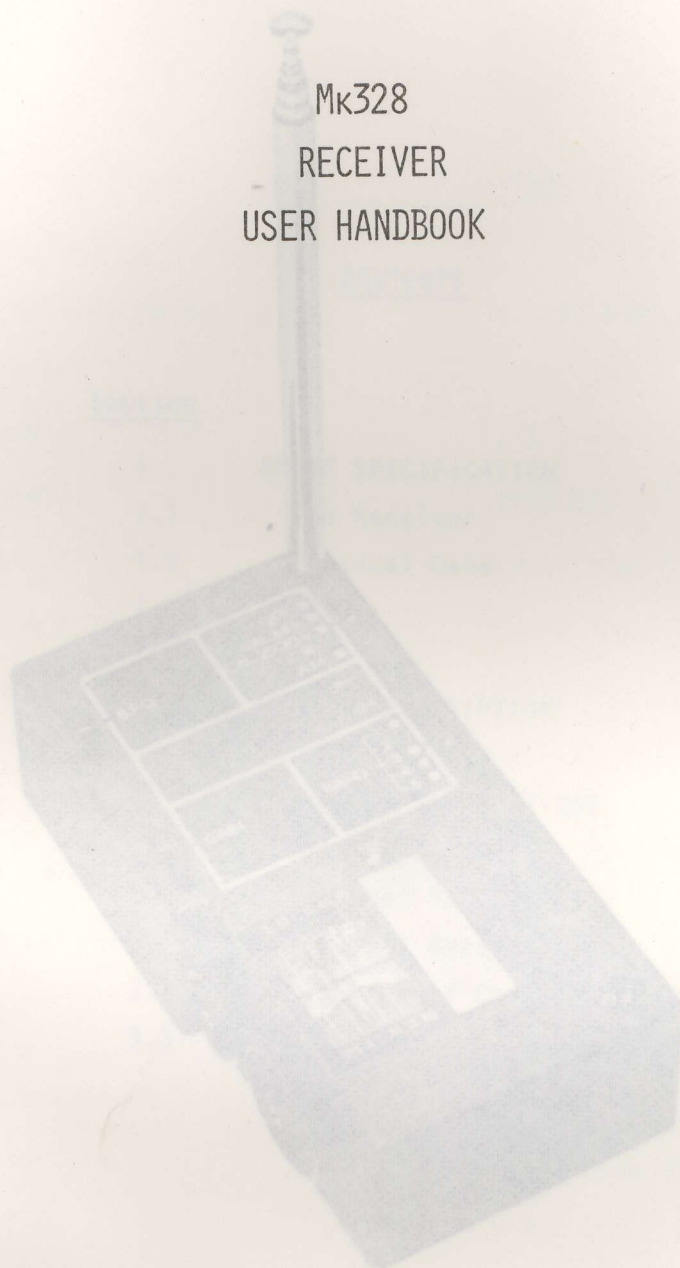


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Mk 328
RECEIVER
User Handbook

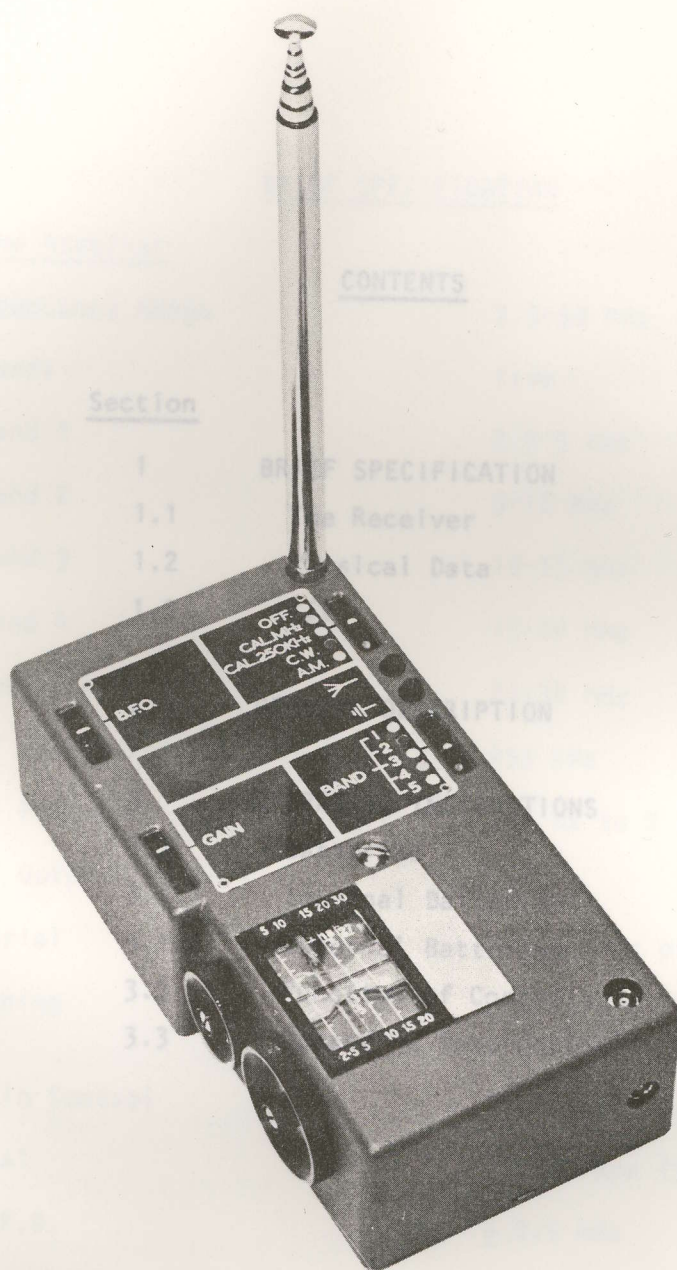
Mk328
RECEIVER
USER HANDBOOK



The Mk328

TECHNICAL PUBLICATION NO. 249

Frontispiece



The Mk328

Frontispiece

BRIEF SPECIFICATION

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2.5-30 MHz

Bands

five

Section

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2.5-5 MHz

1

BRIEF SPECIFICATION

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5-10 MHz

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10-15 MHz

1.2

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Band 4

15-20 MHz

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20-30 MHz

2

GENERAL DESCRIPTION

IF Frequency

455 kHz

AF Frequency

50 Hz to 2 kHz

3

OPERATING INSTRUCTIONS

3.1

Batteries

AF Output

1 mV

3.1.1

Internal Batteries

Aerial

Telescopic or short wire

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Tuning

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Operating Instructions

Gain Control

Combined r.f./i.f.

Dial

35 mm Tape (300 mm long)

B.F.O.

± 2.5 kHz

Mode Switch

Five positions

OFF

CAL MHz

CAL 250 kHz

CM

AM

Audio Outputs

two

earphone impedance

2 k Ω approx

recorder impedance

22 k Ω approx

Batteries

Two Mercury Cells

Type

Hallory TR 165 or TR 165R

Voltage

2 x 6.75V or any external 10.5-16V d.c. supply

1

BRIEF SPECIFICATION

1.1

The Receiver

1.2

Frequency Range

2.5-30 MHz

Bands

five

Band 1

2.5-5 MHz

Band 2

5-10 MHz

Band 3

10-15 MHz

Band 4

15-20 MHz

Band 5

20-30 MHz

IF Frequency

455 kHz

AF Frequency

300 Hz to 2 kHz

AF Output Level

1mW

Aerial

Telescopic or short wire

Tuning

Coarse and Fine controls and adjustable cursor

Gain Control

Combined r.f./i.f.

Dial

35 mm Tape (300 mm long)

B.F.O.

 ± 2.5 kHz

Mode Switch

Five positions

OFF

CAL MHz

CAL 250 kHz

CW

AM

Audio Outputs

two

earphone impedance

2 k Ω approx

recorder impedance

22 k Ω approx

Batteries

Two Mercury Cells

Type

Mallory TR 165R or TR 165R

Voltage

2 x 6.75V or any external 10.5-16V d.c. supply

2

GENERAL DESCRIPTION

Working Life 30 hours

Shelf Life 2 years

1.2 Physical Data

Length 175mm (6 $\frac{7}{8}$ in)

Width 89mm (3 $\frac{1}{2}$ in)

Depth 50mm (2in)

Weight 1.08kg (21bs 6oz)

1.3 Kit

1 Receiver Mk328

1 Head band

1 Earclip

1 Earphone and lead

1 Whip aerial

1 Wire aerial

1 Recorder lead Lemo to Uher

1 Recorder lead Lemo to Open end

1 External battery lead

1 External earth lead

1 Jumper lead

Also required three pairs of batteries or a length of wire both of which are provided in the kit.

Type Mallory TR165R or TR165

The receiver is housed in a steel case and finished with a coat of grey Organoxol protective paint.

2

GENERAL DESCRIPTION

3.1 Batteries

The Mk328 is a general purpose transistor receiver covering the frequency range 2.5 - 30 MHz in five bands, and is designed to operate either from its own internal batteries or from any external 10.5 - 16V d.c. supply. The receiver has a b.f.o. for c.w. traffic which may be switched off to receive a.m. signals.

3.1.1 Internal Batteries

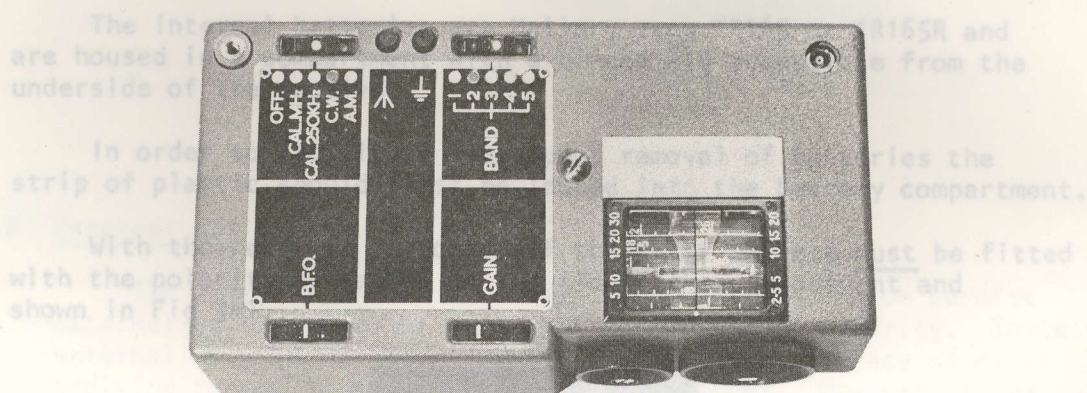


Fig 2-1

A built-in crystal controlled calibrator provides a reference signal at each 250 kHz throughout the five bands.

The dial is a 35mm steel strip 300mm long and there is a movable cursor for use with the crystal calibrator. Coarse and fine tuning knobs are situated on the side of the receiver.

A co-axial type outlet is provided for use with a single ear-phone which may be worn using a headband or an ear-clip. A second co-axial outlet at a higher impedance is provided for connecting a tape recorder.

The aerial may either be a telescopic whip or a length of wire both of which are provided in the kit.

The receiver is housed in a steel case and finished with a coat of grey Organosol protective paint.

3

OPERATING INSTRUCTIONS3.1 Batteries

The receiver may be powered from a pair of batteries housed in a compartment at the end of the set or, alternatively, by an external d.c. supply of 10.5 - 16 volts, such as the X 5835.

3.1.1 Internal Batteries

The internal batteries are Mallory type TR165 or TR165R and are housed in a compartment with a hinged lid accessible from the underside of the receiver.

In order to facilitate subsequent removal of batteries the strip of plastic should first be looped into the battery compartment.

3.1.2 External Battery

With the receiver switched off the first battery must be fitted with the polarity as marked on the lid of the compartment and shown in Fig 3-1.

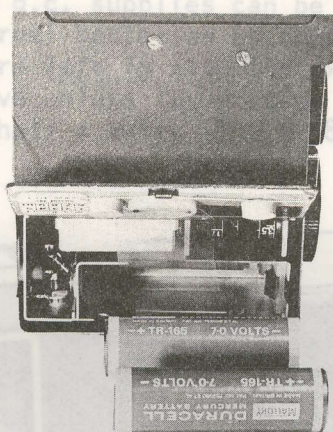


Fig 3-1

The second battery must be placed so that its polarity is reversed to that of the first battery as shown in Fig 3-2.

Finally tuck in the surplus plastic strip and secure the hinged cover.

IMPORTANT

It should be noted that NEITHER side of the external battery should be earthed or allowed to come into contact with the metal case of the receiver. This contingency should be guarded against when using the receiver in a car where there is a real danger of the receiver case touching the metal-work of the car.

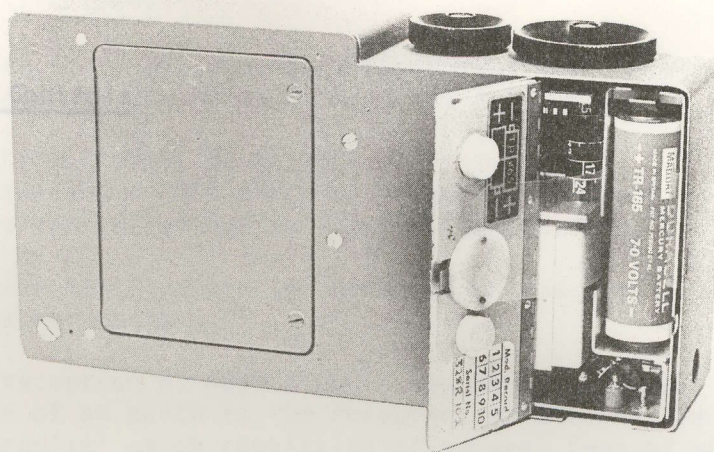


Fig 3-2

3.1.2 External Battery

The receiver contains a diode bridge circuit which permits external batteries to be connected regardless of polarity. These external 10.5 to 16V d.c. supplies can be used in place of or in addition to the internal batteries as required. However if the internal batteries are left in situ the external supply does not become fully effective unless its voltage exceeds that of the internal battery by half a volt. The X 5835 provides a suitable external supply.

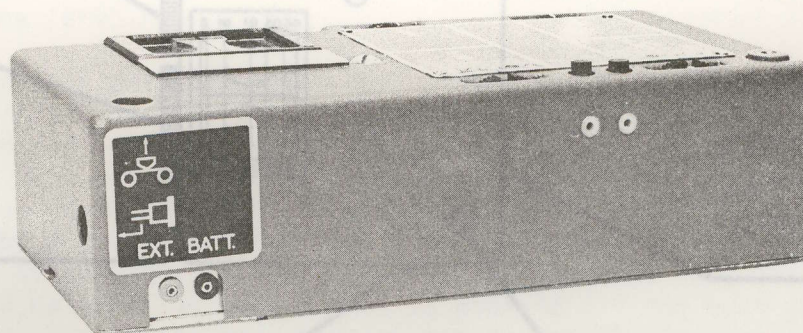


Fig 3-3

The external batteries are connected by means of the two sockets on the side of the receiver marked "EXT. BATT" as shown in Fig 3-3. Use the external battery lead and, if required the jumper lead to join two 6V batteries together.

IMPORTANT

It should be noted that NEITHER side of the external battery should be earthed or allowed to come into contact with the metal case of the receiver. This contingency should be guarded against when using the receiver in a car where there is a real danger of the receiver case touching the metal-work of the car.

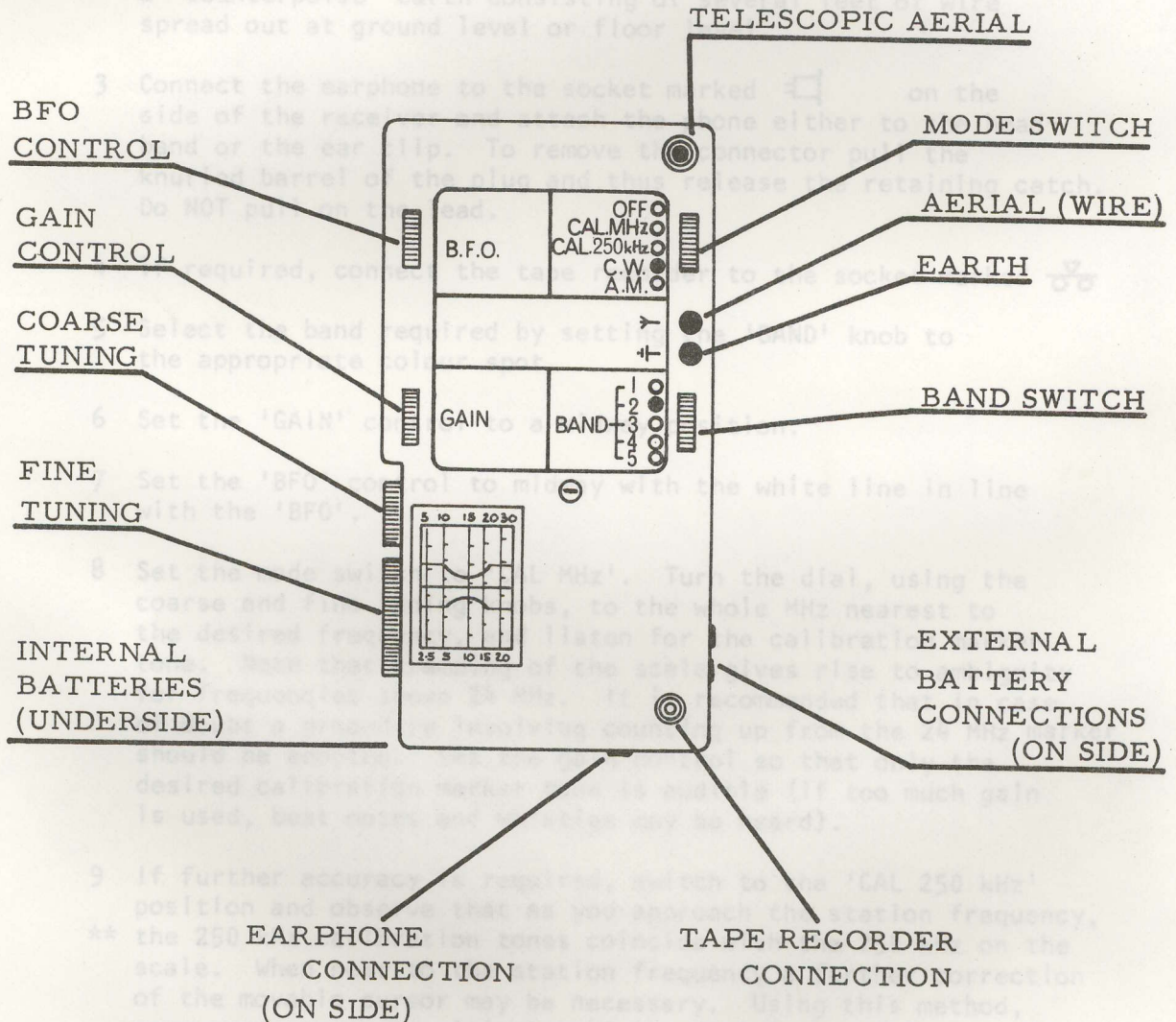
3.3 Operating Instructions

3.2 Function of Controls

1 With the receiver switched OFF, check that the batteries described in Sections 3.1.1 or 3.1.2.

- 2 Connect the aerial by using either:
- a) the telescopic whip which is screwed into the socket and pulled out to its full length, or
 - b) the wire aerial which is connected to the push socket marked Ψ

Improved reception of weak signals may be obtained by the connection of an earth to the receiver, or alternatively, a 'counterpoise' earth consisting of a series of wires spread out at ground level or floor.



3 Connect the earphone to the socket marked Φ on the side of the receiver. To remove the earphone, pull the connector out of the socket or the ear clip. Do NOT pull the plug out of the socket. To release the retaining catch, push the plug in.

6 Set the 'GAIN' control to minimum. Turn the dial, using the coarse and fine tuning controls, to the whole MHz nearest to the desired frequency. Then turn the 'BFO' control to minimum with the white line in line with the 'BFO' scale.

8 Set the mode switch to 'MHz'. Turn the dial, using the coarse and fine tuning controls, to the whole MHz nearest to the desired frequency. Then turn the 'BFO' control to minimum with the white line in line with the 'BFO' scale.

9 If further accuracy is required, switch to the 'CAL 250 kHz' position and observe that as you approach the calibration frequency, the 250 kHz mark on the scale coincides with the 250 kHz mark on the scale. When the calibration frequency is reached, the 250 kHz mark on the scale coincides with the 250 kHz mark on the scale. If too much gain is used, the 250 kHz mark on the scale will be to the right of the 250 kHz mark on the scale. If too little gain is used, the 250 kHz mark on the scale will be to the left of the 250 kHz mark on the scale.

10 For a.w. signals switch the mode switch to 'CW' and adjust the 'BFO' and 'GAIN' controls so as to produce a suitable tone in the earphone.

11 For m.c.w. or speech signals, switch the mode switch to 'AM'.

** Note: Interpolation will be required on the higher frequency bands when using early production mode.

3.3 Operating Instructions

- 1 With the receiver switched OFF, check that the batteries are connected as described in Sections 3.1.1 or 3.1.2.
- 2 Connect the aerial by using either:
 - a) the telescopic whip which is screwed into the socket and pulled out to its full length, or
 - b) the wire aerial which is connected to the push socket marked 

Improved reception of weak signals may be obtained by the connection of an earth to the receiver, or alternatively, a 'counterpoise' earth consisting of several feet of wire spread out at ground level or floor level.

- 3 Connect the earphone to the socket marked  on the side of the receiver and attach the phone either to the head-band or the ear clip. To remove the connector pull the knurled barrel of the plug and thus release the retaining catch. Do NOT pull on the lead.
 - 4 If required, connect the tape recorder to the socket marked 
 - 5 Select the band required by setting the 'BAND' knob to the appropriate colour spot.
 - 6 Set the 'GAIN' control to a midway position.
 - 7 Set the 'BFO' control to midway with the white line in line with the 'BFO'.
 - 8 Set the mode switch to 'CAL MHz'. Turn the dial, using the coarse and fine tuning knobs, to the whole MHz nearest to the desired frequency, and listen for the calibration marker tone. Note that cramping of the scale gives rise to ambiguity for frequencies above 24 MHz. It is recommended that in case of doubt a procedure involving counting up from the 24 MHz marker should be adopted. Set the gain control so that only the desired calibration marker tone is audible (if too much gain is used, beat notes and whistles may be heard).
 - 9 If further accuracy is required, switch to the 'CAL 250 kHz' position and observe that as you approach the station frequency,

** the 250 kHz calibration tones coincide with the 250 kHz on the scale. When near to the station frequency a further correction of the movable cursor may be necessary. Using this method, very accurate pre-positioning of the dial is possible.
 - 10 For c.w. signals switch the mode switch to 'CW' and adjust the 'BFO' and 'GAIN' controls so as to produce a suitable tone in the earphone.
 - 11 For m.c.w. or speech signals, switch the mode switch to 'AM'.
- ** Note: Interpolation will be required on the higher frequency bands when using early production models.