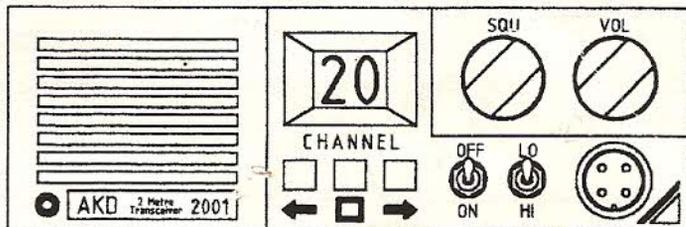


30431



AKD

MODEL 2001

2 Metre Transceiver

OWNERS MANUAL

GENERAL INFORMATION

This Transceiver has been designed to give excellent performance and reliability providing 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.

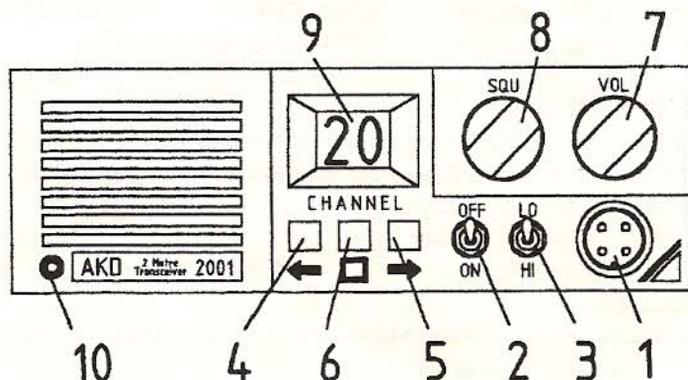
The Transceiver has been pre-programmed with all available UK 2 metre FM frequencies in 25 Khz steps. Channels 90-97 have been programmed as reverse repeater, i. e. Listen on input, Transmit on output.

The simplex ability of the input frequency on channels 60-67, and the simplex of the output frequency on channels 70-77, have also been pre-programmed. Under no circumstances should these be used where repeater operation may be affected.

Please avoid making assumptions about the way in which the transceiver operates, read the manual and be certain that all sections are understood. If you are not sure about a particular aspect, ring our helpline 01438 351710 and we will be pleased to advise.

The attached "CHANNEL TABLE" shows the frequencies programmed to relevant channels. Their usage as per current band plan at the time of this publication have been included as a guide.

FUNCTIONS & OPERATIONS



1 MICROPHONE CONNECTOR Insert plug on fist mike cable and FINGER tighten locking ring. (DO NOT OVERTIGHTEN)

2 ON / OFF SWITCH LED display will be lit when switch down **ON**.

3 HI / LO SWITCH 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 ½ second, the channels will step up or down continuously until the key is released.

6 KEY □ Press to revert to the calling channel **CH 20**

Whilst operating on the repeater channels 00-07 pressing this key will give LISTEN ON INPUT. To revert to normal operation after this facility has been accessed either, press the key again or, press the up or down keys or press the PTT on the mike.

7 VOLUME CONTROL Allows adjustment of the volume to the desired listening level. Clockwise rotation increases the volume.

8 SQUELCH CONTROL Used to quiet background noise when no signal is being received. (SEE NOTE 2 PAGE 4)

9 CHANNEL INDICATOR Indicates channel selected.

10 EXT SPEAKER SOCKET 2.5mm Jack Socket.

INSTALLATION

Always ensure that the transceiver is switched **OFF** when connecting to any power source. (see note in section TRANSMITTING & RECEIVING)

The transceiver should only be connected to a nominal 12v power supply (or car battery). **In no event should the unit be connected to a supply above 13.2 volts nom \pm 10%** (see specifications).

IN LINE FUSE HOLDER

Should it become necessary to replace a fuse, use only a 5 amp 1¼" quick blow type.

INSTALLATION IN A VEHICLE

There are important points to consider when installing your transceiver into a vehicle, which will determine the most suitable location for mounting.

- 1 Ensure the transceiver is located within comfortable reaching distance. Do not mount in a position that would cause distraction to the primary function of safely controlling the vehicle at all times.
- 2 Select a position that allows free flow of air around the body of the transceiver.
- 3 Select a location that does not allow the transceiver to be subjected to direct sunlight.
- 4 Route all connections, including aerial leads, battery wires etc., away from the engine compartment, in order to reduce the effect of interference from the vehicle's electrical system, i.e., Alternator. High Tension leads etc.
- 5 Ensure that connections to the battery from the power cable at the rear of the unit are made with wire of sufficient current capacity, (5 amps).

NON MOBILE

When installing the transceiver in a non mobile situation, have regard to the effects of other instruments and equipment in the vicinity.

Observe the general rules of the mobile installation in respect of electrical connections, heat dissipation, and general safety.

TRANSMITTING & RECEIVING

Before operating the Transceiver, you must have obtained the proper licence and have access to the rules and regulations covering this type of equipment.

IT IS **ESSENTIAL** THAT THE TRANSCEIVER IS SWITCHED ON AND OFF FROM THE **FRONT PANEL SWITCH** AND NOT AT THE **POWER SUPPLY**. SWITCHING ON OR OFF FROM ANYWHERE OTHER THAN THE FRONT PANEL **WILL UPSET THE MICRO-CONTROLLER** AND **WILL RESULT IN DISSATISFACTION WITH THE EQUIPMENT**.

Properly install the transceiver with regard to the **INSTALLATION** section in this manual.

1 Turn the transceiver on, CH 20 * will be displayed, and raise the volume control until background noise is heard.

2 Rotate the squelch control clockwise, slightly beyond the point where background noise is quietened. It is unnecessary to "back" this control off, as any perceivable signal will open the squelch.

3 To transmit, press the PTT on the microphone and speak clearly, in your normal tone of voice. Raising your voice, or holding the mic too close to your mouth, **WILL** result in **OVER MODULATION**. This will be reported by those receiving your signal as **DISTORTION**.

4 To receive, simply release the PTT switch on the mic. During periods of transmission, the receiver is silenced and reception is therefore impossible.

5 Channels 00-07 are programmed as repeater channels in accordance with the IARU band plan in use at the time of this publication.

6 The tone burst facility used to access repeaters, is available on CH 00-07. It is activated by a double press of the PTT on the mic i.e. **PRESS RELEASE** and **PRESS** again within ½ second. To show that a tone burst has been transmitted, the display will be momentarily extinguished.

7 When the **LISTEN ON INPUT** facility (see **FUNCTIONS & OPERATIONS**) is in operation the first digit on the display will extinguish to signify that the facility is active.

* If a **PROM** has been installed to facilitate use on **PACKET RADIO** the transceiver may display a different channel number upon switch on.

CHANNEL TABLE

CH No	FREQ TX	FREQ RX	CH TYPE	INFO
00	145.000	145.600	R0	REPEATER Standard repeater shift
01	145.025	145.625	R1	" Listen on input when
02	145.050	145.650	R2	" <input type="checkbox"/> Key pressed. Left
03	145.075	145.675	R3	" digit blanks when
04	145.100	145.700	R4	" selected. Repress <input type="checkbox"/>
05	145.125	145.725	R5	" or PTT to revert.
06	145.150	145.750	R6	" Auto Tone Burst on
07	145.175	145.775	R7	" double press of PTT
08	145.200	145.200	S8	SIMPLEX Raynet
09	145.225	145.225	S9	" Raynet
10	145.250	145.250	S10	" Slow Morse
11	145.275	145.250	S11	"
12	145.300	145.300	S12	" RTTY
13	145.325	145.325	S13	"
14	145.350	145.350	S14	"
15	145.375	145.375	S15	"
16	145.400	145.400	S16	"
17	145.425	145.425	S17	"
18	145.450	145.450	S18	"
19	145.475	145.475	S19	"
20	145.500	145.500	S20	" CALLING
21	145.525	145.525	S21	" RSGB News etc
22	145.550	145.550	S22	" Exhib & Rally Talk in
23	145.575	145.575	S23	"
24	144.500	144.500		SIMPLEX SSTV calling freq
25	144.525	144.525		"
26	144.550	144.550		"
27	144.575	144.575		"
28	144.600	144.600		" RTTY calling freq
29	144.625	144.625		" Packet
30	144.650	144.650		" Mail Boxes
31	144.675	144.675		" Packet
32	144.700	144.700		" Packet
33	144.725	144.725		"
34	144.750	144.750		" FSTV calling & Talk
35	144.775	144.775		" Raynet
36	144.800	144.800		" Raynet
37	144.825	144.825		" Raynet
38	144.850	144.850		" Raynet
39	144.875	144.875		"
40	144.900	144.900		"
41	144.925	144.925		"
42	144.950	144.950		"
43	144.975	144.975		"
44	145.800	145.800		SIMPLEX
45	145.825	145.825		"
46	145.850	145.850		"
47	145.875	145.875		"
48	145.900	145.900		"
49	145.925	145.925		"
50	145.950	145.950		"
51	145.975	145.975		"

CHANNEL TABLE cont'd

The channels shown below **should not** be used where repeater operation may be affected.

CH No	FREQ TX	FREQ RX	CH TYPE
60	145.000	145.000	Repeater input Simplex
61	145.025	145.025	"
62	145.050	145.050	"
63	145.075	145.075	"
64	145.100	145.100	"
65	145.125	145.125	"
66	145.150	145.150	"
67	145.175	145.175	"
70	145.600	145.600	Repeater output Simplex
71	145.625	145.625	"
72	145.650	145.650	"
73	145.675	145.675	"
74	145.700	145.700	"
75	145.725	145.725	"
76	145.750	145.750	"
77	145.775	145.775	"
90	145.600	145.000	Reverse Repeater
91	145.625	145.025	"
92	145.650	145.050	"
93	145.675	145.075	"
94	145.700	145.100	"
95	145.725	145.125	"
96	145.750	145.150	"
97	145.775	145.175	"

Information given regarding the usage of frequencies is correct at date of publication of this manual. It would be advisable to check the usage allocation from time to time in order to avoid the possibility of transmitting on re-allocated channels.

MOUNTING

Due to the ever increasing styles and complexities of vehicle interiors, and the many and varied positions that the transceiver may be mounted in a vehicle, the 2001 is not supplied with a bracket.

A purpose made mounting bracket kit is however available, as an accessory, direct from AKD, or consult your Amateur Radio equipment dealer.

CAUTION

Ensure that any screws used to mount the transceiver do not penetrate the mounting holes by more than $3/8"$ (10 mm).

DO NOT DRILL INTO THE CASING OR PANELS UNDER ANY CIRCUMSTANCES.

ANTENNA

A variety of aerials are available from a number of manufacturers. It is recommended that you enlist the help and advice of your local Amateur Radio equipment dealer in determining a suitable aerial to meet your particular requirements. AKD, stock a limited range of aerials solely as a service to customers and will do our best to give advice. (see catalogue for details).

AERIAL CONNECTION

To the rear of the transceiver is mounted the aerial socket. A type PL 259 connector is required on your aerial cable to make proper connection. As general advice, avoid excessively long coaxial feeder cables, and keep as tidy as practicable to avoid interference.

VSWR

To achieve best transmit and receive performance from your transceiver, it is recommended that your aerial is tuned using an SWR Meter suitable for the frequency range of the transceiver. A VSWR of better than 1.5 : 1 should be achieved. An untuned aerial will severely reduce performance, and could, in extreme circumstances damage the circuitry of your transceiver. Damage created by neglecting to ensure that the VSWR is within acceptable tolerances will not be covered by the manufacturers warranty.

PACKET RADIO RTTY etc.

The **OUTPUT** can be connected to the transceiver using either of the following **TWO** methods:

AF OUTPUT (To the TNC)

1st Method

Via the EXT SPEAKER socket on the front panel of the transceiver.

This is a low impedance (not less than 8 ohms load) output. The level is affected by the volume control . Squelch may be left open, (un-squelched) if you are using DCD (DIRECT CARRIER DETECT) on your TNC.

CAUTION Do not connect or disconnect to this socket whilst the transceiver is switched on. **The AUDIO circuit may be damaged as a result.**

2nd Method

Via the MIC socket on the front panel.

This is a high impedance output, (47K) . it has a fixed level of 400 mV, (assuming a received signal of 5 KHz deviation) . Neither the volume or squelch controls have any affect on this output. This output can only be used with DCD on your TNC.

A lower impedance may be connected to this output, but the output level will be proportionally lower, (some experimentation may be needed to satisfy the requirements of your TNC).

AF INPUT & PTT CONNECTIONS (From the TNC)

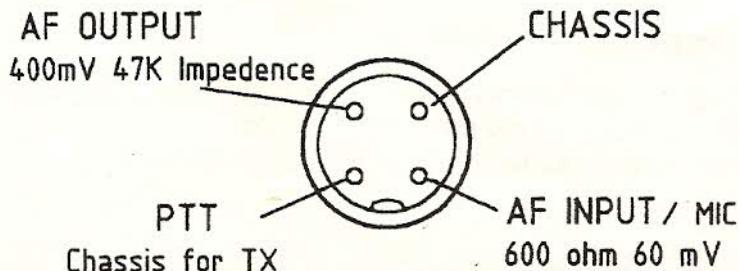
Connection to the AF INPUT may require a resistor (usually 33K) in series to properly match with your TNC. (some experimentation may be needed).

The PTT line requires connection to chassis for transmit, at a current of 40mA .

Turn to the page headed ACCESSORIES for information on proms for PACKET use.

MICROPHONE CONNECTOR

VIEWED FROM THE THE FRONT OF THE TRANSCEIVER



AKD 2 Metre TRANSCEIVER

MODEL 2001 SPECIFICATIONS

GENERAL:

MODULATION	FM
FREQ RANGE	144 — 146 MHz
SUPPLY VOLTAGE	13.8 v \pm 10%
CHANNEL SPACING	25 KHz
SPEAKER	8 Ω INTERNAL
OP'TING TEMP RANGE	-10° to +50°c
FREQ STABILITY	\pm 1.5 KHz
TX-RX VOLTAGE CHANGEOVER	Relay Operated

TRANSMITTER:

RF OUTPUT POWER	25 WATTS (High)
RF OUTPUT POWER	5 WATTS (Low)
SUPPLY CURRENT	4 AMPS (High Power)
SUPPLY CURRENT	2 AMPS (Low Power)
HARMONIC CONTENT	< 1 μ w
AUDIO DISTORTION	Less than 3%
AUDIO RESPONSE	6db / octave pre-emphasis over range 300Hz to 3KHz
DEVIATION	\pm 4KHz

RECEIVER:

SENSITIVITY	Better than 0.3 μ V for 12 db SINAD
ADJ CHANNEL SENSITIVITY	60 db
BLOCKING	90 db
IMAGE RESPONSE	70 db
AUDIO RESPONSE	6db / octave de-emphasis over range 300Hz to 3KHz
AUDIO OUTPUT	2 WATTS

REPEATER OPERATION:

TONE BURST GENERATOR	0.5 sec of 1750 \pm 2Hz TONE
SEMI DUPLEX OP ON CH	00-07
SHIFT CAN BE CANCELLED FOR "	LISTEN ON INPUT "

CONNECTIONS:

ANTENNA	SO 239 SOCKET on rear
SUPPLY	In line fused 5 AMP
PTT MIC	Socket on front panel
EXT SPEAKER (not supplied)	Socket on front panel

ACCESSORIES

PACKET

Proms are available to allow the transceiver to power up on a PACKET channel. The advantage is that in a power down situation the unit, on power up will not be transmitting on the calling channel.

These proms may be ordered by quoting either the channel required or the frequency.

The proms are easily installed by removing the top cover of the transceiver and unplugging the existing prom and plugging in the replacement into the socket. It is advisable to note the orientation of the original prom and to make sure the pins are not deformed prior to installation.

WARRANTY WILL NOT BE VOID UPON INSTALLATION OF PROMS BY THE USER.

MOUNTING BRACKET

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

POWER SUPPLY (NOT OF AKD MANUFACTURE)

A Bench Top type power supply, capable of powering the transceiver is available from AKD.

**AKD Reserve the right to alter specification without notice
E & O E**

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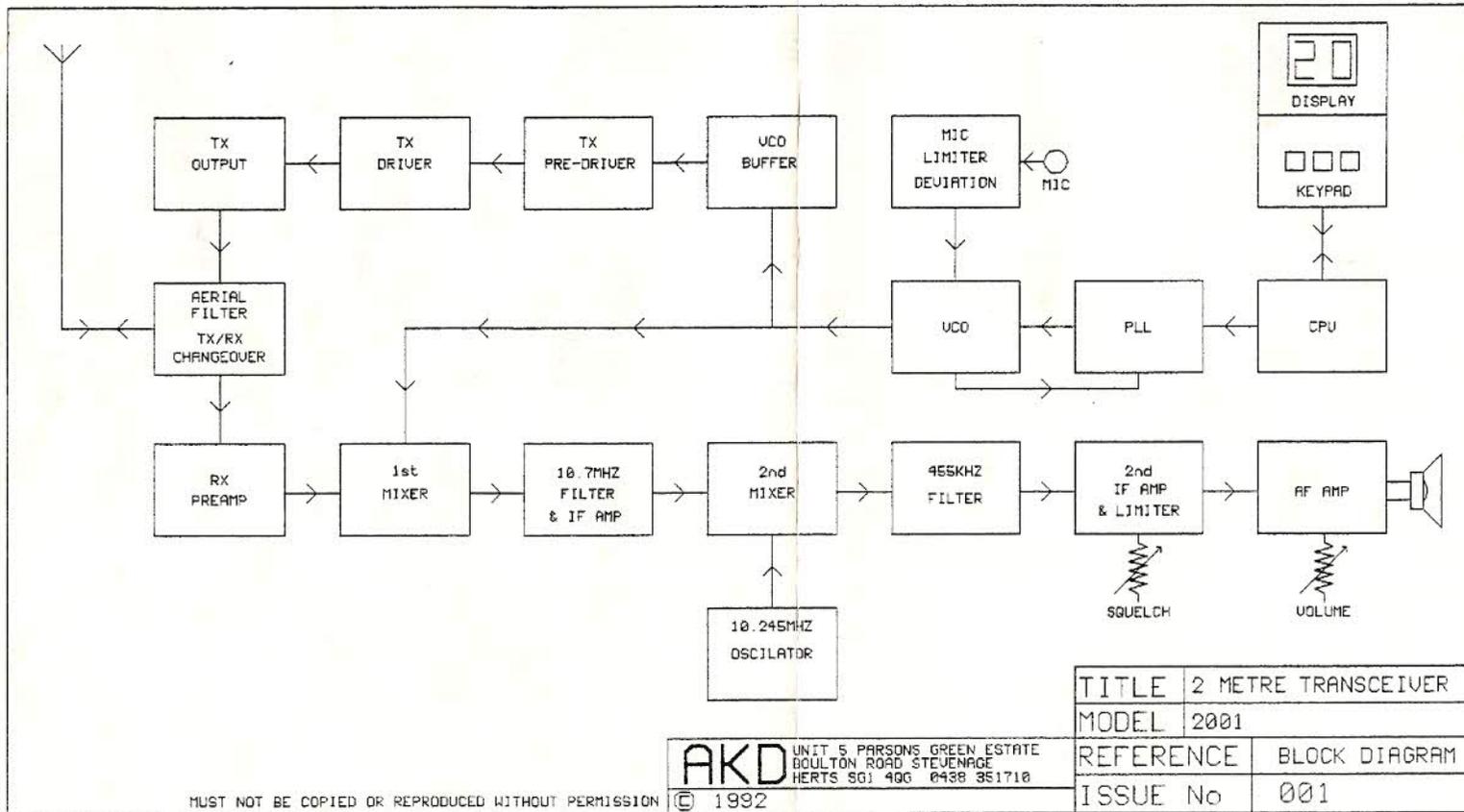
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**UNIT 5, PARSONS GREEN ESTATE
BOULTON ROAD, STEVENAGE
HERTS, ENGLAND SG1 4QG**

☎ (01438) 351710

FAX (01438) 357591

**MANUFACTURERS OF AMATEUR RADIO EQUIPMENT
ACCESSORIES & TV I FILTERS**



TITLE	2 METRE TRANSCEIVER
MODEL	2001
REFERENCE	BLOCK DIAGRAM
ISSUE No	001

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 BOULTON ROAD STEVENAGE
 HERTS SG1 4QG 0438 351710

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