

USER MANUAL

MARINE DSC VHF

STR- 7000A



Important Notice

Read this manual carefully before connecting power. For more information, please contact us or our distributor.

■ Check the power supply voltage:

Make sure that the voltage input to the power terminal of the VHF body is DC13.8V.

■ MIC and external speaker connection:

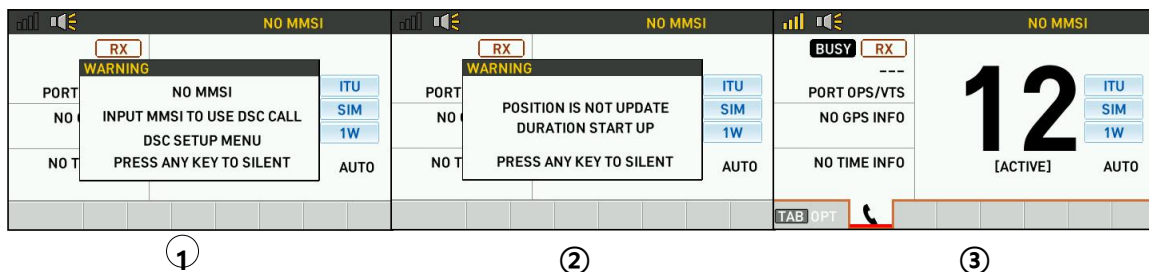
1. The MIC and external speakers must be connected with the VHF main unit powered off.
2. If you connect an external device while the power is on, it may cause damage to the inside of the device.

■ Antenna installation:

1. The antenna must be installed at a distance of more than 2m vertically and 6m horizontally from surrounding structures.
2. The minimum distance between VHF antennas should be at least 4m.
3. It should be installed as far away from the transmitting antenna of other equipment as possible.

■ Basic VHF operation:

1. If there is no MMSI inside VHF When power is supplied, an MMSI input request warning occurs → [CLAEAR] .
2. After turning on the power, an alarm occurs until the GPS signal is received → [CLAEAR] .
3. The alarm can be ignored with the [CLEAR] key a but the alarm occurs periodically.



■ Input MMSI for DSC:

1. DSC function can be used after entering the MMSI of own ship.
2. Since MMSI Can be entered only once, it must be entered carefully.

■ How to make a distress call :

1. Open the DISTRESS key cover and press the DISTRESS key button for 3 seconds.
2. Sending DISTRESS ALERT starts when countdown reaches zero.
3. It is transmitted repeatedly at intervals of 3 minutes and 30 seconds to 4 minutes and 30 seconds.
4. Never test DSC as it causes enormous damage to surrounding ships and search and rescue agencies.

■ How to stop distress call :

1. If it is transmitted by mistake, use the [△]/[▽] keys to select the [CANCEL] in the menu at the bottom of the screen and then press the [ENT] key.



2. "DO YOU WANT CANCEL DISTRESS ALERT? " → "NEXT" → [ENT].
3. "DISTRESS ALERT CANCEL COMPLETE! " → "NEXT" → [ENT].

■ GPS location information transmission ON/OFF:

1. OFF: [MENU] → DSC SETUP → POSITION → TYPE → NO INFO .
2. ON : [MENU] → DSC SETUP → POSITION → TYPE → AUTO .

■ Printer Maintenance:

The thermal paper used in the should be avoided as it may cause color development, discoloration, and fading.

- ① Store in a place with a lot of heat, humidity and light.
- ② Touch with sweaty hands
- ③ Rub it with a hard object
- ④ Pasting with organic solvents such as glue
- ⑤ Apply with adhesive tape
- ⑥ Prolonged contact with the film of vinyl chloride
- ⑦ Contact with diazo and wet COPY immediately after copying

- ⑧ Contact with organic solvents
- ⑨ Before using the printer, open the cover under the HP-283 printer and set the communication speed to 38400BPS by turning ON No. 1 of SW1 as shown in the picture below.



※ Refer to HP-283 manual

--- CONTENTS ---

CHAPTER 1 COMPONENTS	错误！未定义书签。
1.1 BASIC SET (STR-7000A-K-SPAK / 165508): 7	
▶ INSTALLATION MATERIALS (STR-7000A-A / S67347): 7	
1.2 OPTIONS (STR-7000A-K-OPT / S65509): 8	
CHAPTER 2 OVERVIEW	9
2.1 OVERVIEW 9	
2.2 FEATURE 9	
CHAPTER3 SPECIFICATION	错误！未定义书签。
3.1 STANDARDS 11	
3.2 SPECIFICATION 11	
3.3 TRANSMITTER 12	
3.4 RECEIVER 12	
3.5 DSC RECEIVER 13	
CHAPTER4 OPERATION	11
4.1 KEYS 14	
4.2 LCD DISPLAY 错误！未定义书签。	
4.3 VHF BASIC OPERATION 18	
4.4 DIGITAL SELECTIVE CALLING(DSC) 25	
4.5 BRIDGE ALERT MANAGEMENT(BAM) 48	
CHAPTER 5 INSTALLATION	错误！未定义书签。
5.1 PACKING AND INSPECTION 55	
5.2 INSTALLATION POSITION 55	
5.3 ANTENNA INSTALLATION AND POSITION 56	
5.4 ANTENNA CABLE AND CONNECTOR CONNECTION 57	
CHAPTER 6 CHANNEL	58
6.1 ITU CHANNEL : 58	
6.2 USA CHANNEL: 59	

- 6.3 CANADA CHANNEL: 60
- 6.4 WEATHER CHANNEL: 61

CHAPTER 7 POSITION INFORMATION INTERFACE 62

CHAPTER 8 DIAGRAM错误！未定义书签。

- 8.1 WIRING DIAGRAM 63
- 8.2 STR-7000A OUTLINE DRAWING64
- 8.3 BRACKET 65
- 8.4 FLUSH MOUNTING 66
- 8.5 SM-6000R MICE OUTLINE DRAWING67
- 8.6 SP-700 OUTLINE DRAWING 68
- 8.7 SAN-150 ANTENNA OUTLINE DRAWING 69
- 8.8 SS-6000 SPEAKER OUTLINE DRAWING (OPTIONAL) 70
- 8.9 JACK PLUG ASSEMBLY 71

APPENDIX 1. ALERT DESCRIPTION 72

APPENDIX 2. INTERFACE I/O CIRCUIT (BAM)..... 74

CHAPTER 1. COMPONENTS

STR-7000A consists of the following.

1.1 Basic Set (STR-7000A-K-SPAK / 165508):

NO	CODE	PART NUMBER	NOTE	Q'TY	CHECK
1	S65504	STR-7000A-E-UPAK	Unit Package	1	
1-1	S59062	STR-7000A-E	Main Unit	1	
1-2	S67347	STR-7000A-A	Installation materials	1	
2	S46528	SM-6000R-4M	Microphone	1	
3	S28139	SP-700	Power supply (DC/DC 13.8V)	1	
4	S36648	SP-700-A	Power Supply installation Materials.	1	
5	S18539	SAN-150	Antenna	1	
6	S18489	RG-8U-15M-V	Antenna Cable x 15M	1	
7	S18541	SAN-150-B (Ant. Bracket)	Bracket: 78X200 X1EA, U-bolt: Ø63 X 80mm X2EA	1	
8	S65527	STR-7000A-MK	User's Manual	1	

► Installation Materials (STR-7000A-A / S67347):

NO	CODE	PART NUMBER	NOTE	Q'TY	CHECK
1	S25798	Stainless truss bolt 4*16	1 type Stainless truss bolt 4*16	5	
2	S06726	MIC hanger	MIC hanger	1	
3	S42968	MIC hanger terminal	Terminal PG T/L 1.5SQ-3mm (blue)	1	
4	S08250	MIC hanger cable	cable KIV 1.5SQ x 2M	1	
5	S26509	MIC hanger bolt	1 type Stainless truss bolt 2.6*6	2	
6	S26382	MIC hanger install bolt	1 type Stainless truss bolt 3*16	2	
7	S05600	Power fuse (spare)	10A/250V[20mmX5mm]	2	
8	S57329	Power cable	VHF main power x 3M	1	
9	S26495	External GPS cable	RCA jack connection x 2M	1	
10	S47983	VHF main unit ground	5.5SQx4mm x 3M	1	
11	S11434	D-Sub connector	HDS-15P(3 row)	1	
12	S11423	D-Sub connector bolt	HOOD-09P HAND-BOLT TYPE	1	

1.2 Options (STR-7000A-K-OPT / S65509):

NO	CODE	PART NUMBER	NOTE	Q'TY	CHECK
1	S18490	RG-8U-30M-V	RG-8U antenna cable x 30M	1	
2	S48965	SCN7-5M-SCN7	Mic extension cable x 5M	1	
3	S31611	SS-6000	External speaker	1	
4	S45810	SAN-67S (Fixing Screw 4EA)	GPS Antenna (For fishing boat accident prevention)	1	
5	S61497	STR-7000B FLUSH MOUNT	STR-7000B flush mount bracket	1	
6	S18543	SAN-240	Antenna	1	
7	S21339	EMG-LIGHT DC24V	EMG-LIGHT	1	
8	S47354	HP-283	PLOT Printer	1	
9	S18883	SP-20DC	Printer power supply	1	
10	S18074	LK-6000A-A	Printer cable	1	
11	S18077	LK-T20-P-C	Printer power cable	1	

CHAPTER 2. OVERVIEW

2.1 Overview

This VHF radio is designed to be suitable as a VHF radio and DSC receiver that are required to be equipped on ships engaged in international voyages and coastal voyages in GMDSS (Global Maritime Distress Safety System), and is used for maritime mobile radio communication.

In addition to conventional voice communication, this facility has functions to perform distress communication, general communication, and DSC signal monitoring using digital selective calling (DSC), and has built-in features such as digital selective calling and CH70 DSC receiver.

2.2 Features

- Meets radio regulations of the International Telecommunication Union and IMO performance standards.
- All channels designated by the radio regulations of the International Telecommunication Union are programmed.
- It is small and lightweight. The transceiver and CH70 DSC receiver are built in the main unit, so the installation space is minimum and the installation work is easy.
- By adopting a wide-view angle graphic LCD, the display is easy to see and easy to operate even in various mounting positions.
- DSC operation is especially easy in addition to normal operation because the display by MENU format and the operation method required according to the purpose are displayed on the LCD.
- BACK-LIGHT lighting on the LCD and control buttons has a wide light range, so it does not interfere when on duty at night.
- It can also be operated on USA channels, weather channels and CANADA channels used in North America.
- Equipped with rich functions such as TAG CHANNEL SCANNING, ALL CHANNEL SCANNING, GROUP-CHANNEL SCANNING and DUAL WATCH, it is convenient to monitor signals of specific channels.

- Equipped with an automatic input function of location (latitude/longitude) data from navigation equipment such as GPS, and when sending a distress call, the location data from the navigation equipment is automatically inserted into the distress message and transmitted. In addition, when geographical call is received, it is automatically determined whether the own vessel is within the relevant sea area based on the location data from the navigation equipment.
- Water proof design
- High(25W) or Low(1W) transmission power selection function and automatic setting function.
- It is convenient to use the dedicated CH16 button for easy access to the priority channel.
- Built-in Dual/Trial Watch function and Tag Scan function
- DSC (Digital Selective Calling) function conforming to the Class-D standard. (However, built-in receiver for DSC, not exclusive receiver)
- FRIENDS (SHIP) list function that allows you to easily call DSC for up to 20 people you prefer.
- Ability to set 3 preferred groups. (for group DSC calls)
- Group DSC call and all vessel DSC call function.

CHAPTER 3. Specification

3.1 Standards

- ETSI EN 300 338-1 v1.6.1 (2021-05)ESTI DSC Common Requirements
- ETSI EN 300 338-2 v1.5.1 (2020-06)ESTI Class A DSC
- Rec. ITU-R M.493-15 (2019)Digital selective-calling system
- Rec. ITU-R M.541-10 (2015)Digital selective-calling equipment operation procedures
- IEC 61097-3, Ed.2 (2017-10)IEC standard, Digital selective-calling equipment operational and performance requirement
- IEC 62923-1, Ed.1 (2018-08)IEC standard, Bridge Alert Management operational and performance requirement
- IEC 62923-2, Ed.1 (2018-08)IEC standard, Bridge Alert Management standard alert identifier and features
- IEC 61162-1, ed.5 (2016-08)IEC standards, digital interfaces
- IEC 62288 Ed.2 (2014-07)IEC standards, display
- IMO Resolution MSC.302(87)Bridge Alert Management Standards
- IEC60945 Ed 4.0IEC standard, environmental requirements

3.2 Specification

- Transmit frequency156.025MHz ~ 157.425MHz
- Receive frequency.....156.050MHz ~ 163.275MHz
- Number of channels191 (ITU:63 , USA:57, CAN:61, WX:10)
- Radio wave formatFM(16K0G3E), DSC(16K0G2B)
- Channel Spacing25KHz
- Communication Method.....Simplex and semi-duplex
- Rated input voltage12.0V DC (10.8V~15.6V, Negative Ground)
- Current consumption.....TX: 5.5A Max , RX: 1.5A Max
- Antenna Impedance.....50Ω(SO-239)
- Audio Output Impedance.....4Ω~8Ω(BTL output: Both terminals are GND prohibited)
- frequency stability±10 PPM(-15°C ~ +55°C)
- Normal supply voltage DC13.8V±10% (Negative Ground)

- operating temperature-15°C ~ +55°C
- Dimensions / Weight136×220×175 / about 2.2Kg

3.3 Transmitter

- transmission output.....25W / 1W
- frequency deviation±10 PPM(-15°C ~ +55°C)
- oscillation methodSynthesizer
- Modulation.....Variable Reactance Frequency
- Maximum Frequency Deviation..... Under ±5.0KHz
- occupied bandwidth Under 16KHz
- MIC Input Impedance.....2KΩ
- Audio Frequency Response.....300Hz~3KHz: 6dB/octave(-3dB ~ +1dB)
- Spurious Emissions..... Under 70d
- Adjacent Channel Power..... Under -70dB
- Audio Harmonic Distortion..... Under 10%
- Residual Modulation (S/N Ratio).....More than 40dB

3.4 Receiver

- Receive System.....Double Conversation Super-heterodyne
- Intermediate Frequencies.....1st : 21.7MHz , 2nd : 450kHz
- local oscillation frequency receiving frequency -21.7MHz (Synthesizer)
- Sensitivity.....0.5uV (20dB SINAD) /0.3uV (12dB SINAD)
- Audio frequency response..... -6dB/Octave
- Squelch Sensitivity 0.3uV
- Co-channel Rejection..... -10dB ~ 0dB
- Adjacent Channel Selectivity More than 70dB
- Spurious Response Rejection Ratio..... More than 70dB
- Inter-modulation Rejection Ratio.....More than 68dB
- Spurious Emission.....Under 2nW (-56.9dBm)
- Hum and Noise..... Under -40dB
- Audio Output Power.....4.5W / 4Ω(distortion under 10%)

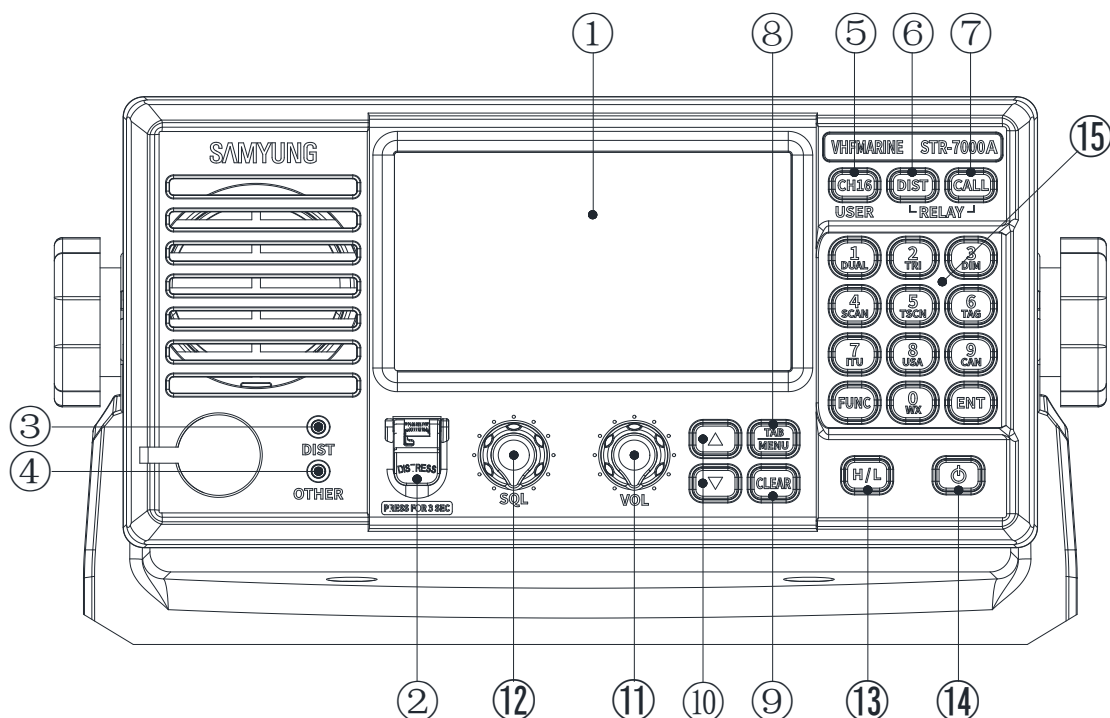
3.5 DSC Receiver

- Operating Frequency.....156.525MHz
- Mode.....16K0G2B
- Receive System.....Double-conversion Super-heterodyne
- Intermediate Frequencies.....1st : 10.70 MHz , 2nd : 450 kHz
- Inter-modulation Rejectionmore than 68dB (Bit error rate under 10⁻²)
- Adjacent Channel Selectivity..... more than 70dB (Bit error rate under 10⁻²)
- Spurious Response Rejection Ratio..... more than 70dB (Bit error rate under 10⁻²)
- Spurious Emission.....Under 2nW (-56.9dBm)
- DSC modulation rate1200baud (±30ppm)
- DSC modulation method (modulation index).....PM/FSK (within M=2±10%)
- MARK/ SPACE frequency.....within 1300Hz±10Hz/ 2100Hz±10Hz
- Maximum usable sensitivity0.25uV (Bit error rate under 10⁻²)
- DSC message saving transmitting:20, Distress:20, others:20

CHAPTER 4. Operation

4.1 Keys

4.1.1 Front Panel

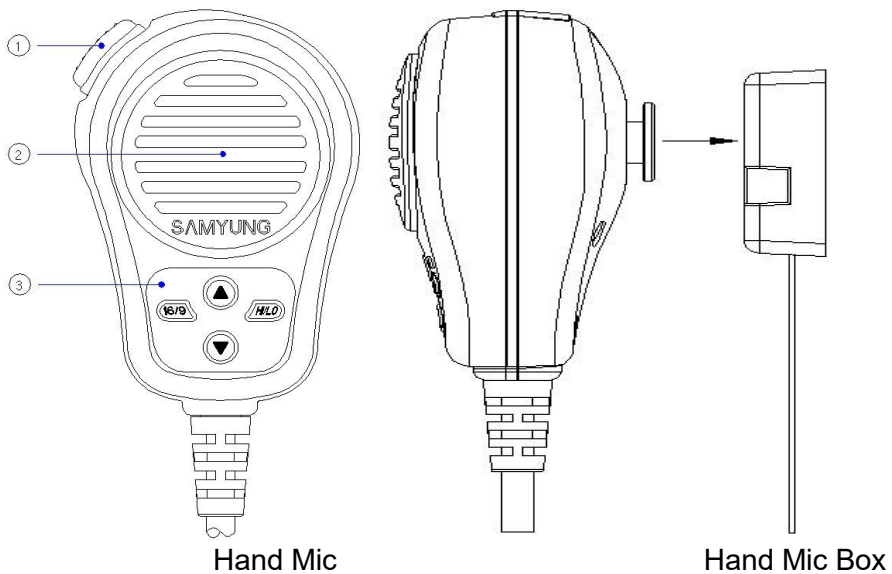


①	DISPLAY	Information display screen of equipment, including channels.
②	DISTRESS	Send distress call (alert) message. (※ Test transmission prohibited !!) Distress call when pressed for more than 3 seconds.
③	DIST	Lights up when DSC distress call message is received or transmitted. (lights up in red)
④	OTHER	Lights up when DSC other (except for distress) call message is received. (green light)
⑤	CH16	Press and hold on the MOB receiving screen to execute the MOB receiving list screen.
⑥	DIST	use for distress message. Used as a distress relay (RELAY) function when pressed together with the [CALL] button.
⑦	CALL	Used when writing a general DSC message, not DISTRESS. Used as a distress relay (RELAY) function when pressed together with the [CALL] button.

Press and hold to execute the BAM Alert item list.

⑧	TAB/MENU	TASK selection function by short press, menu function by long press
⑨	CLEAR	Cancel function in menu mode. Speaker ON/OFF when pressed for more than 1 second on the communication screen.
⑩	△/▽	Channel change or menu change (short press once, long press continuously) Adjust scan speed when pressing together with FUNC button in DUAL, TRI mode.
⑪	VOL	Volume adjustment function
⑫	SQL	SQUELCH adjustment function
⑬	H/L	The transmission output is converted between 25W and 1W.
⑭	POWER	power switch
⑮	1 DUAL	Enter a number (1). When pressed together with the FUNC button, the dual watch function can be turned ON/OFF. (Current channel/CH16 is received while switching to each other.)
	2 TRI	Enter a number (2). When pressed together with the FUNC button, the triple watch function can be turned ON/OFF. (Current channel/CH16/CH09 are received while switching each other).
	3 DIM	Enter a number (3). When pressed together with the FUNC button, the screen brightness is adjusted in 11 steps. → △/▽: Brightness adjustment, [1]: Bright screen, [2]: Dark screen.
	4 SCAN	Enter a number (4). When pressed together with the FUNC button, ALL is reversed on the screen and all channels are scanned (CLR at the end).
	5 TSCN	Enter a number (5). When pressed together with the FUNC key button, ALL is reversed to TAG on the screen, and only the channel selected for TAG is scanned.
	6 TAG	Enter a number (6). When FUNC key is pressed together, TAG is set for the selected channel.
	7 ITU	Enter a number (7). When pressed together with the FUNC button, it is set to ITU mode.
	8 USA	Enter a number (8). When pressed together with the FUNC button, USA mode is set.
	9 CAN	Enter the number (9). When pressed together with the FUNC button, it is set to CAN mode.
	0 WX	Enter a number (0). When pressed together with the FUNC button, it is set to the weather channel mode.
	FUNC	It is used as a function button.
	ENT	Used for item selection and input confirmation in DSC MENU, etc.

4.1.2. Microphone



- ① PTT : Press to transmit.
- ② MIC : condenser microphone
- ③ Keypad :

	Channel conversion to current channel and CH16.
	It is used as an Enter button (setting input values) in the menu, and is used as a transmission output conversion (25W, 1W) in normal times. .
	Switching of channels (pressing briefly once, pressing for a long time continues)
	Switching of channels (pressing briefly once, pressing for a long time continues)

■ Hook Switch function:

There is a hook switch, so if you hang the hand mic on the hand mic box as shown in the picture, the currently used channel is ignored and automatically moved to the common channel "CH16" for added convenience.

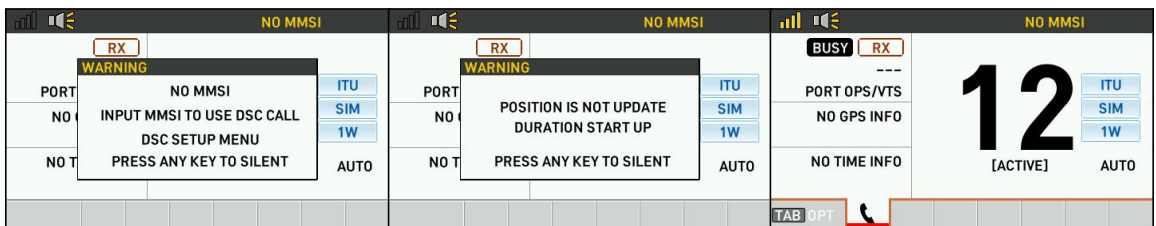
4.2 LCD Display



Display	Function Detail
	Reception strength (during transmission, this icon does not appear.)
	Speaker status display (speaker ON/OFF, internal/external speaker)
MMSI : 123456789	own ship MMSI (9 digits)
[BUSY]	Indicates that a signal is detected on the current communication channel.
[RX] / [TX]	In case of reception, it is displayed as RX, in case of transmission, as TX.
TAG	Indicates that a tag is set for the current channel.
DISTRESS	Channel name
N 35. 05.2183 E129. 04.2450	Displays the latitude/longitude of the location of the own ship. ※ When inputting an external GPS signal
EXT 08:20 AUTO	The current 'time' is being entered as 'auto' from the 'external' GPS.
[DISTRESS]	An icon appears when it is a distress channel.
16	Indicates that the current channel is channel 16.
[ACTIVE] 	Indicates that the current channel is active and occupying the communication channel.
[ITU],[USA],[CAN],[WX]	Indicates currently set country channel mode
[SIM] / [DUP]	Indicates whether the current channel is Duplex or Simplex.
25W / 1W	Indicates the transmission power setting status.

AUTO	Indicates that automatic channel switching by DSC reception is allowed (ON).
	Indicates that there is one newly received DSC message.
S-5 [SCAN]	Indicates SCAN speed and type (full scan, dual scan, tag scan...). Adjust scan speed with [FUNC] key + [△] key or [▽] key.

4.3 VHF Operation



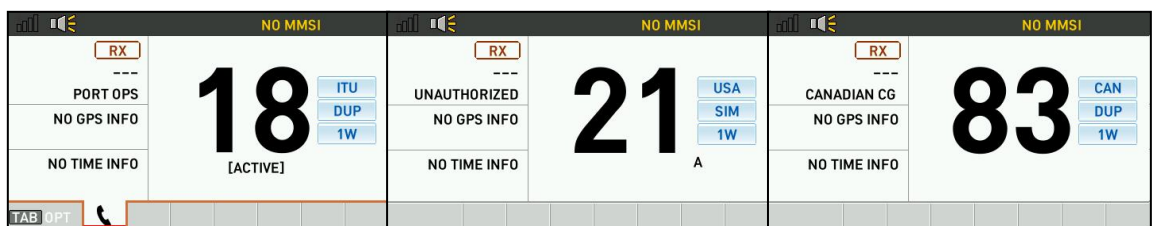
- ① If there is no MMSI inside the VHF at power-up, an MMSI input request warning is issued → [CLEAR].
- ② An alarm is ringing until a GPS signal is received after powering on → [CLEAR].
- ③ You can ignore and use the alarm with the [CLEAR] key, etc., but the alarm occurs periodically.

4.3.1 Channel Selection

4.3.1.1 Channel 16

Channel 16 is a channel for distress and safety, so you shall monitor that channel through dualwatch & tri-watch. If you select the [16] button, you can move onto channel 16.

4.3.1.2 Channel mode selection (ITU, USA, CAN)



- ① ITU Channel: [FUNC] + [7 ITU]

- ② USA Channel: [FUNC] + [8 USA]
- ③ CAN Channel: [FUNC] + [9 CAN]

4.3.2 Weather channel

How to: [FUNC] + [0 WX]

※ You can receive 10 of channels given by NOAA(National Oceanic and Atmospheric Administration). STR-7000A may detect a warning sound of a weather channel during a scan.

4.3.3 Configuration and initial data on the menu screen

Press the [MENU] button for more than 1 second long to enter various menus.

1. DSC SETUP	MMSI	Set its own MMSI
	POSITION :	
	TYPE – <u>AUTO</u> , MANUAL, NO INFO	
	LAT – N 35'05.1234	Set Position
	LON – S 129'05.1234	
	UTC – 02:03	
	TIMEOUT :	
	MENU – 10MIN	
	DISTRESS TX/RX – NO TIMEOUT	Active hold time
	NON DISTRESS TX/RX – 15MIN	
	COMMUNICATION – 30SEC	
	AUTO ACK SET :	
	AUTO ACK TEST – <u>ON</u> /OFF	
	AUTO ACK POLLING – <u>ON</u> /OFF	Set Auto answering
	AUTO ACK POSITION – ON/ <u>OFF</u>	
	AUTO ACK INDIVIDUAL – <u>ON</u> /OFF	
	MEDICAL – ON/ <u>OFF</u>	Set medical vessel
	NEUTRAL – ON/ <u>OFF</u>	Set neutral vessel
	NORMAL ALARM – <u>ON</u> /OFF	Normal alarm

	ETC SETUP :	Set etc :
	POS REPLY SERIAL SET – ON/ OFF	Output of position
	DSC RTX USE NMEA0183 – ON /OFF	Output of DSC
	AUTO CH CHANGE SET – ON /OFF	Receive from All Ship automatically
2. DSC LOG	TX LOG	TX DSC log
	RX DISTRESS LOG	RX distress log
	RX NON DISTRESS LOG	RX non-distress log
	CLEAR LOG DATA	Delete all Log
3. ADDRESS BOOK	SHIP MMSI	MMSI
	GROUP MMSI ※ The ID in GROUP starts with '0'.	MMSI in group
	COAST MMSI	COAST MMSI
4. RADIO SETUP	CHANNEL NAME	Change channel name
	CHANNEL ON/OFF	Channel On/Off
	BEEP VOLUME – HIGH/ LOW /OFF	BEEP VOLUME
	USE RUSSIAN ITU – ON/ OFF	Use Russian channel
	SPEAKER INT/EXT – INT /EXT	Speaker type
	SPEAKER ON/OFF – ON /OFF	Speaker ON/OFF
	VDR RECORD MODE – ON/ OFF	External VDR
	HOOK MODE – ON /OFF	Mike hook mode
5. REMOTE SETUP	REMOTE MODE – ON/ OFF	REMOTE MODE
	REMOTE SPEED SET : – 2400BPS / 4800BPS / 38400BPS	Remote speed set
	REMOTE TX OUTPUT ON – ON /OFF	Remote TX output
6. PRINT SETUP	DSC AUTO PRINT – ON/ OFF	DSC auto print
	SELF PRINT TEST – OK /CANCEL	Self-print test
7. BAM SETUP	ALERT AGGREGATION LIST – ON/ OFF	Alert aggregation list
	ALERT LIST	Received Alert list

8. REAL TIME CLOCK	YEAR,MONTH,DAY,HOUR,MIN,SEC	Real-time change
9. FACTORY RESET	RESET START? – OK /CANCEL	Factory reset
10. SYSTEM TEST	CHECK TEMPERATURE	Internal temperature
	CHECK INPUT VOLT	Power Voltage
	PROGRAM VERSION	Program version
	GPS SAT STATUS	GPS satellite status
	PCB ASS'Y NUMBER	PCB(H/W) version
	RSSI VIEW	Strength of Receiving signal
	TX POWER CHECK	Antenna VSWR check

4.3.4 MENU SETUP

4.3.4.1 DSC SETUP

■ MMSI(Confirm/input MMSI) :

- ① **You can enter it only once, so you should enter it carefully.** Before using DSC functions, you must enter the MMSI
- ② Save the MMSI permanently after receiving the USER MMSI once more for verification.
- ③ You can always check your saved MMSI through this menu at any time.

■ POSITION (Location of your own ship and setting of time)

- ① **AUTO:** If the equipment is connected to an internal or external GPS receiver, the VHF radio automatically updates the location and time and transmits GPS information when requested.
 - ② **MANUAL:** If the internal and external GPS receivers are not connected to the equipment, the location and time of the ship can be manually entered from this menu. "MANUAL" is displayed on the right side of the time when manually entering the time.
 - ③ **NO INFO:** Even if the equipment is connected to an external GPS receiver, it does not display GPS reception information and does not send GPS information on external requests.
- ※ GPS information should be used in DSC calls and GPS information must be entered as very important information.

■ TIMEOUT (Setting the wait time for an activated menu) :

Waiting time for Set menu display, distress transmission and reception, emergency transmission and reception, communication channels

■ AUTO ACK SET (Auto Response setting) :

Whether automatically respond to test messages, polling messages, location messages, and individual messages or not

■ MEDICAL (Set medical vessel)

Set whether or not to activate the MEDICAL when writing DSC message.

■ NEUTRAL (Set neutral vessel)

Set whether to activate NEUTRAL when writing DSC messages..

■ **NORMAL ALARM (Normal alarm) :**

Set whether to receive alarm for normal message, not distress messages.

■ **ETC SETUP (ETC) :**

- ① POS REPLY SERIAL SET – Set whether to externally transmit received location of DSC
- ② DSC RTX USE NMEA0183 – Set whether to externally transmit all data of DSC
- ③ AUTO CH CHANGE SET – Set whether to automatically change channels upon receipt of ALLSHIP type DSC

4.3.4.2 DSC LOG

- **TX LOG :** Check the logged DSC transmission messages.
- **RX DISTRESS LOG :** Check the logged DSC incoming distress message.
- **RX NON DISTRESS LOG :** Check logged DSC received non-destructive message.
- **CLEAR LOG DATA :** Delete logged all the DSC messages

4.3.4.3 ADDRESS BOOK

- **SHIP MMSI :** input own ship's MMSI
- **GROUP MMSI :** input MMSI for a group call
- **COAST MMSI :** input coast MMSI.

4.3.4.4 RADIO SETUP

- **CHANNEL NAME :** Change or delete the channel name.
- **CHANNEL ON/OFF:** Turn on or turn off the current channel
- **BEEP VOLUME :** Up and down of Beep volume or turn off beep
- **USE RUS ITU :** show whether Russian channel to be used or not
- **SPEAKER INT/EXT :** Select either internal speak or external speaker
- **SPEAKER ON/OFF :** The same as when you press [CLEAR] key for over one second long
- **VDR RECORD MODE :** Select it when connecting VDR outside
- **HOOK MODE:** When communication ends, you select whether to use HOOK detection function which is automatically returns to CH16

4.3.4.5 REMOTE SETUP

- **REMOTE MODE :** After connecting the remote, it must be set to ON to enable the remote.
- **REMOTE SPEED SET :** Set the communication speed of the device
- **REMOTE TX OUTPUT ON :** Set whether remote transmit sounds are out to VHF speaker.

4.3.4.6 PRINT SETUP

- **DSC AUTO PRINT** : When receiving DSC, set ON/OFF for whether automatically to print
- **SELF PRINT TEST** : Print out testing DSC messages with connected prints.

4.3.4.7 BAM SETUP

- **ALERT LIST AGGREGATION** : Set whether received alerts are sorted by priority.
- **BAM TEST MODE** : Set ON/OFF for BAM TEST mode.
- **ALERT LIST** : Check the list of received alert list

4.3.4.8 REAL TIME CLOCK

Set time for system- you can input or change year/month/day, hour/minute/second

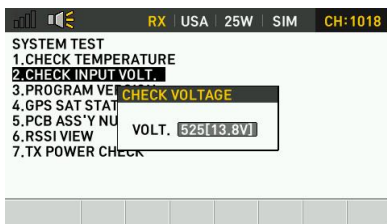
4.3.4.9 FACTORY RESET

Factory reset for all setting except for MMSI and PCB ASS'Y details

4.3.4.10 SYSTEM TEST

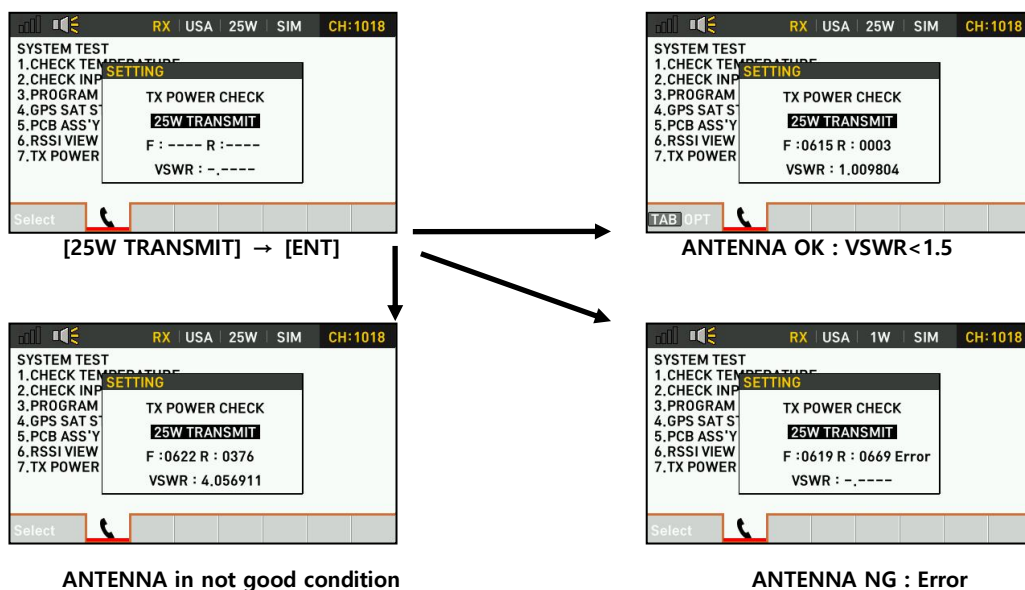
- **CHECK TEMPERATURE**: check the internal temperature of equipment
 - ※ Note: At internal temperature >85 °C (set value) during voice transmission, the transmission output is switched to 1W and an alarm is generated.
- **CHECK INPUT VOLT** : Check equipment power input voltage.

※ Ref :



The equipment continuously monitors the power input during operation, generates an alarm when it exceeds 15.5 volts (set value), and the equipment is powered off when it exceeds 16 volts. And when the power input exceeds 16 volts (fixed), the equipment does not power on..

- **PROGRAM VERSION** : Check the program version of the software
- **GPS SAT STATUS** : Check GPS satellite status
(※ it is activated when external GPS signal is input) .
- **PCB ASS'Y NUMBER** : Check H/W version per PCB ASS'Y
- **RSSI VIEW** : Check the received signal strength of the main receiver.
- **TX POWER CHECK** : Check VSWR value of the connected antenna (see figure below).



※ Note: If the VSWR value exceeds 5, antenna or cable connection is poor, so it needs to be improved quickly. If ignored, communication distance may be shortened, equipment heating, equipment failure, etc. may occur. And, above $VSWR > 10$ (set value), the transmission output is switched to 1W and an alarm is raised as shown on the left

4.4 DIGITAL SELECTIVE CALLING(DSC)

4.4.1. Overview

- DSC stands for Digital Selective Calling
- DSC uses the VHF band to send digital DISTRESS and general calls by ships, and the Coast Guard configures and transmits responses..
- Channel 70 is for The DSC distance, safety, emergency call frequency of the VHF band
- W/K receiver receives DSC distress, safety, and emergency calls.
- ※ When you receive DSC, Notification pop-up and notification tone can only be canceled by key buttons on equipment
(Notification pop- and notification sound do not cancel when entering the PTT switch)

4.4.2. DSC message

- DSC calls are largely divided into two types: a distress message and a general message (safety, alert, and routine).

- DSC Messages are as follow;

Call	description
DISTRESS ALERT	DISTRESS message
DISTRESS RELAY ALLSHIP	Relay Distress call to all the vessels
DISTRESS RELAY INDIVIDUAL	Relay Distress call to a certain station or vessel
INDIVIDUAL	Call a certain address
GROUP	Call a certain group
TEST	Transmit test signal to vessels
POSITION	Ask for location of other vessels
POLLING	Check whether to communicate with other vessels (receive only)

- Contents of DSC Call

- ① MMSI : The ID of the ship, the ID of the calling station, the ID of the coast station, is 00, GROUP ID starts with '0'.

- ② PRIORITY:

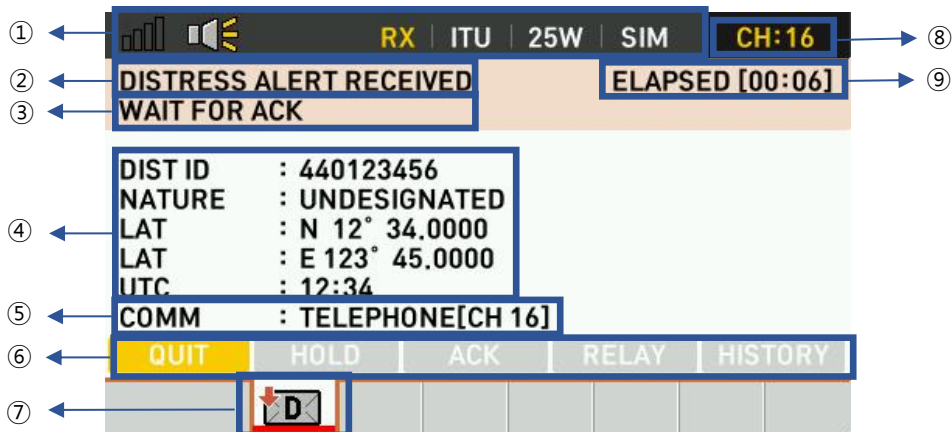
DISTRESS	Critical and urgent risks and immediate need for help
URGENCY	in case of great urgency regarding the safety of ships or people
SAFETY	when important navigation or meteorological attention is included
ROUTINE	Normal call

- ③ Communication mode: Voice calls through microphone speakers
- ④ Communication channel: a channel used for voice communication by a call
The sending station must specify the channel to be used by the receiving station.
- ⑤ Location: Location can be set automatically or manually.
- ⑥ Termination code : DSC call ends with "EOS" (no response, no response, no response required).

4.4.3. Display configuration

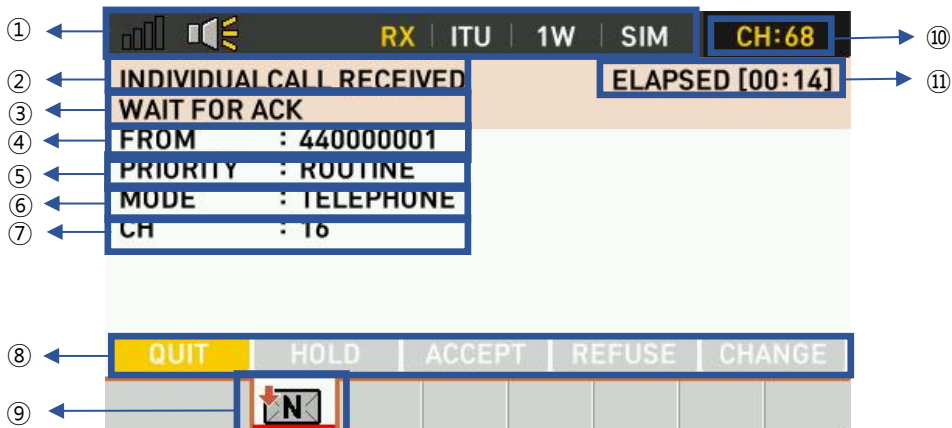
4.4.3.1. Receive

■ DISTRESS ALERT RX



① TX/RX status bar	⑥ User Selection Options
② Call type	③ Current state of the procedure
④ Current state of the procedure	⑧ Channels being used now
⑤ DISTRESS information	⑨ Elapsed time since procedure started
⑤ Communication mode & channel	

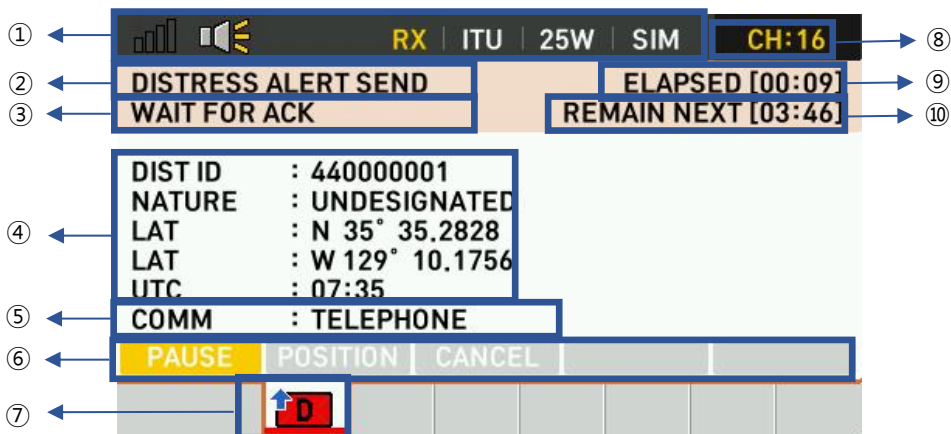
■ INDIVIDUAL RX CALL



① TX/RX status bar	⑦ Communication channel
② Call type	⑧ User option
③ Current state of the procedure	⑨ Current procedure icon and status
④ MMSI of station sending message	⑩ Current channel
⑤ Message PRIORITY	⑪ Elapsed time since procedure started
⑥ Communication mode	

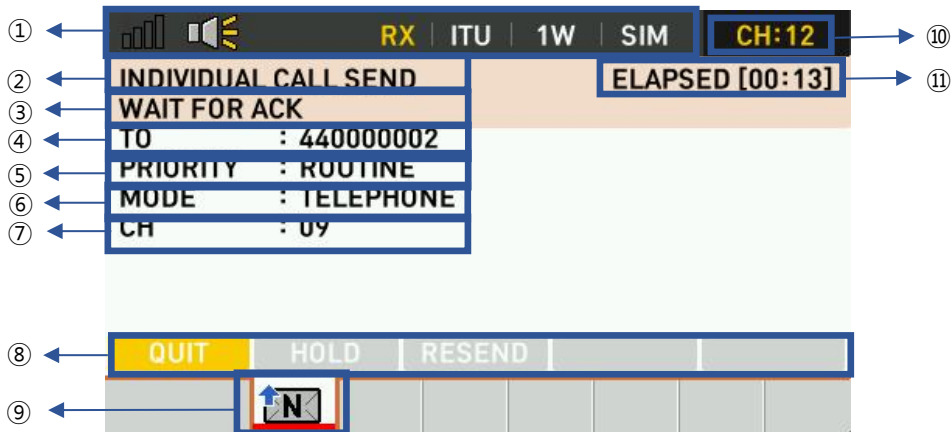
4.4.3.2. TRANSMISSION

■ DISTRESS ALERT TX



① TX/RX status bar	⑥ User option
② Call type	⑦ Current procedure icon and status
③ current state of the procedure	⑧ Current channel
④ DISTRESS Information	⑨ Elapsed time since procedure
⑤ Communication mode	⑩ Remaining time for next transmission

■ INDIVIDUAL TX CALL



① TX/RX status bard	⑦ Communication channel
② Call type	⑧ User option
③ Current state of the procedure	⑨ current procedure icon and status
④ Station MMSI that sent message	⑩ Current channel
⑤ Message PRIORITY	⑪ elapsed time since procedure started
⑤ Communication mode	

Note. The elapsed time after the procedure is started is indicated up to 100 minutes, and the time after 100 minutes is indicated by [>99:99]..

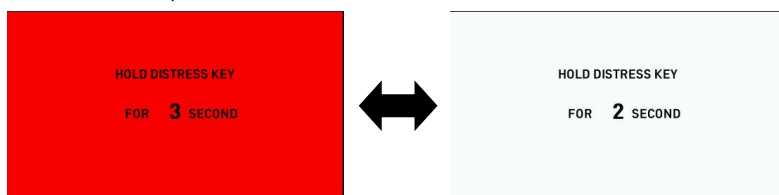
4.4.4. DSC DISTRESS Operation

4.4.4.1. How to release DISTRESS ALERT

- GMDSS ships are equipped with DSC terminals that transmit DISTRESS ALERT in life-threatening situations.
- The Coast Guard receives the DISTRESS ALERT and sends a DISTRESS ALERT response call to the ship in the disaster.
- Voice communication begins between the disaster ship and the coastal station after the coast station's response.
- Transmission of DISTRESS ALERT and reception of DISTRESS ALERT responses are fully automatic. (Open  and press button)

4.4.4.1.1. Send DISTRESS ALERT without modifying the information

- Open the DISTRESS key cover and press the DISTRESS key button for 3 seconds.
- With the key pressed, the alarm sounds and the screen changes to a red/white intersection.
- A countdown message appears while enjoying the DISTRESS key.
(3->2->1->0 SECOND)



- When the countdown reaches 0, DISTRESS ALERT is sent.
- Before sending DISTRESS ALERT, a continuous alarm sound is heard for 2 seconds and a "DSC TRASMIT" message is sent to CH70.



- After sending DISTRESS ALERT to the coast, If you wait for the DISTRESS ALERT response, "WAIT FORACK" can be voice communicated on CH16.

- If you do not receive a response call from the Coast Guard, automatically retransmit the DISTRESS ALERT after 3 minutes 30 seconds to 4 minutes 30 seconds and wait for a response.
- When you select **PAUSE**, countdown is temporarily paused for re-transmission, **RESUME** is indicated, instead. At this moment, if you select **RESUME**, countdown will start again.
- Pressing the DISTRESS key causes retransmission regardless of the countdown.



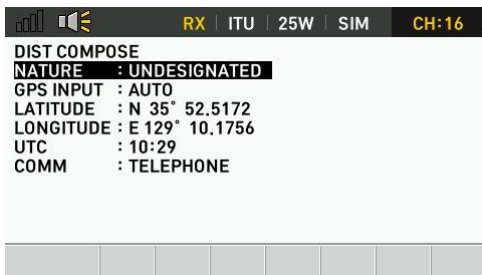
■ When a DISTRESS response call is received, the alarm goes off, and the alarm window appears as shown in the picture above



■ If you press any key, the alarm stops. If you press the CLEAR key, the alarm window disappears and the screen appears like the picture above

■ The elapsed time of the procedure changes to the past time after receiving the DISTRESS ALERT response call.

4.4.4.1.2. Send Modified DISTRESS ALERT



■ If you have time to modify the DISTRESS information, you can do it as follows

■ Press [DIST]

■ Select NATURE, and then press [ENT]

■ Select one out of 11 below, then press [ENT]

Nature Type	Term	Nature Type	Term
FIRE	Fire, explosion	DISABLED	Disabled and adrift
FLOOD	Flooding	*UNDESIGNATED	Undesignated distress
COLLISION	Collision	ABANDON	Abandoning ship
GROUND	Grounding	PIRACY	Piracy/armed robbery attack
LIST	Listing, in danger of capsizing	OVERBOARD	Man overboard
SINK	Sinking	EPIRB	VHF emergency position indicating radio beacon (EPIRB) emission

* DEFAULT 값

- After selecting GPS INPUT, press [ENT].

AUTO
MANUAL
NO INFO

AUTO – Automatically receive location information from external GPS input terminals

MANUAL – Manually enter location information

NO INFO – Enter location information as NO INFORMATION

- When selected as MANUAL, latitude/longitude information is input like UTC information.
- Using the numeric keys, enter latitude/longitude as follows.

LAT : N --°--.--
LON : E ---°--.--

1 : N / 2 : S

Enter the number key 1: North and number 2: South

LAT : N 12°34.--
LON : E ---°--.--

INPUT Numeric Key

At this time, if you enter [ENT], you may not receive a decimal point in minutes.

LAT : N 12°34.5678
LON : E ---°--.--

1 : E / 2 : W

Enter number key 1: east and number 2: west

LAT : N 12°34.5678
LON : E 123°45.6780

INPUT Numeric Key

If you enter the numeric keys to the end, you will enter UTC.

- Using the numeric keys, enter UTC as follows

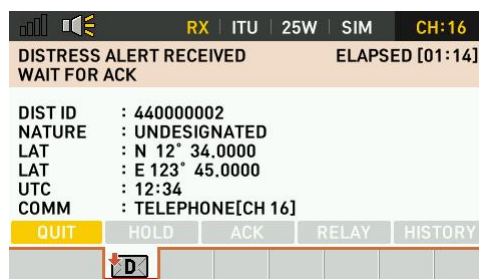
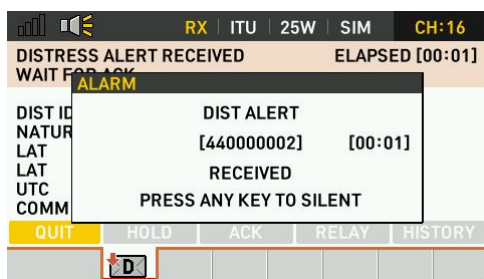
UTC : 10 : 40

 INPUT Numeric Key

If you enter UTC by entering the numeric keys to the end, you will move on to the next

- Press the DISTRESS key for 3 seconds to send DISTRESS ALERT. While pressing the key, the alarm sounds and the screen repeats red/white. A countdown screen appears while pressing the key. When the countdown goes to zero, DISTRESS ALERT is sent.

4.4.4.2. Receive DISTRESS ALERT



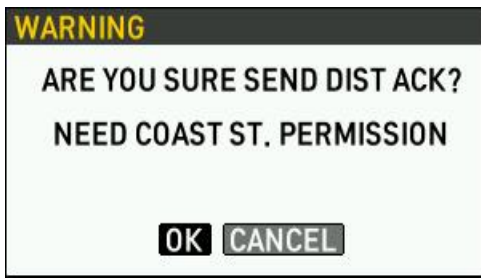
- When DISTRESS ALERT is received from another ship in a disaster, an alarm sound is sounded and the alarm window indicates that DISTRESS ALERT has been received as shown in the picture above
- The procedure state and the icon state indicate that DISTRESS-related reception has been performed. If you press the CLEAR key, the alarm sound stops and the alarm window disappears

- If there is no response from the Coast Guard or the Restructuring Center (RCC) for more than 5 minutes through CH16, contact the ship in a disaster situation by wireless communication.

(CH16 is already changed with procedure enabled)

4.4.4.3. Send DISTRESS ALERT Response Call

- A DISTRESS ALERT response confirmation call may be sent after consultation with the Restructuring Center (RCC) or the Coast Guard to receive DISTRESS ALERT from the same vessel and terminate the DISTRESS ALERT call if the ship in distress is certain.

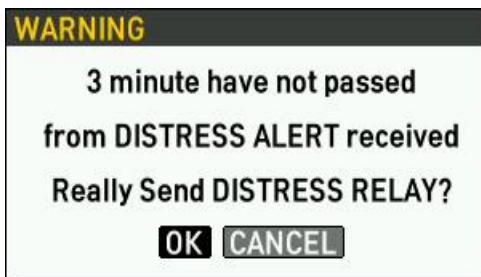


■ When ACK is selected from the user selection option, a WARNING window is displayed as shown in the figure above, and when OK is selected, a DISTRESS ALERT response call is sent to CH70.



■ After transmission, it is switched like the picture above.

4.4.4.4 Send a DISTRESS relay to the coast station



■ Select **RELAY** on user option
If the DISTRESS ALERT has not been received for 3 minutes, WARNING appears as shown in the picture above.

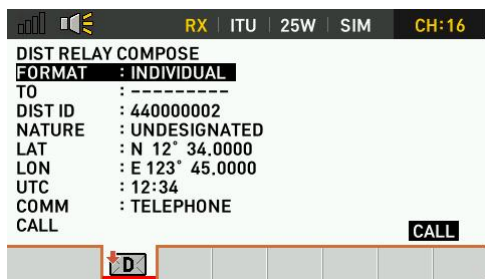


■ If you choose OK and move on, The screen appears like the picture above



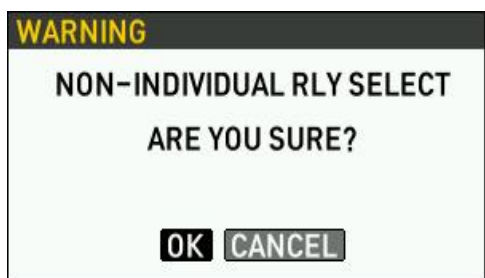
■ To send it to the coast station, use FORMAT INDIVIDUAL as is, enter the MMSI of the coast station in the TO item, enter the ENT key in CALL, or enter the CALL key, and a response waiting screen appears.

4.4.4.5. Relay Distress to ALLSHIP

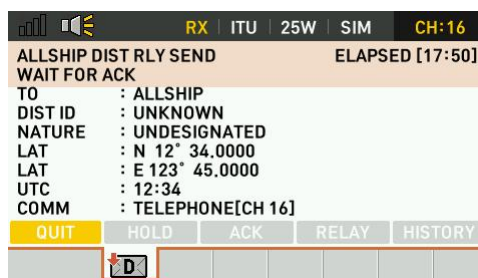


- Select **RELAY** on user option.

If you receive DISTRESS ALERT, WARNING will be displayed within 3 minutes and select OK, the picture-like screen on the left will appear.



- To send it to the coastal station, press ENT on FORMAT and press the menu, and WARNING appears as shown in the picture above.



- If you select OK and then enter the ENT key in CALL or enter the CALL key, you will see a screen waiting for a response as shown in the picture above.

4.4.4.6. Send DISTRESS RELAY instead of ships in disaster

- DISTRESS ALERT If you are near a ship in a disaster that cannot be sent, DISTRESS RELAY may be sent to the Coast Guard instead of a ship in a disaster situation.

4.4.4.6.1 Send DISTRESS RELAY to the coast station



- When DIST and CALL keys are pressed simultaneously on the main screen, the "DROBOSE COMPOSE" screen is configured as follows:.

* DROBOSE : Distress alert Relay On Behalf Of a Someone Else

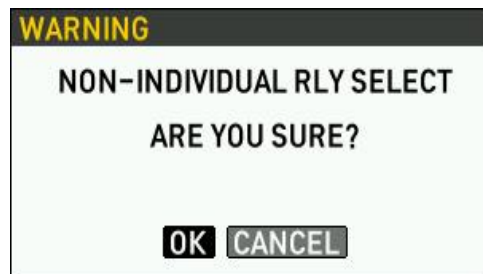
- Leave FORMAT items as INDIVIDUAL and select "TO"

- If you select "TO", [DIRECT INPUT]/[ADDRESS BOOK] will pop up
 [DIRECT INPUT]: Directly enter the MMSI by manipulating the numeric keys
 [ADDRESS BOOK]: How to enter MMSI by selecting from the entered name
 When selected, each of [SHIP STATION]/[COAST STATION] can be selected.
- For the DIST ID item, you can enter the MMSI of the ship in disaster, and you do not need to enter it if you do not know it.
- The NATURE entry allows you to enter the disaster attributes of a disaster-stricken ship. If you don't know, you don't have to enter it.
- Selecting the LAT/LON item allows you to enter the location of the disaster-stricken vessel. If you don't know, you don't have to enter it.
- If you select the "UTC", you can enter the disaster time, and if you are not aware of it, you do not have to enter it



- If you enter ENT or CALL key in CALL, a screen waiting for a response on the left will appear when you send RELAY.

4.4.4.6.2 Send DISTRESS RELAY to ALLSHIP

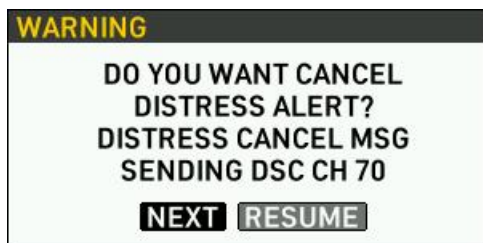


- When DIST and CALL keys are pressed simultaneously on the main screen, the "DROBOSE COMPOSE" screen is configured as shown above.
- Select ALLSHIP from the FORMAT entry. Then, WARNING appears like the picture above.
 Then, if you select Okay, let's move on.

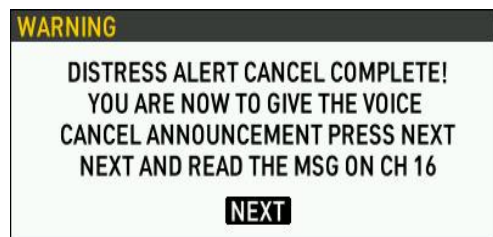
- After that, it is the same as sending DISTRESS RELAY to the coast station.

4.4.4.7. Send DISTRESS CANCEL MESSAGE

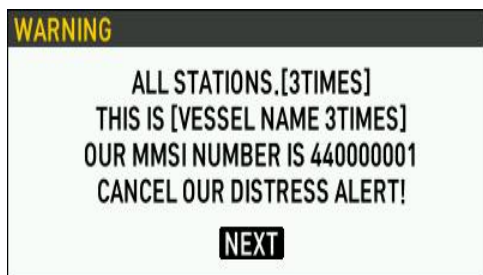
- Able to use following procedure to send DISTRESS ALERT message and cancel DISTRESS ALERT message while waiting for its response.
- Cancellation process is initiated with the following warning window and alarm sound when "CANCEL" is selected from the user selection option.



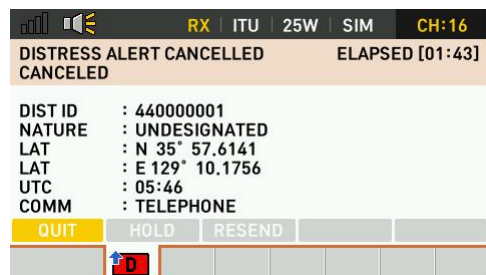
- When NEXT is selected, a DISTRESS CANCEL call message is set to CH 70. When RESUME is selected, user shall be returned to DISTRESS ALERT procedure screen.



- When "DISTRESS CANCEL MSG" is sent, above warning sign will be displayed stating that user shall press "NEXT" button and give Voice Cancel Announcement on CH 16.



- As shown in the above picture, notify that DISTRESS ALERT has been canceled from CH 16.

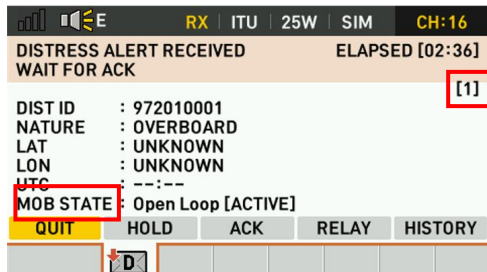


- When "NEXT" is selected, cancelled DISTRESS ALERT will show as an above picture.

- DISTRESS CANCEL messages can be sent back to CH 70 by selecting RESEND in the user selection option.

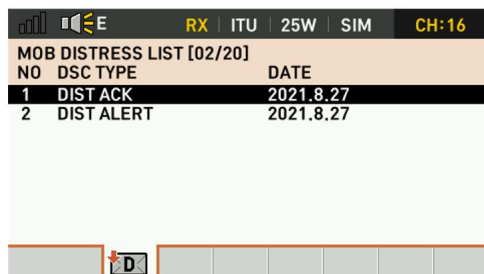
4.4.4.8. Receiving Man Overboard Beacon(MOB) DISTRESS MESSAGE

■ When receiving DISTRESS from MOB, the display of related information is processed by one procedure.



■ [1] shows the number of messages received from the current MOB device, and supports up to 20 messages in total.

■ MOB STATE displays the status of the received MOB.



■ When the CH 16 key on the keypad is pressed and held on the MOB reception screen, the list screen received from the MOB is immediately executed.

■ A total of 20 receiving devices are stored.

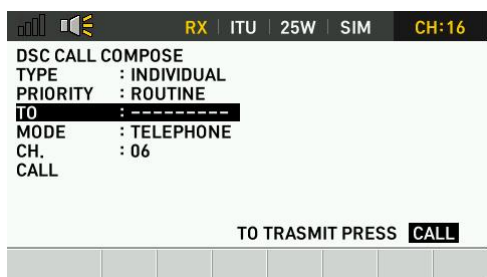
■ When selecting a message from the list, it moves to receiving screen of the selected message.

4.4.5. Calling and Receiving of Common DSC Messages

4.4.5.1. INDIVIDUAL CALL

■ INDIVIDUAL CALLING calls a designated station.

4.4.5.1.1. Send INDIVIDUAL CALL



■ When the CALL key is pressed on the main screen, the "DSC ALL COMPOSITION" screen appears.

■ The default call type for "DSC CALL COMPOSE" is INDIVIDUAL, so there is no need for call type change.

- When the "TO" is selected, the [DIRECT INPUT]/[ADDRESS BOOK] selection screen is displayed.

[DIRECT INPUT] : Directly enter the MMSI by using numeric keys.

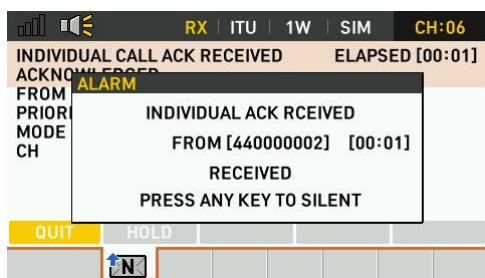
[ADDRESS BOOK] : A method of entering MMSI by selecting from the entered name.

[SHIP STATION]/[COAST STATION] can be selected

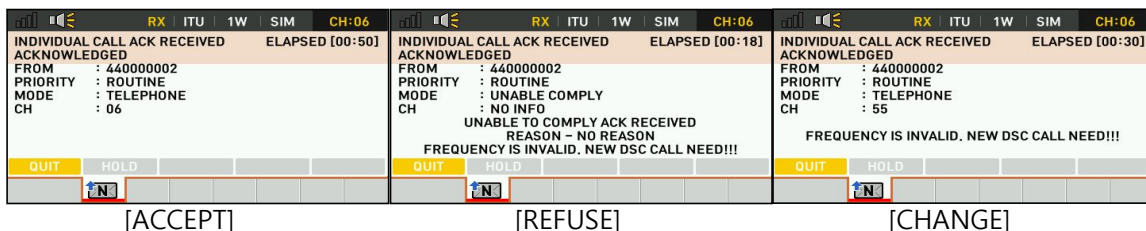
- When selecting "PRIORITY", [ROUTINE]/[SAFETY]/[URGENCY] can be selected.
- IF [ROUTINE] is selected and the current channel being used is CH16, it automatically change to CH06, but if currently used channel is not CH 16, it will stay the same channel that was being used previously.
- When [SAFETY]/[URGENCY] is selected, the channel is also selected as CH16.
- When MODE is selected, [TELEPHONE]/[DATA] can be selected.
- User can enter a communication channel from the channel entry.



- Press ENT or Call key from CALL MODE to send DSC transmission to CH70 and respond.



- Alarm sound and alarm window is displayed after a response call. Press CANCEL key to stop alarm sound and close the alarm window. Time is displayed after responding like the picture on the left. Depending on the type of response, it is possible to change the communication channel and also communicate with counterpart station.



- There are [ACCEPT]/[REFUSE]/[CHANGE] response types.

[ACCEPT] – Respond by agreeing to the same communication channel as the INDIVIDUAL CALL

[REFUSE] – INDIVIDUAL CALL received station rejects communication for below reasons:

REFUSE Type
No reason given
Congestion at maritime switching centre
Busy
Queue indication
Station barred
No operator available
Operator temporarily unavailable
Equipment disabled
Unable to use proposed channel
Unable to use proposed mode

[CHANGE] – Reply by changing the communication channel at the station where you received the INDIVIDUAL CALL. In this case, do not change the channel if it responds with an unavailable channel as follows.

4.4.5.1.2.Receive INDIVIDUAL CALL

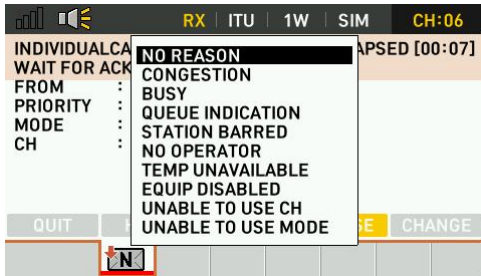
- REFUSE Sending Auto Answer Settings

If the communication channel or mode of the received call is not available, it is possible to set the function to automatically respond by adding [UNABLE TO USE CH] to the REFUSE reason [REASON]. [MENU]->[1.DSC SETUP]->[4.AUTO ACK SET]->[4.AUTO ACK INDIVIDUAL : ON] (MUST CHANGE SELECT "ON")

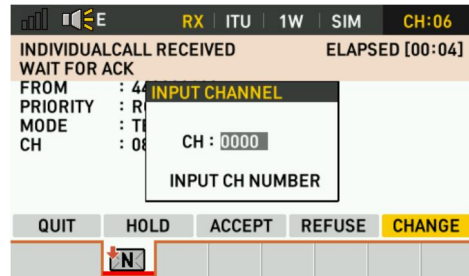
- SEND MANUAL RESPONSE

- When sending a manual response, user can select **ACCEPT** **REFUSE** **CHANGE** from Select User's Option.

ACCEPT – If user agree to the communication channel that sent the INDIVIDUAL CALL and select the Response User Option, user can respond immediately and change to communication channel to communicate with the other station.



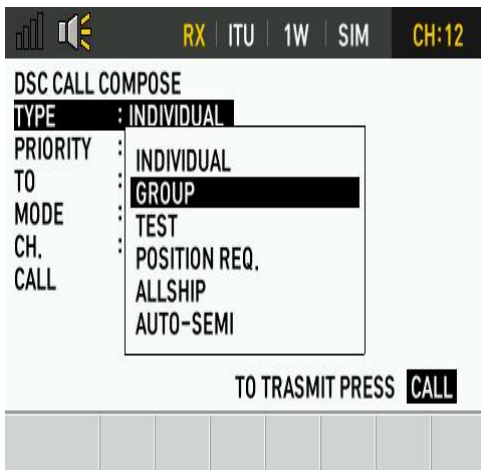
REFUSE – When the station that received the INDIVIDUAL CALL selects a REFUSE of communication from the user option for the following reasons, a reason selection window appears, where it responds and exits the procedure.



CHANGE – If user change the communication channel after receiving INDIVIDUAL CALL and select it from the response user option, it will change to the channel user have set and able to communicate with the other station.

4.4.5.2. GROUP CALL

4.4.5.2.1. Send GROUP CALL



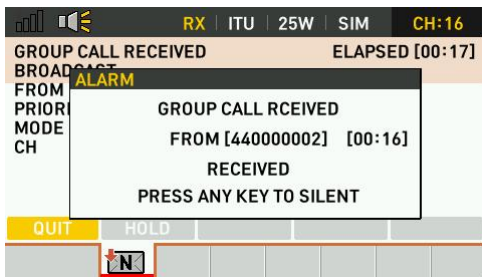
- When pressing CALL key on the main screen the "DSC CALL COMPOSITION" screen appears
- Able to select GROUP when pressing ENT on the TYPE category.
- When pressing TO category, [DIRECT INPUT] / [ADDRESS BOOK] selection screen appears.
[DIRECT INPUT] : Directly enter MMSI with numeric keys.
[ADDRESS BOOK] : Enter registered MMSI selection.
- Communication Channel can be entered from CH category.



- When ENT or CALL key is entered on CALL category, DSC transmission is sent to CH70 and enables communication.

4.4.5.2.2. Receive GROUP CALL

- Able to receive a GROUP CALL only from the registered GROUP MMSI :
[MENU]->[3.ADDRESS BOOK]->[2.GROUP]
- When GROUP CALL is received, the notification rings and the setting is changed from the CALL to established communication channel.

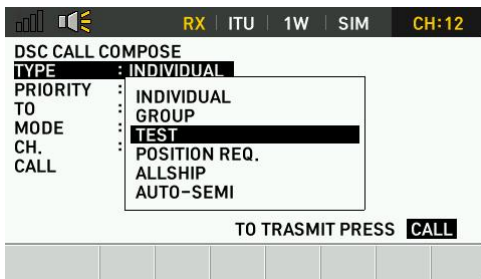


- When received, notifications rings and the setting changes to established communication channel.
- Press the [CLEAR] key to stop the alarm sound and the notification window will disappear.

4.4.5.3. TEST CALL

4.4.5.3.1. Send TEST CALL

- If you press CALL key on the main screen, "DSC CALL COMPOSE" screen appears.
- Press ENT key on the TYPE category to select TEST.



- Select TEST from TYPE category.



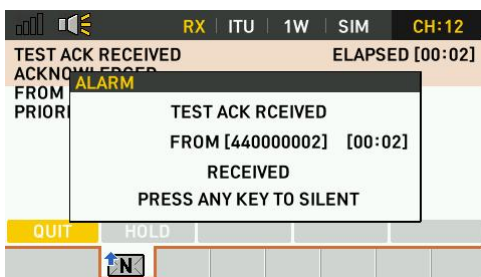
- [DIRECT INPUT] / [ADDRESS BOOK] selection screen appears when choosing TO category.

[DIRECT INPUT] : Directly enter the MMSI by using numeric keys.

[ADDRESS BOOK] : Enter registered MMSI selection



- Press ENT or CALL key on CALL to send DSC transmission to CH70 and wait for a response.



- When an answer call is received, an alarm sound is heard and an alarm window is displayed. Press CANCEL key to clear the alarm window and stop the alarm sound.



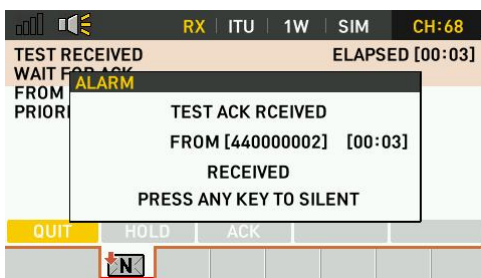
- Time gone by will be displayed after responding.

4.4.5.3.2. Receive TEST CALL

■ Send Automatic Response Setting

It is possible to set up a function that automatically responds to a TEST CALL by selecting following procedures: [MENU]->[1.DSC SETUP]->[4.AUTO ACK SET]->[1.AUTO ACK TEST : ON]

- When there are no activated procedures while "AUTO ACK TEST : ON", alarm sound and the window are not displayed on the screen when receiving TEST CALL, and the TEST DSC reception screen is not displayed.
- If an active procedure is present, it sends an automatic response when the procedure is placed on hold or shut down and exits the TEST CALL reception procedure.



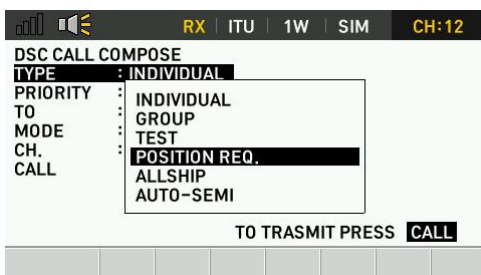
- Only **ACK** is available in the Select User Option when sending a manual response.



- **ACK** – When the user option is selected as a TEST CALL response, it responds immediately and the procedure does not end after the response.

4.4.5.4. POSITION REQ. CALL

4.4.5.4.1. Send POSITION REQ. CALL



- When pressing the CALL key on the main screen "DSC CALL COMPOSE" screen is displayed.
- Press ENT key on the TYPE category to select POSITION REQ.



■ If user select TO category, [DIRECT INPUT] / [ADDRESS BOOK] selection screen appears.

[DIRECT INPUT] : Directly enter MMSI with numeric keys.

[ADDRESS BOOK] : Enter registered MMSI selection.



■ Press ENT or CALL key on CALL to send DSC transmission to CH70 and wait for a response

■ When an answer call is received, an alarm sound is heard and an alarm window is displayed. Press CANCEL key to clear the alarm window and stop the alarm sound.



[When location information is available]



[When there is no location information]

4.4.5.4.2 Receive POSITION REQ. CALL

■ Send Automatic Response Setting

It is possible to set up a function that automatically responds when POSITION REQ. is received. Follow below guidance and set as "ON" :

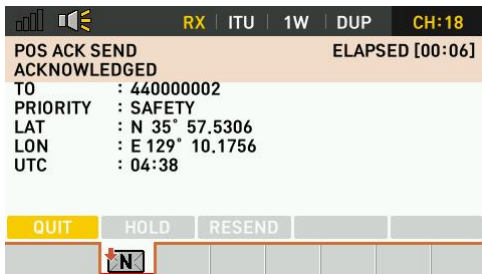
[MENU]->[1.DSC SETUP]->[4.AUTO ACK SET]->[3.AUTO ACK POSITION : ON]

■ When there are no activated procedures while "AUTO ACK POSITION : ON", alarm sound and the window are not displayed on the screen when receiving POSITION REQ., and the POSITION REQ. DSC reception screen is not displayed.

■ If an active procedure is present, it sends an automatic response when the procedure is placed on hold or shut down and exits the POSITION REQ. reception procedure.

■ Send manual response

- When sending a manual response, user can select either **ACCEPT** or **REFUSE** in the User Selection Option. However, only **REFUSE** can be sent when there is no location information.



ACCEPT – When "ACCEPT" user option is selected, it responds immediately and transmits the location information and time that the equipment holds.

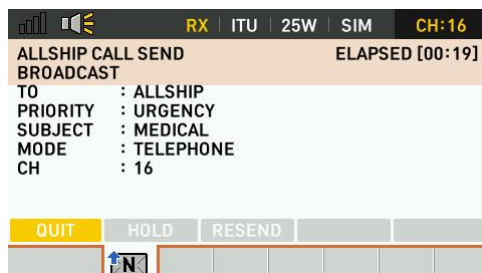


REFUSE – When "REFUSE" user option is selected, the location information and time are filled with "NO INFO" and transmitted, and automatically closes after responding.

4.4.5.5. ALLSHIP CALL

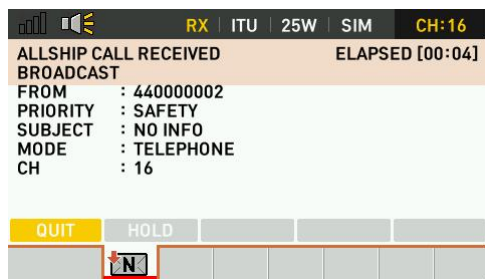
4.4.5.5.1. Send ALLSHIP CALL

- On the main screen, press CALL key to display "DSC CALL COMPOSE" screen.
- Select "ALLSHIP" by pressing ENT key in the TYPE category.
- To select "SUBJECT" category, you must choose "URGENCY" from "PRIORITY" option.
- [MENU]->[1.DSC SETUP]->[5.MEDICAL : ON]/[6.NEUTRAL :ON] must be turned "ON" in order to activate MEDICAL CRAFT/NEUTRAL TRANSPORT from "SUBJECT" menu.
- User can enter the communication channel in the CH category.
- If you press ENT or CALL key on CALL, DSC transmission is sent to CH70 and communication is available.



- Press ENT or CALL key in CALL to send DSC transmission to CH70 and enable communication.

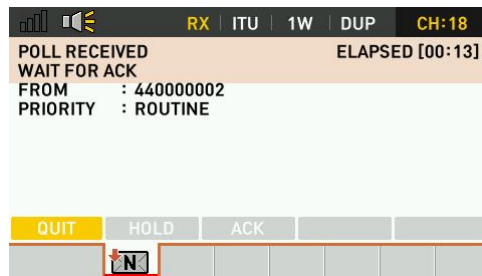
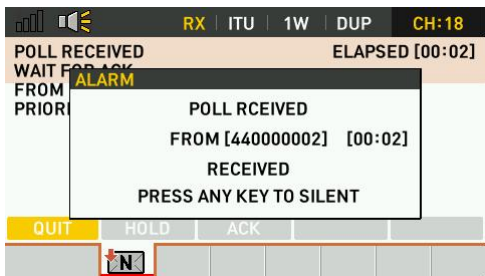
4.4.5.5.1. Receive ALLSHIP CALL



■ When receiving ALLSHIP CALL, the notification will sound and the setting will be changed to the communication set.

4.4.5.6. POLL CALL

4.4.5.6.1. Receive POLL CALL



■ On vessel, POLL CALL can only be received.

■ Send Automatic Response Setting

It is possible to set up a function that automatically responds when TEST CALL is received. Follow below guidance and adjust setting :

[MENU]->[1.DSC SETUP]->[4.AUTO ACK SET]->[3.AUTO ACK POLL : ON].

■ If there is no procedure activated while "AUTO ACK POLL : ON", the alarm sound and the window are not displayed on the screen when receiving the POLL CALL, and the POLL DSC reception screen is not displayed.

■ If an active procedure is present, an automatic response is sent when the existing procedure is placed on hold or terminated, and the POLL CALL reception procedure is terminated.

■ Send manual response

■ When sending a manual response, there is only **ACK** in the User Selection option.

4.5 BRIDGE ALERT MANAGEMENT(BAM)

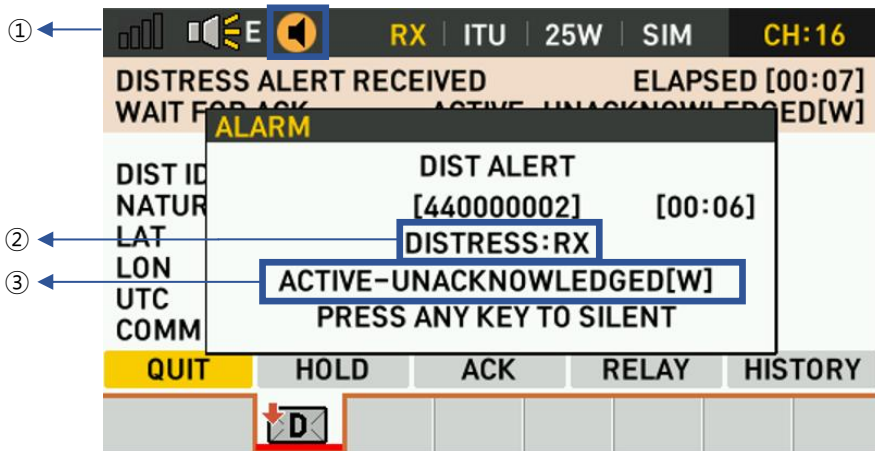
4.5.1 Summary

- BAM(Bridge Alert Management) processes, distributes, and displays alerts.
- The BAM enables the identification of warning situations that require action to maintain the safe operation of the vessel.
- Maximum number of alarms supported per BAM type is 10.
- BAM Function Type P is supported.
- IEC 61162-1 , IEC 61162-2 communication methods supported.

4.5.2 Screen Configuration

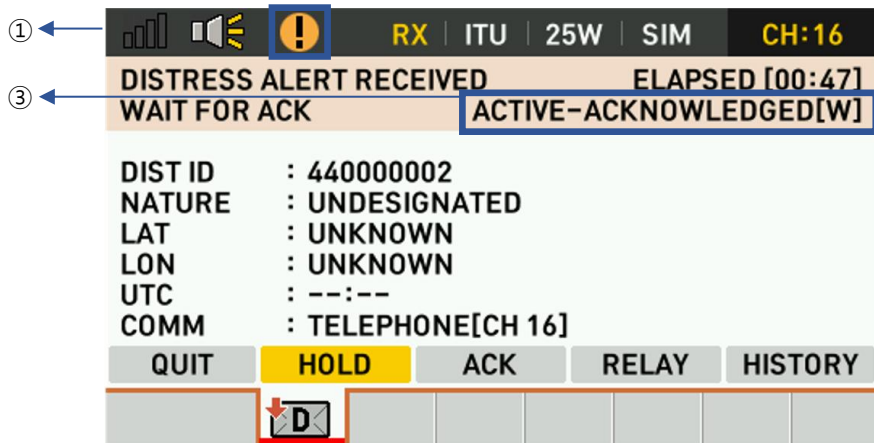
4.5.2.1 Alarm Reception Screen

- Screen configuration according to alarm reception.
- Depend on the status of alarm, the status icon and status changes.(refer to 4.5.4.1, 4.5.5)

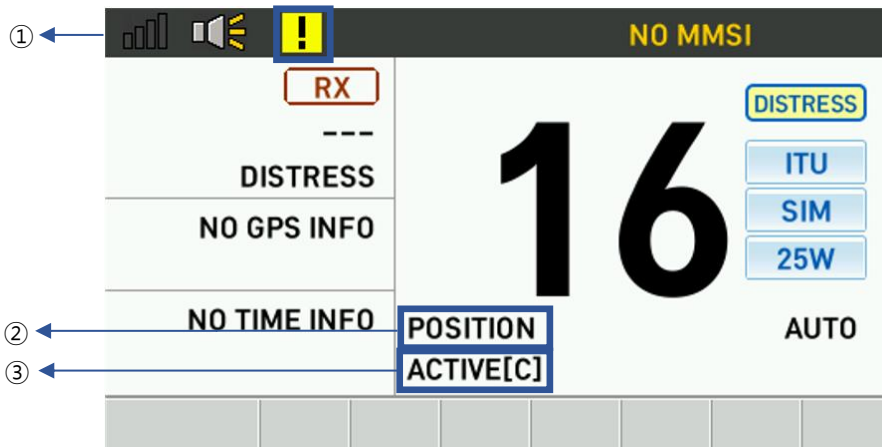


[Display BAM info. When a Distress Alarm is received]

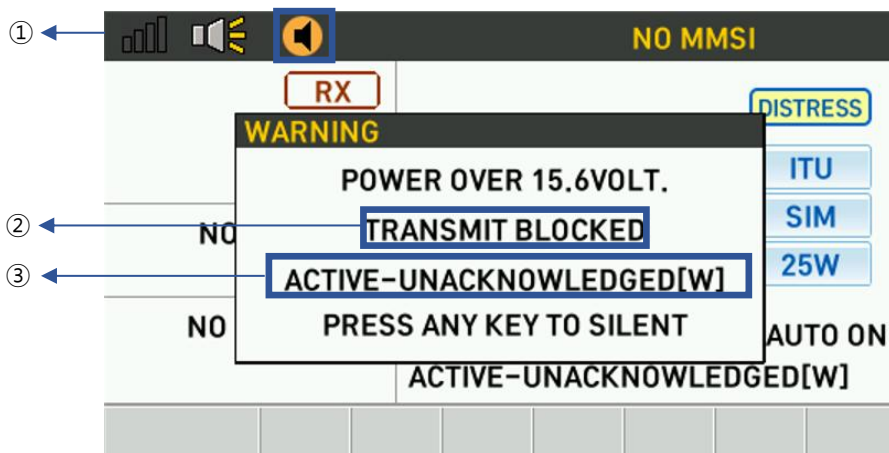
① Display Alarm Status (refer 4.5.5)	② Alarm Status[Alarm priority](refer 4.5.5)
③ Alarm Title /Explanation (refer 4.5.4)	



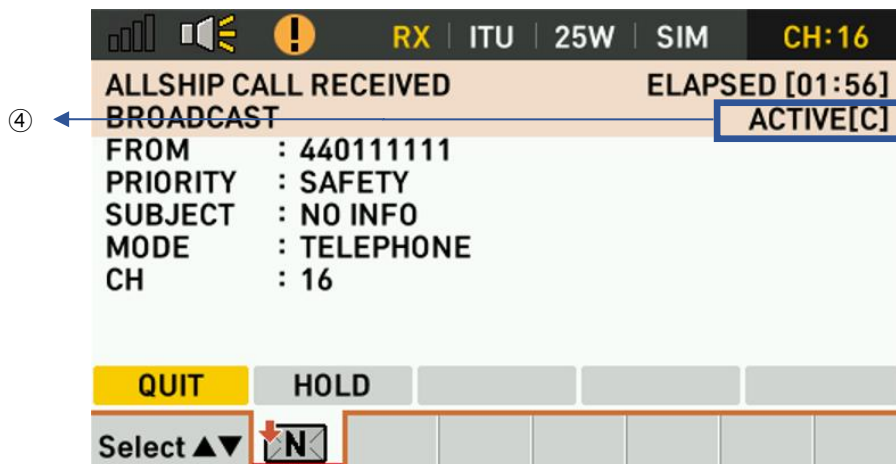
[Display BAM info. When the Distress Alarm is turned off]



[Display POSITION DATA ERROR BAM Info.]

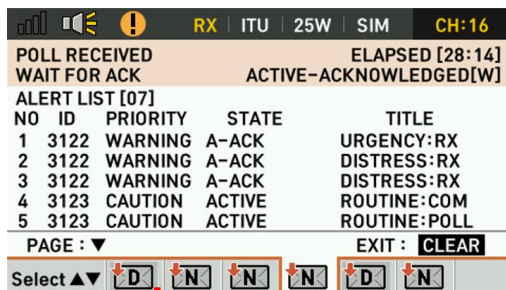


[Display POWER ERROR BAM info. due to input voltage overrun]



[Show new unconfirmed alarm status]

4.5.2.2 Alarm List Screen



- Supports up to 9 alarm lists.
- Show alarm received category.
- Press and hold the CALL key on the screen to switch to the BAM List screen.
- Sort by priority (Warning – Caution order)
- Refer to below STATE TERMS for info. : *

* A-UNACK : active-unacknowledged warning

A-ACK : active acknowledged warning

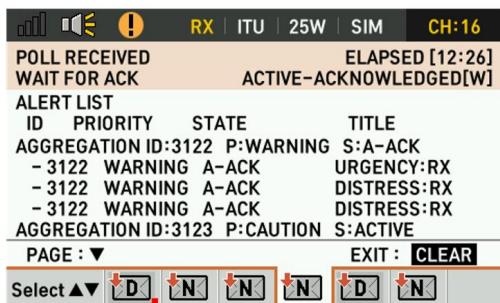
A-SILENCED : active silenced warning

A-RES TRANS : active-responsibility transferred warning

R-UNACK : rectified-unacknowledged warning

ACTIVE : active caution

4.5.2.3 Alarm Aggregation List Screen



- ALERT LIST AGGREGATION Display supported.
- To sort by priority type, user must turn "ON" from the following menu list: 7.BAM SETUP -> 1.ALERT LIST AGGREGATION.
- By using FUNC+CALL key, ALERT LIST AGGREGATION setting can be turned ON/OFF.
- The default value for the ALERT LIST AGGREGATION menu is OFF.

■ The same warning is aggregated by ID, priority, category, and status(STATE) and is displayed on the screen from higher priority.

■ ID : Alert ID P : PRIORITY S : STATE

4.5.3 Alarm List

Alert ID	Cause	Priority	Category	Instance		Permission for responsibility transfer	Escalation properties	Aggregation is provided	Title	Description text	Conditions of rectification
3122	Receipt of Distress Urgency call	Warning	A			No	5min	YES	DISTRESS : RX	Clause 4.5.4.1	Press Any KEY Or Read Message
									DISTRESS : RELAY		
									URGENCY : RX		
3123	Receipt of DSC calls other than distress or urgency	Caution	B	1~7, 11~16		No	NO	YES	SAFETY : COM	Clause 4.5.4.2	Press Any KEY Or Read Message
									SAFETY : POS		
									SAFETY : TEST		
									ROUTINE : COM		
									ROUTINE : POLL		
3016	No position data received by equipment	Caution	B	8		No	NO	NO	POSITION:	NO POSITION UPDATE	Press Any KEY Or Read Message
				9						NO POS UPDATE 10MIN	
3008	Transmissi on power error	Warning	B	10		YES	5min	NO	TXPOWER: INHIBIT	TRANSMIT BLOCKED	Press Any KEY Or Read Message

4.5.4 Alarm Types And Contents

4.5.4.1 Distress or Urgency call

No	Alert Title	Alert Description
1	DISTRESS: RX	- Un-acknowledged/acknowledged/cancelled - Distress MMSI - Position/time - Nature of distress - Comm. Mode *Example : U 440012345 N57'12 E009'41 1210 07 00
2	DISTRESS: RELAY	- Un-acknowledged/acknowledged - MMSI of sender - Distress MMSI - Position/time - Nature of distress - Comm. Mode
3	URGENCY: RX	- Un-acknowledged/acknowledged - Address MMSI - Category - Comm. Mode - Frequency
Note. Refer to Appendix 1. ALERT DESCRIPTION for more info. on alarm description		

4.5.4.2 Other call

No	Alert Title	Alert Description
1	SAFETY: COM	-First tele-command -Second tele-command -MMSI -Frequency info -Position info -*Example : 00 26 4412345678 09
2	SAFETY: POS	
3	SAFETY: TEST	
4	ROUTINE: COM	
5	ROUTINE: POLL	
Note. Refer to Appendix 1. ALERT DESCRIPTION for more info. on alarm description		

4.5.4.3 No Position Data

No	Alert Title	Alert Description
1	POSITION:	- NO POSITION DATA RECEIVED - NO POSITION DATA RECEIVED 10 MIN

4.5.4.4 Transmission Power Error

No	Alert Title	Alert Description
1	TX POWER: INHIBIT	- TRANSMISSION BLOCKED

4.5.5 Responsibility Transfer

- Use to control the number of audible alarms for a situation.
- Reduce higher priority alerts by allowing the system to know the content of some alerts on other systems, suspend priority requests for user attention and generate lower priority alerts.
- Alert support for transmission power error.

4.5.6 Alert Icon

■ STR-7000A uses Warning and Caution only.

Icon number	Icon name (corresponding with the alert state)	Icon description (normative)	Icon graphic (example)
6	"Active – Unacknowledged" warning	A flashing yellowish orange circle. A symbol of loudspeaker in the middle of the circle. To be presented together with the alert text.	
7	"Active – silenced" warning	A flashing yellowish orange circle. A symbol as in icon number 6 overlayed with a prominent diagonal line. To be presented together with the alert text	
8	"Active – acknowledged" warning	A yellowish orange circle. An exclamation mark in the middle of the circle. To be presented together with the alert text	
9	"Active – responsibility transferred" warning	A yellowish orange circle. An arrow pointing towards the right in the middle of the circle. To be presented together with the alert text	
10	"Rectified – unacknowledged" warning	A flashing yellowish orange circle. A tick mark in the middle of the circle. To be presented together with the alert text	
11	"Active" Caution	A yellow square. An exclamation mark in the middle of the square. To be presented together with the alert text	

Abbreviation	Term
ACTIVE-UNACKED / A-UNACK	Active-Unacknowledged warning
ACTIVE-SILENCED / A-SILENCED	Active-silenced warning
ACTIVE-ACKED / A-ACK	Active-acknowledged warning
RESP-TRANSFER / A-RES TRANS	Active-responsibility transferred warning
RECTIFIED-UNACKED / R-UNACK	Rectified-unacknowledged warning
ACTIVE	Active warning

4.5.7 Communication Interface

IEC 61162 Receive Sentence		IEC 61162 송신 Sentence		
Sentence	Support	Sentence	Support	Talker
ACN	○	ACN	X	
AGL	X	AGL	X	
ALC	X	ALC	○	CV
ALF	X	ALF	○	CV
ARC	X	ARC	○	CV
HBT	○	HBT	X	

※ When a valid GPS signal is input, the UTC time is synchronized, and the time information is included in the "Time of Last Change" when transmitting the ALF sentence.

However, if there is no valid GPS signal, it does not include time information.

제 1 장 INSTALLATION

1.1 Unpacking Package and Inspection

When dismantling the package, please treat with great care in checking the contents with order specification. Please observe external surface whether it is damaged during transportation and if there find damaged parts, then install after proper treatment made.

In case of handling difficulty, please contact SAMYUNG ENC for proper treatment.

This machine can be installed without technical difficulties, but it needs to keep basic installation guide lines described hereunder, which helps preserve optimum performance as it is in the factory.

1.2 Selection of Installation Position for Main Unit

◆ Installation position is selected according to following instruction

- ① Select the place where there is space enough to operate, repair and maintain with efficient ventilation.
- ② Select the place where there is not directly exposed to rain and sea water. Dry area is the best place for installation electronic equipment.
- ③ Select the place where there is not directly exposed to sunray and avoid from heating element.
- ④ Select the place where there is of little vibration.
- ⑤ Select the place where there is of little electrical interference.

◆ Main unit is to be installed referring to following drawing.

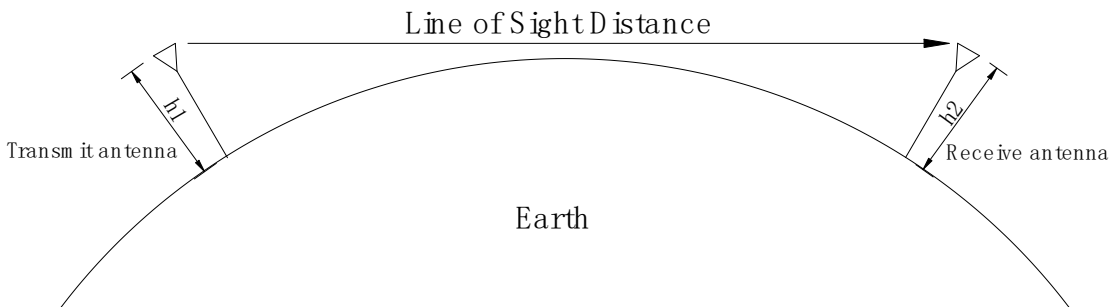
※ WARNING: Please make sure the power is turned off before you connect MIC and/or Speaker to external equipment.

1.3 Selection of Installation Position for the Antenna

We recommend to use Samyung Antenna. If you use other antenna, it should be 50 Ω in 150MHz band. Please use high quality antenna/power cable than standard ones. Please set up at high location, if possible.

Please keep the antenna away from another transmit antenna. For example, keep 4 meters away from other VHF antenna. It should be installed at least 2m vertically and 6m horizontally from the structures.

Please ensure that installation should be made where there avoids from mechanic vibration and a rainstorm and connector parts must be waterproofed by using waterproof tape.



■ Because VHF communicates in line-of-sight distance, it is necessary to install it at a higher place than possible to communicate to further distance.

■ SSB communicates using visibility and reflection of the ionosphere, so it can communicate even if there is a long distance, a mountain, or a building.

■ LINE-OF-SIGHT FORMULAR (EARTH RADIUS: 6,370km)

$$- D = 4.11 (\sqrt{h_1} + \sqrt{h_2}) \text{ (km)}$$

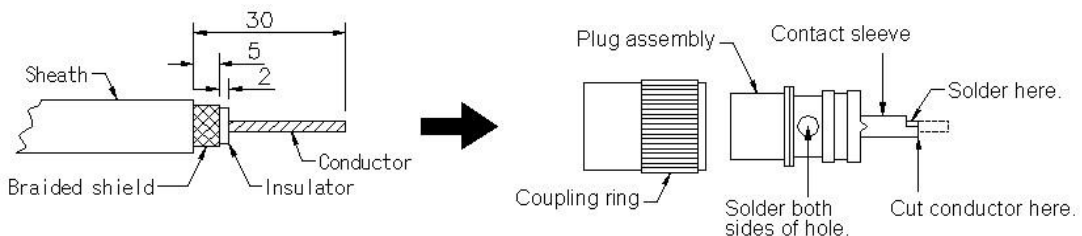
■ ex) $h_1 = 9\text{m} / h_2 = 9\text{m}$ 일 때

$$- D = 4.11 (\sqrt{9} + \sqrt{9}) \text{ (km)} = 24.66\text{km}$$

■ The above formula is a mathematical formula and can vary depending on the weather and environment.

1.4 How to Connect Antenna Cable and Connector

- Antenna cables should be installed as short as possible to minimize signal attenuation. Since the loss of 3dB reduces the signal strength by half, it should be installed so that cable attenuation is minimized.
- Antenna cables shall be securely installed in places that use RG-8/U or RG-10/U wires, are completely waterproof, have little mechanical vibration, and are easy to replace and repair. If the CONNECTOR connection method is bad, it will significantly reduce the reception sensitivity as well as reduce the transmission output and damage the output parts, causing a huge disruption to communication. Therefore, this method must be followed and please refer to the following.
 - ① Remove the cable sheath about 30mm.
 - ② Remove the shield line by cutting it with a knife, leaving about 5mm of the braided shield. Be careful not to damage the insulators inside. (Apply lead thinly over the shield line.)
 - ③ Leave the insulator about 2mm from the braided shield and cut the inside with a knife to prevent damage to the conductor.
 - ④ Disconnect the connector for the cable and insert it into the coupling ring to fit the cable, and then insert the plug assembly.
 - ⑤ Solder both sides of hole and solder here part of Plug assembly.
 - ⑥ Cut the 'cut conductor here'.
 - ⑦ Assemble while rotating the coupling ring into the plug assembly.



제 2 장 Channel List

6.1 ITU CHANNEL :

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
01	156.050	160.650	NO	YES
02	156.100	160.700	NO	YES
03	156.150	160.750	NO	YES
04	156.200	160.800	NO	YES
05	156.250	160.850	NO	YES
06	156.300	156.300	YES	NO
07	156.350	160.950	NO	YES
08	156.400	156.400	YES	NO
09	156.450	156.450	YES	YES
10	156.500	156.500	YES	YES
11	156.550	156.550	YES	YES
12	156.600	156.600	YES	YES
13	156.650	156.650	YES	NO
14	156.700	156.700	YES	YES
15*	156.750	156.750	YES	YES
16	156.800	156.800	YES	YES
17*	156.850	156.850	YES	YES
18	156.900	161.500	NO	YES
19	156.950	161.550	NO	YES
1019	156.950	156.950	YES	YES
2019	161.550	161.550	YES	YES
20	157.000	161.600	NO	YES
1020	157.000	157.000	YES	YES
2020	161.600	161.600	YES	YES
21	157.050	161.650	NO	YES
22	157.100	161.700	NO	YES
23	157.150	161.750	NO	YES
24	157.200	161.800	NO	YES
25	157.250	161.850	NO	YES
26	157.300	161.900	NO	YES
1027*	157.350	157.350	YES	YES
1028*	157.400	157.400	YES	YES

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
61	156.075	160.675	NO	YES
62	156.125	160.725	NO	YES
63	156.175	160.775	NO	YES
64	156.225	160.825	NO	YES
65	156.275	160.875	NO	YES
66	156.325	160.925	NO	YES
67	156.375	156.375	YES	NO
68	156.425	156.425	YES	NO
69	156.475	156.475	YES	YES
70(2)	---	156.525	---	---
71	156.575	156.575	YES	YES
72	156.625	156.625	YES	NO
73	156.675	156.675	YES	YES
74	156.725	156.725	YES	YES
75*	156.775	156.775	YES	YES
76*	156.825	156.825	YES	YES
77	156.875	156.875	YES	NO
78	156.925	161.525	NO	YES
1078	156.925	156.925	YES	YES
2078	161.525	161.525	YES	YES
79	156.975	161.575	NO	YES
1079	156.975	156.975	YES	YES
2079	161.575	161.575	YES	YES
80	157.025	161.625	NO	YES
81	157.075	161.675	NO	YES
82	157.125	161.725	NO	YES
83	157.175	161.775	NO	YES
84	157.225	161.825	NO	YES
85	157.275	161.875	NO	YES
86	157.325	161.925	NO	YES
87*	157.375	157.375	YES	YES
88*	157.425	157.425	YES	YES

60	156.025	160.625	NO	YES
----	---------	---------	----	-----

(*) CH15, CH17, **CH1027, CH1028**, CH75, CH76, CH87, CH88: Output power is fixed with 1W.

(*) CH70 is exclusively used for DSC channel and voice transmission is prohibited.

■ RUS ADDITIONAL CHANNEL(ITU):

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
29	157.450	157.450	YES	YES
30	157.500	157.500	YES	YES
31	157.550	157.550	YES	YES
32	157.600	157.600	YES	YES
33	157.650	157.650	YES	YES
34	157.700	157.700	YES	YES
35	157.750	157.750	YES	YES
36	157.800	157.800	YES	YES
37	157.850	157.850	YES	YES
38	157.900	157.900	YES	YES
39	157.950	157.950	YES	YES
40	158.000	158.000	YES	YES

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
89	157.475	157.475	YES	YES
90	157.525	157.525	YES	YES
91	157.575	157.575	YES	YES
92	157.625	157.625	YES	YES
93	157.675	157.675	YES	YES
94	157.725	157.725	YES	YES
95	157.775	157.775	YES	YES
96	157.825	157.825	YES	YES
97	157.875	157.875	YES	YES
98	157.925	157.925	YES	YES
99	157.975	157.975	YES	YES

6.2 USA CHANNEL:

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
1001	156.050	156.050	YES	YES
1005	156.250	156.250	YES	YES
06	156.300	156.300	YES	NO
1007	156.350	156.350	YES	YES
08	156.400	156.400	YES	NO
09	156.450	156.450	YES	YES
10	156.500	156.500	YES	YES
11	156.550	156.550	YES	YES
12	156.600	156.600	YES	YES
13*	156.650	156.650	YES	NO
14	156.700	156.700	YES	YES
15*	---	156.750	YES	YES

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
1063	156.175	156.175	YES	YES
1065	156.275	156.275	YES	YES
1066	156.325	156.325	YES	YES
67*	156.375	156.375	YES	NO
68	156.425	156.425	YES	NO
69	156.475	156.475	YES	YES
70*	---	156.525	---	---
71	156.575	156.575	YES	YES
72	156.625	156.625	YES	NO
73	156.675	156.675	YES	YES
74	156.725	156.725	YES	YES
75	156.775	156.775	YES	YES

16	156.800	156.800	YES	YES
17*	156.850	156.850	YES	YES
1018	156.900	156.900	YES	YES
1019	156.950	156.950	YES	YES
20	157.000	161.600	NO	YES
1020	157.000	157.000	YES	YES
1021	157.050	157.050	YES	YES
1022	157.100	157.100	YES	YES
1023	157.150	157.150	YES	YES
24	157.200	161.800	NO	YES
25	157.250	161.850	NO	YES
26	157.300	161.900	NO	YES
27	157.350	161.950	NO	YES
28	157.400	162.000	NO	YES

76	156.825	156.825	YES	YES
77*	156.875	156.875	YES	YES
1078	156.925	156.925	YES	YES
1079	156.975	156.975	YES	YES
1080	157.025	157.025	YES	YES
1081	157.075	157.075	YES	YES
1082	157.125	157.125	YES	YES
1083	157.175	157.175	YES	YES
84	157.225	161.825	NO	YES
85	157.275	161.875	NO	YES
86	157.325	161.925	NO	YES
87	157.375	157.375	YES	YES
88	157.425	157.425	YES	NO

(*) CH13, CH17, CH67, CH75, CH76, CH77: Output power is fixed with 1W.

(*) CH15, CH70 are prohibited from voice transmitting.

6.3 CANADA CHANNEL:

CH	Tx (MHz)	Rx (MHz)	SHIP SHIP	SHIP SHORE
01	156.050	160.650	NO	YES
02	156.100	160.700	NO	YES
03	156.150	160.750	NO	YES
04A	156.200	156.200	YES	YES
05A	156.250	156.250	YES	YES
06	156.300	156.300	YES	NO
07A	156.350	156.350	YES	YES
08	156.400	156.400	YES	NO
09	156.450	156.450	YES	YES
10	156.500	156.500	YES	YES
11	156.550	156.550	YES	YES
12	156.600	156.600	YES	YES
13*	156.650	156.650	YES	NO
14	156.700	156.700	YES	YES
15*	156.750	156.750	YES	YES
16	156.800	156.800	YES	YES
17*	156.850	156.850	YES	YES

CH	Tx (MHz)	Rx (MHz)	SHIP SHORE	SHIP SHORE
60	156.025	160.625	NO	YES
61A	156.075	156.075	YES	YES
62A	156.125	156.125	YES	YES
63A	156.175	156.175	YES	YES
64	156.225	160.825	NO	YES
64A	156.225	156.225	YES	YES
65A	156.275	156.275	YES	YES
66A*	156.325	156.325	YES	YES
67	156.375	156.375	YES	NO
68	156.425	156.425	YES	NO
69	156.475	156.475	YES	YES
70*	--	156.525	---	---
71	156.575	156.575	YES	YES
72	156.625	156.625	YES	NO
73	156.675	156.675	YES	YES
74	156.725	156.725	YES	YES
75	156.775	156.775	YES	YES

18A	156.900	156.900	YES	YES	76	156.825	156.825	YES	YES
19A	156.950	156.950	YES	YES	77*	156.875	156.875	YES	YES
20*	157.000	161.600	NO	YES	78A	156.925	156.925	YES	NO
21A	157.050	157.050	YES	YES	79A	156.975	156.975	YES	YES
21B	---	161.650	---	---	80A	157.025	157.025	YES	YES
22A	157.100	157.100	YES	YES	81A	157.075	157.075	YES	YES
23	157.150	161.750	NO	YES	82A	157.125	157.125	YES	YES
23B*	---	161.750	NO	YES	83A	157.175	157.175	YES	YES
24	157.200	161.800	NO	YES	83B*	---	161.775	---	---
25	157.250	161.850	NO	YES	84	157.225	161.825	NO	YES
25B	RX	161.850	---	---	85	157.275	161.875	NO	YES
26	157.300	161.900	NO	YES	86	157.325	161.925	NO	YES
27	157.350	161.950	NO	YES	87	157.375	157.375	NO	YES
28	157.400	162.000	NO	YES	88	157.425	157.425	NO	YES
28B	RX	162.000	---	---					

(주) (*) CH13, CH15, CH17, CH20, CH66A, CH77: Output power is fixed with 1W.

(*) CH21B, CH25B, CH70, CH83B are prohibited from voice transmitting.

6.4 WEATHER CHANNEL:

WEATHER CH	Rx(MHz)	FORM	SORT
WX1	162.550	NOAA WEATHER CHANNEL	NOAA WX
WX2	162.400	NOAA WEATHER CHANNEL	NOAA WX
WX3	162.475	NOAA WEATHER CHANNEL	NOAA WX
WX4	162.425	NOAA WEATHER CHANNEL	NOAA WX
WX5	162.450	NOAA WEATHER CHANNEL	NOAA WX
WX6	162.500	NOAA WEATHER CHANNEL	NOAA WX
WX7	162.525	NOAA WEATHER CHANNEL	NOAA WX
WX8	161.650	CANADIAN WEATHER CHANNEL	CANADA WX
WX9	161.775	CANADIAN WEATHER CHANNEL	CANADA WX
WX10	163.275	NOAA WEATHER CHANNEL	NOAA WX

제 3 장 Position Information Interface

This unit is effectively designed for convenient use, after receiving NMEA0183 FORMAT typed GPS information that will interface internally and input automatically with current own vessel's latitude and longitude and longitude value when distress call is occurred.

It is available to input the time when determined with position information and position by manual. In case not receiving position data from electronic position-determined device, and/or in case position information conducted by manual input being delayed more than 4 hours, alarm is ringing. Any position information, which is not updated more than 23½ hours should be deleted. Alarm will ring if GPS is not input more than 10 minutes and alarm would stop when GPS is input again.

◎ NMEA0183 communication speeds are available with 4800bps, 9600bps, 38400bps.

◎ NMEA0183 input mode and type for this unit is as follows,

\$GPGGA,065501,3506.3023,N,12905.6429,E,1,07,001.3,00005,M,0000,M,,*41

\$GPGGA,032007,3505.10,N,12902.47,E,1,00,1,0,M,,M,,

\$GPGGA,044610.00,3505.2139,N,12904.2867,E,1,06,05.4,,M,,M,,*63

\$GPRMC,123456,A,3505.00,N,12902.00,E,1.0,0.0,221199,0.0,E*00

\$GPRMC,123456,A,3505.0000,N,12902.0000,E,1.0,0.0,221199,0.0,E*00

\$GPRMC,044610.00,A,3505.2139,N,12904.2867,E,00.2,229.1,180702,,*0D

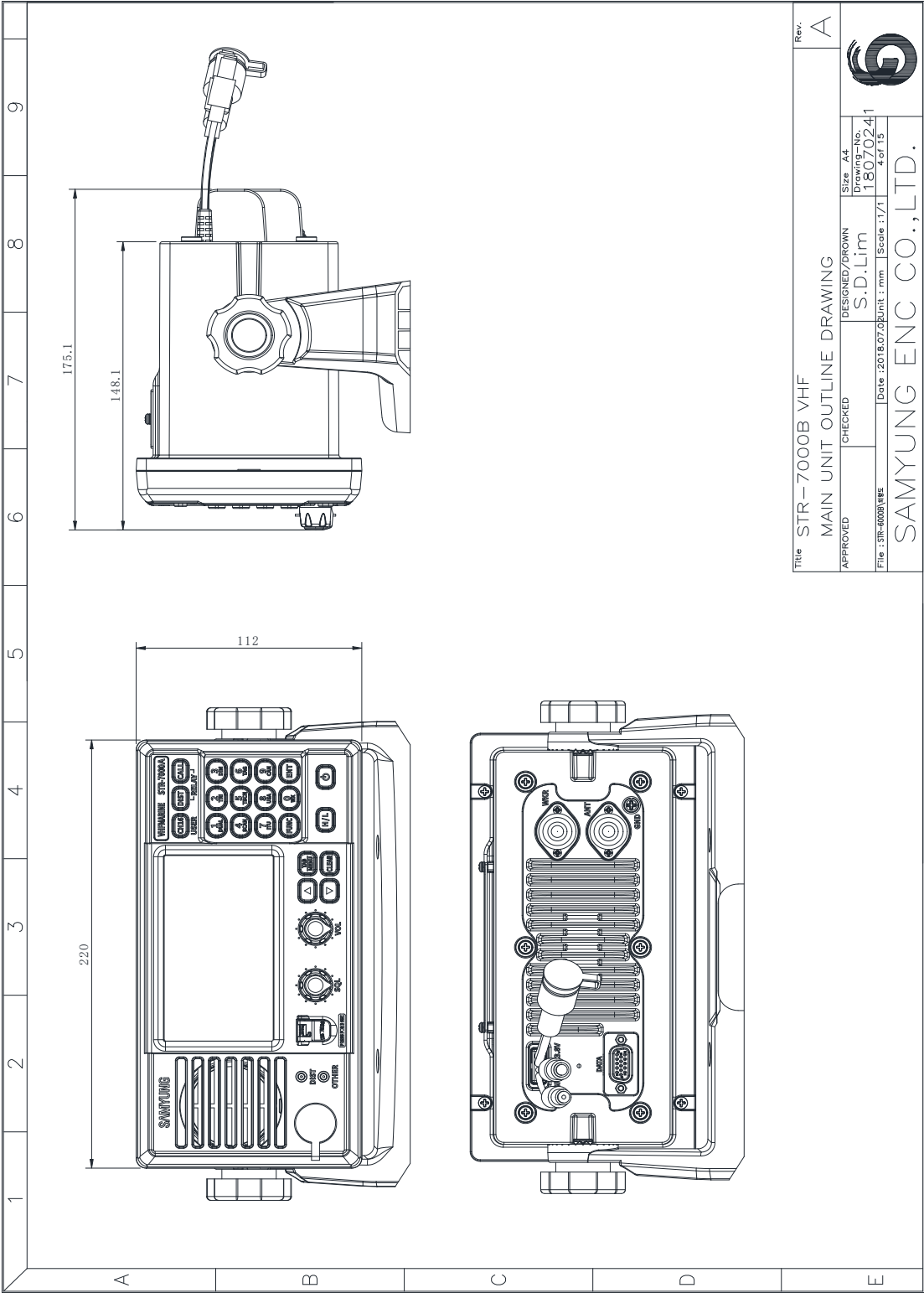
\$GPGLL,3504.2892,N,12900.2503,E,024950.00,V*14

\$GPGLL,3505.09,N,12902.45,E,PCL

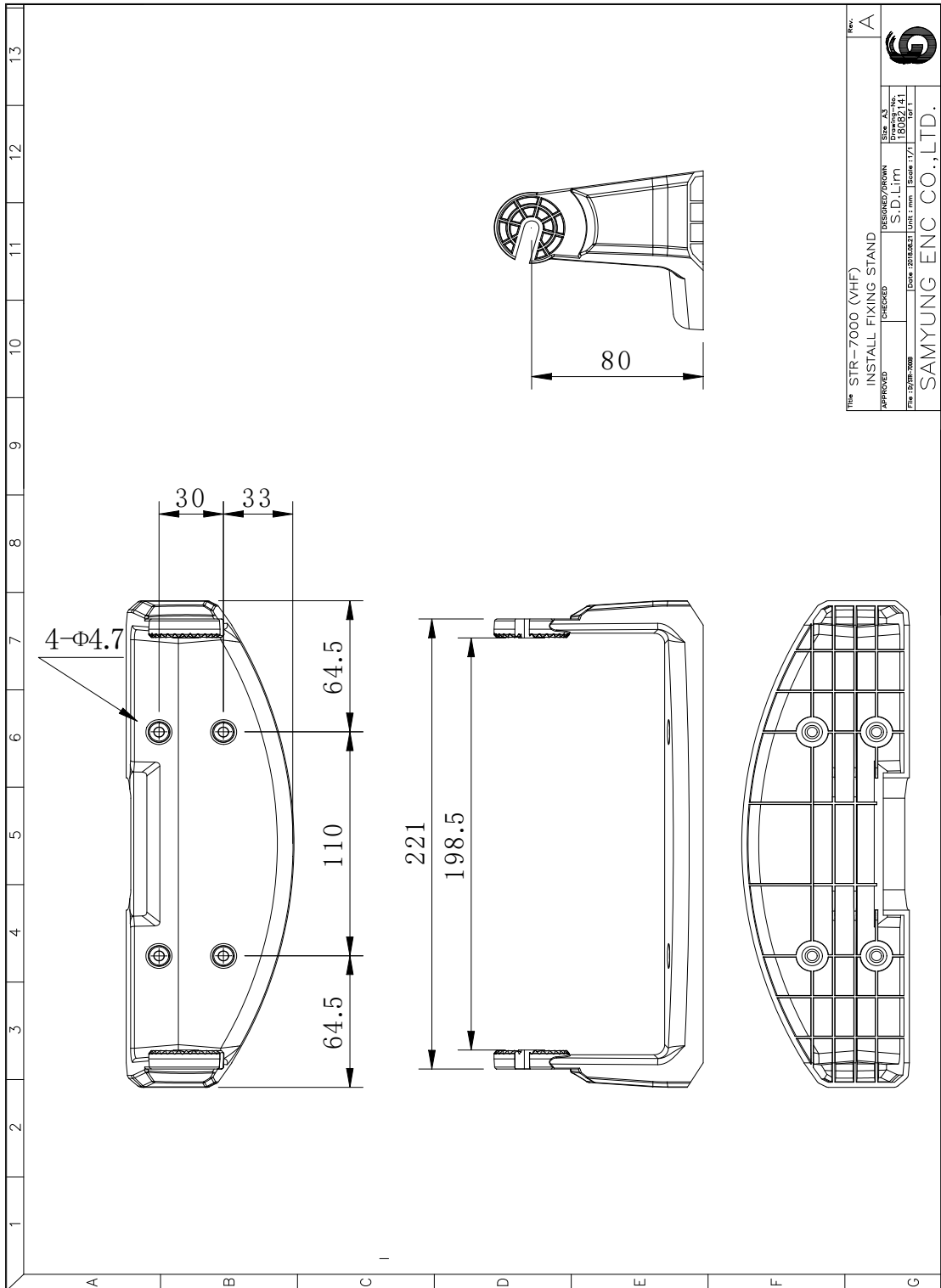
\$GPZDA,025220.00,17,04,1999,00,00*6B

\$GPZDA,050048,13,09,1998,+00

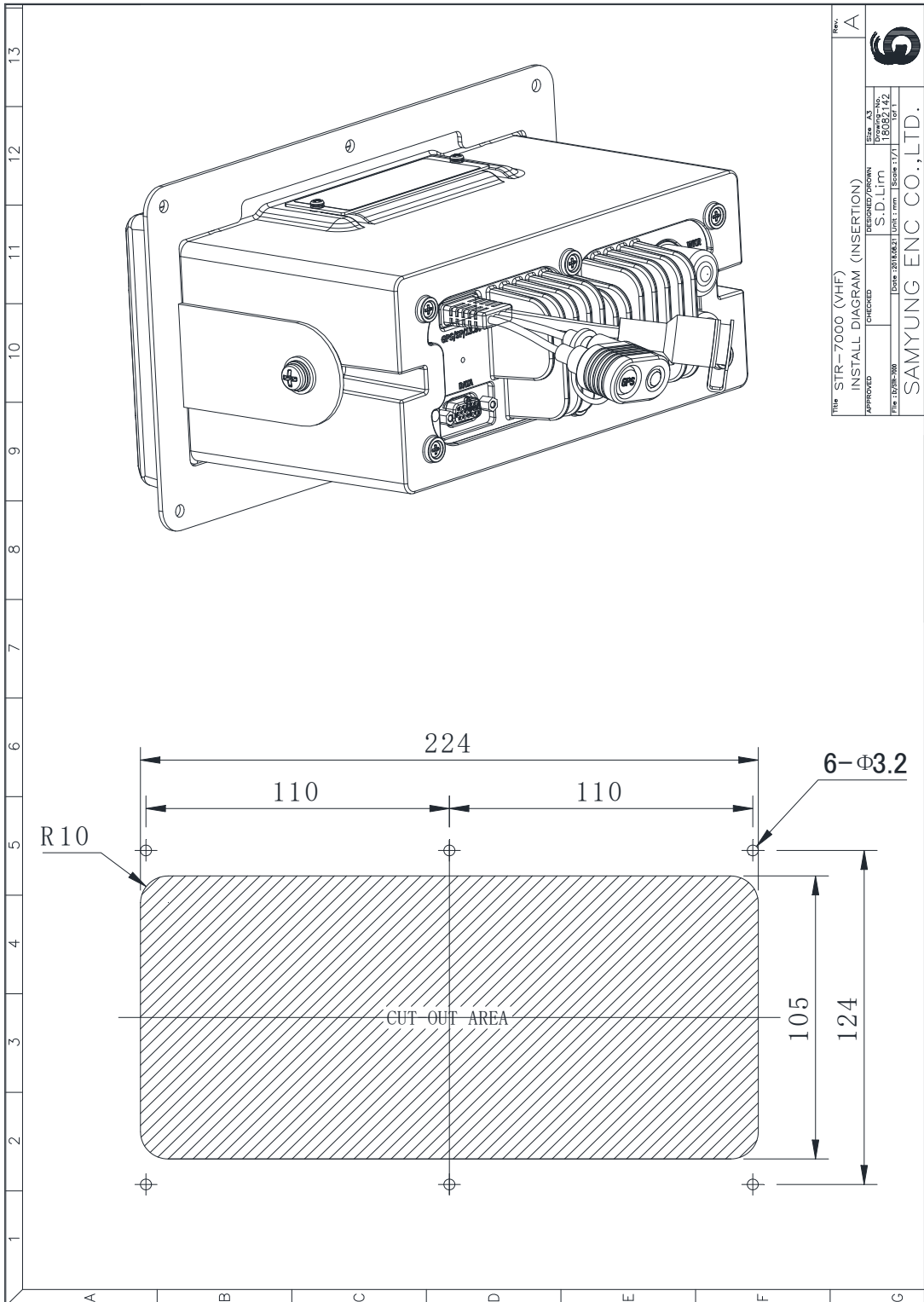
8.2 STR-7000A Diagram



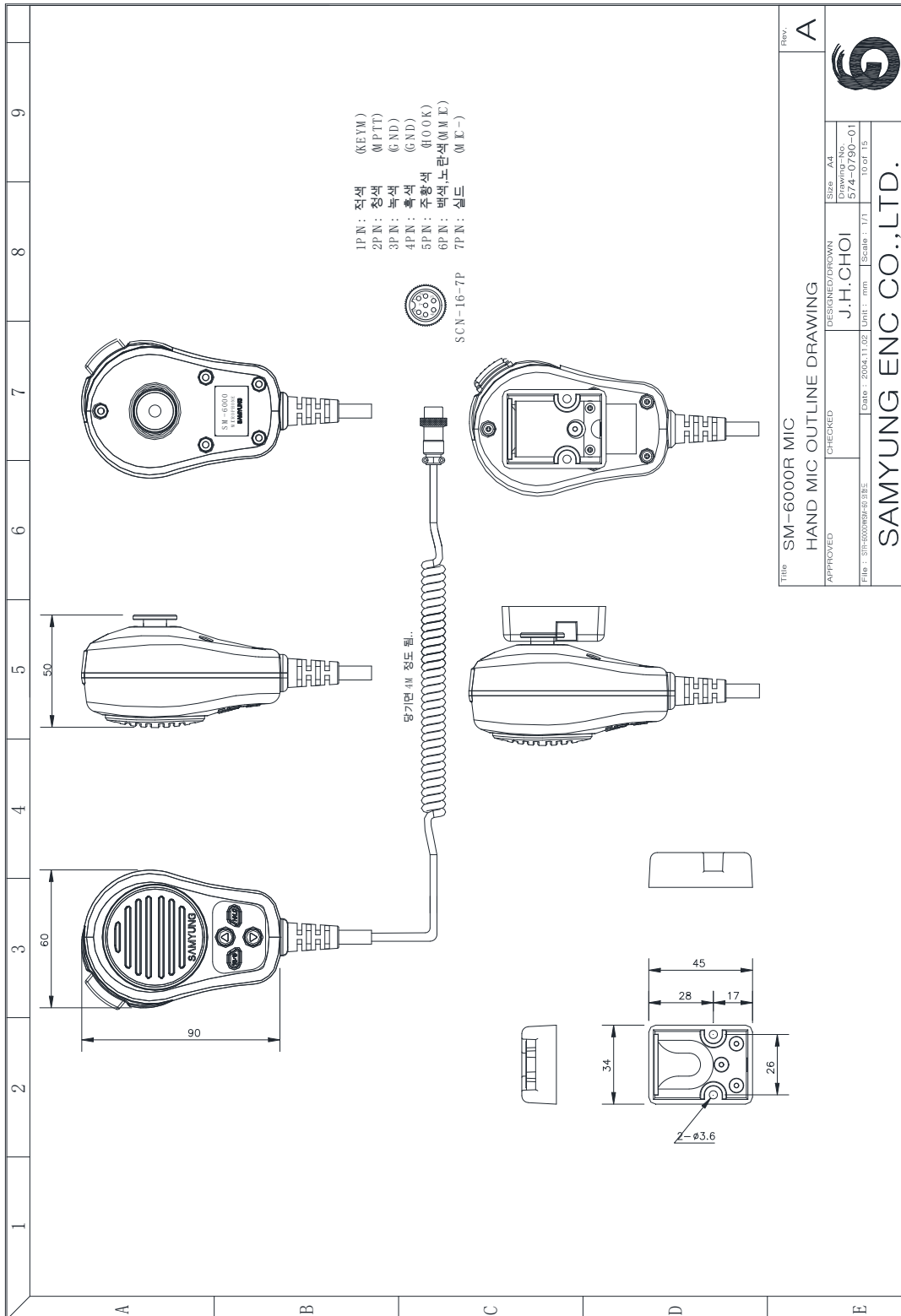
8.3 Bracket Diagram



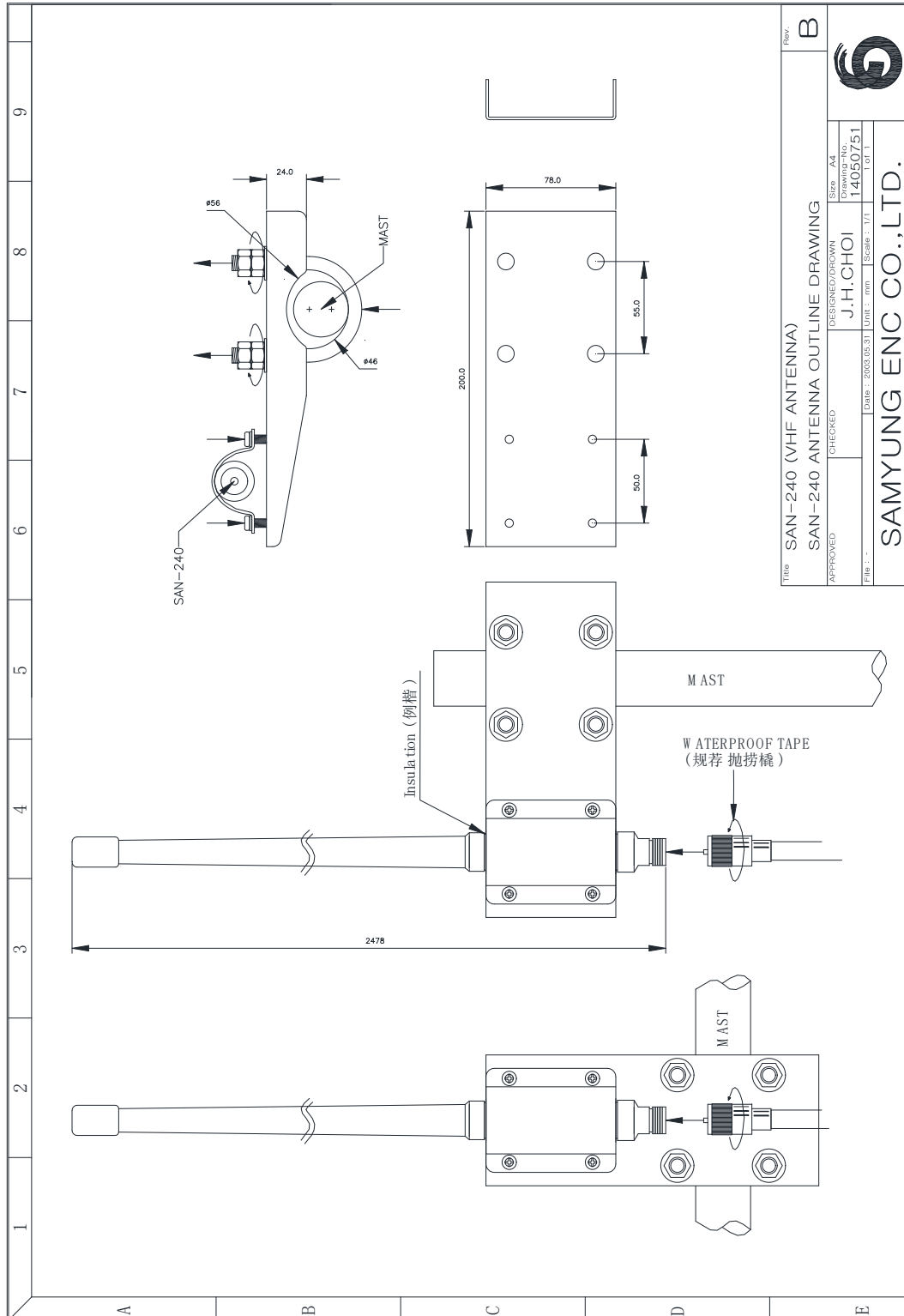
8.4 Installation Diagram



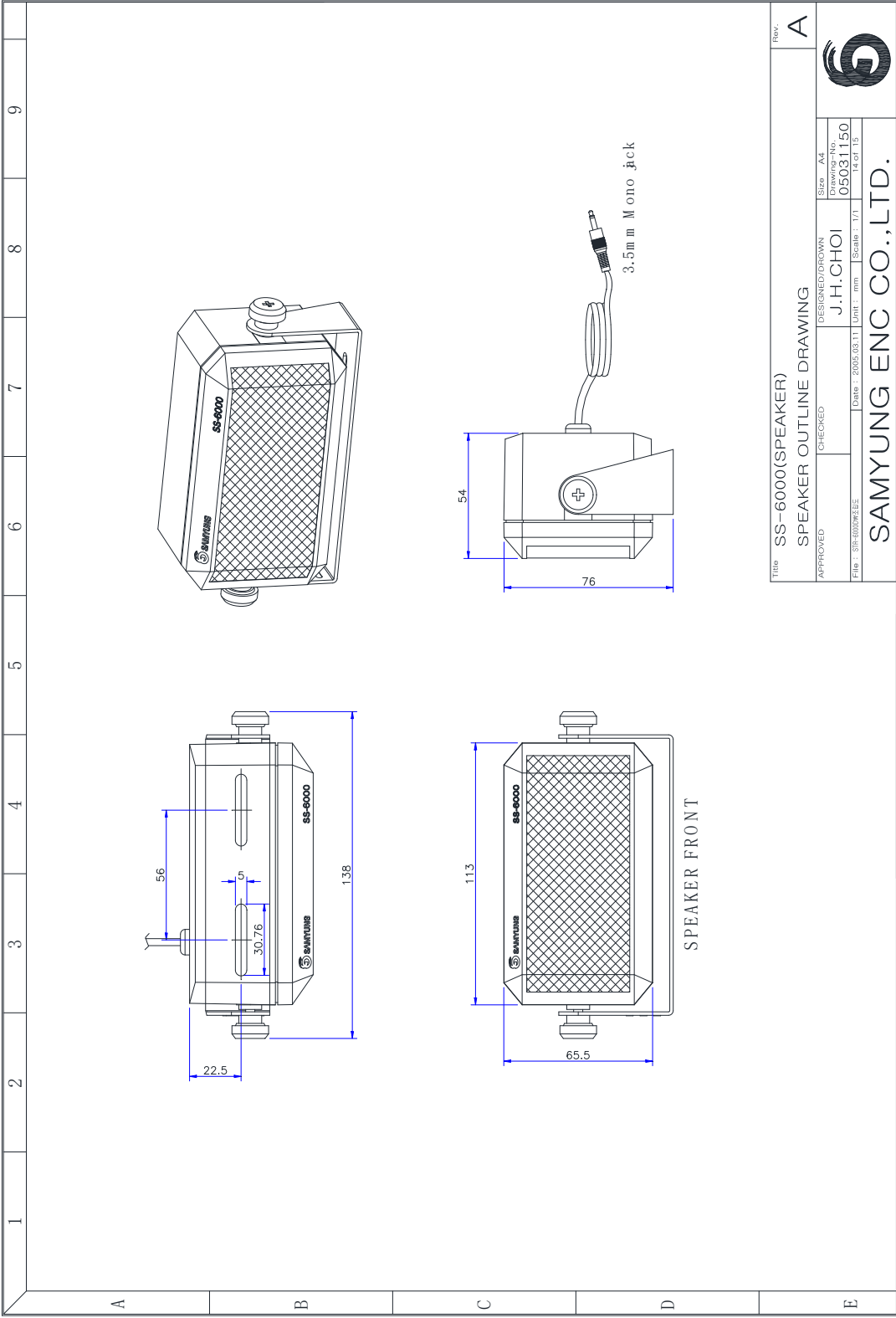
8.5 SM-6000R MIC Diagram



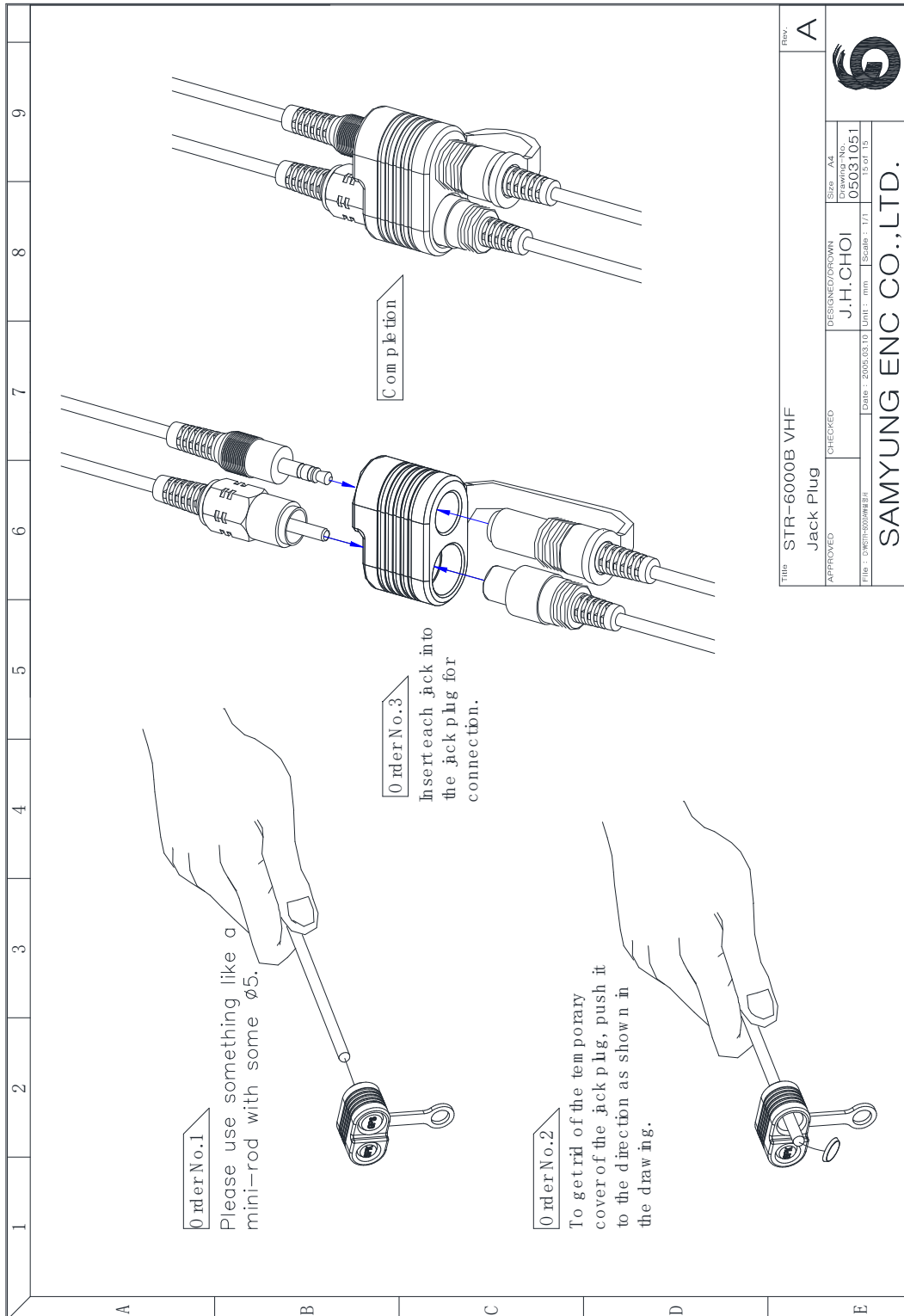
8.7 SAN-150 Antenna Outline Drawing



8.8 SS-6000 Speaker Diagram (OPTION)



8.9 How to Connect Jack Plug



APPENDIX 1. Alert Description

A. Distress or Urgency call

1. DISTRES : RX

- U 440012345 N57'12 E009'41 1210 07 00

1 2 3 4 5 6

1. DSC RECEIVING STATUS

U : Un-acknowledged

A : Acknowledged

C : Cancelled

2. MMSI of a ship in distress

3. Latitude and longitude for a ship in distress

4. Time

- 00 means that time and minute are 00 : 00

5. Signal of distress (nature of distress)

00 : Fire, explosion

01 : Flooding

02 : Collision

03 : Grounding

04 : Listing, in danger of capsizing

05 : Sinking

06 : Disables and adrift

07 : Undesignated distress

08 : Abandoning ship

09 : Piracy / armed robbery attack

10 : Man overboard

12 : EPIRB emission

6. Communication Mode

00 : Telephone

26 : No information

2. DISTRESS : RELAY

- U 004412345 441234567 N57'12 E009'41 1210 07 00

1 2 3 4 5 6 7

1. DSC receive status
2. MMSI of a transmitted ship
3. MMSI of a ship in distress
4. Latitude and longitude for a ship in distress
5. Time
6. Nature of distress
7. Communication Mode

3. URGENCY : RX

- U 440001234 10 00 09

1 2 3 4 5

1. DSC receive status
2. MMSI of a transmitted ship
3. Category
 - 00 : Routine
 - 08 : Safety
 - 10 : Urgency
4. Communication Mode
5. Communication Channel Information
 - 09 : Channel

B. Other call

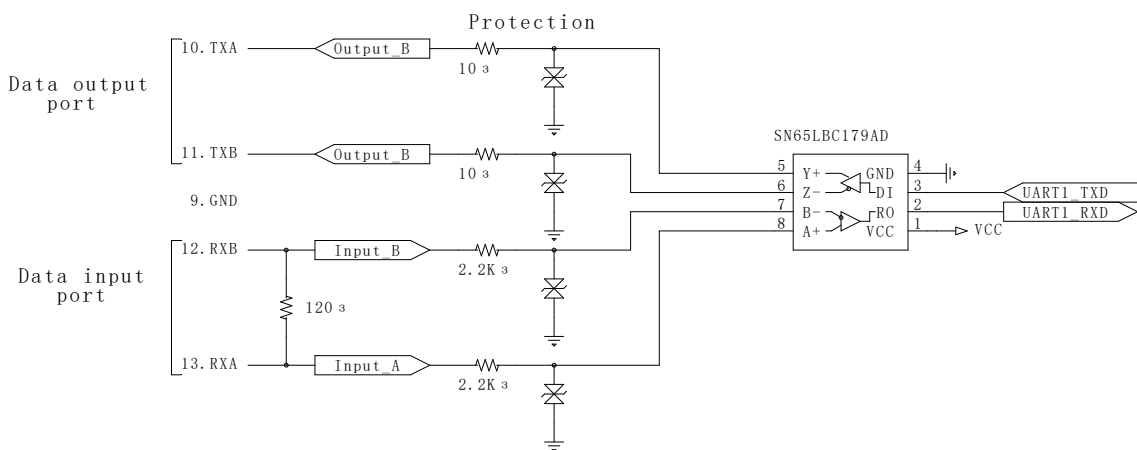
- 00 26 4412345678 09

1 2 3 4

1. First telecommand
 - 00 : telephone
 - 03 : Polling
 - 18 : Test
 - 21 : Ship position or location registration updating
2. Second telecommand
 - 00 : No reason given
 - 01 : Congestion at maritime switching centre
 - 02 : Busy
 - 03 : Queue indication

- 04 : Station barred
- 05 : No operator available
- 06 : Operator temporarily unavailable
- 07 : Equipment disabled
- 08 : Unable to use proposed channel
- 09 : Unable to use proposed mode
- 26 : No information
- 3. MMSI of a transmitted ship
- 4. Communication Channel information / Position Information

APPENDIX 2. Interface I/O circuit (BAM)



WARRANTY

WARRANTY PERIOD – 1YEAR

Thank you for purchasing Samyung ENC products. This product has been passed through strict quality control and inspection before shipping. If the user uses the product normally within the warranty period, but there is a manufacturing defect, you can receive a free service for one year from the date of purchase.

Warranty service can be made at Samyung ENC A/S Center or the official agency.

However, in principle, defects caused by improper use and arbitrary modifications by the user are subject to paid repair.

If you need service, please send the product to Samyung ENC A/S center or official agency to repair the product.

Headquarters After-Sales Service	
Address	1 ilsanbong-ro, Yeongdo-gu, Busan (84-132 Cheonghak-dong)
Department	SamYung ENC Co., Ltd. A/S Team
Contact Info.	Tel. : 1577-0198
	FAX : 051-416-5515
In an event of an A/S, please inform us of the device name, serial number, operation status, etc. by phone or FAX and we will take care of it promptly.	
Regional(Sales-office, Agency) After-Sales Service	
Manager	
Contact Info	Tel :
	Mobile :
Please note the contact person and information when purchasing the product.	

This instruction manual explains the correct installation method, operation method, and precautions for the product. Please keep this book in a certain place to prevent it from being lost or damaged.

If you re-sell or cede the device, please hand over this document to a new owner.