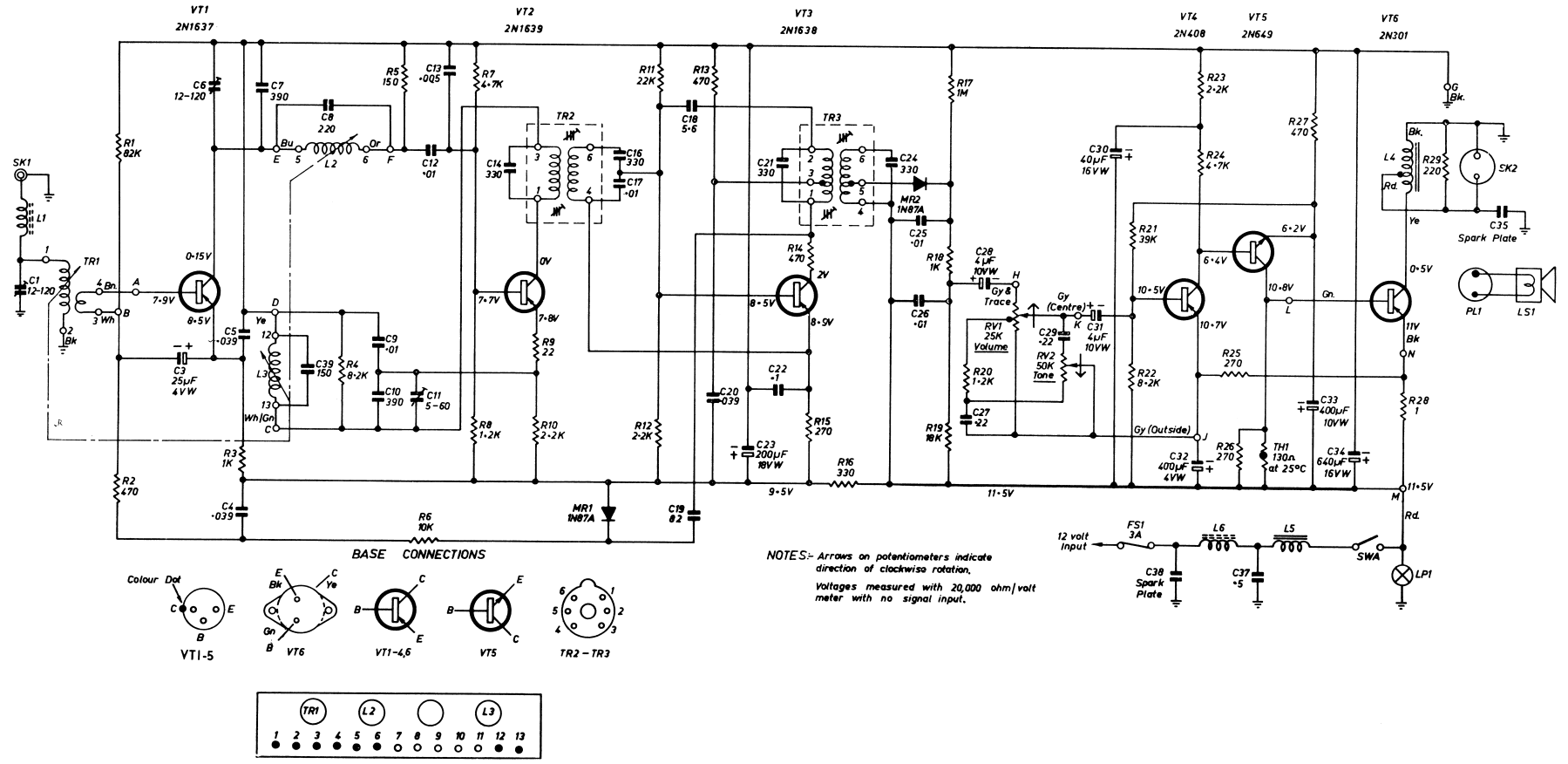
FORD CORTINA PRESS-BUTTON TRANSISTOR CAR RADIO — CD-18805-A

(PF23)



FORD CORTINA CD
ALL TRANSISTOR CAR RADIOS
Models CD-18805-A and CD-18805-B

(Corresponding to Models PF23 and MF22 respectively.)

MANUFACTURED BY AMALGAMATED WIRELESS (AUSTRALASIA) LIMITED

WARNING: These receivers are for 12 VOLT NEGATIVE EARTH operation only.

GENERAL DESCRIPTION

Model CD-18805-A is a six transistor press-button permeability tuned car radio.
Model CD-18805-B is a six transistor manual permeability tuned car radio.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range ..... 525-1620 kHz

Intermediate Frequency ..... 455 kHz

Battery Voltage ..... 12 Volts

Battery Polarity ..... Negative Earth

Battery Consumption ..... 0.7 Amps

Controls:
CD-18805-A: Manual Tuning, Volume, Tone, Press-button Power, Press-button Tuning (Set of 5).
CD-18805-B: Tuning, Volume, Press-button Power, Press-button Tone (Set of 3).

Loudspeaker 6″ x 4″ 53370
V.C. Impedance ..... 15 ohms at 400 Hz
Undistorted Power Output ..... 2 Watts

Transistor and Diode Complement:

AWV 2N1637 ..... R.F. Amplifier
AWV 2N1639 ..... Converter
AWV 2N1638 ..... I.F. Amplifier
AWV 2N408 ..... Audio Amplifier
AWV 2N649 ..... Driver
AWV 2N301 ..... Output
AWV 1N87A ..... A.G.C.
AWV 1N87A ..... Detector

Dial Scale Replacement:

Remove two screws holding the name plate to the front escutcheon.
The scale may now be lifted from the escutcheon and replaced.

Drive Cord Replacement (CD-18805-B)

The cord assembly is at centre travel (Fig. 1) when the tuning spindle is turned 3 turns clockwise from its full anti-clockwise position. Then, both spring and pointer are in the mid-position.

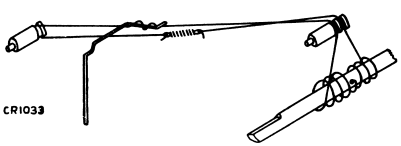
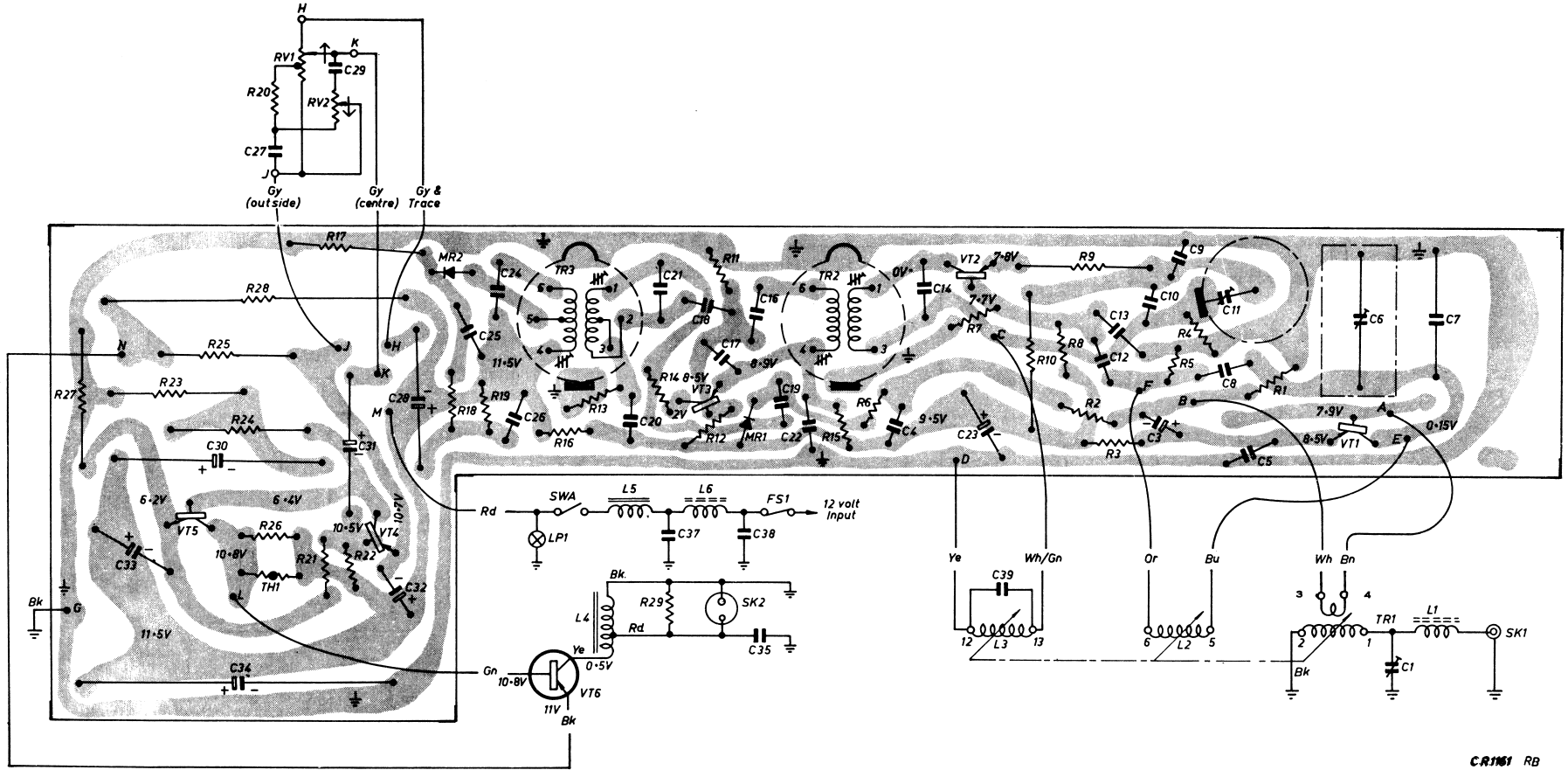


Fig. 1

AWA PF23, MF22 CD-18805A-B



Notes: The diagram represents the view from the wiring side of the printed board.

All voltages shown are positive with respect to the chassis earth and are measured with no signal input and volume maximum clockwise using a 20,000 ohm/volt meter.

SERVICE NOTES

Component Removal and Replacement (CD-18805-A):

Remove the top cover to reveal the printed board.

Release the two spring clips retaining the board.

Move the board forward toward the front of the receiver until it is clear of the recesses in the heat sink.

The board may now be pivoted clear of the heat sink to gain access to the component side.

Replacing the board is the reverse of the above, making sure that the board locates in the recesses provided on the heat sink and spring clips.

Board and Switch Removal (CD-18805-B):

If the tone switch has to be replaced, remove the board as follows:—

Remove the top and bottom covers.

Remove the screws retaining the back plate and ease the plate back as far as possible.

Disconnect all leads connecting the board and back plate to other components.

Remove the front escutcheon.

Remove two screws securing the switch and board to the chassis assembly. The board may now be completely removed.

Remove as much solder as possible from the switch contact lugs.

Working from one end of the switch to the other, unsolder each lug while gently levering the switch from the board. Repeat as often as necessary to free the switch completely.

Avoid prolonged heating of any contact as this may lift the track from the board.

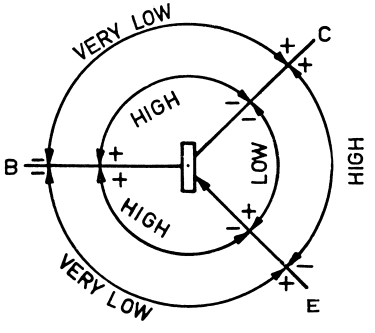
Replacement of the switch and board is the reverse of the above.

Power Transistor Test:

Power transistors are easily checked for short or open circuits by careful use of an ohmmeter to find the forward and reverse resistance of each junction (as diodes).

An ohmmeter, vacuum tube or multimeter type, with a battery voltage of 1.5 volts on the X1 range must be used. Check with a voltmeter first, as a higher voltage will cause damage. Also, check the polarity of the meter leads in the ohmmeter position. Often this is the reverse of the polarity when used as a voltmeter or ammeter.

Fig. 2 shows the correct resistance readings between the junctions of the 2N301 power transistor with the + and — signs indicating the correct polarity of the applied ohmmeter leads. The base and emitter leads should be disconnected from a mounted transistor.



RESISTANCE DIAGRAM, Fig. 2

Transistor Mounting:

Power transistors are thermally connected to, but electrically insulated from the heat sink.

If a transistor is removed from the heat sink or replaced for any reason, it is essential that the following method of mounting be carefully adopted.

On no account must the old mica insulator be used again.

To mount the transistor, first liberally smear the relevant surfaces of the heat sink, transistor and both sides of the mica insulator with Silicone Heat Sink Compound type 340 (Code No. 217016).

Place the mica insulator and transistor in position on the heat sink and secure the assembly to the heat sink with two No. 6 x ¼" self-tapping screws.

Warning: Excessive tightening of these screws can distort the transistor with the danger of rupture of the mica insulator.

Finally, check with an ohmmeter the insulation between the collector (mounting flange) and the heat sink (should be greater than 1 megohm). For this check, connections to the transistor socket should be removed.

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments.

The receiver is tested by the manufacturer with precision instruments and all adjusting screws, except the aerial trimmer, are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that adjustments should not be altered unless the correct testing instruments, listed below, are used.

For all alignment operations connect the "low" side of the signal generator to the receiver chassis and keep the generator output as low as possible to avoid a.g.c. action. Also, keep the volume control in the maximum clockwise position.

When the generator is connected to the aerial terminal, use the dummy aerial as shown in the diagram of Fig. 3.

Testing Instruments:

Signal Generator — Modulated 400 Hz or Modulated Oscillator.
Dummy Aerial — See diagram.
Output Meter — 15 ohms impedance.
I.F. Alignment Tool No. 39462.

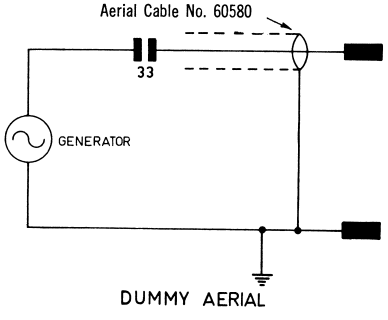


Fig. 3

A. GENERAL — **ALIGNMENT TABLE (CD-18805-A)**

ORDER	CONNECT GENERATOR TO:	TUNE GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT:
1	Collector of VT1 *	455 kHz	H.F. Limit	TR3 Secondary Core
2	Collector of VT1 *	455 kHz	H.F. Limit	TR3 Primary Core
3	Collector of VT1 *	455 kHz	H.F. Limit	TR2 Secondary Core
4	Collector of VT1 *	455 kHz	H.F. Limit	TR2 Primary Core
Repeat the above adjustments until maximum output is obtained.				
5	Aerial Terminal via Dummy Aerial	1,620 kHz (Accurate)	H.F. Limit	Oscillator Trimmer (C11)
6	Aerial Terminal via Dummy Aerial	1,550 kHz	1,550 kHz	R.F. Trimmer (C6)
7	Aerial Terminal via Dummy Aerial	1,550 kHz	1,550 kHz	Aerial Trimmer (C1)
Repeat adjustments 5, 6 and 7 until no further improvement is possible.				

* A 0.01μf capacitor should be connected in series with the high side of the generator.

B. CALIBRATION ALIGNMENT. With the receiver connected to an aerial, the dial scale calibration may be checked and corrected if necessary. The pointer position may be altered on turning a screwdriver in the slot provided at the rear of the pointer.

C. TUNER ALIGNMENT. Adjustment of the tuner cores should not be made unless a coil has been replaced or it is suspected that the alignment has been interfered with, in which case, carefully follow the procedure below:—

1. Adjust the tuner to the H.F. end stop and back all cores out of the coils as far as possible.
2. Tune the signal generator accurately to 1,620 kHz and adjust the oscillator, R.F. and aerial trimmers for maximum output.
3. Tune the signal generator accurately to 600 kHz and the core carriage to a point 0.680" from the H.F. end stop. Adjust the oscillator, R.F. and aerial cores for maximum output.
4. Tune the signal generator to 1,620 kHz and the tuner to the H.F. end stop and re-adjust the oscillator trimmer for maximum output.
5. Tune the signal generator to 1,550 kHz and adjust the R.F. and aerial trimmers for maximum output.
6. Repeat steps 3, 4, and 5 until no further improvement is obtained.
7. Seal the tuning core studs.

A. GENERAL. — **ALIGNMENT TABLE (CD-18805-B)**

ORDER	CONNECT GENERATOR TO:	TUNE GENERATOR	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT:
1	Collector of VT1 *	455 kHz	H.F. Limit	TR3 Secondary Core
2	Collector of VT1 *	455 kHz	H.F. Limit	TR3 Primary Core
3	Collector of VT1 *	455 kHz	H.F. Limit	TR2 Secondary Core
4	Collector of VT1 *	455 kHz	H.F. Limit	TR2 Primary Core
Repeat the above adjustments until maximum output is obtained.				
5	Aerial Terminal via Dummy Aerial	1,620 kHz (Accurate)	H.F. Limit	Oscillator Trimmer (C11)
6	Aerial Terminal via Dummy Aerial	1,500 kHz	1,500 kHz	R.F. Trimmer (C7)
7	Aerial Terminal via Dummy Aerial	1,500 kHz	1,500 kHz	Aerial Trimmer (C1)
8	Aerial Terminal via Dummy Aerial	600 kHz	600 kHz	Oscillator Padder (L3) †
Repeat adjustments 5, 6, 7 and 8 until no further improvement is possible.				

* A 0.01μf capacitor should be connected in series with the high side of the generator.

† Rock the tuning control back and forth through the signal.

B. CALIBRATION ALIGNMENT. With the receiver connected to an aerial, the dial scale calibration may be checked and corrected if necessary. The pointer may be moved relative to the dial scale by sliding it along the drive cord.

C. TUNER ALIGNMENT. Adjustment of the tuner cores should not be made unless a coil has been replaced or it is suspected that the alignment has been intefered with, in which case, carefully follow the procedure below.

1. Adjust the tuner to the H.F. end stop and back all cores out of the coils as far as possible.
2. Tune the signal generator accurately to 1,620 kHz and adjust the oscillator, R.F. and aerial trimmers for maximum output.
3. Tune the signal generator accurately to 600 kHz and the core carriage to a point 0.680" from the H.F. end stop. Adjust the oscillator, R.F. and aerial cores for maximum output.
4. Tune the signal generator to 1,620 kHz and the tuner to the H.F. end stop and re-adjust the oscillator trimmer for maximum output.
5. Tune the signal generator to 1,500 kHz and adjust the R.F. and aerial trimmers for maximum output.
6. Repeat steps 3, 4 and 5 until no further improvement is obtained.
7. Check the L.F. end frequency with the carriage fully in. This should be 520 ± 5 kHz. If necessary adjust the oscillator padder coil to tune to 520 kHz and repeat steps 3, 4 and 5 until no further improvement is obtained.
8. Seal the tuning core studs.