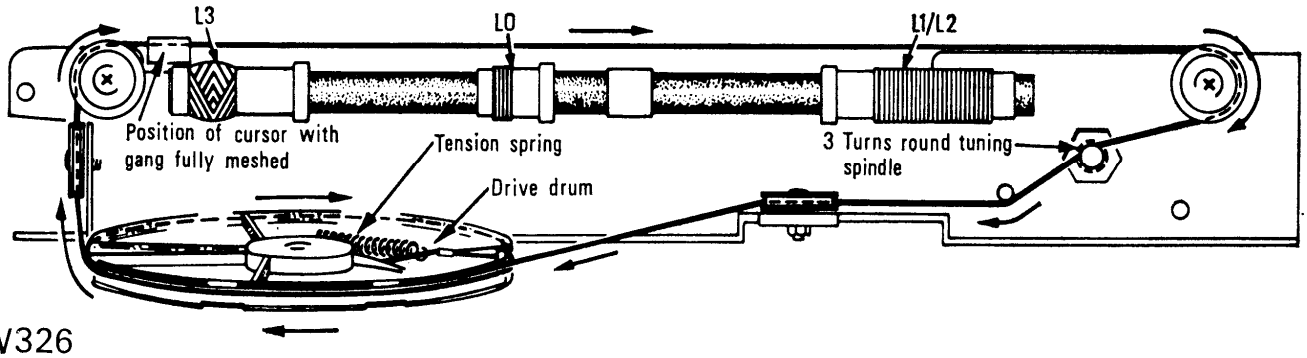
FIDELITY Model RAD16

General Description: The Rad16 is a seven-transistor portable radio incorporating a complementary transformerless push-pull output stage. A winding on the ferrite rod provides facilities for the connection of a car radio aerial. On Marine and Short Wavebands the signal input is via the telescopic aerial or car radio aerial and aerial coils L4/L5 to the base of TR1. A closed circuit jack socket provides facilities for feeding a tape recorder or earphone.

Battery: 9 volts (PP9 or equivalent).

Loudspeaker: 8 ohms impedance.

Wavebands: L.W. 1200–2000 metres. M.W. 555–186 metres. S.W. 49–19 metres. Marine Band. 176–66·6 metres.

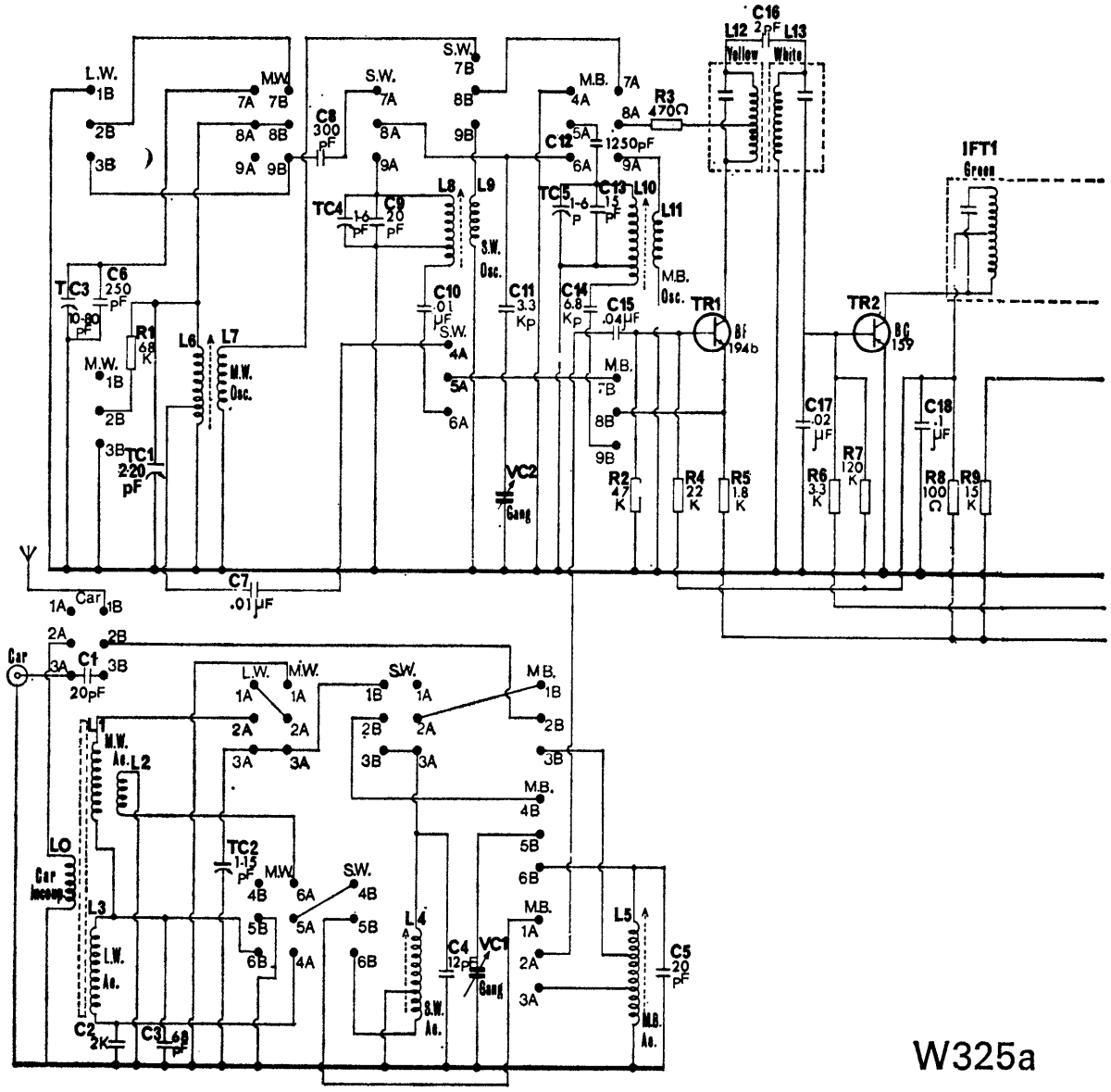


(W326) Drive Cord—Model Rad16

Dismantling: To remove back cover unscrew the three Phillips screws at the base of the cabinet then gently prise back cover forward. To obtain access to chassis, remove the two Phillips screws, securing the handle which then becomes freed. Gently pull in an upward direction the volume, tone and tuning knobs. Next unsolder the lead from the telescopic aerial to the car switch. The complete top panel may then be detached, taking care not to foul the wave change switch unit and telescopic aerial in the procedure. To remove chassis, unscrew the three securing screws on the printed circuit board. Next disconnect the two speaker leads from the speaker and as the chassis is removed the battery clip is fed through the aperture on the battery box.

Alignment

I.F. Circuits: Connect a suitable output meter across the speaker tags, connect signal generator across aerial section of tuning gang. Turn volume control to maximum. Render oscillator inoperative by shorting out oscillator tuned winding L6 (this can be done by putting a link across 68kΩR1). Switch to M.W. and with the tuning gang at maximum capacitance inject signal of 470kc/s modulated and trim the cores of L12, L13, IFT2 and IFT1, in that

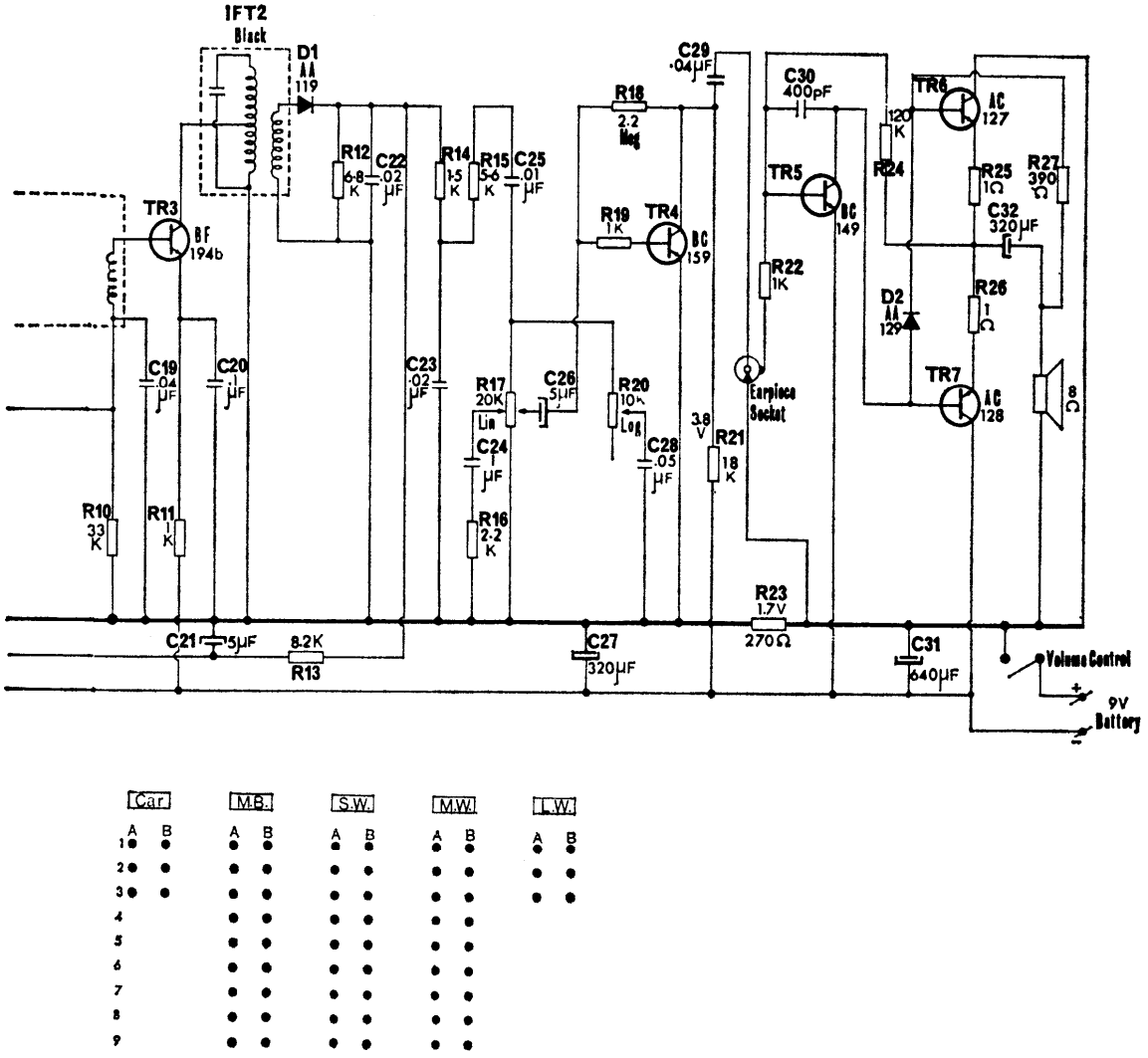


(W325a) Circuit Diagram—Model Rad16 (Part)

order for maximum peaking. The output should never exceed 50mW on the output meter (turn signal generator output down when the output on the output meter exceeds 50mW). Repeat for maximum performance. Remove link from across oscillator coil.

R.F. Alignment: For R.F. alignment of the M.W. and L.W. it is preferred to loosely couple the signal generator to the aerial coils by means of a transmitting loop placed near to the set and coaxial with the ferrite rod.

Medium Waveband—Oscillator: Press Medium Wave button. Tune receiver to "X" of Bruxelles and inject a signal of 600kHz. Adjust oscillating coil L6.L7 by turning the slug for maximum output. Retune the receiver to "B" of Luxembourg and inject a signal of 1400kHz. Adjust oscillating trimmer TC1 for maximum output, repeat for optimum results. *Aerial:* Tune receiver to "X" of Bruxelles and inject a signal of 600kHz. Adjust aerial coils L1/2 by sliding it along the ferrite rod for maximum output. Retune receiver to "B" of Luxembourg and inject a signal of 1400kHz. Adjust aerial trimmer TC2 for maximum output, repeat for optimum results. See Note.



W325b

(W325b) Circuit Diagram—Model Rad16 (part)

Longwave: Press L.W. button and tune receiver to 1500m position and adjust oscillator trimmer TC3 for maximum output of the B.B.C. Broadcast signal. Tune to 1829m Allouis adjust L.W. aerial coil L3 by sliding it along the rod for maximum output of Allouis broadcast signal.

Marine Waveband and Shortwave Band: Disconnect the telescopic aerial and transfer the signal generator, terminated with 75ohm, from transmitting loop to the telescopic aerial connection via a capacitor of 12pF.

Marine Waveband—Oscillator: Press M.B. button and tune receiver to 1·7 MHz, inject 1·7 MHz signal, tune M.B. oscillating coil L10 by turning the slug for maximum output. Tune receiver to 4·5 MHz, inject 4·5 MHz signal and tune M.B. oscillating trimmer for maximum output. (Trimmer should first be turned fully "in" and then slowly turned "out".) Repeat these adjustments for maximum results. *Aerial*: Tune receiver to 1·7 MHz inject 1·7 MHz signal and turn the M.B. aerial coil slug L5 for maximum output. (The slug should first be turned fully "in" and then slowly turned "out".) See Note.

Shortwave Band—Oscillator: Press S.W. button and tune receiver to

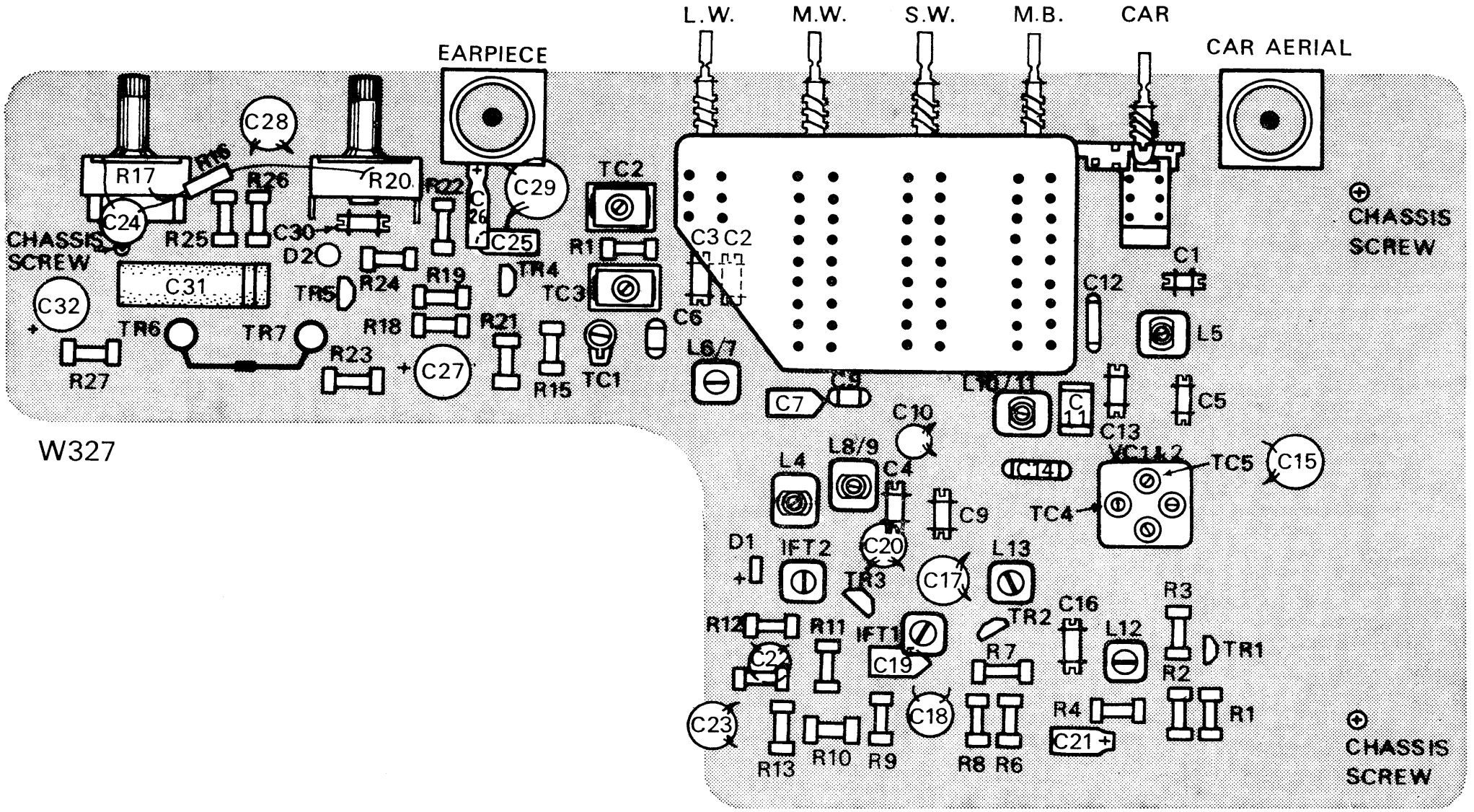
5·8 MHz (right-hand side dial scale), inject 5·8 MHz signal, tune S.W. oscillator coil L8.L9 by turning the slug for maximum output. Tune receiver to 15·5 MHz (left-hand side dial scale) inject 15·5 MHz signal, tune S.W. oscillating trimmer TC4 for maximum output. (Trimmer should first be turned fully "in" and then slowly turned "out".) Repeat these adjustments for maximum results. *Aerial:* Tune receiver to 8 MHz, inject 8MHz signal and turn the S.W. aerial coil L4 slug for maximum output. (The slug should first be turned fully "in" and then slowly "out".)

Note: Optimum results can be obtained only when the output meter reading does not exceed 50mW, therefore the signal generator output should be turned down with the V/C TR7 turned to maximum output whilst peaking-up the aerial coils.

VOLTAGES

	Base	*Emitter*	*Collector*
TR1-BF194B	4·5v	5·5v	0·5v
TR2-BC159	0·6v	0v	7v
TR3-BF194B	4·7v	5·6v	0v
TR4-BC159	0·5v	2·8v	0v
TR5-BC149	8·1v	8·9v	4·5v
TR6-AC127	4·3v	4·4v	0v
TR7-AC128	4·5v	4·4v	8·9v

Readings taken from positive terminal of battery with 20,000 ohms. per volt voltmeter for A.F. stages. For R.F. stages taken from car aerial bracket. Set switched to short wave no signal conditions.



(W327) Component Layout—Model Rad16