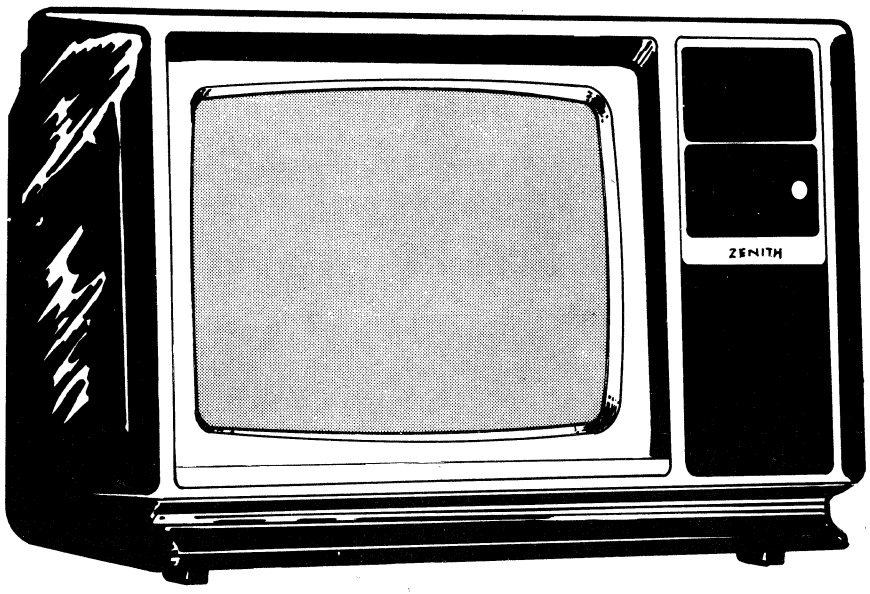
HEATH

ZENITH

SERVICE MANUAL



FOR DC13 - PF - SERIES AND GDZ1320 COLOR MONITORS

ZENITH RADIO CORPORATION
PARTS AND SERVICE DIVISION

11000 SEYMOUR AVENUE, FRANKLIN PARK, ILLINOIS 60131

595-2533

PRODUCT SAFETY SERVICING GUIDELINES FOR COLOR TELEVISION RECEIVERS

CAUTION: No modification of any circuit should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise increases the risk of potential hazards and injury to the user.

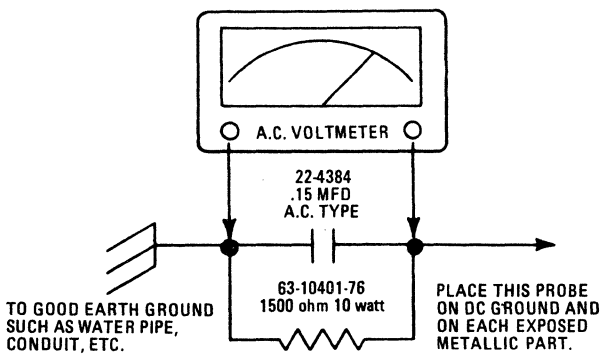
SAFETY CHECKS

After the original service problem has been corrected, a check should be made of the following:

SUBJECT: FIRE & SHOCK HAZARD

1. Be sure that all components are positioned in such a way as to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers, shields, strain reliefs, and other hardware have been reinstalled per original design.
3. Soldering must be inspected to discover possible cold solder joints, frayed leads, damaged insulation (including AC cord), solder splashes or sharp solder points. Be certain to remove all loose foreign particles.
4. Check the "across-the-line" capacitor and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. All critical components (shaded on the schematic diagram and parts lists) such as fuses, flameproof resistors, capacitors, etc. must be replaced with exact Zenith types. Do not use replacement components other than those specified or make unrecommended circuit modifications.

   After re-assembly of the set always perform an AC leakage test at DC ground test point and on all exposed metallic parts of the cabinet, (the channel selector knobs, antenna terminals, handle and screws) to be sure the set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter, having 5000 ohms per volt or more sensitivity, in the following manner; Connect a 1500 ohm 10 watt resistor (63-10401-76), paralleled by a .15 mfd. 150V AC type capacitor (22-4384) between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd. capacitor. Reverse the AC plug and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed .75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



SUBJECT: IMPLOSION

1. All Zenith picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage during installation. Avoid scratching the tube.
2. Use only recommended Zenith replacement tubes.

SUBJECT: X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of X-radiation. The only potential source of X-rays in current TV receivers is the picture tube. However, this tube does not emit X-rays when the H.V. is at the factory specified level. It is only when the H.V. is excessive that X-radiation may be generated. Refer to the X-ray Precaution Label which is located inside each television receiver for the correct high voltage. The proper value is also given in the applicable service manual. Operation at higher voltages may cause a failure of the picture tube or high voltage supply and, under certain circumstances, may produce radiation in excess of desirable levels.
2. Only Zenith specified CRT anode connectors must be used. The degaussing shield also serves as an X-ray shield in color sets, do not defeat its purpose.
3. It is essential that the serviceman has available an accurate and reliable high voltage meter. The calibration of the meter should be checked periodically against a reference standard, such as the one available at your distributor.
4. When the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly. We suggest that you and your service organization review test procedures so that voltage regulation is always checked as a standard servicing procedure, and that the high voltage reading be recorded on each customer's invoice.
5. When trouble shooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage compartment. Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.
6. Color transistor sets manufactured after June, 1973 ("E" Line and later), use new type picture tubes specifically designed to withstand higher operating voltages without causing excessive X-radiation. It is strongly recommended that the C.R.T. shop fixture be equipped with the new type tube. Addition of a permanently connected H.V. meter to the H.V. anode of the shop C.R.T. fixture is advisable. The C.R.T.'s in these sets should never be replaced with any other tube types as that may result in excessive X-radiation and possible violation of the law.
7. Starting with late production "E" line color sets, a special four lead damper capacitor was used. Its feature, the interlocking four leads, should not be defeated. However, each time one of these sets is serviced, for whatever reason, the part number of the capacitor should be examined. If it is the 22-7233 type (used in "E" and "F" model lines only), that capacitor must be replaced with an improved recommended type (22-7504-01). Please refer to Zenith Tech Topics (Issue No. 87) for the details. Your distributor will answer any questions, or you may write to Zenith for further details.

SUBJECT: TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole or closely fitting shelf space.
2. Never install a receiver over, or close to a heat duct, or in the path of heated air flow.
3. Avoid conditions of high humidity such as; outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
4. Avoid placement where draperies may obstruct rear venting. The customer should also avoid the use of decorative scarves or other coverings which might obstruct ventilation.
5. Wall and shelf mounted installations using a commercial mounting kit, must follow the factory approved mounting instructions.
6. A receiver mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
7. Caution customers against the mounting of a receiver on a sloping shelf or in a tilted position, unless the receiver is properly secured.
8. A receiver in a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
9. Caution customers against the use of a cart or stand which has not been listed by Underwriters Laboratories, Inc. for use with their specific model of television receiver.

SPECIAL FEATURES BOTH MODELS

VIDEO

Composite Video 1 Volt P-P Negative Sync. 75Ω Input Impedance. CRT Uses Vertical Stripe Screen with Black Surround Negative Guardband. EFL® In-Line Tri-Potential Electron Gun. 15 Seconds Maximum Warm-up Time. Automatic Degaussing. Video Input Jack (Standard Phono Type).

AUDIO

2 Volts P-P High Impedance Audio System with Built-in Speaker and Front Panel Volume Control. Audio Input Jack (Miniature Tip Type).

CHASSIS

Resolution: 240 Lines (3.125 Mhz). Chroma Bandwidth: 0.7 Mhz ± 3 dB. High Voltage: 26 KV. Fully Automatic Color Level and Processing. Thick Film Network for Circuit Optimization and Reliability. No Vertical or Horizontal Hold Adjustments Required. Line and Load Voltage Regulation. 100% Solid-State Modular Design. All Components on Four Replaceable Modules. UL and CSA Listed. Conforms to the Technical Requirements of 21 CFR, Subchapter J, for X-Radiation.

GENERAL SPECIFICATIONS

DIMENSIONS	H. 14″, W. 20-1/4″, D. 14-3/4″
MATERIAL	High Impact Styrene UL Rated V-O
FINISH	Black with Hot Stamp Chrome Trim
NET WEIGHT	33 Lbs.
PICTURE TUBE	13VBAP22, 100° Deflection Angle
SCREEN SIZE	13″ Diag. (Min.) 90 Inch^2 (Min.)
LIGHT OUTPUT	90 Footlamberts (Avg. at Max. Beam Current)
POWER REQUIREMENTS	82 Watts at 120 Volts Nominal 60 Hz.

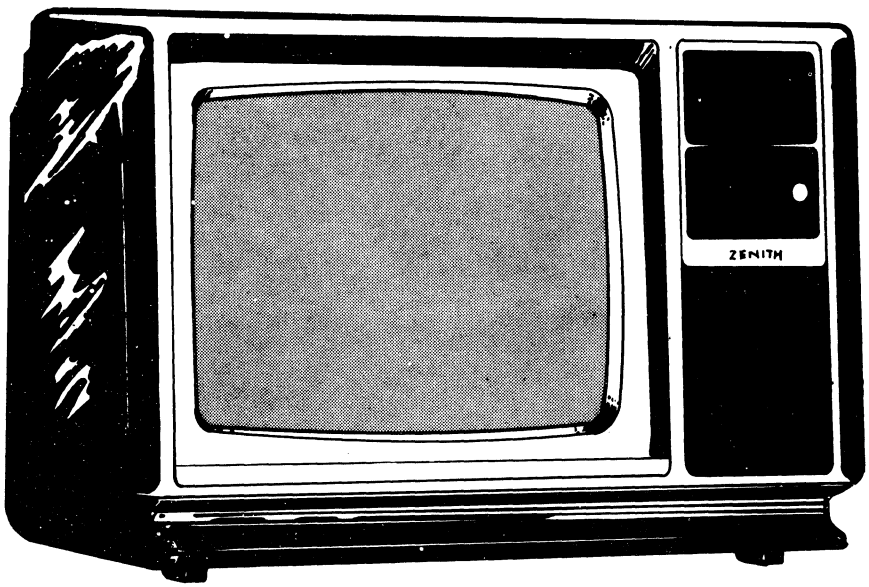


FIGURE 1 - DC13-PF-2 COLOR MONITOR.

DISASSEMBLY PROCEDURES

Disassembly of the 13″ receivers is simplified by using a nominal amount of screws on the cabinet assembly and on the frame assembly.

To remove the cabinet back proceed as follows:

1. Remove two screws from top edge of cabinet back.
2. Remove one screw located next to antenna terminal.
3. Remove three screws from bottom edge of cabinet back.

One screw located next to focus control fastens the Video Module Access Door. This screw need *not* be removed when the cabinet back is being removed.

When removing individual boards, proceed with caution while you disengage seated boards from the modular frame assembly. *Do not use an excessive force.*

To remove M10 board, first remove the key-lock holding the board down in place. To remove key-lock, twist it 90° and pull it up. Removal of M10 board (if rest of module assembly is in place) also requires unscrewing center screw from bottom edge of cabinet. Disengaging edge connectors from the boards occasionally requires removal of small holder tabs inserted into edge connector holes.

Removal of M5 board is more difficult on 13″ receivers than on previous models. New M5 holding frame was designed to prevent shipment damage. Two tabs are restricting disengagement of the board. It is advisable to remove the M5 board from its frame when you service it the first time, then you can break the tabs off for easier removal in the future.

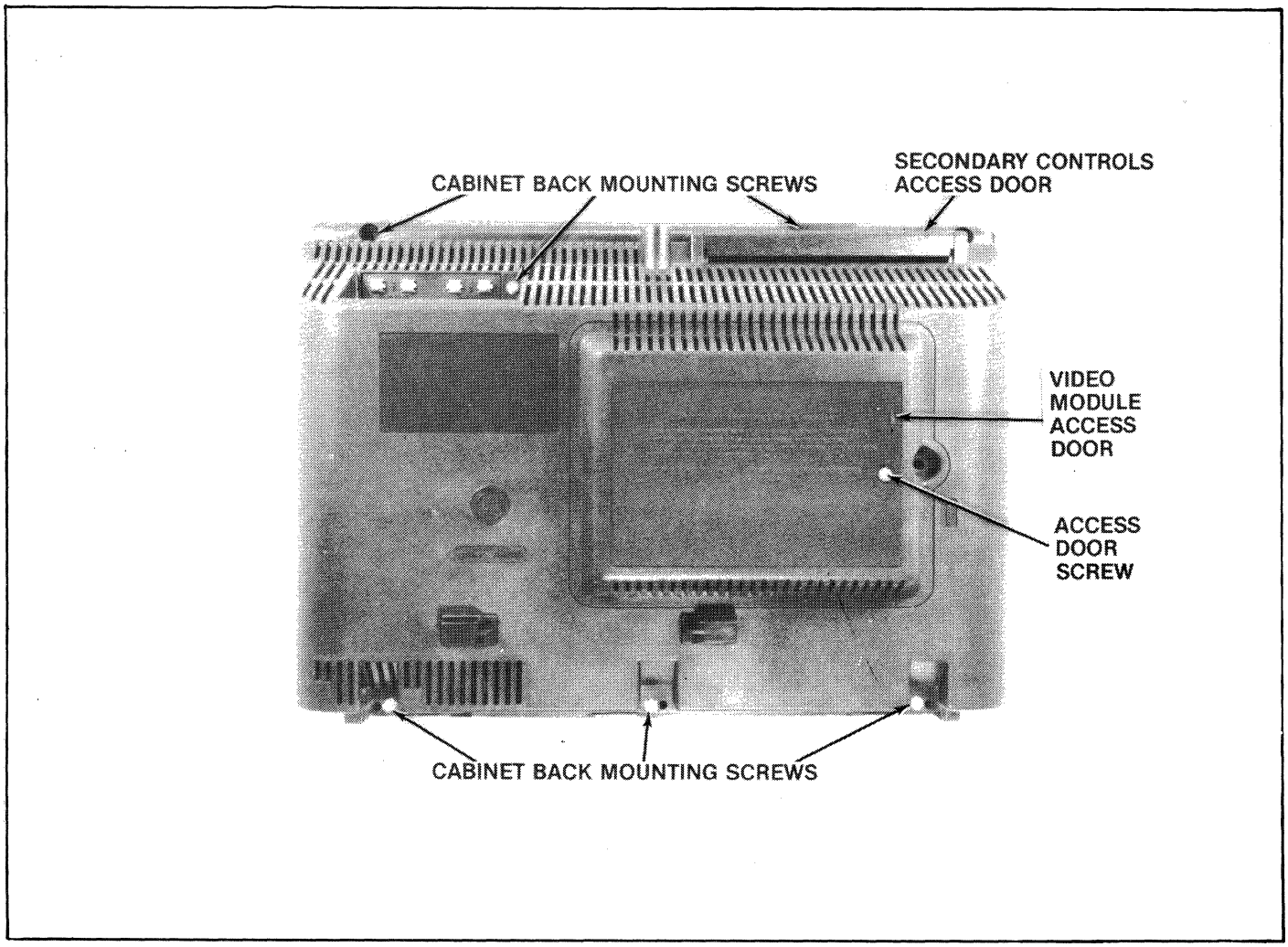


FIGURE 2 - REAR VIEW.

ADJUSTMENTS

BRIGHTNESS RANGE AND BRIGHTNESS LIMITER ADJUSTMENT

Set color level and brightness range controls to minimum. (Counterclockwise)

Set black level and picture controls to maximum. (Clockwise)

Set sharpness control to nominal. (Mid Detent)

Disengage Chromatic or Color Sentry switch.

Place a jumper wire between the delay line (L2202) side of 1.2 K resistor (R2227) (side facing vertical heat sinks) and ground post on 9-152 module.

Advance the brightness range control until scan lines just become visible.

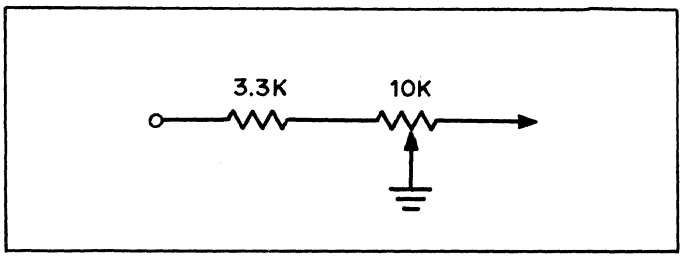


FIGURE 3 - TEST SET-UP.

Connect a 10 K linear taper potentiometer (wired as a rheostat; one side and center tap) in series with a 3.3 K resistor from ground to T.P.Y. post on 9-152 module.

Connect a DC voltmeter positive lead to D.C. ground and negative lead to Brightness Limiter test point on 9-160 series module.

Adjust the 10 K potentiometer for 0.875 volts on 9-160 modules (25 KV) or 1.500 volts on 9-160-02 modules (30 KV).

Remove the DC voltmeter from the Brightness Limiter test point.

Connect DC voltmeter (set for positive reading) from pin 1 of 221-96 IC (U2226) to ground (or across 22 ufd capacitor C2252) on 9-152 module.

Adjust brightness limiter control (R2278) for + 3.4 volts.

Remove DC voltmeter from pin 1 of 221-96 IC. Remove the 10 K test potentiometer and 3.3 K from T.P.Y. Remove the ground jumper from R2227. Return customer controls to normal.

NOTE: Field alignment is *not* to be considered a final solution. This information is to be used *only* in situations where proper alignment will follow at a later date.

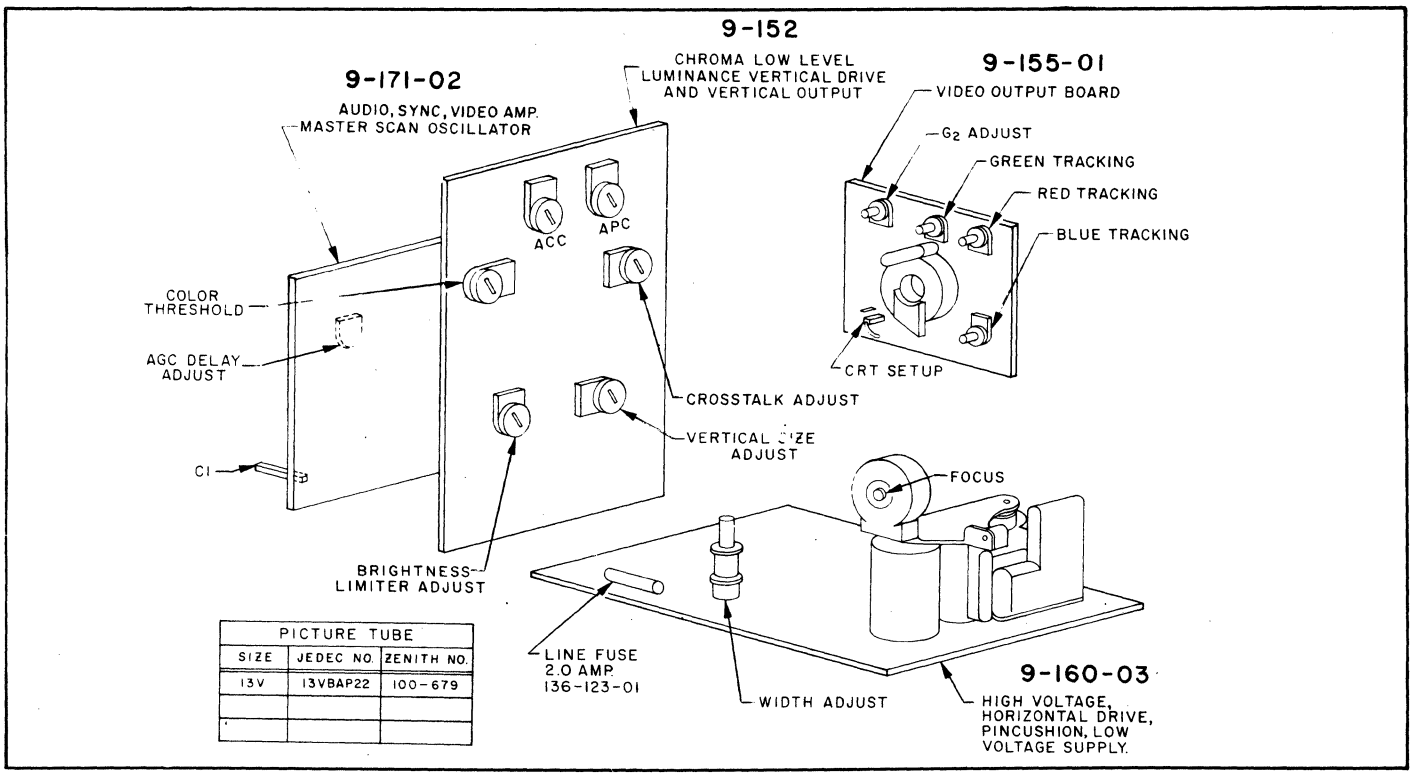


FIGURE 4 - MODULE LAYOUT.

Color Threshold Control:
Purpose: To prevent erroneous color information on B/W transmissions.

1. Set VHF Tuner to an unused channel and color level control to mid range.
2. Rotate threshold control clockwise until color confetti appears in picture.
3. Rotate control counterclockwise until color confetti just disappears from picture.

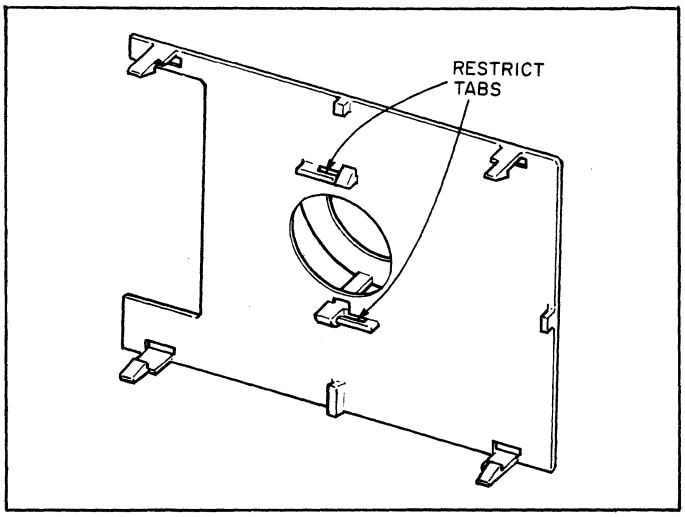


FIGURE 5 - VIDEO MODULE FRAME.

A.P.C. Control:
Purpose: To obtain color synchronization.

1. Connect a color bar generator to the antenna terminals.
2. Set tint to middle of range.
3. Place the color align jumper in the align position.
4. Adjust the A.P.C. control for uniform color from top of bar to bottom.
   NOTE: The bars may not be the correct color or they may change colors.
5. Place color align switch in normal position.

A.C.C. Control:
Purpose: To set chroma gain.

1. Connect a color bar generator to the antenna terminals.
2. Place the color align jumper in the align position.
3. Place a clip lead from test points J and JJ on the chroma module.
4. Connect a DC meter from test stake Q to ground.
5. Observe the meter reading.
6. Remove the jumper from test points J and JJ.
7. Adjust the A.C.C. control for an identical meter reading.
8. Alternately open and short J and JJ to check for identical reading.

Focus: Chassis
Purpose: To obtain best focus.

1. Set brightness, contrast and chroma for normal picture.
2. Adjust for optimum focus in highlights.

Brightness Range and Brightness Limiter Adjustment:
Purpose: To limit maximum brightness and prevent picture blooming.

1. Wire a 10 K 1/4 watt potentiometer as a rheostat and connect (in series) a 3.3 K 1/2 watt carbon resistor (this assembly to be used in step 8).
2. Disconnect power from receiver.
3. Attach a DC meter across R3352. Attach the negative lead on stake side of resistor. Set the meter for a full scale reading of at least 2 VDC.
4. Adjust brightness limiter fully counterclockwise, turn on receiver and allow to warm up for five minutes.
5. Connect a clip lead from the side of R2227, which faces the vertical heatsink, to ground stake next to 221-106. Adjust black level control to mid point (Detent Position).
6. In a low ambient light condition, set (the rear section of black level control) brightness range control to just cut off the raster.
7. Set the rheostat/resistor assembly for maximum resistance and attach between T.P.Y. stake and ground.
8. Adjust rheostat to obtain a meter reading of 1.23 VDC. Do not readjust after this reading is obtained.
9. Remove meter from R3352, adjust scale for a reading of 5.0 V full scale. Attach meter to pin 1 of 221-96 I.C.
10. Adjust brightness limiter to obtain 3.3 to 3.6 volts DC on the meter (any voltage in this range is acceptable).

11. Remove rheostat assembly and meter. Tune in a station and touch up brightness range for proper blacks.

3.58 MHz Trap Adjustment:
Purpose: To remove 3.58 MHz chroma information from composite video signal.

1. Use gated rainbow chroma signal.
2. Fine tune color bar pattern just out of moire.
3. Adjust color level to minimum.
4. Adjust contrast and sharpen control to maximum. Adjust brightness control so color bar area is gray.
5. Adjust 3.58 MHz trap for minimum brightness in color bar area.

Cross Talk Control:
Purpose: To prevent color smear.

1. Connect color bar generator to antenna terminals.
2. Properly fine tune receiver and activate AFC.
3. Ground vertical heatsink side of R2227.
4. Adjust color level to approximately mid range.
5. Starting from minimum brightness, adjust brightness control until background changes from white to slightly gray.
6. Adjust tint control so that one of the bars is magenta.
7. Adjust cross talk control for most uniform magenta color across the bar.

PURITY AND CONVERGENCE

PURITY ADJUSTMENT

1. Allow the receiver to warm up for 10 minutes.

2. Pull the yoke toward the picture tube socket.

3. Connect a Cross Hatch Generator to the receiver and "rough in" the static (center) convergence as follows:

   a. Adjust the four pole static control by alternately rotating the knob laterally to bring the red and blue lines into convergence in the horizontal direction. Move the knob radially around the neck of the tube (in a 45° arc) from the top of dead center position to cause the red and blue lines to converge vertically.

   b. After the four pole magnet has been adjusted to superimpose the red and blue lines on top of one another, use the six pole amplitude adjustment to place the converged blue and red lines over the green line. Position the knob radially in a 30° arc from top dead center to move them vertically. Rotating the knob laterally will move the converged beam to the left or right.

MASTER G-2 CONTROL ADJUSTMENT

Before proceeding with the Purity Adjustment, the Master G-2 control must be adjusted.

Turn the G-2 control clockwise until a dim raster appears. If the screen remains black with the G-2 control fully clockwise, advance the brightness range control on the low level luminance module until the dim raster appears.

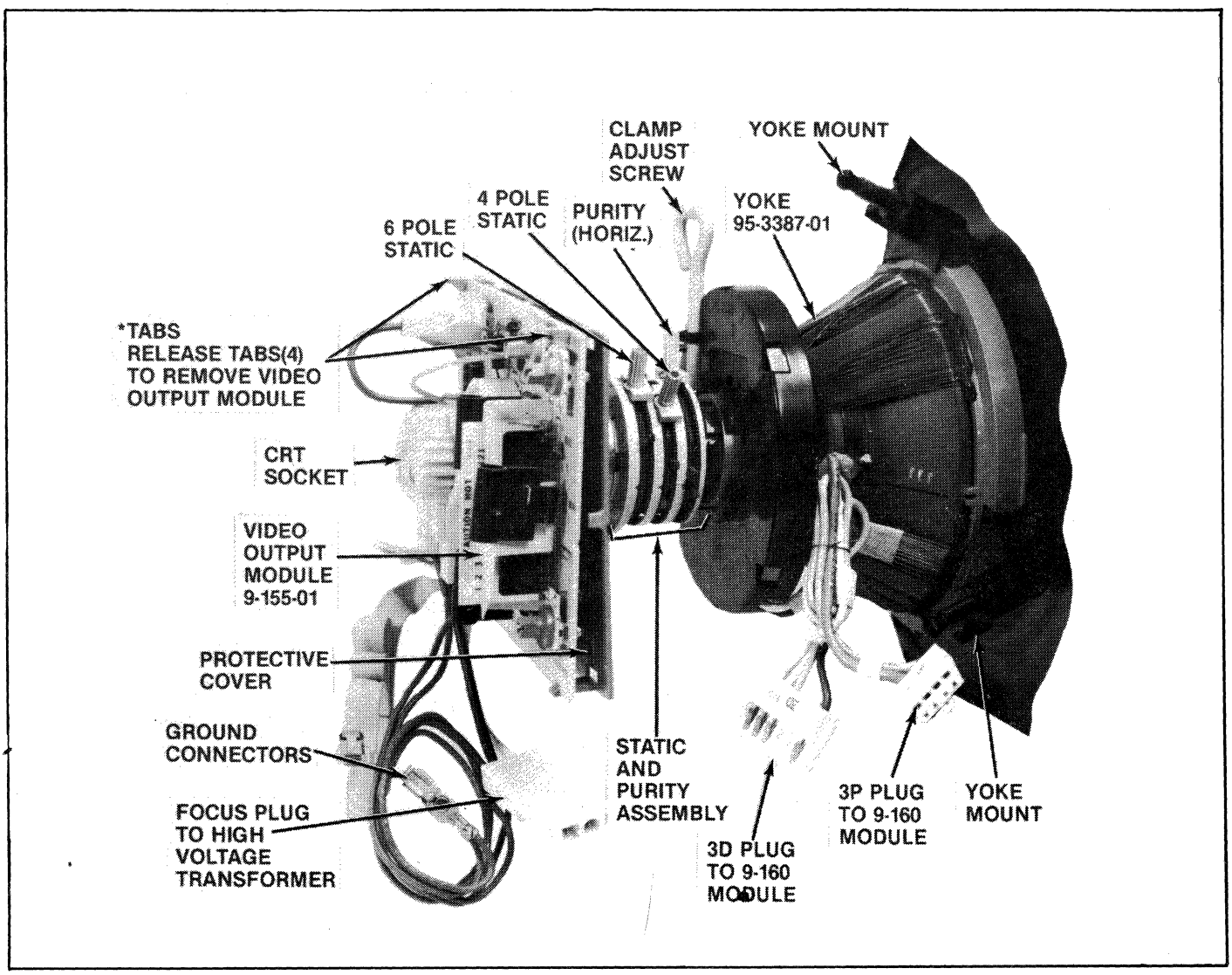


FIGURE 6 - NECK COMPONENTS.

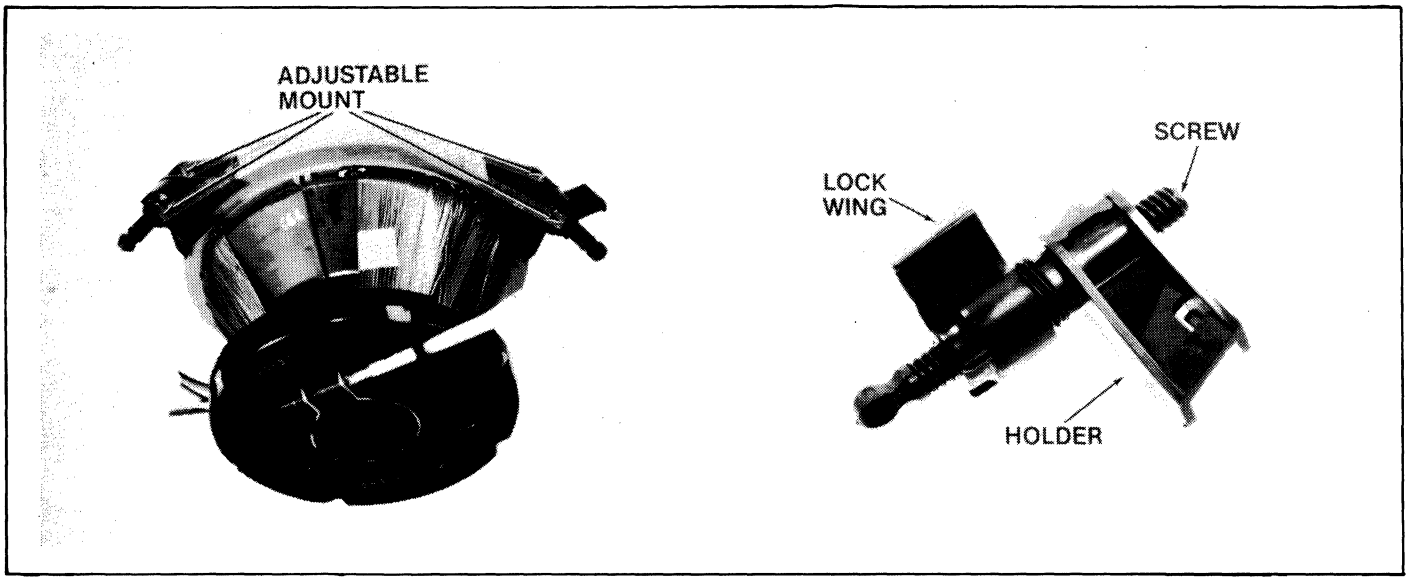


FIGURE 7 - YOKE ADJUSTABLE MOUNT.

PURITY ADJUSTMENT CONTINUED

4. Turn the Green Tracking Control, Brightness and Picture Control to produce a green stripe. Use the purity knob to center the green stripe.

5. Move the yoke to the maximum forward position.

6. Turn the Green Tracking Control to minimum.

7. Turn the Red Tracking Control clockwise to display a Red stripe.

8. Pull the yoke toward the rear of the Tube neck until a Red raster is displayed.

9. If the Red raster is not displayed as a pure red field, adjust the purity knob until a pure field is obtained.

10. Turn the Red Tracking control to minimum and advance the Green Tracking control. Observe for a pure Green Field. Turn the Green Tracking Control to minimum and advance the Blue Tracking Control. Observe for a pure Blue Field.

BLACK AND WHITE TRACKING

To adjust Black and White tracking only, on a receiver that has optimum purity and convergence, perform the Master G-2 control adjustment procedure prior to the Black and White Tracking procedure.

a. Turn all three Tracking Controls to the full counterclockwise position. Advance the brightness control to produce a dim raster.

b. The color of the dim raster will depend on which gun has the highest cut off point.

c. Adjust the Tracking Controls of the two missing colors to display a white raster.

NOTE: One Tracking Control should always be in the full counterclockwise position.

11. Display a cross-hatch pattern on the screen and check for yoke tilt. Tighten the yoke clamp.

12. **FOCUS ADJUSTMENT**. . . Display and "Air Signal" and adjust the focus control for best focus.

13. **STATIC CONVERGENCE**. . . Repeat steps 3a and 3b.

14. **DYNAMIC CONVERGENCE**. . .

a. Adjust center purity and static convergence using standard procedures, described in previous steps.

b. Turn the Green Tracking Control to minimum & increase the Blue and Red Tracking Controls slightly to display a magenta cross hatch pattern.

c. Adjust edge purity by moving the yoke in its Z direction and rotate yoke for a straight raster. Tighten yoke clamp.

d. Tilt the deflection yoke *vertically* by holding its back cover and converge the vertical lines at 6 and 12 o'clock. Turn in the top (12 o'clock) screw until it seats on the C.R.T. funnel glass.

e. Tilt the deflection yoke *horizontally* by holding its back cover and converge the vertical lines at 3 and 9 o'clock. Turn in the screw which is opposite the side the yoke was tilted until it seats on the C.R.T. funnel glass.

f. Turn in the remaining screw until it seats on the C.R.T. funnel glass.

g. Tighten all three (3) screw toggle locks.

15. **RESET BLACK AND WHITE TRACKING**

a. Turn all three Tracking Controls to minimum.

b. Turn the Color and Picture controls to minimum.

c. Adjust the brightness control for a dim raster.

d. Increase the Tracking Controls for the two missing colors to produce a white raster.

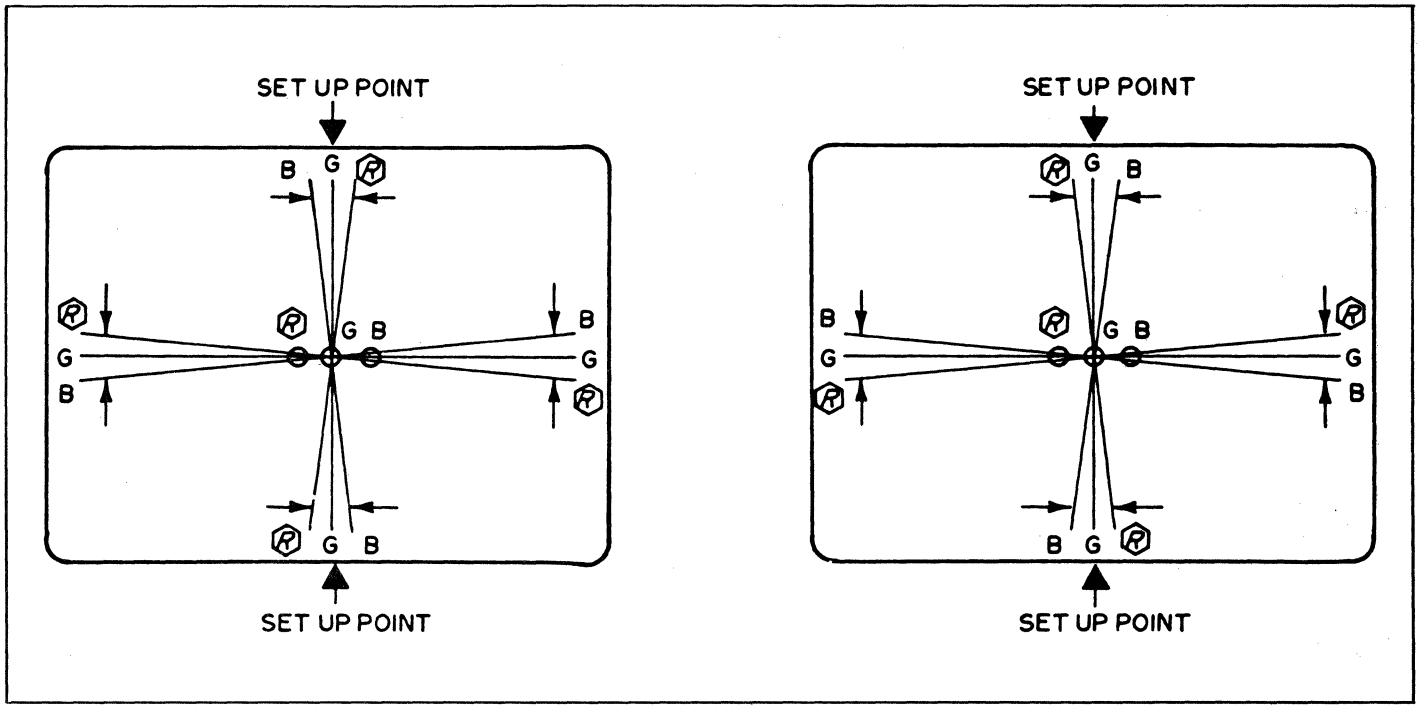


FIGURE 8 - A VERTICAL TILT OF THE DEFLECTION YOKE UPWARD OR DOWNWARD WILL ROTATE THE RED AND BLUE RASTERS.

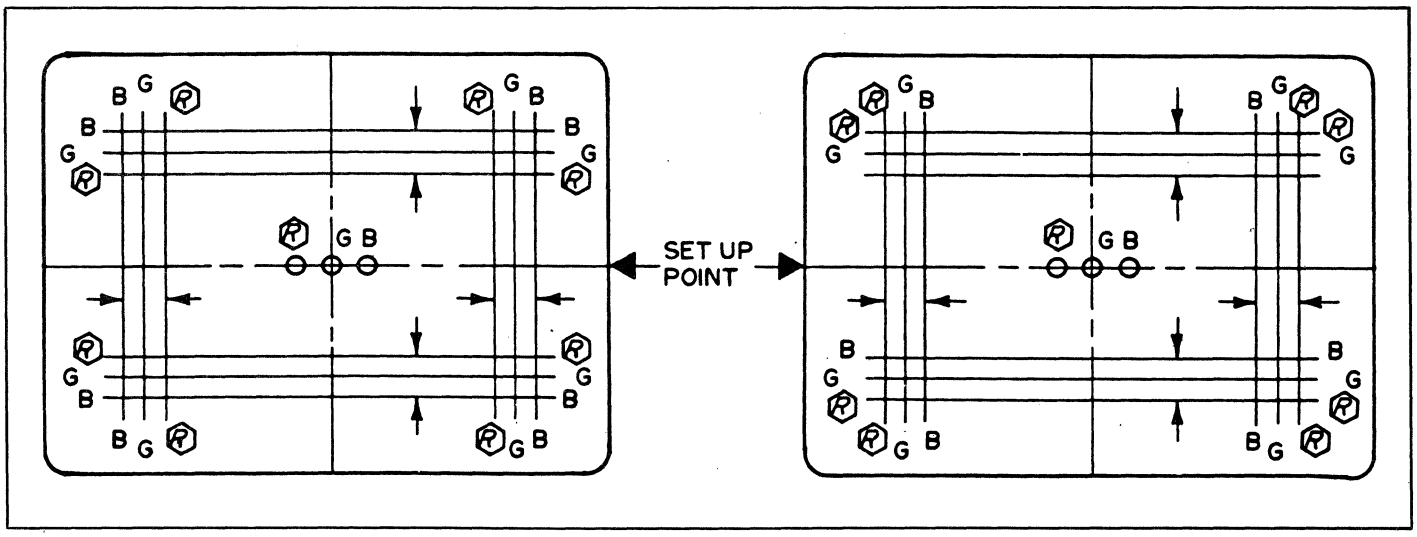


FIGURE 9 - A HORIZONTAL TILT OF THE DEFLECTION YOKE WILL INCREASE OR DECREASE THE SIZE OF THE RED AND BLUE RASTER.

MISCELLANEOUS

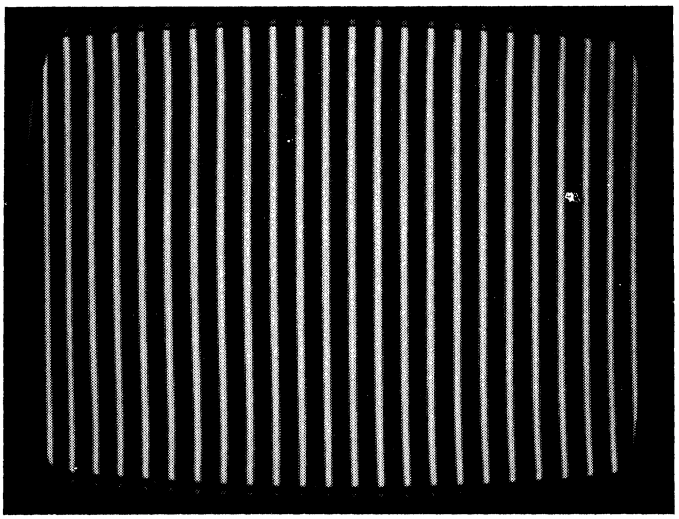
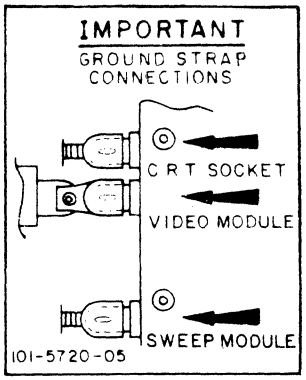


FIGURE 10 - BUILT-IN TEST PATTERN

IMPORTANT
SAFETY NOTICE

FOR X-RADIATION, FIRE OR SHOCK HAZARD PREVENTION, CERTAIN SPECIAL OR REDUNDANT PARTS ARE USED. USE ONLY EXACT REPLACEMENTS. DO NOT ALTER THE CIRCUIT OR DEFEAT THE FUSES. FAILURE TO COMPLY MAY BE UNLAWFUL.



A spring-loaded slide switch is located on the top rear of the cabinet. When activated, the switch will allow a vertical bar test pattern to be applied to the input of the video circuits.

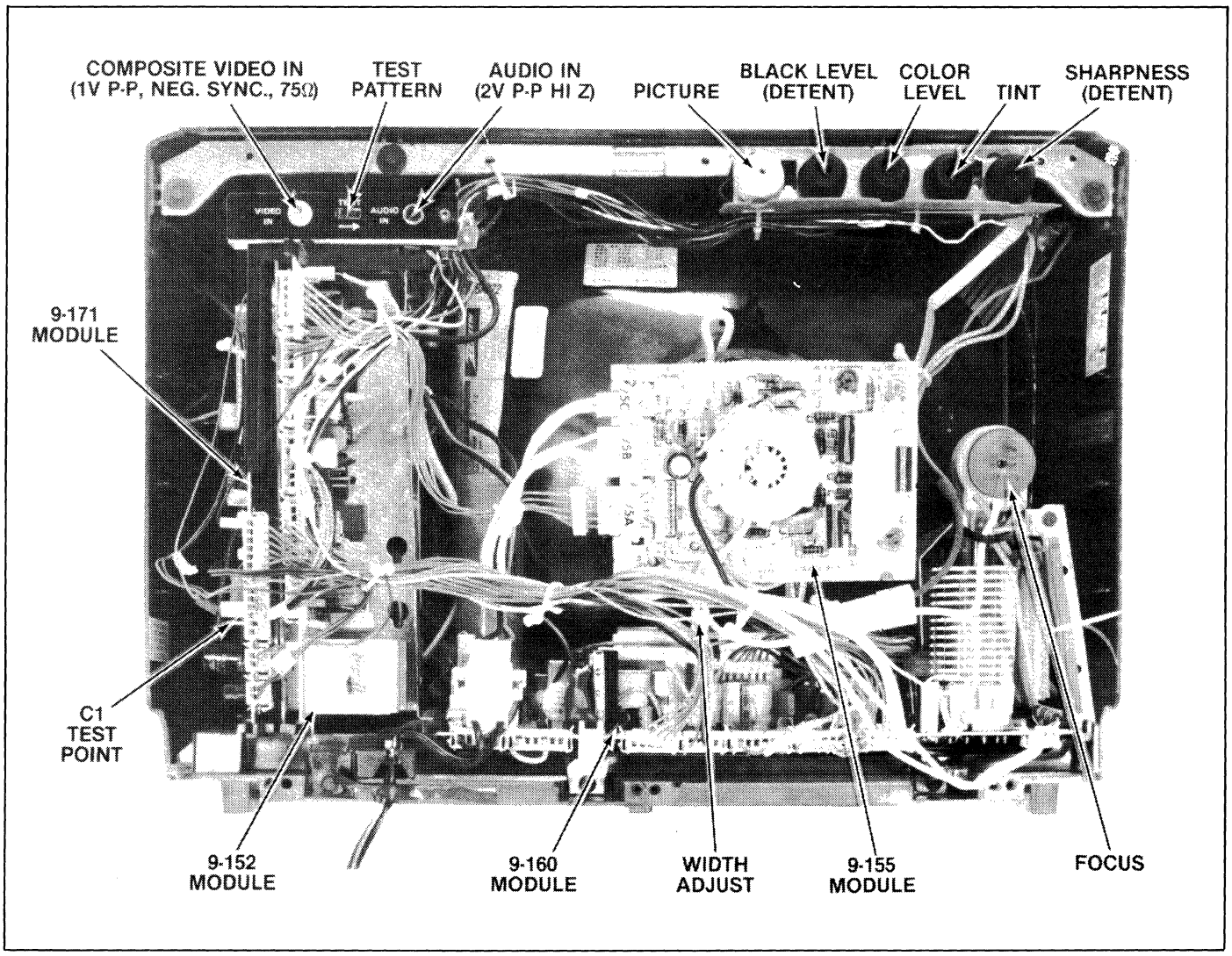


FIGURE 11 - CHASSIS REAR VIEW

RF INTERFERENCE MODIFICATION PROCEDURE

Under certain conditions a nearby television receiver tuned to channel 2 may be affected by the normal operation of the DC 13 color monitor. The condition can be eliminated by the installation of a capacitor on one of the modules in the color monitor. Detailed instructions are as follows:

1. The capacitor to use is a 20 pf capacitor part number 22-7639-15 or – 15C.
2. Install the capacitor as indicated in figure 12.

NOTE: The capacitor should be connected in parallel to resistor R1203 (R1203 may be labeled R203 on some modules). However, easy access is available to the component side and the fix requires only removal of the cabinet back.

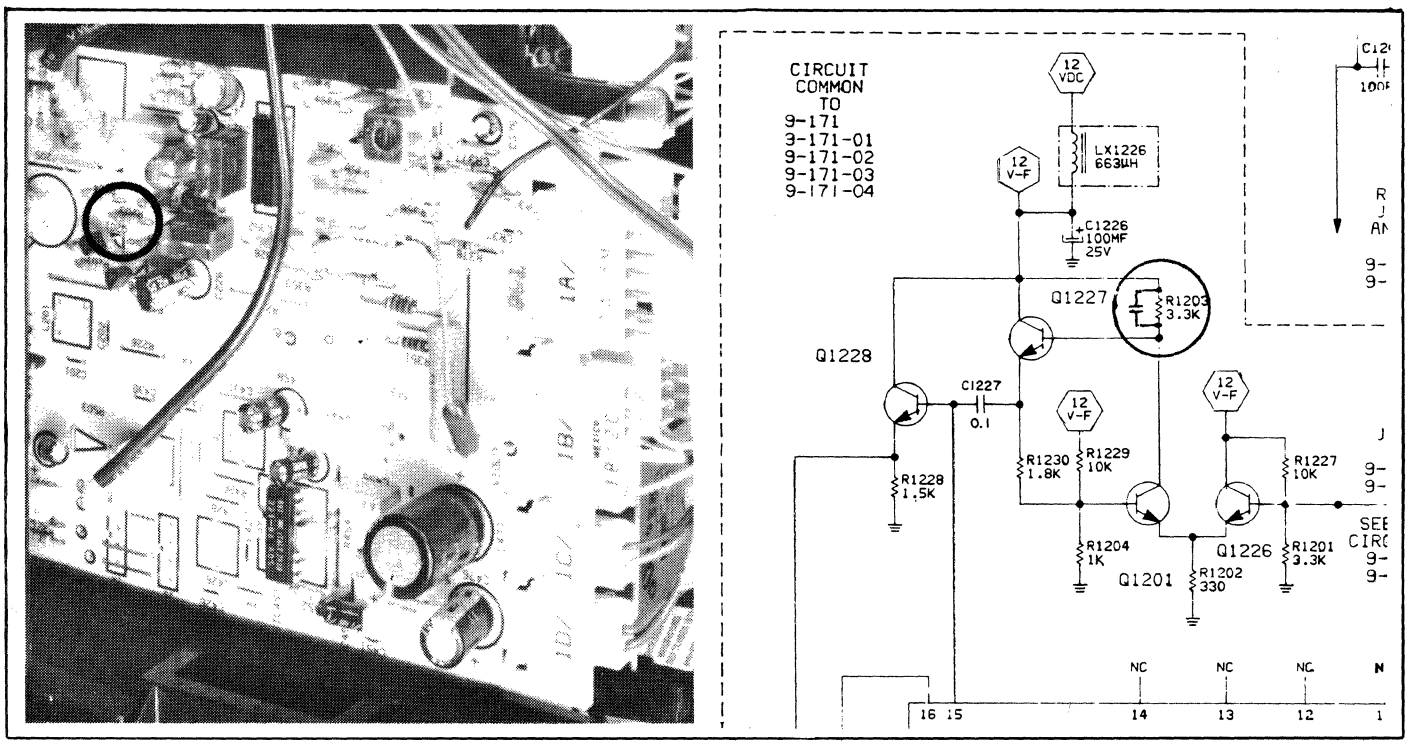
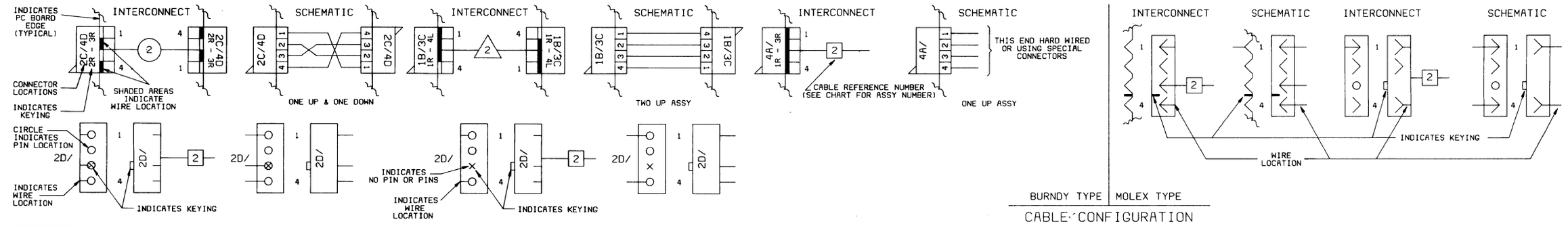
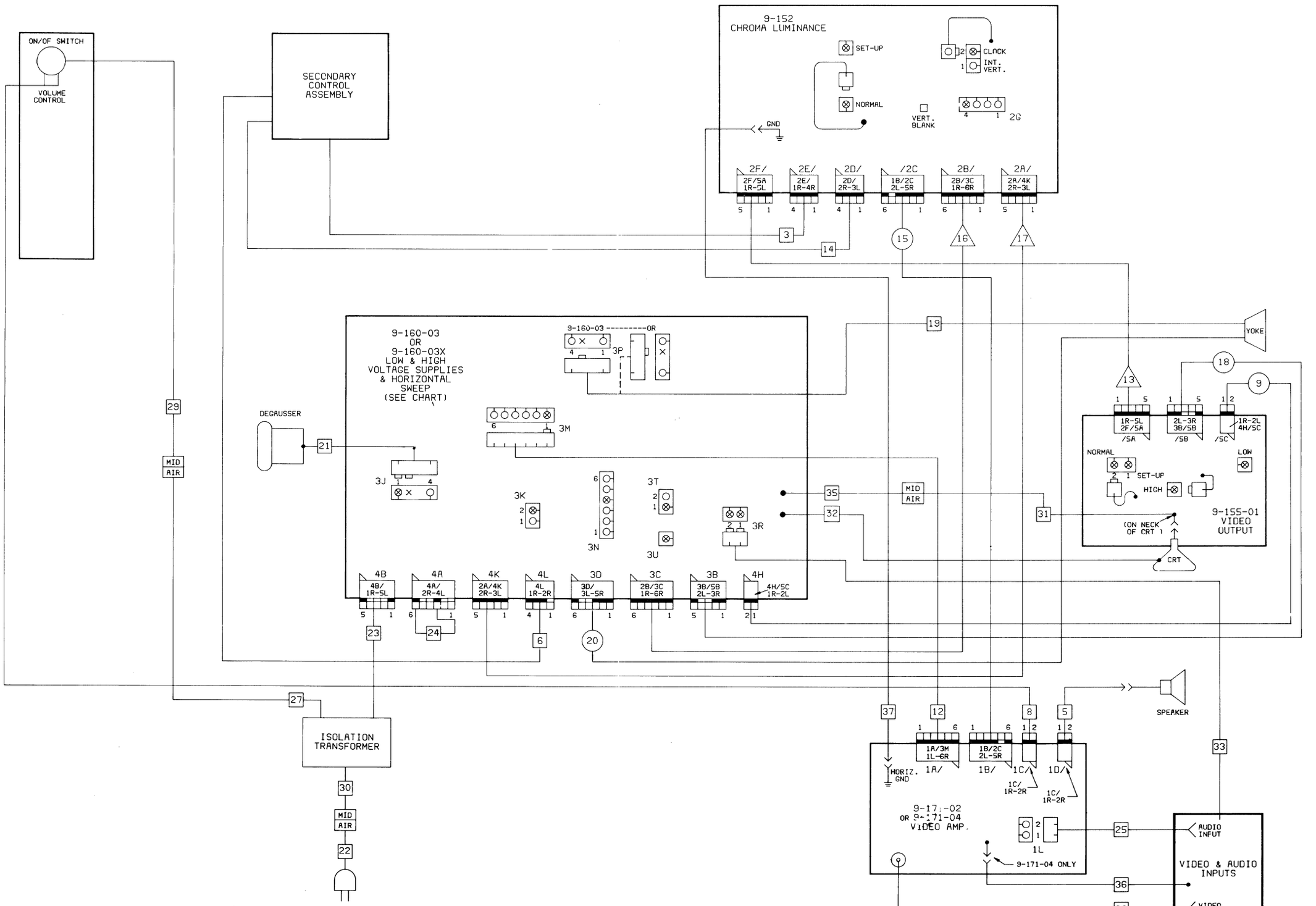


*FIGURE 12 - CIRCUIT MODIFICATION (*CONNECT CAPACITOR IN LOCATION AS SHOWN.)*





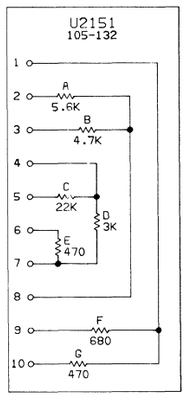
MODULAR INTERCONNECT DIAGRAM COLOR VIDEO DISPLAY

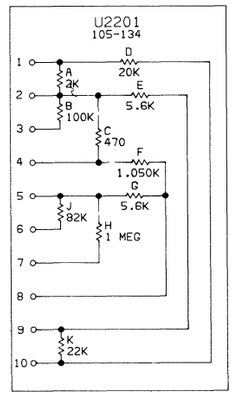
CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
* C2101	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
C2102	22-7573-10	CAPACITOR, POLYESTER, .0068 MF, ±20%, 50V
C2103	22-7562-32	CAPACITOR, POLYESTER, .47 MF, ±5%, 100V
C2104	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
* C2105	22 7707-08	CAPACITOR, ELECTROLYTIC, 47 MF, +50-10%, 16V
* C2126	22-7713-01	CAPACITOR, ELECTROLYTIC, 47 MF, ±20%, 35V
C2127	22 5688	CAPACITOR, DISC .001 MF, ±10%, 500V
C2128	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C2129	22-7742-08	CAPACITOR, CER. TUB. 680 PF, ±10% 50V
C2130	22-7739-14	CAPACITOR, POLYESTER, .015 MF, ±10%,100V
* C2131	22-7508	CAPACITOR, ELECTROLYTIC, 47 MF, ±20%, 35V
C2132	22-7739-14	CAPACITOR, POLYESTER, .015 , ±10%,100V
C2133	22 7739-14	CAPACITOR, POLYESTER, .015 MF, ±10%,100V
C2134	22-7569-10	CAPACITOR, POLYESTER, .0068 MF, ±20%,400V
* C2151	22-7712-05	CAPACITOR, ELECTROLYTIC, 10 MF, +50-10%, 100V
* C2152	22-7508-02	CAPACITOR, ELECTROLYTIC, 15 MF, ±20%, 35V
C2153	22-7740-06	CAPACITOR, POLYESTER, .0033 MF, ±20%,100V
C2176	22-7587	CAPACITOR, ELECTROLYTIC, 470 MF, +100-10%, 80V
C2177	22-7572-12	CAPACITOR, POLYESTER, .01 MF, ±10%, 600V
* C2201	22-7710	CAPACITOR, ELECTROLYTIC, .47 MF, +50-10%, 50V
C2202		
C2203	22-7742-10	CAPACITOR, CER. TUB. .001 MF, ±10% 50V
C2204	22-7572-12	CAPACITOR, POLYESTER, .01 MF, ±10%, 600V
C2226	22-7564-24	CAPACITOR, POLYESTER, 0.1 MF, ±20%, 100V
C2227	22-7563-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 100V
C2228	22-7566-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 250V
C2229	22-7566-18	CAPACITOR, POLYESTER, .033 MF, ±10%, 250V
* C2251	22-7708-06	CAPACITOR, ELECTROLYTIC, 22 MF, +50-10%, 25V
* C2252	22-7707-12	CAPACITOR, ELECTROLYTIC, 470 MF, +50-10%, 16V
C2253		
C2276	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C2278		
C2301	22-7572-12	CAPACITOR, POLYESTER, .01 MF, ±10%, 600V
C2302	22-7565-05	CAPACITOR, POLYESTER, .0027 MF, ±10%, 250V
* C2326	22-7621-30	CAPACITOR, POLYESTER, 68 PF, ±5%, 50V, NPO±60
* C2327	22-7621-18	CAPACITOR, CER. DISC, 22 PF, ±5%, 50V, NPO±60
* C2328	22-7621-18C	CAPACITOR, CER. DISC, 22 PF, ±5%, 50V, NPO
* C2329	22-7621-28	CAPACITOR, CER. DISC, 56 PF, ±5% 50V, NPO±60
* C2330	22-7621-11	CAPACITOR, CER. DISC, 11 PF, ±5%, 50V, NPO±60
C2331	22-7742-10	CAPACITOR, TUBULAR, .001 MF, ±10%, 50V
* C2332	22-7621-30	CAPACITOR, CER. DISC, 68 PF, ±5%, 50V, NPO±60
C2333	22-7742-10	CAPACITOR, TUBULAR, .001 MF, ±10%, 50V
C2334	22-7621-31	CAPACITOR, CER. DISC, 75 PF, ±5%, 50V, NPO±60
* C2351	22-7613-12	CAPACITOR, CER. DISC, .001 MF, ±10%, 50V
C2352	22 7563-26	CAPACITOR, POLYESTER, .15 MF, ±10%, 100V
* C2353	22-7613-24	CAPACITOR, CER. DISC, .01 MF, ±10%, 50V
* C2354	22-7649-41	CAPACITOR, CER. DISC, 270 PF, ±5%, 50V, N750
C2355		
* C2356	22-7579-05	CAPACITOR, ELECTROLYTIC, 1.5 MF, +50-10%, 16V
* C2357	22-7579-05	CAPACITOR, ELECTROLYTIC, 1.5 MF, +50-10%, 16V
C2358	22-7563-26	CAPACITOR, POLYESTER, .15 MF, ±10%, 100V
C2359	22-7563-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 100V
C2360		
* C2361	22-7707-08	CAPACITOR, ELECTROLYTIC, 47 MF, +50-10%, 16V
C2362	22-7742-10	CAPACITOR, TUBULAR, .001 MF, ±10%,50V
* C2376	22-7613-12	CAPACITOR, CER. DISC, .001 MF, ±10%, 50V
C2377	22-7621-18	CAPACITOR, CER. DISC, 22 PF, ±10%, 50V, NPO±60
* C2378	22-7649-41	CAPACITOR, CER. DISC, 270 PF, ±5%, 50V, N750
* C2379	22-7613-24	CAPACITOR, CER. DISC, .01 MF, ±10%, 50V
* C2380	22-7621-17	CAPACITOR, CER. DISC, 20 PF, ±5%, 50V, NPO±60
* C2381	22-7649-41	CAPACITOR, CER. DISC, 270 PF, ±5%, 50V, N750
C2382	22-7572-12	CAPACITOR, POLYESTER, .01 MF, ±10%, 600V

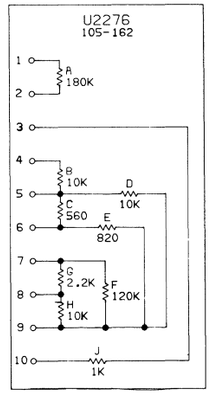
CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
CR2101	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2102		
CR2103		
CR2104	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2105		
CR2106	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2126	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2127	103-254-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2128	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2151	103-254-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2176	103-254-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2201	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2228	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2229	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2230	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2231	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2251	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2252	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2253	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2254	103-142-01	DIODE, LOW VOLTAGE, GENERAL, SILICON
CR2277	103-140A	DIODE, ZENER, 6.4 VOLTS, 250 MW
CR2326	103-152-01	CRYSTAL QUARTZ, 3.58 MHz, OSCILLATOR
IC2126	221-103	INTEGRATED CIRCUIT, VERTICAL COUNT DOWN
IC2226	221-96	INTEGRATED CIRCUIT, LUMINANCE PROCESSOR
IC2351	221-140	INTEGRATED CIRCUIT, ONE CHIP CHROMA (24 PIN)
L2101	191-1005-03	JUMPER WIRE, PRECUT, 22 GA.
L2151	191-1005-03	JUMPER, WIRE, PRECUT, 22 GA.
L2201		
L2202	20-3939	COIL, DELAY LINE
L2203	20-3831	COIL, RCF, FILTER, 663 uH
L2251	20-3907-22A	COIL, PEAKING, 68 uH
L2326	20-3919	COIL, ADJUSTABLE, 90 uH
L2327	95-3080	TRANSFORMER, RCF
L2376	20-3925	COIL, RCF, 82 uH
Q2126	121-1009-01	TRANSISTOR, NPN, SILICON
Q2176	121-1008-01	TRANSISTOR, NPN, SILICON

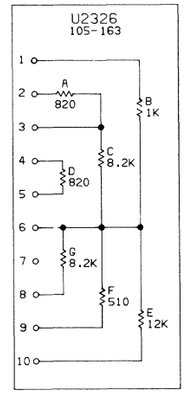
CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R2101	63-9922-28	RESISTOR, FILM, 220K OHM, ±5%, 1/4W
R2102	63-9921-92	RESISTOR, FILM, 6.8K OHM, ±5%, 1/4W
R2103	63-9922-16	RESISTOR, FILM, 68K OHM, ±5%, 1/4W
R2104	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R2126	63-10585	CONTROL, 2K OHM, ±20%, VERTICAL HEIGHT
R2127	63-9922-13	RESISTOR, FILM, 51K OHM, ±5%, 1/4W
R2128	63-9922-45	RESISTOR, FILM, 1.1 MEGOHM, ±5%, 1/4W
R2129		
R2130	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
R2131	63-7813	RESISTOR, CARBON, 4.7K OHM, ±10%, 1/2W
R2132	63-9922-36	RESISTOR, FILM, 470K OHM, ±5%, 1/4W
R2134	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
■ RX2135	63-10565-41	RESISTOR, FILM, 51 OHM, ±5%, 1/2W
R2151	63-7771	RESISTOR, CARBON, 470 OHM, ±10%, 1/2W
R2152	63-9921-76	RESISTOR, FILM, 1.5K OHM, ±5%, 1/4W
R2153	63-9946-99	RESISTOR, FILM, 13K OHM, ±5%, 1/2W
R2154	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
■ RX2157	63-10442-30	RESISTOR, WIREWOUND, 1.8 OHM, ±5%, 5W
■ RX2158	63-10565-04	RESISTOR, FILM, 1.5 OHM, ±5%, 1/2W
■ RX2159	63-10825	RESISTOR, WIREWOUND, 1 OHM, ±5%, 5W
■ RX2176	63-10565-04	RESISTOR, FILM, 1.5 OHM, ±5%, 1/2W
R2177	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
R2201	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R2202	63-9946-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/2W
R2226	63-9921-82	RESISTOR, FILM, 2.7K OHM, ±5%, 1/4W
R2227	63-9921-74	RESISTOR, FILM, 1.2K OHM, ±5%, 1/4W
R2251	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W
R2252	63-9922-52	RESISTOR, FILM, 2.2 MEGOHM, ±5%, 1/4W
R2253	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
R2254	63-7813	RESISTOR, CARBON, 4.7K OHM, ±10%, 1/2W
R2276	63-10181-56	RESISTOR, CARBON, 220 OHM, ±5%, 1/4W
R2277	63-10181-56	RESISTOR, CARBON, 220 OHM, ±5%, 1/4W
R2278	63-9921-94	RESISTOR, FILM, 8.2K OHM, ±5%, 1/4W
R2280	63-10811-02	CONTROL, 30K OHM, ±20%, BRIGHTNESS LIMITER
R2301	63-9921-56	RESISTOR, FILM, 220 OHM, ±5%, 1/4W
R2302	63-9922-08	RESISTOR, FILM, 33K OHM, ±5%, 1/4W
R2303	63-10811-09	CONTROL, 10K OHM, ±30%, 1/3W, CROSS TALK
R2326	63-9922-04	RESISTOR, FILM, 22K OHM, ±5%, 1/4W
R2327	63-10811-03	CONTROL, 25K OHM, ±20%, APC
R2351	63-9921-64	RESISTOR, FILM, 470 OHM, ±5%, 1/4W
R2352	63-9921-62	RESISTOR, FILM, 390 OHM, ±5%, 1/4W
R2353	63-9921-77	RESISTOR, FILM, 1.6K OHM, ±5%, 1/4W
R2354	63-9921-95	RESISTOR, FILM, 9.1K OHM, ±5%, 1/4W
R2355		
R2356	63-9922-46	RESISTOR, FILM, 1.2 MEGOHM, ±5%, 1/4W
R2357		
R2376	63-9921-65	RESISTOR, FILM, 510 OHM, ±5%, 1/4W
R2377	63-9921-62	RESISTOR, FILM, 390 OHM, ±5%, 1/4W
R2378	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R2379	63-9921-65	RESISTOR, FILM, 510 OHM, ±5%, 1/4W
R2380	63-9921-65	RESISTOR, FILM, 510 OHM, ±5%, 1/4W
R2381	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W
R2382	63-9921-62	RESISTOR, FILM, 390 OHM, ±5%, 1/4W
R2383	63-9921-84	RESISTOR, FILM, 3.3K OHM, ±5%, 1/4W
R2384	63-9921-64	RESISTOR, FILM, 470 OHM, ±5%, 1/4W
U2151	105-132	RESISTIVE NETWORK, VERTICAL COUNTDOWN
U2201	105-134	RESISTIVE NETWORK, LUMINANCE
U2276	105-162	RESISTIVE NETWORK, LUMINANCE (10 PIN)
U2326	105-163	RESISTIVE NETWORK, CHROMA (10 PIN)
2G	58-381-04	CONNECTOR, MALE, 4 CONTACT
2H	58-380-02	CONNECTOR, MALE, 2 CONTACT
2J	58-381-06	CONNECTOR, MALE, 4 CONTACT
2X	58-381-02	CONNECTOR, MALE, 4 CONTACT

QUANTITY USED	PART NUMBER	DESCRIPTION
	A-8197	WIRE & TERMINAL ASSY, SINGLE CONDUCTOR WITH HOUSING, YELLOW
	A-8435	CABLE & TERMINAL ASSY, 2 CONDUCTOR
8	19-879	CLIP, HEAT SINK, MOUNTING
4	54-308-01	NUT, STAMPED, LOCKING, 6-32 X .250 AF
3	86-596-01	TERMINAL, INSERT PIN
8	86-741	TERMINAL, INSERT PIN
4	97-932-02	STUD, THREADED
2	126-1814-01	HEAT SINK, TRANSISTOR
1	126-1886	SHIELD, CHROMA ISOLATION
1	204-706-02	PRINTED CIRCUIT BOARD, CHROMA









THESE RESISTIVE ELEMENTS ARE PART OF THICK FILM U2151 ,U2201 ,U2276 AND U2326 . FOR DETAILED SCHEMATIC, REFER TO PARTS LIST FOR DRAWING NUMBER.

IMPORTANT SAFETY NOTICE

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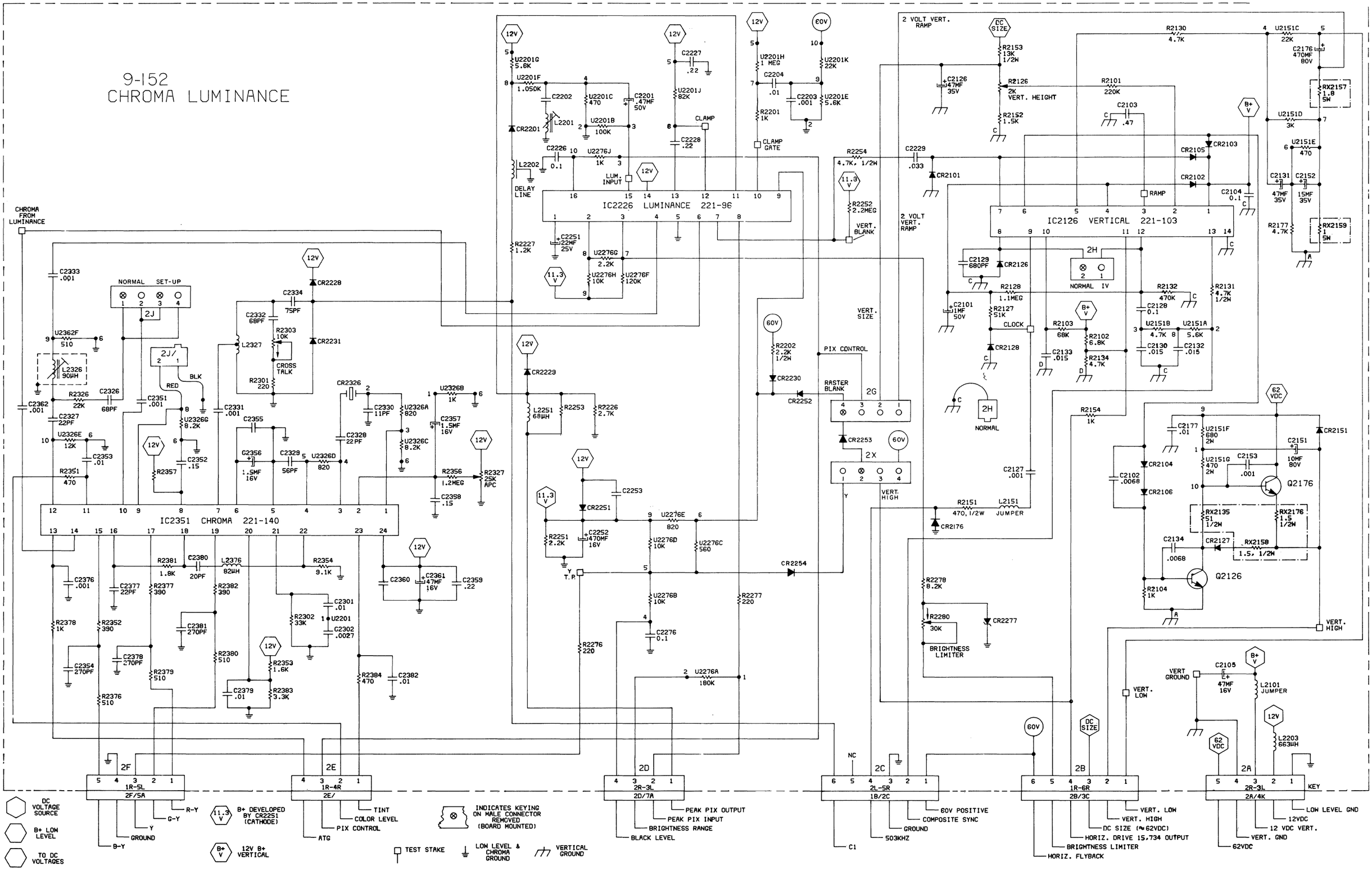
CAUTION

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SETS IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

■ CRITICAL SAFETY COMPONENTS:

THE LETTER "X" IN THE ELECTRICAL SCHEMATIC AND PARTS LIST, DESIGNATES SPECIAL CRITICAL SAFETY COMPONENTS. THESE SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ZENITH PARTS LIST AND SCHEMATIC.

9-152
CHROMA LUMINANCE



CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-155 -01A	9-155 -01D
C5101	22-7523	CAPACITOR, DISC, .001 MF, ±10%, 2KV	X	X
C5102	22-4671	CAPACITOR, DISC, .01 MF, +80-20%, 1500V	X	X
C5103	22-5824	CAPACITOR, DISC, 47 PF, ±5%, 500V	X	X
C5104	22-5824	CAPACITOR, DISC, 47 PF, ±5%, 500V	X	X
C5151	22-7603	CAPACITOR, ELECTROLYTIC, 4.7 MF, +100-10%, 315V	X	X
C5152	22-7755	CAPACITOR, DISC, .01 MF, +80-20%, 1500V	X	X
C5153		PROVISION		
C5154	22-5824	CAPACITOR, DISC, 47 PF, ±5%, 500V	X	X
CR5151	103-254-01	DIODE, HIGH VOLTAGE, SILICON	X	X
CR5152	103-301-24A	DIODE, ZENER	X	X
ES101	52-2240-06	SPARK GAP	X	X
ES102	52-2240-06	SPARK GAP	X	X
ES151	52-2240-06	SPARK GAP	X	X
ES152	52-2240-06	SPARK GAP	X	X
L5151	20-3887-30	COIL, SHUNT, PEAKING, 330 uH	X	X
Q5101	F-7510	TRANSISTOR AND HEAT SINK ASSY (121-1034, 126-1910)	X	X
Q5102	F-7510	TRANSISTOR AND HEAT SINK ASSY (121-1034, 126-1910)	X	X
Q5151	121-1019	TRANSISTOR, PNP, SILICON	X	X
Q5152	F-7510	TRANSISTOR AND HEAT SINK ASSY (121-1034, 126-1910)	X	X
R5100	191-1005-03	WIRE, PRECUT, 22 GAUGE	X	X
R5101	63-7928	RESISTOR, CARBON, 2.7 MEGOHM, ±5%, 1/2W	X	X
R5102	63-7934	RESISTOR, CARBON, 5.6 MEGOHM, ±5%, 1/2W	X	X
R5103	63-7892	RESISTOR, CARBON, 360K OHM, ±5%, 1/2W	X	X
■ RX5104	63-10670-02	CONTROL, ROTARY, SINGLE, 4 MEGOHM, G2	X	X
R5105	63-7785	RESISTOR, CARBON, 1.0K OHM, ±10%, 1/2W	X	X
R5106	63-7799	RESISTOR, CARBON, 2.2K OHM, ±10%, 1/2W	X	X
R5108	63-7802	RESISTOR, CARBON, 2.7K OHM, ±5%, 1/2W	X	X
R5109	63-10794-02	CONTROL, ROTARY, SINGLE, 500 OHM, GREEN BACKGROUND	X	X
R5110	63-10794-01	CONTROL, ROTARY, SINGLE, 500 OHM, RED BACKGROUND	X	X
R5151	63-7782	RESISTOR, CARBON, 820 OHM, ±10%, 1/2W	X	X
R5152	63-9947-26	RESISTOR, FILM, 180K OHM, ±5%, 1/2W	X	X
R5153	63-9946-45	RESISTOR, FILM, 75 OHM, ±5%, 1/2W	X	X
R5154	63-9946-70	RESISTOR, FILM, 820 OHM, ±5%, 1/2W	X	X
R5155	63-7854	RESISTOR, CARBON, 47K OHM, ±5%, 1/2W	X	X
R5156	63-7784	RESISTOR, CARBON, 1K OHM, ±5%, 1/2W	X	X
R5159	63-7802	RESISTOR, CARBON, 2.7K OHM, ±5%, 1/2W	X	X
R5161	63-7802	RESISTOR, CARBON, 2.7K OHM, ±5%, 1/2W	X	X
R5162	63-10794	CONTROL, ROTARY, SINGLE, 500 OHM, BLUE BACKGROUND	X	X
US105	105-150	RESISTOR NETWORK	X	X

QUANTITY USED	PART NUMBER	DESCRIPTION	9-155 -01A	9-155 -01D
1	A-8197	CABLE ASSEMBLY WITH HOUSING	X	X
1	A-8198	CABLE ASSEMBLY WITH HOUSING	X	X
1	24-2672-04	COVER, VIDEO MODULE BOARD	X	X
1	58-380-03	CONNECTOR, MALE, 2 CONTACT (NORMAL SET-UP)	X	X
1	58-383	CONNECTOR, MALE, 1 CONTACT (LOW G2)	X	X
1	58-383	CONNECTOR, MALE, 1 CONTACT (HIGH G2)	X	X
1	78-2274-02	SOCKET, CRT	X	
1	78-2274-03	SOCKET, CRT		X
1	204-699-01	MODULE, VIDEO OUTPUT & CRT BIAS	X	
1	204-699-02	MODULE, VIDEO OUTPUT & CRT BIAS		X

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CAUTION

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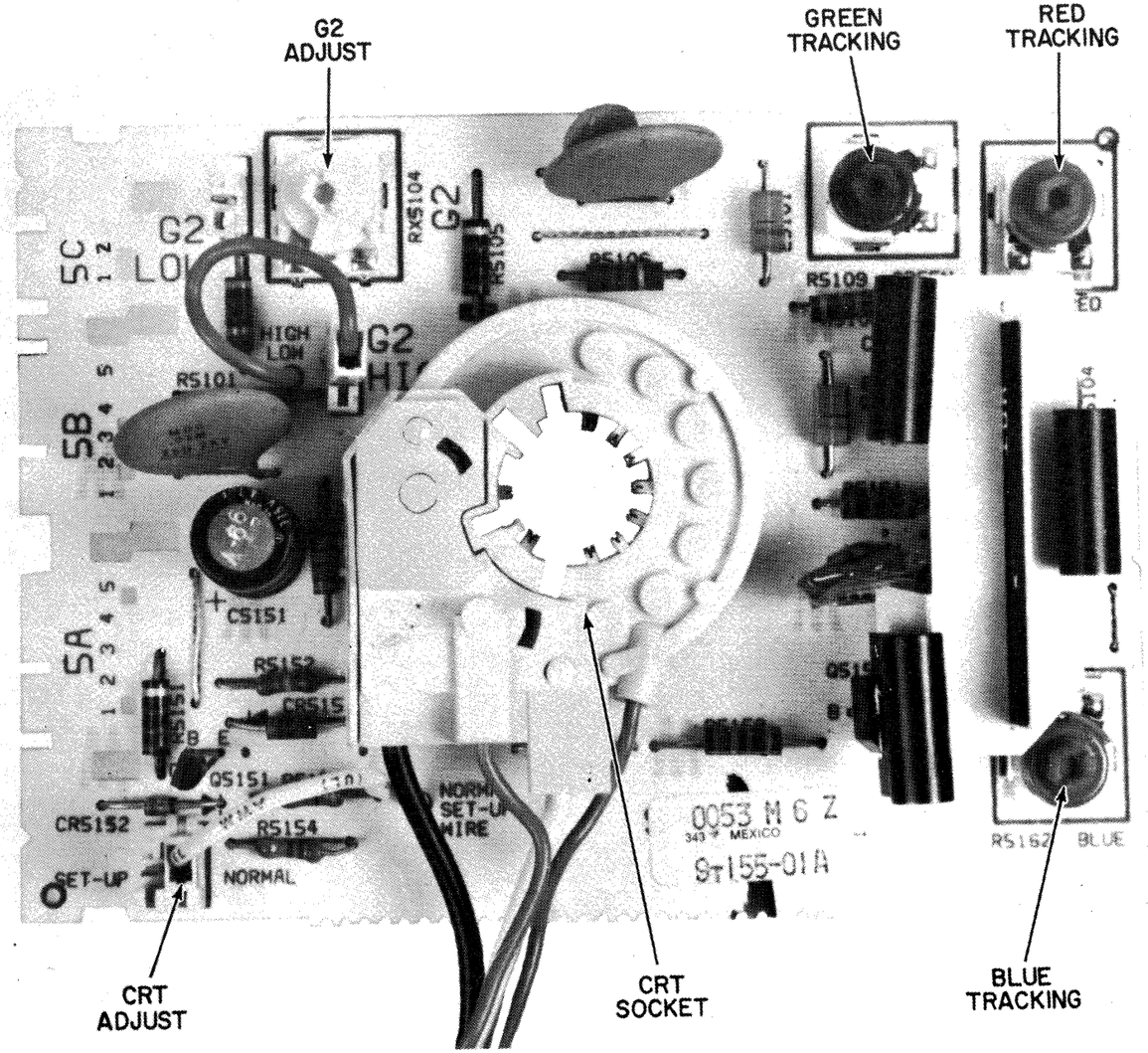
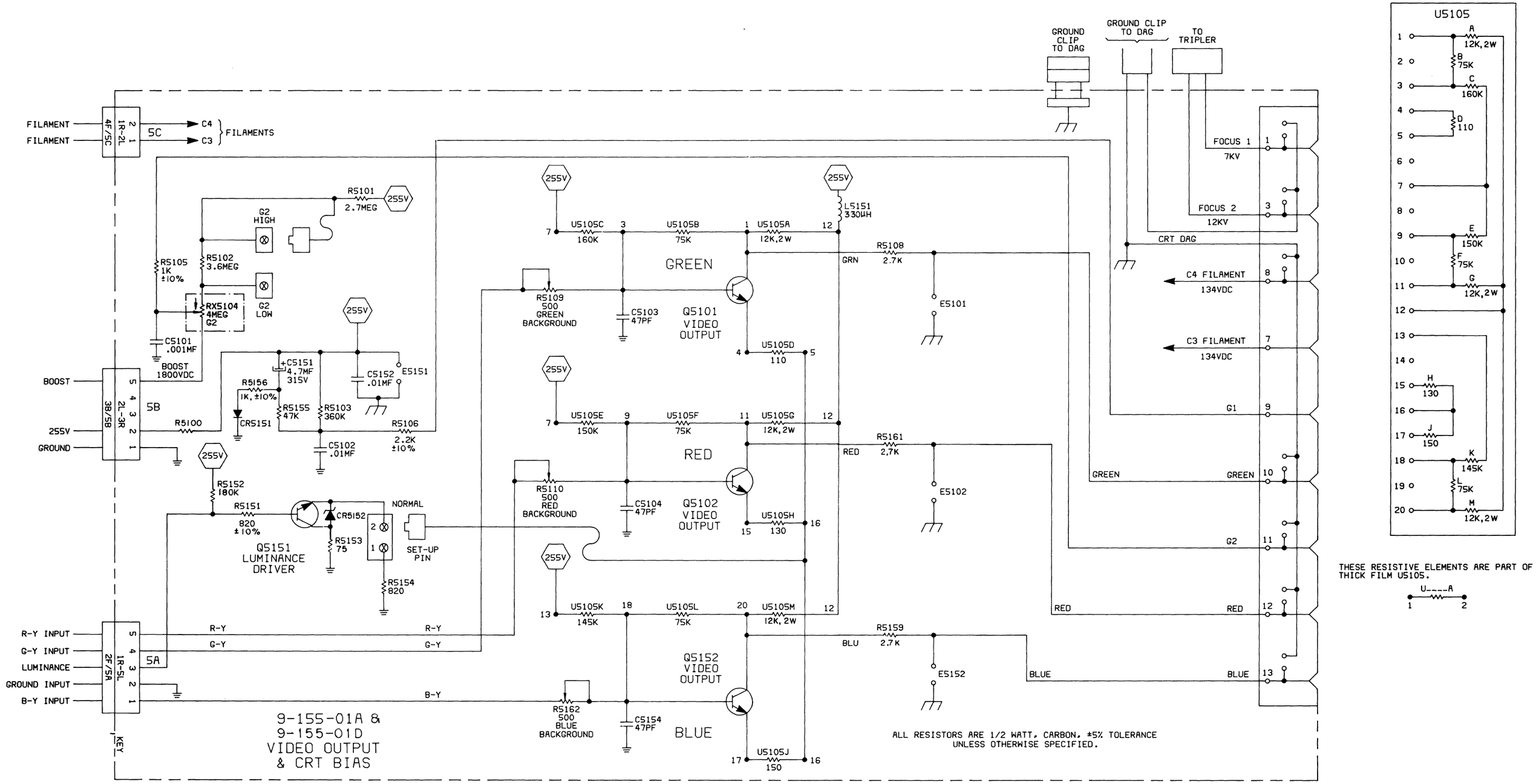
■ CRITICAL SAFETY COMPONENTS:

THE LETTER "X" IN THE ELECTRICAL SCHEMATIC AND PARTS LIST, DESIGNATES SPECIAL CRITICAL SAFETY COMPONENTS. THESE SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ZENITH PARTS LIST AND SCHEMATIC.

LEGEND, 9-155-01A AND 9-155-01D MODULES



9-155-01A MODULE



SCHEMATIC 9-155-01A AND 9-155-01D MODULES

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-160 -03A	9-160 -03C	9-160 -03D	9-160 -05
■ AX3376	105-1149	RESISTOR/CAPACITOR NETWORK	X			
C3275	22-7389-04	CAPACITOR, ELECTROLYTIC, 15 MF, ±20%, 25V	X	X	X	X
C3277	22-7157-08	CAPACITOR, ELECTROLYTIC, 100 MF, +100-10%, 100V	X	X	X	X
C3278	22-7566-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 250V	X	X	X	X
C3301		PROVISION				
C3302		PROVISION				
C3303	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3304	22-7339-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 100V	X	X	X	X
C3305	22-7292	CAPACITOR, ELECTROLYTIC, 2.2 MF, ±20%, 50V	X	X	X	X
C3306	22-7710-04	CAPACITOR, ELECTROLYTIC, 4.7 MF, +50-10%, 50V		X		
C3306	22-7563-07	CAPACITOR, POLYESTER, .0039 MF, ±10%, 100V	X	X	X	X
C3307	22-7563-31	CAPACITOR, POLYESTER, .39 MF, ±10%, 100V	X	X	X	X
C3308	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3309	22-7151-04	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 16V	X	X	X	X
C3310	22-7191	CAPACITOR, DISC, .0027 MF, ±10%, 500V	X	X	X	X
■ CX3311	91-20530	JUMPER, PRECUT, 22 GAUGE	X	X	X	X
■ CX3312	22-7431-06	CAPACITOR, DISC, .0047 MF, ±20%, 125VAC	X	X	X	X
C3314	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3315	22-7680	CAPACITOR, ELECTROLYTIC, 47 MF, +100-10%, 16V	X	X	X	X
■ CX3316	22-7672-05	CAPACITOR, POLYPROPYLENE, FOIL, .018 MF, 1.8KV	X	X	X	X
■ CX3317		PROVISION				
■ CX3318		PROVISION				
■ CX3320	22-6486	CAPACITOR, DISC, 820 PF, ±10%, 3KV	X	X	X	X
C3321	22-7128	CAPACITOR, POLYESTER, .68 MF, ±10%, 200V	X	X	X	X
■ CX3322	22-6468	CAPACITOR, DISC, 560 PF, ±10%, 3KV	X	X	X	X
■ CX3323	22-6466	CAPACITOR, DISC, 330 PF, ±10%, 3KV	X	X	X	X
■ CX3324A	22-7735	CAPACITOR, ELECTROLYTIC, DUAL, 300 MF, +100-10%, 180V	X		X	X
■ CX3326B		CAPACITOR, ELECTROLYTIC, DUAL, 300 MF, +100-10%, 180V	X		X	X
■ CX3326A	22-7735-01	CAPACITOR, ELECTROLYTIC, DUAL, 1700 MF, +100-10%, 180V		X		
■ CX3326B		CAPACITOR, ELECTROLYTIC, DUAL, 1700 MF, +100-10%, 180V		X		
C3327	22-5748	CAPACITOR, DISC, .001 MF, ±10%, 1KV	X	X	X	X
C3328	22-5748	CAPACITOR, DISC, .001 MF, ±10%, 1KV	X	X	X	X
C3329	22-5748	CAPACITOR, DISC, .001 MF, ±10%, 1KV	X	X	X	X
■ CX3330	22-7708-11	CAPACITOR, ELECTROLYTIC, 330 MF, +50-10%, 25V	X	X	X	X
C3331	22-7563-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 100V	X	X	X	X
C3332	22-7576	CAPACITOR, POLYESTER, .001 MF, ±20%, 1KV	X	X	X	X
C3333	22-5688	CAPACITOR, DISC, 1000 PF, ±10%, 500V	X	X	X	X
C3334	22-7563-08	CAPACITOR, POLYESTER, .0047 MF, ±10%, 100V	X	X	X	X
C3335	22-7339-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 100V	X	X	X	X
C3336	22-5681	CAPACITOR, DISC, 560 PF, ±10%, 500V	X	X	X	X
C3337	22-5681	CAPACITOR, DISC, 560 PF, ±10%, 500V	X	X	X	X
C3338	22-4122	CAPACITOR, MYLAR, .047 MF, ±10%, 200V	X	X	X	X
C3339	22-7708-04	CAPACITOR, ELECTROLYTIC, 4.7 MF, +50-10%, 25V	X	X	X	X
■ CX3340	22-7523-01	CAPACITOR, DISC, .01 MF, ±20%, 2KV	X	X	X	X
■ CX3341	22-7153	CAPACITOR, ELECTROLYTIC, 1 MF, +100-10%, 50V	X	X	X	X
C3342	22-7404-06	CAPACITOR, ELECTROLYTIC, 22 MF, NP, ±20%, 16?	X	X	X	X
C3343	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V	X	X	X	X
C3344	22-2103	CAPACITOR, DISC, 220 PF, ±10%, 500V	X	X	X	X
C3345	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3346	22-4905	CAPACITOR, DISC, .01 MF, +80-20%, 500V	X	X	X	X
C3347	22-4905	CAPACITOR, DISC, .01 MF, +80-20%, 500V	X	X	X	X
C3350	22-7683	CAPACITOR, POLYPROPYLENE, .56 MF, ±10%, 200V	X	X	X	X
C3351	22-7339-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V	X	X	X	X
C3352	22-7711-04	CAPACITOR, ELECTROLYTIC, 4.7 MF, +50-10%, 63V	X	X	X	X
■ CX3353	22-7404-05	CAPACITOR, ELECTROLYTIC, 22 MF, NP, ±20%, 16V		X		
■ CX3375	22-7431-01	CAPACITOR, DISC, 220 PF, ±20%, 120VAC	X	X	X	X
■ CX3376	22-7431-05	CAPACITOR, DISC, .0047 MF, ±20%, 120VAC	X	X	X	X
C3451	22-7153	CAPACITOR, ELECTROLYTIC, 1 MF, +100-10%, 50V	X	X	X	X
C3452	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V	X	X	X	X
C3453	22-7151-04	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 16V	X	X	X	X
C3454	22-7708-11	CAPACITOR, ELECTROLYTIC, 330 MF, +50-10%, 25V	X	X	X	X
■ CX3455	22-7680	CAPACITOR, DISC, 1000 PF, ±10%, 1KV	X	X	X	X
■ CX3461	22-7803-01	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 315V	X	X	X	X

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-160 -03A	9-160 -03C	9-160 -03D	9-160 -05
C3462	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3463	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3464	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
C3465	22-5688	CAPACITOR, DISC, .001 MF, ±10%, 500V	X	X	X	X
■ CX3515	22-7566-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 250V	X	X	X	X
C3517	22-3748	CAPACITOR, DISC, 1000 PF, ±10%, 1KV	X	X	X	X
C3776	22-7162-28	CAPACITOR, TUBULAR, 0.1 MF, ±20%, 100V				X
CR3276	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3301	103-279-21A	DIODE, ZENER, 12 VOLT, .5 WATT	X	X	X	X
CR3306	103-316-04	DIODE, LOW VOLTAGE, 3 AMP.	X	X	X	X
CR3307	103-305	DIODE, HIGH VOLTAGE (DAMPER)	X	X	X	X
CR3308	103-312	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3326	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3327	103-315-03A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3328	103-315-03A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3329	103-315-03A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3330	103-515-03A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3331	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3332	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3333	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3334	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3335	103-284A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3336	103-284A	DIODE, LOW VOLTAGE	X	X	X	X
CR3337	103-142-01	DIODE, LOW VOLTAGE	X	X	X	X
CR3352	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
CR3353	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
CR3354	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3355	103-308A	DIODE, ZENER, 12 VOLT, 1/2 WATT	X	X	X	X
CR3356	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
CR3376	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
CR3451	103-305-01A	DIODE, ZENER, 10 VOLT, 1/2 WATT	X	X	X	X
CR3452	103-279-16A	DIODE, ZENER, 8.2 VOLT	X	X	X	X
CR3453	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3454	103-258-05A	DIODE, LOW VOLTAGE	X	X	X	X
CR3476	103-279-21A	DIODE, ZENER, 12 VOLT	X	X	X	X
■ CR3477	103-284A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3478	103-284A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3479	103-306A	DIODE, LOW VOLTAGE	X	X	X	X
■ CR3576	103-254-01	DIODE, LOW VOLTAGE	X	X	X	X
F3251	52-2240-10	SPARK GAP	X	X	X	X
■ FX3376	52-2240-05	SPARK GAP	X			
■ FX3377	52-2240-06	SPARK GAP	X			
■ FX3326	136-123-03	FUSE, 0.125 AMP., 250 VOLT	X	X	X	X
■ FX3376	136-123-01	FUSE, LINE, 125 VOLT, 2 AMP.	X	X	X	X

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-160 -03A	9-160 -03C	9-160 -03D	9-160 -05
■ IC X3301	221-132	INTEGRATED CIRCUIT, 8 PIN PULSE WIDTH (MOD.)	X	X	X	X
■ LX3301	20-3931-01	COIL, (663 uH)	X	X	X	X
L3302	191-1005-03	WIRE, PRECUT, (22 GAUGE)	X	X	X	X
L3303	149-454	BEAD, FERRITE (91 20530 WIRE) SOL'D. SINGLE, 22 GA.	X	X	X	X
L3304	149-454	BEAD, FERRITE	X	X	X	X
L3305	149-454	BEAD, FERRITE	X	X	X	X
L3326						
■ LX3351	95-1400	CHOKE, FILTER	X	X	X	X
■ LX3352	20-3945	COIL, LINEARITY	X	X	X	X
■ LX3353	20-3885-01	COIL, WIDTH	X	X	X	X
■ LX3376	20-3954	COIL, RCF, PARASITIC SUPPRESSOR	X	X	X	X
L3476	20-2021	COIL, (100 uH)	X	X	X	X
Q3301	121-1037	TRANSISTOR, NPN, FORWARD HORIZONTAL DRIVER	X	X	X	X
■ QX3326	121-1028	TRANSISTOR, NPN, HORIZONTAL OUTPUT	X	X	X	X
Q3327	121-1040	TRANSISTOR, NPN, REVERSE, HORIZONTAL DRIVER	X	X	X	X
■ QX3338	121-973	TRANSISTOR, PNP, SHUTDOWN	X	X	X	X
■ QX3351	121-975	TRANSISTOR, NPN, SHUTDOWN	X	X	X	X
Q3451	121-499-01	TRANSISTOR, NPN, REGULATOR FEEDBACK	X	X	X	X
Q3452	121-966-02	TRANSISTOR, NPN, 12 VOLT REGULATOR	X	X	X	X
Q3453	121-1043	TRANSISTOR, NPN, 32 VOLT CURRENT SOURCE	X	X	X	X
Q3454	121-973	TRANSISTOR, PNP	X	X	X	X
R3201	63-7785	RESISTOR, CARBON, 1K OHM, ±10%, 1/2W	X	X	X	X
R3251	63-7783	RESISTOR, CARBON, 910 OHM, ±5%, 1/2W	X	X	X	X
R3277	63-9946-71	RESISTOR, FILM, 910 OHM, ±5%, 1/2W	X	X	X	X
R3278	63-7736	RESISTOR, CARBON, 68 OHM, ±10%, 1/2W	X	X	X	X
R3279	63-7743	RESISTOR, CARBON, 100 OHM, ±10%, 1/2W	X	X	X	X
R3280	63-10565-66	RESISTOR, FILM, 560 OHM, ±5%, 1/2W	X	X	X	X
R3281	63-10565-66	RESISTOR, FILM, 560 OHM, ±5%, 1/2W	X	X	X	X
R3282	63-7883	RESISTOR, CARBON, 220K OHM, ±10%, 1/2W	X	X	X	X
R3283						
■ RX3284	63-10742-03	RESISTOR, WIREWOUND, FUSING, .62 OHM, ±5%, 2W	X	X	X	X
R3301						
R3302	63-9921-68	RESISTOR, FILM, 680 OHM, ±5%, 1/4W	X	X	X	X
R3303	63-9921-40	RESISTOR, FILM, 47 OHM, ±5%, 1/4W	X	X	X	X
R3304	63-9921-72	RESISTOR, FILM, 1K OHM, ±5% 1/4W	X	X	X	X
R3305	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W	X	X	X	X
R3307	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W	X	X	X	X
R3308	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W	X	X	X	X
■ RX3309	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W	X	X	X	X
■ RX3310	63-9921-94	RESISTOR, FILM, 8.2K OHM, ±5%, 1/4W	X	X	X	X
■ RX3312	63-10684-06	CONTROL, POT., 2K OHM, ±20%	X	X	X	X
R3313	63-9921-92	RESISTOR, FILM, 6.8K OHM, ±5%, 1/4W	X	X	X	X
■ RX3314	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W	X	X	X	X
R3315	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W	X	X	X	X
R3316	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W	X	X	X	X
■ RX3317	63-9921-95	RESISTOR, FILM, 9.1K OHM, ±5%, 1/4W	X	X	X	X
R3319	63-9921-91	RESISTOR, FILM, 6.2K OHM, ±5%, 1/4W	X	X	X	X
R3320	63-7785	RESISTOR, CARBON, 1K OHM, ±10%, 1/2W	X	X	X	X
R3323	63-10565-20	RESISTOR, FILM, 6.8 OHM, ±5%, 1/2W	X	X	X	X
R3324	63-10565-20	RESISTOR, FILM, 6.8 OHM, ±5%, 1/2W	X	X	X	X
■ RX3326	63-9947-20	RESISTOR, FILM, 100K OHM, ±5%, 1/2W	X	X	X	X
■ RX3327	63-9248	RESISTOR, WIREWOUND, 4 OHM, ±10%, 10W	X	X	X	X
R3328	63-9921-74	RESISTOR, FILM, 1.2K OHM, ±5%, 1/4W	X	X	X	X
R3329	63-9946-96	RESISTOR, FILM, 10K OHM, ±5%, 1/2W	X	X	X	X

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CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-160 -03A	9-160 -03C	9-160 -03D	9-160 -05
R3330	63-6913	RESISTOR, FILM, 680 OHM, ±10%, 2W	X	X	X	X
R3331	63-9922-06	RESISTOR, FILM, 27K OHM, ±5%, 1/4W	X	X	X	X
■ RX3332	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W	X	X	X	X
■ RX3333	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W	X	X	X	X
■ RX3334	63-10452	RESISTOR, WIREWOUND, 1.5K OHM, ±10%, 7W	X	X	X	X
■ RX3335	63-10442-82	RESISTOR, WIREWOUND, 270 OHM, ±5%, 5W	X	X	X	X
R3336	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W	X	X	X	X
R3337	63-9921-48	RESISTOR, FILM, 100 OHM, ±5%, 1/4W	X	X	X	X
R3338	63-9922-12	RESISTOR, FILM, 47K OHM, ±5%, 1/4W	X	X	X	X
■ RX3339	63-10529-04	RESISTOR, CARBON, 10 MEGOHM, ±20%, 1/2W	X	X	X	X
■ RX3340	191-1005-03	WIRE, PRECUT, 22 GAUGE	X	X	X	
R3352	63-7797	RESISTOR, CARBON, 2K OHM, ±5%, 1/2W	X	X	X	X
R3353	63-7797	RESISTOR, CARBON, 2K OHM, ±5%, 1/2W	X	X	X	X
R3354	63-10271	RESISTOR, WIREWOUND, 330 OHM, ±10%, 5W	X	X	X	X
■ RX3355	63-9946-08	RESISTOR, FILM, 2.2 OHM, ±5%, 1/2W	X	X	X	X
R3356						
■ RX3367	63-9921-32	RESISTOR, FILM, 22 OHM, ±5%, 1/4W	X	X	X	X
■ RX3368	63-9921-60	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W	X	X	X	X
■ RX3369	63-10810	RESISTOR, FILM, 1.1K OHM, 1%, 1/2W	X	X	X	X
■ RX3360	63-10810-01	RESISTOR, FILM, 2.74K OHM, 1%, 1/2W	X	X	X	X
■ RX3361	63-10810	RESISTOR, FILM, 1.1K OHM, 1%, 1/2W	X	X	X	X
■ RX3362	63-9921-67	RESISTOR, FILM, 820 OHM, ±5%, 1/4W	X	X	X	X
■ RX3363	63-9922-02	RESISTOR, FILM, 18K OHM, ±5%, 1/4W	X	X	X	X
■ RX3364						
■ RX3365	63-9922-06	RESISTOR, FILM, 27K OHM, ±5%, 1/4W	X	X	X	X
■ RX3366	63-9922-14	RESISTOR, FILM, 56K OHM, ±5%, 1/4W	X	X	X	X
■ RX3367	63-9922	RESISTOR, FILM, 15K OHM, ±5%, 1/4W	X	X	X	X
■ RX3377	63-10657-03	RESISTOR, CARBON, 1.2 MEGOHM, ±20%, 1/2W	X	X	X	X
R3451	63-9921-44	RESISTOR, FILM, 68 OHM, ±5%, 1/4W	X	X	X	X
R3452	63-9921-52	RESISTOR, FILM, 150 OHM, ±5%, 1/4W	X	X	X	X
R3453	63-9946-56	RESISTOR, FILM, 270 OHM, ±5%, 1/2W	X	X	X	X
R3454	63-10341-62	RESISTOR, FILM, 390 OHM, ±5%, 1W	X	X	X	X
R3455	63-10714	RESISTOR, WIREWOUND, FUSEABLE, 2 OHM, ±10%, 2W	X	X	X	X
R3456	63-9922-02	RESISTOR, FILM, 18K OHM, ±5%, 1/4W	X	X	X	X
R3458	63-10714	RESISTOR, WIREWOUND, FUSEABLE, 2 OHM, ±10%, 2W	X	X	X	X
■ RX3459	63-10565-08	RESISTOR, FILM, 2.2 OHM, ±5%, 1/2W	X	X	X	X
■ RX3460	63-10565-08	RESISTOR, FILM, 2.2 OHM, ±5%, 1/2W	X	X	X	X
■ RX3461	63-9946-36	RESISTOR, FILM, 33 OHM, ±5%, 1/2W	X	X	X	X
■ RX3462	63-10714	RESISTOR, WIREWOUND, FUSEABLE, 2 OHM, ±10%, 2W	X	X	X	X
R3463	63-9922-12	RESISTOR, FILM, 47K OHM, ±5%, 1/4W	X	X	X	X
R3464	63-9922-12	RESISTOR, FILM, 47K OHM, ±5%, 1/4W	X	X	X	X
R3476	63-9947-04	RESISTOR, FILM, 22K OHM, ±5%, 1/2W	X	X	X	X
R3477						
R3478	63-9921-70	RESISTOR, FILM, 820 OHM, ±5%, 1/4W	X	X	X	X
■ RX3479	63-10565-12	RESISTOR, FILM, 3.3 OHM, ±5%, 1/2W	X	X	X	X
■ RX3480	63-10565-12	RESISTOR, FILM, 3.3 OHM, ±5%, 1/2W	X	X	X	X
■ RX3481	63-10430-64	RESISTOR, WIREWOUND, 47 OHM, ±10%, 3W	X	X	X	X
R3576	63-9946-64	RESISTOR, FILM, 470 OHM, ±5%, 1/2W	X	X	X	X
■ RX3671	63-10710	THERMISTOR (DEG)	X	X	X	X
R3776	63-9946-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/2W			X	
■ TX3251	95-3389-04	TRANSFORMER PIN REACTOR	X	X	X	
■ TX3301	95-3427-01	TRANSFORMER, FEEDBACK	X	X	X	X
■ TX3326	95-3544	TRANSFORMER, HORIZONTAL DRIVER	X	X	X	X
■ TX3351	95-3428	TRANSFORMER, POWER	X	X	X	X
■ TX3352	95-3380-06A	TRANSFORMER, SWEEP "D" ("E" NOT USED)	X	X	X	X
■ TX3376	95-3439	TRANSFORMER (LCI)	X	X	X	X

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION	9-160 -03A	9-160 -03C	9-160 -03D	9-160 -05
3J	58-385-05	TERMINAL, HOUSING (2 PIN SPECIAL)	X	X	X	X
3M						
3L						
3M	58-382-01	TERMINAL, HOUSING (MALE, 6 PIN)	X	X	X	X
3M	58-382-04	TERMINAL, HOUSING (MALE, 6 PIN)	X	X	X	X
3P	58-385-03	TERMINAL, HOUSING (MALE, 2 PIN SPEC/AL)	X	X	X	X
3R	58-380-03	TERMINAL, HOUSING, (MALE, 2 PIN)	X	X	X	X
3T						
3U	58-380-02	TERMINAL, HOUSING (MALE, 2 PIN)	X	X	X	X
A	91-2841-01	JUMPER WIRE, BRN, 15" 6/16 X 6/16 (F-4808)	X	X	X	X
B						
C						
D						
E	91-2845-05	JUMPER WIRE, GRN, 12" 6/16 X 6/16 (F-4806)	X	X	X	X
F						
G	91-2847-07	JUMPER WIRE, VIO, 12 1/2", 6/16 X 6/16 (F-7814)	X	X	X	X
H	91-2848-08	JUMPER WIRE, ORN, 5 1/2", 6/16 X 6/16 (F-4800)	X	X	X	X
J	91-2849-09	JUMPER WIRE, WHT, 8", 6/16 X 6/16 (F 4804)				X
K	91-2849-02	JUMPER WIRE, WHT/RED, 6 1/2", 6/16 X 6/16 (F-4803)	X	X	X	X
L	91-2840	JUMPER WIRE, BLK, 8 1/2", 6/16 X 6/16 (F-4805)	X	X	X	X
M						
N	91-2841-01	JUMPER WIRE, BRN, 4", 6 1/16 X 6 1/16	X	X	X	X
	126-1851-02	HEAT SINK (H.S.T.)	X	X	X	X
	126-1859-01	HEAT SINK (TRANSISTOR)	X	X	X	X
	204-680-10	PC BOARD	X	X	X	X

IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE ZENITH RADIO CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT, AND THEIR PHYSICAL LOCATION, WIRING AND LEAD DRESS MUST CONFORM TO ORIGINAL LAYOUT UPON COMPLETION OF REPAIRS. IN SOME INSTANCES REDUNDANT CIRCUITRY IS INCORPORATED FOR ADDITIONAL CIRCUIT PROTECTION AND X-RADIATION SAFETY. SPECIAL CIRCUITS ARE ALSO USED TO PREVENT SHOCK AND FIRE HAZARD. THESE ITEMS ARE MARKED AND SHOWN IN THE SCHEMATIC FOR EASY IDENTIFICATION. THE LETTER "X" INCLUDED IN THE CIRCUIT REFERENCE DESIGNATION DESIGNATES SPECIAL COMPONENTS IN THE AREAS WHICH ARE REQUIRED TO MAINTAIN SAFE PERFORMANCE. NO DEVIATIONS ARE ALLOWED WITHOUT PRIOR APPROVAL BY THE SAFETY ENGINEERING DEPARTMENT.

CAUTION

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS MAY IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SETS IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

■ CRITICAL SAFETY COMPONENTS:

THE LETTER "X" IN THE ELECTRICAL SCHEMATIC AND PARTS LIST, DESIGNATES SPECIAL CRITICAL SAFETY COMPONENTS. THESE SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ZENITH PARTS LIST AND SCHEMATIC.

LEGEND, 9-160-03A MODULE

9-160-03A, 9-160-03C,
9-160-03D & 9-160-05
LOW VOLTAGE, HIGH VOLTAGE
SUPPLY & HORIZONTAL
SWEEP

ICX3301 PULSE WIDTH MODULATOR

Q3301 FORWARD HORIZ. DRIVER

TX3301 REGULATION

* FOR CONTINUED COMPLIANCE WITH RADIATION SAFETY LAW, REPLACE WITH EXACT TYPE ONLY

TX3352 SWEEP

25KV HV ANODE CAP *

FOCUS WIRE

FOCUS POT WIRE

BOOST TO 38-5

(E CLOSED)

PERMANENT FACTORY SEALED CONTROL. DO NOT DEFEAT.
FOR PROPER REPLACEMENT SEE SERVICE INSTRUCTIONS.

QX3326 H.O.T.

HORIZ. HIGH

Q3327 REVERSE HORIZ. DRIVER

TX3326 HORIZ. DRIVER

INTER-LOCK

3P (YOKE)

12 VOLT SUPPLY

Q3452 12 VOLT. REG.

Q3451 REGULATOR FEEDBACK

SHUTDOWN

QX3338 SHUT DOWN

QX3351 SHUT DOWN

TX3251 PIN REACTOR

LX3352 LIN.

LX3353 WIDTH

3K TO ZOOM 9E

3T TO ZOOM 9F

Q3454

3M TO 1A

3N CHANNEL SELECTOR

BRIGHTNESS LIMITER

GROUND

Q3453 32 VOLT CURRENT SOURCE

B+ OFF SET

TO CHANNEL SELECTOR

3U

3R TO ZOOM 9G

LX3351 FILTER

TX3351 SUPPLY

FX3326 .125 AMP.

3J TO DEGAUSSER

SEE PARTS LIST

EX3376 EX3377

AX3376 400PF 1.0 TO 2.5 MEG.

TX3376 LCI

AIR SPARK GAP

FX3376 2 AMP.

AIR SPARK GAP

4B 1R-5R 4B(LINE)

4A 2R-5L 4A/(ON-OFF)

4K 2R-3L 2A/4K

4L 1R-2R 4L/7B

3D 3L-5R 3D(YOKE)

3C 1R-6R 2B/3C

3B 2L-3R 3B/5B

4H 1R-2L 4H/5C

120VAC LOW

120V, 60HZ POLARIZED SUPPLY

120VAC HIGH

120VAC TO SWITCH

120VAC HIGH FROM SWITCH

62VDC

12VDC

GROUND

HORIZONTAL LOW

VERTICAL LOW

VERTICAL HIGH

INTERLOCK

FLYBACK PULSE

BRIGHTNESS LIMITER

HORIZONTAL DRIVE

BOOST

250VDC

FILAMENTS

TO DAG

DC VOLTAGE SOURCE

DC GROUND

TO DC VOLTAGES

INDICATES INSULATED JUMPER WIRE

AC GROUND

TEST POINT

INDICATES KEYING ON MALE CONNECTOR REMOVED (BOARD MOUNTED)

18V SU = START UP VOLTAGE

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C3276	22-7389-04	CAPACITOR, ELECTROLYTIC, 15 MF, ±20%, 25V
C3277	22-7157-08	CAPACITOR, ELECTROLYTIC, 100 MF, +100-10% 100V
C3278	22-7566-24	CAPACITOR, POLYESTER .01 MF, ±10%, 250V
C3301	22-7683	CAPACITOR, POLYPROPYLENE, .66 MF, ±10%, 200V
C3302		
C3303	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3304	22-7563-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 100V
C3305	22-7710-04	CAPACITOR, ELECTROLYTIC, 4.7 MF, +50-10%, 50V
C3306	22-7563-07	CAPACITOR, POLYESTER, .0039 MF, ±10%, 100V
C3307	22-7563-31	CAPACITOR, POLYESTER, .39 MF, ±10%, 100V
C3308	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3309	22-7151-04	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 16V
C3310	22-7191	CAPACITOR, CERAMIC DISC, .0027 MF, ±10%, 500V
■ CX3311	22-7431-06	CAPACITOR, CERAMIC DISC, .0047 MF, +80-20%
■ CX3312		
C3313	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3314	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3315	22-7680	CAPACITOR, ELECTROLYTIC, 47 MF, +100-10%, 16V
■ CX3316	22-7672-04	CAPACITOR, POLYPROPYLENE, FOIL, .02 MF, 1.6KV
■ CX3317		PROVISION
■ CX3318		PROVISION
C3319	22-5995	CAPACITOR, CERAMIC DISC, 82 PF, ±20%, 500V
■ CX3320	22-6466	CAPACITOR, CERAMIC DISC, 530 PF, ±10%, 3KV
C3321	22-7128	CAPACITOR, POLYESTER, .68 MF, ±10%, 200V
■ CX3322	22-6466	CAPACITOR, CERAMIC DISC, 530 PF, ±10%, 3KV
■ CX3323	22-6466	CAPACITOR, CERAMIC DISC, 530 PF, ±10%, 3KV
■ CX3326A	22-7735-01	CAPACITOR, DUAL ELECTROLYTIC, 300 MF, +100-10%, 180V
■ CX3326B		CAPACITOR, DUAL ELECTROLYTIC, 1700 MF, +100-10%, 180V
C3327	22-7431-04	CAPACITOR, CERAMIC DISC, .001 MF, ±20%
C3328	22-7431-04	CAPACITOR, CERAMIC DISC, .001 MF, ±20%
C3329	22-7431-04	CAPACITOR, CERAMIC DISC, .001 MF, ±20%
■ CX3330	22-7526	CAPACITOR, ELECTROLYTIC, 100 MF, +100%, 25V
C3331	22-7563-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 100V
C3332	22-7576	CAPACITOR, POLYESTER, .001 MF, ±20%, 500V
C3333	22-5688	CAPACITOR, CERAMIC DISC, 1000 PF, ±10%, 500V
C3334	22-7563-08	CAPACITOR, POLYESTER, .0047 MF, ±10%, 100V
C3335	22-7563-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 100V
C3336	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3337	22-5481	CAPACITOR, CERAMIC DISC, 560 PF, ±10%, 500V
C3338	22-4122	CAPACITOR, MYLAR, .047 MF, ±10%, 200V
C3339	22-7390-01	CAPACITOR, ELECTROLYTIC, 2.2 MF, +50-10%, 50V
■ CX3340	22-7523-01	CAPACITOR, CERAMIC DISC, .01 MF, ±20%, 2KV
■ CX3341	22-7153	CAPACITOR, ELECTROLYTIC, 1 MF, +100-10%, 50V
C3342	22-7404-06	CAPACITOR, ELECTROLYTIC, 22 MF, NP, ±20%, 16V
C3343	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
■ CX3324		
C3351	22-7739-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C3352	22-7390-01	CAPACITOR, ELECTROLYTIC, 2.2 MF, +50-10%, 50V
C3353	22-7394	CAPACITOR, CERAMIC DISC, 180 PF, ±10%, 500V
C3354	22-4905	CAPACITOR, CERAMIC DISC, .01 MF, +80-20%, 500V
C3355	22-7404-06	CAPACITOR, ELECTROLYTIC, 22 MF, ±20%, 16V,(NP)
■ CX3376	22-7431-06	CAPACITOR, CERAMIC DISC, .0047 MF, ±20%,
C3347	22-7431-01	CAPACITOR, CERAMIC DISC, 220 PF, ±20%
C3348		
C3450	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
C3451	22-7153	CAPACITOR, ELECTROLYTIC, 1 MF, +100-10%, 50V
C3452	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C3453	22-7151-04	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 16V
C3454	22-7708-11	CAPACITOR, ELECTROLYTIC, 330 MF, +50-10%, 25V
■ CX3455	22-3748	CAPACITOR, CERAMIC DISC, 1000 PF, ±10%, 1KV
■ CX3456	22-7709-08	CAPACITOR, ELECTROLYTIC, 47 MF, +50 -10%, 35V
■ CX3457	22-7709-12	CAPACITOR, ELECTROLYTIC, 470 MF, +50 -10%, 35V
C3458	22-3748	CAPACITOR, CERAMIC DISC, 1000 PF, ±10%, 1KV
■ CX3477	22-7688-01	CAPACITOR, ELECTROLYTIC, 1000 MF, +100-10%, 80V
C3478	22-3748	CAPACITOR, CERAMIC DISC, 1000 PF, ±10%, 1KV
C3480	22-3748	CAPACITOR, CERAMIC DISC, 1000 PF, ±10%, 1KV
■ CX3481	22-7603-01	CAPACITOR, ELECTROLYTIC, 10 MF, +100-10%, 315V
C3482	22-5688	CAPACITOR, CERAMIC DISC, .001 MF, ±10%, 500V
■ CX3576	22-7566-16	CAPACITOR, POLYESTER, .022 MF, ±10%, 250V
C3577	22-3748	CAPACITOR, CERAMIC DISC, 1000 MF, ±10%, 1KV
C3776	22-7162-28	CAPACITOR, CERAMIC DISC, .01 MF, ±20%, 100V

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
CR3276	103-254-01	DIODE, LOW VOLTAGE
■ CRX3301	103-279-21A	DIODE, ZENER, 12 VOLT, .5 WATT
CR3306	103-316-04	DIODE, LOW VOLTAGE, 3 AMP.
CR3307	103-305	DIODE, HIGH VOLTAGE (DAMPER)
CR3308	103-312	DIODE, LOW VOLTAGE
■ CRX3327	103-315-03A	DIODE, LOW VOLTAGE (ALT. 212-76-02)
■ CRX3328	103-315-03A	DIODE, LOW VOLTAGE (ALT. 212-76-02)
■ CRX3329	103-315-03A	DIODE, LOW VOLTAGE (ALT. 212-76-02)
■ CRX3330	103-315-03A	DIODE, LOW VOLTAGE (ALT. 212-76-02)
■ CRX3331	103-254-01	DIODE, LOW VOLTAGE
■ CRX3332	103-254-01	DIODE, LOW VOLTAGE
■ CRX3333	103-254-01	DIODE, LOW VOLTAGE
■ CRX3334	103-254-01	DIODE, LOW VOLTAGE
■ CRX3335	103-284A	DIODE, LOW VOLTAGE
■ CRX3336	103-284A	DIODE, LOW VOLTAGE
CR3337	103-142-01	DIODE, LOW VOLTAGE
CR3338		
CR3352	103-254-01	DIODE, LOW VOLTAGE
CR3353	103-254-01	DIODE, LOW VOLTAGE
CR3354	103-254-01	DIODE, LOW VOLTAGE
■ CRX3355	103-308A	DIODE, ZENER, 12 VOLT, 5 WATT
CR3356	103-254-01	DIODE, LOW VOLTAGE
CR3376	103-254-01	DIODE, LOW VOLTAGE
CR3451	103-309-01A	DIODE, ZENER, 10 VOLT, 1/2 WATT
CR3452	103-279-16A	DIODE, ZENER, 8.2 VOLT
CR3453	103-254-01	DIODE, LOW VOLTAGE
■ CRX3454	103-298-05A	DIODE, LOW VOLTAGE
CR3476	103-279-21A	DIODE, ZENER, 12 VOLT
■ CRX3477	103-284A	DIODE, LOW VOLTAGE
■ CRX3478	103-284A	DIODE, LOW VOLTAGE
■ CRX3479	103-284A	DIODE, LOW VOLTAGE
CR3576	103-254-01	DIODE, LOW VOLTAGE
CR3776	103-254-01	DIODE, LOW VOLTAGE
E3251	52-2240-08	SPARK GAP
■ EX3376	52-2240-02	SPARK GAP) ---- F-6845
■ EX3377	52-2240-02	SPARK GAP)
■ FX3376	136-123-01	FUSE, LINE 2 AMP, 125 VOLT
■ AX3376	105-146	RESISTOR/CAPACITOR NETWORK
■ ICX3301	221-132	INTEGRATED CIRCUIT, 8 PIN PULSE WIDTH (MOD)
■ LX3301	20-3831-01	COIL, (663 UH)
L3302	191-1005-02	JUMPER WIRE, (20 GAUGE)
L3303	149-454	BEAD, FERRITE (91-2053D WIRE, SOLID, SINGLE, #22 GA.)
L3304	149-454	BEAD, FERRITE (USED ON CR3307)
L3305	149-454	BEAD, FERRITE, (USED ON CR3308)
L3326	191-1005-02	JUMPER WIRE (20 GAUGE)
■ LX3351	95-3400	CHOKE, FILTER
■ LX3352	20-3675	COIL, LINEARITY
■ LX3353	20-3885-01	COIL, WIDTH
L3476	20-3907-24A	COIL, (100 UH)
Q3301	121-1037	TRANSISTOR, NPN, FORWARD HORIZONTAL DRIVER
Q3303	121-1040	TRANSISTOR, NPN, REVERSE HORIZONTAL DRIVER
■ QX3326	121-1033	TRANSISTOR, NPN, HORIZONTAL OUTPUT
■ QX3338	121-973	TRANSISTOR, PNP, SHUTDOWN
■ QX3351	121-975	TRANSISTOR, NPN, SHUTDOWN
Q3451	121-499-01	TRANSISTOR, NPN, REGULATOR FEEDBACK
Q3452	121-966-01	TRANSISTOR, NPN, 12 VOLT REGULATOR
Q3453	121-1043	TRANSISTOR, PNP, 32 VOLT CURRENT SOURCE

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R3251	63-9946-71	RESISTOR, FILM, 910 OHM, ±5%, 1/2W
R3252	63-7785	RESISTOR, CARBON, 1K OHM, ±10%, 1/2W
R3277	63-9946-71	RESISTOR, FILM, 910 OHM, ±5%, 1/2W
R3278	63-7150	RESISTOR, CARBON, 150 OHM, ±10%, 1/2W
R3279	63-7743	RESISTOR, CARBON, 100 OHM, ±10%, 1/2W
R3280	63-10565-66	RESISTOR, FILM, 560 OHM, ±5%, 1/2W
R3281	63-10565-66	RESISTOR, FILM, 560 OHM, ±5%, 1/2W
R3282	63-7883	RESISTOR, CARBON, 220K OHM, ±10%, 1/2W
R3283		
■ RX3284	63-10742	RESISTOR, 2 OHM, ±5%, 2W, FAILSAFE
R3301		
R3302	63-9921-68	RESISTOR, FILM, 680 OHM, ±5%, 1/4W
■ RX3303	63-9921-40	RESISTOR, FILM, 47 OHM, ±5%, 1/4W
R3304	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R3305	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W
R3307	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W
R3308	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W
■ RX3309	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
■ RX3310	63-9921-94	RESISTOR, FILM, 8.2K OHM, ±5%, 1/4W
■ RX3312	63-10684-06	CONTROL, POT, 2K OHM, ±20%
R3313	63-9921-92	RESISTOR, FILM, 6.8K OHM, ±5%, 1/4W
■ RX3314	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R3315	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R3316	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
■ RX3317	63-9921-95	RESISTOR, FILM, 9.1K OHM, ±5%, 1/4W
R3319	63-9921-91	RESISTOR, FILM, 6.2K OHM, ±5%, 1/4W
R3320	63-7785	RESISTOR, CARBON, 1K OHM, ±10%, 1/2W
R3321	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W
R3323	63-10565-10	RESISTOR, FILM, 2.7 OHM, ±5%, 1/2W
R3324	63-10565-10	RESISTOR, FILM, 2.7 OHM, ±5%, 1/2W
■ RX3326	63-9947-20	RESISTOR, FILM, 100K OHM, ±5%, 1/2W
■ RX3327	63-8246	RESISTOR, WIREWOUND, 4 OHM, ±10%, 10W
R3328	63-9921-74	RESISTOR, FILM, 1.2K OHM, ±5%, 1/4W
R3329	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
R3330	63-6913	RESISTOR, FILM, 680 OHM, ±10%, 2W
R3331	63-9922-06	RESISTOR, FILM, 27K OHM, ±5%, 1/4W
■ RX3332	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
■ RX3333	63-9921-88	RESISTOR, FILM, 4.7K OHM, ±5%, 1/4W
■ RX3334	63-10452	RESISTOR, WIREWOUND, 1.5K OHM, ±10%, 7W
■ RX3335	63-10442-82	RESISTOR, WIREWOUND, 270 OHM, ±5%, 5W
■ RX3336	63-10526-04	RESISTOR, CARBON, 10 MEGOHM, ±20%, 1/2W
R3337	63-9921-48	RESISTOR, FILM, 100 OHM, ±5%, 1/4W
R3338	63-9922-05	RESISTOR, FILM, 24K OHM, ±5%, 1/4W
■ RX3367	63-9922-36	RESISTOR, FILM, 470K OHM, ±5%, 1/4W
R3352	63-7797	RESISTOR, CARBON, 2K OHM, ±5%, 1/2W
R3353	63-7797	RESISTOR, CARBON, 2K OHM, ±5%, 1/2W
R3354	63-10271	RESISTOR, WIREWOUND, 390 OHM, ±10%, 5W
■ RX3355	63-9946-08	RESISTOR, FILM, 2.2 OHM, ±5%, 1/2W
R3356	63-9922-20	RESISTOR, FILM, 100K OHM, ±5%, 1/4W
■ RX3357	63-9921-32	RESISTOR, FILM, 22 OHM, ±5%, 1/4W
■ RX3358	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W
■ RX3359	63-10810	RESISTOR, FILM 1.1K OHM, ±1%, 1/2W
■ RX3360	63-10810-01	RESISTOR, FILM, 2.74K OHM, ±1% 1/2W
■ RX3361	63-10810	RESISTOR, FILM, 1.1K OHM, ±1%, 1/2W
■ RX3362	63-9921-67	RESISTOR, FILM, 620 OHM, ±5%, 1/4W
■ RX3363	63-9922-03	RESISTOR, FILM, 20K OHM, ±5%, 1/4W
■ RX3364	63-9922-04	RESISTOR, FILM, 22K OHM, ±5%, 1/4W
■ RX3365	63-9922-13	RESISTOR, FILM, 51K OHM, ±5%, 1/4W
■ RX3366	63-9922-14	RESISTOR, FILM, 56K OHM, ±5%, 1/4W
■ RX3377	63-10526-03	RESISTOR, CARBON, 1.2 MEGOHM, ±20%, 1/2W
R3451	63-9921-44	RESISTOR, FILM, 68 OHM, ±5%, 1/4W
R3452	63-9921-52	RESISTOR, FILM, 150 OHM, ±5%, 1/4W
R3453	63-9921-59	RESISTOR, FILM, 300 OHM, ±5%, 1/4W
R3454	63-9946-70	RESISTOR, FILM, 820 OHM, ±5%, 1/2W
R3455	63-10714	RESISTOR, WIREWOUND FUSEABLE, 2 OHM, ±10%, 2W
R3456	63-9922-02	RESISTOR, FILM, 18K OHM, ±5%, 1/4W
R3457	63-9946-24	RESISTOR, FILM, 10 OHM, ±5%, 1/2W
R3458	63-10714	RESISTOR, WIREWOUND, FUSEABLE, 2 OHM, ±10%, 2W
R3459		
■ RX3460	63-10420-24	RESISTOR, FILM, 1 OHM, ±5%, 2W
■ RX3461	63-9946-36	RESISTOR, FILM, 33 OHM, ±5%, 1/2W
■ RX3462	63-10714	RESISTOR, WIREWOUND FUSEABLE, 2 OHM, ±10%, 2W
R3476	63-9947-04	RESISTOR, FILM, 22K OHM, ±5%, 1/2W
R3477		
R3478	63-9921-70	RESISTOR, FILM, 820 OHM, ±5%, 1/2W
■ RX3479	63-10565-12	RESISTOR, FILM, 3.3 OHM, ±5%, 1/2W
■ RX3480	63-10565-12	RESISTOR, FILM, 3.3 OHM, ±5%, 1/2W
■ RX3481	63-10430-64	RESISTOR, WIREWOUND, 47 OHM, ±10%, 3W
R3576	63-9946-64	RESISTOR, FILM, 470 OHM, ±5%, 1/2W
■ RX3676	63-10710	THERMISTOR (DEG)
R3776	63-9946-90	RESISTOR, FILM, 5.6K OHM, ±5%, 1/2W
■ TX3251	95-3389-04	TRANSFORMER, PIN REACTOR
■ TX3301	95-3427	TRANSFORMER, FEEDBACK
■ TX3326	95-3344	TRANSFORMER, HORIZONTAL DRIVER
■ TX3351	95-3403-02	TRANSFORMER, POWER
■ TX3352	95-3386 rev 06A	TRANSFORMER, SWEEP, "E" ("D" NOT USED)
■ TX3376	95-3394	TRANSFORMER (LCI)

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
3J	58-385-05	TERMINAL HOUSING (2 PIN SPECIAL)
3K	58-380-02	TERMINAL HOUSING (MALE 2 PIN)
3L		
3M	58-382-01	TERMINAL HOUSING (MALE 6 PIN)
3N	58-382-04	TERMINAL HOUSING (MALE 6 PIN)
3P	58-385-01	TERMINAL HOUSING (MALE 2 PIN SPECIAL)
3R	58-380-03	TERMINAL HOUSING (MALE 2 PIN)
3T	58-380-01	TERMINAL HOUSING (MALE 2 PIN)
3U	58-383	TERMINAL HOUSING (MALE 1 PIN)
A	91-2841-01	JUMPER, BROWN, 15" SKIN 6/16 X 6/16 (F-4808)
B	91-2842-02	JUMPER, RED, 6" SKIN 6/16 X 6/16 (F-4801)
C	91-2843-03	JUMPER, ORANGE 5" SKIN 6/16 X 6/16 (F-4798)
D	91-2844-04	JUMPER, YELLOW 6" SKIN 6/16 X 6/16 (F-4802
E	91-2845-05	JUMPER, GREEN 12" SKIN 6/16 X 6/16 (F-4806)
F	91-2846-06	JUMPER, BLUE 5 1/2" SKIN 6/16 X 6/16 (F-4799)
G	91-2847-07	JUMPER, VIOLET 12 1/2" SKIN 6/16 X 6/16 (F-4807)
H	91-2848-08	JUMPER, GRAY 5 1/2" SKIN 6/16 X 6/16 (F-4800)
J	91-2849-09	JUMPER, WHITE 8" SKIN 6/16 X 6/16 (F-4804)
K	91-2849-02	JUMPER, WHT/RED 6 1/2" SKIN 6/16 X 6/16 (F-4803)
L	91-2840	JUMPER, BLACK 8 1/2" SKIN 6/16 X 6/16 (F-4805)
M	91-2848-08	JUMPER, GRAY 5 1/2" SKIN 6/16 X 6/16 (F-4800)
	79-317-04	SLEEVING 1 1/2" (TO R3252 & CR3352) (2 REQD)
	91-2846-06	WIRE, BLUE 8 14/16" SKIN 4/16 X 6/16) (A-8091) (TO R3252 & CX3312) (1 REQD)
	91-2843-03	WIRE, ORANGE 2" SKIN 4/16 X 4/16 (F-5127) USED ON CR3338 (1 REQD)
QTY USED		
1	F-3649	GROUND WIRE ASSEMBLY
	15-281	HV ANODE CAP (PART OF SWEEP TRANSFORMER)
3	19-733-01	TIE, WIRE
1	19-733-	TIE, WIRE (TO CAPTIVATE GRAY GROUND LEAD)
1	19-824	CLIP, HEAT SINK, TRANSISTOR
2	19-840	CLIP, FUSE MOUNTING
2	19-857	CLIP, HEAT SINK, MOUNTING (126-1859)
4	19-879	CLIP, HEAT SINK, MOUNTING (126-1851-02)
4	19-888	CLIP, HEAT SINK
1	19-889	CLIP, RESISTOR SUPPORT
1	19-894-01	INSULATOR, (TO C3301)
2	54-308-01	NUT, STAMPED LOCKING
1	54-320	PALNUT
	63-10652	CONTROL, ROTARY, SINGLE (FOCUS) PART OF SWEEP
4	79-174	SLEEVING, YELLOW (USED ON C3347 & C3577)
1	83-7376	STRIP, INSULATING (H.O.T.)
1	86-596-02	TEST STAKE (BRIGHTNESS LIMITER) (COLD GROUND)
1	91-2053-01	WIRE, SOLID #20 GA. 1 1/4" (USED ON CX3312)
2	94-1654	BUSHING
2	97-932-02	STUD, THREADED
4	114-1379-01	SCREW, THREAD FORM 8 X 10 X .5 HEX WASHER HEAD
1	126-1851-02	HEAT SINK (H.O.T.)
1	126-1853-02	SHIELD
1	126-1859	HEAT SINK, TRANSISTOR
AR	140-195	TAPE, WHITE 1/4" WIDE
33	191-1005-03	WIRE, PRECUT #20 GAUGE
2	194-492	INSULATOR (TO 126-1851-02)
4	199-628-02	SLEEVING, HEAT SHRINK (TO C3329, C3315, CX3376, C3344 & C3345)
3	199-628-03	SLEEVING, HEAT SHRINK (TO CX3309/LX3301/C3341/ C3342 & CX3312)
1	204-680-03	PC BOARD
AR	205-271	HOT MELT GLUE (FOR 12V REG CLIP & TX3251)
AR	205-303	COMPOUND, HEAT SINK

IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE ZENITH RADIO CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT, AND THEIR PHYSICAL LOCATION, WIRING AND LEAD DRESS MUST CONFORM TO ORIGINAL LAYOUT UPON COMPLETION OF REPAIRS. IN SOME INSTANCES REDUNDANT CIRCUITRY IS INCORPORATED FOR ADDITIONAL CIRCUIT PROTECTION AND X-RADIATION SAFETY. SPECIAL CIRCUITS ARE ALSO USED TO PREVENT SHOCK AND FIRE HAZARD. THESE CRITICAL AREAS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THE LETTER "X" INCLUDED IN THE CIRCUIT REFERENCE DESIGNATOR, DESIGNATES SPECIAL COMPONENTS IN THE AREAS WHICH ARE REQUIRED TO MAINTAIN SAFE PERFORMANCE. NO DEVIATIONS ARE ALLOWED WITHOUT PRIOR APPROVAL BY THE SAFETY ENGINEERING DEPARTMENT.

CAUTION

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SETS IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

■ CRITICAL SAFETY COMPONENTS:

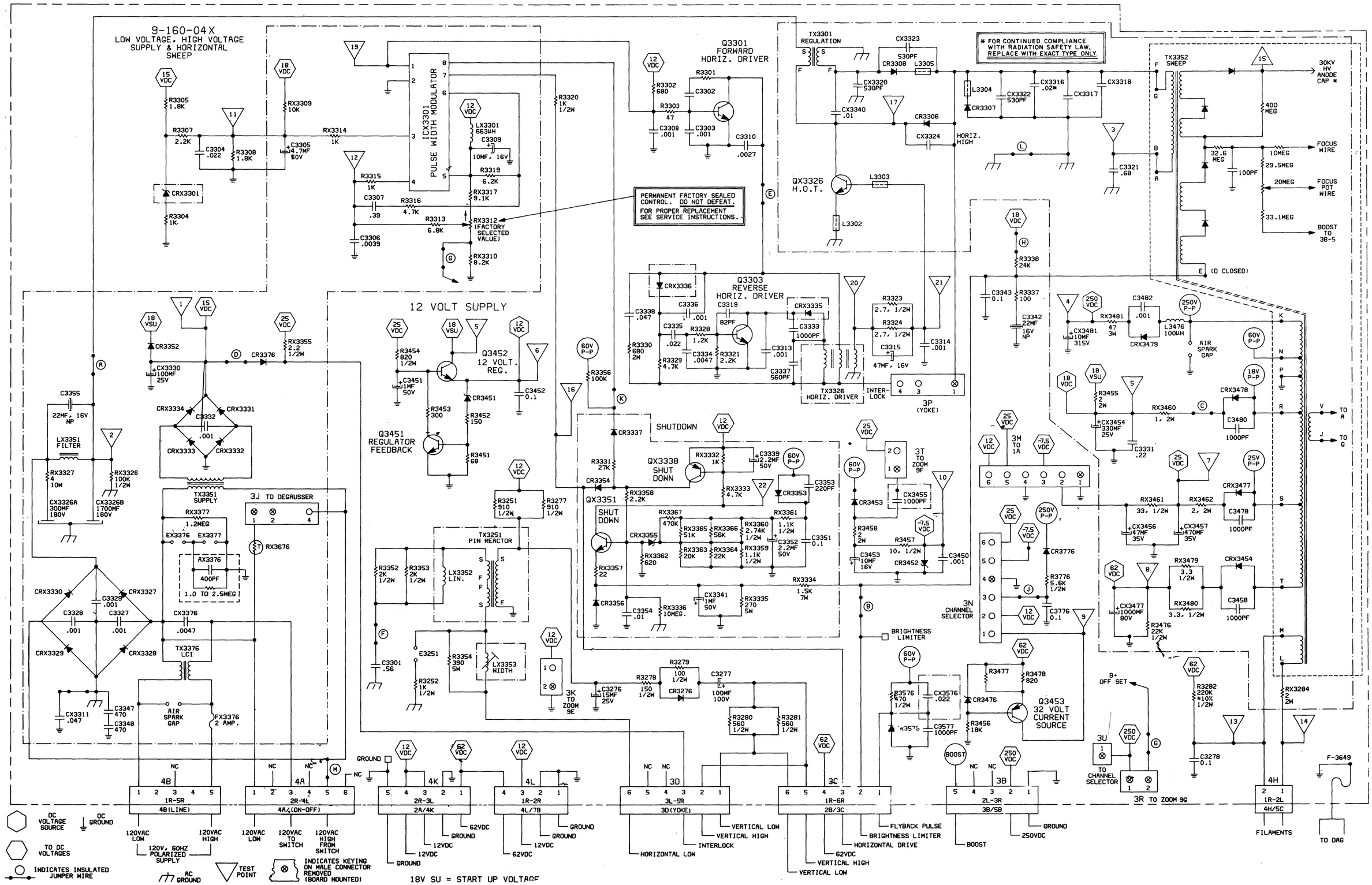
THE LETTER "X" IN THE ELECTRICAL SCHEMATIC AND PARTS LIST, DESIGNATES SPECIAL CRITICAL SAFETY COMPONENTS. THESE SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ZENITH PARTS LIST AND SCHEMATIC.

INSTRUCTIONS TO THE PRINTER:

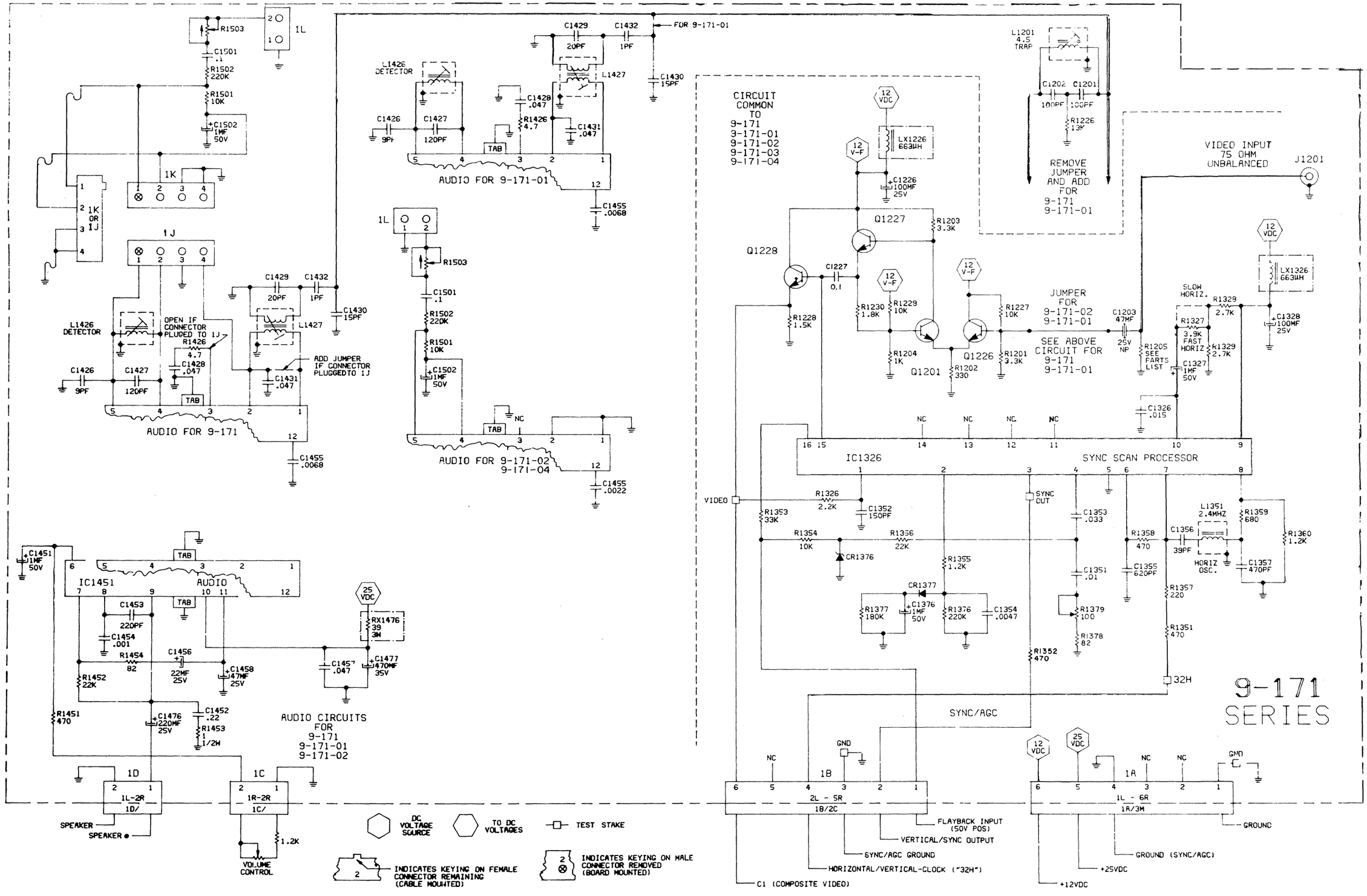
(THE FOLLOWING INFORMATION MUST NOT APPEAR ON PRINTED FORMAT).

ALL AREAS OF THE SCHEMATIC CONTAINING "CRITICAL SAFETY COMPONENTS" ARE OUTLINED USING A "DOT AND DASH" (—·—·—) LINE. IN PRINTING, THESE AREAS MUST BE SHADED WITH A 15 PERCENT HALF TONE SCREEN. THE SAME SHADING MUST BE APPLIED TO ALL CRITICAL SAFETY COMPONENTS MARKED WITH A BLACK RECTANGLE (■) ON THE PARTS LIST. THIS MARKER MUST NOT APPEAR ON ANY PRINTED FORMAT.

LEGEND 9-160-03X MODULE



SCHEMATIC 9-160-03X MODULE



SCHEMATIC 9-171 **MODULE**

9-171-03

CIRCUIT REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C1203	22-7405-08	CAPACITOR, ELECTROLYTIC, 47 MF, ±20%, 25V, NP
C1226	22-7708-09	CAPACITOR, ELECTROLYTIC, 100 MF,+50-10%, 25V
C1227	22-7445-28	CAPACITOR, MYLAR, 0.1 MF, ±20%, 50V
C1326	22-7569-14	CAPACITOR, POLYESTER, .015 MF, ±10%, 400V
C1327	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF,+50-10%, 50V
C1328	22-7708-09	CAPACITOR, ELECTROLYTIC, 100 MF, +50-10%, 25V
C1351	22-7572-12	CAPACITOR, POLYESTER, .01 MF, ±10%, 600V
C1352	22-7648-35C	CAPACITOR, CER. DISC, 150 PF, ±10%, 50V N750
C1353	22-7566-18	CAPACITOR, POLYESTER, .033 MF, ±10%, 250V
C1354	22-7569-08	CAPACITOR, POLYESTER, .0047 MF, ±10%, 400V
C1355	22-7689	CAPACITOR, CER. DISC, 620 PF, ±10%, 500V
C1356	22-7621-24C	CAPACITOR, CER. DISC, 39 PF, ±5%, 50V, NPO
C1357	22-7648-47C	CAPACITOR, CER. DISC, 470 PF, ±10%, 50V, N750
C1376	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
CR1376	103-105-01	DIODE, ZENER, 24V
CR1377	103-142-01	DIODE, LOW VOLTAGE SILICON, GENERAL
IC1326	221-105	INTEGRATED CIRCUIT, SYNC SCAN, PROCESSOR
■ LX1226	20-3831-01	COIL, FILTER, 663 uH
■ LX1326	20-3831-01	COIL, FILTER, 663 uH
■ LX1351	20-3849	COIL, FILTER, 2.4 MHz (HORIZ. OSC.)
J1201	78-2285	JACK, INPUT, SINGLE
Q1201	121-433	TRANSISTOR, NPN, SILICON
Q1226	121-433	TRANSISTOR, NPN, SILICON
Q1227	121-975	TRANSISTOR, NPN, SILICON,
Q1228	121-975	TRANSISTOR, NPN, SILICON
R1201	63-9921-84	RESISTOR, FILM, 3.3K OHM, ±5%, 1/4W
R1202	63-9921-60	RESISTOR, FILM, 330 OHM, ±5%, 1/4W
R1203	63-9921-84	RESISTOR, FILM, 3.3K OHM, ±5%, 1/4W
R1204	63-9921-72	RESISTOR, FILM, 1K OHM, ±5%, 1/4W
R1205	63-9946-45	RESISTOR, FILM, 75 OHM, ±5%, 1/2W
R1227	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1228	63-9921-76	RESISTOR, FILM, 1.5K OHM, ±5%, 1/4W
R1229	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1230	63-9921-78	RESISTOR, FILM, 1.8K OHM, ±5%, 1/4W
R1326	63-9921-80	RESISTOR, FILM, 2.2K OHM, ±5%, 1/4W
R1327	63-9921-86	RESISTOR, FILM, 3.9K OHM, ±5%, 1/4W
R1328	63-9921-82	RESISTOR, FILM, 2.7K OHM, ±5%, 1/4W
R1329	63-9921-82	RESISTOR, FILM, 2.7K OHM, ±5%, 1/4W
R1351	63-10181-64	RESISTOR, CARBON, 470 OHM, ±5%, 1/4W
R1352	63-10181-64	RESISTOR, CARBON, 470 OHM, ±5%, 1/4W
R1353	63-9922-08	RESISTOR, FILM, 33K OHM, ±5%, 1/4W
R1354	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1355	63-9921-74	RESISTOR, FILM, 1.2K OHM, ±5%, 1/4W
R1356	63-9922-04	RESISTOR, FILM, 22K OHM, ±5%, 1/4W
R1357	63-9921-56	RESISTOR, FILM, 220 OHM, ±5%, 1/4W
R1358	63-9921-64	RESISTOR, FILM, 470 OHM, ±5%, 1/4W
R1359	63-9921-68	RESISTOR, FILM, 680 OHM, ±5%, 1/4W
R1360	63-9921-74	RESISTOR, FILM, 1.2K OHM, ±5%, 1/4W
R1376	63-9922-28	RESISTOR, FILM, 220K OHM, ±5%, 1/4W
R1377	63-9922-26	RESISTOR, FILM, 180K OHM, ±5%, 1/4W
R1378	63-9921-46	RESISTOR, FILM, 82 OHM, ±5%, 1/4W
R1379	63-10811-11	CONTROL, ROTARY, SINGLE, 100 OHM
QUANTITY		
5	86-596-01	TERMINAL, STAKE, INSERT
1	101-6239	LABEL, DATE
2	191-1005-02	WIRE, JUMPER, PRECUT 20 GA.
AR	205-242-11	SOLDER, BULK BAR
AR	205-246-09	SOLDER, FLUX
AR	205-283	SOLDER, FLUID HOLLIS #225 OIL
AR	205-284	SOLVENT, CLEANING
1	126-1901	SHIELD
1	204-724-01	VIDEO MONITOR, PRINTED CIRCUIT BOARD

9-171 SAME AS 9-171-01 EXCEPT:

	ADD	
C1501	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C1502	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
R1501	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1502	63-9922-28	RESISTOR, FILM, 220K OHM, ±5%, 1/4W
R1503	191-1005-02	WIRE, JUMPER, PRECUT 20 GA.

9-171-02 SAME AS 9-171-03 EXCEPT:

	ADD	
C1451	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
C1452	22-7563-28	CAPACITOR, POLYESTER, .22 MF, ±10%, 100V
C1453	22-7613-04D	CAPACITOR, CER. DISC, 220 PF, ±10%, 50V
C1454	22-7613-12D	CAPACITOR, CER. DISC, 1000 PF, ±10%, 50V
C1455	22-7576-04	CAPACITOR, POLYESTER, .0022 MF, ±20%, 1KV
C1456	22-7708-06	CAPACITOR, ELECTROLYTIC, 22 MF, +50-10%, 25V
C1457	22-7567-20	CAPACITOR, POLYESTER, .047 MF, ±20%, 250V
C1458	22-7708-08	CAPACITOR, ELECTROLYTIC, 47 MF, +50-10%, 25V
C1476	22-7708-10	CAPACITOR, ELECTROLYTIC, 220 MF, +50-10%, 25V
C1477	22-7154-11	CAPACITOR, ELECTROLYTIC, 470 MF, +100-10%, 35V
C1501	22-7563-24	CAPACITOR, POLYESTER, 0.1 MF, ±10%, 100V
C1502	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
IC1451	221-98	INTEGRATED CIRCUIT, AUDIO
IL	58-380	CONNECTOR, MALE, 2 PIN
R1451	63-9921-64	RESISTOR, FILM, 470 OHM, ±5%, 1/4W
R1452	63-9922-04	RESISTOR, FILM, 22K OHM, ±5%, 1/4W
R1453	63-9946	RESISTOR, FILM, 1 OHM, ±5%, 1/2W
R1454	63-9921-46	RESISTOR, FILM, 82 OHM, ±5%, 1/4W
■ RX1476	63-8360	RESISTOR, FILM, 39 OHM, ±10%, 2W
R1501	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1502	63-9922-28	RESISTOR, FILM, 220K OHM, ±5%, 1/4W
R1503	91-139	WIRE, JUMPER, PRECUT 20 GA., BARE
QUANTITY		
3	191-1005-02	WIRE, JUMPER, PRECUT 20 GA.
1	91-139	WIRE, JUMPER, PRECUT 20 GA., BARE

9-171-01 SAME AS 9-171-02 EXCEPT:

	OMIT	
C1455	22-7576-04	CAPACITOR, POLYESTER, .0022 MF, ±20%, 1KV
C1501	22-7563-24	CAPACITOR, ELECTROLYTIC, 0.1 MF, ±10%, 100V
C1502	22-7710-01	CAPACITOR, ELECTROLYTIC, 1 MF, +50-10%, 50V
R1501	63-9921-96	RESISTOR, FILM, 10K OHM, ±5%, 1/4W
R1502	63-9922-28	RESISTOR, FILM, 220K OHM, ±5%, 1/4W
R1503	191-1005-02	WIRE, JUMPER, PRECUT 20 GA
IL	58-380	CONNECTOR, MALE 2 PIN
	ADD	
C1201	22-7619-34C	CAPACITOR, CER. DISC, 100 PF, ±5%, 50V, NPO
C1202	22-7619-34C	CAPACITOR, CER. DISC, 100 PF, ±5%, 50V, NPO
C1426	22-7621-09C	CAPACITOR, CER. DISC, 9 PF, ±.25 PF, 50V, NPO
C1427	22-7623-36C	CAPACITOR, CER. DISC, 120 PF, ±5%, 50V, N30
C1428	22-7567-20	CAPACITOR, POLYESTER, .047 MF, ±20%, 250V
C1429	22-7639-15C	CAPACITOR, CER. DISC, 20 PF, ±5%, 50V, N330
C1430	22-7621-14C	CAPACITOR, CER. DISC, 15 PF, ±5%, 50V, NPO
C1431	22-7567-20	CAPACITOR, POLYESTER, .047 MF, ±20%, 250V
C1432	22-7621C	CAPACITOR, CER. DISC, 1 MF,±.25 PF, 50V
C1451		
C1452		
C1453		
C1454		
C1455	22-7569-10	CAPACITOR, POLYESTER, .0068 MF, ±10%, 400V
C1456		
L1201	20-3800	COIL, TUNABLE, 4.5 MHz, QUADRATURE
L1426	20-3800	COIL, TUNABLE, 4.5 MHz, TRAP
L1427	95-3333	TRANSFORMER, TUNABLE, 1.5 MHz, INPUT
R1226	63-9921-99	RESISTOR, FILM, 13K OHM, ±5%, 1/4W
R1426	63-9921-16	RESISTOR, FILM, 4.7 OHM, ±5%, 1/4W
1	A-8150	CABLE AND HOUSING ASSEMBLY
	191-1005-02	WIRE, PRECUT 20 GA.
1	58-380	CONNECTOR, MALE, 2 CONTACTS
2	58-381-01	CONNECTOR, MALE, 4 CONTACT

9-171-04 SAME AS 9-171-02 EXCEPT:

	OMIT	
R1205	63-9946-45	RESISTOR, FILM, 75 OHM, ±5%, 1/2W