



CHASSIS DESIGNATIONS

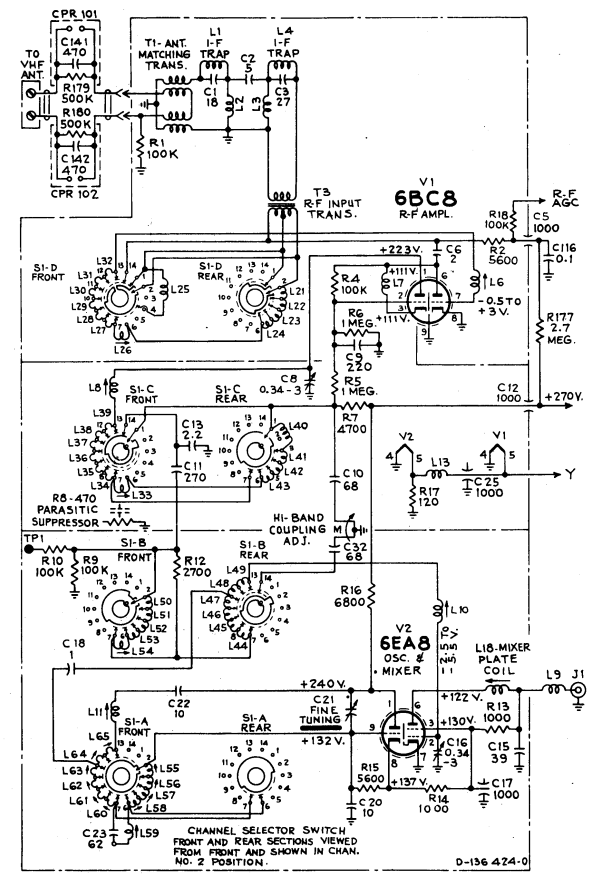
CHASSIS	TUNERS	MODEL NOS.
CTC9A	KRK48D	210-CK-855-6 & 7 210-CK-875 & 6 210-CT-822
CTC9B	KRK49D KRK66M	210-CK-855U-6U & 7U 210-CK-875U & 6U 210-CT-822U
CTC9F	KRK75C	210-CK-885-6 & 9 210-CK-905-6 & 7 210-CK-916 210-CK-920 & 4 210-CK-935 & 6 210-CT-835-6 & 7 210-CT-832
CTC9H	KRK76C KRK66AA	210-CK-885U-6U & 9U 210-CK-905U-6U & 7U 210-CK-916U 210-CK-920U & 4U 210-CK-935U 210-CT-835U-6U & 7U 210-CT-832U
CTC9N	KRK75D	*210-CKR-940 & 6 *210-CTR-845 & 7
CTC9P	KRK76D KRK66AB	*210-CKR-940U

\*These Models also incorporate a CTP7A Remote Control Receiver Chassis and a CRK3A Remote Control Transmitter Assembly.

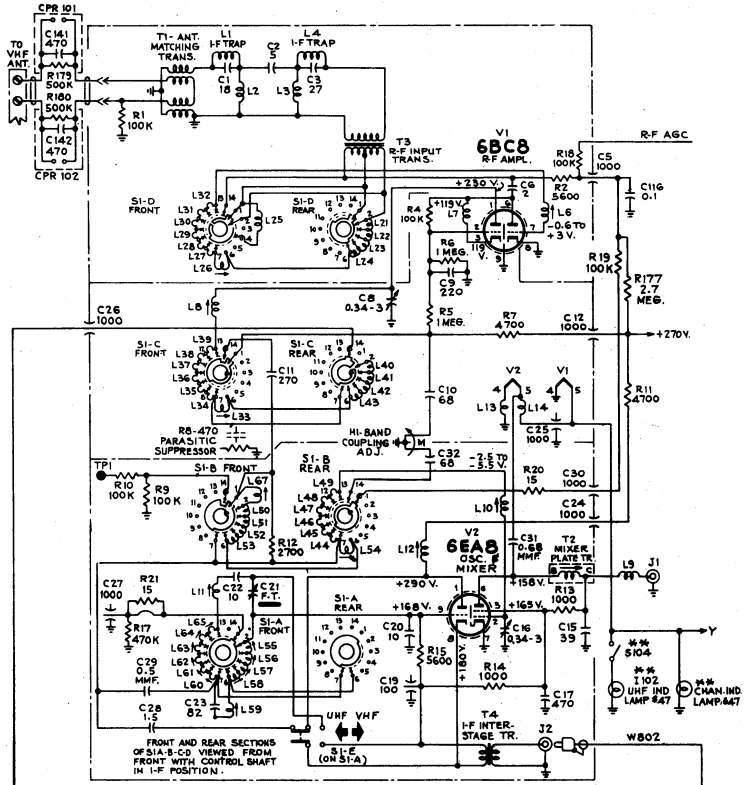
CHASSIS DESIGNATIONS

CHASSIS	TUNERS	MODELS
CTC9A	KRK48D	211-CD-875 211-CD-876 211-CD-877 211-CD-87C4
CTC9B	KRK49D KRK66M	211-CD-875U 211-CD-876U 211-CD-877U 211-CD-87C4U

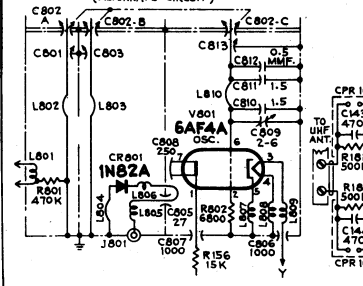
KRK48D & KRK75C or D VHF TUNER SCHEMATIC DIAGRAM



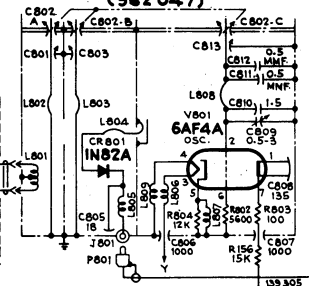
KRK 49D & KRK 76C OR D VHF TUNER SCHEMATIC DIAGRAM



UHF TUNER - KRK66M/AA/AB (962048) (ALTERNATE CIRCUIT)



UHF TUNER - KRK66M/AA/AB (962047)

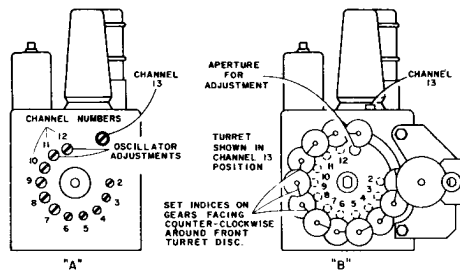


Models 210-CT-835X & XU, 210-CT-836X & XU and 210-CT-837X & XU  
 These models are identical to Models 210-CT-835, 210-CT-836 and 210-CT-837 except cabinet legs are not used on the "X" or "XU" models.

**CHECK OF VHF R-F OSCILLATOR ADJUSTMENTS**

Tune in all available stations to see that the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined below.

On Models using a KRK48D the adjustments are made by removing the fine tuning and channel selector knobs. See Figure A. The oscillator for the UHF tuner section of UHF/VHF tuners should be adjusted only by the method outlined on page 15 of Service Data 1959 No. T6 under Alignment Procedure.



Switch to channel 13 and, if necessary, adjust the channel 13 slug on front of the tuner. Progress counter-clockwise from channel 13 downward to channel 2, adjusting the oscillator slug, if required, on each channel. Do not change the setting of the fine tuning cam during adjustment of the oscillator slugs. The proper slug for each channel will be accessible through the opening in the front disc.

All other models incorporate the "One-Set" fine tuning feature which requires the following procedure for oscillator adjustment.

Remove the channel selector knob by pulling the knob outward off its shaft. There are twelve gear and cam assemblies around the disc on the tuner face, one for each channel from 2 through 13.

Depress the fine tuning knob and set each gear with the index mark on the gear facing counter-clockwise around the outer edge of the disc as shown in Figure B. With the gears in this position, the fine tuning capacitor will automatically position to its mechanical center for each channel. On some models, the channel selector must be rotated to bring each gear into view through the opening in the tuner mounting plate.

Switch to channel 13 and, if necessary, adjust the channel 13 slug on top of the tuner. Progress counter-clockwise from channel 13 downward to channel 2, adjusting the oscillator slug, if required, on each channel. Do not change the setting of the fine tuning cams during adjustment of the oscillator slugs. The proper slug for each channel will become accessible through the opening in the front disc as the channel selector is switched to the desired channel.

After the oscillator slugs are properly set for all channels, the fine tuning cam settings may be readjusted at any time to maintain identical tuning for all channels as the channel selector is rotated.

**FOCUS**

Adjust the focus control on the rear of the HV compartment for maximum overall definition of fine picture detail.

**CHECK OF HORIZONTAL OSCILLATOR**

Turn the horizontal hold control to the extreme counter-clockwise position. The picture should be out of sync with multiple bars slanting to the right.

Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 1 to 3 bars sloping downward to the right are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. The picture should remain in sync for a minimum of five-eighths (5/8) additional rotation of the control. At the extreme clockwise position, the picture should be out of sync, with multiple bars slanting to the left.

Rotate the control counter-clockwise to the pull-in point. Continue counter-clockwise rotation for one-quarter turn from pull-in. This will be the proper setting of the control.

When the receiver passes the above checks and the picture is normal and stable, the oscillator is properly aligned.

**ADJUSTMENT OF HORIZONTAL OSCILLATOR**

If the above check is satisfactory, no adjustment of L601 should be necessary. If the check is unsatisfactory, or doubtful, then perform the following check:

Connect a short jumper across the terminals of the sine-wave coil. Also, short the grid of the sync tube, pin 2 of V501, to ground with a jumper or small screwdriver.

Adjust the Horizontal Hold control to obtain a picture with the sides vertical (picture may drift slowly sideways). Remove the short on the sine-wave coil L601. The frequency should not change by more than one-half bar if the sine-wave coil is properly adjusted. If the frequency changed more than one-half bar, L601 should be adjusted. With the short removed, adjust L601 to again obtain a picture with the sides vertical. When properly adjusted, alternate shorting and unshorting of L601 should not cause a change in frequency; only a slight sideways shift of the picture should occur.

**CENTERING ADJUSTMENT**

Centering is accomplished by adjustment of the two electrical centering controls located on the rear of the chassis

Adjust the vertical centering control and the horizontal centering control to center the picture within the mask of the kinescope. If the picture does not fully cover the masked area of the kinescope, adjust the positioning for equal distribution of blank area at top and bottom and at each side.

**HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS**

Adjust the Height Control R101B and the Vertical Linearity Control R123B (inner controls under TONE and CONTRAST Knobs—which must be removed—inside control case at side of cabinet—until the picture or test pattern is symmetrical from top to bottom. Make the final adjustment to overscan the mask by one inch at both top and bottom. Recheck the horizontal and vertical centering for correct positioning of the picture with respect to the mask.

**WIDTH ADJUSTMENT**

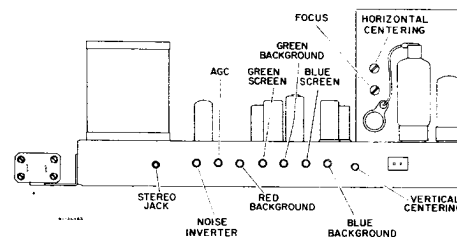
If the picture does not fill the mask horizontally, move the blue/white yoke lead from the "D" position to the "BLU 2" position on the rear of the yoke.

**KILLER THRESHOLD CONTROL ADJUSTMENT**

Switch the receiver to a channel where a signal is being received and advance the contrast control until noise is visible on the kinescope.

Advance the Color control R102A fully clockwise. Color should be present in the noise pattern on the kinescope.

Adjust the Killer Threshold control R144A, until the color visible in the noise pattern just disappears.



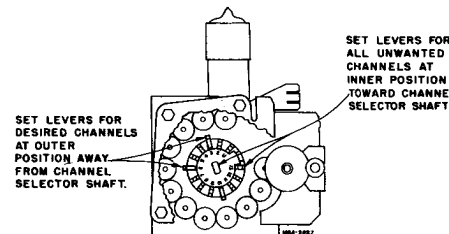
—Rear Chassis Adjustments

**REMOTE CONTROL PROGRAMMING PROCEDURE**

The motor-driven tuner assembly used in remote control models is equipped with an automatic channel selector. The channel selector moves clockwise, stopping in turn at each preselected channel, progressing from low to high channels until channel 13 is reached, where it again drops to the lowest channel, channel 2, and repeats the cycle.

The programmer, by which the desired channels are preset, consists of a cylinder fastened concentrically outside the channel shaft at the front of the tuner.

Channel selection is made in the following manner.—Remove the channel knob and the programmer will be visible through the knob opening. There are a series of levers around the front of the cylinder. The levers may be moved inward toward the channel selector shaft or outward away from the shaft. A numbered disc identifies the lever for each channel. The levers for the desired channels should be set at the outer position, and all others for unwanted channels should be set at the inner position. The tuner will then stop automatically at the channels selected; in turn, progressively from low to high channels, as the remote transmitter is actuated.



—Remote Control Programmer Settings

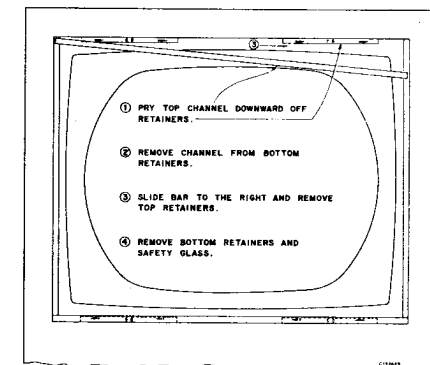
**Noise Inverter Adjustment**

When Noise Inverter adjustment is required on these receivers, proceed as follows:

Switch the receiver to the weakest channel to be received.

Adjust the Noise Inverter control clockwise until the best signal-to-noise ratio is obtained.

Check the strongest signal and make certain that the adjustment of the Noise Inverter control did not cause overload. The Noise Inverter control should be set for best signal-to-noise ratio without causing overload on strong signals.



—Safety Glass Removal

**KINESCOPE AND SAFETY GLASS CLEANING**

All models have a "U" shaped channel in front of the top edge of the safety glass and also at the bottom edge. Pry off the top and bottom channels starting at the extreme ends.

Insert the blade of a small screwdriver in one of the vertical slots in the middle of a retainer at the top of the safety glass. Slide the bar to the right to release the retainer.

**NOTE**

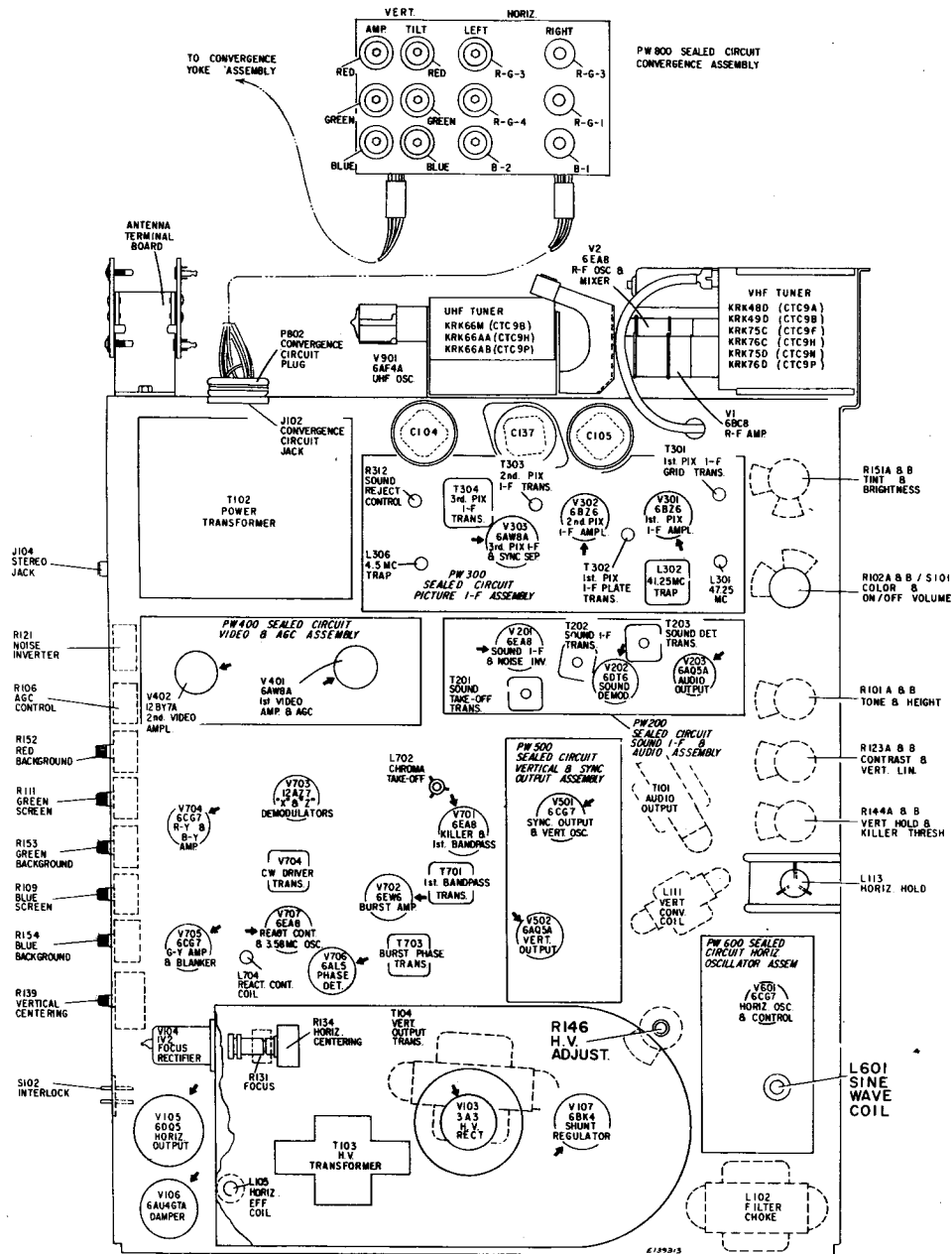
The AGC control is not intended for adjustment in the field. It is pre-set at the factory and normally requires no further attention. When necessary however, it may be adjusted by connecting an oscilloscope or "VoltObyst" to terminal "D" of PW400 and adjusting the AGC control for an indication of 10 volts peak-to-peak on a strong signal.

TEST EQUIPMENT CONNECTIONS:

**COLOR BAR GENERATOR** . . . . . Connect to receiver antenna terminals. Adjust receiver for color reception.

**VACUUM TUBE VOLTMETER** . . . . . Connect in series with a 470,000 ohm resistor to pin 1 of Phase Detector V706.

**MISCELLANEOUS** . . . . . Set tint control to the center of its range. Turn killer control R144B fully counter-clockwise. Horizontal deflection circuits should be operating. NOTE.—The AGC and Noise Inverter adjustments should be checked before proceeding with the AFPC Alignment.



STEP	ADJUST	REMARKS	
1	Peak primary and secondary of 3.58 mc. E.C.O.	T704 (bottom)	Adjust T704 (bottom) for maximum DC reading on the "Volt-Ohmyst". If the 3.58 mc. oscillator is not running no reading will be obtained. Adjust the reactance tube plate coil L704 to start the oscillator, and adjust to a peak reading.
2	Peak the phase detector transformer	T703	Adjust T703 for maximum DC reading on the "VoltOhmyst". Make sure the 3.58 mc. oscillator is running and locked in as in step 1 above.
Ground the reactance tube input with a short jumper at terminal 3 of terminal board TB20. Remove the VTVM from Phase Detector V7U6.			
3	Adjust the reactance tube plate coil for zero beat of the 3.58 mc. oscillator	L704	Observe the kinescope and adjust L704 for zero beat (Color bars stand still on screen or drift slowly).

Remove the jumper grounding the reactance tube input at terminal 3 of terminal board TB20. Repeat step 3 using low chroma low level signal. Adjust for zero beat and best hold.

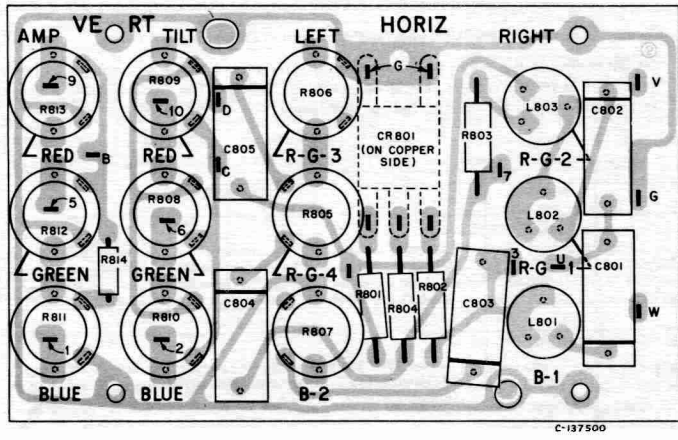
DEMODULATOR PHASE ADJUSTMENT

Insert a nine (9) pin adapter (which has connection to pin 1 opened, thereby disconnecting pin 1) into the Demodulator V703 tube socket. This disables the "Z" Demodulator while the "X" Demodulator remains operative. Insert the tube into the adapter. Shunt the green and blue kinescope grids to ground through 100,000 ohm resistors

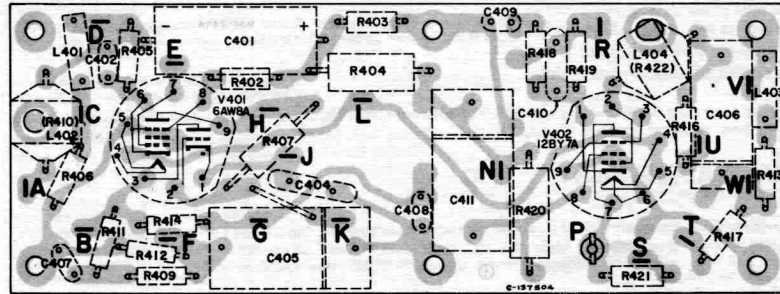
STEP	ADJUST	REMARKS	
1	Adjust phase detector transformer	T703	Observe the bar pattern on the kinescope. With the tint control at the center of its range, adjust T703 so that the sixth bar is the same brightness as the background.  Rotate the tint control from one extreme to the other. At one extreme the fifth bar should become the same brightness as the background. At the other extreme the seventh bar should be the same brightness as the background.  Repeat the adjustment of T703 until the above conditions are obtained at or near the extremes of the tint control range. After adjustment return the tint control to the mid-position where the sixth bar is the same brightness as the background.

Remove the adapter and replace the demodulator tube in its socket. Move the 100,000 ohm shunt on the blue kinescope grid to the red kinescope grid at TB6-1

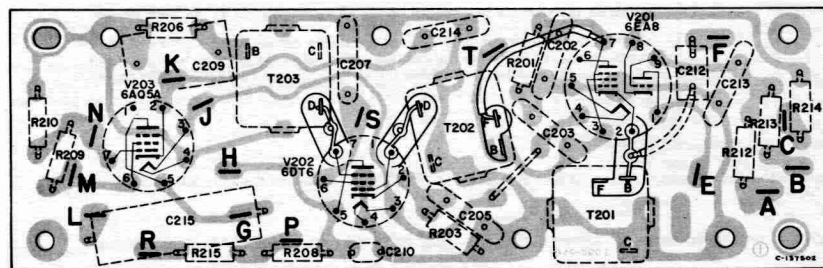
2	Observe the bar pattern on the kinescope for correct B-Y output, third and ninth bars at same brightness level as the background.	
Move the shunt on the green kinescope grid to the blue kinescope grid at TB14-3 and check for correct G-Y output. The first and seventh bars should be the same brightness level as the background. Adjust the killer control, using a strong black and white signal, so that color disappears from the picture on the kinescope. Check on color signal to assure setting is not killing on color.		



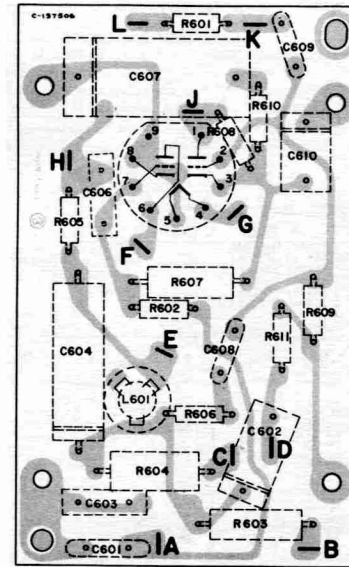
PW800 CONVERGENCE ASSEMBLY



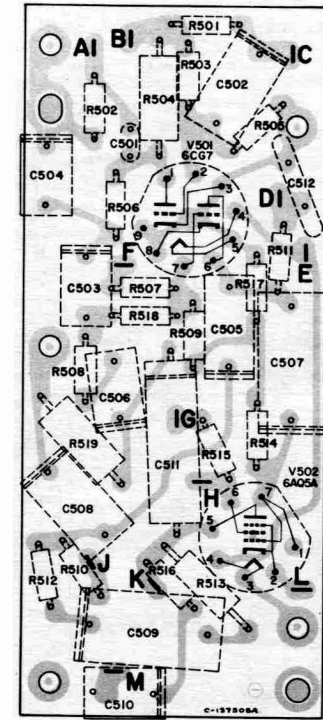
PW400 VIDEO & AGC ASSEMBLY



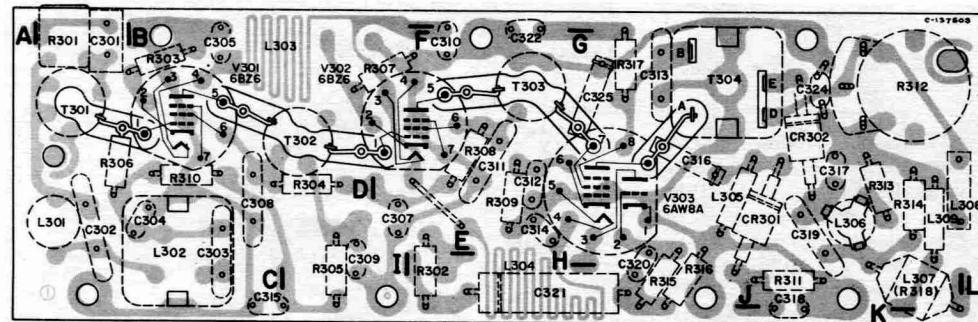
PW200 SOUND ASSEMBLY



PW600 HORIZONTAL OSCILLATOR  
& CONTROL ASSEMBLY



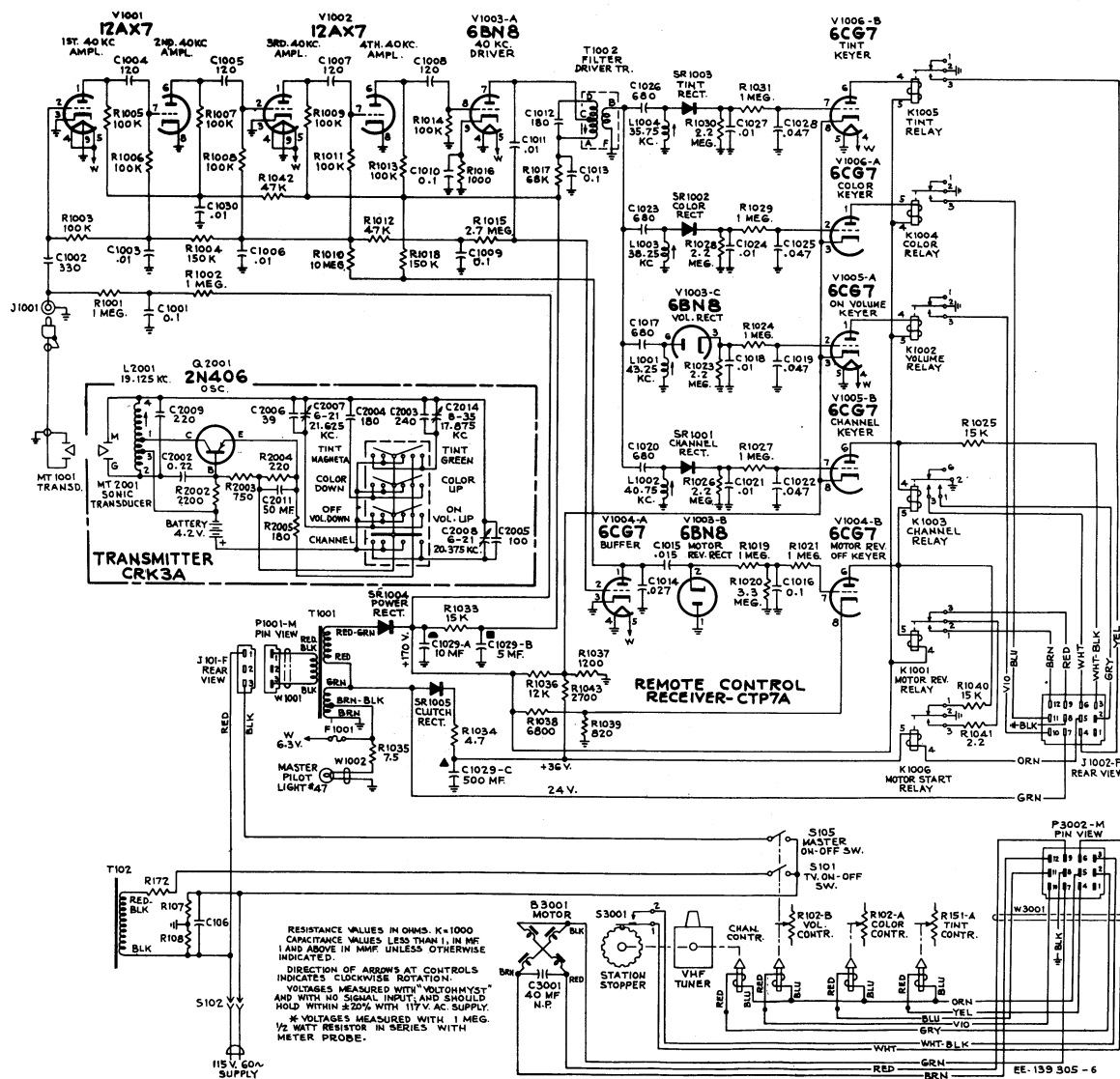
PW500 VERTICAL & SYNC ASSEMBLY



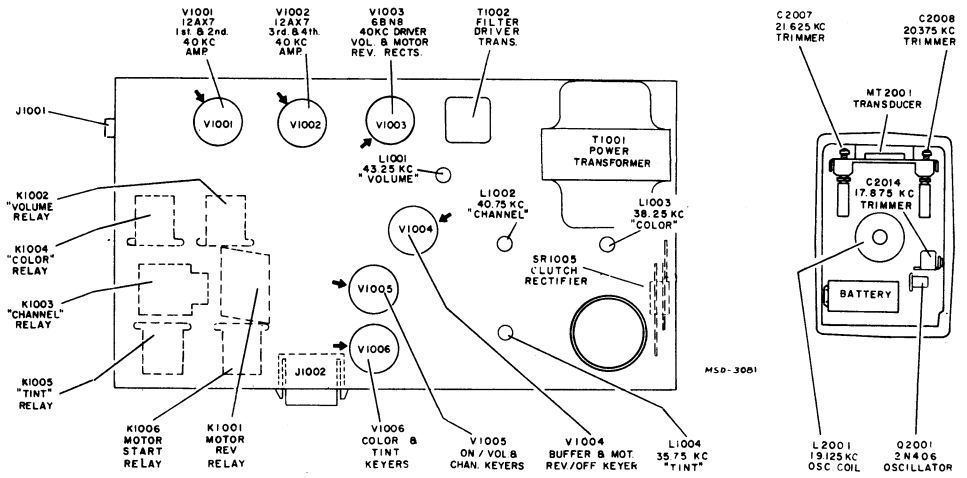
PW300 PICTURE IF ASSEMBLY

SEVEN BUTTON REMOTE CONTROL

USED ON CTC-9N & P

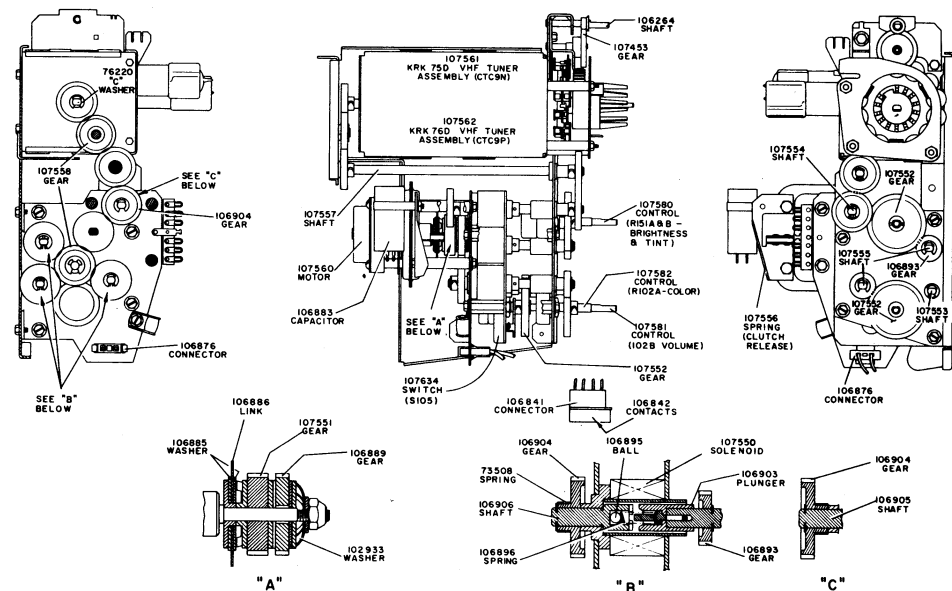


SCHMATIC DIAGRAM



—CTP7A Remote Control Receiver Assembly

—CRK3A Remote Control Transmitter Assembly



—Remote Control Tuner and Clutch Assembly Parts Identification

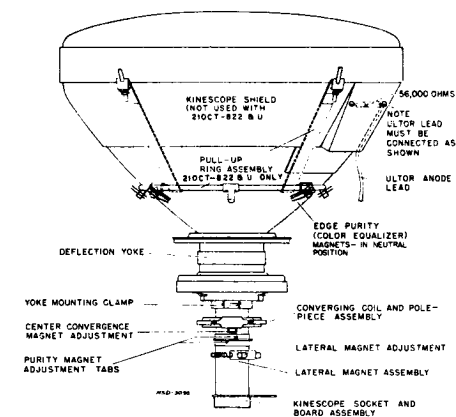
REPLACEMENT PARTS  
(Partial Listing)

SYMBOL NO.	STOCK NO.	DESCRIPTION
CPRI03, CPRI04	104328	Circuit—Printed component circuit (for CTC9B & H)
CR301, CR302	76675B	Crystal—Diode, sound or pix detector
CR801A, B, C	105044	Rectifier—Selenium
F101	102792	Fuse—Heater
F102	106357	Fuse—3.5 amp.
F103	105252	Fuse—¼ amp.
R101A, B	105200	Control—Tone and height (for CTC9A, B)
R101A, B	107418	Control—Tone and height (for CTC9F, H, N, P)
R102A, B	107371	Control—Color and on-off/volume (for CTC9A, B) —includes S101
R102A, B	107412	Control—Color and on-off/volume (for CTC9F, H) —includes S101
R102A	107582	Control—Color (for CTC9N, P)
R102B	107581	Control—On-off/volume (for CTC9N, P)—includes S105
R103	—	47,000 ohms, ±10%, ½ w.
R104, R105	102170	Wire wound, 1600 ohms, ±10%, 10 w.
R106	105211	Control—AGC
R107, R108	—	820,000 ohms, ±10%, ½ w.
R109	105205	Control—Blue screen
R111	105205	Control—Green screen
R112	—	10,000 ohms, ±10%, ½ w.
R113, R114, R115	—	100,000 ohms, ±20%, 2 w.
R117	105223	Film type, 2700 ohms, ±5%, 7 w.
R118	—	27,000 ohms, ±10%, ½ w.
R119	107322	Film type, 1800 ohms, ±5%, 3 w.
R120	—	2700 ohms, ±10%, ½ w.
R121	105204	Control—Noise inverter
R122	106958	Wire wound, 3300 ohms, ±10%, 10 w.
R123A, B	107299	Control—Contrast and vertical linearity for CTC9A, B
R123A, B	107414	Control—Contrast and vertical linearity (for CTC9F, H, N, P)
R131	105208A	Control—Focus
R132	106345	Film type, 16,000 ohms
R133	—	1.5 megohms, ±5%, 1 w.
R134	105209	Control—Horizontal centering
R139	105207	Control—Vertical centering
R140, R141	—	270 ohms, ±5%, ½ w.
R142	107436	Temperature compensating, 50 ohms, ±20%, @ 25° C
R143	—	47 ohms, ±20%, ½ w.
R144A, B	107300	Control—Vertical hold and killer threshold (for CTC9A, B)
R144A, B	107415	Control—Vertical hold and killer threshold for CTC9F, H, N, P
R145	—	1.5 megohms, ±10%, ½ w.
R146	105210	Control—High voltage adjustment
R148	105222	Film type, 5600 ohms, ±10%, 5 w.
R150	105223	Film type, 2700 ohms, ±10%, 7 w.
R151A, B	107478	Control—Brightness and tint (for CTC9A, B)
R151A, B	107413	Control—Brightness and tint (for CTC9F, H)
R151A, B	107580	Control—Brightness and tint (for CTC9N, P)
R152 to R154	107301	Control—Red, blue or green background
R155	—	56,000 ohms, ±10%, 2 w.
R156	106435	Film type, 15,000 ohms, ±10%, 4 w. (for CTC9B & H)
R164	106366	Wire wound, 3.6 ohms, ±10%, ½ w.
R172	107291	Temperature compensating, 0.49 ohm hot ±15%, 79 ohms cold ±25%
R173, R174	103877	Film type, 3300 ohms, ±10%, 3 w.
R178	106957	Film type, 18,000 ohms, ±10%, 4 w.
R301	106388	Control—Sound adjustment
R312	105297	Control—Sound rejection
R713	105224	Film type, 15,000 ohms, ±10%, 3 w.
R722	105224	Film type, 15,000 ohms, ±10%, 3 w.
R734	105753	Film type, 39,000 ohms, ±5%, 4 w.
R735	105224	Film type, 15,000 ohms, ±10%, 3 w.
R751	105228	Film type, 6800 ohms, ±5%, 7 w.

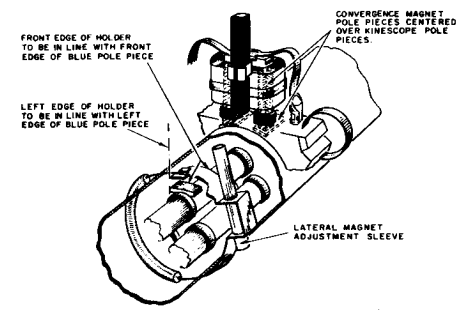
SYMBOL NO.	STOCK NO.	DESCRIPTION
R805	105059	Control—L.H. red and green #4
R806	105059	Control—L.H. red and green #3
R807	106320	Control—Horizontal blue #2
R808	106321	Control—Vertical green tilt
R809	106321	Control—Vertical red tilt
R810	105059	Control—Vertical blue tilt
R811	106320	Control—Vertical blue amplitude
R812	106320	Control—Vertical green amplitude
R813	106320	Control—Vertical red amplitude
R814	—	100 ohms, ±10%, ½ w.
S101	107634	Switch—On-off switch—remote (for CTC9N, P)
S102	105181	Connector—2 contact male power (interlock)
SR101, SR102	104379	Rectifier—Silicon
T101	100037	Transformer—Audio output
T102	106358	Transformer—Power
T103	106359	Transformer—High voltage
T104	106360	Transformer—Vertical output
T201	106381	Transformer—Sound take off
T202	106382	Transformer—C.W. driver
T203	106383	Transformer—Sound detector
T301	106385	Transformer—I.F. input
T302	106386	Transformer—1st pix I.F.
T303	106387	Transformer—2nd pix I.F.
T304	105294	Transformer—3rd pix I.F.
T701	105213	Transformer—1st band pass
T703	105214	Transformer—Burst phase
T704	107837	Transformer—Electron coupled oscillator
TD101	105253	Line—Delay line
Y701	105330	Crystal—3.58 M.C.
<b>MISCELLANEOUS</b>		
107462	107462	Knob—VHF channel selector, maroon, for 210CT822 & U
107925	107925	Knob—VHF channel selector, woodland brown, for 210CK876
107926	107926	Knob—VHF/UHF channel selector, woodland brown, for 210CK874U 211CD876 & U
107372	107372	Knob—Channel selector, clear, for 210CK885-6-9 & U, 210CK905-6-7 & U, 210CK920-4 & U, 210CK935-6 & U, 210CKR940-7 & U, 210CT835-6-7 & U, 210CT845-7, 210CK916 & U, 210CT832 & U
109160	109160	Knob—Channel selector, mocha, for 211CD-87C4 & U
107303	107303	Knob—Channel selector, taupe, for 210CK855-6-7 & U, 211CD877 & U
107302	107302	Knob—Channel selector, wine, for 210CK855 & U, 210CK875 & U, 211CD875 & U
106875	106875	Knob—Color or tint, clear only, stocked for 211CD87C4 & U
107399	107399	Knob—Color or tint, brown maroon, for 210CT822 & U
106418	106418	Knob—Color or tint, taupe, for 210CK854-7 & U, 211CD877 & U
107929	107929	Knob—Color or tint, woodland brown, for 210CK87 & U, 211CD876 & U
106417	106417	Knob—Color or tint, wine, for 210CK855 & U, 210CK875 & U, 211CD875 & U
107603	107603	Knob—Color or tint, clear, for 210CK885-6-9 & U, 210CK905-6-7 & U, 210CK920-4 & U, 210CK935-6 & U, 210CKR940-7 & U, 210CT835-6-7 & U, 210CT845-7, 210CK916 & U, 210CT832 & U
104989	104989	Knob—Fine tuning, mocha, for 211CD87C4 & U
106311	106311	Knob—Fine tuning, maroon, for 210CT822 & U
104988	104988	Knob—Fine tuning, taupe, for 210CK856-7 & U, 211CD87C4 & U
104987	104987	Knob—Fine tuning, wine, for 210CK855 & U, 211CD875 & U
107927	107927	Knob—Fine tuning, woodland brown, for 210CK876 & U, 211CD876 & U
106596	106596	Knob—Fine tuning, clear, for 210CK885-6-9 & U, 210CK905-6-7 & U, 210CK920-4 & U, 210CK935-6 & U, 210CKR940-7 & U, 210CT835-6-7 & U, 210CT845-7, 210CK916 & U, 210CT832 & U
106407	106407	Knob—Focus control
109843	109843	Knob—Horizontal, maroon.

SYMBOL NO.	STOCK NO.	DESCRIPTION
—	79533	Knob—Horizontal frequency coil—knurled
—	107398	Knob—On-off-volume or brightness, brown maroon, for 210CT822 & U
106415	106415	Knob—On-off-volume or brightness, wine, for 210CK855 & U, 211CD875 & U
106784	106784	Knob—On-off-volume or brightness, clear only, stocked for 211CD87C4 & U
107928	107928	Knob—On-off volume or brightness, woodland brown, for 210CK876 & U, 211CD876 & U
106416	106416	Knob—On-off-volume or brightness, taupe, for 210CK855-6-7 & U, 211CD877 & U
106278	106278	Knob—On-off-volume or brightness, clear, for 210CK885-6-9 & U, 210CK905-6-7 & U, 210CK920-4 & U, 210CK935-6 & U, 210CKR940-6 & U, 210CT845-7, 210CT835-6-7 & U, 210CK916 & U, 210CT832 & U
107605	107605	Knob—Tone or contrast, vertical, maroon, for 210CK855-6-7 & U, 210CT822 & U, 210CK875-6 & U, 211CD875-6-7 & U, 211CD87C4 & U
107605	107605	Knob—Tone, contrast, vertical or horizontal, clear, for 210CK885-6-9 & U, 210CK905-6-7 & U, 210CK920-4 & U, 210CK935-6 & U, 210CKR940-6 & U, 210CT845-7, 210CT835-6-7 & U, 210CK916 & U, 210CT832 & U
106104	106104	Knob—UHF dial, brown maroon, for 210CT822 & U
106103	106103	Knob—UHF dial, gray, for 210CK856U-7U, 211CD-876U-7U, 211CD87C4U
106102	106102	Knob—UHF dial, wine, for 210CK855U, 211CD875U
107266	107266	Knob—UHF dial, clear, for 210CK855U-4U-9U, 210CK905U-4U-7U, 210CK920U-4U, 210CK935U-4U, 210CKR940U-4U, 210CT835U-4U-7U, 210CK916U, 210CT832 & U
102580	102580	Knob—UHF tuning, brown maroon, for 210CT822 & U
102578	102578	Knob—UHF tuning, taupe, for 210CK854U-7U, 211CD877 & U
102653	102653	Knob—UHF tuning, wine, for 210CK855U, 211CD875U
107930	107930	Knob—UHF tuning, woodland brown, for 210CK876U, 211CD876U
107269	107269	Knob—UHF tuning, clear, for 210CK855U-4U-7U, 210CK905U-4U-7U, 210CK920U-4U, 210CK935U-4U, 210CKR940U-4U, 210CT835U-4U-7U, 210CK916U
107475	107475	Speaker—8" P.M.
107304	107304	Speaker—6 x 9 P.M.
102119	102119	Speaker—3 1/2" P.M.
102477	102477	Speaker—4 x 6 P.M. for 210CT835-6-7 & U, 210CT832 & U
107476	107476	Speaker—4 x 6 P.M. for 210CT845-7
106305	106305	Yoke—Deflection

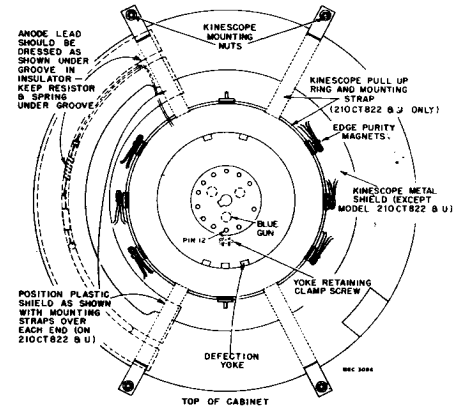
LOCATION OF KINESCOPE COMPONENTS



—Kinescope Adjustments and Components



—Location of Convergence and Lateral Beam Magnets



—Kinescope Assembly