Weather Fax Receiver

Installation and Operation Manual

MODEL : SFX-100

SAMYUNG ENC CO., LTD.

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Contents

SFX-100 Rev.1.0(080423)

Chapter 1. Overview **3**
1.1. Features 3
1.2. Components 3
Chapter 2. Specification **4**
2.1. General Specification 4
Chapter 3. Description **4**
3.1. Connectors and Switches Description 4
3.2. LCD Screen Description 5
Chapter 4. FAX Mode **6**
4.1. FAX Mode Selection 6
4.2. FAX Reception (RCV FAX) 7
4.2.1. Reception Channel Setup (CH SETUP) 7
4.2.2. Timer Setup (TIMER SETUP) 8
4.2.3. Manual Receiving (MANUAL RCV) 9
4.2.4. Stop Receiving (STOP RCV) 9
4.3. View Image (VIEW IMAGE) 9
4.3.1. Image Zoom In (ZOOM IN) 10
4.3.2. Image Zoom Out (ZOOM OUT) 10
4.3.3. Image Rotation (RORATE) 11
4.3.4. Image Print (PRINT) 11
4.3.5. Image Delete (DELETE) 11
4.3.6. Receiving Setup (EDIT) 12
4.3.7. Contrast Control during Receiving (CONTRAST) 16
4.4. Fax Setup (FAX SETUP) 17
4.4.1. Station Setup (EDIT STATION) 17
4.4.2. PRINT SETUP (PRINT SETUP) 18
4.4.3. Image Backup (IMAGE BACKUP) 18
Chapter 5. NAVTEX Mode **19**
5.1. NAVTEX Mode Selection (NAVTEX) 19
5.2. Message List (MESSAGE LIST) 19
5.2.1. 518KHz Messages 19
5.2.2. 490KHz Messages 19
5.3. Setting (SETUP) 20
5.3.1. 518KHz Setting (518KHz RCV SETUP) 20
5.3.2. 490KHz Setup (490KHz SETUP) 22
5.3.3. Frequency Selection (RCV CHANNEL) Setup 22
5.3.4. Print Setup (PRINT SETUP) 22
5.4. Print 22
Chapter 6. System Setting (SYSTEM SETUP) **23**
6.1. System Setup Selection 23
6.2. Receiving Setup (RCV SETUP) 23
6.2.1. Receiving Mode Setting (RCV MODE) 23
6.2.2. Receiving Alarm Setting (RCV NOTICE) 24
6.3. Time Setting (SET TIME) 24
6.4. Device Selection (DEVICE) 24
6.4.1. Input Device (KEYBOARD) 25
6.4.2. Appointed Printer by a User (USER PRINTER) 25
6.5. System Test (TEST MODE) 27
6.5.1. System Version (SYSTEM VERSION) 27
6.5.2. Test Print (PRINT TEST) 28
6.5.3. Buzzer Test (BUZZER TEST) 28
6.5.4. Self Test (SELF TEST) 29
6.6. Initialization (CLEAR SETUP) 30
6.6.1. Memory Delete (CLEAR MEMORY) 30
6.6.2. Load Default (LOAD DEFAULT) 30
6.6.3. Software Upgrade (SW UPGRADE) Setup 31
6.7. Simulation (SIMULATION) 32
6.7.1. Fax Simulation (FAX SIMULATION) 32

Chapter 7. Circuit Description **33**
7.1. Overview 33
7.2. Circuit Description 33
7.2.1. Receiver / Synthezier (P101212) 33
Chapter 8. TROUBLESHOOTING **35**
8.1. Overview 35
8.2. Measuring Instrument 35
8.3. SFX-100 Inspection and Maintenance 35
8.3.1. Antenna 35
8.3.2. Power 35
8.3.3. Receiver 35
Chapter 9. Diagram **36**
9.1. Connection Diagram 36
9.2. Wiring Diagram 37
Chapter 10. Dimension **38**
Chapter 11. Appendix **39**
11.1. Menu Tree 39
11.1.1. FAX Menu tree 39
11.1.2. NAVTEX Menu tree 40
11.1.3. SYSTEM SETUP Menu tree 41
11.2. World Major Weather Fax Frequency 42
11.2.1. ASIA 42
11.2.2. SOUTH AMERICA 44
11.2.3. NORTH AMERICA 44
11.2.4. PACIFIC OCEAN BASIN 45
11.2.5. EUROPE 46
11.2.6. AFRICA 47

Chapter 1. Overview

1.1. Features

● The SFX-100 weather fax receiver can receive weather fax image and NAVTEX message with directly connected LCD monitor, printer and keyboard.

(1) General Control

● The SFX-100 weather fax receiver is integrated by major circuits such as a controller, a power supply, a synthesizer and others for ideal the integrated control of each device's functions.

(2) Compatibility

● The SFX-100 has compatibility with your existing LCD monitor, keyboard and printer. The receiver is controlled by the keyboard and can be monitored by the monitor.

(3) Can store up to twenty (20) image data.

(4) Can select a stored image in simple screen mode.

(5) Receive weather information which is suited to WMO standard from a weather information center

(6) Both automatic and manual synchronization are supported

(7) Automatic receives channel setup help to receive optimized super fine data.

(8) NAVTEX reception can be stored up to 115 text messages of maximum 16,000 characters per channel.

1.2. Components

● The SFX-100 is consisting of basic, optional components and supplements provided by a user. Also each device is consist of PCB based on functions.

No.	ITEM	MODEL	Q'TY	NOTE
1	**Weather Fax Receiver**	SFX-100	1SET	
(1)	Receiver and Synthesizer	P101212-0X	1	
(2)	Controller and Power Supply	P101281-0X	1	
2	**Remote Controller**	KEYPAD USB NORMAL KEYS	1	
3	**Spare Parts, installation Materials**		1SET	
(1)	Power Cable	SCN3-3M-D3	1	
(2)	Fix Screw	**Stainless Screw 1 Type 4X16mm**	4	
(3)	Fuse	2A, L=20mm	2	
4	**User's Manual and Installation Drawing**		1	

[Table 1. Basic Components]

No.	ITEM	MODEL	Q'TY	NOTE
1	WHIP ANT SET		1SET	
(1)	WHIP ANT	DAF30R	1	
(2)	M-TYPE CONNECTOR	P101281-0X	1	
2	WIRE ANT SET		1SET	
(1)	CABLE	565-0109-01	15m	
(2)	JOINT BOX	SA-300	1	
3	COAXIAL CABLE	BNCP-20M-RG58	1	20m
4	POWER SUPPLY	SP-300AD	1	

[Table 2. Optional Components]

No.	ITEM	MODEL	Q'TY	NOTE
1	MONITOR (LCD)		1	
2	Keyboard	**PC/AT 101 Keyboard(USB)**	1	
3	PRINTER	HP Inkjet, HP Deskjet. HP Lazerjet, HP officejet	1	Support printers only Which PCL3 is supported by standard printer language

[Table 3. User's Supplements]

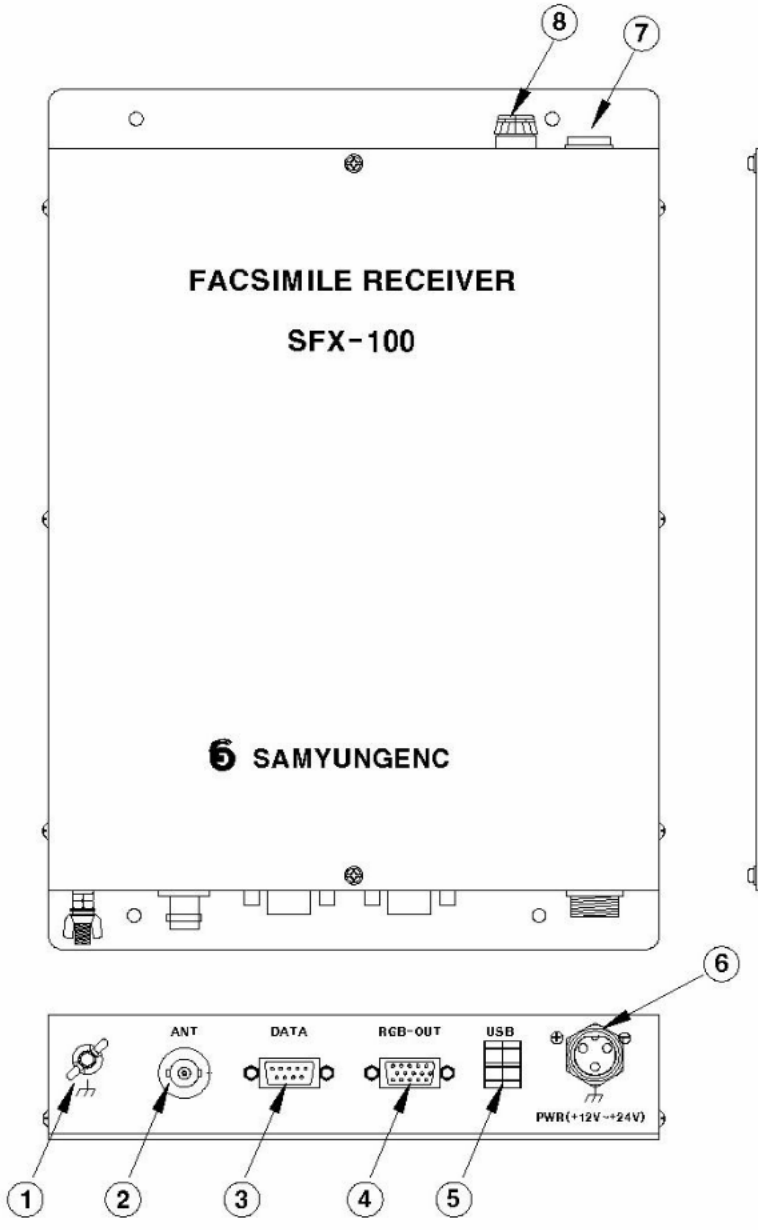
Chapter 2. Specification

2.1. General Specification

- Frequency : FAX 0.5MHz – 25MHz
  NAVTEX 490KHz/518KHz
- Frequency Stability : SYNTHESIZER Type,
  Declination within 10 (Within 0.3ppm)
- Storable CH : 320CH
  (A number of channel that a user can store)
- Store Capacity : FAX(20 PICTURE)
  NAVTEX (Max.16,000Characters' 115text message per CH.)
- Modulation Type : FAX(F3C/J3C), NAVTEX(F1B)
- Receiving Type : Double superheterodync.
- Interface : Monitor (LCD),
  Remote Controller (Keyboard), Printer
- Display Color : Black and Yellow,
  Green and Black, and Black and Gray.
- Power: Rated DC 12V~24V (-10% ~ +20%), 1A
- Antenna : WHIP Antenna (DAF30R)
  Or WIRE Antenna 15M
- Dimension : 203(W) X 290(L) X 43(H)
- Weight : 2Kgkg

Chapter 3. Description

3.1. Connectors and Switches Description



① Grounding : System grounding.

② ANT : Connect WHIP or WIRE antenna.

③ DATA : Being used for software upgrade.

④ RGB-OUT : Connect LCD monitor.

⑤ USB : External interface connector which connect a printer and keyboard.

⑥ PWR : Supply DC 12V ~ 24V.

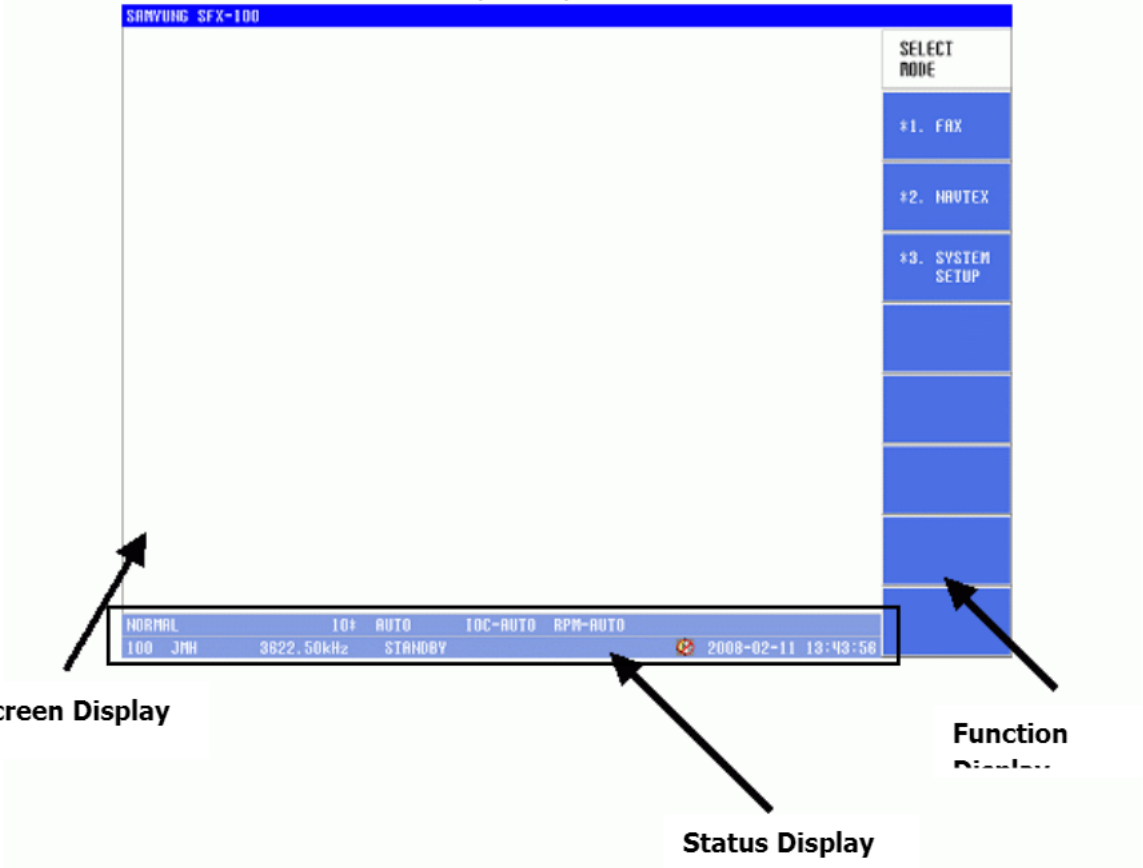
⑦ Power Switch : The power switch of SFX- 100.

⑧ Fuse : 2A Fuse

3.2. LCD Screen Description

(1) Basic Specification

- The resolution of LCD is set to ***800 X 600.*** (Default)



[Picture 1. LCD Screen]

(2) Screen Display

- A fax image will be displayed in fax mode or a received message will be displayed in NAVTEX mode.

(3) Function Display

- There is a description of function Key.

a) To **choose Function**, hit appropriate key while pushing **[✱]** key in **key pad**.
If it is **PC/AT 101 keyboard**, hit an assigned **function key**.
(Example) To select **[FAX]** at above screen,
- Key Pad : Hit **[1]** while pushing **[✱]**.
- PC/AT 101 Keyboard : Hit **[F1].**

b) The **LED** indicator of **[NumLock]** has to be **ON** to input numbers and has to be **OFF** to use arrow keys and for other functions.

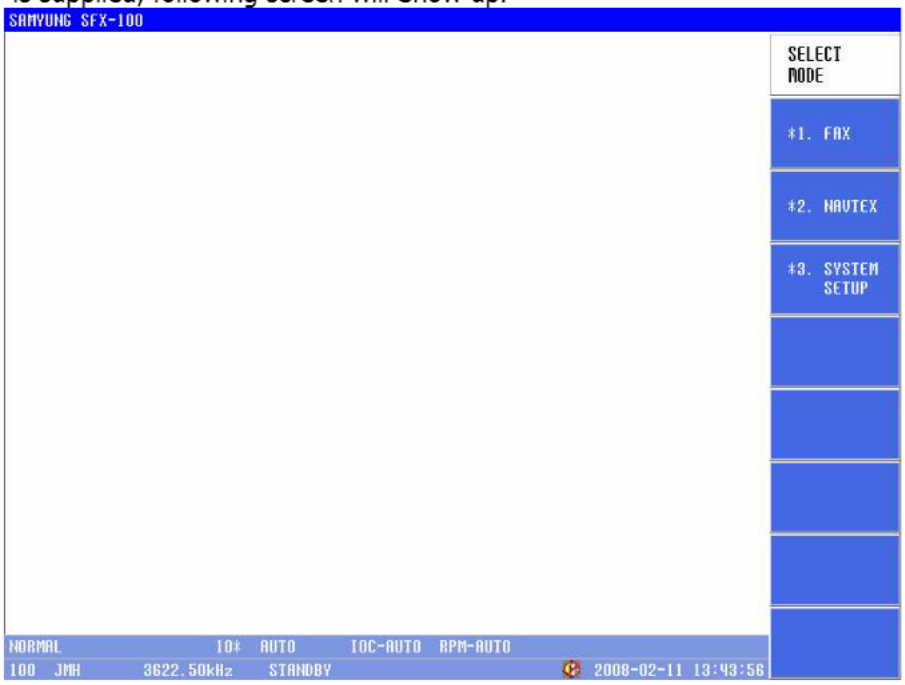
(4) Status Display

- It displays current status such as frequency, mode, date, time, etc.

Chapter 4. FAX Mode

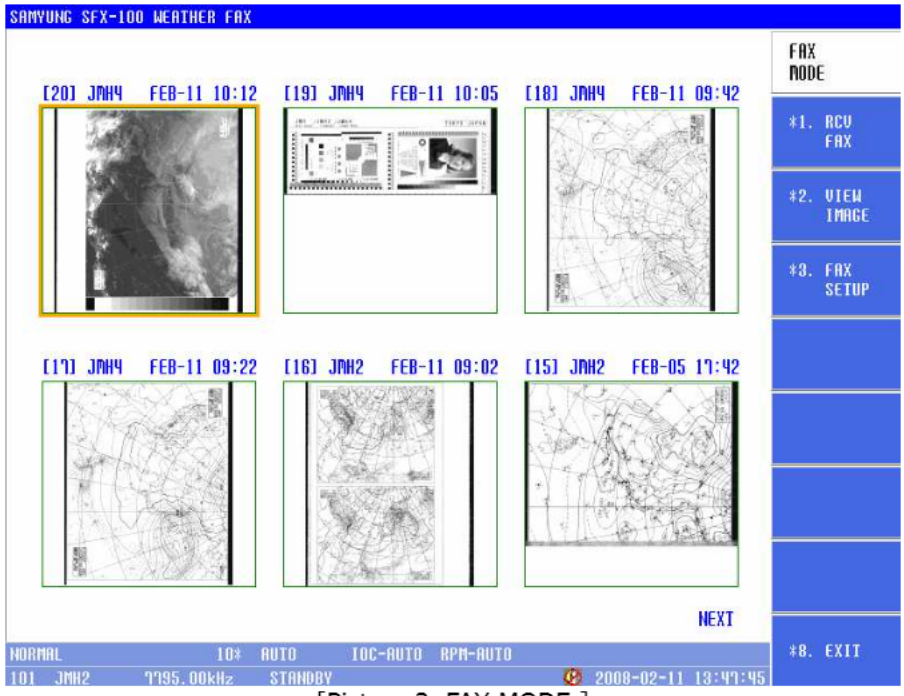
4.1. FAX Mode Selection

(1) When power is supplied, following screen will Show up.



[Picture 2. Top Menu]

(2) When **[✱]→[1]** is pushed at top menu, it will enter into **'FAX MODE'**.

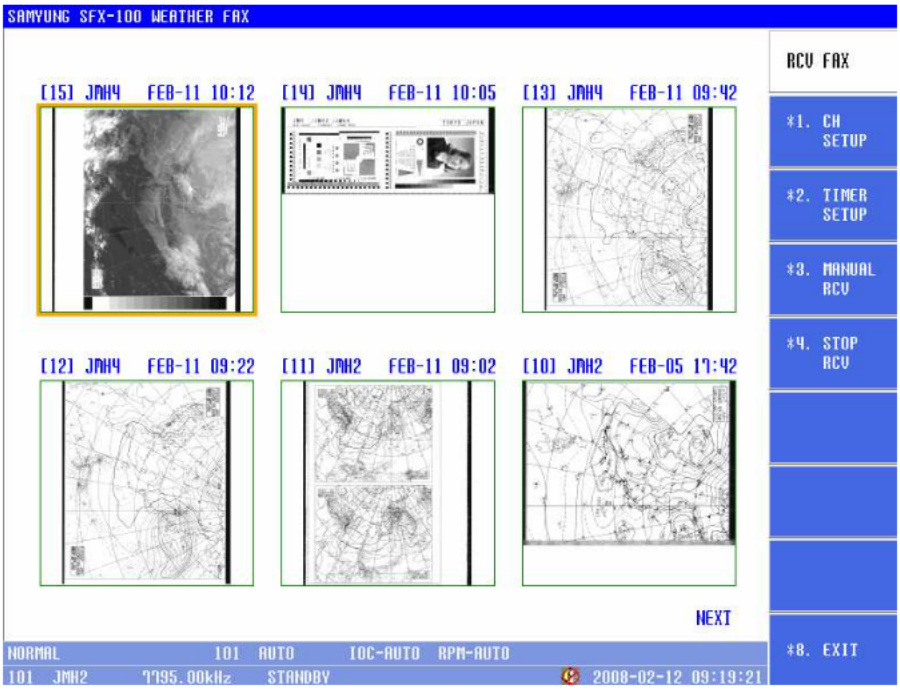


[Picture 3. FAX MODE]

(3) An arrow key allows a user to select image and when [ENTER] or **[✱]→[2]** key is pushed image will be displayed.

4.2. FAX Reception (RCV FAX)

- In **FAX MODE**, it will change to Fax reception **(RCV FAX)** when **[✱]→[1]** key is pushed.



[Picture 4. RCV FAX]

4.2.1. Reception Channel Setup (CH SETUP)

- This SETUP allows a user to choose a transmitting station and a channel to receive messages automatically.
- In **RCV FAX** menu, the channel setup window will pop up when **[✱]→[1]** is pushed.

[그림 5. CH SETUP]

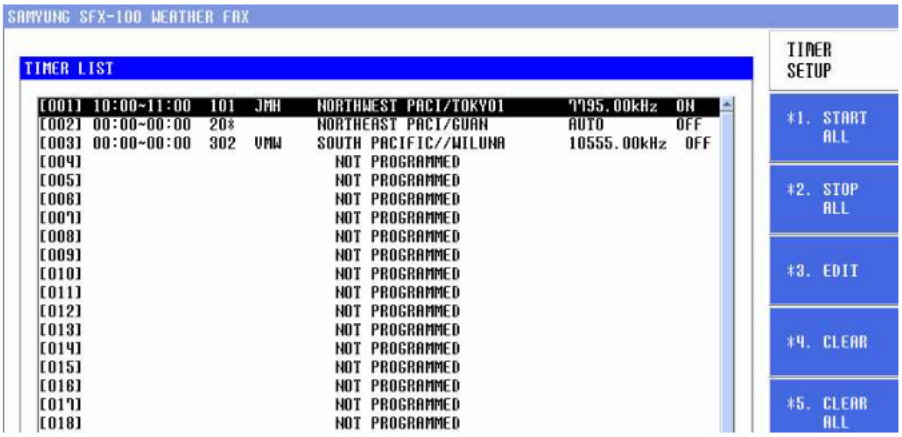
- **'ZONE/STATION/SPEED/FREQUENCY'** can be selected by arrow keys. By pushing **[Enter]** key, the user can change input value with arrow keys.
  - **ZONE** : Select current location.
  - **STATION** : Select a station to receive weather fax broadcasting.
  - **CHANNEL** : Select the frequency of selected station (When AUOT is selected, the frequency will be scanned automatically)
  - **IOC** : The standard of line density assigned by WMO. (When AUTO is selected, it will be assigned automatically)
  - **SPEED**(RPM) : A number of line can be received during receiving a broadcasting. (When AUTO is selected, it will assigned automatically)
  - **FREQUENCY** : A frequency can be changed during manual receiving. (When AUTO is selected, no input)

※ The **LED** indicator of **[NumLock]** has to be **ON** to input numbers and has to be **OFF** to use arrow keys and for other functions.

- When **[✱]→[7]** is pushed, channel selection is completed.

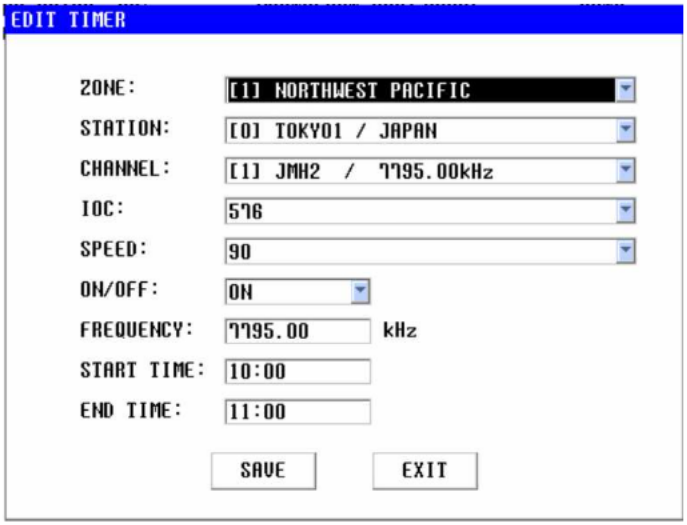
4.2.2. Timer Setup (TIMER SETUP)

- A user can set receiving time, transmitting station and frequency.
- When **[✱]→[2]** is pushed in **RCV FAX** menu, it will switch to **'TIMER SETUP'** screen.



[그림 6. TIMER SETUP]

(1) By pushing arrow key, a timer list can be selected.
(2) When **[✱]→[1]** is pushed in **'TIMER SETUP'** menu, it **STRAT ALL** timer lists that is set to **'ON'**
(3) When **[✱]→[2]** is pushed in **'TIMER SETUP'** menu, it **STOPS ALL** timer lists that is set to **'OFF'**.
(4) When **[✱]→[3]** is pushed in **'TIMER SETUP'** menu, The **'EDIT TIMER'** window will pop up.



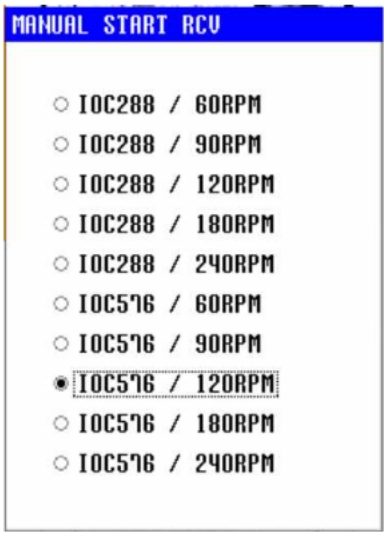
[Picture 7. EDIT]

- **'ZONE/STATION/SPEED/FREQUENCY'** can be selected by arrow keys. By pushing **[Enter]** key, the user can change input value with arrow keys.
- **'ZONE / STATION / CHANNEL / IOC / SPEED / ON or OFF / FREQUENCY / START TIME / END TIME'** can be selected by arrow keys. By pushing **[Enter]** key, the user can change input value with arrow keys.
- When **[✱]→[7]** is pushed the timer setting is completed.

(5) When **[✱]→[4]** is pushed in **'TIMER SETUP'** menu, a currently selected list will be deleted.
(6) When **[✱]→[4]** is pushed in **'TIMER SETUP'** menu, all programmed timer lists will be deleted.

4.2.3. Manual Receiving (MANUAL RCV)

- Weather fax can be received in manual mode
- SET UP a channel in **[CH SETUP]**
- When **[✱]→[3]** is pushed in **RCV FAX** menu, it will display **'MANUALSTART RCV'**



[Picture 8. MANUAL RCV]

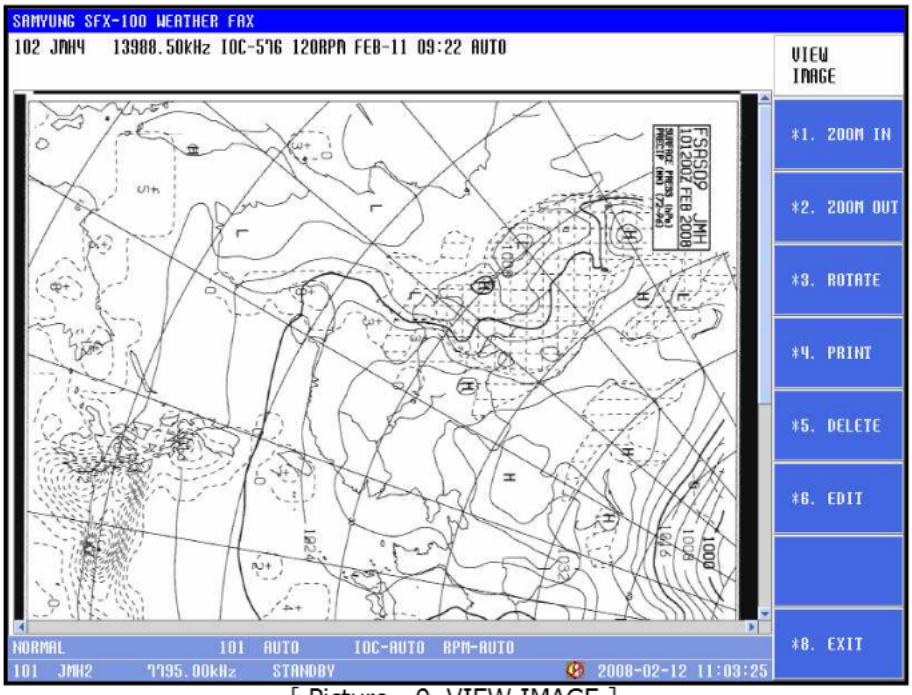
- Select desirable **IOC/RPM**.
- When **[Enter]** or **[✱]→[7]** is pushed, the manual receiving will be started.

4.2.4. Stop Receiving (STOP RCV)

- A whether fax broadcasting can be stopped when receiving. .
- When **[✱]→[4]** is pushed in **RCV FAX** menu, a massage receiving will be cancelled.

4.3. View Image (VIEW IMAGE)

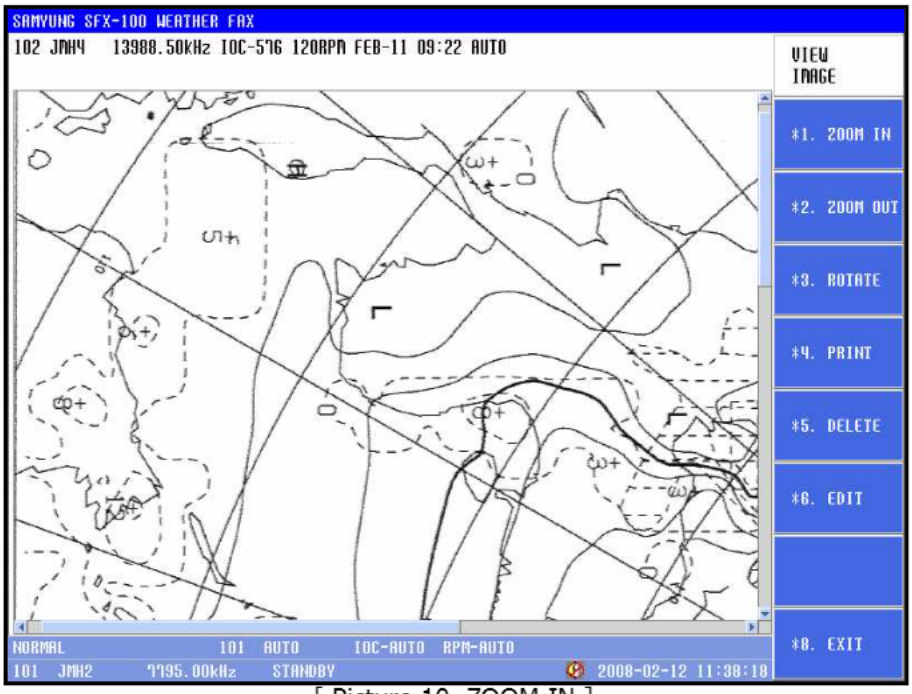
- When **[✱]→[2]** is pushed in fax mode, the screen will be changed to **'VIEW IMAGE'**.



[Picture 9. VIEW IMAGE]

4.3.1. Image Zoom In (ZOOM IN)

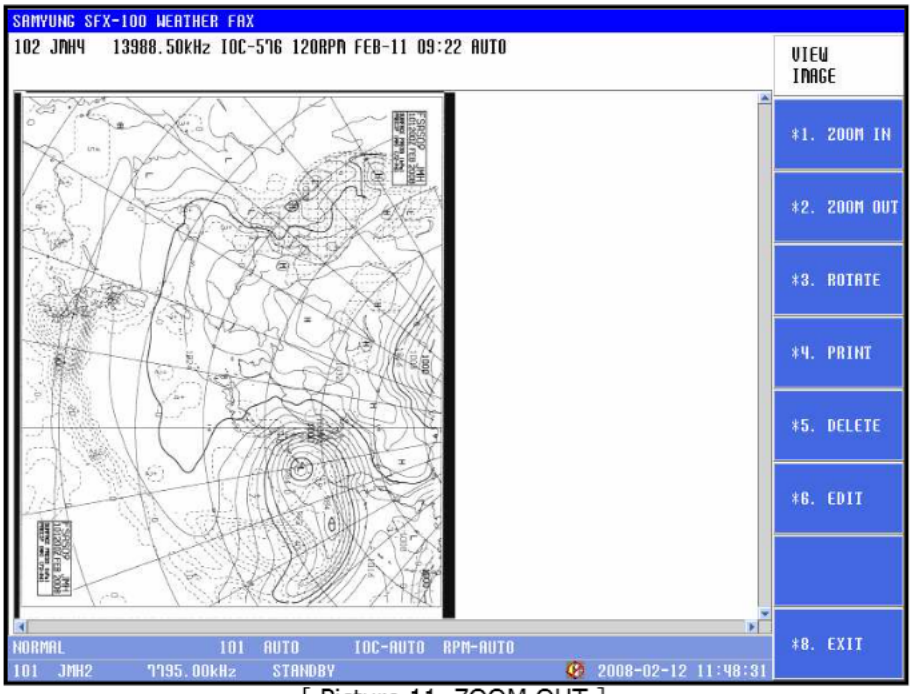
- When **[✱]→[1]** is pushed in **VIEW IMAGE** menu, the selected image will be enlarged.



[Picture 10. ZOOM IN]

4.3.2. Image Zoom Out (ZOOM OUT)

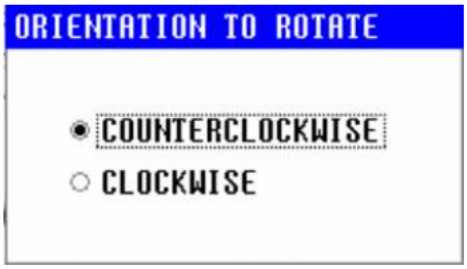
- When **[✱]→[2]** is pushed in **VIEW IMAGE** menu, the size of selected image will be decreased.



[Picture 11. ZOOM OUT]

4.3.3. Image Rotation (RORATE)

● When **[✱]→[3]** is pushed in **VIEW IMAGE** menu, the rotation option window will pop up.



[Picture 12. ROTATE]

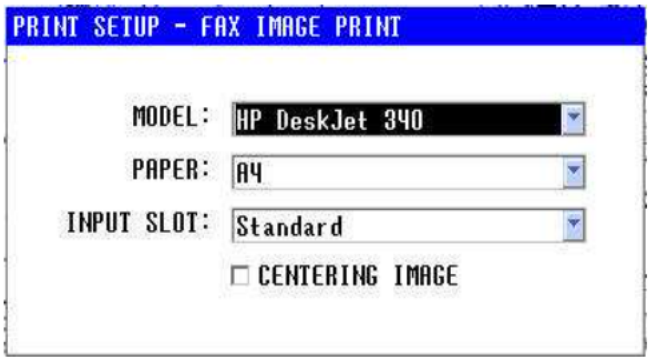
- ■ **CLOCKWISE** : The image will rotate clockwise.
- ■ **COUNTERCLOCKWISE** : The image will rotate counterclockwise.

● When **[Enter]** or **[✱]→[7]** is pushed, the image will be rotated. [

4.3.4. Image Print (PRINT)

● A received Image can be printed.

● When **[✱]→[4]** is pushed in **VIEW IMAGE** menu, the **'FAX IMAGE PRINT'** setting window will be pop up.



[Picture 13. PRINT]

● **'MODEL / PAPER / INPUT SLOT'** can be selected by arrow keys. By pushing **[Enter]** key, the user can change input value with arrow keys.

- ■ **MODEL** : Select a printer.
- ■ **PAPER** : Select a paper size either A3 or A4.
- ■ **INPUT SLOT** : Select a paper tray.
  - ◆ **Standard** : select a basic tray.
  - ◆ **Manual tray** : Select a manual tray.
  - ◆ **Portable** : Select a portable tray.

  ※ **The value of INPUT SLOT changes whenever a printer is changed.**

- ■ **CENTERING IMAGE** : If a received image is smaller than print paper, this option allows an image to print from center.

● When **[✱]→[7]** is pushed, the setup is completed.

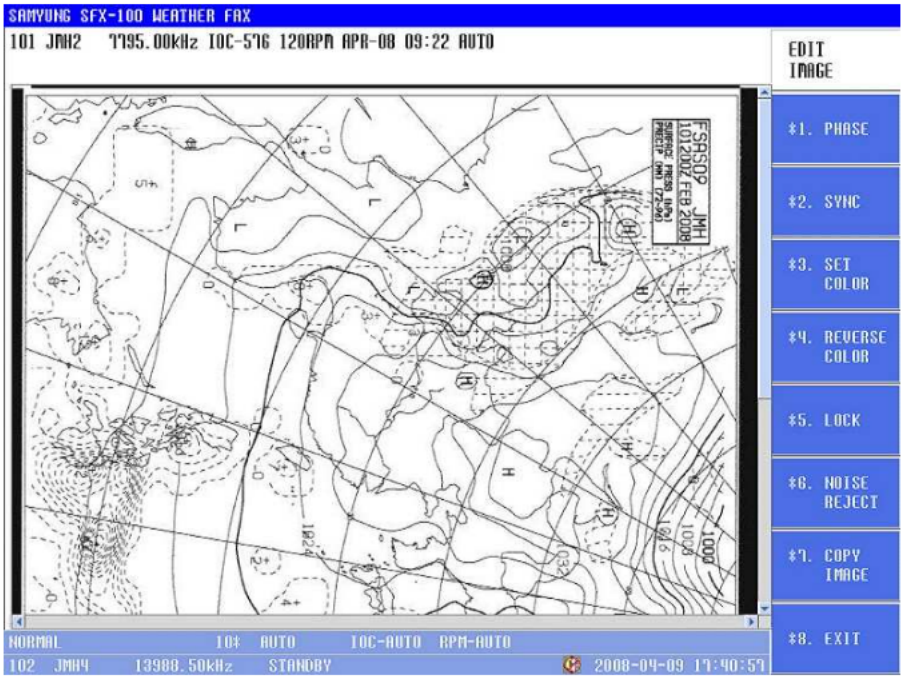
4.3.5. Image Delete (DELETE)

● A selected image can be deleted.

● When **[✱]→[5]** is pushed in VIEW IMAGE menu, it will change to **IMAGE DELETE** selection screen.

4.3.6. Receiving Setup (EDIT)

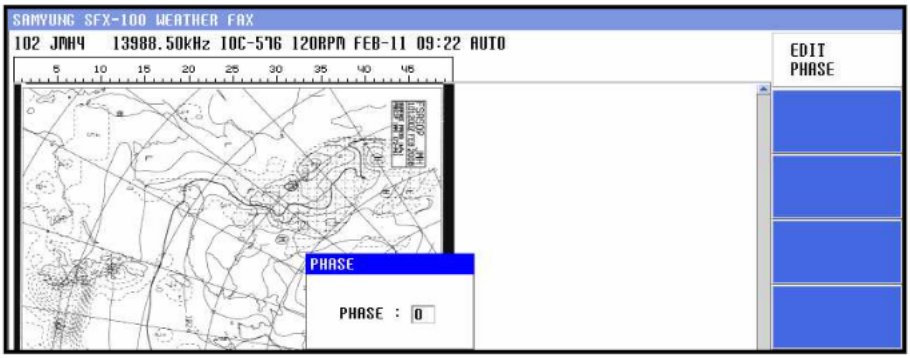
- The phase, sync and screen display can be set.
- When **[✱]→[6]** is pushed in **VIEW IMAGE** menu, it will change to image reception setting screen.



[Picture 14. EDIT IMAGE]

(1) **Phase**

- When the weather fax receive a image, it can be separated with a thin black line called **'Dead Sector'** by a noise protect detection phase signal caused by phase mismatching.
- If this is happening, the broadcasting can be completed by correcting the phase mismatching.
- When **[✱]→[1]** is pushed in **EDIT IMAGE** menu, the phase window will pop up for setting.

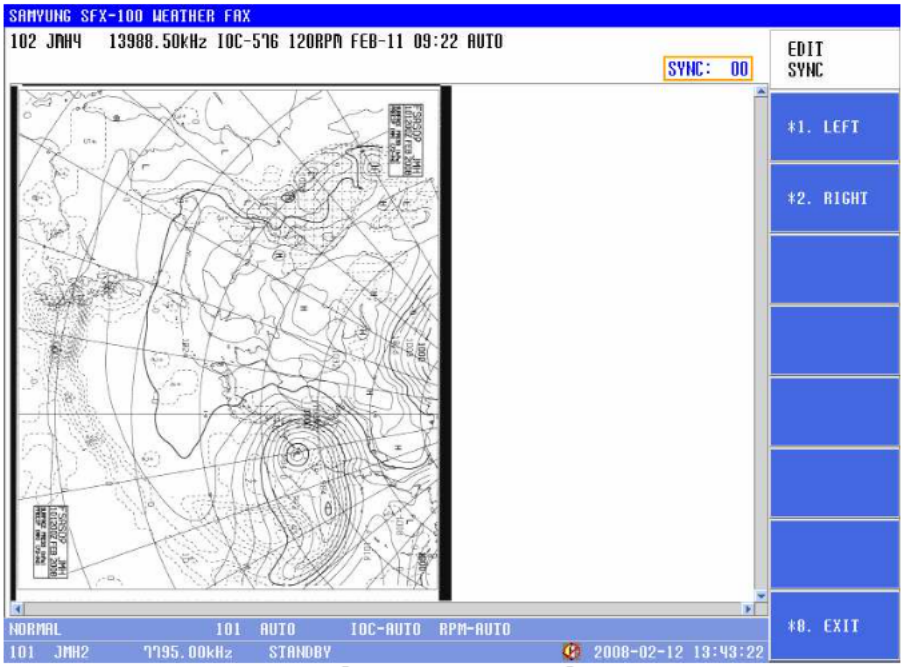


[그림 15. PHASE]

- **'DEAD SECTOR'**s location can be adjusted by graduation on the top of screen
- Setting Value : The value can be set between **0 ~ 50** and the **DEAD SECTOR** is moved by the setting value.

(2) Synchronization (**SYNC**)

- This is the function that tunes phase signal. If the DEAD SECOTR is tilted, it can be corrected by changing a setting value.
- When **[✱]→[2]** is pushed in **EDIT IMAGE** menu, it will change to '**EDIT SYNC**' screen.

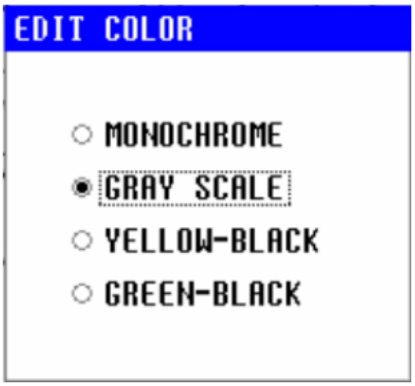


[Picture 16. SYNC]

- **LEFT** : When **[✱]→[1]** is pushed, Can adjust a tilt to left side
- **RIGHT** : When **[✱]→[2]** is pushed, Can adjust a tilt to right side

(3) Color Setup (**SET COLOR**)

- The screen color can be set
- When **[✱]→[3]** is pushed in **EDIT IMAGE** menu, the '**EDIT COLOR**' window will pop up.



[Picture 17. SET COLOR]

- **MONOCHROME** : Display in black and white.
- **GRAY SCALE** : Display in gray
- **YELLOW-BLACK** : Display in yellow and black.
- **GREEN-BLACK** : Display in green and black.

- When **[Enter]** or **[✱]→[7]** is pushed, the printer setting is completed.

(4) Screen Color Reverse (REVERSE COLOR)

- When **[✱]→[4]** is pushed in **EDIT IMAGE** menu, the display color will display in reverse.

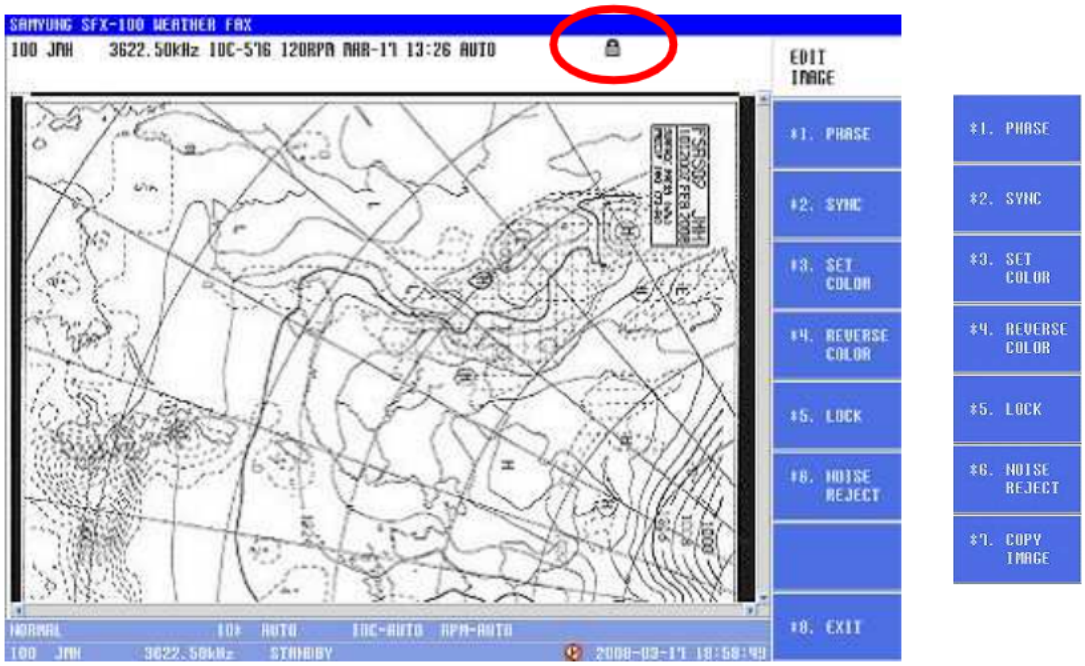
(5) Image Automatic Delete Lock (LOCK)

- A received image can be prevented form deleting.
- When **[✱]→[5]** is pushed in **EDIT IMAGE** menu, **'FAX IMAGE LOCK'** window will pop up

[Picture 18. LOCK-1]

■ If it is set to **'ON'**, it will be never deleted.

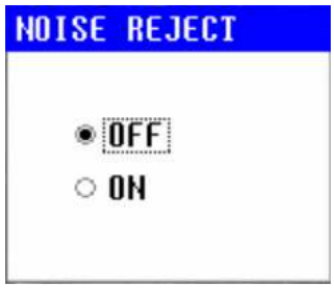
- If a **image is Locked**, a lock icon ( ) will be displayed on the top of screen.



[Picture 19. LOCK-2]

(6) Noise Elimination (**NOISE REJECT**)

- When **[✱]→[6]** is pushed in **EDIT IMAGE** menu, **'NOISE REJECT'** screen will be displayed.



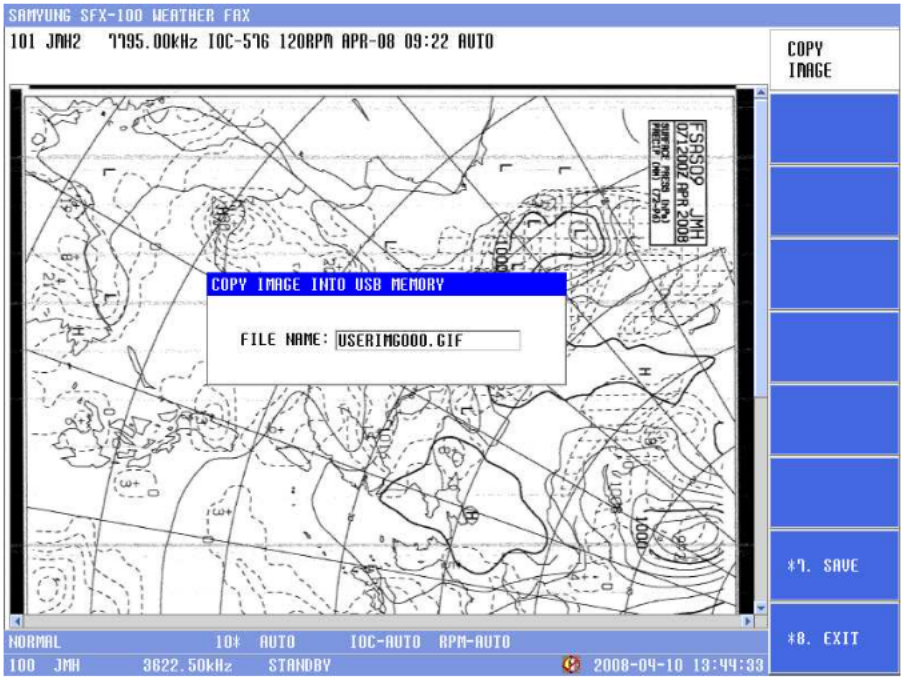
[Picture 20. NOISE REJECT]

■ If there is noise on received image. Select **'NOISE REJECT'** to **ON** to eliminate the noise.

(7) Image Copy (**COPY IMAGE**)

- Received images can be stored in USB MEMORY.
- **When [✱]→[7] is pushed in EDIT IMAGE, 'COPY IMAGE'** window will pop up.

※ Before saving a image, a **USB** memory has to be plugged in **USB slot.**



[Picture 21. COPY IMAGE]

- When the key pad is used, only numbers can be inputted for file name.
- When PC/AT 101 keyboard is used, mixed alphabets and numbers can be used.
- It will saved in gif format even though there is no extension.

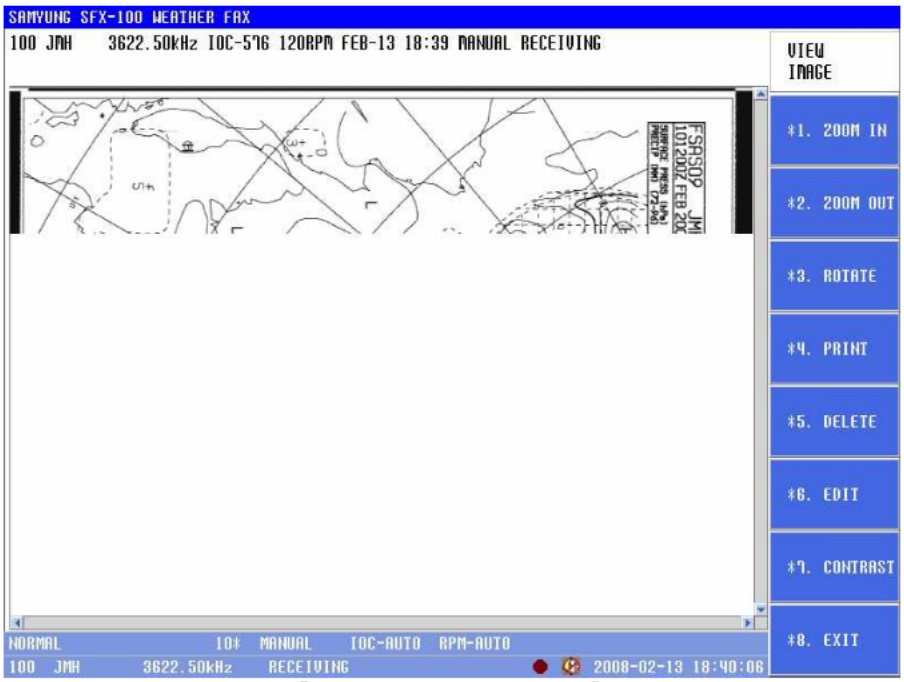
- If USB a USB memory is not plugged when **[✱]→[7] is pushed in** COPY IMAGE, following window will pop up.

[Picture 22. Can't find USB memory]

- If there is not enough space in USB memory, following window will pop up.

[Picture 23. Can't get enough space USB memory]

4.3.7. Contrast Control during Receiving (CONTRAST)

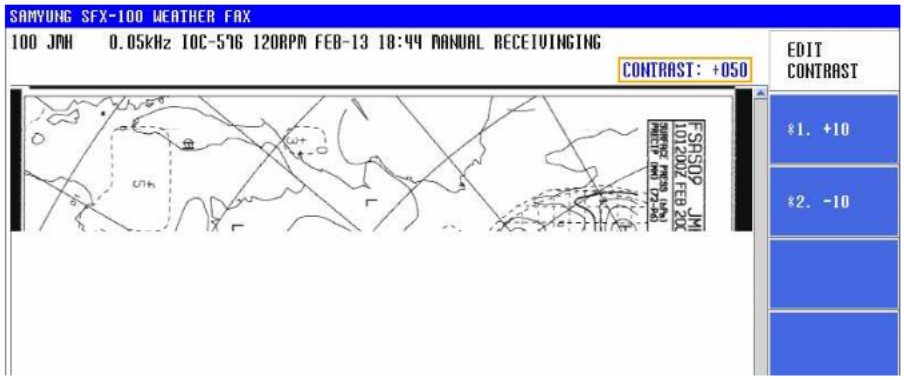


[Picture 24. CONTRAST]

- This is the function controls the contrast of incoming image.
  (However, it can't be done for received image)

- When **[✱]→[7]** is pushed in **VIEW IMAGE** menu, a user can change the contrast of incoming image.

(1) Contrast Adjustment (EDIT CONTRAST)

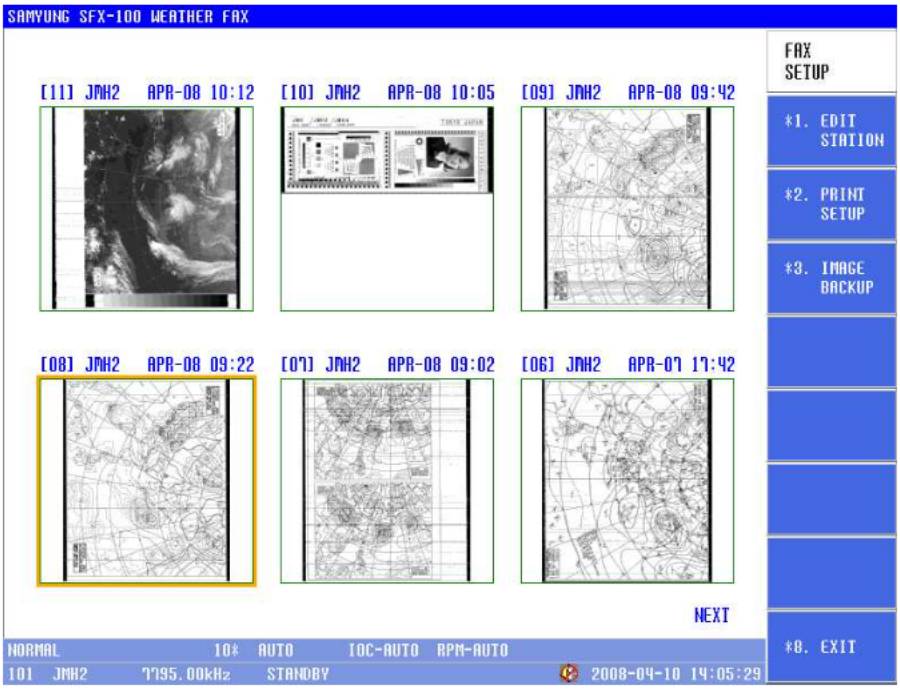


[Picture 25. EDIT CONTRAST]

- When **[✱]→[1]** is pushed the image is darker by **+10**.
- When **[✱]→[2]** is pushed the image is dimmer by **-10**.

4.4. Fax Setup (FAX SETUP)

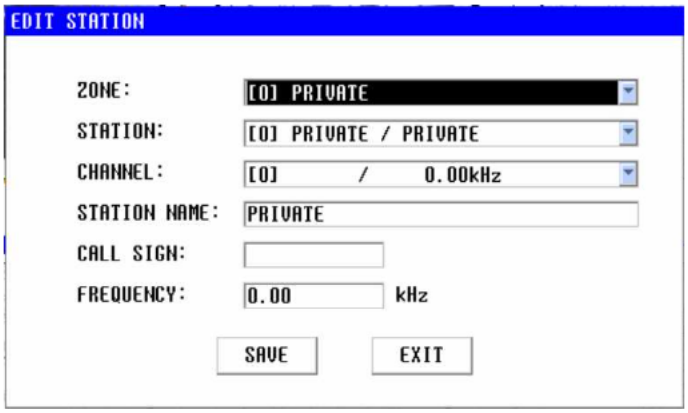
- When **[✱]→[3]** is pushed in **FAX MODE**, a user can change the **'FAX SETUP'**.



[Picture 26. FAX SETUP]

4.4.1. Station Setup (EDIT STATION)

- A user can add and edit a desired station.
- When **[✱]→[1]** is pushed in **FAX SETUP** menu, the **'EDIT STATION'** windows will pop up.



[Picture 27. EDIT STATION]

4.4.2. PRINT SETUP (PRINT SETUP)

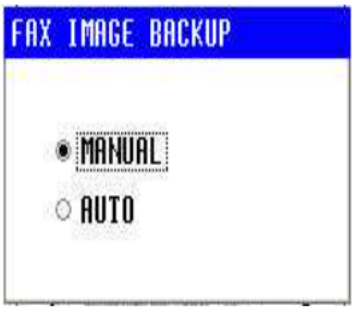
● When **[✱]→[2]** is pushed in **FAX SETUP** menu, the **'FAX PRINT SETUP'** window will pop up.

[Picture 28. PRINT SETUP]

- If the mode of printer is set to **AUTO**, it will print out the received image after receiving image.
- If the mode is set to **MANUAL**, a user can select an image which needs to be printed out..

4.4.3. Image Backup (IMAGE BACKUP)

● When **[✱]→[3]** is pushed in **FAX SETUP** menu, the **'FAX IMAGE BACKUP'** screen will pop up.



[Picture 29. IMAGE BACKUP]

- If it is set to **AUTO**, images will be saved in USB Memory, flash memory.
- If it is set to **MANUAL**, selected received images can be saved.

Chapter 5. NAVTEX Mode

5.1. NAVTEX Mode Selection (NAVTEX)

- When **[✱]→[2]** is pushed in the top menu, it will enter into **'NAVTEX MODE'**.

[Picture 30. NAVTEX MODE]

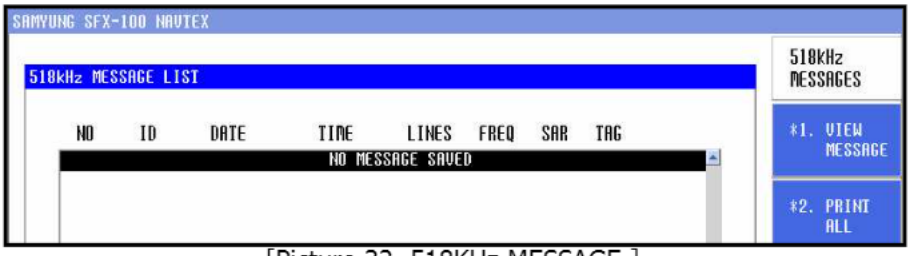
5.2. Message List (MESSAGE LIST)

- When **[✱]→[1]** is pushed in **NAVTEX** mode, the screen will change to **MESSAGE LIST**.

[Picture 31. MESSAGE LIST]

5.2.1. 518KHz Messages

- Messages received in **518KHz** can be printed out, checked and aligned.
- When **[✱]→[1]** is pushed in **MESSAGE LIST**, **518KHz MESSAGE** menu will pop up



[Picture 32. 518KHz MESSAGE]

(1) Message View **(VIEW MESSAGE)**

- When **[✱]→[1]** is pushed, a selected message can be checked.

(2) Print All Received Messages **(PRINT ALL)**

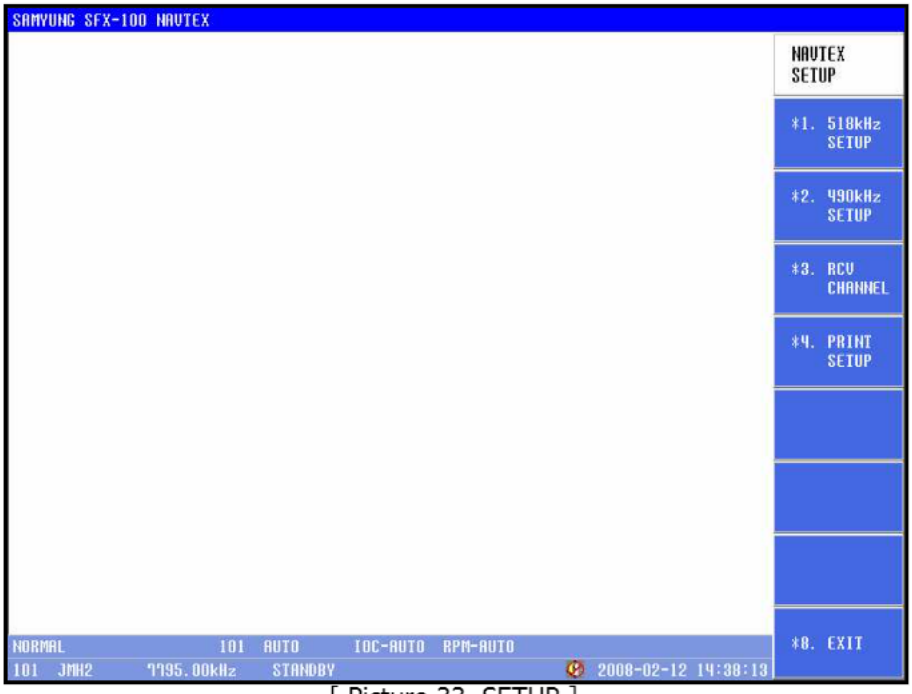
- When **[✱]→[2]** is pushed, All received messages can be printed out.

5.2.2. 490KHz Messages

- ***Same as '5.2.1. 518KHz message (518KHz MESSAGES)'.***

5.3. Setting (SETUP)

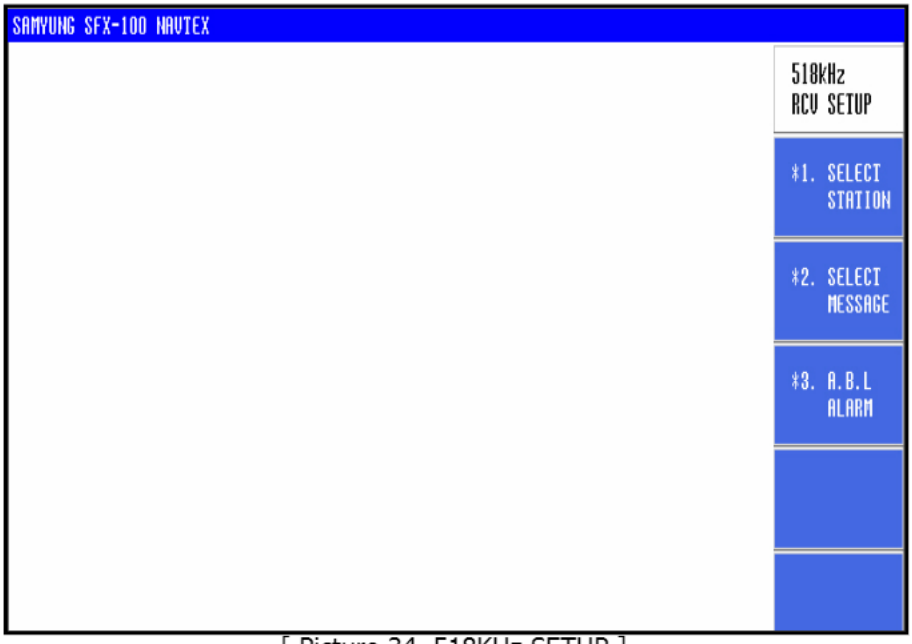
- When **[✱]→[2]** is pushing in **NAVTEX** mode, it will enter into **'NAVTEX SETUP'** screen.



[Picture 33. SETUP]

5.3.1. 518KHz Setting (518KHz RCV SETUP)

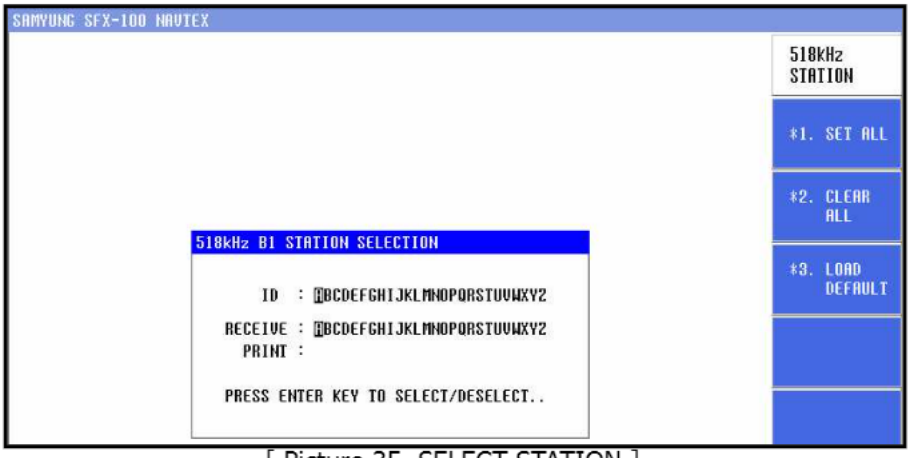
- 518 station can be set manually.
- When **[✱]→[1]** is pushed in **SETUP** menu it will change to **'518KHz RCV SETUP'** screen.



[Picture 34. 518KHz SETUP]

(1) Station Selection **(SELECT STATION)**

- When **[✱]→[1]** is pushed in **518KHz RCV SETUP** menu, a station can be selected manually.

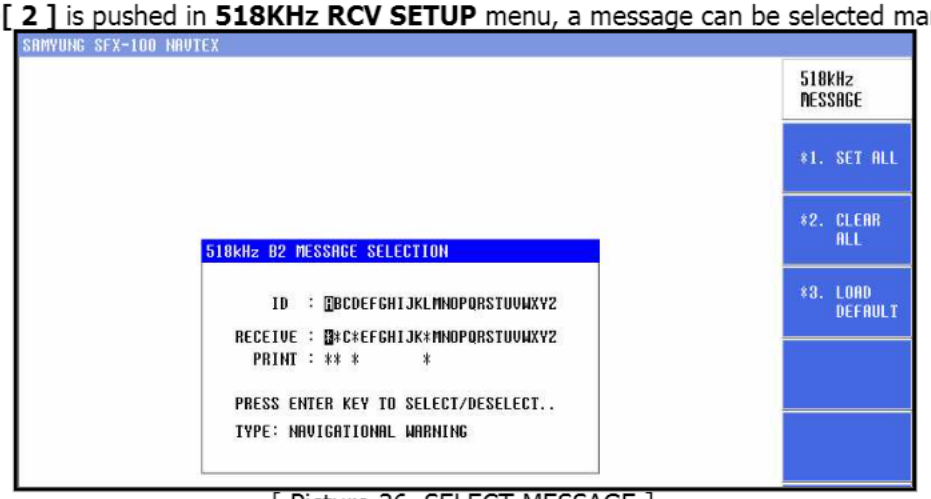


[Picture 35. SELECT STATION]

- **SET ALL** : All stations can be selected by pushing **[✱]→[1]**
- **CLEAR ALL** : The selection of all station can be cancelled by pushing
- **LOAD DEFAULT**: Default value can be set by pushing **[✱]→[3].**

(2) Message Selection **(SELECT MESSAGE)** Setting

- When **[✱]→[2]** is pushed in **518KHz RCV SETUP** menu, a message can be selected manually.

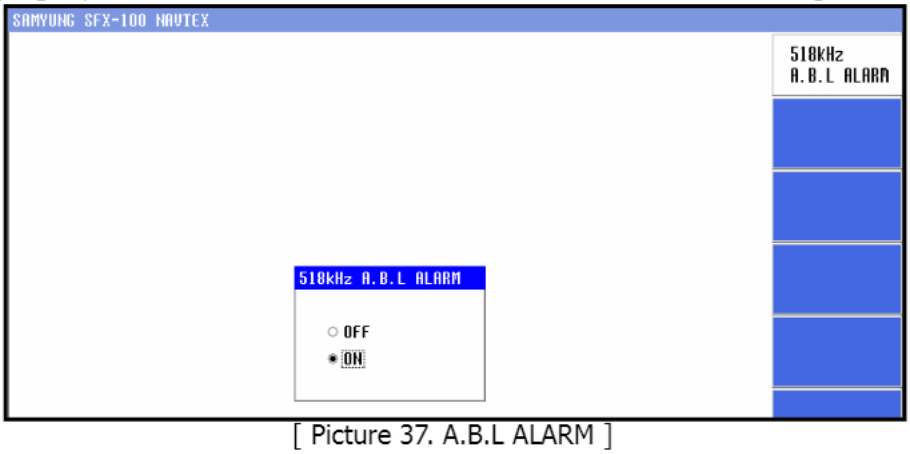


[Picture 36. SELECT MESSAGE]

- It is same as the selection of station.. *'(1)* **Station** ***Selection (SELECT STATION)'***

(3) A.B.L alarm **(A.B.L ALARM)** Setting

- When **[✱]→[3]** is pushed in **518KHz RCV SETUP** menu, the A.B.L alarm setting window will pop



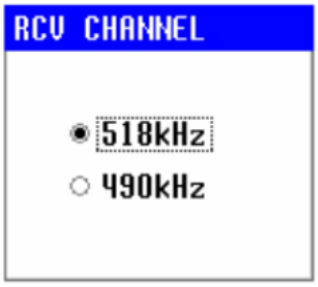
[Picture 37. A.B.L ALARM]

5.3.2. 490KHz Setup (490KHz SETUP)

- When **[✱]→[2]** is pushed in **SETUP** menu, the 490 setting window will pop up.
- The setup is same as 518 setting. ***'5.3.1. 518KHz Setting (518KHz RCV SETUP)'***

5.3.3. Frequency Selection (RCV CHANNEL) Setup

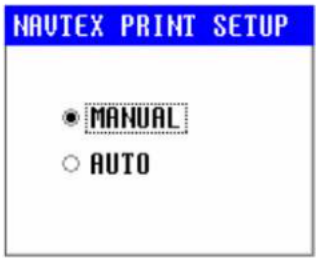
- When **[✱]→[3]** is pushed in **SETUP** menu, the screen will change as below.



[Picture 38. RCV CHANNEL]

5.3.4. Print Setup (PRINT SETUP)

- When **[✱]→[4]** is pushed in **SETUP** menu, the screen will change as below.

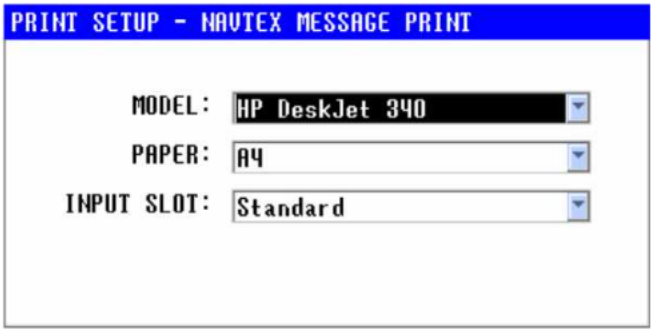


[Picture 39. PRINT SETUP]

■ If the printer is set to auto, it will print out any received message **AUTO**matically and if it is set to **MANUAL**, a user can print out a selected message.

5.4. Print

- When **[✱]→[3]** is pushed, the message which is displaying on the screen can be print out.



[Picture 40. PRINT]

- **'MODEL / PAPER / INPUT SLOT'** can be selected by arrow keys. By pushing **[Enter]** key, the user can change input value with arrow keys.
  - ■ **MODEL** : Select a printer.
  - ■ **PAPER** : Select a paper size either A3 or A4.
  - ■ **INPUT SLOT** : Select a paper tray.
    - ◆ **Standard** : select a basic tray.
    - ◆ **Manual tray** : Select a manual tray.
    - ◆ **Portable** : Select a portable tray.

    ※ The value of **INPUT SLOT** changes whenever a printer is changed.
- When **[✱]→[7]** is pushed, the setup is completed.

Chapter 6. System Setting (SYSTEM SETUP)

6.1. System Setup Selection

● When **[✱]→[3]** is pushed in top menu, it will enter into **'SYSTEM SETUP'** menu.

[Picture 41. SYSTEM SETUP]

6.2. Receiving Setup (RCV SETUP)

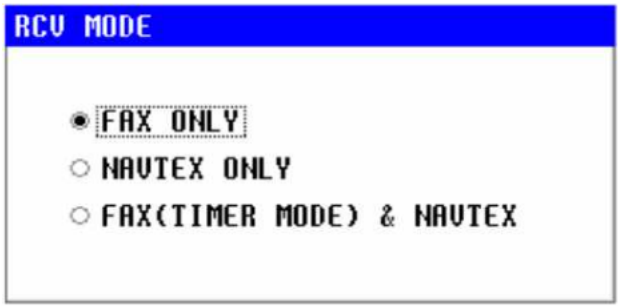
● When **[✱]→[1]** is pushed in system setting menu, the mode will change to **'SYSTEM RECEIVING SETUP'** screen.

[Picture 42. RCV SETUP]

6.2.1. Receiving Mode Setting (RCV MODE)

● This is function that allows a user to choose whether to receive weather fax image or NAVTEX or both.

● When **[✱]→[1]** is pushed in **RCV SETUP** menu, the receiving mode**(RCV MODE)** window will pop up.

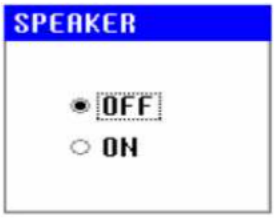


[Picture 43. RCV MODE]

- **FAX ONLY** : Receive only weather fax messages.
- **NAVTEX ONLY**: Receive only NAVTEX messages.
- **FAX(TIMER MODE) & NAVTEX** : Receive set images or NAVTEX messages by timer.

6.2.2. Receiving Alarm Setting (RCV NOTICE)

- This is the function that give a choice to user to chose that weather fax image and NAVTEX message receiving with alarm or not.
- When **[✱]→[2]** is pushed in **SPEAKER** menu, it will change to receiving alarm setting(**SPEAKER**) screen.

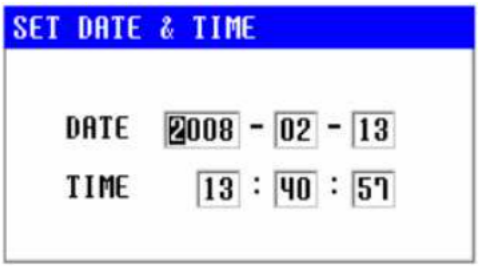


[Picture 44. SPEAKER]

- When **'ON'** is selected, there is an alarm when it receives a message.
- When **'OFF'** is selected, there is no alarm when it receives a message.

6.3. Time Setting (SET TIME)

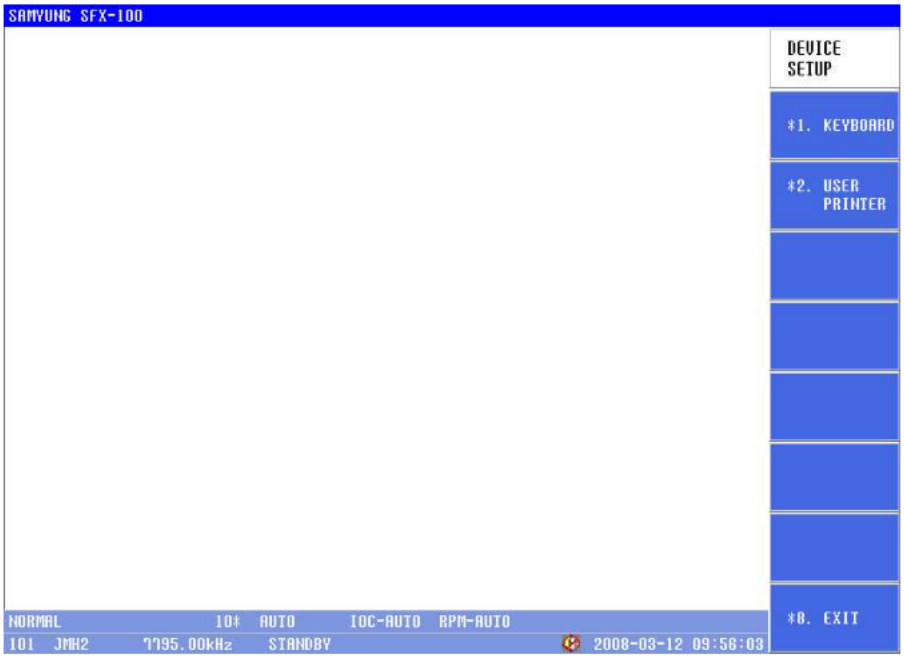
- This function allows a user to set a time.
- When **[✱]→[2]** is pushed in system setting menu, the **'SET DATE & TIME'** window will pop up.



[Picture 45. SET TIME]

6.4. Device Selection (DEVICE)

- A user can select an input device in this option. .
- When **[✱]→[3]** is pushed in system setting menu, it will switch to device selection**(DEVICE)** window.



[Picture 46. DEVICE]

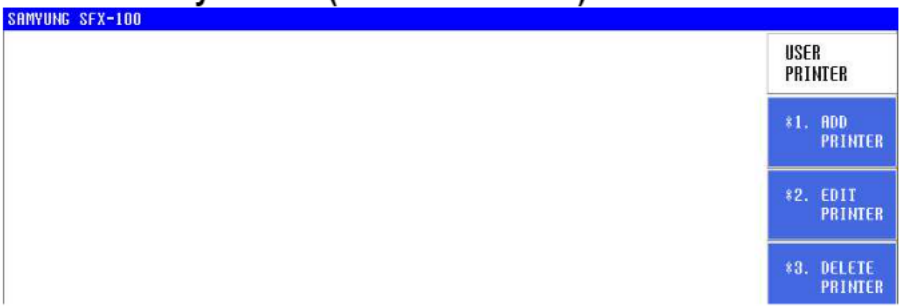
- When **[✱]→[1]** is pushed, it will switch to input device selection window.
- When **[✱]→[2]** is pushed, the screen will change to printer selection screen.

6.4.1. Input Device (KEYBOARD)

[Picture 47. KEYBOARD]

- **NUMERIC KEYPAD** : Input can be done by numeric keypad..
  (**Function Key** : Display in **'number'**)
- **KEYBOARD** : Input can be done by PC/AT 101 keyboard.
  (**Function Key** : Display in **'F number'**)

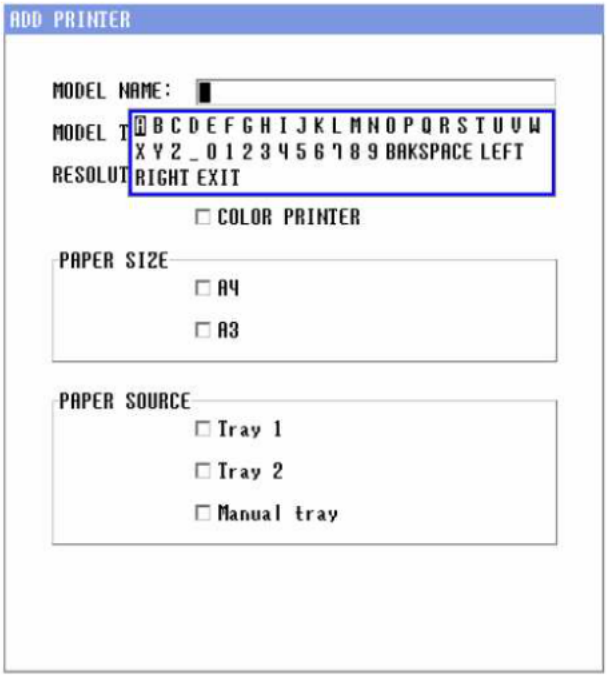
6.4.2. Appointed Printer by a User (USER PRINTER)



[Picture 48. USER PRINTER]

(1) ADD Printer (**ADD PRINTER**)

- Additional Printers can be added beside of a provided printer.
- When **[✱]→[1]** is pushed in **USER PRINTER** menu, the screen will pop up the '**ADD PRINTER'** window.

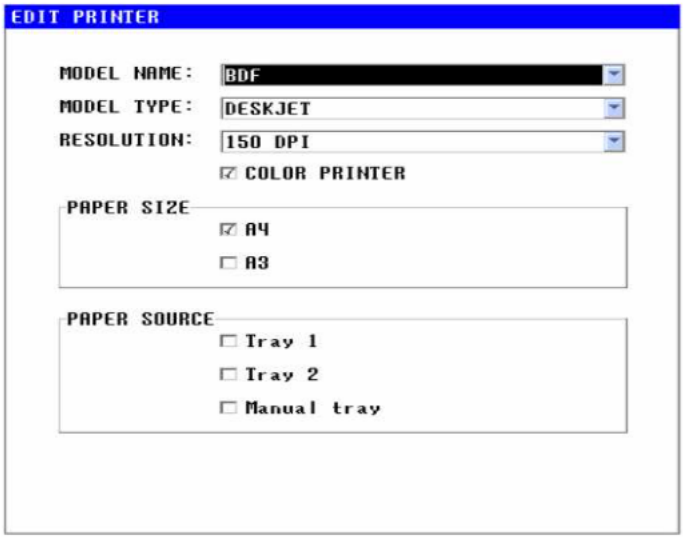


[Picture 49. ADD PRINTER]

- **MODEL NAME** : A user can name an added printer. Select an alphabet by arrow keys and input the alphabet by Enter Key.
- **MODEL TYPE** : Select the type of printer. When **[Enter]** key is pushed, a user can select a printer among **'LASERJET, DESKJET, OFFICEJET'**
- **RESOLUTION** : The resolution of priter can be selected. When **[Enter]** key is pushed, a user can select the resolution among **'150 DPI, 300 DPI, 600 DPI'** and over.
- **PAPER SIZE** : Paper can be selected either A3 or A4.
- **PAPER SOURCE** : A printer tray can be selected.

(2) Printer Edit **(EDIT PRINTER)**

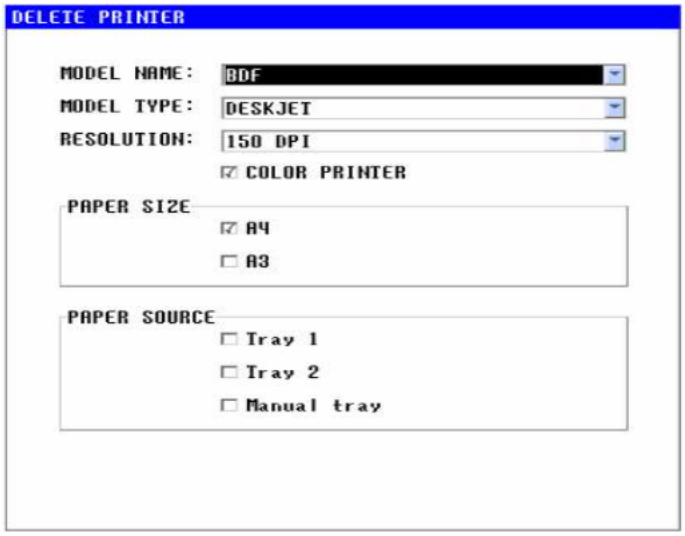
- The setting of added printer can be modified.
- When **[✱]→[2]** is pushed in **USER PRINTER** menu, **'EDIT PRINTER'** will pop up.



[Picture 50. EDIT PRINTER]

(3) Printer Delete **(DELETE PRINTER)**

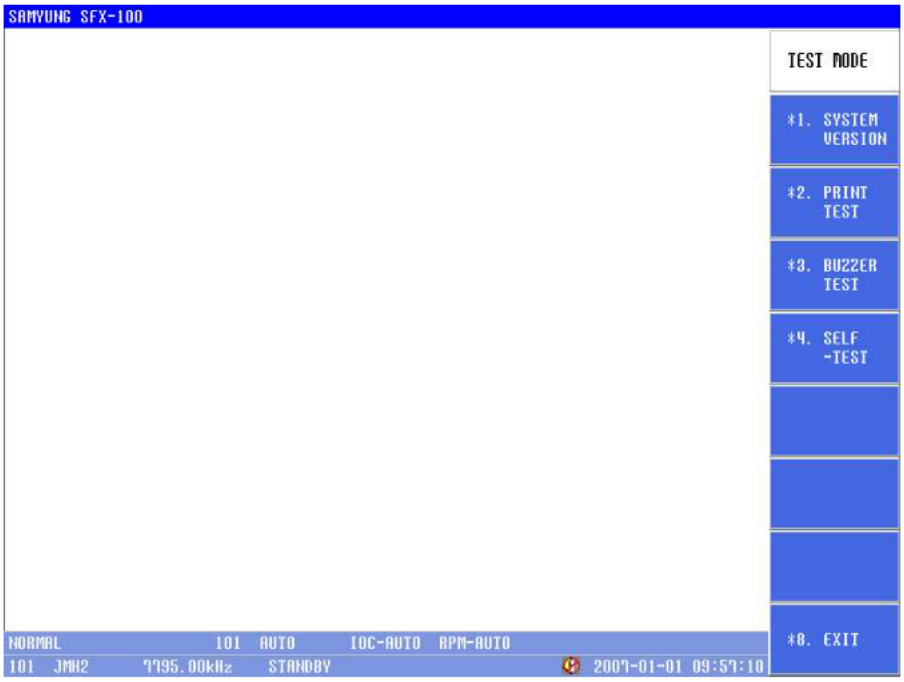
- An Added printer can be deleted. .
- when **[✱]→[3]** is pushed in **USER PRINTER** menu, **'DELETE PRINTER'** window will pop up**.**



[Picture 51. DELETE PRINTER]

6.5. System Test (TEST MODE)

● When **[✱]→[4]** is pushed in **SYSTEM SETUP** menu, the screen will change to system **'TEST MODE'** screen.



[Picture 52. TEST MODE]

6.5.1. System Version (SYSTEM VERSION)

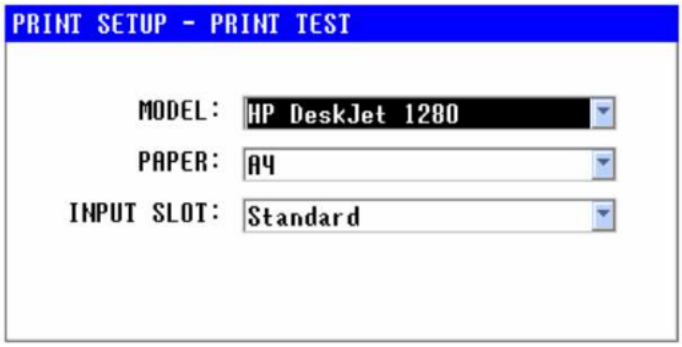
● This is the function that allows a user to check the system version.

● When **[✱]→[1]** is pushed in self diagnostic menu(**SYSTEM VERSION**), the system version window will pop up.

[Picture 53. SYSTEM VERSION]

6.5.2. Test Print (PRINT TEST)

- When **[✱]→[2]** is pushed in self diagnostic menu, the **'PRINT TEST'** window will pop up.



[Picture 54. PRINT TEST]

■ Select a printer model, paper size and a tray by arrow keys.

- When **[✱]→[7]** is pushed, the printer will start printing for test.

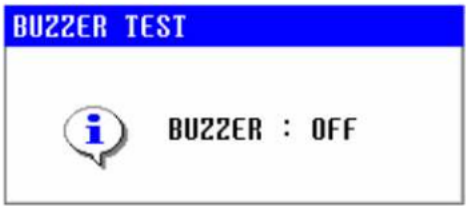
[Picture 55. PRINT TEST COMPLETION]

- When **[✱]→[7]** is pushed, the following message will pop up if a printer is not connected.

[Picture 56. Printer Connection Bad]

6.5.3. Buzzer Test (BUZZER TEST)

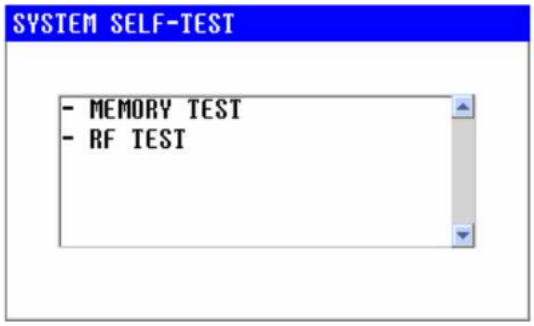
- When **[✱]→[3]** is pushed in self diagnostic menu, the test buzzer**(BUZZER TEST)** window will pop up.



[Picture 57. BUZZER TEST]

6.5.4. Self Test (SELF TEST)

- System status can be checked in this menu.
- When **[✱]→[4]** is pushed in self test mode, the SYSTEM **'SEL-TEST'** window will pop up and perform the self test.



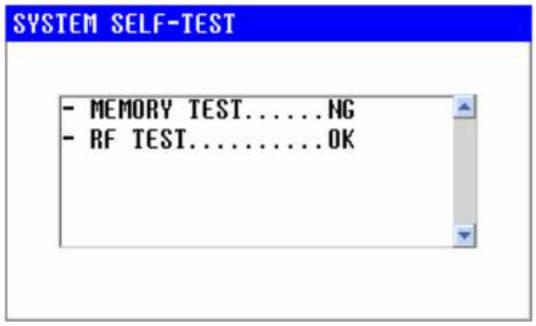
[Picture 58. SELF TEST]

- **MEMORY TEST** : Test the cup and memory of device.
- **RF TEST** : Test the from input of antenna to the input of CPU

- When **[✱]→[7]** is pushed, the **SYSTM SELF-TEST** window will pop up and start the diagnostic. If there is no problem, following message will pop up.

[Picture 59. Self Diagnostic Completion]

- If there is any problem, following message will pop up.



[Picture 60. Display of Error]

[Picture 61. Self Diagnostic Error]

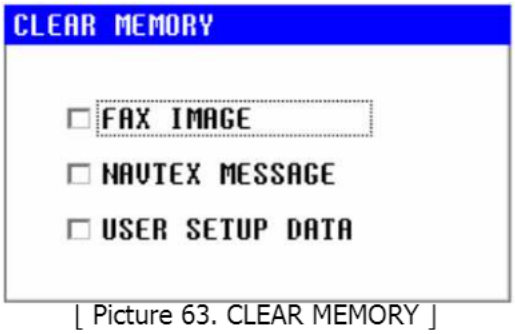
6.6. Initialization (CLEAR SETUP)

- When **[✱]→[5]** is pushed in system setting menu, the screen will change to **'CLEAR SETUP'**.

[Picture 62. CLEAR SETUP]

6.6.1. Memory Delete (CLEAR MEMORY)

- When **[✱]→[1]** is pushed in the factory setting menu, the **'CLEAR MEMORY'** window will pop up.

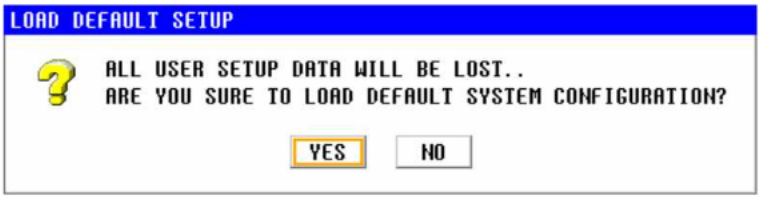


[Picture 63. CLEAR MEMORY]

- **FAX IMAGE** : Delete all received weather fax images.
- **NAVTEX MESSAGE** : Delete all received NAVTEX message.
- **USER SETUP DATA** : Delete all changed value by a user, weather fax images and **NAVTEX** images (**FACTORY SETUP**)

6.6.2. Load Default (LOAD DEFAULT)

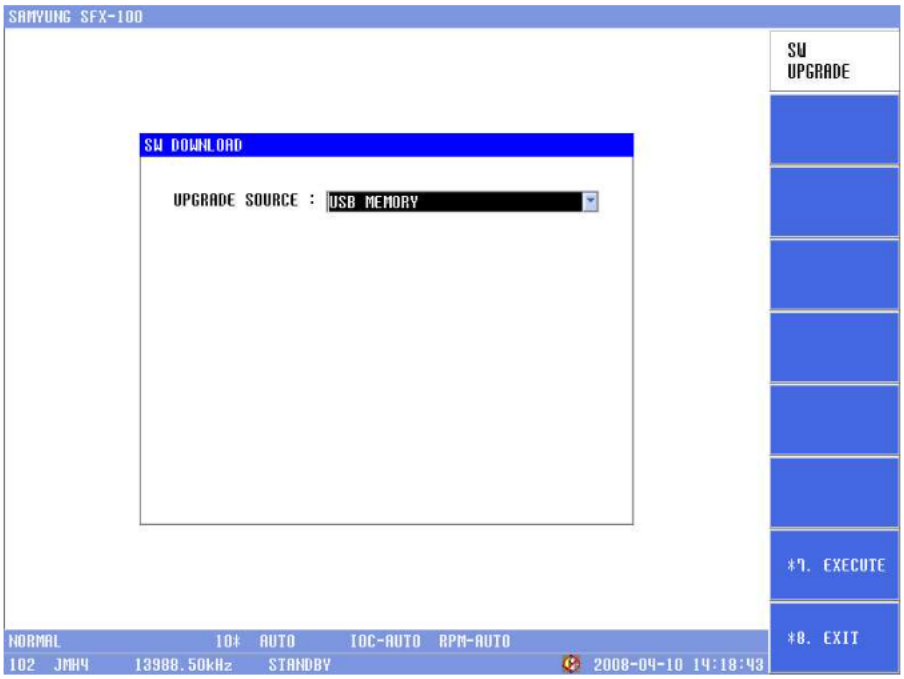
- When **[✱]→[2]** is pushed in initialization menu, the **'LOAD DEFAULT SETUP'** window will pop up.



[Picture 64. LOAD DEFAULT]

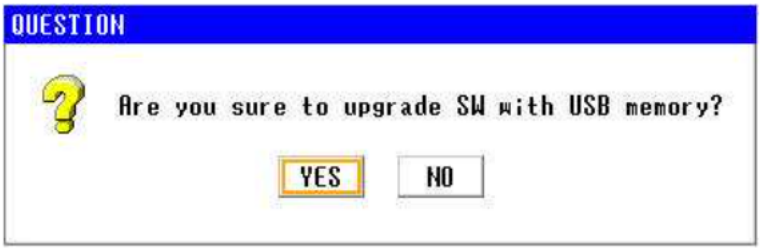
6.6.3. Software Upgrade (SW UPGRADE) Setup

- When **[✱]→[3]** is pushed in initializing setup menu, the software can be upgraded.



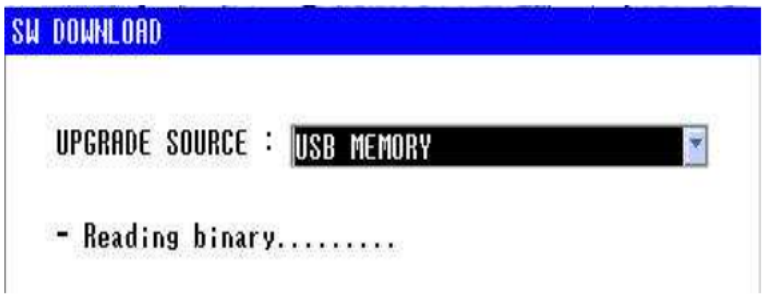
[Picture 65. S/W UPGRADE]

- **When [✱]→[7]** is pushed, following window which is asking the software upgrade with USB memory will pop up.



[Picture 66. SW UPGRADE-1]

- The software upgrade can be checked with following pop up window.



[Picture 67. SW UPGRADE-2]

6.7. Simulation (SIMULATION)

● When **[✱]→[6]** is pushed in system setup menu, the will switch to **'SIMULATION MODE'**.

[Picture 68. SIMULATION MODE]

6.7.1. Fax Simulation (FAX SIMULATION)

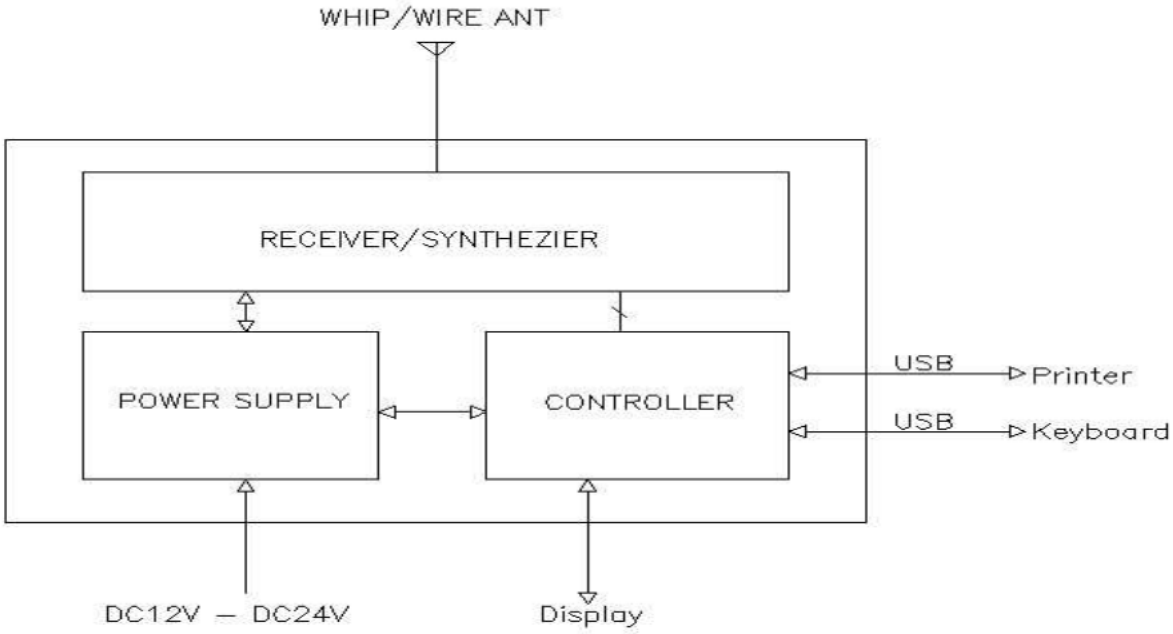
● When **[✱]→[1]** is pushed in simulation mode, the **'FAX SIMULATION'** window will pop up.

[Picture 69. FAX SIMULATION]

- **ON** : Delete all received images and the simulation will run once.
- **OFF** : It will not run simulation.

Chapter 7. Circuit Description

7.1. Overview



[Picture 70. SFX-100 Block Diagram]

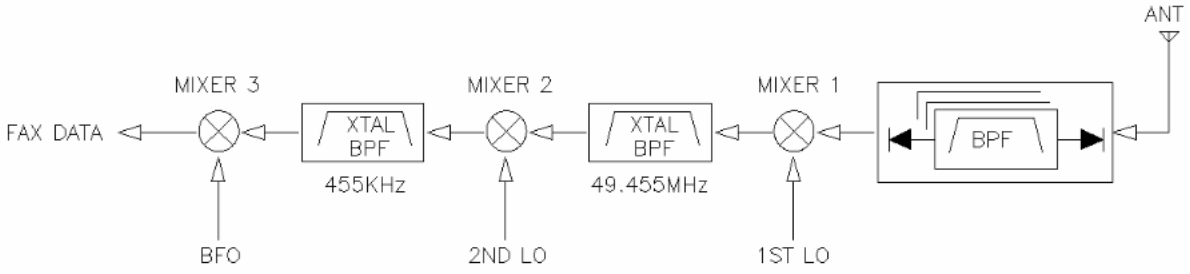
- SFX-100 weather fax receiver can be connected with a keyboard and a printer with USB connector.
- DC12V ~ 24V Can be supplied.
- SFX-100 is consisting of a receiver, a synthezier board, a power supply and a controller.

7.2. Circuit Description

7.2.1. Receiver / Synthezier (P101212)

- T-1140 Circuit board can be divided into receiver and synthezier.

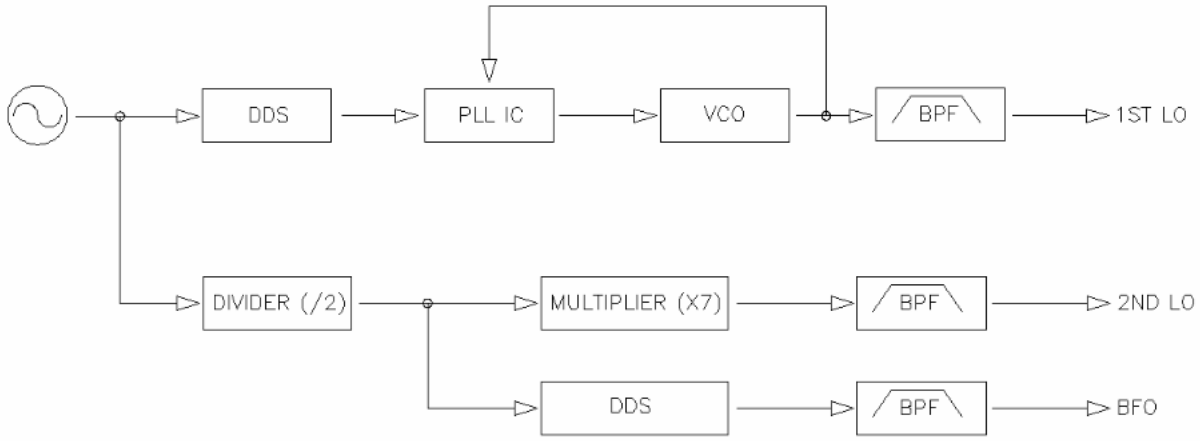
(1) Reception Circuit



[Picture 71. Reception Block Diagram]

- The type of receiving is double super heterodyne which uses 1'st IF=49.455㎒, 2'nd IF=455㎑ frequencies.
- Received signal through antenna will be amplified at RF amplifier (Q13) through BPF. Once the signal is amplified, it will mix with 1'st local frequency at first mixer (MX1) and will be demodulated to be a first middle frequency. The middle frequency will mix with second local frequency at second mixer(MX2) through 49.455㎒ X-tal filter(XL2,3) and IF amplifier(Q20) and it will become FSK signal after modulation with BFO (Beat Frequency OSC) at the third mixer(IC7) through 455㎑ X-tal filter(XL1)와 IF amplifier (Q17,Q23)

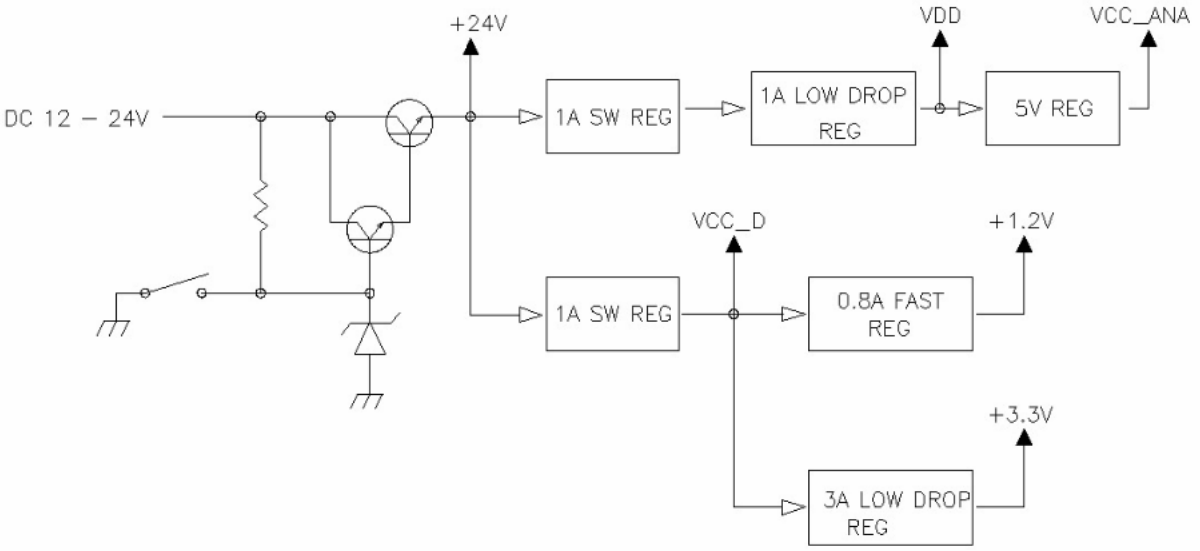
(2) Local Synthesizer Circuit



[Picture 72. Synthesizer Block Diagram]

● The standard frequency based on the output of14MHz OCXO (Over Compensated X-tal Oscillator) consists a PPL circuit and outputs the first local frequency, 49.455~79.454MHz. The standard frequency , 14MHz is divided into 2(two) and multiplied by 7(seven) to use for 49MHz second Local. The third local frequency which is BFO(Beat Frequency Oscillator) generates 456.9kHz signal at DDS(DM1)

(3) Power Circuit



[Picture 73. Power Block Diagram]

- The power circuit : The power circuit receives DC12~24V and supplies +10.8V~22.8V through a protection and regulated voltage circuit.
- Main Power Circuit : When the power switch is ON, VDD(+9) and VCC_ANA(+5V) will be supplied to analog circuit through a switching regulator circuit and a voltage IC. Also, VCC_D(+5V) is supplied to digital circuit and the voltage is supplied +1.2V through 0.8A regulator and +3.3V through 3A regulator.
- Protection and Sensor Circuit : The protection and sensor circuit which equips a voltage sensor circuit prevents a power off automatically under +12V and above +24V. It also equips with reverse voltage protection circuit to protect from reverse voltage supply.

Chapter 8. TROUBLESHOOTING

8.1. Overview

● The most of reason which causes trouble is related to mechanical and electrical reasons in the internal and external of device and these reasons can be prevented by periodical inspection and maintenances. Also this device equips with all kid of protection circuit to protect circuits and parts. However, if there are any troubles that caused a difficulty to operate then it needs to be repaired in fast and rational manner. To maintain its original performance and life expectancy, periodical inspection and maintenance is required. Please be aware of matters to be attended as below before inspection and maintenance to avoid improper maintenances.

8.2. Measuring Instrument

● This device is designed accordingly to international wireless communication laws and measuring instruments for inspection and maintenance is needed to be inspected and tested by an authorized agency. For daily inspection and maintenance, following measuring instruments are needed.

	Measuring Instrument for inspection and repair
1	A multi meter for the measurement of resistor, voltage and current
2	A frequency Counter that can measure 100MHz bandwidth
3	An oscilloscope that can measure 100MHz bandwidth
4	A Signal generator that can measure 100MHz bandwidth
5	Others

[Table 4. The list of measuring instruments for inspection and repair]

8.3. SFX-100 Inspection and Maintenance

8.3.1. Antenna

● If there is difficulty in communication caused by noise, signal reception and so on, check an antenna first whether there is any defection or not and then check followings.

(1) Whether a whip antenna is properly connected.
(2) Whether metallic object is near an antenna or not.
(3) Whether the connection and insulation between an antenna and receiver is proper or not.

8.3.2. Power

● If there is no display even though the power is on, following are needed to be checked.

(1) Whether fuse is disconnected or not (The rated current of fuse is 2A)
(2) Whether the power connector is properly connected or not. (If the polarity of power is opposite, the device will not work)
(3) Check the voltage in the power supply connector. (if it is between DC 12~24V, it is normal.)

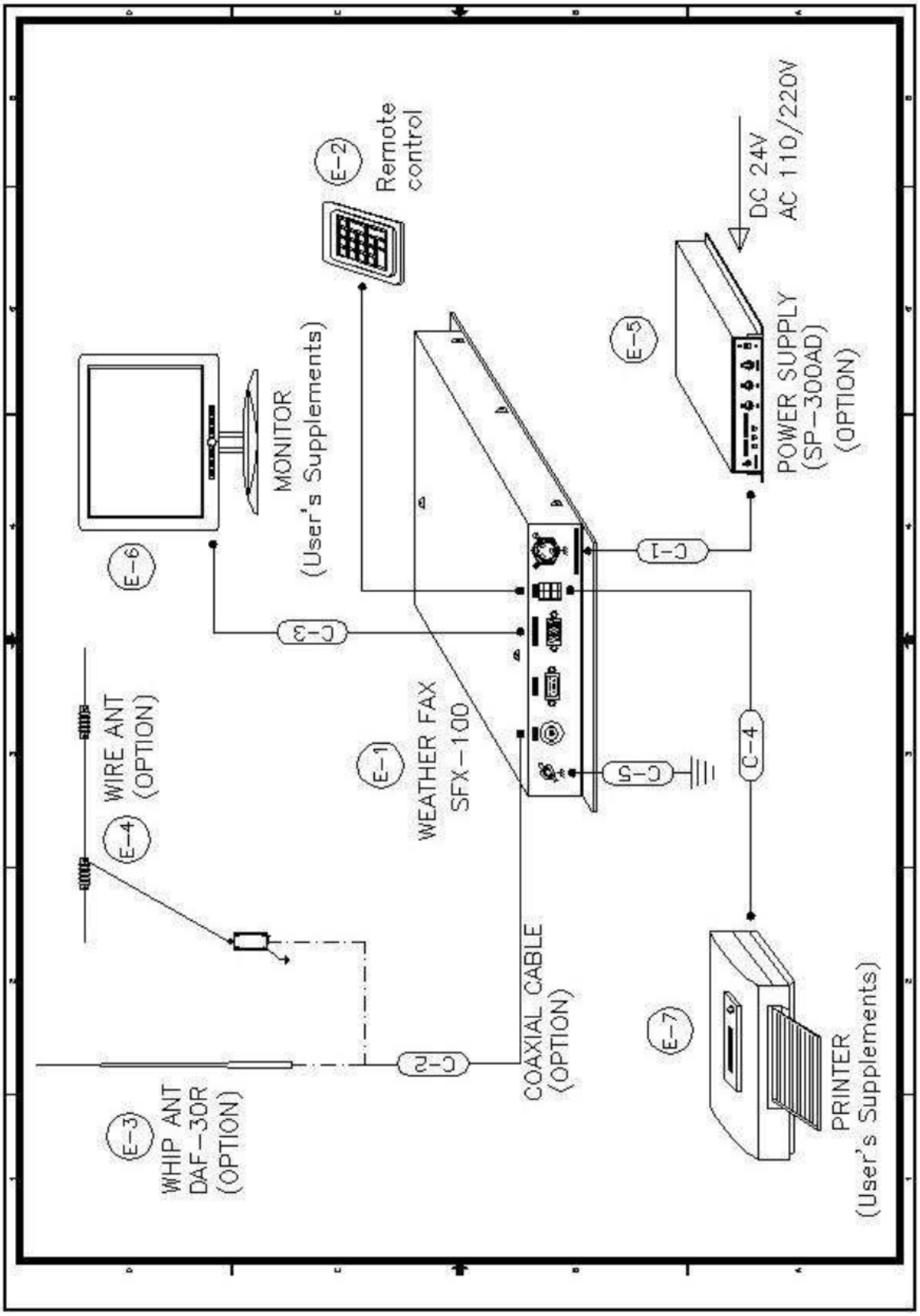
8.3.3. Receiver

● Make sure all interface devices are properly connected.

(1) Check an antenna.
(2) Check P101212 PC in device and replace with one if the board is defected.

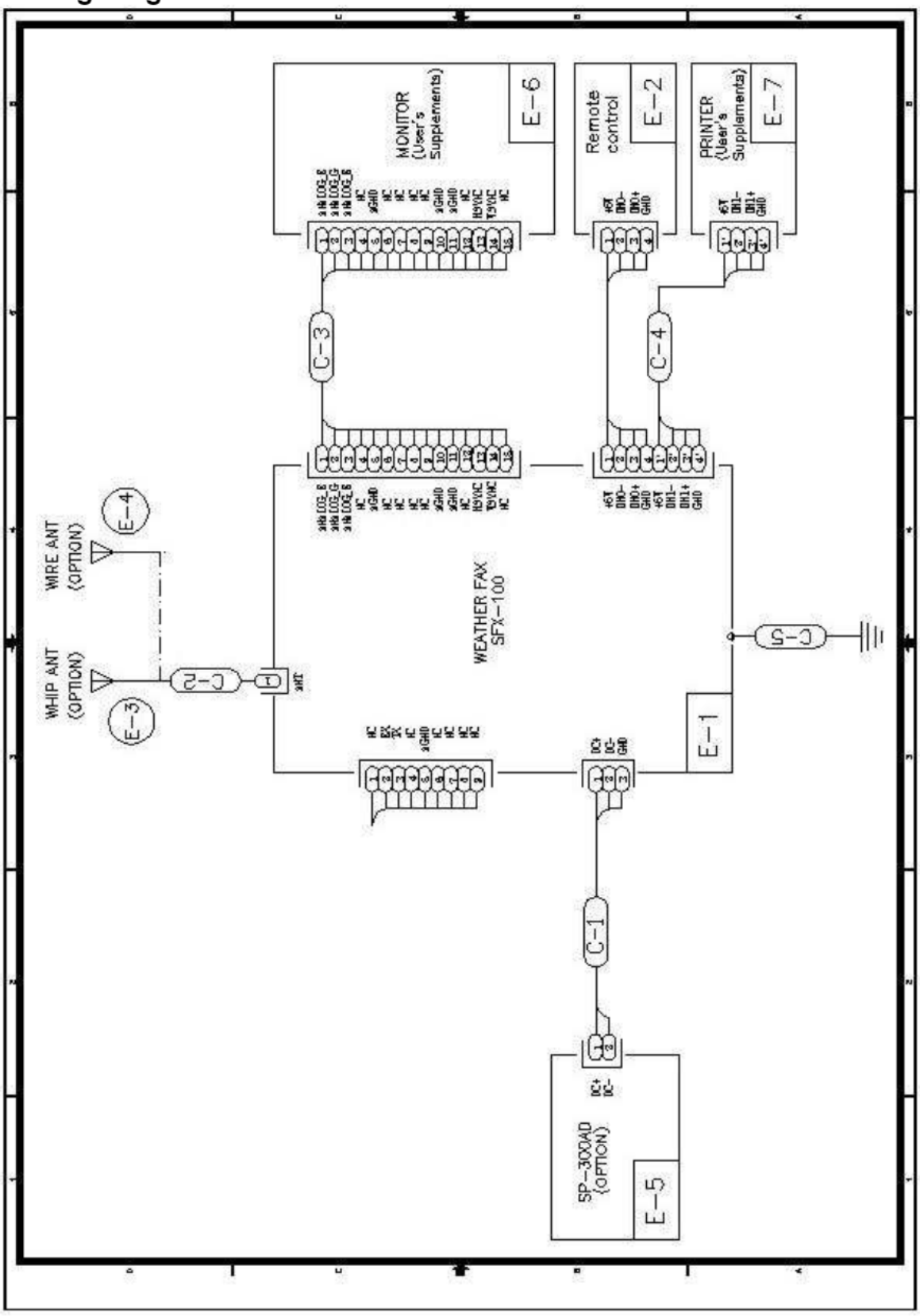
Chapter 9. Diagram

9.1. Connection Diagram



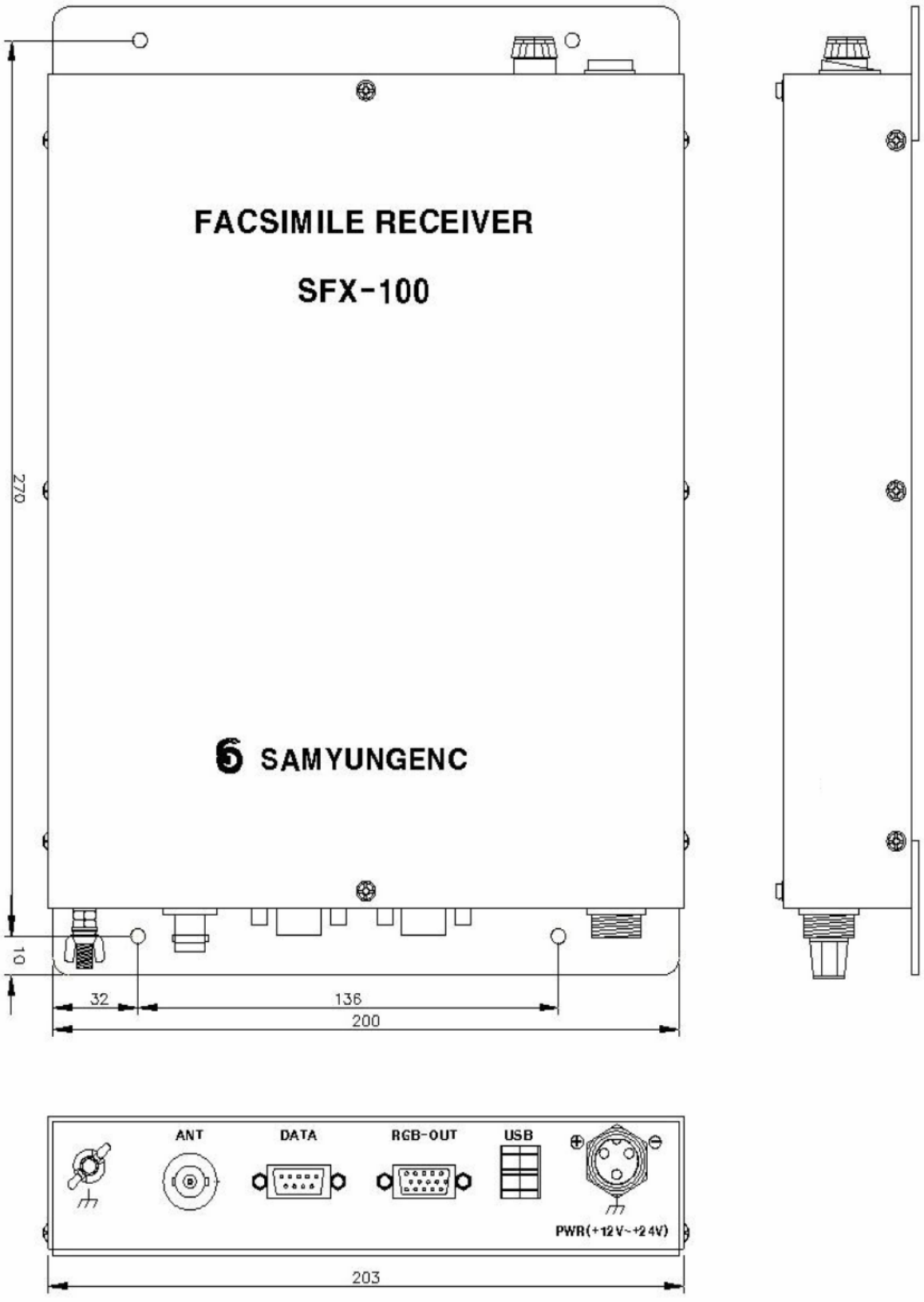
[Picture 74. SFX-100 Device Connection Diagram]

9.2. Wiring Diagram



[Picture 75. SFX-100 Wiring Diagram]

Chapter 10. Dimension

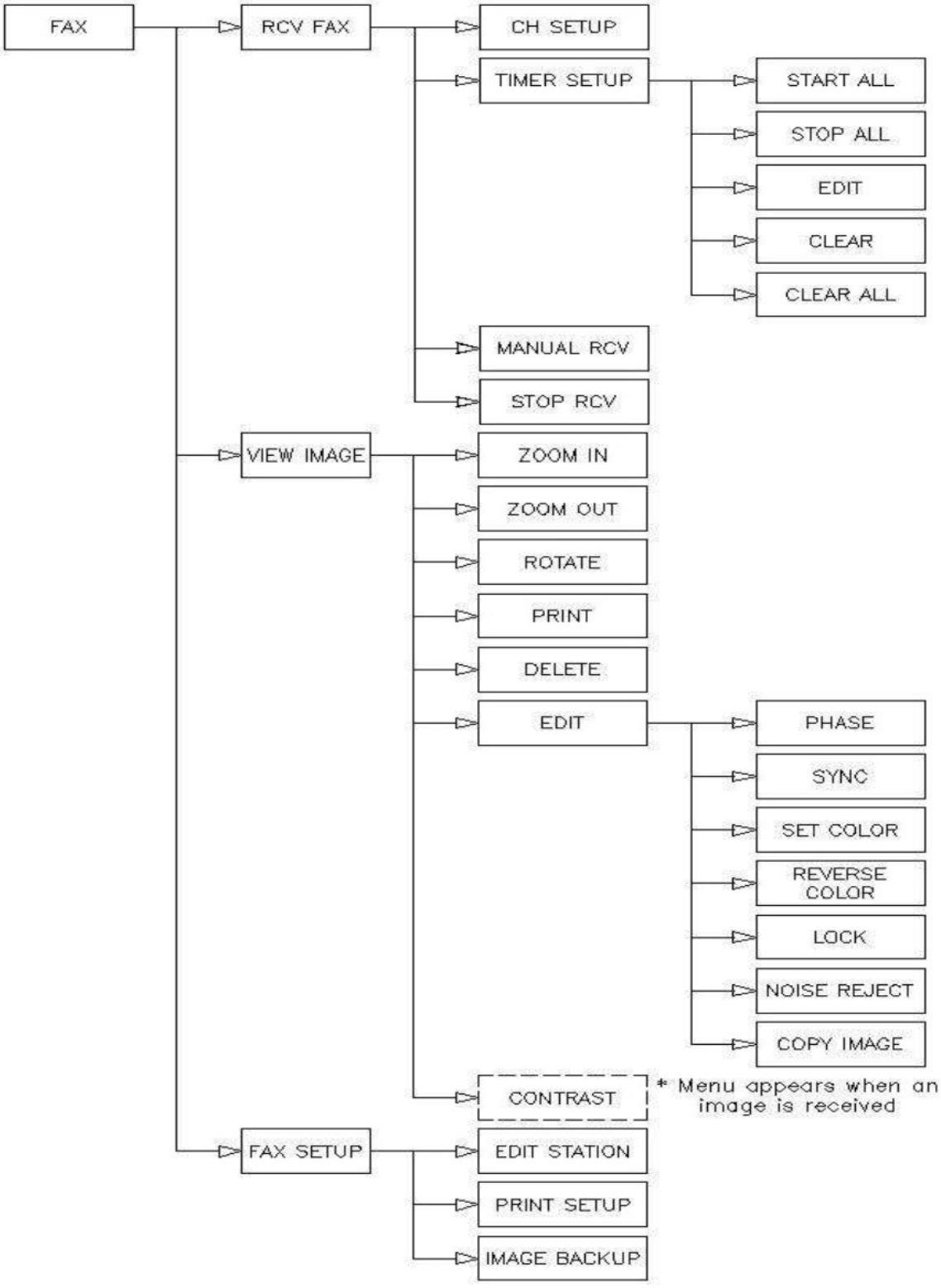


[Picture 76. Dimension]

Chapter 11. Appendix

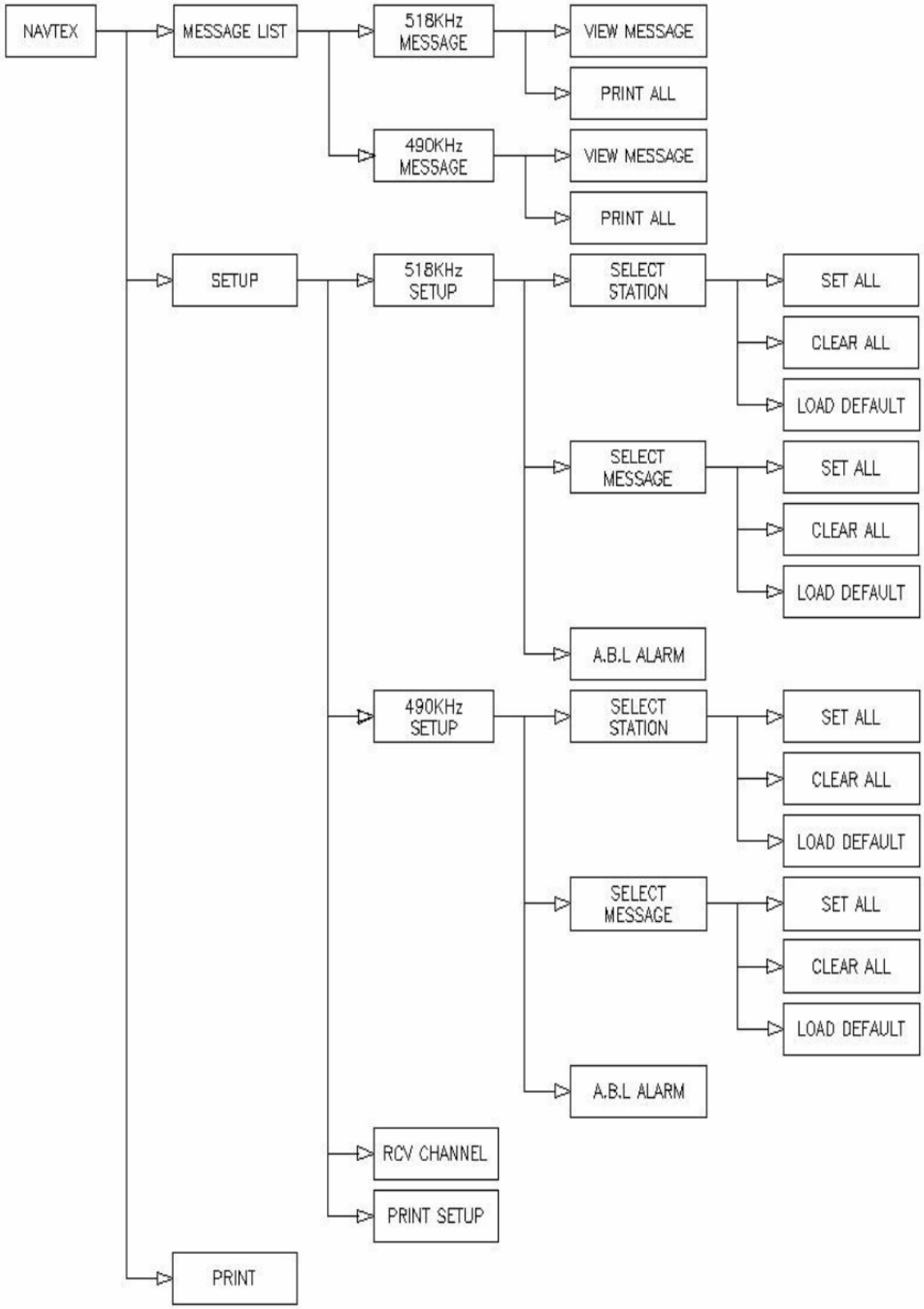
11.1. Menu Tree

11.1.1. FAX Menu tree



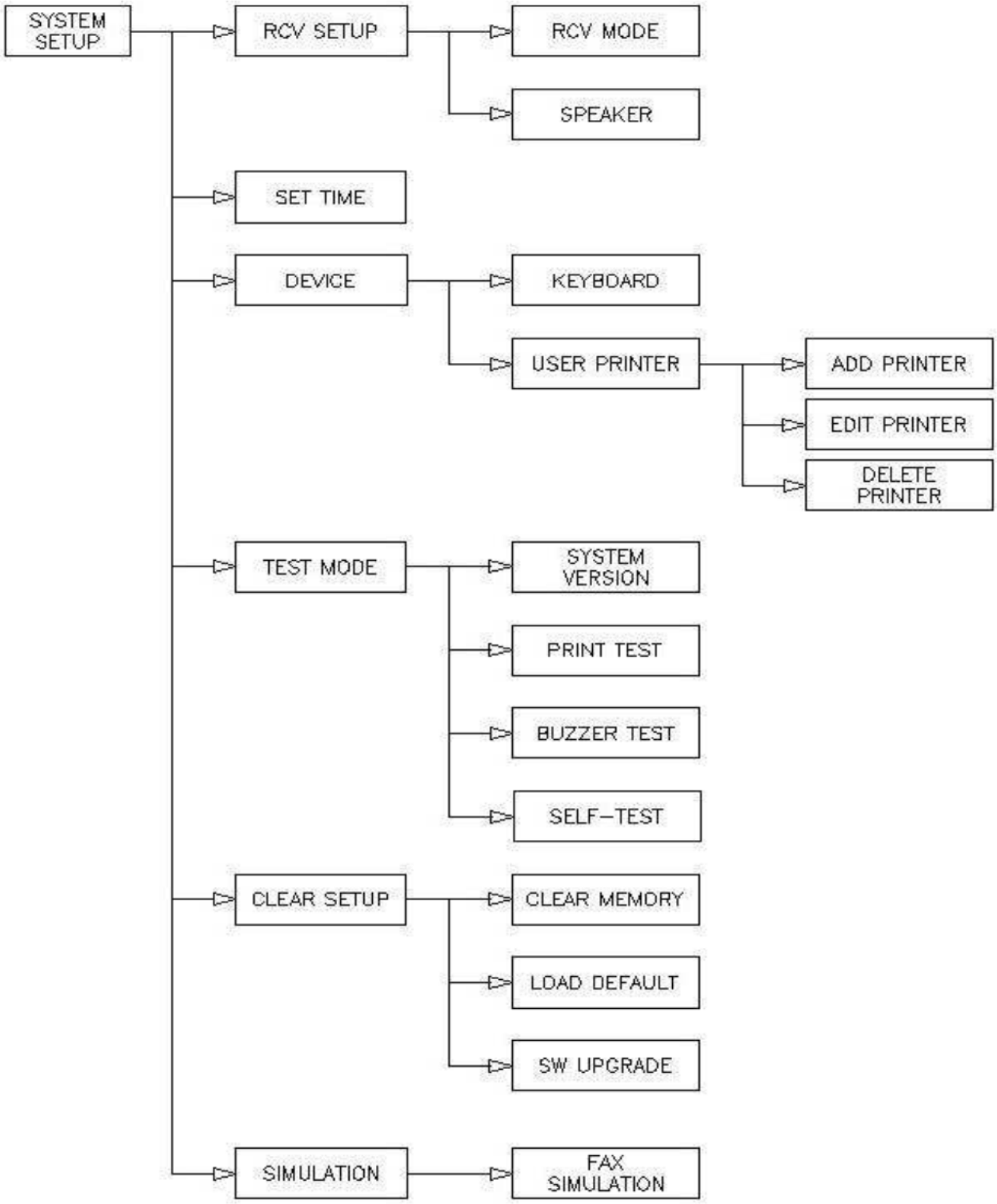
[Picture 77. Fax Menu Tree]

11.1.2. NAVTEX Menu tree



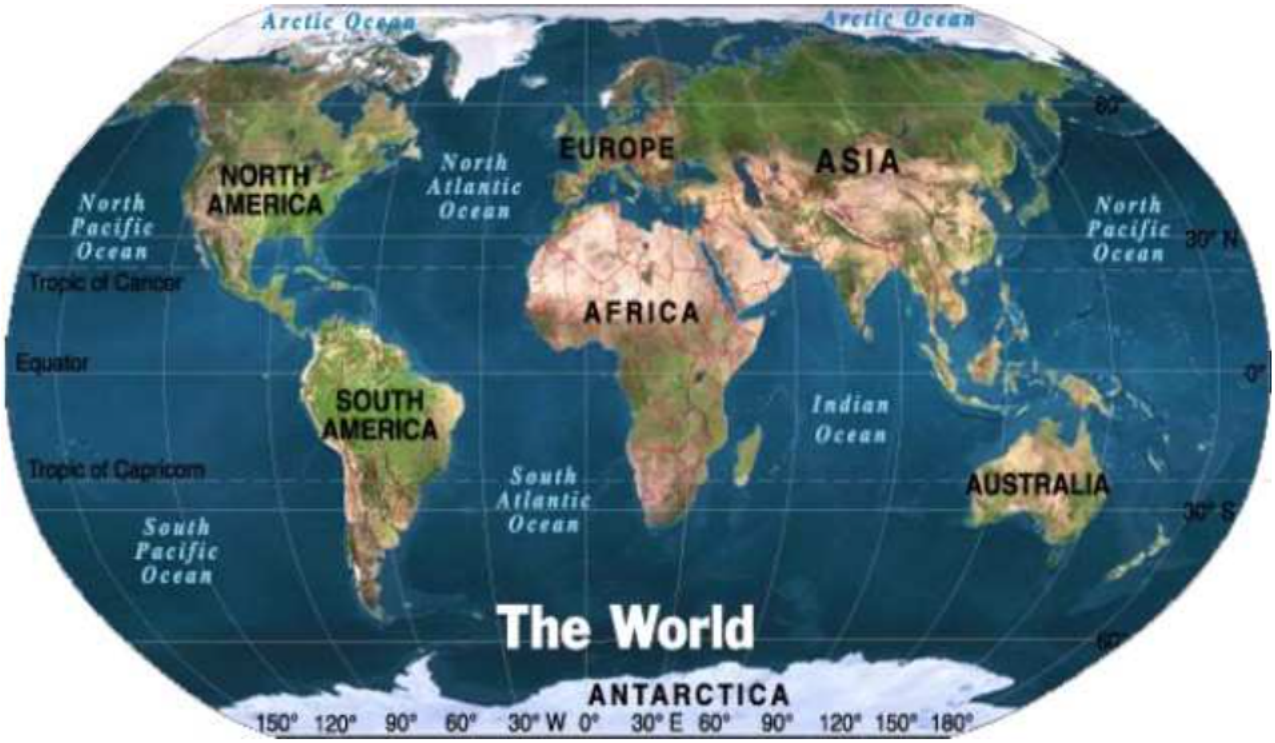
[Picture 78. NAVTEX Menu Tree]

11.1.3. SYSTEM SETUP Menu tree



[Picture 79. System Setup Menu Tree]

11.2. World Major Weather Fax Frequency



[Picture 80. World Map]

11.2.1. ASIA

- Republic of Korea - SEOUL

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
HLL2	5385 kHz	ALL BROADCAST TIMES	120/576
HLL2	5857.5 kHz	ALL BROADCAST TIMES	
HLL2	7433.5 kHz	ALL BROADCAST TIMES	
HLL2	9165 kHz	ALL BROADCAST TIMES	
HLL2	13570 kHz	ALL BROADCAST TIMES	

- China - BEIJING

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
BAF6	5526.9 kHz		120/576
BAF36	8121.9 kHz		
BAF4	10116.9 kHz		
BAF8	14366.9 kHz		
BAF9	16025.9 kHz		
BAF33	18236.9 kHz		

- China - BEIJING

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
3SD	8461.9 kHz		120/576
3SD	12831.9 kHz		
3SD	16903.9 kHz		

- Japan - TOKYO

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
JMH	3622.5 kHz	ALL BROADCAST TIMES	120/576
JMH2	7795 kHz	ALL BROADCAST TIMES	
JMH4	13988.5 kHz	ALL BROADCAST TIMES	

- Chukotka Peninsula - PEVEK

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
	148 kHz	ALL BROADCAST TIMES	90/576

- Taiwan - TAIPEI

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
BMF	4616 kHz		120/576
	5250 kHz		
	8140 kHz		
	13900 kHz		
	18560 kHz		

- Thailand - BANGKOK

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
BMF	4616 kHz		120/576
	5250 kHz		
	8140 kHz		
	13900 kHz		
	18560 kHz		

- Uzbekistan - TASHKENT 1

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
RBV70	3690 kHz	1300-0130	Can be changed depending on a broadcasting time
RPJ78	4365 kHz	ALL BROADCAST TIMES	
RBV78	5890 kHz	ALL BROADCAST TIMES	
RBX72	7570 kHz	0130-1300	
RCH72	9340 kHz	ALL BROADCAST TIMES	
RBV76	14982.5 kHz	ALL BROADCAST TIMES	

- Uzbekistan - TASHKENT 2

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
RBX70	3280 kHz	ALL BROADCAST TIMES	Can be changed depending on a broadcasting time
RBX71	5285 kHz	ALL BROADCAST TIMES	
RIJ75	8083 kHz	1400-0200	
RCH73	9150 kHz	ALL BROADCAST TIMES	
ROM5	13947 kHz	0200-1400	

- Japan/Singapore - KYODO NEWS AGENCY

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
JJC	4316 kHz	ALL BROADCAST TIMES	Can be changed depending on a broadcasting time
JJC	8467.5 kHz	ALL BROADCAST TIMES	
JJC	12745.5 kHz	ALL BROADCAST TIMES	
JJC	16971 kHz	ALL BROADCAST TIMES	
JJC	17069.6 kHz	ALL BROADCAST TIMES	
JJC	22542 kHz	ALL BROADCAST TIMES	
9VF/252	16035 kHz	0740-1010, 1415-1815	
9VF/252	17430 kHz	0740-1010, 1415-1815	

- Great British (Persian Gulf) - NORTHWOOD

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
GYA	6834 kHz	1800-0800 UTC	120/576
GYA	12390 kHz	ALL BROADCAST TIMES	
GYA	18261 kHz	0800-1800 UTC	

11.2.2. SOUTH AMERICA

- Brazil - RIO DE JANEIRO

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
PWZ-33	12665 kHz	ALL BROADCAST TIMES	120/576
PWZ-33	16978 kHz	ALL BROADCAST TIMES	

- Chile - VALPARAISO PLAYA ANCHA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
CBV	4228.0 kHz	ALL BROADCAST TIMES	120/576
CBV	8677.0 kHz	ALL BROADCAST TIMES	
CBV	17146.4 kHz	ALL BROADCAST TIMES	

11.2.3. NORTH AMERICA

- Canada - HALIFAX, NOVA SCOTIA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
CFH	122.5 kHz	ALL BROADCAST TIMES	120/576
	4271 kHz	ALL BROADCAST TIMES	
	6496.4 kHz	ALL BROADCAST TIMES	
	10536 kHz	ALL BROADCAST TIMES	
	13510 kHz	ALL BROADCAST TIMES	

- Canada - IQALUIT, N.W.T.

CALL SIGNS	FREQUENCIES	TIMES	RPM /IOC
VFF	3253.0 kHz	25 JUN – 30 NOV	120/576
VFF	7710.0 kHz	25 JUN – 30 NOV	

- Canada - RESOLUTE, N.W.T.

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
VFR	3253.0 kHz	25 JUN – 30 NOV	120/576
VFR	7710.0 kHz	25 JUN – 30 NOV	

- Canada - SYDNEY - NOVA SCOTIA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
VCO	4416 kHz	1121-1741	120/576
VCO	6915.1 kHz	2200-2331	

- Canada - INUVIK

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
VFA	8457.8 kHz		120/576

- United States of America - KODIAK, ALASKA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
NOJ	2054 kHz	ALL BROADCAST TIMES	120/576
	4298 kHz	ALL BROADCAST TIMES	
	8459 kHz	ALL BROADCAST TIMES	
	12412.5 kHz	ALL BROADCAST TIMES	

- United States of America - PT.REYES, CALIFIRNIA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
NMC	4346 kHz	NIGHT	120/576
	8682 kHz	ALL BROADCAST TIMES	
	12786 kHz	ALL BROADCAST TIMES	
	17151.2 kHz	ALL BROADCAST TIMES	
	22527 kHz	DAY	

- United States of America - NEW ORLEANS, LOUISIANA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
NMG	4317.9 kHz	ALL BROADCAST TIMES	120/576
	8503.9 kHz	ALL BROADCAST TIMES	
	12789.9 kHz	ALL BROADCAST TIMES	
	17146.4 kHz	1200-2045	

- United States of America - BOSTON, MASSACHUSETTS

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
NMF	4235 kHz	0230z-1028z	120/576
	6340.5 kHz	ALL BROADCAST TIMES	
	9110 kHz	ALL BROADCAST TIMES	
	12750 kHz	1400z-2228z	

11.2.4. PACIFIC OCEAN BASIN

- Austria - CHARLEVILLE

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
VMC	2628 kHz	0900-1900	
VMC	5100 kHz	All BROADCAST TIMES	
VMC	11030 kHz	All BROADCAST TIMES	
VMC	13920 kHz	All BROADCAST TIMES	
VMC	20469 kHz	1900-0900	

- Austria - WILUNA

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
VMW	5755 kHz	1100-2100	120/576
VMW	7535 kHz	All BROADCAST TIMES	
VMW	10555 kHz	All BROADCAST TIMES	
VMW	15615 kHz	All BROADCAST TIMES	
VMW	18060 kHz	2100-1100	

- New Zealand - WELLINGTON

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
ZKLF	3247.4 kHz	0945-1700	120/576
	5807 kHz	ALL BROADCAST TIMES	
	9459 kHz	ALL BROADCAST TIMES	
	13550.5 kHz	ALL BROADCAST TIMES	
	16340.1 kHz	2145-0500	

- United States of America - HONOLULU, HAWAII

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
KVM70	9982.5 kHz	0519-1556	120/576
	11090 kHz	ALL BROADCAST TIMES	
	16135 kHz	1719-0356	

11.2.5. EUROPE

- Denmark - SKAMLEBAEK

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
OXT (1)	5850 kHz	0028-1005	120/576
	9360 kHz	0003-0025 1008-1215 1243-1305 1828-1850	
	13855 kHz	1218-1240 1308-1330 1803-1825	
	17510 kHz	1333-1355	

- Greece - ATHENS

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
SVJ4	4481 kHz		120/576
SVJ4	8105 kHz		

- Germany - HAMBURG/PINNEBERG

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
DDH3	3855 kHz	ALL BROADCAST TIMES	120/576
DDK3	7880 kHz	ALL BROADCAST TIMES	
DDK6	13882.5 kHz	ALL BROADCAST TIMES	

- Italy - ROME

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
IMB51	4777.5 kHz	ALL BROADCAST TIMES	120/576
IMB55	8146.6 kHz	ALL BROADCAST TIMES	
IMB56	13597.4 kHz	ALL BROADCAST TIMES	

- Russia - MOSCOW

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
	3830 kHz		Can be changed depending on a broadcasting time
	5008 kHz		
	6987 kHz		
	7695 kHZ		
RCC76	10980 kHz		
	12961 kHz		
RDD78	11617 kHz		

- Russia - MURMANSK

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
RBW 41	5336 kHz		Can be changed depending on a broadcasting time
	6445.5 kHz	ALL BROADCAST TIMES	
	7908.8 kHz	1900-0600	
RBW48	10130 kHz	0600-1900	

- England - NORTHWOOD

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
GYA	2618.5 kHz	2000 UTC – 0600 UTC	120/576
GYA	4610 kHz	ALL BROADCAST TIMES	
GYA	8040 kHz	ALL BROADCAST TIMES	
GYA	11086.5 kHz	0600 UTC – 2000 UTC	

11.2.6. AFRICA

- Kenya - NAIROBI

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
5YE	9044.9 kHz	ALL BROADCAST TIMES	120/576
5YE	17447.5 kHz	ALL BROADCAST TIMES	

- South Africa - CAPE NAVAL

CALL SIGNS	FREQUENCIES	TIMES	RPM / IOC
ZSJ	4014 kHz	16Z-06Z (when available)	Can be changed depending on a broadcasting time
ZSJ	7508 kHz	ALL BROADCAST TIMES	
ZSJ	13538 kHz	ALL BROADCAST TIMES	
ZSJ	18238 kHz	06Z-16Z (when available)	