

PHASE DISCRIMINATOR UN15/504

Introduction

The UN15/504 accepts two signals, normally having the same frequency, one of which is a reference standard. It compares the signals and produces a d.c. output if the relative phase alters.

The UN15/504 forms part of the UN15/503 discriminator and is built on a panel 4⁵/₈ in x 3¹/₂ in. It is mounted as part of the parent unit.

Circuit Description

The circuit diagram is given in Fig.1. The reference signal, usually derived from mixed syncs, is differentiated and then amplified by TR1. The compared signal, derived from an oscillator in an associated unit², is sinusoidal and is fed to the centre point of the secondary winding of T1 where it is mixed with the reference signal. The reference signal consists of positive and negative going pulses which correspond to the leading and trailing edge of line syncs. These pulses alternately bias D2 on and off, the positive pulse on D2 being considerably limited. When D2 is negatively biased either D1 or D3 conducts depending on the phase of the compared

signal. When the system, of which the UN15/504 forms a part, is locked and the two signals are correctly in phase, a monitoring oscilloscope at SKA (on the front panel of the parent unit) will show a sine wave with a superimposed pulse positioned at the 0-volt point of the waveform. The values R4 and R5 are adjusted during initial tests, in conjunction with correctly aligned associated apparatus^{2,3}, to achieve this.

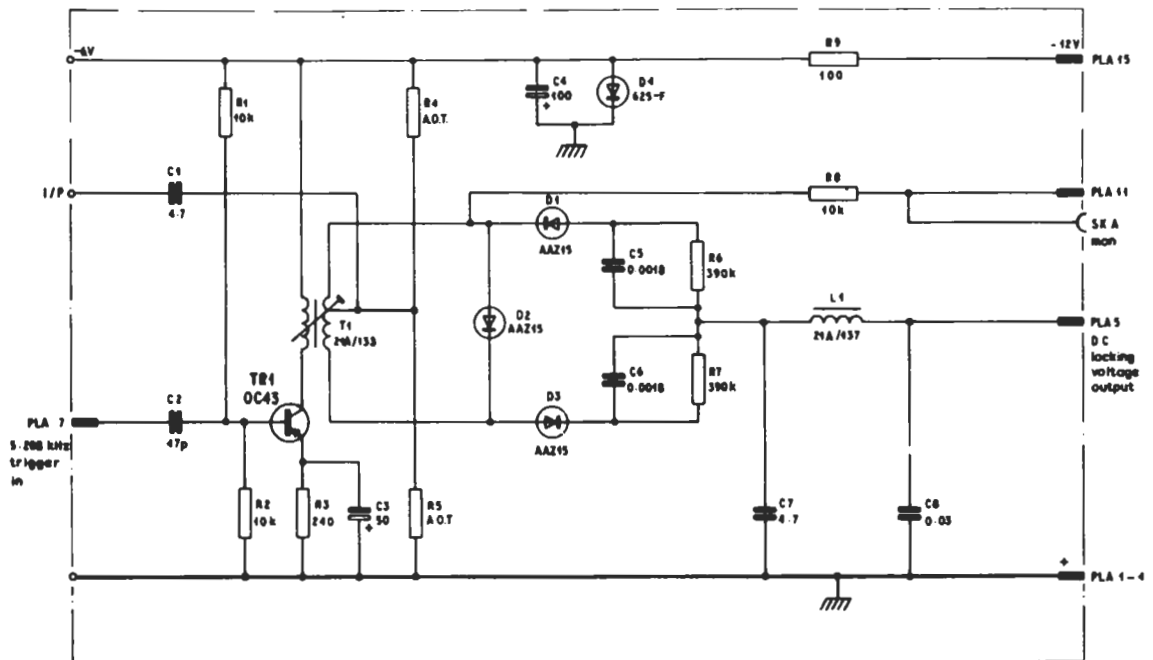
If the compared signal shifts in phase relative to the reference signal the potential across C7 changes. This change forms the output correction signal which is normally used to offset the original disturbance. L1 and C8 are for smoothing purposes.

Maintenance

Routine maintenance is not required.

Reference

1. Designs Department Specification No.4.56(69)
2. MD3/502 6-MHz F.M. Modulator
3. MD1M/507 Wide Band Sound and Vision Modulator



UN15/504/1

transistor termination
view on leads

from D24565 A3 iss. 2
parts list D24566 A4



Fig. 1. Circuit of the Phase Discriminator UN15/504