

NAVTEX RECEIVER for GMDSS

SNX-300

(Instruction Manual)



--- LEGEND ---

CHAPTER 1. OVERVIEW	5
1.1. GENERAL.....	5
1.2. BROADCASTING.....	5
1.2.1. Frequency in use	5
1.2.2. Location of Coast Stations and Broadcasting Time.....	5
1.2.3. Transmission Mode	6
1.3. MESSAGE TYPE.....	6
1.3.1. Transmitted Message Type	7
1.3.2. B ₃ B ₄ Numbering.....	8
1.3.3. END of RECEPTION	8
CHAPTER 2. SYSTEM	9
2.1. FEATURE.....	9
2.2. SYSTEM COMPOSITION	9
2.3. CONDITIONS OF RECEPTION AND DISPLAY	10
2.4. PRINTER PORT	10
2.5. EXTERNAL PORT	11
2.6. USER SET LIST.....	11
2.7. SOFT KEYS.....	12
CHAPTER 3. SPECIFICATION	13
3.1. RECEIVER	13
3.2. DISPLAY SECTION	13
3.3. POWER SUPPLY	13
3.4. ACTIVE ANT(SAN-300)	13
3.5. ENVIRONMENT	13
CHAPTER 4. OPERATION	14
4.1. FRONT PANEL.....	14
4.2. LED & BUZZER	14
4.3. BUTTON DESCRIPTION.....	15
CHAPTER 5 HOW TO USE	16
5.1. POWER ON/OFF.....	16
5.2. SYSTEM MENU.....	18
5.3. STATION SELECTION	19
5.4. MESSAGE SELECTION	21
5.5. LIST OF MESSAGE HISTORY	23
5.6. USER SET	26
5.7. SYSTEM SETTING.....	28
5.8. SYSTEM DIAGNOSTICS	32
5.9. FACT MANUAL.....	40

CHAPTER 6. INSTALLATION & TROUBLESHOOTING	41
6.1. HOW TO INSTALL RECEIVER.....	41
6.1.1. Installation Place.....	41
6.1.2. Installation Sequence and Method.....	41
6.2. ANTENNA INSTALLATION.....	42
6.2.1. Installation Place.....	42
6.2.2. Installation Sequence and Method.....	42
6.3. TROUBLESHOOTING AND INSPECTION.....	42
6.3.1. General Troubleshooting and Inspection.....	42
6.3.2. Device Composition.....	43
6.4. TROUBLE SHOOTING.....	43
CHAPTER 7. AFTER-SALES SERVICE	45
7.1. GUARANTEE PERIOD.....	45
7.2. DEVICES DISPOSAL.....	45
CHAPTER 8. BROADCASTING TIMES OF	46
NEIGHBORING COUNTRIES	46
CHAPTER 9. IEC 61162 MESSAGE COMPOSITION	52
9.1. NRX & NRM.....	52
9.2. INS SIGNAL.....	56
CHAPTER 10. PACKING LIST	57
CHAPTER 11. DPU-414 SETTING	59
CHAPTER 12. CIRCUIT DIAGRAM	61
CHAPTER 13. EXTERNAL DIAGRAM	62

PREFACE

The following marks are designed to prevent any damages & injuries to guide correct operation.

Pay attention to the below guide line for exact use !

 WARNING	If you ignore “WARNING”, You may get seriously injured.
 CAUTION	If you ignore “WARNING”, You may get injured & damaged for your properties.

 WARNING	<ul style="list-style-type: none"> ☞ Don't disassemble the equipment at discretion. ☞ Be careful the equipment not to be exposed a liquid like rain and snow. ☞ Use rated voltage regulated at manual, Strictly Check the polar when it's connecting power.
 CAUTION	<ul style="list-style-type: none"> ☞ The equipment is sensitive electronic device. Please install proper place without shock and vibration. ☞ Observe storage and temperature under operating described at manual. ☞ Don't touch resistor and Trans on the PCB, which is delivered from warehouse with tuning correctly. ☞ Don't pile anything on the equipment.

- ☞ Please be aware of the Manual before operation.
- ☞ Please be kept on the Manual around the equipment always and not to be lost
- ☞ Once it is fired or smoked, Turn off the switch immediately.
- ☞ We appreciated that you purchased SNX-300 NAVTEX RECEIVER of Samyungenc.

CHAPTER 1. OVERVIEW

1.1. GENERAL

- ◆ NAVTEX is an abbreviation for Navigational Telex and it is a Telex-Broadcasting system of the coast stations worldwide. NAVTEX of the coast stations broadcasts not only the defined ID, but also all the information on navigational warnings, weather warnings, SAR and other marine warnings for navigational safety of those vessels equipped with NAVTEX Receiver in the coasts.

Consisting of a part of WWNW of GMDSS monitored by IMO & IHO, NAVTEX with “Narrow Band Direct Printing” is a receiving system on board, using NAVTEX Receiver.

- ◆ NAVTEX is designed to receive all the marine safety information service made with the letter broadcasting both in English and in Local language on International Frequency : 518KHZ and on Local Frequency : 490KHZ or 4209.5KHZ. The services provided are mainly divided into 3(three) categories as follows ;
 - Navigational warnings such as iceberg movement-related safety.
 - Meteorological warnings such as typhoons and wave heights.
 - Search and Rescue activities by Coast Guard or Coast Station, including any urgent warnings.

1.2. BROADCASTING

1.2.1. Frequency in use

- IMO recommends that navigational warning, meteorological warnings, information on SAR and other information be received from NAVTEX stations and broadcast on 518KHZ for English, on 490KHZ or 4209.5KHZ. Both 518KHZ for English and 490KHZ for Korean have been used since March of 1999, but Japan uses 424KHZ for their local language exceptionally.

1.2.2. Location of Coast Stations and Broadcasting Time

- The location of broadcasting stations basically depends on the transmitting output and the conditions of the electronic wave in the region. The stations are normally located in the range from some 250NM to 400NM.

In fact, the major factors that decide the service region of the broadcasting stations are “Broadcasting Station ID” and “Broadcasting Time Plan”.

It is decided by IMO Coordination Committee. As the broadcasting time of each station is

SNX-300	[518] [490]	2006. 02. 08 12 : 30.32
ZCZC B₁B₂B₃B₄	Output	
Time of Origin(Broadcast Time) Series ID + Consecutive No. (S/N)	TAG	
..... Message Text(Text)	[]	
..... NNNN	EXIT	
	I N T	0 3
	L O C	2 3

< Fig 1-1 General Message FORMAT >

1.3.1. Transmitted Message Type

■ **ZCZC B₁B₂B₃B₄ Message NNNN**

- ① **ZCZC** : Start Code
- ② **B₁(A~Z)** : Station ID
- ③ **B₂(A~Z)** : Type of Message
- ④ **B₃B₄(00~99)** : Serial No., exception "00" (such as SAR message)
- ⑤ **Message** : Main messages
- ⑥ **NNNN** : Termination Code

Type of Message	Description
A*	Navigational Warning
B*	Meteorological Warning
C	Ice Report
D*	Search And Rescue Information/Piracy and Armed Robbery
E	Meteorological Forecast
F	Pilot Message
G	AIS message
H	LORAN-C message
I	Reserved presently not used

J	SANTNAV message
K	Other Electronic Navigational Aid System Message
L*	Navigational Warning(additional)
M to Y	Reserved presently not used
Z	QRU(no message on hand)

< Fig 1-2 Type of Message(B2) ID >

※ Notes : For the boldfaced A, B, D, L messages, it is forbidden to exclude Display on the receiver or Print-outs.

1.3.2. B₃B₄ Numbering

- Serial NO. (B₃B₄) - Serial numbers from 01 to 99 are given in NAVTEX message.
- These serial numbers are given by NAVTEX coordinating station. As a special figure, “00” is used only for significant tests such as rescue and it is unconditionally displayed on LCD screen. In case NAVTEX receives any message with this kind of special figure, it is designed to always print out whatever message it is. Therefore, the printing is strictly controlled. Other serial numbers, excluding “00” are memorized in CPU and used to avoid printing repetitively any completely received text.

1.3.3. END of RECEPTION

- NNNN : This means the end of any received text.(End of Message)

CHAPTER 2. SYSTEM

2.1. Feature

- ◆ The equipment is fully compliant with M.540-2, M.625-3, IEC-61162 Performance Standard of IMO Resolution MSC.148(77)ITU-R Recommendation.
- ◆ The equipment has 2(two) built-in receiving devices both on English channel(518KHz) and on Local channel(490KHz/4209.5KHz).
- ◆ Compact and light design creates the easy installation available.
- ◆ The operation of power supply prevention circuit makes the input power cut in case of less than DC 10V or more than DC 36V.
- ◆ It can indicate the frequency on which any text is being received.
- ◆ In case of failure in normally receiving, it shows the reason on LCD screen.
- ◆ In case of power on and performance of its self-diagnosis test, it is possible to automatically check the status of the equipment inside.
- ◆ In case of receiving A, B, D, L type messages among the received messages, it is indicated on LCD screen and a buzzer is activated.
- ◆ It is available to select Station and message ID received.
- ◆ It is possible to store more than 200 pieces of data, which is composed of 1600 letters per channel.
- ◆ For any received message, it can store for 62 hours.
- ◆ It is available to select any Station ID for reception refusal and to select any received message classification ID.
- ◆ It does not store any message that has more than 33% error rate of received letters, or that fails to display in a normal way.
- ◆ The supportive languages for this manual are in English, Chinese and Korean available. This manual is written in English.

2.2. System Composition

ITEM	MODEL NAME	Q'TY	REMARK
NAVTEX Receiver	SNX-300	1 EA	
ANTENNA(active)	SAN-300	1 EA	
POWER SUPPLY	SP-300AD	1 EA	OPTION
PRINTER	DPU-414	1 EA	OPTION

< Fig 2-1 SNX-300 Composition >

2.3. Conditions of Reception and Display

- ◆ When the error rate for the received character is below 4%, the message is printed and ID(B₁B₂B₃B₄) will be stored in the memory to protect from printing same message in the later stage of receiving.
- ◆ Receiving should be stopped when the error rate for received character is up to 33% (over 5 seconds) and the content should not be stored in memory.
(In case of not receiving "ZCZC B₁B₂B₃B₄" properly, receiving and storage should be stopped) In case of not receiving "NNNN" properly, display can be done while storage into the memory should not be done.
- ◆ Contents ID can be stored up to 200 numbers, but in case it being over 200, the memory is erased from the oldest one.
- ◆ Stored ID will be automatically erased after 62 hours passed.
- ◆ B1 and B2 data can be memorized over 6 hours after putting the power off.
- ◆ The allocated message as endowed with its serial number "B₃B₄" to "00", they are always displayed whenever they are received.
- ◆ Selection of transmitting station of serial number "B₁" can be made and confirmation for the selected station in the menu is possible.(At the delivery, all messages from transmitting station (A~Z) is set to be receivable).
- ◆ It receives messages type of serial number "B₂" and it confirms type at MENU. (It sets messages of all transmitting station (A~Z) in order to receive message when it delivers.).
- ◆ As message type A(Navigational warning), B(Weather warning), D(SAR) and L(Warning additive to "A") are very important warning message, they are not allowed to set forbidding the receipt of message. "D" alarm is continuously printed out while "A,B,L" can be set for printing out the alarm as an option (At the delivery, A,B,L messages are set to stop printing out the alarm)
- ◆ If receiving letters have errors, it prints out "*" instead of the error letters.
- ◆ It is possible to display 16 lines of message on the 5.7" LCD, and over 32letters each line(In case of small size).
- ◆ TAG : The message necessary to attach "TAG" will not be erased. TAG attachment could be available up to 25% (50 numbers) out of the receivable messages in total.

2.4. PRINTER PORT

- ◆ Printer is supplied a printer interface port for the users to connect it selectively. The printer port is a type of a serial interface.

2.5. EXTERNAL PORT

- ◆ The function of RS-422 interface is supplied to be possible connected with NAVIGATIONAL equipments.

2.6. USER SET LIST

- ◆ Following Lists are memorized if user set once.

MAIN MENU	SUB MANU	DESCRIPTION
[1] STATION SELECTION	[1] MANUAL SET INT	INTERNATINAL STATION(B1) SET
	[2] MANUAL SET LOC	LOCAL STSTION(B1) SET
[2] MESSAGE SELECTION	[1] MANUAL SET INT	INTERNATIONAL MESSAGE(B2)SET
	[2] MANUAL SET LOC	LOCAL MESSAGE(B2)SET
	[3] A.B.L ALARM SET	A.B.L ALARM SET
[4] USER SETTING	[1] RECEIVE NOTIFY	RECEIVER ALARM SET
	[2] PRINTER	PRINTER OUT SET
	[3] KEY BUZZER	KEY BUZZER SET
	[4] MESSAGE FONT SIZE	ENGLISH SIZE SET
	[5] DISPLAY LANGUAGE	SELECT USER LANGUAGE
	[6] 490/4209 LANGUAGE	LOCAL FREQUENCY LANGUAGE
[5] SYSTEM SETTING	[1] DIMMER AND CONTRAST	LCD BACKLIGHT CD & CT SET
	[2] 490/4209 SELECT	LOCAL FREQUENCY SET
	[3] LCD REVERSE	LCD
	[4] PRINTER SPEED	PRINTER PORT SET
	[5] INS SPEED	INS PORT SET
	[6] NMEA SPEED	NMEA PORT SET
	[7] DATE/TIME SET	DATE & TIME SET

< Fig 2-3 User Set List >

2.7. SOFT KEYS

◆ The following is decrypted the frequent Short Cut for User's convenient.

NO	FUNCTION		NO	FUNCTION	
	BUTTON			BUTTON	
1		INT'L STATION MANUAL SET(B1)	2		INT'L MESSAGE TYPE SET(B2)
3		ALARM OFF	4		LOCAL STATION MANUAL SET(B1)
5		LOCAL MESSAGE TYPE MAN. SET	6		MESSAGE LIST
7		CONTRAST HARDER	8		RECEIVER SOUND ON/OFF
9		CONTRAST LIGHTER	10		LCD BACKLIGHT DARK
11		RF RECEIVER TEST	12		LCD BACKLIGHT LIGHT

< Fig 2-4 SOFT KEYS >

CHAPTER 3. SPECIFICATION

3.1. Receiver

- ① Receiving Frequency : 518KHz , 490KHz or 4209.5KHz
- ② Receiving Modulation : F1B(Narrow Band Direct Printing)
- ③ Sensitivity : 2uV e.m.f. (50 ohms), 4% error rate or less
- ④ Antenna input : 50 ohms for NAVTEX Active antenna

3.2. DISPLAY SECTION

- ① Type of display : 5.7-inch LCD, 320×240 dots
- ② Back-light : For LCD and key board
- ③ Dimmer control : 10steps adjustable (Selectable from keyboard)
- ④ Contrast control : 10steps adjustable (Selectable from keyboard)

3.3. POWER SUPPLY

- ① Input voltage : Rated Voltage DC 12/24V (10 ~36V)
- ② Power consumption : 10 W (at 24 V dc input)

3.4. ACTIVE ANT(SAN-300)

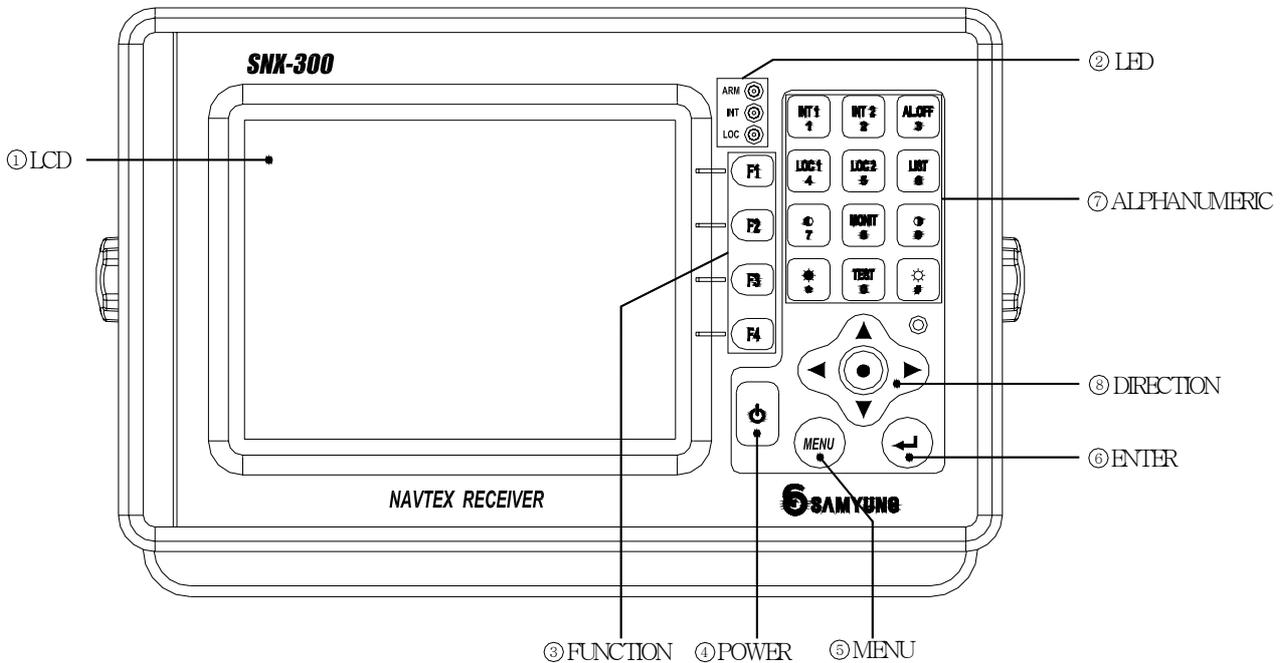
- ① Receiving frequency : 518kHz, 490kHz and 4209.5kHz
- ② Consumption current : 8Vdc 10mA (Typ.)
- ③ Impedance : 50 ohms

3.5. Environment

- ① Operation temperature : -15°C to +55°C
- ② Storage temperature : -25°C to +75°C
- ③ Relative humidity : 95% at 40°C (without dew condensation)
- ④ Vibration : IEC 60945

CHAPTER 4. OPERATION

4.1. Front Panel



< Fig 4-1 SNX-300 Front Panel >

NO	ITEM	DESCRIPTION
①	LCD	Display of RX message & various information
②	LED	Flickering according to the environment
③	FUNCTION	Function key interfacing with LCD
④	POWER	Power ON/OFF
⑤	MENU	MENU button
⑥	ENTER	Selectable button
⑦	ALPHANUMERIC	Numeric / Alphabet / Soft-key
⑧	DIRECTION	Direction button

< Table 4-1 Brief Description over the Front Panel >

4.2. LED & Buzzer

◆ This is ON/OFF function for beep ringing as all kinds of button on NAVTEX key pad is pressed. Besides, when alarm occurs, it is designed that alarm function is endowed to the buzzer to enable user to detect the alarm conditions.

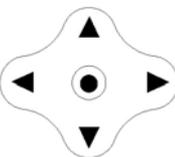
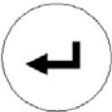
- ① ARM(ALARM) : When alarm occurs, LED is flickering.
- ② INT(INTERNATIONAL) : LED is flickering when it receives International (English) broadcasting.
- ③ LOC (LOCAL) : LED is flickering when it receives National (Local) broadcasting.

◆ Alarm is activated with the following conditions, use  to stop the buzzer.

Alarm Number	Alarm Text
001	Navigational Warning
002	Meteorological warning
003	Search and Rescue Information
004	Receiver Malfunction
005	Built in self test failure
006	General Failure (Clock, Printer)

< Table 4-2 Alarm List >

4.3. Button Description

NO.	Type of Button	Description	How to Use
①	ALPHANUMERIC		It shows numeral input keys of special characters, Numeric and Alphabet. The relative numeric & characters are displayed whenever pressing Alphabet and numeral keys. <Soft-key function is built-in for user's comfort (Refer to 2.7)>
②	DIRECTION		It is a button to move to right, left, up and down and also possible to be used on cursor's movement. It is used to delete input facts as well.
③	POWER ON/OFF		It is a power switch and used in power-on or off. Pressing the button, power on, pressing the button at great length, power off.
④	MENU		It shows MENU list onto LCD.
⑤	ENTER		It's an enter-key, carries selective category into execution and selects the sub-functions of the main category.
⑥	FUNCTION		It's a four-function key and manages LCD part of MKD. It consists of 4 keys (from the top, F1, F2, F3, F4 key in order). It carries selective category into execution.

< Table 4-3 Button >

CHAPTER 5 HOW TO USE

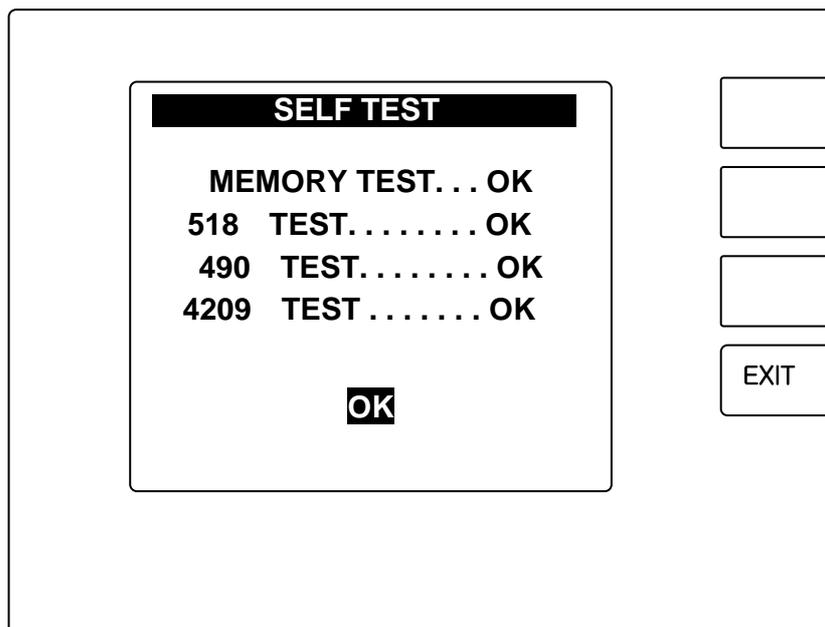
5.1. Power ON/OFF

- ◆ The device turns to ON/OFF by using ON/OFF key. It turns Power ON if you press  key one second in Power OFF condition, Power OFF if you press  key one second in Power ON condition.
- ◆ Check if the right Power input into the device and turn ON !!!!



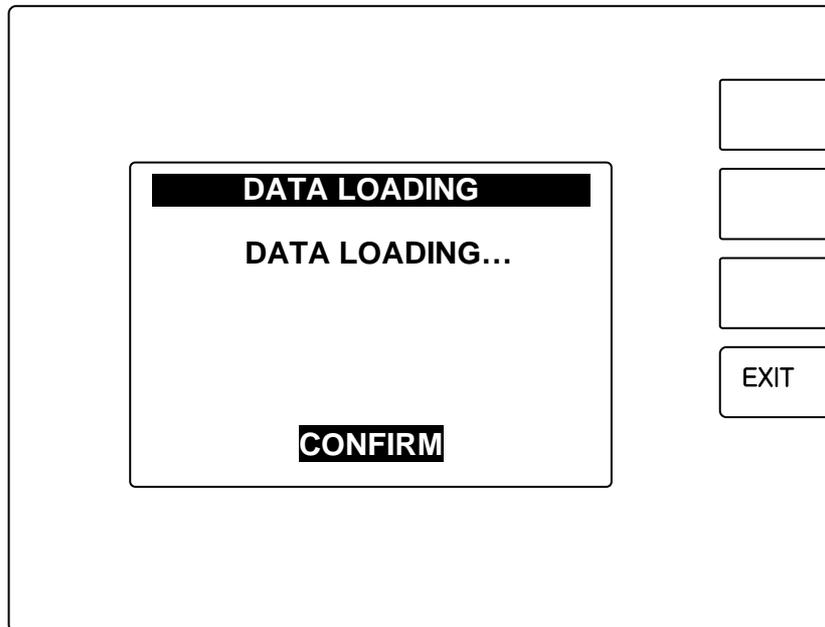
< Fig 5-1 Screen 1 in Power ON >

- ◆ The following screen shows after 5 seconds later of showing the above screen.



< Fig 5-2 Screen 2 in Power ON >

- ◆ It starts Self-Test after displayed logo-screen.



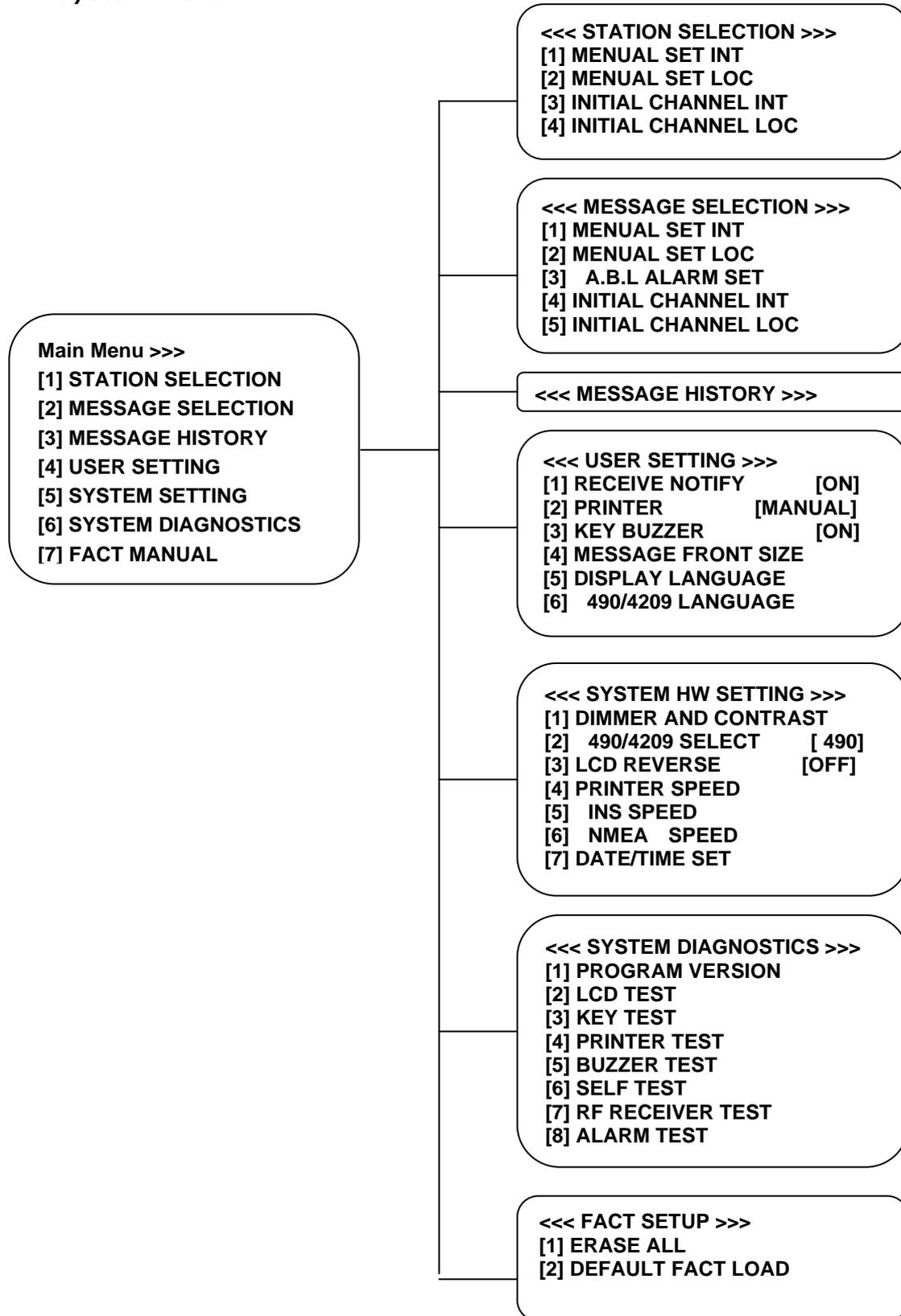
< Fig 5-3 Screen 3 in Power ON >

- ◆ The above screen shows that is calling information and reverse to the initial screen after about 2 seconds.

< Fig 5-4 Initial Screen >

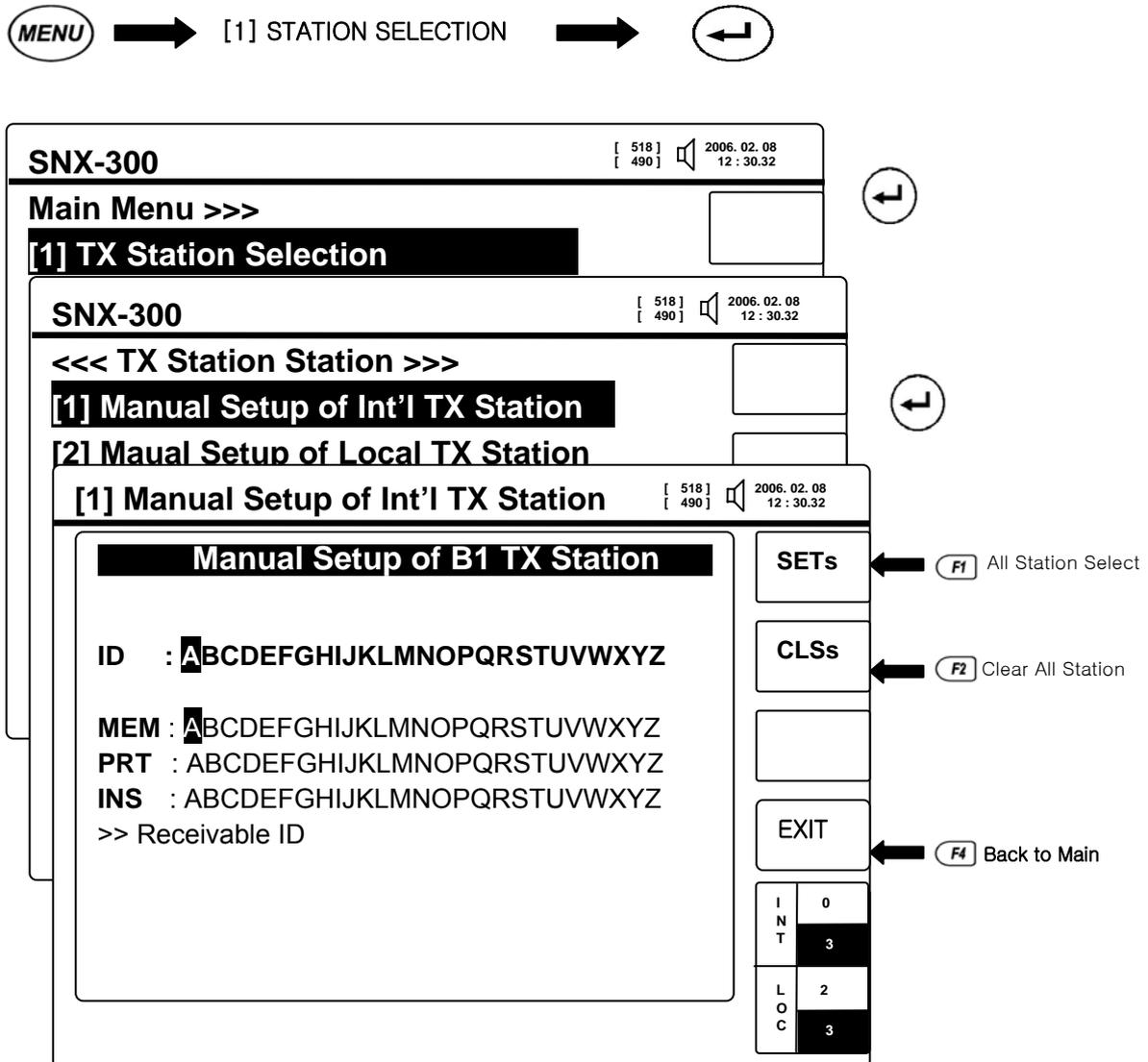
I N T	0	Intl' messages not opened
	3	Intl' SAR messages not opened
L O C	2	Local messages not opened
	3	Local SAR messages not opened

5.2. System Menu



5.3. STATION SELECTION

◆ It is a required function for receiving broadcasting from a favorable station only. It has set to receive broadcasting from all stations when it has been released at a factory and the selection of a required station is chosen onto MENU.

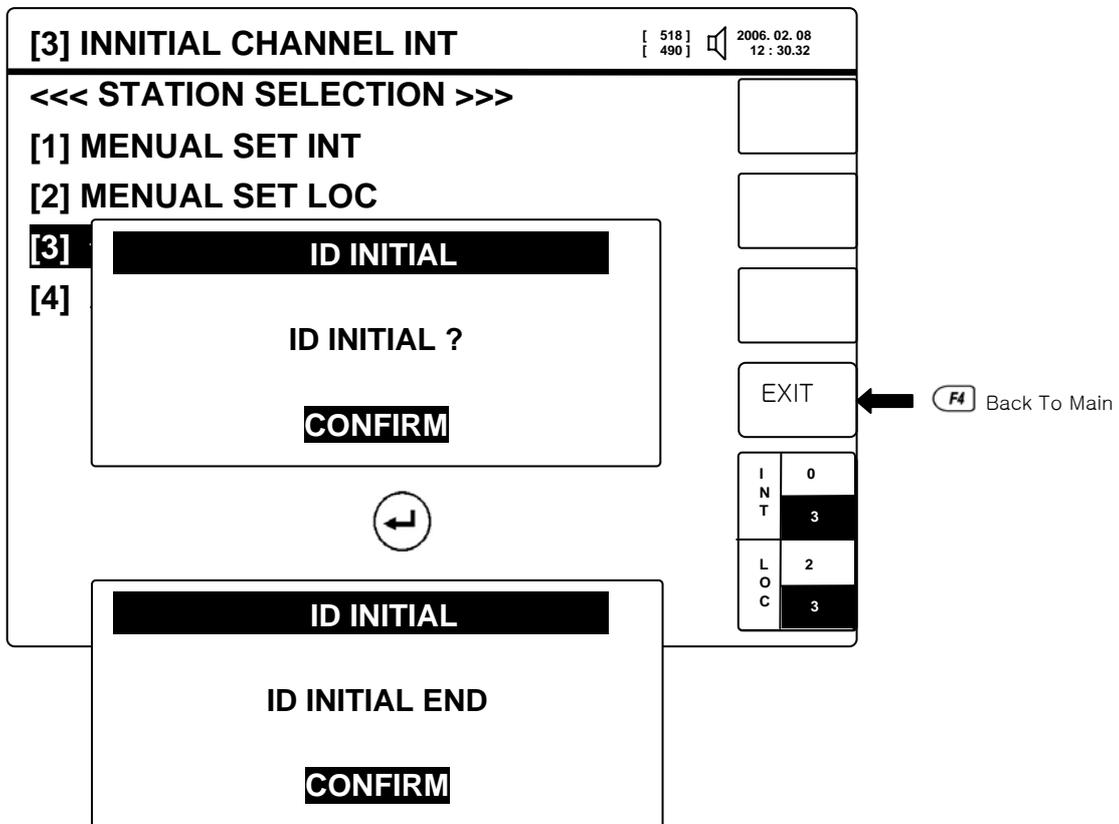


< Fig 5-5 Station Selection >

① [1]-[1] MANUAL SET INT

- A. It can be selected an intl' station (518KHz) by manual with direction keys and key. Possible to select / delete MEMORY, PRINT, INS one another.
- B. The selected station is receiving-rejected by using key, receiving-accepted by using key once more. Acceptance conditions are displayed onto a final line of the screen.
- C. As select (SETs) key, all stations can be selected.
- D. As select (CLSs) key, all stations can be deleted.
- E. After set completely and press (END) key, it is saved and move to a main screen.

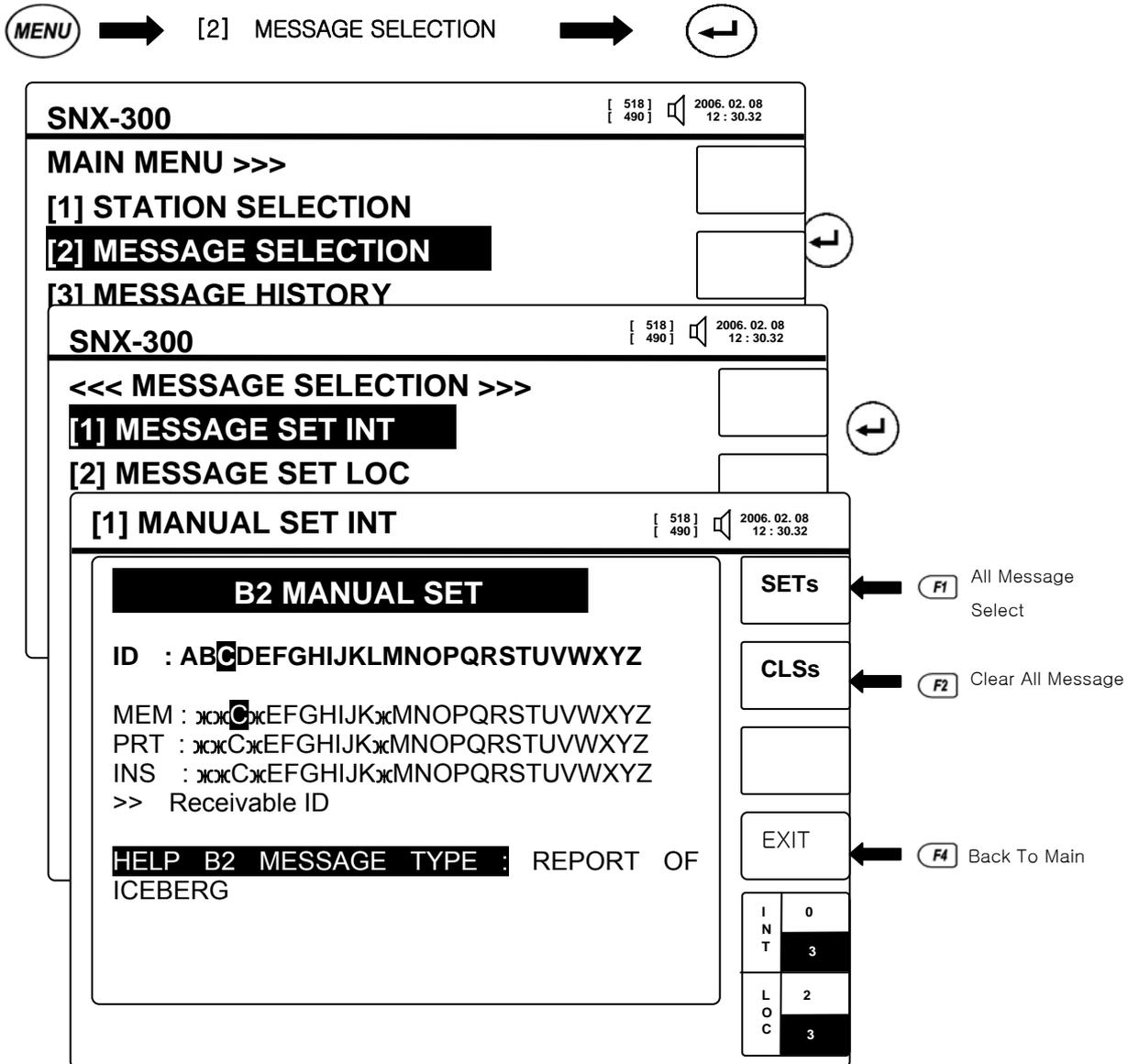
- ① The numbers of bottom-right of the screen are as follows.
 - A. No. of messages not opened of 518KHz
 - B. No. of messages for Intl' Rescue and Search not opened of 518KHz
 - C. No. of messages not opened of 4.2095 MHz/490 KHz
 - D. No. of messages for Intl' Rescue and Search not opened of 4.2095 MHz / 490 KHz
- ② [1]- [2] **MENUAL SET LOG** : Setting of Local station (490KHz,4.2095MHz) is same with one of [1] Intl' station manual set.
- ③ [1]-[3] **INITIAL CHANNEL INT**, [4] **INITIAL CHANNEL LOC** : It can be initialized by using  key and the initial conditions means that all stations for MEMORY are selected.



< Fig 5-6 INITIAL CHANNEL INT >

5.4. MESSAGE SELECTION

◆ It shows CATEGORY of receiving characters defined at IMO RESOLUTION and is possible to select acceptance or rejection for receiving according to an item. However, IMO RESOLUTION defines that TYPE A, B, D, L cannot be excepted.

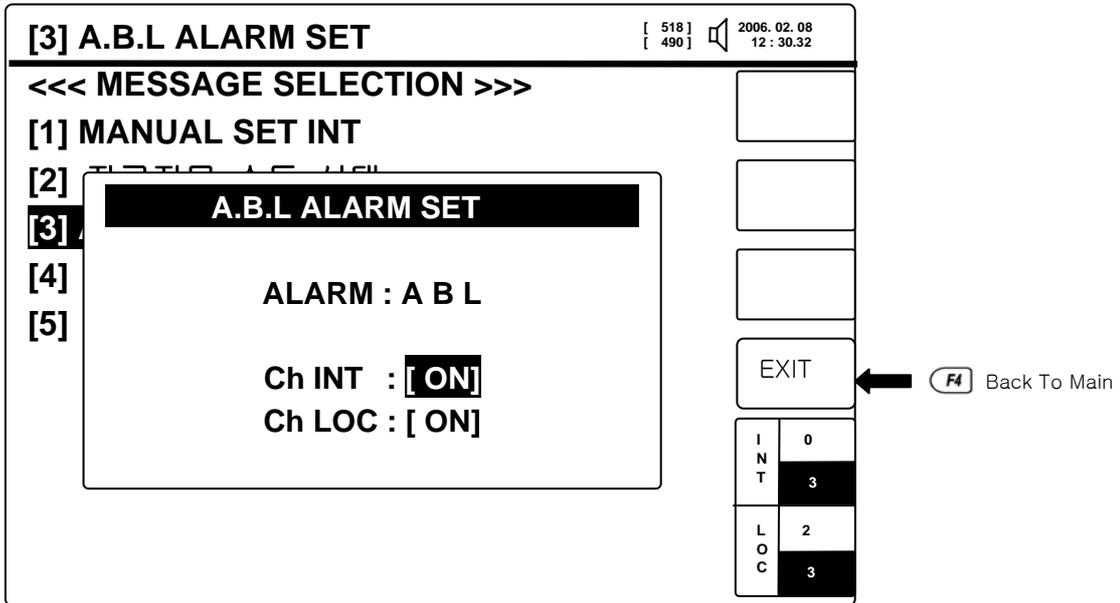


< Fig 5-7 MESSAGE SELECTION >

- ① [2]-[1] MANUAL SET INT
 - 가) The selected-receiving characters doesn't accepted for receiving by pressing direction keys / keys and does accepted for receiving by pressing key again. It shows acceptance for receiving and Help B2 Message Type in a screen. Refer to < Table 1-2 Messages (B2) Identification Codes >.
 - 나) If you select **F1** (SETs) key, all types of characters are selected.
 - 다) If you select **F2** (CLSs) key, all types of characters are escaped.
 - 라) After all set-up, if you press **F4**(END) key, save it and move to a Main screen.
- ③ [2]-[2] MANUAL SET LOC : Character's type of Local messages (490KHz,4.2095MHz) can be

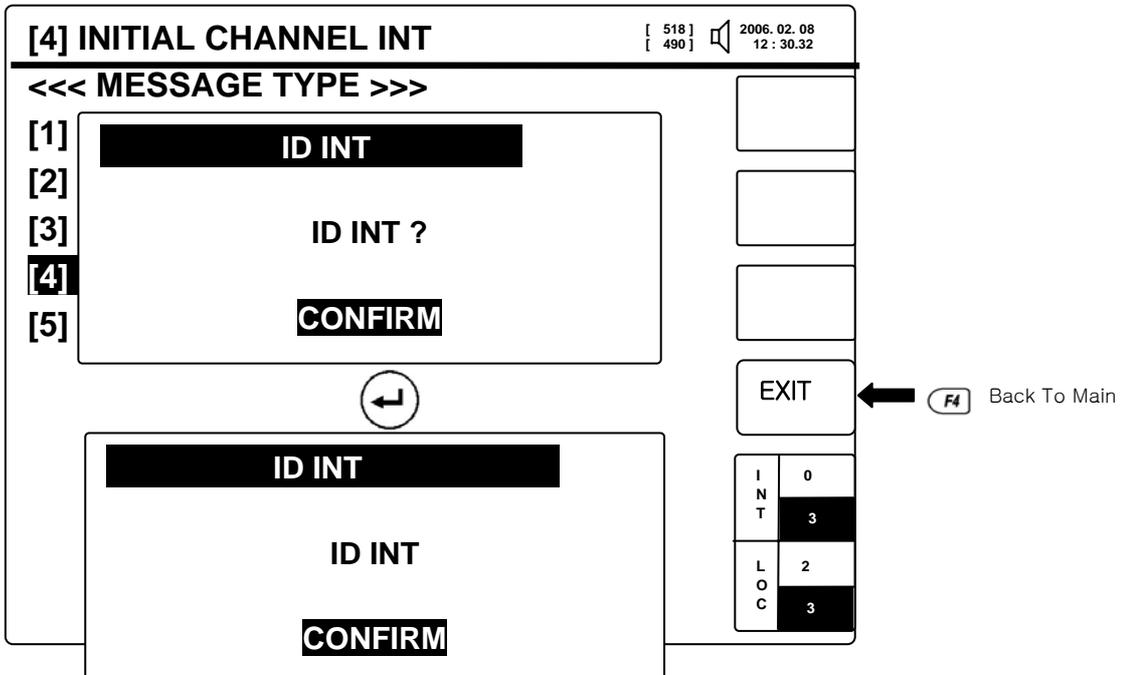
selected as such the same method of [1] MANUAL SET INT in manual.

[2]-[3] A.B.L ALERT SET : It can be set A.B.L Alarm ON/OFF by , Press  move to Main Menu after set . D(Search & Rescue Information) keep ON status at any time.



< Fig 5-8 A.B.L ALARM SET >

④ [2]-[4] MANUAL SET INT, [5] INITIAL CHANNEL LOC : Press  to initialize Message INT & LOC, which means all memory message is initialized.



< Fig 5-9 Initialization of refuse in receiving TX Station >

5.5. LIST OF MESSAGE HISTORY

◆ User can recognize message easily and sort what they want.



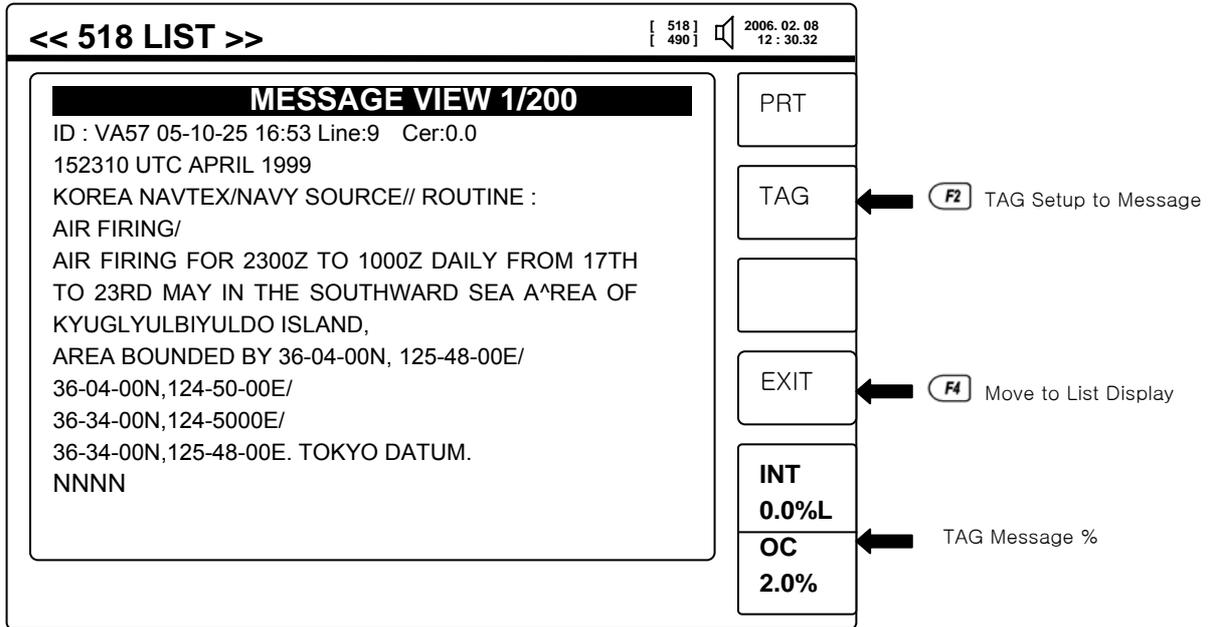
① NO	② ID	③ DATE	④ TIME	⑤ LINE	⑥ FREQ	⑦ TAG	⑧ SAR
1	EF00	05-10-25	16:50	11	518		
2	EF01	05-10-25	16:51	9	518		N
3	EF02	05-10-25	16:52	8	518		⑨N
4	EF03	05-10-25	16:53	10	518		
5	EF04	05-10-25	16:54	6	518		
6	EF05	05-10-25	16:55	12	518	TAG	
7	HD06	05-10-25	16:56	9	518		SAR
8	EF07	05-10-25	16:57	13	518		
9	EF08	05-10-25	16:58	19	518		
10	EF09	05-10-25	16:59	12	518	TAG	
11	EF10	05-10-25	17:00	7	518		
12	EF11	05-10-25	17:01	12	518		⑩P
13	EF12	05-10-25	17:02	10	518		
14	EF13	05-10-25	17:03	18	518	TAG	
15	EF14	05-10-25	17:04	10	518		N

< Fig 5-10 MESSAGE HISTORY >

- ① NO : Number of Message being received.
- ② ID : B₁B₂B₃B₄ in order, Please refer to the 1.3.1 transmission message.
- ③ DATE : Date of message received.
- ④ TIME : Time of message received.
- ⑤ LINE : Line number of tranmission message from station.
- ⑥ FREQ : Receiving Frequency.
- ⑦ TAG : TAG ser, Not to delete passed 62hours.
- ⑧ SAR : Search & Rescue information message.
- ⑨ N : New message.
- ⑩ P : Message to ready for printing.

※ It can check both 490KHZ & 4209.5KHZ by ◀ ▶ . But, [5] SYSTEM SET→ [2] 490/4209 select which can be read message registered frequency only.

- ◆ Move to where the message received, then open by Press  key.



<< 518 LIST >> [518] 2006.02.08
[490] 12:30.32

MESSAGE VIEW 1/200

ID : VA57 05-10-25 16:53 Line:9 Cer:0.0
152310 UTC APRIL 1999
KOREA NAVTEX/NAVY SOURCE// ROUTINE :
AIR FIRING/
AIR FIRING FOR 2300Z TO 1000Z DAILY FROM 17TH
TO 23RD MAY IN THE SOUTHWARD SEA A^REA OF
KYUGLYULBIYULDO ISLAND,
AREA BOUNDED BY 36-04-00N, 125-48-00E/
36-04-00N,124-50-00E/
36-34-00N,124-5000E/
36-34-00N,125-48-00E. TOKYO DATUM.
NNNN

PRT

TAG  TAG Setup to Message

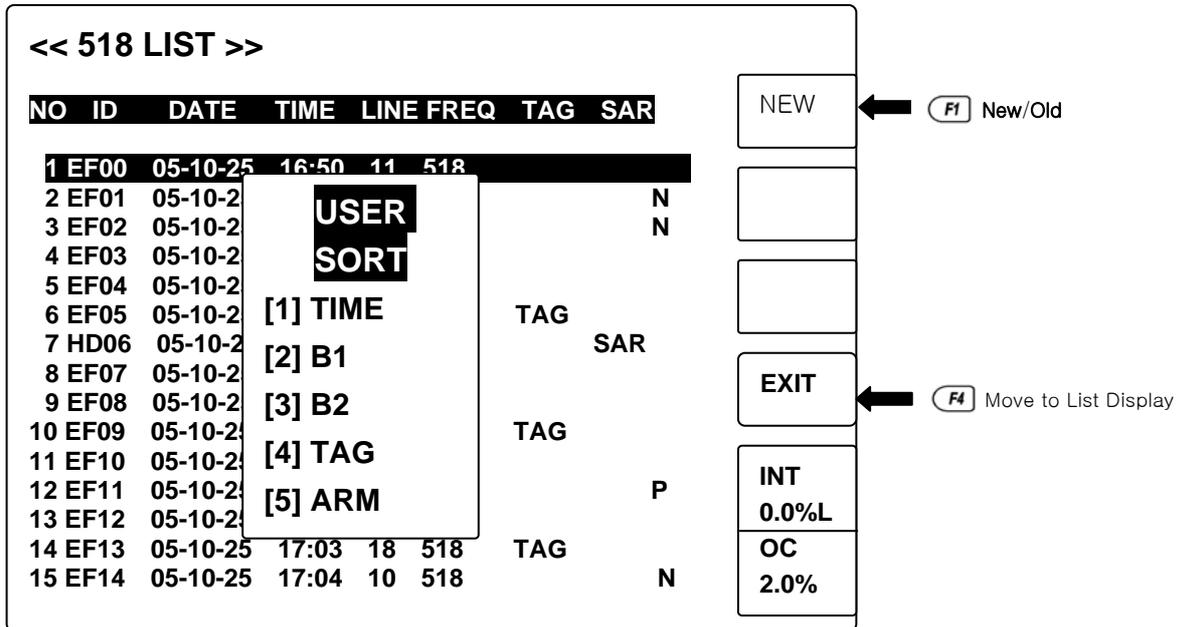
EXIT  Move to List Display

INT
0.0%L

OC
2.0% TAG Message %

< Pic 5-11 MESSAGE VIEW >

- ◆ How to use SORT KEY 



<< 518 LIST >>

NO	ID	DATE	TIME	LINE	FREQ	TAG	SAR
1	EF00	05-10-25	16:50	11	518		
2	EF01	05-10-2					N
3	EF02	05-10-2					N
4	EF03	05-10-2					
5	EF04	05-10-2					
6	EF05	05-10-2				TAG	
7	HD06	05-10-2					SAR
8	EF07	05-10-2					
9	EF08	05-10-2					
10	EF09	05-10-2				TAG	
11	EF10	05-10-2					P
12	EF11	05-10-2					
13	EF12	05-10-2					
14	EF13	05-10-25	17:03	18	518	TAG	
15	EF14	05-10-25	17:04	10	518		N

USER SORT

- [1] TIME
- [2] B1
- [3] B2
- [4] TAG
- [5] ARM

NEW  New/Old

EXIT  Move to List Display

INT
0.0%L

OC
2.0%

< Fig 5-12 MESSAGE ARRANGE >

Switch NEW/OLD by , Select NEW and SORT then listed recent message on top.

- ① Time sort received message in time order.
- ② B1 sort received message in alphabet order of Station(B1).
- ③ B2 sort received message in alphabet of message type(B2).
- ④ TAG sort set-message in alphabet.

⑤ ARM sort received message in time order with alarm. (Navigation & Weather, Search & Rescue information... etc.)

⑥ MANUAL sort those message people wants to read in time order.

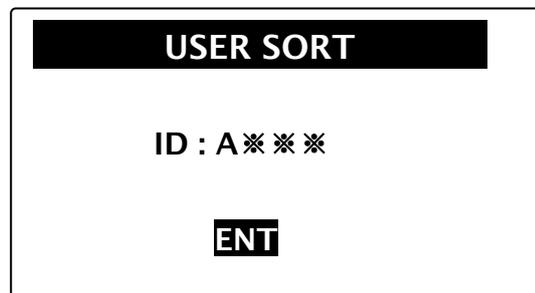
B1B2 : Set A~Z by direction key

B3B4 : Set 0~9 by direction key

If no set, Entire message is sort by  in time order.

ex) USER SORT

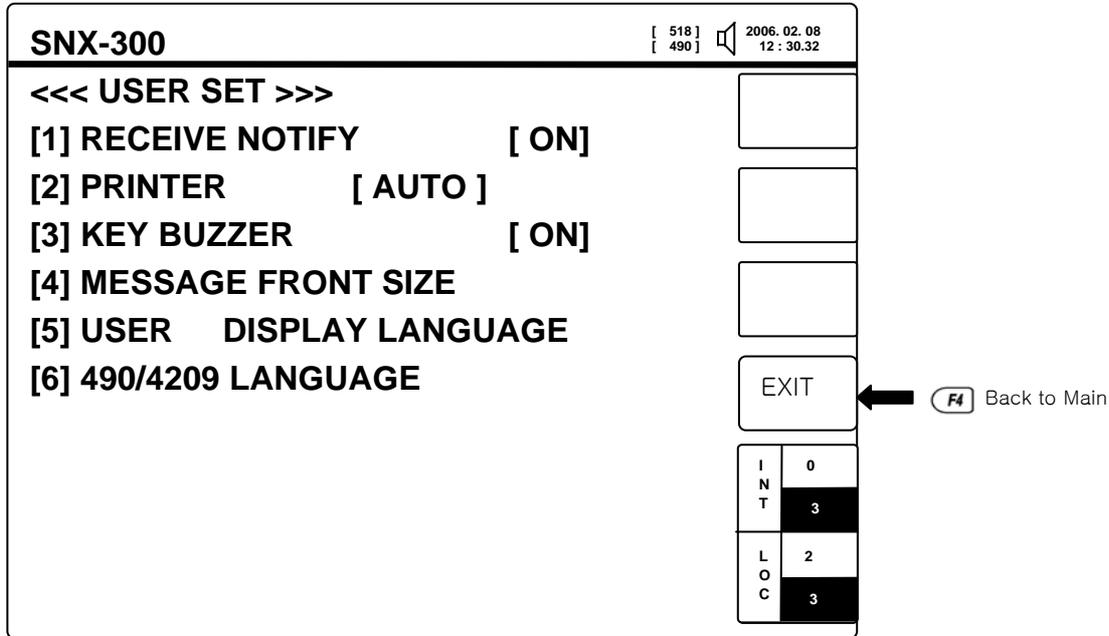
Set A on B1 as below, Then press , It is sorted those messages begin A in time order.



< Pic 5-13 USER SORT >

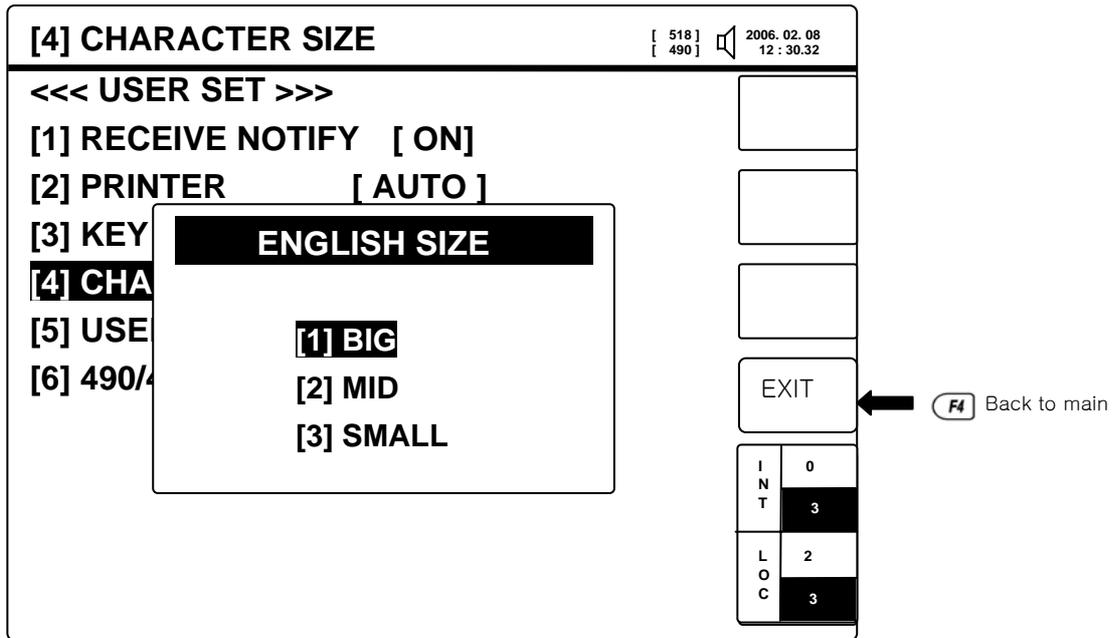
5.6. USER SET

◆ User set the Receive Notify, Printer, Key, Operation Sound, Message size, Language, Local Frequency by direction Key and .



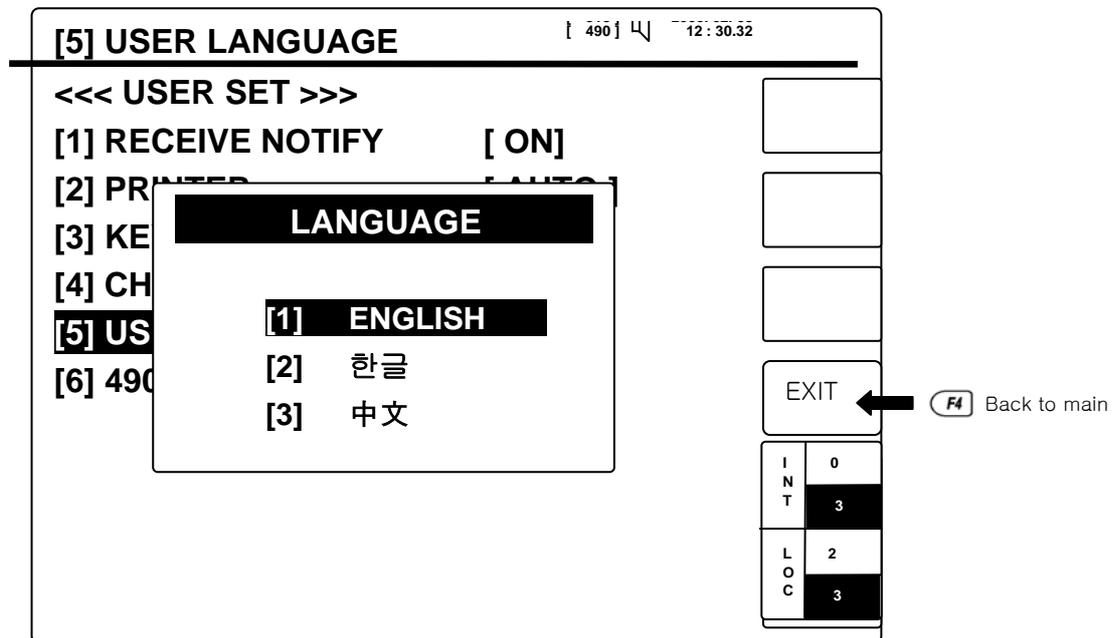
< Pic 5-14 USER SET >

- ① [4]-[1] KEY BUZZER : Peress  to switch ON/OFF, Once ON User can monitoring when it is receiving by Key Buzzer. Press  then move to MAIN after saved.
- ② [4]-[2] PRINTER : SET AUTO let the printer go automatically, MANUAL let the user can select to printer. Press  switch AUTO/MANUAL, Press  then move to MAIN after saved.
- ③ [4]-[3] KEY BUZZER : KEY BUZZER function of SNX-300. ON is BUZZER available, OFF then n/a.
- ④ [4]-[4] MESSAGE FONT SIZE : Functions to adjust message font size. There's three options Samll, Middle, Large which can be adjusted English message only(Initial size is 'Small').



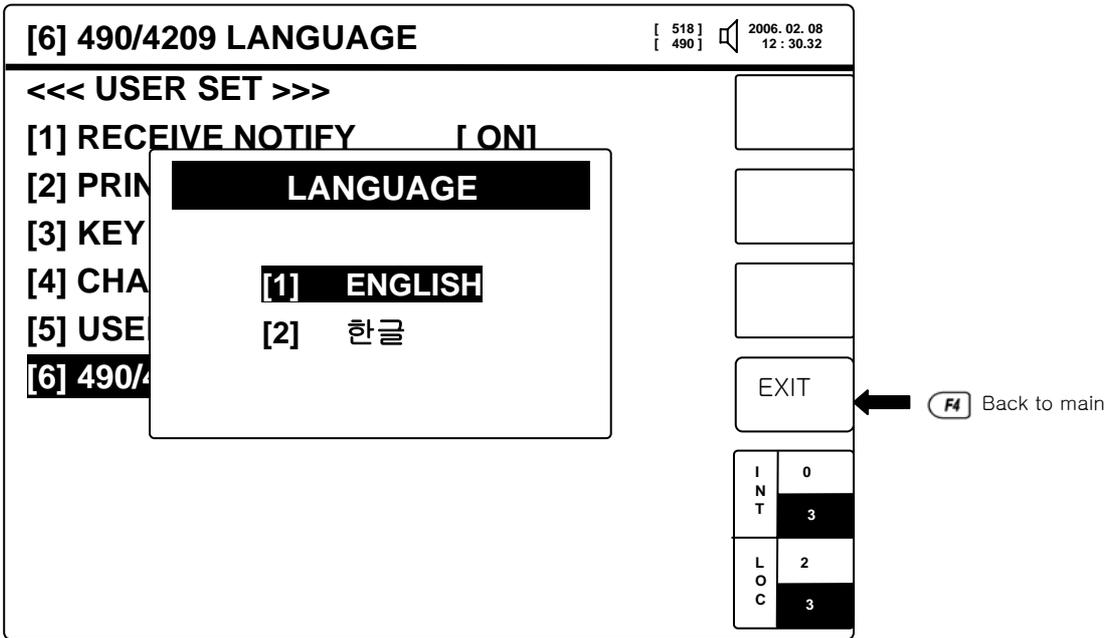
< Fig 5-15 Character Size Setup >

[4]-[5] **User Language** : User the directional keys and  key to set up the interface language. English, Korean, Chinese are available.



< Fig 5-16 Selection of User Language >

⑥ [4]-[6] **490/4209 LANGUAGE** : Function to select LOCAL Frequency(490KHz & 4209.5KHz) with broadcasting, language. Use the directional keys and  key to set up 490/4209 languages. English and Korean are supported. The default value is English.



< Fig 5-17 490/4209 Language Selection >

5.7. SYSTEM SETTING

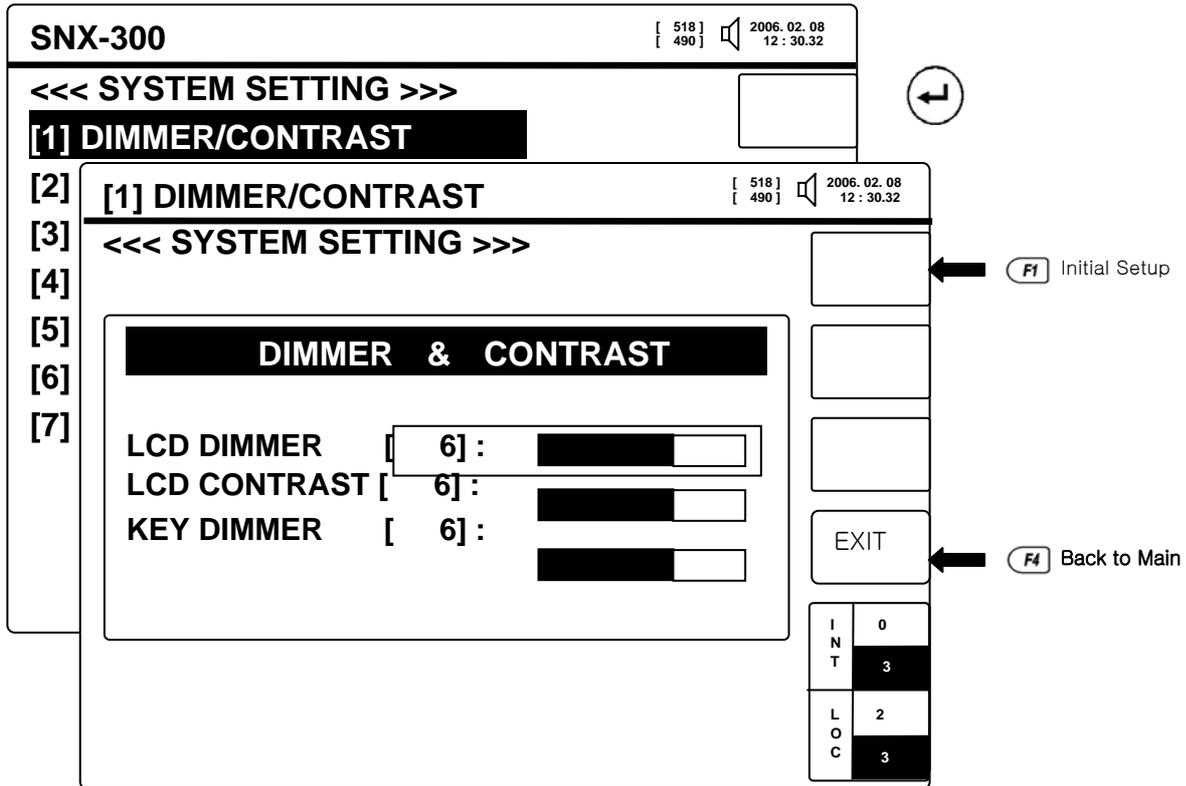
◆ This manu provides to set LCD Back-Light, Contrast, Local Frequency, LCD reverse, Printer Port Speed, INS Port Speed, NMEA Port Speed, Time and Date.



- ① [5]-[1] DIMMER / CONTRAST: Function to set DIMMER/CONTRAST what user want to use by soft key as below. Press **F1** to switch initial stage, **F4** to save and move to MAIN.

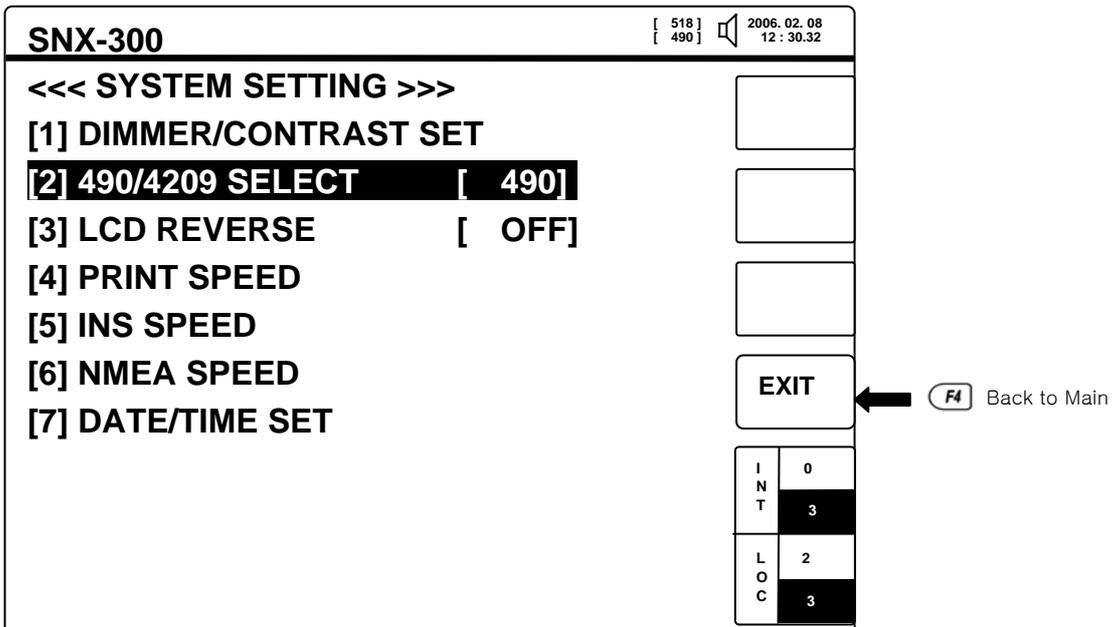
NO.	KEY	FUNCTION
1		Brighter LCD Back-Light
2		Darker LCD Back-Light
3		Softer LCD Brightness
4		Deeper LCD Brightness

< Fig 5-1 Brightness & Back-Light Setting >



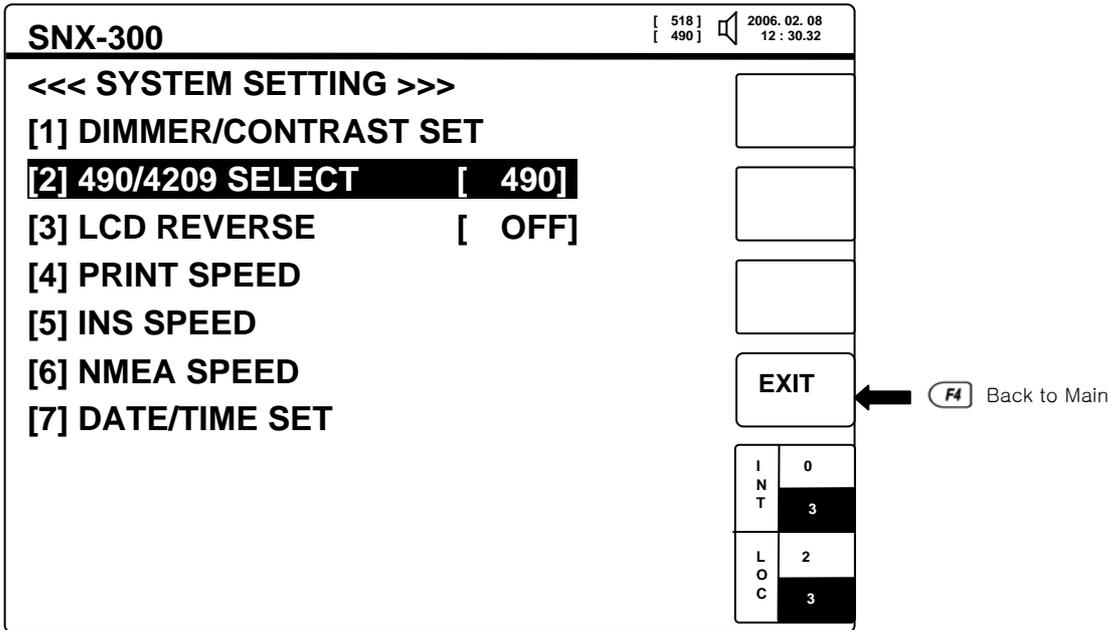
<Fig 5-18 Dimmer, Contrast >

- ② [5]-[2] 490/4209 SELECT : User can select suitable frequency by  then switch 490KHz & 4.2095MHz by turns. Press  move to MAIN after saved. Then it will move to
- ③ Main Display.



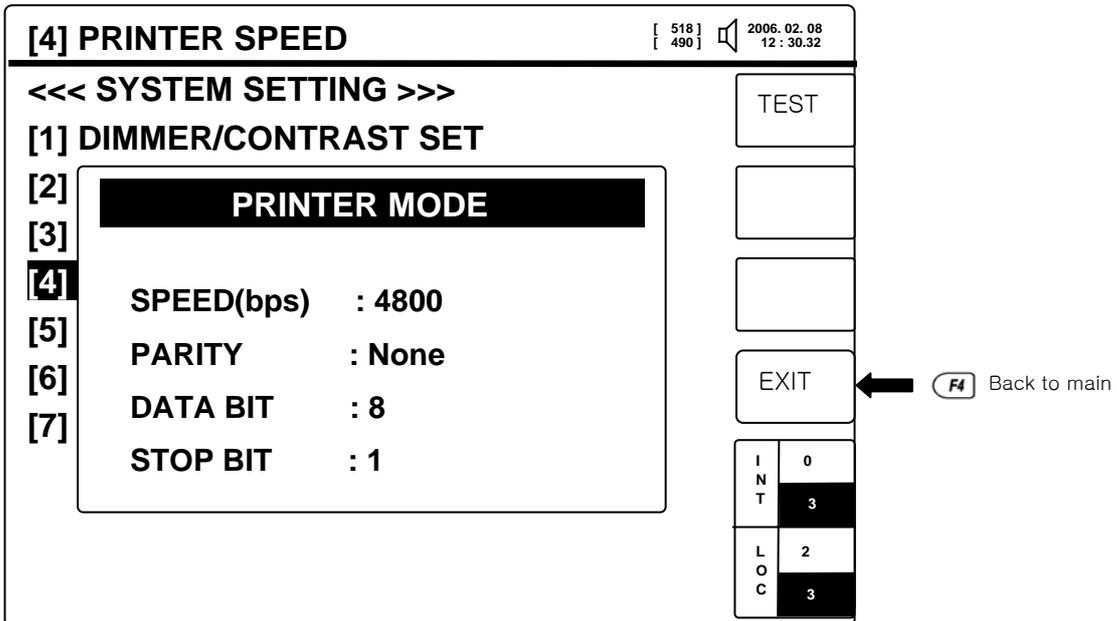
< Fig 5-19 LOCAL FREQUENCY SELECT >

- ④ [5]-[3] LCD REVERSE : Each time  key is pressed, the display is converted.  is stored and moved to main display.



< Fig 5-20 LCD REVERSE >

- ⑤ [5]-[4] PRINTER SPEED : Regarding to printer setting as SPEED(bps), PARITY, DATA BIT, STOP BIT, Press **←** or **F4** save and move to MAIN.



< Fig 5-21 PRINTER SPEED >

NO.	ITEM	RANGE	NO.	ITEM	RANGE
1	SPEED(bps)	2400~115200bps	3	DATA BIT	8,9
2	PARITY	NONE, ODD, EVEN	4	STOP BIT	0,1

< Fig5-2 RANGE OF PRINTER SETTING >

※ DPU414 = SPEED: 4800, PARITY:None, DATA BIT:8, STOP BIT:1

- ⑥ [5]-[5] INS SPEED : Regarding ro INS as SPEED(bps), PARITY, DATA BIT, STOP BIT, Preaa or save items and move to MAIN.

< Fig 5-22 PORT SET UP >

NO.	ITEM	RANGE	NO.	ITEM	RANGE
1	SPEED(bps)	2400~115200bps	3	DATA BIT	8,9
2	PARITY	NONE, ODD, EVEN	4	STOP BIT	0,1

< Fig 5-3 RANGE OF INS SETTING >

※ Practical INS SPEED = SPEED : 4800, PARITY : NONE, DATA BIT : 8 STOP BIT : 1

- ⑦ [5]-[6] NMEA SPEED : Regarding to NMEA as SPEED(bps), PARITY, DATA BIT, STOP BIT, Press or save and move to MAIN.

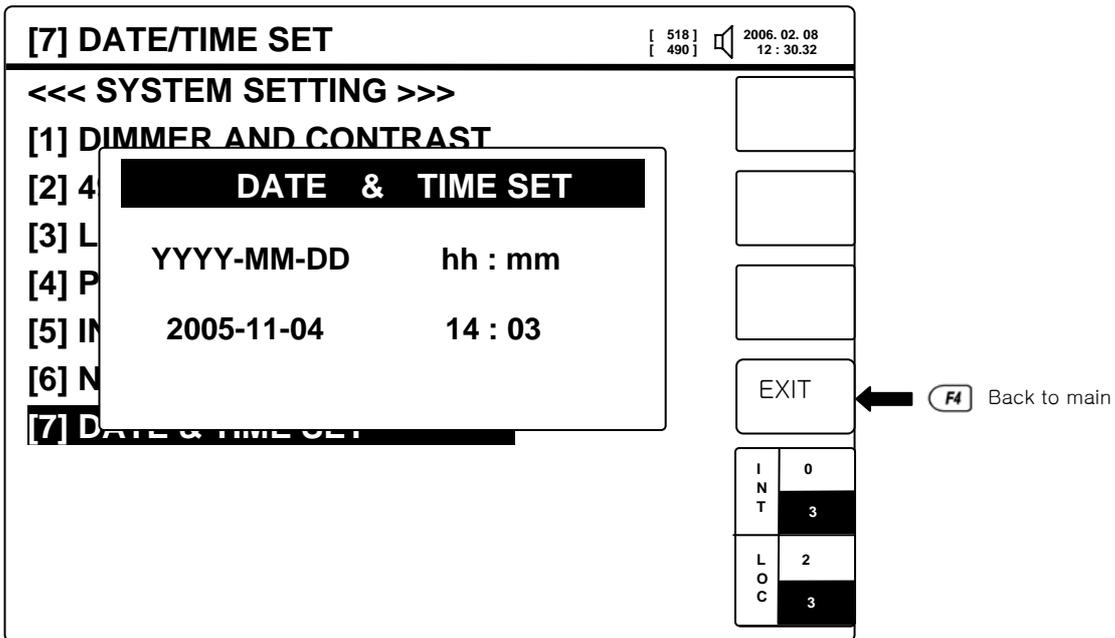
< Fig 5-23 NMEA MAIN PORT >

NO.	ITEM	RANGE	NO.	ITEM	RANGE
1	SPEED(bps)	2400~115200bps	3	DATA BIT	8,9
2	PARITY	NONE, ODD, EVEN	4	STOP BIT	0,1

< Fg 5-4 RANGE OF NMEA SETTING >

※ PRACTICAL NMEA SPEED = SPEED : 4800, PARITY : NONE, DATA BIT : 8 STOP BIT : 1

- ⑧ [5]-[7] DATA/TIME SET : It is provided RTC(Real Time Clock) function inside, Set by direction key and Press **F1** set.



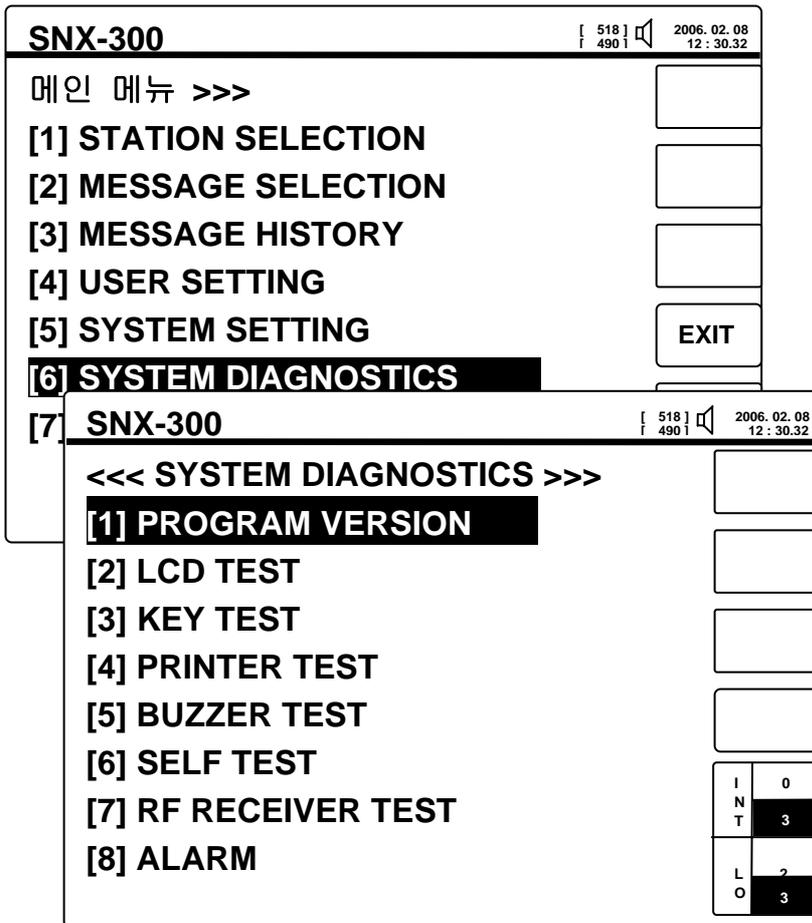
< Pic 5-24 DATE & TIME SET >

5.8. SYSTEM DIAGNOSTICS

- ◆ This function is that User can test internal source, program version, display test, Key test, buzzer test, receive notify, printer(if it's connected). If there's no ERROR, Says "OK" or "FAIL".

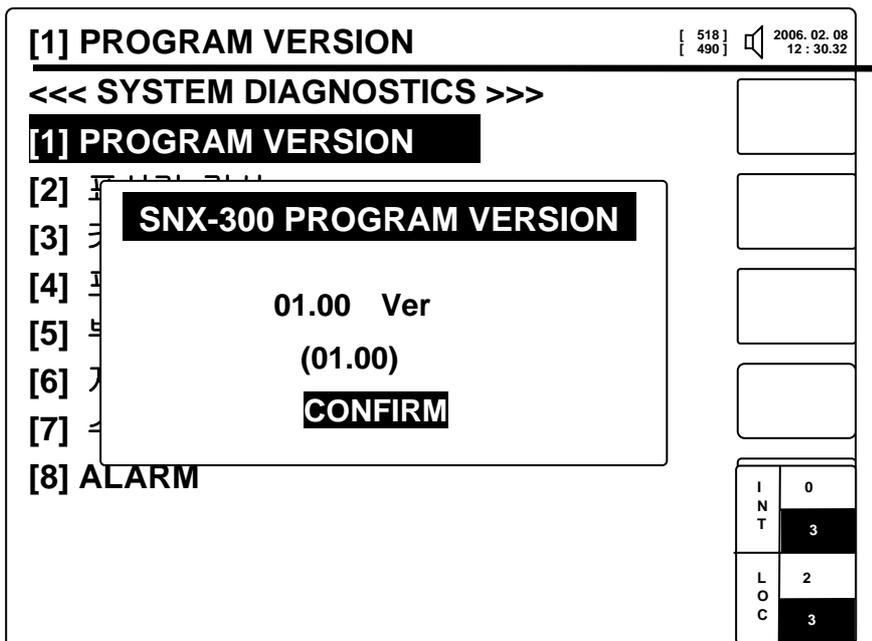


MENU → [6] SYS. DIAGNOSTICS → ↵



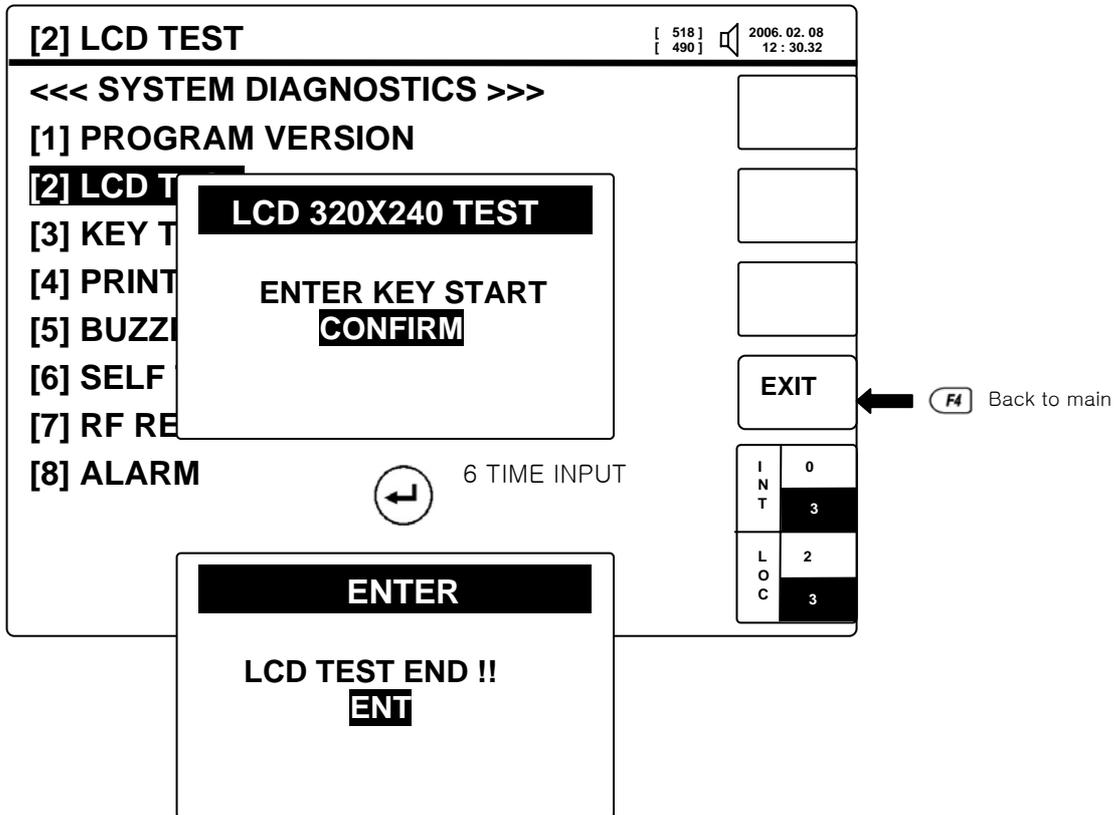
< Fig 5-25 System Diagnostics >

① [6]-[1] PROGRAM VERSION : It is showed current SNX-300 version. Press ↵ and move to MAIN.



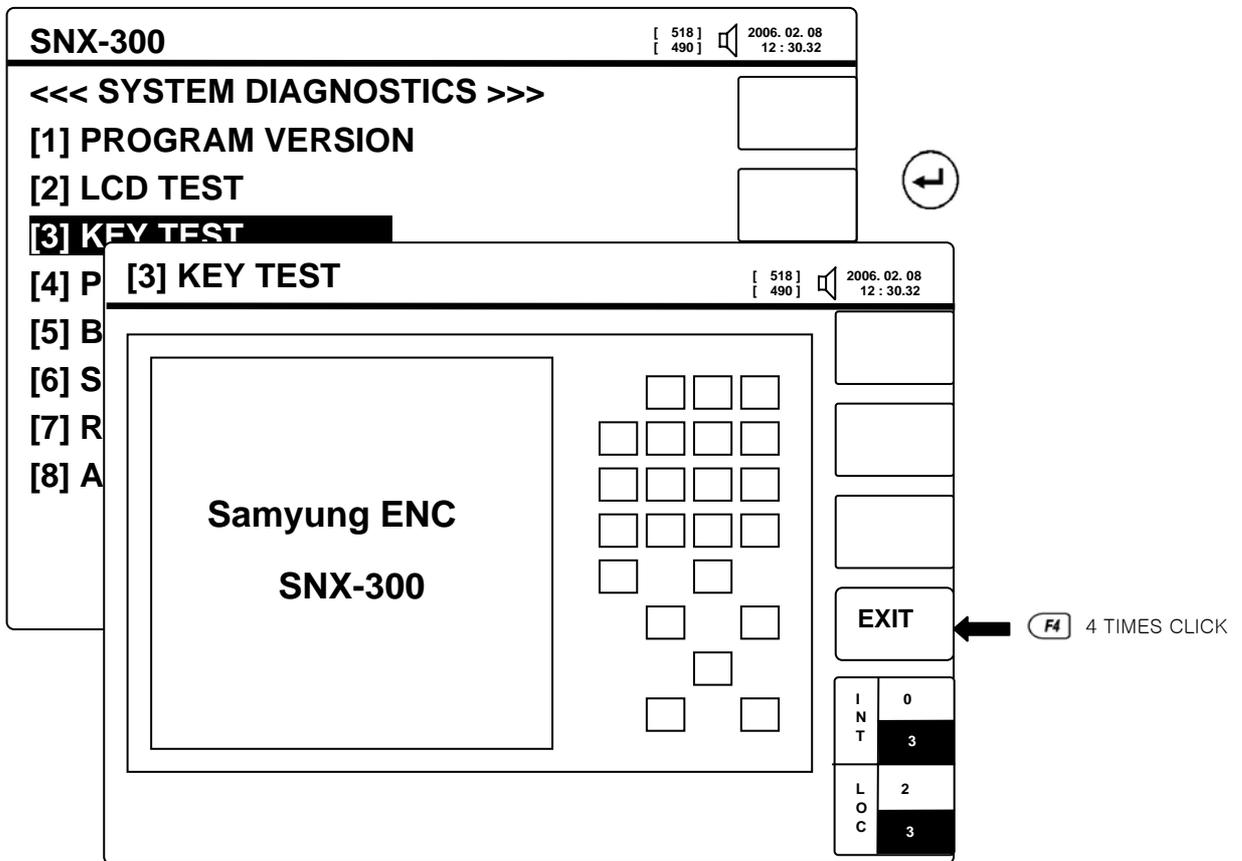
<Pic 5-26 PROGRAM VERSION >

- ② [6]-[2] LCD TEST : Accoring to the screen Keep pressing  until LCD TEST end, it can be checked LCD status and back to MAIN.



< Pic 5-27 LCD TEST >

- ③ [6]-[3] KEY TEST : Push the keys then reversing the keys. Press  four times then end TEST and press .

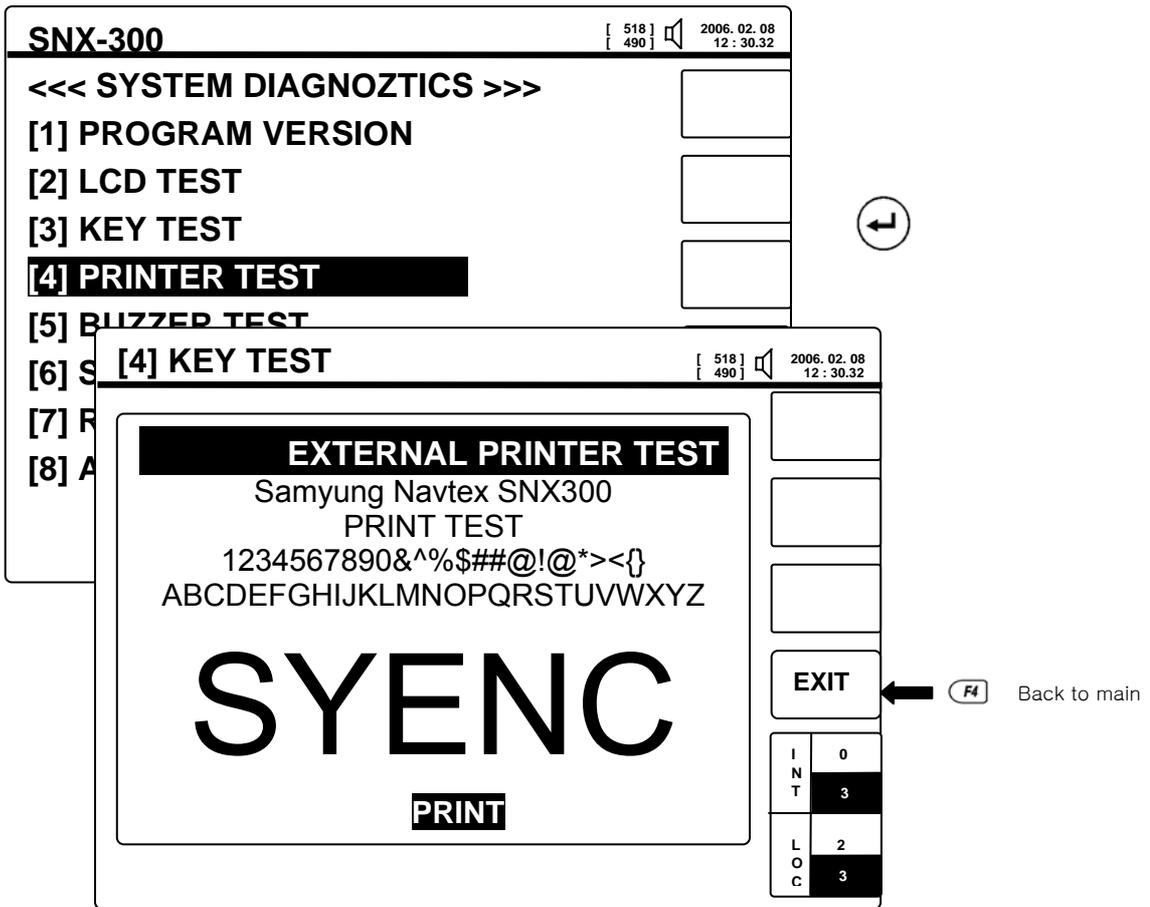


< Fig 5-28 KEY TEST 1 >



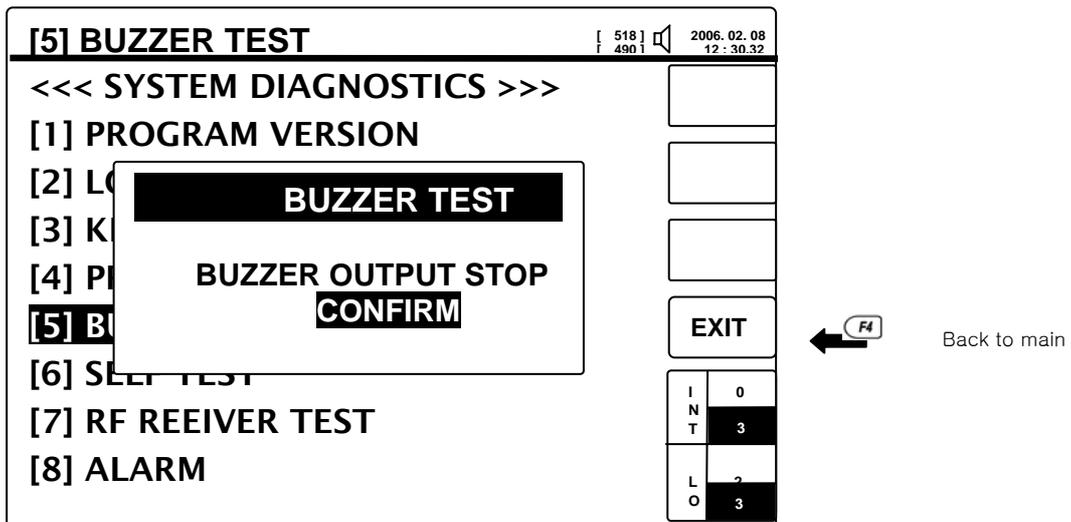
< Fig 5-29 KEY TEST 2 >

- ④ [6]-[4] KEY TEST : If a printer is connectec, use keys to test the status of the printout.



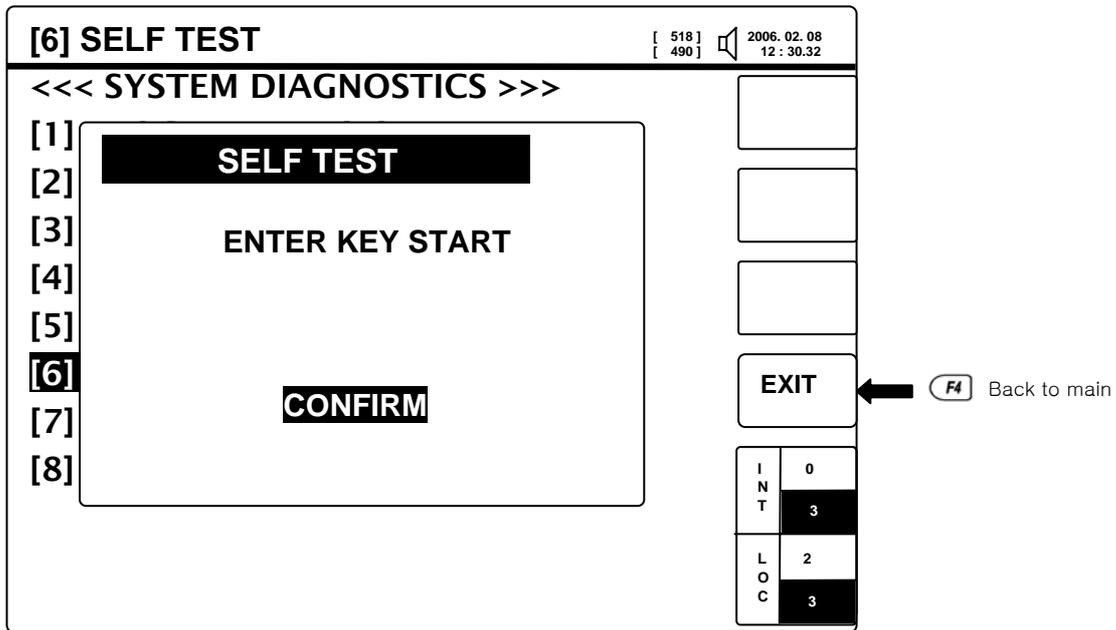
< Fig 5-30 PRINTOUT TEST >

- ⑤ [6]-[5] BUZZER TEST : Check the Buzzer. When it comes to get in BUZZER TEST, It sounds “Bip” , Press **←** then OFF. Press **F4** move to MAIN.

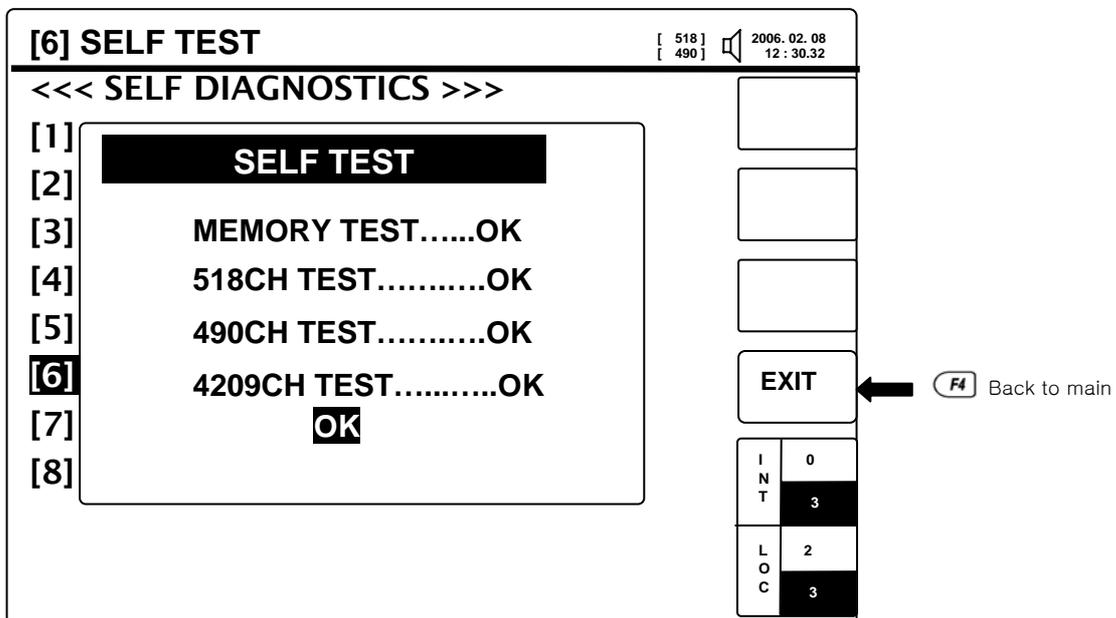


< Fig 5-31 BUZZER TEST >

- ⑥ [6]-[6] SELF TEST : Press to check Memory & RF PCB status. If there's ERROR, Says "FAIL" and alarm instead "OK". Initial screen Press off alarm sound.

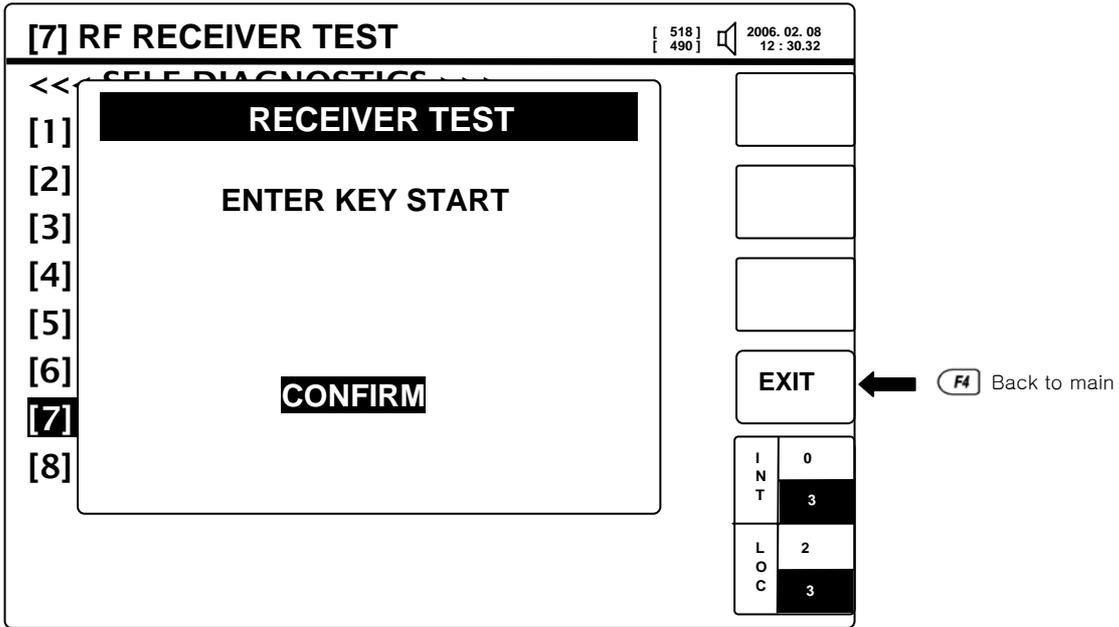


< Pic 5-32 SELF TEST 1 >

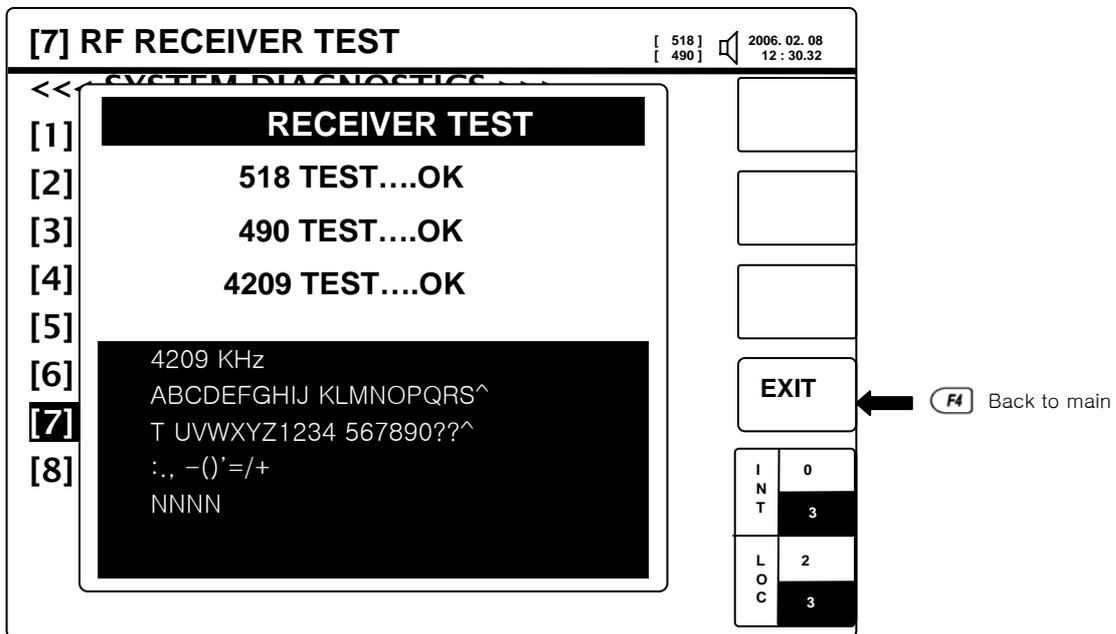


< Pic 5-33 SELF TEST 2 >

- ⑦ [6]-[7] RF RECEIVER TEST : Check RF Receiver status by . What different from SELF TEST is transmitting and receiving messages. If there's ERROR, Says "FAIL".



< Pic 5-34 RF RECEIVER TEST 1 >



< Pic 5-35 RF RECEIVER TEST 2 >

- ⑧ [6]-[8] ALARM : It displays Alarm status and says [NO] in normal state.
 [YES] : in alarm state.
 [STANDBY] : It says when it eliminate Alarm without solving following errors [RECEIVER ERROR], [SELF TEST ERROR], [GENERAL ERROR].

[8] ALARM

[518]
[490]

 2006. 02. 08
 12 : 30.32

ALARM : NAVIGATION ALERT	[NO]	<input type="checkbox"/>
ALARM : WEATHER ALERT	[YES]	<input type="checkbox"/>
ALARM : SEARCH AND RESCUE INFO	[NO]	<input type="checkbox"/>
ALARM : RECEIVER ERROR	[NO]	<input type="checkbox"/>
ALARM : SELF TEST FAIL	[STANDBY]	EXIT
ALARM : GENERAL FAIL	[NO]	<input type="checkbox"/>

I
N
T

0
3

L
O
C

2
3


F4 Back to main

< Pic 5-36 ALARM >

5.9. FACT MANUAL

- ◆ This manu is to inform ERASE ALL, DEFAULT FACT LOAD, INFORMATION.
And set up not to let User ERASE ALL, DEFAULT FACT LOAD with careless operation.



- ① [7]-[1] ERASE ALL : Erase all message being received.

SNX-300 [518] 2006. 02. 08
[490] 12 : 30.32

<<< MAIN MANU >>>

- [1] STATION SELECTION
- [2] MESSAGE SELECTION
- [3] MESSAGE HISTORY
- [4] USER SETTING
- [5] SYSTEM SETTING
- [6] SYSTEM DIAGNOSTICS
- [7] FACT MANUAL**

EXIT

[1] ERASE ALL [518] 2006. 02. 08
[490] 12 : 30.32

<<< FACT MANUAL >>>

- [1] ERASE ALL**
- [2] DEFAULT FACT LOAD

PASSWORD IN

PW : ----

CONFIRM

EXIT ← **F4** Back to main

I	0
N	3
L	2
O	3
C	

< Fig 5-37 ERASE ALL >

- ② [7]-[2] DEFAULT FACT LOAD : All part is to be default factory load except message.

Chapter 6. INSTALLATION & TROUBLESHOOTING

6.1. HOW TO INSTALL RECEIVER

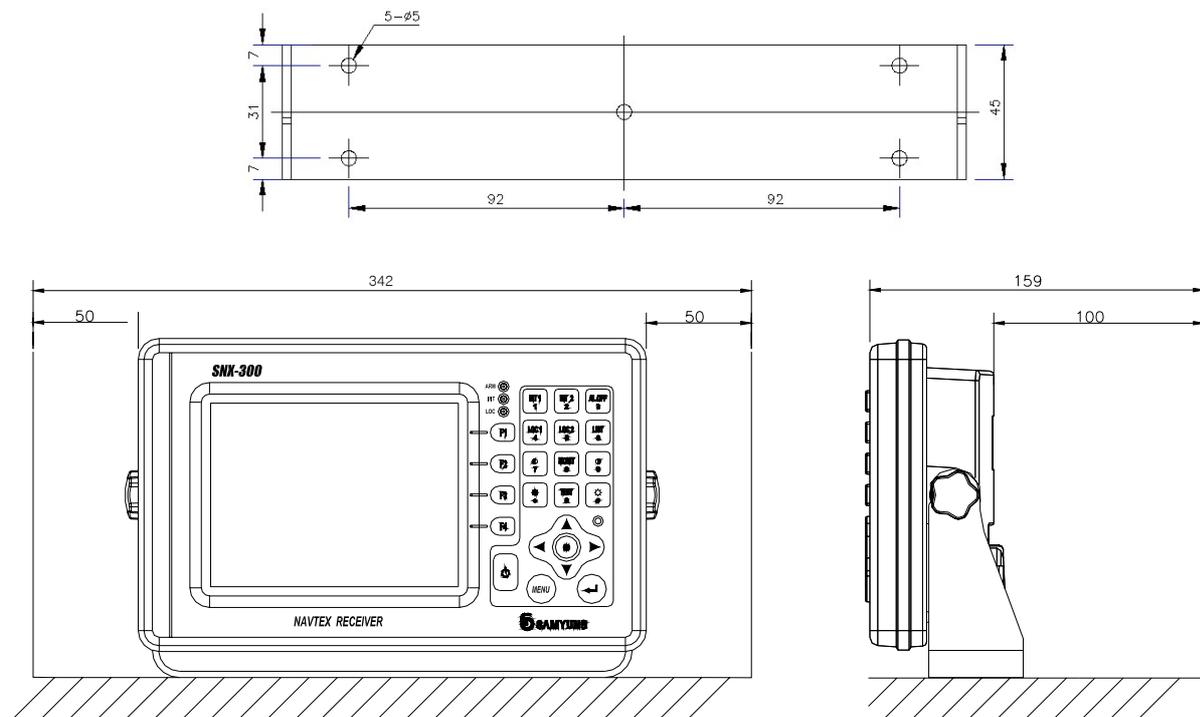
You may install Navtex Receiver by using a mounting bracket, which is provided with Navtex Receiver on the desk, shelf and ceiling and so on.

6.1.1. Installation Place

- ① Place where it is over 1 meter distance from Gyro Compass.
- ② Place where is enabling ground at a short distance.
- ③ Place where there is not allowed to expose directly by sunray and avoid from heating element ad the place where there is of little vibration.
- ④ Place where main unit, antenna, PSU, earth cables etc. are as far as possible from transmitter, radar's cable.
- ⑤ Place where there is as far as possible from a fan and exhaust pipe and well-ventilated place.

6.1.2. Installation Sequence and Method

- ① Disassemble the screws with the knob at both sides to install NAVTEX Receiver.
- ② Fix firmly a mounting bracket supplied with a Receiver on the desk or wall to be installed. (Use screw.)
- ③ After NAVTEX Receiver is inserted into the mounting bracket, adjust the angles and spin the screws with the knob of right and left for better adjustment.



단위 : mm

< Picture 6-1 Device Installations >

6.2. ANTENNA INSTALLATION

6.2.1. Installation Place

- ① It should be installed highly at the place where is not covered a wave by structures such as mast, bridge and chimney and not be installed at the lower place than MF/HF wire antenna.
- ② It should be installed vertically and at the place away from MF/HF transmitting antenna and radar to prevent from bad sensitivity by noisy and receiver's defect.
- ③ If there are various places that are able to install the antennas, it should be installed temporary with connecting a receiver and found a most suitable place after check place one by one.

6.2.2. Installation Sequence and Method

- ① Fix antenna on antenna tube supplied with the antenna from mast ($\phi 23 \sim \phi 43$) by using stain belt ($\phi 40 \sim \phi 64$).
- ② After antenna cable is inserted inside, connect the cable ends to a connector.

6.3. TROUBLESHOOTING AND INSPECTION

- ◆ The device must be handled with a care in order to keep better efficiency and validity. It had better be periodical inspected for the best efficiency by an engineer.
- ◆ Please keep DC 12 ~ 24V of device's voltage rating.
- ◆ Please pre-check out the condition of the consumed current in time of receiving or not receiving, then compare the condition with one of the above-ordinary times when it has defects and turn off the power of the device according to the situation.
- ◆ No make persons to repair or break down the devices except Samyung's engineers at A/S department. It might take place an electronic shock, out of order of the device and wrong operation. Please contact to an agent or A/S department in case of any defects on devices.

6.3.1. General Troubleshooting and Inspection

- ① Polish exterior of the device such as a keypad, LCD with soft fabric.
- ② Fasten firmly bolt, nut, a connector for antenna in case of a loose fit by using a driver.
- ③ Inspect printer papers at any time when it connects to a printer and uses it. It might wrong print necessary information if the papers are lack. Replace the papers in case of showing red lines in a printing paper.
- ④ In case of any defectiveness, please do not disassemble the equipment and contact our distributor or our A/S center. (Refer to 6.4 Troubleshooting.)

6.3.2. Device Composition

- The composition is as follows.

NO.	COMPOSITION	MODEL	REMARK
1	Receiver PCB	N-726	
2	CPU PCB	N-727	
3	Key PCB	N-728	
4	Power supply	SP-300AD	OPTION
5	Printer	DPU-414	OPTION
6	Antenna	SAN-300	

<Table 6-1 Scope of supply>

6.4. TROUBLE SHOOTING

 WARNING	<p>It must not be inspected and repaired by persons except Samyung's engineers. It might take place electronic shock, a fire, wrong-operation of a device if a not permitted person inspects devices. Contact to an agent or A/S dep. in case of showing wrong-operation in a device.</p>
--	---

NO.	DEFECT SYMPTOM	DEFECT CAUSE	SOLUTION
1	No power-on	Power supply	Check on power supply's voltage and cutting
		Fuse	Check on fuse cutting
		Key Board	Check on PCB N-728
2	No power-on of LCD screen	LCD connecting cable	Check on LCD connection cable
		Power supply	Check on supply power into LCD
		CPU PCB	Check on PCB N-727
		LCD	Defective LCD
		LCD luminosity	Adjust brightness and luminosity (Refer to 5.7)
3	Alarm	Buzzer	Buzzer is defective.
		KEY PCB	Check on PCB N-728
		CPU PCB	Check on PCB N-727

4	No receiving of broadcasting	Antenna	Check on antenna polarity
5	Not operate a printer	Select a station and message	Check on antenna cutting
			Check on antenna position (Refer to 6.2)
			Check on broadcasting time
			Check on voltage of active antenna (DC 8V)
			Refer to 5.3 & 5.4
		Receiver PCB	Check on PCB N-726
		Main unit	Check on main unit
	Power	Check on power voltage into printer	
6	No print-out	Check on data cable	Check on polarity & cutting of power cable
			Check on data cable
			Check on printer port setting (Refer to Chapter 5.7)
			Check printer paper

< Table 6-2 TROUBLE SHOOTING >

Chapter 7. AFTER-SALES SERVICE

7.1. GUARANTEE PERIOD

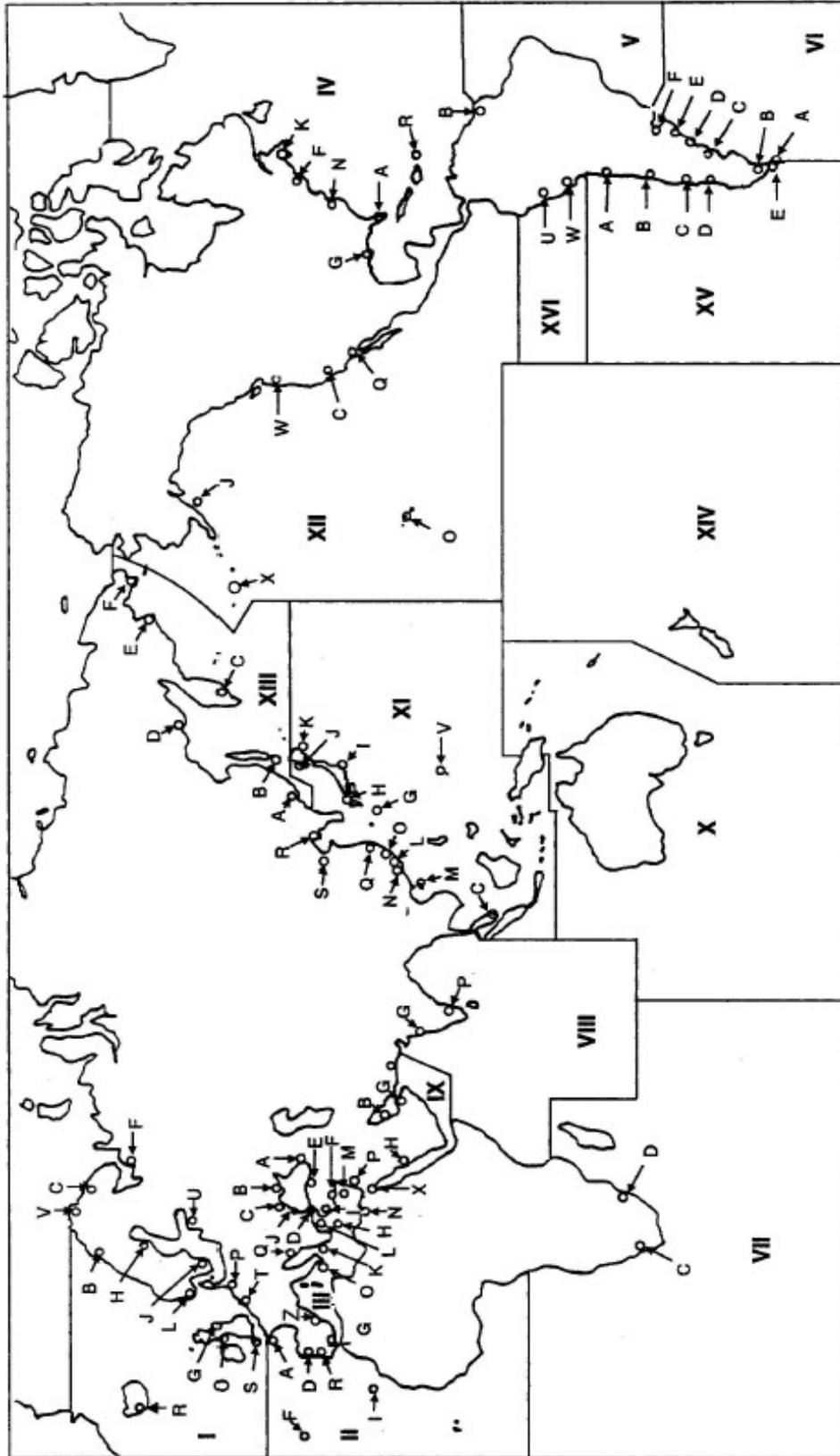
We guarantee a free-repair for a year from a purchased date. It should be charged in defects by user's inappropriate operation or modification at discretion.

7.2. DEVICES DISPOSAL

Please contact to our distributor or A/S centre to make a disposal of the devices in case of not being used more for damage or the lifetime's end

SERVICE CENTER DETAILS (HEAD OFFICE)	
Address	65-20 2-Ga Namhang-Dong Youngdo-Gu Busan Korea
Department	A/S Centre of SAMYUNG ENC Co., Ltd.
Phone	+82-51-601-5570 / +82-51-601-5510
Fax	+82-51-413-4446
<p>You can get a prompt service if you advise phone number, operation conditions, serial number, device name by fax, phone. Contact to our distributor in your area first!!</p>	
Contact for Sales & Service Distributor	
Sales person	
Phone	Office phone:
	Mobile:
<p>Keep a phone number of a person on duty when you purchase devices!!!</p>	

CHAPTER 8. BROADCASTING TIMES OF NEIGHBORING COUNTRIES



< Pic 8-1 NAVAREAS >

◆ NAVTEX Broadcasting Times

NAV area	Country	Station	Latitude	Longitude	Frequency (KHz)	Range (nm)	I D	Broadcast schedule(UTC)
I	Belgium	Oostende	51 11 N	02 48 E	518	50	T	0310, 0710, 1110, 1510, 1910, 2310
		Oostende(THAMES)			518	150	M	0200, 0600, 1000, 1400, 1800, 2200
	Estonia	Tallinn	59 30 N	24 30 E	518	300	U	0320, 0720, 1120, 1520, 1920, 2320
	Iceland	Reykjavik	64 05 N	21 51 W	518	250	X	0350, 0750, 1150, 1550, 1950, 2350
					518	550	R	0250, 0650, 1050, 1450, 1950, 2350
	Ireland	Malin Head	55 22 N	07 21 W	518	400	Q	0240, 0640, 1040, 1440, 1840, 2240
		Valentia	51 27 N	09 49 W	518	400	W	0340, 0740, 1140, 1540, 1940, 2340
	Netherlands	Den Helder	52 06 N	04 15 E	518	250	P	0230, 0630, 1030, 1430, 1830, 2230
	Norway	Svalbard	78 04 N	13 38 E	518	450	A	0000, 0400, 0800, 1200, 1600, 2000
		Bodo	67 16 N	14 23 E	518	450	B	0010, 0410, 0810, 1210, 1610, 2010
		Rogaland	58 48 N	05 34 E	518	450	L	0150, 0550, 0950, 1350, 1750, 2150
		Vardo	70 22 N	31 06 E	518	450	V	0300, 0700, 1100, 1500, 1900, 2300
		Orlandet	63 40 N	09 33 E	518	450	N	0210, 0610, 1010, 1410, 1810, 2210
	Sweden	Bjuroklubb	64 28 N	21 36 E	518	300	H	0010, 0410, 0810, 1210, 1610, 2010
		Gislovhammar	55 29 N	14 19 E	518	300	J	0130, 0530, 0930, 1330, 1730, 2130
		Grimeton	57 06 N	12 23 E	518	300	D	0030, 0430, 0830, 1230, 1630, 2030
	United Kingdom	Portpatrick	54 51 N	05 07 W	518	270	O	0220, 0620, 1020, 1420, 1820, 2220
					490	270	C	0020, 0420, 0820, 1220, 1620, 2020
		Cullercoats	55 02 N	01 26 W	518	270	G	0100, 0500, 0900, 1300, 1700, 2100
					490	270	U	0320, 0720, 1120, 1520, 1920, 2320
Niton		50 35 N	01 18 W	518	270	E	0040, 0440, 0840, 1240, 1640, 2040	
				490	270	I	0120, 0520, 0920, 1320, 1720, 2120	
II	France	Corsen	48 28 N	05 03 W	490	300	E	0040, 0440, 0840, 1240, 1640, 2040
					518	300	A	0000, 0400, 0800, 1200, 1600, 2000
	Portugal	Horta	38 32 N	28 38 W	490	640	J	0130, 0530, 0930, 1330, 1730, 2130
					518	640	F	0050, 0450, 0850, 1250, 1650, 2050
		Monsanto	38 44 W	09 11 W	490	520	G	0100, 0500, 0900, 1300, 1700, 2100
					518	520	R	0250, 0650, 1050, 1450, 1850, 2250
	Spain	Corunna	43 21 N	08 27 W	518	400	D	0030, 0430, 0830, 1230, 1630, 2030
		Tarifa	36 01 N	05 34 W	518	400	G	0100, 0500, 0900, 1300, 1700, 2100
		Las Palmas	28 10 N	15 25 W	518	400	I	0120, 0520, 0920, 1320, 1720, 2120

NAV area	Country	Station	Latitude	Longitude	Frequency (KHz)	Range (nm)	I D	Broadcast schedule(UTC)
III	France	Toulon	43 06 N	27 46 E	490	250	S	0300, 0700, 1100, 1500, 1900, 2300
					518	250	W	0340, 0740, 1140, 1540, 1940, 2340
	Israel	Haifa	32 49 N	35 00 E	518	200	P	0020, 0420, 0820, 1220, 1620, 2020
	Turkey	Istanbul	41 04 N	28 57 E	518	300	D	0030, 0430, 0830, 1230, 1630, 2030
		Samsun	41 17 N	36 20 E	518	300	E	0040, 0440, 0840, 1240, 1640, 2040
		Antalya	36 53 N	30 42 E	518	300	F	0050, 0450, 0850, 1250, 1650, 2050
		Izmir	38 22 N	26 36 E	518	300	I	0120, 0520, 0920, 1320, 1720, 2120
	Ukraine	Mariupol	47 06 N	37 33 E	518	280	B	0100, 0500, 0900, 1300, 1700, 2100
		Odessa	46 29 N	30 44 E	518	280	C	0230, 0630, 1030, 1430, 1830, 2230
	Greece	Heraklion	35 20 N	25 07 E	518	280	H	0110, 0510, 0910, 1310, 1710, 2110
		Corfu	39 37 N	19 55 E	518	280	K	0140, 0540, 0940, 1340, 1740, 2140
		Lemnos	39 52 N	25 04 E	518	280	L	0150, 0550, 0950, 1350, 1750, 2150
	Cyprus	Cyprus	35 03 N	33 17 E	518	200	M	0200, 0600, 1000, 1400, 1800, 2200
	Egypt	Alexandria	31 12 N	29 52 E	518	350	N	0210, 0610, 1010, 1410, 1810, 2210
	Malta	Malta	35 49 N	14 32 E	518	400	O	0220, 0620, 1020, 1420, 1820, 2220
	Croatia	Split	43 30 N	16 29 E	518	85	Q	0240, 0640, 1040, 1440, 1840, 2240
	Italy	Rome	41 48 N	12 31 W	518	320	R	0250, 0650, 1050, 1450, 1850, 2250
		Cagliari	39 14 N	09 14 E	518	320	T	0310, 0710, 1110, 1510, 1910, 2310
Trieste		45 41 N	13 46 E	518	320	U	0320, 0720, 1120, 1520, 1920, 2320	
Augusta		37 14 N	15 14 E	518	320	V	0330, 0730, 1130, 1530, 1930, 2330	
Russia	Novorossiysk	44 42 N	37 44 E	518	300	A	0300, 0700, 1100, 1500, 1900, 2300	
Spain	Cabo de la Nao	38 43 N	00 09 E	518	300	X	0350, 0750, 1150, 1550, 1950, 2350	
IV	Canada	Iqaluit	63 43 N	68 33 W	490	300	S	0310, 0710, 1110, 1510, 1910, 2310
					518	300	T	0320, 0720, 1120, 1520, 1920, 2320
		Riviere-au-Renard	50 11 N	66 07 W	518	300	C	0020, 0420, 0820, 1220, 1620, 2020
					518	300	D	0035, 0435, 0835, 1235, 1635, 2035
		Warton	44 20 N	81 10 W	518	300	H	0110, 0510, 0910, 1310, 1710, 2110
		St. Johns	47 30 N	52 40 W	518	300	O	0220, 0620, 1020, 1420, 1820, 2220
		Thunder Bay	48 25 N	89 20 W	518	300	P	0230, 0630, 1030, 1430, 1830, 2230
		Sydney	46 10 N	60 00 W	518	300	Q	0240, 0640, 1040, 1440, 1840, 2240
					518	300	J	0255, 0655, 1055, 1455, 1855, 2255
		Fundy	43 45 N	66 10 W	518	300	U	0320, 0720, 1120, 1520, 1920, 2320
					518	300	V	0335, 0735, 1135, 1535, 1935, 2335
		Labrador	53 42 N	57 01 W	518	300	X	0350, 0750, 1150, 1550, 1950, 2350
USA	Miami	25 37 N	80 23 W	518	240	A	0000, 0400, 0800, 1200, 1600, 2000	

NAV area	Country	Station	Latitude	Longitude	Frequency (KHz)	Range (nm)	ID	Broadcast schedule(UTC)
IV	USA	Savannah	32 08 N	81 42 W	518	200	E	0040, 0440, 0840, 1240, 1640, 2040
		Boston	41 43 N	70 30 W	518	200	F	0045, 0445, 0845, 1245, 1645, 2045
		New Orleans	29 53 N	89 57 W	518	200	G	0300, 0700, 1100, 1500, 1900, 2300
		Portsmouth	36 43 N	76 00 W	518	280	N	0130, 0530, 0930, 1330, 1730, 2130
		San Juan	18 28 N	67 04 W	518	200	R	0200, 0600, 1000, 1400, 1800, 2200
	Dutch Antilles	Curacao	12 10 N	68 52 W	518	400	H	0110, 0510, 0910, 1310, 1710, 2110
	Bermuda	Bermuda	32 23 N	64 41 W	518	280	B	0010, 0510, 0910, 1310, 1710, 2110
V								
VI	Argentina	Ushaia	54 48 S	68 18 W	518	280	M	0200, 0600, 1000, 1400, 1800, 2200
		Rio Gallegos	51 37 S	65 03 W	518	280	N	0210, 0610, 1010, 1410, 1810, 2210
		Comodoro Rivadavia	45 51 S	67 25 W	518	280	O	0220, 0620, 1020, 1420, 1820, 2220
		Bahia Blanca	38 43 S	62 06 W	518	280	P	0230, 0630, 1030, 1430, 1830, 2230
		Mar del Plata	38 03 S	57 32 W	518	280	Q	0240, 0640, 1040, 1440, 1840, 2240
		Buenos Aires	34 36 S	58 22 W	518	560	R	0250, 0650, 1050, 1450, 1850, 2250
	Uruguay	La Paloma	34 40 S	54 09 W	518	280	F	0050, 0450, 0850, 1250, 1650, 2050
				490	280	A	0000, 0400, 0800, 1200, 1600, 2000	
VII	Namibia	Walvis Bay	23 03 S	14 37 E	518	380	B	0010, 0410, 0810, 1210, 1610, 2010
	South Africa	Cape Town	33 40 S	18 43 E	518	500	C	0020, 0420, 0820, 1220, 1620, 2020
		Port Elizabeth	34 02 S	25 33 E	518	500	I	0120, 0520, 0920, 1320, 1720, 2120
		Durban	30 00 S	31 30 E	518	500	O	0220, 0620, 1020, 1420, 1820, 2220
VIII	India	Mumbai	19 05 N	72 50 E	518	250	G	0100, 0500, 0900, 1300, 1700, 2100
		Madras	13 08 N	80 10 E	518	250	P	0230, 0630, 1030, 1430, 1830, 2230
	Mauritius	Mauritius Radio	20 10 S	57 28 E	518	400	C	0020, 0420, 0820, 1220, 1620, 2020
IX	Bahrain	Hamala	26 09 N	50 28 E	518	300	B	0010, 0410, 0810, 1210, 1610, 2010
	Egypt	Serapeum	30 28 N	32 22 E	518	200	X	0350, 0750, 1150, 1550, 1950, 2350
					4209.5	200	X	0750, 1150
		Kosseir	26 06 N	34 17 E	518	400	V	0330, 0730, 1130, 1530, 1930, 2330
	Iran	Bushehr	28 59 N	50 50 E	518	300	A	0000, 0400, 0800, 1200, 1600, 2000
		Bandar Abbas	27 07 N	56 04 E	518	300	F	0050, 0450, 0850, 1250, 1650, 2050
	Saudi Arabia	Jeddah	21 23 N	39 10 E	518	390	H	0705, 1305, 1905
	Oman	Muscat	23 36 N	58 30 E	518	270	M	0200, 0600, 1000, 1400, 1800, 2200
Pakistan	Karachi	24 51 N	67 03 E	518	400	P	0230, 0630, 1030, 1430, 1830, 2230	

NAV area	Country	Station	Latitude	Longitude	Frequency (KHz)	Range (nm)	I D	Broadcast schedule(UTC)
X								
XI	Republic of Korea	Chukpyong	37 03 N	129 26 E	490	200	J	0130, 0530, 0930, 1330, 1730, 2130
					518	200	V	0330, 0730, 1130, 1530, 1930, 2330
		Pyongsan	35 36 N	126 29 E	490	200	K	0140, 0540, 0940, 1340, 1740, 2140
					518	200	W	0340, 0740, 1140, 1540, 1940, 2340
	Japan	Otaru	43 19 N	140 27 E	518	400	J	0130, 0530, 0930, 1330, 1730, 2130
		Kushiro	42 57 N	144 36 E	518	400	K	0140, 0540, 0940, 1340, 1740, 2140
		Yokohama	35 14 N	139 55 E	518	400	I	0120, 0520, 0920, 1320, 1720, 2120
		Moji	34 01 N	130 56 E	518	400	H	0110, 0510, 0910, 1310, 1710, 2110
		Naha	26 05 N	127 40 E	518	400	G	0100, 0500, 0900, 1300, 1700, 2100,
	China	Sanya	18 14 N	109 30 E	518	250	M	0200, 0600, 1000, 1400, 2200
		Guangzhou	23 08 N	113 32 E	518	250	N	0210, 0610, 1010, 1410, 2210
		Fuzhou	26 01 N	119 18 E	518	250	O	0220, 0620, 1020, 1420, 2220
		Shanghai	31 08 N	121 33 E	518	250	Q	0240, 0640, 1040, 1440, 2240
		Dalian	38 52 N	121 31 E	518	250	R	0250, 0650, 1050, 1450, 2250
	Indonesia	Jayapura	02 31 S	140 43 E	518	300	A	0000, 0400, 0800, 1200, 1600, 2000
		Ambon	03 42 S	128 12 E	518	300	B	0010, 0410, 0810, 1210, 1610, 2010
		Makassar	05 06 S	119 26 E	518	300	D	0030, 0430, 0830, 1230, 1630, 2030
		Jakarta	06 06 S	106 54 E	518	300	E	0040, 0440, 0840, 1240, 1640, 2040
	Malaysia	Penang	05 26 N	100 24 E	518	350	U	0320, 0720, 1120, 1520, 1920, 2320
		Miri	04 28 N	114 01 E	518	350	T	0310, 0710, 1110, 1510, 1910, 2310
		Sandakan	05 54 N	118 00 E	518	350	S	0300, 0700, 1100, 1500, 1900, 2300
	Singapore	Singapore	01 25 N	103 52 E	518	400	C	0020, 0420, 0820, 1220, 1620, 2020
	Thailand	Bangkok	13 43 N	100 34 E	518	200	F	0050, 0450, 0850, 1250
	Vietnam	Ho Chi Minh	10 47 N	106 40 E	518	400	X	0350, 0750, 1150, 1550, 1950, 2350
		Haiphong	20 44 N	106 44 E	490	400	W	0340, 1540
					4209.5	400	W	0230, 0630, 1030, 1430, 1830, 2230
	Da nang	16 05 N	108 13 E	518	400	K	0140, 0540, 0940, 1340, 1740, 2140	
	Taiwan	Kaohsiung	22 29 N	120 25 E	518	400	P	0230, 0630, 1030, 1430, 1830, 2230
USA	Guam	13 29 N	144 50 E	518	100	V	0100, 0500, 0900, 1300, 1700, 2100	

NAV area	Country	Station	Latitude	Longitude	Frequency (KHz)	Range (nm)	ID	Broadcast schedule(UTC)
XII	Canada	Prince Rupert	54 20 N	130 20 W	518	300	D	0030, 0430, 0830, 1230, 1630, 2030
		Tofino	48 55 N	125 35 W	518	300	H	0110, 0510, 0910, 1310, 1710, 2110
	USA	San Francisco	37 55 N	122 44 W	518	350	C	0400, 0800, 1200, 1600, 2000, 2400
		Kodiak	57 46 N	152 34 W	518	200	J	0300, 0700, 1100, 1500, 1900, 2300
		Honolulu	21 22 N	158 09 W	518	350	O	0040, 0440, 0840, 1240, 1640, 2040
		Cambria	35 31 N	121 03 W	518	350	Q	0445, 0845, 1245, 1645, 2045, 0045
		Astoria	46 10 N	123 49 W	518	216	W	0130, 0530, 0930, 1330, 1730, 2130
XIII	Russia	Kholmsk	47 02 N	142 03 E	518	300	B	0010, 0410, 0810, 1210, 1610, 2010
		Murmansk	68 46 N	32 58 E	518	300	C	0020, 0420, 0820, 1250, 1650, 2050
		Arkhangelsk	64 51 N	40 17 E	518	300	F	0050, 0450, 0850, 1250, 1650, 2050
		Astrakhan	45 47 N	47 33 E	518	250	W	0340, 0740, 1140, 1540, 1940, 2340
XIV	-							
XV	Chile	Antofagasta	23 40 S	70 25 W	518	300	A H	0400, 1200, 2000 0000, 0800, 1600
		Valparaiso	32 48 S	71 29 W	518	300	B I	0410, 1210, 2010 0010, 0810, 1610
		Talcahuano	36 42 S	73 06 W	518	300	C J	0420, 1220, 2020 0020, 0820, 1620
		Puerto Montt	41 30 S	72 58 W	518	300	D K	0430, 1230, 2030 0030, 0830, 1630
		Punta Arenas	53 09 S	70 58 W	518	300	E L	0440, 1240, 2040 0040, 0840, 1640
		Isla de Pascua	27 09 S	109 25 W	518	300	F G	0450, 1250, 2050 0050, 0850, 1650
XVI	Peru	Paita			518	200	S	0300, 0700, 1100, 1500, 1900, 2300
		Callao			518	200	U	0320, 0720, 1120, 1520, 1920, 2320
		Mollendo			518	200	W	0340, 0740, 1140, 1540, 1940, 2340

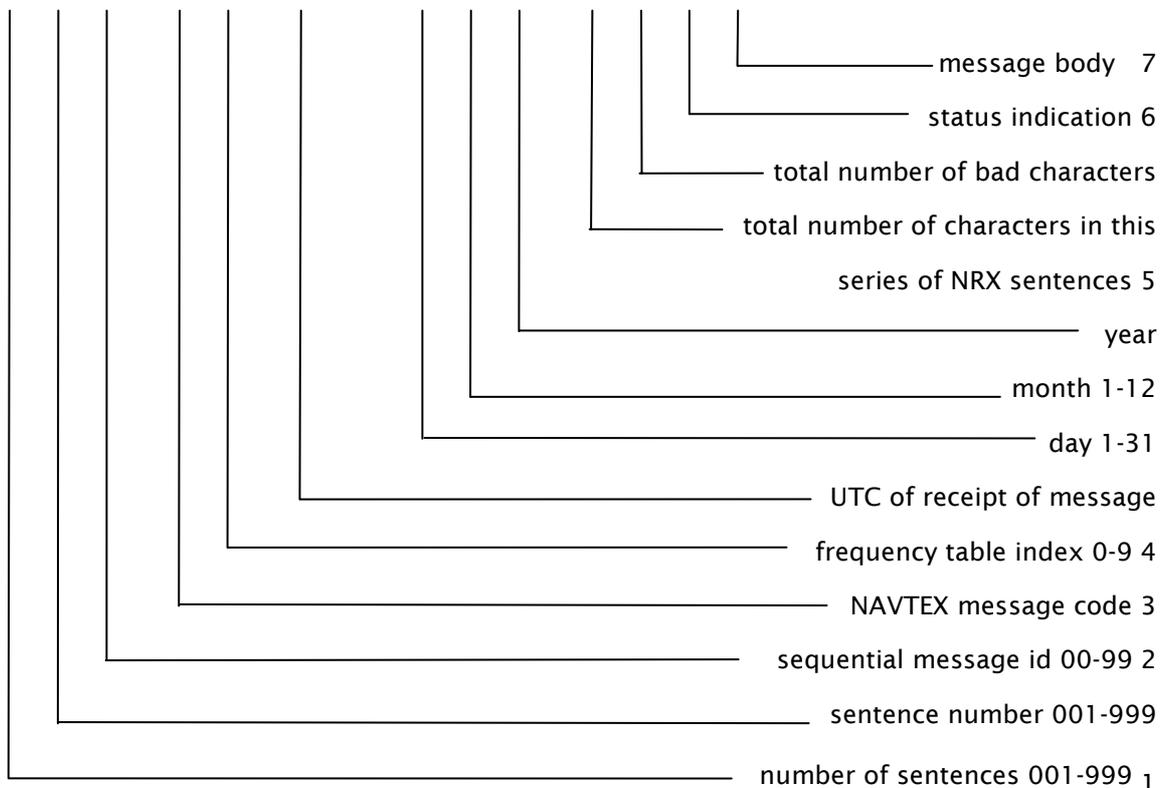
CHAPTER 9. IEC 61162 Message Composition

9.1. NRX & NRM

C.1 NRX – NAVTEX received message

The NRX sentence is used to transfer the contents of a received NAVTEX message from the NAVTEX receiver to another device. As the length of a single NAVTEX message may exceed the number of characters permitted in a single NMEA 0183 sentence, many NRX sentences may be required to transfer a single NAVTEX message.

`$--NRX,xxx,xxx,xx,aaxx,x,hmmss.ss,xx,xx,xxxx,x.x,x.x,A,c--c*hh<CR><LF>`



NOTE 1 The total number of sentences required to transfer the NAVTEX message from the NAVTEX radio receiver.

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

NOTE 2 The sequential message identifier provides a unique identifier for each NAVTEX message represented by a group of sentences. Though the message code (field 4) contains a NAVTEX message serial number, there are special cases when the message serial number is set to 00 and has a different

meaning or when the same message code can occur more than once. When these conditions occur, the sequential message identifier can be relied upon to uniquely identify this NAVTEX message from other NAVTEX messages with the same message code.

NOTE 3 The NAVTEX message code contains three related entities. The first character identifies the transmitter coverage area and the second character identifies the type of message. Both these characters are as defined in Table I of Recommendation ITU-R M.625-3, combination numbers 1-26. Transmitter identification characters are allocated by the IMO NAVTEX Co-ordinating Panel; these characters and the meanings of the message type characters are described in the NAVTEX manual (IMO publication 951E). The remaining two characters are restricted to numerals with a range of 00 to 99 and represent a serial number for each type of message. The value of 00 is a special case and not considered a serial number. See 4.3.5 for interpretation of special case value of 00.

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

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

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

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

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

The example below shows a typical message received by the Navtex receiver with 3 bad characters (“*”):

```
<start of example>
ZCZC IE69=====
ISSUED ON SATURDAY 06 JANUARY 2001.
INSHORE WATERS FORECAST TO 12 MILES
OFFSHORE FROM 1700 UT* TO 0500 UTC.
NORTH FORELAND TO SE**EY BILL.
12 HOURS FORECAST:
SHOWERY WINDS, STRONGEST IN NORTH.
NNNN
<end of example>
```

Inspecting the corresponding NRX sentences would typically show:

```
$CRNRX,007,001,00,IE69,1,135600,27,06,2001,241,3,A,=====*09
$CRNRX,007,002,00,,,,,,,,,=====^0D^0AISSUED ON SATURDAY 06 JANUARY 2001.*29
$CRNRX,007,003,00,,,,,,,,,^0D^0AINSHORE WATERS FORECAST TO 12 MILES^0D^0AOFF*0D
$CRNRX,007,004,00,,,,,,,,,SHORE FROM 1700 UT^2A TO 0500 UTC.^0D^0A^0D^0ANORT*70
$CRNRX,007,005,00,,,,,,,,,H FORELAND TO SE^2A^2AEY BILL.^0D^0A12 HOURS FOREC*16
$CRNRX,007,006,00,,,,,,,,,AST:^0D^0A^0ASHOWERY WINDS^2C STRONGEST IN NORTH.^0D*15
$CRNRX,007,007,00,,,,,,,,,^0A^0A*79
```

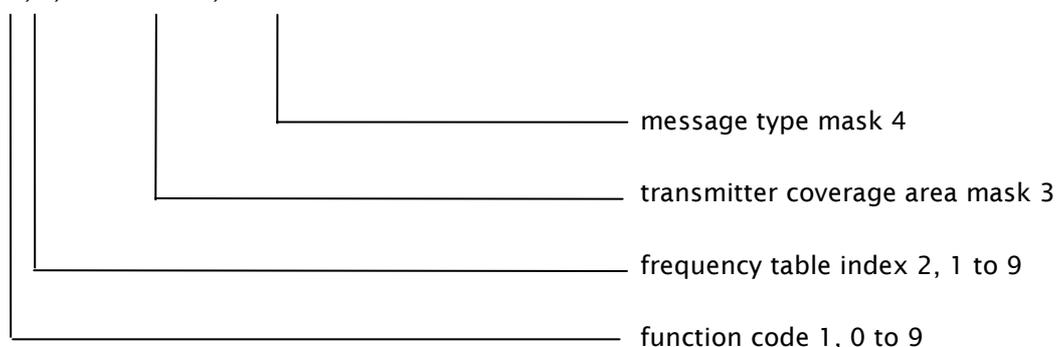
Decoding the message body should give the following result:

```
<start of decoding>
=====
ISSUED ON SATURDAY 06 JANUARY 2001.
INSHORE WATERS FORECAST TO 12 MILES
OFFSHORE FROM 1700 UT* TO 0500 UTC.
NORTH FORELAND TO SE**EY BILL.
12 HOURS FORECAST:
SHOWERY WINDS, STRONGEST IN NORTH.
<end of decoding>
```

C.2 NRM – NAVTEX receiver mask

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

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



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

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

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

- 1 = 490 kHz
- 2 = 518 kHz
- 3 = 4209,5 kHz
- 4 through 9 are reserved for future use

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

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

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

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

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

Example usage:

\$INNRM,2,1,00001E1F,00000023*57

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

Example usage:

\$INNRM,0,2,00001E1F,OFFFFFFFF*21

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

9.2. INS SIGNAL

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

① Switchover to 4.2095MHz

◆ \$PSYCNF,4209

② Switchover to 490KHz

◆ \$PSYCNF,490

③ Stop ALARM

◆ \$__ACK,001*

◆ \$__ACK,002*

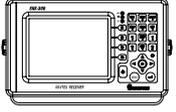
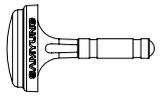
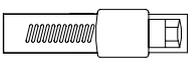
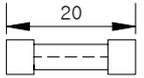
◆ \$__ACK,003*

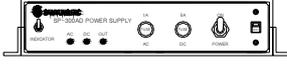
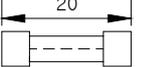
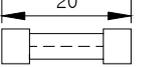
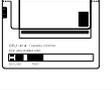
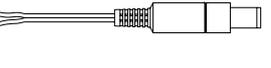
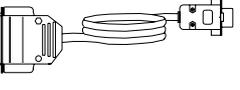
◆ \$__ACK,004*

◆ \$__ACK,005*

◆ \$__ACK,006*

CHAPTER 10. PACKING LIST

NAVTEX SNX-300 (STANDARD)						
NO	ITEM	DESCRIPTION	MODEL	Q'TY	CH	REMARK
1	MAIN UNIT		SNX-300	1		
			CODE NO.			
2	ANTENNA & BAR		SAN-300	1		
			CODE NO.			
3	STAINLESS BAND		STAINLESS BAND	2		
			CODE NO.			
4	ANT CABLE		RG58C/U Ø5	1	A-02	TNC-BNC 15 M
			CODE NO.			
5	DC POWER CABLE		CVV-SB 3C 0.75SQ	1	A-01	3 M
			CODE NO.			
6	GROUND CABLE		U/L 14 번 3.5 mm ²	1	A-04	1 M
			CODE NO.			
7	MAIN FUSE		250V/3A(20mm)	2		
			CODE NO.			
8	STEEL PIECE		Ø5 × 19mm	10		SNX-300 Fixed
			CODE NO.			
9	INSTRUCTION MANUAL		SNX-300-ME	1		
			CODE NO.			

NAVTEX SNX-300 (OPTION)						
NO	ITEM	DESCRIPTION	MODEL	Q'TY	CH	REMARK
1	POWER SUPPLY		SP-300AD	1		
			CODE NO.			
2	AC POWER CABLE		CVV-SB 2C 2SQ	1		3M
			CODE NO.			
3	DC POWER CABLE		CVV-SB 2C 2SQ	1		3M
			CODE NO.			
4	STAINLESS PIECE		Ø4 × 19mm	4		SP-300AD FIXED
			CODE NO.			
5	FUSE FOR AC POWER SUPPLY		250V/2A(20mm)	2		
			CODE NO.			
6	FUSE FOR DC POWER SUPPLY		250V/5A(20mm)	2		
			CODE NO.			
7	PRINTER		DPU-414	1		
			CODE NO.			
8	CABLE FOR PRINTER			1	A-05	1.5M
			CODE NO.			
9	PRINTER CABLE		PRINTER CABLE	1	A-03	2M
			CODE NO.			

CHAPTER 11. DPU-414 SETTING

※ How to set up DPU-414 4800BPS

Press [ONLINE] key and hold down the key for some 2 seconds, simultaneously turning on the power to print out DIP switch setting mode that is preset. After printing out the current DIP switch setting mode, the question on whether or not the user will continue the setting as follows:

[ON-LINE] in the switch setting mode means “ON” and [FEED] means “OFF”.

“Continue ? : Push “On-line SW”

“Write ? : Push “Paper feed SW”. This will be printed out.

- | | |
|-----------------------------------|--|
| ① Press [ONLINE] button. | |
| ② “Dip SW-1” will be printed out. | |
| ③ Press [FEED] button. | “1 (OFF) : Input = Serial” Printout. |
| ④ Press [ON-LINE] button. | “2 (ON) : Printing Speed = High” Printout. |
| ⑤ Press [ON-LINE] button. | “3 (ON) : Auto Loading = ON” Printout. |
| ⑥ Press [FEED] button. | “4 (OFF) : Auto LF = OFF” Printout. |
| ⑦ Press [ON-LINE] button. | “5 (ON) : Setting Command = Enable” Printout. |
| ⑧ Press [FEED] button. | “6 (OFF) : Printing” Printout. |
| ⑨ Press [ON-LINE] button. | “7 (ON) : Density” Printout. |
| ⑩ Press [ON-LINE] button. | “8 (ON) : 100%” Printout. |

“Continue ? : Push “On-line SW”

“Write ? : Push “Paper feed SW”. This will be printed out.

- | | |
|-----------------------------------|---|
| ① Press [ONLINE] button. | |
| ② “Dip SW-2” will be printed out. | |
| ③ Press [ON-LINE] button. | “1 (ON) : Printing Columns = 40” Printout. |
| ④ Press [ON-LINE] button. | “2 (ON) : User Font Back-up = ON” Printout. |
| ⑤ Press [ON-LINE] button. | “3 (ON) : Character Select = Normal” Printout. |
| ⑥ Press [ON-LINE] button. | “4 (ON) : Zero = Normal” Printout. |
| ⑦ Press [ON-LINE] button. | “5 (ON) : International” Printout. |
| ⑧ Press [ON-LINE] button. | “6 (ON) : Character” Printout. |
| ⑨ Press [FEED] button. | “7 (OFF) : Set” Printout. |
| ⑩ Press [FEED] button. | “8 (OFF) : = England” Printout. |

“Continue ? : Push “On-line SW”

“Write ? : Push “Paper feed SW”. This will be printed out.

- | | |
|------------------------------------|---|
| ① Press [ONLINE] button. | |
| ② “Dip SW-3” will be printed out.. | |
| ③ Press [ON-LINE] button. | “1 (ON) : Data Length = 8 bits” Printout. |
| ④ Press [ON-LINE] button | “2 (ON) : Parity Setting = No” Printout. |
| ⑤ Press [ON-LINE] button. | “3 (ON) : Parity Condition = Odd” Printout. |
| ⑥ Press [FEED] button. | “4 (OFF) : Busy Control = XON / XOFF” Printout. |

- | | |
|---------------------------|--------------------------------|
| ⑦ Press [ON-LINE] button. | “5 (ON) : Baud” Printout. |
| ⑧ Press [FEED] button. | “6 (OFF) : Rate” Printout. |
| ⑨ Press [FEED] button. | “7 (OFF) : Select” Printout. |
| ⑩ Press [FEED] button. | “8 (OFF) : 4800 bps” Printout. |

“Continue ? : Push “On-line SW”

“Write ? : Push “Paper feed SW”. This will be printed out.

Press [FEED] button and the setting will be done. The following will be printed out.

“DIP SW setting complete”

In order to check the preset DIP switch setting, press [ONLINE] button and hold it down for some 2 seconds, simultaneously turning on the power. If the following is printed out, it means it is normally set at 4800bps.

[DIP SW setting mode]

Dip SW-1

- 1 (OFF) : Input = Serial
- 2 (ON) : Printing Speed = High
- 3 (ON) : Auto Loading = ON
- 4 (OFF) : Auto LF = OFF
- 5 (ON) : Setting Command = Enable
- 6 (OFF) : Printing
- 7 (ON) : Density
- 8 (ON) : = 100%

Dip SW-2

- 1 (ON) : Printing Columns = 40
- 2 (ON) : User Font Back-up = ON
- 3 (ON) : Character Select = Normal
- 4 (ON) : Zero = Normal
- 5 (ON) : International
- 6 (ON) : Character
- 7 (OFF) : Set
- 8 (OFF) : = England

Dip SW-3

- 1 (ON) : Data Length = 8bits
- 2 (ON) : Parity Setting = No
- 3 (ON) : Parity Condition = Odd
- 4 (OFF) : Busy Control = XON / XOFF
- 5 (ON) : Baud
- 6 (OFF) : Rate
- 7 (OFF) : Select
- 8 (OFF) : = 4800 bps

“Continue ? : Push “On-line SW”

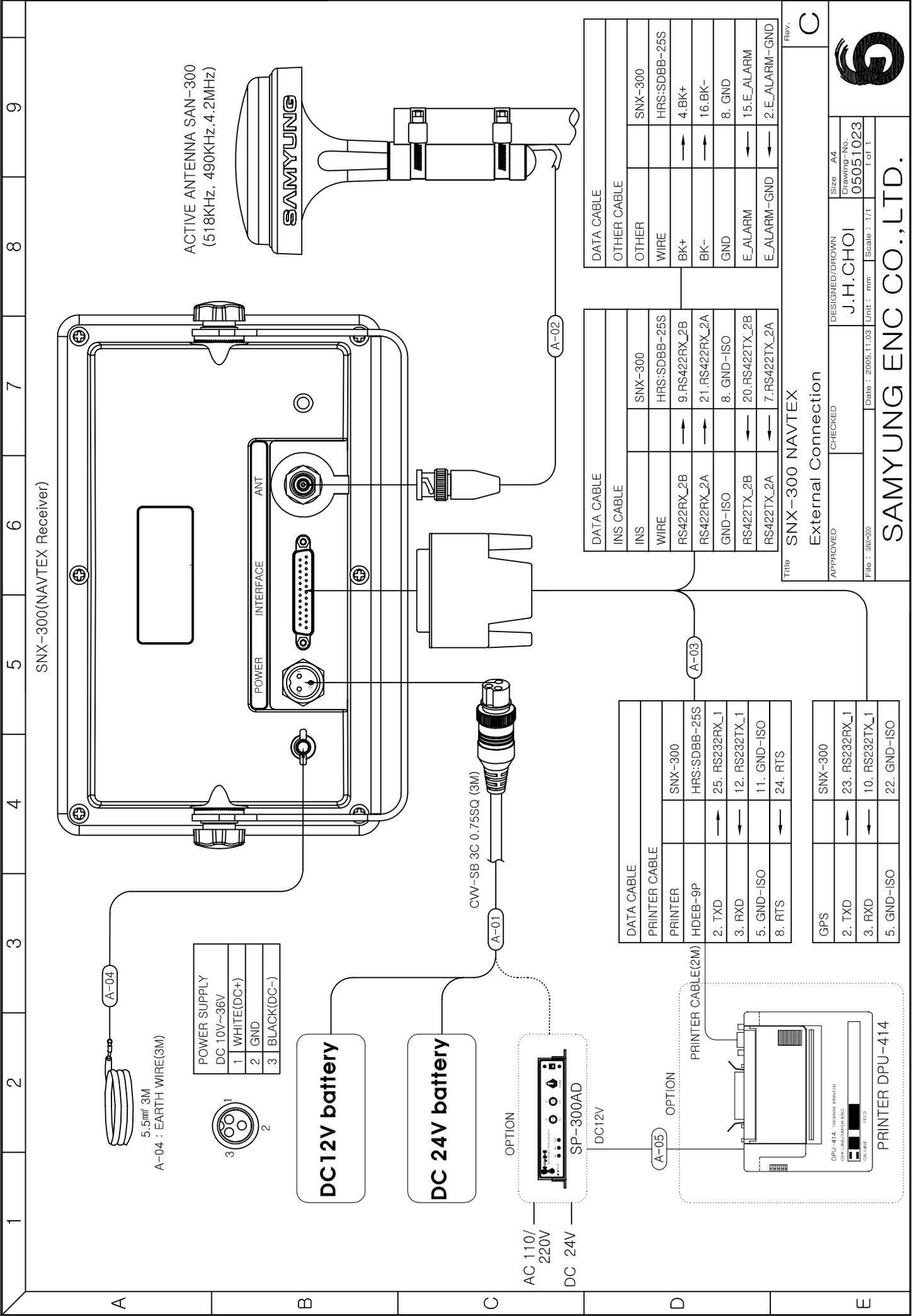
“Write ? : Push “Paper feed SW”. This will be printed out.

※ If the equipment is set okay, press [FEED] button and the printout is made from DIP SW Setting mode.

If not set okay, press [ON-LINE] button to re-set DIP SW.

CHAPTER 12. CIRCUIT DIAGRAM

CHAPTER 13. EXTERNAL DIAGRAM



SNX-300(NAVTEX Receiver)

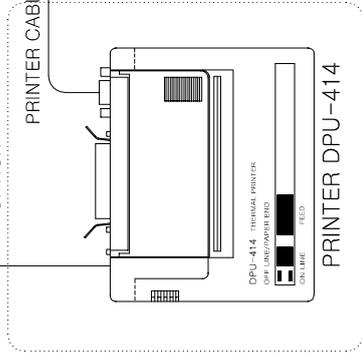
ACTIVE ANTENNA SAN-300
(518KHz, 490KHz, 4.2MHz)

POWER SUPPLY	
DC 10V~36V	
1	WHITE(DC+)
2	GND
3	BLACK(DC-)

DC 12V battery

DC 24V battery

OPTION
SP-300AD
DC12V



DATA CABLE	
OTHER	SNX-300
WIRE	HRS:SDBB-25S
BK+	4.BK+
BK-	16.BK-
GND	8. GND
E-ALARM	15.E-ALARM
E-ALARM-GND	2.E-ALARM-GND

DATA CABLE	
INS CABLE	SNX-300
WIRE	HRS:SDBB-25S
RS422RX_2B	9.RS422RX_2B
RS422RX_2A	21.RS422RX_2A
GND-ISO	8. GND-ISO
RS422TX_2B	20.RS422TX_2B
RS422TX_2A	7.RS422TX_2A

DATA CABLE	
PRINTER	SNX-300
HDEB-9P	HRS:SDBB-25S
2. TXD	25. RS232RX_1
3. RXD	12. RS232TX_1
5. GND-ISO	11. GND-ISO
8. RTS	24. RTS

GPS	
2. TXD	23. RS232RX_1
3. RXD	10. RS232TX_1
5. GND-ISO	22. GND-ISO

Rev. C

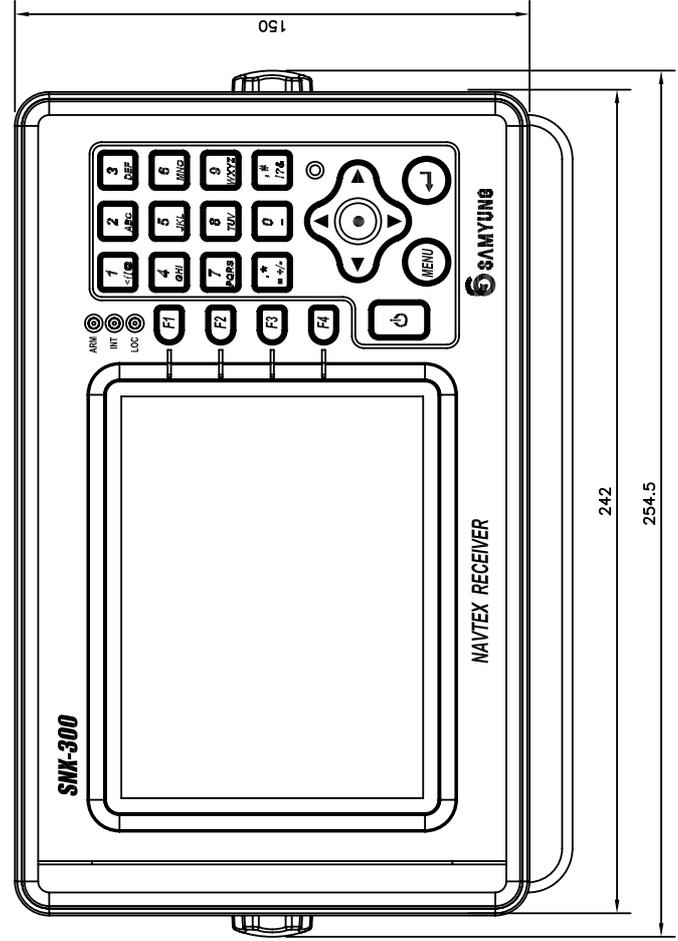
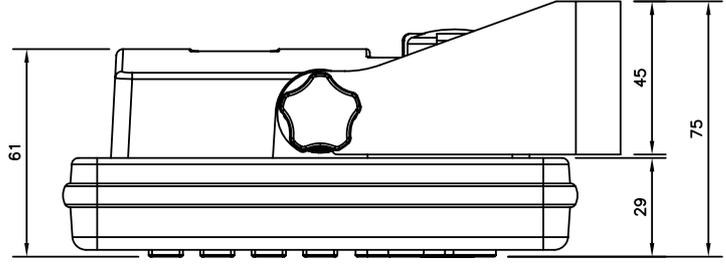
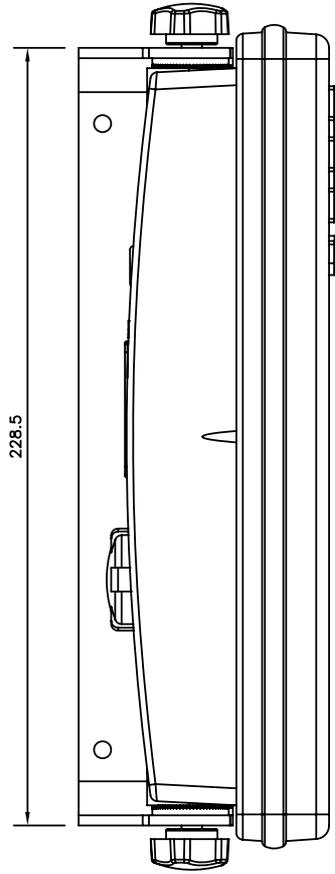
Title SNX-300 NAVTEX
External Connection

APPROVED _____ CHECKED _____

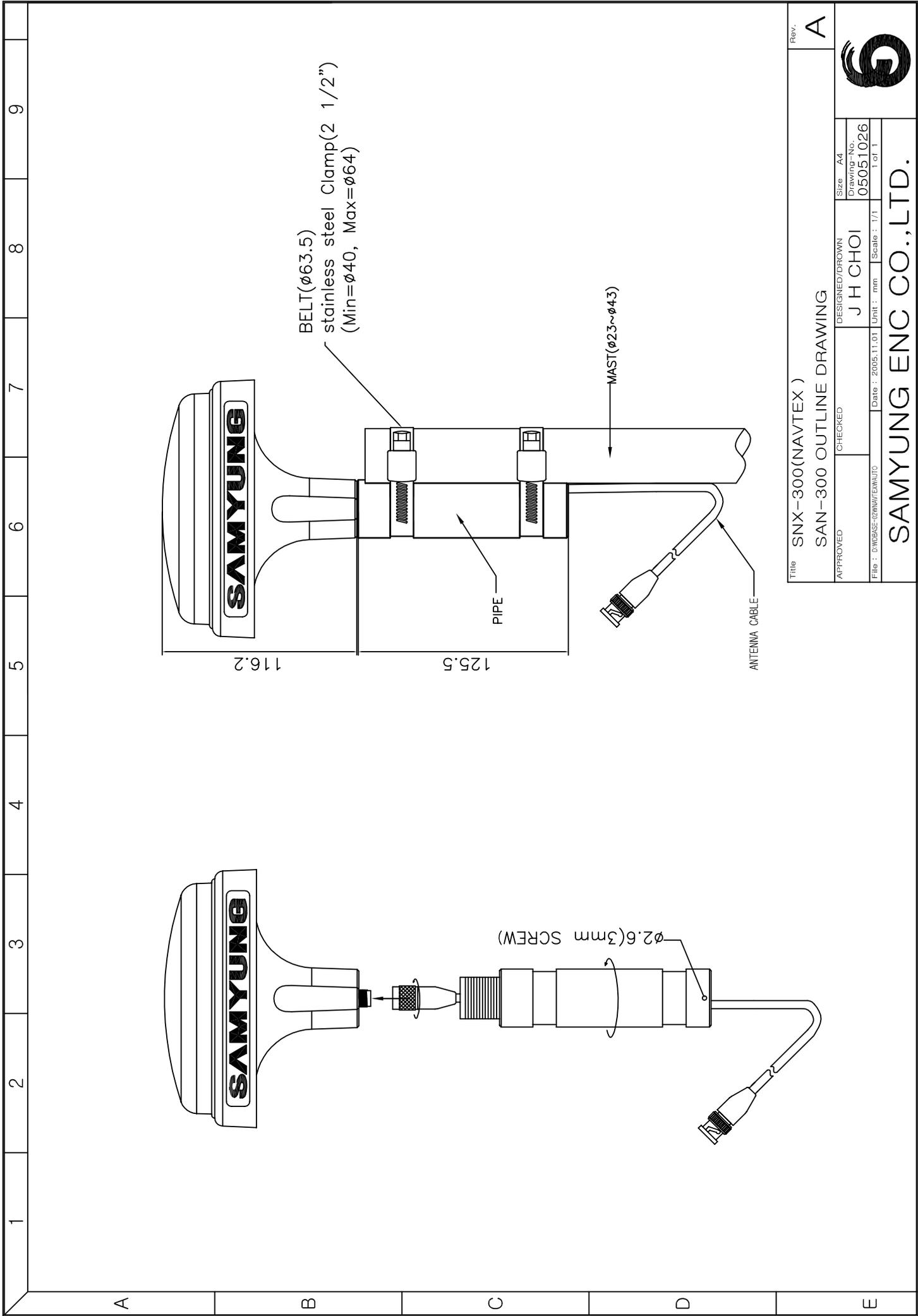
DESIGNED/DROWN J.H. CHOI
Drawing-No. 05051023
Date : 2005.11.03 Unit : mm Scale : 1/1 1 of 1

SAMYUNG ENC CO., LTD.

1 2 3 4 5 6 7 8 9



Title		SNX-300 NAVTEX		Rev.	A
OUTLINE DRAWING		DESIGNED/DROWN	J.H.CHOI	Size / A4	
APPROVED	CHECKED	Date : 2005.11.03	Unit : mm	Drawing-No.	05051020
SAMYUNG ENC CO.,LTD.		Scale : 1/1		1 of 1	

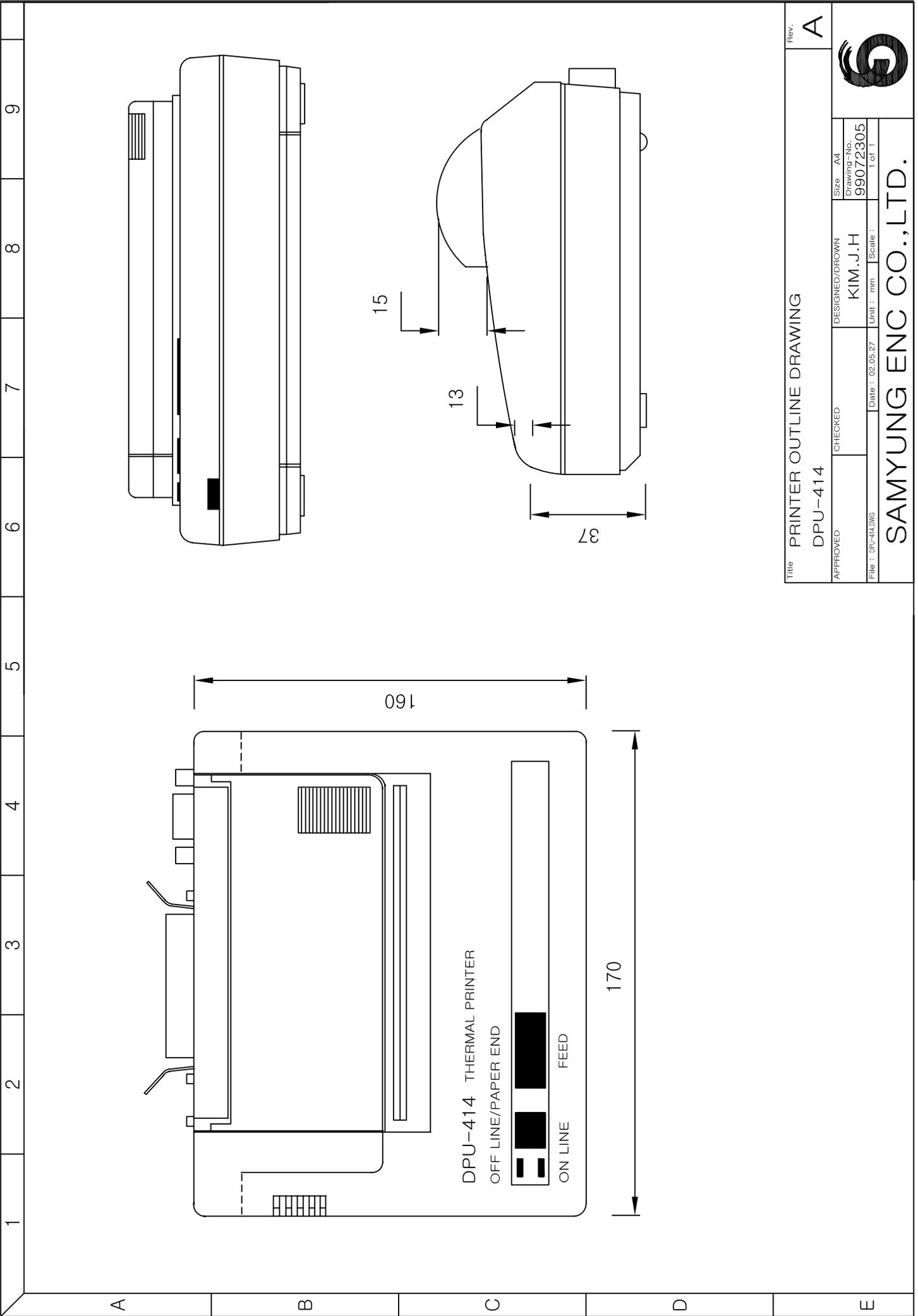


1 2 3 4 5 6 7 8 9

A B C D E

Title		SNX-300(NAVTEX)		Rev.	A
APPROVED		DESIGNED/DRAWN		Size	A4
CHECKED		J H CHOI		Drawing-No	05051026
File : D:\M0605E-02\NAVTEX\AUTO		Date : 2005.11.01	Unit : mm	Scale : 1/1	1 of 1
SAMYUNG ENC CO.,LTD.					





1 2 3 4 5 6 7 8 9

A B C D E

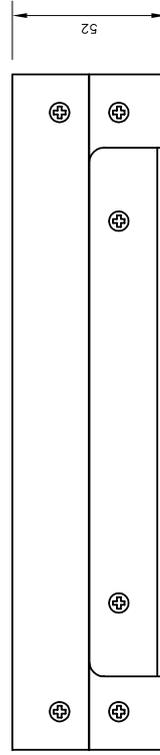
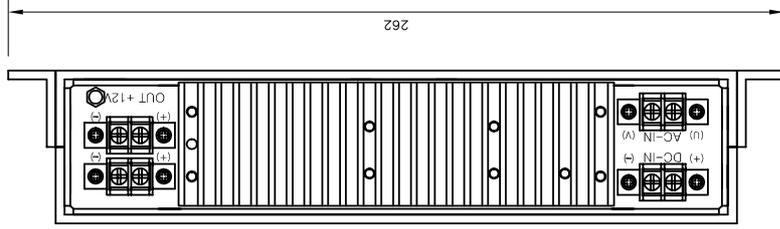
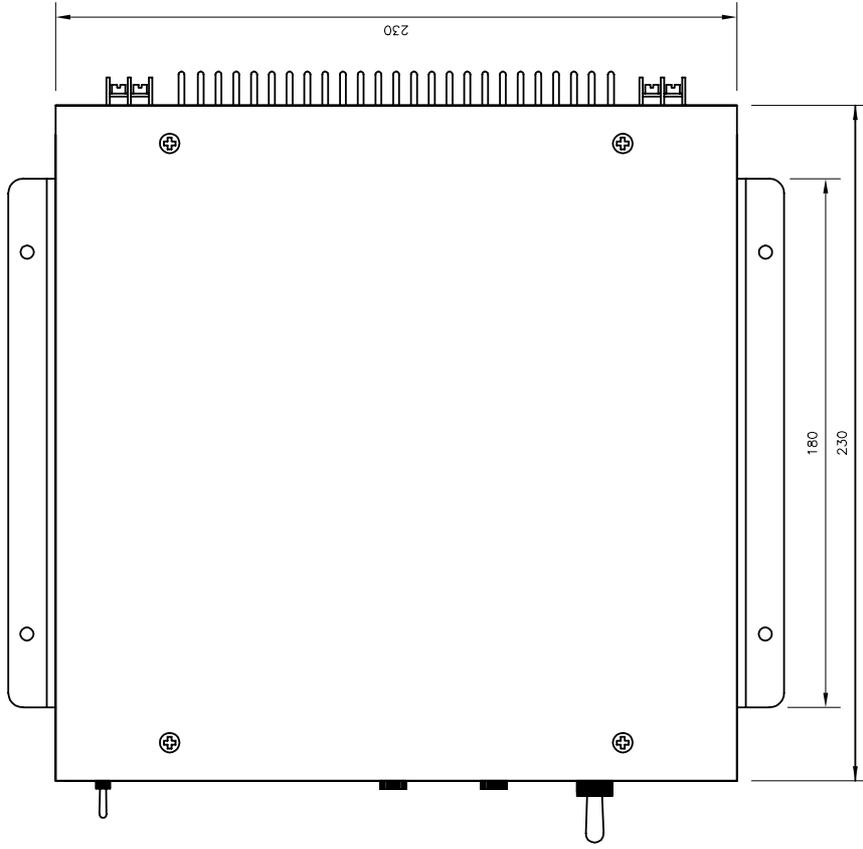
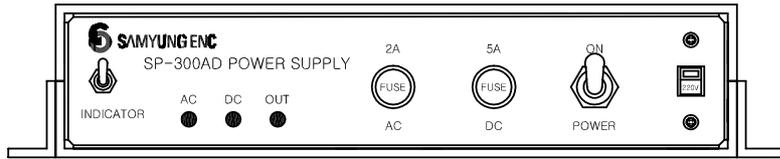
Rev. A
 Title: PRINTER OUTLINE DRAWING
 DPU-414

APPROVED	CHECKED	DESIGNED/DROWN	Size : A4
		KIM.J.H	Drawing-No. 99072305
File : DPU-414.DWG	Date : 02.05.27	Unit : mm	Scale : 1 of 1



SAMYUNG ENC CO., LTD.

1 2 3 4 5 6 7 8 9



Title		POWER SUPPLY OUTLINE DRAWING		Rev.	A
APPROVED	CHECKED	DESIGNED/DRAWN	J.H. CHOI	Size	A4
SP-300AD		Date	02.05.27	Drawing-No	05051028
File : DPH-14.LWG		Unit	mm	Scale	1 of 1
SAMYUNG ENC CO., LTD.					



A B C D E