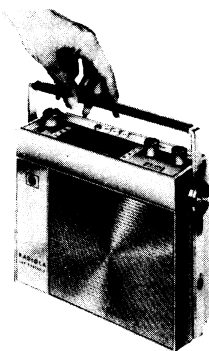


A.W.A. CRUISER 9

CAR PORTABLE

MODEL 2151AZ



GENERAL DESCRIPTION

The AWA Cruiser 9 is a nine transistor and one diode battery operated portable in an aluminium die cast case. The Z suffix indicates the use of silicon transistors.

Design features include the following provisions:

- (1) Operation as a portable with self-contained dry battery with provision for connecting a mains operated battery saver.
- (2) Operation as a car portable using a gutter rail aerial.
- (3) Operation as a car radio using a non-powered cradle accessory and gutter rail or fixed car aerial.
- (4) Operation as a car radio using a powered cradle accessory connecting to car battery, car speaker and gutter rail or fixed car aerial.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range 525-1620 kHz
Intermediate Frequency 455 kHz

Battery Complement:

Internal 12V Eveready type 2582
External (with powered cradle accessory)
12V positive or negative earth

Battery Consumption:

Internal battery for 50mW output = 28mA
for full output = 90mA
From car battery with extension speaker
for 50mW output = 250mA
for full output = 420mA

Undistorted Power Output:

From internal battery = 400mW
From car battery without extension
speaker = 400mW
From car battery with extension speaker = 1.0W

Speaker:

6" x 4" 50261
VC Impedance at 400 Hz 33 ohms
VC Impedance of extension car speaker 15 ohms

Controls:

Tuning, Tone, Volume, 4 Press Buttons. The functions of the Press Buttons are as follows:—

OFF. Depressing switches the receiver OFF.

PORT. When depressed the receiver switches on for normal portable operation.

CAR 2. Provides operation in a car:—

- (a) As a portable but using a gutter rail aerial.
- (b) In a lockable, non-powered cradle using either a gutter rail or car radio aerial.

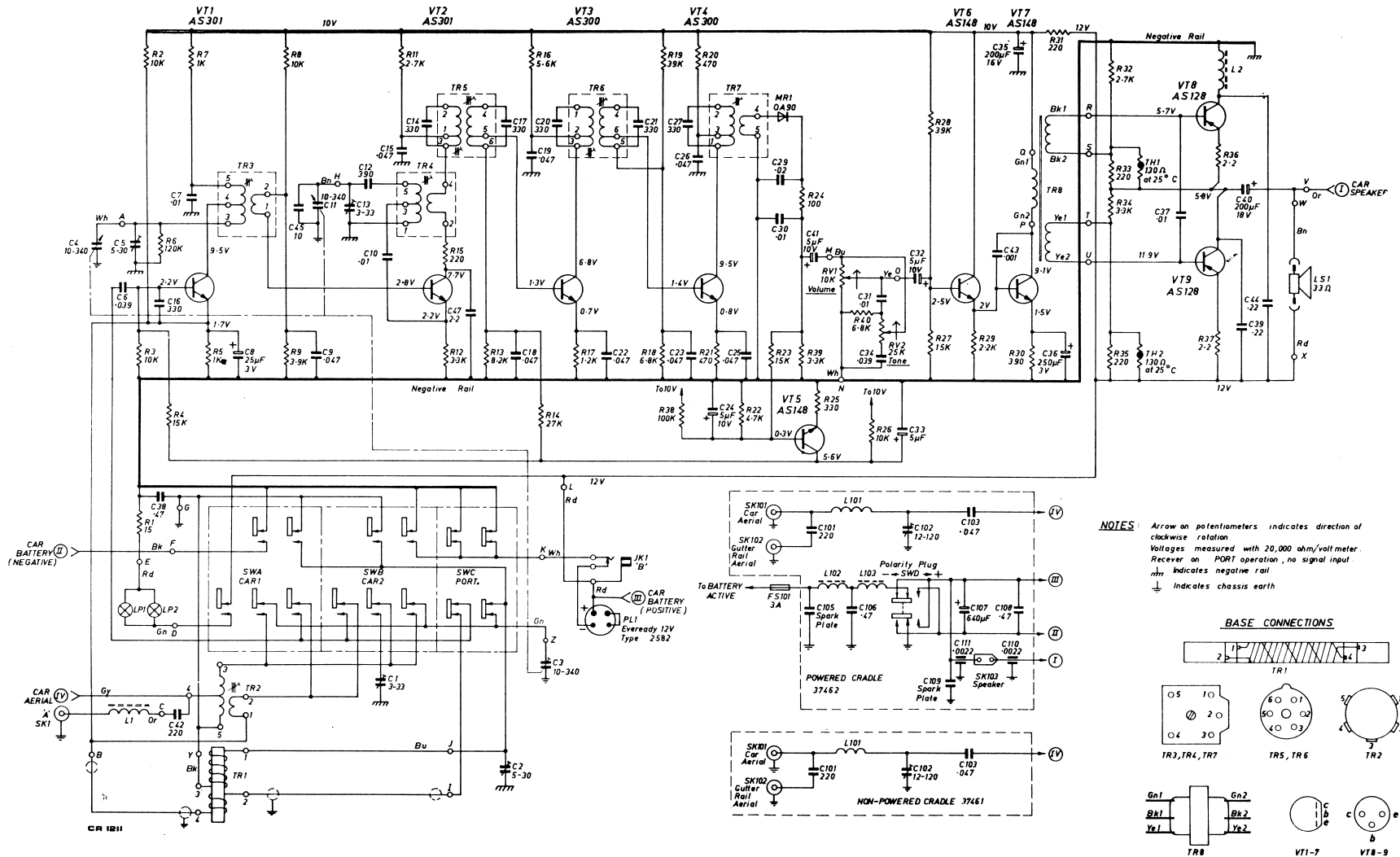
Depressing this button switches the receiver on, using its own battery and speaker, but disconnects and short circuits the ferrite rod aerial.

CAR 1. This button is only used when the portable is operated in a 12 volt powered cradle connected to the car battery.

Depressing disconnects and short circuits the ferrite rod aerial, disconnects the portable battery, makes connection to the car aerial terminals for use of gutter rail or car radio aerials and switches on the dial lamps.

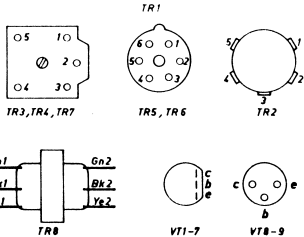
If required an extension speaker, having a 15 ohm voice coil impedance, may be fitted. This, in parallel with the 33 ohm in-built speaker, modifies the output impedance to produce 1.0 watts audio output.

A.W.A. CRUISER 9 CAR PORTABLE MODEL 2151AZ



NOTES: Arrow on potentiometers indicates direction of clockwise rotation.
 Voltages measured with 20,000 ohm/volt meter.
 Receiver on PORT operation, no signal input.
 nm Indicates negative rail
 † Indicates chassis earth

BASE CONNECTIONS



SERVICE NOTES

To gain access to the chassis assembly for complete service, proceed as follows:

Remove the three rotary control knobs.

Remove two screws holding the dial scale and top moulding to the chassis assembly. The dial scale and moulding may now be lifted clear.

Remove the rear cover plate by unscrewing the four retaining screws.

Remove four brass screws holding the front cover to the chassis assembly. The cover and chassis assembly may now be separated revealing both sides of the board for servicing.

Re-assembly is the reverse of the above.

Switch Removal:

It is not necessary to remove the printed board to replace any component except the switch. This is removed as follows:

Proceed as above and unclip the ferrite rod from the dial backing. Remove the dial backing which is held by four screws.

Unsolder three leads from the gang, three leads from the volume control, the white lead from the board behind the switch and two green leads from the dial lamp terminal lug on the board.

Remove the 6BA screw holding the output transistors clamp.

Remove 4 screws securing the board which may now be slipped back so that the switch levers are clear of the front panel.

Remove as much solder as possible from the switch contact lugs and straighten two lugs at each end which are bent over.

With a screwdriver between the switch and the board, working from one end to the other several times, gently lever the switch away from the board whilst melting the solder from each lug.

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

Switch Replacement:

Clear the solder from all switch contact holes and fit the new switch to the board.

Before soldering the contacts, screw the board to the case and locate the switch correctly between the lugs on the front of the case.

Ensure that the switch levers are at right angles to the front of the case and solder each contact.

Replace the leads removed above.

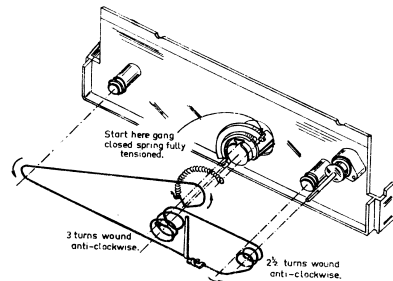
Note: Later model switches have short dummy contacts which locate the switch correctly when pressed against the board.

Dial Cord Replacement:

Remove the dial scale and top moulding as described.

Spring the ferrite rod from its support and remove the dial backing.

The accompanying diagram shows the route of the cord and the method of attachment.



ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should only be necessary 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 the adjustments should not be altered unless in association with the correct testing instruments listed below.

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and can only be re-adjusted by skilled operators using special equipment.

For all alignment operations, keep the generator output as low as possible to avoid a.g.c. action and set the volume control in the maximum clockwise position.

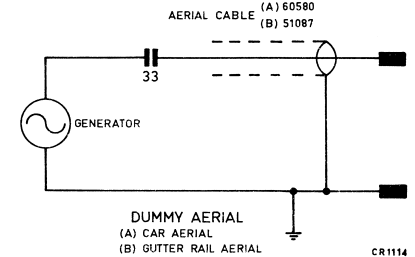
Testing Instruments:

Signal Generator—modulated 400 Hz, or
Modulated Oscillator. If the modulated oscillator is

used connect a 220K ohms non-inductive resistor across the output terminals.

Output Meter—30 ohms impedance.

I.F. Alignment Tool—Part No. 39462.



ALIGNMENT TABLE

N.B.: The case front of the receiver, being in close proximity to the ferrite rod, causes an alteration in its inductance. To overcome any possibility of misalignment, a case front which has the speaker and fret removed, thus allowing access to the trimmers and cores, must be fitted during alignment.

Order:	Connect high side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak Output:
Press the Port button				
1	R.F. Section of Gang.	455 kHz	Gang fully closed	Cores in TR5, TR6 and TR7
Repeat adjustment until maximum output is obtained.				
2	Inductively coupled to Ferrite Rod Aerial.*	1620 kHz	Gang fully open	H.F. Osc. Adj. (C13)
Shunt R. F. Section of gang with 2.2K ohms resistor in series with a 0.1μF capacitor.				
3	Inductively coupled to Ferrite Rod Aerial.*	1500 kHz	1500 kHz	H.F. Aerial Adj. (C2)
4	Inductively coupled to Ferrite Rod Aerial.*	600 kHz	600 kHz	L.F. Osc. Core Adj. (TR4)†
Repeat adjustments 2, 3 and 4 as required and then remove shunt network.				
5	Inductively coupled to Ferrite Rod Aerial.*	600 kHz	600 kHz	L.F. R.F. Core Adj. (TR3)
6	Inductively coupled to Ferrite Rod Aerial.*	1500 kHz	1500 kHz	H.F. R.F. Adj. (C5)
Repeat adjustments 5 and 6 as required.				
Insert portable into powered cradle 34762 and operate the receiver with the Car 1 button.				
7	Cradle Car Aerial Socket via dummy aerial (A).	600 kHz	600 kHz	L.F. Aerial Adj. (TR2)
8	Cradle Car Aerial Socket via dummy aerial (A).	1500 kHz	1500 kHz	Cradle H.F. Aerial Adj. (C102)
Repeat adjustments 7 and 8 as required.				
Remove portable from cradle and operate receiver with the Car 2 button.				
9	"A" terminal on portable via dummy aerial (B).	1500 kHz	1500 kHz	H.F. Gutter Rail Aerial Adj. (C1)

* A coil comprising 3 turns of 16 gauge D.C.C. wire, about 12" in diameter, should be connected between the output terminals of the test instrument, placed concentric with the rod aerial and distant not less than 1 foot from it.

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