Eddystone

AM/FM

General Purpose Receiver

Model 1570



Manufactured in England by



EDDYSTONE RADIO LIMITED
MEMBER OF MARCONI COMMUNICATION SYSTEMS LIMITED
ALVECHURCH ROAD, BIRMINGHAM B31 3PP

Telephone: 021-475 2231

Telex: 337081



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1570 OPERATORS MANUAL

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BP1464 Frequency Display Module BP1465 1570 Receiver)	BOUND AT REAR OF MANUAL	

AMENDMENT RECORD

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The Manufacturer reserves the right to modify the content of this publication as necessary to accommodate modifications, design improvements etc. Relevant Amendment Sheets will be incorporated at date of issue.

INTRODUCTION

General Description

The Eddystone Model 1570 is a low cost, fully solid state AM/FM general purpose receiver. Model variants cover the requirements of both professional and semi-professional users.

The 1570 utilises advanced techniques and components of the type normally found in professional communication receiver equipment. Added features include such facilities as unambiguous digital readout display of the tuned frequency, LED array indicator for the display of the selected range band, wide frequency range coverage of long, medium and three shortwave bands, plus international FM broadcast coverage, an 'S' meter for peaking-in on weak reception signals, BFO and Product Detector for CW and SSB reception.

The receiver is compact, lightweight and elegantly styled in the modern trend. The audio stages can be used independently for an auxiliary input source and provision is made to facilitate tape recorder reproduction. Power for the receiver can either be derived from the AC Mains Supply (100–120V and 200–250V 40–60Hz) or from an external 12V DC supply of negative earthed polarity.

Guarantee

All Model 1570 Series receivers are suitable for continuous use under arduous operating conditions and should require very little routine maintenance over long periods of operation. With the exception of the semi-conductors, all components are guaranteed by the Manufacturer for a period of one year from the date of purchase. The semi-conductors are all covered by a separate guarantee.

Servicing

Spares for user servicing can be supplied and helpful advice will be freely given when required. Any enquiries relating to service matters should be directed to the "Sales and Service Department" at our usual address.

Should major servicing become necessary, the receiver can, by prior arrangement, be returned to the Manufacturer for attention. Extreme care should be taken to ensure that the equipment is well protected against possible damage during transit.

General Data Summary

Frequency Coverage.

150kHz - 350kHz, 580kHz - 30MHz and 88MHz - 108MHz in seven ranges.

Frequency Ranges.

Range	1	14MHz	-	30MHz
	2	8.5MHz	-	18MHz
	3	3.5MHz	-	8.5MHz
	4	1.5MHz	-	3.5MHz
	5	580 kHz	-	1500 kHz
	6	150 kHz	-	350 kHz
	FM	88MHz	-	108MHz

Intermediate Frequencies.

Ranges 1-6

455kHz

FM

10.7MHz

Reception Modes.

A1, A2 and A2H telegraphy.

A3, A3A, A3H and A3J telephony with upper and lower sideband use in SSB mode.

Display Resolution.

1570/1 1570/3

FM FM

10kHz 100kHz

AM AM

1kHz 1kHz

Aerial Input.

Nominal $50-75\Omega$ on all ranges.

Power Supplies.

DC

External 12V; Consumption 500mA at 1W output

150mA quiescent.

With display illuminated, the above consumption figures are increased

:

:

by approximately 250mA.

AC

100-125V and 200-260V 40-60Hz.

Consumption 20VA approx.

Dimensions.

Height

132.5mm

Width

410mm

Depth

330mm

Weight

9kg

Page 1-2

Other Facilities.

Tape record output) 5 pin standard Auxiliary input) DIN connector

FM mute circuit.

AFC effective on both AM and FM.

BFO.

Telescopic aerials

For FM use with limited AM use.

Headset

Low/medium impedance.

NOTE: The above figures are typical only and do not form the basis of a contractual test specification.

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Section 2

INSTALLATION

Accessory Kit.

1	MAINS CONNECTOR AND LEAD	D4815
1	6-WAY SOCKET ASSEMBLY *	D5499
1	FUSE 2A (20mm)	10577P
1	FUSE 0.5A ANTI-SURGE (200-260V) OR;	9714P
	(1 FUSE 1.0A ANTI-SURGE (100-125V))	9816P

^{*} NOTE: Socket assembly supplied ready linked for AC operation.

Operating Voltages.

AC 100-125V and 200-260V (40-60Hz)

DC 12V from external battery (negative earth).

Mains Transformer Voltage Adjustment.

The receiver is normally set for operation on 200-260V when despatched. For operation on 100-125V supply it is necessary to set the slide switch on the power unit accordingly. This is accessible after removing the receiver covers.

NOTE: For AC operation, the DC SUPPLY CONNECTOR must be fitted, wired with links as shown in Fig. 2.1 (a). (*SEE NOTE ABOVE).

Fuse Complement.

AC :

DC

1 at 0.5A time lag for 200-260V

1 at 1A time lag for 100-125V

2 -1

at 2A (2 off also in circuit for AC operation).

Installation for AC Working.

The DC SUPPLY connector is used for both AC and DC operation: for AC operation, the connector should be linked as shown in fig. 2.1 (a). (* SEE NOTE ABOVE). The connector is normally supplied with the relevant links fitted. The connector is supplied as part of the accessory kit.

Check that the mains transformer voltage adjustment switch is set for the appropriate supply voltage range (refer to paragraph headed Mains Transformer Voltage Adjustment).

Connect AC SUPPLY CONNECTOR to AC INPUT socket on the rear panel of the receiver, and connect the mains lead to the local supply.

LINE = BROWN
NEUTRAL = BLUE
FARTH = OREEN ACEL

EARTH = GREEN/YELLOW

NOTE : : AC MAINS CONNECTOR

The following information is issued in compliance with British Standard BS415:-

If the colours of the wires in the mains lead of this apparatus do not correspond with the coloured markings identifying the terminals in your mains connector (or plug) proceed as follows:-

- The GREEN/YELLOW wire must be connected to the plug terminal marked "E" or " — " or coloured GREEN or GREEN/YELLOW.
- The BLUE wire must be connected to the plug terminal marked "N" or coloured either BLUE or BLACK.
- The BROWN wire must be connected to the plug terminal marked "L" or coloured either BROWN or RED.
- 4. If a 13 amp (BS1363) FUSED PLUG is used to facilitate connection to the supply outlet, the plug MUST be protected by a 3 AMP FUSE unless expressly declared otherwise. If another type of plug is used, a fuse of the appropriate rating must be fitted either in the plug, or the adaptor, OR AT THE DISTRIBUTION BOARD.

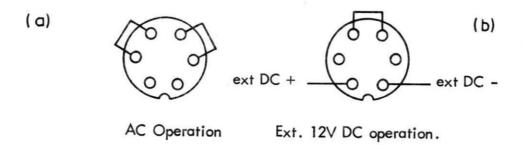


Fig. 2.1 DC Supply Connector viewed on wiring side.

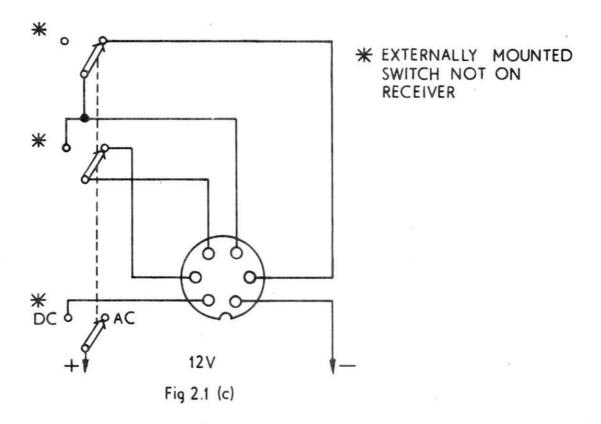
The following diagram and text should be read in conjunction with Section 2 "Installation" (D.C. Working).

Page 2-2: The diagram below should form part of Fig. 2-1 and is referred to as Fig. 2-1 (c) at page 2-3.

It is essential to note that in the switching arrangement illustrated below, the switch is to be externally mounted and is NOT an integral part of the Receiver circuitry.

Note also that the switch is NOT supplied as part of the accessory kit.

Fig. 2-1 (c) shows the 3 pole 2 way switch set to the AC working position and the 6 way DC supply connector viewed on the wiring side.



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021-475-2231

TELEX:

337081

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EDDYSTONE

BIRMINGHAM

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Installation for DC Working.

For maximum working time from a fully charged battery the following points should be observed:-

- Keep the AF GAIN control adjusted to the lowest level possible.
- b) Set the DISPLAY switch to the OFF position, when the receiver is not being tuned.

For permanent DC operation, wire the DC SUPPLY connector as shown in Fig. 2.1 (b). NOTE: The external battery must either be fully floating or have negative earth.

Alternatively, the wiring can be arranged as shown in Fig. 2.1 (c) to obviate the need for changing the connector wiring when switching between external battery and mains.

Aerial Input.

Fig. 2.2 shows the connections for various types of aerial/feeder. The input impedance is nominally $50/75\Omega$ on all ranges. Diode protection against high induced aerial voltages is incorporated on the A1 socket and on the FM input.

The built-in telescopic aerials may be used for both AM and FM reception merely by extending the appropriate aerial and selecting the range. For general short-wave reception, Eddystone dipole, catalogue no 731 is recommended.

More elaborate AM aerial systems can be accommodated as shown in Fig. 2.2 (c) and 2.2 (d). If an external FM aerial is used to improve reception, this should be connected to the coaxial socket marked 'FM'.

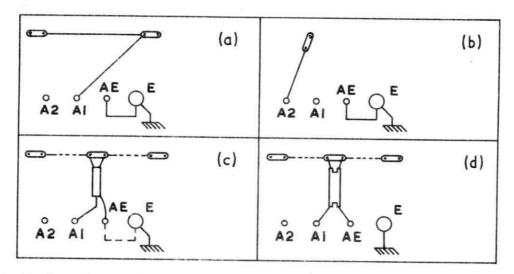


Fig. 2.2 AM Aerial Input Connections.

Earth.

It may be desirable for safety reasons or to improve reception to use a local earth in addition to the earth normally provided with the AC mains supply. In this case, connection may be made to the terminal marked ____ on the rear panel of the receiver.

The link between the aerial earth (AE) socket and the cabinet earth terminal should be fitted for most aerial configurations, except when using a twin or balanced feeder as shown in Fig. 2.2 (d). Use of a coaxial feeder - Fig. 2.2 (c) - normally warrants this link but in some cases an improvement in the signal to noise ratio may be obtained by removing it. The link can be stored in the A2 socket when not in use.

Headset.

Connect to PHONES socket on panel. This output is primarily intended for use with telephone headsets of 8Ω -600 Ω impedance. The internal and external loudspeaker circuits are interrupted when the headset is connected. Eddystone headsets LP3242 and LP3301 are recommended for use with Model 1570 receivers.

Ext. LS.

An external loudspeaker can be connected using a standard 2 pin DIN speaker plug obtainable from local accessory suppliers. Insertion of the plug will disable the internal loudspeaker. The loudspeaker impedance should be 4Ω and the circuit should be isolated from earth. Failure to isolate this circuit will result in the external loudspeaker not being muted when the headset is connected.

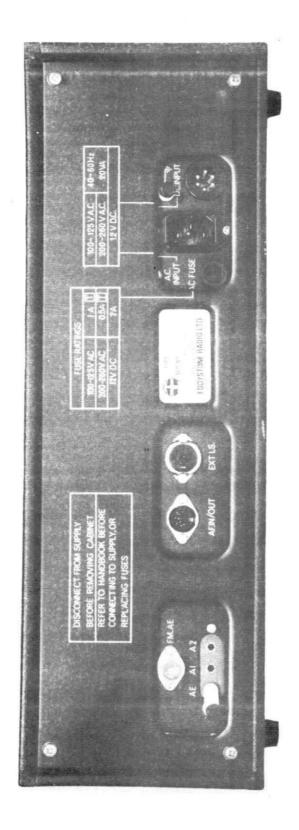
AF In/Out.

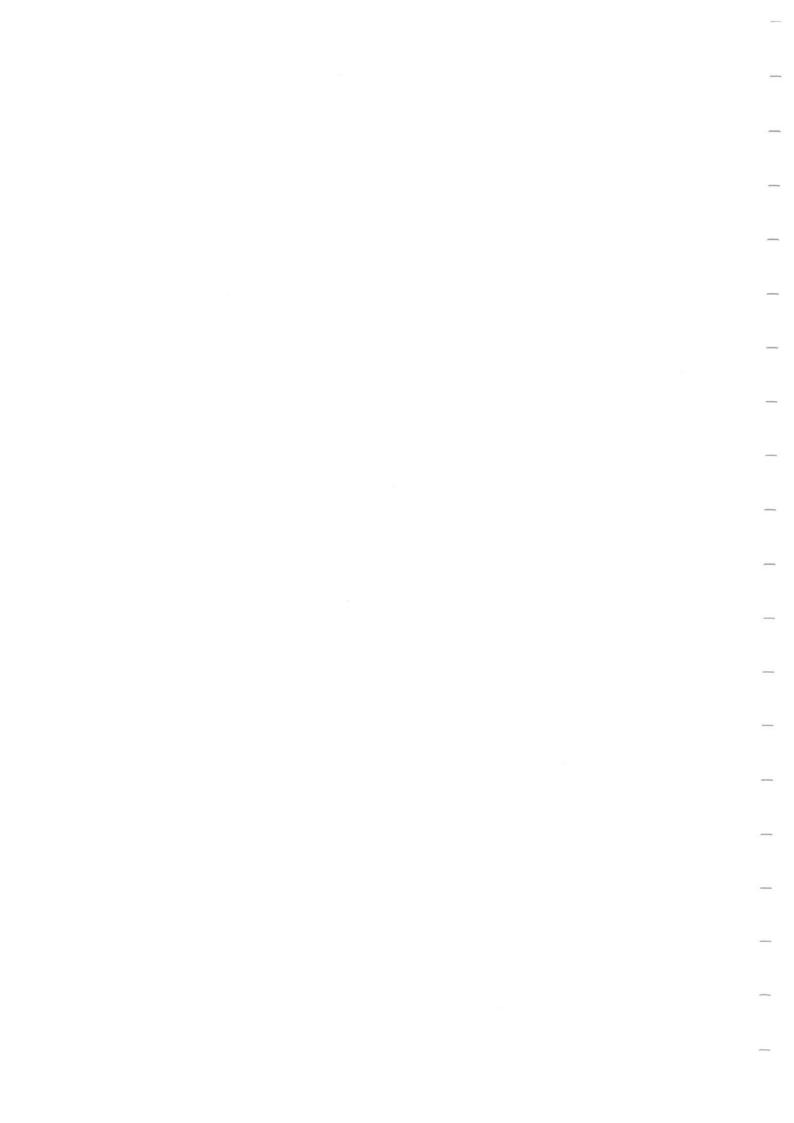
This standard 5-way 180° DIN connector allows a signal to be taken from the receiver for connection to a tape recorder or hi-fi amplifier. Connection should be made using a screened cable. The signal level available is approx. 40mV into a load of $47\text{k}\Omega$.

The same connector allows an external audio signal to be fed into the audio stages of the Model 1570 receiver when the AUX switch on the panel is depressed. The input level required for full output is of the order of 500 mV and the input impedance is $47 \text{k}\Omega$.

The connections to AF In/Out plug are as follows:-

Pin 1 - signal out from receiver
Pin 3 - audio in to receiver
Pin 2 - common earth.





Section 3

OPERATION AND TECHNICAL DATA SUMMARY

TYPICAL PERFORMANCE

Sensitivity.

FM - $5\mu V$ for 30dB S/N with 22.5kHz deviation

AM - $3\mu V$ for 12dB S/N with 30% mod.

CW - $2\mu V$ for 12dB S/N.

Selectivity.

FM - 250kHz at -6dB

AM Narrow - 4kHz at -6dB; 12kHz at -40dB AM Wide - 10kHz at -6dB; 23kHz at -40dB.

Image Rejection.

FM - 80dB at 90MHz

AM - 50dB at 2MHz; 25dB at 22MHz.

IF Breakthrough.

FM - 90dB at 90MHz AM - 70dB at 2MHz.

AGC Performance on AM.

Less than 8dB change in output for 80dB increase in input.

BFO Range.

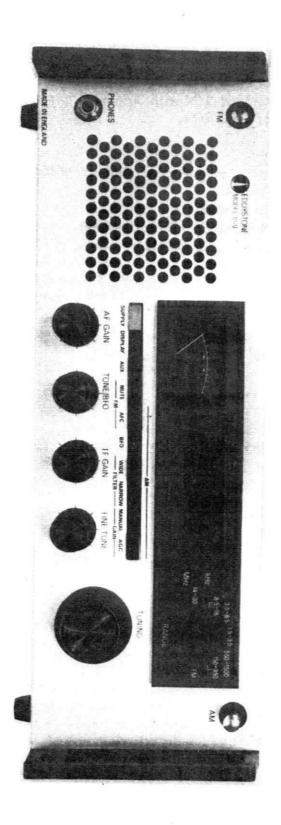
+ 3kHz.

Audio Output.

2.5 Watts max. into 4Ω ; 1 Watt at 1% distortion.

Audio Response,

Within 6dB 100Hz - 12kHz.



Control Functions.

Range Switch	-	selects the required frequency range.
Tuning	-	in conjunction with the range switch, enables the tuned frequency to be set.
Fine Tune	-	gives fine control of the tune frequency set by the Tuning control. Not effective on FM.
AF Gain	-	adjusts the level of the audio output of the internal loudspeaker, the external loudspeaker and headphones. Does not affect the output level of the AF IN/OUT socket.
Tone/BFO	-	operates as a normal tone control giving adjustment of bass/ treble response to suit listening conditions. When BFO switch is pressed, the bass/treble response is set to the mid-position and the control functions on AM only as a BFO pitch adjust- ment.
IF Gain	-	adjusts the gain of the Intermediate Frequency amplifier, provided the MANUAL switch is pressed. Not effective on FM.
Supply	-	pushbutton switch controls the AC and DC supplies to the receiver.
Display	- ,	pushbutton switch which, when pressed, permanently illuminates the digital display.
Aux.	-	pushbutton switch which disables everything except the audio stages of the receiver and switches in an external audio feed made to the AF IN/OUT connector.
Mute	-	pushbutton switch which provides a means of suppressing back- ground noise when tuning between stations on the FM band. The circuit is adjusted at the factory so that only signals of adequate strength for good listening will be heard when the switch is pressed. The switch must be set to OFF to receive weaker signals from more distant stations. Not effective on AM.
AFC	-	pushbutton switch which, when pressed, brings the automatic frequency control circuits into operation on both AM and FM. When receiving a weak signal adjacent to a strong local transmission the switch should be set to off.
BFO	-	pushbutton switch which enables the TONE control to function as a BFO pitch control. When pressed the audio tone control circuit is set to its mid position and the beat frequency oscillator and product detector are energised. Operates on AM only,

but will prevent the TONE control from operating on FM.

Filter Wide/Narrow -

two interlocked pushbutton switches which select the appropriate IF filter for AM use. Not effective on FM.

Manual/AGC

two interlocked pushbutton switches which set the AM IF amplifier for manual or automatic gain control as appropriate. Not effective on FM.

Carrier Level Meter.

The panel meter gives an indication of relative signal strength on AM. For FM use, the meter becomes a centre zero tuning indicator.

On FM, the centre zero tuning indication is affected by the operation of the MUTE circuit. For accurate FM tuning, therefore, the MUTE should be switched off and then re-applied when tuning is completed.

Internal Battery Version 1570/1

The 1570/1 is fitted with an internal rechargeable sealed lead-acid battery.

Operation is as the 1570, plus an economy circuit which automatically blanks the display five to six seconds after tuning has ceased. The Display is re-illuminated as soon as the tuning knob is turned.

This function can be over-ridden by pressing the display button.

On battery operation all panel illumination is extinguished but, on mains operation only the display is blanked.

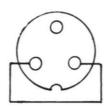
During mains operation the internal battery is trickle charged and the receiver changes automatically to battery operation in the event of a supply mains failure reverting to mains operation on restoration of supplies.

Due to the battery suffering damage if completely discharged a protection circuit switches off the receiver when the voltage of the battery falls to approximately 7V.

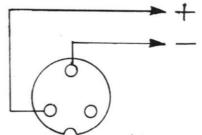
To recharge a low battery (preferably overnight), leave mains supply switched 'ON' with volume control at minimum and either set display switch to 'OFF' or switch auxillary 'ON'.

The battery charging rate is internally controlled and no other adjustment is necessary.

The 6 Pin DC input plug on the rear panel is replaced by a 3 Pin plug, the mating socket of which is wired as shown below.

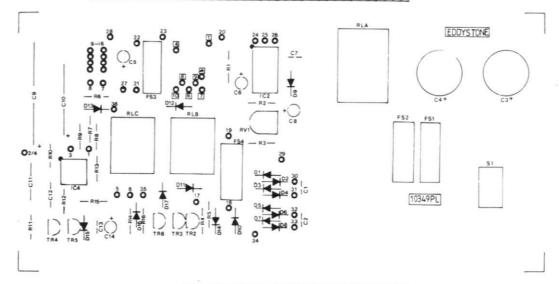


Linked for internal battery and mains operation.

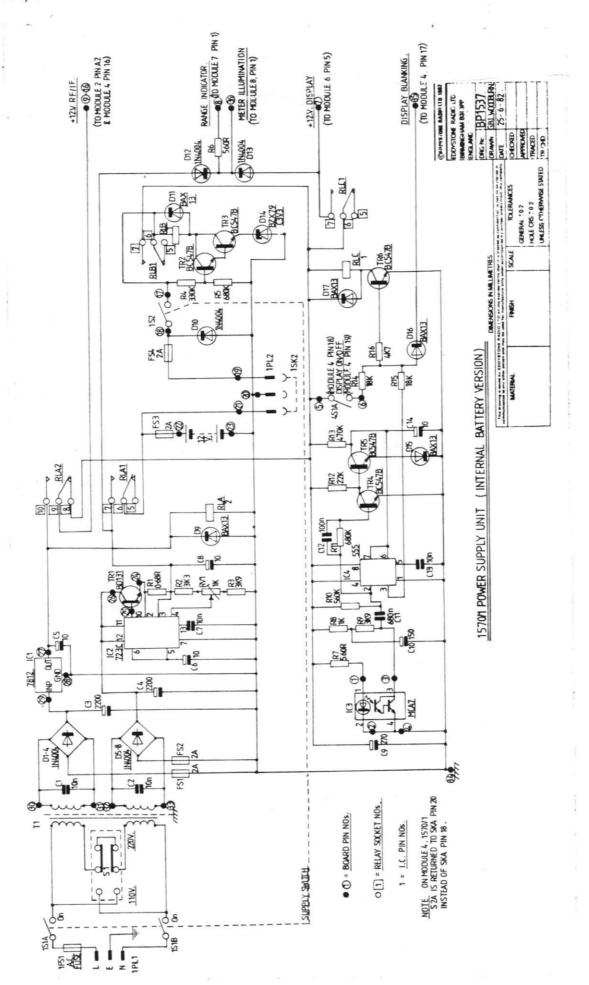


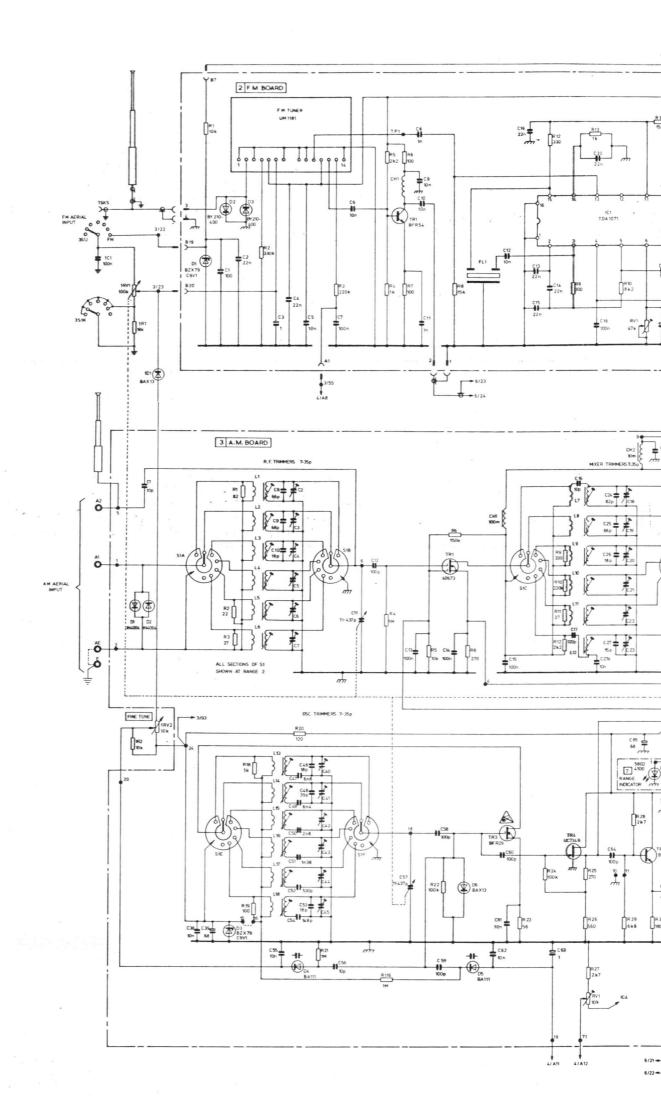
Connected for external battery supply.

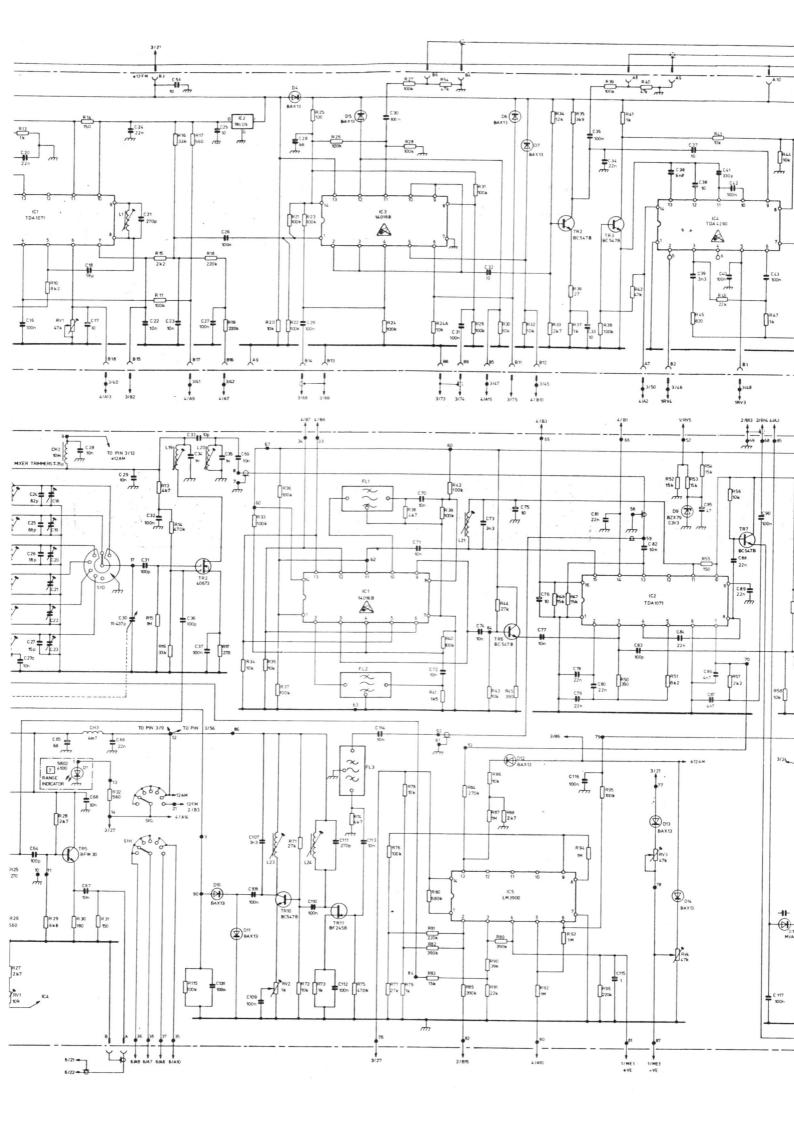
WIRING VIEWED FROM REAR OF RECEIVER

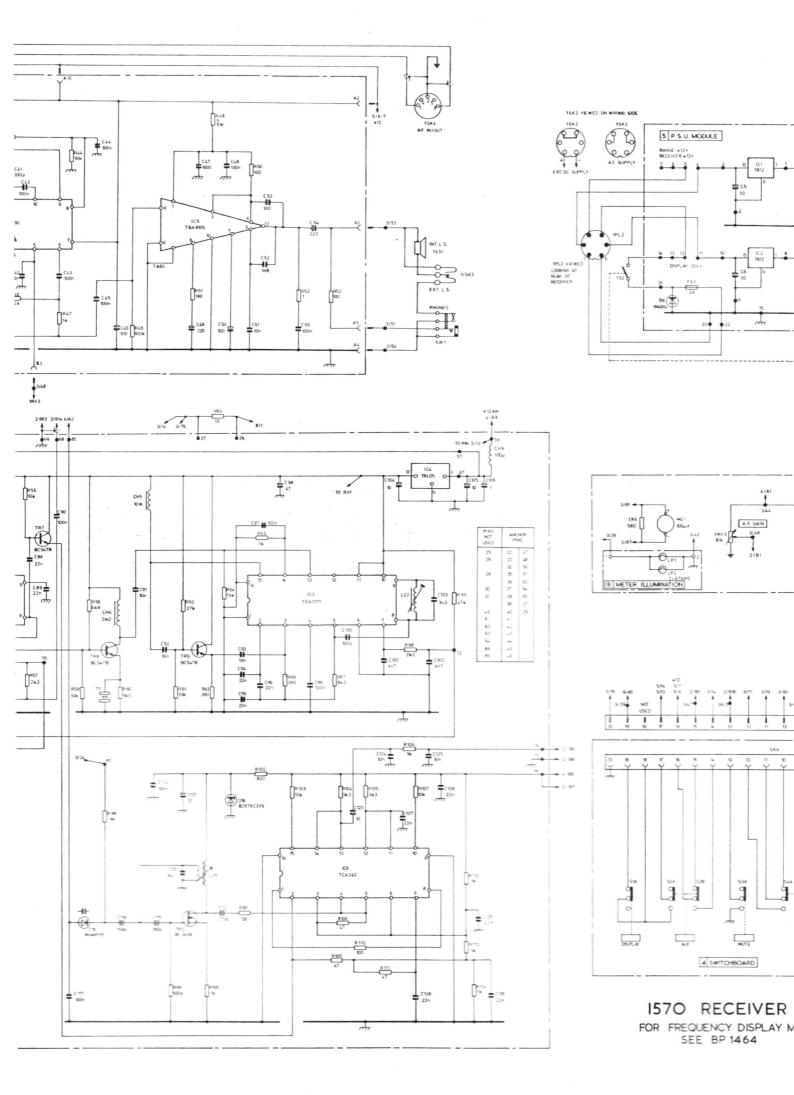


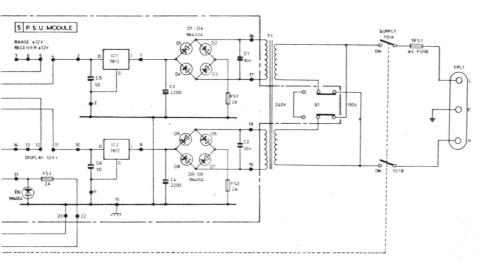
1570/1 POWER SUPPLY BOARD (INTERNAL BATTERY VERSION)

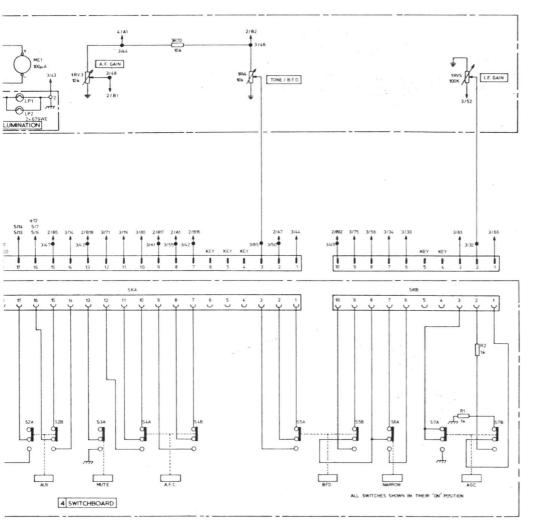








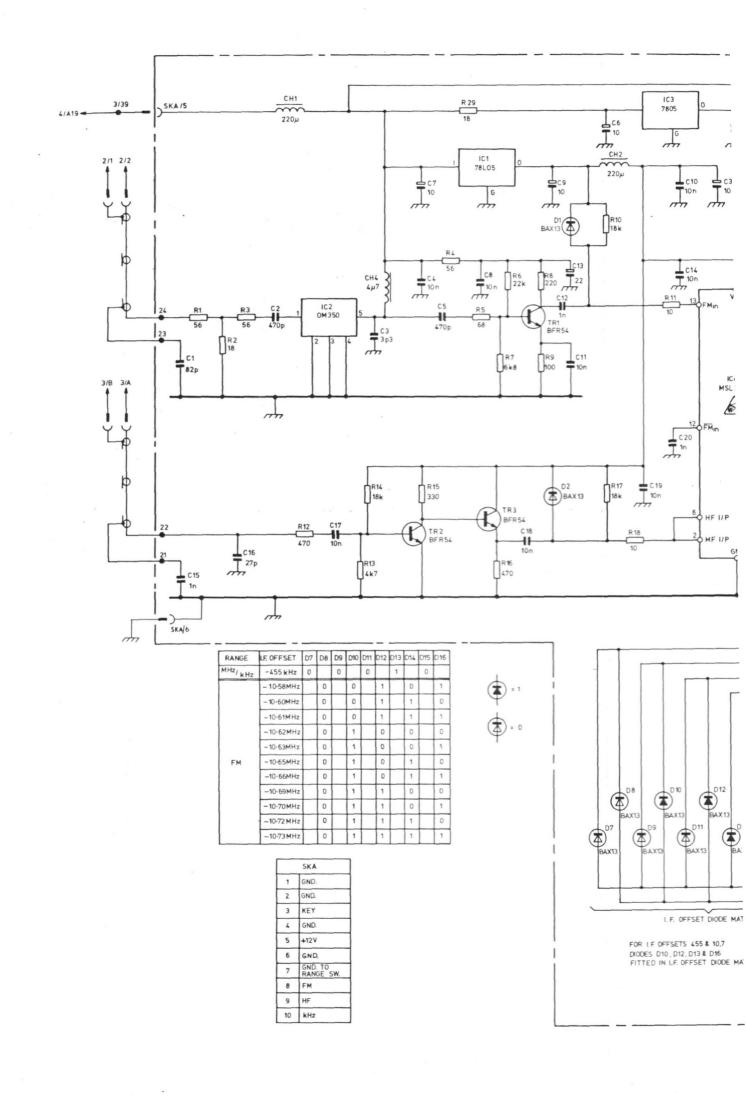


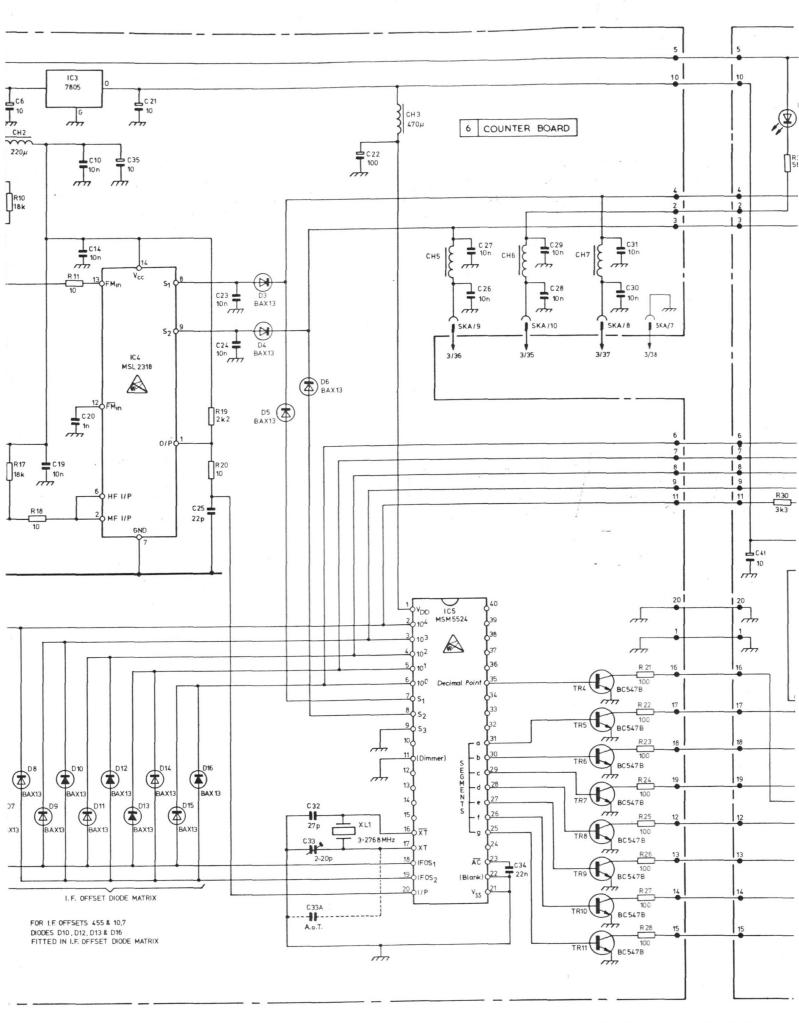


DR FREQUENCY DISPLAY MODULE SEE BP 1464



BP 1465 ISSUE 1





FREQUENCY DISPLA

