

Notice



☐ CORRECTION
☐ SERVICE FLASH

☒ PRODUCTION CHANGE
☐ ADD INFORMATION

FILE NO.

REVISION 2

Please add this notice to the Service Manual listed below.

Category: **COLOR TELEVISION**

Date: **AUGUST / 7 / 2001**

Model: **DS13310**

Effective from: Chassis No. **13310-02** ←

Destination: **U.S.A. / CANADA**

REF: No. **SM5110223-01**

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. **If the Service Manual Chassis No. does not match the unit's**, additional Service Literature is required. This chassis is similar to Chassis No. 13310-01. Only the **Difference** Service Information is given in this manual. For detailed Service Information, refer to the **Original** Service Manual and **Notices** for Chassis No. 13310-01 used in Model DS13310 (SM5110223-01).

1. IN THE SERVICE ADJUSTMENTS LIST PAGE 3

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu No. 001 HP (H Phase), No. 013 TDS (Trap & D SW), No. 014 AF (Auto Flesh), No. 021 GD (G Drive Reduction), No. 024 AG (AFC Gain), No. 026 SCO (Sub-Color), No. 027 STI (Sub-Tint), No. 030 OP2 (Option 2), and No. 031 HR (OSD Display H-Position) should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select No. 001 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or – key for 22.
4. Select No. 013 TDS (Trap & D SW) with ▲ or ▼ key. Adjust the data with + or – key for 1.
5. Select No. 014 AF (Auto Flesh) with ▲ or ▼ key. Adjust the data with + or – key for 1.
6. Select No. 021 AG (G Drive Reduction), with ▲ or ▼ key. Adjust the data with + or – key for 9.
7. Select No. 024 AG (AFC Gain), with ▲ or ▼ key. Adjust the data with + or – key for 0.
8. Select No. 026 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 7.
9. Select No. 027 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 18.
10. Select No. 030 OP2 (Option 2) with ▲ or ▼ key. Adjust the data with + or – key for 128.
11. Select No. 031 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or – key for 38.
12. Press the MENU key to turn off the Service Menu display.

1. IN THE SERVICE ADJUSTMENTS LIST (Continued)

PAGE 4

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

No.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
001	HP	15	22*	0~31	Horizontal Phase (Horizontal Centering)
002	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minimum)
003	RAD	25	25	0~63	RF AGC Delay
004	PT	64	64	0~127	PLL Tuning
005	ADA	31	31	0~63	APC Detect Adjust
006	CD	0	0	0, 1	C-Diff
007	VS	32	32	0~63	Vertical Size
008	RB	0	0	0~255	Red Bias
009	GB	0	0	0~255	Green Bias
010	BB	0	0	0~255	Blue Bias
011	RD	60	60	0~127	Red Drive
012	BD	60	60	0~127	Blue Drive
013	TDS	0	1*	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
014	AF	0	1*	0, 1	Auto Flesh 0: OFF 1: ON
015	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
016	VL	4	4	0~7	Video Level
017	FL	15	15	0~31	FM Level
018	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
019	ABL	1	1	0, 1	ABL Defeat 0: OFF 1: ON
020	WP	1	1	0, 1	White Peak Limiter 1: OFF 0: ON
021	GD	7	9*	0~15	Green Drive Reduction
022	VC	0	0	0~7	Vert. Comp
023	VD	32	32	0~63	Vert. DC
024	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
025	SB	32	32	0~63	Sub-Brightness
026	SCO	10	7*	0~31	Sub-Color
027	STI	14	18*	0~31	Sub-Tint
028	SSH	8	8	0~15	Sub-Sharpness
029	OPT	0	0	0~255	Option 1 (See Note 1 page 5.)
030	OP2	0	128*	0~255	Option 2 (See Note 2 page 5.)
031	HR	24	38*	0~63	H-Position (OSD H-Position)
032	INP	N/A	N/A	N/A	N/A
033	STE	N/A	N/A	N/A	N/A
034	FIL	N/A	N/A	N/A	N/A
035	LSP	N/A	N/A	N/A	N/A
036	HSP	N/A	N/A	N/A	N/A
037	SPV	N/A	N/A	N/A	N/A
038	PCO	N/A	N/A	N/A	N/A
039	PTI	N/A	N/A	N/A	N/A
040	SBO	0	0	0~255	Sub Bright Offset
041	DRV	—	—	0~127	Red drive Adjustment (See Note 3 page 5.)
		—	—	0~127	Blue Drive Adjustment (See Note 3 page 5.)
042	—	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)
043	T00	0	0	0~255	N/A
↓	↓	↓	↓	↓	↓
115	T48	0	0	0~255	N/A

2. IN THE PURITY AND CONVERGENCE ADJUSTMENTS LIST

PAGES 10 - 11

Purity and Convergence have been aligned at the factory.
No re-alignment is necessary.

3. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A : Misprint B : Quality Reliability C : Standardization
D : Design E : Add as a possible sub F : Schematic location change
G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchange-ability	Reason
Page 14, Chassis Electrical Parts List	★C411	Old	403 343 7802 404 078 2506	MT-POLYPRO 4200P H 1.5K MT-POLYPRO 4200P H 1.5K	1	NO	D
		New	403 348 5605 404 080 7704	MT-POLYPRO 4000P H 1.5K MT-POLYPRO 4000P H 1.5K	1	NO	
	★C417	Old	403 346 7106 404 081 2609	MT-POLYPRO 0.27U J 250V MT-POLYPRO 0.27U M 200V	1	NO	D
		New	403 346 6901 404 081 2401	MT-POLYPRO 0.22U J 250V MT-POLYPRO 0.22U M 200V	1	NO	
Page 15, Chassis Electrical Parts List	★L902	Old	610 003 5270 610 003 5287	DEFLECTION YOKE DEFLECTION YOKE	1	NO	D
		New		NOT USED		NO	
Page 18, Chassis Electrical Parts List	R498	Old	401 011 1107	CARBON 68 JA 1/2W	1	NO	D
		New		NOT USED		NO	
Page 19, Chassis Electrical Parts List	A001	Old	610 293 0030	ASSY, PWB, MAIN	1	NO	D
		New	610 293 5721	ASSY, PWB, MAIN	1	NO	
	★Q901	Old	413 006 4703 414 007 4808 414 009 5001 414 010 3805 414 010 3904	CRT A34JRY24X CRT A34KPU02XX CRT A34KPU02XX CRT A34KPU03XX CRT A34JRY24X (DT)	1	NO	D
		New	414 010 3706	CRT A34EJM34X106	1	NO	
Page 20, Chassis Electrical Parts List	Q901A1, Q901A2, Q901A3	Old	610 117 0154 610 117 7924	DY SPACER DY SPACER	3	NO	D
		New		NOT USED		NO	
	Q901C	Old	610 217 7787	CG PURITY MAGNET	1	NO	D
		New		NOT USED		NO	

For parts or service contact

SANYO Fisher Service Corporation

**21605 Plummer Street,
Chatsworth, CA 91311 (U.S.A.)**

**300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)**

August / 2001 / 2200 SMC

Printed in U.S.A.

Notice



☐ CORRECTION ☒ PRODUCTION CHANGE
☐ SERVICE FLASH ☐ ADD INFORMATION

FILE NO.

REVISION 1

Please add this notice to the Service Manual listed below.

Category : COLOR TELEVISION Date: AUGUST / 7 / 2001

Model: DS13310 Effective from : Chassis No. 13310-01 ←

Destination: U.S.A. / CANADA REF : No. SM5110223

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.
If the Service Manual Chassis No. does not match the unit's, additional Service Literature is required. This chassis is similar to Chassis No. 13310-01, however, all service Information is given in this Notice for Chassis No. 13310-01.

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Specifications

Power Rating	120V, 60Hz 53W (Avg), 1.1A (Max)
Antenna Input Impedance	75Ω UHF/VHF/CATV
Receiving Channel	2 - 13 (VHF), 14 - 69 (UHF), 01, 14-94, 95-125 (CATV)
Remote Ready	24 Key Remote Control
Sound Output	1.0 W
Intermediate Frequency	
Picture IF Carrier	45.75MHz
Sound IF Carrier	41.25MHz
Color Sub Carrier	42.17MHz
Picture Tube	A34JRY24X/A34KPU02XX/ A34KPU03XX/A34JRY24X(DT)
Semiconductors	
Integrated Circuits	7
Transistors	20 Except within Tuner and RC Pre-Amp.
Cabinet Dimensions	
Width	372mm
Height	332mm
Depth	374mm

SAFETY INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

The following precautions must be observed:

1. An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

DO NOT OPERATE THIS TELEVISION RECEIVER WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.

4. Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

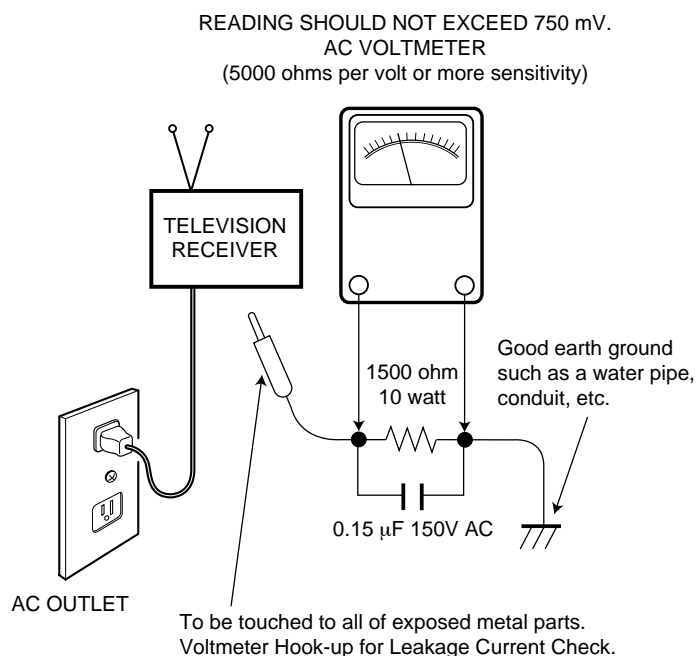
ANTENNA COLD CHECK

Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μ F 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.

NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.



X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X-Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a star (★) in the parts list and in the schematic diagrams. To ensure safe product operation, it is necessary to replace those components with the exact same PARTS.

SERVICE ADJUSTMENTS

GENERAL

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 4 – 5 for detailed information.)

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu No. 001 HP (H Phase), No. 013 TDS (Trap & D SW), No. 014 AF (Auto Flesh), No. 021 GD (G Drive Reduction), No. 024 AG (AFC Gain), No. 026 SCO (Sub-Color), No. 027 STI (Sub-Tint), No. 030 OP2 (Option 2), and No. 031 HR (OSD Display H-Position) should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select No. 001 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or – key for 22.
4. Select No. 013 TDS (Trap & D SW) with ▲ or ▼ key. Adjust the data with + or – key for 1.
5. Select No. 014 AF (Auto Flesh) with ▲ or ▼ key. Adjust the data with + or – key for 1.
6. Select No. 021 AG (G Drive Reduction), with ▲ or ▼ key. Adjust the data with + or – key for 9.
7. Select No. 024 AG (AFC Gain), with ▲ or ▼ key. Adjust the data with + or – key for 0.
8. Select No. 026 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 7.
9. Select No. 027 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 20.
10. Select No. 030 OP2 (Option 2) with ▲ or ▼ key. Adjust the data with + or – key for 128.
11. Select No. 031 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or – key for 38.
12. Press the MENU key to turn off the Service Menu display.

ON-SCREEN SERVICE MENU SYSTEM

1. Enter the Service Menu:

- While pressing the MENU key, reconnect the AC power cord. The Service Menu Display will now appear. (See Figure 1 below.)

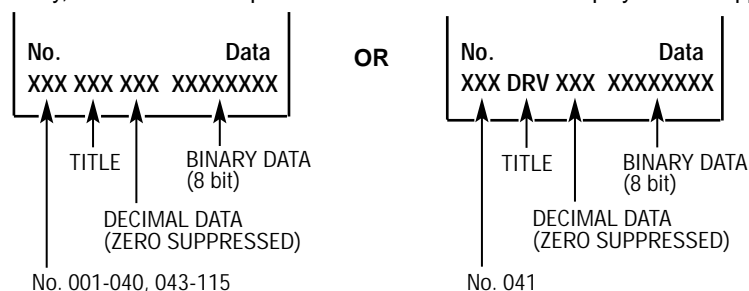


Figure 1. Service Menu Display

2. Service Adjustments:

- Press the ▲ or ▼ key to select the desired service menu you want to adjust. (See page 4 for On-screen Service Menu.)
- Use the + or – key to adjust the data.

3. Exit from the Service Menu:

- Press the MENU key to turn off the Service Menu display.

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

No.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
001	HP	15	22*	0~31	Horizontal Phase (Horizontal Centering)
002	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minimum)
003	RAD	25	25	0~63	RF AGC Delay
004	PT	64	64	0~127	PLL Tuning
005	ADA	31	31	0~63	APC Detect Adjust
006	CD	0	0	0, 1	C-Diff
007	VS	32	32	0~63	Vertical Size
008	RB	0	0	0~255	Red Bias
009	GB	0	0	0~255	Green Bias
010	BB	0	0	0~255	Blue Bias
011	RD	60	60	0~127	Red Drive
012	BD	60	60	0~127	Blue Drive
013	TDS	0	1*	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
014	AF	0	1*	0, 1	Auto Flesh 0: OFF 1: ON
015	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
016	VL	4	4	0~7	Video Level
017	FL	15	15	0~31	FM Level
018	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
019	ABL	1	1	0,1	ABL Defeat 0: OFF 1: ON
020	WP	1	1	0,1	White Peak Limiter 1: OFF 0: ON
021	GD	7	9*	0~15	Green Drive Reduction
022	VC	0	0	0~7	Vert. Comp
023	VD	32	32	0~63	Vert. DC
024	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
025	SB	32	32	0~63	Sub-Brightness
026	SCO	10	7*	0~31	Sub-Color
027	STI	14	20*	0~31	Sub-Tint
028	SSH	8	8	0~15	Sub-Sharpness
029	OPT	0	0	0~255	Option 1 (See Note 1 page 5.)
030	OP2	0	128*	0~255	Option 2 (See Note 2 page 5.)
031	HR	24	38*	0~63	H-Position (OSD H-Position)
032	INP	N/A	N/A	N/A	N/A
033	STE	N/A	N/A	N/A	N/A
034	FIL	N/A	N/A	N/A	N/A
035	LSP	N/A	N/A	N/A	N/A
036	HSP	N/A	N/A	N/A	N/A
037	SPV	N/A	N/A	N/A	N/A
038	PCO	N/A	N/A	N/A	N/A
039	PTI	N/A	N/A	N/A	N/A
040	SBO	0	0	0~255	Sub Bright Offset
041	DRV	—	—	0~127	Red drive Adjustment (See Note 3 page 5.)
		—	—	0~127	Blue Drive Adjustment (See Note 3 page 5.)
042	—	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)
043	T00	0	0	0~255	N/A
↓	↓	↓	↓	↓	↓
115	T48	0	0	0~255	N/A

SERVICE ADJUSTMENTS (Continued)

PROGRAM CODES

The microprocessor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the Program Codes must be correct.

Note 1. Option Data 1 (No. 029 OPT) should be decimal 0 (00000000 binary). See page 3 INITIAL DATA SETUP, step 9, for set up procedure. If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	TV/HOTEL	TV	HOTEL
1	NOT USED	N/A	
2	NOT USED	N/A	
3	NOT USED	N/A	
4	NOT USED	N/A	
5	NOT USED	N/A	
6	NOT USED	N/A	
7	NOT USED	N/A	

Note 2. Option Data 2 (NO. 030 OP2) should be decimal 128 (10000000 binary). If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	AV INPUT	MONO	STEREO
1	NOT USED	N/A	
2	NOT USED	N/A	
3	NOT USED	N/A	
4	NOT USED	N/A	
5	NOT USED	N/A	
6	NOT USED	N/A	
7	TV FRONT KEY	MENU	GAME

Note 3. Red/Blue Drive Adjustments in Service Menu No. 041 DRV: Adjust Red and Blue Drive Levels alternately with 1, 3, 7, and 9 keys on the remote control. (See figure 2.) The Drive Level adjustment data will be written in the Service Menu No. 011 and 012 automatically.

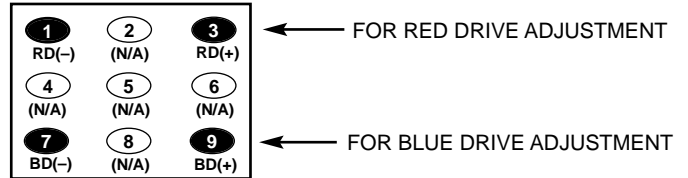


Figure 2.

Note 4. Red/Green/Blue Bias Adjustments in Service Menu No. 042: Adjust each Bias Level with 1, 3, 4, 6, 7, or 9 key on the remote control. (See figure 3.) The Bias Level adjustment data will be written in the Service Menu No. 008 ~ 010 automatically.

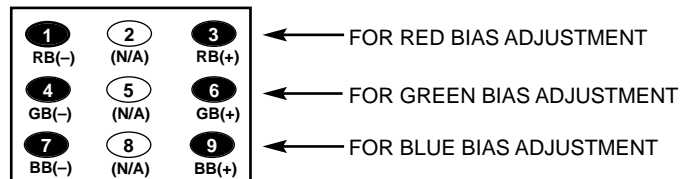


Figure 3.

SERVICE ADJUSTMENTS (Continued)

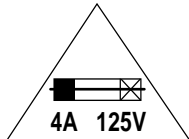
ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. A 75 ohm terminal is provided for UHF and VHF receptions. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

CAUTION



FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.

+B VOLTAGE CHECK

Connect Voltmeter + lead to TJ1 135V and – lead to ground (TE7). Connect receiver to AC 120V line. Tune receiver to an active channel. Set the picture controls to the Auto levels. Voltage must measure between +133.0V and 136.1V. If the voltage is out of this range, the power circuit must be checked. No +B adjustment is provided on this chassis.

HORIZONTAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the horizontal center of TV screen. If picture is not centered horizontally, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select No. 001 HP (Horizontal Phase) with ▲ or ▼ key.
6. Adjust the data with + or – key for proper horizontal center. To turn off the Service Menu display, press the MENU key.

VERTICAL SIZE ADJUSTMENT

1. Tune receiver to an active channel.
2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select No. 007 VS (Vertical Size) with ▲ or ▼ key.
6. Adjust the data with + or –key for full scan. To turn off the Service Menu display, press the MENU key.

VERTICAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the vertical center of TV screen. If picture center is too low, replace resistor R513 (3.9K ohm, 1/6W) with 470 ohm, 1W resistor. If picture center is too high, connect resistor R512 (470 ohm, 1W).

GRAYSCALE ADJUSTMENT

1. Set the picture controls to the Auto levels.
2. Turn off the receiver and disconnect the AC power cord (120V AC line).
3. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
4. Select No. 008 RB (Red Bias), No. 009 GB (Green Bias), and No. 010 BB (Blue Bias) with ▲ or ▼ key and set each data to 0 with + or – key.
5. Select No. 011 RD (Red Drive) and No. 012 BD (Blue Drive) with ▲ or ▼ key and set each data to 60 with + or – key.
6. Set No. 021 GD (G Drive Reduction) data to 9, No. 025 SB (Sub-Brightness) data to 32, No. 026 SCO (Sub-Color) data to 7, No. 027 STI (Sub-Tint) to 20 and No. 028 SSH (Sub-Sharpness) data to 8 with ▲ or ▼, and + or – keys.
7. Turn Screen Control (T402) to minimum (fully counterclockwise).
8. Select the Service Menu No. 042 (Bias Adjustments) with ▲ or ▼ key.
9. Advance Screen Control (T402) clockwise to obtain just visible one color line. If line does not appear, place this control to maximum (fully clockwise).
10. Raise each Bias Level with 3, 6, and 9 keys to obtain just visible white line. (See Figure 4 below.)

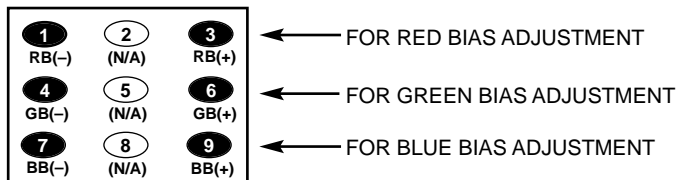


Figure 4. Remote Control Number keys' function in Service Menu No. 042

11. Select the Service Menu No. 041 DRV (Drive Adjustments) with ▲ or ▼ key.
12. Adjust Red and Blue Drive Levels alternately with 1, 3, 7, or 9 key to produce normal black and white picture in highlight areas. (See figure 5 below.)

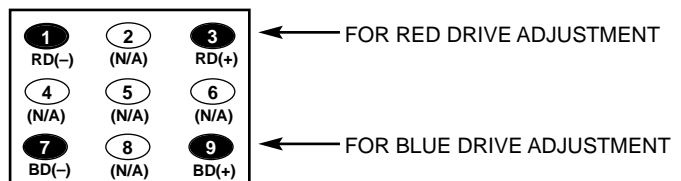


Figure 5. Remote Control Number keys' function in Service Menu No. 041 DRV

13. Check for proper grayscale at all brightness levels. To turn off the Service Menu display, press the MENU key.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Level Adjustment.

FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

APC DET ADJUSTMENT

Note: APC DET must be adjusted after IC101 (Signal Processor), IC802 (EEPROM) or T151 (PLL VCO Coil) is replaced.

1. Disconnect the antenna terminal and the AC power cord (120V AC line).
2. Connect voltmeter + lead to TP113 on main board and – lead to main board ground.
3. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
4. Select No. 002 IAS (IF AGC Switch) with ▲ or ▼ key. and adjust the data to 1 with + or – key.
5. Select No. 005 ADA (APC Det. Adjust.) with ▲ or ▼ key. and adjust the data with + or – key for 3.8 ± 1.0 VDC. Voltage change in the ADA BUS data adjustments is shown in Figure 6.
6. Disconnect voltmeter from chassis.

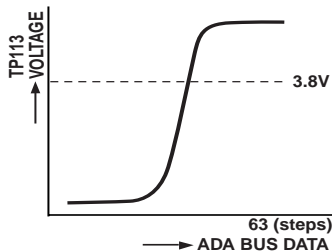


Figure 6. Voltage Change in ADA BUS data Adjustments

PLL TUNING ADJUSTMENT

Note: APC DET Adjustment must be completed before attempting PLL Tuning Adjustment.

1. Disconnect the antenna terminal and the AC power cord (120V AC line).
2. Connect voltmeter + lead to TP113 on main board and – lead to main board ground.
3. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
4. Select No. 002 IAS (IF AGC Switch) with ▲ or ▼ key. and adjust the data to 0 with + or – key.
5. Select No. 004 PT (PLL Tuning) with ▲ or ▼ key.
6. Connect the antenna terminal and select a good quality active color channel in your area, using keys 0 ~ 9 on the remote control transmitter.
7. Adjust the data with + or – key for 3.8 ± 1.0 VDC. Voltage change in the PT BUS data adjustments is shown in Figure 7.
8. Disconnect voltmeter from chassis.

Select every active channel with 0 ~ 9 keys and the scanning keys, and check to be sure the AFT is operating properly.

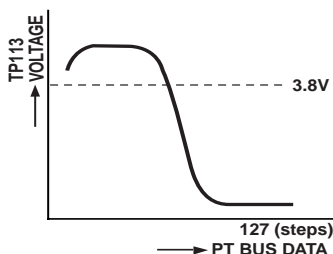


Figure 7. Voltage Change in PT BUS data Adjustments

VIDEO LEVEL ADJUSTMENT

1. Connect a color-bar generator to the antenna terminal.
2. Switch the generator to a white field (100 IRE).
3. Connect oscilloscope + lead to terminal TP16A on main board and – lead to main board ground.
4. Set the picture controls to the Auto levels.
5. Confirm voltage reading of 2.0 ± 0.2 Vp-p. If voltage is within this range, Skip to Step 10. If voltage is out of this range, go to step 6.
6. Turn off the receiver and disconnect the AC power cord (120V AC line).
7. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
8. Select No. 016 VL (Video Level) with ▲ or ▼ key.
9. Adjust the data with + or – key for 2.0 ± 0.2 Vp-p. To turn off the Service Menu display, press the MENU key.
10. Disconnect voltmeter from chassis.

RF-AGC ADJUSTMENT

1. Tune receiver to strongest VHF station in your area.
2. Set contrast and brightness controls for maximum.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select No. 003 RAD (RF-AGC Delay) with ▲ or ▼ key.
6. Adjust the data with + or – key in the direction which causes snow to appear; then in the opposite direction until the snow just disappears.
7. To turn off the Service Menu display, press the MENU key.

BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale, RF-AGC, Video Level and High Voltage Check must be adjusted before attempting Brightness Level Adjustment.

1. Connect a color-bar generator to the antenna terminals.
2. Switch the generator to the crosshatch pattern.
3. Set the picture controls to the Auto levels.
4. Connect voltmeter (high impedance) + lead to terminal TP51 and – lead to terminal TP50 on main board. Set voltmeter for 1.5V ~ 3V range.
5. Turn off the receiver and disconnect the AC power cord (120V AC line).
6. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
7. Select No. 025 SB (Sub Brightness) with ▲ or ▼ key.
8. Adjust the data with + or – key for 600mVDC.
9. Press the MENU key to turn off the Service Menu display.
10. Check brightness level on every active channel, readjust (repeat steps 5 ~ 9) if necessary.

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

SERVICE ADJUSTMENTS (Continued)

HIGH VOLTAGE CHECK

Note: +B (+135V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

1. Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
2. Tune receiver to an active channel and confirm TV is operating properly.
3. Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
4. Confirm high voltage is within 20.0 KV and 22.0 KV. If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

1. Connect receiver to 120V AC line. Tune receiver to active channel. Set the picture controls to the Auto levels.
2. Check that the voltage measured between TP7 and TE7 (ground side) is within 15.6 VDC to 19.2 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 23 VDC. The receiver should shutdown, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause **must** be found and corrected.
4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

VIDEO INPUT LEVEL ADJUSTMENT

Note: Video Input Level adjustment affects brightness level. When Video Input Level adjustment is made, brightness level must be checked.

1. Connect video signal generator output (1 Vp-p terminated at 75 ohms) to VIDEO INPUT JACK.
2. Set TV to Game Mode.
3. Connect scope to TP16A and ground.
4. Adjust Video Input Level (VR1023) for 2.0 ± 0.2 VDC.
5. Set TV to TV Mode, Picture Controls to Auto levels.

Check brightness and contrast on several active channels. If brightness or contrast is incorrect, reset bright level.

SOUND ADJUSTMENT

1. Connect Voltmeter – lead to ground and + lead TP 20 (FM DET OUT) on main board.
2. Tune receiver to an active channel and fine tune to obtain the best picture.
3. Confirm D.V.M. reading of 3.85 ± 0.2 VDC.
4. If the voltage is out of this range, adjust Sound I.F. Transformer (T131) for 3.85 ± 0.2 VDC.

SERVICE HINTS

POWER FAILURE DETECTOR

This set is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following which results in a low voltage supply, the CPU will turn the set off in 1.5 seconds to prevent unnecessary damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within 3 seconds.

Check the following if the set is turned off by the power failure detector.

1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
2. Connect a DC Voltmeter to the following TEST POINTS.

TJ5	9V
TJ6	7.6V
D429 Cathode	11.5V
D802 Cathode	14.0V

3. Press the power key and check for the proper voltage supplies.
4. If any of these voltages is low, the power failure detector should turn the set off within 3 seconds.
5. Check all circuits listed above.

Note: This set is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

PURITY AND CONVERGENCE ADJUSTMENTS

CAUTION: Purity and Convergence adjustments have been made at the factory. Readjustments should be made only after the picture tube or deflection yoke is replaced. Follow the steps below for the necessary readjustments.

PURITY ADJUSTMENT

1. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly. See Figure 1. Position the picture tube facing east or west. Demagnetize the picture tube and receiver using an external degaussing coil. Set receiver to Service Menu No. 042 (no vertical sweep) while degaussing.
2. Place the yoke on tube neck fully against glass. Place the CPM on the tube neck aligning the center of the purity magnet tabs (2 pole) over center of Focus Gap (G3 & G4). See Figure 2.
3. Connect a color bar generator to the antenna terminal. Switch the generator to a white field. Move yoke backward on the neck until a uniform white field is obtained.
4. Allow 30 minutes warm up on a blank white field (high intensity grayscale).
Note: If white field cannot be obtained, check Grayscale Adjustments on page 6.
5. Set the picture controls to the Auto levels. Select a green raster, either with the signal generator or by adjusting the bias controls. If a signal generator is used for this step, Skip to Step 10. If the bias controls will be used, go to step 6.
6. Adjust Service Menu No. 008 RB (R-Bias), No. 009 GB (G-Bias), and No. 010 BB (B-Bias) data to 0 each.
7. Select Service Menu No. 042 (no vertical sweep).
8. Adjust the screen control counterclockwise until the horizontal scan lines is no longer visible.
9. Select Service Menu No. 009 GB (G-Bias) and raise the data to produce green raster. If retrace lines appear, reduce screen control slightly.
10. Pull yoke back on the tube neck to obtain three-color raster (blue, green and red).
11. Adjust the angle between the two purity magnet tabs to center the vertical green belt in the picture tube. Do not rotate tabs. See Figure 3.
12. Slowly slide the deflection yoke forward until a uniform green screen is obtained.
13. Check the purity of the red and blue screens for uniformity. Turn off other colors to check (use bias controls) or use generator. If necessary, readjust the yoke position until all screens are pure.
14. If bias controls and screen control were used to set purity, reset Grayscale and Brightness Level. Refer to Grayscale Adjustment on page 6 and Brightness Level Adjustment on page 7.
15. Confirm that the yoke is not tilted. Tighten the yoke mounting screw. Adjust convergence next.

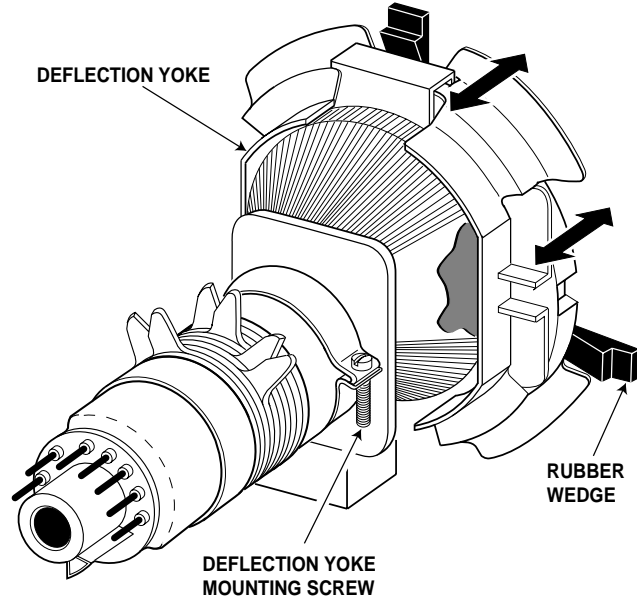


Figure 1. Deflection Yoke Movement

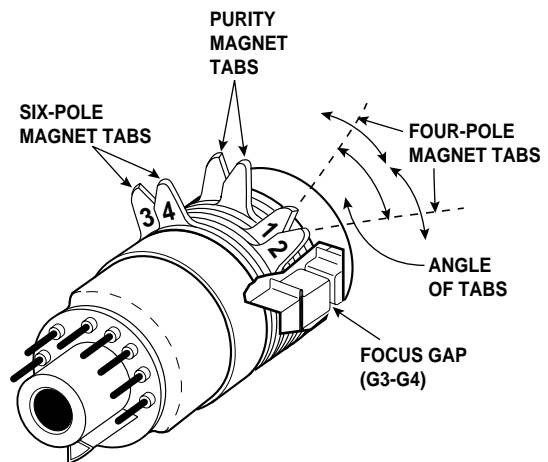


Figure 2. Purity and Convergence Magnets

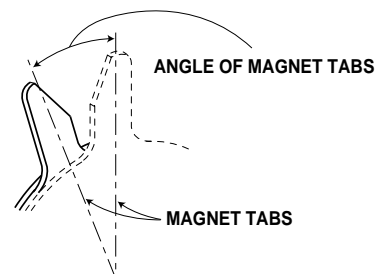
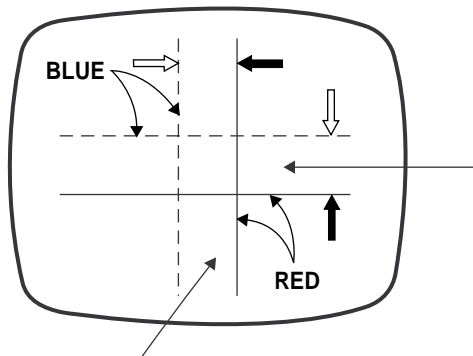


Figure 3. Adjusting Magnet

CONVERGENCE ADJUSTMENT

CENTER CONVERGENCE ADJUSTMENT

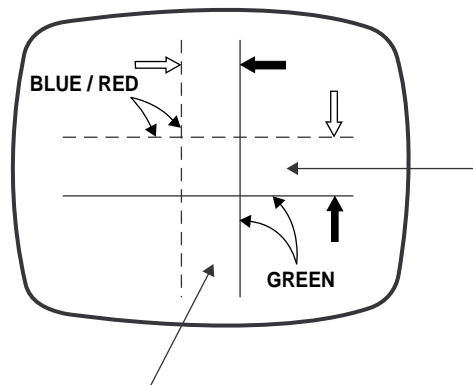
1. Connect a crosshatch generator to antenna terminals.
2. Set Contrast control to low level to eliminate Blooming.
Reduce Brightness level to obtain black background if necessary.
3. Adjust the angle between the four-pole magnet tabs 1 and 2 (Figure 2), and superimpose the red and blue vertical lines in the center area of the picture screen. See Figure 4.
4. Keeping the tabs at the same angle, rotate them together to superimpose the blue and red horizontal lines in the center area of the picture screen. See Figure 4.
5. Adjust the six-pole magnet tabs 3 and 4 so the converged red/blue line is superimposed on the green line. This is the same procedure used in Steps 3 and 4. See Figure 5.



Adjust four-pole tabs angle to superimpose blue and red vertical line.

Adjust four-pole tabs together to superimpose red and blue horizontal line.

Figure 4. Blue and Red Line Movement



Adjust six-pole tabs angle to superimpose red / blue and green vertical line.

Adjust six-pole tabs together to superimpose red / blue and green horizontal line.

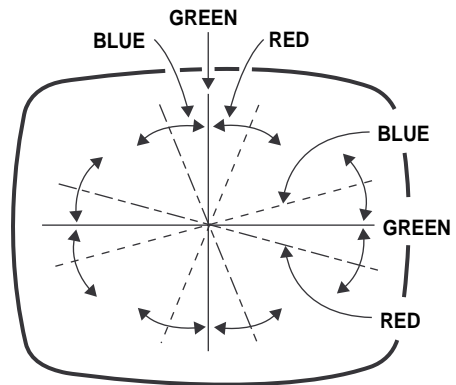
Figure 5. Blue/Red and Green Line Movement

OUTER AREA CONVERGENCE ADJUSTMENT

The outer area convergence is performed by positioning of the yoke as follows:

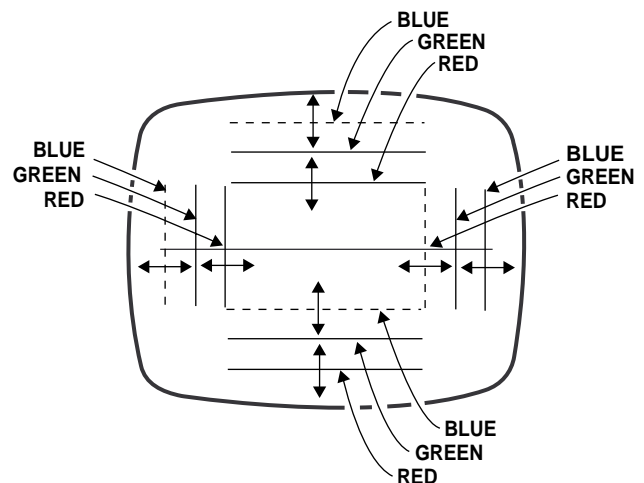
1. Move the top of the yoke toward or away from the picture tube. This movement will affect the vertical lines at the top and bottom and the horizontal lines at the sides. See Figure 6.
2. Check that splits at 12 O'Clock and 6 O'Clock positions are minimized, adjust yoke for best compromise. Secure with wedge at 12 O'Clock position. See Figure 1.
3. Move the side of the yoke toward or away from the picture tube to converge the horizontal lines at the top and bottom and the vertical lines at the sides. See Figure 7.
4. Check that splits at 12 O'Clock and 6 O'Clock are minimized, adjust yoke for best compromise. Secure yoke position with the side wedges. See Figure 1.

Note: When reusing the rubber wedges, apply a small amount of silicone rubber adhesive or hot melt to each of the wedges.



Line movement when adjusting top of yoke in and out.

Figure 6. Top of Yoke Movement



Line movement when adjusting side of yoke in and out.

Figure 7. Side of Yoke Movement

MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 4 screws.
2. Pull off cabinet back and remove.

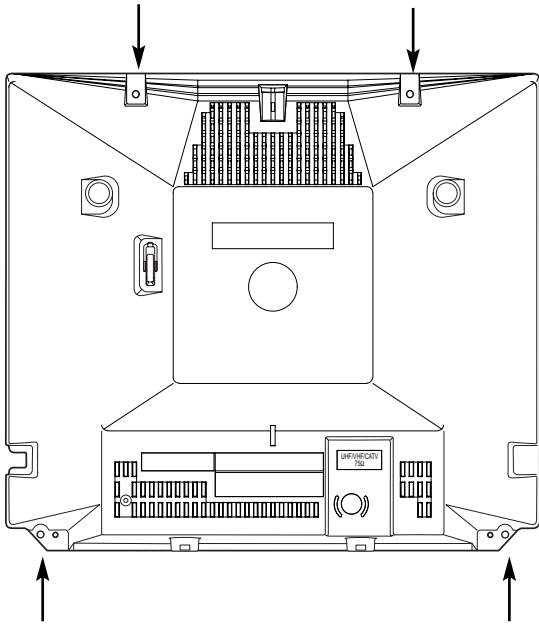


Figure 1. Cabinet Back Removal

CHASSIS REMOVAL

1. Remove cabinet back.
2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
3. Disconnect Degaussing coil socket (K6D), Picture tube socket, Deflection yoke connector (K4X), Speaker connector (KSP), picture tube ground lead, and 2nd anode lead.
4. Remove chassis completely by sliding it straight back.

PICTURE TUBE REMOVAL

CAUTION: Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

1. Remove chassis, referring to Chassis Removal instructions.
2. Place cabinet's front face down on a soft surface.
3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

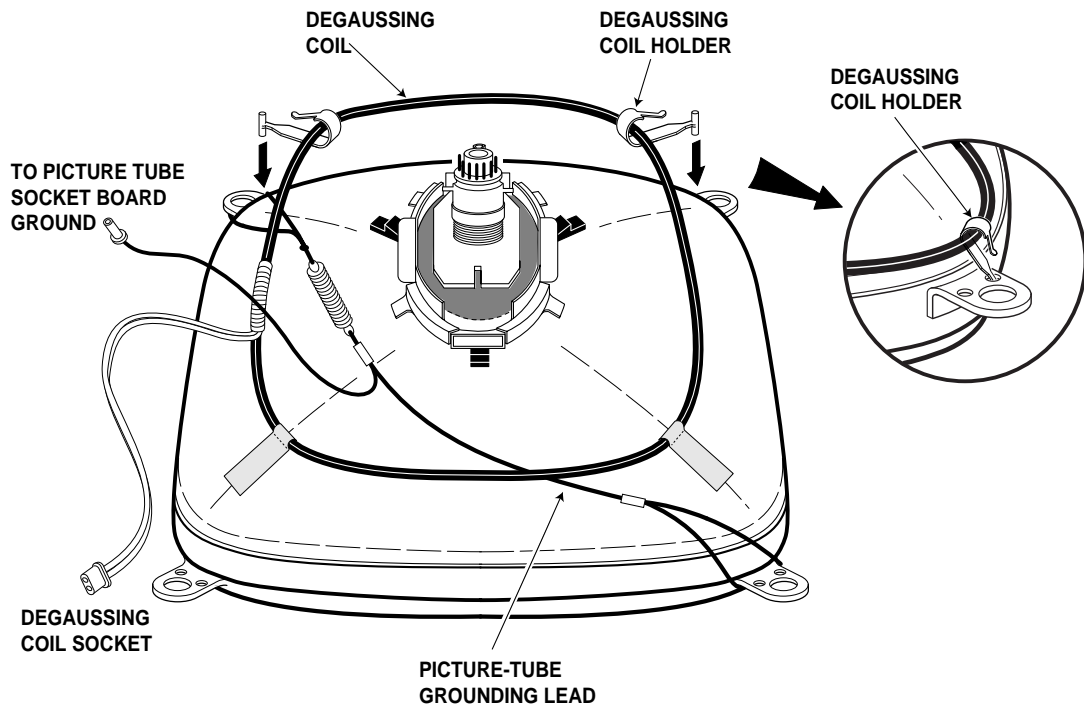


Figure 2. Picture Tube Removal

CHASSIS ELECTRICAL PARTS LIST

CAUTION: To Protect against electrical shock and for continued product safety, refer to SAFETY PRECAUTIONS, X-RADIATION PRECAUTIONS, HIGH VOLTAGE HOLD-DOWN TEST, and PRODUCT SAFETY NOTICE on Page 2.

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (★) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE, WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.

Notes: Parts having Location Number are located on the following boards.

Numbers under 700 SeriesOn the Main Board.
 Numbers 700 SeriesOn the Picture Tube Socket Board.
 Numbers 800 SeriesOn the Main Board
 Numbers 900 SeriesOut of Board.
 Numbers 1000 SeriesOn the Main Board.
 Numbers 1900 seriesOn the Main Board
 Numbers 3600 seriesOn the Main Board

Note: Schematic part location numbers may not always match with the part descriptions.
 The part descriptions are correct and should be used.

Schematic Location	Part No.	Description
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Schematic Location	Part No.	Description
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CAPACITORS

NOTES:

Read description of the Capacitor as follows:

(Example)

CERAMIC 100P K 50V

Rated Voltage
 Tolerance Symbols:
less than 10PF
 A ..Not specified
 B ..±0.1PF C ..±0.25PF
 D ..±0.5PF F ..±1PF
 G ..±2PF R ..+0.25 - 0PF
 S ..+0 - 0.25PF E ..+0 - 1PF
more than 10PF
 A ..Not specified
 B ..±0.1% C ..±0.25%
 D ..±0.5% F ..±1%
 G ..±2% H ..±3%
 J ..±5% K ..±10%
 L ..±15% M ..±20%
 N ..±30% P ..+100 - 0%
 Q ..+30 - 10% T ..+50 - 10%
 U ..+75 - 10% V ..+20 - 10%
 W ..+100 - 10% X ..+40 - 20%
 Y ..+150 - 10% Z ..+80 - 20%
 Rated Value: P...Pico Farad U...Micro Farad

Material:
 CERAMICCeramic
 MT-PAPERMetalized Paper
 POLYESTER ...Polyester
 MT-POLYEST ...Metalized Polyester
 POLYPROPolypropylene
 MT-POLYPRO ...Metalized Polypropylene
 COMPO-FILM ...Composite Film
 MT-COMPOMetalized Composite
 STYRENEStyrene
 TA-SOLIDTantalum Solid
 AL-SOLIDAluminum Solid
 ELECTElectrolytic
 NP-ELECTNon-Polarized Electrolytic
 OS-SOLIDAluminum Solid with Organic
 Semiconductive Electrolytic

C001	404 084 3801	ELECT	1U M	50V
C003	403 235 5701	CERAMIC	5600P K	50V
C004	403 235 6203	CERAMIC	0.01U Z	50V
C008	404 084 3108	ELECT	330U M	16V
C011	404 084 3009	ELECT	220U M	16V
C101	404 087 0500	ELECT	220U M	10V
C103	403 235 6203	CERAMIC	0.01U Z	50V
C106	404 084 4105	ELECT	3.3U M	50V
C131	404 084 3801	ELECT	1U M	50V
C132	404 084 5003	POLYESTER	0.01U J	63V
C133	403 235 6203	CERAMIC	0.01U Z	50V
C136	404 084 3900	ELECT	10U M	50V
C142	404 086 6701	POLYESTER	0.056U K	63V
C143	403 235 6203	CERAMIC	0.01U Z	50V
C144	403 235 6203	CERAMIC	0.01U Z	50V
C147	404 084 3207	ELECT	47U M	16V
C151	404 084 3702	ELECT	0.47U M	50V
C161	403 235 6203	CERAMIC	0.01U Z	50V
C166	403 234 9908	CERAMIC	27P J	50V
C202	403 235 6203	CERAMIC	0.01U Z	50V
C203	403 235 0607	CERAMIC	100P J	50V
C204	403 235 1109	CERAMIC	270P J	50V
C205	403 235 0409	CERAMIC	68P J	50V
C208	404 084 2705	ELECT	10U M	16V
C211	404 084 3801	ELECT	1U M	50V
C212	404 084 4006	ELECT	2.2U M	50V
C252	404 084 5409	POLYESTER	0.033U K	63V
C253	404 084 4006	ELECT	2.2U M	50V
C256	404 084 2606	ELECT	470U M	10V
C272	404 084 4105	ELECT	3.3U M	50V
C351	404 084 4105	ELECT	3.3U M	50V
C352	403 224 5705	CERAMIC	1000P K	50V
C371	404 084 3702	ELECT	0.47U M	50V
C401	404 084 3207	ELECT	47U M	16V
C403	404 084 5300	POLYESTER	0.022U K	63V
C405	404 084 4006	ELECT	2.2U M	50V

Schematic Location	Part No.	Description
C406	403 075 9006	CERAMIC 150P K 500V
C407	403 075 7101	CERAMIC 1000P K 500V
C408	403 103 0005	ELECT 4.7U M 160V
★C411	403 343 7802	MT-POLYPRO 4200P H 1.5K
	404 078 2506	MT-POLYPRO 4200P H 1.5K
★C413	403 324 3007	CERAMIC 680P K 3K
C414	403 076 4000	CERAMIC 4700P K 500V
★C417	403 346 7106	MT-POLYPRO 0.27U J 250V
	404 081 2609	MT-POLYPRO 0.27U M 200V
C421	404 087 0500	ELECT 220U M 10V
C426	403 235 6203	CERAMIC 0.01U Z 50V
C483	404 069 2102	ELECT 47U M 160V
C484	403 051 0607	ELECT 4.7U M 50V
C487	403 053 2104	ELECT 220U M 35V
C489	403 044 1703	ELECT 470U M 16V
C493	404 056 5307	NP-ELECT 2.2U M 100V
C496	403 044 1703	ELECT 470U M 16V
C497	404 085 4203	ELECT 100U M 10V
C498	404 084 3207	ELECT 47U M 16V
C501	404 084 3900	ELECT 10U M 50V
C502	403 053 2104	ELECT 220U M 35V
C503	404 085 4401	ELECT 10U M 25V
C504	403 042 4805	ELECT 1000U M 16V
C505	404 084 5607	MT-POLYEST 0.33U J 63V
C506	404 084 5201	POLYESTER 0.018U K 63V
C507	404 084 3801	ELECT 1U M 50V
C509	404 084 5706	MT-POLYEST 0.47U J 63V
C511	403 063 2309	POLYESTER 0.068U K 50V
	403 312 3002	POLYESTER 0.068U K 50V
C516	404 084 3801	ELECT 1U M 50V
★C601	404 066 1702	MT-POLYEST 0.1U M 275V
	404 071 2107	MT-POLYEST 0.1U K 250V
★C604	403 075 7101	CERAMIC 1000P K 500V
★C605	403 075 7101	CERAMIC 1000P K 500V
C606	404 049 4706	ELECT 330U M 200V
	404 085 9000	ELECT 330U M 200V
C607	403 103 0005	ELECT 4.7U M 160V
C621	403 075 7101	CERAMIC 1000P K 500V
C622	403 047 5005	ELECT 470U M 25V
C623	404 084 2408	ELECT 470U M 6.3V
C703	403 074 8901	CERAMIC 680P K 50V
C705	403 074 5702	CERAMIC 560P K 50V
C707	403 074 5702	CERAMIC 560P K 50V
★C708	403 077 2807	CERAMIC 1000P Z 2K
	403 175 3409	CERAMIC 1000P P 2K
C721	403 041 8804	ELECT 10U M 16V
C801	403 235 6203	CERAMIC 0.01U Z 50V
C804	403 235 0300	CERAMIC 56P J 50V
C806	404 084 2408	ELECT 470U M 6.3V
C807	403 234 9809	CERAMIC 18P J 50V
C808	403 234 9809	CERAMIC 18P J 50V
C811	403 235 0607	CERAMIC 100P J 50V
C812	403 235 0607	CERAMIC 100P J 50V
C822	404 084 2705	ELECT 10U M 16V
C826	403 235 4902	CERAMIC 470P K 50V
C831	404 084 3801	ELECT 1U M 50V
C832	403 235 0409	CERAMIC 68P J 50V
C833	403 235 0409	CERAMIC 68P J 50V
C834	403 235 6203	CERAMIC 0.01U Z 50V

Schematic Location	Part No.	Description
C841	403 235 6203	CERAMIC 0.01U Z 50V
C842	403 235 6203	CERAMIC 0.01U Z 50V
C843	403 235 6203	CERAMIC 0.01U Z 50V
C862	403 235 6203	CERAMIC 0.01U Z 50V
C874	403 235 6203	CERAMIC 0.01U Z 50V
C881	404 084 5300	POLYESTER 0.022U K 63V
C882	404 084 5409	POLYESTER 0.033U K 63V
C883	403 235 1208	CERAMIC 330P J 50V
C891	404 084 6901	NP-ELECT 1U M 50V
C892	403 224 5705	CERAMIC 1000P K 50V
C894	403 358 0102	CERAMIC 0.033U K 50V
C896	404 084 4006	ELECT 2.2U M 50V
C1002	404 084 2804	ELECT 100U M 16V
C1003	404 084 2804	ELECT 100U M 16V
C1006	404 084 2705	ELECT 10U M 16V
C1008	404 084 2200	ELECT 100U M 6.3V
★C1020	404 008 6604	CERAMIC 1000P K 125V
	404 046 5409	CERAMIC 1000P M 125V
	404 073 4000	CERAMIC 1000P M 250V
C1022	404 084 2705	ELECT 10U M 16V
C1023	404 084 3108	ELECT 330U M 16V
C1026	404 084 2705	ELECT 10U M 16V
C1031	404 084 3207	ELECT 47U M 16V
C1032	404 087 0906	NP-ELECT 3.3U M 50V
DIODES		
D001	407 054 5805	ZENER DIODE RD15EB2 (15V)
	407 054 5904	ZENER DIODE RD15EB3 (15V)
D101	407 056 2307	ZENER DIODE RD36EB1 (36V)
	407 100 0204	ZENER DIODE MTZJ36A (36V)
D102	408 044 3108	ZENER DIODE MTZJ5.6C (5.6V)
D351	408 044 4006	ZENER DIODE RD12EB2 (12V)
D409	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
	407 124 6404	DIODE ERA18-04
★D421	407 158 1307	ZENER DIODE HZ11B2L (11V)
★D422	407 158 1307	ZENER DIODE HZ11B2L (11V)
D428	407 054 4808	ZENER DIODE RD13EB3 (13V)
	407 099 3309	ZENER DIODE MTZJ13C (13V)
D429	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D482	407 011 4407	DIODE TVR1G
D483	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
	407 124 6404	DIODE ERA18-04
D484	407 006 4108	DIODE ERB44-04
	407 007 7603	DIODE EU2
D486	407 006 4108	DIODE ERB44-04
	407 007 7603	DIODE EU2
D487	407 005 8602	DIODE ERA15-02
	407 011 3004	DIODE S5277B
	407 088 6502	DIODE MPG06D
	408 009 9404	DIODE 1N4002ID
D493	407 057 6502	ZENER DIODE RD7.5EB3 (7.5V)
	407 063 9306	ZENER DIODE MTZJ7.5C (7.5V)
D496	407 013 4306	DIODE 1S2076A

Schematic Location	Part No.	Description
D501	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
	407 005 8602	DIODE ERA15-02
	407 011 3004	DIODE S5277B
	407 088 6502	DIODE MPG06D
★D602	408 009 9404	DIODE 1N4002ID
	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
★D603	408 008 8606	DIODE GP15G
	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
★D604	408 008 8606	DIODE GP15G
	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
★D605	408 008 8606	DIODE GP15G
	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
D621	408 008 8606	DIODE GP15G
	407 005 8602	DIODE ERA15-02
	407 011 3004	DIODE S5277B
	407 088 6502	DIODE MPG06D
D622	408 009 9404	DIODE 1N4002ID
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D623	408 008 2406	DIODE 1N4148
	407 056 8002	ZENER DIODE RD5.1EB2 (5.1V)
	407 056 8200	ZENER DIODE RD5.1EB3 (5.1V)
	407 063 8606	ZENER DIODE MTZJ5.1A (5.1V)
D721	407 099 5204	ZENER DIODE MTZJ5.1B (5.1V)
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D722	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D801	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D802	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D831	408 008 2406	DIODE 1N4148
	407 071 5109	ZENER DIODE DZD3.6Z-TB (3.6V)
	407 112 7901	ZENER DIODE RD3.6MB-T1BB1 (3.6V)
	407 125 4003	ZENER DIODE RD3.6M-T1BB2 (3.6V)
D834	407 175 3100	ZD 02CZ3.6Z(TE85L) (3.6V)
	407 056 8002	ZENER DIODE RD5.1EB2 (5.1V)
	407 056 8200	ZENER DIODE RD5.1EB3 (5.1V)
	407 063 8606	ZENER DIODE MTZJ5.1A (5.1V)
D836	407 099 5204	ZENER DIODE MTZJ5.1B (5.1V)
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D843	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
★D1002	408 008 2406	DIODE 1N4148
	407 002 6809	PHOTO COUPLE TLP521-1-BL
	407 104 2402	PHOTO COUPLE PC817C
★D1003	407 106 6101	PHOTO COUPLE PC817D
	407 205 1601	PHOTO COUPLE PC917XS

Schematic Location	Part No.	Description
D1011	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
	407 124 6404	DIODE ERA18-04
D1012	407 054 4303	ZENER DIODE RD12M-T1BB3 (12V)
	407 071 0203	ZENER DIODE DZD12Z-TB (12V)
	407 175 2905	ZD 02CZ12Z(TE85L) (12V)
D1901	407 057 4003	ZENER DIODE RD6.8EB1 (6.8V)
	407 099 5600	ZENER DIODE MTZJ6.8A (6.8V)

INTEGRATED CIRCUITS

IC001	409 275 7903	IC LA4525
★IC101	409 431 2100	IC LA76170N
IC481	409 366 7904	IC UPC78M09AHF
	409 367 2809	IC BA178M09T
	409 370 0007	IC MC78M09CT
	409 377 5401	IC L78M09CV
★IC501	409 340 1805	IC LA7840
★IC601	409 047 8602	IC STR30135
IC801	410 408 8001	IC LC863432V-5W37-TLM
IC802	409 333 3700	IC 24LC02B/P
	409 376 1503	IC ST24C02B6
	409 440 8902	IC M24C02-BN6
	409 495 6908	IC CAT24WC02P
	409 497 0706	IC S524C20D21-DCB0

COILS

★LF601	610 031 5938	LINE FILTER
	610 031 6034	LINE FILTER
	610 031 6041	LINE FILTER
	610 031 6065	LINE FILTER
	610 031 6072	LINE FILTER
	610 223 1212	LINE FILTER
	610 290 3027	LINE FILTER
L164	645 003 9713	INDUCTOR,15U K
	645 016 2657	INDUCTOR,15U K
L166	645 003 9812	INDUCTOR,33U K
	645 016 2985	INDUCTOR,33U K
L201	645 001 4567	INDUCTOR,10U K
	645 016 2534	INDUCTOR,10U K
L402	652 000 2180	CORE,PIPE
L403	652 000 2180	CORE,PIPE
L801	645 008 2894	INDUCTOR,5.6U K
	645 016 3104	INDUCTOR,5.6U K
L821	645 008 2894	INDUCTOR,5.6U K
	645 016 3104	INDUCTOR,5.6U K
★L901	645 022 8551	COIL,DEGAUSSING
	645 022 8568	COIL,DEGAUSSING
	645 033 1640	ASSY,COIL,DEGAUSSING
★L902	610 003 5270	DEFLECTION YOKE
	610 003 5287	DEFLECTION YOKE

TRANSISTORS

Q101	405 011 8401	TR 2SC1740S-Q
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Schematic Location	Part No.	Description
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Q101 (Cont.)	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q202	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
Q371	405 002 0308	TR 2SA1037K T146 R
	405 002 0407	TR 2SA1037K T146 S
	405 002 6706	TR 2SA1179-M6-TB
	405 002 6904	TR 2SA1179-M7-TB
	405 134 5905	TR 2SA1037AK-T146-R
	405 147 2205	TR 2SA1037AK-S-T146
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 002 0308	TR 2SA1037K T146 R
	405 002 0407	TR 2SA1037K T146 S
Q372	405 002 6706	TR 2SA1179-M6-TB
	405 002 6904	TR 2SA1179-M7-TB
	405 134 5905	TR 2SA1037AK-T146-R
	405 147 2205	TR 2SA1037AK-S-T146
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
Q401	405 013 6207	TR 2SC2271-D-CTV
	405 013 6306	TR 2SC2271-E-CTV
	405 040 6201	TR 2SC2271M
	405 040 6300	TR 2SC2271N
	405 065 5401	TR 2SC2271-C-CTV
★Q402	405 157 1304	TR 2SD2634-YB
Q621	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
Q622	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O

Schematic Location	Part No.	Description
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Q623	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
Q701	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
	406 000 6804	TR 2SA1015-GR(SAN)
	405 010 6507	TR 2SC1473NC-P
	405 010 6606	TR 2SC1473NC-Q
Q703	405 010 6705	TR 2SC1473NC-R
	405 010 6507	TR 2SC1473NC-P
	405 010 6606	TR 2SC1473NC-Q
	405 010 6705	TR 2SC1473NC-R
Q705	405 010 6507	TR 2SC1473NC-P
	405 010 6606	TR 2SC1473NC-Q
	405 010 6705	TR 2SC1473NC-R
Q721	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
	406 000 6804	TR 2SA1015-GR(SAN)
Q831	405 002 0308	TR 2SA1037K T146 R
	405 002 0407	TR 2SA1037K T146 S
	405 002 6706	TR 2SA1179-M6-TB
	405 002 6904	TR 2SA1179-M7-TB
	405 134 5905	TR 2SA1037AK-T146-R
	405 147 2205	TR 2SA1037AK-S-T146
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
Q881	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
Q882	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA

Schematic Location	Part No.	Description
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Q1001	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
Q1003	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
Q1021	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
Q1022	405 020 7709	TR 2SC945A-QA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA

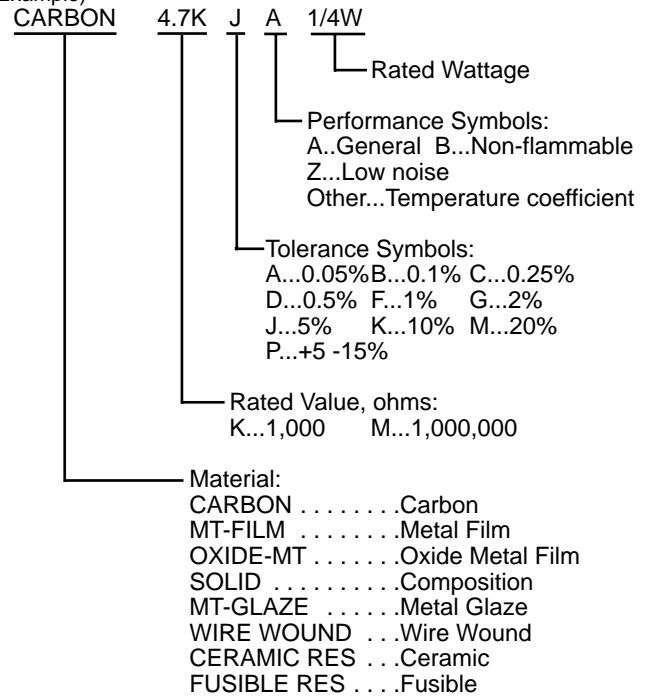
Schematic Location	Part No.	Description
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RESISTORS

NOTES:

Read description of the Resistor as follows:

(Example)



J141	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
J151	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
J803	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
J844	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
J1051	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
J1053	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
R001	401 027 8602	CARBON	8.2K JA	1/6W
R003	401 162 2800	MT-GLAZE	1.8K JA	1/10W
R101	401 026 0607	CARBON	270 JA	1/6W
R102	401 009 7005	CARBON	33K JA	1/2W
R104	401 009 4806	CARBON	33 JA	1/2W
R105	401 011 1107	CARBON	68 JA	1/2W
R131	401 162 4101	MT-GLAZE	5.6K JA	1/10W
R132	401 024 7004	CARBON	1K JA	1/6W
R133	401 162 2404	MT-GLAZE	1.2K JA	1/10W
R142	401 256 1702	MT-GLAZE	33K JA	1/10W
R143	401 150 6209	MT-GLAZE	1K JA	1/10W
R144	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
R151	401 025 1308	CARBON	150 JA	1/6W
R159	401 162 2909	MT-GLAZE	220 JA	1/10W
R161	401 256 7001	MT-GLAZE	180K JA	1/10W
R162	401 255 9501	MT-GLAZE	220K JA	1/10W
R163	401 162 2909	MT-GLAZE	220 JA	1/10W
R164	401 150 6209	MT-GLAZE	1K JA	1/10W
R167	401 025 2305	CARBON	150K JA	1/6W
R168	401 256 5809	MT-GLAZE	270K JA	1/10W
R169	401 150 6209	MT-GLAZE	1K JA	1/10W
R201	401 025 7409	CARBON	220 JA	1/6W
R202	401 025 7409	CARBON	220 JA	1/6W
R205	401 256 6905	MT-GLAZE	680 JA	1/10W

Schematic Location	Part No.	Description
R206	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R207	401 150 6209	MT-GLAZE 1K JA 1/10W
R212	401 255 6005	MT-GLAZE 1M JA 1/10W
R251	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R252	401 256 5908	MT-GLAZE 2.7K JA 1/10W
R271	401 162 3005	MT-GLAZE 22K JA 1/10W
R272	401 162 3104	MT-GLAZE 3.3K JA 1/10W
R273	401 150 5905	MT-GLAZE 10K JA 1/10W
R276	401 024 9701	CARBON 12K JA 1/6W
R281	401 026 4308	CARBON 3.3K JA 1/6W
R286	401 162 2701	MT-GLAZE 180 JA 1/10W
R287	401 162 2701	MT-GLAZE 180 JA 1/10W
R288	401 162 2701	MT-GLAZE 180 JA 1/10W
R351	401 256 6905	MT-GLAZE 680 JA 1/10W
R352	401 256 3508	MT-GLAZE 150K JA 1/10W
R353	401 024 7400	CARBON 10K JA 1/6W
R371	401 150 5905	MT-GLAZE 10K JA 1/10W
R372	401 256 1702	MT-GLAZE 33K JA 1/10W
R373	401 256 7100	MT-GLAZE 680K JA 1/10W
R376	401 256 5304	MT-GLAZE 56K JA 1/10W
R377	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R400	401 256 1405	MT-GLAZE 330K JA 1/10W
★R401	401 067 6408	OXIDE-MT 3.3K JA 2W
★R402	401 067 6408	OXIDE-MT 3.3K JA 2W
R403	401 256 5908	MT-GLAZE 2.7K JA 1/10W
R404	401 026 3905	CARBON 330 JA 1/6W
R406	401 021 3009	CARBON 5.6K JA 1/4W
★R407	401 066 2104	OXIDE-MT 18K JA 2W
★R409	401 062 6106	OXIDE-MT 560 JA 1W
★R411	401 068 6209	OXIDE-MT 5.6 JA 2W
R416	401 026 9303	CARBON 47 JA 1/6W
★R421	401 053 2704	MT-FILM 3.9K FA 1/6W
★R422	401 052 6802	MT-FILM 10K FA 1/6W
★R423	401 053 2605	MT-FILM 3.3K FA 1/6W
R426	401 027 5205	CARBON 680 JA 1/6W
R428	401 024 9701	CARBON 12K JA 1/6W
★R482	401 011 9004	CARBON 1 JB 1/4W
★R483	401 006 7701	CARBON 1 JB 1/2W
★R484	401 059 9608	OXIDE-MT 2.2 JA 1W
R485	401 025 4606	CARBON 18K JA 1/6W
★R486	401 066 9103	OXIDE-MT 27 JA 2W
★R487	401 059 9608	OXIDE-MT 2.2 JA 1W
★R489	401 067 3100	OXIDE-MT 3.9 JA 2W
R491	401 024 7004	CARBON 1K JA 1/6W
R492	401 156 8504	MT-FILM 33K FA 1/6W
R493	401 020 3901	CARBON 470K JA 1/4W
★R497	401 069 0404	OXIDE-MT 6.8 JA 2W
R498	401 011 1107	CARBON 68 JA 1/2W
R499	401 011 4306	CARBON 8.2 JA 1/2W
R503	401 027 5502	CARBON 6.8K JA 1/6W
R504	401 026 9907	CARBON 4.7K JA 1/6W
R506	401 024 6700	CARBON 100 JA 1/6W
★R507	401 057 7507	OXIDE-MT 0.82 JA 1W
R508	401 027 8602	CARBON 8.2K JA 1/6W
R509	401 027 2600	CARBON 5.6K JA 1/6W
R511	401 010 3102	CARBON 470 JA 1/2W
R513	401 026 7002	CARBON 3.9K JA 1/6W
R517	401 025 4606	CARBON 18K JA 1/6W
R518	401 025 4606	CARBON 18K JA 1/6W

Schematic Location	Part No.	Description
★R601	402 055 3201	WIRE WOUND 1 KA WA 6W
	402 055 3300	WIRE WOUND 1 KA ZA 6W
	402 072 2706	WIRE WOUND 1 KA 5W
R602	402 078 5008	CARBON 1M JA 1/2W
R604	401 012 7009	CARBON 10K JA 1/4W
R605	401 016 5803	CARBON 220K JA 1/4W
★R606	401 010 2600	CARBON 47 JB 1/2W
★R607	401 068 6209	OXIDE-MT 5.6 JA 2W
★R608	402 071 6408	WIRE WOUND 180 KA 10W
	402 076 2207	WIRE WOUND 180 JA 10W
★R621	402 078 6203	WIRE WOUND 820 KA 6W
★R622	401 067 0000	OXIDE-MT 270 JA 2W
R623	401 150 6100	MT-GLAZE 2.2K JA 1/10W
★R624	401 061 2505	OXIDE-MT 330 JA 1W
R625	401 027 2600	CARBON 5.6K JA 1/6W
R626	401 150 6209	MT-GLAZE 1K JA 1/10W
R627	401 026 9907	CARBON 4.7K JA 1/6W
R628	401 025 7805	CARBON 2.2K JA 1/6W
R629	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R701	401 027 8107	CARBON 82 JA 1/6W
R702	401 026 0607	CARBON 270 JA 1/6W
R703	401 025 4200	CARBON 1.8K JA 1/6W
R704	401 027 8107	CARBON 82 JA 1/6W
R705	401 026 0607	CARBON 270 JA 1/6W
R706	401 025 4200	CARBON 1.8K JA 1/6W
R707	401 027 8107	CARBON 82 JA 1/6W
R708	401 026 0607	CARBON 270 JA 1/6W
R709	401 025 4200	CARBON 1.8K JA 1/6W
★R711	401 059 4900	OXIDE-MT 15K JA 1W
★R712	401 059 4900	OXIDE-MT 15K JA 1W
★R713	401 059 4900	OXIDE-MT 15K JA 1W
R715	401 009 1508	CARBON 2.7K JA 1/2W
R718	401 009 1508	CARBON 2.7K JA 1/2W
R719	401 009 1508	CARBON 2.7K JA 1/2W
R722	401 027 8602	CARBON 8.2K JA 1/6W
R723	401 025 4200	CARBON 1.8K JA 1/6W
R724	401 026 9600	CARBON 470 JA 1/6W
R801	401 256 5809	MT-GLAZE 270K JA 1/10W
R803	401 024 6700	CARBON 100 JA 1/6W
R804	401 024 6700	CARBON 100 JA 1/6W
R806	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R807	401 150 5905	MT-GLAZE 10K JA 1/10W
R808	401 150 5905	MT-GLAZE 10K JA 1/10W
R809	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R821	401 150 5905	MT-GLAZE 10K JA 1/10W
R822	401 150 6209	MT-GLAZE 1K JA 1/10W
R826	401 150 5905	MT-GLAZE 10K JA 1/10W
R827	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R828	401 026 1307	CARBON 27K JA 1/6W
R831	401 150 5905	MT-GLAZE 10K JA 1/10W
R832	401 150 5905	MT-GLAZE 10K JA 1/10W
R833	401 152 3206	MT-GLAZE 330 JA 1/10W
R834	401 150 5806	MT-GLAZE 100K JA 1/10W
R837	401 024 7400	CARBON 10K JA 1/6W
R842	401 162 3609	MT-GLAZE 470 JA 1/10W
R843	401 162 3609	MT-GLAZE 470 JA 1/10W
R844	401 162 3609	MT-GLAZE 470 JA 1/10W
R846	401 150 6209	MT-GLAZE 1K JA 1/10W
R847	401 162 4101	MT-GLAZE 5.6K JA 1/10W

Schematic Location	Part No.	Description
R848	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R849	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R851	401 026 1000	CARBON 2.7K JA 1/6W
R852	401 026 4605	CARBON 33K JA 1/6W
R856	401 255 6500	MT-GLAZE 100 JA 1/10W
R857	401 255 6500	MT-GLAZE 100 JA 1/10W
R862	401 255 6500	MT-GLAZE 100 JA 1/10W
R863	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R864	401 162 3401	MT-GLAZE 39K JA 1/10W
R865	401 024 7004	CARBON 1K JA 1/6W
R881	401 255 6500	MT-GLAZE 100 JA 1/10W
R882	401 255 6500	MT-GLAZE 100 JA 1/10W
R883	401 255 6500	MT-GLAZE 100 JA 1/10W
R884	401 024 6700	CARBON 100 JA 1/6W
R886	401 150 5905	MT-GLAZE 10K JA 1/10W
R887	401 162 3005	MT-GLAZE 22K JA 1/10W
R892	401 162 2909	MT-GLAZE 220 JA 1/10W
R893	401 255 6500	MT-GLAZE 100 JA 1/10W
R894	401 255 6005	MT-GLAZE 1M JA 1/10W
R897	401 026 9600	CARBON 470 JA 1/6W
R898	401 162 3609	MT-GLAZE 470 JA 1/10W
R1001	401 027 2105	CARBON 56 JA 1/6W
R1003	401 255 9501	MT-GLAZE 220K JA 1/10W
R1004	401 255 9006	MT-GLAZE 82 JA 1/10W
R1006	401 256 0200	MT-GLAZE 120K JA 1/10W
R1007	401 256 0200	MT-GLAZE 120K JA 1/10W
R1008	401 025 7805	CARBON 2.2K JA 1/6W
R1015	401 256 2907	MT-GLAZE 150 JA 1/10W
R1016	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R1017	401 150 6209	MT-GLAZE 1K JA 1/10W
R1018	401 024 6700	CARBON 100 JA 1/6W
R1021	401 255 8702	MT-GLAZE 22 JA 1/10W
R1022	401 024 6700	CARBON 100 JA 1/6W
R1026	401 162 4002	MT-GLAZE 560 JA 1/10W
R1031	401 256 0002	MT-GLAZE 120 JA 1/10W
R1032	401 026 4308	CARBON 3.3K JA 1/6W
R1033	401 256 7209	MT-GLAZE 18K JA 1/10W
R1034	401 150 6209	MT-GLAZE 1K JA 1/10W
R1036	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R1037	401 162 2909	MT-GLAZE 220 JA 1/10W
R1038	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R1901	401 150 5905	MT-GLAZE 10K JA 1/10W
R1902	401 024 7004	CARBON 1K JA 1/6W
R1903	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R1904	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R1905	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R1906	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R1907	401 256 0408	MT-GLAZE 12K JA 1/10W

SWITCHES

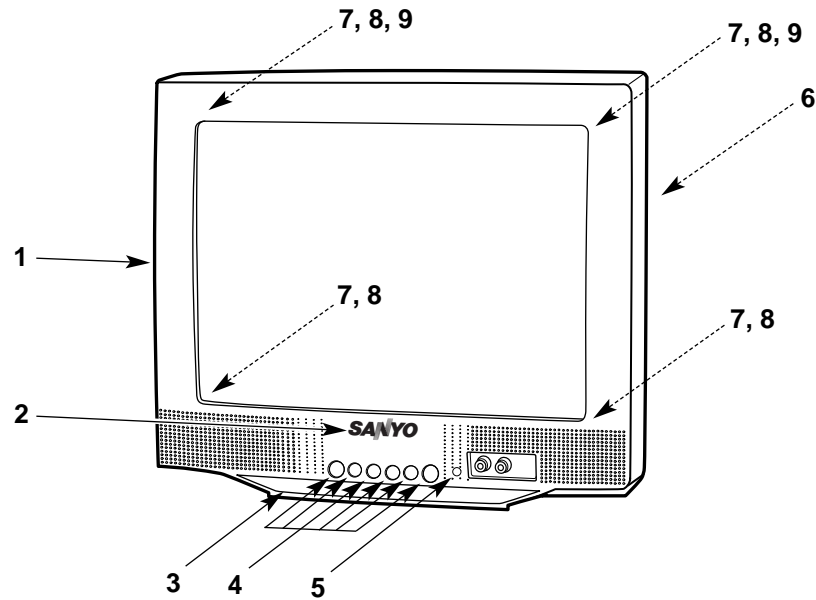
SW1901	645 006 9673	SWITCH,PUSH (POWER)
SW1902	645 006 9673	SWITCH,PUSH (VOL +)
SW1903	645 006 9673	SWITCH,PUSH (VOL -)
SW1904	645 006 9673	SWITCH,PUSH (CH ▲)
SW1905	645 006 9673	SWITCH,PUSH (CH ▼)
SW1906	645 006 9673	SWITCH,PUSH (GAME)

Schematic Location	Part No.	Description
TRANSFORMERS		
T131	645 027 6095	TRANS,IF 4.5MHZ
T151	645 027 6088	TRANS,OSC 45.75MHZ
T401	652 000 1411	TRANS,DRIVE
★T402	645 038 1669	TRANS,FLYBACK
★T1001	610 229 9007	PULSE TRANS
	645 011 6032	TRANS,PULSE
	645 011 8081	TRANS,PULSE
VARIABLE RESISTORS		
VR1023	610 232 7861	VR,SEMI,1K N (VIDEO IN LEVEL)
	645 003 5524	VR,SEMI,1K N
	645 022 9503	VR,SEMI,1K N
FILTERS/CRYSTALS		
X141A	421 006 3206	SAW F TSF5221P
	421 008 9008	SAW F TSF5235P
X153	610 015 2946	CERAMIC FILTER 4.5MHZ
	645 030 1049	CERAMIC FILTER 4.5MHZ
	645 041 1656	CERAMIC FILTER 4.5MHZ
X161	610 015 3059	TRAP,CERAMIC 4.5MHZ
	645 041 1618	TRAP CERAMIC 4.5MHZ
X251	610 012 0655	CRYSTAL OSCILLATOR
	610 204 4195	CRYSTAL OSCILLATOR
	610 245 9746	CRYSTAL OSCILLATOR
X401	645 020 9147	OSC,CERAMIC 507.5KHZ
X801	645 004 1938	OSC,CRYSTAL 32.768KHZ
	645 004 1945	OSC,CRYSTAL 32.768KHZ
MISCELLANEOUS		
A001	610 293 0030	ASSY,PWB,MAIN
★A101	645 038 5827	TUNER,U/V
	645 042 1976	TUNER,U/V
★A102	645 033 2845	BLOCK,SPECIAL(ANT)
A701	610 294 7090	ASSY,PWB,SOCKET
A1901	645 047 6228	UNIT,REMOCON RECEIVER
★F601	423 007 1601	FUSE 125V 4A
	423 007 1809	FUSE 125V 4A
	423 018 8101	FUSE 125V 4A
F601A	645 000 5077	HOLDER,FUSE
	645 016 0479	HOLDER,FUSE
F601B	645 000 5077	HOLDER,FUSE
	645 016 0479	HOLDER,FUSE
★K701-M	645 026 1992	SOCKET,CRT 8P
	645 036 4143	SOCKET,CRT 8P
	645 036 4150	SOCKET,CRT 8P
K1003	645 040 5952	JACK,RCA-2
★PS601	408 000 3203	TH PTH632D01BF7R0M140
★Q901	413 006 4703	CRT A34JRY24X
	414 007 4808	CRT A34KPU02XX
	414 009 5001	CRT A34KPU02XX
	414 010 3805	CRT A34KPU03XX
	414 010 3904	CRT A34JRY24X (DT)

Schematic Location	Part No.	Description
Q901A1	610 117 0154	DY SPACER
	610 117 7924	DY SPACER
Q901A2	610 117 0154	DY SPACER
	610 117 7924	DY SPACER
Q901A3	610 117 0154	DY SPACER
	610 117 7924	DY SPACER
Q901C	610 217 7787	CG PURITY MAGNET
★RL601	645 000 4155	RELAY
	645 011 2713	RELAY
	645 015 8629	RELAY
	645 024 7767	RELAY
	645 024 7828	RELAY
SP901	645 040 8618	SPEAKER,8
★W601	645 034 8525	CORD,POWER-2.0MK-A5003
★W902	610 252 5618	ASSY,WIRE GND CONNECTOR
	610 287 6581	ASSY,WIRE GND CONNECTOR

Schematic Location	Part No.	Description
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CABINET PARTS LIST



CABINET PARTS LIST

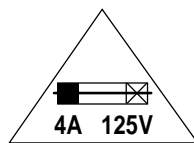
KEY NO.	PARTS NO.	DESCRIPTION
1	610 293 2652	CABINET FRONT
2	610 285 5685	SANYO BADGE
3	610 293 2683	DEC SHEET
4	610 293 2645	BUTTON UNITED
	411 078 1101	SCREW 4X14
OR	412 036 1805	SCREW 4X14
5	610 285 1199	CAP RC
6	610 284 5280	CABINET BACK
	411 078 1101	SCREW 4X14 (4 USED)
OR	412 036 1805	SCREW 4X14 (4 USED)
7	610 278 4367	CRT SPACER (4 USED)
8	412 000 7604	CRT MTG SCREW 5X30 (4 USED)
9	610 102 7151	DC HOLDER (2 USED)

ACCESSORY PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
	610 293 3277	OWNER'S MANUAL
	610 216 4886	ROD ANTENNA ASSY
OR	610 216 4916	ROD ANTENNA ASSY
OR	645 042 4519	ANTENNA, ROD
	645 003 3742	ANTENNA CONVERTER
OR	645 007 9061	ANTENNA CONVERTER
	645 045 4301	ASSY, RC TRANSMITTER
OR	645 045 4318	ASSY, RC TRANSMITTER
	610 290 1221	RC-BATTERY COVER
OR	610 290 1283	RC-BATTERY COVER

COMPONENT AND TESTPOINT LOCATIONS

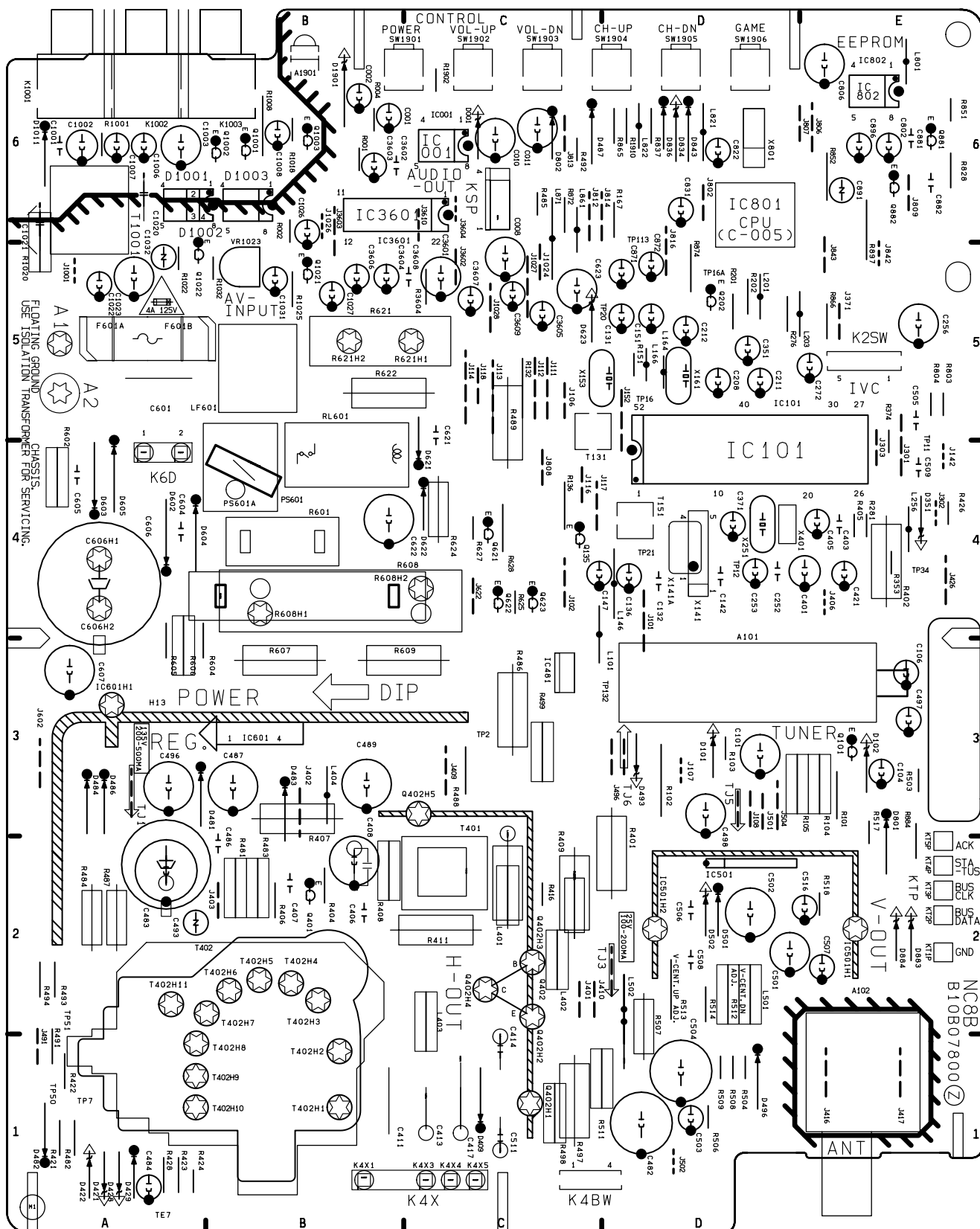
CAUTION



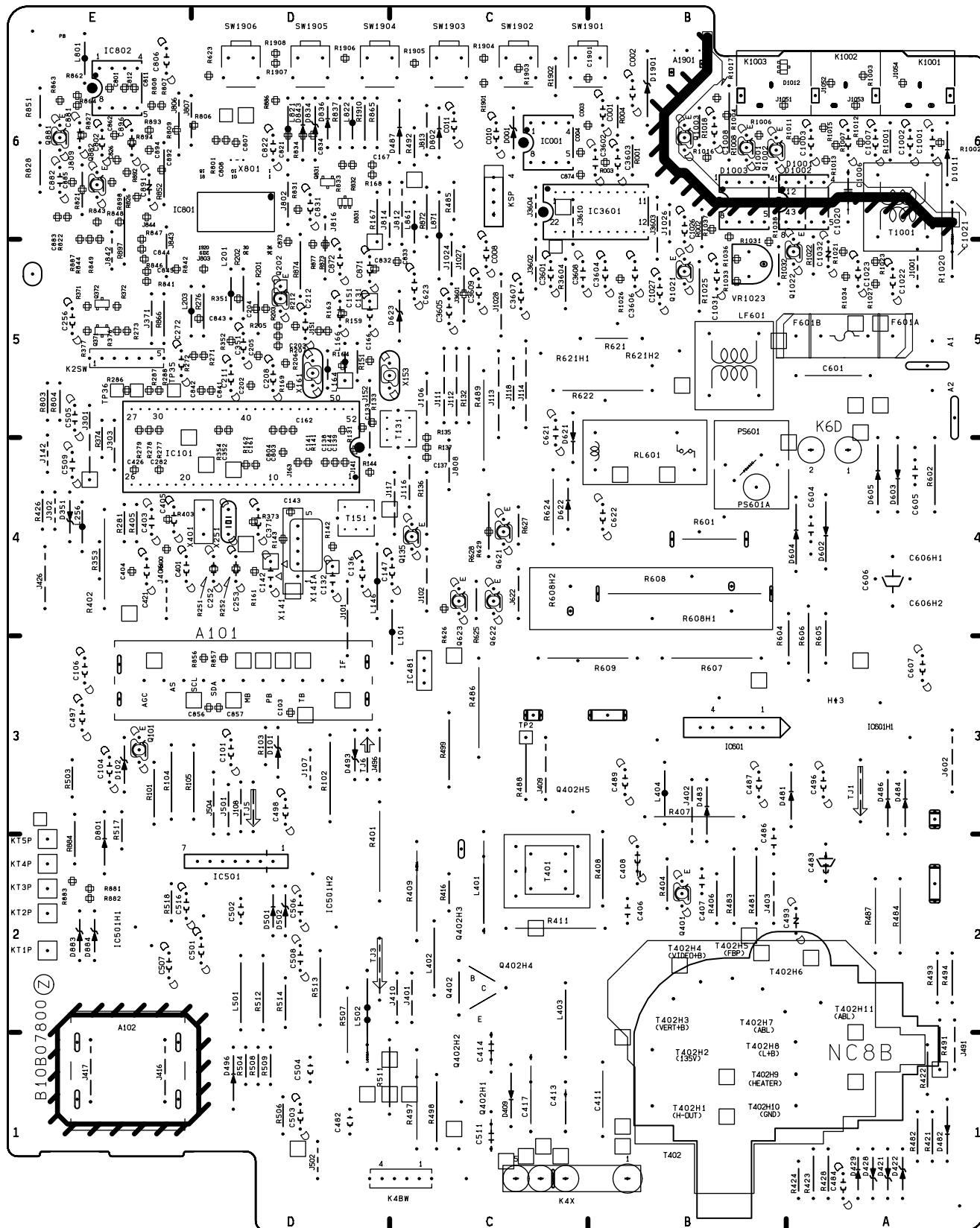
FOR CONTINUED PROTECTION AGAINST A RISK
OF FIRE, REPLACE ONLY WITH THE SAME TYPE
4A, 125V FUSE.

**ATTENTION : POUR MAINTENIR LA PROTECTION
CONTRE LES RISQUES D' INCENDIE UTILISER UN
FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.**

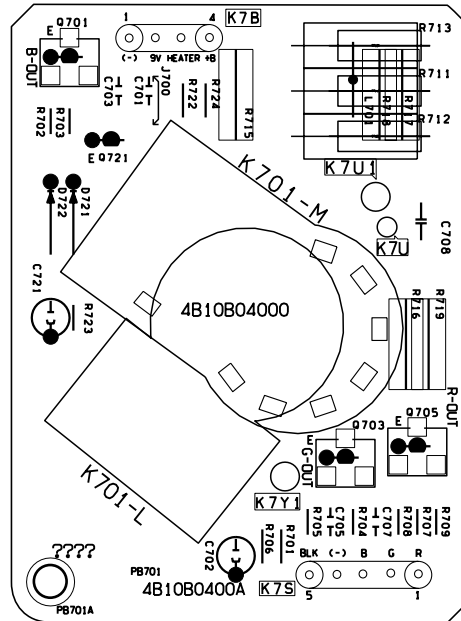
MAIN BOARD - Parts Side



MAIN BOARD - Foil Side



PICTURE TUBE SOCKET BOARD - Parts Side



For parts or service contact

SANYO Fisher Service Corporation

21605 Plummer Street,
Chatsworth, CA 91311 (U.S.A.)


300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)

August / 2001 / 2200 SMC

Printed in U.S.A.

SCHEMATIC DIAGRAMS

NOTES ON SCHEMATIC DIAGRAM

1. All resistance values in ohms K=1,000 M=1,000,000.
2. Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in μF (Micro Farad), and the values more than 1 are in pF.
3. Unless otherwise noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using offset color bar-signal on VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
4. Waveforms were taken with offset color-bar signal and controls adjusted for normal picture. Waveforms marked with an * may vary with signal strength.
5. Symbol  indicates a fusible resistor, which protects the circuit from possible short circuits.

SERVICE NOTES:

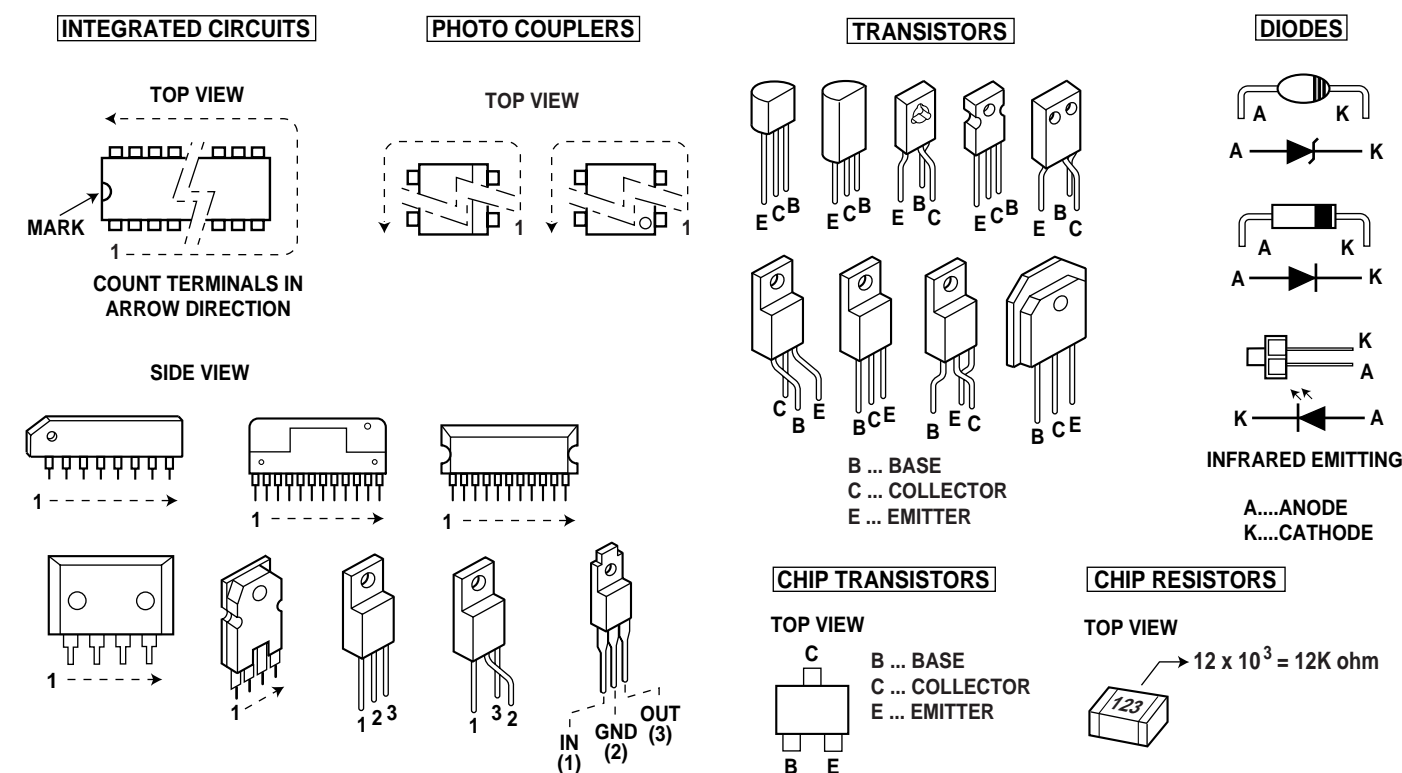
1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8") from circuit board.
3. Keep wires away from high voltage and high temperature components.

PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (*) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

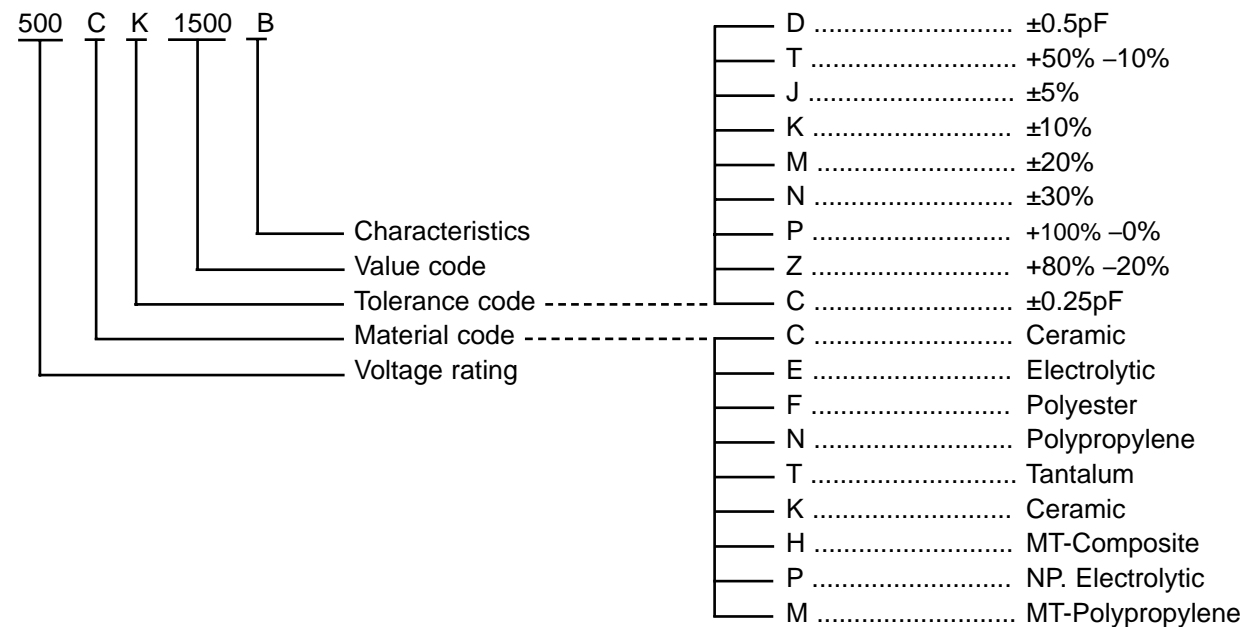
X-RADIATION WARNING NOTE

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NORMAL 2ND ANODE VOLTAGE IS 21.0KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 22.0KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 8.

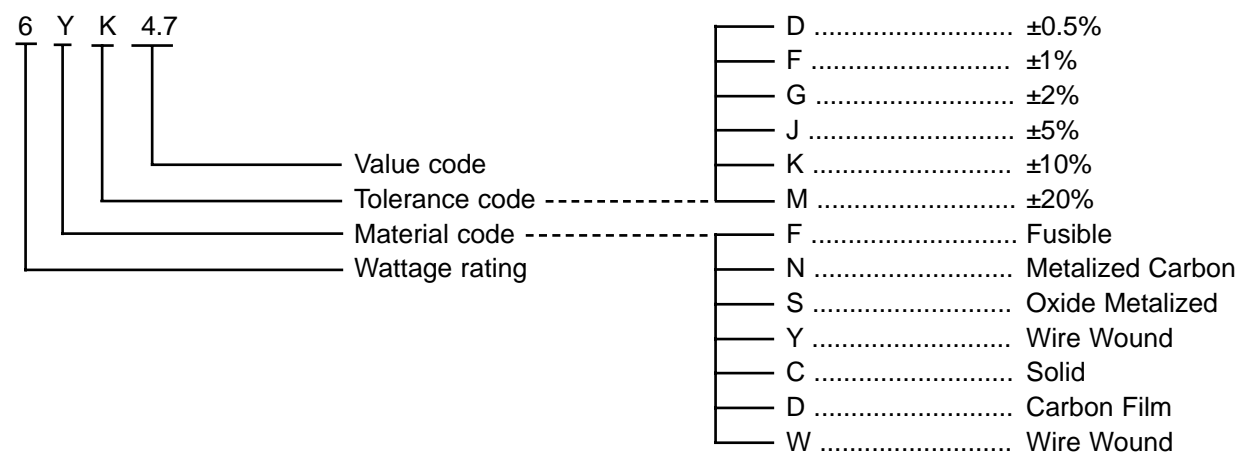


CAPACITOR AND RESISTOR CODE CHART

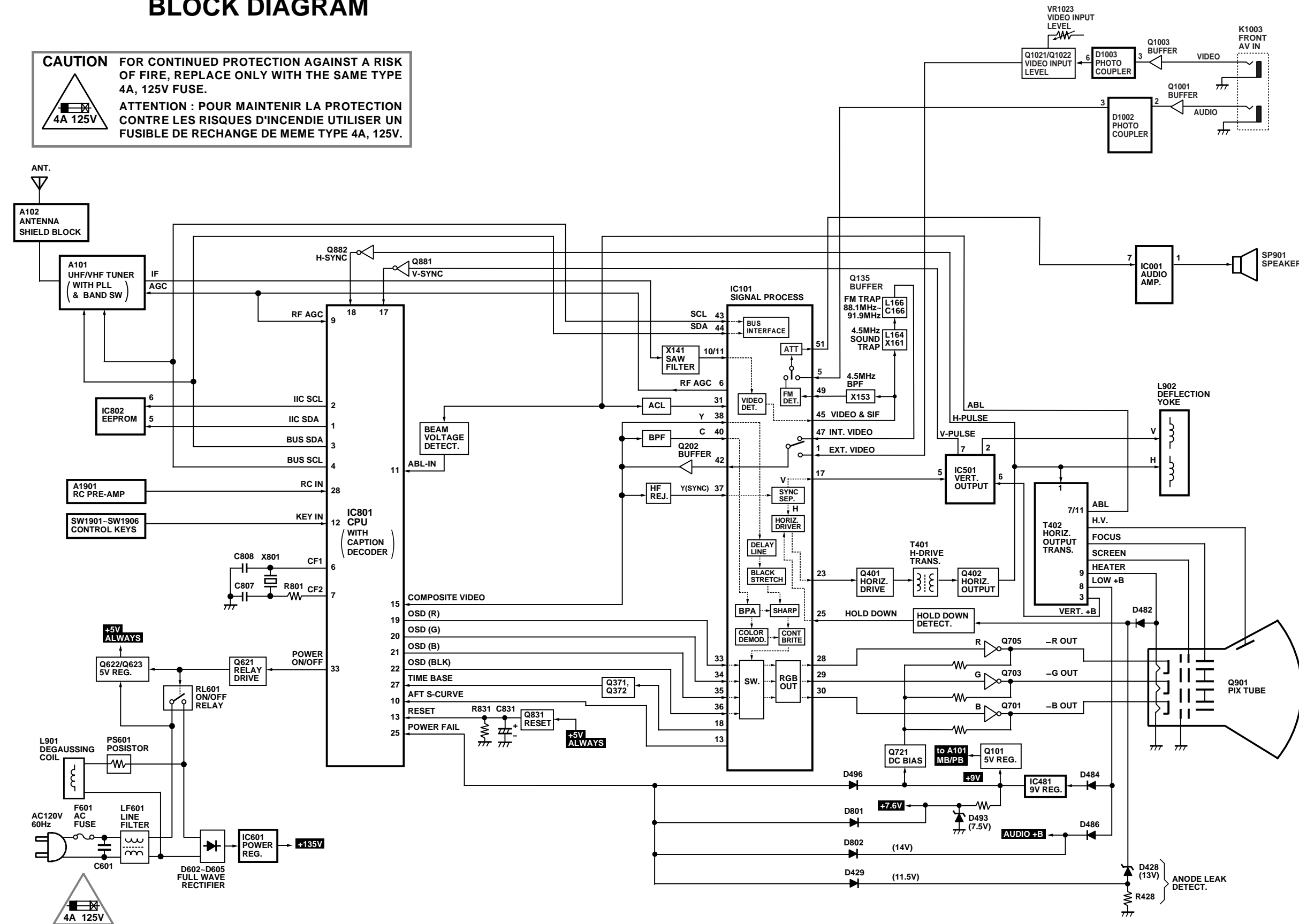
CAPACITOR (Example)



RESISTOR (Example)



BLOCK DIAGRAM



VOLTAGE CHARTS

Note: Voltages were measured with offset color-bar signal and controls adjusted for normal picture.

Device/Pin #	Volts/Mode
D1002-1	11.6
D1002-2	10.5
D1002-3	3.5
D1002-4	8.9
D1003-1	N.C.
D1003-2	11.9
D1003-3	10.4
D1003-4	N.C.
D1003-5	GND
D1003-6	7.8
D1003-7	N.C.
D1003-8	9.0
IC001-1	5.9
IC001-2	14.1
IC001-3	N.C.
IC001-4	GND
IC001-5	N.C.
IC001-6	1.4
IC001-7	1.4
IC001-8	GND
IC101-1	1.6
IC101-2	6.8
IC101-3	6.8
IC101-4	7.6
IC101-5	3.9
IC101-6	2.0
IC101-7	3.5
IC101-8	0.3
IC101-9	GND
IC101-10	3.8
IC101-11	3.8
IC101-12	5.0
IC101-13	3.4
IC101-14	5.8
IC101-15	4.0
IC101-16	3.6
IC101-17	3.8
IC101-18	6.2
IC101-19	4.6
IC101-20	GND
IC101-21	7.4
IC101-22	5.1
IC101-23	0.6
IC101-24	0.8
IC101-25	0
IC101-26	7.6
IC101-27	GND
IC101-28	2.7
IC101-29	2.8
IC101-30	2.8
IC101-31	4.8
IC101-32	7.6
IC101-33	3.5

Device/Pin #	Volts/Mode
IC101-34	3.5
IC101-35	3.5
IC101-36	0
IC101-37	5.3
IC101-38	3.5
IC101-39	3.6
IC101-40	3.4
IC101-41	3.2
IC101-42	3.1
IC101-43	4.2
IC101-44	4.3
IC101-45	3.2
IC101-46	GND
IC101-47	3.2
IC101-48	3.9
IC101-49	2.5
IC101-50	3.8
IC101-51	3.7
IC101-52	4.6
IC481-1 (IN)	13.1
IC481-2	GND
IC481-3 (OUT)	9.1
IC501-1	GND
IC501-2	15.0
IC501-3	25.8
IC501-4	3.8
IC501-5	3.8
IC501-6	25.5
IC501-7	0.9
IC601-1	GND
IC601-2	136.3
IC601-3	162.2
IC601-4	135.3
IC601-5	N.C.
IC801-1	4.9
IC801-2	4.9
IC801-3	4.4
IC801-4	4.3
IC801-5	GND
IC801-6	1.7
IC801-7	2.7
IC801-8	4.9
IC801-9	2.0
IC801-10	2.1
IC801-11	0.4
IC801-12	0
IC801-13	4.9
IC801-14	3.5
IC801-15	2.5
IC801-16	N.C.
IC801-17	4.7
IC801-18	4.1
IC801-19	0

Device/Pin #	Volts/Mode	
IC801-20	0	
IC801-21	0	
IC801-22	0	
IC801-23	N.C.	
IC801-24	N.C.	
IC801-25	4.9	
IC801-26	N.C.	
IC801-27	3.5	
IC801-28	4.9	
IC801-29	N.C.	
IC801-30	N.C.	
IC801-31	GND	
IC801-32	GND	
IC801-33	POWER ON: 4.5	POWER OFF: 0
IC801-34	GND	
IC801-35	4.9	
IC801-36	4.9	
IC802-1	GND	
IC802-2	GND	
IC802-3	GND	
IC802-4	GND	
IC802-5	4.9	
IC802-6	4.9	
IC802-7	GND	
IC802-8	4.9	
Q101-B	5.8	
Q101-C	7.4	
Q101-E	5.1	
Q202-B	3.1	
Q202-C	7.6	
Q202-E	2.5	
Q371-B	6.2	
Q371-C	GND	
Q371-E	3.6	
Q372-B	3.0	
Q372-C	3.5	
Q372-E	3.6	
Q401-B	0.3	
Q401-C	17.1	
Q401-E	GND	
Q402-B	1.0	
Q402-C	N/A	
Q402-E	1.0	
Q621-B	POWER ON: 0.7	POWER OFF: 0
Q621-C	POWER ON: 0	POWER OFF: 16.4
Q621-E	GND	
Q622-B	POWER ON: 5.0	POWER OFF: 5.8
Q622-C	POWER ON: 18.9	POWER OFF: 5.1

Device/Pin #	Volts/Mode	
Q622-E	POWER ON: 5.0	POWER OFF: 5.0
Q623-B	POWER ON: 4.4	POWER OFF: 16.5
Q623-C	POWER ON: 5.0	POWER OFF: 5.0
Q623-E	POWER ON: 5.1	POWER OFF: 17.4
Q701-B	2.8	
Q701-C	102.3	
Q701-E	2.5	
Q703-B	2.8	
Q703-C	103.1	
Q703-E	2.5	
Q705-B	2.8	
Q705-C	107.4	
Q705-E	2.4	
Q721-B	1.6	
Q721-C	GND	
Q721-E	2.3	
Q831-B	4.3	
Q831-C	4.9	
Q831-E	4.9	
Q881-B	0	
Q881-C	4.7	
Q881-E	GND	
Q882-B	-0.2	
Q882-C	4.1	
Q882-E	GND	
Q1001-B	5.1	
Q1001-C	10.5	
Q1001-E	4.5	
Q1003-B	1.8	
Q1003-C	10.4	
Q1003-E	1.1	
Q1021-B	1.4	
Q1021-C	8.1	
Q1021-E	0.8	
Q1022-B	8.1	
Q1022-C	9.0	
Q1022-E	7.4	

WAVEFORMS

Note: Voltages were measured with offset color-bar signal and controls adjusted for normal picture.

