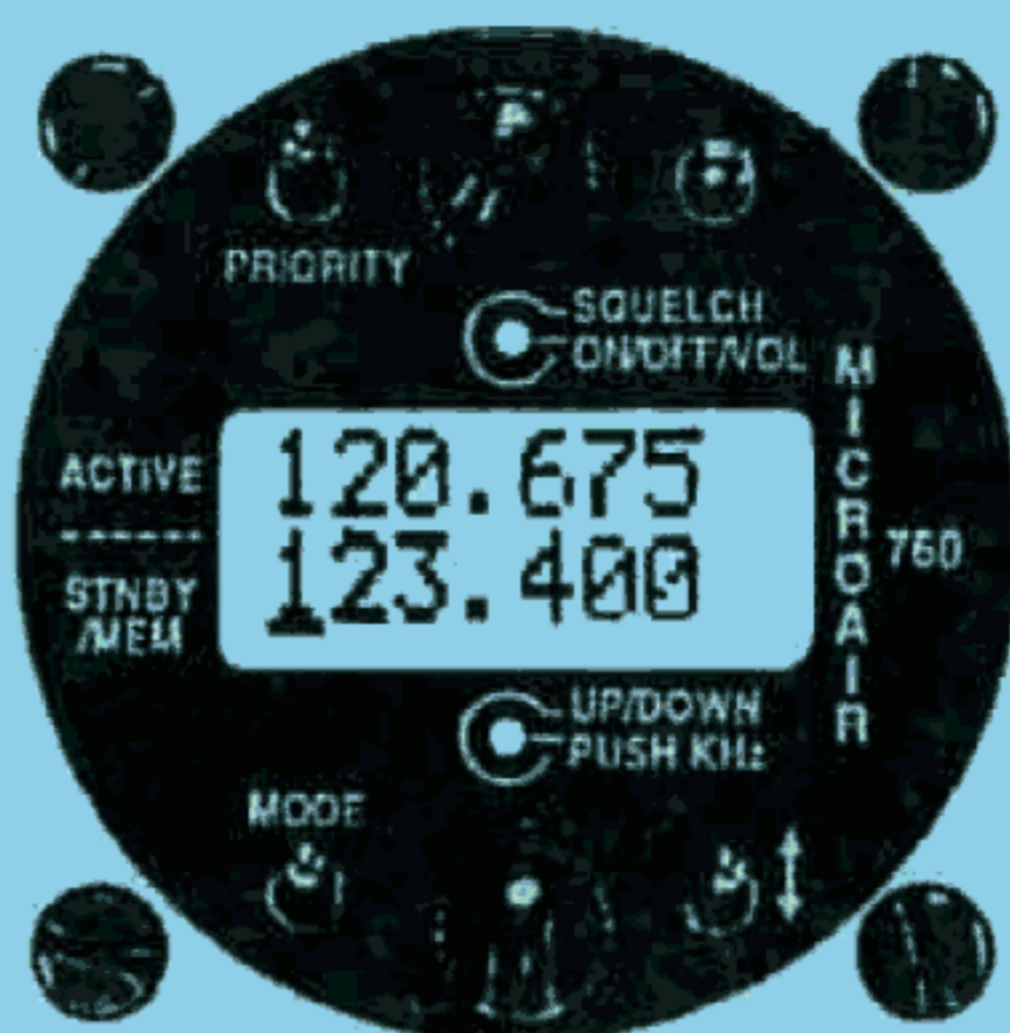


# Microair Avionics

## 760 Channel VHF Aviation Transceiver

### Installation / Operation Instructions



## Microair 760 UNIPAK

### Aviation Unicom VHF Base Station and Portable

**Microair Avionics Pty. Ltd.**  
Airport Drive (Postal Box 5532)  
Bundaberg West, 4670  
Queensland  
Australia

**Ph: (61) 7 41553048 Fax: (61) 7 41553049**  
**Email Sales: [sales@microair.com.au](mailto:sales@microair.com.au)**  
**Email Support: [support@microair.com.au](mailto:support@microair.com.au)**

Owners Name:

.....

Serial #.....

Revision K 01/2000

# **ATTENTION! READ ME FIRST**

**REFER TO THE REAR COVER OF THIS PUBLICATION FOR OUR WARRANTY POLICY.**

**Advice to the installer/ user.**

**NOTE -There are no user replaceable parts inside the Microair 760, if the radio fails it must be returned to a Microair approved repair facility.**

- **The Microair transceiver has been factory preset and in most cases should be correct. Do not make any adjustments that are not stated in this manual as this can completely upset the calibration of the transceiver rendering it useless and requiring factory recalibration which is not covered under the warranty.**
- **Do not attempt to field adjust the modulation or TX Power of this transceiver, these adjustments must be done in an approved workshop.**
- **This is a 12-volt DC radio, voltages greater than 16 volts DC or AC voltage will destroy it. Ensure that the supply voltage is regulated and does not fall below 10.5 volts DC or exceed 16 volts DC.**
- **When making adjustments to the transceiver, ensure that you are not on an occupied channel.**
- **Do not transmit on 121.5, as this is the international distress frequency.**
- **Do not transmit into an unterminated antenna line, a suitable antenna must be connected. If you do so you may damage the radio.**
- **Speaker impedance must be either 4 or 8 ohms (4 ohms preferred) at least 5 watt.**
- **Use electret or amplified dynamic microphones only. Non amplified dynamic microphones will not work with this transceiver.**

## **About this document.**

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

Service letters and other update information can be found on our web site located at [www.microair.com.au](http://www.microair.com.au)

Microair Avionics does not accept liability for any error or omission.

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# **1 INTRODUCTION**

Thank you for purchasing this quality product from Microair Avionics.

This transceiver has been designed and manufactured specifically for Sailplanes, Ultralights, General Aviation Aircraft and Helicopters with size and power consumption as the main considerations. 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 and safe flying!

Please record your serial number on the front of this document for future ease of reference.

## **2 INSTALLATION INSTRUCTIONS**

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

## **3 INSTALLATION CONSIDERATIONS**

As with all aircraft radios successful communications start with the installation. After unpacking the transceiver check off the parts list. Select a suitable mounting area within a maximum 30-degree viewing angle, select a suitable section for operation of ancillary controls (backlight switch, intercom etc).

The use of aviation quality shielded wire 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 12-14 volt battery system and protected by a circuit breaker or inline fuse. (Not 24 volts or AC from a Rotax lighting coil).

**NOTE -There are no user replaceable parts inside the Microair 760, if the radio fails it must be returned to a Microair approved repair facility.**

## **4 GENERAL**

The following section is a general guide for aircraft installations. Use shielded aviation quality wire where ever possible.

If this radio is to be installed in a motor glider or ultralight ensure that the ignition leads and electronic ignition are shielded. This will reduce ignition noise considerably. The Microair 760 has a noise limiting circuit incorporated and works well in most cases however two stroke interference can be difficult to suppress.

Most ultralights, like sailplanes suffer from space restriction. Locate the transceiver with a good viewing angle and ensure that it is protected from rain (No liability is accepted for water damage).

As nearly all Ultralights that use two-stroke engines can have ignition noise ensure that all engine high voltage cabling is shielded and grounded. There is almost certainly some background ignition noise with these engines, however, the Microair noise limiter will eliminate nearly all of the noise (except for levels around 5uv). Also ensure that you use a good quality regulator/rectifier and battery system otherwise damage may occur.

The Microair 760 intercom has been proven to work well in most installations and should prove satisfactory. Remember that this is a hot mike system and uses the Sidetone feature of the radio and therefore may pick-up some ambient noise. A good microphone muff will help eliminate this problem. If this is unsatisfactory a VOX intercom can be used in conjunction with the Microair 760 however we would encourage to try the inbuilt capability first.

The external memory toggle switch which when fitted (normally on the control column) makes changing frequencies easy and allows the pilot to scroll through the memory channels and select scan without reaching for the main channel controls on the radio. This is particularly useful for the rear pilot or instructor in tandem Ultralights or for Helicopter/Gyroplane pilots.

Choose which options you wish to install and preplan your wiring requirements. For example the intercom is an option, if you have a single seat aircraft it will not be required. If you have a two seat aircraft you have the choice of either hard wiring it so that it is on all the time or via an on/off switch. If you want to have the intercom on all the time simply link pin 5 to ground

You have the choice of either not having the backlight wiring, wiring it so that it is on all the time or via an on/off switch. If you wish to have the backlight on all the time simply link pin 8 to pin 9/10 however note that the backlight will be on even although the radio is turned off and unless you wire the radio via a master switch and remember to turn this off your battery will go flat.

## **5 COMMENCING INSTALLATION**

### **5.1 Parts Supplied**

Check through the supplied parts. You should have the Transceiver, this manual, a 15 pin DB female connector and the back shell. You will need to supply wiring, fuse or circuit breaker and antenna.

### **5.2 Installation Options**

#### **MD-01 Dynamic Microphone Amplifier Module**

**NOTE:** A non amplified dynamic microphone will not work with this product. The Microair 760 requires either an amplified dynamic or electret microphone. For users who wish to use an existing non amplified dynamic microphone order part number MD-01 and connect as per drawing shown in 5.7.

#### **MIC-40 Boom Microphone**

The Microair MIC-40 flexible boom microphone is perfect for all types of gliders and sailplanes. It features an electret microphone insert and mic muff on one end and a mounting bracket on the other to permit mounting on a flat surface such as the cockpit side wall. The boom is flexible yet rigid enough that it can be positioned as required and will not droop. The boom is 40cm long. White wire connects to pin 1 or pin 3 of the radio and the shielding to pin 2.

#### **RB-01 Switching Module**

Allows the interfacing of a second COM, UHF, CB or music source and one microphone to be active with the other defeated and also instructor over-ride capability. Instructor over-ride capability means that only one of two microphones is activated at a time and should the Student (P2) be making errors in his transmission the instructor (P1) can press his transmit button and this will cancel the P2 transmission allowing the instructor to override the P1 transmission.

#### **RB-02 Switching Module**

Allows one microphone to be active with the other defeated and instructor over-ride capability as per the RB-01 above but without the capability of a second COM facility. Both the RB-01 and RB-02 are designed to mount on to the rear of the Microair 760 VHF Transceiver, aircraft wiring solders onto the tags at the bottom of the module. (Without a relay circuit, either RB series or installer made, both mikes are active when the PTT is depressed!)

## MB-01 Mobile Mount bracket

The mobile mount bracket permits the Microair 760 to be mounted under the dash of the vehicle/aircraft and is ideal for vehicles with space limitations.

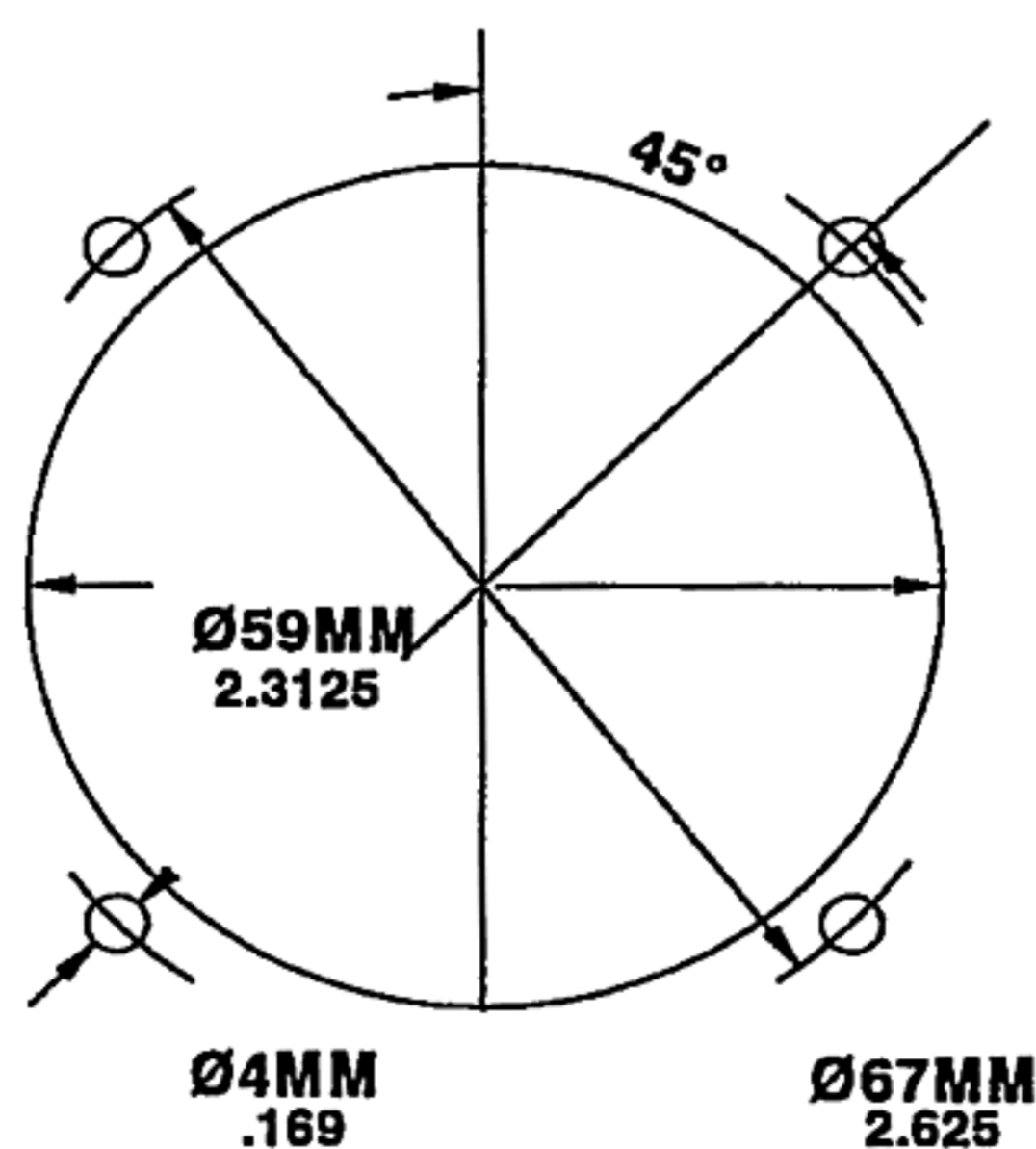
### 5.3 General

The following information is provided as a guide for installation in uncertified aircraft. If the Microair 760 is to be installed in a certified aircraft, installation must be undertaken by a certified/authorized installer.

### 5.4 Mechanical installation

- Carefully measure the proposed mounting site for sideward and rearwards clearance. Allow for rear cabling and connectors. Use the hole template supplied to carefully drill a 58mm hole.
- Drill the 4 mounting holes (4mm).
- These mounting holes support the weight of the transceiver and should not be oversized. Install the radio using the supplied screws fitted to the radio.
- Run all the wires that will be required for your particular installation.

**Radio hole cutout dimensions (drawing not to scale)**



## 5.5 Pin connections

Pin No.	Function
1	Microphone Electret
2	Microphone ground
3	Microphone Electret
4	NOT USED
5	Intercom (ground to activate)
6	NOT USED
7	Press to talk (PTT) (Microphone Key – ground to activate)
8	LED backlight (+12VDC)
9	Positive 12VDC
10	Positive 12VDC
11	Negative ground
12	Negative ground
13	Memory change (ground to activate)
14	Headphone output
15	Speaker output

**NOTE:** Connections which are not required for your installation may be left unterminated

**If you are installing any options refer to the documentation with the product prior to commencing installation.**

**Note:** If you intend using a non amplified dynamic microphone you must provide amplification. Order part number MD-01 Amplifier, if required.

## 5.6 Electrical installation

Having chosen the location to mount the transceiver and determined which options you wish to install the following is a simplified installation procedure which if followed carefully will result in a successful installation.

**NOTE:** You should not attempt this installation if you do not possess the skills or tools.

### Recommended materials

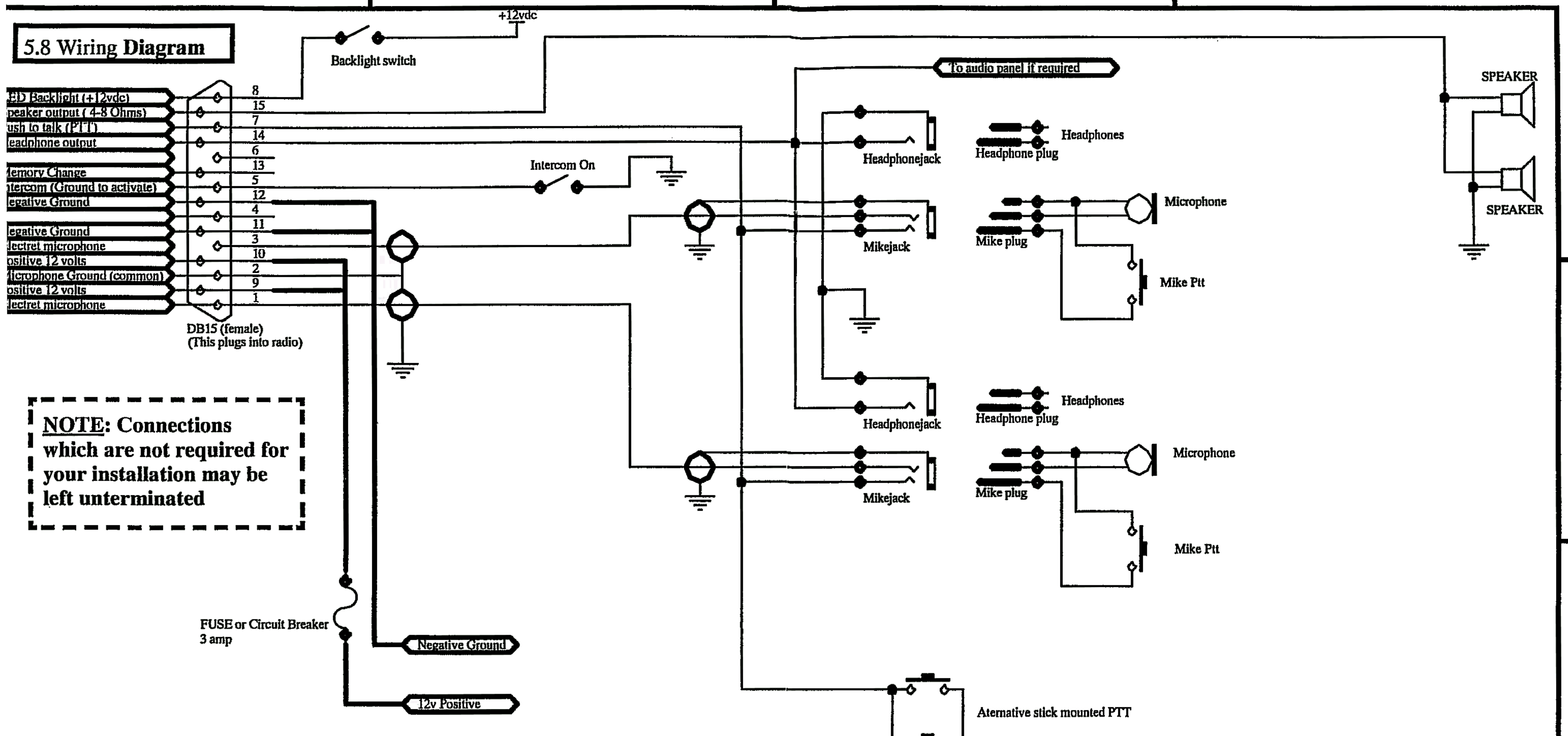
- Three core shielded wire for Mic/phones connections
- Single core shielded wire for Press To Talk/s, Memory toggle, Speaker output, Intercom On/Off
- Red wire for positive supply and backlight
- Black wire for ground
- Momentary on push button/s for PTT
- Momentary on switch for remote memory toggle



1. Connect the positive (12 +VDC) power wire (normally red) to pins 9 and 10. Note because of current requirements it is essential that the connection be made to both pins otherwise problems may arise. **The transceiver must be connected to the aircraft power via a circuit breaker and through a radio master switch, not direct to the battery. Do not connect to power until installation is complete.**
2. Connect the negative (-VDC) ground wire (normally black) to pins 11 and 12. Note because of current requirements it is essential that the connection be made to both pins otherwise problems may arise. **The ground wire must be connected to a good clean contact that provides a ground path to the complete aircraft.**
3. Connect the microphone audio positive to pin 1 and ground to pin 2. If two microphones (or headsets) are to be used the second microphone audio positive should be connected to pin 3 and the ground to pin 2. It is recommended to use shielded wire for the microphone circuit to avoid interference and distortion.
4. Connect the phones audio positive to pin 14 and the phones ground to pin 11/12. It is recommended to use shielded wire for the phones circuit to avoid interference and distortion. Three core shielded wire can be used permitting one conductor to be used for mic audio, one conductor for phones audio and one conductor for ground. The shielding should only be connected to ground at the radio end and insulated at the mic/phones end.
5. Install the press to talk (PTT) using single core shielded wire, connect the conductor to pin 7 and the shield to ground on pin 11/12. **NOTE: two press to talks can be connected in parallel if required. The PTT must be a momentary on switch or push button.**
6. If the remote memory change option is required use single core shielded wire, connect the conductor to pin 13 and the shield to ground on pin 11/12. **The memory toggle must be a momentary on switch.**
7. If intercom capability is required it may be desirable to install a On/Off switch. Use single core shielded wire and connect the conductor to pin 5 and the shield to ground on pin 11/12.
8. If a speaker output is require use single core shielded wire and connect the conductor to pin 15 and the shield to ground on pin 11/12. It may be desirable to include a On/Off switch in this circuit. **NOTE: not recommended in high noise aircraft.**
9. Connect the backlight switch using 2 wires, one to +12volts and the other to pin 8. The switch is wired center conductor to common and the other side to +12v. **THIS IS NOT A MOMENTARY SWITCH,** it needs to be switched on or off.

You may have noted that nearly all switch connections are to ground (except for the backlight), this was done to simplify wiring and avoid any possible shorts to positive voltages!

# 5.8 Wiring Diagram



**NOTE: Connections which are not required for your installation may be left unterminated**

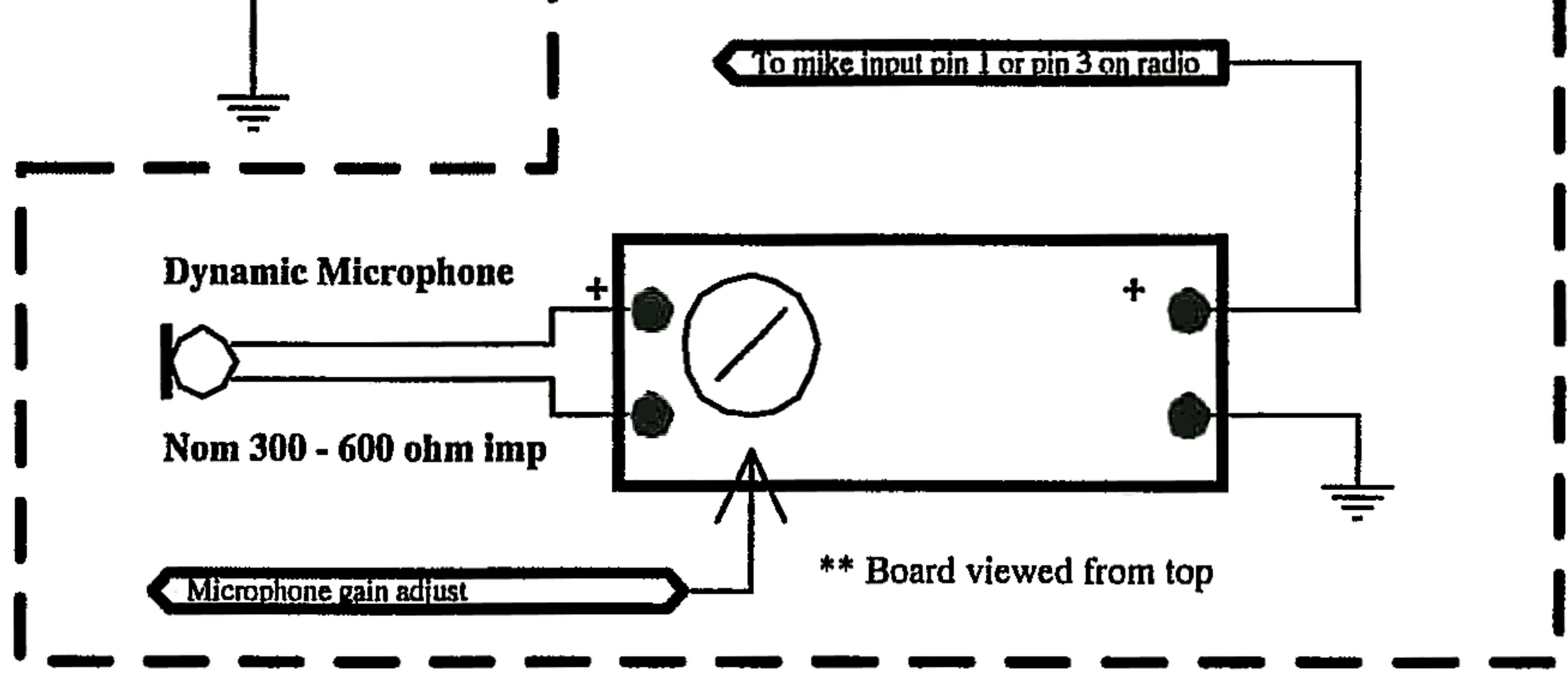
This diagram shows the standard basic wiring connections for the Microair 760 VHF Transceiver using a hot microphone intercom with an on/off switch. When the radio is wired as per this drawing both mics are active during transmitting.

Microair have optional switching modules available to allow the activation of individual microphones P/N RB-01 and RB-02, please refer to section 5.2 for further details. Please refer to individual options for their interface documentation.

If you wish to use an existing non amplified dynamic microphone order P/N MD-01 to adapt your microphone to the Microair 760. Use of a non amplified microphone without this option will not work.

Due to the many interface options available professional advice should be sought if you need to deviate from this information.

## Optional Dynamic pre amp module (MD - 01)



## **5.7 Antenna Installation and Tuning**

You should possess a reasonable knowledge of antenna installations and the importance of ground planes before attempting the following.

**NOTE: In certified aircraft approved antennas must be used.**

Trimming of antennas requires some knowledge, when cutting a 1/4 wave vertical care must be taken not to cut too much off. When cutting if the SWR falls then proceed till a reading of better than 1:5:1 is achieved. If after cutting the reading rises, stop immediately. If the reading is high and it makes no difference what you then check the cable and connector for shorts or open circuits. An SWR of <1:5:1 is desirable.

Tuning must be done using a VSWR meter covering the VHF band 118-137 MHz (not a CB radio type) to measure the ratio of forward to reflected power. The lower the SWR reading the higher the output and the consequence being an effectively radiated signal. High SWR readings degrade performance and can cause damage.

## **5.9 On air testing**

Before transmitting check all connections and switch on. Operate controls as per section 6. A simple on air test for audio quality on transmit and receive should be done.

Have someone monitor your signal on another radio. Transmit and speak into the microphone at normal voice level. If the received signal is quiet then the mike gain control will need to be adjusted. If the signal is loud and distorted then it will need to be turned down. These adjustments should be done on a comms test set with on air monitor for modulation monitoring.

Have the other radio transmit a test call and monitor the audio quality. With the volume control up 3/4 the audio should be loud and not distorted. A distorted signal could be the choice of speaker. A 5-watt speaker is recommended as a minimum power rating. Set the squelch and have the station transmit, the squelch should break crisply and without delay.

## **MD-01 Dynamic Microphone Amplifier Adjustment**

Whistle into mike and adjust gain with your mouth 2 or 3 inches from the mike (in gliders only) or closer if used in a powered glider or aircraft. Monitor your whistle on another radio and ensure that your voice is not too loud or distorted.

When finished making adjustments slip the supplied heat shrink over the module and apply gentle heating (hairdryer etc) to shrink the sleeving over the module.

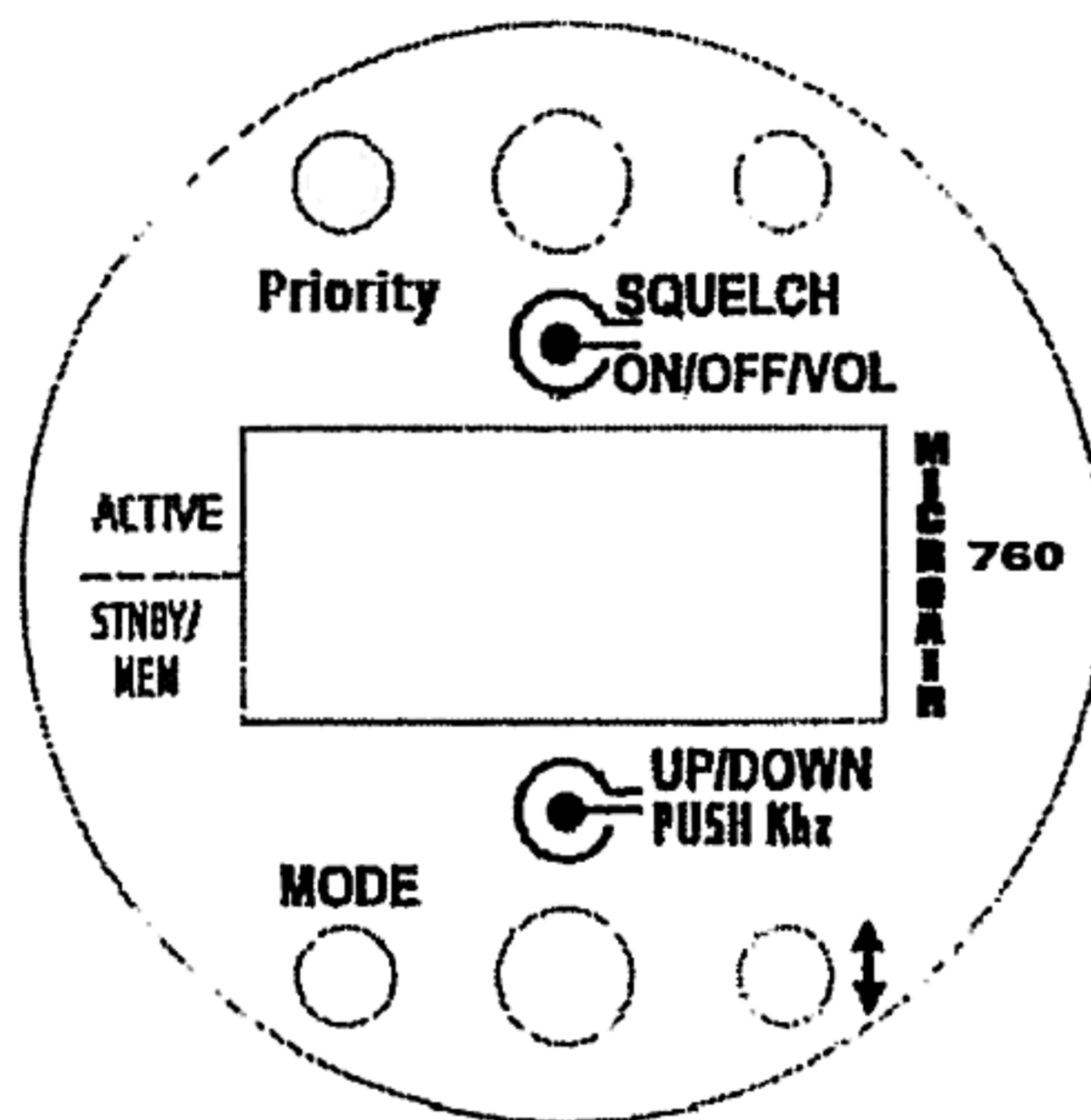
## **6 OPERATION OF EQUIPMENT**

### **6.1 General**

Please read this section for the correct description and operation of this equipment.

### **6.2 Control Description**

Following diagram shows the position of the controls.



**Volume and On/Off control:** Turn fully anti-clockwise to switch off. Turn clockwise to switch on and adjust volume up.

**Squelch (mute) control:** This outer ring control adjusts the mute threshold. Clockwise for up or closed.

**Priority:** Activating this control will switch to memory location 25. It also doubles as memory channel delete.

#### **LED Indicator.**

- A clear display indicates a muted receive condition.
- Steady green indicates Squelch open or a signal present.
- Steady red indicates a transmit condition.
- Flashing red indicates that the PTT has been on for longer than 40 seconds. (This is helpful for indicating a possible jammed PTT switch, which can interfere with others and flatten your battery).

**Mode:** selects 3 display pages.

- a Default is 2-line frequency display. The top line is the active frequency. Bottom line is the change or Stnby (standby) frequency. Turning the knob left or right will change the Mhz (121, 122, 123 etc) Press the knob once to activate the kHz change (025,050,075 etc) the cursor will underline the KHz, (after 5 seconds of inactivity it will revert to Mhz). To transfer the standby frequency to the active simply hit the transfer (arrowed switch) once. The active and standby frequencies will now have switched over. Remember the top line is always the **active frequency**.
- b Push mode again to access the memory display- there are 25 memory channels that can be displayed. Turn the knob left or right to move the channels up or down. To scan hit the arrow key. To stop scanning hit the arrows or activate the PTT. Note: if the memory channel is empty it will not be displayed.
- c Push in the mode again to display the memory-programming page.

**External memory toggle:** In the active/stnby mode it acts as a flip flop switch, in memory screen it toggles up by one or hold down for 3 seconds and it will enter scan.

### **6.3 Memory programming**

- 1 Press the MODE switch until PROG appears.
- 2 Use the knob on the bottom of the radio to change the MHz to the desired frequency.
- 3 Press the same knob in once and note that the cursor has jumped to underscore the kHz digits and rotate the knob to select the desired frequency. Note if you do not change this within 5 second the cursor will change back to the MHz position.
- 4 Press the same knob again and the cursor should now be underscoring the channel number. Select the desired memory location to insert the frequency. NOTE that memory 25 should be used for an emergency frequency as this is accessed by the priority switch.
- 5 Press the arrow switch for 1 second and the word STORE should appear indicating that it has been stored into memory.
- 6 Repeat the above for other memory channels. Up to 25 channels can be programmed. Only programmed channels will be displayed.
- 7 To delete a channel, select the channel number to delete, hold down the priority switch and the word CLEAR will be displayed indicating that that channel has been removed. NOTE The channel numbers will remain displayed until you exit the programming mode, remember to select a programmed channel before exiting. To verify press the mode switch to cycle through flip/flop to the MEM display and rotate the knob to see the remaining memory channels.

### **6.4 Operation of intercom**

Operation of the intercom is simple. The intercom uses the radio sidetone facility and the intercom switch simply enables or disables the hot mike intercom. Use optional Microair relay board for Pilot/Co pilot switching if required, Part No. RB01 or RB02 refer to the documentation supplied with each item for a description. Note: you can transmit whilst the intercom is on, there is no need to switch it off before transmitting.

Although the radio has been fully tested and set at the factory adjustment of the sidetone volume and microphone gain may be required to set the correct levels for your combination of equipment and aircraft. In a noisy environment reducing the microphone gain may also be required. Only make very small adjustments to these settings. **Do not adjust any other setting as this will void the warranty!** A wind sock over the mike will also help reduce noise.

## **7 SPECIFICATIONS**

<b>Type</b>	Amplitude Modulated (AM) Aircraft Transceiver.	
<b>Channels</b>	760 channels, 25 kHz spacing, 118–136.975 MHz	
<b>Frequency selection</b>	VFO dial.	
<b>Frequency Display</b>	2 line alpha numeric LCD display (backlit).	
<b>Frequency control</b>	PLL frequency synthesis, Microprocessor controlled. Memory stored in non-volatile EPROM.	
<b>Memories</b>	25 ( with scan capability)	
<b>Power consumption</b>	Receive (no signal)	86 ma
	Transmit	1.2 amps
<b>Power output</b>	4 watts carrier 12 watts PEP	
<b>Receiver sensitivity</b>	12 dB for 1.0uv 30% Modulation (kHz audio)	
<b>Receiver selectivity</b>	-70 dB	
<b>Squelch Threshold</b>	.6uv to 5uv	
<b>Speaker Volume output</b>	Nominal 5 watts (4 ohms)	
<b>Headset Volume output</b>	Nominal 100 Mw into 600 Ohms	
<b>Temperature range</b>	-30 to +60 degrees C	
<b>Stability</b>	+/- 3.00 PPM	
<b>Dimensions</b>	W-65mm H-59mm D-135mm (plus 35mm for harness ) W-2.6 H-2.3 D-5.3 inches	
<b>Exposed dial face</b>	58mm	2 ¼ inches
<b>Weight</b>	400 grams	19.4 ounces

### **Accessories:**

P/N MD-01 Non Amplified Dynamic Microphone Amplifier

P/N MIC-40 Microair Boom Microphone

P/N RB-01 Microphone relay board and com 2 input (pilot/ co pilot with override, com 2 input with both audio's mixed, Com 1/ Com 2 transmit select.)

P/N RB-02 Microphone relay board with pilot/ co pilot with override.

P/N MB-01 Vehicle mount Bracket.

Antennas

**Note:** An antenna is not supplied as part of your transceiver packaging.

## **Microair 760 UNIPAK Operation**

The Microair 760 UNIPAK is a VHF Aviation Transceiver packaged to provide flexibility of use.

The UNIPAK can be used as:

**Transportable for in-field use** – The UNIPAK with its internal rechargeable battery is light but yet rugged enough to be carried by field personnel anywhere and can be connected to the supplied portable antenna or connected to the users choice of antennas in the field. A test indicator shows the battery condition and the radio has a backlight for night operation.

**Unicom Base Station** – The UNIPAK is ideally suited for use as a tabletop Unicom Base Station occupying minimum space. The standard unit includes the Microair 760 channel VHF Transceiver, Microphone, Internal Speaker, External Speaker connection; General Aviation headset sockets and mains power cable for normal operation. An internal non-spill rechargeable gel cell battery provides backup in the event of a mains power failure and is charged from its internal charging circuit. The UNIPAK can be set on a single frequency or can be programmed to scan up to twenty five memory channels with memory channel 25 dedicated as a priority channel.

### **Front Panel Controls and Facilities**

#### **Power Switch**

Switch UP turns the unit on, down turns the unit off. Switches the radio on from either the AC power, auxiliary 12-volt input or from the internal gel cell battery.

#### **Backlight Switch**

Press in to turn on the backlight, press again to turn off. Note it is suggested when using battery mode to only use the backlight intermittently to conserve power.

#### **Battery Monitor LED**

The battery monitor performs several functions as follows: -

#### **Using AC External Power**

1. The LED will illuminate with a steady green for normal operation  
**IMPORTANT NOTE:** A flashing green indicates there is an overvoltage situation and you should not turn the radio on until the problem has been resolved.
2. A steady green with a double red flash every ten seconds indicates that the unit is charging the internal battery.

**NOTE:** the green and flashing green/red LED will operate when the mains power cord is plugged in and the AC power is on irrespective of the setting of the main ON/Off switch as the AC is internally permanently connected.

### **AC Power Off – using the internal battery**

1. During normal internal battery operation there are no LED lights displayed when the battery is charged to conserve battery power.
2. When the battery voltage drops to less than 11.0 volts DC the LED will light up a steady red. It is recommended that you charge the unit when the LED is red.
3. When the battery voltage drops to less than 10.2 volts DC the LED will flash twice at ten second intervals indicating that the battery voltage is low and that radio operation will be unreliable with possibly garbled transmissions. Use the radio sparingly at this point and charge as soon as possible.

### **Auxiliary 13.8V DC Operation**

With external 13.8VDC power connected there is no LED display. Should you disconnect the external DC power with the UNIPAK on and internal battery voltage of less than 10.2 VDC the LED will flash red twice every ten seconds.

### **Press To Talk**

When using a headset use this to transmit. The LED on the Microair 760 will glow red during transmit.

### **Microphone and Phone Sockets**

The Microphone and Phone sockets are for use with a standard General Aviation headset or the supplied Microair Microphone.

**NOTE:** the UNIPAK is set up for use with an Electret or Amplified Dynamic Microphone; a non-amplified microphone will not work with the UNIPAK.

### **Rear Panel Connections and Operation**

#### **Options Panel**

A DB-15 cutout provides an output mounting for a DB15 connector for custom options, which may be connected to an internal options board (not supplied).



## **External Speaker Selector**

Mounted on the right top of the rear panel the external speaker selector permits the selection of:

Left:	Selects internal speaker
Centre:	Disables both internal and external speakers
Right:	Selects the external speaker

**Note:** The headset phones jack provides audio in any selected position.

## **External Speaker Output 3.5mm Socket**

Provides audio output when the external speaker selector is in the left position. Use a 4-8 Ohm speaker – 5 watts minimum

## **External DC Input**

Consists of a two pin input for the connection of an external DC input which must be rated at a minimum of 1.5 amps current rating

## **External DC Input Fuse**

The external DC input fuse provides protection for the unit. Fuse rating is 3 amps @ 13.8 volts DC.

## **115-240 VAC input**

This connection permits the operation of the UNIPAK from external AC power. Voltage selection is automatic and a field replaceable 2-amp fuse protects the circuit. The connection uses a standard IEC power cord.

## **Power Switch**

Center off position: OFF - Isolates the internal 12-volt battery and the external 13.8 VDC input. Use this position for transportation or when the unit is unplugged from the AC power supply for any period of time. Isolates the mains power from the battery. **NOTE:** in this position the battery is not charged although AC power is available to run the radio.

Switch right: **AC POWER INTERNAL BATTERY** - Selects the internal battery for operation and when connected to the AC power charges the internal battery. **NOTE:** when AC power is applied the unit runs on AC power regardless of this switch position. Placing the switch in the right position permits charging of the battery and this is the normal operating position.

Switch left: AUX – permits that user to run the radio from an external 13.8VDC input source via the two-pin DC input. **NOTE:** this selection does not permit charging of the internal battery, use AC power for battery charging with the switch in the right position.

### **Battery Charging System**

The internal battery charging circuit is a constant current/constant voltage type, which has been designed to charge, sealed lead acid batteries. The UNIPAK may be left connected to the AC power supply indefinitely without risk of damage. In the event of a mains power failure operation will automatically switch to the internal battery. The battery monitor will automatically alert the user to an over or under voltage condition.

If the battery has been completely discharged the unit will normally take 8010 hours to reach full charge regardless if the radio is on or off.

In receive mode with the backlight off and with a 5% transmit duty cycle the unit operate for in excess of 48 hours. As the battery ages the operating time will reduce and it is recommended to replace the battery every 3 years.

### **External ¼ Wave Whip Antenna**

The external ¼ wave whip antenna is designed for field use and may not operate inside buildings.

For use in this mode keep the UNIPAK as far from the operator as possible.

For operation the antenna must be kept vertical.

For base station use we recommend a 3db collinear antenna fed with RG213 or Belden 9913 low loss coaxial cable. The higher you position the antenna the better operation.

**DANGER: RF Energy can be harmful - do not operate close to your person.**

### **Microair 760 Radio Operation**

Please refer to the Microair 760 VHF Transceiver owner's manual for operation of the Transceiver.

## **Limited Liability Warranty**

**If you do not accept this warranty return the product immediately to Microair Avionics Pty. Ltd.**

Microair Avionics Pty. Ltd. warrant that this product to be free from defects in material and workmanship for a period of one year under normal use. Our obligation under this warranty is limited to repair or exchange of the product or any defective part of the product if the product or part is returned to us shipping prepaid.

Due to the substantial number of problems that can arise due to installation errors we do not accept liability for labor charges and service charges for removal, reinstallation and adjustment which are the responsibility of the buyer and are not covered by this warranty. Consequential damages and freight costs are also not covered by this warranty.

This warranty is void should the product be subject to misuse, accident, damage caused by negligence, damage in transit, handling or modification which in the opinion of Microair Avionics Pty. Ltd. has altered or repaired the product in any way that effects the reliability or detracts from the performance of the product.

This warranty is in lieu of all other warranties expressed or implied and neither assumes or authorizes any person to assume any other liability for Microair Avionics Pty. Ltd.

Warranty repairs do not extend the original warranty, the warranty is limited to one year from the date of purchase.

Microair 760 is a registered trademark of Microair Avionics Pty. Ltd.  
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