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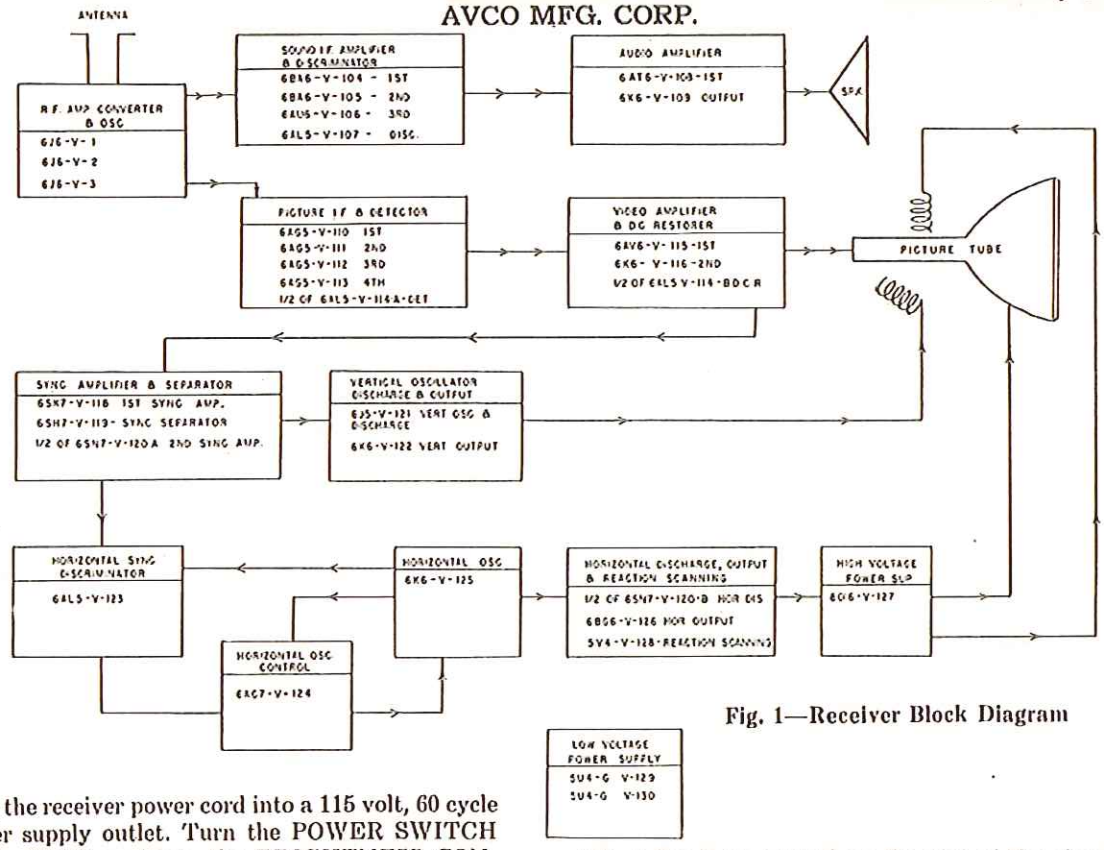


Fig. 1—Receiver Block Diagram

Plug the receiver power cord into a 115 volt, 60 cycle power supply outlet. Turn the POWER SWITCH to the "ON" position, the BRIGHTNESS CONTROL fully clockwise, and CONTRAST CONTROL counter-clockwise.

Figure 2 shows a sketch of the neck of the picture tube, the deflection yoke, the focus coil, and ion trap magnet as seen when looking down on the receiver chassis.

Place the rear ion trap magnet poles approximately over the picture tube flags as shown. Starting from this position, adjust the magnet by moving it forward or backward and at the same time rotating it slightly around the neck of the tube for maximum brightness on the screen of the picture tube. Tighten the magnet thumbscrews (E) sufficiently to hold the magnet in this position but still free enough to permit further adjustment.

Turn the brightness control on the front of the receiver counter-clockwise slightly until the illumination on the screen of the picture tube begins to decrease.

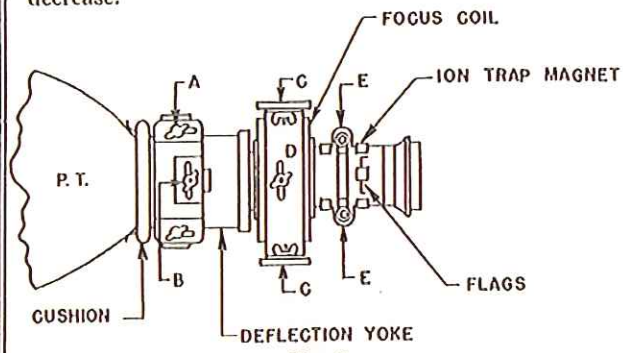


Fig. 2

Adjust the focus control on the rear of the chassis (see Fig. 3) until the horizontal lines on the screen of the picture tube are clear and distinct.

Readjust the ion trap magnet for maximum brilliance on the picture tube screen. If, in making this adjustment, the lines on the screen become blurred, reduce the illumination by turning the brightness control slightly counter-clockwise and readjust the focus control on the rear of the chassis until the lines are again clear. Readjust the ion trap magnet for maximum screen illumination.

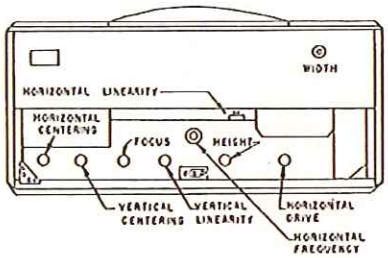


Fig. 3

It may be necessary to repeat the above procedure several times. The final adjustments on the magnet should be made with the maximum amount of illumination on the screen with which the lines still remain clear.

Tighten the magnet thumbscrews firmly enough to prevent the magnet from slipping on the neck of the tube.

Turn the vertical and horizontal centering controls to the center of their range.

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If the illumination on the screen is dark in one of the corners, it is due to misadjustment of the focus coil. To adjust, loosen the three wingnuts (C & D) and raise, lower or rotate the focus coil until the shadow is removed. When the focus coil is correctly adjusted, the entire screen should be illuminated. If the illumination does not cover the screen, the edges of the illuminated area should be straight and the illuminated area should be approximately centered on the screen.

When the above condition is obtained, tighten the wingnuts with the focus coil in this position.

The lines on the screen of the receiver should be horizontal or squared with the picture mask. If the lines are not horizontal loosen the wingscrews at (B), rotate the yoke around the neck of the tube, until the lines are horizontal, and tighten the wingscrew.

It will now be necessary to obtain a picture in order to make further adjustments.

Although it is possible to make these adjustments on a program picture, it is recommended that whenever possible these adjustments be made on a test pattern. Connect the leads from the antenna to the receiver antenna terminals.

Tune in a television station as follows:

1. Set the STATION SELECTOR to the desired channel.
2. Turn the SOUND VOLUME to approximately mid-position.
3. Turn the CONTRAST control fully counter-clockwise.
4. Turn the BRIGHTNESS control clockwise until a glow appears on the screen then counterclockwise until the glow just disappears.
5. Turn the CONTRAST control clockwise until a glow or pattern appears on the screen.
6. Adjust the FINE TUNING control for best sound fidelity. (Middle of center peak).
7. Adjust the VERTICAL hold control until the pattern stops vertical movement.
8. Adjust the HORIZONTAL hold control until a picture is obtained and centered.
9. Adjust the CONTRAST control for suitable picture contrast.

If the CONTRAST control is set for proper picture contrast, and the horizontal frequency adjustment is correctly set, it should be possible in step 8 to obtain a picture regardless of the position of the horizontal hold control.

To check horizontal hold control:

1. Turn the HORIZONTAL hold control to the extreme counter-clockwise position.
2. Turn the CONTRAST control fully counter-clockwise and return to original position. The picture should return on the screen.
3. Turn the HORIZONTAL hold control to the extreme clockwise position.
4. Repeat step No. 2.

Again the picture should return to the screen. If the picture tears out when the control is at either extreme, turn the control to that extreme and adjust the horizontal frequency adjustment on the rear of the chassis until the picture reappears. If adjustment was necessary, repeat steps 1 to 4.

If the picture on the screen is off center vertically adjust the vertical centering control on the rear of the chassis.

If the picture is off center horizontally, adjust the horizontal centering control on the rear of the chassis. If the horizontal blanking bar appears in the picture, the T108 phase adjustment is misaligned. To correct, see complete realignment of horizontal oscillator.

At this point a good picture should be obtained on the screen.

If the small vertical detail in the pattern is indistinct, adjust the focus control on the rear of the chassis until maximum clarity is obtained.

If the picture is too tall or too short, too wide or too narrow, or if the circles are not round, it will be necessary to adjust the height, width or linearity controls on the rear of the chassis.

### HIGH VOLTAGE WARNING

When handling the high voltage lead to the cathode-ray, the receiver power plug should be disconnected from the power line receptical.

DO NOT MAKE ADJUSTMENTS ON ANY CONTROL UNLESS THAT ADJUSTMENT IS SPECIFICALLY DIRECTED IN THESE INSTRUCTIONS. ADJUSTMENT OF OTHER CONTROLS REQUIRES THE USE OF SPECIAL TEST EQUIPMENT.

### CORNER OF PICTURE SHADOWED

To correct, adjust the focus coil on top of the chassis (Fig. 2) until the corners of the picture are clear. It may then be necessary to readjust the centering controls in the back of the receiver. It may also be necessary to readjust the focus control to provide the clearest picture.

### PICTURE BLURRED AND INDISTINCT

To clear the picture, adjust the focus control in the back of the receiver.

### PICTURE AT AN ANGLE

To correct, rotate the deflection yoke. (Fig. 2).

### PICTURE OFF-CENTER HORIZONTALLY

To correct, adjust the horizontal centering control in the back of the receiver.

### PICTURE OFF-CENTER VERTICALLY

To correct, adjust the vertical centering control in the back of the receiver.

### PICTURE CROWDED (Or Stretched) AT TOP

To correct, adjust the vertical linearity control in the back of the receiver. It may also be necessary to readjust the height control.

### PICTURE TOO TALL OR TOO SHORT

To correct, adjust the height control in back of the receiver. It may also be necessary to readjust the vertical linearity control.

For test patterns see back of Manual

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PICTURE TOO WIDE OR TOO NARROW
To correct, adjust the width control at the back of the receiver.

PICTURE CRAMPED (Or Stretched) IN MIDDLE
To correct, adjust the horizontal linearity control on top of the chassis. It may also be necessary to readjust the width control and horizontal drive control.

PICTURE CRAMPED (Or Stretched) ON RIGHT
To correct, adjust the horizontal drive control in the back of the receiver. It may also be necessary to readjust the width control and horizontal linearity control.

PICTURE CANNOT BE SYNCED IN HORIZONTAL DIRECTION
To correct, adjust the horizontal frequency control in the back of the receiver. See steps 1 to 4 on horizontal frequency adjustment.

HORIZONTAL BLANKING BAR IN PICTURE
Align T108 phase adjustment as described in horizontal oscillator alignment.

ALIGNMENT OF HORIZONTAL OSCILLATOR
Slight Retouching Adjustments—Tune in a Television Station and adjust the fine tuning control for best sound quality. Sync the picture and adjust the picture control for slightly less than normal contrast. Turn the horizontal hold control to the extreme position in which the oscillator fails to hold or to pull in. Momentarily remove the signal. Turn the T108 frequency adjustment on the chassis rear apron until the oscillator pulls into sync. Check hold and pull-in for the other extreme position of the hold control.

Complete Realignment—Tune in a Television Station and adjust the fine tuning control for best sound quality.

With the sync link in the normal position (2-3), turn the T108 frequency adjustment (on rear apron), until the picture is synchronized. (If the picture is not synchronized vertically, adjust the vertical hold.) Adjust the picture control so that the picture is somewhat below average contrast level.

Turn the T108 phase adjustment screw (under chassis, see chassis bottom view page 16) until the blanking bar, which may appear in the picture, moves to the right and off the raster. The range of this adjustment is such that it is possible to hit an unstable condition (ripples in the raster). The screw must be turned clockwise from the unstable position. The length of stud beyond the bushing in its correct position is usually about ½ inch.

Turn horizontal hold to extreme counter-clockwise position. Turn T108 frequency adjustment clockwise until the picture falls out of sync. Then turn it slowly counter-clockwise to the point where the picture falls in sync. again.

Readjust T108 phase adjustment so that the left side of the picture is close to the left side of the raster, but does not begin to fold over.

Turn horizontal hold to the extreme clockwise position. The right side of the picture should be close to the right side of the raster, but should not begin to fold over. If it does, readjust the phase.

Momentarily remove the signal. When the signal is restored, the picture should fall in sync. If it does not, turn the T108 frequency adjustment counter-clockwise, until the picture falls in sync.

Turn horizontal hold to extreme counter-clockwise position. Remove the signal momentarily. When signal is restored, the picture should fall in sync.

Note: If the picture does not pull in sync after momentary removals of signal in both extreme positions of horizontal hold, the pull-in range may be (though not necessarily) inadequate. A pull-in through ¾ of the hold control range may still be satisfactory.

TEST EQUIPMENT

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

R-F SWEEP GENERATOR meeting the following requirements:

(a) Frequency Ranges
18 to 30 mc., 1 mc. sweep width
40 to 90 mc., 10 mc. sweep width
170 to 225 mc., 10 mc. sweep width

(b) Output adjustable with at least 1 volt maximum.

(c) Output constant on all ranges and on all attenuator positions.

CATHODE-RAY OSCILLOSCOPE, preferably one with a wide band vertical deflection, an input calibrating source, and a low capacity probe.

SIGNAL GENERATOR to provide the following frequencies:

(a) I-F frequencies
19.75 mc. adjacent channel picture trap.
21.25 mc. sound i-f and sound traps
21.8 mc. converter transformer
22.3 mc. second picture i-f transformer
23.4 mc. fourth picture i-f coil
25.2 third picture i-f coil
25.3 first picture i-f transformer
25.75 mc. picture carrier
27.25 mc. adjacent channel sound trap

(b) R-F frequencies

| Channel Number | Picture Carrier Freq. Mc. | Sound Carrier Freq. Mc. | Channel Number | Picture Carrier Freq. Mc. | Sound Carrier Freq. Mc. |
|---|---|---|---|---|---|
| 1 | 45.25 | 49.75 | 8 | 181.25 | 185.75 |
| 2 | 55.25 | 59.75 | 9 | 187.25 | 191.75 |
| 3 | 61.25 | 65.75 | 10 | 193.25 | 197.75 |
| 4 | 67.25 | 71.75 | 11 | 199.25 | 203.75 |
| 5 | 77.25 | 81.75 | 12 | 205.25 | 209.75 |
| 6 | 83.25 | 87.75 | 13 | 211.25 | 215.75 |
| 7 | 175.25 | 179.75 | | | |

(c) Output on these ranges should be adjustable and at least 1 volt maximum.

HETERODYNE FREQUENCY METER with crystal calibrator if the signal generator is not crystal controlled.

V. T. VOLTMETER and a high voltage multiplier probe for use with this meter to permit measurements up to 10 kv.

By turning the chassis on end with the power transformer down, all adjustments will be made conveniently available.

When replacing the oscillator tube, it is good practice to select a tube that does not require oscillator readjustment.

Tubes, which cannot be used as oscillator, will work satisfactorily as r-f amplifier or converter.

All the information necessary for alignment is given in the table. However, alignment by the table should not be attempted before reading the detailed instructions.

ORDER OF ALIGNMENT—When a complete alignment is necessary, it can be most conveniently performed in the following order:

Picture i-f traps
Picture i-f transformers
Sound discriminator
Sound i-f transformers
R-F and converter lines
R-F oscillator line
Converter grid trap
Retouch picture i-f transformers
Sensitivity check

PICTURE I-F TRAP ADJUSTMENT

Turn contrast control on full and set the channel switch to channel 9. Connect the V. T. voltmeter across the picture second detector load resistor R137.

Connect the output of the signal generator to the receiver antenna terminals. (If the receiver is badly out of alignment, it may be necessary to apply the signal through a small capacitor directly to the converter grid—either end of R5 to ground.)

Set the generator to each of the following frequencies and tune the specified adjustment for minimum indication on the V. T. Voltmeter. In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

Note—If i-f oscillation is encountered, the contrast control should be turned back until oscillation stops. If this does not stop the oscillation, it may be necessary to pre-align the picture i-f transformers before adjusting the traps. (See picture i-f oscillation.)

| | |
|---|---|
| 19.75 mc.—T104 (top) | 21.25 mc.—T105 (top) |
| 21.25 mc.—T2 (top) | 27.25 mc.—T103 (top) |

PICTURE I-F TRANSFORMER ADJUSTMENTS

Set the voltage on the i-f bias bus to —3 volts. Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the V. T. voltmeter.

21.8 mc.—T2 (bottom)
25.3 mc.—T103 (bottom)
22.3 mc.—T104 (bottom)
25.2 mc.—L183 (top of chassis)
23.4 mc.—L185 (top of chassis)

If T104 (bottom) required adjustment, it will be necessary to reset T104 (top) for minimum response at 19.75 mc.

PICTURE I-F OSCILLATION—If the receiver is badly misaligned and two or more of the i-f transformers are tuned to the same frequency, the receiver may fall into i-f oscillation. I-F oscillation shows up as a voltage in excess of 3 volts at the picture detector load resistor. This voltage is unaffected by r-f signal input and sometimes is independent of picture control setting.

If such a condition is encountered, it is sometimes possible to stop oscillation by adjusting the transformers approximately to frequency by setting the adjustment stud extensions of T2, T103, T104, T105, L183, and L185 to be approximately equal to those of another receiver known to be in proper alignment. If this does not have the desired effect, it may now be possible to stop oscillation by increasing the grid bias with the picture control. If so, it should then be possible to align the transformers by the usual method. Once aligned in this manner, the i-f should be stable with reduced bias.

If the oscillation cannot be stopped in the above manner, shunt the grids of the first three i-f amplifiers to ground with 1000 mmf. capacitors.

Connect the signal generator to the fourth i-f grid and adjust L185 to frequency.

Remove the shunting capacitor from the third i-f grid, connect the signal generator to this grid and align L183.

Remove the shunting capacitor from the second i-f grid, connect the signal generator and align T104.

Remove the shunt from the first i-f grid, connect the signal generator to the receiver antenna terminals, and align T2 to frequency. If this does not stop the oscillation, the difficulty is not due to i-f misalignment as the i-f section is very stable when properly aligned. Check all i-f by-pass condensers, transformer shunting resistors, tubes, socket voltages, etc.

SOUND DISCRIMINATOR ALIGNMENT

Set the signal generator for approximately 1 volt output at 21.25 mc. and connect it to the third sound i-f grid.

Detune T113 secondary (bottom).

Connect the V. T. voltmeter in series with a one megohm resistor to the junction of diode resistors R219 and R220. Do not remove the discriminator shield to make connection to R219 and R220. Connection can be easily made by fashioning a hook on the 1 meg

resistor lead and making connection to the transformer lug "C" through the hole provided for the adjusting tool.

Adjust the primary of T113 (top) for maximum output on the meter. Connect the V. T. voltmeter to the junction of R236 and C205.

Adjust T113 secondary (bottom). It will be found that it is possible to produce a positive or negative voltage on the meter dependent upon this adjustment. Obviously to pass from a positive to a negative voltage, the voltage must go through zero. T113 (bottom) should be adjusted so that the meter indicates zero output as the voltage swings from positive to negative. This point will be called discriminator zero output.

Connect the sweep oscillator to the grid of the third sound i-f amplifier.

Adjust the sweep band width to approximately 1 mc. with the center frequency at approximately 21.25 and with an output of approximately 1 volt.

Connect the oscilloscope between R236 and C205.

The pattern obtained should be similar to that shown in Step 14 of the alignment table. If it is not, adjust the T113 (top) until the wave form is symmetrical. The peak to peak band width of the discriminator should be approximately 350 kc. and it should be linear from 21.175 mc. to 21.325 mc.

## SOUND I-F ALIGNMENT

Connect the sweep oscillator to the second sound i-f amplifier grid. Connect the oscilloscope to the third sound i-f grid return (terminal A T112) in series with a 33,000 ohm isolating resistor. Insert a 21.25 mc. marker signal from the signal generator into the second sound i-f grid.

Adjust T112 (top and bottom) for maximum gain and symmetry about the 21.25 mc. marker. The pattern should be similar to that shown in Step 14 of the alignment table.

The output level from the sweep should be set to produce approximately .3 volt peak-to-peak at the third sound i-f grid return when the final touches on the above adjustment are made. It is necessary that the sweep output voltage should not exceed the specified values, otherwise the response curve will be broadened, permitting slight misadjustment to pass unnoticed and possibly cause distortion on weak signals. Connect the sweep and signal generator to the top end of the trap winding of T2 (on top of the chassis). Adjust T111 (top and bottom), for maximum gain and symmetry at 21.25 mc.

Reduce the sweep output for the final adjustments so that approximately .3 volt peak-to-peak is present at the third sound i-f grid return.

The band width at 70% response from the first sound i-f grid to the third i-f grid should be approximately 200 kc.

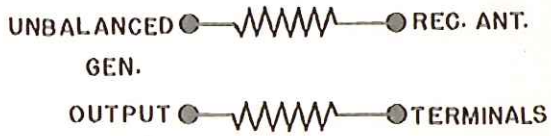
Note—For a simple check of the sound i-f and discriminator adjustments, and where only a slight touchup is necessary, the following procedure may be used.

After aligning the 21.25 mc. traps (T2 & T105 top), in the trap adjustment procedure, transfer the V. T. voltmeter from the second detector load resistor R137 to the junction of R236 and C205. Without changing the signal generator connections or frequency setting, adjust T113 disc secondary (bottom) for zero output. Return V. T. voltmeter to the second detector load resistor R137 and complete the picture trap and i-f alignment.

Connect scope to junction of R236 and C205 and sweep generator to the grid of the 3rd sound i-f amplifier. Adjust sweep band width to approximately 1 mc. with the center frequency at approximately 21.25 mc. Adjust the T113 disc primary (top) for a symmetrical pattern. Transfer the sweep generator to the grid of the 1st sound I-F (V104). Reduce generator output and adjust T112 (top and bottom) and T111 (top and bottom) for maximum amplitude of a symmetrical pattern.

## R-F AND CONVERTER ADJUSTMENT

Connect the r-f sweep oscillator to the receiver antenna terminals, J103. If the sweep oscillator has a 50 ohm single-ended output, it will be necessary to obtain balanced output by properly terminating the sweep output cable and connecting a 120 ohm non-inductive resistor in series between the sweep output cable and each receiver antenna terminal as shown.




Connect the oscilloscope to the junction of L80 and R6 (in the r-f tuning unit) through a 10,000 ohm resistor. This connection is available on a terminal lug through a hole in the side apron of the chassis, beside the r-f unit. This hole is normally down when the chassis is in the recommended position. Connection can be easily made, however, by allowing the receiver to hang over the edge of the test bench by a few inches.

By-pass the first picture i-f grid to ground through a 1000 mmfd. capacitor. Keep the leads to this by-pass as short as possible. If this is not done, lead resonance may fall in the r-f range and cause an incorrect picture of the r-f response.

Set the picture control for approximately —1.5 volts bias on the r-f stage. (For convenience check this voltage at the diodes of V108, pins 5 and 6.)

Connect the signal generator loosely to the receiver antenna terminals. Since channel 7 has the narrowest response of any of the high frequency channels, it should be adjusted first.

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Set the receiver channel switch to channel 7.

Set the sweep oscillator to cover channel 7.

Insert markers of channel 7 picture carrier and sound carrier 175.25 mc. and 179.75 mc.

Adjust L25, L26, L51 and L52, for an approximately flat topped response curve located symmetrically between the markers. Normally this curve appears somewhat overcoupled or double humped with a 10 or 15% peak to valley excursion, and the markers occur at approximately 90% response. In making these adjustments, the stud extension of all cores should be kept approximately equal.

Check the response of channels 8 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observe the response obtained. It should be found that all these channels have the proper shaped response with the markers above 70% response. If the markers do not fall within this requirement on one or more high frequency channels, since there are no individual channel adjustments, it will be necessary to readjust L25, L26, L51 and L52, and possibly compromise some channel slightly in order to get the markers up on other channels. Normally however, no difficulty of this type should be experienced since the higher frequency channels become comparatively broad and the markers easily fall within the required range.

Channel 6 is next aligned in the same manner.

Set the receiver to channel 6.

Set the sweep oscillator to cover channel 6.

Set the marker oscillator to channel 6 picture and sound carrier frequencies.

Adjust L11, L12, L37 and L38, for an approximately flat-topped response curve located symmetically between the markers. Check channels 5 down through channel 1 by switching the receiver, sweep oscillator and marker oscillator to each channel and observing the response obtained. In all cases, the markers should be above the 70% response point. If this is not the case, L11, L12, L37 and L38 should be retouched. On final adjustment, all channels must be within the 70% specification.

Coupling between r-f and converter lines is augmented by a link between L12 and L37. This link is adjusted in the factory and should not require adjustment in the field. On channel 6 with the link in the minimum coupling position, the response is slightly overcoupled with approximately a 10% excursion from peak-to-valley. With the coupling at maximum, the response is somewhat broader and the peak-to-valley excursion is approximately 40%. The amount of coupling permissible is limited by the peak-to-valley excursion which should not be greater than 30% on any channel.

## R-F OSCILLATOR ADJUSTMENT

The r-f oscillator line may be aligned by adjusting it to beat with a crystal calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available.

Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, the following calibration points must be established for the 307TA.

| Channel Number | Receiver R-F Osc. Freq. Mc. | Channel Number | Receiver R-F Osc. Freq. Mc. |
|---|---|---|---|
| 1 | 71 | 8 | 207 |
| 2 | 81 | 9 | 213 |
| 3 | 87 | 10 | 219 |
| 4 | 93 | 11 | 225 |
| 5 | 103 | 12 | 231 |
| 6 | 109 | 13 | 237 |
| 7 | 201 | | |

If the receiver oscillator is adjusted by feeding in the r-f sound carrier frequency, the following signals must be available:

| Channel Number | R-F Sound Carrier Freq. Mc. | Channel Number | R-F Sound Carrier Freq. Mc. |
|---|---|---|---|
| 1 | 49.75 | 8 | 185.75 |
| 2 | 59.75 | 9 | 191.75 |
| 3 | 65.75 | 10 | 197.75 |
| 4 | 71.75 | 11 | 203.75 |
| 5 | 81.75 | 12 | 209.75 |
| 6 | 87.75 | 13 | 215.75 |
| 7 | 179.75 | | |

If the heterodyne frequency meter method is used, couple the meter probe loosely to the receiver oscillator.

If the r-f sound carrier method is used, connect the V. T. voltmeter to the sound discriminator output (junction of R236 and C205). Connect the signal generator to the receiver antenna terminals. The order of alignment remains the same regardless of which method is used.

Since lower frequencies are obtained by adding steps of inductance, it is necessary to align channel 13 first and continue in reverse numerical order.

Set the receiver channel switch to channel 13.

Adjust the frequency standard to the correct frequency (237 megacycles for heterodyne frequency meter or 215.75 megacycles for the signal generator).

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Set the fine tuning control to the middle of its range while making the adjustment.

Adjust L77 and L78 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator. The core stud extensions should be maintained equal by visual inspection.

Switch the receiver to channel 12.

Set the frequency standard to the proper frequency as listed in the alignment table.

Adjust L76 for results as above.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the corresponding oscillator trimmer for the specified results. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning control in the middle third of its range.

After the oscillator has been set on all channels, start back at channel 13 and recheck to make sure that all adjustments are correct.

## CONVERTER GRID TRAP CHECK

Connect the sweep generator to the receiver antenna terminals. Observe the precaution for single-ended output generators mentioned in the r-f alignment section.

Connect the oscilloscope to R6 through 10,000 ohms.

Shunt the first picture i-f grid to ground with a 1,000 mmf. capacitor, keeping the leads as short as possible.

Couple the signal generator loosely to the receiver antenna terminals. Switch the channel switch and signal generator through the low frequency channels and observe the response on each range.

Select a channel which is essentially flat over the operating range with the sound and picture carrier markers at 90% or higher on the response curve.

Remove the capacitor from the first picture i-f grid and shunt it from the second picture i-f grid to ground.

The r-f response curve should be similar to the one obtained with the 1st i-f grid shunted. If the curve changes considerably, C14 or L80 may be defective.

Remove the shunting capacitor from the second picture i-f grid.

## RETOUCHING OF PICTURE I-F ADJUSTMENTS

Connect the sweep generator to the receiver antenna terminals. Set channel selector and sweep generator to channel with the best r-f response curve.

Connect the signal generator to the antenna terminals and feed in the 25.75 mc. i-f picture carrier marker and a 22.3 mc. marker.

Connect the oscilloscope across the picture detector load resistor. Set the i-f grid bias to −3 volts.

Set the sweep output to produce approximately .3 volt peak-to-peak across the picture detector load resistor.

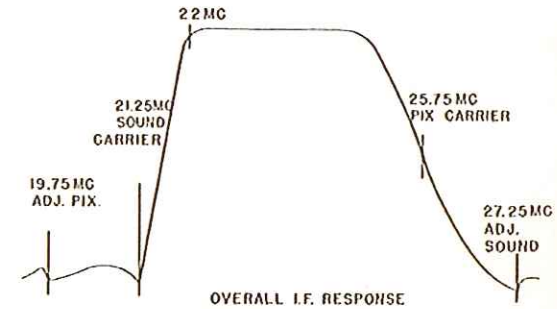
Observe and analyze the response curve obtained. The response will not be ideal and the i-f adjustments must be retouched in order to obtain the desired curve.

If T104 (bottom) required any adjustment, it will be necessary to reset T104 (top) for minimum response at 19.75 mc.

On final adjustment the picture carrier marker must be at approximately 60% response. The curve must be approximately flat topped and with the 22.3 mc. marker at approximately 100% response.

The most important consideration in making the i-f adjustments is to get the picture carrier at the 60% response point. If the picture carrier operates too low on the response curve, loss of low frequency video response, of picture brilliance, of blanking, and of sync may occur. If the picture carrier operates too high on the response curve, the picture definition is impaired by loss of high frequency video response.

In making these adjustments, care should be taken that no two transformers are tuned to the same frequency as i-f oscillation may result.



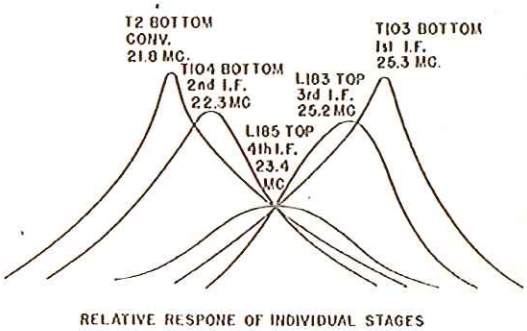




Fig. 4

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# VOLTAGE CHART

Measurements made with receiver operating on 117 volts and with no signal input except where otherwise indicated. Voltages shown are as read with V. T. Voltmeter between indicated terminal and chassis ground except where otherwise noted. Symbol < means "less than."

| Tube No. | Tube Type | Function | Operating Condition ** | Plate | | Screen | | Cathode | | Grid | | I Plate (ma.) | I Screen (ma.) | Notes on Measurements |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pin No. | Volts | Pin No. | Volts | Pin No. | Volts | Pin No. | Volts | | | |
| V1 | 6J6 | R-F Amplifier | Pictr. Min. | 1 & 2 | 130 | — | — | 7 | 0 | 5 & 6 | -9.2 | <.1* | — | *Per Plate |
| | | | Pictr. Max. | 1 & 2 | 55 | — | — | 7 | 0 | 5 & 6 | +.05 | 7.0* | — | *Per Plate |
| V2 | 6J6 | Converter | Pictr. Min. | 1 & 2 | 125 | — | — | 7 | 0 | 5 & 6 | -3 to -6. | .5 to 4* | — | * Per Plate |
| | | | Pictr. Max. | 1 & 2 | 100 | — | — | 7 | 0 | 5 & 6 | -2 to -5. | .2 to 3* | — | *Per Plate |
| V3 | 6J6 | R-F Oscillator | Pictr. Min. | 1 & 2 | 108 | — | — | 7 | .25 | 5 & 6 | -4.5 to -6.5 | 2.5 | — | |
| | | | Pictr. Max. | 1 & 2 | 90 | — | — | 7 | .15 | 5 & 6 | -3.5 to -5. | 1.7 | — | |
| V104 | 6BA6 | 1st Sound IF Amplifier | Pictr. Min. | 5 | 120 | 6 | 120 | 7 | 1.9 | 1 | 0 | 12.0 | 5.0 | |
| | | | Pictr. Max. | 5 | 110 | 6 | 110 | 7 | 1.6 | 1 | 0 | 10.5 | 4.5 | |
| V105 | 6BA6 | 2d Sound I-F Amplifier | Pictr. Min. | 5 | 122 | 6 | 118 | 7 | 1.9 | 1 | 0 | 12.5 | 4.9 | |
| | | | Pictr. Max. | 5 | 113 | 6 | 108 | 7 | 1.6 | 1 | 0 | 10.5 | 4.2. | |
| V106 | 6AU6 | 3d Sound I-F Amplifier | Pictr. Min. | 5 | 48 | 6 | 48 | 7 | 0 | 1 | -.5 | 3.3 | 1.4 | |
| | | | Pictr. Max. | 5 | 41 | 6 | 41 | 7 | 0 | 1 | -.5 | 2.8 | 1.2 | |
| V107 | 6AL5 | Sound Discrim. | Pictr. Min. | 2 & 7 | -.35 | — | — | 4 & 5 | — | — | — | — | — | |
| | | | Pictr. Max. | 2 & 7 | -.45 | — | — | 4 & 5 | — | — | — | — | — | |
| V108 | 6AT6 | 1st Audio Amplifier | Pictr. Min. | 7 | 80 | — | — | 2 | 0 | 1 | -.75 | .5 | — | |
| V109 | 6K6-GT | Audio Output | Pictr. Min. | 3 | 253 | 4 | 265 | 8 | 0 | 5 | -18 | 27.5 | 4.0 | |
| V110 | 6AG5 | 1st Pix. I.F. Amplifier | Pictr. Min. | 5 | 135 | 6 | 135 | 2 & 7 | 0 | 1 | -5.0 | <.1 | <.1 | |
| | | | Pictr. Max. | 5 | 109 | 6 | 109 | 2 & 7 | .26 | 1 | -1.0 | 5.5 | .9 | |
| V111 | 6AG5 | 2d Pix. I-F. Amplifier | Pictr. Min. | 5 | 135 | 6 | 135 | 2 & 7 | 0 | 1 | -5.0 | <.1 | <.1 | |
| | | | Pictr. Max. | 5 | 113 | 6 | 113 | 2 & 7 | .26 | 1 | -1.0 | 5.6 | .9 | |
| V112 | 6AG5 | 3d Pix. I-F. Amplifier | Pictr. Min. | 5 | 135 | 6 | 135 | 2 & 7 | 0 | 1 | -5.0 | <.1 | <.1 | |
| | | | Pictr. Max. | 5 | 98 | 6 | 117 | 2 & 7 | .26 | 1 | -1.0 | 5.7 | .9 | |
| V113 | 6AG5 | 4th Pix. I-F. Amplifier | Pictr. Min. | 5 | 99 | 6 | 127 | 2 & 7 | 1.2 | 1 | 0 | 6.8 | 1.7 | |
| | | | Pictr. Max. | 5 | 89 | 6 | 117 | 2 & 7 | 1.1 | 1 | 0 | 6.8 | .7 | |
| V114-A | 6AL5 | Picture 2d Det. | Pictr. Min. | 7 | -.1 | — | — | 1 | 0 | — | — | — | — | |
| V114-B | 6AL5 | DC Restorer | Brightness Min. | 2 | -100 | — | — | 5 | -90 | — | — | — | — | |
| | | | Brightness Max. | 2 | -1 | — | — | 5 | -.9 | — | — | — | — | |
| V115 | 6AU6 | 1st Video Amplifier | Pictr. Min. | 5 | 240 | 6 | 135 | 7 | 0 | 1 | -2.15 | 4.0 | 1.55 | |
| | | | Pictr. Max. | 5 | 255 | 6 | 125 | 7 | 0 | 1 | -2.2 | 2.8 | 1.05 | |
| V116 | 6K6-GT | 2d Video Amplifier | Pictr. Min. | 3 | 105 | 4 | 135 | 8. | 3.7 | 5 | -7.5 | 9.6 | 1.6 | |
| | | | Pictr. Max. | 3 | 95 | 4 | 125 | 8 | 2.9 | 5 | -7.5 | 7.5 | 1.3 | |

**Where separate readings are not listed for max. and min. gain settings of the picture control, the effect of the control is slight and readings are given for "Picture Min."

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MODELS 307TA, 307TA-50

# VOLTAGE CHART

| Tube No. | Tube Type | Function | Operating Condition ** | Plate Pin No. | Plate Volts | Screen Pin No. | Screen Volts | Cathode Pin No. | Cathode Volts | Grid Pin No. | Grid Volts | I Plate (ma.) | I Screen (ma.) | Notes on Measurements |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V117 | 10-BP4 | Picture-Tube | Brightness Min. | H. V. Connector | 9200 | 10 | 275 | 11 | 0 | 2 | -100 | 0 | 0 | |
| | | | Brightness Max. | H. V. Connector | 6000 | 10 | 275 | 11 | 0 | 2 | 0 | .7 | — | |
| | | | Brightness Average | H. V. Connector | 9000 | 10 | 275 | — | — | — | — | .05 | — | |
| V118 | 6SK7 | 1st Sync. Amplifier | Pictr. Min. | 8 | 163 | 6 | 129 | 5 | 0 | 4 | -4.3 | 11.5 | 3.8 | |
| | | | Pictr. Max. | 8 | 185 | 6 | 115 | 5 | 0 | 4 | -4.4 | 9.2 | 2.9 | |
| V119 | 6SH7 | Sync. Separator | Pictr. Min. | 8 | 134 | 6 | 135 | 5 | 0 | 4 | -5.2 | .1 | .05 | |
| | | | Pictr. Max. | 8 | 123 | 6 | 125 | 5 | 0 | 4 | -9* | .3 | .1 | *Depends on noise |
| V120-A | 6SN7 GT | 2d Sync. Amplifier | Pictr. Min. | 2 | 88 | — | — | 3 | 0 | 1 | -.5 | 9.0 | — | |
| | | | Pictr. Max. | 2 | 80 | — | — | 3 | 0 | 1 | -9* | 7.9 | — | *Depends on noise |
| V120-B | 6SN7 GT | Horizontal Discharge | Pictr. Min. | 5 | -37 | — | — | 6 | -100 | 4 | -140 | .5 | — | |
| V121 | 6J5 | Vertical Oscillator | Pictr. Min. | 3 | 70* | — | — | 8 | -100 | 5 | -150 | .15 | — | *Height, linearity and hold effect readings 2 to 1 |
| V122 | 6K6-GT | Vertical Output | Pictr. Min. | 3 | 180 | 4 | 180 | 8 | -70 | 5 | -100 | 9.0 | * | |
| V123 | 6AL5 | Horizontal Sync. Discr. | Pictr. Min. | 2 & 7 | -6.5 | — | — | 1 & 5 | -2.1 | — | — | — | — | |
| V124 | 6AC7 | Horizontal Osc. Control | Pictr. Min. | 8 | 194 | 6 | 105 | 5 | .05 | 4 | -2.0 | 3.8 | 1.1 | |
| V125 | 6K6-GT | Horizontal Oscillator | Hold Max. Resistance | 3 | 190 | 4 | 208 | 8 | 0 | 5 | -30 | 17.0 | 6.7 | |
| | | | Hold Min. Resistance | 3 | 180 | 4 | 194 | 8 | 0 | 5 | -23.5 | 19.5 | 8.2 | |
| V126 | 6BG6-G | Horizontal Output | Pictr. Min. | Cap | 333 | 8 | 134 | 3 | -95 | 5 | -113 | 77.0 | 11.5 | |
| V127 | 8016 | H. V. Rectifier | Brightness Min. | Cap | * | — | — | 2 & 7 | 9200 | — | — | 0 | — | *9200 volt pulse present |
| | | | Brightness Max. | Cap | * | — | — | 2 & 7 | 6700 | — | — | .7 | — | *9200 volt pulse present |
| V128 | 6V4G | Reaction Scanning | Pictr. Min. | 4 & 6 | 275 | — | — | 8 | 350 | — | — | 90 | — | |
| V129 | 5U4G | Rectifier | Pictr. Min. | 4 & 6 | 390* | — | — | 2 & 8 | 300 | — | — | 146 | — | *A-C measured from plate to trans center tap |
| V130 | 5U4G | Rectifier | Pictr. Min. | 4 & 6 | 390* | — | — | 2 & 8 | 300 | — | — | 146 | — | |

**Where separate readings are not listed for max. and min. gain settings of the picture control, the effect of the control is slight and readings are given for "Picture Min."

Following readings taken with video signal applied through video amplifiers to produce 25 volts peak to peak on grid of picture tube.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V114-B | 6AL5 | DC Restorer | | 2 | -41 | — | — | 5 | -27 | — | — | — | — | |
| V119 | 6SH7 | Sync. Separator | | 8 | 136 | 6 | 142 | 5 | 0 | 4 | -21.5 | .9 | .8 | |
| V120-A | 6SN-7GT | 2d Sync. Amplifier | | 2 | 88 | — | — | 3 | 0 | 1 | -5.4 | 9.0 | — | |
| V123 | 6AL5 | Horizontal Sync. Discr. | | 2 & 7 | -20 | — | — | 1 & 5 | $K_1$* $K_2$-2.1 | — | — | — | — | *See grid voltage of V124 |
| V124 | 6AC7 | Horizontal Osc. Control | Pull-in* | 8 | 200(a) | 6 | 100(b) | 5 | <.1 | 4 | -1.5 to -3 | <8. | <2.5 | *Varying Hor. Osc. tuning |
| | | | Hold* | 8 | 200(c) | 6 | 100(d) | 5 | <.1 | 4 | (e) | <8. | <2.5 | |

(a) Pull-in range varies with tubes from 110-210 to 195-270.
(b) Pull-in range varies with tubes from 80-100 to 100-115.
(c) Hold range varies with tubes from 110-270 to 140-270.
(d) Hold range varies with tubes from 80-115 to 90-115.
(e) Hold range varies with tubes from 1.5-7.0 to 1.-4.5.

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# ALIGNMENT TABLE

The detailed alignment procedure should be read before alignment by use of the table is attempted.

| Step No. | Connect Signal Generator To | Signal Gen. Freq. Mc. | Connect Sweep Generator To | Sweep Gen. Freq. Mc. | Connect Oscilloscope To | Connect V. T. Voltmeter To | Miscellaneous Connections and Instructions | Adjust | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PICTURE I-F AND TRAP ADJUSTMENT | | | | | |
| 1 | Not used | | Not used | | Not used | Junction of R189 & R190 | | Picture control for 3 volts on meter | |
| 2 | Antenna terminal | 19.75 | " | | " | Junction of L188 & R137 | Meter on Low scale | T104 (top) for min. on meter | |
| 3 | " | 21.25 | " | | " | " | " | T2 (top) for min. | |
| 4 | " | 21.25 | " | | " | " | " | T105 (top) for min. | |
| 5 | " | 27.25 | " | | " | " | " | T103 (top) for min. | |
| 6 | " | 21.8 | " | | " | " | " | T2 (bottom) for max. | |
| 7 | " | 25.3 | " | | " | " | " | T103 (bottom) for max. | |
| 8 | " | 22.3 | " | | " | " | " | T104 (bottom) for max. | |
| 9 | " | 25.2 | " | | " | " | " | L183 (top chassis) for max. | |
| 10 | " | 23.4 | " | | " | " | " | L185 (top chaassis) for max. | |
| 11 | If T104 (bottom) required adjustment in step 8, repeat step 2. | | | | | | | | |
| | | | | DISCRIMINATOR AND SOUND I-F ALIGNMENT | | | | | |
| 12 | 3rd sound i-f grid (pin 1, V106) | 21.25 1 volt output | Not used | | Not used | In series with 1 meg. to junction of R219 & R220 | | Detune T113 (bottom) Adjust T113 (top) for max. on meter | |
| 13 | " | " | " | | " | Junction of R236 & C205 | Meter on Low scale | T113 (bottom) for zero on meter | |
| 14 | " | " | 3rd sound i-f grid (pin 1, V106) | 21.25 center 1 mc. wide 1 v. out | Junction of R236 & C205 | Not used | Check for symmetrical response waveform (positive & negative). If not equal adjust T113 (top) until they are equal | |  |
| 15 | 2nd sound i-f grid (pin 1, V105 | 21.25 reduced output | 2nd sound i-f grid | 21.25 reduced output | Terminal A T112 in series with 33,000 ohms | " | Sweep output reduced to provide 3 volt p-to-p on scope | T112 (top & bottom) for max. gain and symmetry at 21.25 mc. |  |
| 16 | Trap winding on T2 (top of chassis) | 21.25 reduced output | Trap winding on T2 | 21.25 reduced output | " | " | " | T111 (top & bottom) for max. gain and symmetry at 21.25 mc. |  |
| | | | | R-F AND CONVERTER LINE ALIGNMENT | | | | | |
| 17 | Not used | | Not used | | Not used | Pin 5 or 6 V108 | | Picture control for 1.5 volts on meter | |
| 18 | Antenna terminal (loosely) | 175.25 & 179.75 | Antenna terminals (see text for precaution) | Sweeping channel 7 | Junction L80 and R6 through 10,000 ohm series resistor. | Not used | 1st i-f grid bypass to gnd. with 1000mmf. Receiver on channel 7. | L25, L26, L51 & L52 for approx. flat top response between markers. Markers above 70%. |  |
| 19 | " | 181.25 185.75 | " | channel 8 | " | " | Receiver on channel 8 | Check to see that response is as above |  |
| 20 | " | 187.25 191.75 | " | channel 9 | " | " | Receiver on channel 9 | " |  |
| 21 | " | 193.25 197.75 | " | channel 10 | " | " | Receiver on channel 10 | " |  |
| 22 | " | 199.25 203.75 | " | channel 11 | " | " | Receiver on channel 11 | " |  |
| 23 | " | 205.25 209.75 | " | channel 12 | " | " | Receiver on channel 12 | " |  |
| 24 | " | 211.25 215.75 | " | channel 13 | " | " | Receiver on channel 13 | " |  |
| 25 | If the response on any channel (steps 19 through 24) is below 70% at either marker switch to that channel and adjust L25, L26, L51, & L52 to pull response up on that channel. Then recheck steps 18 through 24. | | | | | | | | |

# ALIGNMENT TABLE

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| Step No. | Connect Signal Generator To | Signal Gen. Freq. Mc. | Connect Sweep Generator To | Sweep Gen. Freq. Mc. | Connect Oscilloscope To | Connect V. T. Voltmeter To | Miscellaneous Connections and Instructions | Adjust | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| **R-F AND CONVERTER LINE ALIGNMENT (Cont'd)** | | | | | | | | | |
| 26 | Antenna terminal (loosely) | 83.25 87.75 | Antenna terminals (see text for precaution) | Sweeping channel 6 | Junction L80 and R6 through 10,000 ohm series resistor | Not used | Receiver on channel 6 | L11, L12, L37 & L38 for response as above | |
| 27 | " | 77.25 81.75 | " | channel 5 | " | " | Receiver on channel 5 | Check to see that response is as above | |
| 28 | " | 67.25 71.75 | " | channel 4 | " | " | Receiver on channel 4 | " | |
| 29 | " | 61.25 65.75 | " | channel 3 | " | " | Receiver on channel 3 | " | |
| 30 | " | 55.25 59.75 | " | channel 2 | " | " | Receiver on channel 2 | " | |
| 31 | " | 45.25 49.75 | " | channel 1 | " | " | Receiver on channel 1 | " | |
| 32 | If the response on any channel (steps 27 through 31) is below 70% at either marker, switch to that channel and adjust L11, L12, L37 & L38 to pull response up on that channel. Then recheck steps 26 through 31. | | | | | | | | |
| **R-F OSCILLATOR ALIGNMENT** | | | | | | | | | |
| Step No. | Connect Signal Generator To | Signal Gen. Freq. Mc. | Connect Heterodyne Freq. Meter To | Het. Meter Freq. Mc. | Connect Oscilloscope To | Connect V. T. Voltmeter To | Miscellaneous Connections and Instructions | Adjust | Refer To |
| 33 | Antenna terminals | 215.75 | | 237 | Not used | Junction of R236 & C205 for sig. gen. method only | Fine tuning centered for all adjustments Receiver on channel 13 | L77 & L78 for zero on meter or beat on het. freq. meter | CHASSIS TOP VIEW |
| 34 | " | 209.75 | | 231 | " | " | Receiver on channel 12 | L76 as above | |
| 35 | " | 203.75 | | 225 | " | " | Receiver on channel 11 | L74 as above | " |
| 36 | " | 197.75 | | 219 | " | " | Receiver on channel 10 | L72 as above | " |
| 37 | " | 191.75 | | 213 | " | " | Receiver on channel 9 | L70 as above | " |
| 38 | " | 185.75 | | 207 | " | " | Receiver on channel 8 | L68 as above | " |
| 39 | " | 179.75 | | 201 | " | " | Receiver on channel 7 | L66 as above | " |
| 40 | " | 87.75 | | 109 | " | " | Receiver on channel 6 | L63 & L64 as above | " |
| 41 | " | 81.75 | | 103 | " | " | Receiver on channel 5 | L62 as above | " |
| 42 | " | 71.75 | | 93 | " | " | Receiver on channel 4 | L60 as above | " |
| 43 | " | 65.75 | | 87 | " | " | Receiver on channel 3 | L58 as above | " |
| 44 | " | 59.75 | | 81 | " | " | Receiver on channel 2 | L56 as above | " |
| 45 | " | 49.75 | | 71 | " | " | Receiver on channel 1 | L54 as above | " |
| 46 | Repeat steps 33 through 45 as a check. | | | | | | | | |
| **RETOUCHING PICTURE I-F TRANSFORMERS** | | | | | | | | | |
| 49 | | | Not used | | Not used | Junction of R189 & R190 | Receiver and sweep on same channel with best response | Adjust picture control for 3 volts on meter | |
| 50 | Antenna terminals (loosely) | 22.3 25.75 | " | | Junction L188 and R137 | not used | *Retouch pix i-f adjustments (T2, T103, T104 bottoms L183 & L185) as necessary to provide proper response | | See Response Curve |
| 51 | If T104 (bottom) was adjusted in step 50, repeat step 2 and step 50. | | | | | | | | |
| **SENSITIVITY CHECK** | | | | | | | | | |
| 52 | Connect antenna to receiver through attenuator pad to provide weak signal. Compare picture and sound obtained to that obtained on other receivers under the same conditions. | | | | | | | | |

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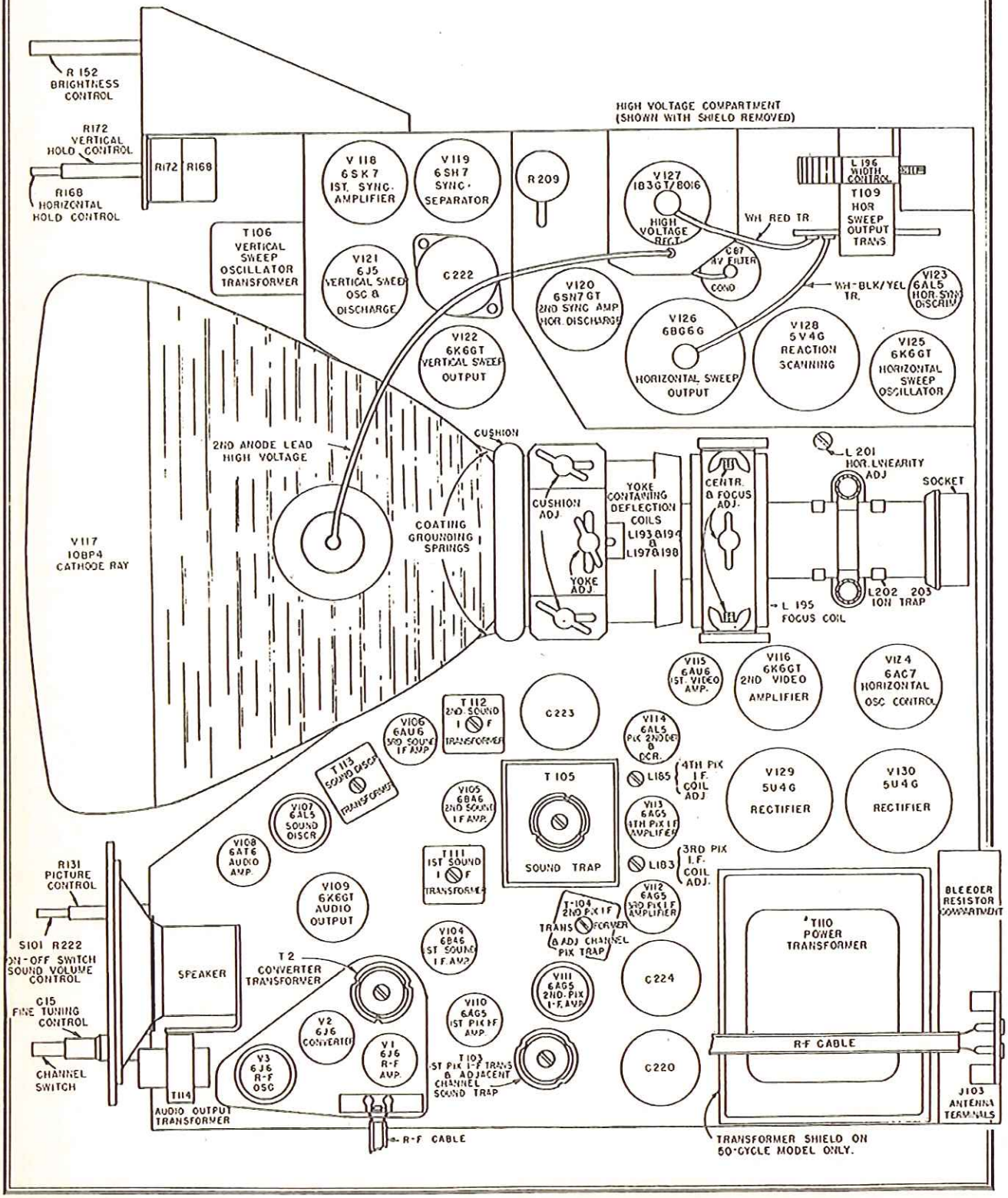
# CHASSIS—TOP VIEW



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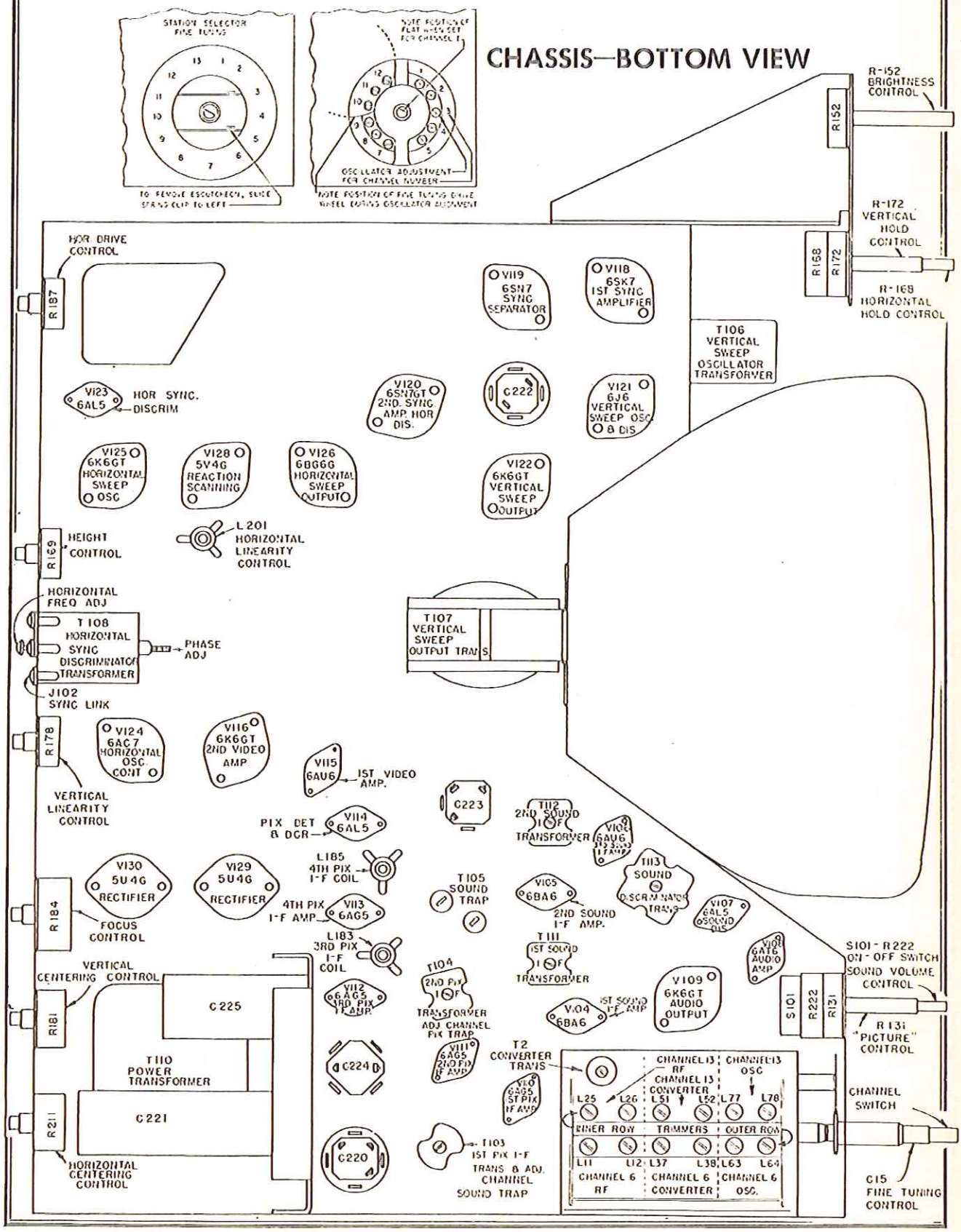
# CHASSIS—BOTTOM VIEW



MODELS 307TA,
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# SERVICE SUGGESTIONS

Following is a list of symptoms of possible failures and an indication of some of the possible faults.

NO RASTER ON PICTURE TUBE

(1) Incorrect adjustment of ion trap—Coils reversed, ion trap coil open or shorted.
(2) No high voltage—If horizontal deflection is operating as evidenced by the correct waveform on terminal 4 of horizontal output transformer, the trouble can be isolated to the 8016 circuit. Either the T109 high voltage winding is open, (points 2 to 3), the 8016 tube is defective, C187 is shorted or R239 open.
(3) V126 or V127 inoperative—check voltage and waveform on grids and plates.
(4) V125 and V120-B circuits inoperative—check for sine wave on V125 grid, pulse on V120-B, and sawtooth on V126 grid. Refer to schematic.
(5) Reaction scanning tube (V128) inoperative.
(6) Defective picture tube.
(7) Brightness control open, (terminal 3 to ground).
(8) No receiver "B" voltage—negative bleeder or speaker field open.
(9) L176 shorted or high leakage.

NO VERTICAL DEFLECTION:

(1) V125, V120B, V126 or V128 inoperative—check voltage and wave forms on grids and plate.
(2) T109 open.
(3) Horizontal deflection coil defective.

NO HORIZONTAL DEFLECTION:

(1) V121 or V122 inoperative. Check voltage and wave forms on grids and plates.
(2) T107 open.
(3) Vertical deflection coils defective.

SMALL RASTER:

(1) Low Plus B or low line voltage.

POOR VERTICAL LINEARITY:

(1) If adjustments cannot correct, change V122.
(2) T107 defective.
(3) V121 inoperative—check voltage and wave forms on grid and plate.
(4) R174, C158, C221-C or C222-B defective.
(5) Low bias or plate voltage—check rectifiers and capacitors in supply circuits.

POOR HORIZONTAL LINEARITY:

(1) If adjustments do not correct, change V128 or V126.
(2) T109 or L201 defective.
(3) C186 or C188 or R209 defective.
(4) C179, R187 or R210 defective.

PICTURE OUT OF PHASE HORIZONTALLY:
(Horizontal Blanking Bar in Picture)

(1) T108 winding D to F incorrectly tuned or connected in reverse.
(2) R200 or R202 defective.

NON-SYMMETRICAL RASTER:

(1) Improper adjustment of focus coil or ion trap magnets.
(2) Defective yoke.

PICTURE BUT NO SOUND:

(1) R-F oscillator off frequency.
(2) Sound i-f, discriminator or audio amplifier inoperative—check V104, V105, V106, V107, V108, V109 and their socket voltages.
(3) T111, T112 or T113 defective.
(4) T114 or C209 defective.
(5) Speaker defective.

SIGNAL AT PICTURE TUBE GRID BUT NO SYNC:
(Horizontal or Vertical)

(1) Picture control advanced too far.
(2) V114B, V118, V119, or V120-A inoperative. Check voltage and wave-forms at their grids and plates.
(3) C142 defective.

NO HORIZONTAL SYNC:

(1) T108 misadjusted—readjust as instructed on page 7 under Complete Realignment.
(2) V123 or V124 inoperative—check socket voltages and waveforms.
(3) T108 defective.
(4) C166, C167, C170 or C171 defective.
(5) R191, R192, R193 or R229 defective.
(6) If horizontal speed is completely off and cannot be adjusted, check C168, C169, R168 and R196.

NO VERTICAL SYNC:

(1) Defective V121—check associated circuit and voltages.
(2) Check intergrating network—R162, R163, R164, R165, C-149, C151, C152.

SOUND AND RASTER BUT NO PICTURE:

(1) Picture i-f, detector or video amplifier inoperative—check V110, V111, V112, V113, V114, V115 and V116—check socket voltages.
(2) No contact to picture tube grid.

POOR RESOLUTION:

(1) Close reflections.
(2) V114, V115 or V116 defective.
(3) Peaking coils L187, L188, L189, L190, L191 or L192 defective—check for specified resistance.
(4) C138, C140, C141 or C142 defective.
(5) Make sure that the focus control operates on both sides of proper focus.
(6) R-F and I-F circuits misaligned.

PICTURE SMEAR:

(1) Video amplifier overloaded by excessive input—reduce picture control setting.
(2) Insufficient bias on V115 and V116 resulting in grid current on video signal. Check bias and possible grid current.
(3) Defective coupling condenser or grid load resistor—check C138, C140, C141, C223B, R138, R142, R143, R148, etc.
(4) R140 or R141—low value (carbonized).

INSUFFICIENT VERTICAL DEFLECTION:

(1) V121—V122 defective. Check voltages and wave forms on grids and plates.
(2) Shorted turns in T107.
(3) C-221C open.
(4) Defective yoke.

PICTURE JITTER:

(1) Picture control operated at excessive level.
(2) If regular sections at the left picture are displaced change V126.
(3) Vertical instability may be due to loose connections or noise. Check antenna for loose connections or shorts.
(4) Horizontal instability may be due to unstable transmitted sync. Connect sync link to terminal 1 and 2.

RASTER BUT NO SOUND OR PICTURE:

(1) Defective antenna or transmission line.
(2) R-F oscillator off frequency.
(3) R-F unit inoperative—Check V1, V2, V3 and their socket voltages.
(4) Microphonic tubes.

DARK VERTICAL LINE ON LEFT OF PICTURE:

(1) Reduce horizontal drive and readjust width and horizontal linearity.
(2) Replace V126.

LIGHT VERTICAL LINE ON LEFT OF PICTURE:

(1) C181 (in yoke) defective.
(2) V128 defective.
(3) Change tap on R209.

WRINKLES ON LEFT SIDE OF RASTER:

(1) R180, R201 or C181 defective.
(2) Defective yoke.

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# PARTS LIST

| Item No. | Ref. No. | Crosley Part No. | Description |
|---|---|---|---|
| 1 | C-112 | W-139153-1 | Condenser—1500 mmfCeramic 350 V |
| 2 | C-113 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 3 | C-114 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 4 | C-115 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 5 | C-116 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| | C-117 | | Condenser—Part of T103 |
| 6 | C-118 | W-139153-1 | Condenser—1500 mmf Ceramic 350V |
| 7 | C-119 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 8 | C-120 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 9 | C-121 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 10 | C-122 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 11 | C-123 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| | C-124 | | Condenser—Part of T104 |
| 12 | C-125 | 39001-87 | Condenser—0.25 MFD Paper 600 V |
| 13 | C-126 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 14 | C-127 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 15 | C-128 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| 16 | C-129 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 17 | C-130 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 18 | C-131 | W-139151-2 | Condenser—82 mmf Ceramic 500 V 10% |
| | C-132 | | Condenser—Part of T105 |
| 19 | C-133 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 20 | C-134 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| 21 | C-135 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 22 | C-136 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 23 | C-137 | 137498-26 | Condenser—10 mmf Mica 500 V 10% |
| 24 | C-138 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 25 | C-140 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 26 | C-141 | 39001-17 | Condenser—.05 MFD Paper 00 V |
| 27 | C-142 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 28 | C-143 | 39001-87 | Condenser—0.25 MFD Paper 600 V |
| 29 | C-144 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 30 | C-145 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| 31 | C-146 | 39001-43 | Condenser—0.1 MFD Paper 400 V |
| 32 | C-147 | 137498-26 | Condenser—270 mmf Mica 500 V 10% |
| 33 | C-148 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 34 | C-149 | 39001-13 | Condenser—.01 MFD Paper 600 V |
| 35 | C-151 | 39001-74 | Condenser—.002 MFD Paper 600 V |
| 36 | C-152 | 39001-11 | Condenser—.005 MFD Paper 600 V |
| 37 | C-153 | 39001-11 | Condenser—.005 MFD Paper 600 V |
| 38 | C-154 | W-139151-2 | Condenser—1700 mmf Mica 500 V 5% |
| 39 | C-157 | B-139155-5 | Condenser—0.1 MFD Paper 400 V 10% |
| 40 | C-158 | B-139156-2 | Condenser—.05 MFD Paper Imp. 600 V 5% |
| | C-161 | 137499 | Condenser—170 mmf Mica |
| 41 | C-166 | GC-210685-142 | Condenser—82 mmf Mica 500 V 10% |
| 42 | C-167 | B-139155-1 | Condenser—.001 MFD Paper 600 V 10% |
| 43 | C-168 | B-139156-1 | Condenser—.015 MFD Paper Imp 400 V 5% |
| 44 | C-169 | B-139156-1 | Condenser—.015 MFD Paper Imp 400 V 5% |
| 45 | C-170 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 46 | C-171 | B-139155-4 | Condenser—.01 MFD Paper 400 V 10% |
| 47 | C-172 | B-139155-2 | Condenser—.001 MFD Paper 400 V 10% |
| 48 | C-173 | B-139155-2 | Condenser—.001 MFD Paper 400 V 10% |
| 49 | C-174 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 50 | C-175 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| 51 | C-176 | 137498-28 | Condenser—390 mmf Mica 500 V 10% |
| 52 | C-177 | 39001-13 | Condenser—.01 MFD Paper 600 V |
| 53 | C-178 | 39001-7 | Condenser—.001 MFD Paper 400 V |
| 54 | C-179 | W-139151-1 | Condenser—680 mmf Mica 300 V 5% |
| 55 | C-180 | 39001-17 | Condenser—.05 MFD Paper 600 V |
| | C-181 | | Condenser—Part of Yoke |
| 56 | C-182 | 39001-43 | Condenser—0.1 MFD Paper 400 V |
| 57 | C-183 | W-139201 | Condenser—.01 MFD Molded Paper 400 V. |
| 58 | C-184 | W-139201 | Condenser—.01 MFD Molded Paper 400 V. |
| 59 | C-185 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 60 | C-186 | B-139156-2 | Condenser—.05 MFD Paper Imp. 600 V 5% |
| 61 | C-187 | W-139152 | Condenser—500 mmf Ceramic 10,000 V |
| 62 | C-188 | B-139156-3 | Condenser—.035 MFD Paper Imp 600 V 5% |
| 63 | C-189 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| | C-190 | | Condenser—Part of T111 |
| 64 | C-191 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 65 | C-192 | 39001-13 | Condenser—.01 MFD Paper 600 V |
| | C-193 | | Condenser—Part of T111 |
| 66 | C-194 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| | C-195 | | Condenser—Part of T112 |
| 67 | C-196 | W-139153-1 | Condenser—1500 mmf Ceramic 350 V |
| 68 | C-197 | W-139151-1 | Condenser—51 mmf Ceramic 500 V 5% |
| | C-198 | | Condenser—Part of T112 |
| | C-199 | | Condenser—Part of T113 |
| 69 | C-200 | W-139153-2 | Condenser—6500 mmf Ceramic 300 V |
| | C-201 | | Condenser—Part of T113 |
| | C-202 | | Condenser—Part of T113 |
| 70 | C-203 | 137498-25 | Condenser—270 mmf Mica 500 V 10% |
| 71 | C-204 | 39001-13 | Condenser—.01 MFD Paper 600 V |
| 72 | C-205 | B-139155-3 | Condenser—.0025 MFD Paper 400 V 10% |
| 73 | C-206 | 39001-13 | Condenser—.01 MFD Paper 600 V |
| 74 | C-207 | B-139155-3 | Condenser—.0025 MFD Paper 400 V 10% |
| 75 | C-208 | 39001-11 | Condenser—.005 MFD Paper 600 V |
| 76 | C-209 | 39001-11 | Condenser—.005 MFD Paper 400 V |
| | C-220A | | Condenser—10 MFD Electrolytic 450 V |
| 77 | C-220B | W-139157 | Condenser—10 MFD Electrolytic 450 V |
| | C-220C | | Condenser—80 MFD Electrolytic 150 V |
| | C-221A | | Condenser—10 MFD Electrolytic 450 V |
| 78 | C-221B | W-139158 | Condenser—10 MFD Electrolytic 450 V |
| | C-221C | | Condenser—10 MFD Electrolytic 450 V |
| 79 | C-222A | W-139159 | Condenser—80 MFD Electrolytic 450 V |
| | C-222B | | Condenser—50 MFD Electrolytic 50 V |
| | C-223A | | Condenser—10 MFD Electrolytic 450 V |
| 80 | C-223B | W-139160 | Condenser—10 MFD Electrolytic 450 V |
| | C-223C | | Condenser—10 MFD Electrolytic 350 V |
| 81 | C-224A | W-139161 | Condenser—20 MFD Electrolytic 450 V |
| | C-224B | | Condenser—80 MFD Electrolytic 350 V |
| 82 | C-225A | W-139162 | Condenser—250 MFD Electrolytic 10 V |
| | C-225B | | Condenser—1000 MFD Electrolytic 6 V |

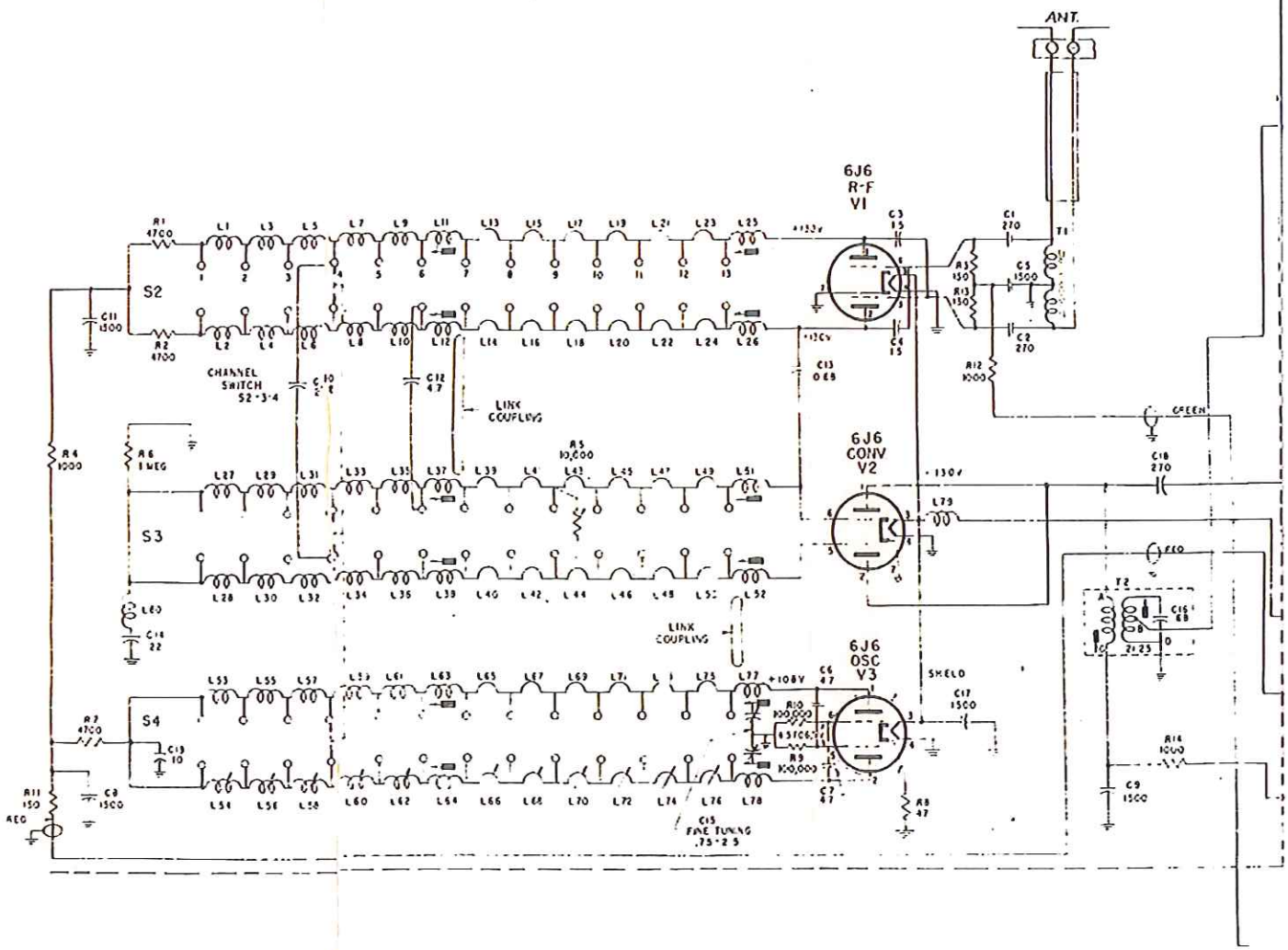
| Item No. | Ref. No. | Crosley Part No. | Description |
|---|---|---|---|
| 83 | 83 | | Listed under RF Unit Assembly |
| 84 | R-114 | 39374-15 | Resistor—150 ohms ½ Watt 10% |
| 85 | R-115 | B-139164-6 | Resistor—10,000 ohms ½ watt 5% |
| 86 | R-116 | 39374-8 | Resistor—39 ohms ½ Watt 10% |
| 87 | R-117 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 88 | R-118 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 89 | R-119 | 39374-15 | Resistor—150 ohms ½ Watt 10% |
| 90 | R-120 | B-139164-6 | Resistor—10,000 ohms ½ Watt 5% |
| 91 | R-121 | 39374-8 | Resistor—39 ohms ½ Watt 10% |
| 92 | R-122 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 93 | R-123 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 94 | R-124 | 39374-15 | Resistor—150 ohms ½ Watt 10% |
| 95 | R-125 | B-139164-2 | Resistor—1700 ohms ½ Watt 5% |
| 96 | R-126 | 39374-8 | Resistor—39 ohms ½ Watt 10% |
| 97 | R-127 | B-139164-1 | Resistor—2700 ohms ½ Watt 5% |
| 98 | R-128 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 99 | R-129 | 39374-30 | Resistor—2700 ohms ½ Watt 5% |
| 100 | R-130 | 39374-15 | Resistor—150 ohms ½ Watt 10% |
| 101 | R-132 | 39374-23 | Resistor—680 ohms ½ Watt 10% |
| 102 | R-133 | 39374-15 | Resistor—150 ohms ½ Watt 10% |
| 103 | R-134 | B-139164-4 | Resistor—5600 ohms ½ Watt 5% |
| 104 | R-135 | 39373-33 | Resistor—1000 ohms ½ Watt |
| | R-136 | | Resistor—Part of L187 |
| 105 | R-137 | B-139164-3 | Resistor—3900 ohms ½ Watt 5% |
| 106 | R-138 | 39373-87 | Resistor—170,000 ohms ½ Watt |
| | R-139 | | Resistor—Part of L189 |
| 107 | R-140 | 39374-31 | Resistor—3300 ohms ½ Watt 10% |
| 108 | R-141 | 39374-35 | Resistor—6800 ohms ½ Watt 10% |
| 109 | R-142 | B-139164-8 | Resistor—820,000 ohms ½ Watt 5% |
| 110 | R-143 | B-139164-9 | Resistor—1.2 Meg ohms ½ Watt 5% |
| 111 | R-144 | 39374-19 | Resistor—330 ohms ½ Watt 10% |
| | R-145 | | Resistor—Part of L191 |
| 112 | R-146 | B-139164-6 | Resistor—10,000 ohms ½ Watt 5% |
| 113 | R-147 | 39374-119 | Resistor—3300 ohms 1 Watt 10% |
| 114 | R-148 | 39373-71 | Resistor—100,000 ohms ½ Watt |
| 115 | R-149 | 39373-92 | Resistor—1 Meg ½ Watt |
| 116 | R-150 | 39374-45 | Resistor—47,000 ohms ½ Watt 10% |
| 117 | R-151 | 39374-51 | Resistor—150,000 ohms ½ Watt 10% |
| | R-152 | | Resistor—Listed under Controls |
| 118 | R-153 | 39373-92 | Resistor—1 Meg ohms ½ Watt |
| 119 | R-154 | 39374-121 | Resistor—4700 ohms 1 Watt 10% |
| 120 | R-155 | 39374-121 | Resistor—4700 ohms 1 Watt 10% |
| 121 | R-156 | 39374-77 | Resistor—4.7 Meg ohms ½ Watt 10% |
| 122 | R-157 | 39374-61 | Resistor—1 Meg ohms ½ Watt 10% |
| 123 | R-158 | 39374-35 | Resistor—6800 ohms ½ Watt 10% |
| 124 | R-159 | 39373-92 | Resistor—1 Meg ohms ½ Watt |
| 125 | R-160 | 39374-33 | Resistor—4700 ohms ½ Watt 10% |
| 126 | R-161 | 39374-25 | Resistor—1000 ohms ½ Watt 10% |
| 127 | R-162 | 39373-60 | Resistor—22,000 ohms ½ Watt |
| 128 | R-163 | 39373-60 | Resistor—22,000 ohms ½ Watt |
| 129 | R-164 | 39374-36 | Resistor—8200 ohms ½ Watt 10% |
| 130 | R-165 | 39374-36 | Resistor—8200 ohms ½ Watt 10% |
| 131 | R-166 | 39374-49 | Resistor—100,000 ohms ½ Watt 10% |
| 132 | R-167 | 39374-69 | Resistor—2.2 Meg ohms ½ Watt 10% |
| | R-168 | | Resistor—Listed Under Controls |
| | R-169 | | Resistor—Listed Under Controls |
| 133 | R-170 | 39374-53 | Resistor—220,000 ohms ½ Watt 10% |
| 134 | R-171 | B-139164-10 | Resistor—1.5 Meg ohms ½ Watt 5% |
| | R-172 | | Resistor—Listed Under Controls |
| 135 | R-173 | 39374-16 | Resistor—56,000 ohms ½ Watt 10% |
| 136 | R-174 | B-139164-5 | Resistor—8,200 ohms ½ Watt 5% |
| 137 | R-175 | B-139164-6 | Resistor—10,000 ohms ½ Watt 5% |
| 138 | R-176 | 39374-69 | Resistor—2.2 Meg ohms ½ Watt 10% |
| 139 | R-177 | 39371-30 | Resistor—2700 ohms ½ Watt 10% |
| | R-178 | | Resistor—Listed Under Controls |
| 140 | R-179 | 39374-125 | Resistor—10,000 ohms 1 Watt 10% |
| | R-180 | | Resistor—Part of Vertical Yoke Coil Assem. |
| | R-181 | | Resistor—Listed Under Controls |
| 141 | R-182 | B-139165-4 | Resistor—W. W. 270 ohms 2 Watt 10% |
| 142 | R-183 | B-139165-3 | Resistor—W. W. 1800 ohms 1 Watt 10% |
| | R-184 | | Resistor—Listed Under Controls |
| 143A | R-185A | W-139169 | Resistor—Wire Wound 230 ohms 10 Watt |
| 143B | R-185B | W-139169 | Resistor—Wire Wound 1360 ohms 17 Watt |
| 144A | R-186A | W-139167 | Resistor—Voltage Divider 93 ohms 1 Watt |
| 144B | R-186B | W-139167 | Resistor—Voltage Divider 12 ohms .5 Watt |
| 144C | R-186C | W-139167 | Resistor—6750 ohm 3.2 Watt |
| | R-187 | | Resistor—Listed Under Controls |
| 145 | R-188 | 39374-130 | Resistor—27,000 ohms 1 Watt 10% |
| 146 | R-189 | 39374-10 | Resistor—18,000 ohms ½ Watt 10% |
| 147 | R-190 | 39374-36 | Resistor—8,200 ohms ½ Watt 10% |
| 148 | R-191 | 39374-57 | Resistor—470,000 ohms ½ Watt 10% |
| 149 | R-192 | 39374-57 | Resistor—470,000 ohms ½ Watt 10% |
| 150 | R-193 | 39374-57 | Resistor—470,000 ohms ½ Watt 10% |
| 151 | R-191 | B-139164-15 | Resistor—10 ohms ½ Watt 5% |
| 152 | R-195 | 39371-22 | Resistor—560 ohms ½ Watt 10% |
| 153 | R-196 | 39374-12 | Resistor—27,000 ohms ½ Watt 10% |
| 154 | R-197 | 39371-132 | Resistor—39,000 ohms 1 Watt 10% |
| 155 | R-198 | B-139164-11 | Resistor—47,000 ohms 1 Watt 5% |
| 156 | R-199 | 39374-125 | Resistor—10,000 ohms 1 Watt 10% |
| 157 | R-200 | W-139166 | Resistor—W. W. 5,000 ohms 5 Watt 10% |
| | R-201 | | Resistor—Part of Vertical Yoke |
| 158 | R-202 | 39374-35 | Resistor—6800 ohms ½ Watt 10% |
| 159 | R-203 | 39373-80 | Resistor—220,000 ohms ½ Watt |
| 160 | R-204 | B-139164-7 | Resistor—680,000 ohms ½ Watt 5% |
| 161 | R-205 | 39374-57 | Resistor—470,000 ohms ½ Watt 10% |
| 162 | R-206 | 39374-101 | Resistor—100 ohms 1 Watt 10% |
| 163 | R-207 | 39374-129 | Resistor—22,000 ohms 1 Watt 10% |
| 164 | R-208 | 39374-128 | Resistor—18,000 ohms 1 Watt 10% |
| 165 | R-209 | W-139168 | Resistor—W.W. Taped (5300 20W) (500 2W) (500 2W.) |
| 166 | R-210 | 39374-35 | Resistor—6800 ohms ½ Watt 10% |
| | R-211 | | Resistor—Listed Under Controls |
| 167 | R-212 | 39373-14 | Resistor—100 ohms ½ Watt |
| 168 | R-213 | 39373-33 | Resistor—1000 ohms ½ Watt |

MODELS 307TA,
307TA-50

CROSLEY DIV.
AVCO MFG. CORP.

# PARTS LIST

| Item No. | Ref. No. | Crosley Part No. | Description |
|---|---|---|---|
| 169 | R-214 | 39373-37 | Resistor—470,000 ohms ½ Watt |
| 170 | R-215 | 39373-14 | Resistor—100 ohms ½ Watt |
| 171 | R-216 | 39373-33 | Resistor—1000 ohms ½ Watt |
| 172 | R-217 | 39374-41 | Resistor—22,000 ohms ½ Watt 10% |
| 173 | R-218 | 39374-125 | Resistor—10,000 ohms 1 Watt 10% |
| 174 | R-219 | 39374-19 | Resistor—100,000 ohms ½ Watt 10% |
| 175 | R-220 | 39374-49 | Resistor—100,000 ohms ½ Watt 10% |
| 176 | R-221 | 39374-42 | Resistor—27,000 ohms ½ Watt 10% |
| | R-222 | | Resistor—Listed Under Controls |
| 177 | R-223 | 39373-107 | Resistor—10 Meg ohms ½ Watt |
| 178 | R-224 | 39373-84 | Resistor—330,000 ohms ½ Watt |
| 179 | R-225 | 39374-51 | Resistor—270,000 ohms ½ Watt 10% |
| 180 | R-226 | 39373-260 | Resistor—2200 ohms 2 Watt 20% |
| 181 | R-227 | 39373-260 | Resistor—2200 ohms 2 Watt 20% |
| 182 | R-228 | 39374-31 | Resistor—6.8 Meg ohms ½ Watt 10% |
| 183 | R-229 | 39374-61 | Resistor—1 Meg ½ Watt 10% |
| 184 | R-230 | B-139165-2 | Resistor—W. W. 2.2 ohms 1 Watt 10% |
| 185 | R-231 | B-139161-12 | Resistor—39,000 1 Watt 5% |
| 186 | R-232 | 39374-98 | Resistor—56 ohms 1 Watt 10% |
| 187 | R-233 | B-139165-1 | Resistor—3.3 ohms ½ Watt 5% |
| 188 | R-234 | 39373-14 | Resistor—3300 ohms ½ Watt |
| 189 | R-235 | B-139161-13 | Resistor—1 Meg ohm 1 Watt 10% |
| 190 | R-236 | 39373-60 | Resistor—22,000 ohms ½ Watt |
| 191 | R-237 | 39374-37 | Resistor—10,000 ohms ½ Watt 10% |
| 192 | R-238 | B-139161-7 | Resistor—680,000 ohms ½ Watt 5% |
| 193 | R-239 | 39374-51 | Resistor—150,000 ohms ½ Watt |
| | R-131 | | Control—Contrast 10,000 ohms |
| 194 | R-222 | W-139170 | Volume Control Sound 1 Meg |
| | S-101 | | Power Switch |
| 195 | R-152 | W-139171 | Control—Brightness Control 50,000 ohms |
| 196 | R-169 | W-139172 | Control—Height Control 2.5 meg |
| 197 | R-168 | W-139173 | Control—Horizontal Control 50,000 ohms |
| | R-172 | | Control—Vertical Control 1 meg |
| 198 | R-178 | W-139174 | Control—Vertical Linearity Cont. 5000 ohms |
| 199 | R-181 | W-139175 | Control—Vertical Centering 20 ohms |
| 200 | R-211 | W-139175 | Control—Horizontal 20 ohms |
| 201 | R-184 | W-139176 | Control—Focus Control 1500 ohms |
| 202 | R-187 | W-139177 | Control—Horizontal Drive |
| 203 | L-180 | W-139178 | Coil—Choke Coil |
| 204 | L-181 | W-139178 | Coil—Choke Coil |
| 205 | L-182 | W-139178 | Coil—Choke Coil |
| 206 | L-183 | W-139179 | Coil—Third Picture I. F. |
| 207 | L-184 | W-139178 | Coil—Choke Coil |
| 208 | L-185 | W-139179 | Coil—Fourth Picture I. F. |
| 209 | L-186 | W-139178 | Coil—Choke Coil |
| 210 | L-187 | W-139182 | Coil—Peaking Coil 120 uh |
| | R-136 | | Resistor—22000 ohms Part of L187 L187 was W139180 180 uh—39000 ohms |
| 211 | L-188 | W-139181 | Coil—Peaking Coil 250 uh |
| 212 | L-189 | W-139182 | Coil—Peaking Coil 120 uh |
| | R-139 | | Resistor—22,000 ohms Part of L189 |
| 213 | L-190 | W-139183 | Coil—Peaking Coil 93 uh |
| 214 | L-191 | W-139182 | Coil—Peaking Coil 120 uh |
| | R-145 | | Resistor—22,000 ohms Part of L191 |
| 215 | L-192 | W-139183 | Coil—Peaking Coil 93 uh |
| | L-193 | | Coil—Part of Yoke |
| | L-194 | | Coil—Part of Yoke |
| 216 | L-195 | W-139184 | Coil—Focus Coil |
| 217 | L-196 | W-139185 | Coil—Width Control Coil |
| | L-197 | | Coil—Part of Yoke |
| | L-198 | | Coil—Part of Yoke |
| 218 | L-201 | W-139186 | Coil—Horizontal Linearity Cont. |
| 219 | L-202 | W-139187 | Coil—(ION Trap Magnet) |
| | L-203 | | Coil—(ION Trap Magnet) |
| 220 | T-103 | W-139188 | Transformer—First Pix I. F. |
| | C-117 | | Condenser—43 mmf Part of T103 |
| 221 | T-104 | W-139189 | Transformer—Second Pix I. F. |
| | C-124 | | Condenser—56 mmf Part of T104 |
| 222 | T-105 | W-139190 | Wave Trap |
| | C-132 | | Condenser—75 mmf Part of T105 |
| 223 | T-106 | W-139191 | Transformer—Vertical Osc. Trans. |
| 224 | T-107 | W-139192 | Transformer—Vertical Output Trans. |
| 225 | T-108 | W-139193 | Tranformer—Sync. Discrim. Trans. |
| 226 | T-109 | W-139194 | Transformer—Horiz. Output & Hi Volt Trans. |
| 227 | T-110 | W-139195 | Transformer—Power Tran. 115 V 60 Cycle |
| 227A | T-110 | W-139476 | Transformer—Power 115 Volts 50 Cycle |
| | T-111 | W-139196 | Transformer—First Sound I. F. |
| 228 | C-190 | | Condenser—10 mmf Part of T111 |
| | C-193 | | Condenser—33 mmf Part of T111 |
| | T-112 | W-139196 | Transformer—Second Sound I. F. |
| 229 | C-195 | | Condenser—10 mmf Part of T112 |
| | C-198 | | Condenser—33 mmf Part of T112 |
| | T-113 | W-139197 | Transformer—Sound Discriminator |
| 230 | C-199 | | Condenser—56 mmf Part of T113 |
| | C-201 | | Condenser—47 mmf Part of T113 |
| | C-202 | | Condenser—56 mmf Part of T113 |
| 231 | T-114 | W-139198 | Transformer—Audio Output Trans. |
| 232 | | W-139199 | Speaker Assem.—5" E.M. (62 ohm field) |
| | | W-139200 | Yoke—Vertical & Horizontal Yoke Assem. |
| | R-201 | | Resistor—560 ohms |
| | R-180 | | Resistor—560 ohms |
| | L-193 | | Coil—Vertical Yoke |
| 233 | L-194 | | Coil—Vertical Yoke } Part of Yoke Assem. |
| | L-197 | | Coil—Horizontal Yoke |
| | L-198 | | Coil—Horizontal Yoke |
| | C-181 | B-137498-15 | Condenser—56 mmf. |
| 234 | C-164 | 137498-29 | Condenser—1200 mmf |
| 83 | | W-139163 | RF Unit Assembly |
| | T-1 | W-139502 | Transformer (Antenna) |
| | T-2 | W-139503 | Transformer (Converter) |
| | C-16 | | Condenser (Part of T2) |
| | | 139131 | Bearing-(RF Unit Shaft) |
| | | 139152 | Snap Spring (Fine Tuning) |
| | | 139147 | Lead Shield Assem. (Osc. Tube) |
| | | 139132 | Tube Shield Clamp (Osc. Tube) |
| | | 139139 | Detent and Fibre Shaft |
| | | 139140 | Friction Drive |
| | | 139141 | Ring (Retainer) |
| | | 142691 | Rotor and Disc for Fine Tuning Stator (Part of C16) |
| | | 142695 | Stator—Oscillator Fine Tuning Stator and Bushing (Part of C16) |
| | | | **Miscellaneous** |
| | | 139130 | Terminal Board (Antenna) |
| | | 139133 | Connector (Cathode Ray Tube Anode) |
| | | 139134 | Connector (Hi Voltage Capacitor) |
| | | 139141 | Speed Nut (Hi Voltage Capacitor) |
| | | 139135 | Power Cord |
| | | 139136 | Cover (Elect Conds.) |
| | | 139137 | Cushion (Deflection Yoke, Lower) |
| | | 139138 | Cushion (Deflection Yoke, Upper) |
| | | 139142 | Wing Nut |
| | | 139145 | Wing Screw |
| | | 139143 | Plug (Two Prong Male) |
| | | 139146 | Tube Shield |
| | | 139148 | Rubber Sleeve (Focus Coil) |
| | | 139149 | Socket (C. R. Tube) |
| | | 139150 | Socket (8016 Tube) |
| | | 139151 | Spring (C.R.T. Coating Grounding) |
| | | W-230578 | Insulator (Elect. Cond. Mounting) |
| | | W-131346 | Socket (Miniature Tube) |
| | | 39204 | Socket (Octal Tube) |
| | | R-138502 | Cabinet |
| | | B-138503 | Label—Tube Location |
| | | W-138515 | Decal—Brightness Cont. |
| | | W-138516 | Decal—Vert. & Hor. Cont. |
| | | W-138517 | Decal—Contrast, Vol. Off-On |
| | | W-138518 | Decal—Tuning & Channel Sel. |
| | | W-138363 | Decal—Crosley |
| | | W-138541 | Glass—Safety |
| | | W-138542 | Gasket—Safety Glass |
| | | W-138660 | Rubber Foot |
| | | W-138524 | Bracket—Lid Mounting |
| | | W-138525 | Bracket—Lid Mounting |
| | | C-138771 | Escutcheon—Channel Sel. |
| | | B-138510 | Knob—Fine Tuning |
| | | B-138511 | Knob—Small |
| | | B-138513 | Knob—Large |
| | | B-138514 | Knob—Channel Sel. |
| | | B-138512 | Knob—Combination |
| | | W-138507 | Clip—Glass Retainer |
| | | W-138761 | Spring—Escutcheon Retainer |
| | | W-139475 | Bracket & Pad Assem.—C.R.T. Centering |
| | | R-139055 | Table |
| | | 139193-2 | Twin Lead Transmission Line 75 ohms—5000 ft. reels |
| | | 139327 | Twin Lead Shielded Transmission Line—1000 ft. reels |




NOTES

1 ALL VOLTAGES MEASURED WITH AN ELECTRONIC VOLTMETER AND WITH PICTURE AT MIN TOLERANCE ± 20 % AT 117V AC SUPPLY.

2 K = 1000

3 ALL RESISTANCE VALUES IN OHMS, AND CAPACITANCE VALUES IN MMFD. UNLESS OTHERWISE NOTED.

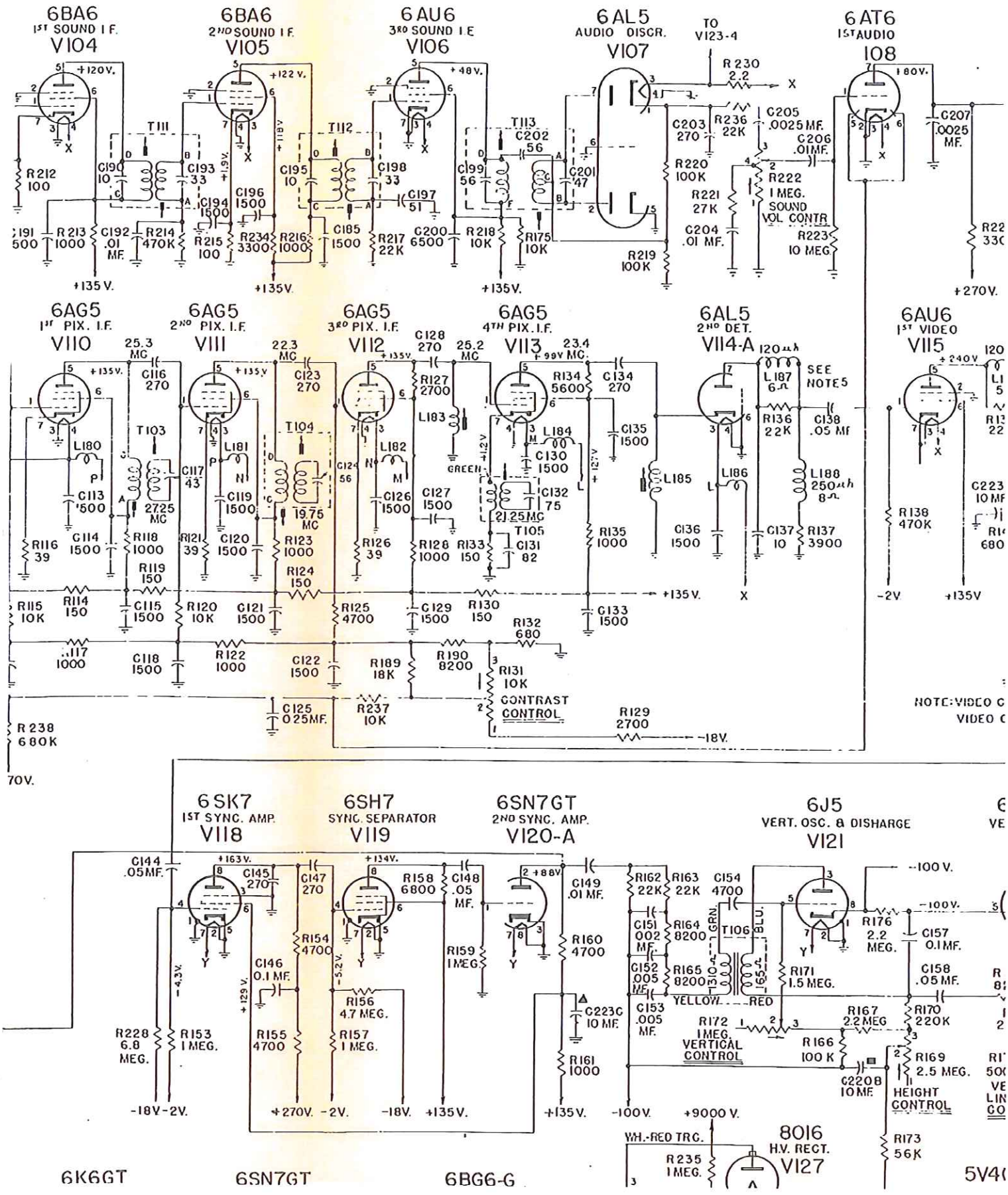
4 DIRECTION OF ARROWS AT CONTROLS INDICATE CLOCKWISE ROTATION

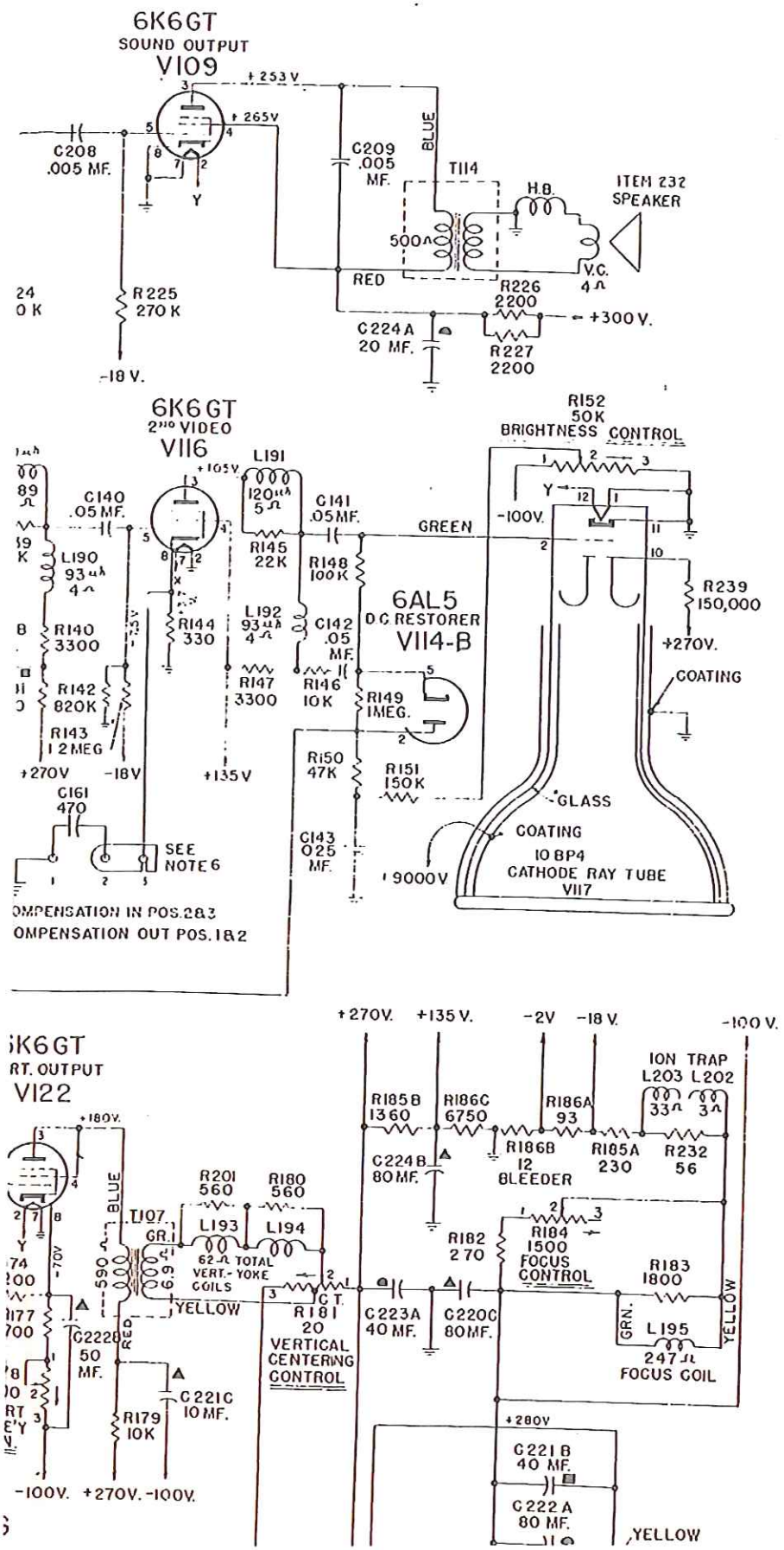
5 L187 WAS 180 μH · R136 WAS 39K Ω

6 ALTERNATE METHOD FOR HORIZONTAL SYNC. COMPENSATION.

TO V107-3

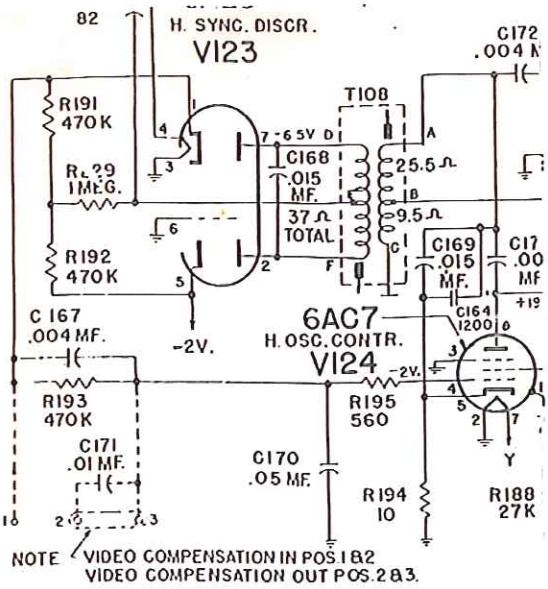
CROSLEY DIV.
AVCO MFG. CORP.




6K6GT
SOUND OUTPUT
V109
+253V
+265V
C208
.005 MF.
C209
.005
MF.
BLUE
T114
H.B.
ITEM 232
SPEAKER
500Ω
V.C.
4Ω
RED
R225
270 K
R226
2200
+300 V.
C224A
20 MF.
R227
2200
-18 V.
6K6GT
2ND VIDEO
V116
+105V
L191
120μh
5Ω
C140
.05 MF.
C141
.05MF.
GREEN
R145
22K
R148
100K
L190
93μh
4Ω
L192
93μh
4Ω
C142
.05
MF.
R144
330
R147
3300
R146
10K
R149
1MEG.
R140
3300
R142
820K
R143
1.2MEG
+270V
-18V
+135V
R150
47K
R151
150K
C161
470
SEE
NOTE 6
C143
.025
MF.
R152
50K
BRIGHTNESS CONTROL
-100V.
6AL5
D.C. RESTORER
V114-B
R239
150,000
+270V.
COATING
GLASS
COATING
10BP4
CATHODE RAY TUBE
V117
+9000V
OMPENSATION IN POS. 2&3
OMPENSATION OUT POS. 1&2
+270V.
+135V.
-2V
-18V.
-100V.
ION TRAP
L203 L202
33Ω 3Ω
R185B
1360
R186C
6750
R186A
93
R186B
12
BLEEDER
R185A
230
R232
56
C224B
80MF.
6K6GT
RT. OUTPUT
V122
+180V.
R201
560
R180
560
T107
GR.1
L193
L194
62-Ω TOTAL
VERT.-YOKE
COILS
590
69
YELLOW
R181
20
VERTICAL
CENTERING
CONTROL
C.T.
R182
270
R184
1500
FOCUS
CONTROL
R183
1800
C223A
40 MF.
C220C
80MF.
GRN.
L195
247Ω
FOCUS COIL
YELLOW
C222B
50
MF.
RED
C221C
10 MF.
R179
10K
-100V.
+270V.
-100V.
+280V
C221B
40 MF.
C222A
80 MF.
YELLOW

### HIGH VOLTAGE WARNING

When handling the high voltage lead to the cathode-ray, the receiver power plug should be disconnected from the power line receptical.




## ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE: 6 1/16 x 8 1/4 x 13/4 radius at corner.

### R-F FREQUENCY RANGES

| Channel Number | Channel Freq. Mc. | Picture Carrier Freq. Mc. | Sound Carrier Freq. Mc. | Receiver R-F Osc. Freq. Mc. |
|---|---|---|---|---|
| 1 | 44–50 | 45.25 | 49.75 | 71 |
| 2 | 54–60 | 55.25 | 59.75 | 81 |
| 3 | 60–66 | 61.25 | 65.75 | 87 |
| 4 | 66–72 | 67.25 | 71.75 | 93 |
| 5 | 76–82 | 77.25 | 81.75 | 103 |
| 6 | 82–88 | 83.25 | 87.75 | 109 |
| 7 | 174–180 | 175.25 | 179.75 | 201 |
| 8 | 180–186 | 181.25 | 185.75 | 207 |
| 9 | 186–192 | 187.25 | 191.75 | 213 |
| 10 | 192–198 | 193.25 | 197.75 | 219 |
| 11 | 198–204 | 199.25 | 203.75 | 225 |
| 12 | 204–210 | 205.25 | 209.75 | 231 |
| 13 | 210–216 | 211.25 | 215.75 | 237 |

### POWER SUPPLY RATING

115 volts, 60 cycles, 320 watts (Model 307TA).
115 volts, 50 cycles, 320 watts (Model 307TA-50).

### AUDIO POWER OUTPUT RATING

Undistorted, 2.5 watts. Maximum, 4 watts

### SPEAKER

Type 5-inch Electro Magnet Dynamic
Voice Coil Impedance—3.2 ohms at 400 cycles.

### RECEIVER ANTENNA INPUT IMPEDANCE,

300 ohms balanced

| Dimensions (Inches) | Length | Height | Depth |
|---|---|---|---|
| Cabinet (Outside) | 25½ | 14⅜ | 19 |
| Chassis Base (Outside) | 19¼ | 3¾ | 15½ |
| Chassis Overall | 21¾ | 11¾ | 16⅛ |

### PICTURE I-F FREQUENCIES

Picture Carrier Frequency.....25.75 Mc.
Adjacent Channel Sound Trap.....27.25 Mc.
Accompanying Sound Traps.....21.25 Mc.
Adjacent Channel Picture Carrier Trap..19.75 Mc.

### SOUND I-F FREQUENCIES

Sound Carrier Frequency.....21.25 Mc.
Sound Discriminator Band Width (between peaks).....350 kc.

VIDEO RESPONSE.....To 4 Mc.

FOCUS.....Magnetic

SWEEP DEFLECTION.....Magnetic

SCANNING.....Interlaced, 525 line

HORIZONTAL SCANNING FREQUENCY.....15,750 cps.

VERTICAL SCANNING FREQUENCY....60 cps.

Caution: When placing the receiver, care should be taken not to block the ventilating openings in the bottom, back or top of the cabinet, as this may cause the receiver to overheat.

Model
direct-
ceivers
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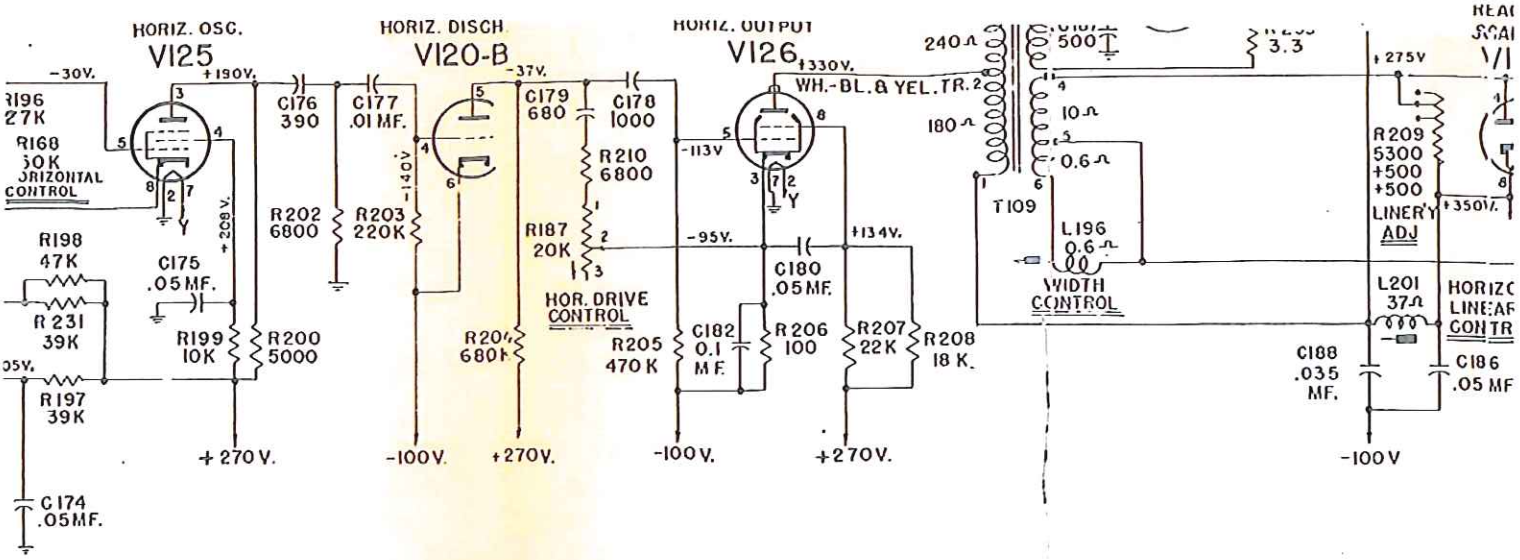
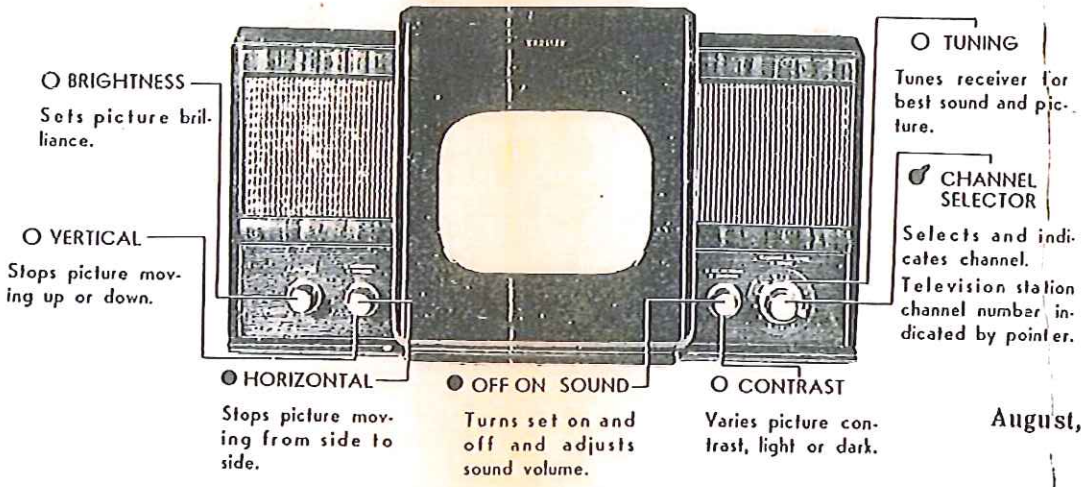


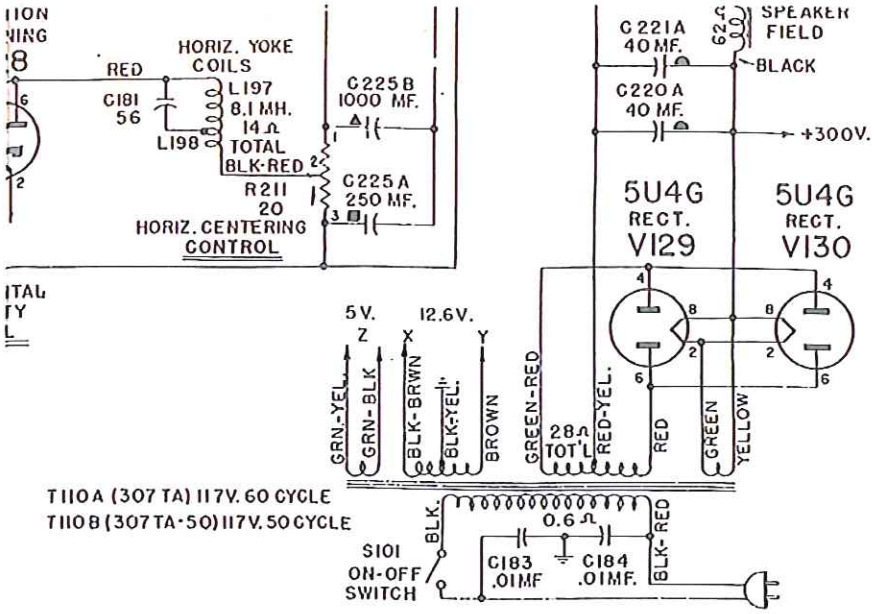

August, 1947

## DESCRIPTION

307TA and 307TA-50 are thirty-tube, ewing, 10" table model, Television Re- The receiver is complete in one unit and is by the use of seven front-panel controls. of the receiver include: A-F-C horizontal hold: Stabilized vertical hold: Two stages of video amplification: Noise saturation circuits: Three stage sync separator and clipper: Four mc. band width for picture channel, and Reduced hazard high voltage supply.

## TUBE COMPLEMENT

| Tube Used | |
|---|---|
| (1) 6J6 | R-F A |
| (2) 6J6 | R-F C |
| (3) 6J6 | Conve |
| (4) 6BA6 | 1st So |
| (5) 6BA6 | 2nd S |
| (6) 6AU6 | 3rd Sc |
| (7) 6AL5 | Sound |
| (8) 6AT6 | 1st Au |
| (9) 6K6GT | Audio |
| (10) 6AG5 | 1st Pi |
| (11) 6AG5 | 2nd P |
| (12) 6AG5 | 3rd Pi |
| (13) 6AG5 | 4th Pi |
| (14) 6AL5 | Pictur Restor |
| (15) 6AU6 | 1st Vi |
| (16) 6K6GT | 2nd V |
| (17) 6SK7 | 1st Sy |
| (18) 6SH7 | Sync S |
| (19) 6SN7GT | 2nd Sy tal Di |
| (20) 6J5 | Vertic Discha |
| (21) 6K6GT | Vertic |
| (22) 6AL5 | Horizo |
| (23) 6K6GT | Horizo |
| (24) 6AC7 | Horizo trol |
| (25) 6BG6G | Horizo |
| (26) 5V4G | Horizo |
| (27) 1B3-GT/8016 | High V |
| (28) 5U4G | Power |
| (29) 10BP4 | Pictur |




Function
nplifier
:cillator
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nd I-F Amplifier
ınd I-F Amplifier
ınd I-F Amplifier
Discriminator
lio Amplifier
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:ure I-F Amplifier
ture I-F Amplifier
ture I-F Amplifier
ture I-F Amplifier
2nd Detector and D-C
r
:o Amplifier
leo Amplifier
e Amplifier
:parator
ic Amplifier and Horizon-
harge
Sweep Oscillator and
ge
Sweep Output
tal Sync Discriminator
tal Sweep Oscillator
tal Sweep Oscillator Con-

tal Sweep Output
tal Reaction Scanning
ltage Rectifier
upply Rectifiers (2 tubes)
Tube

## NON-OPERATING CONTROLS

(not including r-f and i-f adjustments)

| | |
|---|---|
| Horizontal Centering | rear chassis adjustment |
| Vertical Centering | rear chassis adjustment |
| Width | rear chassis screwdriver adjustment |
| Height | rear chassis adjustment |
| Horizontal Linearity | top chassis screwdriver adjustment |
| Vertical Linearity | rear chassis adjustment |
| Horizontal Drive | rear chassis adjustment |
| Horizontal Oscillator Frequency | rear chassis adjustment |
| Horizontal Oscillator Phase | bottom chassis adjustment |
| Focus | rear chassis adjustment |
| Focus Coil | top chassis wing nut adjustment |
| Ion Trap Coil | top chassis thumb screw adjustment |
| Deflection Coil | top chassis wing nut adjustment |

## FRAME FREQUENCY (Picture Repitition Rate) ..... 30 cps.

## OPERATING CONTROLS (front Panel)

| | |
|---|---|
| Channel Selector | |
| Fine Tuning | Dual Control Knobs |
| Picture | |
| Sound Volume and On-Off Switch | Dual Control Knobs |
| Picture Horizontal Hold | |
| Picture Vertical Hold | Dual Control Knobs |
| Brightness | Single Control Knob |