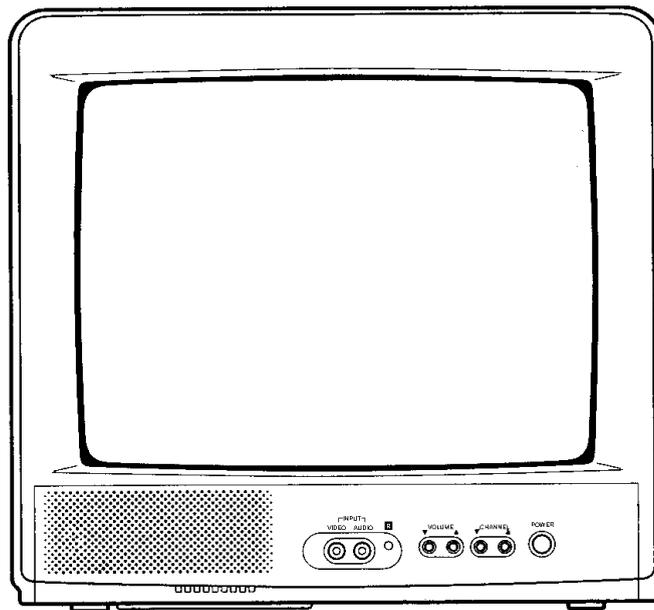


Service Manual

MT1190C

19" Color Television



**THIS SERVICE MANUAL IS FOR MT1190C SUFFIX A , B ,
C, D AND E CRT USAGE**

	SUFFIX A	SUFFIX B	SUFFIX C	SUFFIX D	SUFFIX E
V451	5721- 015ST51N (51GGD95X)	5721- 51CN020T (510UEB22DY)	5721-028TT48N (A48LRH93X (W))	5721- 029NT48N (A48LSD095X)	5721- 031ZT48N (A48LGS30X)
DY501	4993-118	4993-060	4993-126	4993-119	4993-123

Memorex®

FEATURES

- ◆ On-screen graphics guide you through setup features and operations
- ◆ Automatic programming of channels allows easy selection of stations available in your viewing area
- ◆ Sleep timer programs the TV to turn itself off at a preset time
- ◆ One day timer programs the TV to come on once at a preset time
- ◆ Weekly timer programs the TV to come on at a preset time every day
- ◆ 26 button infrared remote control allows remote operation
- ◆ VHF/UHF/CATV tuning allows reception of standard broadcasts or cable TV channels
- ◆ Closed caption decoder displays captions or half-screen text
- ◆ V-Block function

SPECIFICATIONS

AC Power Input:	120V, 60Hz
AC Power Consumption:	98Watts
Chassis Construction:	IC Solid State
Picture Tube:	19" (measured diagonally)
Speaker:	3.5 x 2 in (90 x 50 mm) Oval, 8 ohms
Tuner:	181 Channels, Freq. Synthesized
Remote Control:	Infrared, Direct Access 26 Key, 2 "AA" batteries

Receiving Channels:	
VHF	2 - 13
UHF	14 - 69
CATV	
Mid Band	14 - 22
Super Band	23 - 36
Hyper Band	37 - 65
Ultra Band	66 - 94, 100 - 125
Sub Mid Band	1, 95 - 99
Cabinet:	Monitor Style
Antenna Input Impedance	75 ohm (VHF/UHF) Coaxial Input

CAUTION:

- To prevent electric shock, match wide blade of plug to wide slot, fully insert.

IMPORTANT SERVICE SAFETY INFORMATION

Operation of receiver outside of cabinet or with back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain connecting ground lead connections between chassis, escutcheon, picture tube dag and tuner cluster when operating chassis.

These receivers have a "Polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain HV failures can increase X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is 25 KV \pm 1.0KV at zero beam current with a line voltage of 120V AC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receiver that could cause a rise in high voltage, or operating supply voltages. No changes should be made to the original design of the receiver.

Components shown in the shaded areas on the schematic diagram or identified by the safety mark in the replacement parts list should be replaced only with exact Factory recommended replacement parts. The use of unauthorized substitute parts may create shock, fire, X-radiation or other hazard.

To determine the presence of high voltage, use an accurate high impedance HV meter connected between second anode lead and the CRT dag grounding device. When servicing the High Voltage System remove static charge from it by connecting 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead (AC line cord disconnected from AC supply).

The picture tube used in this receiver employs integral implosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage completely. Keep others without shatter-proof goggles away.

When removing springs or spring mounting parts from tuner, tuner cluster or chassis, shatter-proof goggles must be worn. Keep others without shatter-proof goggles away.

SAFETY INSPECTION

Before returning the receiver to the user, perform the following safety checks:

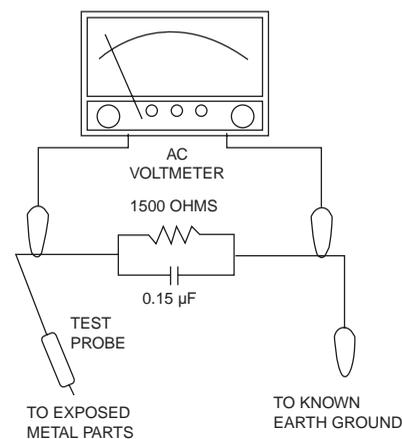
PROTECT YOUR CUSTOMER

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V AC receptacle. (Do not use an Isolation Transformer during these checks) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. (Use Standard Item No. 25086,21641) Any reading of 0.4 mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 ohm, 10 watt resistor paralleled by a 0.15 MF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 ohms per volt, or higher sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.61 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.



X-RAY PROTECTOR CIRCUIT CHECK

PERFORM WHENEVER HIGH VOLTAGE CIRCUITRY OR POWER SUPPLY CIRCUITRY IS SERVICED.

1. Plug the AC Line Cord (P1) into a AC 120V, 60Hz receptacle.
2. Turn the Power Switch (S101) on and wait for about 10 minutes.
3. Connect the antenna leads to the EXT. Antenna Terminal (TE1) and select a broadcasting station.
4. Connect DC Digital Voltmeter to TP11 (positive lead) and TP4 (negative lead).
5. Apply DC 11V between TP11 and TP4 from external equipment.
6. If picture and sound do not disappear, check IC301, D552, D553, D554, R554, R555, R556, R557, C555 and C556.

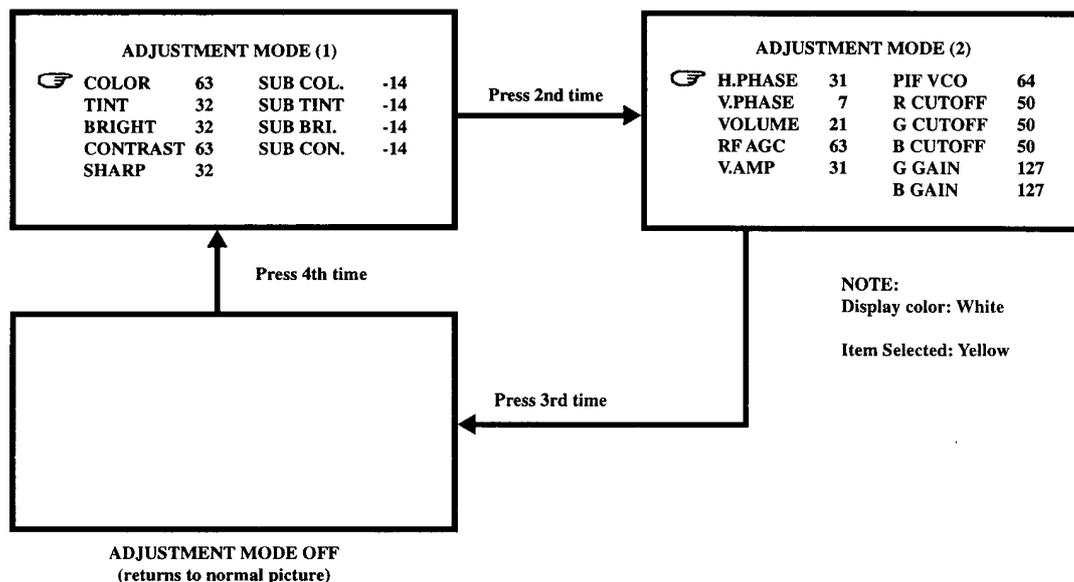
(ADJUSTMENT BY REMOTE CONTROL)

ADJUSTMENT MODE

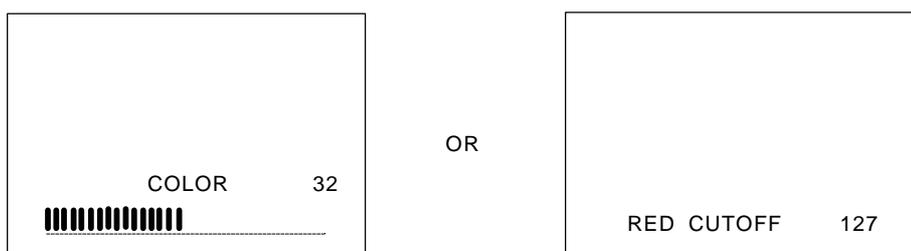
The following adjustment items can be performed from menus by Remote Control as shown below :

NOTE: The button combination and position on the Remote Control to select the adjustment items is given on page 4.

1. Press the SHIFT + ADJ. MODE buttons on the Remote Control simultaneously to bring up the adjustment mode menu screens shown below.



2. From the menu screen, press the + or - button on the Remote Control to select the item to be adjusted.
3. Press the MENU button on the Remote Control to enter adjustment mode for the item selected, and the display shown below appears :

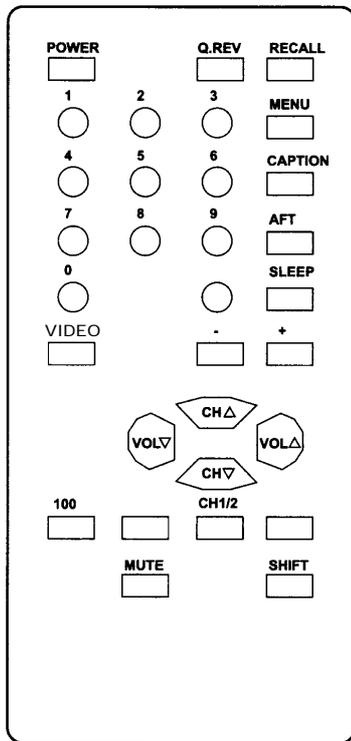


Example:

4. Use the + or - button on the Remote Control to adjust the data for the item selected.
5. When adjustment has been completed, press the SHIFT + ADJ. MODE buttons on the Remote Control simultaneously to return to the main menu.

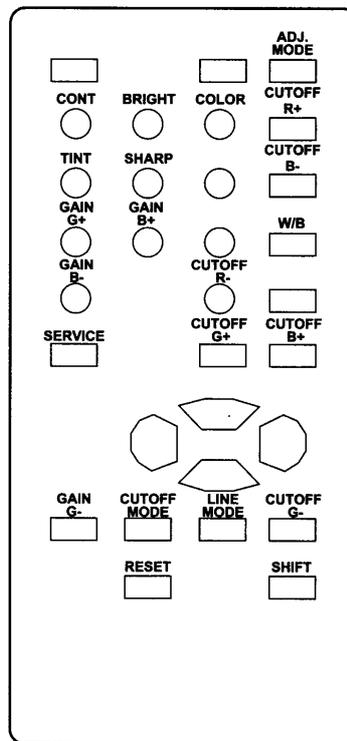
REMOTE CONTROL LAYOUT

NORMAL MODE LAYOUT (WITHOUT SHIFT KEY)



ONLY PRESS THE SELECTED ITEM BUTTON

SPECIAL MODE LAYOUT (SHIFT + SELECTED ITEM)



MUST PRESS SHIFT + SELECTED ITEM BUTTON

METHOD OF RECALL V-BLOCK PASS NUMBER

If user forgets the V-Block Pass Number, call recall by the Service Remote Control or User Remote Control.

1. If use the Service Remote Control, at the Pass Number entry menu, while holding down [SHIFT] button and press the [Q.REV] button repeatedly four times.
2. If use the User Remote Control, at the Pass Number entry menu, while holding down [VOLUME DOWN] button on the TV set and press number [3] button on the remote control repeatedly four times.
3. The blinking "?" will be replaced with "!" after each press.
4. Release the [SHIFT] button or [VOLUME DOWN] button and then press [MENU] button. "V-BLOCK SET" menu will be appearing on-screen with the user setting pass number.

IC, TRANSISTOR AND CRT COMPLEMENT

INTEGRATED CIRCUITS

IC101 TA87C-B6	Microcomputer	IC601 STR30130	AVR
IC102 CAT24C04	EEPROM	IC671 NJ7805LD	Voltage Regulator and Reset
IC301 TA1268N	IF/Video/Chroma/Deflection	IC701 TLP651	Photo-Coupler
IC311 NJ7809FA	Voltage Regulator	IC702 TLP631	Photo-Coupler
IC501 AN5512	Vertical Deflection Output		

TRANSISTORS

Q101 DTC143ZS	Vertical Synchronizing	Q551 2SC1473A(R)	Horizontal Driver
Q102 2SC945(P)	Horizontal Synchronizing	Q552 2SD1877	Horizontal Driver
Q173 2SC945(P)	SD Signal Buffer	Q601 2SC945(P)	Power On/Off Relay Driver
Q301 2SC945(P)	SIF Signal Buffer	Q701 2SC945(P)	External Video In
Q302 2SA733(P)	Video Buffer Amplifier	Q703 2SC945(P)	External Audio In
Q303 2SC945(P)	Video Out	Q751 2SC945(P)	Video Amplifier
Q304 2SA733(P)	Video In	Q752 2SC945(P)	Audio Amplifier
Q351 DTC143ZS	Service Mode Switching	Q753 2SC945(P)	Video Amplifier
Q451 2SC1573A(R)	Red Color Driver	Q801 2SC945(P)	Audio Amplifier
Q452 2SC1573A(R)	Blue Color Driver	Q802 2SA950(0)	Audio Amplifier
Q453 2SC1573A(R)	Green Color Driver	Q803 2SC2120(0)	Audio Amplifier

PICTURE TUBE

V451 51GGD95X	CRT (SUFFIX A)	V451 A48LSD095X	CRT (SUFFIX D)
V451 510UEB22(DY)	CRT (SUFFIX B)	V451 A48LGS30X	CRT (SUFFIX E)
V451 A48LRH93X(W)	CRT (SUFFIX C)		

CHASSIS REMOVAL

1. Remove 4 screws (177) from Cabinet Back (AB) and remove Cabinet Back from rear.
2. Discharge anode lead at CRT chassis ground through a 10k ohm resistor.
3. Disconnect anode lead from CRT.
4. Disconnect CRT Socket P.C. board (PCB-2) from CRT(V451).
5. Disconnect 3 connectors (CN501 (DY501), CN601 (L601) and LCN801) from Main P.C. board (PCB-1).
6. When replacing chassis, reverse the above procedure making certain that all leads are fastened in their original places.

CRT REMOVAL

CAUTION: Wear shatterproof goggles and exercise proper handling precautions when working around high vacuum picture tubes.

1. Remove chassis per instructions under CHASSIS REMOVAL.
2. Remove Convergence Magnet Assembly (MG451) from neck of CRT.
3. Remove Deflection Yoke (DY501) from neck of CRT
4. Remove 3 wedges (142) from CRT
5. Remove Degaussing Coil (L601) from CRT
6. Remove braid wire (331) and spring (158) from CRT
7. Lay cabinet face down on some protective material.
8. Remove 4 CRT mounting screws (156).
9. Remove CRT from Cabinet Front (AA).
10. To install new CRT, reverse above procedure.
11. Perform purity and convergence adjustments.

INSTALLATION AND SERVICE INSTRUCTION

CAUTION: Use an isolation transformer when performing any service on this chassis.

SHUTDOWN CIRCUIT: When the high voltage rises, there are simultaneous voltage increase developed at terminal 5 of the Horizontal Output Transformer (T671) and applied to pin 29 of IC301. If excessive high voltage is produced, the increased voltage developed exceeds the rating of zener diode D552 causing the Horizontal Oscillator to stop functioning and the high voltage system to shut down.

AFT (AUTOMATIC FINE TUNING) ADJUSTMENT

1. Connect TV Test Pattern Generator (NTSC signal, Monoscope signal, 70dBu, channel 2) to EXT. Antenna Terminal (TE1) through TV Channel Signal Generator.
2. Connect wire (+) of DC Digital Voltmeter to TP6 and wire (-) to TP4. (Fig. 1)
3. Adjust T202 so that the DC Digital Voltmeter reading is $2.0V \pm 0.1V$.

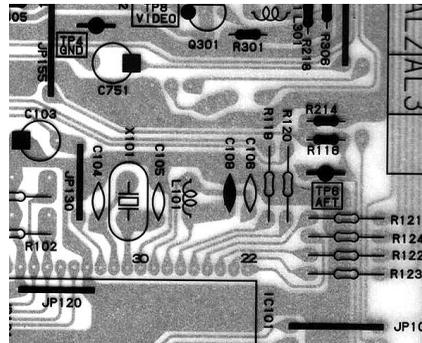


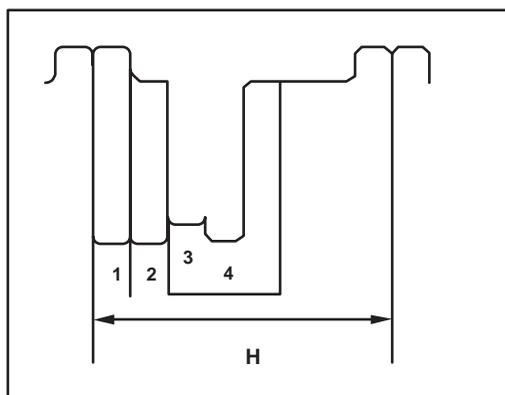
Fig. 1

SUB TINT ADJUSTMENT

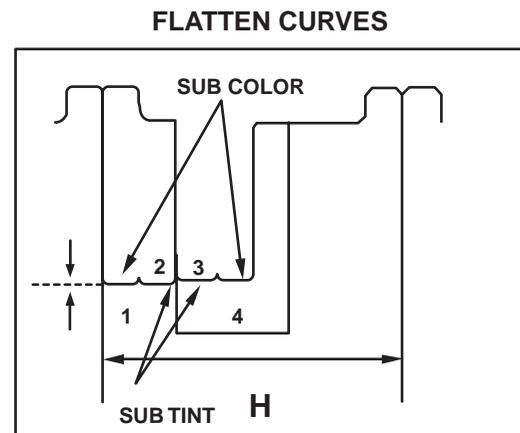
1. Connect TV Test Pattern Generator (NTSC signal, Color Bar signal, 70dB u , channel 6) to EXT. Antenna Terminal (TE1) through TV Channel Signal Generator.
2. Connect positive lead of Oscilloscope to TP14 and negative lead to TP4.
3. Connect EXT. trigger of Oscilloscope to R463.
4. Set Tint control to center position. (by Remote Control).

(NOTE: For steps 5, 6 and 7 below, refer to page 3 for Adjustment By Remote Control Method.)

5. Go to Adjustment Mode (1) by remote control.
6. Select SUB TINT from Adjustment Mode (1) menu screen.
7. Adjust SUB TINT level (by using + or - button on remote control) so that waveform is the same as shown in Fig. 2.



(INCORRECT)



(CORRECT)

Fig. 2

SOUND IF ADJUSTMENT

1. Connect TV Test Pattern Generator (NTSC signal, 70dB u, channel 2) to EXT. Antenna Terminal (TE1) through TV Channel Signal Generator. (Standard modulation is 400Hz at 25kHz deviation for sound signal).
2. Connect positive lead of DC Digital Voltmeter to TP7 and negative lead to TP4.
3. Adjust T203 so that the DC Digital Voltmeter reading is 4.0V.

COLOR PURITY ADJUSTMENT

For best results, it is recommended that the purity adjustment be made in the final receiver location. If the receiver will be moved, perform this adjustment with it facing East.

The receiver must have been operating 15 minutes prior to this procedure and the face plate of the CRT must be at room temperature. The following procedure is recommended while using a Dot/Bar Generator.

1. Check correct location of all neck components. (Refer to Fig. 3)
 2. Rough-in the static convergence at the center of the CRT, as explained in the static convergence procedure.
 3. Set the Contrast control to minimum position and Brightness control as far maximum as possible without causing the picture to "bloom".
 4. Apply green raster signal from Dot/Bar Generator to receiver.
 5. Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
 6. Begin the following adjustment with the tabs on the round purity magnet rings set together. Slowly separate the two tabs while at the same time rotating them to adjust for a uniform green vertical band at the center of the CRT screen.
 7. Carefully slide the deflection yoke forward to achieve green purity (Uniform green screen).
(NOTE: Center purity is obtained by adjusting the tabs on the round purity magnet rings. Outer edge purity is obtained by sliding the deflection yoke forward.)
 8. Check for red and blue field purity by applying red and blue raster signal alternately from Dot/Bar Generator to receiver. Repeat steps 2 through 7, if required.
 9. Tighten deflection yoke clamp screw.
 10. Perform BLACK AND WHITE ADJUSTMENT procedure.
- (CW : clockwise, CCW : counterclockwise)**

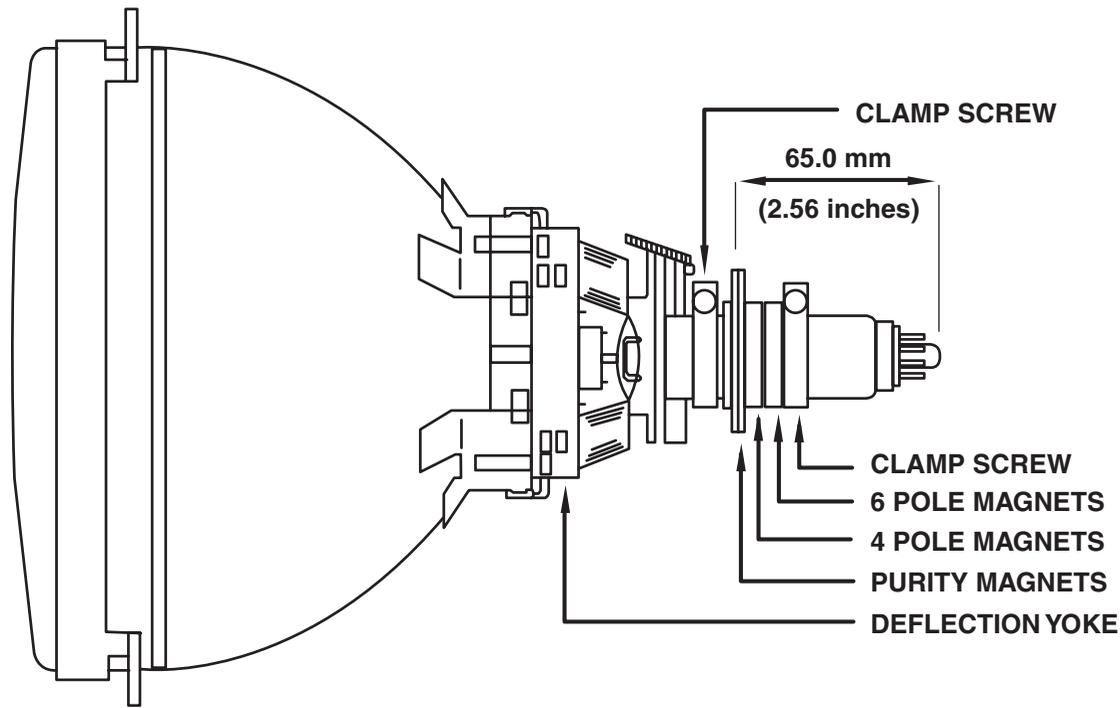


Fig. 3

STATIC CONVERGENCE ADJUSTMENT (Refer to Fig. 3 and 4)

IMPORTANT: Before proceeding, make sure the location of the convergence magnet assembly on the neck of the CRT is as shown in Fig. 3. The rear edge of this assembly must be positioned 65 mm from the tip of the CRT base. If not properly positioned, convergence adjustment may be difficult, if not impossible.

1. Apply dot or crosshatch pattern from Dot/Bar Generator to receiver. Reduce setting of Brightness and/or Contrast controls to eliminate any blooming in pattern.
2. Observe the blue and red pattern appearing on the CRT screen. Locate the 4 pole magnet rings and separate their adjusting tabs approximately the width of one tab.
3. Now rotate this pair of magnet rings as a unit without re-adjusting the spacing between the tabs. This will minimize the separation between the blue and red dots (lines).
4. If the blue and red dots are not completely converged at this point, readjust the spacing between the two tabs to complete convergence of the blue and red dots (lines), thus producing magenta dots (lines).
5. If necessary, repeat step 2, 3 and 4 until proper convergence is achieved.
6. Observe the magenta (B/R) and green pattern now appearing on the CRT screen.
7. Locate the 6 pole magnet rings and separate their adjusting tabs approximately the width of one tab.
8. Rotate this pair of magnet rings as a unit without re-adjusting the spacing between the tabs. This will minimize the separation between the magenta (B/R) and green dots (lines).
9. If the magenta and green dots (lines) are not completely converged at these points, readjust the spacing between the two tabs to complete convergence of the magenta and green dots (lines).
10. If necessary, repeat step 7, 8 and 9 until proper convergence is obtained.
To prevent accidental mis-adjustment of the magnets, apply a stripe of paint across all six rings and onto the neck of the CRT.

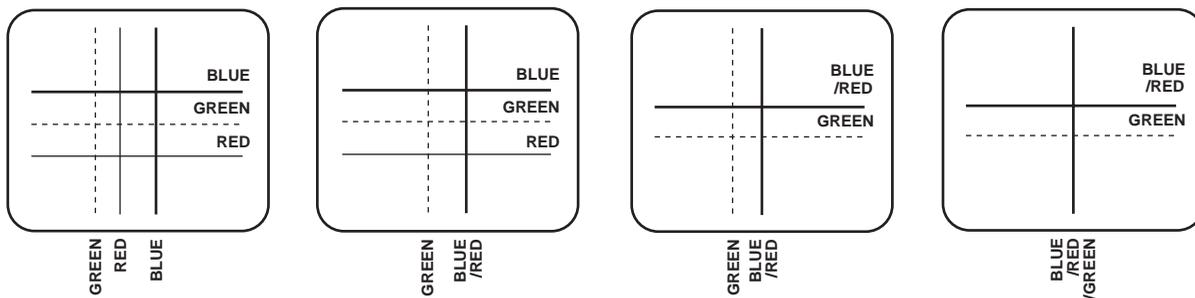


Fig. 4

DYNAMIC CONVERGENCE ADJUSTMENT (Refer to Fig. 5)

Dynamic convergence (convergence of the three edges of the CRT screen) is accomplished by proper insertion and positioning of three rubber wedges between the edges of the deflection yoke and funnel of the CRT. This is accomplished in the following manner.

1. Turn the receiver ON and allow it to warm up for 15 minutes.
2. Apply crosshatch pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
3. For the misconvergence shown in Fig. 5 (A), tilt the deflection yoke down and insert wedge A between deflection yoke and CRT.
4. For the misconvergence shown in Fig. 5 (B), tilt the deflection yoke up and insert wedge B between deflection yoke and CRT.
5. For the misconvergence shown in Fig. 5 (C), tilt left side of the deflection yoke and slightly insert wedge C between deflection yoke and CRT. Then, deeply insert wedges A and B between deflection yoke and CRT.
6. For the misconvergence shown in Fig. 5 (D), tilt right side of the deflection yoke and deeply insert wedge C between deflection yoke and CRT. Then, slightly insert and/or extract wedges A and B between deflection yoke and CRT.
7. Alternately change spacing between and depth of insertion of the three wedges until proper dynamic convergence is obtained.
8. Use a strong adhesive tape to firmly secure each of the three rubber wedges to the funnel of the CRT.

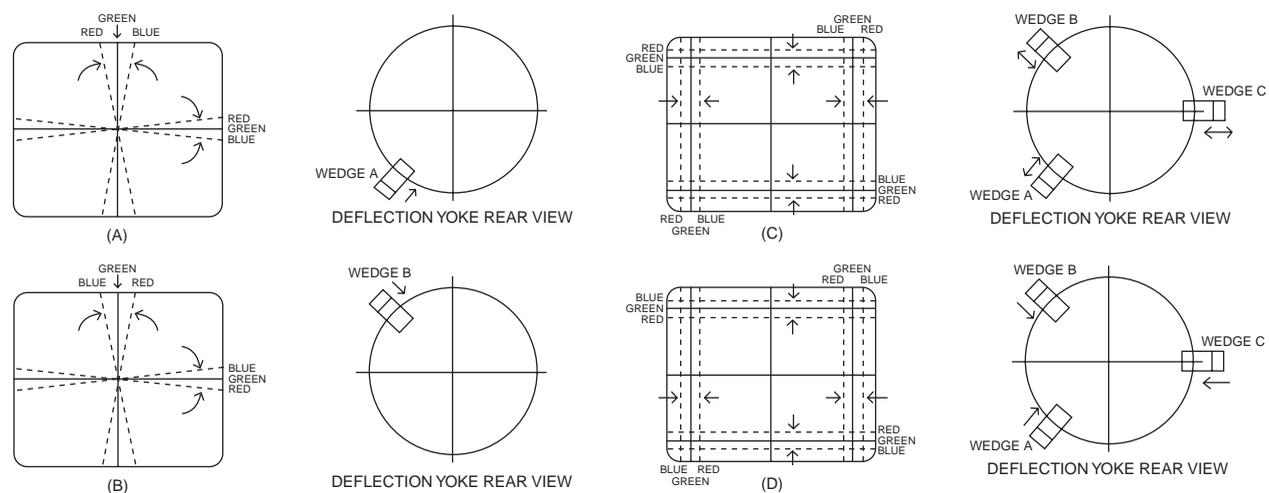


Fig. 5

FOCUS ADJUSTMENT

Adjust focus control, located on the Horizontal Output Transformer (T671), for maximum overall definition and fine picture detail with Brightness and Contrast controls set at normal viewing levels.

BLACK AND WHITE ADJUSTMENT (CUTOFF / WHITE BALANCE)

The purpose of this procedure is to adjust the bias applied to the color picture tube for reproducing a quality monochrome picture at all brightness levels and also to achieve maximum usable brightness. Confirm that proper purity and AGC adjustments have been completed before starting this adjustment.

1. Connect the TV test pattern generator (Monoscope pattern) to the EXT. antenna terminal via TV VHF/UHF signal generator (NTSC signal, 70dB u).
2. Select Cutoff Mode by remote control, (refer to page 4 for remote control key combination and position) and CUT OFF will be displayed on top-right screen for about 3 seconds. At the same time the data readings for Cutoff and Gain in Adjustment Mode (2) will become as follows:
R CUTOFF: 50, G CUTOFF: 50, B CUTOFF: 50, G GAIN: 127, B GAIN: 127
3. Select Service Mode by remote control, (refer to page 4 for remote control key combination and position) and TV screen becomes horizontal line.
4. Turn the Screen control (located under the flyback transformer) clockwise until any blue, green or red color line appears.
5. Check the color of the line which appeared first, then turn the Screen control (located under the flyback transformer) fully counterclockwise.
6. Adjust the cutoff level of the color which appeared first by remote control, (refer to page 4 for remote control key combination and position) so that voltage between TP16 and TP15 (blue), TP14 (green) or TP13 (red) is $20 \pm 1V$.
7. Turn the Screen control (located under the flyback transformer) clockwise so that the bright color line can just be seen.
8. Adjust cutoff levels other than the above by remote control, (refer to page 4 for remote control key combination and position) so that the line color is white.
9. Press again Service Mode key by remote control, (refer to page 4 for remote control key combination and position) to return to TV position. Monoscope pattern will appear on TV screen.
10. Adjust the contrast and brightness controls to make the picture dim. Adjust the Green and Blue Cutoff levels by remote control, (refer to page 4 for remote control key combination and position) so that the picture is white.
11. Adjust the contrast and brightness controls to make the picture bright. Adjust the Green and Blue Gain levels by remote control, (refer to page 4 for remote control key combination and position) so that the picture is white.
12. Repeat steps 10 and 11 so that the picture is white in both dim and bright conditions.

HORIZONTAL PHASE ADJUSTMENT

1. Connect TV Test pattern Generator (NTSC signal 70dB u, Monoscope Pattern) to EXT. Antenna Terminal (TE1) through TV Channel Generator.

(NOTE: For steps 2, 3 and 4 below, refer to page 3 for Adjustment By Remote Control Method).

2. Go to Adjustment Mode (2) by remote control.
3. Select H. PHASE from Adjustment Mode (2) menu screen.
4. Adjust H. PHASE level (by using + or - button on remote control) so that horizontal reading of test pattern becomes the same value.

VERTICAL PHASE ADJUSTMENT

1. Connect TV Test pattern Generator (NTSC signal 70dB u, Monoscope Pattern) to EXT. Antenna Terminal (TE1) through TV Channel Generator.

(NOTE: For steps 2, 3 and 4 below, refer to page 3 for Adjustment By Remote Control Method).

2. Go to Adjustment Mode (2) by remote control.
3. Select V. PHASE from Adjustment Mode (2) menu screen.
4. Adjust V. PHASE level (by using + or - button on remote control) so that vertical reading of test pattern becomes the same value.

VERTICAL AMPLITUDE ADJUSTMENT

1. Connect TV Test pattern Generator (NTSC signal 70dB u, Monoscope Pattern) to EXT. Antenna Terminal (TE1) through TV Channel Generator.

(NOTE: For steps 2, 3 and 4 below, refer to page 3 for Adjustment By Remote Control Method).

2. Go to Adjustment Mode (2) by remote control.
3. Select V. AMP from Adjustment Mode (2) menu screen.
4. Adjust V. AMP level (by using + or - button on remote control) so that picture fills the picture opening from top to bottom and is proportionate to the width.

RF AGC ADJUSTMENT

1. Connect TV Channel Signal Generator to EXT. Antenna Terminal (TE1).
2. Connect positive lead of DC Digital Voltmeter to TP5 and negative lead of DC Digital Voltmeter to TP4.
3. Adjust level of TV Channel signal Generator so that the output level is 55dB u. (Monoscope Pattern)

(NOTE: For steps 4, 5 and 6 below, refer to page 3 for Adjustment By Remote Control Method).

4. Go to Adjustment Mode (2) by remote control.
5. Select RF AGC from Adjustment Mode (2) menu screen.
6. Adjust RF AGC level (by using + or - button on remote control) so that the DC Digital Voltmeter reading is $6.0V \pm 0.2V$.

SUB BRIGHTNESS ADJUSTMENT

1. Connect TV Test Pattern Generator (NTSC signal, Color Bar Signal, 70dB u) to EXT. Antenna Terminal through TV Channel Signal Generator.
2. Set Brightness, Tint and Sharpness menu option to center. Set Color and Contrast menu option to minimum (by Remote Control).

(NOTE: For steps 3, 4 and 5 below, refer to page 3 for Adjustment By Remote Control Method).

3. Go to Adjustment Mode (1) by remote control.
4. Select SUB BRI. from Adjustment Mode (1) menu screen.
5. Adjust SUB BRI. level (by using + or - button on remote control) to obtain a dim pattern. (Refer to Fig. 6)

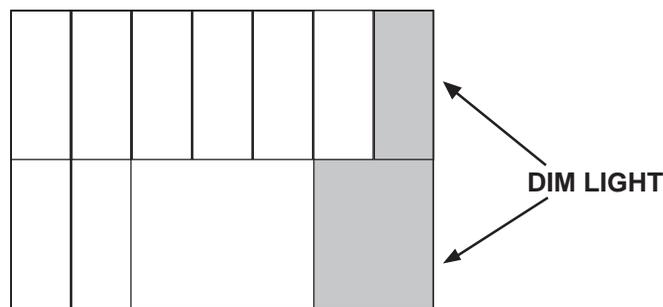


Fig. 6

VIDEO IN ADJUSTMENT

1. Connect Pattern Generator (1Vp-p, Color Bar Pattern) to video jack (J701).
2. Connect positive lead of Oscilloscope probe 1 to R703 and negative lead of Oscilloscope to TP4 to detect video in signal.
3. Connect positive lead of Oscilloscope probe 2 to TP10 and negative lead of Oscilloscope to TP4.
4. Select Video Mode by remote control.
5. Compare the waveform probe 2 with waveform probe 1.
6. Adjust VR701 to get the waveform at TP10 and TP4 is $0.9V_{p-p} \pm 0.1V_{p-p}$ same with the waveform at probe 1. (Refer to Fig. 7)

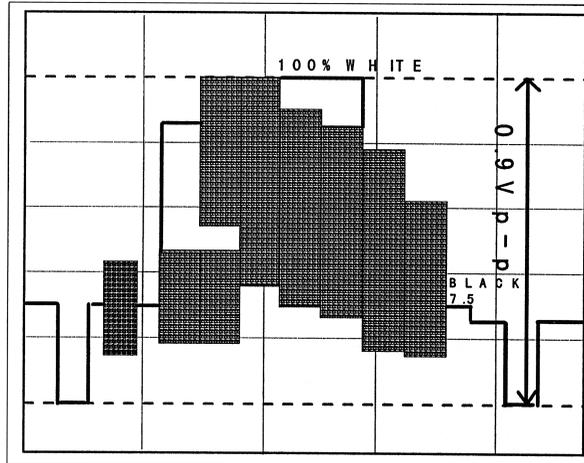


Fig. 7

AUDIO IN ADJUSTMENT

1. Connect Pattern Generator (1Vp-p, Color Bar Pattern) to video jack (J701).
2. Connect Audio Generator to audio jack (J702).
3. Connect positive lead of Oscilloscope probe 1 to R705 and negative lead of Oscilloscope to TP4 to detect audio in signal.
4. Connect positive lead of Oscilloscope probe 2 to TP9 and negative lead of Oscilloscope to TP4.
5. Select Video Mode by remote control.
6. Compare the waveform probe 2 with waveform probe 1.
7. Adjust VR702 to get the waveform at TP9 and TP4 is $1.0V_{p-p} \pm 0.05V_{p-p}$ same with the waveform at probe 1. (Refer to Fig. 8)

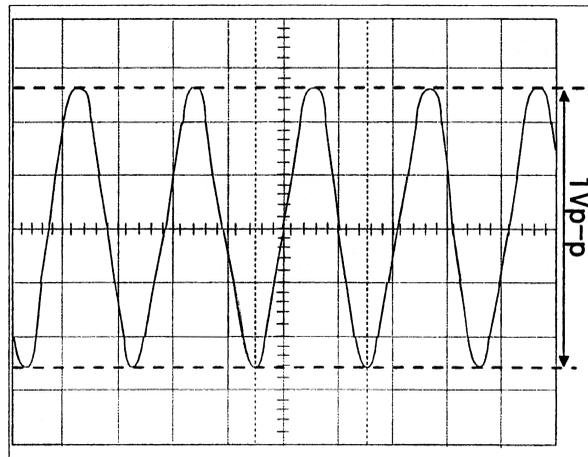
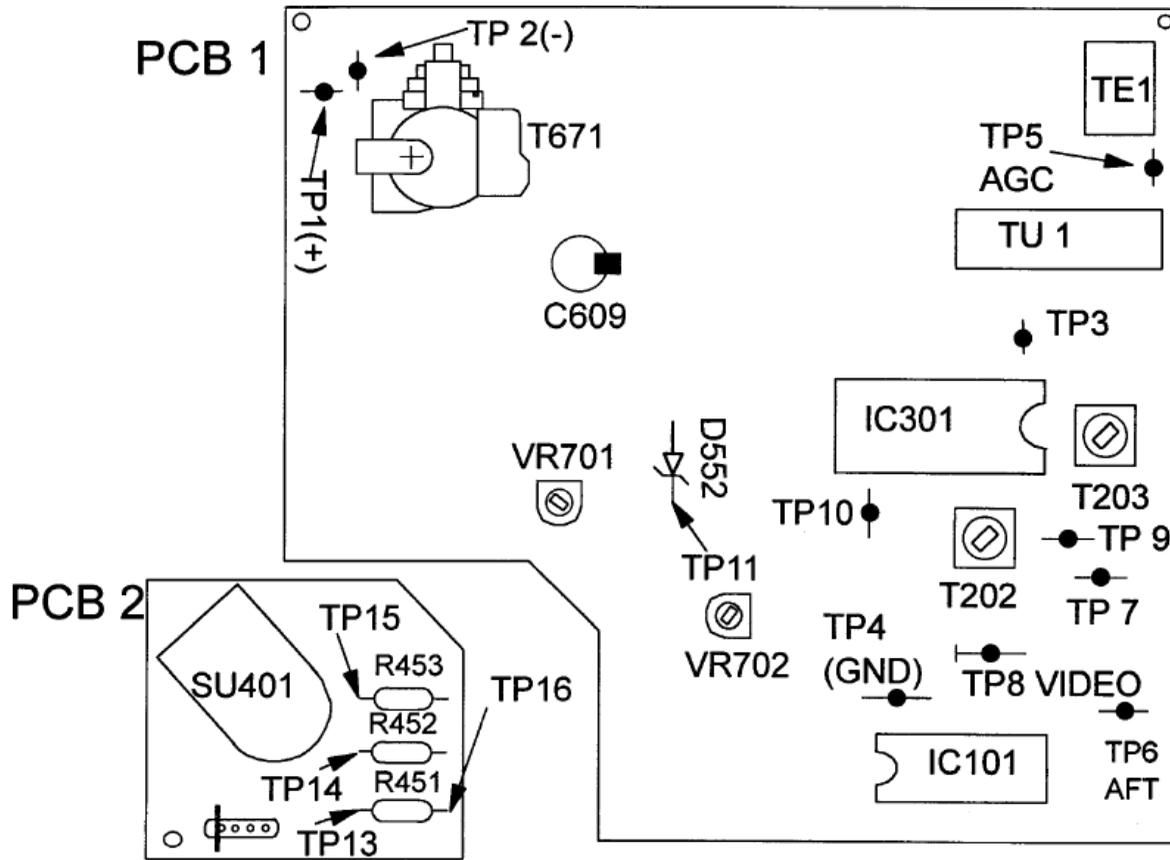


Fig. 8

TEST POINT



VOLTAGE CHART (all in volts)

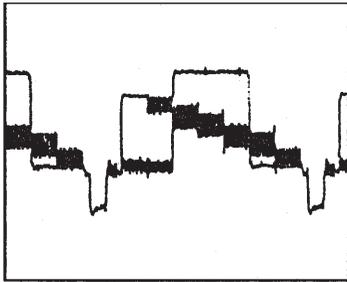
OPERATION CONDITION: TINT, BRIGHT and COLOR CONTROL CENTER
 CONTRAST MAXIMUM
 COLOR BAR SIGNAL

IC101	TERMINAL No	1	2	3	4	5	6	7	8	9	10
	Volt	0.0	0.0	0.0	0.0	5.0	5.0	0.0	0.0	0.0	4.9
	TERMINAL No	11	12	13	14	15	16	17	18	19	20
	Volt	5.0	0.0	5.0	5.0	5.0	2.1	0.0	0.0	4.9	4.9
	TERMINAL No	21	22	23	24	25	26	27	28	29	30
	Volt	4.9	0.0	0.0	0.0	0.0	4.0	4.5	4.7	4.8	0.0
	TERMINAL No	31	32	33	34	35	36	37	38	39	40
	Volt	2.0	2.2	5.0	0.0	5.0	4.4	2.7	2.4	0.0	2.0
TERMINAL No	41	42									
Volt	3.0	5.0									
IC102	TERMINAL No	1	2	3	4	5	6	7	8		
	Volt	0.0	0.0	0.0	0.0	2.3	2.7	0.0	5.0		
IC301	TERMINAL No	1	2	3	4	5	6	7	8	9	10
	Volt	0.0	3.7	3.2	3.3	4.6	0.0	2.0	0.7	8.8	4.4
	TERMINAL No	11	12	13	14	15	16	17	18	19	20
	Volt	6.2	4.7	0.0	0.0	4.7	4.8	4.8	3.3	2.2	2.2
	TERMINAL No	21	22	23	24	25	26	27	28	29	30
	Volt	2.3	0.7	4.7	4.8	5.5	8.2	2.7	2.2	1.5	1.2
	TERMINAL No	31	32	33	34	35	36	37	38	39	40
	Volt	0.7	1.2	6.8	5.3	0.0	2.8	3.2	3.0	1.6	5.2
	TERMINAL No	41	42	43	44	45	46	47	48	49	50
	Volt	3.0	4.7	4.6	2.0	1.8	8.8	4.0	8.8	7.8	7.8
TERMINAL No	51	52	53	54	55	56					
Volt	0.0	0.0	2.8	4.3	2.8	0.0					
IC311	TERMINAL No	1	2	3							
	Volt	16.0	0.0	9.0							
IC501	TERMINAL No	1	2	3	4	5	6	7	8	9	
	Volt	0.0	12.6	0.0	23.0	13.6	0.7	-0.3	1.7	22.4	
IC601	TERMINAL No	1	2	3	4	5					
	Volt	0.0	118.0	124.0	118.0	0.0					
IC671	TERMINAL No	1	2	3	4	5	6	7	8		
	Volt	14.0	0.0	5.5	0.0	0.0	4.9	0.0	5.0		
IC701	TERMINAL No	1	2	3	4	5	6	7	8		
	Volt	0.0	7.7	6.5	0.0	0.0	1.2	0.7	8.8		
IC702	TERMINAL No	1	2	3	4	5	6				
	Volt	7.7	6.8	0.0	0.0	1.0	0.6				

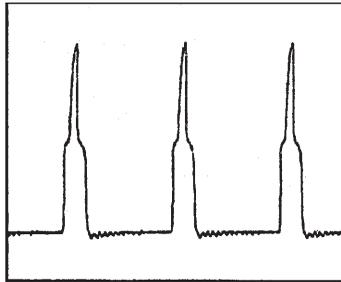
	B	E	C
	Volt	Volt	Volt
Q101	0.1	0.0	4.6
Q102	-0.4	0.0	4.0
Q173	-0.1	0.0	4.5
Q301	3.9	3.9	8.8
Q302	1.5	2.1	0.0
Q303	1.6	1.0	8.8
Q304	3.0	3.6	0.0
Q351	0.0	0.0	8.8
Q451	2.2	2.1	126
Q452	2.3	2.2	120
Q453	2.2	2.1	127

	B	E	C
	Volt	Volt	Volt
Q551	0.3	0.0	80.0
Q552	-0.2	0.0	-
Q601	0.7	0.0	0.2
Q701	2.1	1.6	6.6
Q703	2.2	1.7	7.0
Q751	1.2	0.5	3.6
Q752	1.0	0.4	5.1
Q753	3.6	3.0	8.9
Q801	0.7	0.0	7.1
Q802	8.3	7.7	14.4
Q803	7.1	7.7	0.0

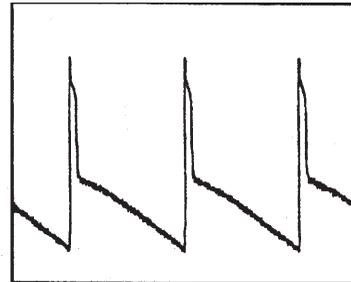
CHASSIS WAVEFORM



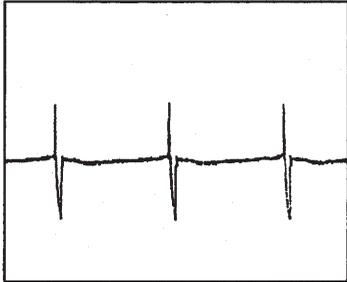
WF-1 1.0Vp-p(H)



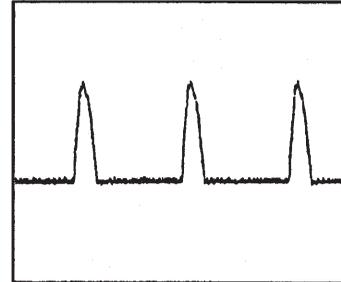
WF-2 9.7Vp-p(H)



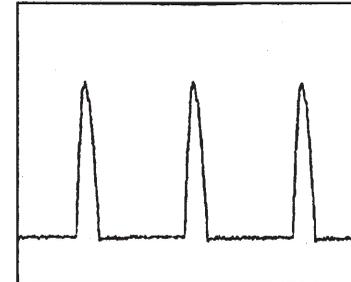
WF-3 50.0Vp-p(V)



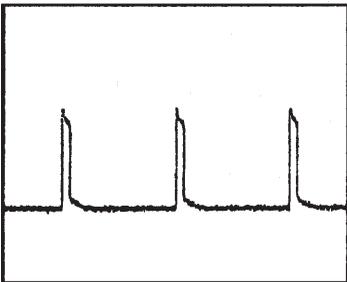
WF-4 2.4Vp-p(V)



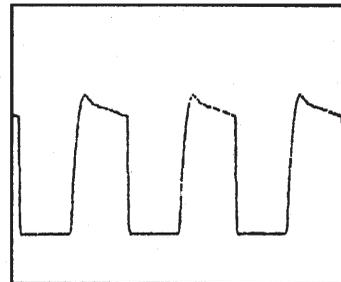
WF-5 27.4Vp-p(H)



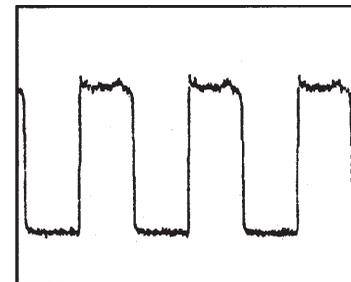
WF-6 21.0Vp-p(H)



WF-7 27.0Vp-p(V)



WF-8 195.0Vp-p(H)

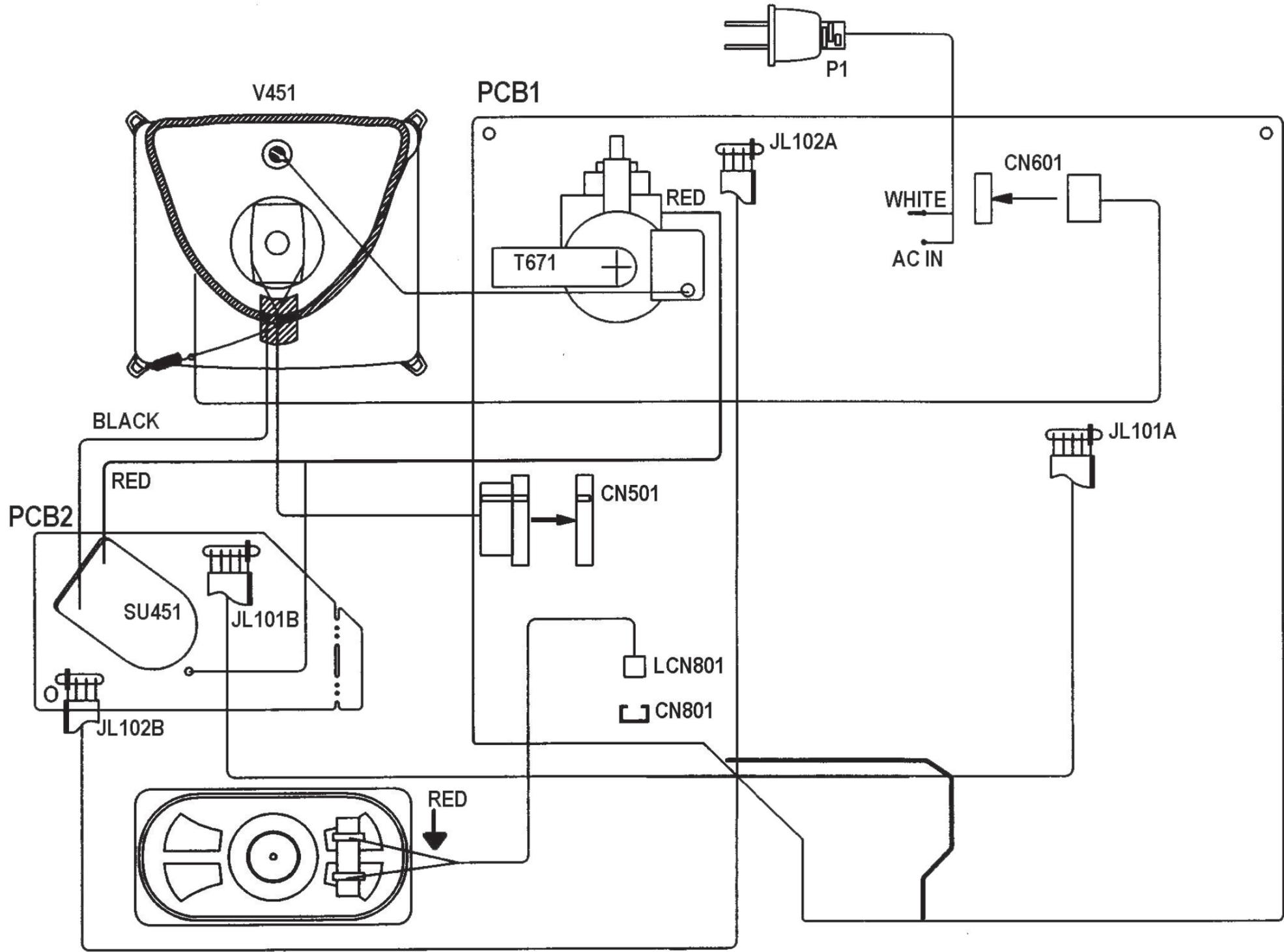


WF-9 0.75Vp-p(H)

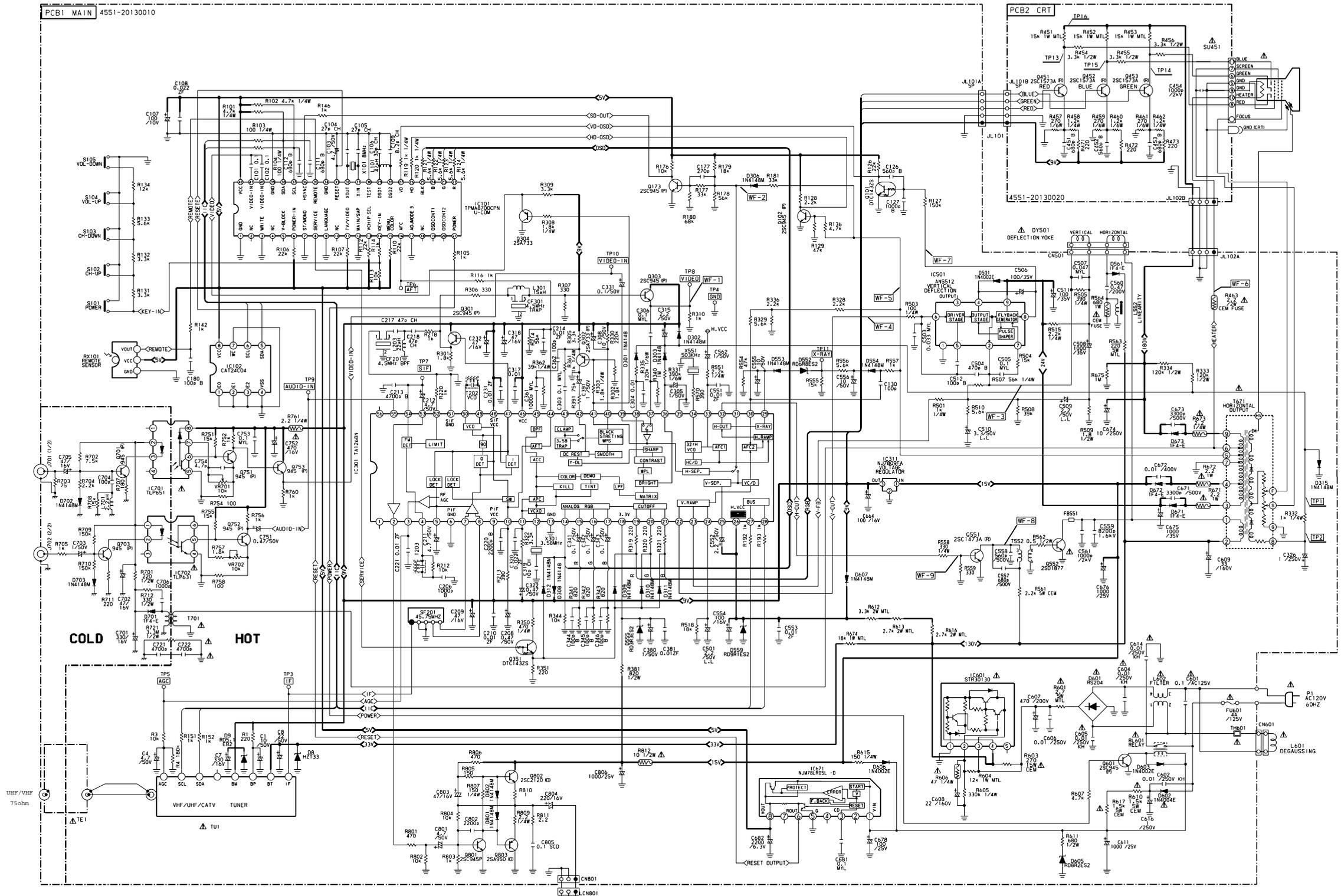
NOTES:

WAVEFORMS SHOWN WERE PRODUCED USING A PATTERN GENERATOR WITH ITS CONTROL SET TO PRODUCE A COLOR BAR SIGNAL AND A WIDEBAND OSCILLOSCOPE WITH LOW CAPACITY PROBE TO PREVENT LOADING. RECEIVER OPERATING CONTROLS WERE ADJUSTED TO PRODUCE A NORMAL PICTURE. OSCILLOSCOPE SWEEP WAS SET AT 5mS FOR VERTICAL WAVEFORMS AND 20uS FOR HORIZONTAL WAVEFORMS. PEAK-TO-PEAK VOLTAGES INDICATED MAY VARY DEPENDING ON CALIBRATION OF TEST EQUIPMENT, CHASSIS PARTS TOLERANCES AND CONTROL SETTINGS. ALL WAVEFORMS ARE TAKEN WITH WIDEBAND OSCILLOSCOPE VOLTAGES AND WAVEFORMS ARE TAKEN WITH COLOR BAR SIGNAL GENERATOR APPLIED TO THE SET.

WIRING DIAGRAM



SCHEMATIC DIAGRAM



SAFETY CRITICAL DEVICE
SAFETY CRITICAL COMPONENTS

THE DESIGN OF RECEIVER CONTAINS MANY CIRCUITS AND COMPONENTS INCLUDED SPECIFICALLY FOR SAFETY PURPOSES. FOR CONTINUED PROTECTION, NO CHANGES SHOULD BE MADE TO THE ORIGINAL DESIGN AND COMPONENTS SHOWN IN Δ ON THE SCHEMATIC SHOULD BE REPLACED WITH EXACT FACTORY REPLACEMENT PARTS. THE USE OF UNAUTHORIZED SUBSTITUTE PARTS MAY CREATE A SHOCK HAZARD, RADIATION OR OTHER HAZARD. SERVICE SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY.

RELIABILITY AND PERFORMANCE
 FOR CONTINUED RELIABILITY AND PERFORMANCE EXACT FACTORY REPLACEMENTS ARE RECOMMENDED FOR ALL OTHER PARTS REPLACED. IF A SUBSTITUTE MUST BE USED BE SURE ITS QUALITY AND SPECIFICATIONS ARE IDENTICAL TO THE ORIGINAL PART.

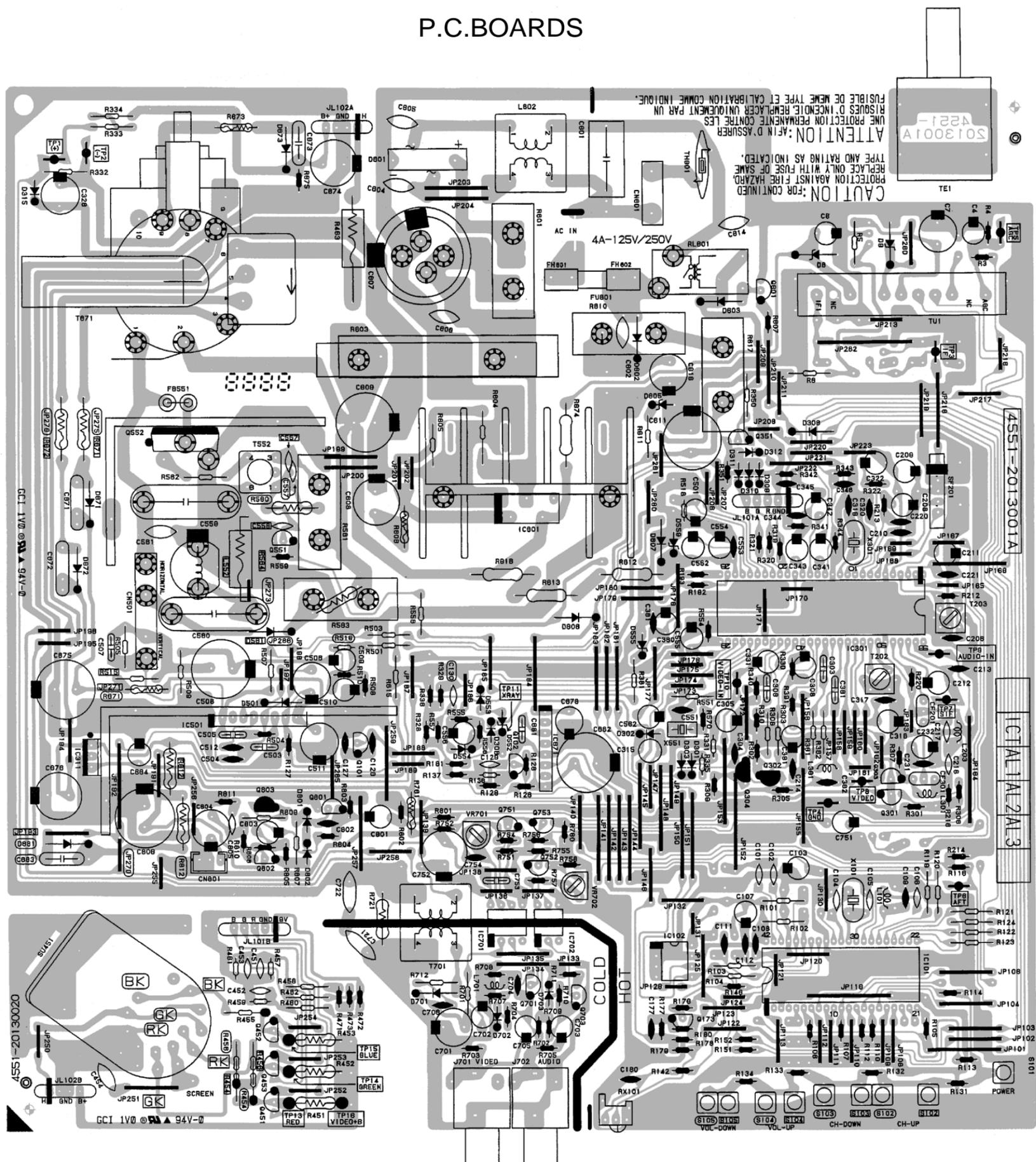
SCHEMATIC DIAGRAM NOTES:

1. ALL RESISTANCE VALUES ARE IN Ω .
2. ALL CAPACITANCE VALUES ARE IN pF UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCE VALUES ARE IN μ F UNLESS OTHERWISE NOTED.
4. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH REGULATORY REQUIREMENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.
5. NOTE: Symbol mark "C" is chassis ground.
 "G" is not ground.

P.C.BOARDS

PCB-1

MAIN P.C.BOARD

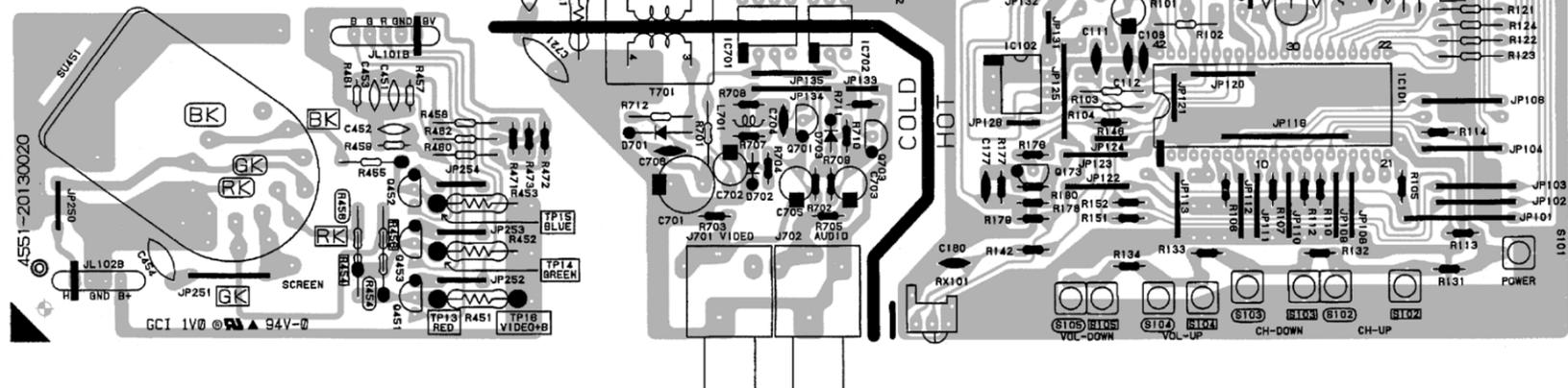


NOTE

XXXX MT1190C & MT1192-04

PCB-2

CRT SOCKET P.C.BOARD



CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH FUSE OF SAME TYPE AND RATING AS INDICATED.

ATTENTION: AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACEZ UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET CALIBRATION COMME INDIQUE.

Ref No. Part No. Description

Ref No. Part No. Description

GENERAL UNIT PARTS LIST

MISCELLANEOUS

⚠ 127	1532-26001	Window
⚠ 128	1662-79801	Push Button
⚠ 142	2132-412	Wedge Deflection Yoke;SPACER(x3)
⚠ 146	2133-334	Protector;BUTTON
⚠ 151	2222-379	Heat Sink;CA
⚠ 152	2222-294	Heat Sink;CA
⚠ 153	2222-302	Heat Sink;CA
156	2340-065	Screw (+);(x4)
158	2651-0000199	Spring CRT;WIRE
⚠ 161	2240-581	Holder
⚠ 162	2240-755	Holder;(x4)
⚠ 163	2240-742	Holder;CORD
166	2240-7052	Holder Wiring
167	2240-7051	Holder Wiring;DY L601/CRT WIRE,JL101
168	2240-R0101	Holder Wiring; DEGAUS*2(x4)
173	2347-R0130082	Self-Tapping Screw (+) (3x8 mm);(x3);CA
174	2347-R0130102	Self-Tapping Screw (+) (3x10 mm);(x2);CA
176	2347-R0140162	Self-Tapping Screw (+) (4x16 mm);(x12);CA
177	2347-R0140162	Self-Tapping Screw (+) (4x16 mm);(x4)
178	2347-R0130082	Self-Tapping Screw (+) (3x8 mm);(x2)
182	2347-R0130102	Self-Tapping Screw(+)(3x10mm);314,BUTTONx3(x5)
⚠ 145	2133-333	Protector;SENSOR;AA
⚠ AA	A412-19V1114C	Cabinet;AA
⚠ AB	A422-19V1114G	Cabiback; SUFFIX A
⚠ AB	A422-19V1114B	Cabiback; SUFFIX B
⚠ AB	A422-19V1114C	Cabiback; SUFFIX C
⚠ AB	A422-19V1114D	Cabiback; SUFFIX D
⚠ AB	A422-19V1114E	Cabiback; SUFFIX E

⚠ DY501	4993-119	Coil Deflection Yoke SUFFIX D
⚠ DY501	4993-123	Coil Deflection Yoke SUFFIX E
⚠ LCN801	4163-06038003	Connector with Lead Wire;(SP)
MG1	4291-034	Magnet Assembly SUFFIX A
MG1	4291-031	Magnet Assembly SUFFIX C
MG1	4291-031	Magnet Assembly SUFFIX E
SP801	5812-0101G750	Speaker
⚠ V451	5721-015ST51N	CRT;(51GGD95X) SUFFIX A
⚠ V451	5721-51CN020T	CRT;(510UEB22DY) SUFFIX B
⚠ V451	5721-028TT48N	CRT;(A48LRH93X) SUFFIX C
⚠ V451	5721-029NT48N	CRT;(A48LSD095X) SUFFIX D
⚠ V451	5721-031ZT48N	CRT;(A48LGS30X) SUFFIX E
121	6142-09010	Infrared Remote Control;CONTROL
⚠ 331	4105-01102	CRT Wire;(CRT GND)

PCB-1 MAIN P.C.BOARD (D551-19V1114A)

CAPACITORS

C4	5345-475-50	4.7 uF +-20% 50V Electrolytic
C7	5345-337-16	330 uF +-20% 16V Electrolytic
C8	5345-226-50	22 uF +-20% 50V Electrolytic
C101	5369-104144	0.1 uF +-10% 25V Semiconductor
C102	5369-104144	0.1 uF +-10% 25V Semiconductor
C103	5345-475-50	4.7 uF +-20% 50V Electrolytic
C104	5361-270JCH	27 pF +-5% 50V Ceramic CH
C105	5361-270JCH	27 pF +-5% 50V Ceramic CH
C106	5361-300JCH	30 pF +-5% 50V Ceramic CH
C107	5345-107-10	100 uF +-20% 10V Electrolytic
C108	V5369-S04FZ223	0.022 uF +80%-20% 25V Semiconductor
C109	S5361-S17CJ8R2	8.2 pF +-5% 50V Ceramic CH
C111	V5369-S05BK681	680 pF +-10% 50V Semiconductor
C112	V5369-S05BK681	680 pF +-10% 50V Semiconductor
C126	V5361-S17BK561	560 pF +-10% 50V Ceramic B
C127	V5369-S05BK102	1000 pF +-10% 50V Semiconductor
C130	5361-101KB	100 pF +-10% 50V Ceramic B
C177	V5361-S17BK271	270 pF +-10% 50V Ceramic B
C180	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C206	V5369-S05BK102	1000 pF +-10% 50V Semiconductor

ELECTRICAL PARTS LIST

COILS AND TRANSFORMER

⚠ L601	4994-040	Coil
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MISCELLANEOUS

⚠ DY501	4993-118	Coil Deflection Yoke SUFFIX A
⚠ DY501	4993-060	Coil Deflection Yoke SUFFIX B
⚠ DY501	4993-126	Coil Deflection Yoke SUFFIX C

Ref No. **Part No.** **Description**

Ref No. **Part No.** **Description**

CAPACITORS

CAPACITORS

C208	5345-474-50	0.47 uF +-20% 50V Electrolytic
C209	5345-476-16	47 uF +-20% 16V Electrolytic
C210	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C211	5345-475-50	4.7 uF +-20% 50V Electrolytic
C212	5345-475-50	4.7 uF +-20% 50V Electrolytic
C213	V5369-S03XM472	4700 pF +-20% 16V Semiconductor
C214	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C217	5361-470JCH	47 pF +-5% 50V Ceramic CH
C218	5361-470JCH	47 pF +-5% 50V Ceramic CH
C220	V5369-S03XM222	2200 pF +-20% 16V Semiconductor
C221	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C231	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C232	5345-476-16	47 uF +-20% 16V Electrolytic
C303	5354-104593	0.1 uF +-5% 50V TF
C304	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C305	5345-105-50	1 uF +-20% 50V Electrolytic
C306	5354-104K1HM	0.1 uF +-10% 50V Mylar
C308	5345-106-50	10 uF +-20% 50V Electrolytic
C315	5342-S06FM225	2.2 uF +-20% 50V Electrolytic NP
C317	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C318	5345-476-16	47 uF +-20% 16V Electrolytic
C319	V5361-S17CJ100	10 pF +-5% 50V Ceramic CH
C320	V5369-S04FZ223	0.022 uF +80%-20% 25V Semiconductor
C322	5345-474-50	0.47 uF +-20% 50V Electrolytic
C326	5345-105-250	1 uF +-20% 250V Electrolytic
C331	5345-104-50	0.1 uF +-20% 50V Electrolytic
C341	5345-104-50	0.1 uF +-20% 50V Electrolytic
C342	5345-104-50	0.1 uF +-20% 50V Electrolytic
C343	5345-104-50	0.1 uF +-20% 50V Electrolytic
C344	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C345	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C346	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C361	5354-102K1HM	1000 pF +-10% 50V Mylar
C362	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C380	5345-105-50	1 uF +-20% 50V Electrolytic
C381	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C391	5345-105-50	1 uF +-20% 50V Electrolytic
C501	5345-L225M50	2.2 uF +-20% 50V Electrolytic L.L
C503	5354-333K1HM	0.033 uF +-10% 50V Mylar

C504	V5361-S17BK471	470 pF +-10% 50V Ceramic B
C505	5354-104593	0.1 uF +-5% 50V TF
C506	5345-107-35	100 uF +-20% 35V Electrolytic
C507	5354-473K1HM	0.047 uF +-10% 50V Mylar
C508	5345-108-35	1000 uF +-20% 35V Electrolytic
C509	5345-L225M50	2.2 uF +-20% 50V Electrolytic L.L
C510	5345-L335M50	3.3 uF +-20% 50V Electrolytic L.L
C511	5345-107-35	100 uF +-20% 35V Electrolytic
C512	V5361-S17BK101	100 pF +-10% 50V Ceramic B
C551	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C552	5345-225-50	2.2 uF +-20% 50V Electrolytic
C553	V5369-S04FZ103	0.01 uF +80%-20% 25V Semiconductor
C554	5345-107-16	100 uF +-20% 16V Electrolytic
C555	5345-106-50	10 uF +-20% 50V Electrolytic
C556	5345-106-50	10 uF +-20% 50V Electrolytic
C557	5361-R01BK681	680 pF +-10% 500V Ceramic
C558	5361-R01BK561	560 pF +-10% 500V Ceramic
C559	5352-S020J822	8200 pF +-5% 1.6 kV Metalized Polyester
C560	5352-S261J474	0.47 uF +-5% 200V Metalized Polyester
C561	5361-S46BK102	1000 pF +-10% 2 kV Ceramic; SUFFIX A
C561	5361-S46BK681	680 pF +-10% 2 kV Ceramic; SUFFIX C
C561	5361-S46BK102	1000 pF +-10% 2 kV Ceramic; SUFFIX D
C562	5345-105-50	1 uF +-20% 50V Electrolytic
C601	5352-S331K104	0.1uF+-10% Metalized Polyester
⚠ C602	5361-S40FM103	0.01 uF +-20% 250V Ceramic F
⚠ C604	5361-S40FM103	0.01 uF +-20% 250V Ceramic F
⚠ C605	5361-S40FM103	0.01 uF +-20% 250V Ceramic F
C606	5361-1030424	0.01 uF +80%-20% 250V Ceramic
C607	5341-S52LM477	470 uF +-20% 200V Electrolytic
C608	5345-S59KM226	22 uF +-20% 160V Electrolytic
C609	5345-S59KM336	33 uF +-20% 160V Electrolytic
C611	5345-108-25	1000 uF +-20% 25V Electrolytic
⚠ C614	5361-S40FM103	0.01 uF +-20% 250V Ceramic F
C616	5345-S59MM105	1 uF +-20% 250V Electrolytic;(105 C)
C664	5345-107-16	100 uF +-20% 16V Electrolytic
C671	5359-3321959	3300 pF +-10% 400V Polypropylene
C672	5359-1031959	0.01 uF +-10% 400V Polypropylene
C673	5359-3321959	3300 pF +-10% 400V Polypropylene
C674	5345-106-250	10 uF +-20% 250V Electrolytic

<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>
<u>CAPACITORS</u>			<u>RESISTORS</u>		
C675	5345-108-35	1000 uF +-20% 35V Electrolytic	R113	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
C676	5345-108-25	1000 uF +-20% 25V Electrolytic	R114	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
C678	5345-107-25	100 uF +-20% 25V Electrolytic	R116	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
C681	5354-104K1HM	0.1 uF +-10% 50V Mylar	R119	5134-102J25P	1 k ohm +-5% 1/4W Carbon
C682	5345-228-06	2200 uF +-20% 6.3V Electrolytic	R120	5134-102J25P	1 k ohm +-5% 1/4W Carbon
C701	5345-337-16	330 uF +-20% 16V Electrolytic	R121	5134-562J25P	5.6 k ohm +-5% 1/4W Carbon
C702	5345-476-16	47 uF +-20% 16V Electrolytic	R122	5134-562J25P	5.6 k ohm +-5% 1/4W Carbon
C703	5345-105-50	1 uF +-20% 50V Electrolytic	R123	5134-562J25P	5.6 k ohm +-5% 1/4W Carbon
C704	V5361-S17BK101	100 pF +-10% 50V Ceramic B	R124	5134-562J25P	5.6 k ohm +-5% 1/4W Carbon
C705	5345-476-16	47 uF +-20% 16V Electrolytic	R126	V5133-R010J223	22 k ohm +-5% 1/8W Carbon
C706	V5369-S05BK102	1000 pF +-10% 50V Semiconductor	R127	V5133-R010J154	150 k ohm +-5% 1/8W Carbon
⚠ C721	5361-S53EM472	4700 pF +-20% Ceramic	R128	V5133-R010J222	2.2 k ohm +-5% 1/8W Carbon
⚠ C722	5361-S53EM472	4700 pF +-20% Ceramic	R129	V5133-R010J473	47 k ohm +-5% 1/8W Carbon
C751	5345-474-50	0.47 uF +-20% 50V Electrolytic	R131	V5133-R010J332	3.3 k ohm +-5% 1/8W Carbon
C752	5345-477-16	470 uF +-20% 16V Electrolytic	R132	V5133-R010J332	3.3 k ohm +-5% 1/8W Carbon
C753	5354-104593	0.1 uF +-5% 50V TF	R133	V5133-R010J562	5.6 k ohm +-5% 1/8W Carbon
C754	V5361-S17CK4R7	40 uF +-10% 50V Ceramic CH	R134	V5133-R010J123	12 k ohm +-5% 1/8W Carbon
C801	5345-475-50	4.7 uF +-20% 50V Electrolytic	R136	5232-472J16P	4.7 k ohm +-5% 1/6W Carbon
C802	V5369-S03XM222	2200pF +-20% 16V Semiconductor	R137	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
C803	5345-476-16	47 uF +-20% 50V Electrolytic	R142	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
C804	5345-227-16	220 uF +-20% 16V Electrolytic	R146	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
C805	5369-104144	0.1 uF +-10% 25V Semiconductor	R151	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
C806	5345-108-25	1000 uF +-20% 25V Electrolytic	R152	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
<u>RESISTORS</u>			R176	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
R3	V5133-R010J473	47 k ohm +-5% 1/8W Carbon	R177	V5133-R010J333	33 k ohm +-5% 1/8W Carbon
R4	V5133-R010J473	47 k ohm +-5% 1/8W Carbon	R178	V5133-R010J563	56 k ohm +-5% 1/8W Carbon
R5	5135-150J50P	15 ohm +-5% 1/2W Carbon	R179	V5133-R010J183	18 k ohm +-5% 1/8W Carbon
R6	5135-150J50P	15 ohm +-5% 1/2W Carbon	R180	V5133-R010J683	68 k ohm +-5% 1/8W Carbon
R101	5134-472J25P	4.7 k ohm +-5% 1/4W Carbon	R181	V5133-R010J333	33 k ohm +-5% 1/8W Carbon
R102	5134-472J25P	4.7 k ohm +-5% 1/4W Carbon	R192	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R103	5134-101J25P	100 ohm +-5% 1/4W Carbon	R193	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R104	5134-101J25P	100 ohm +-5% 1/4W Carbon	R212	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
R105	V5133-R010J102	1 k ohm +-5% 1/8W Carbon	R213	V5133-R010J391	390 ohm +-5% 1/8W Carbon
R106	V5133-R010J223	22 k ohm +-5% 1/8W Carbon	R214	V5133-R010J563	56 k ohm +-5% 1/8W Carbon
R107	V5133-R010J223	22 k ohm +-5% 1/8W Carbon	R218	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R110	V5133-R010J223	22 k ohm +-5% 1/8W Carbon	R220	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R112	V5133-R010J223	22 k ohm +-5% 1/8W Carbon	R301	V5133-R010J182	1.8 k ohm +-5% 1/8W Carbon
			R302	V5133-R010J182	1.8 k ohm +-5% 1/8W Carbon
			R303	5134-182J25P	1.8 k ohm +-5% 1/4W Carbon

<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>
<u>RESISTORS</u>		
R305	V5133-R010J332	3.3 k ohm +-5% 1/8W Carbon
R306	V5133-R010J331	330 ohm +-5% 1/8W Carbon
R307	V5133-R010J331	330 ohm +-5% 1/8W Carbon
R308	5134-182J25P	1.8 k ohm +-5% 1/4W Carbon
R309	V5133-R010J332	3.3 k ohm +-5% 1/8W Carbon
R310	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R319	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R320	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R321	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R322	V5133-R010J332	3.3 k ohm +-5% 1/8W Carbon
R328	V5133-R010J222	2.2 k ohm +-5% 1/8W Carbon
R329	V5133-R010J562	5.6 k ohm +-5% 1/8W Carbon
R330	V5133-R010J224	220 k ohm +-5% 1/8W Carbon
R331	5232-394J16P	390 k ohm +-5% 1/6W Carbon
R332	5134-102J25P	1 k ohm +-5% 1/4W Carbon
R333	5135-124J50P	120 k ohm +-5% 1/2W Carbon
R334	5135-124J50P	120 k ohm +-5% 1/2W Carbon
R335	5232-124J16P	120 k ohm +-5% 1/6W Carbon
R336	V5133-R010J222	2.2 k ohm +-5% 1/8W Carbon
R340	V5133-R010J105	1 M ohm +-5% 1/8W Carbon
R341	V5133-R010J821	820 ohm +-5% 1/8W Carbon
R342	V5133-R010J821	820 ohm +-5% 1/8W Carbon
R343	V5133-R010J821	820 ohm +-5% 1/8W Carbon
R344	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
R350	5134-471J25P	470 ohm +-5% 1/4W Carbon
R351	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R361	5134-102J25P	1 k ohm +-5% 1/4W Carbon
R362	5134-393J25P	39 k ohm +-5% 1/4W Carbon
R381	5135-821J50P	820 ohm +-5% 1/2W Carbon
R391	V5133-R010J753	75 k ohm +-5% 1/8W Carbon
⚠ R463	5102-S141J2R2	2.2 ohm +-5% 2W Fuse;SUFFIX A
⚠ R463	5102-S141J2R7	2.7 ohm +-5% 2W Fuse;SUFFIX B
⚠ R463	5102-S141J5R6	5.6 ohm +-5% 2W Fuse;SUFFIX C
⚠ R463	5102-S141J2R7	2.7 ohm +-5% 2W Fuse;SUFFIX D
⚠ R463	5102-S141J5R6	5.6 ohm +-5% 2W Fuse;SUFFIX E
R501	5134-102J25P	1 k ohm +-5% 1/4W Carbon
R503	5134-101J25P	100 ohm +-5% 1/4W Carbon
R504	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
R505	5134-391J25P	390 ohm +-5% 1/4W Carbon

<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>
<u>RESISTORS</u>		
R507	5134-563J25P	56 k ohm +-5% 1/4W Carbon
R508	V5133-R010J333	33 k ohm +-5% 1/8W Carbon
R509	5135-1R8J50P	1.8 ohm +-5% 1/2W Carbon
R510	V5133-R010J562	5.6 k ohm +-5% 1/8W Carbon
R515	5134-222J25P	2.2 k ohm +-5% 1/4W Carbon
R518	5232-183J16P	18 k ohm +-5% 1/6W Carbon
R518	5232-153J16P	15 k ohm +-5% 1/6W Carbon; SUFFIX C
R518	5232-153J16P	15 k ohm +-5% 1/6W Carbon; SUFFIX D
R518	5232-223J16P	22 k ohm +-5% 1/6W Carbon; SUFFIX E
R519	5232-822J16P	8.2 k ohm +-5% 1/6W Carbon; SUFFIX C
R519	5232-473J16P	47 k ohm +-5% 1/6W Carbon; SUFFIX D
R551	5134-222J25P	2.2 k ohm +-5% 1/4W Carbon
R554	V5133-R010J473	47 k ohm +-5% 1/8W Carbon
R555	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
R556	V5133-R010J562	5.6 k ohm +-5% 1/8W Carbon
R557	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R558	5134-331J25P	330 ohm +-5% 1/4W Carbon
R559	V5133-R010J331	330 ohm +-5% 1/8W Carbon
R561	5275-S080K222	2.2 k ohm +-10% 5W Cement
R562	5135-0R5J50P	0.5 ohm +-5% 1/2W Carbon
R563	5275-S080K221	220 ohm +-10% 5W Cement
⚠ R564	5102-6815711	680 ohm +-5% 1W Fuse
R570	V5133-R010J391	390 ohm +-5% 1/8W Carbon
⚠ R601	5275-S080K2R7	2.7 ohm +-10% 5W Cement
⚠ R603	5277-S021J271	270 ohm 15W Cement
R604	5171-S071J123	12 k ohm +-5% 1W Metal
R605	5134-334J25P	330 k ohm +-5% 1/4W Carbon
⚠ R606	5102-S101J470	47 ohm +-5% 1/4W Fuse
R607	V5133-R010J472	4.7 k ohm +-5% 1/8W Carbon
⚠ R610	5275-S080K152	1.5 k ohm +-10% 5W Cement
R611	5135-681J50P	680 ohm +-5% 1/2W Carbon
R612	5173-S051J322	3.2 k ohm +-5% 2W Metal
R613	5173-S051J272	2.7 k ohm +-5% 2W Metal
R615	5134-151J25P	150 ohm +-5% 1/4W Carbon
R616	5173-S051J272	2.7 k ohm +-5% 2W Metal
⚠ R617	5275-S080K152	1.5 k ohm +-10% 5W Cement
⚠ R671	5102-2R25720	2.2 ohm +-5% 1W Fuse
⚠ R672	5102-2R25720	2.2 ohm +-5% 1W Fuse
⚠ R673	5102-S101J2R2	2.2 ohm +-5% 1/4W Fuse

Ref No. Part No. Description

RESISTORS

R674	5171-S071J183	18 k ohm +-5% 1W Metal
R675	V5133-R010J105	1 M ohm +-5% 1/8W Carbon
R701	5135-221J50P	220 ohm +-5% 1/2W Carbon
R702	V5133-R010J752	7.5 k ohm +-5% 1/8W Carbon
R703	V5133-R010J750	75 ohm +-5% 1/8W Carbon
R704	V5133-R010J222	2.2 k ohm +-5% 1/8W Carbon
R705	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R707	V5133-R010J181	180 ohm +-5% 1/8W Carbon
R708	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
R709	V5133-R010J154	150 k ohm +-5% 1/8W Carbon
R710	V5133-R010J154	150 k ohm +-5% 1/8W Carbon
R711	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R712	5135-331J50P	330 ohm +-5% 1/2W Carbon
⚠ R721	5135-S051J335	3.3 M ohm +-5% 1/2W Carbon
R751	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
R752	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R754	V5133-R010J101	100 ohm +-5% 1/8W Carbon
R755	V5133-R010J153	15 k ohm +-5% 1/8W Carbon
R756	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R757	V5133-R010J182	1.8 k ohm +-5% 1/8W Carbon
R758	V5133-R010J101	100 ohm +-5% 1/8W Carbon
R760	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
⚠ R761	5102-S101J2R2	2.2 ohm +-5% 1/4W Fuse
R801	V5133-R010J471	470 ohm +-5% 1/8W Carbon
R802	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
R803	V5133-R010J102	1 k ohm +-5% 1/8W Carbon
R804	V5133-R010J103	10 k ohm +-5% 1/8W Carbon
R805	V5133-R010J151	150 ohm +-5% 1/8W Carbon
R806	V5133-R010J471	470 ohm +-5% 1/8W Carbon
R807	5134-151J25P	150 ohm +-5% 1/4W Carbon
R809	5134-2R2J25P	2.2 ohm +-5% 1/4W Carbon
R810	V5133-R010J1R0	1 ohm +-5% 1/8W Carbon
R811	V5133-R010J2R2	2.2 ohm +-5% 1/8W Carbon
⚠ R812	5102-S111J100	10 ohm +-5% 1/2W Fuse

Ref No. Part No. Description

TRANSISTORS

Q101	5613-C143ZS	Transistor, DTC143ZS
Q102	5613-2785(F)	Transistor, 2SC2785(F)
Q173	5613-2785(F)	Transistor, 2SC2785(F)
Q301	5613-2785(F)	Transistor, 2SC2785(F)
Q302	5611-1175(F)	Transistor, 2SA1175(F)
Q303	5613-2785(F)	Transistor, 2SC2785(F)
Q304	5611-1175(F)	Transistor, 2SA1175(F)
Q351	5613-C143ZS	Transistor, DTC143ZS
Q551	5613-1473A(R)	Transistor, 2SC1473A(R)
⚠ Q552	5614-1877	Transistor, 2SD1877;(HORIZONTAL)
Q601	5613-2785(F)	Transistor, 2SC2785(F)
Q701	5613-2785(F)	Transistor, 2SC2785(F)
Q703	5613-2785(F)	Transistor, 2SC2785(F)
Q751	5613-2785(F)	Transistor, 2SC2785(F)
Q752	5613-2785(F)	Transistor, 2SC2785(F)
Q753	5613-2785(F)	Transistor, 2SC2785(F)
Q552	5614-1877	Transistor, 2SD1877;(HORIZONTAL)
Q601	5613-2785(F)	Transistor, 2SC2785(F)
Q701	5613-2785(F)	Transistor, 2SC2785(F)
Q703	5613-2785(F)	Transistor, 2SC2785(F)
Q751	5613-2785(F)	Transistor, 2SC2785(F)
Q752	5613-2785(F)	Transistor, 2SC2785(F)
Q753	5613-2785(F)	Transistor, 2SC2785(F)
Q801	5613-2785(F)	Transistor, 2SC2785(F)
Q802	5613-2120(O)	Transistor, 2SC2120(O)
Q803	5611-950(O)	Transistor, 2SA950(O)

INTEGRATED CIRCUITS

IC101	5654-TA87C-B6	IC;(u-COM)
IC102	5654-CAT24C04	IC;(EEPROM)
IC301	5653-TA1268N	IC, TA1268N ;(IF/VIDEO/CHROMA/DEF)
IC311	5653-NJ7809FA	IC, NJM7809FA;(9V REGULATOR)
IC501	5652-AN5512	IC, AN5512;(VERTICAL)
⚠ IC601	5653-STR30130	IC, STR30130;(AVR)
IC671	5653-NJ7805LD	IC, NJM78LR05L-D;(5V REGULATOR/RESET 4.2V)
⚠ IC701	5624-TLP651	Photo-Coupler;(VIDEO)
⚠ IC702	5624-TLP631	Photo-Coupler;(AUDIO)

<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref No.</u>	<u>Part No.</u>	<u>Description</u>
<u>DIODES</u>			<u>COILS AND TRANSFORMERS</u>		
D8	5635-HZT33	Zener, HZT33 33V 400mW	L101	5995-470098	Coil 47 uH
D9	5635-RD5R1EB2	Zener, RD5.1EB2 5.1V	L203	5995-220098	Coil 22 uH
D301	5636-1N4148M	Diode,1N4148M	L301	5995-150098	Coil 15 uH
D302	5636-1N4148M	Diode,1N4148M	L552	5995-540084	Coil;(LINEARITY)
D303	5636-1N4148M	Diode,1N4148M	⚠ L602	5583-52103	Coil AF CH;(LINE FILTER)
D306	5636-1N4148M	Diode,1N4148M	L701	5995-2R2098	Coil 2.2 uH
D308	5636-1N4148	Diode,1N4148	T202	5932-12502	Coil;(AFT)
D309	5636-1N4148M	Diode,1N4148M	T203	5562-0019	Transformer SIF Det.:(SIF DET)
D310	5636-1N4148M	Diode,1N4148M	T552	5581-18801	Transformer
D311	5636-1N4148M	Diode,1N4148M	⚠ T671	4992-093	Transformer; SUFFIX A,B,D
D312	5636-1N4148M	Diode,1N4148M	⚠ T671	4992-094	Transformer; SUFFIX C,E
D315	5636-1N4148M	Diode,1N4148M	⚠ T701	5583-52103	Coil AF CH
D501	5632-1N4002E	Diode, RL1N4002-E	<u>MISCELLANEOUS</u>		
D552	5635-RD6R8ES2	Zener;6.8V	CF201	5671-02810452	Ceramic Filter;(4.5MHz BAND PASS F.)
D553	5636-1N4148M	Diode,1N4148M	CF301	5671-02410452	Ceramic Filter;(4.5MHz TRAP)
D554	5636-1N4148M	Diode,1N4148M	CN501	4443-0501142	Connector 5-pin;(DY)
D555	5635-RD3R3ES2	Zener;3.3V	CN601	4443-10101002	Connector 2-pin.:(DEGAUSS)
D559	5635-RD9R1ES2	Zener;9.1V	CN801	4443-03201003	Connector;(SP)
D561	5632-1F4-E	Diode, 1F4	FB551	5597-51001	Ferrite Bead
⚠ D601	5685-RS204LST	Bridge Silicon Diode	FH601	4472-05001	Fuse Holder;(FU601)
⚠ D602	5632-1N4004E	Diode, RL1N4004-E	FH602	4472-05001	Fuse Holder;(FU601)
D603	5632-1N4002E	Diode, RL1N4002-E	⚠ FU601	5732-02401402	Fuse;(4A/125V)
D605	5635-RD8R2ES2	Zener;8.2V	J701	4489-06501002	Jack;(AUDIO/VIDEO INPUT)
D606	5632-1N4002E	Diode, RL1N4002-E	⚠ JL101	4242-R0505551	Jumper Lead 5-Wire;(MAIN-CRT)
D607	5636-1N4148	Diode,1N4148	⚠ JL102	4242-R0504351	Jumper Lead 4-Wire;(MAIN-CRT)
D671	5632-1F4-E	Diode, 1F4	⚠ P1	4161-14701212	Cord w/Plug;(AC CORD)
D672	5632-1F4-E	Diode, 1F4	⚠ RL601	4331-03403	DC Relay
D673	5632-1F4-E	Diode, 1F4	RX101	6143-02701	Remote Control Receiver Unit
D701	5632-1F4-E	Diode, 1F4	S101	4437-0611	Push Switch
D702	5636-1N4148M	Diode,1N4148M	S102	4437-0611	Push Switch
D703	5636-1N4148M	Diode,1N4148M	S103	4437-0611	Push Switch
D801	5636-1SS133	Diode, 1SS133	S104	4437-0611	Push Switch
D802	5636-1SS133	Diode, 1SS133	S105	4437-0611	Push Switch

Ref No. Part No. Description

COILS AND TRANSFORMERS

SF201	5679-01501450	Surface Acoustic Wave Filter
⚠ TE1	4363-01201	Antenna Coupler;(ANT)
⚠ TH601	5192-01101	Posistor
⚠ TU1	6119-15501	VHF/UHF/CATV Tuner Assembly
X101	5691-S2401802	Crystal Osc.8.0MHz
X301	5691-S2401362	Crystal Osc. 3.579545MHz
X551	5693-SB503F30	Ceramic Osc. 503 kHz

CONTROLS

VR701	5101-10301934	10 k ohm Variable Resistor
VR702	5101-10301934	10 k ohm Variable Resistor

PCB-2 CRT SOCKET P.C.BOARD(D551-19V1114B)

CAPACITORS

C451	5361-681KB	680 pF +-10% 50V Ceramic B
C452	5361-561KB	560 pF +-10% 50V Ceramic B
C453	5361-681KB	680 pF +-10% 50V Ceramic B
C454	5361-S46BK102	1000 pF +-10% 2 kV Ceramic

RESISTORS

R451	5171-S071J153	15 k ohm +-5% 1W Metal
R452	5171-S071J153	15 k ohm +-5% 1W Metal
R453	5171-S071J153	15 k ohm +-5% 1W Metal
R454	5135-332J50P	3.3 k ohm +-5% 1/2W Carbon
R455	5135-332J50P	3.3 k ohm +-5% 1/2W Carbon
R456	5135-332J50P	3.3 k ohm +-5% 1/2W Carbon
R457	5232-271J16P	270 ohm +-5% 1/6W Carbon
R458	5134-122J25P	1.2 k ohm +-5% 1/4W Carbon
R459	5232-271J16P	270 ohm +-5% 1/6W Carbon
R460	5134-122J25P	1.2 k ohm +-5% 1/4W Carbon
R461	5232-271J16P	270 ohm +-5% 1/6W Carbon
R462	5134-122J25P	1.2 k ohm +-5% 1/4W Carbon
R471	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R472	V5133-R010J221	220 ohm +-5% 1/8W Carbon
R473	V5133-R010J221	220 ohm +-5% 1/8W Carbon

Ref No. Part No. Description

TRANSISTORS

Q451	5613-1573A(R)	Transistor, 2SC1573A(R)
Q452	5613-1573A(R)	Transistor, 2SC1573A(R)
Q453	5613-1573A(R)	Transistor, 2SC1573A(R)

MISCELLANEOUS

⚠ SU451	4474-08101	Socket; SUFFIX A,B,D
⚠ SU451	4474-08001	Socket; SUFFIX C, E

Note: ⚠ **Safety Related Components.**
Use Only Exact Replacement Parts.

Memorex® INSTRUCTION MANUAL ENGLISH

COLOR TELEVISION MT1190C

FEATURES

- On-Screen graphics guide you through setup features and operations.
- Automatic programming of channels allows easy selection of stations available in your viewing area.
- Sleep timer programs the TV to turn itself off at a preset time.
- One day timer programs the TV to come on once at a preset time.
- Weekly timer programs the TV to come on at a preset time every day.
- 26 button infrared remote control allows remote operation.
- VHF/UHF/CATV tuning allows reception of standard broadcasts or cable TV channels.
- Close caption decoder displays captions or half-screen text.
- V-BLOCK function.

SPECIFICATIONS

AC Power Input	120 V, 60 Hz
AC Power Consumption	98 Watts
Chassis Construction	IC Solid State
Picture Tube (measured diagonally)	19"
Speaker	3.5 x 2 in (90 x 50 mm) Oval, 8 ohm
Tuner	181 Channel, Freq. Synthesized
Remote Control	Infrared, Direct Access 2 x AA batteries
Receiving Channels	VHF 2-13 UHF 14-69
CATV:	
Mid Band	14-22
Super Band	23-36
Hyper Band	37-65
Ultra Band	66-94, 100-125
Sub Mid Band	1, 95-99
Antenna Input Impedance	75 ohm (VHF/UHF) Coaxial Input



As an ENERGY STAR® Partner, MEMOCORP has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

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CAUTION

- Place your TV in a room with adequate ventilation.
- Keep your TV set away from sources of direct heat, such as heat registers or direct sunlight.
- Do not place your TV on soft surfaces, such as rugs or blankets.
- Leave enough room for air to circulate around the bottom, top and back of the set.
- Your TV works on normal household current (120 volts, 60 Hz). For safety purpose, your TV's electrical plug has one blade wider than the other. If you cannot insert the plug fully into the socket, try reversing it.

In the space provided, record the serial and model numbers, located on the rear of the unit.

SERIAL NO. _____ MODEL NO. _____

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.



The lightning flash with the arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of unshielded "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to someone.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

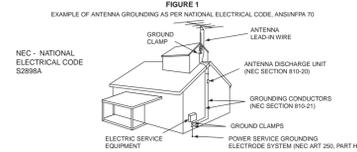
IMPORTANT SAFEGUARDS

- Read Instructions** - All the safety and operating instructions should be read before the TV is operated.
- Retain Instructions** - The safety and operating instructions should be retained for future reference.
- heed Warnings** - All warnings on the TV and in the operating instructions should be adhered to.
- Follow Instructions** - All operating and use instructions should be followed.
- Cleaning** - Unplug TV from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Attachments** - Do not use attachments not recommended by the TV manufacturer as they may cause hazards.
- Water and Moisture** - Do not use this TV near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
- Accessories** - Do not place this TV on an unstable cart, stand, tripod, bracket, or table. The TV may fall, causing serious injury to someone and serious damage to the TV. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the TV.
- Any mounting of the TV should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- The TV and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the TV and cart combination to overturn.
- Ventilation** - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the TV and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the TV on a bed, sofa, rug, or other similar surface. This TV should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- Power Sources** - This TV should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your TV dealer or local power company. For TVs intended to operate from battery power, or other sources, refer to the operating instructions.
- Grounding or Polarization** - This TV may be equipped with a polarized alternating current plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the TV.
- Outdoor Antenna Grounding** - If an outside antenna or cable system is connected to the TV, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code ANS/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes and requirements for the grounding electrode. See Figure 1.



- Lightning** - For added protection for this TV during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the TV due to lightning and power-line surges.
- Power Lines** - An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
- Overloading** - Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
- Object and Liquid Entry** - Never push objects of any kind into this TV through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the TV.
- Servicing** - Do not attempt to service this TV yourself as opening and removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- Damage Requiring Service** - Unplug this TV from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power-supply cord or plug is damaged.
 - If liquid has been spilled, or objects have fallen into the TV.
 - If the TV has been exposed to rain or water.
 - If the TV does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of those controls may result in damage and will often require extensive work by a qualified technician to restore the TV to its normal operation.
 - If the TV has been dropped or damaged in any way.
 - If the TV exhibits a distinct change in performance - this indicates a need for service.
- Replacement Parts** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
- Safety Check** - Upon completion of any service or repairs to this TV, ask the service technician to perform safety checks to determine that the TV is in proper operating condition.
- Wall or Ceiling Mounting** - The TV should be mounted to a wall or ceiling only as recommended by the manufacturer.
- Heat** - The TV should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



ANTENNA / AUDIO / VIDEO INPUT CONNECTIONS

COMBINATION VHF/UHF ANTENNA (Single 75 ohm cable or 300 ohm twin-lead wire)

Connect the 75 ohm cable from combination VHF/UHF antenna to the antenna jack. If your combination antenna has a 300 ohm twin-lead wire, use the 300-75 ohm matching transformer (not included).



To prevent problems it is recommended that you use only the specified transformer. (Transformer Part No.: 1398-00301) (USA only)

CATV CONNECTIONS

For Subscribers to Basic Cable Service:

For basic cable service without a converter/descrambler box, connect the CATV 75 ohm coaxial cable directly to the antenna jack on the rear of the TV.



Some cable companies offer "premium pay" channels in which the signal is scrambled. Descrambling these signals for normal viewing requires the use of a descrambler device which is generally provided by the cable company. Below are illustrations for connection of these types of converter/descrambler devices with the TV's VHF antenna jack.

For Subscribers to Scrambled Cable Service:

To allow viewing of all channels through converter/descrambler, TV must be set to the output channel of the converter/descrambler (usually ch 3 or 4).



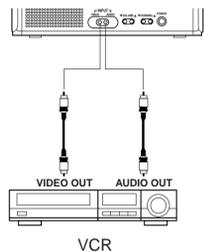
For Subscribers to Unscrambled Basic Cable with Scrambled Premium Channels:
You may need to use a two-set signal splitter (sometimes called a "two-set coupler") and an A/B switch box from the cable installer or an electronics supply store. With the A/B switch in "B" position you can directly tune to any non-scrambled channels using your TV's tuning system or remote control. With the switch in "A" position, you can tune your TV to the output channel of the decoder (usually CH 3 or 4) and use the box to tune scrambled channels. Since cable systems vary, you may wish to consult your local cable company.

USING THE AUDIO AND VIDEO JACKS

The AUDIO and VIDEO INPUT jacks on the front of the TV allow you to receive audio (sound) and video (picture) from external sources, such as VCR, Video Disc, etc. Follow the instructions below to play video from an external source.

- Use audio/video cables (not included) to connect to the AUDIO and VIDEO INPUT jacks on the front of the TV to audio and video output jacks on an external source.
- Press the TV/VIDEO button on remote control to select the VIDEO mode and the VIDEO indication will appear on the screen.
- Operate the VCR, Video Disc or etc. as described in its owner's manual. The TV will monitor playback.

You must return the TV to TV mode for regular TV viewing. If the TV does not receive a signal from an external source, the VIDEO display will appear on screen.



TV OPERATIONS SET UP

SETTING LANGUAGE

The menu screen can be programmed to appear in English, French or Spanish as procedure below:

- Press MENU to display main menu.
- Select (+) or (-) until LANGUAGE, press MENU to select the desired language.
- Select (+) or (-) until EXIT, press MENU to exit.



SETTING THE CLOCK

- Press MENU twice until CLOCK SET screen.
- Set the correct day, hour(s), minute(s) and AM/PM for the CLOCK using (+) or (-) and press MENU after each entry to go to the next step.
- While EXIT is flashing, press (+) or (-) to exit.



You may have to reset the clock if there is a power outage or if you unplug the TV. To correct day or time, repeat step 1, press MENU repeatedly until the desired item is flashing, make correction using (+) or (-). Finally press MENU until EXIT flashing and press (+) or (-) to exit.

PROGRAMMING CHANNELS

Automatic Programming

- Press MENU to display main menu.
- Select (+) or (-) until CH Program, press MENU.
- Press MENU until the mode (AIR or CABLE) that corresponds to your TV signal system appears beside AIR/CABLE.
- Select (+) or (-) until AUTOSEARCH, press MENU to start it. The TV will automatically cycle through all the TV or CABLE channel depending on the mode selected, and store active channel in its memory. When complete, the CH PROGRAM screen will re-appear on-screen.
- Select (+) or (-) until CH Program, press MENU to exit.



To stop automatic programming while it is in progress, press MENU.

Manual Programming (Add/Delete Channels)

- Press MENU to display main menu.
- Select (+) or (-) until CH PROGRAM, press MENU.
- Select (+) or (-) until CH MEMORY, press MENU.
- Select the desired channels to be added or deleted using either the NUMBER or CHANNEL (▲/▼) buttons.
- Press (+) or (-) to add (it will turn white) or (-) to delete (it will turn red) the channel.
- Repeat steps 4 and 5 to add or delete other channels.
- Press MENU to return to the CH PROGRAM screen.
- Press MENU to exit while EXIT is highlighted.



If you don't program channels, you will still receive channels when you press either the CHANNEL (▲/▼) or Number buttons. But you will also have to scan through channel that have no reception or very poor reception when you press the CHANNEL (▲/▼) buttons.

TIMERS SET UP

One Day Timer

- Press MENU to display main menu.
- Select (+) or (-) until PROGRAM TIMER, press MENU. (Clock time must be set before proceeding this step, go to Setting the Clock)
- While ONE DAY is highlighted, press MENU, the OFF (or ON) beside ONE DAY will flash.
- Select (+) or (-) until ON, press MENU to enter the one day timer screen.
- Set the hour, minute(s) and AM/PM for both ON TIME and OFF TIME using (+) or (-) and press MENU after each entry to go to the next step. (The OFF TIMER changes to exactly three hours after the ON TIME).
- Select the desired channel using either Number, CHANNEL (▲/▼) or (-) buttons then press MENU.
- While EXIT is blinking, press (+) or (-) to exit.



To cancel a timer, follow steps 1 to 3. At step 4, use the (+) or (-) to change the ON to OFF. The one day timer has priority when the same time value is set for the ON TIME held of both the one day timer and the weekly timer. You may have to reprogram the timer if there is a power outage or if the TV is unplugged.

V-BLOCK SETUP

V-Block allows users to program their TV to automatically block an incoming program with certain level of violence, sexual content and strong language based on age, content or both ratings.

V-BLOCK SET UP

- Press MENU to display main menu.
- Select (+) or (-) until V-BLOCK SET, press MENU.
- Use the number buttons to input "0000". (the preset pass number is 0000), then press MENU.
- Press MENU, the OFF (or ON) beside V-BLOCK will flash.
- Select (+) or (-) until ON, press MENU.
- Select (+) or (-) until EXIT, press MENU to exit.



To disable block, set V-BLOCK to OFF. If you turn the TV on for the first time, setting V-BLOCK to ON alone will not enable the block unless you change the preset state for MPAA and TV Rating from OFF to any rating. In case you forget the pass number call your nearest Service Centre for assistance.

MPAA RATING SET UP

- Go to V-BLOCK SET menu screen.
- Select (+) or (-) until CHANGE RATING, press MENU.
- While MPAA RATING is highlighted, press MENU, the OFF (or any rating) beside MPAA RATING will flash.
- Select (+) or (-) until the desired rating, press MENU.
- Select (+) or (-) until EXIT, press MENU to exit.



Rating rotates from lower to higher. X is the highest rating.

All programs with a higher rating than the one selected will also be blocked. If you don't want to block MPAA RATING, set it to OFF. V-BLOCK is activated only on programs and tapes that have the rating signal and if activated "V-BLOCK" message together with the rating level appears on-screen. The channel blocking will cease if the input source or if the channel is changed.

TV RATING SET UP

- Go to CHANGE RATING sub-menu screen.
- Select (+) or (-) until TV RATING, press MENU.
- Select (+) or (-) until the desired rating appears beside TV RATING, press MENU.



When user select TV-Y7, TV-PG, TV-14 or TV-MA and press MENU, the sub-ratings (content-based rating) will appear beside the selected main rating. User can select either only main rating or combine with the sub-ratings as below:
TV-Y(FV), TV-PG(DSLV), TV-14(DSLV), TV-MA(LSV)

FV : Fantasy Violence
D : Suggestive Dialogue
L : Adult Language
S : Sexual Situation
V : Violence

- In case of sub-rating selection:
While the sub-rating is flashing, press (+) or (-) repeatedly to add or delete the sub-ratings (yellow blank indicate delete) then press MENU after each entry.
- Select (+) or (-) until EXIT, press MENU to exit.

Rating rotates from lower to higher. TV-MA is the highest rating.

OFF → TV-Y → TV-Y7 → TV-G → TV-PG → TV-14 → TV-MA

All programs with a higher rating than the one selected will automatically be blocked. If you don't want to block TV RATING, set it OFF. When user select only main rating without any sub-rating then program will be blocked only for main rating, ignoring the sub-rating. But if user select in combination then programs with higher rating plus similar sub-rating than the one selected will automatically be blocked.

CHANGING A PASS NUMBER

- Go to V-BLOCK SET menu screen.
- Select (+) or (-) until CHANGE NUMBER, press MENU, the numbers beside it will flash.
- Input the desired numbers using the Number button, press MENU.
- Press MENU to re-confirm your entry then select exit. To make correction press (+) or (-) and repeat from step 2.
- Select (+) or (-) until EXIT, press MENU to exit.



TV OPERATIONS SET UP

Weekly Timer

- Repeat steps 1 and 2 of One Day Time.
- Select (+) or (-) until WEEKLY, press MENU and the OFF (or ON) beside WEEKLY will flash.
- Select (+) or (-) until ON, press MENU to enter the weekly timer screen.
- Repeat steps 5 and 6 of One Day Time.
- Press MENU to select the day(s) of the week you do not want the TV to come on. Once that day is flashing, use (+) or (-) to disable or enable the selection. White indicates TV will come on and red is vice versa.
- While EXIT is blinking, press (+) or (-) to exit.



Sleep Timer

- Press SLEEP to enter sleep timer screen.
- Press SLEEP repeatedly until the desired sleep time (in steps of 10 minutes from 00 (OFF) mode) up to 90 minutes.



To check remaining time, press SLEEP. To cancel sleep timer, set sleep time to 00.

ADJUSTING THE PICTURE

- Press MENU to display main menu.
- Select (+) or (-) until PICTURE ADJUST, press MENU.
- Press MENU while ADJUST is highlighted.
- Press MENU to select the feature. (CONTRAST, BRIGHTNESS, COLOR, TINT OR SHARPNESS)
- Use (+) or (-) to adjust the picture. The bar scale shows the level of adjustment.
- Press MENU until PICTURE ADJUST screen appears.
- Select (+) or (-) until EXIT, press MENU to exit.



FUNCTION	(-) Button	(+) Button
CONTRAST	Weaker	Stronger
BRIGHTNESS	Darker	Lighter
COLOR	Paler	Deeper
TINT	Greenish	Purplish
SHARPNESS	Softer	Sharper

To reset the picture settings to the initial state, repeat steps 1 and 2. Select (+) or (-) until RESET, press MENU. Then press MENU to exit.

ENGLISH RATING/FRENCH RATING SET UP

This setting is used to receive data service for Canadian English/French Language Rating System in according with EIA-744-A Standard.

- Go to CHANGE RATING sub-menu screen.
- Select (+) or (-) until ENGLISH or FRENCH RATING, press MENU, the OFF (or ON) beside it will flash.
- Select (+) or (-) until ON, press MENU.
- Select (+) or (-) until the desire rating, press MENU, the OFF (or ON) beside it will flash.
- Select (+) or (-) until ON, press MENU.
- Select (+) or (-) until EXIT, press MENU to exit.



LOADING SET UP

- Go to CHANGE RATING sub-menu screen.
- Select (+) or (-) until LOADING, press MENU, the OFF (or ON) beside it will flash.
- Select (+) or (-) until ON, press MENU.
- Press MENU to exit.



Set ENGLISH or FRENCH RATING to OFF if you don't want to block. Set LOADING to OFF if you don't want to load any ENGLISH or FRENCH RATING. For threshold rating system if any rating is set to ON then other higher rating will automatically become ON. For individual rating system user can select ON or OFF for each level individually. With LOADING ON in English or French Rating signal is detected, a "PRCC LOADING" message in red will appear on-screen. If there is error in loading, the "PRCC LOADING" message will change color from red to white and data will not load. Data will not load if the channel is change during loading. The current English or French Ratings are automatically overwrite as new data are received.

CLOSED CAPTION MODE

Close caption mode allows user to read the words of a broadcast on-screen while hearing them. There are two types of closed captioning:
• Captions - Dialogue and description of the action appear in a box at the bottom of the screen.
• Text - Words appear on the screen. This is often used for channel guides.

Often, both modes are accessible in more than one languages. Close caption is available only on programs with closed captioning.

- Press TV/CAP(tion)/TEXT button until CAPTION or TEXT (whichever you want) appears on-screen bottom right corner.
- Press CH1/CH2 button to select English (CH1) or foreign languages (CH2) caption or text.

CABLE TV OPERATION

- Press MENU.
- Select (+) or (-) until CH PROGRAM, press MENU.
- Press MENU until CABLE appears beside AIR/CABLE. (In CATV mode, the channel number changes color from yellow to green.)

On CATV (Cable Television) system, programs are brought into the home on VHF CH 2-13, mid-band CH A-1, super band CH J-V, hyper band CH AA-CCC, ultra band CH W40-W84 and sub mid-band CH 5A, A5-A1.

CH Number on TV	Corresponding CATV CH	CH Number on TV	Corresponding CATV CH
1	5A	66	W+30
2	2	67	W+31
3	3	68	W+32
4	4	69	W+33
5	5	70	W+34
6	6	71	W+35
7	7	72	W+36
8	8	73	W+37
9	9	74	W+38
10	10	75	W+39
11	11	76	W+40
12	12	77	W+41
13	13	78	W+42
14	A	79	W+43
15	B	80	W+44
16	C	81	W+45
17	D	82	W+46
18	E	83	W+47
19	F	84	W+48
20	G	85	W+49
21	H	86	W+50