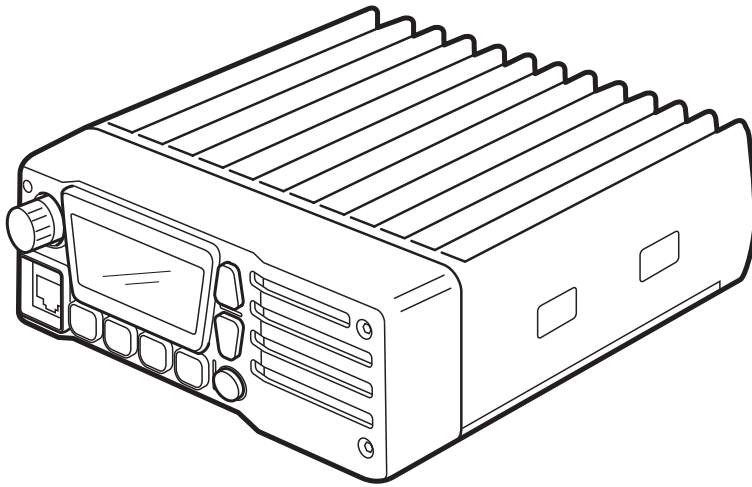




## VHF AIR BAND TRANSCEIVER

**FL-M1000A/FL-M1000E**



**Instruction Manual**

# ATTENTION READ ME FIRST

## FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### NOTICE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- Properly shielded and grounded cables and connectors must be used for connection to host computer and / or peripherals in order to meet FCC emission limits. (AC adaptor) with ferrite core must be used for RF interference suppression.

## Notes to the Installer / User.

- This is a 13.8-volt or 26.4-volt DC radio, voltages greater than 33 volts DC or AC voltage will severely damage it.
- When making adjustments to the transmitter, ensure that you are not on an occupied channel.
- Do not transmit on 121.500MHz, as this is the international distress frequency.
- Do not transmit into an unterminated antenna line as a suitable antenna must be connected. Transmitting without being connected to an antenna may damage the radio.
- Ensure that the supply voltage is regulated and does not fall below 11.7 volts DC or exceed 31 volts DC.
- The transceiver is not waterproof. Do not allow it to get wet.
- Speaker impedance must be either 4 or 8 ohms (4 ohms preferred) at 10 watts.
- Use of electret microphones highly recommended.

## About this document.

Due to our policy of continuous improvement to our products and services, technical specifications and claims are correct at time of going to printing, however they are subject to change without notice.

Flightline does not accept liability for any error or omission.

This manual remains the copyright of Flightline.

# CONTENTS

<b>INTRODUCTION.....</b>	<b>4</b>		
Introduction.....	4		
Part names and functions .....	5		
MP-1000 microphone .....	7		
Display .....	8		
Recalling the Pri channel .....	10		
<b>BASIC OPERATION .....</b>	<b>11</b>		
Basic usage .....	11		
Turning the power on or off .....	12		
Adjusting the audio volume .....	12		
Adjusting the squelch level.....	13		
Changing the channel.....	14		
Change mHz/kHz for variable frequency.....	14		
Dimmer.....	15		
Transmitting .....	15		
<b>MEMORY AND SCAN OPERATION.....</b>	<b>16</b>		
Scanning the VFO frequencies.....	16		
Scanning the memory.....	16		
Scanning with the priority channel.....	17		
Priority watch .....	18		
Other memory operations .....	19		
<b>MEMORY OPERATIONS.....</b>	<b>20</b>		
Memorizing a frequency .....	20		
Switching the VFO and memory mode .....	20		
Erasing a memory.....	21		
Setting the priority memory.....	21		
Recalling the priority channel.....	22		
Naming the memory channel (Memory tag).....	23		
Setting the lockout memory channel .....	24		
<b>ADVANCED OPERATION.....</b>	<b>25</b>		
Emergency call .....	25		
Changing the settings.....	25		
Changing the each settings.....	26		
<b>APPENDIX.....</b>	<b>27</b>		
Connecting.....	27		
Mounting .....	29		
Optional headset adapter .....	30		
Specifications .....	32		
		Frequency list (Example of frequency versus display when using 8.33 KHz step)..... 33	
		Supplied accessories .....	34

# INTRODUCTION

## Introduction

Thank you for purchasing this quality product from Flightline.

This transceiver has been designed and manufactured in Japan. This is the best product for vehicle working in the Airport. Ease of operation was another primary achievement.

Please follow this manual closely to ensure optimum performance, we do hope you have many hours of trouble free communication.

## Installation instructions

This manual contains all of the necessary instructions for installation and operation. After installation please keep this manual in a safe place for future reference.

## Installation considerations

As with all air Air Band radios, successful communications start with the installation. After unpacking the transceiver verify all parts against the parts list. The Display provides a 30-degree field of view from right and left, and from upper side. However from the down side, it is out of guarantee.

Please be careful when install this product.

The use of aviation quality shielded cable is recommended at all times.

Avoid running or wrapping other wires around the antenna lead and keep lengths as short as reasonably possible. Ensure that the radio is not exposed to direct rain or moisture (we do not accept liability for water damage).

Make sure the transceiver is connected to a 11.7-16.8 volt or 23-31 volt battery system.

Do not use AC volts from a Rotax lighting coil.

## About this product

This product is Air Band Land Mobile Radio designed for vehicle, not for Aircraft.

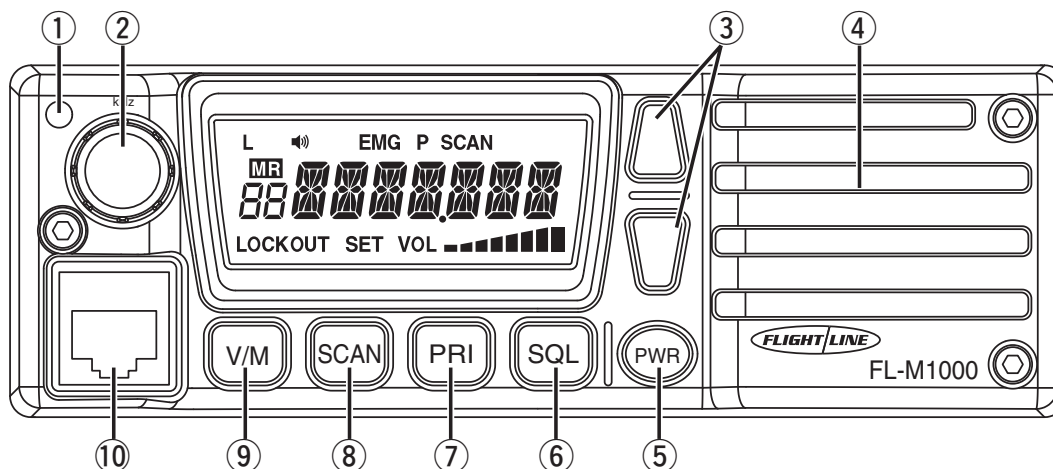
The radio can be operated with Hand Microphone or Headset. You can choose audio output from External Speaker and/or Headphone.

The radio has various built-in Scan function.

# INTRODUCTION

## Part Names and Functions

### Front panel



#### ① TX/RX indicator

- Indicate Red in transmission, Green in Receiving.

#### ② Rotary Encoder

- Change the operating Frequency or Memory Channel.
- Turning this Encoder while pausing scan resumes the Scan mode.
- LCD Backlight will be ON by short press.
- Available to change the tuning range by Long Press.

#### ③ Volume button

- The audio volume will be up or down.

#### ④ Internal Speaker

- Internal Speaker.
- The audio output is available to change to Headphone.

#### ⑤ PWR button

- Short press: indicates voltage of power source.
- Long press: turn the radio ON/OFF.

#### ⑥ SQL button

- Available to change the Squelch setting.

#### ⑦ PRI button

- Short Press: recall the Priority Channel.
- Long Press: recall the Emergency Channel..

#### ⑧ SCAN button

- Short Press: start SCAN function.
- Long Press: start Dual Watch function.

#### ⑨ V/M button

- Short Press: switch between Memory mode and VFO mode.
- Long Press: Add memory current channel.

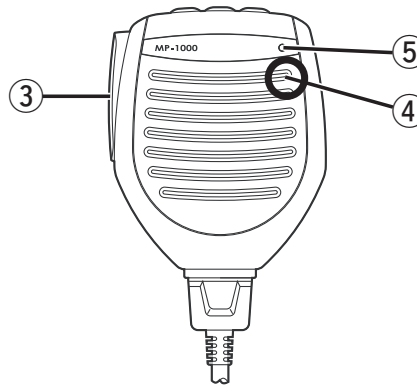
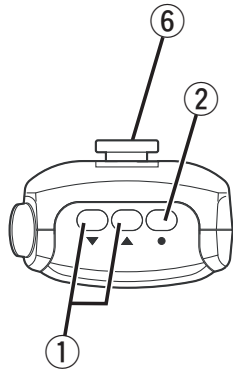
# INTRODUCTION

## ⑩ **Microphone connector**

- Connect the supplied Microphone (do not connect other microphone to prevent trouble)

# INTRODUCTION

## MP-1000 Microphone



### ① Volume UP/DOWN

- Decrease audio volume by press the ▼ button, and increase by ▲ button

### ② Monitor Button

- Press the button makes the radio in monitor mode.

### ③ PTT (Push To Talk)

- Press the button makes the radio to transmit mode, and release to receive mode.

### ④ Microphone

- Speak into the circled area when talking.

#### Note:

There is a microphone element in the circled area. The sound becomes unclear if it doesn't speak toward the circled part.

### ⑤ Busy Indicator (Green)

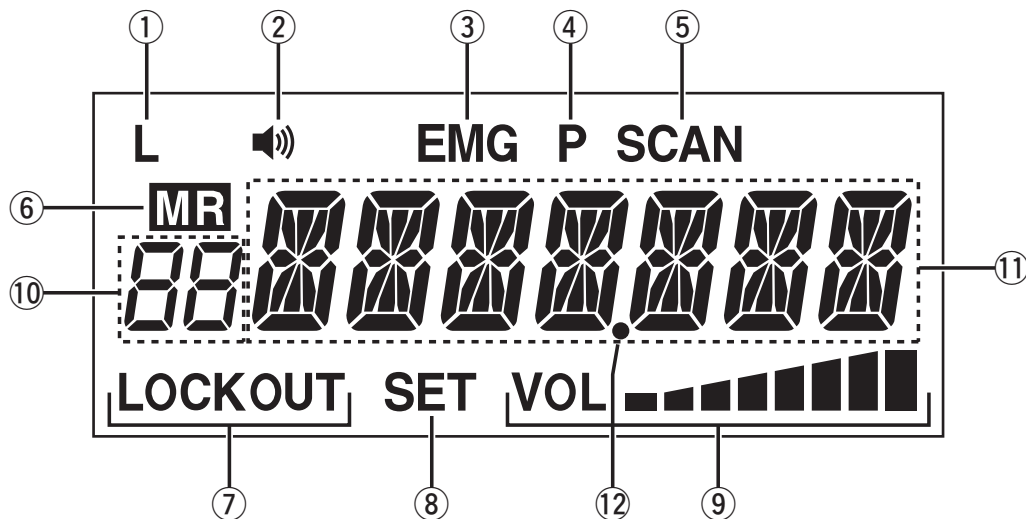
- It will become Green while somebody is talking, or squelch is open.

### ⑥ Hanger

- It is a metal hanger to hook the microphone.

# INTRODUCTION

## Display



### ① Low battery indicator

- The “L” will indicate when the voltage of the power source becomes less than 11.7 Volt.

### ② Busy indicator

- The Busy icon will indicate when receiving.

### ③ Emergency indicator

- The “EMG” icon will indicate when recall the Emergency channel.

### ④ Priority Watch indicator

- The “P” icon will indicate when the radio is in Priority Scan or Priority watch mode.

### ⑤ Scan indicator

- The “SCAN” icon will indicate when the radio is in SCAN mode.

### ⑥ Memory indicator

- The “MR” icon will indicate when the radio is displaying a memory channel.

### ⑦ LOCKOUT indicator

- The “LOCKOUT” icon will indicate when the channel is not in the SCAN LIST.

### ⑧ Setting mode indicator

- The “SET” icon will indicate when the radio is in SETTING mode.

### ⑨ Volume level indicator

- It indicates the Audio Volume Level.

### ⑩ Memory number indicator

- It shows memory number or “Pr” as priority.

### ⑪ Main indicator

- It shows frequency and/or setting etc..

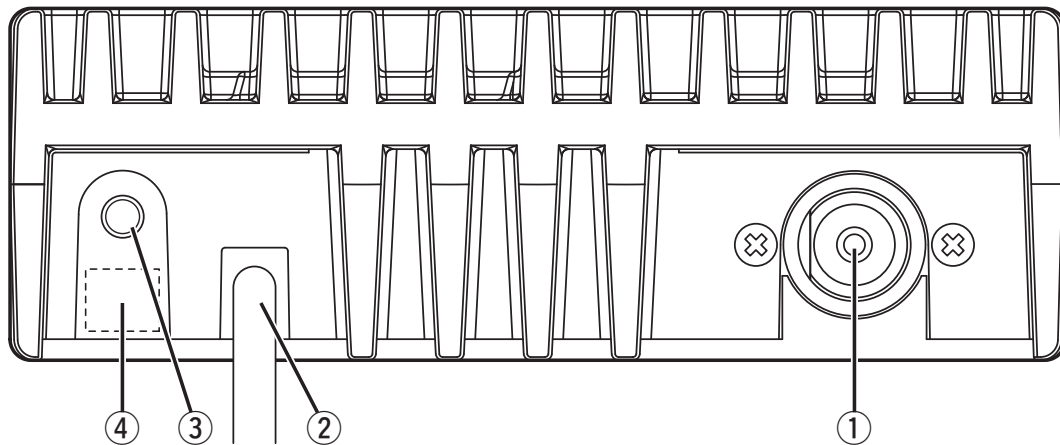
### ⑫ Decimal point indicator

- It indicates “dot” at decimal point.



# INTRODUCTION

## Rear panel



### ① Antenna Connector

- Connect an Antenna with PL-259 type (50 ohms, SWR: less than 3.0)

### ② Power Cable

- Connect a Battery (12 V or 24 V). Do not connect the other type.

### ③ External Speaker Jack

- Connect a Speaker with more than 10 W, 8 ohms.

### ④ Optional Jack

- Connect a Headset (supplied by 3rd party)

Please contact your dealer if you have any question.

# INTRODUCTION

## Recalling the Pri Channel

You can recall a Priority Channel by pressing the PRI button when the radio is in VFO mode or in Memory Channel mode.

### **1 Press the PRI button**

- The channel will be changed to Priority Channel and the “Pr” will be displayed instead of memory channel number.



### **2 Press the PRI button again to return to previous channel**

# BASIC OPERATION

## Basic Usage

- 1 Press the PWR button more than two seconds.



- 2 Adjust the audio level by Volume button.



- 3 Press the SQL button to adjust the Squelch level.



- 4 Turn the Rotary Knob slowly direction to clockwise until noise disappear.



- 5 Press the SQL button to save and exit the adjustment.



- 6 Turn the Rotary Knob to select desired frequency.
  - The TX/RX Indicator will become Green if the radio receives a signal.
- 7 Wait a signal from transmitting your partner.
- 8 Monitor the frequency is not busy before transmission.
- 9 Hold the microphone about 1 to 3cm away from your mouth.
- 10 Speak slowly and clearly into the microphone with press and hold the PTT switch.
  - The TX/RX Indicator on the radio will become Red while transmitting.

# BASIC OPERATION

## Turning the Power On or Off

- 1 Press and hold the PWR button more than two seconds to turn the radio ON.

- The LCD will be activated and Frequency will be displayed on the LCD.



- 2 Press and hold the PWR button more than two seconds to turn the radio OFF.

## Adjusting the Audio Volume

- 1 Press the ▲ button to increase audio level.



- 2 Press the ▼ button to decrease audio level.



### Note:

The audio level will be continuously changed by Press and hold the buttons.

# BASIC OPERATION

## Adjusting the Squelch Level

### 1 Press the SQL button

- The Display will change to Squelch Setting mode.



### 2 Turn the Rotary Knob slowly direction to clockwise.

### 3 Stop turning the Knob when Noise disappears.



### 4 Press the SQL button to save and exit the Squelch adjustment.

- The Display will return to previous state.

#### Note:

The audio will be muted when receiving weak signal if the SQL level is set too big.

You can change Audio level while in Squelch Setting mode.

# BASIC OPERATION

## Changing the Channel

Frequency on the LCD will be changed by turning the Rotary Knob in VFO mode. Channel Number on the LCD will be changed by turning the Rotary Knob in Memory mode.

- 1 Confirm the VFO mode before changing Frequency.**
  - There is no “MR” icon in VFO mode.
- 2 Turn the Rotary Knob to change desired frequency.**



- 3 Press the V/M button to switch between VFO mode and Memory mode.**

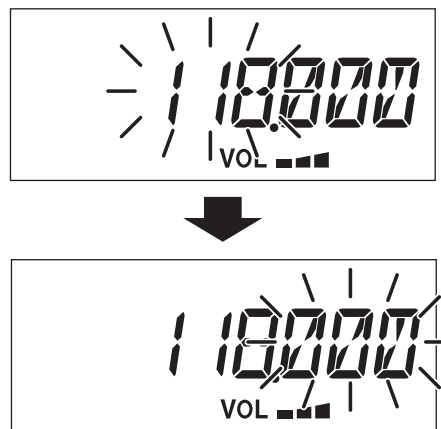


- There is “MR” icon in Memory mode.
- 4 Turn the Rotary Knob to change desired Memory number.**
    - See page 20 how to memorize a frequency.

## Change MHz/kHz for Variable Frequency

You can switch between MHz and kHz for changing frequencies in VFO mode.

- 1 Confirm the radio is in VFO mode.**
- 2 Press and hold the Rotary Knob more than one second.**
  - The variable part will be flashing.

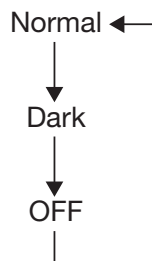


# BASIC OPERATION

## Dimmer

The brightness of LCD Backlight can be changed.

- 1 Confirm the radio is switched ON.**
- 2 Short press the Rotary Knob.**
  - The brightness will be changed as follows.



## Transmitting

- 1 Confirm that the channel is not busy before transmitting.**
- 2 Keep away your mouth from the microphone about one inch.**
- 3 Press and hold the PTT switch.**
- 4 Speak slowly and clearly into the microphone.**
  - The RX/TX Indicator on the radio will become Red.

### Note:

There is a function "Timeout Timer" in this radio. The continuous transmitting will be automatically stopped for 3 minutes as default. The Timeout Timer can be selected from Off, 1, 3 and 5 minutes. (see page 25 or 26)

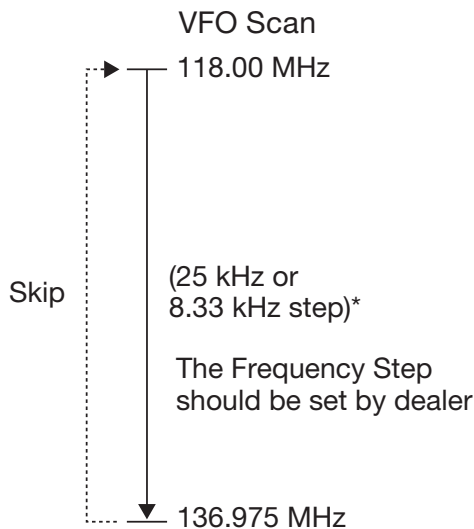
# MEMORY OPERATION

There are various functions such as Frequency Scanning on VFO mode, Memory Scanning on Memory mode or dual watch the specific two frequencies.

## Scanning the VFO Frequencies

It is Scanning for all available frequencies when the radio is in VFO mode.

- 1** Confirm the radio is in VFO mode.
- 2** Confirm the radio is not receiving on current channel.
- 3** Press the SCAN button.
- 4** The radio starts Scanning.



- If the radio receives a signal during Scan, the radio will pause the scanning on the channel.

- 5** Press the SCAN button to stop the Scanning.

## Scanning the Memory

This function is Scanning for memorized channels. Please refer page 20; how to memorize a frequency.

- 1** Confirm the radio is in VFO mode.
- 2** Press V/M key to change to Memory mode.
- 3** Confirm the radio is not receiving on the current channel.
- 4** Press the SCAN button.
- 5** You can see the radio is scanning.

Memory scan



- If the radio receives a signal during Scanning, the radio will pause the scanning on the channel.

- 6** Press the SCAN button to stop the Scanning.

\* Except USA Version.

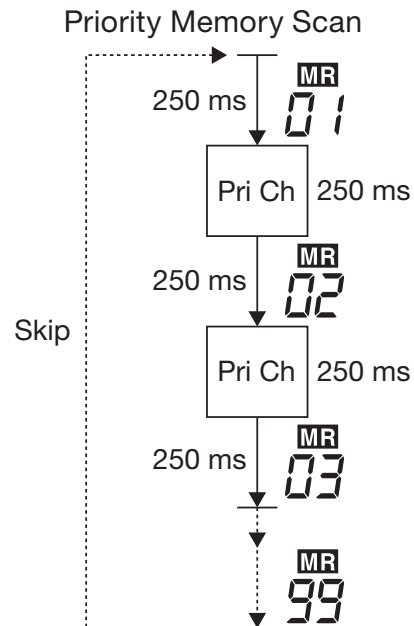
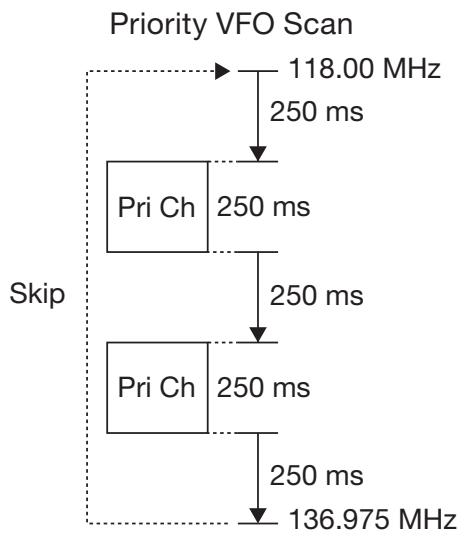


# MEMORY OPERATION

## Scanning with the Priority Channel

The Priority Channel will be checked every 250 msec during the radio is in VFO scanning or Memory Scanning.

- 1 Confirm the radio is in VFO mode or Memory mode.**
- 2 Confirm the radio is not receiving at the current channel.**
- 3 Press the SCAN button.**
- 4 Confirm the radio starts the Scanning.**



- If the radio receives a signal during Scan, the radio will pause the scanning on the channel.
- The priority channel will be checked every 5 seconds even if the radio is receiving.
- The radio will pause the scanning if receiving a signal on the Priority Channel.

- 5 Press the SCAN button to stop the Scanning.**

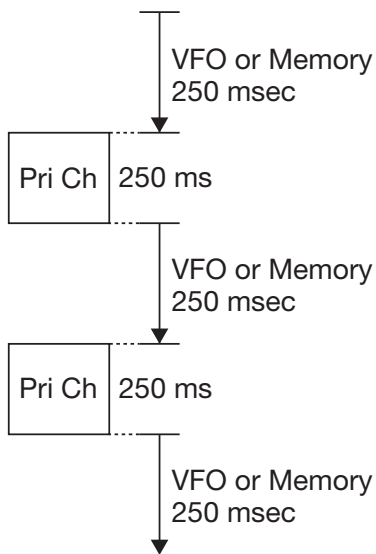
# MEMORY OPERATION

## Priority Watch

**6** Press the **SCAN** button to stop the “Priority Watch”.

The “Priority Watch” is to watch the current channel (displayed frequency or memory channel) and Priority Channel alternately.

- 1** Confirm the radio is in **VFO mode** or **Memory mode**.
- 2** Select a desired frequency or memory channel to make the **Priority Watch**.
- 3** Confirm the radio is not receiving at displayed channel.
- 4** Press and hold the **SCAN** button until the “**P**” icon will appear on the **LCD**.
- 5** Confirm the radio starts the “**Priority Watch**”.



- If the radio receives a signal during Scan, the radio will pause the scanning on the channel.
- The priority channel will be checked every 5 seconds even if the radio is receiving.
- The radio will pause the scanning if receiving a signal on the Priority Channel.

# MEMORY OPERATION

## Other Memory Operations

There are advanced feature for Scanning, On hook scanning and Lock Out Memory.

On hook scanning, Lock Out Memory

- On hook scanning  
The Scan will start when the microphone is ON Hook, and will stop when OFF Hook.  
In order to use this function, the Hook function must be enabled in the User Setting mode. Beside the microphone hook must be connected with ground level (Earth). If the microphone hook is not connected to Earth, the Hook function does not work.
- Lock Out Memory  
It is able to delete the channel from the Scan list to skip the channel during Scanning.

# MEMORY OPERATIONS

This section shows how to memorize frequently using frequency as Memory Channel.

## Memorizing a Frequency

- 1 Select a frequency that is going to memorize by rotary knob in the VFO mode.**
- 2 Press and hold the V/M button more than two seconds.**
  - The “MR” icon will appear and Memory Number will flash.
- 3 Select desired number by rotary knob.**
  - The “MR” icon will not appear at the memory number that is not memorized a frequency.
- 4 Press and hold the V/M button more than 2 seconds to save and exit.**
  - The display will return to VFO mode.

## Switching the VFO and Memory Mode

The operating mode can be changed between VFO mode and Memory mode.

- 1 Press the V/M button.**
  - The operating mode will switch VFO mode and Memory mode every pressing the V/M button.



# MEMORY OPERATIONS

## Erasing a Memory

The memorized frequency can be erased.

- 1 Press and hold the V/M button more than two seconds in VFO mode.**
  - The “MR” icon will appear and Memory Number will be flashing.
- 2 Select a number that you want to erase by rotary knob.**
  - If frequency is memorized then “MR” icon will appear.
- 3 Press and hold the SQL button more than two seconds.**
  - The displayed frequency will disappear.



- 4 Press and hold the V/M button more than two seconds to save and exit.**
  - The display will return to previous VFO mode.
  - If you want to exit without save the erase information, then short press the V/M button.

## Setting the Priority Memory

Memorize a frequency that is most frequently using as Priority Channel. You can recall the Priority Channel easily by pressing the PRI button. The priority channel will be used for the Priority Scan or Priority Watch.

- 1 Select a frequency that you want to make it as Priority Channel by rotary knob in VFO mode.**



- 2 Press and hold the V/M button more than two seconds.**
  - The “MR” icon will appear and Memory Number will be flashing.



- 3 Press the PRI button.**
  - The Memory Number will change to “PR”.



- 4 Press and hold the V/M button more than two seconds.**
  - The Display will return to VFO mode.

# MEMORY OPERATIONS

**Note:**

It is available to memorize as priority channel if displaying the “PR” by turning the rotary knob at the step 3.

## Recalling the Priority Channel

The Priority Channel can be easily recalled by just pressing PRI button even when the radio is in VFO mode or Memory Channel mode.

**1 Press the PRI button.**

- The “PR” will appear instead of Memory Number.

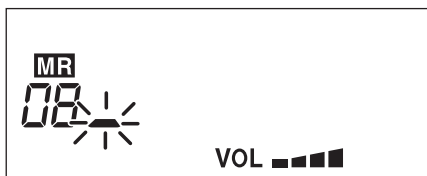
**2 Press the PRI button to return previous display.**

# MEMORY OPERATIONS

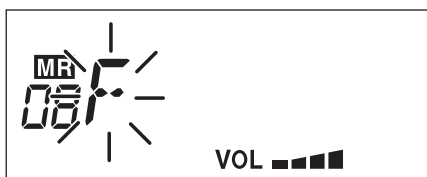
## Naming the Memory Channel (Memory Tag)

You can name the memory channel. The name will be displayed instead of frequency when you recall the memory channel if Memory Tag feature is enabled.

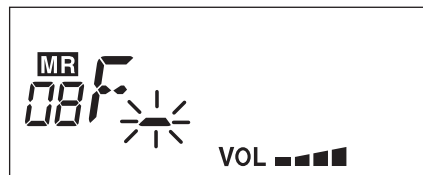
- 1 Press the V/M button during the radio is in VFO mode.**
  - The “MR” icon and the Memory Number will be displayed.
- 2 Select a Memory Number that you want to make a Name Tag by rotary knob.**
- 3 Press and hold the V/M button more than two seconds.**
  - The first digit will be flashing to input first character.



- 4 Select a character by rotary knob.**



- 5 Press the ▲ button to move second digit.**



- 6 Enter the name tag by repeating the step 4 and 5.**
  - It is available to enter maximum 6 characters.
  - If pressing the ▼ button then the entering digit will be backward.
- 7 Press and hold the V/M button more than two seconds to save and exit.**
  - If you want to exit without save the tag information, then short press the V/M button.
  - The radio will return to previous condition.

### Note:

- You can use following characters as the Name Tag; 0 to 9, A to Z, /, \_, ., +, \*, <, >, \$, & and Space
- To delete the Name Tag, select the named memory number then press and hold the SQL button more than two seconds.

# MEMORY OPERATIONS

## Setting the Lockout Memory Channel

This section indicates how to delete (lockout) a memory channel from the memory scan list.

- 1 Press the V/M button during the radio is in VFO mode.**
  - The “MR” icon and the Memory Number will appear on the LCD.
- 2 Select a Memory Number that you want to skip for Memory Scan by rotary knob.**
- 3 Press and hold the Rotary Knob more than two second.**
  - The “LOCKOUT” icon will appear on the LCD.



- 4 Press the V/M button to exit.**
  - The radio will return to previous VFO mode.

### Note:

If you want to cancel the Lockout, then press and hold the rotary knob more than two seconds at the step 3. The “LOCKOUT” icon will disappear.



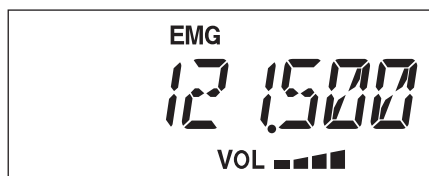
# ADVANCED OPERATION

## Emergency Call

It is easily recall an Emergency Channel (121.5MHz) when the radio is in VFO mode, Memory mode and on the Priority Channel.

**1 Press and hold the PRI button more than two seconds.**

- The “EMG” icon and frequency “121.5MHz” will be displayed on the LCD.



**2 Press and hold the PRI button to return previous display.**

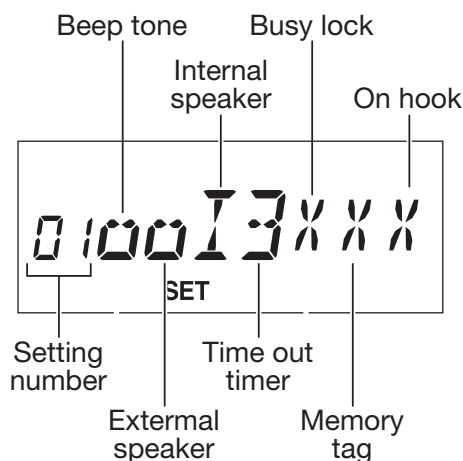
## Changing the Settings

The following functions can be changed;

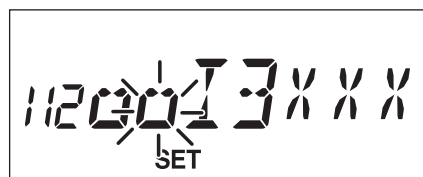
Beep tone, External speaker setting, Internal speaker setting, Time out timer, Busy lockout, Memory tag, On hook

**1 Turn the radio ON with press and holding the V/M and SQL button.**

- The “SET” icon with setting status will be displayed.



**2 Select a desired function that you want to change by rotary knob.**



- The selected item will be flashing.

**3 Press the rotary knob to change the value.**

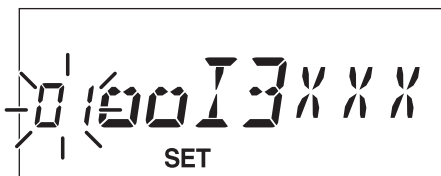
**4 Turn the radio OFF after the changing completed.**

# ADVANCED OPERATION

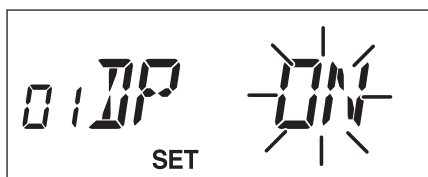
## Changing the Each Settings

The each setting can be changed individually.

- 1 Turn the radio ON with press and holding the V/M and SQL buttons.
  - The "SET" icon with setting status will be displayed.
- 2 Select the setting number (and the number becomes flashing).

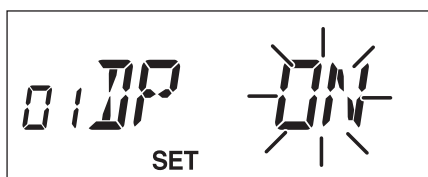


- 3 Press the rotary knob.

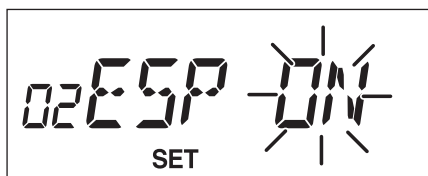


- The individual setting will displayed.

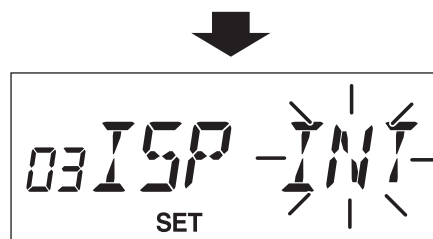
- 4 Press the rotary knob to get desired change.



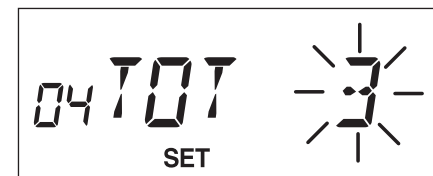
Beep tone



External speaker setting



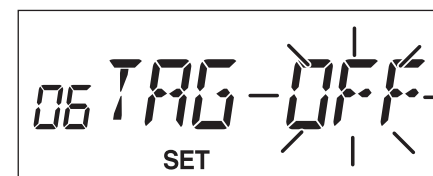
Internal speaker setting



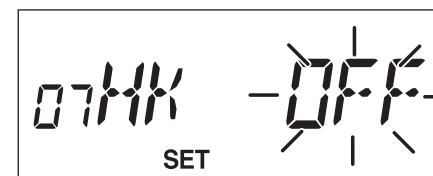
Time out timer



Busy lock out



Memory tag



On hook function

- 5 Turn the radio OFF after the changing completed.

# APPENDIX

Please contact your dealer about installation.

---

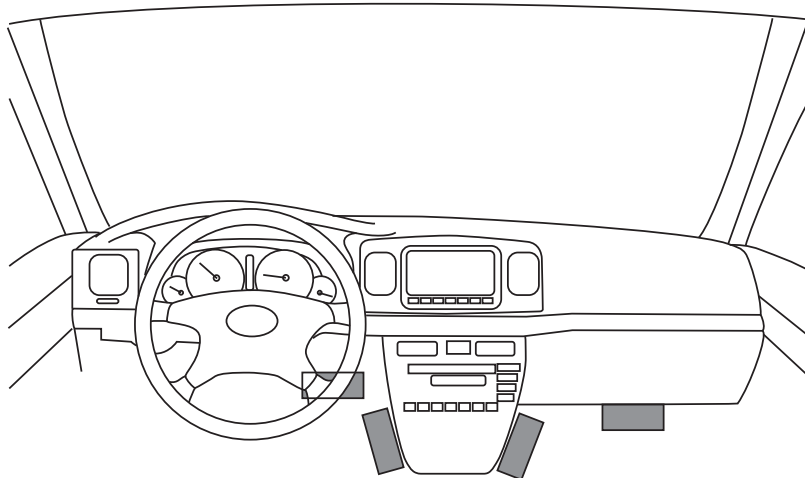
## Connecting

---

### Installing place

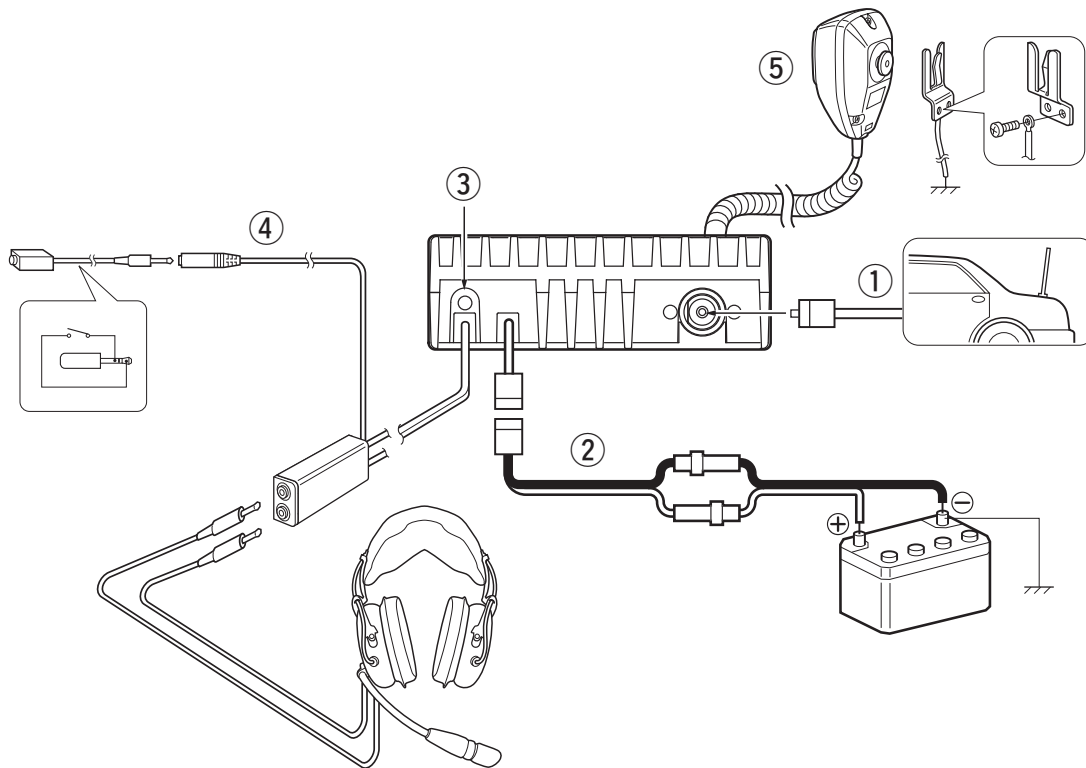
---

The radio must not be installed in the place where driving is obstructed.



# APPENDIX

## Connections



### ① Connect an Antenna and the Antenna Connector

- The Antenna that has PL-259 type connector (50ohms, SWR: less than 3) is available to connect.

### ② Connect Power Cable to Battery of the vehicle

- The available voltage of the Battery is 12V or 24V, do not connect the other type.

### ③ Connect a Speaker (3rd party's one) to External Speaker Jack

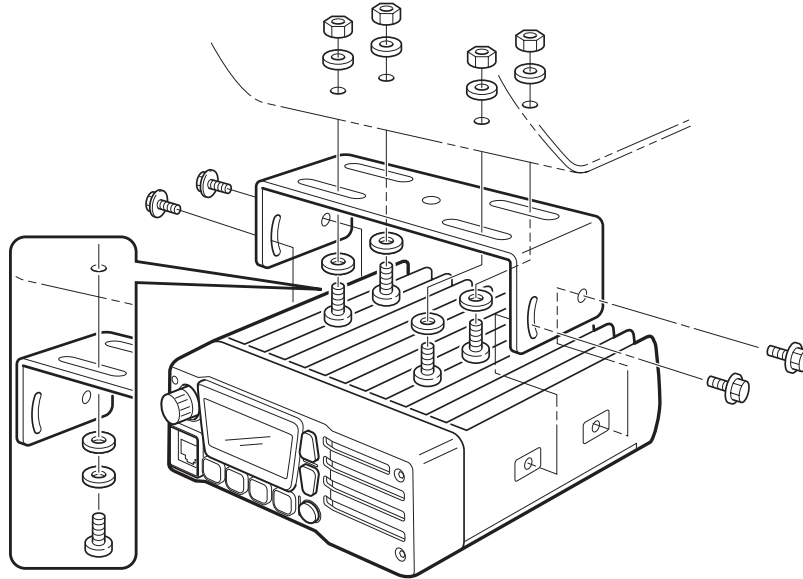
- The available impedance of the speaker is 8 ohms, and the rated input power must be more than 10 W.

### ④ Connect the Headset (supplied by 3rd party) to Optional Jack.

### ⑤ Connecting the Microphone hanger to earth of the vehicle enables Microphone Hanger function.

# APPENDIX

## Mounting



The radio can settle on/under the dashboard using supplied bracket.

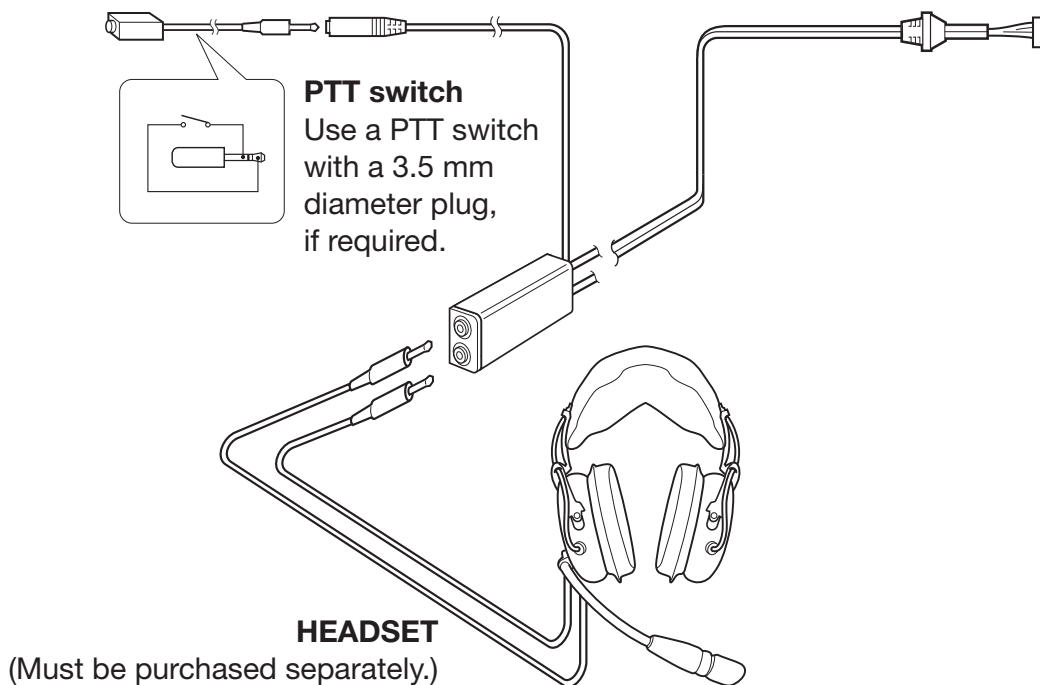
- The bracket must be fixed with supplied screws.
- Otherwise the bracket cannot be fixed tightly or inside of the radio may get serious damage.

# APPENDIX

## Optional Headset Adapter

When using an optional headset, such as those from the David Clark Co. via the adapter, the transceiver outputs your transmitted voice to the headset for monitoring.

### Connection

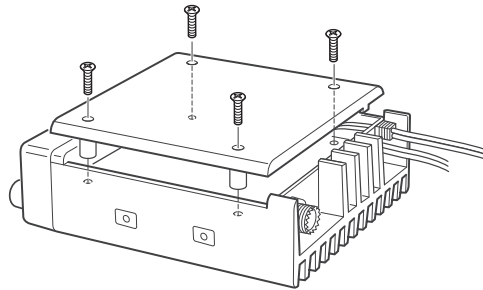


# APPENDIX

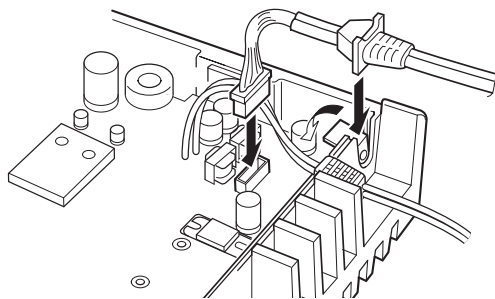
## Installation

The optional HEADSET ADAPTER install as follows.

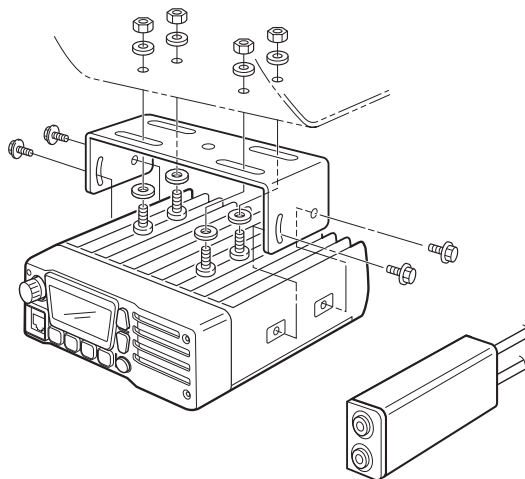
- ① Turns the power OFF, then disconnect the DC power cable.
- ② Unscrew the 4 screws, then remove the bottom cover.



- ③ Insert the connector as shown below.



- ④ Mount the phone plug attachment together with the mobile mounting bracket with 2 supplied screws.



# APPENDIX

## Specifications

### General

Frequency range:.....	118.000 to 136.975 MHz
Channel spacing:.....	*8.33 kHz / 25 kHz
Mode:.....	AM (6K00A3E)
Number of memory channels:.....	99
Acceptable power supply:.....	13.8 V or 26.4 VDC (Negative ground only)
Usable temp. range:.....	-30 °C to +60 °C
Frequency stability:.....	+/- 5 ppm
Current drain:.....	TX: 6 A (max), RX: 6 A (max), Standby: 260 mA
Dimensions:.....	W 150 X D 190 X H 50 (mm)
Weight:.....	1700 g

### Transmitter

Output power:.....	9 W (carrier) typical, 36 W (P-P)
Modulation:.....	Last stage modulation
Modulation limiting:.....	70 to 100%
Audio harmonics distortion:.....	Less than 15% (at 85% modulation)
Hum and noise ratio:.....	More than 40 dB
Spurious emissions:.....	-16 dBm or less
Antenna impedance:.....	50 $\Omega$

### Receiver

Receive system:.....	Double conversion superheterodyne
Intermediate frequency:.....	1st : 38.85 MHz (Upper) 2nd : 450 kHz (Lower)
Sensitivity (at 6dB S/N):.....	Less than 1uV
Squelch sensitivity:.....	0.5uV (Threshold)
Selectivity	
25 kHz channel spacing:.....	More than $\pm 8$ kHz (at 6 dB) Less than $\pm 25$ kHz (at 60 dB)
*8.33 kHz channel spacing:.....	More than $\pm 2.778$ kHz (at 6 dB) Less than $\pm 7.37$ kHz (at 60 dB)
Spurious response rejection:.....	More than 60 dB
Audio output power:.....	More than 15 W (at 4 $\Omega$ )
Side tone:.....	More than 100 mW (at 600 $\Omega$ )
Hum and noise:.....	More than 25 dB
Audio output impedance:.....	External. Speaker 4 $\Omega$ (4 to 8 $\Omega$ ) Side tone 600 $\Omega$

\* Except USA version



# APPENDIX

## Frequency List (Example of Frequency Versus Display when Using 8.33 kHz Step)

Operating Frequency	Channel spacing (kHz)	Displayed Frequency
118.00000	25	118.000
118.00000	*8.33	118.005
118.00833	*8.33	118.010
118.01667	*8.33	118.015
118.02500	25	118.025
118.02500	*8.33	118.030
118.03333	*8.33	118.035
118.04167	*8.33	118.040
118.05000	25	118.050
118.05000	*8.33	118.055
118.05833	*8.33	118.060
118.06667	*8.33	118.065
118.07500	25	118.075
118.07500	*8.33	118.080
118.08333	*8.33	118.085
118.09167	*8.33	118.090
118.10000	25	118.100
118.10000	*8.33	118.105
etc		

The display at 136.9750MHz (with 8.33 kHz step) will be “136.980”.

\* Except USA Version.

# APPENDIX

## Supplied Accessories

(1) MP1000 Microphone .....	1
(2) Microphone hanger and screw set.....	1 set
(3) Microphone cable .....	1
(4) DC power cable (3 m(1 ft))with 10A Fuse .....	1
(5) Mounting bracket kit.....	1
Mounting bracket.....	1
Bracket bolt.....	4
Mounting screw .....	4
Self-tapping screw .....	4
Flat washer.....	4
Spring washer.....	4
Nut.....	4

## Limited liability warranty

---

Flightline warrants this product to be free from defects in materials and workmanship for 1 year from the date of purchase or the minimum period described by applicable consumer law.

If the unit is installed by an organization which holds an avionics installation approval from the FAA, and that organization has co-signed and dated the warranty card, the warranty period shall be deemed to commence from the date of installation.

The customer shall be responsible for any transportation costs for return of this product to Flightline.

This warranty does not cover failures due to abuse, misuse, accident, unauthorized alteration, or repairs carried out by parties other than Flightline or an approved Flightline service center. This warranty does not cover failures where the product has not been installed or operated, in accordance with the provisions of the User and Installation manual(s).

It shall be at Flightline sole discretion to decide if a defect is a result of material or workmanship failure.

**THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING ANY LIABILITY ARISING UNDER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUARY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE, AND COUNTRY TO COUNTRY. IN NO EVENT SHALL FLIGHTLINE BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT.**

Flightline may at its discretion, refer product returns for repair or service, to a service facility closest to you. Flightline reserves the right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion.

**SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.**

Supplied by

## **Flightline**

12830 E. Mirabeau Parkway  
Spokane Valley, WA 99216  
Toll free tel.: 1-800-235-3300  
Toll free fax: 1-800-828-0623  
<http://www.edmo.com>

***Flightline 2009***

All Rights Reserved

Printed in Japan April 2009

00M70AC851010