

MURPHY - B813

Transistor voltages given in the table below were taken from information supplied by the manufacturers and were measured on the 10V and 2.5V ranges of a model 8 Avometer under "no signal" conditions with volume control at minimum. All readings are negative with respect to chassis.

Transistor Table

| Transistor | Emitter (V) | Base (V) | Collector (V) |
|------------|-------------|----------|---------------|
| TR1 | AF117 | 1.0 | 1.15 |
| TR2 | AF117 | 0.65 | 0.85 |
| TR3 | AF117 | 1.0 | 1.25 |
| TR4 | OC71 | 0.63 | 0.73 |
| TR5 | OC81D | 0.45 | 0.6 |
| TR6 | OC81 | 0.03 | 0.16 |
| TR7 | OC81 | 0.03 | 0.16 |

CIRCUIT ALIGNMENT

For alignment purposes the chassis should be removed from the case.

Equipment Required.—An a.m. signal generator covering the range 158kc/s to 1,605kc/s; a 0-200mW audio output meter or alternatively, a 20,000Ω/V meter to measure the voltage across the speech coil; a 0.1μF isolating capacitor; an insulated r.f. coupling loop and a suitable non-ferrous trimming tool.

Note: Cursor settings for r.f. alignment are indicated on an auxiliary scale which appears on the reverse side of the scale backplate.

During alignment the signal input level should be adjusted to maintain the receiver output at 50mW with the volume control at maximum (1.87V across loudspeaker speech coil). When adjusting i.f. coil cores the outer peak is the correct tuning point.

1.—Switch on signal generator and allow to warm up for 15 minutes, then connect the output via a 0.1μF isolating capacitor to the S2 side of C3. Connect the audio output meter in place of the loudspeaker, or connect the 20,000Ω/V meter across the loudspeaker speech coil.

2.—Switch receiver to m.w. and tune to about 300m. Feed in a 470kc/s 30 per cent modulated signal and adjust the cores of L13, L12, L11, L10 and L9 once only, in that order, for maximum output.

3.—Connect the signal generator to the r.f. coupling loop and loosely couple the loop to the ferrite rod aerial by placing it about three feet from the chassis. (Under conditions of interference, the receiver may be temporarily desensitised by connecting an 8.2kΩ resistor between the junction of R13 and R14 and chassis.)

4.—Tune receiver to the 600kc/s calibration mark on the scale backplate. Feed in a 600kc/s signal and adjust L8 for maximum output.

5.—Tune receiver to the 1,500kc/s calibration mark. Feed in a 1,500kc/s signal and adjust CT4 and CT3 for maximum output.

6.—Repeat operations 4 and 5.

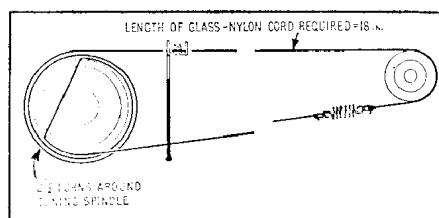
7.—Switch receiver to l.w. and tune to the 214kc/s calibration mark. Feed in a 214kc/s signal and adjust CT2 and CT1 for maximum output.

8.—(Models B813L and B813AL only.) Switch receiver to "LUXBG" and connect signal generator to the car aerial socket. Feed in a 1mV 1,439kc/s signal, modulated 80 per cent at 5kc/s. Adjust the 208m oscillator coil, located immediately above L9/L10, for minimum output. (The output should rise on either side of the correct tuning point). Adjust the 208m aerial trimmer for maximum output.

Note: On the pretuned Luxembourg version the 208m aerial trimmer is mounted on a bracket side by side with CT2, CT2 being the lower of the two trimmers.

Aerial Coils.—The ferrite rod aerial coils should not normally be disturbed, but if the ferrite rod or the aerial coils are replaced, the following procedure should be carried out with the chassis in the case.

1.—Switch receiver to l.w. and tune to 1,700m. Feed in a 176kc/s signal and adjust L1/L2/L3 for maximum output.



Above: Diagram of the tuning drive assembly

Resistors

| | | |
|-----|-------|----|
| R1 | 120kΩ | B1 |
| R2 | 33kΩ | A1 |
| R3 | 6.8kΩ | B1 |
| R4 | 390Ω | B1 |
| R5 | 1kΩ | B1 |
| R6 | 1.5kΩ | B1 |
| R7 | 680Ω | B1 |
| R8 | 22kΩ | B1 |
| R9 | 4.7kΩ | B1 |
| R10 | 270Ω | B1 |
| R11 | 1kΩ | B1 |
| R12 | 560Ω | B1 |
| R13 | 18kΩ | B1 |
| R14 | 120kΩ | B1 |
| R15 | 1.5kΩ | B1 |
| R16 | 68kΩ | A1 |
| R17 | 10kΩ | B1 |
| R18 | 120Ω | B1 |
| R19 | 5.6kΩ | A1 |
| R20 | 150Ω | B1 |
| R21 | 1kΩ | B1 |
| R22 | 68kΩ | A1 |
| R23 | 10kΩ | B1 |
| R24 | 470kΩ | A1 |
| R25 | 330Ω | B1 |
| R26 | 470Ω | A1 |
| R27 | 4.7kΩ | A1 |
| R28 | 150Ω | A1 |
| R29 | 4.7kΩ | A1 |
| R30 | 82Ω | A1 |
| R31 | 68Ω | A1 |
| RV1 | 5kΩ | A1 |
| RV2 | 3kΩ | A1 |

Capacitors

| | | |
|-----|--------|----|
| C1 | 4.7pF | B1 |
| C2 | 75pF | A1 |
| C3 | 0.04μF | B1 |
| C4 | 310pF | A1 |
| C5 | 0.04μF | B1 |
| C6 | 400pF | A1 |
| C7 | 0.02μF | B1 |
| C8 | 200pF | A1 |
| C9 | 0.04μF | B1 |
| C10 | 400pF | A1 |
| C11 | 8μF | B1 |
| C12 | 0.04μF | B1 |
| C13 | 200pF | A1 |
| C14 | 200pF | A1 |
| C15 | 0.04μF | B1 |
| C16 | 0.04μF | B1 |
| C17 | 0.01μF | B1 |
| C18 | 0.01μF | A1 |
| C19 | 4μF | B1 |
| C20 | 0.1μF | B1 |
| C21 | 100μF | B1 |
| C22 | 4μF | B1 |
| C23 | 100μF | A1 |
| C24 | 100μF | B1 |
| C25 | 25μF | A1 |
| C26 | 0.1μF | A1 |
| CT1 | 30pF | A1 |
| CT2 | 30pF | A1 |
| CT3 | 30pF | A1 |
| CT4 | 30pF | A1 |
| CV1 | 343pF | B1 |
| CV2 | 177pF | B1 |

Coils*

| | | |
|-----|------|----|
| L1 | 1.0 | A1 |
| L2 | 12.5 | A1 |
| L3 | 2.0 | A1 |
| L4 | 1.5 | A1 |
| L5 | — | A1 |
| L6 | — | A1 |
| L7 | — | A1 |
| L8 | 4.0 | A1 |
| L9 | 5.5 | A1 |
| L10 | 8.0 | A1 |
| L11 | 5.5 | A1 |
| L12 | 8.0 | A1 |
| L13 | 8.0 | A1 |
| L14 | 1.0 | A1 |
| L15 | — | † |

Miscellaneous

| | | |
|--------|----------|----|
| CD1 | OA90 | A1 |
| S1-S4 | — | B1 |
| S5, S6 | — | A1 |
| T1 | { a 138Ω | A1 |
| T2 | { b 120Ω | A1 |

* Approximate d.c. resistance in ohms.

† Speaker.