

NOTE : LOGIC BOARDS & POWER SUPPLY SECTION WITHDRAWN FOR MAINTENANCE

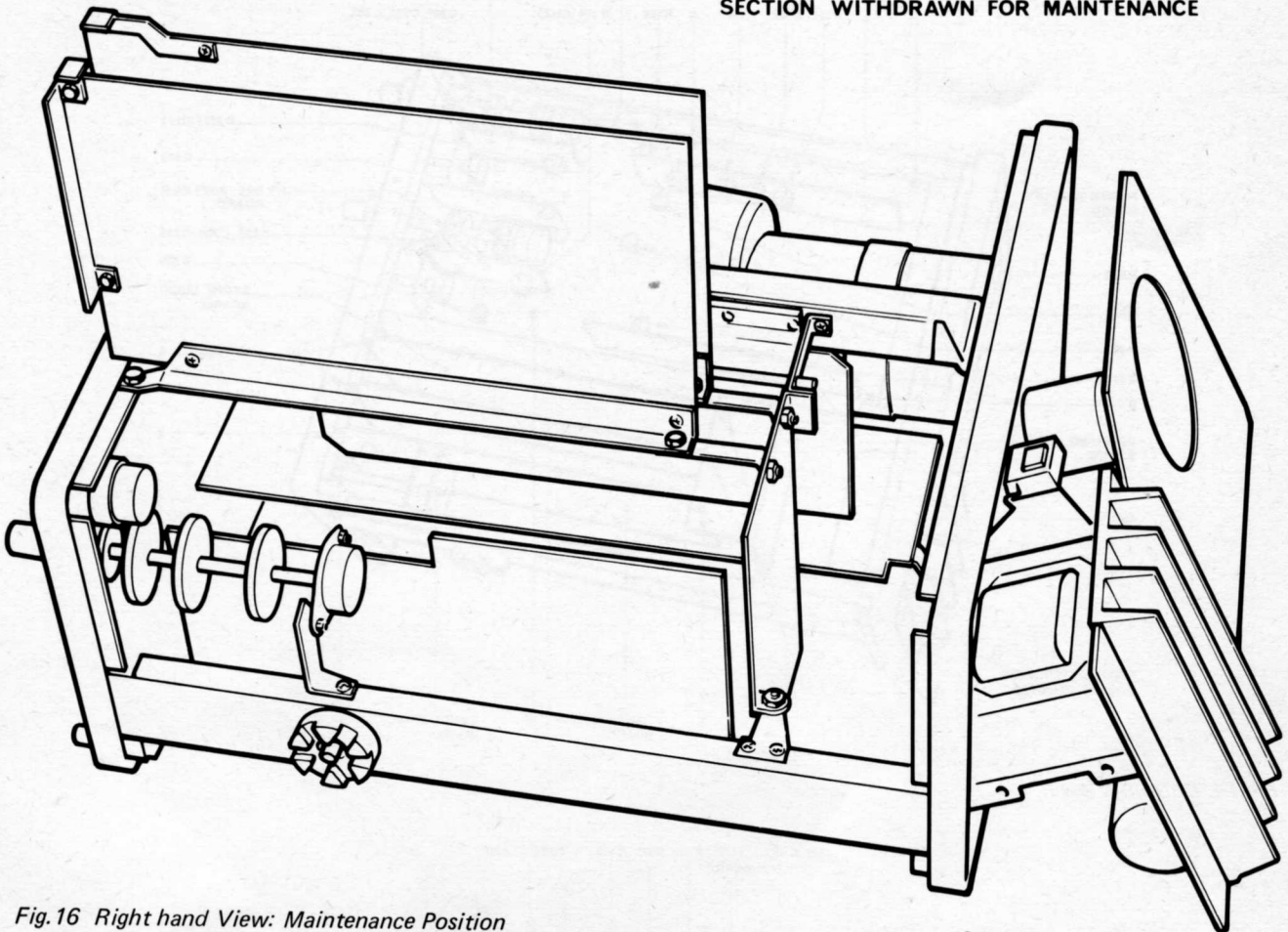


Fig.16 Right hand View: Maintenance Position

4. The tube may now be pulled back so that the faceplate disengages from the plastic moulding inside the front panel. Lift the front of the tube and remove the connector on the base. Withdraw the tube complete with shield.
5. The tube is a push fit inside the magnetic shield and is removed together with the trace rotation coil, therefore as the tube is withdrawn from the shield the trace rotation coil leads must be fed through the hole in the shield.

5.2.4 ANALOGUE TO DIGITAL CONVERTOR ASSEMBLY

Access to the trackside of the A.D.C. board is best achieved by removing the tube as described in section 5.2.3. If the board must be removed it is taken out together with the Y attenuators, input coupling switches and shift controls as follows:-

1. Remove the Y attenuator cover by removing the five fixing screws and sliding the cover towards the rear of the instrument to clear the edge of the frame. The cover may then be lifted out.
2. Remove the knobs from the Y attenuators, shift controls and input coupling switches. Remove the nut securing the rotary attenuator switches.

3. Disconnect the 7 power supply leads on the left hand edge of the board. Disconnect the 4 miniature co-axial plugs across the centre of the board, SK.P, Q, R and S, and the 'BIAS' lead. Remove the 'P' clip securing these leads to the pillar on the right hand side of the board. Disconnect the 16 way flat ribbon cable from SK.F on the right hand 'daughter' board.
4. Remove the 5 securing screws marked B in Fig.14. Lift the rear of the board and withdraw it from the instrument.

Refitting the board is the reverse of the removal procedure, but note that when fitting the securing nut to the attenuator switches, the switch assembly should be held with long-nosed pliers to avoid twisting the switch along its length. The colour code of the power supply leads may be ascertained by inspecting the bottom edge of the power supply board; the two 50 volt supplies marked 'Va' and 'Vb' on the A.D.C. board are interchangeable.

5.2.5 POWER SUPPLY ASSEMBLY

Normal access to the component side of the board is possible by removing the tube, and the trackside of the board is exposed by removing the moulded plastic rear

cover (4 fixing screws). The board may be removed by releasing the two screws securing it to the frame and also the two screws securing the heatsink bar at the edge of the board to the finned heatsink assembly. Alternatively the board may be removed as a complete assembly with the finned heatsink, power transformer, ON/OFF switch and C51 in the following manner:-

1. Remove rear cover.
2. Remove the two screws, marked 'G' in Fig.15, securing the power transformer to the logic assembly mounting plate.
3. Slacken the clamp, marked 'H' in Fig.15, and release the ON/OFF switch actuating rod from the ON/OFF switch.
4. Remove two screws securing the power supply board to the frame on the tube side of the instrument and a further four screws securing the finned heatsink to the frame. Two fixing screws holding the small panel bearing the supply line voltage switch and fuse must also be removed.
5. The rear panel assembly may now be withdrawn sufficiently to replace most of the components: complete separation entails disconnecting the two main cableforms from the power supply board and five leads associated with the c.r.t. Refitting is the reverse of removal. Care should be taken to ensure that the insulating shim between the power transformer and the logic assembly mounting plate is correctly positioned and the insulating bushes fitted to the screws 'G' securing these two parts are fitted. The clamp linking the supply switch, S51, to the front panel should be carefully aligned so that the switch operates freely without any tendency to stick.

5.2.6 TIMEBASE

Routine access to the timebase board may be gained by removing the logic boards as detailed in section 5.2.2. The timebase range switch may also be removed (see 3. below) and the board itself may be taken out along with the timebase controls (X shift, timebase range, trigger level, source and coupling and external input socket).

Proceed as follows:-

1. Remove the knobs from the 5 rotary controls and the cap from the lever switch.
2. Remove the nut securing the EXT. TRIG.B.N.C. socket and unsolder R91 allowing the socket to be removed.
3. Remove the nut from the bush of the TIME/CM rotary switch. Disconnect the 16 way ribbon cable from the timebase range switch at SK.L on the bottom of the timing logic board, and also the five leads to the timebase board at the pins labelled 9, 10, 0V, 15 and 16. Remove the single fixing screw holding the rear support bracket of the switch to the frame. Withdraw the switch assembly.
4. At the rear of the timebase board, disconnect the 4 power supply leads, the twin ribbon cable to the X plates pins 5 and 6, and remove the fixing screw securing the board to the rear mounting plate (marked 'E' in Fig.15).

5. From underneath the instrument, disconnect and identify the three screened leads to the pins labelled SB, CH1 trig. and CH2 trig. and the single wire to the Line trig. pin. Remove the two bottom fixing screws (marked 'E' in Fig.14). Remove the rear mounting plate stay (see Fig.15). Pull the rear of the board back between the power transformer and the frame side-member until it is possible to disengage the rotary control spindles from their holes in the front panel. The board may now be withdrawn from the instrument.

5.2.7 E.H.T. BOARD

Access to the E.H.T. board is normally obtained by removing the c.r.t. and the two logic boards. If, for some reason, the board itself must be removed, proceed as follows:-

1. Remove the c.r.t. the logic board assembly and the A.D.C. board assembly.
2. Slacken the clamp 'H' (see Fig.15) and withdraw the ON/OFF switch actuating rod through the front panel.
3. Remove the knobs from the SCALE, INTENSITY and FOCUS controls. Remove the small plate in front of the ON/OFF switch. Disconnect all leads.
4. Release the 3 screws marked 'F' in Fig.15, and pull the board towards the rear of the instrument until the control spindles clear the front panel, and remove the board from the instrument.

5.3 FAULT FINDING

Faults may be attributed to specific areas of the instrument by following the fault localisation procedure given in section 5.3.1. More detailed examination of the analogue circuitry may be undertaken with the aid of the circuit voltage tables given in section 5.3.2, and the Control Condition Table illustrated in Fig.17 will help to isolate faults in the digital (logic) circuitry.

Certain faults occurring in the digital section of the instrument (in connection with the manipulation of the digitised signal and the addressing of the stores) and also the Analogue to Digital Converter (A.D.C.) are often characterised by particular distortions of the displayed signal in the REFRESHED and ROLL modes. A logical method of approaching these faults is outlined in section 5.3.3 together with the secondary fault localisation charts for the stored data path (section 5.3.4) and the A.D.C. (section 5.3.5).