

SIGNAL GENERATOR NO. 1, Mks. I, II, II\*

FIRST ECHELON WORK

ROUTINE TECHNICAL MAINTENANCE

Valve replacement

1. The valves are of standard commercial types and have not been specially selected. When replacing the R F. oscillator valve, care must be taken that no serious disturbance of frequency calibration results. This effect is likely to be most pronounced at the highest frequencies; consequently a valve should be selected which introduces the least possible error at 25Mc/s and which is also capable of giving the full normal output. Although linearity of the modulator is not assumed in calibrating the PERCENT MOD control, the departure from linearity is sufficiently small to ensure that, on replacing any valve, the indicated depth of modulation will usually be within the limits specified (see Tels. Z 300/1).

Coil turret

2. The contacts of the coil turret are designed to have a self-cleaning action. Should symptoms of poor contact develop due to infrequent use, the best treatment is to operate the control a number of times in both directions. If, after considerable use, an intermittent R.F. output reading is obtained, and the above treatment does not remedy the fault, the spring contacts may require cleaning.

3. To clean the spring contacts, proceed as follows:-

- (a) Remove the coil unit, following the procedure given in para.6.
- (b) Clean the spring and coil contacts with a VERY FINE emery paper.
- (c) Wash with a minimum of methylated spirit.
- (d) Lubricate with a trace of fine switch grease.
- (e) DO NOT BEND THE COIL CONTACTS. These are of hardened beryllium copper, and have been set at the correct angle in assembly. The contact is likely to break if any attempt is made to reset it.

The click mechanism of the coil turret should be lubricated occasionally with a small quantity of fine oil.

Slide wire

4. The contact surface of the slide wire may require lubrication occasionally. The slide wire is readily accessible on removing the cover plate of the attenuator. Use a fine switch grease.

Multiplier unit

5. The MULTIPLIER contacts have a self-cleaning action and bad contacts due to infrequent use can usually be cleared by rotating the knob four or five times in each direction. Should it be necessary to clean the contacts, proceed as follows :-

- (a) Remove the eight 6 B.A. screws from the attenuator casting.
- (b) Lift off the rear cover.
- (c) Rub the contacts with a VERY FINE emery paper.
- (d) Wash with a little methylated spirit applied on a small brush.
- (e) Clean thoroughly with a dry cloth.
- (f) The rubbing track may be lubricated with a trace of switch grease or Vaseline.

- (g) Replace the rear cover and the fixing screws.

#### REPAIR INFORMATION

##### Removal of coil unit

6. To remove the coil unit, proceed as follows:-
- (a) Remove the instrument from its case.
  - (b) Remove the six 4 B.A. screws.
  - (c) Withdraw the cover plate from the rear of the oscillator screening box.
  - (d) Remove the four screws holding the lower horizontal bar and withdraw the bar.
  - (e) Unscrew the two 2 B.A. nuts at the rear of the coil unit.
  - (f) Turn the coil assembly to a position between two ranges (so that the contact springs are free) and withdraw the whole unit.

##### Thermocouple replacement

7. A spare couple is supplied with each instrument and is mounted on the attenuator cover plate. To replace a damaged thermocouple proceed as follows:-
- (a) Remove the eight 6 B.A. screws from the cover plate of the attenuator.
  - (b) Withdraw the plate.
  - (c) Unsolder the leads from the four couple tags, noting the connections.
  - (d) Remove the two 6 B.A. retaining screws.
  - (e) Withdraw the couple.
  - (f) Mount the replacement couple in position.
  - (g) Insert the two 6 B.A. screws.
  - (h) Replace the wiring as on the original couple.
  - (h) Adjust the replacement couple as described in para. 8.

##### Thermocouple adjustment

8. To adjust a replacement couple, refer to Fig. 1 and proceed as follows:-
- (a) Connect the load resistance in the base of the couple in series with the signal generator meter to the + and - tags of the thermocouple.
  - (b) Connect a standard ammeter (Avometer, model 7 or any B.S.1 25mA D.C. meter), a 25 $\Omega$  variable resistor, a 60 $\Omega$  fixed resistor and a 2V cell to the couple tags H. THE 60 $\Omega$  LIMITING RESISTOR MUST ON NO ACCOUNT BE OMITTED.
  - (c) Set the heater current to 23mA as read on the standard meter.
  - (d) Adjust the load resistance so that with 23mA flowing, the signal generator meter reads exactly at the SET MODULATION mark.
  - (e) When the final adjustment has been made, disconnect the calibration circuit.
  - (f) Replace the wiring as on the original couple.
  - (g) Replace the cover plate and fixing screws.

The accuracy of the adjustment depends directly on the accuracy of measurement of the 23mA standardizing current.

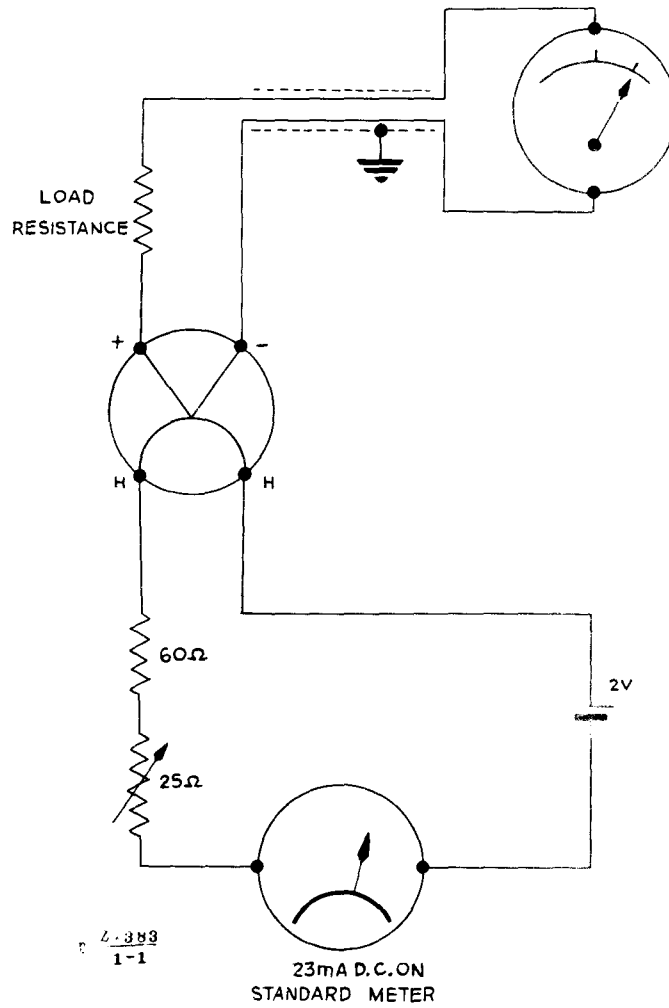


Fig. 1 - Adjustment of thermocouple

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