WESTINGHOUSE 13 CHANNEL TV TURRET TUNER TA1 SERIES (44000)

WESTINGHOUSE Factory Supervised Service

TELEVISION

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Consumer Products Division (Sydney)

N.B. The TAI Tuner (Part No. 44000) is the basic replacement tuner. It may be used with accessories for concentric or off-set pre-set Fine Tuning.

In the case of the concentric arrangement, Fine Tuning Spindle 44057 and circlip 860094 are added.

For the off-set assembly an Idler Gear Assembly 44215, Driving Gear 44208, two circlips 2537 and 4885 and the Fine Tuning Spindle (varies depending upon model installation) are mounted on the tuner mounting bracket.

The TA2 tuner (Part No. 44074) is a concentric off-set pre-set Fine Tuning type, i.e., the Fine Tuning knob is concentric with and inside the Channel Selector knob which is itself off-set from the main channel selector shaft. This is achieved by mounting a gear train assembly on the tuner itself.

No field adjustments to this tuner are recommended apart from the normal user adjustment of the Fine Tuning. In connection with this there are a few points that should be kept in mind:—

1. The Fine Tuning control is of the pre-set type, whether it is concentric with or off-set from the Channel Selector, and as such adjusts each channel individually.

2. The frequency stability of this tuner is such that the Fine Tuning control should be regarded as only a pre-set control adjusted during installation or repair and thereafter forgotten by the user for long periods of time.

3. A small amount of backlash, about 10°, is associated with the Fine Tuning control, caused by the take up necessary in engaging the drive mechanism to the individual channel. When the control is released there should be a light spring return action indicating that the drive train is out of mesh with the channel adjusting screw.

4. The tuning range for this control is quite considerable at approximately ±6 Mc/s from the nominal.

5. Keeping these points in mind, particularly 3, care should be taken to ensure that, when the tuner is mounted in a cabinet, no binding occurs between the Fine Tuning control and the Channel Selector knob or the cabinet itself. Any such binding may over-ride the spring return thus leaving the tuning drive in mesh with its Channel adjusting screw which will then be turned out of adjustment as the Channel Selector is rotated.

FINE TUNING ADJUSTMENT

In pre-setting the Fine Tuning control in medium field strength areas allow the receiver to run for about three minutes after switching on. After selecting the desired channel turn the Fine Tuning control anti-clockwise until edge-beat or sound bars are just visible. The correct setting is about 30° clockwise (including backlash) from this point which reduces the frequency approximately 100 to 200 Kc/s. This ensures that edge-beats or sound bars will not be visible making allowances for mains or temperature changes.

In fringe areas the Fine Tuning should be adjusted for optimum results when the receiver has reached normal operating conditions after approximately 30 minutes.

RE-ADJUSTMENT OF TUNER

Re-adjustment of the tuner should only be necessary if components or switch contacts are replaced. If it is necessary it should be carried out using sweep alignment equipment of known accuracy.

The tuner side covers may be removed without affecting response curves or oscillator frequencies.

Switch on the receiver or power supply connected to the tuner and carry out the following adjustments with the correct voltages. Filaments 6.3 volts a.c.; H.T. (1) 200 volts; H.T. (2) 150 volts supplied from 260 volts source via a 4.7K ohm dropping resistor; A.G.C.—2.5 volts.

Connect the sweep generator to the aerial terminals of the tuner. It is advisable to have on hand a special cable for connection from tuner to sweep generator with a resistive pad (Fig. 1) having balanced connections going directly to the aerial input terminals.

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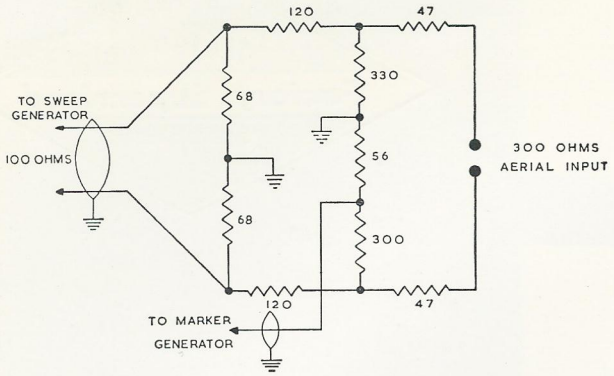


FIG. 1

Connect the vertical input to the c.r.o. direct to TP1 on the tuner with a shielded lead. Earth the shield at the tuner. The c.r.o. should have suitable sensitivity for the required deflection of approximately 0.03 volts p-p. If an appropriate c.r.o. is unavailable an amplifier with good low frequency response may be used but care should be taken that hum voltages are not visible on the c.r.o. as indicated by a curved reference line on the c.r.o. with sweep blanking on.

Switch to each channel and roughly check its response against those shown in Fig. 2. If channel 6 is no worse than the majority of the other channels commence alignment at channel 6.

Switch the tuner to channel 6. An indication of this is when the mark on one of the spindle flats is pointing to the 7 o'clock position viewing the tuner mounted normally on its base plate.

Adjust C1 for maximum deflection at the centre frequency between picture and sound markers. Adjust C7 and C12 for correct curve shape and position as shown in Fig. 2. Check that the injection voltage measured at TP1 is between 1.7 and 2.3 volts using a Voltohmyst. If necessary move coil L3 along the injection capacitor assembly C15 to achieve 2.0 volts injection. If this is done, re-adjust the Fine Tuning for correct frequency and C7 and C12 for correct response.

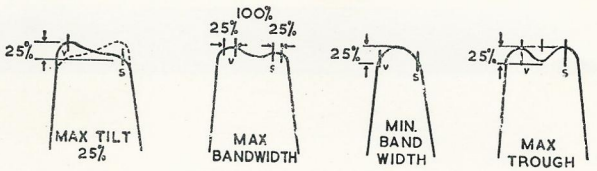


FIG. 2

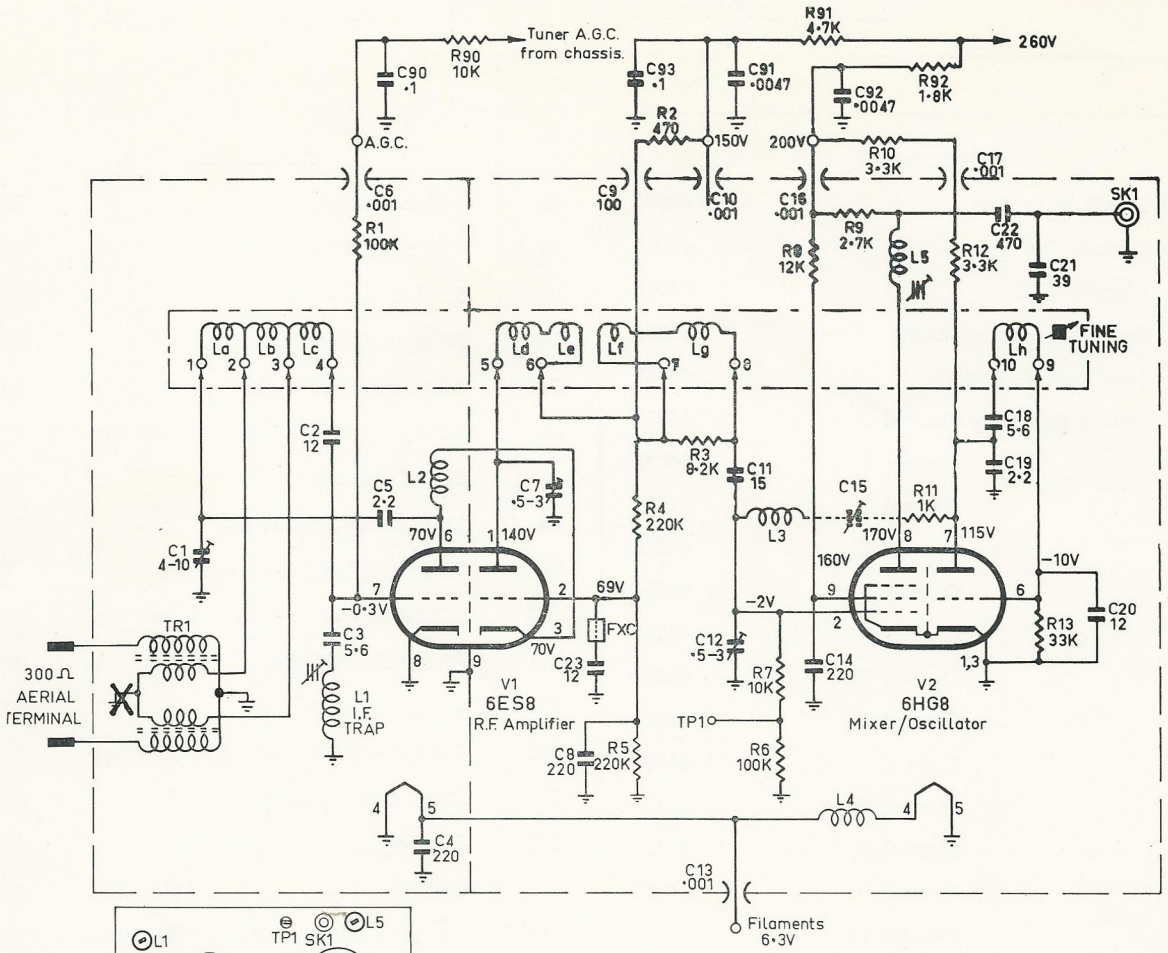
Check all other channels for response and correct oscillator frequency; if curves are slightly out of tolerance (Fig. 2) re-adjust C7 and C12 for compromise setting for all channels.

If response curve for any particular channel is well outside the limits remove that coil strip and examine it for damage or mal-adjustment. Should mal-adjustment be in evidence, re-adjust for correct response by carefully spreading or closing the winding in the appropriate section.

CLEANING CONTACTS

The contact working surfaces are silver; the rotor contacts being silver plated and the stator contacts comprising phosphor bronze strips with a silver overlay. A thin coating of gold plating is used to protect the silver surfaces from undue contamination during manufacture.

AWA Lubricant M161, consisting of chlorothene with 8% lanoline and a small amount of instrument oil, is recommended as the cleaning lubricant for these contacts. A light brushing with a small paint brush is recommended to remove any tarnish of silver sulphide.



Notes. 1. C93 may be omitted on some chassis.

2. R90, R91, R92, C90, C91, C92 are not mounted on main tuner chassis and are not supplied with Replacement Tuner.

AUSTRALIAN TELEVISION CHANNELS

Channel		Carrier Freq. Mc/s.		Receiver Osc. Freq. Mc/s.
Number	Band	Video	Sound	I.F. = 36.875 Mc/s.
0	45-52	46.25	51.75	83.125
1	56-63	57.25	62.75	94.125
2	63-70	64.25	69.75	101.125
3	85-92	86.25	91.75	123.125
4	94-101	95.25	100.75	132.125
5	101-108	102.25	107.75	139.125
5A	137-144	138.25	143.75	175.125
6	174-181	175.25	180.75	212.125
7	181-188	182.25	187.75	219.125
8	188-195	189.25	194.75	226.125
9	195-202	196.25	201.75	233.125
10	208-215	209.25	214.75	246.125
11	215-222	216.25	221.75	253.125

CIRCUIT CODE: TURRET TUNER TA SERIES

Code No.	DESCRIPTION	Part No.
	INDUCTORS	
L1	36.875 Mc/s Trap Coil	44008
L2	Cascode Coil	44069
L3	Injection Coil	44068
L4	Oscillator Filament Choke	41866
L5	Converter I.F. Coil	41859
La-Lh	Tuning Coil Ass'y Channel 0	44022
	Channel 1	44023
	Channel 2	44024
	Channel 3	44025
	Channel 4	44026
	Channel 5	44027
	Channel 5A	44028
	Channel 6	44029
	Channel 7	44030
	Channel 8	44031
	Channel 9	44032
	Channel 10	44033
	Channel 11	44034
	RESISTORS	
	All resistors ±10% carbon unless otherwise stated.	
R1	100K ohms ½ watt	616017
R2	470 ohms ½ watt	606588
R3	8.2K ohms ½ watt	611846
R4	220K ohms ½ watt	616733
R5	220K ohms ½ watt	616733
R6	100K ohms ½ watt	616017
R7	10K ohms ½ watt	612025
R8	12K ohms ½ watt	612507
R9	2.7K ohms ½ watt	609862
R10	3.3K ohms 1 watt	610309
R11	1K ohm ½ watt	608048
R12	3.3K ohms 1 watt	610309
R13	33K ohms ½ watt	614460
R90	10K ohms ½ watt	612025
R91	4.7K ohms 5 watts W.W.	610958
R92	1.8K ohms 5 watts W.W.	609086

Code No.	DESCRIPTION	Part No.
	CAPACITORS	
C1	4-10pf Trimmer	231123
C2	12pf ±5% NPO tubular	220556
C3	5.6pf ±10% NPO disc	220271
C4	220pf ±20% K1200 disc	223205
C5	2.2pf ±0.5pf NPO disc	221494
C6	0.001pf +100% —0% Hi-K feed thru	225011
C7	0.5-3pf Trimmer	231122
C8	220pf ±20% K1200 disc	223205
C9	100pf ±7½% N3300 feed thru	222236
C10	0.001μf +100% —0% Hi-K feed thru	225011
C11	15pf ±5% NPO disc	220710
C12	0.5-3pf Trimmer	221122
C13	0.001μf +100% —0% Hi-K feed thru	225011
C14	220pf ±20% K1200 disc	223205
C15	Coupling between L3 and R11	
C16	0.001μf +100% —0% Hi-K feed thru	225011
C17	0.001μf +100% —0% Hi-K feed thru	225011
C18	5.6pf ±.1pf NPO disc	220272
C19	2.2pf ±0.5pf NPO disc	221494
C20	12pf ±10% N750 tubular	220567
C21	39pf ±10% N750 tubular	221294
C22	470pf ±20% K1000—2000 disc	221972
C23	12pf ±10% N750 tubular	220567
C90	0.1μf +100% —0% K6000 100VW disc	227038
C91	0.0047μf +100% —0% K5000 disc	225980
C92	0.0047μf +100% —0% K5000 disc	225980
C93	0.1μf ±10% 400VW paper	227046
	TRANSFORMER	
TR1	Balun Ass'y	44009
	VALVES	
V1	Radiotron 6ES8	
V2	Radiotron 6HG8	
	MISCELLANEOUS	
FXC	Ferroxcube Bead Philips 56-590-65/3B	

Note: Components R90, R91—C90, C91, etc., are not part of the basic tuner, being decoupling networks for the receiver supply points, but are included in the circuit since they are invariably mounted close by the tuner.