

# SMITHS *R*adiomobile

## OWNERS MANUAL

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***transistor-powered* CAR RADIO**

***PUSH-BUTTON MODELS FOR EITHER  
MEDIUM WAVE ONLY***

**OR**

***MEDIUM AND LONG WAVE RECEPTION***

MODELS 400T & 401T (MEDIUM & LONG WAVE 12v.)

MODEL 402T (MEDIUM WAVE ONLY 12v.)

I.F. FREQUENCY - 457.5 Kc/s



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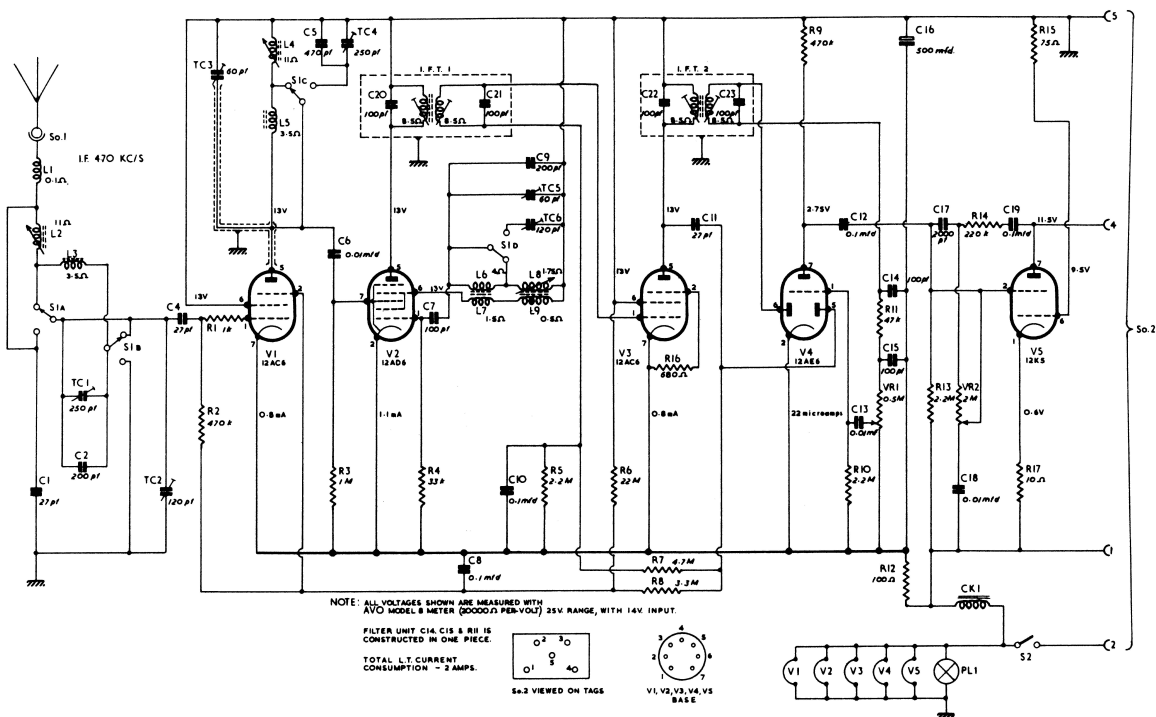
**11.5 FREQUENCY - 457.5 KC/s**

# Owner Service Data for Medium and Long Wave Transistor Powered Car Radio

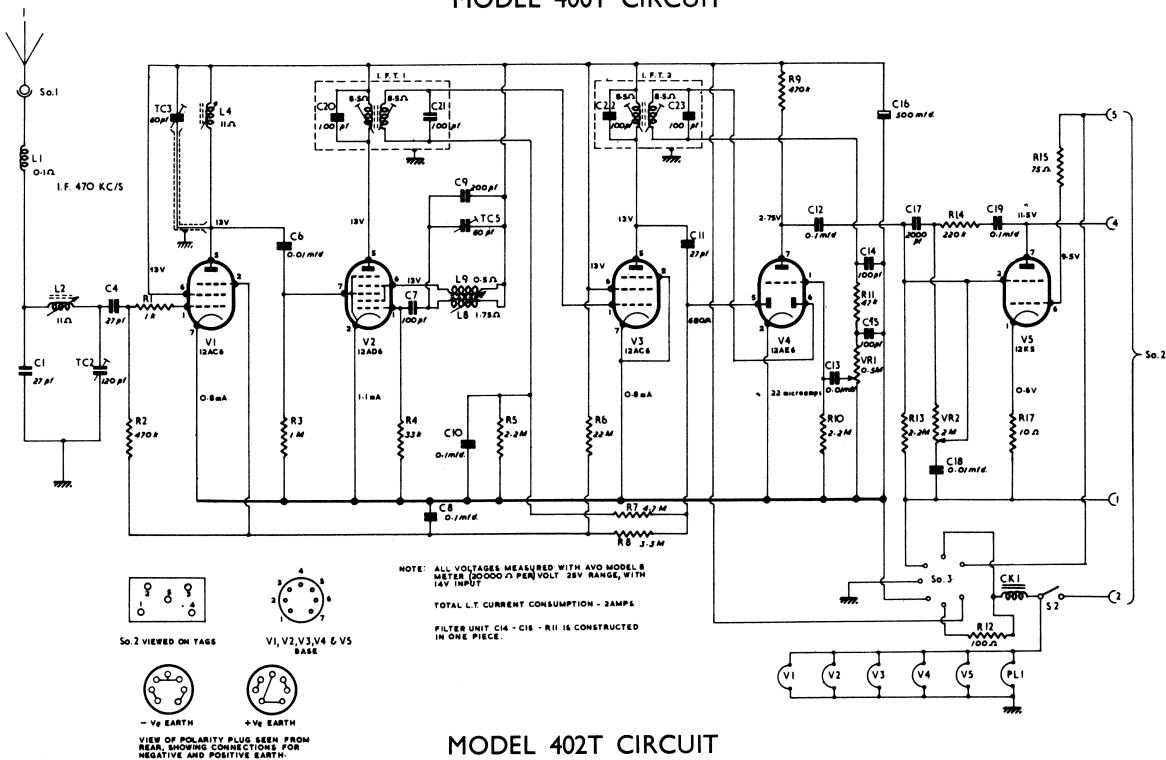
Sufficient information is contained in this manual to enable a competent radio mechanic to effect all normal repairs.

## RECEIVER TYPES:

- 400T 12 volt positive polarity, Medium and Long Waves.
- 401T 12 volt positive or negative polarity, Medium and Long Waves.
- 402T 12 volt positive or negative polarity, Medium Wave only.



MODEL 400T CIRCUIT



MODEL 402T CIRCUIT

## M.W. ALIGNMENT

- Set wave change switch to Medium, tuning carriage to fully withdrawn position, ensuring that the cores are screwed anti-clockwise fully into grommets. Set auxiliary rods in L2 and L4 to mid position.
- Connect signal generator to aerial input (through dummy aerial).

Operation	Frequency Kc/s	Carriage Position	Adjust for Max. Output
1	1610	Fully Out	TC5
2	(Set tuning carriage to 0.3" from Fully out; this measurement of 0.3" is most important)		
3	1100	As for Operation 2	L8 and L9
4	(Repeat Operation 1 and 3 until correct frequency coverage is obtained)		
5	1600	Tune in	TC2 and TC3
6	1100	Tune in	L2 and L4
	(Repeat operations 5 and 6 for optimum output)		
7	600	Tune in	Auxiliary rods in L2 and L4

## M.W. SENSITIVITY

Check input for 200 M.W. output.

1600, 1100 and 600 Kc/s not less than 114 dbs. below 1 volt (2 microvolts).

## LONG WAVE ALIGNMENT

Set wavechange switch to Long.

Operation	Frequency Kc/s	Carriage Position	Adjust for Max. Output
1	150	Fully In (Pointer extreme right)	TC6
2	300	Fully Out	L6 and L7
	(Repeat operations 1 and 2 until no further improvement results)		
3	270	Tune to Frequency	TC1 and TC5

## L.W. SENSITIVITY

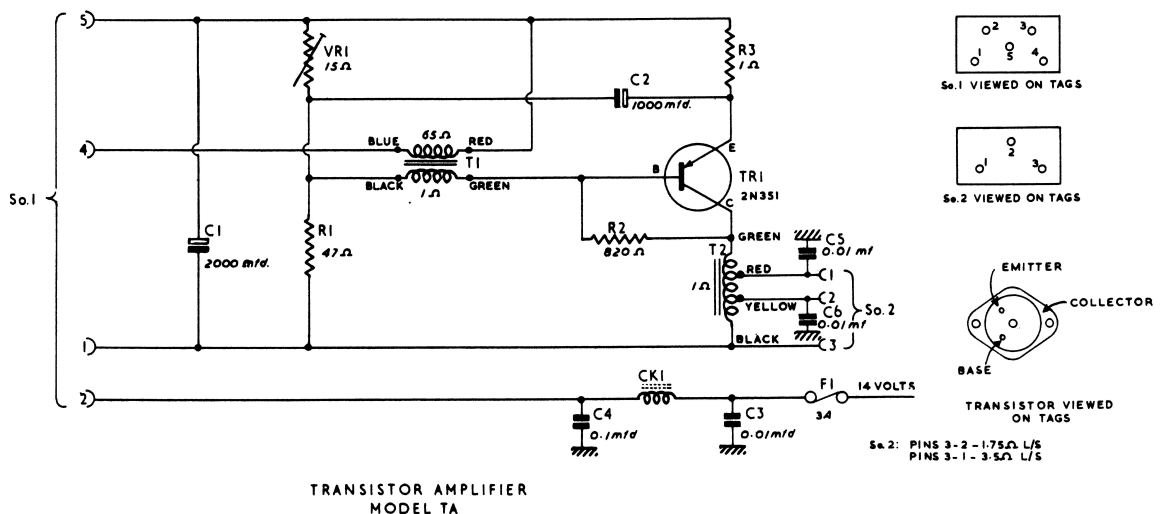
Check input for 200 M.W. output.

180 Kc/s not less than 100 dbs below 1 volt (10 microvolts).

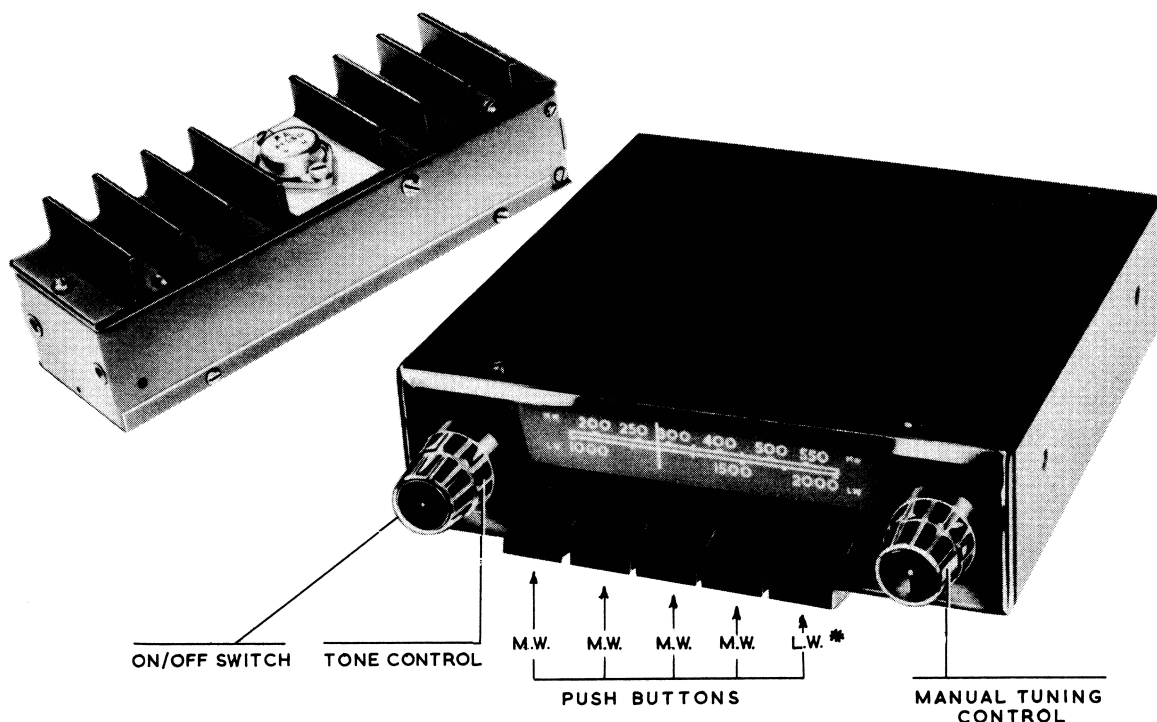
## AMPLIFIERS

TA. Standard Transistor amplifier for use with 400T, 401T or 402T.

TR. Rover installation amplifier, with heat sink mounted separately.







\* ON MODEL 400T ONLY

### GENERAL VIEW OF CONTROL UNIT AND AMPLIFIER SHOWING CONTROLS

THE COMBINED VOLUME CONTROL AND ON/OFF SWITCH switches on the receiver when turned clockwise, and progressive rotation increases the volume, when turned fully anti-clockwise the receiver is turned off.

THE TONE CONTROL IS concentric with the volume control and provides tone correction for the reproduction of either speech or music. This control is continually variable and when turned fully clockwise, the bass reproduction is reduced; when in the anti-clockwise position the treble reproduction is reduced.

THE MANUAL TUNING CONTROL provides variable station selection.

THE FIVE PUSH BUTTONS provide selection of one station on the long waveband (right hand push button) and four in the medium waveband. Wavechange switching is automatically effected when a button is pressed for any pre-selected station. In the case of model 402T all five buttons provide station selection on the medium waveband.

#### To set up the push buttons:

Before attempting this operation allow ten minutes for the receiver to warm up thoroughly.

1. Select the waveband required by pressing the appropriate push button.
2. Tune in the desired station by means of the manual tuning control.
3. With the station accurately tuned in, pull the push button outwards to its full extent ( $\frac{1}{4}$ " movement) to release the locking mechanism. Push the button fully home, thus locking the mechanism in the required position.
4. The push button is now set to the desired station and is independent of the manual tuning. Proceed in the same manner with the remaining buttons.

## CARE OF TRANSISTORS

1. If the voltage polarisation is reversed, the transistor WILL BE DESTROYED.
2. Always switch off before disconnecting or connecting the collector lead.
3. Always disconnect transistor before making general continuity tests.
4. When soldering leads to emitter or base, it is necessary to attach to transistor connections a heat shunt in the form of a pair of long nose pliers, etc., otherwise the transistor may be damaged by excessive heat.
5. Never switch on the receiver with the loudspeaker disconnected.
6. Never carry out tests with amplifier resting on the heat sink. This will cause overheating and may result in destruction of transistor.
7. IMPORTANT: Power supply should always be an accumulator except where a well regulated and ripple-free mains supply is available.

## TRANSISTOR REPLACEMENT

1. Check that transistor is free from metal burrs, which could damage mica insulator earthing collector and result in blowing the fuse.
2. A coating of silicone grease (RMO No. 1999) should be applied to both sides of mica insulator, to ensure maximum heat transfer.
3. Place mica insulator in position and ensure transistor fixing bolts are firmly tightened on heat sink, in order to effect maximum heat transfer.
4. Place VR2 slider in minimum current position. (Slider moved to extreme position, towards H.F. chassis).
5. Re-solder base and emitter leads (employing heat shunt) and adjust transistor current as described below.

## TRANSISTOR CURRENT ADJUSTMENT

With input volts at 14, transistor current should measure 500 mA. Measurement is taken between lead from output transformer and its connection on transistor with AVO model 8 (or similar) on 1 amp range of meter. Any required adjustment is made on VR2. Slider should be sealed (on the paxolin side) on the appropriate setting, using a suitable adhesive. Check collector current after fifteen minutes operation.

## I.F. ALIGNMENT

**I.F. FREQUENCY - 457.5 Kc/s**

1. Apply 470 Kc/s modulated 30% at 400 c/s between pin 7 of V2 and chassis (through a 0.1 mfd capacitor).
2. Volume control to maximum. Switch to M.W., set tuning carriage so that cores are fully withdrawn from coils.
3. With suitable signal input adjust I.F.T.2.sec., I.F.T.2.pri., I.F.T.1.sec., I.F.T.1.pri., in that order for maximum output.

## R.F. ALIGNMENT

The requisite dummy aerial comprises a 22 pfd capacitor in series and 47 pfd shunt capacitor. (Radiomobile Part No. 426A.)

# ***General Information***

## ***Smiths Radiomobile Service***

All enquiries about your car-radio will be handled with efficiency and speed by your Radiomobile Distributor or by the Dealer who sold it originally. These official representatives of Smiths Radiomobile have an expert knowledge of Radiomobile equipment and performance, and will supply genuine replacement parts from their own stocks.

## ***Conditions of Guarantee***

The conditions of guarantee for Smiths Radiomobile Car-Radio in countries outside Great Britain and Northern Ireland are defined individually by the official Smiths Radiomobile Distributors in those countries. You can obtain full terms of these conditions from either the Distributors concerned or the Dealer who sells the equipment.

## ***Service under Guarantee***

1. All normal applications for service under guarantee should be made either to the appropriate Smiths Radiomobile Distributor or to the Dealer from whom your equipment was originally bought.
2. If you cannot get in touch with an official Smiths Radiomobile representative, any reputable car-radio service station should be competent to examine your equipment, with the help of the technical section of this Manual. S. Smith & Sons (Radiomobile) Ltd., cannot accept any liability for labour costs, but free replacement components will be dispatched at once if you make a valid application direct to our Export Department, Cricklewood Works, London, N.W.2. Your application must also give full details of your car-radio, including particulars and date of purchase, Model or Type No., circuit reference of defective part/s and details of the vehicle to which it is fitted.

**S. SMITH & SONS (RADIOMOBILE) LIMITED, CRICKLEWOOD WORKS, LONDON, N.W.2.**  
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