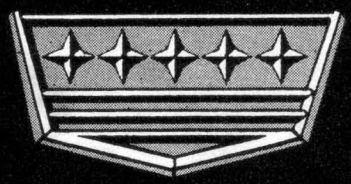
Admiral

Television

for Models Using 21 MC and 36 MC I.F.
Chassis AX20Y4



SERVICE MANUAL No.S1

Admiral Television AX2OY4 CHASSIS

SERVICE MANUAL No. S1

ALIGNMENT AND SERVICE DATA

MODEL IDENTIFICATION CHART

MODEL NAME	TUNER	RECORD CHANGER	RADIO	PICTURE TUBE
Super Cascode Series—21 MC.				
Miami	94D110-7/94D92-13	—	—	21ATP4/21ALP4A
Belvedere	94D110-7/94D92-13	—	—	21ATP4/21ALP4A
Delray	94D110-7/94D92-13	—	—	24DP4A
Canada	94D110-7/94D92-13	—	—	24DP4A
Venice	94D110-7/94D92-13	R/C 654	C55-01	21ATP4/21ALP4A
Tampa	94D110-7/94D92-13	R/C 654	C55-01	21ATP4/21ALP4A
Super Cascode Series—30 MC.				
Miami	A94-03	—	—	21ATP4/21ALP4A
Belvedere	A94-03	—	—	21ATP4/21ALP4A
Delray	A94-03	—	—	24DP4A
Canada	A94-03	—	—	24DP4A
Venice	A94-03	R/C 654	C55-01	21ATP4/21ALP4A
Tampa	A94-03	R/C 654	C55-01	21ATP4/21ALP4A
De Luxe 600 Series—30 MC—Side Preference Assy.				
Tampa 600	A94-03/TXN3A-1	R/C 654	C55-01	21ATP4/21ALP4A
Belvedere 600	A94-03/TXN3A-1	—	—	21ATP4/21ALP4A
Miami 600	A94-03/TXN3A-1	—	—	21ATP4/21ALP4A
Berkeley	A94-03/TXN3A-1	—	—	21ATP4/21ALP4A
New Yorker	A94-03/TXN3A-1	—	—	21ATP4/21ALP4A
Canada 600	A94-03/TXN3A-1	—	—	24DP4A
Delray 600	A94-03/TXN3A-1	—	—	24DP4A
Imperial 800 Series—30 MC—Side Preference Con.				
Hollywood 800	A94-03/TXN3A-1	—	—	21CBP4A
Tampa 800	A94-03/TXN3A-1	R/C 654	C55-01	21CBP4A
Berkeley 800	A94-03/TXN3A-1	—	—	21CBP4A
Miami 800	A94-03/TXN3A-1	—	—	21CBP4A
Bermuda 800	A94-03/TXN3A-1	—	—	21CBP4A
Biltmore 600	A94-03/TXN3A-1	—	—	21ATP4/21ALP4A
Calypso 800	A94-03/TXN3A-1	R/C 654	—	21CPB4A
Pasadene	A94-03/TXN3A-1	—	—	21CBP4A
Pacific	A94-03/TXN3A-1	—	—	21CBP4A
Princeton 800	A94-03/TXN3A-1	R/C 654	C55-01	24AEP4
Florida 800	A94-03/TXN3A-1	—	—	24AEP4
Ambassador	A94-03/TXN3A-1	—	—	24DP4A

FEATURES

The Admiral AX20Y4 series of television receivers is completely different electrically and mechanically from any previous Admiral sets. In designing these new models ease of service was a most important factor. As a result of Admiral's engineering skill, this line of receivers is much easier to service than many competitive sets.

These chassis have been electrically designed to provide superior performance under all signal conditions. Up to 75 per cent. of the wiring is included in three printed wiring boards (in many models) which eliminate chances for human error and assure absolute uniform quality and dependability.

A few of the electrical and mechanical design features which provide better performance and make simpler servicing possible are listed below.

VERTICAL CHASSIS

All AX20Y4 series chassis are mounted vertically with the neck of the picture tube protruding through a hole in the centre of the chassis. Mounting the chassis in a vertical plane permits more compact, simplified design and makes tubes and most components more readily accessible for service or replacement. Although the chassis is mounted vertically, the chassis have been designed so that main operating controls are at the front of the set for customer convenience, and do not inconveniently extend from the side or the top of the cabinet.

CHASSIS AND PICTURE TUBE SEPARATELY REMOVABLE

An entirely new method is used for mounting the chassis and picture tube in these receivers. The picture tube can be removed without having to loosen or remove the chassis; likewise, the chassis can be removed without loosening or removing the picture tube.

The picture tube is rigidly mounted to brackets in four front corners of the cabinet. It is accessible for replacement by merely removing the screws holding the picture window retaining strip at the top of the window and then removing the glass and mask. Detailed picture tube replacement instructions are included in the Installation and Service Notes.

The chassis is easily removed from the back of the set. Detailed instructions for removing the chassis are supplied with each receiver.

"EASY TO TRANSPORT" CHASSIS

On those occasions when it is necessary to remove the chassis from the cabinet for shop service, the lightweight, compact design of these chassis will be appreciated. The brackets used to mount the chassis in the cabinet and to mount the tuner have been specially designed so that the chassis may be transported in either a vertical or horizontal position.

PLUG AND SOCKET CONNECTIONS

These chassis have been designed with enough plug and socket connections to simplify testing and carrying since there is no need for parts dangling from the chassis. The deflection yoke speaker, pilot light, are all connected to the chassis by plug and socket arrangement. *Note*: When removing the chassis for shop service, Off-on-Volume, Contrast and deflection yoke should be removed from the cabinet and also taken to the shop. It should not be necessary to remove the picture tube since the proper type will be available in the shop.

REMOVABLE COVER ON HIGH VOLTAGE COMPARTMENT

All AX20Y4 series chassis have been provided with a removable cover on the high voltage compartment.

ALL ALIGNMENT TEST POINTS ACCESSIBLE WITH CHASSIS IN CABINET

To make alignment of these chassis easier, whether it is done with the chassis in the cabinet or on the service bench, all the alignment test points are available on the rear side (with tubes).

6BC8 VARIABLE-MU CASCODE AMPLIFIER

Admiral engineers, cooperating with receiving tube manufacturers, have developed a new cascode amplifier tube, the 6BC8.

This twin-triode is a variable-mu type having a semi-remote cut-off characteristic. Since it has a greater range of linear amplification, it can handle greater variations in incoming signal strengths (and the resulting changes in AGC bias voltage) without introducing cross modulation.

Cross modulation is the modulation of the desired carrier by an undesired signal which shows up as interference in the picture. It occurs when the bias applied to a stage is high enough to operate it very near to plate current cut-off. When operated under such conditions, the positive portion of a modulation envelope which is passing through this stage, is amplified much more than the negative portion. This non-linearity in amplification is equivalent to detection, which is actually taking place. The detected signal can then modulate another undesired signal which may also be present in this stage.

Although the 6BQ7A is directly interchangeable and can be used as a replacement, it is recommended that the 6BC8 be used unless it is impossible to obtain in your locality.

6BZ6 VARIABLE-MU HIGH GAIN IF AMPLIFIER

An improved pentode IF amplifier is used in the 1st and 2nd IF stage of all chassis using the printed wiring IF board.

The semi-remote cut-off characteristics of this tube enables Admiral receivers to handle stronger incoming signals without overloading. Distortion such as "cross modulation" or "non-linearity in amplification", due to high signal levels, is minimized or completely eliminated. See paragraph 3 under "6BC8 Variable-Mu Cascode Amplifier".

These advantages are obtained without any sacrifice in IF amplification in weak signal areas.

SPECIFICATIONS

Picture Tube: Direct view Electromagnetic deflection. Electrostatic Focus in 21-inch and 24-inch models.

Operating Voltage: 200-240 volts. 50 cycles, AC.

Wattage:

205 watts for all straight television VHF models.

Input impedance and transmission line:

300 ohm balance (between Antenna terminals) or 75 ohms unbalanced. (Either Antenna terminal to earth.)

Intermediate Frequencies:

Video 26.75 MC. Sound 21.25 MC in 21 MC IF Receiver.

Video 36 MC. Sound 30.5 MC in 36 MC IF Receiver.
Intercarrier Sound: 5.5 MC.

HIGH VOLTAGE WARNING

High voltages are present throughout the horizontal output, damper and second anode supply circuits. No attempt should be made to make measurements from high voltage points in these circuits with ordinary test equipment.

Caution: Operation of the set outside of the cabinet or with cabinet back removed involves shock hazard. Exercise normal high voltage precautions.

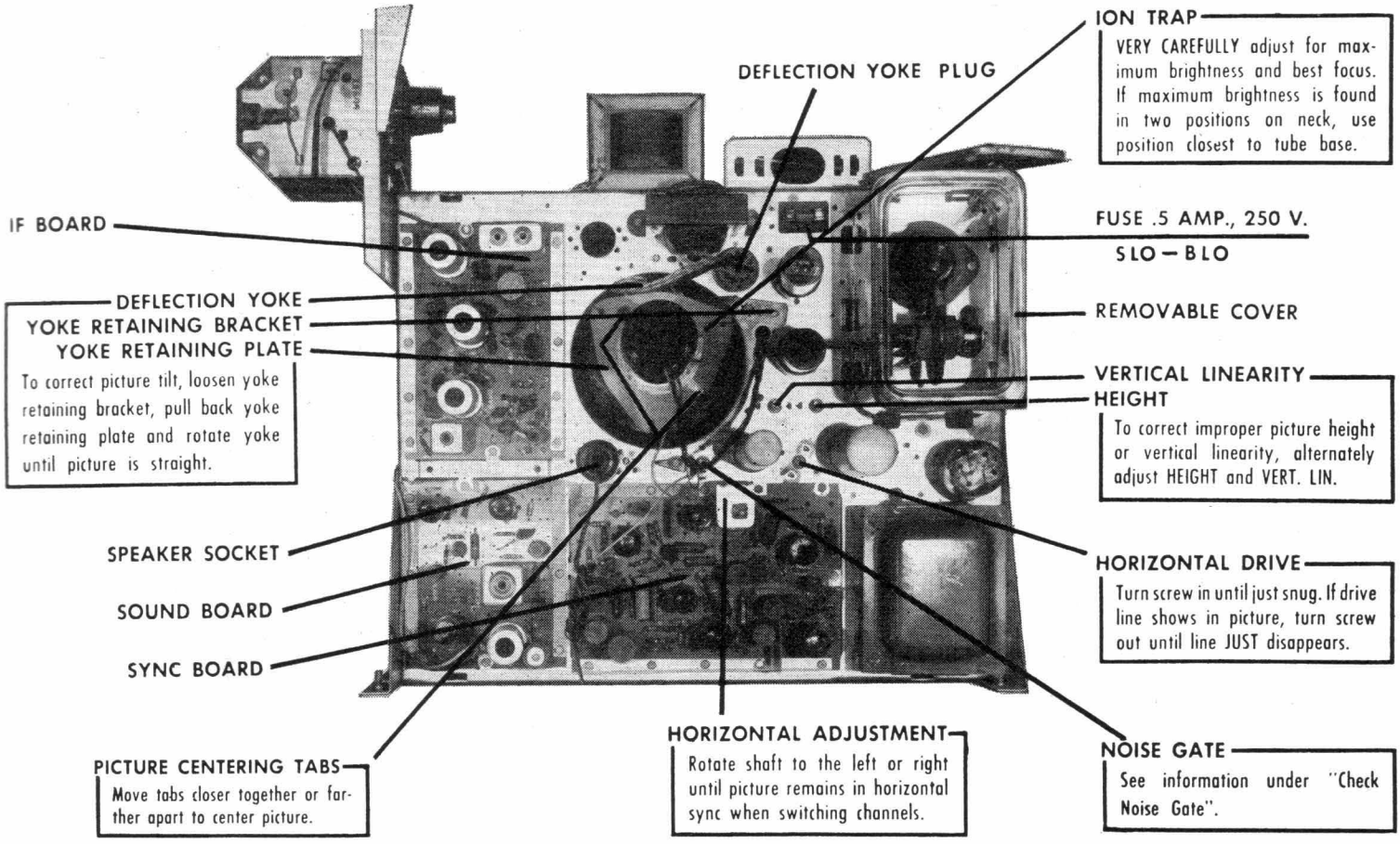


Figure 1. Rear View of AX20Y4 Chassis Showing Adjustment Locations.

TUBE COMPLEMENT FOR AX20Y4 CHASSIS

V101	6BN4	VHF Amplifier
	6BC8	VHF Amplifier
V102	6J6	VHF Oscillator and Mixer
	6CG8	VHF Oscillator and Mixer
V201	6AU6	Sound IF Amplifier
V202	6AL5	Ratio Detector
V203	6AV6	Sound Amplifier
V204	6BF5	Sound Output
V301	6BZ6	1st IF Amplifier
V302	6BZ6	2nd IF Amplifier
V303A	6AM8	3rd IF Amplifier, Video Detector
V304A	6AW8	Video Amplifier, Sync Inverter
V305	21ATP4, 21ALP4A	Picture tube in all 21″ models
	24DP4A	Picture tube in all 24″ models
V401	6CS6	Sync Separator
V402	6AL5	Horiz. Sync Discriminator
V403	12AU7	Horiz. Oscillator
V404	6S4A	Vertical Output in 21″ and 24″ models
405	6BQ6GTB	Horiz. Output in 21″ and 24″ modes
V406	6AX4GT	Horiz. Damper
V407	1B3GT	High Voltage Rectifier
V408A&B	6BH8	Gated AGC Detector, Vertical Oscillator
V501	5AS4	Rectifier

TELEVISION ALIGNMENT

GENERAL

Complete alignment consists of the following individual procedures and should be performed in this sequence:

a. IF Amplifier and Trap Alignment.

b. IF Response Curve Check.

c. 5.5 MC Sound IF and Trap Alignment.

d. VHF and Mixer Alignment.

e. Over-all VHF and IF Response Curve Check.

f. VHF Oscillator Adjustment.

TEST EQUIPMENT

To properly service this receiver, it is recommended that the following test equipment be available.

IMPORTANT: Many service instruments do not meet the requirements given below. A list of recommended equipment is available from Admiral distributors.

Sweep Generator

Sweep generator must provide sweep frequencies from 18 to 45 MC range with at least 15 MC sweep width.

Output: Adjustable; at least .4 volt maximum output.

Signal (Marker) Generator

5.5 MC frequency.

18 to 40 MC frequency range.

Must have a built-in calibration crystal for checking dial accuracy.

Oscilloscope

Standard oscilloscope, preferably one with a wide band vertical deflection, vertical sensitivity at least .5 volt (RMS) per inch.

Vacuum-Tube Voltmeter

Preferably with low range (3 volt) DC zero centre scale and a high voltage probe (30,000 volt range).

Bias Supply

0 to $4\frac{1}{2}$ volts (battery or electronic).

ALIGNMENT TOOLS

The following alignment tools are required. They can be obtained from the Admiral distributor under the part numbers listed below:

Metal alignment screwdriver.

Non-metallic (fibre) alignment screwdriver (16″ long, $\frac{1}{8}$″ diameter).

Non-metallic alignment wrench (9″ long, for hexagonal core IF slugs).

IMPORTANT ALIGNMENT HINTS

(For all AX20Y4—Series Chassis)

The following suggestions should be performed if difficulty is experienced during the alignment procedure.

1. IF CIRCUIT INSTABILITY: When spot frequency aligning the IF amplifiers, the VTVM pointer may swing when the hand is placed too near the IF transformers. When viewing the IF response curve on an oscilloscope, the curve may change shape with hand capacity, especially when aligning 3rd IF transformer T303. To correct either of these conditions, the following alignment hints should be tried:

(a) Check the generator output leads to be certain that the unshielded portion (especially the grounded lead) is as short as practicable.

(b) Be sure that a decoupling network is used at the video detector output and that the leads on the network are kept as short as possible; see figure 3.

(c) The use of nine inch hexagonal alignment tool will permit adjustment without encountering "hand capacity" effects. See "Alignment Tools" above.

2. RECEIVER OVERLOADING WHEN CHECKING THE OVER-ALL RESPONSE CURVE: Due to the inherent high sensitivity of these receivers, it is very easy to cause overloading of the third IF amplifier stage. In some cases, generator leakage alone is enough to produce a response curve on the oscilloscope. To prevent overloading, the following things should be done:

(a) Be certain that the generator output attenuators are set for a minimum output.

(b) Some generators have a built-in pad in the output cable. Be sure that the pad in the cable is properly connected in the circuit. Refer to the generator instruction manual for details.

(c) If a pad is not built in, the 12 db pad shown below in figure 3 can be constructed and connected between the generator and the antenna terminals.

3. SPECIAL TUBE SHIELD: For injecting IF Signals, use an insulated tube shield over the VHF Oscillator-Mixer tube. Insulate bottom of tube shield with masking tape, see figure 2.

4. CONNECT SPEAKER AND DEFLECTION YOKE: Speaker and deflection yoke must be connected to chassis during alignment.

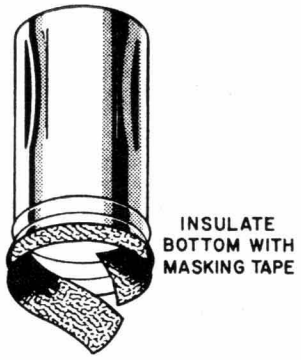


Figure 2. Special Tube Shield for IF Alignment and IF Response Curve Check.

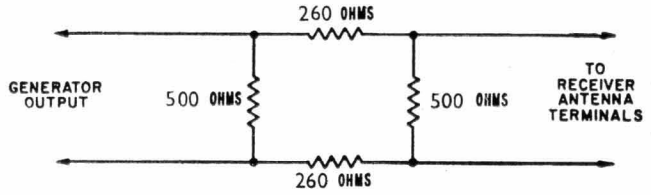


Illustration of 12 db Attenuation Pad for Viewing Over-all RF-IF Response Curve.

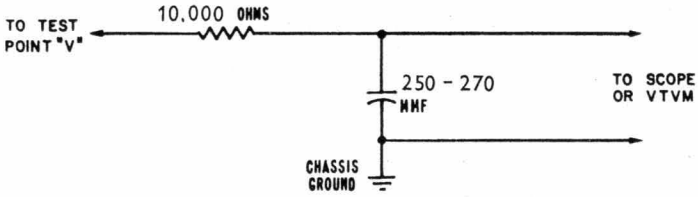


Figure 3. Decoupling Filter.

FREQUENCY TABLE FOR CHASSIS WITH 21 AND 36 MC IF SYSTEM

Channel No.	Freq. Range MC	Picture Carrier MC	Sound Carrier MC	Osc. Freq. 21 MC	Osc. Freq. 36 MC	Sweep Gen. Centre Freq. MC
1.	49- 56	50.25	55.75	77	86.25	53
2.	63- 70	64.25	69.75	91	100.25	67
3.	85- 92	86.25	91.75	113	122.25	89
4.	132-139	133.25	138.75	160	169.25	136
5.	139-146	140.25	145.75	167	176.25	143
6.	174-181	175.25	180.75	202	211.25	178
7.	181-188	182.25	187.75	209	218.28	185
8.	188-195	189.25	194.75	216	225.25	192
9.	195-202	196.25	201.75	223	232.25	199
10.	209-216	210.25	215.75	237	246.25	213

36 MC IF SYSTEM

SIMPLIFIED ALIGNMENT

After becoming familiar with alignment procedure, some servicemen simplify subsequent alignment of sets by merely using the essential alignment data given in figure 4.

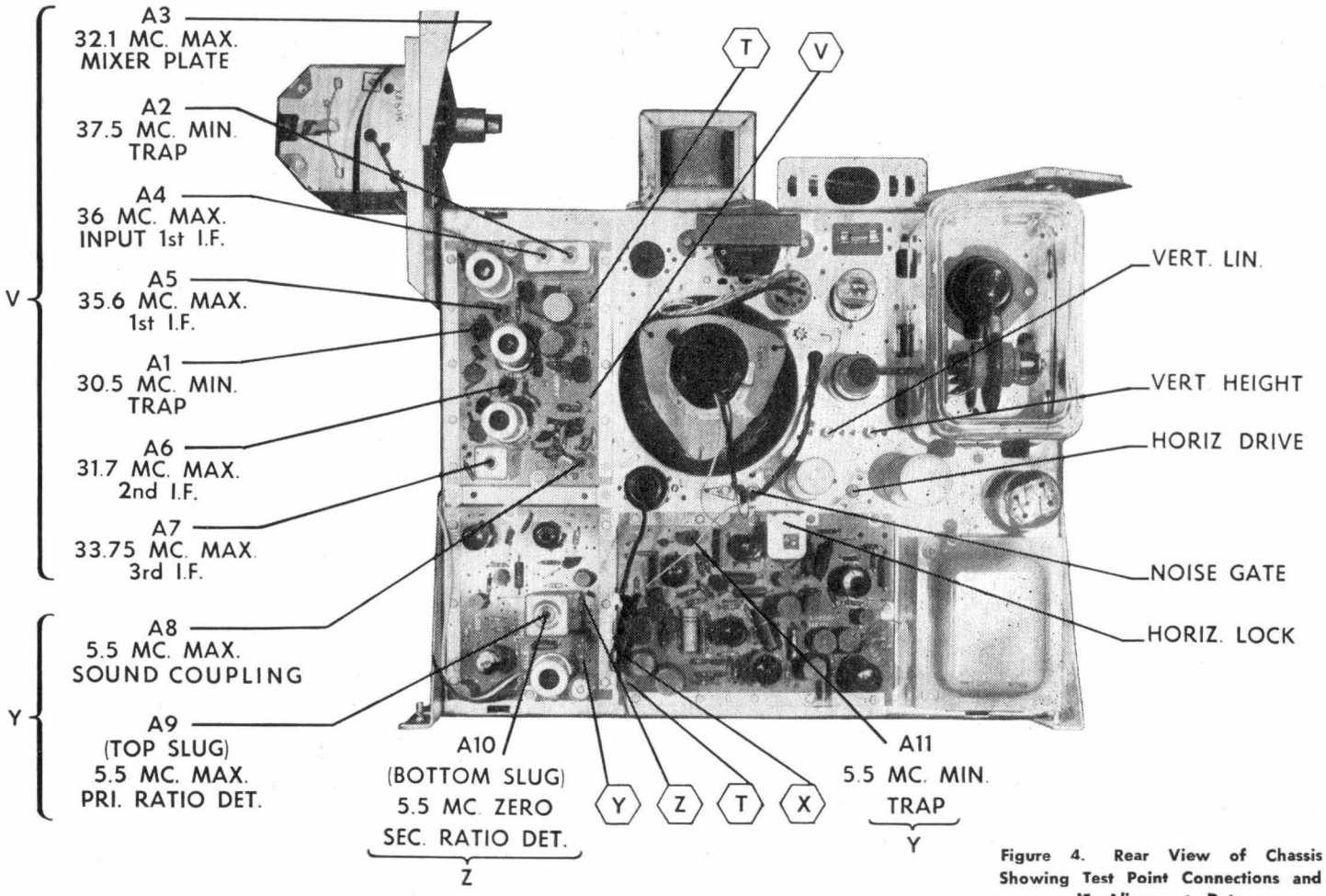


Figure 4. Rear View of Chassis Showing Test Point Connections and IF Alignment Data.

21 MC IF SYSTEM

SIMPLIFIED ALIGNMENT

After becoming familiar with alignment procedure, some servicemen simplify subsequent alignment of sets by merely using essential alignment data given in figure 5.

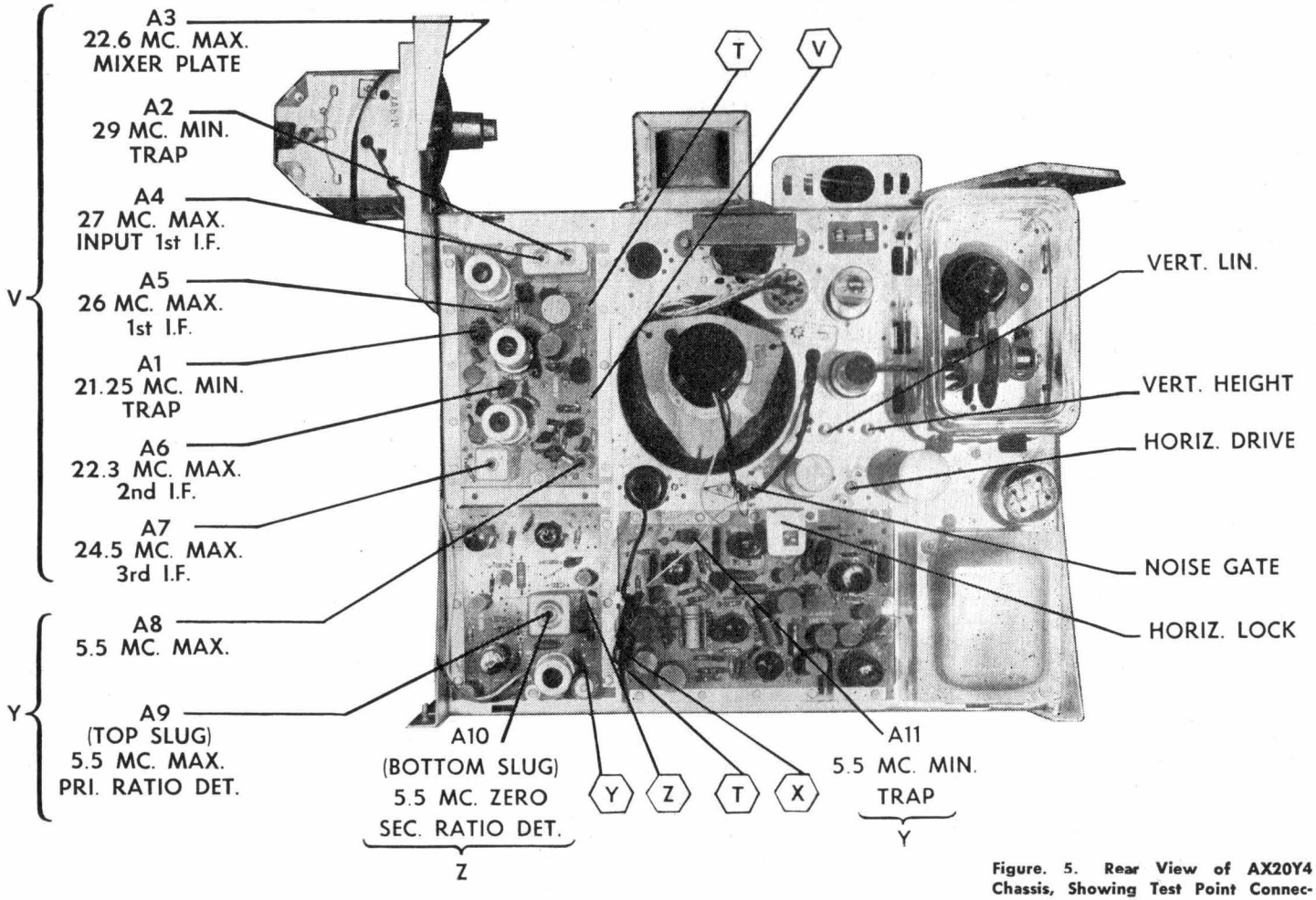


Figure. 5. Rear View of AX20Y4 Chassis, Showing Test Point Connections and IF Alignment Data.

21 MC IF AMPLIFIER AND TRAP ALIGNMENT

- Connect negative of bias supply to test point "T", positive to chassis. —3 volt supply required for steps 3, 4, 5, 6, 7 and 8. —1½ volt supply may be required for steps 1 and 2.
- Disconnect antenna. Connect a jumper wire across antenna terminals.
- Set Channel Selector to Channel 3 or other unassigned low channel to prevent interference during alignment.
- Set Contrast control fully counter-clockwise.
- Connect generator high side to insulated tube shield of mixer; connect low side to chassis near tube shield. See figure 2.
- Connect VTVM high side to test point "V" through a decoupling filter, common to chassis. See figures 4 and 5. Use lowest DC scale on VTVM.
- Allow about 15 minutes for receiver and test equipment to warm up.

Step	Signal Gen. Freq.	Instructions	Adjust
Before proceeding, be sure to check the signal generator used in alignment against a crystal calibrator or other frequency standard for absolute frequency calibration required for this operation.			
1.	21.25 MC	If necessary, increase generator output and/or reduce bias to —1½ volts to obtain a definite indication on VTVM.	A1 for minimum
2.	29 MC		A2 for minimum
3.	22.6 MC	Use —3 volts bias. When adjusting, keep reducing generator output to prevent VTVM reading from exceeding 2 volts.	A3 for maximum
4.	27 MC		A4 for maximum
5.	26 MC		A5 for maximum
6.	22.3 MC		A6 for maximum
7.	24.5 MC		A7 for maximum
8.	To insure correct IF alignment, make "IF Response Curve Check".		

IF RESPONSE CURVE CHECK (Using Sweep Generator and Oscilloscope)

Receiver Controls and Bias Battery	Sweep Generator	Marker Generator	Oscilloscope	Instructions
Set Channel Selector on channel 3 or an unassigned low channel. Contrast control fully to the left. Connect negative of 3 volt bias supply to test point "T"; positive to chassis.	Connect high side to 6J6 mixer-osc. insulated tube shield, see fig. 2. Connect low side to chassis near tube shield. Set sweep frequency to centre of IF Frequency and sweep width approximately 10-15 MC.	If an external marker generator is used, loosely couple high side to sweep generator lead on tube shield, low side to chassis. Marker frequencies indicated on IF Response Curve.	Connect high side to test point "V" through a decoupling filter, see fig. 3.	Check curve obtained against ideal response curve in fig. 6. Note tolerances on curve. Keep marker and sweep outputs at very minimum to prevent overloading. A reduction in sweep output should reduce response curve amplitude without altering the shape of the response curve. If the curve is not within tolerance or the markers are not in the proper location on the curve, touch-up with IF slugs as instructed below. IMPORTANT: If curve changes shape with hand capacity, see section 1 of "Important Alignment Hints".

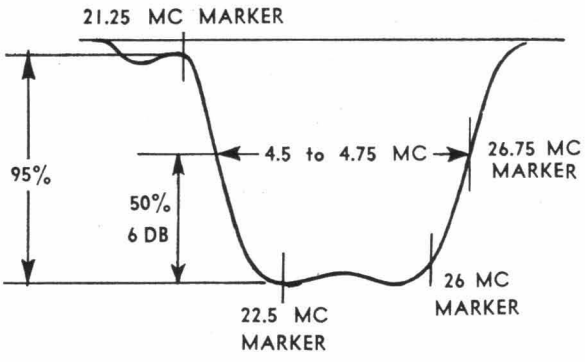


Figure 6. Ideal IF Response Curve.

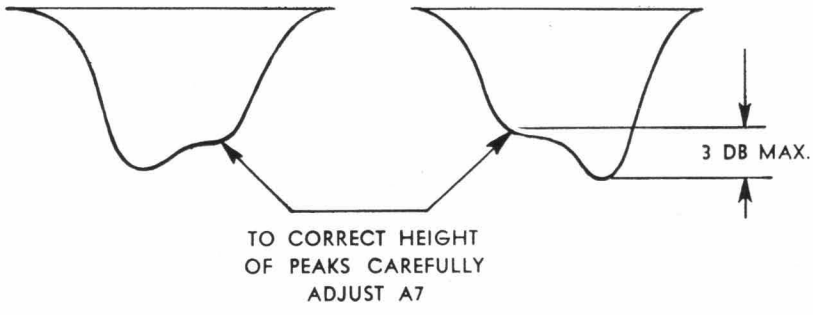


Figure 7. IF Response Curves, Incorrect Shape.

If it is necessary to adjust for approximate equal peaks and marker location, carefully adjust alignment slugs as instructed under the above figures. It should not be necessary to turn the slugs more than one turn in neither direction.

If the curve cannot be made to resemble the response curve shown at left, repeat all steps under "IF Amplifier and Trap Alignment", making sure that generator frequencies are accurate and adjustments are carefully made. If a satisfactory curve cannot be obtained after repeating these steps, it may be necessary to change IF amplifier tubes or check for a defective circuit component to be sure that each stage is operating properly.

36 MC IF AMPLIFIER AND TRAP ALIGNMENT

- Connect negative of bias supply to test point "T", positive to chassis. —3 volt supply required for steps 3, 4, 5, 6, 7 and 8. —1½ volt supply may be required for steps 1 and 2.
- Disconnect antenna. Connect a jumper wire across antenna terminals.
- Set Channel Selector to Channel 3 or other unassigned low channel to prevent interference during alignment.
- Set Contrast control fully counter-clockwise.
- Connect generator high side to insulated tube shield of mixer; connect low side to chassis near tube shield. See figure 2.
- Connect VTVM high side to test point "V" through a decoupling filter, common to chassis. See figures 4 and 5. Use lowest DC scale on VTVM.
- Allow about 15 minutes for receiver and test equipment to warm up.

Step	Signal Gen. Freq.	Instructions	Adjust
Before proceeding, be sure to check the signal generator used in alignment against a crystal calibrator or other frequency standard for absolute frequency calibration required for this operation.			
1.	30.5 MC	If necessary, increase generator output and/or reduce bias to —1½ volts to obtain definite indication on VTVM.	A1 for minimum
2.	37.5 MC		A2 for minimum
3.	32.1 MC		A3 for maximum
4.	36 MC	Use —3 volts bias. When adjusting, keep reducing generator output to prevent VTVM reading from exceeding 2 volts.	A4 for maximum
5.	35.6 MC		A5 for maximum
6.	31.7 MC		A6 for maximum
7.	33.75 MC		A7 for maximum
8.	To insure correct IF alignment, make "IF Response Curve Check".		

IF RESPONSE CURVE CHECK (Using Sweep Generator and Oscilloscope)

Receiver Controls and Bias Battery	Sweep Generator	Marker Generator	Oscilloscope	Instructions
Set Channel Selector on channel 3 or an unassigned low channel. Contrast control fully to the left. Connect negative of 3 volt bias supply to test point "T"; positive to chassis.	Connect high side to 6CG8 mixer-osc. insulated tube shield, see fig. 2. Connect low side to chassis near tube shield. Set sweep frequency to centre of IF Frequency and sweep width approximately 10-15 MC.	If an external marker generator is used, loosely couple high side to sweep generator lead on tube shield, low side to chassis. Marker frequencies indicated on IF Response Curve.	Connect high side to test point "V" through a decoupling filter, see fig. 3.	Check curve obtained against ideal response curve in fig. 6. Note tolerances on curve. Keep marker and sweep outputs at very minimum to prevent overloading. A reduction in sweep output should reduce response curve amplitude without altering the shape of the response curve. If the curve is not within tolerance or the markers are not in the proper location on the curve, touch-up with IF slugs as instructed below. IMPORTANT: If curve changes shape with hand capacity, see section 1 of "Important Alignment Hints".

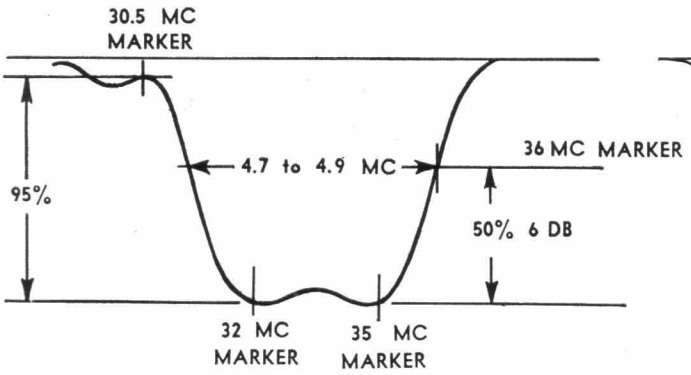


Figure 6. Ideal IF Response Curve.

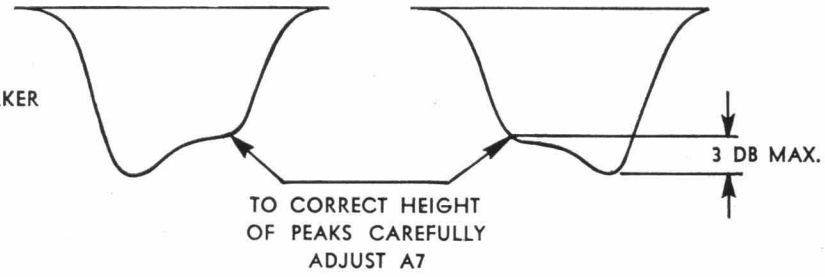


Figure 7. IF Response Curves, Incorrect Shape.

If it is necessary to adjust for approximate equal peaks and marker location, carefully adjust alignment slugs as instructed under the above figures. It should not be necessary to turn the slugs more than one turn in either direction.

If the curve cannot be made to resemble the response curve shown at left, repeat all steps under "IF Amplifier and Trap Alignment", making sure that generator frequencies are accurate and adjustments are carefully made. If a satisfactory curve cannot be obtained after repeating these steps, it may be necessary to change IF amplifier tubes or check for a defective circuit component to be sure that each stage is operating properly.

5.5 MC SOUND IF AND TRAP ALIGNMENT

Instructions for touch-up of ratio detector secondary A10 and alignment of trap A11 using television signal without test equipment are given below.

It is preferable to use a TV signal rather than a signal generator for this alignment. However, if a TV signal is not available, a signal generator which has been checked against a crystal calibrator or other frequency standard may be used. Accuracy required is within one kilocycle.

- If a television signal is to be used, connect antenna, set Channel Selector to the strongest TV signal available and tune in a picture.
- If a signal generator is to be used, disconnect antenna and short terminals together. Connect high side of generator to junction of L304 and L305 through a .01 mf, capacitor.
- Allow about 15 minutes for receiver and test equipment to warm up.
- Set Contrast control fully to the left (counterclockwise).
- See figure 5 (21 MC sets) for alignment and test point locations.
- Use a *non-metallic* alignment tool. Ratio Detector Transformer (T201) has hollow core slugs. Adjustments A9 and A10 can be made from the top of transformer if you use alignment tool, part number 98A30-12 obtainable from Admiral distributor.

Step	Signal Gen. Freq. (MC)	VTVM Connections	Instructions	Adjust
1	Tune in TV Signal or Set Signal Generator to exactly 5.5 MC	High side to test point "Y" common to chassis.	Use lowest DC scale on VTVM.	A8 and A9 for maximum (keep reducing generator output to keep VTVM at approx. 1 volt).
2		High side to test point "Z"; common to chassis.	Use zero centre scale on VTVM, if available.	A10 for zero on VTVM (the correct zero point is located between a positive and a negative maximum). If A10 was far off, repeat step 1.
3		High side to test point "Y"; common to chassis.	Connect a wire jumper across L305. Use lowest DC scale possible on VTVM.	A11 for minimum.

TOUCH-UP OF RATIO DETECTOR SECONDARY (A10) USING TELEVISION SIGNAL

Adjustment need be made on one channel only.

Proceed as follows:

a. Turn set on and allow about 15 minutes for warm up.

b. Tune set for normal picture and sound.

c. Carefully adjust the secondary slug (A10) of the Ratio Detector Transformer using a non-metallic alignment tool with a hexagonal end (part number 98A30-12). Both slugs (A9 and A10) have hollow cores. Either slug may be adjusted from the top or bottom of the chassis by passing the alignment tool through the core of the first slug encountered. A10 is the slug closest to the chassis.

Adjust A10 for best sound with minimum buzz level. Do this carefully as only slight rotation in either direction will generally be required. Correct adjustment point is located between the two maximum buzz peaks that will be noticed when turning the slug back and forth about $\frac{1}{4}$ to $\frac{1}{2}$ turn.

d. If necessary, repeat individual channel slug adjustment and conclude with retouching the ratio detector secondary. Note: If oscillator adjustment is required for other channels, it will *not* be necessary to repeat the ratio detector secondary adjustment after *once* correctly adjusting it.

ALIGNMENT OF 5.5 MC TRAP A11, USING A TELEVISION SIGNAL

Beat interference (5.5 MC) appears in picture as very fine vertical or diagonal lines, very close together, having a "gauze-like" appearance, the pattern will vary with speech, forming a very fine herringbone pattern.

The trap can be tuned by watching the picture and adjusting slug A11 for minimum 5.5 MC interference. If greater accuracy is required, the trap should be adjusted as instructed in step 3 under "5.5 MC Sound IF and Trap Alignment".

VHF TUNER INFORMATION

21 MC Receivers use Standard Coil Cascode tuners of two types; one being a slight modification of the other. Their part numbers are 94D92-13/94D110-7. First runs of 30 MC Receivers used Philips 7580 tuners and later runs used Standard Coil Neutrode tuners, part number TXN3A-1, and Admiral C94-03 tuners.

Circuits of these tuners are included at the end of this manual, and for additional information on the Philips tuner it is recommended that reference be made to Service Data issued by Philips on their tuners. In all 30 MC tuners the mixer output circuit is tuned to 32.1 MC.

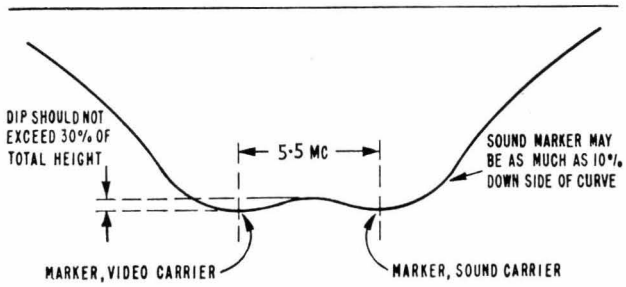
VHF AMPLIFIER AND MIXER ALIGNMENT

94D92-13 AND 94D110-7 ONLY

- Connect negative of 3 volt bias supply to test point "X", positive to chassis.
- Connect sweep generator 300 ohm output to antenna terminals. If sweep generator does not have a built-in marker generator, loosely couple a marker generator to the antenna terminals. To avoid distortion of the response curve, keep sweep generator output at a minimum, marker pips just barely visible.
- Connect oscilloscope through a 15,000 ohm resistor to test point "W" on tuner (figure 8). Keep scope leads away from chassis.
- Allow about 15 minutes for receiver and test equipment to warm up.

Step	Marker Gen. Freq. (MC)	Sweep Gen. Frequency	Instructions
1	196.25 MC (Video Carrier) 201.75 MC (Sound Carrier)	Sweeping Channel 9. See "Frequency Table".	Set Channel Selector to channel 9. Check response obtained with VHF response curve shown in figure 7. Alternatively adjust A12 and A13 (figure 8) as required to obtain equal peak amplitudes and symmetry consistent with proper bandwidth and correct marker location.
2	86.25 MC (Video Carrier) 91.75 MC (Sound Carrier)	Sweeping Channel 3. See "Frequency Table".	Set Channel Selector to channel 3. Check response obtained with VHF response curve shown in figure 7. Adjust A14 as required to obtain curve having maximum amplitude and flat top appearance consistent with proper bandwidth and correct marker location. After completing adjustment, recheck adjustment of step 1.
3	Set the sweep generator to sweep the channel to be checked. Set the marker generator for the corresponding video carrier frequency and sound carrier frequency.		Check each channel operating in the service area for curve shown below. In general, the adjustment performed in steps 1 and 2 are sufficient to give satisfactory response curves on all channels. However, if reasonable alignment is not obtained on a particular channel, (a) check to see that coils have not been intermixed, or (b) try replacing the coil for that particular channel, or (c) repeat step 1 for a weak high channel as a compromise adjustment to favor the particular channel. Repeat step 2 for the weak low channel to favour the particular channel. If a compromise adjustment is made, other channels operating in the service area should be checked to make certain that they have not been appreciably affected.

Figure 7. Ideal VHF Response Curve. Note: Full skirt of curve will not be visible unless generator sweep width extends beyond 15 MC.



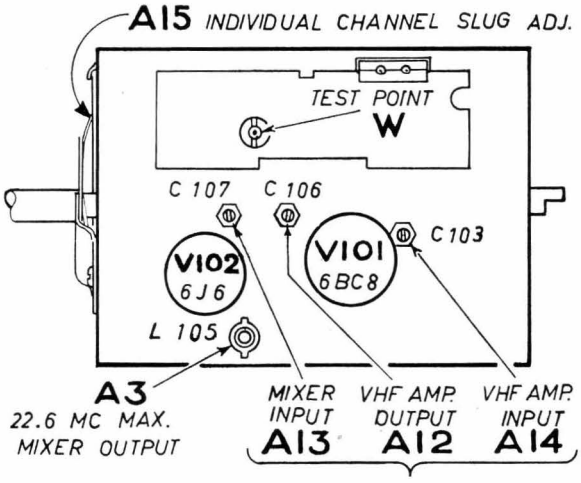


Figure 8. Top of VHF Tuner 94D92-13. Showing Adjustment Locations.

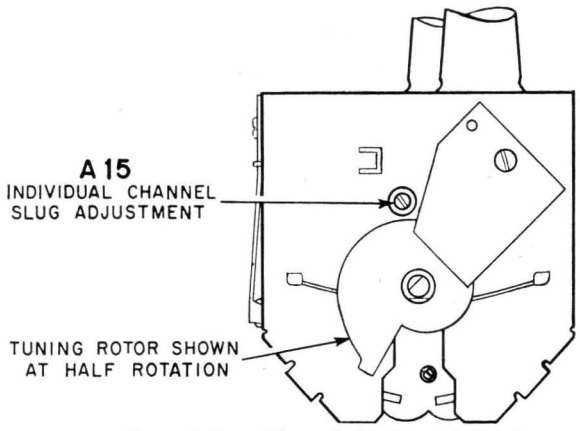


Figure 9. Front View of VHF Tuner 94D92-13. Bottom Cover Removed.

OVER-ALL VHF AND IF RESPONSE CURVE CHECK

Receiver Controls and Bias Supply	Sweep Generator	Marker Generator	Oscilloscope	Instructions
Contrast control fully to the left. Connect negative of 3 volt bias supply to test point "T" and "X", positive to chassis.	Connect to antenna terminals. Set generator to sweep channel selected. See frequency table. Keep generator output as low as possible to prevent overloading.	If an external marker generator is used, loosely couple high side to sweep generator lead. Marker frequencies are shown in frequency table.	Connect to point "V" through a decoupling filter. See figure 3.	Compare the response curve obtained against the ideal curve shown in figure 10. If the curve is not within tolerance, touch up the IF slugs as instructed below. It should never be necessary to turn slugs more than one turn in either direction. If the curve is satisfactory on the channel checked, all other channels should also be satisfactory. IMPORTANT: When sweep output is reduced, response curve amplitude on scope should also decrease, but curve should remain the same. If curve shape changes, reduce sweep output and/or the scope gain until the shape does not change.

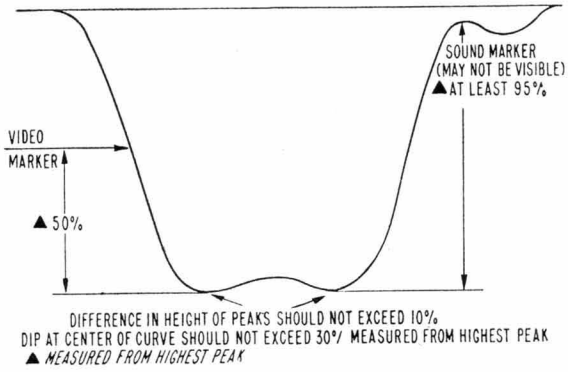


Figure 10. Ideal Over-all VHF and IF Response Curve.

Note that video marker on the "Over-all VHF-IF Response Curve" will appear on the opposite side of the curve as compared to the "Ideal IF Response Curve", figure 6. This is due to action of the mixer tube.

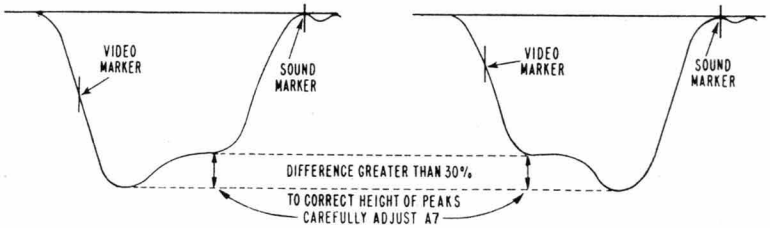


Figure 11. Over-all VHF and IF Response Curves, Incorrect Shape.

VHF OSCILLATOR ADJUSTMENT USING A SIGNAL GENERATOR

It is always advisable to make VHF oscillator adjustments using a Television Signal. If a Television Signal is not available, VHF oscillator adjustment can be made using a crystal calibrated signal generator. Make adjustments as follows:

Receiver Control Settings	Signal Generator	Instructions
Set Channel Selector for each channel to be adjusted. Set "Fine Tuning" control at half rotation. Turn Volume control fully to the right (clockwise).	Connect to antenna terminals. Set generator to exact frequency of VHF oscillator. See frequency table. **Set Generator for Maximum Output.**	Connect a wire jumper from test point "W" on the tuner to test point "Z". Remove the ratio detector tube V202 (6AL5). Carefully adjust the oscillator slug A15 on each channel until a whistle (beat) is heard in the speaker of the receiver.

The Tuner utilises a neutralised triode RF amplifier. Neutralisation is accomplished by applying an out of phase voltage from plate to the grid which cancels out the voltage due to the grid plate capacitance in the tube. The feedback voltage is removed from the low side of the plate coil and fed to the grid through the neutralising capacitor circuit. The input to the grid of the RF amplifier is 70 ohms unbalanced. This impedance is transformed to 300 ohms balanced by the antenna transformer T1.

1. Turn the fine tuning control to a position approximately 30 degrees counter-clockwise from centre.

2. Without further adjustment of the control, insert an alignment wrench (designed to prevent turning the adjustment screw too far into the core where it could disengage from its track) through the hole provided in the rear of the tuner and adjust each operating channel to resonance. It will be noted that tuning to one side of resonance results in a faded, washed out picture with the spacings between the wedge lines fogged and tuning in the opposite direction causes the spaces to clear up. However, going beyond this point causes the picture to take on a "wormy" appearance from sound getting into the picture. Correct adjustment is obtained by tuning to the "Wormy" picture and then backing the adjusting screw slightly until the picture clears up.

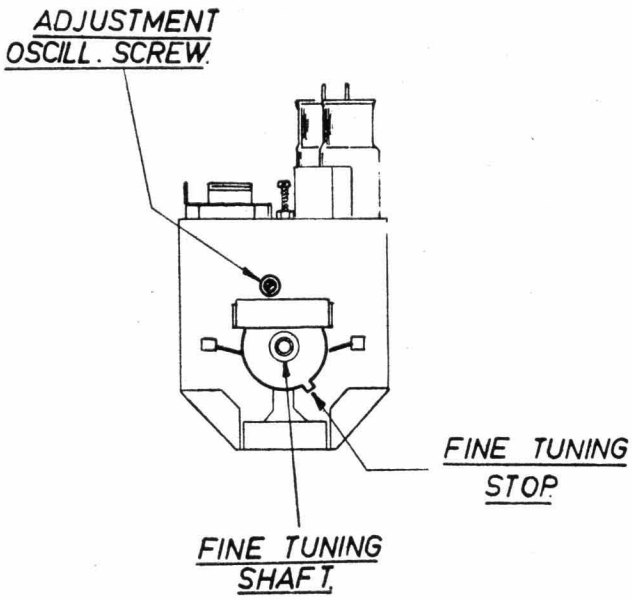


Figure 12. Tuning Adjustment.

REPLACING CHANNEL STRIPS

1. Remove the plate by prying the catch end with a small screw-driver and sliding the plate off.
2. Place thumb against metal tab on drum and fingers against end of strip nearest the tab; squeeze and lift out strip.
3. To install strip, place tip end into slot in the drum and push opposite end down until strip snaps into position.

ALIGNMENT PROCEDURE

Alignment Equipment:

Sweep Generator
Marker Generator
Oscilloscope
Variable Bias Supply, 0 to —15 volt.

1. Connect negative lead of the bias supply to the AGC terminal and the positive lead to chassis.
2. Connect oscilloscope through a 15K isolation resistor between terminal "W" and chassis.
3. Feed sweep generator to the antenna terminal.
4. Switch receiver and sweep generator to channel 9. Set bias for 3.5 volts. Do not exceed the 0.1 volt peak to peak output during alignment.

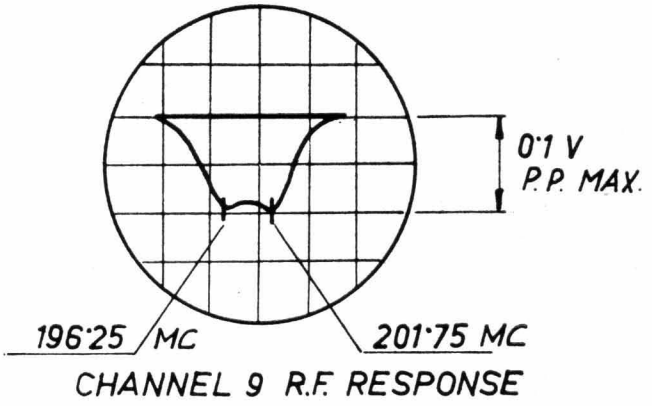


Figure 13. Channel 9 RF Response.

5. Adjust the RF plate and mixer grid trimmers for a pattern similar to above. Spread or squeeze the antenna coil for maximum amplitude of the response curve.
6. To neutralize the RF amplifier, increase the bias for minimum amplitude of the response curve. Without changing the bias, adjust the neutralizing trimmer also to obtain minimum response (channel 9 only).

   NOTE: There is some interaction between the plate and neutralising trimmers and it may be necessary to repeat steps 4, 5 and 6 until correct results are obtained.

7. Switch the receiver and sweep generator to channel 2 and adjust the antenna coil for maximum gain. Similarly adjust the other channels. (It may be desirable to insert a tuning wand into the field of the coil to determine whether or not adjustment is necessary. An increase in amplitude with brass indicates too much inductance necessitating spreading of the turns. An increase in amplitude with iron indicates too little inductance and the coil must be squeezed. At resonance, a reduction in amplitude will be noted with both iron and brass.)

8. The converter plate coil and the IF trap are adjusted as part of the IF alignment. The IF trap is factory adjusted for minimum response at 36 MC. If necessary, this trap can be adjusted in the field for minimum interference from police and other interfering signals within the pass band of the IF amplifier.

SERVICE

In servicing the Tuner, remove the two drum retaining springs and take out drum. All parts are then exposed. Use a small tip low wattage iron and 3% silver bearing solder. In replacing disc capacitors it may be desirable to use a fork type iron to unsolder both sides simultaneously. In replacing feed through capacitors use a low wattage iron and a small stiff brush to free bottom connection. To free chassis connection use a heavier iron and lift out feed-through.

B+ DISTRIBUTION

To illustrate basic circuit wiring, B+ distribution is shown in figures 15.

When servicing, it is important to note that in a chassis with a 21 MC IF system, B+ voltage to the 1st and 2nd IF amplifiers V301 and V302 is effectively in series.

The power supply provides approximately 270 volts of DC voltage for application to the receiver circuits. The distribution of this voltage to the various stages is a series-parallel arrangement. The horizontal and vertical deflection circuits, sound amplifier, sync inverter, gated AGC tube screen grid, and VHF amplifier requires approximately 270 volts and thus are connected directly across the 270 volt line. Most of the other circuits require approximately one-half of this voltage and obtain it from the cathode of the sound output tube V204 which functions as a series voltage regulator. All the current drawn by these circuits passes through V204, hence the B+ voltage (270 volts) is divided nearly equally between V204 and the stages connected to its cathode. To prevent abnormal current flow through V204, some low voltage stages are connected to 270 volts B+ through a voltage dropping resistor.

The control grid of V204 is connected to a voltage dividing network consisting of R212 and R215, resulting in a fixed potential of approximately 140 volts being applied to the control grid. A change in the cathode voltage of V204 due to AGC fluctuations, tube current variations, etc., will cause a change in the grid to cathode voltage of V204. The resulting change in cathode current tends to maintain the 150 volt supply nearly constant. High value capacitors (C214 and C215A) are necessary in the cathode circuit of V204 to reduce any fluctuations in current due to the audio current components flowing in this stage.

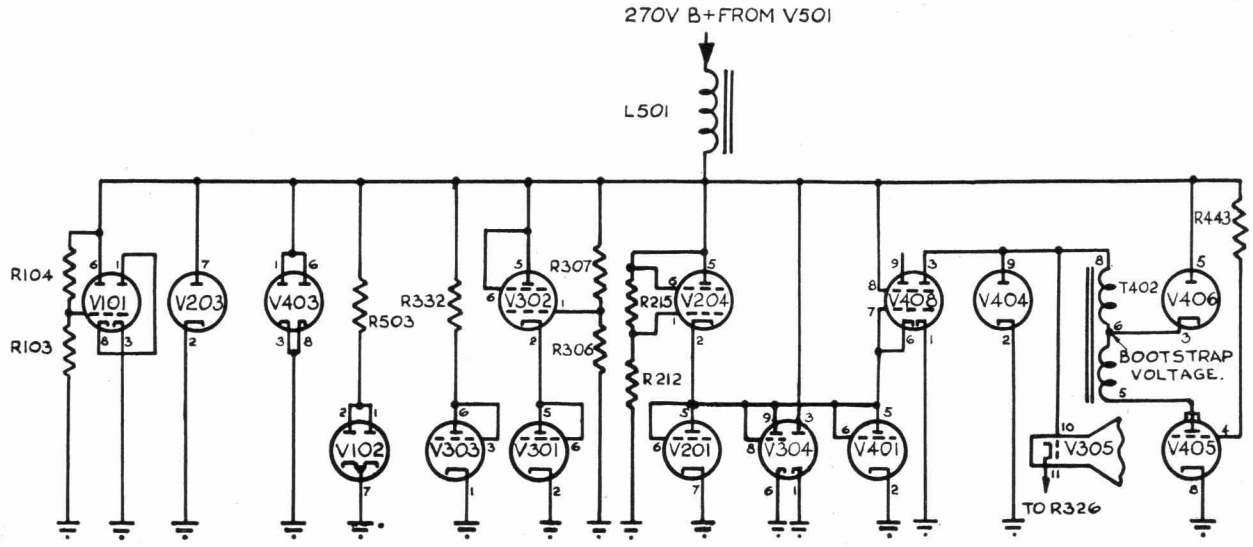


FIGURE 15 SIMPLIFIED B+ DISTRIBUTION DIAGRAM FOR ALL VHF. MODELS HAVING A 21" OR 24" PICTURE TUBE.

PRINTED WIRING VIEWS

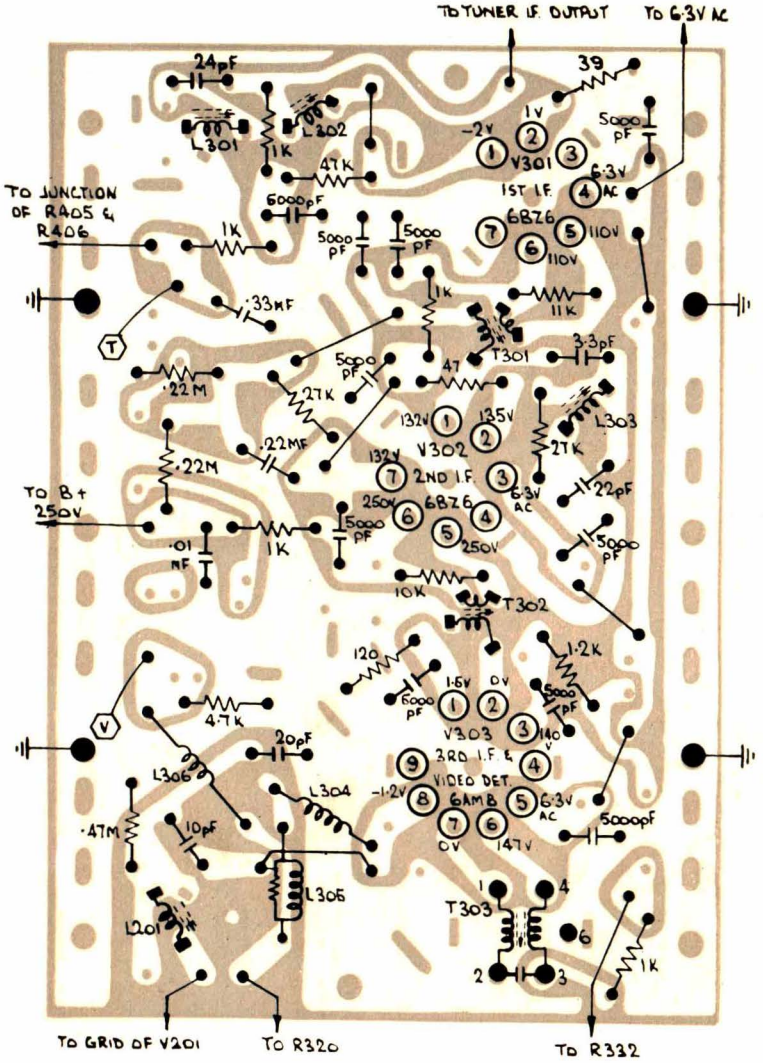


Figure 16.

View of PRINTED WIRING SIDE of 21 MC IF Board. White area represents printed wiring; black symbols and lines represent components and connections on opposite side.

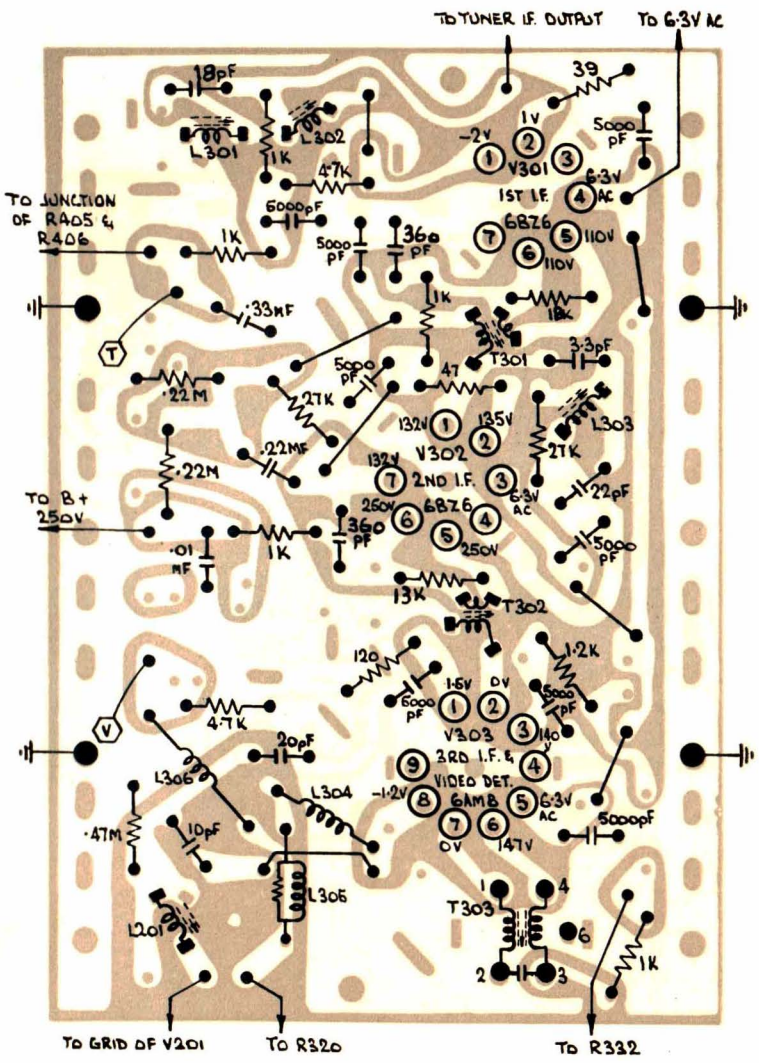


Figure 17.

View of PRINTED WIRING SIDE of 36 MC IF Board. White area represents printed wiring; black symbols and lines represent components and connections on opposite side.

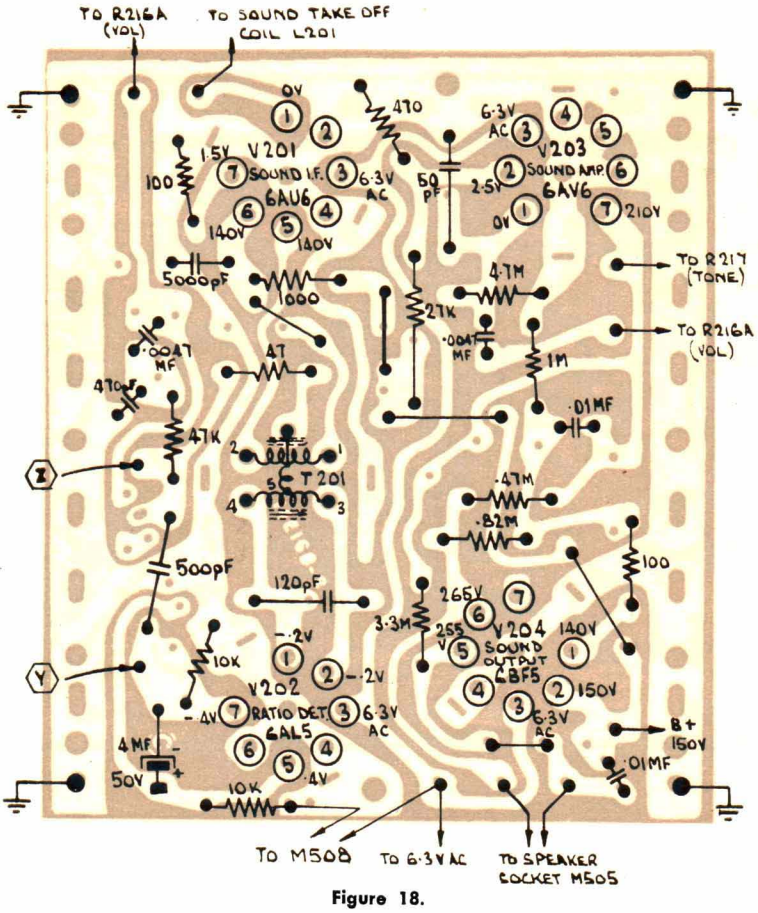


Figure 18.

View of PRINTED WIRING SIDE of Sound Board, White area represents printed wiring; black symbols and lines represent components and connections on opposite side.

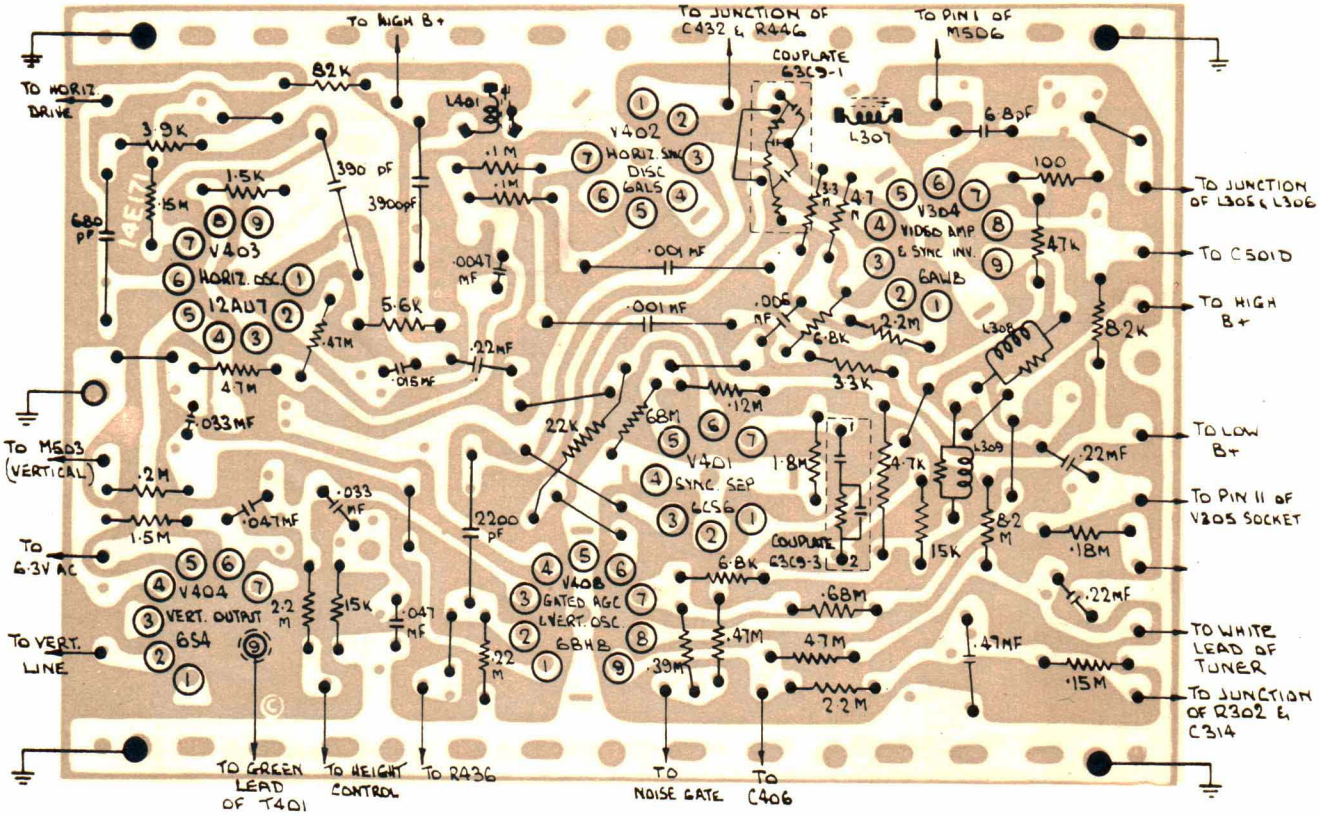


Figure 19.

View of PRINTED WIRING SIDE of Sync Board. White area represents wiring; black symbols and lines represent components and connections on opposite side.

CHECK NOISE GATE

The *Noise Gate* control is used to improve sync stability in fringe and noisy areas.

Set the *Noise Gate* fully to the left (counterclockwise). Set the *Channel Selector* for the strongest TV station. (Be sure that the *Vertical* and *Horizontal* adjustments are correct.) If the picture is unstable (jitters or rolls), slowly turn the *Noise Gate* control to the right until the picture becomes stable. Check adjustment on other TV stations, and if necessary, readjust control.

Caution: If the *Noise Gate* is turned too far clockwise for a strong signal, the picture may roll vertically, tear horizontally or disappear.

6BC8 VARIABLE-MU CASCODE AMPLIFIER

Admiral engineers, co-operating with receiving tube manufacturers, have developed a new cascode amplifier tube, the 6BC8.

This twin-triode is a variable-mu type having a semi-remote cut-off characteristic. Since it has a greater range of linear amplification it can handle greater variations in incoming signal strengths (and the resulting changes in AGC bias voltage) without introducing cross modulation. Cross modulation is the modulation of the desired carrier by an undesired signal which shows up as interference in the picture.

HIGH VOLTAGE WARNING

High voltage is present at some points in this receiver. Operation of the set without the cabinet or with cabinet back removed involves shock hazard. Exercise necessary high voltage precautions.

PICTURE TUBE HANDLING PRECAUTION

Due to the high vacuum and large surface area of picture tubes, great care must be exercised when handling these tubes. Shatterproof goggles, heavy gloves and a protective apron should be worn while handling or installing a picture tube. The picture tube must not be scratched, bumped or subjected to excessive pressure, as fracture of the glass may result in an explosion of considerable violence, which may cause injury or property damage.

TOUCH-UP OF RATIO DETECTOR SECONDARY (A10) USING TELEVISION SIGNAL

Adjustment need be made on one channel only.

Proceed as follows:

a. Turn set on and allow about 15 minutes for warm up.

b. Tune set for normal picture and sound.

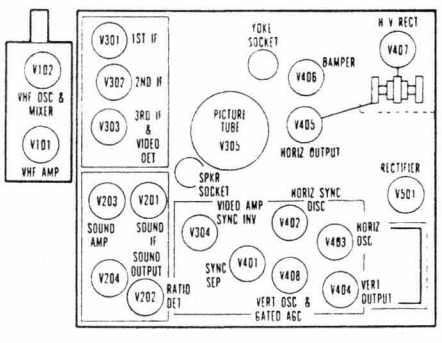
c. Carefully adjust the secondary slug (A10) of the Ratio Detector Transformer using a non-metallic alignment tool with a hexagonal end (part number 98A30-12). Both slugs (A9 and A10) have hollow cores. Either slug may be adjusted from the top or bottom of the chassis by passing the alignment tool through the core of the first slug encountered. A10 is the slug closest to the chassis.

   Adjust A10 for best sound with minimum buzz level. Do this carefully as only slight rotation in either direction will generally be required. Correct adjustment point is located between the two maximum buzz peaks that will be noticed when turning the slug back and forth about $\frac{1}{4}$ to $\frac{1}{2}$ turn.

d. If necessary, repeat individual channel slug adjustment and conclude with retouching the ratio detector secondary. Note: If oscillator adjustment is required for other channels, it will *not* be necessary to repeat the ratio detector secondary adjustment after *once* correctly adjusting it.

Admiral Chassis AX20Y4A / Chassis AX20Y4B

VALVE LOCATIONS



V101-6BC8
V102-6J6
V201-6AU6
V202-6AL5
V203-6AV6
V204-6BF5
V301-6BZ6
V302-6BZ6
V303-6AM8
V304-6AW8
V305-21ALP4A
V401-6CS6
V402-6AL5
V403-12AU7
V404-6S4
V405-6BQ6
V406-6AX4GT
V407-1B3GT
V408-6BH8
V501-5U4GB

Figure 20.

PICTURE TUBE REPLACEMENT

A completely new method of mounting the picture tube is used in these sets. To provide a more rigid mount and allow for more compact cabinet designs, the picture tube is mounted to the four front corners of the cabinet.

To remove the picture tube, closely follow this procedure:

1. Remove cabinet back, picture tube socket, 2nd anode lead, ion trap, picture centring device and deflection yoke.

2. Remove the tuning knobs. Remove trim strip at top of picture window and carefully remove the glass and mask. Remove tuner shaft bearing bracket.

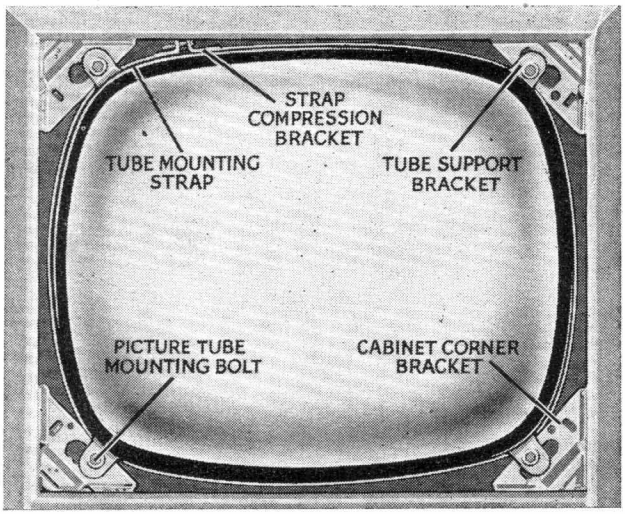


Figure 21.
Front View of Cabinet, Glass and Mask Removed.

3. Supporting the tube so it does not drop sharply when the last bolt is removed, remove the four bolts which mount the picture tube to the corner brackets.

4. Grasp the tube at diagonal corners and carefully guide it forward about an inch. At this point it is possible to shift the position of the hands in order to obtain a firmer grip on the tube. Remember that there is no support for the tube neck and this must be done carefully so the tube does not tilt enough for the tube neck to contact the edge of the hole in the chassis.

5. Lay the picture tube, face down, on the new tube carton or a piece of cardboard. Carefully trace the outline of the picture tube, tube support brackets and the strap compression bracket. This will serve as a guide when installing the strap assembly on new tube.

6. Remove retaining wire at rear of tube support brackets. Loosen strap compression bracket. Remove strap assembly.

7. Transfer cloth tape to the new tube or install new tape.

8. Install the strap assembly on the new tube, lining up the four tube support brackets and the strap compression bracket with the marks made on the cardboard in step 5. Tighten strap securely. Install retaining wire.

9. Carefully insert tube in cabinet and check to see that the holes in the support brackets line up with the holes in the corner brackets. Due to picture tube manufacturing tolerances it may be necessary to remove tube and slightly reposition one or more of the support brackets.

10. Install picture tube mounting bolts.

CIRCUIT DIAGRAM

PHILIPS TUNER

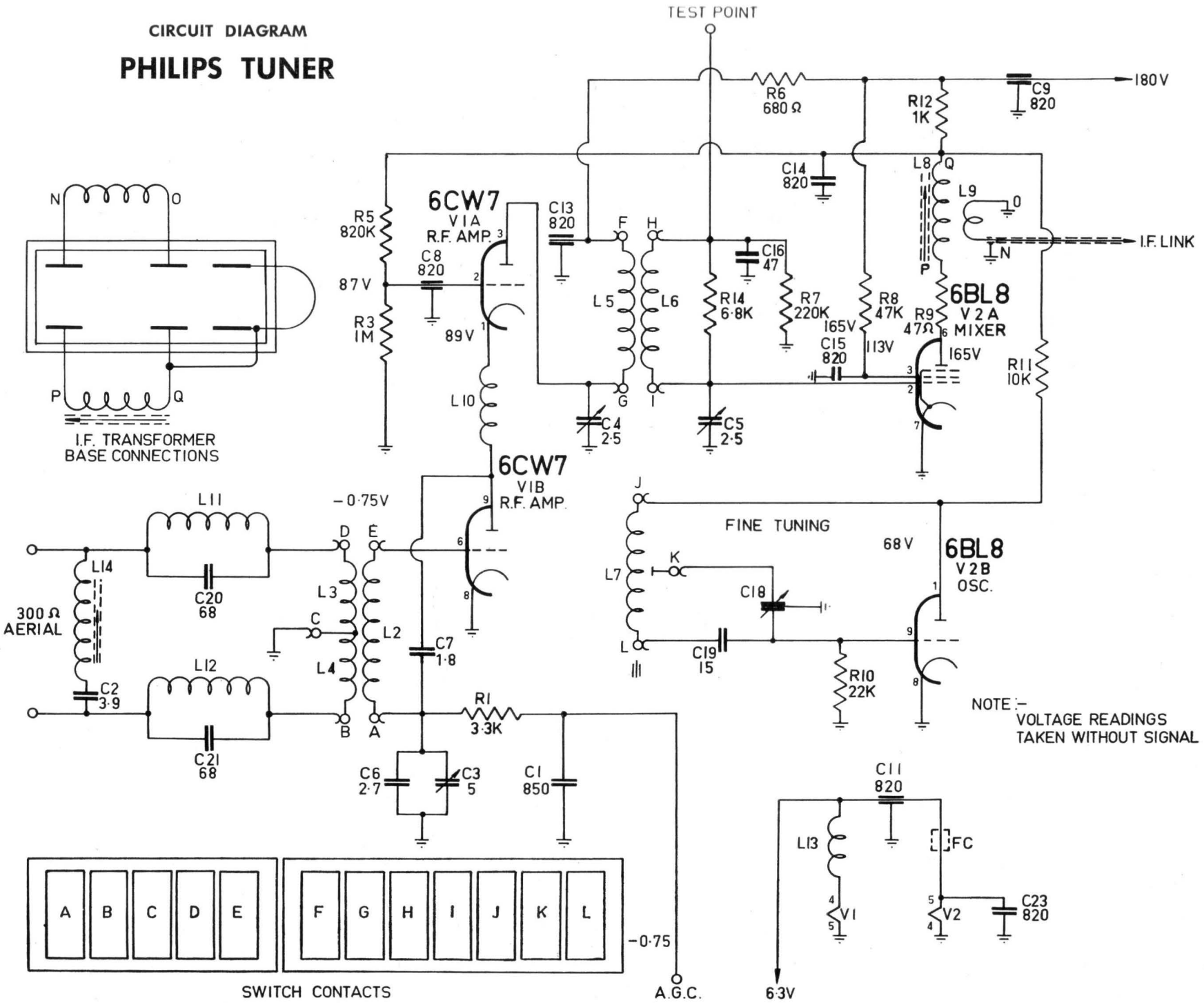


Figure 22.

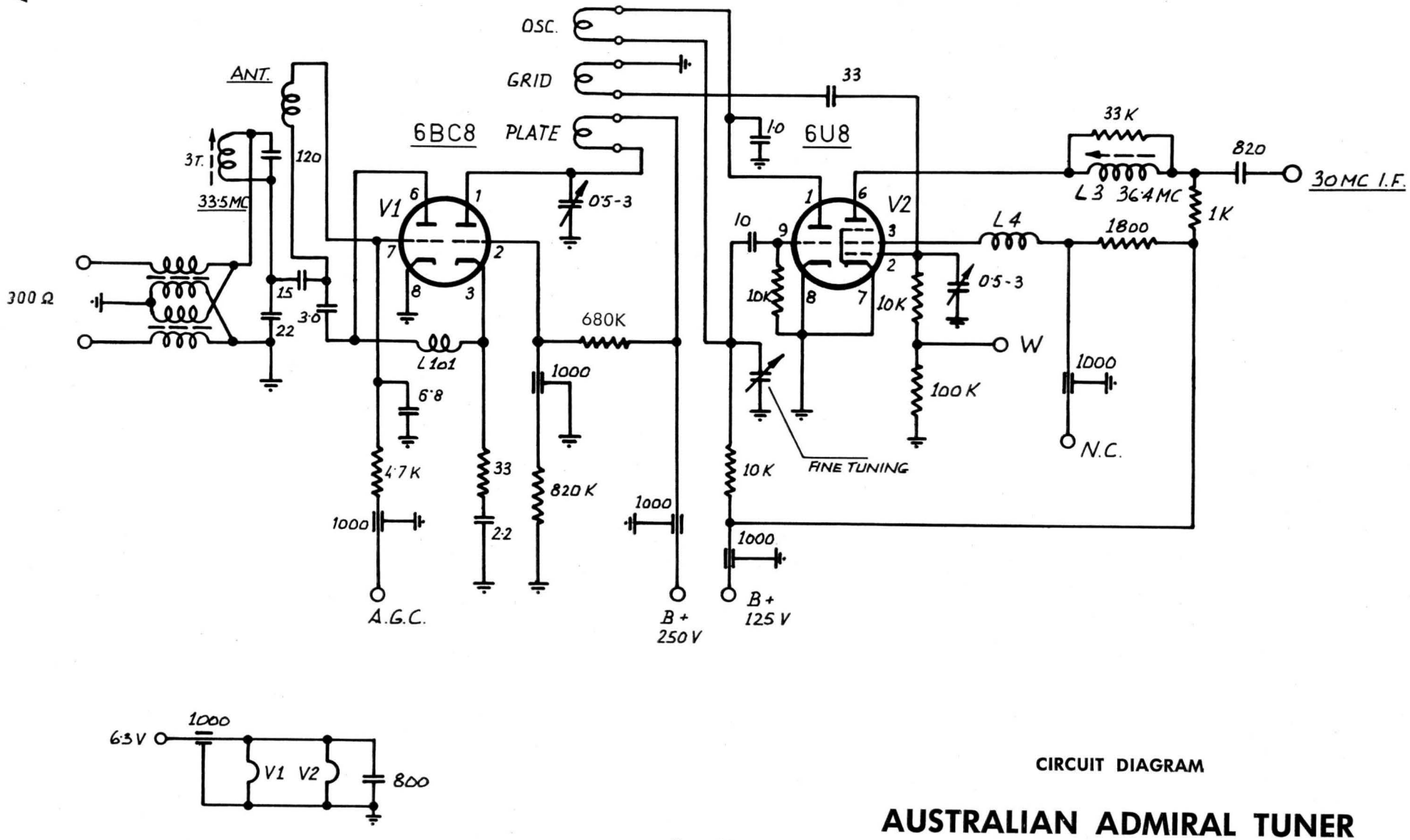
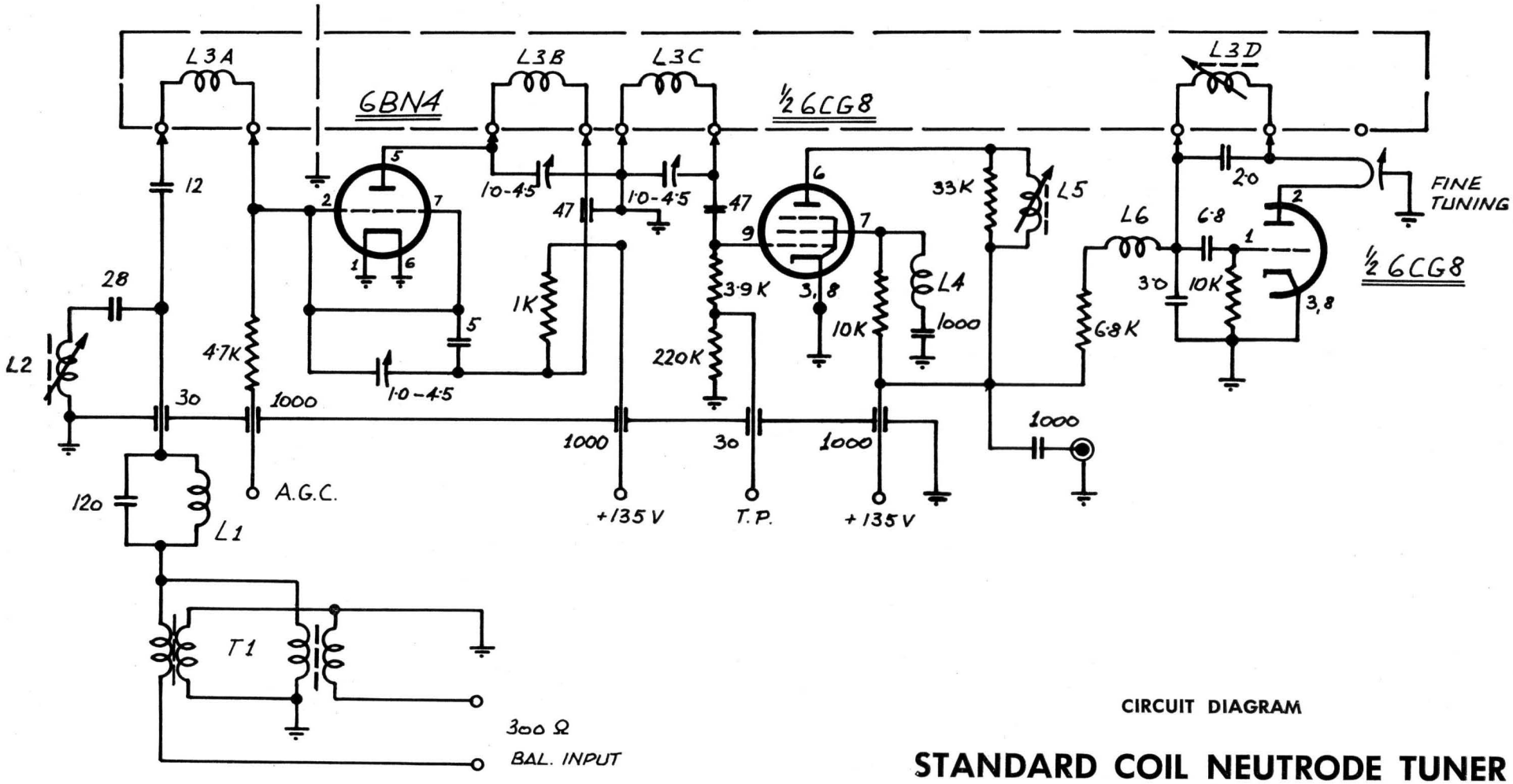


Figure 23.

CIRCUIT DIAGRAM

AUSTRALIAN ADMIRAL TUNER

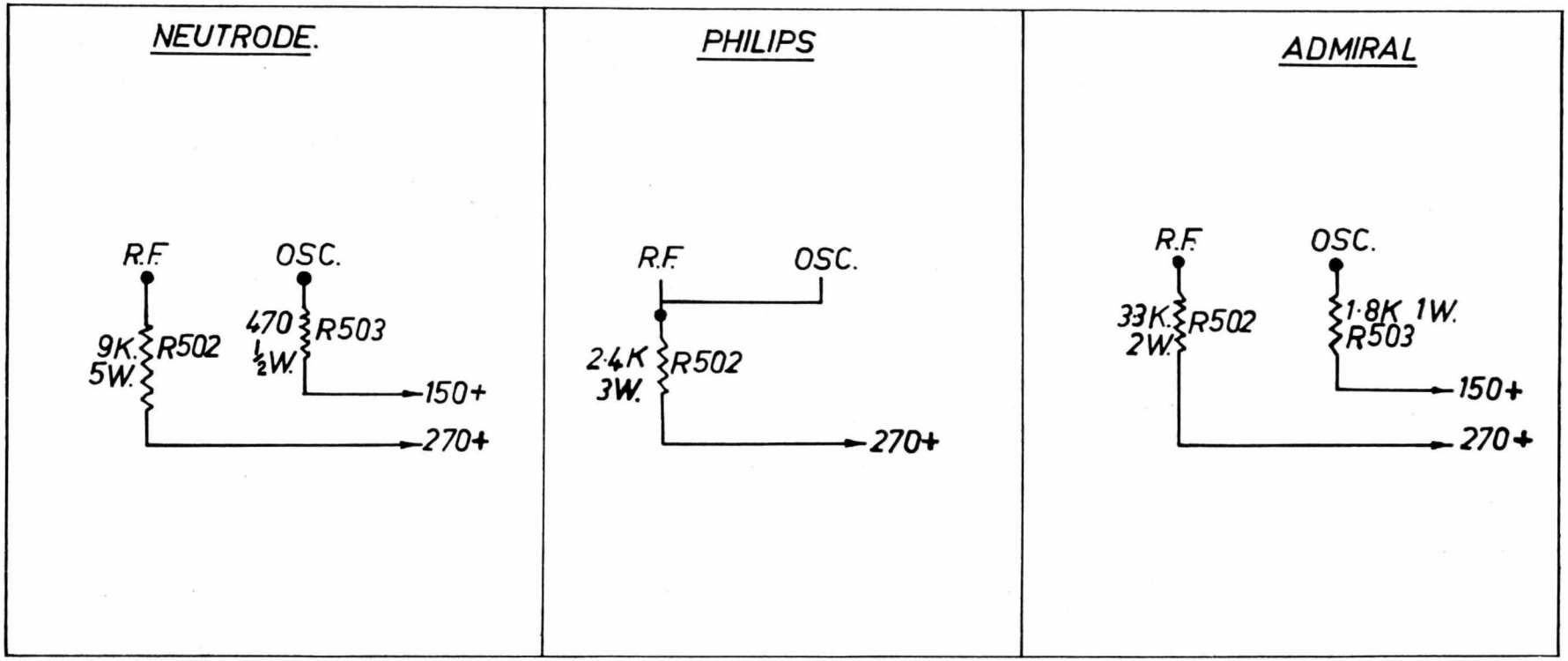


CIRCUIT DIAGRAM

STANDARD COIL NEUTRODE TUNER

Figure 24.

H.T. SUPPLY TO TUNERS



TO BE USED WITH 36 M.C. CIRCUIT

Figure 25

NOTES

Admiral of Australia (Pty.) Limited

GOW STREET, BANKSTOWN, N.S.W.

COMPONENTS CODE LIST

RESISTORS – 21 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R201	470,000	10	½	60B8-474	
R202	100	10	½	60B8-101	
R203	1,000	10	½	60B8-102	or 60B11-102
R204	47	10	½	60B8-470	
R205	10,000	10	½	60B8-103	
R206	10,000	10	½	60B8-103	
R207	47,000	10	½	60B8-473	
R208	4.7 meg.	10	½	60B8-474	
R209	470	10	½	60B8-471	
R210	27,000	10	1	60B14-273	
R211	470,000	10	½	60B8-475	
R212	1 meg.	5	½	60B7-105	
R213	—	—	—	—	
R214	100	10	½	60B8-101	
R215	820,000	5	½	60B7-824	
R216	1 meg.	VOLUME CONTROL		A75-02-1	
R217	2 meg.	TONE CONTROL		A75C01-3	
R218	22,000	10	½	60B8-223	
R219	3.3 meg.	10	½	60B8-335	
R301	47,000	5	½	60B7-473	
R302	1,000	10	½	60B8-102	
R303	36	5	½	60B7-360	
R304	11,000	5	½	60B7-113	
R305	1,000	10	½	60B8-102	
R306	220,000	10	½	60B8-224	
R307	220,000	10	½	60B8-224	
R308	27,000	10	½	60B8-273	
R309	27,000	5	½	60B7-273	
R310	47	10	½	60B8-470	
R311	1,000	10	½	60B8-102	
R312	10,000	5	½	60B7-103	
R313	120	10	½	60B8-121	
R314	1,200	10	½	60B8-122	
R315	1,000	10	½	60B8-102	
R316	4,700	10	½	60B8-472	
R317	4,700	10	½	60B8-472	
R318	—	—	—	—	
R319	—	—	—	—	
R320	100	10	½	60B8-101	
R321	47,000	10	½	60B8-473	
R322	18,000	10	½	60B8-183	
R323	10,000	10	½	60B8-103	
R324	8,200	10	½	60B8-822	
R325	4,700	10	2	60B20-473	
R326	180,000	10	½	60B8-184	
R327	15,000	10	½	60B8-153	
R328	6,800	10	½	60B8-182	
R329	470	10	½	60B8-471	
R330	1,000	—	—	A75-02-1	Contrast
R331	100,000	—	—	A75C01-1	Brightness
R332	10,000	10	2	60B20-103	
R333	—	—	—	—	

RESISTORS – 21 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R334	1,000	10	½	60B8-103	
R335	6,800	10	½	60B8-682	
R401	5,000,000	—	—	A75C01-6	Noise Gate
R402	390,000	10	½	60B8-394	
R403	8,200,000	10	½	60B8-825	
R404	4,700,000	10	½	60B8-475	
R405	2,200,000	10	½	60B8-225	
R406	150,000	10	½	60B8-154	
R407	—	—	—	—	Refer M401
R408	1,800,000	10	½	60B8-185	
R409	470,000	10	½	60B8-474	
R410	22,000	10	2	60B20-223	
R411	68,000	10	½	60B8-683	
R412	120,000	10	½	60B8-184	
R413	6,800	10	½	60B8-682	
R414	3,300	10	½	60B8-332	
R415	4,700,000	10	½	60B8-475	
R416	2,200,000	10	½	60B8-225	
R417	3,300	10	½	60B8-332	
R418	100,000	5	½	60B7-104	
R419	100,000	5	½	60B7-104	
R420	4,700,000	10	½	60B8-475	
R421	470,000	10	½	60B8-474	
R422	5,600	10	½	60B8-562	
R423	1,500	10	½	60B8-152	
R424	150,000	10	½	60B8-154	
R425	82,000	10	½	60B8-822	
R426	3,900	10	½	60B8-392	
R427	—	—	—	—	Refer M402
R428	—	—	—	—	Refer M402
R429	—	—	—	—	Refer M402
R430	220,000	10	½	60B8-224	
R431	2,200,000	10	½	60B8-225	
R432	200,000	5	½	60B7-204	
R433	15,000	10	½	60B8-153	
R434	1,500,000	10	½	60B8-155	
R435	820	10	½	60B8-821	
R436	100,000	10	½	60B8-104	
R437	220,000	10	½	60B8-224	
R438	56,000	10	½	60B8-563	
R439	2,700	10	½	60B8-272	
R440	470,000	10	½	60B8-474	
R441	100	10	½	60B8-101	
R442	100	10	½	60B8-101	
R443A	18,000	10	2	60B20-183	or 1 x 9,000Ω 5W ±10%
R443B	18,000	10	2	60B20-183	or 1 x 9,000Ω 5W ±10%
R444	18,000	10	2	60B20-183	
R445	4.7	10	½	60B8-47	
R446	15	10	1	60B14-150	
R447	270	10	½	60B8-271	
R448	560	10	½	60B8-561	
R449	560	10	½	60B8-561	
R450	200,000	—	—	A75C01-2	Vertical
R451	3,000	—	—	A75C01-5	Vertical

RESISTORS – 21 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R452	2,500,000	—	—	A75C01-4	Height
R453	680,000	10	½	60B8-684	
R454	—	—	—	—	
R462	18,000	10	2	60B20-183	
R463	150	10	2	60B20-151	
R501	—	—	—	—	
R502	3,300	10	2	60B20-332	
R503	470	10	½	60B8-471	
R504	220	10	1	60B14-221	
R505	220	10	10	A61A18-221-4	

CAPACITORS – 21 MC

CODE No.	CAPACITY	TOLERANCE ± in %	D.C. WORKING VOLTAGE	PART NUMBER
C201	10 pf	10	500 Tubular Ceramic	A65A50-34-4
C202	20 pf	10	500 Tubular Ceramic	A65A50-41-4
C203	.005 mfd	+100 –0	500 Ceramic Disc	A65A31-122-1
C204	120 pf	5	500 Ceramic Disc	A65A62-69-5
C205	500 pf	20	500 Ceramic Disc	A65A60-90-3
C206	4 mfd	—	50V Electrolytic	A67A17
C207	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C208	470 pf	20	500V Ceramic Disc	A65A30-89-3
C209	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C210	50 pf	20	500V Tubular Ceramic	A65A57-55-3
C211	.01 mfd	20	400V Paper Tubular Upright	A64A27-134-3
C212	.01 mfd	20	600V Paper Tubular Upright	A64A28-134-3
C213	.002 mfd	20	Mica	A65A13-109-3
C214	40 mfd	—	200V Electroytic	A67-10
C215A	40 mfd	—	350V Electroytic	A67-13
C215B	60 mfd	—	200V Electroytic	A67-13 Triple Unit
C215C	20 mfd	—	50V Electrolytic	A67-13
C218	.033 mfd	20	400V Paper Tubular	A65A35-147-3
C301	24 pf	10	500V Tubular Ceramic	A65A50-43-4
C302	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C303	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C304	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C305	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C306	3.3 pf	.25 pf	500V Ceramic Bead	A65A32-14-5
C307	22 pf	10	500V Tubular Ceramic	A65A50-42-4
C308	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C309	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C310	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C311	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C312	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1

CAPACITORS – 21 MC

CODE No.	CAPACITY	TOLERANCE ± in %	D.C. WORKING VOLTAGE	PART NUMBER
C313	—	—	—	—
C314	.33 mfd	20	200V Paper Tubular Upright	A64A26-180-3
C315	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C316	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C317	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C318	—	—	—	—
C319	6.8 pf	10	500V Tubular Ceramic	A65A32-27-4
C320	.22 mfd	20	400V Paper Tubular Upright	A64A27-175-3
C321	—	—	—	—
C322	.01 mfd	+100 –0	500V Ceramic Disc	A65A31-134-1
C401	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C402	.47 mfd	20	200V Paper Tubular Upright	A64A26-187-3
C403	—	—	—	Refer M401
C404	—	—	—	Refer M401
C405	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C406	.001 mfd	10	200V Paper Tubular	A64A39-101-4
C407	.005 mfd	+100 –0	500V Ceramic Disc	A65A31-122-1
C408	.001 mfd	10	400V Paper Tubular	A64A35-101-4
C409	.001 mfd	10	400V Paper Tubular	A64A35-101-4
C410	.0039 mfd	10	Mica	A65A13-117-4
C411	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C412	.015 mfd	20	200V Paper Tubular Upright	A64A26-138-3
C413	390 pf	10	Mica	A65A12-83-4
C414	680 pf	10	Mica	A65A11-95-4
C415	—	—	—	Refer M402
C416	—	—	—	Refer M402
C417	—	—	—	Refer M402
C418	.0022 mfd	20	Mica	A65A13-109-3
C419	.033 mfd	10	600V Paper Tubular Upright	A64A28-147-4
C420	.033 mfd	10	600V Paper Tubular Upright	A64A28-147-4
C421	.047 mfd	20	400V Paper Tubular Upright	A64A27-154-3
C422	.047 mfd	20	600V Paper Tubular Upright	A64A28-154-3
C423	—	—	—	—
C424	.001 mfd	10	2000V Paper Tubular	A64A39-101-4
C425	.0068 mfd	20	600V Paper Tubular	A64A36-127-3
C426	.01 mfd	20	600V Paper Tubular	A64A36-134-3
C427	—	—	—	—
C428	10 mfd	—	475V Electrolytic	A67-11
C429	Horizontal Drive Control		170 pf-780 pf	66A30-3
C430	.047 mfd	20	600V Paper Tubular	A64A36-154-3
C431	.1 mfd	20	600V Paper Tubular	A64A36-167-3
C432	.047 mfd	20	1000V Paper Tubular	A64A37-154-3
C433	230 pf	5	3KV Ceramic Disc	A65A48-100-5
C434	150 pf	5	3KV Ceramic Disc	A65A47-71-5
C435	—	—	—	—
C436	—	—	—	—
C437	—	—	—	—
C438	—	—	—	—
C439	.0047 mfd	20	600V Paper Tubular	A64A36-121-3
C501A	110 mfd	—	350V Electrolytic	A67-12
C501B	80 mfd	—	350V Electrolytic	Ducon Quad
C501C	20 mfd	—	200V Electrolytic	Unit
C501D	5 mfd	—	100V Electrolytic	—

TRANSFORMERS – 21 MC

CODE No.	DESCRIPTION	PART NUMBER
T201	Transformer Ratio Detector 5.5 MC	72C169-1 or C72B10-1
T202	2,500 Ω Speaker Transpormer	—
T301	Transformer 1st IF	72C132-10 or C72-09-5
T302	Transformer 2nd IF	72C132-8 or C72-09-6
T303	Transformer 3rd IF	72C152-2 or C72B11-1
T401	Transformer Vertical Output	79B43-4
T402	Transformer Horizontal Output	79D65-2
T501	Transformer Power	A80C01

INDUCTORS – 21 MC

CODE No.	DESCRIPTION	PART NUMBER
L201	Coil—Sound Take Off 5.5 MC	72C132-14 or C72-09-1
L301	Coil—Trap 29.0 MC	72C132-11 or C72-09-2
L302	Coil—Grid Input	72C132-12 or C72-09-3
L303	Coil—Sound Trap 21.25 MC	72C132-9 or C72-09-4
L304	Choke—Resonant	73B24-4 or C73-01-1
L305	Coil—Video Peaking	73B5-23 or C73-02-1
L306	Coil—Video Peaking	73B5-20 or C73-02-2
L307	Coil—Sound Take Off 5.5 MC	72C132-14 or C72-09-1
L308	Coil—Video Peaking	73B5-14 or C73-02-3
L309	Coil—Video Peaking	73B11-1 or C73-03-1
L401	Coil—Horizontal Oscillator	94B17-4 or C94-02-1
L501	Choke—Filter	A74A01

VALVES – 21 MC

CODE No.	DESCRIPTION	PART NUMBER
V201	Sound IF Amplifier	6AU6
V202	Ratio Detector	6AL5
V203	Sound Amplifier	6AV6
V204	Sound Output	6BF5
V301	1st IF Amplifier	6BZ6
V302	2nd IF Amplifier	6BZ6
V303A	3rd IF Amplifier	6AM8
V303B	Video Detector	—
V304A	Video Amplifier	6AW8
V304B	Sync Inverter	—
V305	Picture Tube 21ALP4A or 21ATP4 or 24DP4A	—
V401	Sync Seperator	6CS6
V402	Horizontal Sync Discriminator	6AL5
V403	Horizontal Oscillator	12AU7
V404	Vertical Output	6S4
V405	Horizontal Output	6BQ6GTB
V406	Damper	6AX4GT
V407	H.V. Rectifier	1B3GT
V408A	Gated A.G.C.	6BH8
V408B	Vertical Oscillator	—
V501	Rectifier	5U4GB

MISCELLANEOUS – 21 MC

Fuse Cartridge 1 amp. 250V x 1" long	A84-06
Yoke–90° Deflection	94D87-10
Glass–1" Tempered–21"	A21B09-1
Glass–1" Tempered–24"	A21B09-2
Trim–Glass Retaining–21"	A23B07-1
Trim–Glass Retaining–24"	A23B07-3
Escutcheon–Side Preference Control	A23B08
Mask–Plastic–21" 90° Super Cascode–Green	23E220-7
Mask–Plastic–21" 90° De Luxe 600	A23B10
Mask–Plastic–24" 90° Super Cascode–Green	23E223-8
Mask–Plastic–24" 90° De Luxe 600	A23B11
Name plate–Aux. Controls	A26-06
End Bell–Moulded Snap–through	32B214-5
Crest–De Luxe 600	A26A14
Knob–Fine Tuning Control–Type 8 C/W Cap	A33B26-1-1
Knob–Contrast Control–Type 9 C/W Cap	A33B26-2-1
Knob–Channel Selecting–Type 2 C/W Insert	A33C24-1-1
Knob–Channel Selecting–Type 2 C/W Cap	A33C24-1-2
Knob–Volume and Switch–Type 3 C/W Insert	A33C24-2-1
Knob–Volume and Switch–Type 3 C/W Cap	A33C24-2-2
Knob–Type 1 (Radio)	33C111-1
Knob–Type 2 (Radio)	33C111-2
Knob–Type 3 C/W Metal Insert (Radio)	33C111-3
Knob–Type 4 C/W Metal Insert (Radio)	33C111-4
Knob–Volume Control	A33B32
Shaft–Extension–Plastic 21"	33A170-1
Shaft–Extension–Plastic 24"	33A170-2
Bulb–Pilot Light 6.8V x .2 amps B.C.	A81-01
Shield–Pilot Light–Channel Indicator	82A24

ADMIRAL CIRCUIT DIAGRAM AX20Y4-21MC.

VHF TUNER 94D92-13.

IF BOARD

SOUND BOARD

SYNC. BOARD

21ALP4

6AU6 SOUND IF AMP V201

6AL5 RATIO DET. V202

6AV6 SOUND AMP. V203

6BF5 SOUND OUTPUT V204

6BC8 VHF AMP. V101

6J6 VHF MIXER V102A

VHF OSC V102B

6BZ6 1ST IF AMP V301

6BZ6 2ND IF. AMP V302

6AM8 3RD. IF. AMP V303A

VIDEO DET. V303B

½6AW8 VIDEO AMP V304A

½6BH8 GATED A.G.C. V408A

6CS6 SYNC. SEP V401

½6AW8 SYNC. INV. V304B

6AL5 HORIZ. SYNC. DISCR. L401

12AU7 HORIZ. OSC. V403

½6BH8 VERT. OSC. V408B

6S4 VERT. OUTPUT V404

5U4GB RECTIFIER V501

6BQ6GTB HORIZ. OUTPUT V405

6AX4GT DAMPER V406

1B3GT H.V. RECTIFIER V407

V305

T101 BUILT-IN VHF ANT.

L102A L102B L102C L102D

L103 L104 L105

L201 45 MC

L301 29.0 MC

L302 27.0 MC

T301 26.0 MC

L303 2.25 MC

T201 5.5 MC

L304 L305 L306 L307 4.5 MC

T303 24.5 MC

T302

L308 L309

L501 70Ω

T401 75Ω

T402

T501

M201 T202 PM BROWN BLUE BLACK

M202 PIN VIEW OF PLUG

PIN VIEW SOCKET M505

M401 2 3

M402

M404 PIN VIEW OF PLUG M405 WHITE-YEL. BLUE RED WHITE-BLUE WHITE-BLACK

M406

TOP VIEW SOCKET

M508 TUNING LIGHT

M510 FUSE 250V 0.5A.

INTERLOCK BACK OF CABINET

VOLUME CONTROL

TONE

NOT USED IN SOME SETS

R218 & C218 IN SOME SETS

NOT USED IN SOME MODELS

R216A 1M VOLUME

R216 (R216B) CONTRAST

BRIGHTNESS

HEIGHT

VERT.

HOR. DRIVE

CAUTION SEE WAVE FORM DATA.

R401 5M NOISE GATE

R502 3300 2W

R503 470

R504 2201W

R505 220

R506 220

R509 470K

R463 150 2W

R450 200K

R332 10K 2W

C215A 40

C215B 60

C501A 110

C501B 5MF

C501C 20

C501D 5MF

C215C 20

C202 20

C201 10

C218 .035

C219 .033

C502 .005

C503 .005

C504 .005

C505 .005

C506 .005

C507 .005

C508 .005

C509 .005

C510 .005

C511 .005

C512 .005

C513 .005

C514 .005

C515 .005

C516 .005

C517 .005

C518 .005

C519 .005

C520 .005

C521 .005

C522 .005

C523 .005

C524 .005

C525 .005

C526 .01

C527 .01

C528 .01

C529 .01

C530 .047

C531 .047

C532 .047 1KV

C533 .047

C534 .047

C535 .047

C536 .047

C537 .047

C538 .047

C539 .047

C540 .047

C541 .047

C542 .047

C543 .047

C544 .047

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R104 560K

R105 10K

R106 220K

R107 10K

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R110 8200

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R200 800

R201 470K

R202 100

R203 1000

R204 47

R205 10K

R206 10K

R207 47K

R208 47M 25V

R209 470

R210 27K 1W

R211 1M 5%

R212 1M 5%

R213 800

R214 100

R215 820K 5%

R216 22K

R217 2M

R218 800

R219 33M

R220 800

R221 800

R222 18K

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R313 120

R314 1200

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R316 800

R317 4700

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R320 100

R321 47K

R322 800

R323 10K

R324 8200

R325 4700 2W

R326 180K

R327 15K

R328 6800

R329 470

R330 1000

R331 100K

R332 10K 2W

R333 800

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COMPONENTS CODE LIST

RESISTORS – 36 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R201	470,000	10	½	60B8-474	
R202	100	10	½	60B8-101	
R203	1,000	10	½	60B8-102	or 60B11-102
R204	47	10	½	60B8-470	
R205	10,000	10	½	60B8-103	
R206	10,000	10	½	60B8-103	
R207	47,000	10	½	60B8-473	
R208	4.7 meg.	10	½	60B8-475	
R209	470	10	½	60B8-471	
R210	27,000	10	1	60B14-273	
R211	470,000	10	½	60B8-474	
R212	1 meg.	5	½	60B7-105	
R213	—	—	—	—	
R214	100	10	½	60B8-101	
R215	820,000	5	½	60B7-824	
R216	1 meg.	VOLUME CONTROL		A75-02-1	
R217	2 meg.	TONE CONTROL		A75C01-3	
R218	22,000	10	½	60B8-223	
R219	3.3 meg.	10	½	60B8-335	
R301	47,000	5	½	60B7-473	
R302	1,000	10	½	60B8-102	
R303	36	5	½	60B7-360	
R304	18,000	5	½	60B7-183	
R305	1,000	10	½	60B8-102	
R306	220,000	10	½	60B8-224	
R307	220,000	10	½	60B8-224	
R308	27,000	10	½	60B8-273	
R309	39,000	5	½	60B7-393	
R310	47	10	½	60B8-470	
R311	1,000	10	½	60B8-102	
R312	13,000	5	½	60B7-133	
R313	120	10	½	60B8-121	
R314	1,200	10	½	60B8-122	
R315	1,000	10	½	60B8-102	
R316	1,200	10	½	60B8-122	
R317	4,700	10	½	60B8-472	
R318	—	—	—	—	
R319	—	—	—	—	
R320	100	10	½	60B8-101	
R321	47,000	10	½	60B8-473	
R322	5,600	10	½	60B8-562	
R323	3,900	10	½	60B8-392	
R324	8,200	10	½	60B8-822	
R325	4,700	10	2	60B20-473	
R326	180,000	10	½	60B8-184	
R327	15,000	10	½	60B8-153	
R328	6,800	10	½	60B8-682	
R329	470	10	½	60B8-471	
R330	1,000	—	—	A75-02-1	Contrast
R331	100,000	—	—	A75C01-1	Brightness
R332	10,000	10	2	60B20-103	
R333	—	—	—	—	

RESISTORS – 36 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R334	1,000	10	½	60B8-102	
R335	6,800	10	½	60B8-682	
R401	5 meg.	—	—	A75C01-6	Noise Gate
R402	390,000	10	½	60B8-394	
R403	8.2 meg.	10	½	60B8-825	
R404	4.7 meg.	10	½	60B8-475	
R405	2.2 meg.	10	½	60B8-225	
R406	150,000	10	½	60B8-154	
R407	—	—	—	—	Refer M401
R408	1.8 meg.	10	½	60B8-185	
R409	470,000	10	½	60B8-474	
R410	22,000	10	2	60B20-223	
R411	68,000	10	½	60B8-683	
R412	120,000	10	½	60B8-124	
R413	6,800	10	½	60B8-682	
R414	3,300	10	½	60B8-332	
R415	4.7 meg.	10	½	60B8-475	
R416	2.2 meg.	10	½	60B8-225	
R417	3,300	10	½	60B8-332	
R418	100,000	5	½	60B7-104	
R419	100,000	5	½	60B7-104	
R420	4.7 meg.	10	½	60B8-475	
R421	470,000	10	½	60B8-474	
R422	5,600	10	½	60B8-562	
R423	1,500	10	½	60B8-152	
R424	150,000	10	½	60B8-154	
R425	82,000	10	½	60B8-823	
R426	3,900	10	½	60B8-392	
R427	—	—	—	—	Refer M402
R428	—	—	—	—	Refer M402
R429	—	—	—	—	Refer M402
R430	220,000	10	½	60B8-224	
R431	2.2 meg.	10	½	60B8-225	
R432	150,000	5	½	60B7-154	
R433	15,000	10	½	60B8-153	
R434	1.5 meg.	10	½	60B8-155	
R435	820	10	½	60B8-821	
R436	100,000	10	½	60B8-104	
R437	220,000	10	½	60B8-224	
R438	56,000	10	½	60B8-563	
R439	2,700	10	½	60B8-272	
R440	470,000	10	½	60B8-474	
R441	100	10	½	60B8-101	
R442	100	10	½	60B8-101	
R443	9,000	5	5	A61A12-902-5	
R444	7,500	10	5	A61A12-752-4	
R445	6.8 meg.	10	½	60B8-68	
R446	15	10	1	60B14-150	
R447	270	10	½	60B8-271	
R448	560	10	½	60B8-561	
R449	560	10	½	60B8-561	
R450	200,000	—	—	A75C01-2	Vertical
R451	3,000	—	—	A75C01-5	Vertical
R452	2.5 meg.	—	—	A75C01-4	Height

RESISTORS – 36 MC

CODE No.	VALUE IN OHMS	TOLERANCE (± in %)	WATTS	PART NUMBER	NOTATION
R453	680,000	10	½	60B8-684	
R463	150	10	1	60B14-151	
R502	9,000	10	5	A61A12-902-4	Neutrode Tuner
R502	2,400	5	3	A61A17-242-5	Philips Tuner
R502	3,300	10	2	60B20-332	Admiral Tuner
R503	470	10	½	60B8-471	Neutrode Tuner
R503	1,800	10	1	60B14-182	Admiral Tuner
R504	220	10	1	60B14-221	
R505	220	10	10	A61A18-221-4	

COUPLATES – 36 MC

M401 — C403 — 150 pf.
C404 — .01 mfd.
R407 — 270,000 Ω

M402 — R427 — 22,000 Ω
R428 — 8,200 Ω
R429 — 8,200 Ω
C415 — .002 mfd.
C416 — .005 mfd.

CAPACITORS – 36 MC

CODE No.	CAPACITY	TOLERANCE ± in %	D.C. WORKING VOLTAGE	PART NUMBER
C201	10 pf	10	500V Tubular Ceramic	A65A50-34-4
C202	20 pf	10	500V Tubular Ceramic	A65A50-41-4
C203	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C204	120 pf	5	500V Ceramic Disc	A65A62-69-5
C205	500 pf	20	500V Ceramic Disc	A65A60-90-3
C206	4 mfd	—	50V Electrolytic	A67A17
C207	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C208	470 pf	20	500V Ceramic Disc	A65A30-89-3
C209	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C210	50 pf	20	500V Tubular Ceramic	A65A57-55-3
C211	.01 mfd	20	400V Paper Tubular Upright	A64A27-134-3
C212	.01 mfd	20	600V Paper Tubular Upright	A64A28-134-3
C213	.002 mfd	20	Mica	A65A13-109-3
C214	40 mfd	—	200V Electrolytic	A67-10
C215A	40 mfd	—	350V Electrolytic	A67-13
C215B	60 mfd	—	200V Electrolytic	A67-13 Triple Unit
C215C	20 mfd	—	50V Electrolytic	A67-13
C218	.033 mfd	20	400V Paper Tubular	A65A35-147-3
C301	18 pf	10	500V Tubular Ceramic	A65A50-40-4
C302	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C303	360 pf	+100 —0	500V Ceramic Disc	A65A31-82-1
C304	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C305	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C306	3.3 pf	.25 pf	500V Ceramic Bead	A65A32-14-5
C307	22 pf	10	500V Tubular Ceramic	A65A50-42-4
C308	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C309	360 pf	+100 —0	500V Ceramic Disc	A65A31-82-1
C310	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C311	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C312	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1

CAPACITORS – 36 MC

CODE No.	CAPACITY	TOLERANCE ± in %	D.C. WORKING VOLTAGE	PART NUMBER
C313	—	—	—	—
C314	.33 mfd	20	200V Paper Tubular Upright	A64A26-180-3
C315	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C316	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C317	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C318	—	—	—	—
C319	6.8 pf	10	500V Tubular Ceramic	A65A32-27-4
C320	.22 mfd	20	400V Paper Tubular Upright	A64A27-175-3
C321	—	—	—	—
C322	.01 mfd	+100 —0	500V Ceramic Disc	A65A31-134-1
C401	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C402	.47 mfd	20	200V Paper Tubular Upright	A64A26-187-3
C403	—	—	—	Refer M401
C404	—	—	—	Refer M401
C405	.22 mfd	20	200V Paper Tubular Upright	A64A26-175-3
C406	.001 mfd	10	200V Paper Tubular	A64A39-101-4
C407	.005 mfd	+100 —0	500V Ceramic Disc	A65A31-122-1
C408	.001 mfd	10	400V Paper Tubular	A64A35-101-4
C409	.001 mfd	10	400V Paper Tubular	A64A35-101-4
C410	.0039 mfd	10	Mica	A65A13-117-4
C411	.0047 mfd	20	400V Paper Tubular Upright	A64A27-121-3
C412	.015 mfd	20	200V Paper Tubular Upright	A64A26-138-3
C413	390 pf	10	Mica	A65A12-83-4
C414	680 pf	10	Mica	A65A11-95-4
C415	—	—	—	Refer M402
C416	—	—	—	Refer M402
C417	—	—	—	Refer M402
C418	.0022 mfd	20	Mica	A65A13-109-3
C419	.047 mfd	10	600V Paper Tubular Upright	A64A28-154-4
C420	.033 mfd	10	600V Paper Tubular Upright	A64A28-147-4
C421	.047 mfd	20	400V Paper Tubular Upright	A64A27-154-3
C422	.047 mfd	20	600V Paper Tubular Upright	A64A28-154-3
C423	—	—	—	—
C424	.001 mfd	10	2000V Paper Tubular	A64A39-101-4
C425	.0068 mfd	20	600V Paper Tubular	A64A36-127-3
C426	.01 mfd	20	600V Paper Tubular	A64A36-134-3
C427	—	—	—	—
C428	10 mfd	—	475V Electrolytic	A67-11
C429	Horizontal Drive Control		170 pf-780 pf	66A30-3
C430	.047 mfd	20	600V Paper Tubular	A64A36-154-3
C431	.1 mfd	20	600V Paper Tubular	A64A36-167-3
C432	.047 mfd	20	1000V Paper Tubular	A64A37-154-3
C433	230 pf	5	3KV Ceramic Disc	A65A48-100-5
C434	150 pf	5	3KV Ceramic Disc	A65A47-71-5
C435	—	—	—	—
C436	—	—	—	—
C437	—	—	—	—
C438	—	—	—	—
C439	.0047 mfd	20	600V Paper Tubular	A64A36-121-3
C501A	110 mfd	—	350V Electrolytic	A67-12
C501B	80 mfd	—	350V Electrolytic	Ducon Quad
C501C	20 mfd	—	200V Electrolytic	Unit
C501D	5 mfd	—	100V Electrolytic	

TRANSFORMERS – 36 MC

CODE No.	DESCRIPTION	PART NUMBER
T201	Transformer Ratio Detector 5.5 MC	C72B10-1
T202	2,500 Ω Speaker Transformer	—
T301	Transformer 1st IF	C72B09-7
T302	Transformer 2nd IF	C72B09-8
T303	Transformer 3rd IF	C72B14
T401	Transformer Vertical Output	79B43-4
T402	Transformer Horizontal Output	79D65-2
T501	Transformer Power	A80C01

INDUCTORS – 36 MC

CODE No.	DESCRIPTION	PART NUMBER
L201	Coil—Sound Take Off 5.5 MC	C72B09-2
L301	Coil—Trap 37.5 MC	C72B09-11
L302	Coil—Grid Input 35 MC	C72B09-10
L303	Coil—Sound Trap 30.5 MC	C72B09-9
L304	Choke—Resonant	C73B01-2
L305	Coil—Video Peaking	C73B02-5
L306	Coil—Video Peaking	C73B02-2
L307	Coil—Sound Take Off 5.5 MC	C72B09-2
L308	Coil—Video Peaking	C73B02-6
L309	Coil—Video Peaking	C73B03-3
L401	Coil—Horizontal Oscillator	C94B02
L501	Choke—Filter	A74A01

VALVES – 36 MC

CODE No.	DESCRIPTION	PART NUMBER
V201	Sound IF Amplifier	6AU6
V202	Ratio Detector	6AL5
V203	Sound Amplifier	6AV6
V204	Sound Output	6BF5
V301	1st IF Amplifier	6BZ6
V302	2nd IF Amplifier	6BZ6
V303A	3rd IF Amplifier	6AM8
V303B	Video Detector	—
V304A	Video Amplifier	6AW8
V304B	Sync Inverter	—
V305	Picture Tube 21ALP4A or 21ATP4 or 24DP4A	—
V401	Sync Seperator	6CS6
V402	Horizontal Sync Discriminator	6AL5
V403	Horizontal Oscillator	12AU7
V404	Vertical Output	6S4
V405	Horizontal Output	6BQ6GTB
V406	Damper	6AX4GT
V407	H.V. Rectifier	1B3GT
V408A	Gated A.G.C.	6BH8
V408B	Vertical Oscillator	—
V501	Rectifier	5AS4

MISCELLANEOUS – 36 MC

Fuse Cartridge 1 amp. 250V x 1" long	A84-06
Yoke—90° Deflection	94D87-10
Glass—½" Tempered—21"	A21B09-1
Glass—½" Tempered—24"	A21B09-2
Trim—Glass Retaining—21"	A23B07-1
Trim—Glass Retaining—24"	A23B07-3
Escutcheon—Side Preference Control	A23B08
Mask—Plastic—21" 90° Super Cascode—Green	23E220-7
Mask—Plastic—21" 90° De Luxe 600	A23B10
Mask—Plastic—24" 90° Super Cascode—Green	23E223-8
Mask—Plastic—24" 90° De Luxe 600	A23B11
Nameplate—Aux. Controls	A26-06
End Bell—Moulded Snap—through	32B214-5
Crest—De Luxe 600	A26A14
Knob—Fine Tuning Control—Type 8 C/W Cap	A33B26-1-1
Knob—Contrast Control—Type 9 C/W Cap	A33B26-2-1
Knob—Channel Selecting—Type 2 C/W Insert	A33C24-1-1
Knob—Channel Selecting—Type 2 C/W Cap	A33C24-1-2
Knob—Volume and Switch—Type 3 C/W Insert	A33C24-2-1
Knob—Volume and Switch—Type 3 C/W Cap	A33C24-2-2
Knob—Type 1 (Radio)	33C111-1
Knob—Type 2 (Radio)	33C111-2
Knob—Type 3 C/W Metal Insert (Radio)	33C111-3
Knob—Type 4 C/W Metal Insert (Radio)	33C111-4
Knob—Volume Control	A33B32
Shaft—Extension—Plastic 21"	33A170-1
Shaft—Extension—Plastic 24"	33A170-2
Bulb—Pilot Light 6.8V x .2 amps B.C.	A81-01
Shield—Pilot Light—Channel Indicator	82A24

ADMIRAL CIRCUIT DIAGRAM AX20Y4-36MC.