	156.150	160.750		●	
04A	156.200	156.200	●		For CCG (General use prohibited)
05A	156.250	156.250	●		
06	156.300	156.300	●		
07A	156.350	156.350	●		
08	156.400	156.400	●		
09	156.450	156.450	●		
10	156.500	156.500	●		
11	156.550	156.550	●		
12	156.600	156.600	●		
13	156.650	156.650	●		
14	156.700	156.700	●		
15	156.750	156.750	●		Fixed at 1W
16	156.800	156.800	●		Distress, Safety and Calling
17	156.850	156.850	●		Fixed at 1W
18A	156.900	156.900	●		
19A	156.950	156.950	●		For CCG (General use prohibited)
20	157.000	161.600		●	Fixed at 1W
21A	157.050	157.050	●		For CCG (General use prohibited)
21B		161.650	●		
22A	157.100	157.100	●		General use prohibited
23	157.150	161.750		●	
23B		161.750	●		
24	157.200	161.800		●	
25	157.250	161.850		●	
25B		161.850	●		
26	157.300	161.900		●	
27	157.350	161.950		●	
28	157.400	162.000		●	
28B		162.000	●		
60	156.025	160.625		●	
61A	156.075	156.075	●		For CCG (General use prohibited)
62A	156.125	156.125	●		For CCG (General use prohibited)
63A	156.175	156.175	●		
64	156.225	160.825		●	
64A	156.225	156.225	●		
65A	156.275	156.275	●		
66A	156.325	156.325	●		
67	156.375	156.375	●		
68	156.425	156.425	●		
69	156.475	156.475	●		
70	156.525	156.525	●		For DSC operation only
71	156.575	156.575	●		
72	156.625	156.625	●		
73	156.675	156.675	●		
74	156.725	156.725	●		
75	156.775	156.775	●		Fixed at 1W
76	156.825	156.825	●		Fixed at 1W
77	156.875	156.875	●		
78A	156.925	156.925	●		
79A	156.975	156.975	●		
80A	157.025	157.025	●		
81A	157.075	157.075	●		For CCG (General use prohibited)
82A	157.125	157.125	●		For CCG (General use prohibited)
83A	157.175	157.175	●		For CCG (General use prohibited)
83B		161.775	●		
84	157.225	161.825		●	
85	157.275	161.875		●	
86	157.325	161.925		●	
87	157.375	157.375	●		
88	157.425	157.425	●		

(4) IWW Channels (ETSI EN 300 698 V2.2.1)

CH	TX (MHz)	RX (MHz)	Simplex	Semi-duplex	Notes
01	156.050	160.650		●	
02	156.100	160.700		●	
03	156.150	160.750		●	
04	156.200	160.800		●	
05	156.250	160.850		●	
06	156.300	156.300	●		For inter-ship communications, fixed at 1W
07	156.350	160.950		●	
08	156.400	156.400	●		For inter-ship communications, fixed at 1W
09	156.450	156.450	●		
10	156.500	156.500	●		Fixed at 1W
11	156.550	156.550	●		Fixed at 1W
12	156.600	156.600	●		Fixed at 1W
13	156.650	156.650	●		Fixed at 1W
14	156.700	156.700	●		Fixed at 1W
15	156.750	156.750	●		Fixed at 1W
16	156.800	156.800	●		Distress, Safety and Calling
17	156.850	156.850	●		Fixed at 1W
18	156.900	161.500		●	
19	156.950	161.550		●	
1019	156.950	156.950	●		
2019		161.550	●		Transmission prohibited
20	157.000	161.600		●	
1020	157.000	157.000	●		
2020		161.600	●		Transmission prohibited
21	157.050	161.650		●	Digital data comm has priority.
22	157.100	161.700		●	Digital data comm has priority.
23	157.150	161.750		●	Digital data comm has priority.
24	157.200	161.800		●	Digital data comm has priority.
25	157.250	161.850		●	Digital data comm has priority.
26	157.300	161.900		●	Digital data comm has priority.
1027	157.350	157.350	●		
1028	157.400	157.400	●		
60	156.025	160.625		●	
61	156.075	160.675		●	
62	156.125	160.725		●	
63	156.175	160.775		●	
64	156.225	160.825		●	
65	156.275	160.875		●	
66	156.325	160.925		●	
67	156.375	156.375	●		
68	156.425	156.425	●		
69	156.475	156.475	●		
70	156.525	156.525	●		For DSC operation only
71	156.575	156.575	●		Fixed at 1W
72	156.625	156.625	●		For inter-ship communications, fixed at 1W
73	156.675	156.675	●		
74	156.725	156.725	●		Fixed at 1W
75	156.775	156.775	●		Fixed at 1W
76	156.825	156.825	●		Fixed at 1W
77	156.875	156.875	●		For inter-ship communications, fixed at 1W
78	156.925	161.525		●	
1078	156.925	156.925	●		
2078		161.525	●		Transmission prohibited
79	156.975	161.575		●	
1079	156.975	156.975	●		
2079		161.575	●		Transmission prohibited
80	157.025	161.625		●	Digital data comm has priority.
81	157.075	161.675		●	Digital data comm has priority.
82	157.125	161.725		●	Digital data comm has priority.
83	157.175	161.775		●	Digital data comm has priority.
84	157.225	161.825		●	Digital data comm has priority.
85	157.275	161.875		●	Digital data comm has priority.
86	157.325	161.925		●	Digital data comm has priority.
87	157.375	157.375	●		
88	157.425	157.425	●		

(5) Weather Channels (FCC Rule 47CER80.371(c) and 80.373(f))

CH	RX (MHz)	Notes
WX1	162.550	NOAA weather channel
WX2	162.400	NOAA weather channel
WX3	162.475	NOAA weather channel
WX4	162.425	NOAA weather channel
WX5	162.450	NOAA weather channel
WX6	162.500	NOAA weather channel
WX7	162.525	NOAA weather channel
WX8	161.650	CANADA CMB service
WX9	161.775	CANADA CMB service
WX0	163.275	NOAA weather channel (Assigned only)

(6) Private Channels (For fishing or specially assigned channels)

CH	Simplex/Semi-duplex	Frequency (MHz)
P001 - P200	Common to both simplex and semi-duplex	155.0000 - 163.5000

Note

- Register the frequencies in 10kHz, 12.5kHz or 25kHz steps.
- If TX and RX frequencies are different, the equipment is in semi-duplex mode.
- Private channels are registered at the installation of the equipment. If desired to add the other private channels after installation, contact JRC or our agency.

9.3 Options

(1) Controller (NCM-980)

Communication speed	125/ 250 kbps
Communication interface	CAN, IEC61162-450 Ed.1 (2011-06) (DIM)
Microphone input impedance	2.2kΩ balanced (NQW-980 use)
Standard modulation input	-40dBm
Audio output	Built-in speaker (4 Ω): 6 W or more Handset phone (150 Ω): 1 mW or more
LCD	5-inch TFT color, 800x480 pixels, LED backlight Maximum brightness 1000 cd/m^2
Operation buttons	Touch panel, power button, DISTRESS button, volume control, SQ control
Dimensions and mass	240 mm(W) × 96 mm(H) × 54 mm(D) [excluding projections] Approx. 0.9 kg

(2) AC/DC power supply (NBD-965)

Source voltage	100 VAC - 240 VAC (50/60Hz) and 24 VDC
Output voltage	AC Operation: 24 VDC (23.04 VDC - 24.96 VDC) DC Operation: 24 VDC (varies with input voltage)
Maximum output current	6.6 A
Source switching function	If AC if off, automatically changed to DC. (uninterrupted) If AC is restored, automatically changed to AC operation.
Temperature range for full performance	-25 °C - +60 °C
Operating temperature	-25 °C - +60 °C
Storage temperature	-30 °C - +70 °C
Humidity resistance	93 % at +40 °C with no condensation
Vibration resistance (3 axes)	2 Hz - 15.8 Hz Amplitude ±1 mm 15.8 Hz - 100 Hz Acceleration 1 G No abnormality after testing resonance points or at 30 Hz for more than 2 hours.
Continuous operation	No abnormality after operating continuously for 8 hours

(3) Printer (RP-D10)

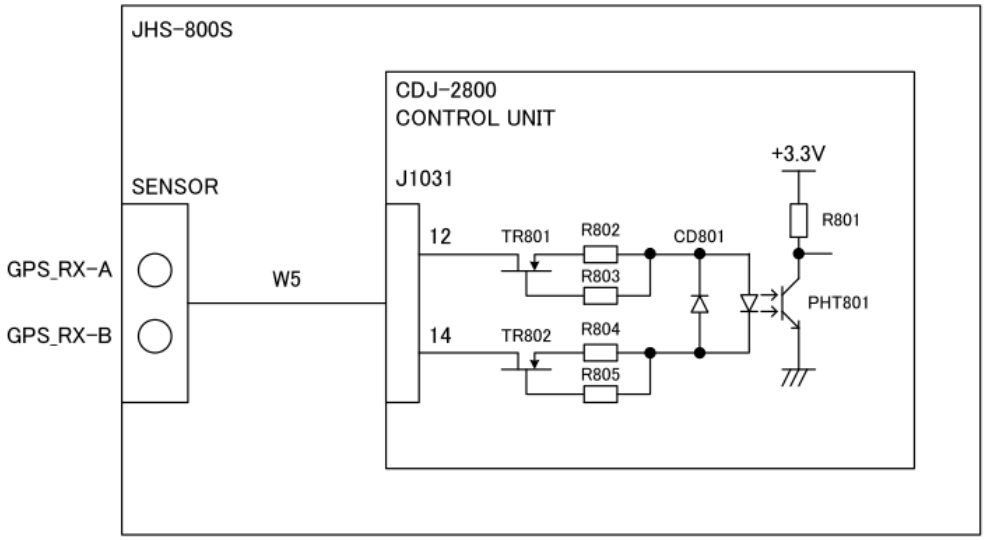
Printing system	Thermal line system
Communication interface	Ethernet (10Base-T/100Base-TX)
Data buffer	4096 bytes
Maximum print speed	200 mm/sec
Roll paper width	80 mm
Power voltage	24 VDC (±5 %)
Current consumption	Maximum 3.9 A

9.4 Peripheral interfaces

(1) GPS or other navigation aids interface

Serial	Interface standard	NMEA0183/IEC61162-1 Ed.4 (2010-11) compliant
	Protocol	4800 bps, start 1 bit, data 8 bit, stop 1 bit, non parity
LAN	Interface standard	IEC61162-450 Ed.1 (2011-06) compliant
Input sentence		NMEA0183 V1.5: GGA/ GLL/ RMC V2.0: GGA/ GLL/ RMC/ ZDA V2.3: GGA/ GLL/ RMC/ GNS/ ZDA (Talker = "GP" or other)
Data type		Ship position & time information: GGA/ GNS/ GLL/ RMC Date information: ZDA/ RMC Equipment time information: ZDA/ GGA/ GNS/ GLL/ RMC

(1.1) Interface circuits (NMEA0183/IEC61162-1)



- Load requirements

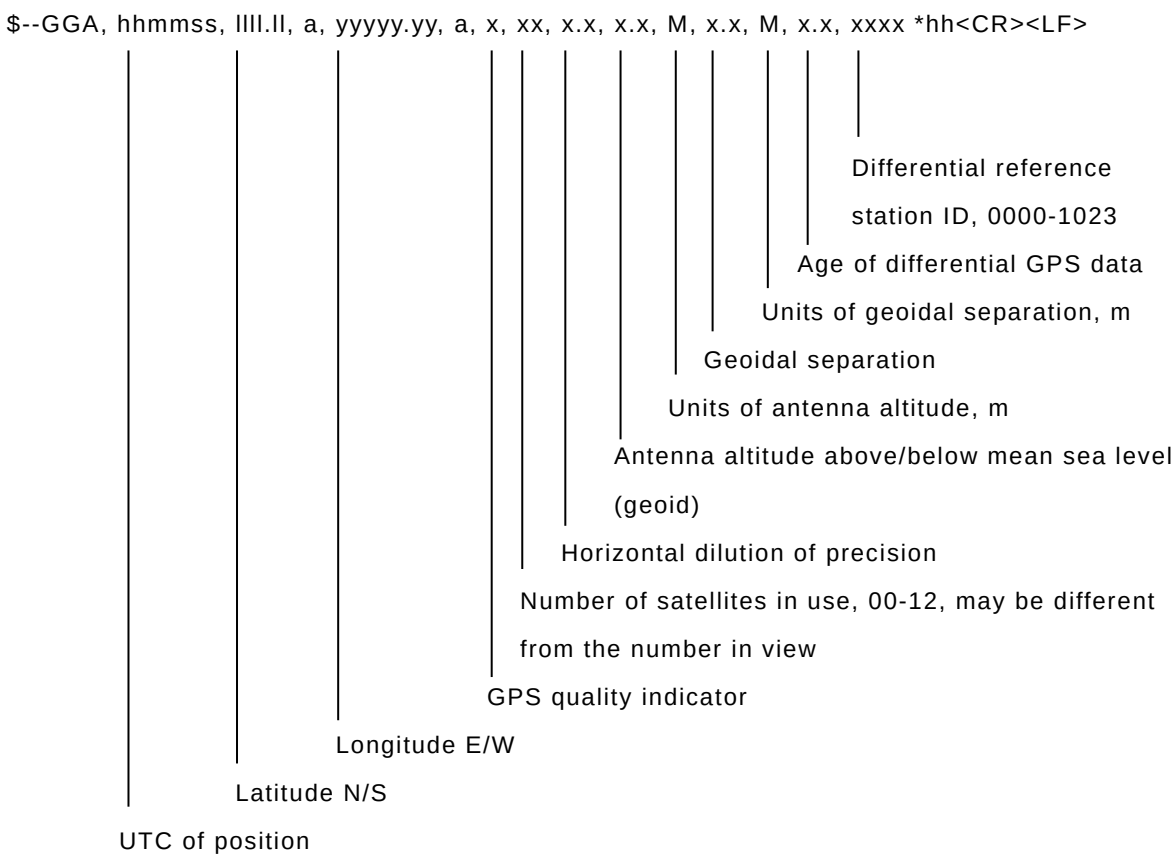
  Current consumption: 2 mA at 2 V or less

  Maximum input voltage: ±15 V or more

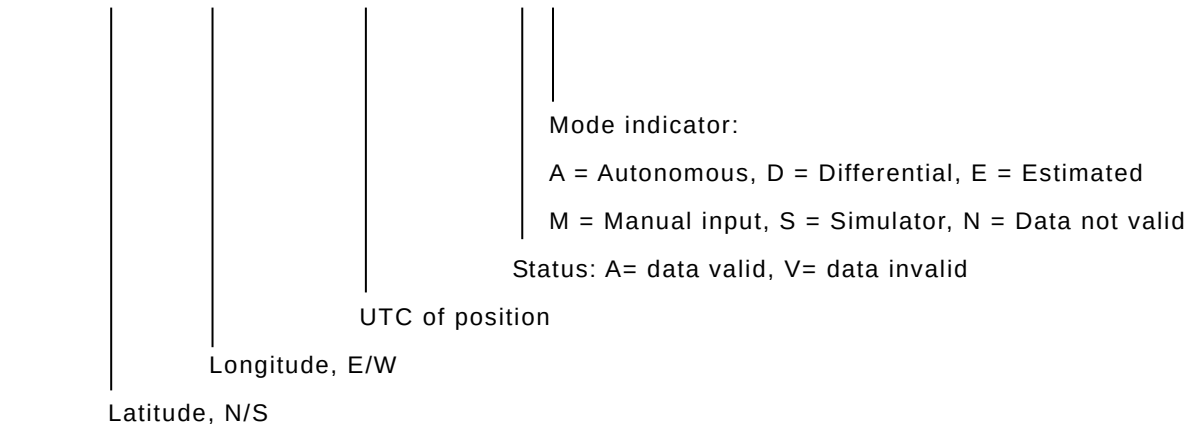
  Recommended operating current: 2 mA or more

(1.2) List of sentences and associated data fields

(1.2.1) GGA – Global positioning system (GPS) fix data

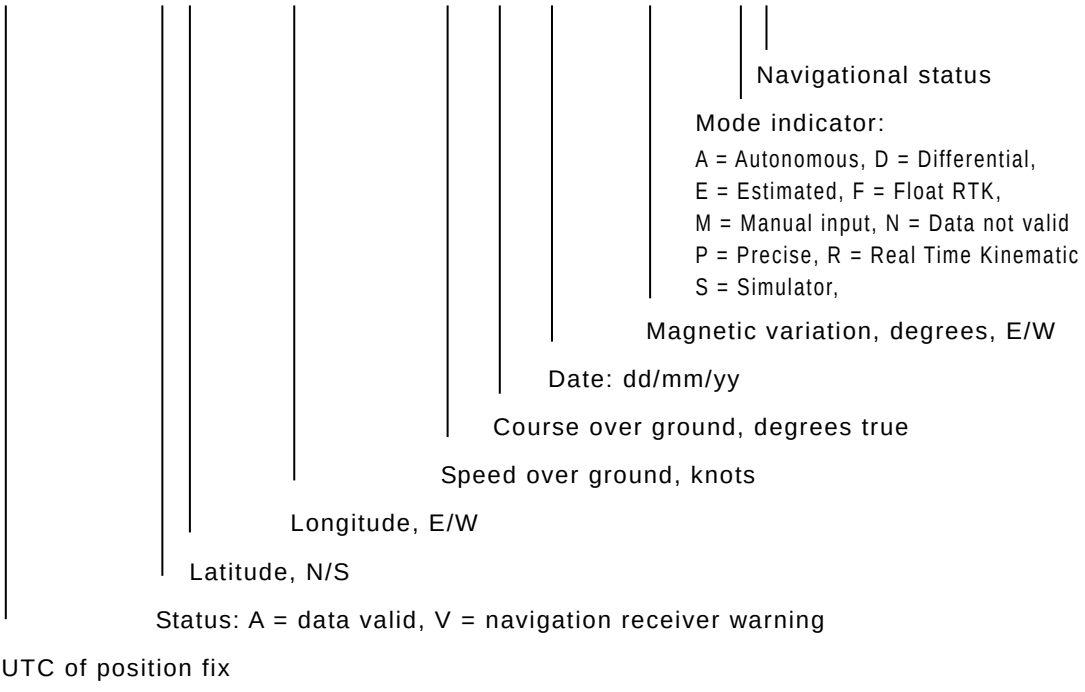


(1.2.2) GLL – Geographic position – Latitude/longitude



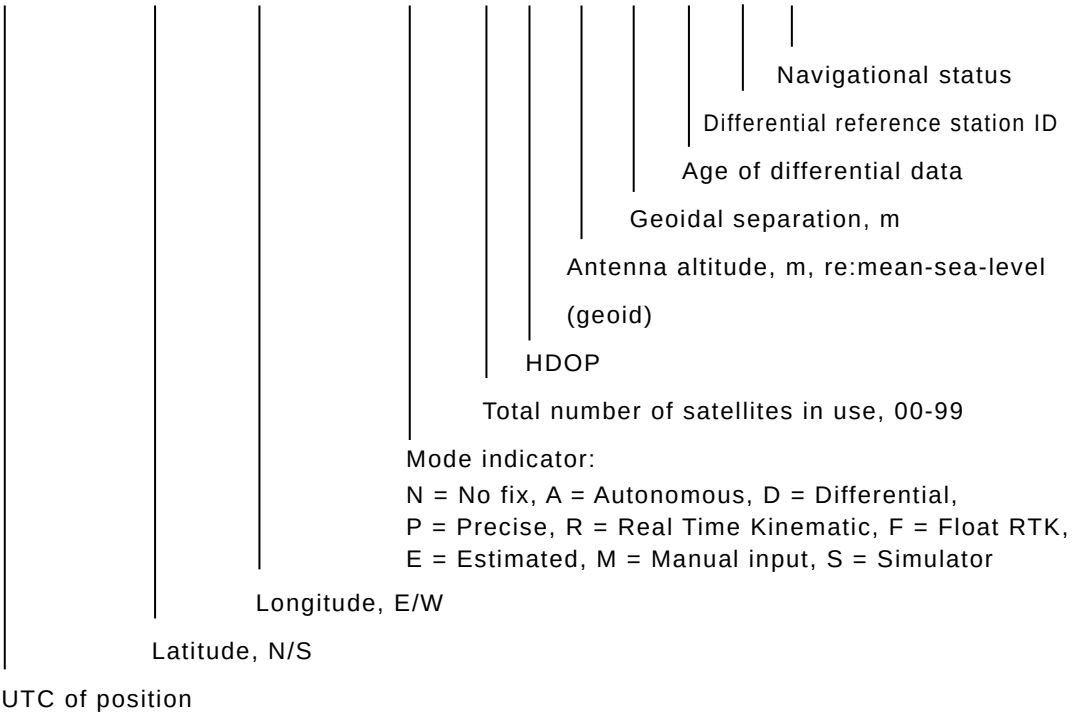
(1.2.3) RMC – Recommended minimum specific GNSS data

$--RMC, hhmmss.ss, A, llll.ll, a, yyyyy.yy, a, x.x, x.x, xxxxxx, x.x, a, a, a *hh<CR><LF>



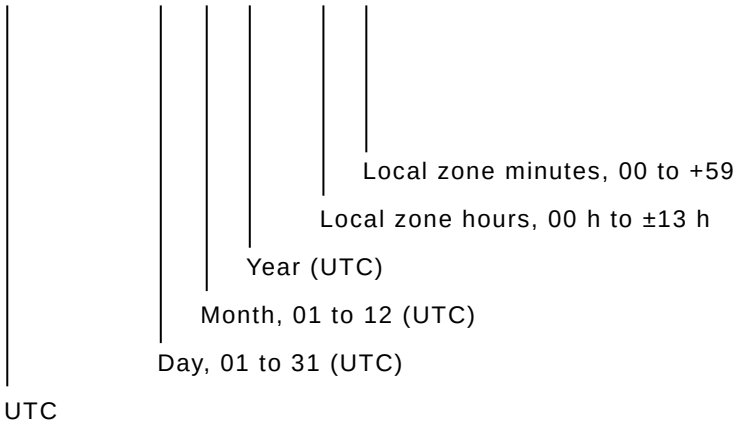
(1.2.4) GNS – GNSS fix data

$--GNS, hhmmss.ss, llll.ll, a, yyyyy.yy, a, c---c, xx, x.x, x.x, x.x, x.x, x.x, a *hh<CR><LF>



(1.2.5) ZDA – Time and date

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



(1.3) Indication about the positioning system and the quality type

1) Indication for GGA sentence

QI	Description	Operating state	Quality	
			valid	invalid
0	Fix not available or invalid	INVALID		●
1	GPS SPS (Standard Positioning Service) mode	STD GPS	●	
2	Differential GPS, SPS mode	STD DGPS	●	
3	GPS PPS (Precise Positioning Service) mode	PREC GPS	●	
4	Real Time Kinematic mode	RTK GPS	●	
5	Float RTK mode	FRTK GPS	●	
6	Estimated (dead reckoning) mode	GPS @EST		●
7	Manual input mode	GPS @MAN		●
8	Simulator mode	GPS @SIM		●

Note

When receiving the GGA sentence, the quality type is checked using the Quality Indicator (QI) as mentioned in the table above.

- If the quality is valid, the operating state is indicated with the position and time information.
- If the quality is invalid, the next GNS sentence is referred.

2) Indication for GNS sentence

Device	MI	Description	Operating state	Quality	
				valid	invalid
GPS	A	Autonomous	STD GPS	●	
	D	Differential	STD DGPS	●	
	E	Estimated (dead reckoning) mode	GPS @EST		●
	F	Float Real Time Kinematic	FRTK GPS	●	
	M	Manual input mode	GPS @MAN		●
	N	No fix	INVALID		●
	P	Precise Positioning Service	PREC GPS	●	
	R	Real Time Kinematic	RTK GPS	●	
	S	Simulator mode	GPS @SIM		●
GLONASS	A	Autonomous	STD GLO	●	
	D	Differential	STD DGLO	●	
	E	Estimated (dead reckoning) mode	GLO @EST		●
	F	Float Real Time Kinematic	FRTK GLO	●	
	M	Manual input mode	GLO @MAN		●
	N	No fix	INVALID		●
	P	Precise Positioning Service	PREC GLO	●	
	R	Real Time Kinematic	RTK GLO	●	
	S	Simulator mode	GLO @SIM		●
Galileo	A	Autonomous	STD GAL	●	
	D	Differential	STD DGAL	●	
	E	Estimated (dead reckoning) mode	GAL @EST		●
	F	Float Real Time Kinematic	FRTK GAL	●	
	M	Manual input mode	GAL @MAN		●
	N	No fix	INVALID		●
	P	Precise Positioning Service	PREC GAL	●	
	R	Real Time Kinematic	RTK GAL	●	
	S	Simulator mode	GAL @SIM		●
Others	A	Autonomous	STD OTH	●	
	D	Differential	STD DOTH	●	
	E	Estimated (dead reckoning) mode	OTH @EST		●
	F	Float Real Time Kinematic	FRTK OTH	●	
	M	Manual input mode	OTH @MAN		●
	N	No fix	INVALID		●
	P	Precise Positioning Service	PREC OTH	●	
	R	Real Time Kinematic	RTK OTH	●	
	S	Simulator mode	OTH @SIM		●

Note

When receiving the GNS sentence, and if the Navigational status in that sentence is S (Safe), the quality type is checked using the Mode Indicator (MI) as mentioned in the table above.

- If the quality is valid, the operating state is indicated with the position and time information.
- If the quality is invalid, or the Navigational status is C (Caution), U (Unsafe) or V (Not valid), the next GLL sentence is referred.

3) Indication for GLL sentence

MI	Description	Operating state	Quality	
			valid	invalid
A	Autonomous	STD GPS	●	
D	Differential	STD DGPS	●	
E	Estimated (dead reckoning) mode	GPS @EST		●
M	Manual input mode	GPS @MAN		●
S	Simulator mode	GPS @SIM		●
N	No fix	INVALID		●

Note

When receiving the GLL sentence, and if the Status in that sentence is A (Data valid), the quality type is checked using the Mode Indicator (MI) as mentioned in the table above.

- If the quality is valid, the operating state is indicated with the position and time information.
- If the quality is invalid, or the Status is V (Data invalid), the next RMC sentence is referred.

4) Indication for RMC sentence

MI	Description	Operating state	Quality	
			valid	invalid
A	Autonomous	STD GPS	●	
D	Differential	STD DGPS	●	
E	Estimated (dead reckoning) mode	GPS @EST		●
F	Float Real Time Kinematic	FRTK GPS		●
M	Manual input mode	GPS @MAN		●
N	No fix	INVALID		●
P	Precise Positioning Service	PREC GPS	●	
R	Real Time Kinematic	RTK GPS		●
S	Simulator mode	GPS @SIM		●

Note

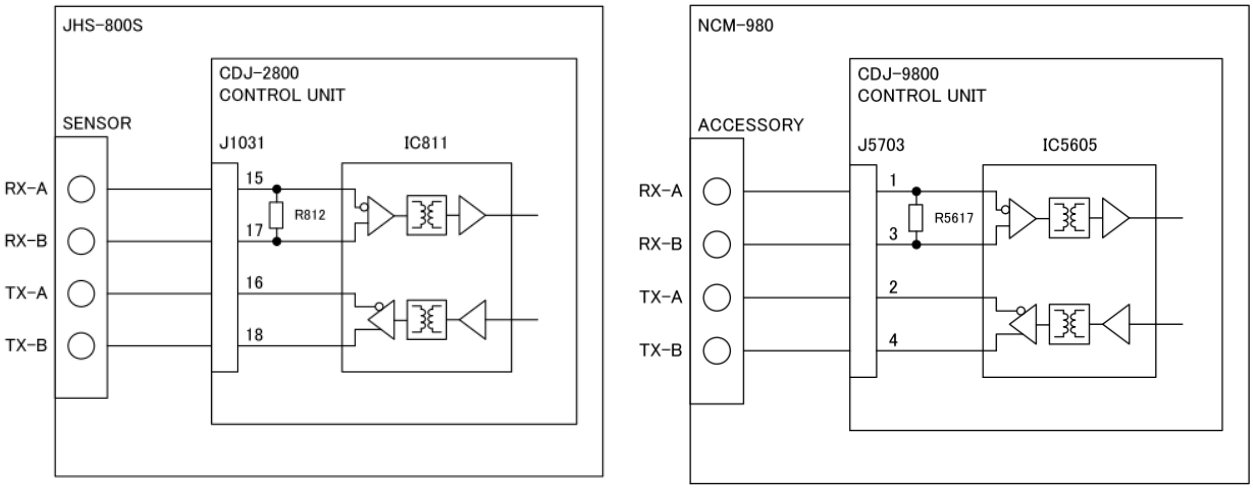
When receiving the RMC sentence, and if the Status in that sentence is A (Data valid) and the Navigational status is S (Safe), the quality type is checked using the Mode Indicator (MI) as mentioned in the table above.

- If the quality is valid, the operating state is indicated with the position and time information.
- If the quality is invalid, or if the Status is V (Data invalid) or the Navigational status is C (Caution), U (Unsafe) or V (Not valid), the operating state decided by the Quality Indicator, Status or Mode indicator of the receiving highest priority sentence (GGA> GNS> GLL> RMC) is displayed on the screen.

(2) AIS interface

Serial	Interface standard	IEC61162-2 Ed.1 (1998-09) compliant
	Protocol	38.4kbps, start 1bit, data 8bit, stop 1bit, Non parity
LAN	Interface standard	IEC61162-450 Ed.1 (2011-06) compliant
Input sentence/message		VDM sentence: VDL1-5, 9, 18, 19 VDO sentence: VDL1-3, 18 ALR sentence: 003, 004, 026, 062, 065 (Talker = "AI" only)
Data type		Name and identification number of other ship Position information of other ship AIS type (Class A/B/Base station, SAR) Position data for own ship

(2.1) Interface circuits (IEC61162-2)



(NCM-980 peripheral devices are only DIM.)

■ Electric characteristic

<RX>

Input Current: ±70mA at ±7V

Maximum differential input voltage: ±15V or more

<TX>

Maximum differential output voltage: ±3.6V

Maximum output current: 200mA

(3) RMS interface

LAN	Interface standard	IEC61162-450 Ed.1 (2011-06) compliant
Output message		IEC61162-1 Ed.4 (2010-11) compliant proprietary sentence $PJRCL sentence (for RMS log saving) $PJRCM sentence (Device ID = "CV")
Data type		Device model name, serial number, self-diagnosis information, etc.

(4) BAM(MFD) interface

Serial	Interface standard	IEC61162-2 Ed.1 (1998-09) compliant
	Protocol	38.4kbps, start 1bit, data 8bit, stop 1bit, non parity
LAN	Interface standard,	IEC61162-450 Ed.1 (2011-06) compliant
Input / Output sentence		ALC sentence (“Manufacturer mnemonic code” field is unused) (Interval is 20sec) ALF sentence (“Manufacturer mnemonic code” and “Escalation counter” fields are unused) ACN sentence (Only input) ARC sentence (“Manufacturer mnemonic code” field is unused) HBT sentence (Interval is 10sec) (Talker = "BN" or other, Device ID = "CV")
Data type		Alert state of a device

(5) DIM interface

Serial	Interface standard	IEC61162-2 Ed.1 (1998-09) compliant
	Protocol	38.4kbps, start 1bit, data 8bit, stop 1bit, non parity
LAN	Interface standard,	IEC61162-450 Ed.1 (2011-06) compliant
Input / Output sentence		DDC sentence (Talker = "NL" or other, Device ID = "CV")
Data type		Equipment display brightness

9.5 Software license information

This equipment includes the software where the GNU General Public License (GPL) is applicable. Our customers who desire to do so can obtain, modify or redistribute the source code of the applicable software.

To obtain the source code, please contact us at the following e-mail address.

E-mail address:	tmsc@jrc.co.jp
E-mail title:	Request for source code based on the GPL
Necessary information:	1. Product name 2. Model number 3. Serial number 4. Customer's company name and office location 5. Vessel name or IMO number 6. Message text, for example as follows; "Send us the source code of the target software of the product mentioned above."

NOTE1: Customer is responsible for the cost concerning providing the source code.

NOTE2: The source code is WITHOUT ANY WARRANTY. And also, we cannot respond to any questions concerning the GPL source codes.

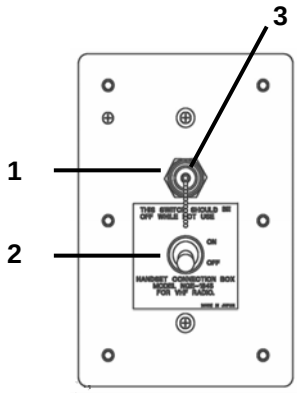
10. OPTIONS OPERATION

10.1 Handset connection box (NQE-1845/1846/1847B)

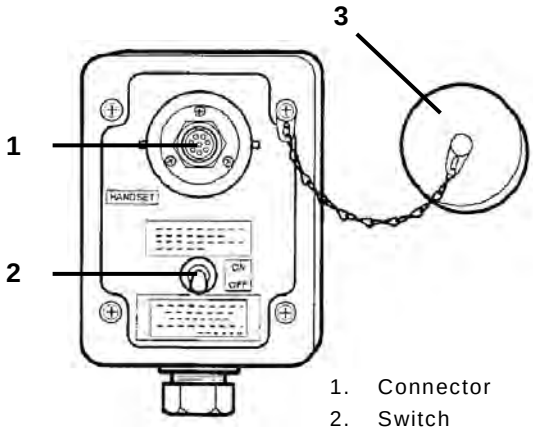
There are three types of handset connection boxes: a waterproof flush mount type for a wing console (NQE-1845), a waterproof wing installation type (NQE-1846) and an indoor flush mount type (NQE-1847B).

⚠ CAUTION

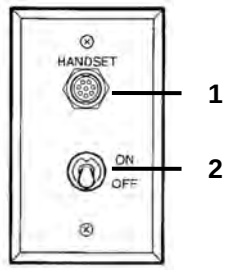
Close the water-resistant cap of the waterproof type handset box after use. Rain and sea breeze could cause connector malfunction. Also do not leave the handset above deck.



Waterproofed
flush mount type
for wing console
(NQE-1845)



Waterproofed
wing installation type
(NQE-1846)



Indoor flush mount type
(NQE-1847B)

1. Connector
2. Switch
3. Waterproof cap

■ Procedure ■

1. In the case of the waterproof type, remove the water-resistant cap.
2. Connect the handset (NQW-980) to the connector.
3. Turn ON the switch to start communications.

   The access right is obtained by turning on this switch.

   (This switch is equivalent to hook switch of the handset.)

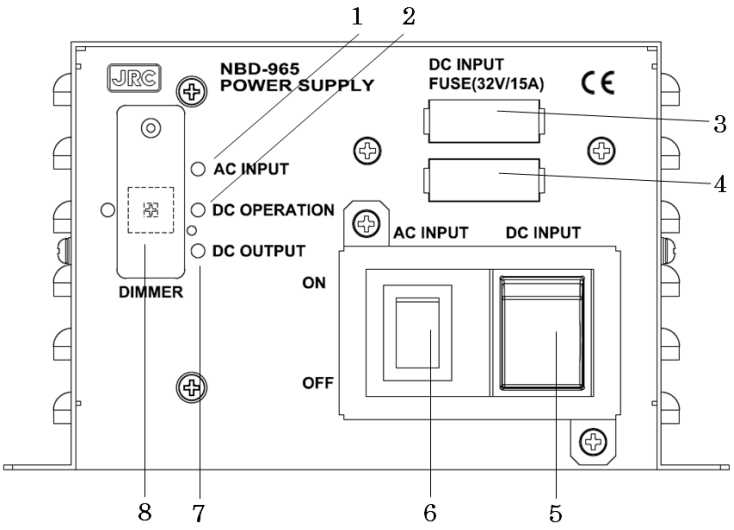
Note
- Always turn off the switch when not in use.
- Even if the switch is turned on, while another controller with higher priority is in use, the access right will not be obtained.

10.2 AC/DC power supply (NBD-965)

⚠ WARNING

Before replacing fuses of the AC/DC POWER SUPPLY (NBD-965), always turn off the AC/DC power switch and power source output to this unit.

Always use the specified fuse when replacing a fuse. Using a different fuse may result in fire or malfunction.



1. AC INPUT lamp
2. DC OPERATION lamp
3. DC fuse (+)
4. DC fuse (-)
5. DC switch
6. AC switch
7. DC OUTPUT lamp
8. Dimmer control

■ Procedure ■

1. Turn on both of the AC and DC switches.

If there is no AC power connected, turn on the DC power switch only.

2. Confirm that the DC OUTPUT lamp is lit.

If this lamp is lit, 24VDC power is being output properly.

Note

- If the switch is turned on the DC OUTPUT lamp does not light, except for the dimmer control position, there may be a malfunction with the AC/DC input power voltage, or a fuse may have been blown.
- If only DC power is used, the DC OPERATION lamp light. Be careful not to over discharge the battery.

10.3 Printer (RP-D10)

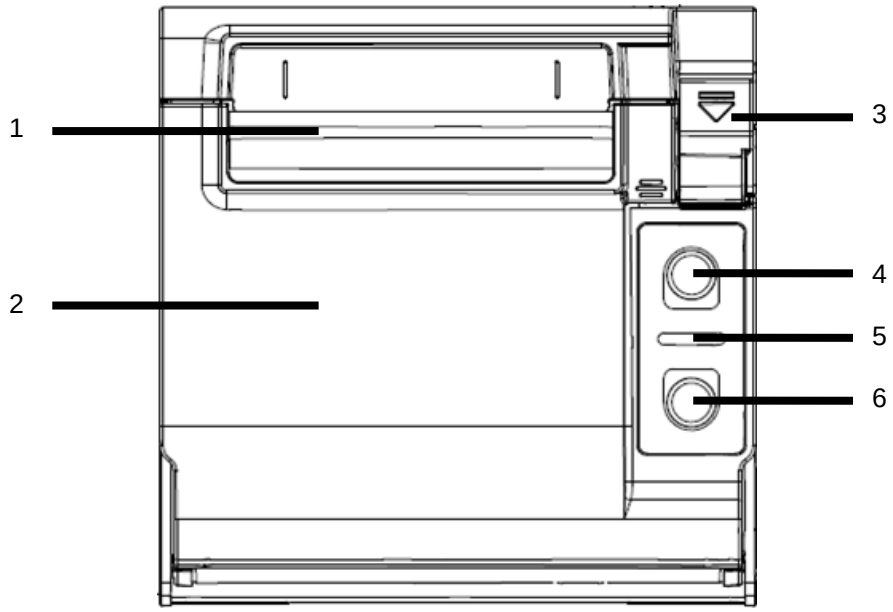
⚠ CAUTION

The thermal head of the printer may be very hot after printing. Do not touch it. Perform paper replacement and head cleaning only after waiting for the head to completely cool.

Do not put your finger etc. because there is a cutter blade at the paper discharge port. Also, do not touch the blade of the cutter when opening the paper cover.

The printing paper used in this printer is a heat sensitive paper. Take the following precautions when using this paper.

- Store the paper away from heat, humidity, or heat sources.
- Do not rub the paper with any hard objects.
- Do not place the paper near organic solvents.
- Do not allow the paper to come in contact with polyvinyl chloride film, erasers, or adhesive tape for long periods of time.
- Keep away the paper from freshly copied diazo type or wet process copy paper.



1. Paper slit
2. Roll paper cover
3. Release lever
4. Feed button
5. LED lamp
6. Power switch

■ Turning the power on / off ■

When the external power is supplied to the NBG-980 Power supply connected to the printer, the printer is turned on immediately.

- To turn off the printer, press and hold the power switch for more than 5 seconds.
- When turning on the printer again after turning off using the power switch, press and hold the power switch until the LED lights up in orange. After lighting up, the LED turns off immediately but the power is ON.

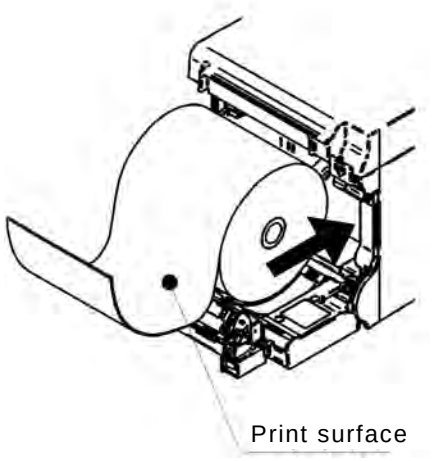
■ Loading the printer paper ■

1. Pull the release lever.

   The paper cover is opened.

2. Insert the paper as shown at right.

   Position the paper such that the edge extends outside the printer, and press the both sides of the paper cover to close it. When the paper cover is closed, paper feed and cutting of the leading edge of the paper are done automatically.

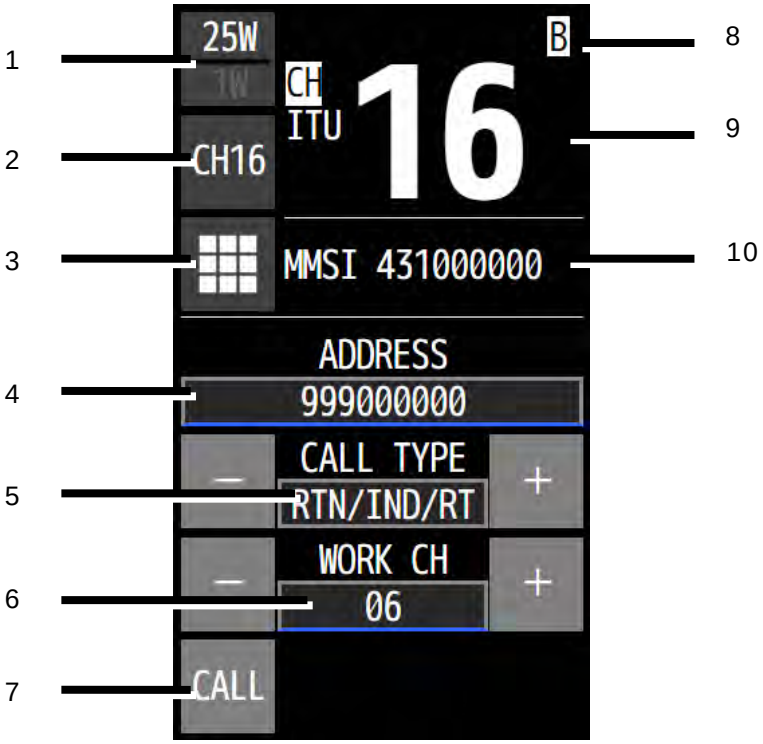


10.4 Remote control from ECDIS or Marine radar

The equipment is connectable to the ECDIS model JAN-7200/ 9200 series or the Marine radar model JMR-7200/ 9200 series and the remote control such as the channel setting and DSC calls from them are available.

NOTE: For details of environmental settings, refer to the manual of the ECDIS or the Marine radar.

■ VHF Call dialog ■



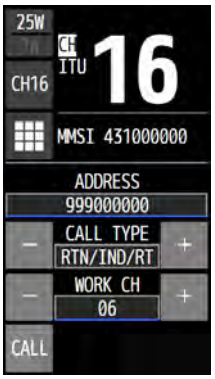
1. Transmission power changing button (25W/1W)
2. Priority channel (CH16) setting button
3. Ten-key icon button
4. Receiver address (MMSI) entry field
5. DSC call type selector
6. Working channel entry field
7. DSC call transmission button
8. Bluetooth pairing indicator
9. Channel information display
10. Own ship's ID (MMSI) indicator

■ Making a DSC call ■

The following describes the procedure to make a call from the screen of the ECDIS or Marine radar.

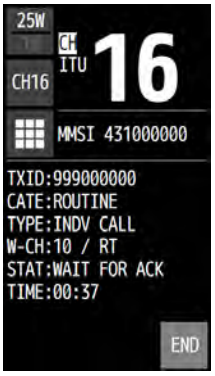
1. Right-click the AIS target on the ECDIS chart or Marine radar PPI to open the context menu, and then click the VHF Call on it.

- Using the MMSI obtained from the AIS target, the VHF Call dialog as shown at right is displayed.
- The working channel is automatically selected.
- The DSC call type and/or the working channel can be changed manually, if required.
- The category of the DSC call type is restricted to either safety or routine.



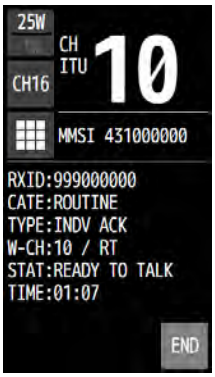
2. Click the CALL button to transmit the DSC call.

After checking the free channel, the equipment transmits the DSC call and then starts waiting for the acknowledgement.



3. When the acknowledgement is received, the working channel is set automatically and the screen as shown at right is displayed.

- Start communications using the handset or the wireless speaker microphone.
- When completed the communications, click the END button. And then, click the CH16 button to return to the CH16.



Note

- While the main unit or the controller is in use, this VHF remote control screen may display the message that the remote control function is not available. In this case, retry the operation after completed the operation on the main unit or the controller.
- When calling a receiver station on the CH16 using radiotelephony and after that changing to another working channel, click the ten-key icon button and use the numeric keypad at right to set the channel.
- To return from the screen at right to the DSC menu screen, click the DSC OPE button.

Marking with market circulation mark

We Japan Radio Co., Ltd. declare that the JRC VHF JHS-800S corresponds with Technical regulations concerning the safety of sea transport facilities (approved by the Russian Federal Government in its Order No. 620 of August 12, 2010).

1. Products Classification (Annex 1 to Technical regulations concerning the safety of sea transport facilities)

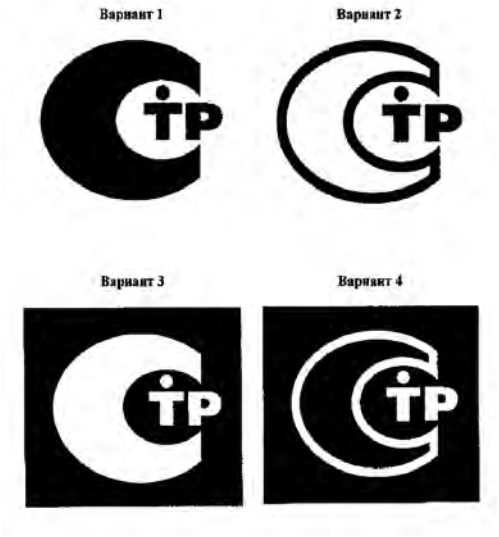
All Russian Products Classification Code	Designation of technical regulation item	Regulations of 1974* Convention, Resolutions and Circulars of International Maritime Organization which should be met by technical regulation items
6481100	VHF Receiver (radio installation) capable of DSC transmitting and receiving on channel 70	Reg. IV/14, Reg. X/3 Resolution MSC.36 (63), Paragraph 14.13.1 of HSC Code, 1994* (9) Resolution MSC.97 (73), Reg. 13.17.1 of HSC Code, 2000* (2) Reg. IV/7.1.2, Paragraph 14.6.1.2 of HSC Code, 1994* (9) Resolution MSC.97 (73), Paragraph 14.7.1.2 of HSC Code, 2000* (2) Resolution A.803 (19), Annex 1 to Resolution MSC.68 (68), Resolution A.694 (17)

* International Convention for the Prevention of Pollution from Ships as Modified by the Protocol of 1978 1978 Relating Thereto (Convention, 1973);

2. Present procedures for products intended for operation in the territory of the Russian Federation for ships entitled to fly the flag of the Russian Federation:

2.1 Warning signs (Warning Labels) to be made in the Russian language.

2.2 The products labeled with a conformity mark, as prescribed by the Russian Federation laws concerning technical regulation (The Russian Federation Government Order “On Conformity Mark” No. 696 of 19 November 2003).



2.3 Disposal (utilization) of products should be made in conjunction with the ship on a single technology or separately in accordance with the Federal Law of the Russian Federation No.89 FZ "On Waste of Production and Consumption".

JRC Japan Radio Co., Ltd.

电子信息产品有害物资申明
日本无线株式会社

Declaration on toxic & hazardous substances or elements
of Electronic Information Products
Japan Radio Company Limited

有毒有害物质或元素的名称及含量
(Names & Content of toxic and hazardous substances or elements)

形式名(Type): JHS-800S　　名称(Name): Marine VHF Radiotelephone

部件名称 (Part name)	有毒有害物质或元素 (Toxic and Hazardous Substances and Elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
天线 (Antenna)	×	○	×	×	×	×
船内装置 (Inboard Unit)	×	○	×	×	×	×
外部设备(Peripherals) ・选择(Options) ・打印机(Printer) ・电线类(Cables) ・手册(Documennts)	×	○	×	×	×	×

○:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11306-2006 标准规定的限量要求以下。
(Indicates that this toxic, or hazardous substance contained in all of the homogeneous materials for this part is below the requirement in SJ/T11363-2006.)

×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。
(Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T 11363-2006.)

RE: 中华人民共和国电子信息产品污染控制管理办法
Management Methods on Control of Pollution from Electronics Information Products of the People's Republic of China