



MODEL 4001

4 metre FM TRANSCEIVER

OWNERS MANUAL

GENERAL INFORMATION

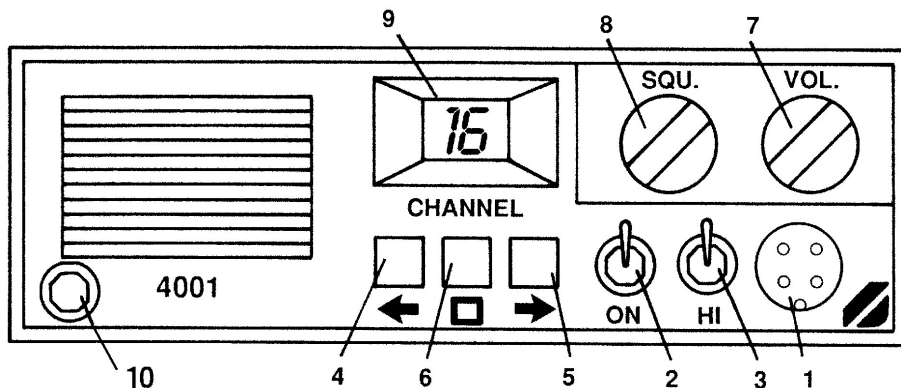
This transceiver has been designed to give excellent performance and reliability provided that it is installed and used correctly.

Please read through this manual carefully, prior to installation and connection to a power source, to ensure that trouble-free performance is achieved. Mis-connections may result in disappointment.

The transceiver has been pre-programmed with all available UK 4 metre FM frequencies in 12.5kHz steps. The range covered is from 70.2500 to 70.4875MHz.

The CHANNEL TABLE shows the frequencies programmed to relevant channels, their usage according to the current Band Plan have been included as a guide.

FUNCTIONS AND OPERATION



- (1) MICROPHONE CONNECTOR** insert plug on fist mike cable and finger tighten locking ring (**DO NOT OVER TIGHTEN**)
- (2) ON/OFF SWITCH** LED Display will be lit when switch is down (**ON**)
- (3) HI/LOW SWITCH** Transmitter power output, **HI=25 watts, LO=5 watts**
- (4) KEY (<-)** Press to roster channel selection down
- (5) KEY (->)** Press to roster channel selection up
When either key is held in for more than 1/2 second, the unit will step up or down continuously until the key is released.
- (6) KEY □** Press to revert to calling channel (**CH16**)
VOLUME Allows adjustment to desired listening level with clockwise rotation.
- (7) SQUELCH** Used to quiet background noise when no signal is being received
- (9) CHANNEL INDICATOR** Indicates channel selected
- (10) EXTENSION SPEAKER** 8 Ohm 2.5mm SOCKET

INSTALLATION

POWER

ENSURE UNIT IS SWITCHED "OFF" WHEN CONNECTING TO POWER SUPPLY.

The transceiver should only be connected to a nominal 12 volt DC supply (or car battery). Excessive supply voltage will damage the unit (see "SPECIFICATIONS")

IN-LINE FUSEHOLDER

Should it be necessary to replace a fuse, use only a 5 Amp quick blow (1.25")

INSTALLATION IN A VEHICLE

- (1) Locate the transceiver in such a position that safe control of the vehicle is not compromised.**
- (2) Select a position that allows a free flow of air around the body of the transceiver.**
- (3) Select a location that avoids exposure to direct sunlight.**
- (4) Route connections (aerial lead, battery wiring) to reduce effects of interference from the vehicle's electrical system.**
- (5) Remember that electronic systems in modern vehicles, e.g. ABS, Engine Management, may malfunction in the presence of strong RF fields. Effects can be minimised by good aerial installation.**

NON MOBILE

Observe the general rules of mobile installation in respect of safety, heat dissipation and electrical connections. Ensure that the power source is capable of delivering 5 Amps without significant voltage drop. Inefficient power sources may cause transmitter malfunction, poor modulation.

TRANSMITTING & RECEIVING

Before operating the transceiver you must have obtained the relevant licence and have access to the regulations covering this type of equipment.

- (1) Properly install the transceiver referring to the installation section of this manual.**
- (2) Switch on the transceiver, Channel 16 will be displayed. Rotate the SQUELCH control (8) fully anticlockwise and rotate the VOLUME control (7) until background noise is heard.**
- (3) Rotate the SQUELCH control clockwise until the background noise is just quietened. Further clockwise rotation of the squelch control will reduce the effective receiver sensitivity.**
- (4) To transmit, press the transmit switch (PTT) on the microphone and speak clearly 6-8cm (3") from the face of the microphone.**
- (5) To receive, release the PTT switch. During periods of transmission the receiver is silenced and reception is therefore impossible.**

70MHz FM MOBILE TRANSCEIVER

MODEL No. 4001

SPECIFICATIONS

GENERAL

MODULATION:	FM
FREQUENCY RANGE:	70.2500 – 70.4875MHz
SUPPLY VOLTAGE:	13.2V +/- 10%
CHANNEL SPACING:	12.5kHz
SPEAKER:	8 Ohm internal
OPERATION TEMP RANGE:	0° - 50°C
FREQUENCY STABILITY:	10ppm over operating temp range

TRANSMITTER

RF OUTPUT POWER (HIGH):	25 WATTS (nominal)
RF OUTPUT POWER (LOW):	5 WATTS (nominal)
SUPPLY CURRENT (HIGH):	4 AMPS
SUPPLY CURRENT (LOW):	1.5 AMPS
CONDUCTED HARMONIC CONTENT:	-70 dBc
AUDIO DISTORTION:	Less than 3%
AUDIO RESPONSE:	6dB/octave 300Hz-3kHz
DEVIATION:	+/- 2.5kHz

RECEIVER

SENSITIVITY:	<0.25μV for 12dB SINAD
ADJACENT CHANNEL SELECTIVITY:	56 dB (for 6dB degradation)
BLOCKING:	90 dB
IMAGE RESPONSE:	70 dB
AUDIO RESPONSE:	6 dB/octave de-emphasis 300Hz – 3kHz
AUDIO OUTPUT:	2 WATTS
SUPPLY CURRENT (Squelch ON):	130 mA

CONNECTIONS

ANTENNA:	S0239
SUPPLY:	In-line fused
PTT MIC:	Front Panel Socket
EXTENSION SPEAKER:	Front Panel Socket 2.5mm

CHANNEL TABLE

CHANNEL No.	Tx/Rx FREQUENCY	DESIGNATION
0	70.2500	
1	70.2625	FM/AM CALLING
2	70.2750	
3	70.2875	
4	70.3000	RTTY/FAX CALLING
5	70.3125	DIGITAL MODES
6	70.3250	DIGITAL MODES
7	70.3375	DIGITAL MODES
8	70.3500	DIGITAL MODES
9	70.3625	DIGITAL MODES
10	70.3750	NOTE (1)
11	70.3875	INTERNET GATEWAY
12	70.4000	NOTE (1)
13	70.4125	INTERNET GATEWAY
14	70.4250	FM SIMPLEX
15	70.4375	DIGITAL MODES
16	70.4500	CALLING CHANNEL
17	70.4625	DIGITAL MODES
18	70.4750	
19	70.4875	DIGITAL MODES

NOTE (1) These frequencies may be used by emergency communication groups.

ANTENNA

A range of aerials is available from a number of manufacturers, including GAREX ELECTRONICS.

It is recommended that you enlist the help and advice from your local Amateur radio dealer in choosing a suitable aerial to meet your requirements. In case of difficulty, we will be pleased to advise.

AERIAL CONNECTION

The aerial socket is mounted on the rear of the transceiver. A type PL259 connector is required on the end of your aerial cable.

Try to keep the aerial feeder as short as possible.

VSWR

It is recommended that a VSWR of better than 1.5:1 is achieved to ensure best performance.

MOUNTING

Due to the many and varied styles and complexities of vehicle interiors the 4001 is not supplied with a mounting bracket.

A mounting bracket kit is available as an optional extra, direct from GAREX ELECTRONICS or other 4001 stockist.

CAUTION

Mounting screws for the transceiver should be M5 thread and must not penetrate the mounting holes provided by more than 3/8" (10mm).

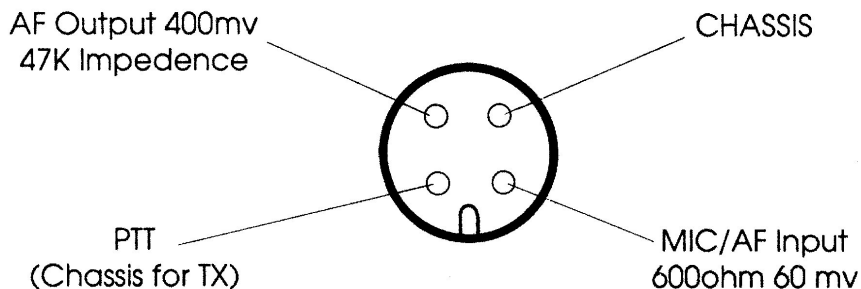
DO NOT DRILL INTO THE CASING UNDER ANY CIRCUMSTANCES.

PACKET, RTTY, etc.

The transceiver may be used for Packet, RTTY, Internet gateway, etc.

Connections are via the microphone socket.

Connection details (looking from the front of the socket) are as follows:



The AF output from the mic socket is unaffected by the volume control setting.

An alternative AF output is available from the **EXTENSION SPEAKER** socket on the front panel. This is high level, low impedance (8 Ohm); the level is affected by the **VOLUME** control.

The PTT line requires connection to the chassis to transmit, current drawn 40mA.

ACCESSORIES

Replacement PIC Microcontrollers are available to allow the transceiver to power up on an alternative default channel. This is useful in Packet and similar modes to ensure that the transceiver operates on the desired channel after a temporary power down situation.

Alternative PICs may be ordered from GAREX ELECTRONICS. The PICs are easily installed by removing the top cover of the transceiver, unplugging the existing PIC from its socket and plugging in the replacement.

MOUNTING BRACKET

A purpose made mounting bracket kit which includes side mounting knobs is available

POWER SUPPLY (NOT GAREX MANUFACTURE)

A bench top type power supply capable of powering the transceiver is available from GAREX ELECTRONICS.

Alternatively, any REGULATED power supply rated 5 Amps at 13.2V DC (+/- 10%) should be suitable.

NOTE: switch mode power supplies often generate wide band interference which can fall into the 70MHz band.

NOTES

**THE 4001 TRANSCEIVER IS MANUFACTURED
IN THE UK**

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