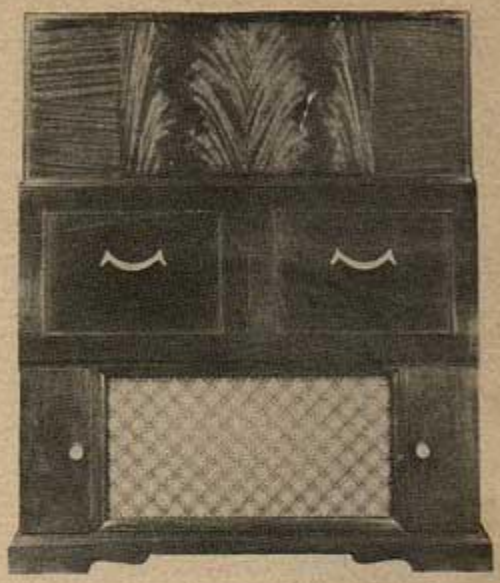
CROSLEY

TELEVISION RECEIVER INFORMATION

April, 1948 | MODEL 348 CP | No. 353



GENERAL DESCRIPTION

Model 348CP is a television-radio-phonograph combination housed in an attractive mahogany console cabinet. Features of the receiver include: "Swing-A-View" picture, superlative picture brilliance, A-F-C of horizontal scan, high-stability "Picture Pilots", radio reception on the broadcast, shortwave, and F-M bands, and a fully automatic record changer.

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ELECTRICAL & MECHANICAL SPECIFICATIONS

Picture Size . . . . . 6-3/16" x 8-1/4"

FREQUENCY COVERAGE AVAILABLE

Radio: Broadcast Band . . . . . 640 to 1600 KC
Shortwave Band . . . . 9.45 to 11.9 MC
Frequency Modulated Band ...Channel 200 to 300 . . . 88 to 108 MC

Television:

Channel Number	Channel Freq. in MC	Video Carrier Freq. in MC	Sound Carrier Freq. in MC	Receiver Osc. Freq. in MC
1	44-50	45.25	49.75	82.55
2	54-60	55.25	59.75	92.55
3	60-66	61.25	65.75	98.55
4	66-72	67.25	71.75	104.55
5	76-82	77.25	81.75	114.55
6	82-88	83.25	87.75	120.55
7	174-180	175.25	179.75	212.55
8	180-186	181.25	185.75	218.55
9	186-192	187.25	191.75	224.55
10	192-198	193.25	197.75	230.55
11	198-204	199.25	203.75	236.55
12	204-210	205.25	209.75	242.55
13	210-216	211.25	215.75	248.55

POWER SUPPLY RATING: at 117 volts, 60 cycle

Radio position . . . . . .70 watts
Phonograph position . . . . . .82 watts
Television position. . . . . .360 watts

AUDIO POWER OUTPUT RATING:

Undistorted . . . . . 4 watts
Maximum . . . . . 8 watts

LOUDSPEAKER:

Type . . . . . 10" Permanent Magnet
Voice coil impedance 3.2 ohms at 400 cycles

PICTURE TUBE:

Type . . . . . .10 FP 4
Brightness . . . . . .50 foot Lamberts

ANTENNA IMPUT IMPEDANCE:

F-M and Television . . . 75 ohm, balanced

WEIGHT:

Receiver, less cathode-ray tube . . . . . 221.5 lbs.
Shipping weight . . . . . .283 lbs.

DIMENSIONS:

	Height	Width	Depth
Cabinet (outside)	44½"	37½"	18½"

DIMENSIONS: (Cont.)

	Height	Width	Depth
Shipping carton (outside)	47"	42"	23½"

The principal components of the receiver include: -

TR-1 Main television chassis, located at bottom of cabinet.

TR-2 Picture chassis, located in "Swing-a-view" picture box.

TR-3 Radio chassis, located in radio tilt-out bin at right side of cabinet front.

Record Changer-located in pull-out drawer at left front of cabinet.

TUBE COMPLEMENT:

Main Chassis (TR-1)

(1)	7F8	Converter
(2)	6AC7	1st. IF. Amplifier
(3)	6AC7	2nd Video IF. Amplifier
(4)	6AC7	3rd Video IF. Amplifier
(5)	6AC7	4th Video IF. Amplifier
(6)	6SN7GT	Video Cathode Follower & Phase Inverter
(7)	6SG7	2nd Sound IF. Amplifier
(8)	6SG7	3rd Sound IF. Amplifier
(9)	6SG7	4th Sound IF. Amplifier
(10)	6H6	Sound Detector

TUBE COMPLEMENT : (Cont.)

(11)	6SN7GT	Pulse Inverter & Bias Rectifier
(12)	6SN7GT	Vertical Deflection Oscillator
(13)	6SN7GT	Vertical Deflection Output
(14)	6H6	AFC Detector
(15)	6SN7GT	Horizontal Deflection Oscillator
(16)	6BG6G	Horizontal Deflection Output
(17)	6AS7G	Horizontal Deflection Damper
(18)	6V6GT	High Voltage Oscillator
(19)	1B3GT	High Voltage Rectifier
(20)	5U4G	Power Supply Rectifiers (2 tubes)

Picture Chassis (TR-2)

(21)	6AC7	Video Amplifier
(22)	6SN7GT	DC Restorer & Cathode Follower
(23)	6SN7GT	1st Sync Separator & Sync Amplifier
(24)	6V6GT	2nd Sync Separator
(25)	10FP4	Picture Tube

Radio Chassis (TR-3)

(26)	6AC7	1st AM Mixer & FM Mixer
(27)	7F8	1st & 2nd AM Osc. & FM Osc.
(28)	6SG7	2nd AM Mixer & FM IF. Ampl.
(29)	6SG7	IF. Ampl. AM. & 2nd IF. Ampl. FM.
(30)	6H6	FM. Detector
(31)	6SQ7	AM. Det.-AVC-1st AF. Ampl.
(32)	6V6GT	Output
(33)	5Y3GT	Power Supply Rectifier

RADIO-INTERMEDIATE AND OSCILLATOR FREQUENCIES:

Broadcast Band: 1st & 2nd I.F . . . 5825 and 167.5 KC

1st Oscillator . . . . . 6365 to 7425 KC
2nd Oscillator . . . . . 5992.5 KC
Shortwave Band 1st & 2nd I.F. . . . . 5825 and 167.5 KC
1st Oscillator . . . . . .14.275 to 17.725 MC
2nd Oscillator . . . . . .(fixed) 5992.5 KC

F-M Band
Intermediate Frequency. . . . . .10.7 MC
Oscillator . . . . . 98.7 to 118.7 MC

FREQUENCIES OF THE VIDEO IF. AMPLIFIER:

Video Carrier . . . . . 37.3 MC
Adjacent Channel and Sound Trap 38.8 MC
Accompanying Sound Trap . . . . . 32.8 MC
Adjacent Channel Picture Trap . . 31.8 MC

FREQUENCY OF THE SOUND IF. AMPLIFIER:

Sound Carrier . . . . . 32.8 MC
Sound bandwidth (between peaks) . . 300 KC

VIDEO RESPONSE: . . . . . to 3.5 MC
FOCUS: . . . . . Magnetic
DEFLECTION: . . . . . Magnetic
HORIZONTAL SCANNING FREQUENCY: . . . . . 15,750 cycles
VERTICAL SCANNING FREQUENCY: . . . . . 60 cycles
FRAME FREQUENCY: . . . . . 30 cycles
SCANNING: . . . . . Interlaced, 525 lines

OPERATING CONTROLS AND THEIR FUNCTIONS:

Function Switch . . . . Off-Radio-Phono-Video
Volume. . . . . Varies Audio Level
Radio Selector . . . . Selects Broadcast-Shortwave-FM.
Tone Control . . . Varies Tone & FM.

Horizontal, Vertical . . . . . Synchronizes Picture

Focus..Sharpens & clarifies detail of Picture
Channel Selector. . . . . .Selects any of eight Television Channels.
Contrast . . . . . .Varies Video Gain
Brilliance . . . . . Adjusts Picture background

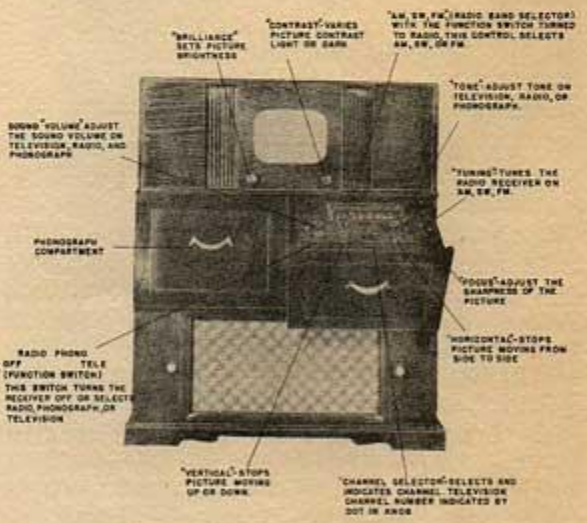

Fig. 2 - Operating Controls

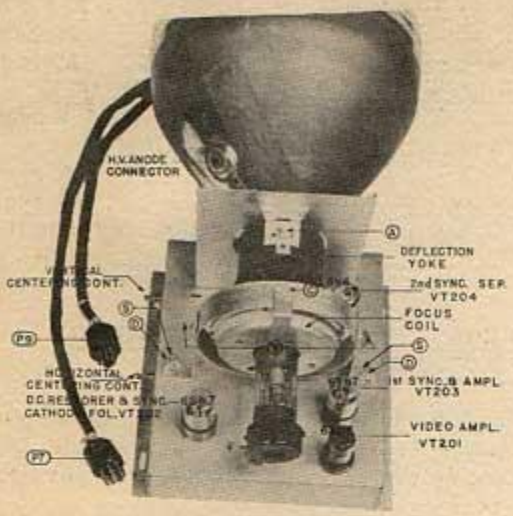

Fig. 3 - Picture Chassis

Horizontal Centering. . Side of Picture Chassis

Vertical Centering . . . Side of Picture Chassis

Focus Coil. . .Top of Picture Chassis (Wingscrews B-C-D)

Deflection Coil. . .Top of Picture Chassis (Wingscrew A)

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER WITH THE INTERLOCK BYPASSED, PICTURE BOX COVER REMOVED, OR CHASSIS REMOVED FROM CABINET INVOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE NOT THOROUGHLY FAMILIAR WITH THE PRECAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. WHEN HANDLING THE HIGH VOLTAGE LEAD TO THE PICTURE TUBE THE RECEIVER POWER PLUG SHOULD BE DISCONNECTED FROM THE POWER RECEPTACLE.

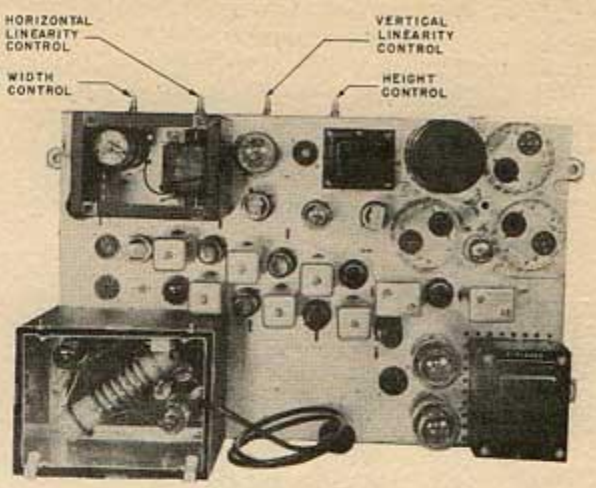

Fig. 4 - Top View of Main Chassis

Width. . . . . Rear of Main Chassis

Height . . . . . Rear of Main Chassis

Horizontal Linearity . . Rear of Main Chassis

Vertical Linearity . . . Rear of Main Chassis

PICTURE TUBE - HANDLING PRECAUTIONS:

Do not open the picture tube shipping carton, install, remove or handle the picture tube in any manner unless safety goggles and heavy gloves are worn.

The glass bulb encloses a high vacuum, and, due to its large surface area, is subjected to considerable air pressure. For these reasons picture tubes must be handled with more care than ordinary receiving tubes.

The large end of the glass bulb must not be struck, scratched, or subjected to more than moderate pressure at any time. The neck of the tube must slide smoothly through the deflection yoke and focus coil. If it does not the coil may not be lined up properly, or the openings obstructed in some way. Remove the tube and investigate the trouble. Do not force tube.

All picture tubes are shipped in special cartons and should be left in cartons until ready for installation. Keep the picture tube carton for future use.

LOCATION OF THE RECEIVER

The receiver should be located to permit viewing from the proper distance. For best results in detail the picture should be observed from a distance of three to five feet.

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

INTERFERENCE

Under some conditions, interference may be present in the picture, this is not the fault of the receiver. See Users Instruction Book for pictures on interference.

UNPACKING, ASSEMBLING AND ADJUSTING

UNPACKING

The 348CP receiver is shipped complete in one crate except for the picture tube and "Picture Pilots."

TO UNPACK RECEIVER

1. Remove four shipping bolts under bottom of container.
2. Remove the wood screws on outside bottom cleats of container.
3. Remove container by carefully lifting straight up until it clears cabinet.
4. Remove cardboard "hat" and kimpak from top of cabinet.
   NOTE: THIS CABINET IS SHIPPED IN FIRST CLASS CONDITION WITH CONSIDERABLE ATTENTION GIVEN TO THE FINISH. HANDLE WITH CARE.
5. Remove wood screws to open back.
6. Loosen main chassis mounting bolts and remove masonite strips under chassis.
7. Remove wood shipping block from rear of radio bin.
8. Take out the 1/4-inch screw that holds bin slide rigidly during shipment and replace screw in the hole about 4 inches back. This screw limits the travel of the shelf.
9. Remove the two wood screws holding shipping straps to rear cabinet rail under the automatic record changer. Remove the two machine screws holding straps to metal drawer slides and discard shipping straps. Be sure to REPLACE SCREWS IN DRAWER SLIDES.
10. Remove cardboard support used to hold down turntable and pickup arm during shipment, exercising care in its removal so as not to damage the Floating Jewel Needle.
11. Place pickup arm on rest.
12. Pull straight up on Record Support Knob until the record support clears spindle. Swing record support in either direction until pin in shaft drops into locating groove.
13. Remove turntable by lifting carefully up over spindle.
14. With a screwdriver turn down the two mounting screws (turn clockwise) and remove the cardboard under record changer base plate. The record changer should now float freely on its mounting springs.
15. Carefully replace turntable. If it does not seat properly, push back idler drive wheel to clear side of turntable, and lower turntable into place. In its normal position the idler drive wheel rests against the inside of the turntable side by spring tension.

ASSEMBLING

1. Remove side panel of picture box and take out the hold-down screw inside of picture box. This screw holds picture box to shelf during shipment. Carefully remove the cardboard shipping strips between Picture Box and cabinet by pulling the strips back. Remove the two hex head shipping screws (S) on the base of the Focus Coil Supports (See figure 3). Remove the two No. 8 hex nuts in the upper inside, front corners of the box and the two screws in the lower front outside surface. This allows removal of the front safety glass panel of the picture box.
2. Remove all packing material from inside the picture box. Make sure that all tubes are firmly seated in the sockets.
3. Loosen the thumbscrew (A) and slide the deflection yoke towards the rear of the picture box and tighten. (See Fig. 3).
4. In order to insure that the picture tube can be inserted with a minimum of strain placed on the glass neck, the opening in the focus coil must be lined up with the opening in the deflection yoke.
5. To check the alignment of the focus coil with the yoke, look through the front of the picture box. The yoke and focus coil must be in line. If the opening is blocked by the focus coil, loosen the thumbscrews (B), (C) and (D) Fig. 3). Raise, lower or rotate the focus coil until a clear opening is obtained. Tighten the thumbscrews in this position.

6. Loosen the screws and raise the two lower picture tube centering brackets (on front of picture box) to approximately mid-position and tighten the screws. Do not open the picture tube shipping carton, install, remove or handle the picture tube in any manner unless safety goggles and heavy gloves are worn.
7. To unpack the picture tube, cut the paper tape along the edges and tear open the carton flaps. Remove the cardboard covering from the face of the tube.
8. Grasp the sides of the tube and remove from the carton.

   NOTE: It is good practice to have the receiver prepared, so that when the picture tube is removed from the carton, it can be placed immediately in the receiver. If it is necessary to set the tube down, it should always be placed face down, on a clean piece of paper or cloth to prevent scratching of the face. It should also be placed in a position where it will not be accidentally upset or jarred. Never handle the tube by the fragile neck.
9. Insert the neck of the picture tube (with the anode connector 90^0 to the right, see Fig. 3) through the deflection and focus coils until the tube face is approximately flush with the front of picture box. If the tube sticks or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

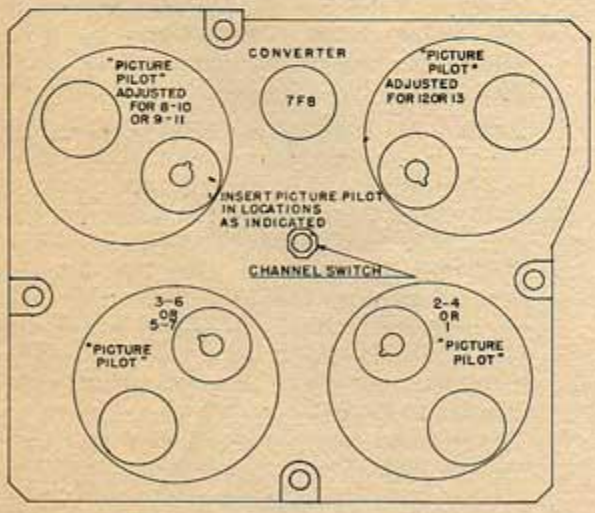

Fig. 5 - Socket Location for Picture Pilot

10. Adjust the four centering brackets until the face of the picture tube is in the center of the opening.
11. Tighten the four centering bracket screws securely.
12. Clean the picture tube screen surface and front panel safety glass with a good window cleaner. Replacing Front Panel.
13. Hold front panel in place and check to see if the picture tube is centered in front panel. If not, remove panel and adjust picture tube centering brackets accordingly.
14. Replace No. 8 nuts in upper inside corners and press bottom of panel into place. Insert and tighten the two lower panel screws.

    CAUTION: Do not put any pressure on the picture tube while installing the front panel. If the panel does not fit smoothly into place, investigate and remove the cause of the trouble.
15. Slide the picture tube forward against rubber gasket as far as possible. Loosen the thumbscrew (A), slide the deflection yoke as far forward as possible and tighten.
16. Insert the clip of the high voltage lead into the picture tube second anode connector.

    CAUTION: Only a small amount of pressure should be applied to the connector when inserting the clip. If appreciable pressure is applied, the seal may be broken permitting air to leak in the tube thus ruining the picture tube.
17. Attach the picture tube socket to the tube base.
18. Close the back of the receiver, connecting the interlock, but do not replace screws at this time.

ADJUSTING THE TELEVISION RECEIVER

1. Plug the receiver power cord into a 115 volt, 60 cycle power supply outlet. Turn the function switch to "Video", the brilliance control fully clockwise and contrast control counter-clockwise.

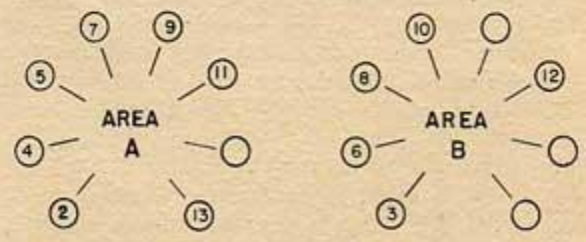

Fig. 5A - Selector Switch Positions

2. Turn the brilliance control on the front of the picture box counter-clockwise slightly until the illumination of the screen of the picture tube begins to decrease.
3. Adjust the focus control on the radio panel until the horizontal lines on the screen of the picture tube are clear and distinct.
4. Turn the vertical and horizontal centering controls to the center of their range. If the illumination on the screen is dark in one of the corners, it is due to misadjustment of the focus coil.
5. To adjust, loosen the three wingscrews (B), (C) and (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.
6. When the above condition is obtained, tighten the wingscrews with the focus coil in this position.
7. 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 (A), rotate the yoke around the neck of the tube until the lines are horizontal and tighten the wingscrews. Always push the yoke forward as far as it will go. It will now be necessary to obtain the 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.
8. Connect the leads from the antenna to the receiver antenna plug and plug into the receiver antenna socket. For multiple antenna installation see "Description of Picture Pilot, page 10.
9. Insert the Picture Pilots for the desired channels into the correct sockets on the main chassis as shown in sketch, Fig. 5.
10. Place the channel number markers in the plastic caps and place on the buttons around the channel selector switch.
    These numbers must coincide with the channel actually selected by the switch. (See Fig. 5 & 5A). These figures show the required position of the Picture Pilots and the selector switch position.
11. Tune in a television station as follows: (For detailed instructions see the Users Instruction Booklet.)
    A. Set the CHANNEL SELECTOR to the desired channel.
       Note: If the indicating dot on the CHANNEL SELECTOR KNOB does not correspond to the channel the receiver is tuned to, remove knob; replace knob so that the dot indicates the correct channel.
    B. Turn the SOUND VOLUME to approximately mid-position.
    C. Turn the CONTRAST control fully counter-clockwise.
    D. Turn the BRILLIANCE control clockwise until a glow appears on the screen then counter-clockwise until the glow just disappears.
    E. Turn the CONTRAST control clockwise until a glow or pattern appears on the screen.
    F. Adjust the VERTICAL hold control until the pattern stops vertical movement.
    G. Adjust the HORIZONTAL hold control until picture is obtained and centered.
    H. Adjust the CONTRAST control for suitable picture contrast.
    I. Adjust sound volume for desired level.
12. If the picture on the screen is off center vertically adjust the vertical centering control on the side of the picture box chassis.
13. If the picture is off center horizontally adjust the horizontal centering control on the side of the picture box chassis. At this point a good picture should be obtained on the screen.
14. If the small vertical detail in the pattern is indistinct, adjust the focus control until maximum clarity is obtained.
15. 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 main chassis.
16. When adjustments are completed, make certain all wingscrews are tight and replace masonite panel to side of picture box.
17. Replace screws in cabinet back.

DO NOT MAKE ADJUSTMENTS ON ANY CONTROL UNLESS THAT ADJUSTMENT IS SPECIFICALLY DIRECTED IN THESE INSTRUCTIONS. ADJUSTMENT OR 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. 3) until the corners of the picture are clear. If 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. 3)

PICTURE OFF-CENTER HORIZONTALLY
To correct, adjust the horizontal centering control.

PICTURE OFF-CENTER VERTICALLY
To correct, adjust the vertical centering control.

PICTURE CROWDED (or Stretched) AT TOP
To correct, adjust the vertical linearity control. It may also be necessary to readjust the height control.

PICTURE TOO TALL OR TOO SHORT
To correct, adjust the height control. It may also be necessary to readjust the vertical linearity control.

PICTURE TOO WIDE OR TOO NARROW
To correct, adjust the width control.

PICTURE STRETCHED AT ONE END
To correct, adjust the horizontal linearity control. It may also be necessary to readjust the width control.

WEAK OR DISTORTED SOUND
In rare cases an adjustment of the local oscillator frequency in the Picture Pilot is required. (See Oscillator Adjustment).

THERE SHOULD BE NO ADJUSTMENTS REQUIRED FOR RADIO OR PHONOGRAPH OPERATION. THESE CAN BE CHECKED IN THE USUAL MANNER. (SEE USERS INSTRUCTIONS.

OSCILLATOR ADJUSTMENT
The local oscillators in the 348CP Picture Pilots should be adjusted for correct frequency on all channels available in the area at the time of installation. It is necessary to make this adjustment at a time when the temperature of the Picture Pilot is approximately midway between room temperature and final operating temperature, to accomplish this, Adjustments are made as follows:

(1) With channel selector switch in blank position, operate receiver with Picture Pilot plugged in place for 20 to 40 minutes.
(2) At the end of the warm up period unscrew the cap on top of the Picture Pilot. See Fig. 6 and Fig. 8.
(3) Turn Channel selector switch to the desired station and, if necessary adjust the oscillator trimmer screw until the television sound signal is heard.
(4) Reduce the signal strength to the receiver by adding a resistive attenuator, until hiss is heard together with the desired signal. Then adjust osc. trim. screw for minimum hiss without tuning out the desired signal.
(5) Screw the cap on tightly.
(6) Repeat the above for all available channels.

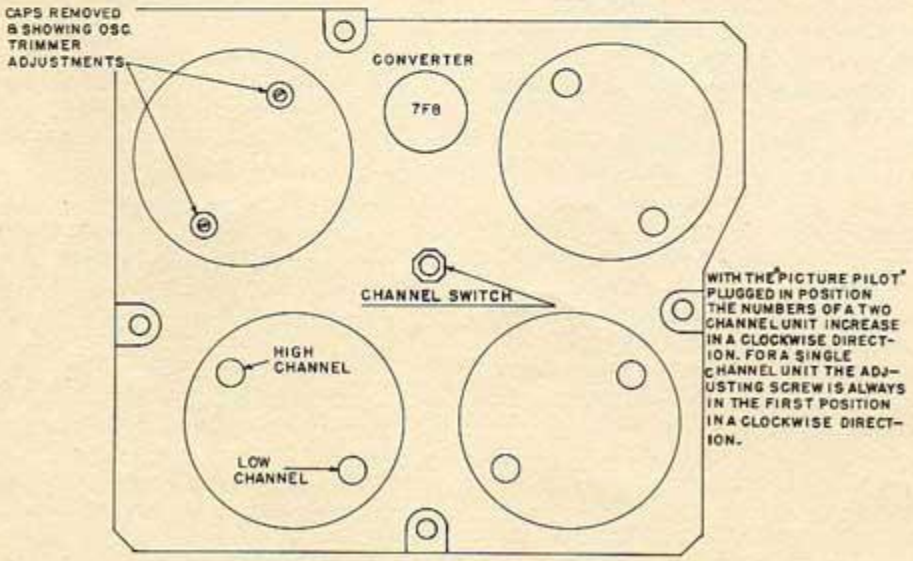

Fig. 6 - Showing Location of Oscillator Trimmers "Picture Pilot"

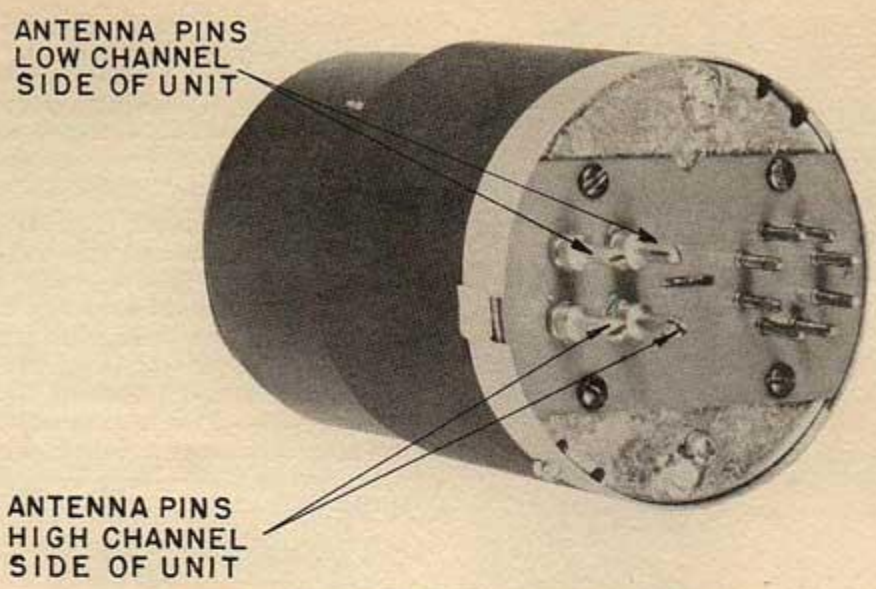

Fig. 7 Bottom View of "Picture Pilot" Showing Ant. Pin Locations.

DESCRIPTION OF PICTURE PILOT AND HOW IT FITS INTO THE TELEVISION ALLOCATION PLAN

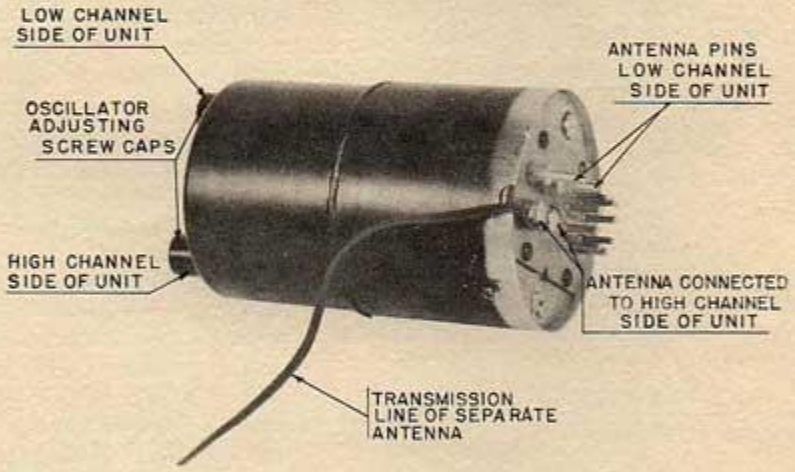

Fig. 8 "Picture Pilot" Showing Separate Antenna Connections

The Picture Pilot is a unit 3-inches in diameter and 4-1/2 inches high, which incorporates the channel selecting portion of the television receiver.

First of all the Picture Pilot has two tuned circuits which serve to select the desired television signal and couple it from the antenna to the first detector which is located on the main chassis. These circuits are shielded and balanced and are preset in factory alignment. The adjustments are enclosed and not accessible to the customer. Included in the Picture Pilot is the local oscillator tube which heterodynes the desired television signal to a fixed intermediate frequency incorporated in the output of the 1st detector and located on the main chassis. This local oscillator must be stable in frequency and not subject to shift or otherwise the television picture will deteriorate due to mistuning and undesired interference and also the sould will become distorted. This stability is accomplished in the Picture Pilot by rugged design, high capacity circuits, built in oscillator tube, elimination of switch contacts in the oscillator circuit, and the use of a complete hermetic seal (soldered can) surrounding the oscillator tube. The hermetic seal eliminates the effect of changes in humidity.

There are eight types of Picture Pilots which have been chosen to serve the requirements

of the various areas based on F. C. C. allocation of television channels.

Television channels are divided into two groups: the first six being below the F. M. band and the last seven above.

Channel frequencies are as follows:

GROUP 1--(Low Group)

Channel No.	Frequency--megacycles	Use
Channel 1	44--50	Community--low power
(Amateur)	(50--54)	
Channel 2	54--60	Metropolitan--Area 1
Channel 3	60--66	Metropolitan--Area 2
Channel 4	66--72	Metropolitan--Area 1
(Air Beacons)	(72--76)	
Channel 5	76--82	Metropolitan--Area 1
Channel 6	82--88	Metropolitan--Area 2
(FM)	(88--108)	
(Air-Govt.)	(108--164)	

GROUP 2--(High Group)

Channel 7	174--180	Metropolitan--Area 1
Channel 8	180--186	Metropolitan--Area 2
Channel 9	186--192	Metropolitan--Area 1
Channel 10	192--198	Metropolitan--Area 2
Channel 11	198--204	Metropolitan--Area 1
Channel 12	204--210	Metropolitan--Area 2
Channel 13	210--216	Metropolitan--Area 1

There are two basic assignment plans determined by the fact that adjacent channels cannot be assigned to television stations in the same city.

Thus Area A may have a maximum of seven metropolitan stations, namely: Channels 2, 4, 5, 7, 9, 11, 13. Area B may have a maximum of five metropolitan stations namely: 3, 6, 8, 10, 12. Community Channel 1 is for small communities and will not be assigned in metropolitan areas.

A majority of the Picture Pilots are dual units covering two channels but three are single units representing those channels on which little use can be expected in conjunction with another channel. Units are listed below:

CROSLEY "PICTURE PILOTS"

Channels Covered

2-4	5-7	13	1
3-6	9-11	8-10	12

The Picture Pilot plugs into a socket on the rear of the main television chassis. Four sockets are provided. Therefore from 1 to 8 television channels can be covered depending on the number and type of Picture Pilots plugged in. Selection by the customer of the channel desired is accomplished by a front panel switch which has 8 positions and provision for the indication of the channel numbers covered.

If it becomes necessary to install multiple antennas, due to the location of the broadcast stations, provisions are made in the "Picture Pilot" to connect separate antennas for each channel without the use of external switches. It is possible to use a separate antenna for each channel if desired.

When one antenna is used for more than one station, it should be connected to the antenna plug on the rear of the cabinet in the usual manner.

There are two antenna pins for each channel (4 pin plug) located on the underside of the "Picture Pilot." Unscrew the two antenna pins for the channel to which the extra antenna is to be connected. Fasten the leads of the 75 ohm transmission line to the two screws with two No. 4 nuts. See Figure 8. Do not replace the two pins. This disconnects the picture pilot from the antenna switch, and allows it to be connected to the supplemental antenna at all times.

ADJUSTMENT OF "SWING-A-VIEW" AND TAMBOURS

The Picture Box is properly adjusted when, in the closed position, it has approximately 1/16 inch clearance all around from the edges of the opening in the front panel of the cabinet, and can be moved within the limits of rotation provided for without rubbing on the cabinet in any position. If the Picture Box is out of adjustment proceed as follows: (See Fig. 9)

1. With two pieces of wire or string tie slide arm assemblies (M1) in their fully retracted position. This can be done by passing the wire or string thru the holes provided in the upper shelf for the loop antenna.
2. Loosen Top Bearing. This can be done by backing off screws (A). Do not remove screws but leave loose enough so that bearing sleeve (M18) is free to move.
3. TO ADJUST BOTTOM BEARING (Metal Shelf). Loosen the metal shelf mounting screws (D), and with the picture box in the closed position, move the shelf until the bottom edge of the picture box is flush with the front panel of the cabinet and centered within the cabinet opening. Tighten the metal shelf screws (D) to secure shelf in this position.

3(a) TO ADJUST BOTTOM BEARING (Wood Shelf). Loosen four screws (B) holding bottom bearing plate (M12), to cabinet, With the picture box in the closed position move the bearing plate until the bottom edge of the picture box is flush with the front panel of the cabinet and centered within the cabinet opening. Tighten the four screws to secure the bearing plate in this position.

4. Adjust Thrust Bearing Screws. The picture box is adjusted vertically by four

screws, (M6) (accessible from bottom of upper shelf). These screws should be adjusted so that the top and bottom clearances are approximately equal and so that the picture box does not rub on the cabinet in any position.

5. Tighten Top Bearing. After all the previous adjustments have been made, the top bearing should be fixed in position by tightening screws (A). The picture box should be flush with and parallel to the front of the cabinet and have approximately 1/16 inch clearance all around in the cabinet opening before and after this bearing is tightened.

position. This is usually due to excessive friction between tambours and the grooves in which they slide.

a. Check for foreign matter in grooves. Add dry flake graphite lubricant to grooves if necessary (never use oil or grease).
b. Check to see that slide arm (M1) is floating freely between the two slide brackets (M17). If the arm is bent so that it contacts either bracket, excessive pressure may be applied to the tambour slide causing it to bind.
c. Check bearing of the slide arm assem-

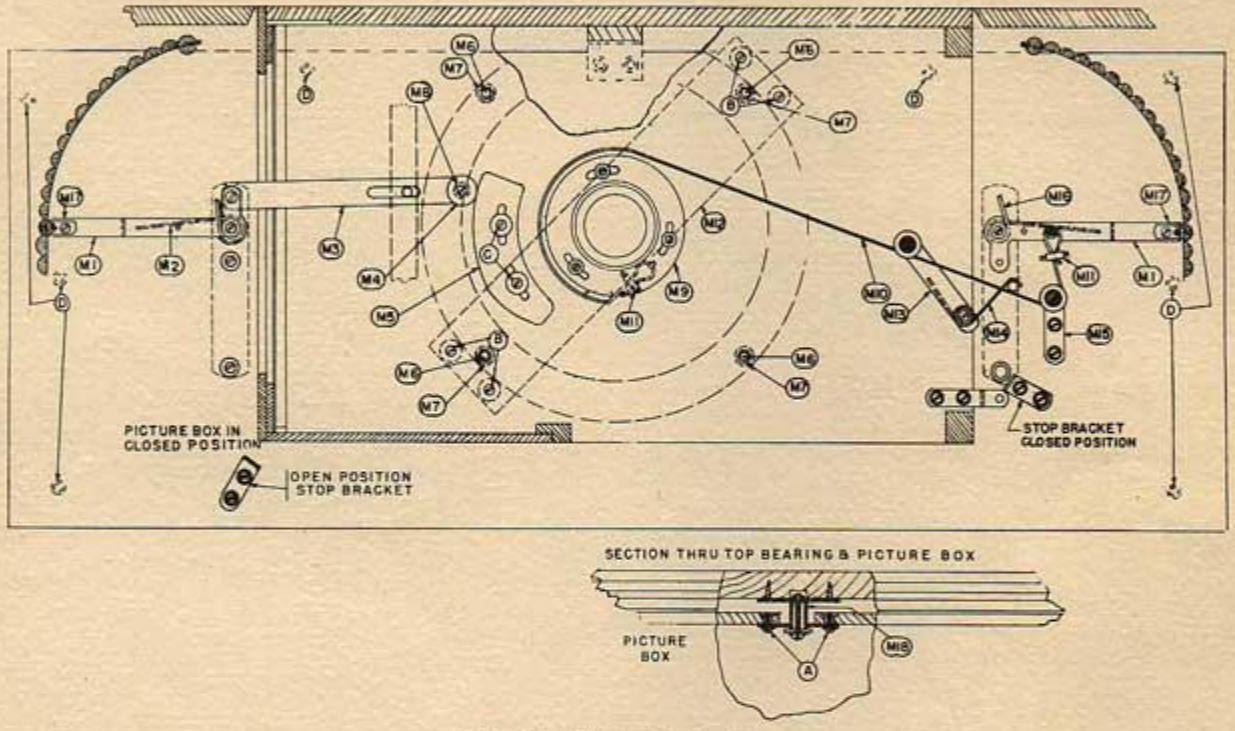

Fig. 9 - Slide Mechanism

6. Adjust Stops. The stop brackets should now be adjusted by loosening their mounting screws and moving them so that the picture box has the correct movement. The open position stop is correctly adjusted when the picture box stops with its left hand vertical edge just flush with the front panel on the left side of the cabinet. The closed position stop is correctly adjusted when the exposed panel of the picture box, in its closed position, is parallel to the front of the cabinet.

SLIDE MECHANISM ADJUSTMENTS

1. Slide motion jumpy or slides fail to maintain contact with picture box in viewing

blies and the cam lever assembly-all should be free. Lubricate with light oil if necessary.

d. Check cable, (M10) this may catch on some other part of mechanism. Be sure that it lies in the grooves of both the idler (M15) and slack take-up pulleys (M13).

2. Right hand tambour does not clear corner of picture box when closing. This is due to cam, (M5) being out of adjustment.
With the front right hand corner of the picture box just flush with the right front panel of cabinet, loosen the two screws (C) holding cam to bottom of Picture Box and slide cam counter-clockwise until contact is made with cam roller (M4) and

tambour slide just begins to move. Hold in this position and tighten screws securely. Check opening and closing action and readjust if necessary.

3. Left hand tambour does not clear corner of picture box when closing. This fault is due to excess slack in the cable (M10). Make sure the cable lies in the grooves of both the idler and slack take up pulleys then with the right hand corner of the picture box flush with the right front panel of cabinet, remove excess slack by sliding thru cable clamp (M11). Tighten clamp screws securely. If it is ever necessary to replace this cable use only the standard service part. (W-138103). This cable is made of high tensile strength stainless steel. Soft steel or phosphor bronze cables are not satisfactory for this application.

The model 348CP receiver is designed for 75 ohm input. Best results are obtained by using the Crosley Tennaflex with 75 ohm transmission line.

OPERATING INSTRUCTIONS - FOR TELEVISION, RADIO, AND PHONOGRAPH - (See 348CP Users Instructions)

DETAILED DESCRIPTION OF CIRCUITS & MECHANISM
TELEVISION RECEIVER

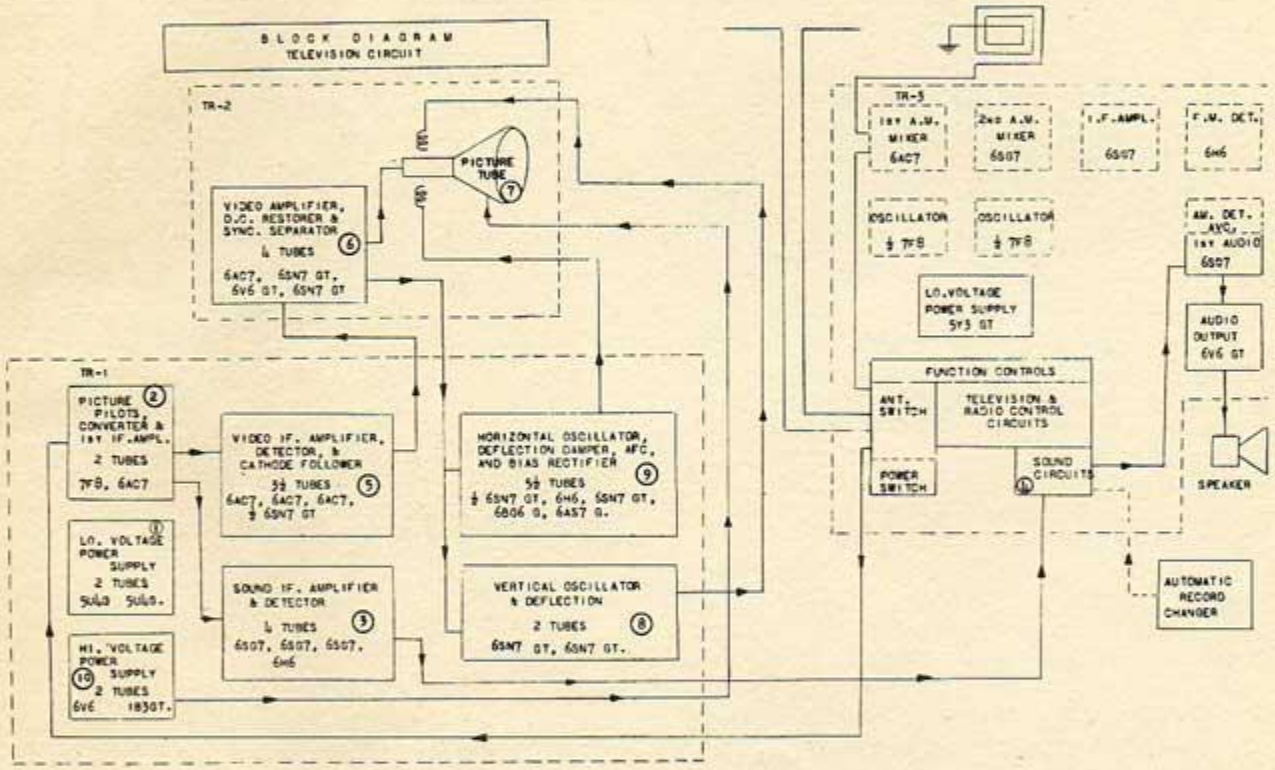

Fig. 10

For ease of understanding the basic operation of the receiver, see Figure 10. The circuit description follows the neumerical order of the blocks. Symbols refer to the schematic diagram. It is assumed that the reader is familiar with the general principle underlying the operation of a radio and television receiver.

The circuit description begins with the function switch in "Video" position. With the switch in this position the AC power is applied to TR-1 as well as TR-3.

LOW VOLTAGE SUPPLY:

This supply delivers 360 m.a. at 300 volts, plate power for all circuits TR-1 and TR-2 and the television control circuits of TR-3. In addition it supplies filament current to all the tubes of TR-1 and TR-2.

PICTURE PILOTS:

The Picture Pilot contains circuits necessary

for the preselection of two television channels, i.e. the antenna to converter grid matching transformers and the heterodyne oscillator tube and circuits. The oscillator tube and oscillator circuits are in a hermetically sealed container. When this unit is plugged into the socket provided on TR-1 chassis, whichever two channels are contained (2-4, 3-6, 5-7, etc.), will be found in increasing numerical order in a clockwise direction from top of chassis.

Connections from the Picture Pilot thru the channel selector switch and thru the converter for a typical channel are shown in simplified form on the schematic drawing (See Fig. 11). The input transformer is a balanced, electrostatic shielded, band pass filter (input impedance 75 ohms) and having a gain on the lower channels of 6 to 8 and on the higher channels of 1.5 to 3.

CONVERTER VT-1

The input circuit of the converter is standardized by the factory adjustment of trimmer capacitors C1 and C2 (see schematic for TR-1) which permits the installation of "Picture Pilots" without further alignment of the input circuit. This tube operates as a push-pull triode converter, with a gain of approximately 1 and is partially neutralized by capacitors C3 and C4. The difference frequencies between the sound and video carriers and the local oscillator are selected and amplified in the plate circuit in conjunction with the first IF Transformer T-1.

1st IF. TRANSFORMER T-1 (Refer to Schematic TR-1.)

This transformer couples the sound and picture

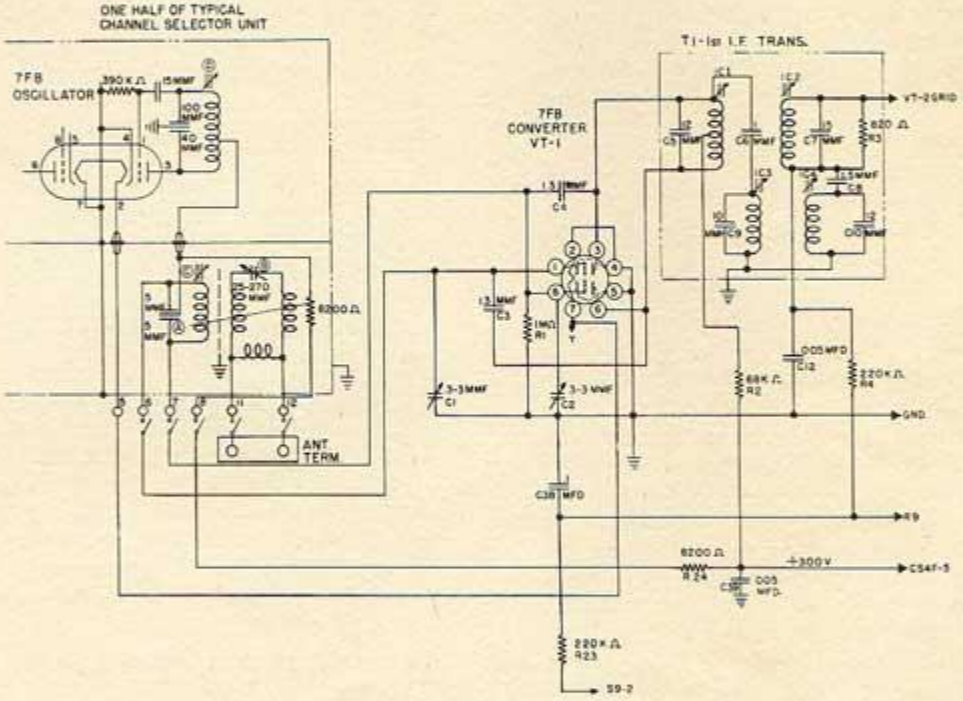

Fig. 11

The dipole antenna is connected thru a 75 ohm transmission line thru the selector switch to the primary of this transformer. The transformer secondary couples the signal thru the selector switch to the grids of the balanced converter. In addition, the local oscillator voltage from an unbalanced Colpitts oscillator is coupled to the transformer secondary, thru capacitor (A). Alignment of the input transformer is accomplished by adjusting capacitor (B) and iron core (C). Adjustment of the oscillator is made by adjusting iron core (D).

IF. signals (32.8 MC and 37.3 MC respectively) to the grid of the next amplifier by means of a primary circuit tuned by C5 and a secondary circuit tuned by C7. In addition the interference which might result from adjacent channel sound carrier is trapped in a circuit resonated at 38.8 MC by C9 and coupled to the primary by C6. A second trap for adjacent picture interference is resonated by C10 to 31.8 MC and coupled to the secondary by C8. The secondary couples both desired IF signals to the grid of the 1st IF amplifier tube VT-2.