

Appendix 4

HEIGHT LOCK TRANSDUCER, TYPE A, Ref. No. 6A/5935

SERVICING

COMPONENT REMOVAL AND REPLACEMENT

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Introduction

1. This appendix covers the removal and replacement at second line servicing of all electrical components of the height lock transducer, Type A, Ref. No. 6A/5935, excepting the capsule unit and gear train. Removal of the capsule unit and gear train, and components from within these assemblies, is not included in the second line servicing of the transducer.

Note . . .

After replacing a component and completing any necessary tests and adjustments, the transducer cover must be replaced and the unit subjected to the complete S.S.T. detailed in App. 1.

Tools

2. No special tools are required other than those

necessary for removing the Plessey plug, and for tightening the split clamp securing screws. Torque wrenches and test rigs required for correct split clamp loading are:—

(1) Torque wrench (with screwdriver attachments).

(a) 0.3 to 2.59 kgm. cm. Ref. No. 1C/7039

(b) 4.61 to 41.47 kgm. cm. Ref. No. 1C/7085

(2) Test rig for torque wrenches.

(a) Ref. No. 4A/2359 for torque wrench Ref. No. 1C/7039

(b) Ref. No. 4A/2433 for torque wrench Ref. No. 1C/7085.

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Servicing methods

3. To facilitate the removal or replacement of a component, and to safeguard the equipment, the following methods should be employed:—

- (1) When soldering or unsoldering transistors or diodes use thermal shunts and avoid prolonged use of the soldering iron.
- (2) Label all leads prior to, or immediately after unsoldering, to facilitate reconnection.
- (3) When using a soldering iron, take care not to touch adjacent cables or components.
- (4) When renewing a transistor, rectifier, capacitor or resistor, trim the wires of the component sufficiently to hook neatly round the respective terminals.
- (5) When replacing polarized components, ensure their correct connection into the circuit.
- (6) After replacing a component, lock the securing screws, if applicable, using Loctite or a similar recommended sealant.
- (7) When refitting or tightening a split clamp, the screws must be adjusted evenly so that the gaps between the halves are maintained equal. Finally torque tighten the screws using the appropriate torque screwdriver for the size and type of screw. The torque loadings are listed in Table 1.

Cover

4. (1) To remove cover, remove the two 6B.A. ch. hd. screws situated at the rear of the transducer, and slide the cover towards the rear.
- (2) To refit cover, slide the cover over the transducer, ensuring that the front edge of the cover engages tightly with the spring clips attached to the front panel.
- (3) Refit the two 6B.A. ch. hd. retaining screws.

Chassis assembly (Chap. 3, fig. 2)

5. (1) Remove cover (para. 4).
- (2) Untie the cable-form to the capsule heater element from the clips on the chassis assembly.
- (3) Remove the seven 6B.A. ch. hd. screws securing the chassis assembly to the front panel and side frames.
- (4) Carefully pull the chassis assembly rearwards until plug HL1 clears the front panel.

(5) Lift the chassis just clear of the side frames and place the assembly on its rear, adjacent to the transducer, ensuring not to pull the cableform attaching the chassis assembly to the terminal bracket assembly within the transducer.

(6) To refit the chassis assembly, reverse the above procedure.

Plug HL1

Removal

6. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5).
- (3) Unscrew and remove the two 6B.A. ch. hd. screws and plain nuts securing relay RLA to the chassis assembly.
- (4) Carefully pull RLA through the top of the chassis assembly.
- (5) Using a suitable tool, slacken the lockring on plug HL1.
- (6) Unscrew and remove the lockring and washer.
- (7) Pull plug HL1 from rear of chassis assembly extension.
- (8) Roll back the rubber sleeving on each wire in turn to expose the soldered connection and unsolder the wire.

Replacement

7. (1) Ensure that the wire ends are tinned, and do not carry excess solder.
- (2) Check that the replacement plug is of the correct orientation.
- (3) Solder each wire in turn into the respective pin on the plug.

Note . . .

The bucket ends of the pin inserts are supplied already tinned with solder and care should be taken when soldering to avoid any overflow of solder from the buckets.

- (4) Roll the rubber sleeving over the soldered connection.
- (5) After soldering, ensure that adequate clearance exists between adjacent connections.
- (6) Insert the plug from the rear through the chassis assembly extension.
- (7) Place the washer and lockring on the plug body.

- (8) Using a suitable tool, tighten the locking.
- (9) Carry out plug wiring test (App. 3).
- (10) Place relay RLA in position in the chassis assembly and secure with the two 6B.A. ch. hd. screws and plain nuts.
- (11) Refit chassis assembly.

Transistor amplifier (TA1)

8. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5).
- (3) Unsolder the eight connections to pins a, b, and d to j on the amplifier, which protrude through the top of the chassis assembly.
- (4) Remove the four 6B.A. ch. hd. screws securing TA1 to the underside of the chassis assembly, and lift the amplifier from the chassis.
- (5) Refitting or renewing is a reversal of the above procedure.
- (6) Refit chassis assembly.
- (7) Carry out setting-up instructions (App. 3).

Magnetic amplifier (MA1)

9. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5)
- (3) Unsolder the seven connections to pins A, D, J, G, H, K and N on the amplifier, which protrude through the top of the chassis assembly.
- (4) Remove the four 6B.A. ch. hd. screws securing MA1 to the underside of the chassis assembly, and lift the amplifier from the chassis.
- (5) Refitting or renewing is a reversal of the above procedure.
- (6) Refit chassis assembly.
- (7) Carry out setting-up procedure (App. 3).

Motor-tachogenerator (X2)

10. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5).

- (3) Remove the 6B.A. screw, adjacent to C8, securing the wiring loom to the gear plate.

- (4) Remove the four 6B.A. ch. hd. screws from the mounting flange of the motor-tachogenerator and lift the motor vertically, taking care not to damage the 20T pinion on the motor shaft and 200T gear under the motor plate.

- (5) Remove the cord lacing the wiring loom and unsolder the eight leads connecting X2 to the terminal block.

- (6) Slacken the split clamp securing the 20T pinion to the motor shaft and remove pinion.

- (7) Refitting or renewing is a reversal of the above procedure.

Note . . .

When replacing the 20T pinion, torque tighten the split clamp screws in accordance with Table 1 and ensure that the two halves of the clamp are symmetrical on the shaft.

- (8) Refit chassis assembly.

- (9) If necessary, carry out setting-up procedure (App. 3).

Relays

11. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5).
- (3) Unsolder the leads from the connections on the underside of the respective relay.
- (4) Remove the two 6B.A. ch. hd. screws securing the relay to the chassis assembly, and remove the relay.
- (5) Refitting or renewing is a reversal of the above procedure.
- (6) Refit chassis assembly.

Potentiometers

12. (1) Remove cover (para. 4).
- (2) Remove chassis assembly (para. 5).
- (3) Unsolder the three leads to the potentiometer.
- (4) Remove the single 8B.A. ch. hd. screw securing the potentiometer to the chassis assembly and remove the potentiometer.

- (5) Refitting or renewing is a reversal of the above procedure.
- (6) Refit chassis assembly.
- (7) Carry out setting-up procedure (App. 3).

Resistors, capacitors and semi-conductors

13. (1) Remove cover (para. 4).
- (2) If necessary, remove chassis assembly (para. 5).
- (3) All the components can be readily unsoldered from their respective terminals with the exception of R25, R26, R27, and C3.
- (4) R25 and C3 are situated on the rear of the chassis assembly beneath the leads of transistors VT1, VT2 and VT3, therefore, ensure that these leads are not damaged when unsoldering or resoldering the components.
- (5) R26 and R27 are mounted on the inside

face of the chassis assembly extension supporting plug HL1. To gain access to R26 and R27, remove the plug (para. 5) from the chassis extension. The resistors may now be unsoldered.

(6) If necessary, after replacing a component, refit plug HL1 and the chassis assembly.

(7) If necessary, carry out setting-up procedure (App. 3).

TABLE 1

Torque loadings for stainless steel split clamp securing screws

Screw size	Loading (kgm.cm)
12B.A.	0.850
10B.A.	1.900
8B.A.	6.000
6B.A.	To be given later

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