SECTION 17

FAULT INDICATOR IN5/502

Introduction

The IN5/502, as used in an Automatic Monitor Major MN2M/506 (see Instruction V.15), provides internal and external indications of faults detected in other units of the Monitor. Provision is made for the manual application of a test fault and for resetting the Indicator.

The IN5/502 is constructed on a CH1/12B chassis with index peg positions 18 and 29.

Circuit Description

A basic circuit diagram is shown in Fig. 17.1 in which the duplicated circuits for three of the four detectors are omitted. Under normal conditions, +12 volts is fed to the Indicator on PLA 7 and PLB 14. If a fault is detected the +12 volt supply on PLA 7 is transferred to PLA 8 and a few seconds later the +12 volts on PLB 14 is removed. Immediately after an automatic test fault occurs +12 volts is applied to PLB 15.

The operating sequence is as follows:

1. *Normal Condition*
   Relay RLB is operated and held on via contact RLB-1 and diode D13 from +12 volts on PLA7.
   Transistor TR1, bottomed through resistor R2, operates relay RLA which earths PLA 2.
2. *Momentary Fault Condition*
   The +12 volts on PLA 7 is transferred to PLA 8. Transistor TR1 is cut off, relay RLA is released, *Test* lamp ILPA is lit and the earth contact is removed from PLA 2.
   Fault lamp ILPB is lit.
   Relay RLB is held on via contact RLB-1 and diode D14 from +12 volts on PLB 14.
3. *Momentary Fault Clears*
   The circuit reverts to condition 1.
4. *Momentary Fault Persists*
   The +12 volts supply is removed from PLB 14 and relay RLB is released, transistor TR5 is cut off and the alarm relay RLF is released.
5. *Persistant Fault Clears*
   The +12 volt supply from PLA 8 is transferred to PLA 7, but lamp ILPB remains lit fed via diode D13 and contact RLB-1.
   Transistor TR1 is bottomed via resistor R2, relay RLA is operated, lamp ILPA is extinguished and PLA 2 is earthed.
   After a few seconds +12 volts is applied to PLB 14.

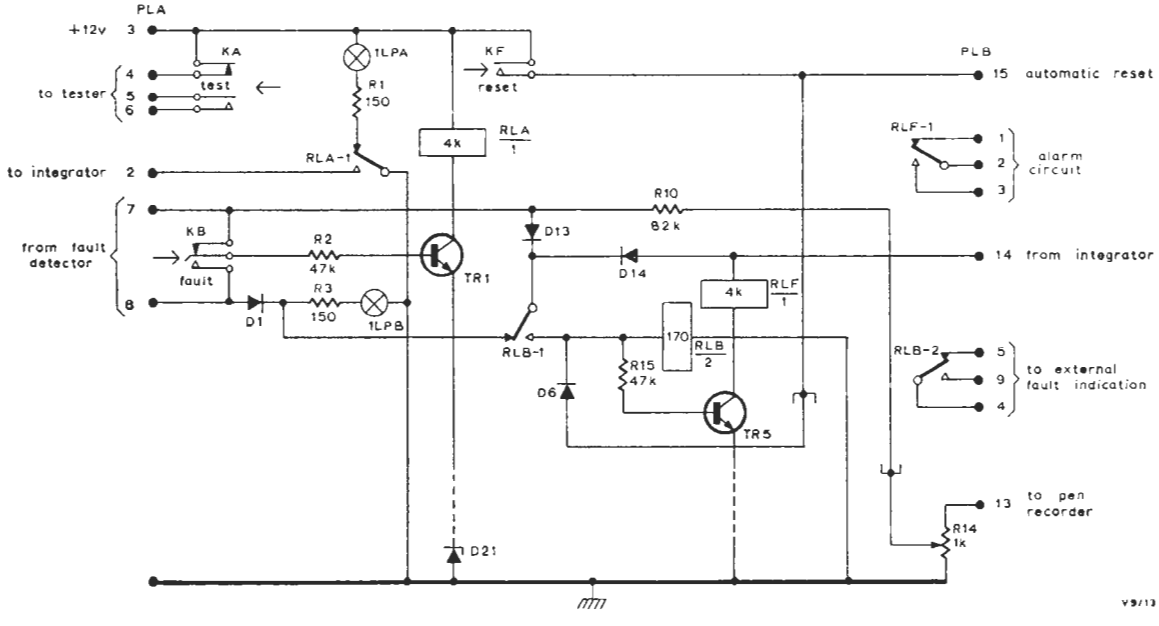

Fig. 17.1 Basic Circuit of the IN5/502

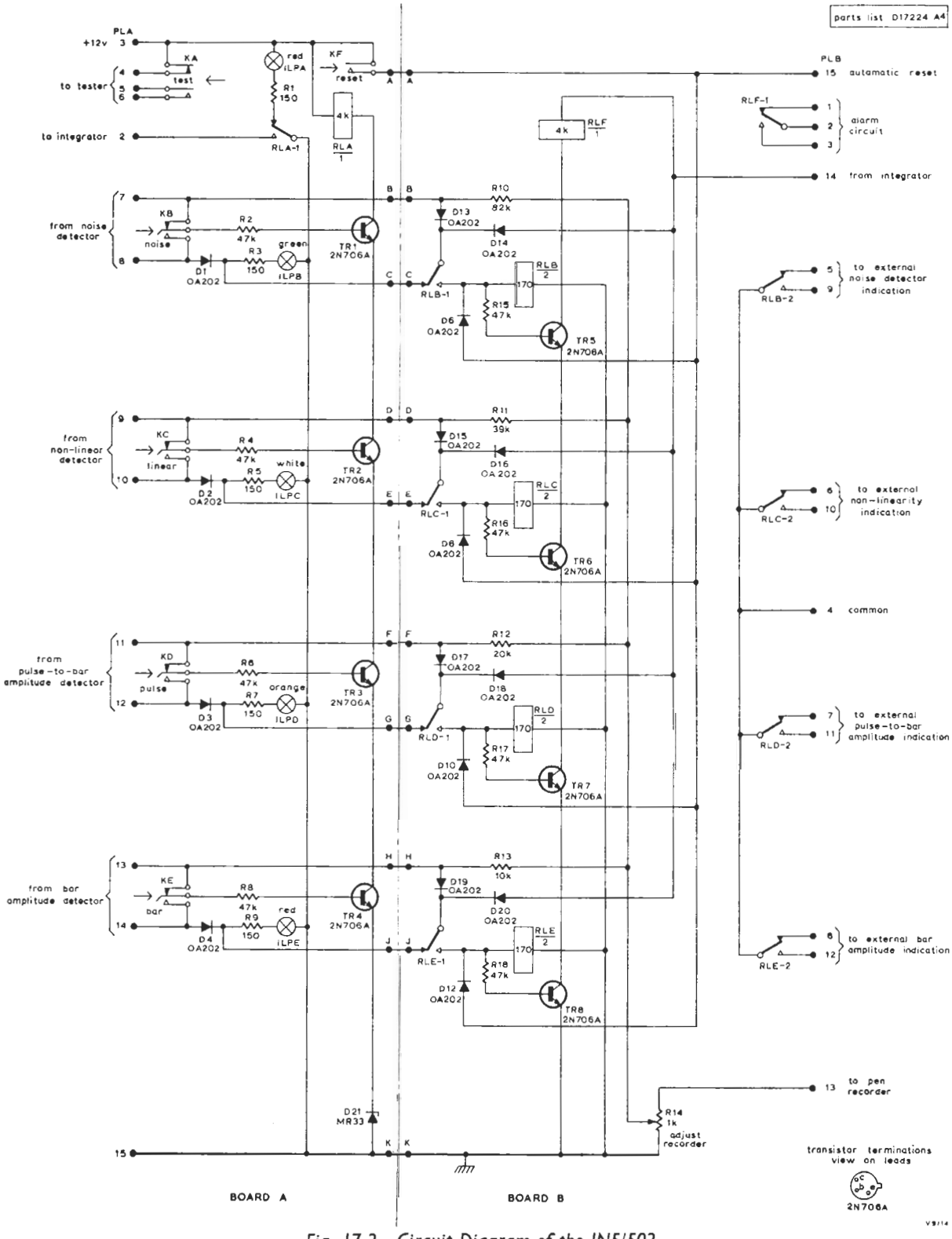

Fig. 17.2 Circuit Diagram of the IN5/502

6. *Indicator Reset*
   The Indicator may be reset by means of the *Reset* pushbutton KA or by the application of +12 volts on PLB 15.
   Transistor TR5 is bottomed via diode D6 and resistor R15. Relay RLF is operated, removing the alarm indication.
   Relay RLB is operated via diode D6 and is held on via diode D13.
7. *Prolonged Fault*
   If a prolonged fault occurs the fault pushbutton KB may be used to reverse the operation of the alarm circuit for that particular fault.

The full circuit of the IN5/502 is given in Fig. 17.2. The pen recorder output is fed from four binary-coded constant-current sources.

Test Procedure

The IN5/502 is tested as part of an Automatic Monitor Major.

MJR 10/66