

G.E.C. - BC5050, BC5055

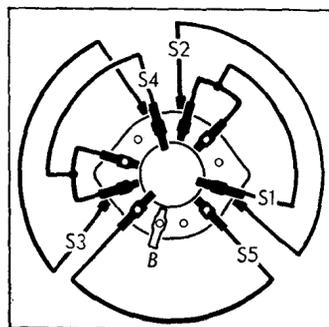
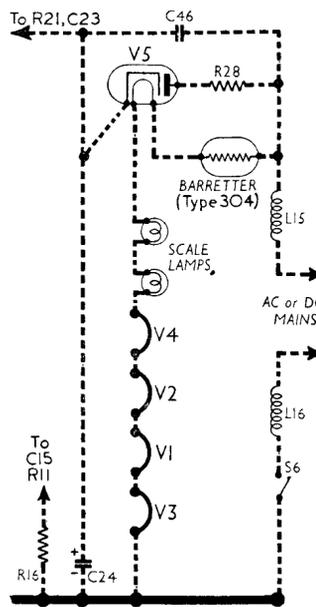
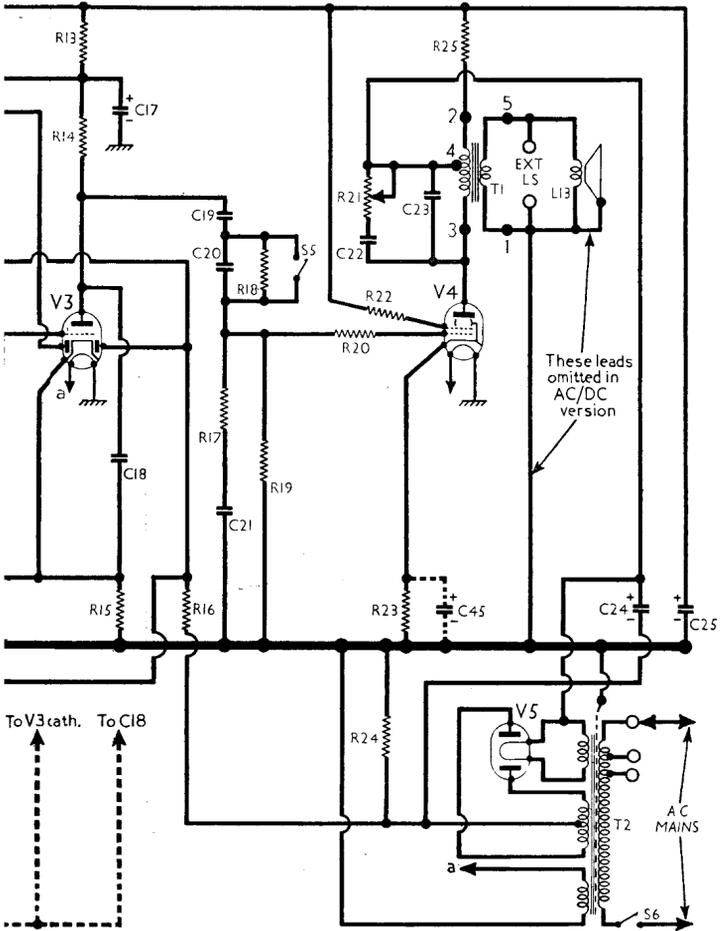
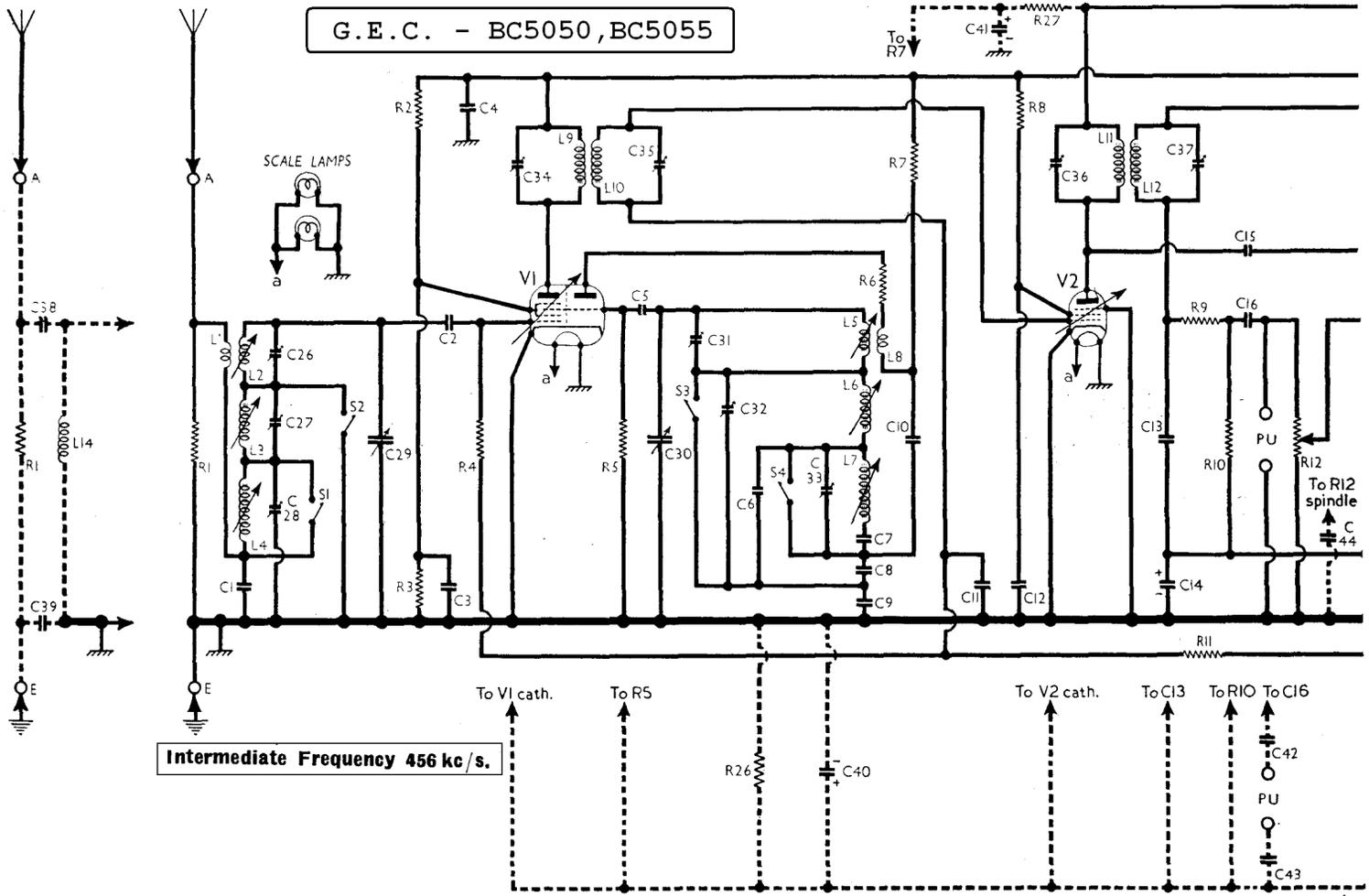
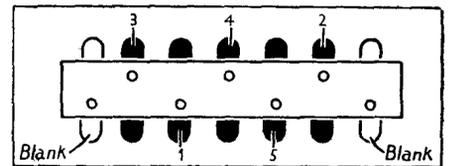


Diagram of the waveband switch unit, as seen when viewed from the rear of an inverted chassis.

| Valve                  | Anode |      | Screen |     | Cath. |
|------------------------|-------|------|--------|-----|-------|
|                        | (V)   | (mA) | V      | mA  |       |
| <b>A.C. Model</b>      |       |      |        |     |       |
| V1 X61M                | 146   | 2.4  | 64     | 2.6 | —     |
| Oscillator             | 74    | 3.0  |        |     |       |
| V2 W61                 | 201   | 4.7  | 53     | 1.7 | —     |
| V3 DH63                | 70    | 0.6  | —      | —   | 1.08  |
| V4 KT61                | 253   | 35.0 | 201    | 5.7 | 3.78  |
| V5 U50                 | 265†  | —    | —      | —   | 279   |
| <b>A.C./D.C. Model</b> |       |      |        |     |       |
| V1 X61M                | 106   | 1.3  | 50     | 1.9 | 1.38  |
| Oscillator             | 87    | 3.4  |        |     |       |
| V2 W61                 | 144   | 4.9  | 45     | 1.6 | 1.38  |
| V3 DH63                | 70    | 0.2  | —      | —   | 1.38  |
| V4 KT33C               | 185   | 56.0 | 144    | 8.1 | 7.48  |
| V5 U31                 | 214†  | —    | —      | —   | 196   |

† A.C. § 10V meter range.



Alternative arrangement of tags on the connecting panel of the output transformer T1 in the A.C./D.C. version.

**Chassis Divergencies.**—C13 in our sample receivers was 0.0005  $\mu$ F, but it may be 0.0003  $\mu$ F in some cases. In the A.C./D.C. versions, the whole of the scale assembly is isolated from chassis. This includes the supports, which carry all the control spindles, so that C44, which is connected between the volume control spindle and chassis, actually ties down the whole of the scale assembly to chassis. The scale lamps are mounted in isolated holders, and the gang drum is a plastic moulding.

| Resistors | A.C.          |           | A.C./D.C.     |           |
|-----------|---------------|-----------|---------------|-----------|
|           | Values (ohms) | Locations | Values (ohms) | Locations |
| R1        | 10,000        | F5        | 1,000,000     | F5        |
| R2        | 15,000        | F5        | 15,000        | F5        |
| R3        | 22,000        | E5        | 22,000        | E5        |
| R4        | 1,000,000     | F5        | 1,000,000     | F5        |
| R5        | 100,000       | E5        | 100,000       | E5        |
| R6        | 390           | E5        | 390           | E5        |
| R7        | 22,000        | F4        | 6,800         | F4        |
| R8        | 56,000        | H5        | 39,000        | H5        |
| R9        | 56,000        | H5        | 56,000        | J5        |
| R10       | 470,000       | J5        | 470,000       | J5        |
| R11       | 1,000,000     | H5        | 1,000,000     | H5        |
| R12       | 1,000,000     | D1        | 1,000,000     | D1        |
| R13       | 4,700         | K4        | 4,700         | K4        |
| R14       | 100,000       | K5        | 100,000       | J5        |
| R15       | 2,200         | J4        | —             | —         |
| R16       | 470,000       | J5        | 470,000       | J5        |
| R17       | 150,000       | L4        | 150,000       | L4        |
| R18       | 680,000       | L4        | 680,000       | L4        |
| R19       | 330,000       | L4        | 330,000       | L3        |
| R20       | 10,000        | K3        | 10,000        | K3        |
| R21       | 55,000        | M3        | 55,000        | M3        |
| R22       | 100           | K3        | 100           | K3        |
| R23       | 91            | K4        | —120          | L5        |
| R24       | 39            | M3        | —             | —         |
| R25       | 3,300         | K4        | 2,200         | K4        |
| R26       | —             | —         | 100           | F5        |
| R27       | —             | —         | 6,800         | J3        |
| R28       | —             | —         | 180           | L5        |

### DRIVE CORD REPLACEMENT

The drive cord for the tuning drive system consists of two sections, one part being a length of stranded steel wire, and one of stout twine, and it is convenient to make up the two sections and tie them together before fitting them. Suitable materials for the cord may be obtained from the G.E.C. Service Depot, Greycoat Street, Westminster, London, S.W.1.

Make up the wire with a loop of about  $\frac{1}{8}$  inch diameter at each end so that it measures 16 $\frac{1}{2}$  inches overall. Take about four feet of the twine and tie one end of it with a non-slip knot to one end of the wire. The wire joints can easily be sealed by a touch of solder, and it is advisable to apply a dab of cellulose or some sealing compound to the twine knot.

Turn the gang to maximum, when the drum should take up the position shown in our sketch below. Hook the free end of the wire to the anchor tag shown and run the wire down through the right-hand slot and clockwise half-way round the drum, then off to the cursor carriage as shown in the sketch.

Continuing with twine, make two turns clockwise round the control spindle, starting hard up against the boss at the base (so that the turns travel outwards when the spindle is turned) and so on round to the gang drum. There, tie off the twine fairly short to one end of the tension spring, hooking the other end of the spring in the appropriate hole to give the required tension.

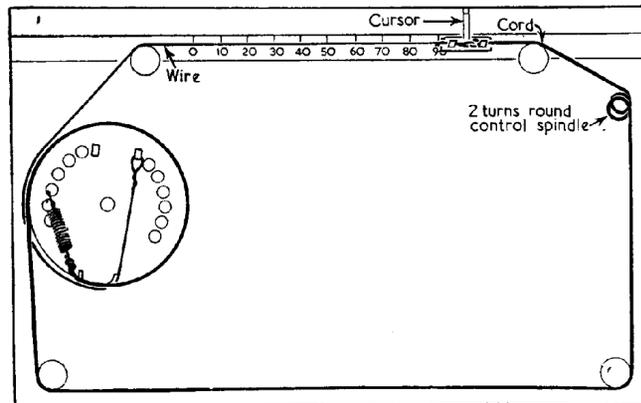
Clamp the cord under the tags on the cursor carriage, the join between the two sections being about central. The left-hand edge of the carriage should now be level with the 90 deg mark on the alignment scale. Adjustment may be made by turning the drum on the gang spindle.

### CIRCUIT ALIGNMENT

These operations may be carried out within the chassis in the cabinet, but since a calibrated scale is printed on the front of the cursor rail they are more conveniently performed with the chassis on the bench. In the following instructions both the wavelength (identified by a spot) on the glass tuning scale to which the cursor should be set, and the corresponding position of the cursor carriage in degrees, measured against the left-hand (red) side of the cursor carriage, are quoted.

| Capacitors | A.C.              |           | A.C./D.C.         |           |
|------------|-------------------|-----------|-------------------|-----------|
|            | Values ( $\mu$ F) | Locations | Values ( $\mu$ F) | Locations |
| C1         | 0-00395           | G3        | 0-00395           | G3        |
| C2         | 0-0001            | F4        | 0-0001            | F4        |
| C3         | 0-05              | E5        | 0-05              | E5        |
| C4         | 0-05              | H5        | 0-05              | J4        |
| C5         | 0-0001            | E5        | 0-000047          | E5        |
| C6         | 0-000039          | E3        | 0-000039          | E3        |
| C7         | 0-00027           | E4        | 0-00027           | E4        |
| C8         | 0-00043           | E4        | 0-00043           | E4        |
| C9         | 0-00395           | F3        | 0-00395           | F3        |
| C10        | 0-005             | E4        | 0-005             | E4        |
| C11        | 0-05              | G5        | 0-05              | G5        |
| C12        | 0-05              | H5        | 0-05              | H5        |
| C13        | 0-0003            | J5        | 0-0003            | J5        |
| C14*       | 25-0              | J4        | —                 | —         |
| C15        | 0-000022          | H5        | 0-000022          | H5        |
| C16        | 0-02              | J5        | 0-02              | H5        |
| C17*       | 4-0               | H4        | 4-0               | H4        |
| C18        | 0-0005            | J5        | 0-0005            | J5        |
| C19        | 0-02              | K5        | 0-02              | K5        |
| C20        | 0-0002            | K4        | 0-0002            | K4        |
| C21        | 0-0015            | L4        | 0-0015            | L4        |
| C22        | 0-05              | L3        | 0-1               | L3        |
| C23        | 0-002             | J4        | 0-01              | J3        |
| C24*       | 16-0              | L3        | 24-0              | L3        |
| C25*       | 20-0              | H4        | 32-0              | L5        |
| C26†       | 0-00003           | F4        | 0-00003           | F4        |
| C27†       | 0-00003           | F4        | 0-00003           | F4        |
| C28†       | 0-00008           | F3        | 0-00008           | F3        |
| C29†       | 0-00045           | D1        | 0-00045           | D1        |
| C30†       | 0-00045           | D1        | 0-00045           | D1        |
| C31†       | 0-00003           | F4        | 0-00003           | F4        |
| C32†       | 0-00003           | F4        | 0-00003           | F4        |
| C33†       | 0-00008           | F3        | 0-00008           | F3        |
| C34†       | 0-00013           | D2        | 0-00013           | D2        |
| C35†       | 0-00013           | D2        | 0-00013           | D2        |
| C36†       | 0-000425          | C2        | 0-000425          | C2        |
| C37†       | 0-000425          | C2        | 0-000425          | C2        |
| C38        | —                 | —         | 0-001             | G5        |
| C39        | —                 | —         | 0-02              | F5        |
| C40*       | —                 | —         | 25-0              | J4        |
| C41*       | —                 | —         | 8-0               | H3        |
| C42        | —                 | —         | 0-01              | J5        |
| C43        | —                 | —         | 0-01              | J5        |
| C44        | —                 | —         | 0-001             | D1        |
| C45*       | —                 | —         | 25-0              | J4        |
| C46        | —                 | —         | 0-01              | L5        |

\* Electrolytic. † Variable. ‡ Pre-set.



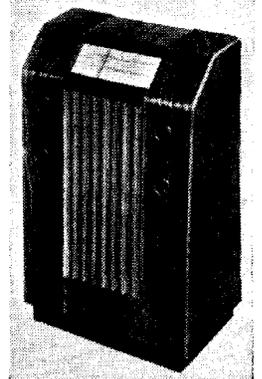
**I.F. Stages.**—Switch set to L.W., turn gang and volume control to maximum, connect signal generator (via an 0.01  $\mu$ F capacitor in the "live" lead) to control grid (top cap) of V2 and the E terminal. Feed in a 456 kc/s (657.8 m) signal, and adjust C37 and C36 (location reference H5) for maximum output.

Transfer "live" signal generator lead and series capacitor to control grid (top cap) of V1 and chassis, feed in a 456 kc/s signal, and adjust C34 and C35 (F5) for maximum output. Do not readjust C36, C37.

**R.F. and Oscillator Stages.**—With the gang at maximum capacitance the cursor should be vertical and coincident with the brown dot (90 deg.) at the high wavelength end of the L.W. scale. It may be adjusted in position by rotating the drive drum on its spindle, after slackening the two fixing screws. Transfer "live" signal generator lead to A terminal, via a suitable dummy aerial.

| OTHER COMPONENTS |                                       | Approx. Values (ohms) | Locations |
|------------------|---------------------------------------|-----------------------|-----------|
| L1               | Aerial S.W. coup....                  | Very low              | G4        |
| L2               |                                       | Very low              | G4        |
| L3               |                                       | 2-0                   | G4        |
| L4               |                                       | 15-0                  | G3        |
| L5               |                                       | 0-1                   | E4        |
| L6               | Aerial tuning coils                   | 2-3                   | E4        |
| L7               |                                       | 6-0                   | E3        |
| L8               |                                       | Very low              | E4        |
| L9               | Osc. S.W. react. ...                  | 5-0                   | D2        |
| L10              |                                       | 5-0                   | D2        |
| L11              | 1st I.F. trans. { Pri. ...            | 3-5                   | C2        |
| L12              |                                       | 3-5                   | C2        |
| L13              | 2nd I.F. trans. { Sec. ...            | 2-2                   | —         |
| T1               |                                       | 510-0                 | J4        |
| T2               | Mains trans. { Pri., 3-4 ...          | 17-5                  | J4        |
|                  |                                       | 0-4                   | —         |
|                  |                                       | 27-0                  | —         |
|                  |                                       | 0-2                   | A2        |
| S1-S5            | W/band switches... Mains sw., g'd R21 | 0-2                   | —         |
| S6               |                                       | 295-0                 | E3        |
|                  | In A.C./D.C. Model Only               |                       | —         |
| L14              | Aerial shunt ...                      | 48-0                  | F4        |
| L15              |                                       | 2-2                   | M4        |
| L16              |                                       | 2-2                   | M4        |
| T1               | Output chokes { Pri., 3-4 ...         | 150-0                 | J4        |
|                  |                                       | 15-2                  | J4        |
|                  | Trans. { Sec., 4-2 ...                | 0-5                   | —         |
|                  |                                       | —                     | —         |

**S.W.**—Switch set to S.W., tune to 50 m (86 deg), feed in a 50 m (6 Mc/s) signal, and adjust the cores of L5 (D2) and L2 (C2) for maximum output. Tune to 16.7 m (6.5 deg), feed in a 16.7 m (18 Mc/s) signal, and adjust C31 (F4) and, while rocking the gang, C26



Sketch showing the tuning drive system, which is the same in A.C. and A.C./D.C. models. It is drawn as seen from the front when the gang is at maximum. In the A.C./D.C. version the gang drum is a plastic moulding.

(F4) for maximum output, choosing the peak on C31 involving the lesser capacitance. Repeat these operations until no improvement results.

**M.W.**—Switch set to M.W., tune to 500 m (73.5 deg), feed in a 500 m (600 kc/s) signal, and adjust the cores of L6 (D1) and L3 (C1) for maximum output. Tune to 214 m (8.5 deg), feed in a 214 m (1,402 kc/s) signal, and adjust C32 (F4) and C27 (F4) for maximum output. Repeat these operations until no improvement results.

**L.W.**—Switch set to L.W., tune to 1,875 m (72.5 deg), feed in a 1,875 m (160 kc/s) signal, and adjust the cores of L7 (D1) and L4 (C1) for maximum output. Tune to 1,000 m (11 deg), feed in a 1,000 m (300 kc/s) signal, and adjust C33 (F3) and C28 (F3) for maximum output. Repeat these operations until no improvement results.