

- “MEM” memorizes current position up to 99.
(Backed up by inner battery.)
“-” selects South, or West.
“RCL” recalls memorized position data.
Clears erroneous entries.
- ⑩ **-RCL**
- ⑪ **CLR**
- ⑫ **A/M**
- ⑬ **SF**
- ⑭ **CHG**
- ⑮ **NEXT**
- Changes mode from Auto to Manual, or vice versa.
Activates LCD display test and special function. Re-entry of this key makes picture return back to normal.
Changes display page from first to third one.
Changes to the next route leg when route sequence is activated.
Changes time display in **RTE** page 3.
Set Mag. Compass Corr. Value in **L/L** page 3.

2.2 OPERATING MODES

There are six operating modes in this equipment. The **L/L** (Latitude/Longitude mode), the **INIT** (Initial mode), the **WPT** (Waypoint mode), the **RTE** (Route mode), the **SAT** (Satellite mode), and the **SF** (Special Function mode). The **SF** mode is activated when **SF** key is pushed. The other modes are controlled by the Mode Switch.

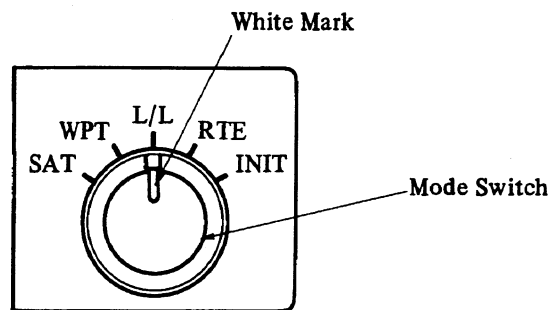


Figure2.2 The White Mark Indicates the Desired Mode.

<u>Mode</u>	<u>Purpose</u>
L/L	Displays navigation data, features Lat/Long readouts
INIT	Used to enter the initialization and gyro/log ratio data
WPT	Used to enter waypoints into memory
RTE	Used to select a waypoint destination or route or to set alarm zones
SAT	Displays satellite data, set the deselected satellite numbers
SF	Used to set-up special operating conditions

This manual is explained by grouping at each operating modes. It is useful only to know what can the unit does at each operating modes.

The best way to learn this equipment is to dive right in. You can't damage the unit by randomly pushing the keys, so don't be afraid to experiment. If at any time the results appear confusing, just push the **CLR** key and start over again.

2.3 BASIC OPERATIONS

Assuming the installation of your unit has been properly completed we are ready to begin. Let's turn this equipment to "ON".

2.3.1 Turning the Unit "ON"

Press the **PWR** (red key) to turn the unit on.

2.3.2 Controlling the LCD Display and the Keyboard Brightness

If you need control

- (1) Press the **SF** key to activate the brightness setup mode. All symbols appear on the LCD.
- (2) Press the **+MEM** to produce a higher level of brightness of the LCD and the Keyboard, or press **-RCL** to produce a lower level of brightness.
- (3) Press **SF** key again to turn "Off" the brightness setup mode.

2.3.3 To Turn the Unit "OFF"

Press **PWR** and **OFF** (both red keys) together. The display will disappear and the unit will be off.

2.3.4 SLEEP Mode

Press the **SLP** key, the Backlight will be turned off and the display will disappear except "SLEEP".

In SLEEP mode, this equipment has been receiving signal.

Press **SLP** again to return the normal mode.

2.3.5 The Self-Check

When turn on, the unit will diagnose itself automatically. While checking, all segment of the LCD are displayed. If there is no problem, display shift to the normal which is selected by mode switch.

If there are some problems on the unit, indicate “**rEcEur nG**” on the LCD. Please try to perform the master resetting and the initial setting.

2.4 THE INITIAL SETTING MODE

The initial setting mode is activated when the mode switch is positioned at INIT. This mode has following functions of setting and display.

- (1) Initializing Latitude/Longitude (Page 1)
- (2) Entering the Date and Time (Page 1)
- (3) Entering the Difference in Time (Page 1)
- (4) Entering the Antenna Height (Page 1)
- (5) Setting the Course Data (Page 2)
- (6) Setting the Speed Data (Page 3)

2.4.1 Initializing Latitude/Longitude

Enter the approximate initial position of your ship if possible (in the precision of within $\pm 1^\circ$).

The initial position serves as the start point for various calculations. If you have entered it once, it is preserved in memory even when you turn off the power.

Enter your estimated position as shown below. In case of south and west, press key.

Press

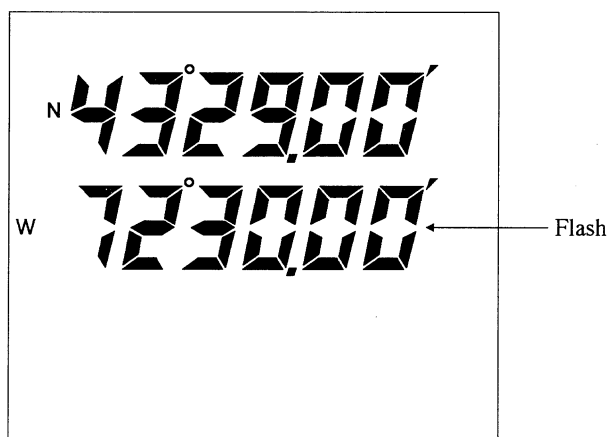
(North $43^\circ 29.00'$)

Press

(West $72^\circ 30.00'$)

Press .

(Changes to UTC entering display.)



2.4.2 Entering the Date and Time

This equipment has a built-in crystal clock with a calendar that is driven by the internal battery.

Once initial setting has been done, you do not have to enter again, even if turning the unit off. The operation is as follows.

Press **9** **5** **0** **2** **2**

6 **ENT**

Press **1** **0** **3** **0**

Press **ENT**.

(The display will change to local time and difference in time.)

UTC
(1995)

95.02.26

10.30.45

Flash

NOTE

When enter the time and press **ENT** key, sometimes the display of the time change to erratic value. That is not error, but show the setting is not completed. All of initial setting are completed after antenna height entering. So please proceed to enter the difference in time and antenna height.

2.4.3 Entering the Difference in Time

Then enter the difference between UTC and local time, for example.

Press **-** **7** **0** **0**

(-07 hours 00 minutes)

Press **ENT**.

(Changes to antenna height enter display.)

95.02.26

19.31.18

- 00

Flash

2.4.4 Entering the Antenna Height

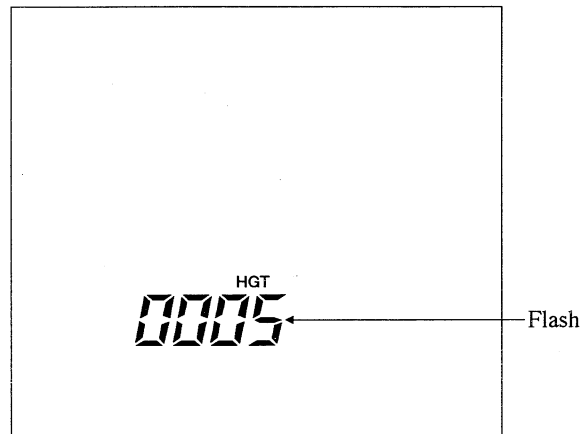
To enter the height from the sea level to the top of the antenna, enter the antenna height and press the **ENT** key. If the current position is on land, add the height above the sea level to the height of the antenna from the ground level, and enter that result. (0m ~ 9999 m)

For example

Press **5** .

Press **ENT** .

Then the display will return to the display of latitude/longitude entering.



2.4.5 Setting the Course Data

This equipment allows the setting of speed and course data for interpolation in dead reckoning up to the time of next satellite position fix in case position fix has become impossible because two or less visible satellites are available.

To enter the speed and course data from the speed log, gyrocompass/magnetic direction, you have to connect an optional DR Interface (NNE-205) to this equipment.

This equipment has the following three course data input modes:

- A. Gyrocompass mode (#0)
- B. Magnetic direction input mode (#1)
- C. Manual course input mode (#2)

To select the **INIT** function by Mode Switch, Press **CHG** (second page)

A. Automatic course input from gyrocompass

Course signal from the gyrocompass can be input to this equipment through the DR interface. To do this, you have to enter the ratio (the number of revolutions of the repeater motor when the ship makes a full turn) of the gyrocompass. The ratio differs with the type of gyrocompass used on board the ship. For details, see page 3-18 "Specifications of Gyrocompass Course Signal Output And Setting Ratio" of this manual.

Press **# 0 ENT** : Selects gyrocompass mode.

Press **3 6 0 ENT** : Sets the gyrocompass ratio to 360.

Press **1 3 5 6 ° ENT** : Sets the initial course for the gyrocompass to 135.6°

B. The Timer Function

The countdown timer operates from 1 minute (minimum) to 99 minutes (maximum). To set the countdown time:

(The countdown timer)

Press **-** to set in the Timer Countdown Timer Function.

Press **4 4** (for example, to set 44 minutes).

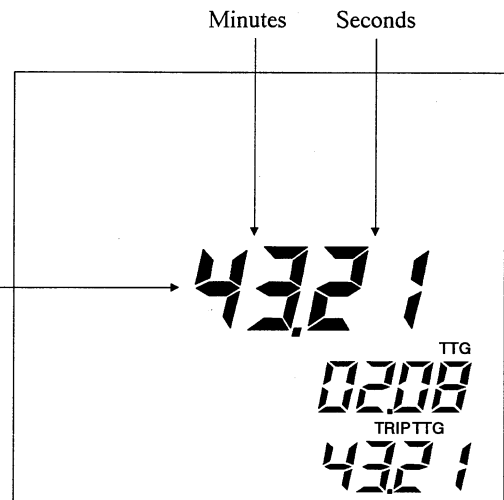
Press **ENT** to start countdown.

Press **MEM** to stop the count on the display. (The inner counter is going on.)

Press **MEM** again to continue the time count.

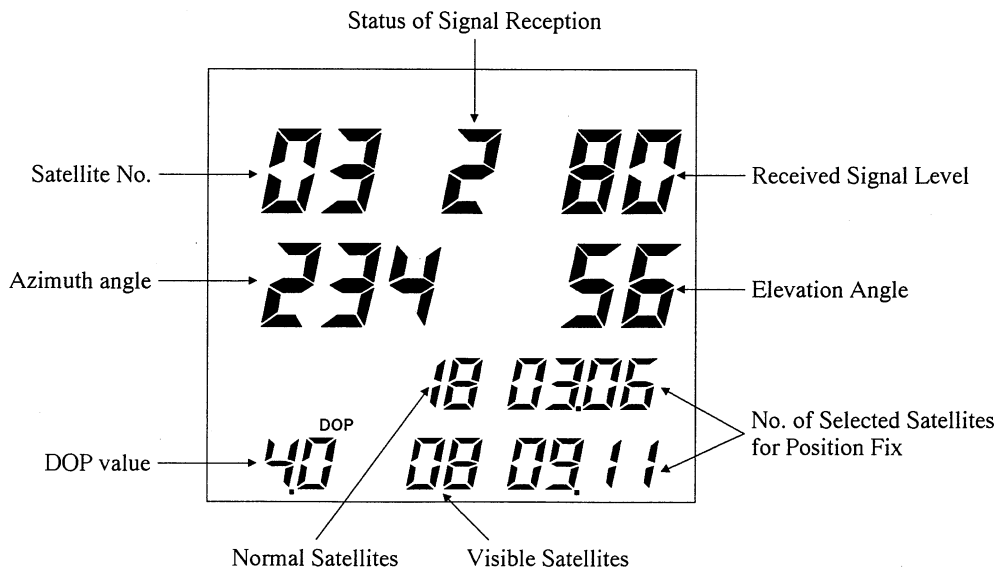
At "0" the buzzer sounds.

Press **CLR** to reset the Timer.



2.8 SATELLITE STATUS DISPLAY MODE

The satellite status can be displayed when the mode switch is positioned at SAT.



- Status of signal reception
- 0: Searching
 - 1: Tracking
 - 2: Data demodulation completed

The DOP value represents the PDOP value for three-dimensional position fix, and HDOP for two-dimensional position fix.

By pressing the **#** key the status of signal reception, and the azimuth angle and

elevation angle can be displayed for satellite being tracked.

Press **CHG** to display Page 2. This page indicates that you may deselect visible satellites that are judged to be emitting unreliable signals due to malfunction. You can set up to six such satellites as deselected satellites from which reception of signals should be inhibited.

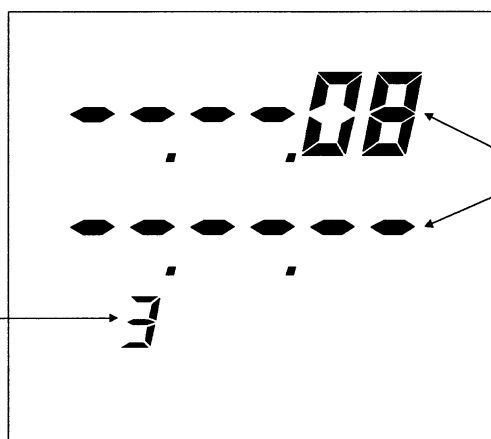
For example

8 **ENT** **ENT**

To cancel

0 **ENT** **ENT**

Indicate Three or More Satellites



Deselected Satellite No.

2.9 THE SPECIAL FUNCTION MODE (SF)

Special functions are reserved for dimmer control and other special set-up operations.

Press **SF**.

All LCD segments are lighted. By entering special code numbers on the display, a number of special set-up operations can be executed. They are as follows:

SF mode

number	PURPOSE	
1. Select format for channel 1 (DATA 1)		} 2.9.1
2. Select format for channel 2 (DATA 2)		
3. Select format for channel 3 (DATA 3)		
4. Select format for channel 4 (DATA 4)		
5. Select of unit		2.9.2
6. Select of antenna mode		2.9.3
12. Select of PDOP level		2.9.4
13. Select of output interval of fix mark		2.9.5
21. Lat/Long/Speed/Course averaging condition		2.9.6
22. Selects resolution of CDI (0: 0.3 NM, 1: 0.1 NM) by NEXT key		
23. Selects resolution of present position L/L (0: 0.01 minute, 1: 0.001 minute) by NEXT key		
25. Selects 12 hours or 24 hours format (0: 24 hours, 1: 12 hours)		
26. Select Buzzer or Log pulse (200 pulse/NM) for Relay signal output (0: Buzzer, 1: Log pulse)		

2.9.7 Cold Start

If this equipment lost the initial data and you do not know estimate position and time, it may not acquire a satellite.

In such a case, perform the cold start operation and the equipment receive the satellites without initial data.

It will take a long time (10~20min.) to fix a position. The procedure is as follow.

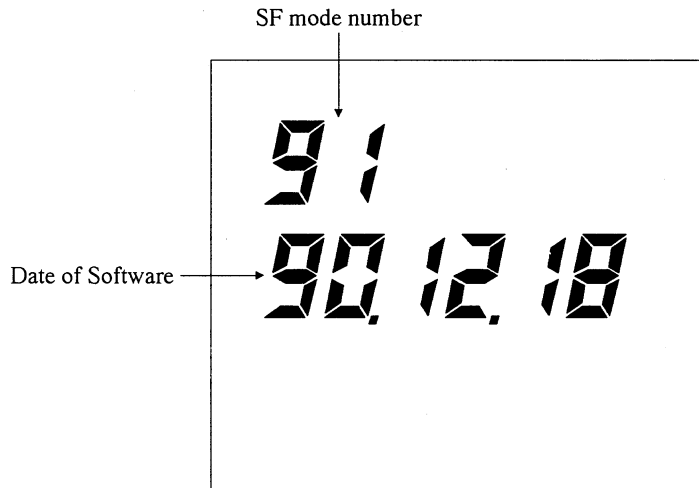
Press **SF** **#** **8** **9** **ENT**

2.9.8 Software Level

To see the program date of your GPS's software:

Press **SF** .

Press **#** , **9** , **1** , **ENT** .



2.9.9 Master Reset

If your wish to clear all entered data at once, the master reset function may be performed.

Press **SF** , **#** , **9** , **0** , **ENT** .

If you performed a master reset, you should be enter initial setting.