

LOW NOISE U.H.F. PRE-AMPLIFIERS AM14/514 AND AM14/520

Introduction

The AM14/514 is a u.h.f. pre-amplifier. It normally forms part of a masthead assembly^{1,2} intended primarily for use with television u.h.f. rebroadcast receivers³. It is powered by 15 volts a.c.⁴ via the connecting feeder from the associated receiver.

The AM14/520 is similar but is powered from a 9V battery.

The amplifiers are built into small screening boxes which have three compartments. Early models of the amplifiers used a short length of 50-ohm cable terminating in a free BNC connector for the input and an elbow type BNC connector for the output. Later models are fitted with sub-miniature pattern 17 screw connectors.

General Specification

<i>Frequency Coverage</i> (preset)	Any channel in Band IV or Band V
<i>Gain</i>	23 dB \pm 4 dB
<i>Aerial Input Impedance</i>	50 ohms nominal
<i>Amplitude/Frequency Characteristic over 8 MHz Channel</i>	Flat within 0.5 dB
<i>Input VSWR over 8 MHz Channel</i>	not greater than 1.3
<i>Maximum Input</i>	5 mV r.m.s.
<i>Noise Figure</i> Channel 21 Channel 68	not greater than 5 dB not greater than 8 dB
<i>Power Requirements</i>	15 V, 50 Hz, 350 mA +12 V, 10 mA

Circuit Description

The circuit diagram is given in Fig. 1. The amplifier consists of a common emitter stage bandpass coupled to a common base stage which has a tuned u.h.f. line in its collector circuit.

Inductors L2 and L4 provide neutralisation and are set during manufacturing tests to give the required gain and bandwidth in conjunction with L1 and L3. C10 is adjusted to give minimum reflected wave at the input.

L5 holds off the signal output from the supply line carrying 15-volt a.c. to the associated power supply rectifier circuit⁵.

Maintenance

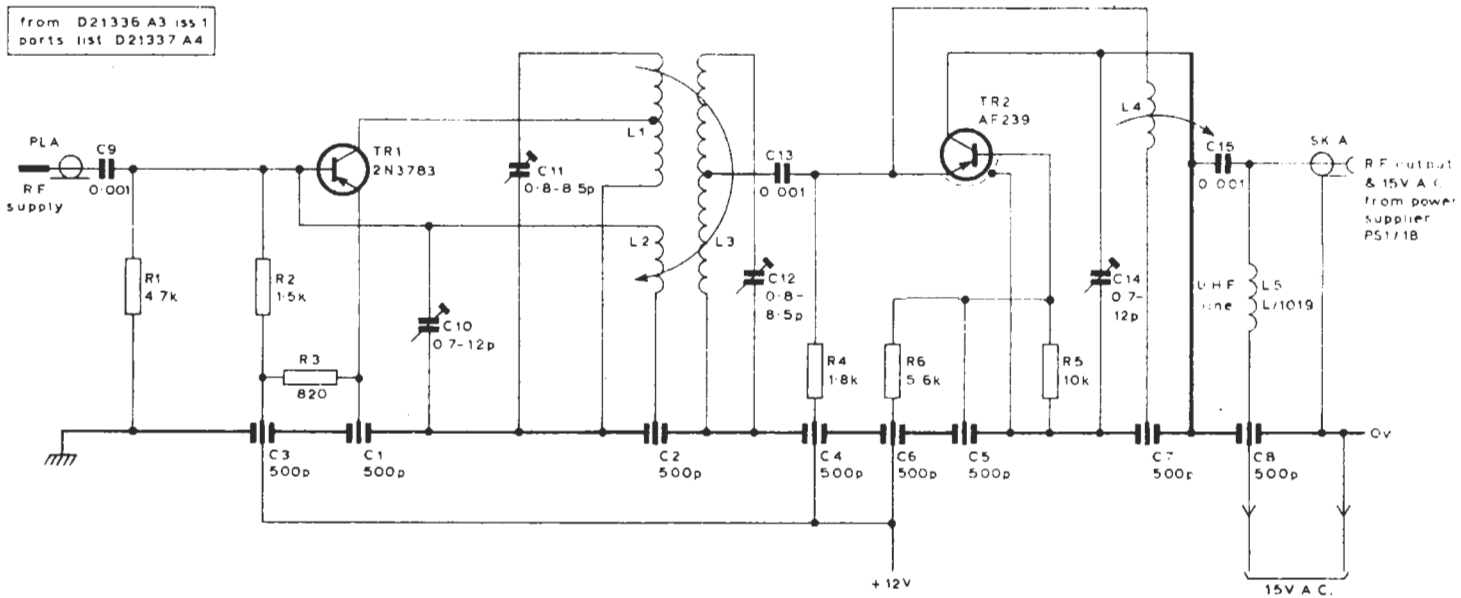
Routine maintenance is not required. The positions of the inductors L1, L2, L3 and L4 should not be disturbed as both gain and bandwidth will be affected. Similarly, the setting of the trimmers C10, C11, C12 and C14 should not be altered.

References

1. Low Noise U.H.F. Pre-amplifier Equipment EPI/517
2. Low Noise U.H.F. Pre-amplifier Assembly AM14/513
3. Television Rebroadcast Receiver RC5M/501
4. Power Supplier PS1/18
5. Designs Department Specification No. 6.136(68).

AIB 10/68

See overleaf for Fig. 1



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parts list D21337 A4

Fig. 1 Circuit of the AM14/514 and AM14/520

AM14/514/1

transistor terminations
view on leads



AF239
2N3783