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SERVICE DATA
FILE NO. 050-767
NTSC SYSTEM

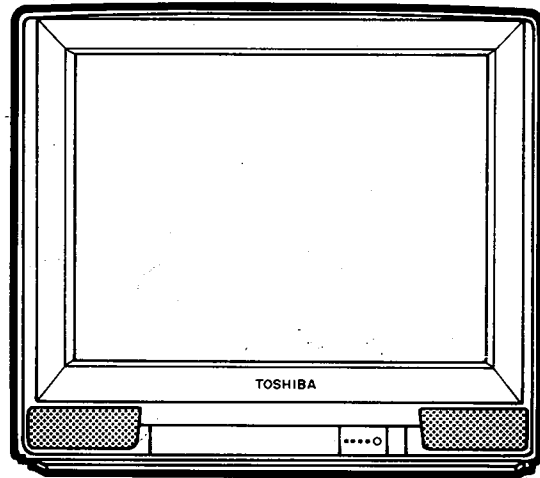
TOSHIBA

COLOR TELEVISION

CN27D90, TV27D90

(TAC9443)

(TAC9443)



SPECIFICATIONS

Input Power Rating:	108 W (average), 120 V AC, 60 Hz
Antenna Input Impedance:	75 ohm unbalanced type for VHF, UHF and CATV
Receiving Channels:	VHF channels 2 to 13 UHF channels 14 to 69 CATV Mid-band A8 to A1, A to I Super-band J to W Hyper-band AA to ZZ, AAA, BBB Ultra-band 65 to 94, 100 to 125
Intermediate Frequencies:	Picture I-F carrier frequency 45.75 MHz Sound I-F carrier frequency 41.25 MHz Color sub-carrier frequency 42.17 MHz
Picture Tube:	27 inches, A68KSA30X02(D), 350 sq. inches of viewable area, 110° deflection
Audio Power:	Main 7 W x 2, Sub-woofer 10 W
Speakers:	Main Speakers 2-3/4" x 5" square 2 pcs CYCLONE woofer 4" round 1 pc
Cabinet:	Plastic, Table Type
Dimensions:	Height 24-37/64 inches (624 mm) Width 27-41/64 inches (702 mm) Depth 19-39/64 inches (498 mm)
Mass:	88.4 lbs. (40.1 kg)
Aux. Terminals:	AUDIO/VIDEO INPUT jacks, S-VIDEO INPUT jack, AUDIO OUTPUT (VARIABLE) jacks EXTERNAL SPEAKER terminals
Features:	Frequency synthesized tuning system, 181-channel VHF/UHF/CABLE multi-tuner, 42-key simple universal remote control, Multichannel TV Sound reception, CYCLONE™ woofer, Digital control, Picture In Picture, Closed captioning

Specifications are subject to change without notice.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 29.0 kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed 30.4 kV. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing

an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.

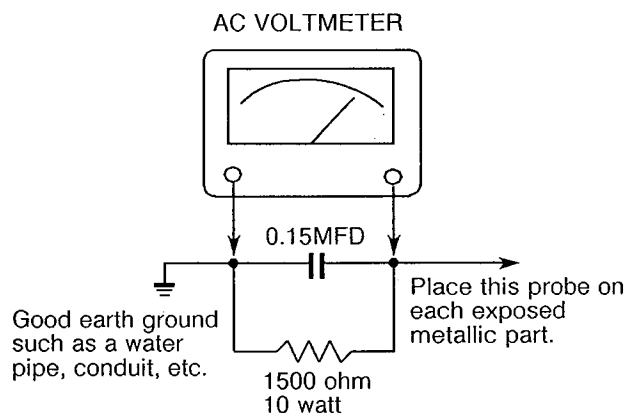
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

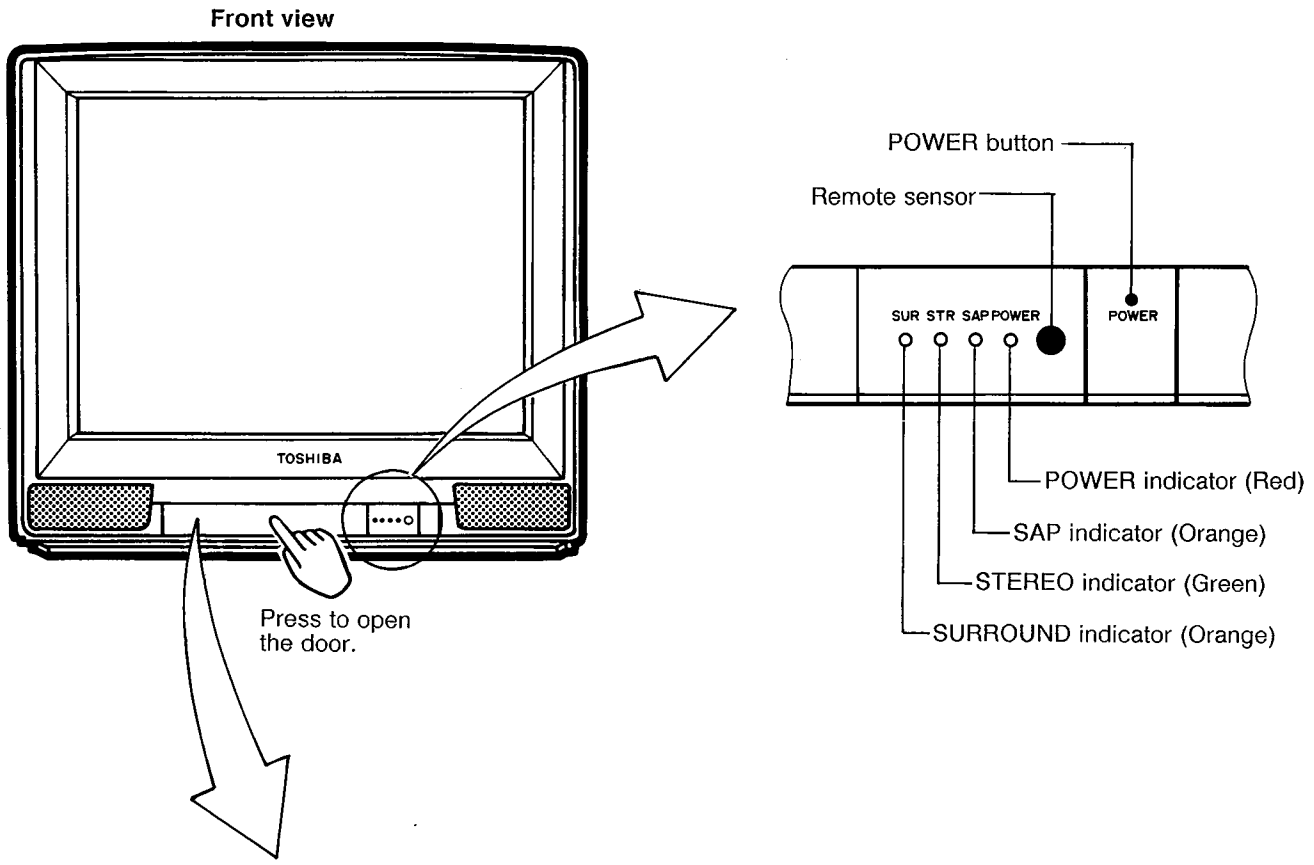


PRODUCT SAFETY NOTICE

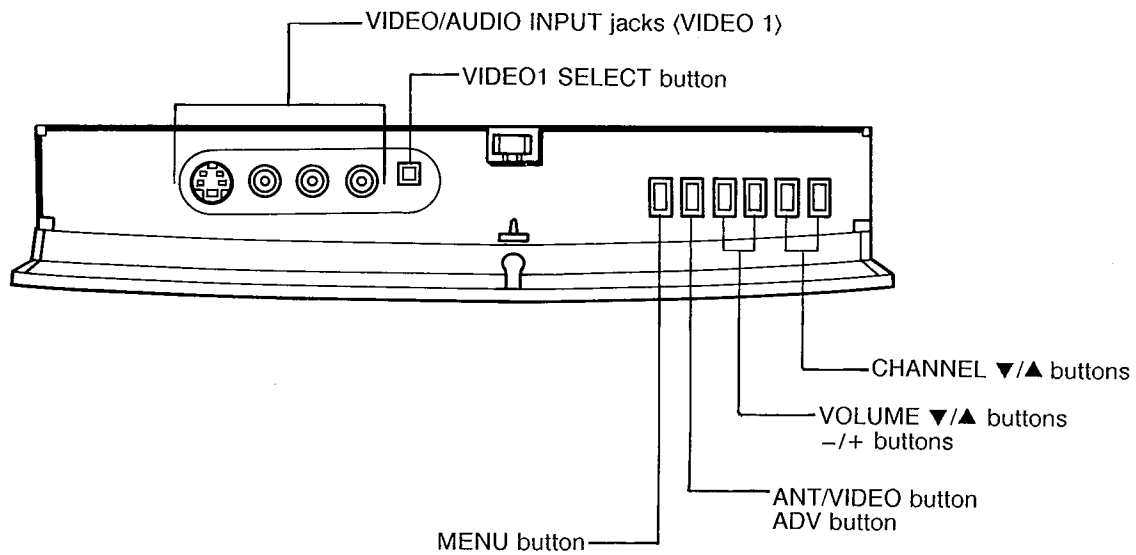
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

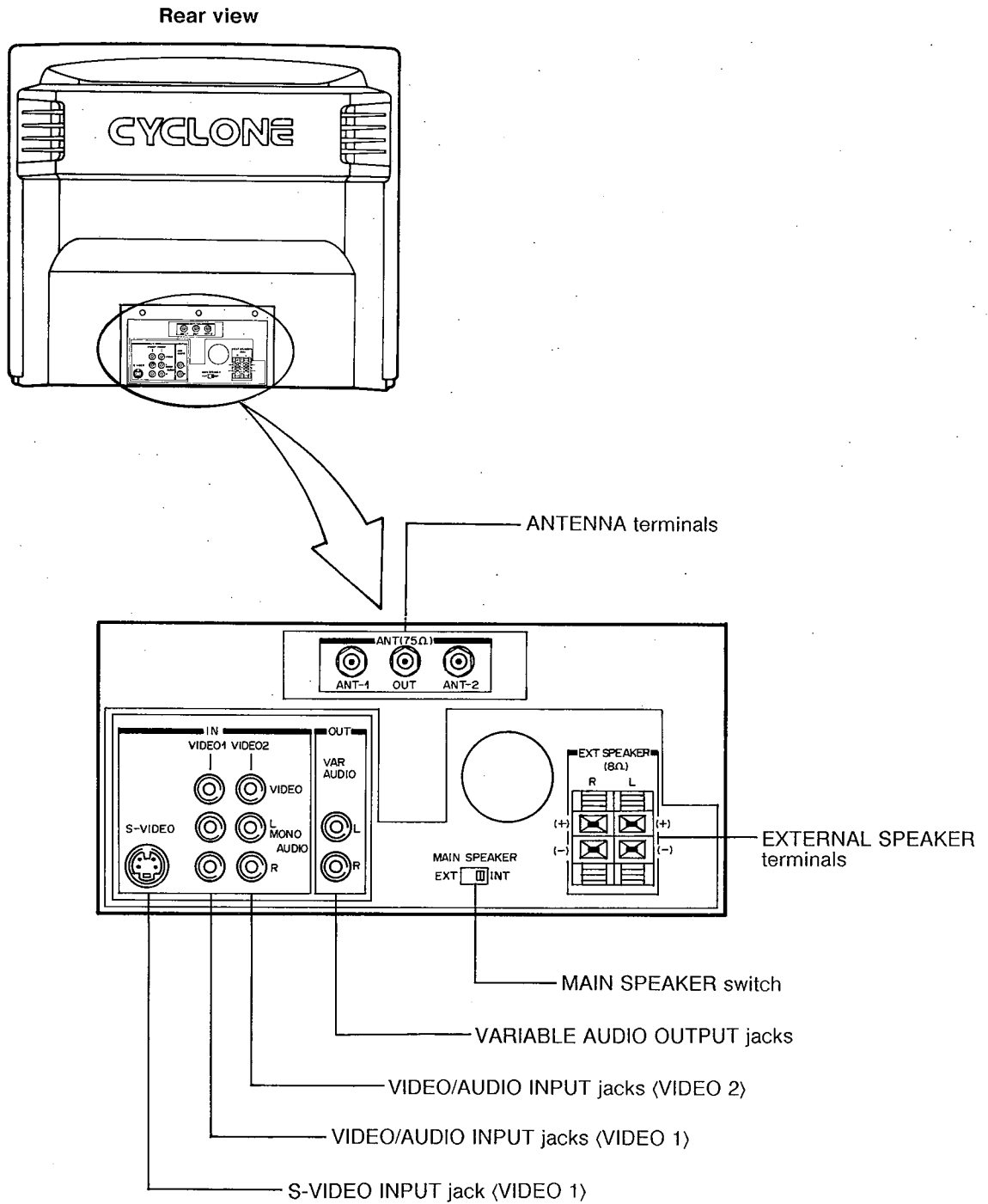
LOCATION OF CONTROLS (TV Set)



Behind the door

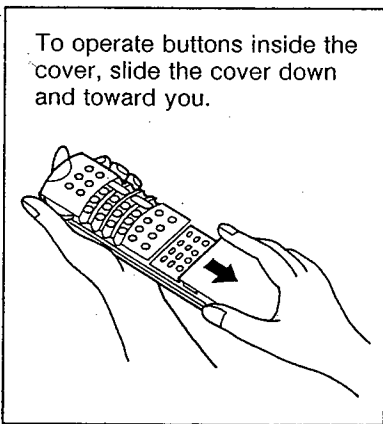
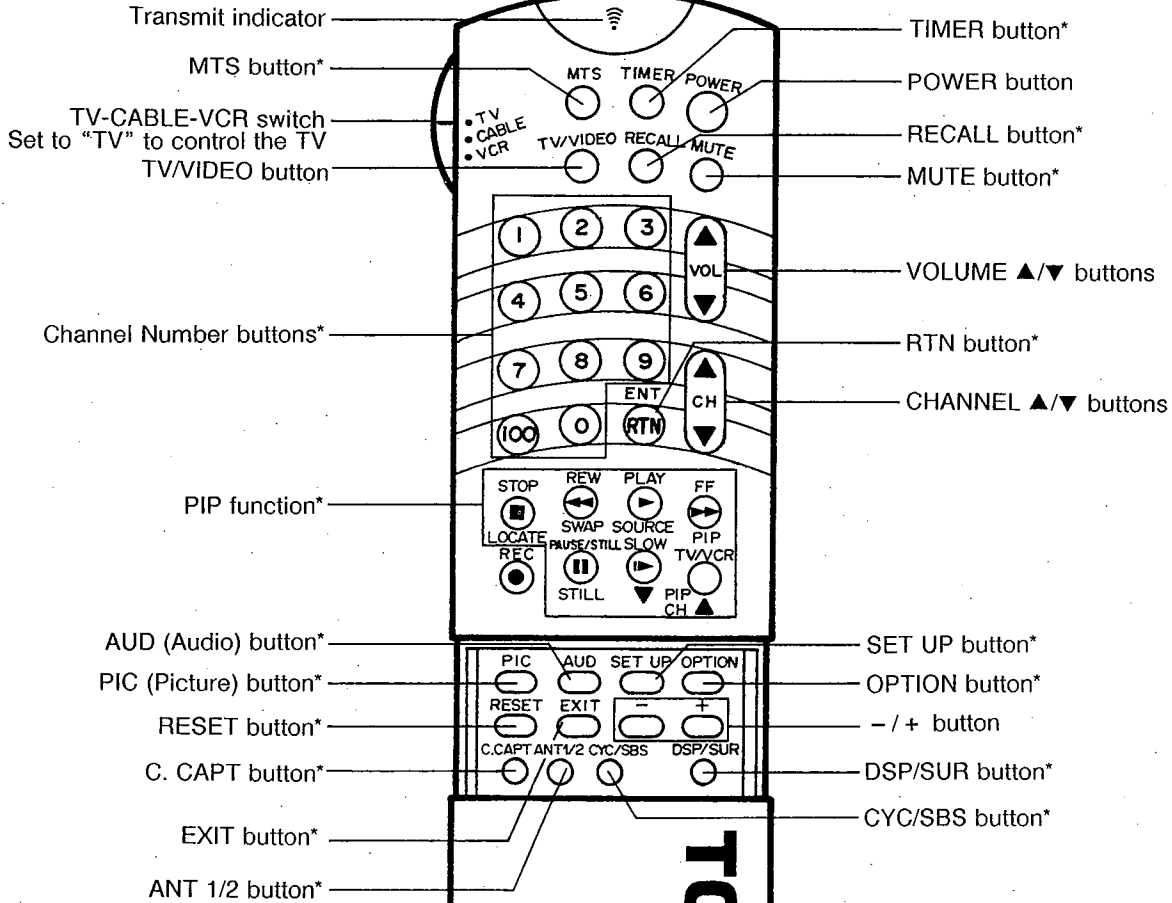


LOCATION OF CONTROLS (TV Set)



LOCATION OF CONTROLS (Remote Control)

Aim at the remote sensor on the TV set



* These functions do not have duplicate locations on the TV. They can be controlled only by the Remote Control.

BEFORE USING THE REMOTE CONTROL

INTRODUCTIONS

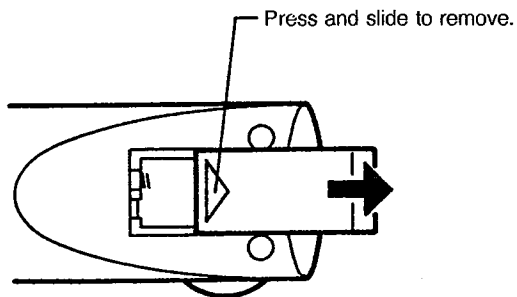
This Remote Control allows you to operate your TV set and most models of remote-controlled VCR's and Cable TV Converters even if they are different brands. However, this Remote Control must be programmed to control other brands of VCR's and/or Converters. If you will be using your TV set with a TOSHIBA VCR, your remote has already been preprogrammed for you.

- Before attempting to operate your Remote Control, install the batteries according to the section "INSTALLING AND REPLACING BATTERIES" shown below.
- For more detailed instructions, see the section "PROGRAMMING THE REMOTE CONTROL" on page 7.

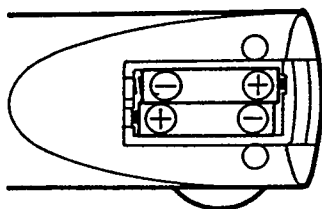
INSTALLING AND REPLACING BATTERIES

1. Place the Remote Control with the face down.

Press down on the ridged area of the battery cover and slide it off.



2. Place two "AA" size batteries, matching the + and - signs on each battery to the + and - signs of the battery compartment.



3. Replace the battery cover until the lock snaps.

Notes:

- After installing new batteries, the Remote Control will set itself to the codes for TOSHIBA's TV and VCR.
If you are using the Remote Control to operate equipment that uses different codes, it will have to be reprogrammed for those codes.
- This Remote Control may have functions not available on the original remote control.
- These functions may or may not operate your VCR or Cable TV Converter. Refer to the owner's manuals supplied with the equipments to see which functions are available.
- The remote control supplied with your VCR or Cable TV Converter may have keys not duplicated on this Remote Control. If these functions are desired, the original remote will have to be used.

TIPS FOR BEST OPERATION

- For optimum performance, aim the Remote Control directly at the TV from a distance no more than 23 ft (7 m) and be sure there is no obstruction between the Remote Control and the TV.
- If your Remote Control does not always adjust the TV as you wish, you probably need to replace the batteries. See the directions at the left.
- Remove dead batteries immediately to prevent battery acid from leaking into the battery compartment.
- If you do not intend to use the Remote Control for a long period, remove the batteries.

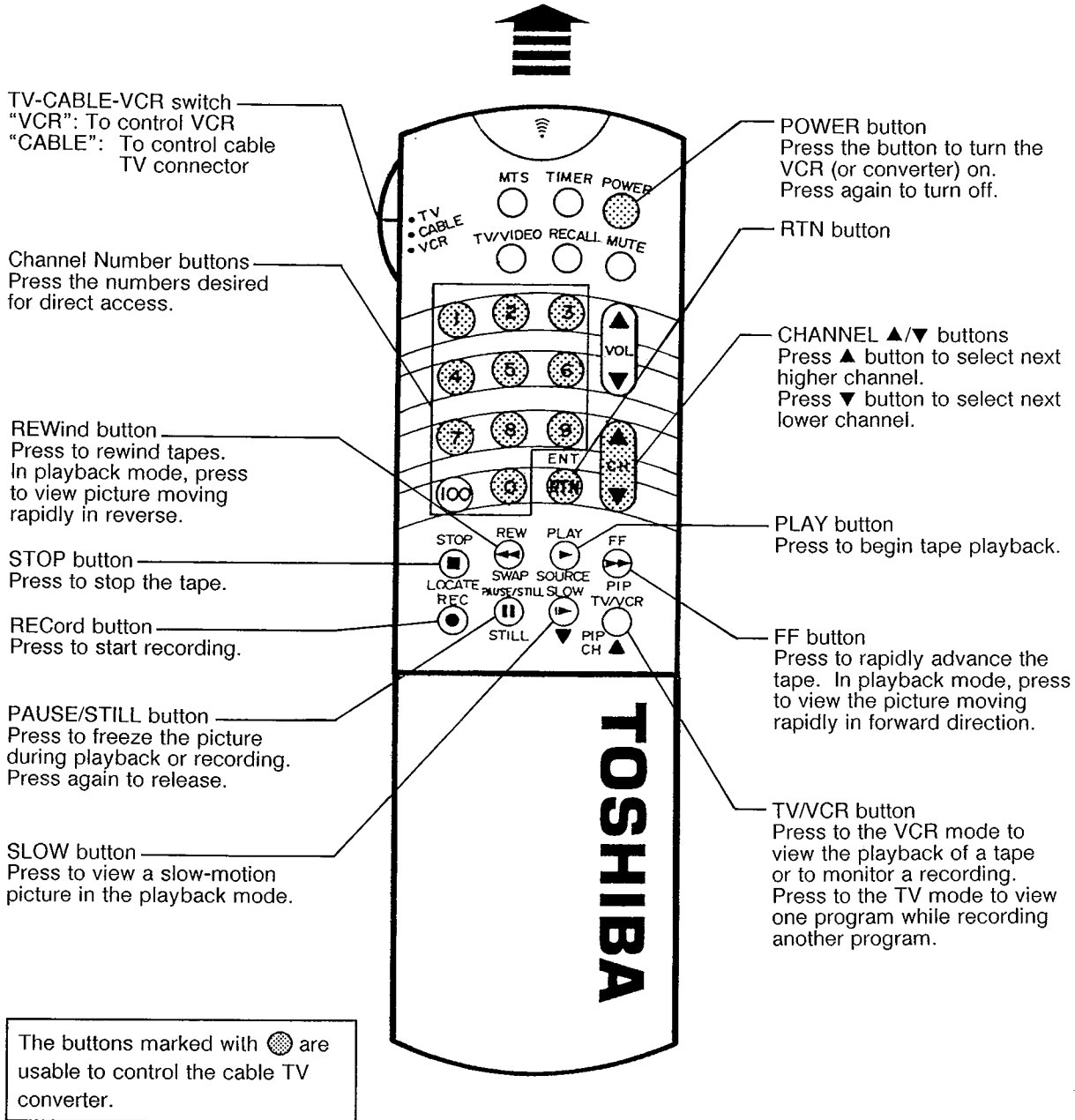
CAUTIONS:

- Do not throw your batteries into a fire. Dispose of your batteries in a designated disposal area.
- Do not combine used old batteries with new ones.
- Do not mix battery types.

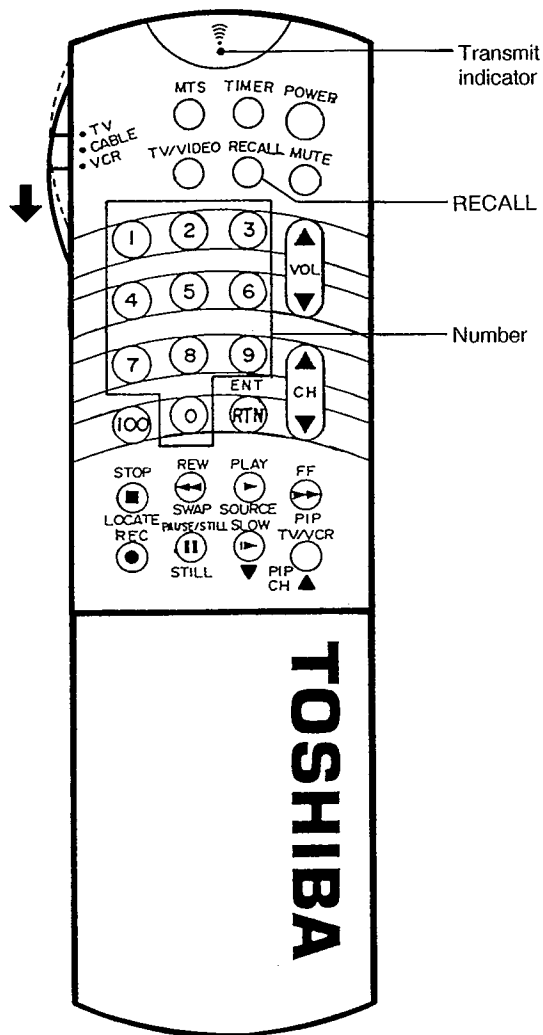
USING THE REMOTE WITH VCR OR CABLE TV CONVERTER

- To control TOSHIBA VCR, first set the TV-CABLE-VCR switch to "VCR" position. The buttons shown below will then control the VCR. The rest of the buttons operate the TV as usual.
If you have another brand of VCR, you can probably program your Remote to control it.
- To control a cable TV converter, this Remote Control must be programmed to recognize the brand of your converter.
Set the TV-CABLE-VCR switch to "CABLE" position whenever you control the cable TV converter.

Aim at the VCR or cable TV converter



PROGRAMMING THE REMOTE CONTROL



- This Remote Control is preprogrammed to operate TOSHIBA VCR's.
- To use VCR's other than Toshiba models (or Cable converters), perform the following procedures before operating.

1. Refer to the "VCR CODE TABLE" (or "CABLE TV CONVERTER CODE TABLE") on pages 8 to 10 to find the code number that corresponds to the brand name of your VCR (or your converter).

If more than one number is listed, try each one separately until you find the one that works.

2. Set the TV-CABLE-VCR switch to VCR (or CABLE).

3. Hold down **RECALL** while pressing the **Number** buttons for the three digit code number for your brand of VCR (or converter). The transmit indicator lights up for 1 second when the programming is completed.

When an operation error has occurred, the indicator blinks. Press **RECALL** again to reset.

4. Point the Remote Control at the VCR (or at the converter) and press **POWER** to test the code number.

- If the right number was entered, the VCR should turn on.
- If the VCR does not respond to the Remote Control, repeat steps 1 to 4 with another code number.

Notes:

- You have to reprogram the Remote Control when you change its batteries.
- Some newer VCR's are capable of working on either of two remote codes. These VCR's have a switch labeled "VCR1/VCR2".

If your VCR has this kind of switch, and does not respond to all the code numbers for your VCR brand name, set the switch to another position ("VCR1" or "VCR2") and reprogram the Remote Control.

For future reference, write the code you used.

VCR CODE: _____

CABLE CODE: _____

VCR CODE TABLE

BRAND NAME	CODE NUMBER	BRAND NAME	CODE NUMBER
Aiko	297	Graetz.....	060, 123
Aiwa.....	019	Granada	065, 100, 123
Akai.....	060, 068, 080, 125, 261	Grundig.....	100
Alba	039, 228, 297	Harman/Kardon	057
Amstrad.....	019	Hem.....	091
Anitech.....	091	Hinari.....	091, 227
ASA.....	056, 100	Hitachi.....	019, 060, 061, 084, 124
Audiovox.....	056	Imperial.....	019
Baird.....	123	Interfunk.....	100
Bell & Howell.....	123	ITT.....	060, 065, 123, 125
Broksonic.....	140, 203, 230	JCL.....	054
Bush.....	091, 228, 297	Jensen.....	060
Canon.....	054	JVC.....	027, 060, 086
Capehart.....	039	Kendo.....	125
Carver.....	100	Kenwood.....	057, 060, 065, 086
CCE.....	091, 297	Lloyd.....	019
CGE.....	019	Loewe.....	056
Cimeline.....	091	Loewe Opta.....	100
Condor.....	039	Logik.....	091, 259
Craig.....	066, 259	Luxor.....	062, 065, 125
Crown.....	297	LXI.....	056
Curtis Mathes.....	054	Magnavox.....	019, 054, 100, 129, 168
Daewoo.....	039, 064, 065, 297	Manesth.....	064, 091
Dansai.....	091	Marantz.....	054, 057, 081, 100
Daytron.....	039	Marta.....	056
De Graaf.....	061	Matsui.....	227, 228
Decca.....	019, 100	MEI.....	054
Dual.....	060	Memorex.....	019, 054, 056, 058, 065, 066, 067, 123
Dumont.....	019, 100, 123, 124	MGA.....	062, 080
Dynatech.....	019	Minolta.....	061, 124
Electronic.....	019	Mitsubishi.....	062, 080, 086, 100, 192, 233, 261
Emerson.....	019, 021, 056, 080, 140, 203, 227, 228, 230, 231, 313	MTC.....	019, 259
ESC.....	297	Multitech.....	019, 091
Ferguson.....	060	Murphy.....	019
Fidelity.....	019	NEC.....	057, 059, 060, 069, 086
Finlandia.....	100, 123, 129	Neckermann.....	100
Finlux.....	019, 061, 100, 123, 124	Nikko.....	056
First Line.....	062, 091	Noblex.....	259
Fisher.....	065, 066, 073, 085, 123	Nokia.....	060, 065, 123, 125, 259
Frontech.....	039	Nordmende.....	060
Funai.....	019	Optonica.....	067, 081
GE.....	054, 079, 084	Orion.....	140, 227, 228
GEC.....	100	Osaki.....	019, 056, 091
General.....	071	Otto Versand.....	100
Go Video.....	251, 298	Pallidium.....	091
Goldstar.....	056, 057	Panasonic.....	054, 096, 244
Goodmans.....	019, 039, 056, 081, 091, 297	Penney.....	054, 056, 057, 059, 061, 259
Gradiente.....	019		

VCR CODE TABLE

BRAND NAME	CODE NUMBER	BRAND NAME	CODE NUMBER
Pentax	061, 084, 124	SEI	100
Perdio	019	Sentra	039
Philco	054	Sharp	076, 081
Philips	054, 081, 100, 129	Shintom	091
Phonola	100	Siemens	056, 123
Pilot	056	Sinudyne	100
Pioneer	086, 100	Sony	051, 052, 053, 054
Portland	039	STS	061
Proline	019	Sunstar	019
Pulsar	058	Sylvania	054, 062, 100, 129
Pye	100	Symphonic	019
Quartz	065	Tashiko	019
Quasar	054, 115	Tatung	019, 060, 100
Quelle	100	Teac	019, 060
Radiola	100	Technics	054
RCA	054, 061, 084, 096, 124, 168, 221	Teknika	019, 054, 056, 071
RCA Unified	079	Telefunken	060, 206
Realistic	019, 054, 056, 065, 066, 067, 081, 085, 123, 259	Tenosal	091
Rex	060	Tensai	019
Ricoh	053	Thomson	060
Roadstar	056, 091, 259	Thorn	060
Runco	058	Toshiba	060, 062, 064, 085, 229, 231, 385
Saba	060	Totevision	056, 259
Saisho	227, 228	Triumph	227
Salora	062, 065, 125	Unitech	259
Samsung	064, 259	Universum	019, 056, 068, 100, 125
Sansui	060, 086	Vector Research	057, 059
Sanyo	065, 066, 123, 259	Victor	027, 060, 086
SBR	100	Video Concepts	059, 080
Schaub Lorenz	019, 060	Videosonic	259
Schneider	019, 091, 100, 129	Wards	019, 054, 061, 066, 067, 081, 091, 168, 231, 259
Scott	064, 140, 203, 229, 231	Yamaha	057, 060
Sears	054, 056, 061, 065, 066, 073, 085, 123, 124	Yoko	259
		Zenith	052, 053, 058

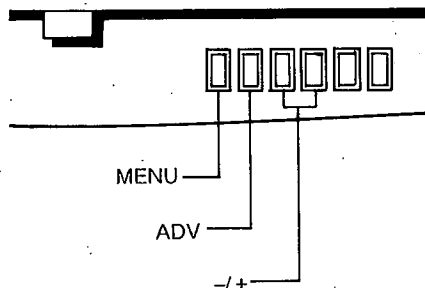
CABLE TV CONVERTER CODE TABLE

BRAND NAME	CODE NUMBER	BRAND NAME	CODE NUMBER
ABC	026, 030, 032, 036	Pulsar	019
Archer.....	058, 172	PVP Stereo Visual Matrix.....	022
Century	172	RCA.....	040
Citizen	172	Regal.....	039, 278, 292
Colour Voice.....	044, 050	Regency.....	021
Comtronics	059, 079	Rembrandt.....	089
Eastern.....	021	Runco	029
Garrard	172	Samsung.....	059, 163
Gemini.....	034, 089	Scientific Atlanta	025, 027, 036, 296
General Instrument	030	Signal	034, 059
Hamlin	028, 039, 278, 292	Signature.....	030
Hitachi	030	SL Marx.....	059
Jasco.....	172	Sprucer	040
Jerrold.....	022, 030, 031, 033, 034, 043, 045	Standard Components.....	174
Macom	052	Starcom.....	022, 034
Magnavox	046	Stargate.....	034, 059
Memorex.....	019	STS	175
Movie Time.....	175	Tocom	031, 032, 078
NSC.....	089, 175	Toshiba	019
Oak	026, 038	Unika	172
Panasonic	040	United Artists.....	026
Paragon.....	019	United Cable.....	022
Philips	044, 046, 047, 048, 049, 050, 079	Universal	058, 096, 172, 210
Pioneer	163	Viewstar	046, 079
		Zenith	019

MENU FUNCTION (General Instructions)

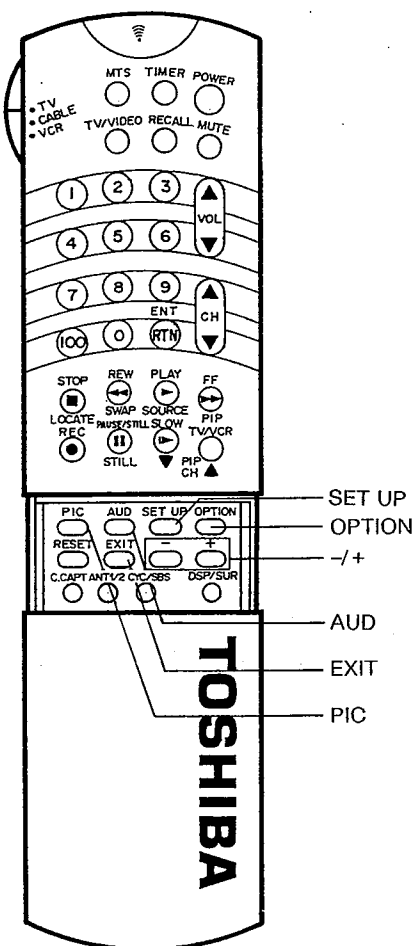
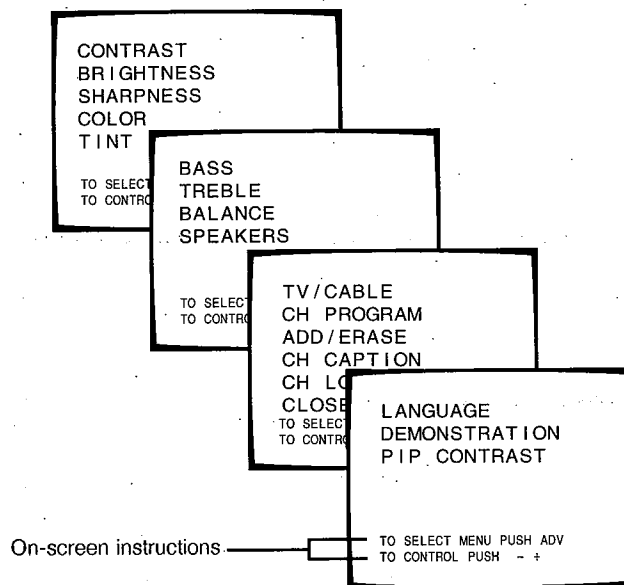
We suggest you familiarize yourself with the procedure before using the Menu function.

To adjust any TV feature, the use of the Menu function is required. The adjustments that can be made to the TV appear on the screen.



MENU BUTTON (on TV)

Each time you press **MENU**, the Picture, Audio, Set up or Option menu on-screen display is selected in order, then press **ADV**.



ADV BUTTON (on TV)

Use this **ADV** after you have pressed **MENU** to select the function you want to adjust.

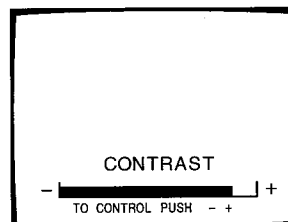
Each time you press **ADV**, the function to be adjusted will be selected in order.

The selected function will be displayed in magenta.

-/+ BUTTONS (on TV and on Remote)

Use these **-/+** after you have pressed **ADV** or any of the four menu buttons (**PIC**, **AUD**, **SET UP** or **OPTION**).

Example: CONTRAST adjustment mode display

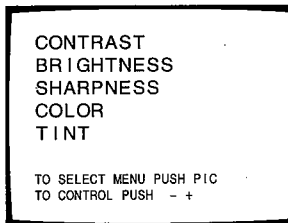


Pressing **+** increases the picture contrast.
Pressing **-** decreases the picture contrast.

PIC (Picture) BUTTON (on Remote)

Press **PIC**, repeatedly until the Picture menu function you want to adjust is selected.

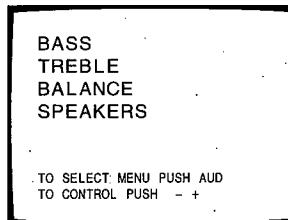
The selected function will be displayed in magenta, then press **-/+** to adjust the setting.



AUD (Audio) BUTTON (on Remote)

Press **AUD**, repeatedly until the Audio menu function you want to adjust is selected.

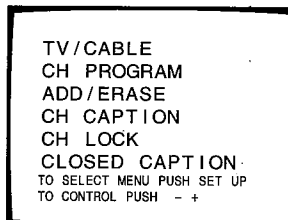
The selected function will be displayed in magenta, then press **-/+** to adjust the setting.



SET UP BUTTON (on Remote)

Press **SET UP** repeatedly until the Set up menu function you want to adjust is selected.

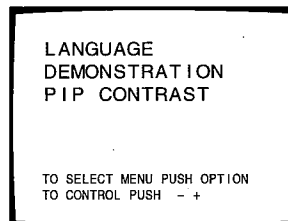
The selected function will be displayed in magenta, then press **-/+** to adjust the setting.



OPTION BUTTON (on Remote)

Press **OPTION** repeatedly until the Option menu function you want to adjust is selected.

The selected function will be displayed in magenta, then press **-/+** to adjust the setting.



EXIT BUTTON (on Remote)

The above four menu displays will automatically disappear from the screen if no control has been operated for about 15 seconds, and all other menu displays also disappear after about 6 seconds.

If you want to clear the screen of all on-screen displays instantly, press this button.

Notes:

- The ADV button on the TV set will function as the TV/VIDEO button when no menu display is on the screen.
- The **-/+** buttons on the TV set will function as the VOLUME **▼/▲** buttons when no menu display is on the screen.

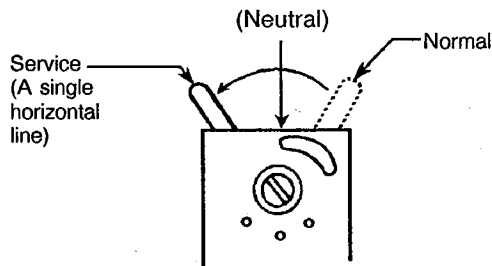
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CIRCUIT ADJUSTMENT

CRT DRIVE BOARD ADJUSTMENT

CRT GRAY SCALE ADJUSTMENT

1. Receive white pattern signal or any B/W signal from signal generator. Otherwise, shortcircuit D238 with a short jumper to eliminate color elements.
2. Turn the SCREEN Control (on T461) fully counterclockwise.
3. Set the SERVICE Switch on the CRT DRIVE Board to the service position (see figure below). The picture will become a single horizontal line.



4. Rotate the RED, GREEN and BLUE BIAS Controls (R956, R957, R958) fully counterclockwise and return them by 45 degrees.

5. Set the GREEN and BLUE DRIVE Controls (R952, R953) to the mid-position.
6. Gradually rotate the SCREEN Control (on T461) clockwise until the first horizontal line appears slightly on the screen, and leave it.
7. Adjust the remaining two BIAS Controls to obtain the slightly lighted horizontal line in the same levels of three (red, green, blue) colors (The line should be white if the BIAS Controls are adjusted properly.)
8. Set the SERVICE Switch to "NORM." position.
9. Set the BRIGHT and CONTRAST Controls to maximum.
10. Adjust the BLUE and GREEN DRIVE Controls to obtain proper white-balanced picture in high light areas.
11. Adjust the BRIGHT and CONTRAST Controls to obtain dark gray raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the BIAS Controls and DRIVE Controls to obtain a good white balance in both low and high light areas.
12. Remove the short jumper if connected.

POWER/DEF BOARD ADJUSTMENT

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

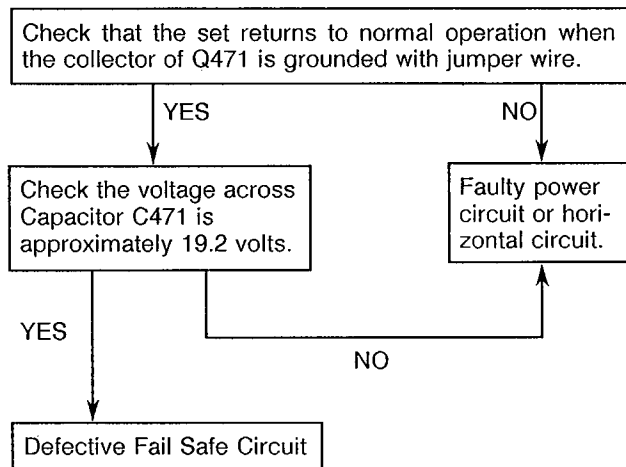
1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHT and CONTRAST Controls to minimum (zero beam current).
3. High voltage must be measured below 30.4 kV.
4. Rotate the BRIGHT Control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on and press the RESET button.
2. Temporarily short TP- Ⓜ and TP- Ⓧ with a jumper wire.
Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the power switch on to produce a normal picture.

Troubleshooting Guide for Fail Safe Circuit



SUB-BRIGHT ADJUSTMENT

1. Tune in a color program and press the RESET button.
2. Set the SUB-BRIGHT Control (R257) to center and leave the receiver for five minutes in this state.
3. Watching the picture carefully, adjust the SUB-BRIGHT Control to the position where the picture does not show evidence of blooming in high bright area and does not appear too dark in low bright area.
4. Check for proper picture variation by changing the CONTRAST and BRIGHT to both extremes.
5. If the picture does not appear dark with the CONTRAST and BRIGHT minimum or does not appear bright with the maximum, adjust the SUB-BRIGHT Control again for an acceptable picture.

SIDE DPC ADJUSTMENT

1. Receive crosshatch pattern with a color bar generator.
2. Adjust the SIDE DPC control (RD51) for straight line at the right and left sides of the pattern.

WIDTH ADJUSTMENT

Adjust the WIDTH control (RD50) so the picture width does not lack on right and left sides when BRIGHTNESS control is varied from minimum to maximum.

HEIGHT ADJUSTMENT

The HEIGHT Control (R352) changes the size of the picture or pattern. Make final adjustment to overscan the mask about 10% vertically.

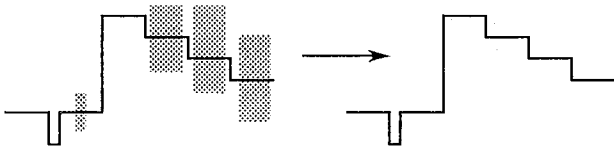
FOCUS ADJUSTMENT

Adjust the FOCUS Control (on T461) for well defined scanning lines on the picture screen.

MAIN BOARD ADJUSTMENT

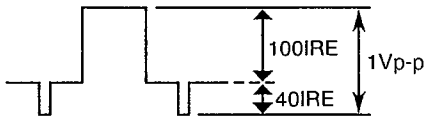
COMB FILTER ADJUSTMENT

1. Receive color bar signal from color bar generator.
2. Connect oscilloscope to pin 38 of IC501.
3. Adjust R258 and L201 alternately to minimize chroma components in the video signals on scope.

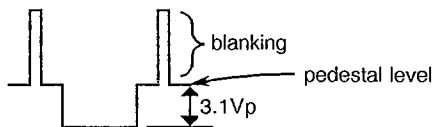


SUB-CONTRAST ADJUSTMENT

1. Connect oscilloscope to pin 4 of H004.
2. Receive the following video signal from video signal generator.

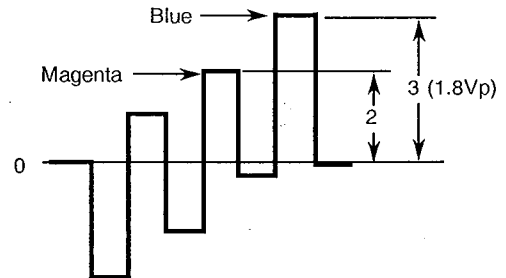


3. Set the SERVICE switch on the CRT DRIVE board to the Neutral (center) position.
4. Shortcircuit R206 with a short jumper.
5. Connect oscilloscope to the emitter of Q913 on the CRT DRIVE board.
6. Adjust R259 to 3.1 Vp of video signal on scope.



SUB-TINT AND SUB-COLOR ADJUSTMENTS

1. Receive color-bar signal from color-bar generator.
2. Press the RESET button.
3. Place the SERVICE switch on CRT DRIVE board on the center position.
4. Connect oscilloscope to the Base of Q904 on CRT DRIVE board.
5. Temporarily adjust R552 to achieve nearly 1 Vp-p of waveform amplitude on scope.
6. Adjust R551 to obtain a blue bar to magenta bar ratio of 3:2 as shown below.



7. Adjust R552 to achieve 1.8V_{0-p} of blue bar on scope.
8. Return SERVICE switch to normal position and check with off-air signal.

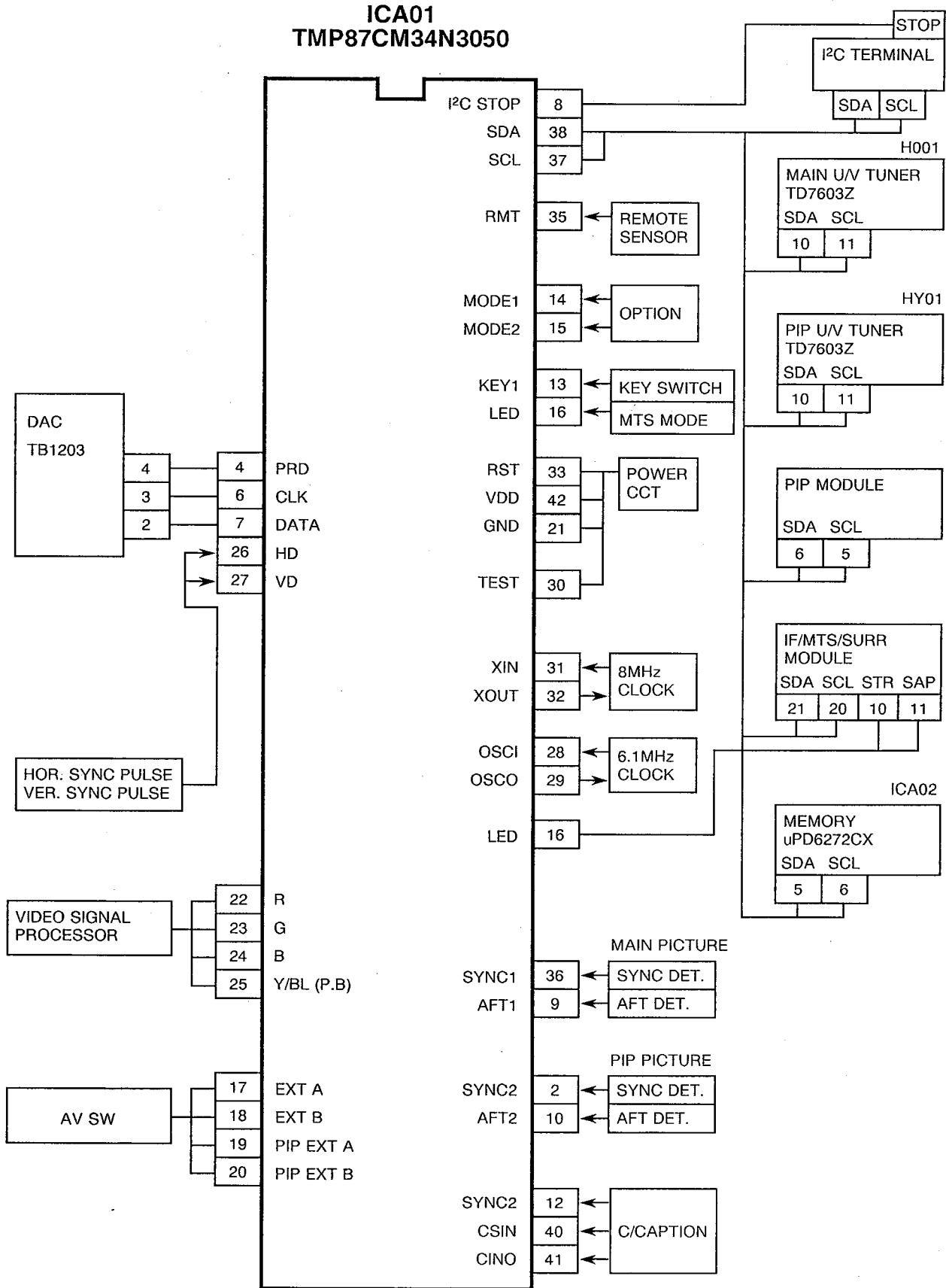
PIP BRIGHTNESS ADJUSTMENT

1. Receive a color program on the PIP screen.
2. Adjust R256 so the dark picture is not distorted with no distortion of the white peak.

PIP FRAME POSITION ADJUSTMENT

Normally set RY54 to the mechanical center. If the PIP frame position is not proper (for example, too near to the picture tube edge), adjust RY54 for the proper position.

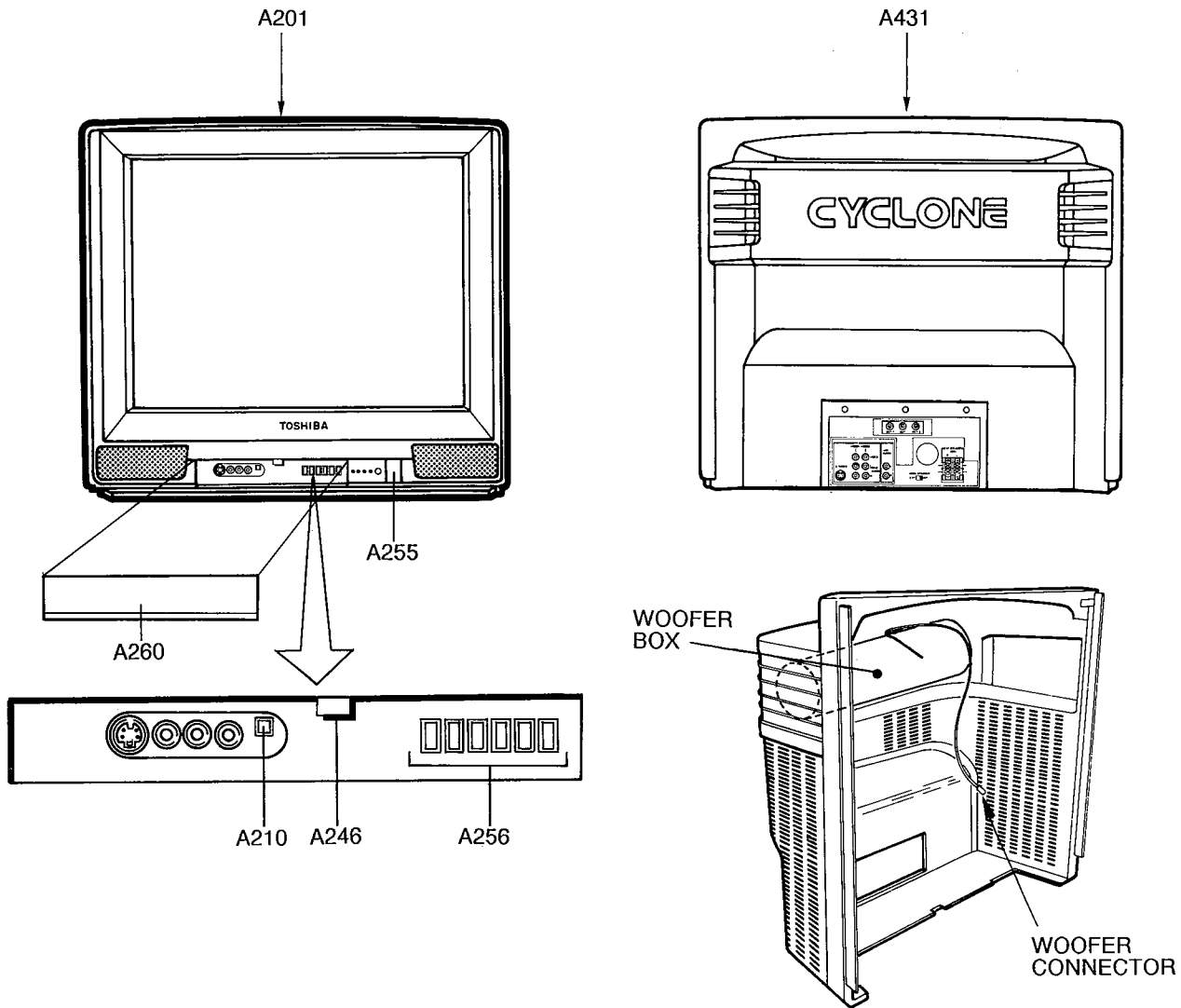
MICROPROCESSOR SYSTEM BLOCK DIAGRAM



MICROPROCESSOR TERMINAL NAMES AND OPERATION LOGIC

Pin No.	Name	IN/OUT	Function and Logic
1	RELAY	IN	
2	SYNC2	IN	PIP SYNC, Active = H, Negative = L
3	MONO	OUT	Active = H, Normal = L
4	MUTE	OUT	Mute-on = H, Mute-off = L
5	T-PRD	OUT	T-BUS Period, Negative logic
6	T-CLK	OUT	T-BUS Clock, Rising period
7	T-DATA	IN & OUT	T-BUS Data
8	I ² C STOP	IN	I ² C-BUS Stop, Negative logic
9	AFT1	IN	Main Picture AFT, S-CURVE signal detection
10	AFT2	IN	PIP AFT, S-CURVE signal detection
11	SPK OFF	IN	Speaker ON/OFF
12	SYNC2	IN	CAPTION cut-in
13	KEY1	IN	Local key input : 0V to 5V
14	MODE2	IN	Local key input : 0V to 5V
15	MODE1	IN	Option judgement 0V to 5V
16	LED	IN	Mode identification of MTS-broadcast
17	EXTA	OUT	
18	EXTB	OUT	
19	PIP EXTA	OUT	
20	PIP EXTB	OUT	
21	GND	—	Ground : Connected to 0V
22	R	OUT	
23	G	OUT	
24	B	OUT	
25	Y/BL	OUT	
26	HD	IN	HOR. SYNC pulse det., Negative logic
27	VD	IN	VER. SYNC pulse det., Negative logic
28	OSCI	IN	PLL-OSD osc. circuit, Ext. LC connection
29	OSCO	OUT	PLL _{CR2} (0FA9H) PSEL : 1, PLLS : 0
30	TEST	IN	Delivery test of IC : Open
31	XIN	IN	Oscillation for system clock, 8MHz
32	XOUT	OUT	
33	RESET	IN	Negative logic
34	F0 STOP	IN	AFT = H, F0 STOP = L
35	RMT	IN	Remote control signal det., Negative logic
36	SYNC1	IN	SYNC pulse input, Negative logic
37	SCL	OUT	I ² C-BUS clock, Rising SYNC
38	SDA	IN & OUT	I ² C-BUS data
39	SYNC2	IN	Ground : Connected to 0V
40	CSIN	IN	CAPTION PORT
41	CINO	IN	
42	VDD	IN	Power input : 5V

CABINET REPLACEMENT PARTS LIST



CAUTION:

When removing the back cover, do not draw it out at a stretch. First draw it out slightly and disconnect the WOOFER connector.

Then remove the back cover with care so that the WOOFER box does not touch to the CRT Drive board and others.

CN27D90, TV27D90

Location No.	Part No.	Description
A201	23416781	Front Cover
A210	23443058	Knob, VIDEO 1 SELECT
A212	23845609	Clip, securing SCAN MOD. board
A246	23451204	Push-Catch
A255	23443758	Button, POWER
A256	23443747	Button, 6-key
A260	23425498	Door
A431	23424939	Back Cover

CHASSIS REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION: The international hazard symbols "△" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

NOTICE: The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

ABBREVIATIONS:

Capacitors.....	CD : Ceramic Disk	PF : Plastic Film	EL : Electrolytic
Resistors.....	CF : Carbon Film	CC : Carbon Composition	MF : Metal Film
	OMF : Oxide Metal Film	VR : Variable Resistor	FR : Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Model CN27D90, TV27D90

Location No.	Part No.	Description
CAPACITORS		
C062	24763221	EL, 220μF, ±20%, 16V
C063	24763221	EL, 220μF, ±20%, 16V
C064	24794101	EL, 100μF, ±20%, 16V
C065	24797479	EL, 4.7μF, ±20%, 50V
C066	24476103	CD, 0.01μF, ±30%, 16V
C067	24232103	CD, 0.01μF, +80%, -20%
C068	24794101	EL, 100μF, ±20%, 16V
C069	24476103	CD, 0.01μF, ±30%, 16V
C070	24794101	EL, 100μF, ±20%, 16V
C071	24794470	EL, 47μF, ±20%, 16V
C072	24232103	CD, 0.01μF, +80%, -20%
C175	24797478	EL, 0.47μF, ±20%, 50V
C176	24797478	EL, 0.47μF, ±20%, 50V
C201	24763221	EL, 220μF, ±20%, 16V
C202	24591104	PF, 0.1μF
C203	24232103	CD, 0.01μF, +80%, -20%
C204	24794100	EL, 10μF, ±20%, 16V
C215	24797229	EL, 2.2μF, ±20%, 50V
C220	24763101	EL, 100μF, ±20%, 16V
C225	24539104	PF, 0.1μF
C226	24539104	PF, 0.1μF
C227	24539104	PF, 0.1μF
C230	24591152	PF, 1500pF
C244	24797339	EL, 3.3μF, ±20%, 50V
C245	24797339	EL, 3.3μF, ±20%, 50V
C260	24232103	CD, 0.01μF, +80%, -20%
C261	24232103	CD, 0.01μF, +80%, -20%
C263	24476103	CD, 0.01μF, ±30%, 16V
C264	24232103	CD, 0.01μF, +80%, -20%
C265	24763221	EL, 220μF, ±20%, 16V
C266	24797229	EL, 2.2μF, ±20%, 50V
C268	24232103	CD, 0.01μF, +80%, -20%
C269	24232103	CD, 0.01μF, +80%, -20%
C270	24591104	PF, 0.1μF
C271	24796100	EL, 10μF, ±20%, 35V
C272	24476103	CD, 0.01μF, ±30%, 16V
C273	24797229	EL, 2.2μF, ±20%, 50V
C274	24232103	CD, 0.01μF, +80%, -20%
C275	24476103	CD, 0.01μF, ±30%, 16V
C276	24474121	CD, 120pF, ±10%

Location No.	Part No.	Description
C280	24591124	PF, 0.12μF
C290	24797229	EL, 2.2μF, ±20%, 50V
C303	24214471	CD, 470pF, ±10%, 500V
C305	24617915	EL, 1μF, ±10%, 50V
C306	24630802	EL, 2200μF, ±10%, 25V
C308	24765221	EL, 220μF, ±20%, 35V
C310	24796102	EL, 1000μF, ±20%, 35V
C311	24668101	EL, 100μF, ±20%, 35V
C313	24082057	PF, 0.22μF, 100V
C314	24435100	CD, 10pF, ±0.25pF, 500V
C330	24085966	EL, 10μF, ±10%, 16V, Non-Polar
C331	24591103	PF, 0.01μF
C332	24212561	CD, 560pF, ±10%
C342	24617915	EL, 1μF, ±10%, 50V
C344	24206229	EL, 2.2μF, 50V
C345	24668101	EL, 100μF, ±20%, 35V
C388	24794101	EL, 100μF, ±20%, 16V
C389	24794100	EL, 10μF, ±20%, 16V
C400	24476103	CD, 0.01μF, ±30%, 16V
C402	24591392	PF, 3900pF
C403	24763471	EL, 470μF, ±20%, 16V
C404	24206100	EL, 10μF, 50V
C412	24591133	PF, 0.013μF
C413	24214821	CD, 820pF, ±10%, 500V
C414	24797010	EL, 1μF, ±20%, 50V
C415	24214331	CD, 330pF, ±10%, 500V
C416	24676100	EL, 10μF, ±20%, 100V
C417	24214391	CD, 390pF, ±10%, 500V
C421	24539104	PF, 0.1μF
C422	24591104	PF, 0.1μF
C423	24538183	PF, 0.018μF
C425	24095887	PF, 0.01μF, ±3%, 630V
△C440	24082355	PF, 8700pF, ±3%, 1500V
△C442	24095948	PF, 0.36μF, 200V
△C444	24082290	PF, 6800pF, ±3%, 1800V
C445	24828473	PF, 0.047μF, 200V
C446	24828433	PF, 0.043μF, 200V
C447	24679100	EL, 10μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C449	24764102	EL, 1000μF, ±20%, 25V

Location No.	Part No.	Description
C463	24212152	CD, 1500pF, ±10%
C471	24797479	EL, 4.7μF, ±20%, 50V
C490	24679100	EL, 10μF, ±20%, 250V
C508	24591472	PF, 4700pF
C509	24353110	CD, 11pF
C510	24797229	EL, 2.2μF, ±20%, 50V
C511	24436430	CD, 43pF
C512	24436220	CD, 22pF
C513	24436220	CD, 22pF
C640	24667470	EL, 47μF, ±20%, 25V
C641	24669010	EL, 1μF, ±20%, 50V
C642	24591102	PF, 1000pF
C643	24669229	EL, 2.2μF, ±20%, 50V
C644	24591104	PF, 0.1μF
C645	24591102	PF, 1000pF
C646	24667470	EL, 47μF, ±20%, 25V
C647	24669010	EL, 1μF, ±20%, 50V
C649	24667470	EL, 47μF, ±20%, 25V
C650	24667470	EL, 47μF, ±20%, 25V
C651	24765101	EL, 100μF, ±20%, 35V
C652	24668471	EL, 470μF, ±20%, 35V
C654	24591124	PF, 0.12μF
C655	24668102	EL, 1000μF, ±20%, 35V
C657	24591124	PF, 0.12μF
C658	24668471	EL, 470μF, ±20%, 35V
C659	24591124	PF, 0.12μF
C701	24203470	EL, 47μF, ±20%, 16V
C702	24203101	EL, 100μF, ±20%, 16V
C703	24436820	CD, 82pF
C704	24232103	CD, 0.01μF, +80%, -20%
C705	24232103	CD, 0.01μF, +80%, -20%
C707	24203470	EL, 47μF, ±20%, 16V
C708	24232103	CD, 0.01μF, +80%, -20%
C712	24203470	EL, 47μF, ±20%, 16V
C713	24790100	EL, 10μF, ±20%, 160V
C714	24212101	CD, 100pF, ±10%
C715	24214472	CD, 4700pF, ±10%, 500V
C716	24212101	CD, 100pF, ±10%
C717	24214472	CD, 4700pF, ±10%, 500V
C718	24790470	EL, 47μF, ±20%, 160V
C719	24435560	CD, 56pF, 500V
C720	24790100	EL, 10μF, ±20%, 160V
C721	24790470	EL, 47μF, ±20%, 160V
C722	24212561	CD, 560pF, ±10%
△C801	24095670	PF, 0.22μF, ±20%, AC125V
△C802	24092300	CD, 0.01μF, +80%, -20%, AC250V
△C803	24092300	CD, 0.01μF, +80%, -20%, AC250V
C810	24086862	EL, 470μF, ±20%, 200V
C811	24092271	CD, 0.01μF, ±20%, AC400V
C812	24092271	CD, 0.01μF, ±20%, AC400V
C820	24666101	EL, 100μF, ±20%, 16V
C821	24667101	EL, 100μF, ±20%, 25V
C822	24794470	EL, 47μF, ±20%, 16V
C823	24763101	EL, 100μF, ±20%, 16V
C840	24764102	EL, 1000μF, ±20%, 25V
C842	24792101	EL, 100μF, ±20%, 6.3V
C843	24591104	PF, 0.1μF
C844	24082229	PF, 0.1μF, ±10%, 250V
C845	24232103	CD, 0.01μF, +80%, -20%
C860	24591222	PF, 2200pF
C861	24214331	CD, 330pF, ±10%, 500V
C862	24214331	CD, 330pF, ±10%, 500V

Location No.	Part No.	Description
C863	24640956	EL, 47μF, ±20%, 100V
C864	24092335	CD, 15pF, ±10%, 2kV
C865	24092346	CD, 1200pF, ±10%, 2kV
C866	24092345	CD, 1000pF, ±10%, 2kV
C867	24214271	CD, 270pF, ±10%, 500V
C868	24591104	PF, 0.1μF
C869	24214101	CD, 100pF, ±10%, 500V
C871	24747220	EL, 22μF, ±20%, 50V
C872	24538474	PF, 0.47μF
C874	24232103	CD, 0.01μF, +80%, -20%
C881	24092337	CD, 220pF, ±10%, 2kV
C882	24092341	CD, 470pF, ±10%, 2kV
C883	24214821	CD, 820pF, ±10%, 500V
C884	24086863	EL, 330μF, ±20%, 160V
C885	24214821	CD, 820pF, ±10%, 500V
C886	24214331	CD, 330pF, ±10%, 500V
C887	24214331	CD, 330pF, ±10%, 500V
C888	24092337	CD, 220pF, ±10%, 2kV
C889	24668332	EL, 3300μF, ±20%, 35V
C890	24092338	CD, 270pF, ±10%, 2kV
C891(U810)	24794470	EL, 47μF, ±20%, 16V
C891(U902)	24212331	CD, 330pF, ±10%
C892	24667102	EL, 1000μF, ±20%, 25V
C893	24666101	EL, 100μF, ±20%, 16V
C894	24795470	EL, 47μF, ±20%, 25V
C895	24666101	EL, 100μF, ±20%, 16V
C896	24795470	EL, 47μF, ±20%, 25V
C897	24640908	EL, 33μF, ±20%, 160V
C898	24794470	EL, 47μF, ±20%, 16V
C902	24211102	CD, 1000pF, ±10%, 2kV
C903	24215102	CD, 1000pF, ±10%, 1kV
C904	24591104	PF, 0.1μF
C905	24591104	PF, 0.1μF
C906	24591104	PF, 0.1μF
C911	24436431	CD, 430pF
C912	24436331	CD, 330pF
C913	24436331	CD, 330pF
C920	24214101	CD, 100pF, ±10%, 500V
C930	24763471	EL, 470μF, ±20%, 16V
CA03	24232102	CD, 1000pF, +80%, -20%
CA33	24476103	CD, 0.01μF, ±30%, 16V
CA34	24476103	CD, 0.01μF, ±30%, 16V
CA45	24476103	CD, 0.01μF, ±30%, 16V
CA46	24762471	EL, 470μF, ±20%, 10V
CA60	24797330	EL, 33μF, ±20%, 50V
CA62	24794100	EL, 10μF, ±20%, 16V
CA66	24085970	EL, 10μF, ±20%, 16V, Non-Polar
CB27	24436101	CD, 100pF
CB57	24206229	EL, 2.2μF, 50V
CB58	24591102	PF, 1000pF
CB59	24474561	CD, 560pF, ±10%
CB60	24591132	PF, 1300pF
CB61	24794100	EL, 10μF, ±20%, 16V
CB64	24474101	CD, 100pF, ±10%
CB65	24206229	EL, 2.2μF, 50V
CB66	24591102	PF, 1000pF
CB67	24474561	CD, 560pF, ±10%
CB68	24591132	PF, 1300pF
CB69	24794100	EL, 10μF, ±20%, 16V
CD01	24668101	EL, 100μF, ±20%, 35V
△CD02	24082095	PF, 0.018μF, ±3%, 630V
CD05	24591563	PF, 0.056μF
CD06	24668470	EL, 47μF, ±20%, 35V

Location No.	Part No.	Description
CD07	24668471	EL, 470 μ F, \pm 20%, 35V
CD08	24538104	PF, 0.1 μ F
CD09	24538104	PF, 0.1 μ F
CD10	24669229	EL, 2.2 μ F, \pm 20%, 50V
CD11	24640872	EL, 10 μ F, \pm 20%, 100V
CD15	24797010	EL, 1 μ F, \pm 20%, 50V
CD16	24474101	CD, 100pF, \pm 10%
CE02	24476103	CD, 0.01 μ F, \pm 30%, 16V
CE10	24794100	EL, 10 μ F, \pm 20%, 16V
CE99	24539334	PF, 0.33 μ F
CM01	24092017	CD, 0.1 μ F, +80%, -20%, 12V
CM04	24085970	EL, 10 μ F, \pm 20%, 16V, Non-Polar
CM05	24436301	CD, 300pF
CM65	24501102	PF, 1000pF
CM66	24538104	PF, 0.1 μ F
CM68	24232103	CD, 0.01 μ F, +80%, -20%
CM69	24203101	EL, 100 μ F, \pm 20%, 16V
CM71	24538104	PF, 0.1 μ F
CM72	24206010	EL, 1 μ F, 50V
CM73	24538103	PF, 0.01 μ F
CM74	24206010	EL, 1 μ F, 50V
CN07	24203100	EL, 10 μ F, \pm 20%, 16V
CN08	24203100	EL, 10 μ F, \pm 20%, 16V
CN21	24206010	EL, 1 μ F, 50V
CN22	24203100	EL, 10 μ F, \pm 20%, 16V
CN23	24203100	EL, 10 μ F, \pm 20%, 16V
CN24	24206010	EL, 1 μ F, 50V
CN47	24794220	EL, 22 μ F, \pm 20%, 16V
CN49	24794100	EL, 10 μ F, \pm 20%, 16V
CN74	24591752	PF, 7500pF
CN75	24591134	PF, 0.13 μ F
CN76	24591134	PF, 0.13 μ F
CN92	24206479	EL, 4.7 μ F, 50V
CN96	24797010	EL, 1 μ F, \pm 20%, 50V
CN97	24797479	EL, 4.7 μ F, \pm 20%, 50V
CN98	24763101	EL, 100 μ F, \pm 20%, 16V
CN99	24797479	EL, 4.7 μ F, \pm 20%, 50V
CS02	24206229	EL, 2.2 μ F, 50V
CS03	24206229	EL, 2.2 μ F, 50V
CS09	24206229	EL, 2.2 μ F, 50V
CS10	24797229	EL, 2.2 μ F, \pm 20%, 50V
CS11	24797229	EL, 2.2 μ F, \pm 20%, 50V
CS12	24797229	EL, 2.2 μ F, \pm 20%, 50V
CV01	24203100	EL, 10 μ F, \pm 20%, 16V
CV02	24203100	EL, 10 μ F, \pm 20%, 16V
CV03	24476103	CD, 0.01 μ F, \pm 30%, 16V
CV06	24085981	EL, 10 μ F, \pm 20%, 16V, Non-Polar
CV09	24763101	EL, 100 μ F, \pm 20%, 16V
CV10	24203100	EL, 10 μ F, \pm 20%, 16V
CV46	24476103	CD, 0.01 μ F, \pm 30%, 16V
CV47	24476103	CD, 0.01 μ F, \pm 30%, 16V
CV48	24232103	CD, 0.01 μ F, +80%, -20%
CX01	24794470	EL, 47 μ F, \pm 20%, 16V
CX02	24762102	EL, 1000 μ F, \pm 20%, 10V
CX06	24476103	CD, 0.01 μ F, \pm 30%, 16V
CY02	24591272	PF, 2700pF
CY601	24206479	EL, 4.7 μ F, 50V
CY604	24232103	CD, 0.01 μ F, +80%, -20%
CY605	24206108	EL, 0.1 μ F, 50V
CY606	24232103	CD, 0.01 μ F, +80%, -20%
CY608	24206108	EL, 0.1 μ F, 50V
CY609	24763101	EL, 100 μ F, \pm 20%, 16V

Location No.	Part No.	Description
CY611	24232103	CD, 0.01 μ F, +80%, -20%
CZ10	24797101	EL, 100 μ F, \pm 20%, 50V
RESISTORS		
R061	24366101	CF, 100 ohm
R062	24366101	CF, 100 ohm
R063	24366101	CF, 100 ohm
R064	24366101	CF, 100 ohm
R175	24366224	CF, 220k ohm
R176	24366272	CF, 2700 ohm
R177	24366752	CF, 7500 ohm
R178	24366103	CF, 10k ohm
R179	24366103	CF, 10k ohm
R180	24366224	CF, 220k ohm
R181	24366272	CF, 2700 ohm
R182	24366752	CF, 7500 ohm
R183	24366103	CF, 10k ohm
R184	24366103	CF, 10k ohm
R185	24366103	CF, 10k ohm
R186	24366103	CF, 10k ohm
R202	24366331	CF, 330 ohm
R203	24366102	CF, 1k ohm
R204	24366101	CF, 100 ohm
R205	24366162	CF, 1600 ohm
R206	24366102	CF, 1k ohm
R207	24366391	CF, 390 ohm
R208	24366332	CF, 3300 ohm
R209	24366302	CF, 3k ohm
R210	24366101	CF, 100 ohm
R211	24366332	CF, 3300 ohm
R212	24366683	CF, 68k ohm
R213	24366683	CF, 68k ohm
R217	24366102	CF, 1k ohm
R218	24367563	CF, 56k ohm, \pm 2%
R220	24366101	CF, 100 ohm
R221	24366101	CF, 100 ohm
R222	24366101	CF, 100 ohm
R223	24366101	CF, 100 ohm
R224	24366392	CF, 3900 ohm
R225	24366392	CF, 3900 ohm
R226	24366392	CF, 3900 ohm
R227	24367183	CF, 18k ohm, \pm 2%
R232	24366332	CF, 3300 ohm
R233	24366103	CF, 10k ohm
R234	24366103	CF, 10k ohm
R236	24366152	CF, 1500 ohm
R237	24366821	CF, 820 ohm
R238	24366123	CF, 12k ohm
R239	24366393	CF, 39k ohm
R244	24366473	CF, 47k ohm
R246	24366104	CF, 100k ohm
R247	24366124	CF, 120k ohm
R256	24066926	VR, 10k ohm, 1/10W
R257	24066928	VR, 2k ohm, 1/10W
R258	24066929	VR, 1k ohm, 1/10W
R259	24066927	VR, 5k ohm, 1/10W
R260	24366684	CF, 680k ohm
R261	24366154	CF, 150k ohm
R263	24366223	CF, 22k ohm
R266	24366244	CF, 240k ohm
R267	24366222	CF, 2200 ohm
R268	24366183	CF, 18k ohm
R269	24366183	CF, 18k ohm
R270	24366561	CF, 560 ohm

Location No.	Part No.	Description
R272	24366132	CF, 1300 ohm
R273	24366223	CF, 22k ohm
R274	24366272	CF, 2700 ohm
R275	24366472	CF, 4700 ohm
R276	24366221	CF, 220 ohm
R277	24366221	CF, 220 ohm
R278	24366221	CF, 220 ohm
R279	24366102	CF, 1k ohm
R280	24366821	CF, 820 ohm
R281	24366181	CF, 180 ohm
R282	24366151	CF, 150 ohm
R283	24366223	CF, 22k ohm
R287	24366224	CF, 220k ohm
R288	24366154	CF, 150k ohm
R289	24366824	CF, 820k ohm
R290	24366332	CF, 3300 ohm
R291	24366274	CF, 270k ohm
R292	24366824	CF, 820k ohm
R302	24366202	CF, 2k ohm
R303	24366223	CF, 22k ohm
R305	24322109	OMF, 1 ohm, 1W
R306	24366163	CF, 16k ohm
R307	24366153	CF, 15k ohm
R308	24366393	CF, 39k ohm
△ R327	24339569	OMF, 5.6 ohm, 2W
△ R331	24545479	FR, 4.7 ohm, 1/4W
R335	24366683	CF, 68k ohm
△ R336	24383271	OMF, 270 ohm, 2W
R341	24366103	CF, 10k ohm
R342	24366333	CF, 33k ohm
R343	24366102	CF, 1k ohm
R346	24366163	CF, 16k ohm
R347	24366472	CF, 4700 ohm
R352	24066925	VR, 20k ohm, 1/10W
R370	24552102	OMF, 1k ohm, 1/2W
R386	24321109	OMF, 1 ohm, 1/2W
R387	24366562	CF, 5600 ohm
R388	24366133	CF, 13k ohm
R389	24366152	CF, 1500 ohm
R390	24366473	CF, 47k ohm
R391	24366102	CF, 1k ohm
R401	24366391	CF, 390 ohm
R405	24552132	OMF, 1300 ohm, 1/2W
R411	24366561	CF, 560 ohm
R412	24366562	CF, 5600 ohm
R413	24366151	CF, 150 ohm
R414	24366331	CF, 330 ohm
R415	24553242	OMF, 2400 ohm, 1W
△ R416	24510332	Cement, 3300 ohm, 5W
R418	24382391	OMF, 390 ohm, 1W
R421	24366754	CF, 750k ohm
R422	24366274	CF, 270k ohm
R423	24366683	CF, 68k ohm
R425	24366754	CF, 750k ohm
R426	24376333	CF, 33k ohm, 1/2W
R430	24366102	CF, 1k ohm
△ R441	24532102	FR, 1k ohm, 1W
△ R443	24310109	OMF, 1.0 ohm, 1/2W
△ R444	24322398	OMF, 0.39 ohm, 1W
R447	24382473	OMF, 47k ohm, 1W
△ R448	24338478	OMF, 0.47 ohm, 1W
R472	24552270	OMF, 27 ohm, 1/2W
△ R475	24367241	CF, 240 ohm, ±2%
R476	24366823	CF, 82k ohm

Location No.	Part No.	Description
R477	24366243	CF, 24k ohm
△ R478	24327133	MF, 13k ohm, ±1%, 1/4W
R480	24366103	CF, 10k ohm
R481	24366333	CF, 33k ohm
△ R482	24327622	MF, 6200 ohm, ±1%, 1/4W
R491	24553392	OMF, 3900 ohm, 1W
R492	24552103	OMF, 10k ohm, 1/2W
R493	24552103	OMF, 10k ohm, 1/2W
R510	24366103	CF, 10k ohm
R512	24366561	CF, 560 ohm
R514	24366332	CF, 3300 ohm
R515	24366471	CF, 470 ohm
R551	24066926	VR, 10k ohm, 1/10W
R552	24066926	VR, 10k ohm, 1/10W
R560	24366223	CF, 22k ohm
R561	24366154	CF, 150k ohm
R562	24366473	CF, 47k ohm
R564	24366103	CF, 10k ohm
R565	24366823	CF, 82k ohm
R640	24366182	CF, 1800 ohm
R641	24366123	CF, 12k ohm
R642	24366562	CF, 5600 ohm
R643	24366123	CF, 12k ohm
R645	24366182	CF, 1800 ohm
R646	24366123	CF, 12k ohm
R648	24366229	CF, 2.2 ohm
R649	24366229	CF, 2.2 ohm
R660	24366229	CF, 2.2 ohm
R701	24366153	CF, 15k ohm
R703	24366821	CF, 820 ohm
R704	24366152	CF, 1500 ohm
R705	24366222	CF, 2200 ohm
R706	24366102	CF, 1k ohm
R708	24366102	CF, 1k ohm
R714	24552680	OMF, 68 ohm, 1/2W
R715	24366203	CF, 20k ohm
R716	24366273	CF, 27k ohm
R717	24366333	CF, 33k ohm
R718	24366222	CF, 2200 ohm
R721	24366102	CF, 1k ohm
R722	24552471	OMF, 470 ohm, 1/2W
R723	24366471	CF, 470 ohm
R724	24366470	CF, 47 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552301	OMF, 300 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24552430	OMF, 43 ohm, 1/2W
R737	24366152	CF, 1500 ohm
R738	24366123	CF, 12k ohm
R739	24366152	CF, 1500 ohm
R740	24552430	OMF, 43 ohm, 1/2W
R741	24321279	OMF, 2.7 ohm, 1/2W
R742	24321279	OMF, 2.7 ohm, 1/2W
△ R743	24554221	OMF, 220 ohm, 2W
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R803	24321828	OMF, 0.82 ohm, 1/2W
R804	24946395	CC, 3.9M ohm, ±10%, 1/2W
△ R805	24946395	CC, 3.9M ohm, ±10%, 1/2W

Location No.	Part No.	Description
△ R808	24019002	PTC Thermistor, 7 ohm, ±30%, 140V
△ R810	24007873	Cement, 1.1 ohm, 15W
R820	24552101	OMF, 100 ohm, 1/2W
R821	24552111	OMF, 110 ohm, 1/2W
△ R823	24000440	FR, 1.5 ohm, 1/2W
R841	24366562	CF, 5600 ohm
R842	24381330	OMF, 33 ohm, 1/2W
R843	24366473	CF, 47k ohm
△ R860	24322248	OMF, 0.24 ohm, 1W
R861	24366432	CF, 4300 ohm
R862	24941912	CC, 9100 ohm, 1/4W
△ R863	24941912	CC, 9100 ohm, 1/4W
R864	24552471	OMF, 470 ohm, 1/2W
R865	24366392	CF, 3900 ohm
R866	24004944	MF, 0.15 ohm, 1W
△ R867	24552471	OMF, 470 ohm, 1/2W
△ R868	24383331	OMF, 330 ohm, 2W
R869	24366392	CF, 3900 ohm
R870	24327203	MF, 20k ohm, ±1%, 1/4W
R871	24327203	MF, 20k ohm, ±1%, 1/4W
R872	24552131	OMF, 130 ohm, 1/2W
R873	24552301	OMF, 300 ohm, 1/2W
R874	24366681	CF, 680 ohm
R875	24366102	CF, 1k ohm
R876	24322568	OMF, 0.56 ohm, 1W
R877	24366471	CF, 470 ohm
R878	24327103	MF, 10k ohm, ±1%, 1/4W
R879	24327103	MF, 10k ohm, ±1%, 1/4W
R880	24327822	MF, 8200 ohm, ±1%, 1/4W
R881	24366102	CF, 1k ohm
R882	24553113	OMF, 11k ohm, 1W
△ R883	24384470	OMF, 47 ohm, 3W
R884	24366202	CF, 2k ohm
R885	24553113	OMF, 11k ohm, 1W
△ R888	24383331	OMF, 330 ohm, 2W
△ R890	24554331	OMF, 330 ohm, 2W
△ R899	24000902	Varistor, TNR15G271K
R902	24366561	CF, 560 ohm
R903	24366561	CF, 560 ohm
R904	24366561	CF, 560 ohm
R910	24366681	CF, 680 ohm
R911	24366681	CF, 680 ohm
R912	24366681	CF, 680 ohm
R913	24366101	CF, 100 ohm
R914	24552271	OMF, 270 ohm, 1/2W
R916	24366560	CF, 56 ohm
R917	24366820	CF, 82 ohm
R918	24366560	CF, 56 ohm
△ R920	24339828	OMF, 0.82 ohm, 2W
R921	24366750	CF, 75 ohm
R922	24376272	CF, 2700 ohm, 1/2W
R923	24376272	CF, 2700 ohm, 1/2W
R924	24376272	CF, 2700 ohm, 1/2W
R942	24366222	CF, 2200 ohm
R943	24366222	CF, 2200 ohm
R944	24366222	CF, 2200 ohm
R952	24066595	VR, 200 ohm, 1/10W
R953	24066595	VR, 200 ohm, 1/10W
R956	24066599	VR, 5k ohm, 1/10W
R957	24066599	VR, 5k ohm, 1/10W
R958	24066599	VR, 5k ohm, 1/10W
△ R960	24383153	OMF, 15k ohm, 2W
△ R961	24383153	OMF, 15k ohm, 2W

Location No.	Part No.	Description
△ R962	24383153	OMF, 15k ohm, 2W
△ R963	24383153	OMF, 15k ohm, 2W
△ R964	24383153	OMF, 15k ohm, 2W
△ R965	24383153	OMF, 15k ohm, 2W
RA01	24366332	CF, 3300 ohm
RA02	24366102	CF, 1k ohm
RA03	24366331	CF, 330 ohm
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA06	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA09	24366102	CF, 1k ohm
RA10	24366102	CF, 1k ohm
RA11	24366102	CF, 1k ohm
RA12	24366102	CF, 1k ohm
RA13	24366102	CF, 1k ohm
RA14	24366333	CF, 33k ohm
RA15	24366102	CF, 1k ohm
RA16	24366103	CF, 10k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA19	24366102	CF, 1k ohm
RA20	24366102	CF, 1k ohm
RA22	24366222	CF, 2200 ohm
RA23	24366222	CF, 2200 ohm
RA24	24366222	CF, 2200 ohm
RA25	24366222	CF, 2200 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA33	24366102	CF, 1k ohm
RA34	24366102	CF, 1k ohm
RA35	24366103	CF, 10k ohm
RA36	24366102	CF, 1k ohm
RA37	24366101	CF, 100 ohm
RA38	24366101	CF, 100 ohm
RA40	24366102	CF, 1k ohm
RA41	24366102	CF, 1k ohm
△ RA60	24383113	OMF, 11k ohm, 2W
RA62	24366103	CF, 10k ohm
RA63	24366103	CF, 10k ohm
RA64	24366104	CF, 100k ohm
RA65	24366101	CF, 100 ohm
RA66	24366101	CF, 100 ohm
RA67	24366183	CF, 18k ohm
RA68	24366183	CF, 18k ohm
RA69	24366562	CF, 5600 ohm
RA70	24366272	CF, 2700 ohm
RA71	24366473	CF, 47k ohm
RA92	24366752	CF, 7500 ohm
RA93	24366752	CF, 7500 ohm
RA94	24366113	CF, 11k ohm
RA95	24366163	CF, 16k ohm
RA96	24366303	CF, 30k ohm
RA97	24366683	CF, 68k ohm
RA104	24366103	CF, 10k ohm
RA107	24366103	CF, 10k ohm
RA111	24366333	CF, 33k ohm
RA122	24366103	CF, 10k ohm
RA131	24366333	CF, 33k ohm
RA141	24366272	CF, 2700 ohm
RA151	24366333	CF, 33k ohm
RA152	24366102	CF, 1k ohm
RA171	24366103	CF, 10k ohm

Location No.	Part No.	Description
RA181	24366103	CF, 10k ohm
RA191	24366103	CF, 10k ohm
RA201	24366103	CF, 10k ohm
RB20	24366823	CF, 82k ohm
RB22	24366103	CF, 10k ohm
RB24	24366222	CF, 2200 ohm
RB26	24366103	CF, 10k ohm
RB27	24366103	CF, 10k ohm
RB56	24366103	CF, 10k ohm
RB57	24366301	CF, 300 ohm
RB58	24366244	CF, 240k ohm
RB59	24366133	CF, 13k ohm
RB60	24366392	CF, 3900 ohm
RB61	24366103	CF, 10k ohm
RB62	24366103	CF, 10k ohm
RB63	24366223	CF, 22k ohm
RB64	24366101	CF, 100 ohm
RB65	24366101	CF, 100 ohm
RB66	24366332	CF, 3300 ohm
RB67	24366301	CF, 300 ohm
RB68	24366244	CF, 240k ohm
RB69	24366133	CF, 13k ohm
RB70	24366392	CF, 3900 ohm
RB71	24366103	CF, 10k ohm
RB72	24366103	CF, 10k ohm
RB73	24366103	CF, 10k ohm
RB74	24366103	CF, 10k ohm
RC01	24366751	CF, 750 ohm
△RD01	24000211	FR, 15 ohm, 1/2W
RD02	24322479	OMF, 4.7 ohm, 1W
RD03	24366562	CF, 5600 ohm
RD05	24003898	MF, 3300 ohm, 1/4W
RD06	24366242	CF, 2400 ohm
RD07	24366683	CF, 68k ohm
RD08	24366103	CF, 10k ohm
RD09	24366102	CF, 1k ohm
RD10	24366102	CF, 1k ohm
RD11	24366224	CF, 220k ohm
RD12	24366822	CF, 8200 ohm
RD13	24366273	CF, 27k ohm
RD14	24366103	CF, 10k ohm
RD15	24366104	CF, 100k ohm
RD16	24366103	CF, 10k ohm
RD50	24066612	VR, 5k ohm, 0.3W
RD51	24066614	VR, 20k ohm, 0.3W
RE12	24366103	CF, 10k ohm
RE83	24366751	CF, 750 ohm
RG43	24366751	CF, 750 ohm
RG44	24366751	CF, 750 ohm
RM02	24366102	CF, 1k ohm
RM03	24366102	CF, 1k ohm
RM04	24366153	CF, 15k ohm
RM05	24366153	CF, 15k ohm
RM06	24366202	CF, 2k ohm
RM62	24366512	CF, 5100 ohm
RM63	24366512	CF, 5100 ohm
RM64	24366223	CF, 22k ohm
RM73	24366272	CF, 2700 ohm
RM74	24366361	CF, 360 ohm
RN07	24366222	CF, 2200 ohm
RN12	24366102	CF, 1k ohm
RN13	24366103	CF, 10k ohm
RN14	24366102	CF, 1k ohm
RN17	24366103	CF, 10k ohm

Location No.	Part No.	Description
RN21	24366222	CF, 2200 ohm
RN22	24366183	CF, 18k ohm
RN23	24366103	CF, 10k ohm
RN25	24366183	CF, 18k ohm
RN26	24366103	CF, 10k ohm
RN27	24366222	CF, 2200 ohm
RN34	24366223	CF, 22k ohm
RN46	24366472	CF, 4700 ohm
RN72	24366473	CF, 47k ohm
RN73	24366473	CF, 47k ohm
RN74	24366473	CF, 47k ohm
RN75	24366222	CF, 2200 ohm
RN78	24366393	CF, 39k ohm
RN88	24366392	CF, 3900 ohm
RN91	24366823	CF, 82k ohm
RN92	24366823	CF, 82k ohm
RN96	24366104	CF, 100k ohm
RS09	24366102	CF, 1k ohm
RS10	24366102	CF, 1k ohm
RS13	24366101	CF, 100 ohm
RS15	24366101	CF, 100 ohm
RS16	24366102	CF, 1k ohm
RS17	24366102	CF, 1k ohm
RS34	24366101	CF, 100 ohm
RV01	24366750	CF, 75 ohm
RV12	24366103	CF, 10k ohm
RV13	24366103	CF, 10k ohm
RV21	24366221	CF, 220 ohm
RV90	24366750	CF, 75 ohm
RV96	24366750	CF, 75 ohm
RV97	24366750	CF, 75 ohm
RV98	24366750	CF, 75 ohm
RX02	24366103	CF, 10k ohm
RX03	24366103	CF, 10k ohm
RX04	24366103	CF, 10k ohm
RX06	24366103	CF, 10k ohm
RX07	24366103	CF, 10k ohm
RX09	24366103	CF, 10k ohm
RX10	24366393	CF, 39k ohm
RX109	24366393	CF, 39k ohm
RY10	24366682	CF, 6800 ohm
RY11	24366222	CF, 2200 ohm
RY12	24366202	CF, 2k ohm
RY16	24366102	CF, 1k ohm
RY17	24366822	CF, 8200 ohm
RY54	24066927	VR, 5k ohm, 1/10W
RY145	24366133	CF, 13k ohm
RY146	24366103	CF, 10k ohm
RY168	24366682	CF, 6800 ohm
RY169	24366152	CF, 1500 ohm
RY601	24366101	CF, 100 ohm
RY602	24366103	CF, 10k ohm
RY604	24366103	CF, 10k ohm
RY605	24366104	CF, 100k ohm
COILS & TRANSFORMERS		
L061	23289101	Coil, Peaking, TRF4101AF
L062	23289220	Coil, Peaking, TRF4220AF
L201	23232959	Coil, Variable, TRF3060
L202	23238714	Coil, Peaking, TRF4100AJ
L203	23289270	Coil, Peaking, TRF4270AF
L204	23289150	Coil, Peaking, TRF4150AF
L260	23238718	Coil, Peaking, TRF4479AJ
L301	23103880	Coil (Ferrite Bead), TEM2011Y

Location No.	Part No.	Description
L302	23238714	Coil, Peaking, TRF4100AJ
L400	23238714	Coil, Peaking, TRF4100AJ
L411	23103880	Coil (Ferrite Bead), TEM2011Y
△L441	23233072	Coil, Linearity, TLN2115G
L442	23221894	Coil, Choke, TLN3063
L449	23238714	Coil, Peaking, TRF4100AJ
△L462	-----	DY, Supplied with V901
L501	23238708	Coil, Peaking, TRF4330AJ
L702	23261974	Coil, Choke, HC5-035
L703	23237980	Coil, Peaking, TRF4390AC
L704	23103859	Coil (Ferrite Bead), TEM2011
L705	23103859	Coil (Ferrite Bead), TEM2011
L860	23103880	Coil (Ferrite Bead), TEM2011Y
L861	23103880	Coil (Ferrite Bead), TEM2011Y
L862	23103880	Coil (Ferrite Bead), TEM2011Y
L880	23103880	Coil (Ferrite Bead), TEM2011Y
L881	23103941	Coil (Ferrite Bead), TEM2000
L882	23103941	Coil (Ferrite Bead), TEM2000
L883	23103880	Coil (Ferrite Bead), TEM2011Y
L884	23103880	Coil (Ferrite Bead), TEM2011Y
L885	23103880	Coil (Ferrite Bead), TEM2011Y
L886	23103880	Coil (Ferrite Bead), TEM2011Y
L887	23103880	Coil (Ferrite Bead), TEM2011Y
L888	23103880	Coil (Ferrite Bead), TEM2011Y
L889	23221746	Coil, Choke, TLN3155D
L899	23103880	Coil (Ferrite Bead), TEM2011Y
△L901	23200664	Coil, Degaussing, TSB2271
L902	23237971	Coil, Peaking, TRF4221AC
L903	23237971	Coil, Peaking, TRF4221AC
L904	23237971	Coil, Peaking, TRF4221AC
L905	23237981	Coil, Peaking, TRF4330AC
L906	23237981	Coil, Peaking, TRF4330AC
L907	23237981	Coil, Peaking, TRF4330AC
LA01	23238562	Coil, Peaking, TRF4109AJ
LA02	23262682	Coil, IF, TRF1147T
LD02	23221686	Coil, Choke, TLN3197D
LD03	23103880	Coil (Ferrite Bead), TEM2011Y
LY02	23238727	Coil, Peaking, TRF4332AI
T401	23224915	Transformer, Horiz. Drive, TLN1068
△T461	23236252	Transformer, Flyback, TFB4099AD
△T801	23211892	Line Filter, TRF3143G
△T840	23213513	Transformer, Power, TPW1459AZ
△T862	23217199	Transformer, Converter, TPW3270AD
SEMICONDUCTORS		
IC301	23319459	IC, LA7837
IC501	B0384738	IC, TA8870AN
IC610	B0377305	IC, TA8218AH
△IC801	23319505	IC, STR-S6501
IC805	23319199	IC, MC7805CT
IC821	23319202	IC, MC7809CT
IC840	23318299	IC, L78MR05
IC892	23319199	IC, MC7805CT
IC894	23319203	IC, MC7812CT
ICA01	23904802	IC, TMP87CM34N-3050
ICA02	23319880	IC, μ PD6272CX
ICM02	B0384695	IC, TA8862P
ICN07	B0347500	IC, TA75358P
ICN20	23904303	IC, BA10358
ICS01	23318051	IC, M51321P

Location No.	Part No.	Description
ICX01	B0100117	IC, TB1203AP
ICY601	23904300	IC, MM1188XS
Q171	23114530	Transistor, 2SA933S-Q
Q172	23114528	Transistor, 2SC1740S-Q
Q173	23114530	Transistor, 2SA933S-Q
Q174	23114528	Transistor, 2SC1740S-Q
Q201	23114530	Transistor, 2SA933S-Q
Q202	A6317440	Transistor, 2SC1815-Y
Q203	A6000030	Transistor, RN1003
Q204	A6534053	Transistor, 2SA1015-Y(TE)
Q205	A6002030	Transistor, RN1203
Q206	A6534053	Transistor, 2SA1015-Y(TE)
Q207	23114528	Transistor, 2SC1740S-Q
Q208	A6002040	Transistor, RN1204
Q209	A6317440	Transistor, 2SC1815-Y
Q290	A6002020	Transistor, RN1202
Q381	A6534053	Transistor, 2SA1015-Y(TE)
Q402	A678971D	Transistor, 2SC1569 FA-5
△Q404	A6871313	Transistor, 2SD1556(E)
Q410	A6317440	Transistor, 2SC1815-Y
Q471	A6534053	Transistor, 2SA1015-Y(TE)
Q505	A6002060	Transistor, RN1206
Q701	23114528	Transistor, 2SC1740S-Q
Q704	A6734590	Transistor, 2SC752(G)TM-Y
Q705	23114528	Transistor, 2SC1740S-Q
Q706	23114528	Transistor, 2SC1740S-Q
Q707	A6734590	Transistor, 2SC752(G)TM-Y
Q709	23114528	Transistor, 2SC1740S-Q
Q710	23114530	Transistor, 2SA933S-Q
Q711	A6546665	Transistor, 2SA1306-Y
Q712	A6359135	Transistor, 2SC3298A-Y
Q820	A6848520	Transistor, 2SD880-Y
Q841	A8643135	Photo Coupler, TLP621(GRL)
Q845	A6907759	Transistor, S1854 FA-3
Q862	A6317440	Transistor, 2SC1815-Y
Q863	23114528	Transistor, 2SC1740S-Q
Q870	A6532853	Transistor, 2SA949-Y(C)
Q902	A6317440	Transistor, 2SC1815-Y
Q903	A6317440	Transistor, 2SC1815-Y
Q904	A6317440	Transistor, 2SC1815-Y
Q908	A6368700	Transistor, 2SC4544
Q909	A6368700	Transistor, 2SC4544
Q910	A6368700	Transistor, 2SC4544
Q913	A6509154	Transistor, 2SA562TM-Y(T)
QA60	A6012050	Transistor, RN2205
QA61	A6342206	Transistor, 2SC2878-A(TE)
QA62	A6342206	Transistor, 2SC2878-A(TE)
QA70	23114528	Transistor, 2SC1740S-Q
QA71	23114530	Transistor, 2SA933S-Q
QB20	A6002010	Transistor, RN1201
QB21	23114528	Transistor, 2SC1740S-Q
QB23	A6002060	Transistor, RN1206
QB26	23114528	Transistor, 2SC1740S-Q
QB59	A6534053	Transistor, 2SA1015-Y(TE)
QB60	A6317440	Transistor, 2SC1815-Y
QB65	23114530	Transistor, 2SA933S-Q
QB66	A6534053	Transistor, 2SA1015-Y(TE)
QB67	A6317440	Transistor, 2SC1815-Y
QB68	A6002040	Transistor, RN1204
QD01	A6625365	Transistor, 2SB688-O(BS)
QD02	23114528	Transistor, 2SC1740S-Q
QD03	A6534053	Transistor, 2SA1015-Y(TE)
QE05	23314445	Transistor, 2SC4721, Q
QM03	23114528	Transistor, 2SC1740S-Q

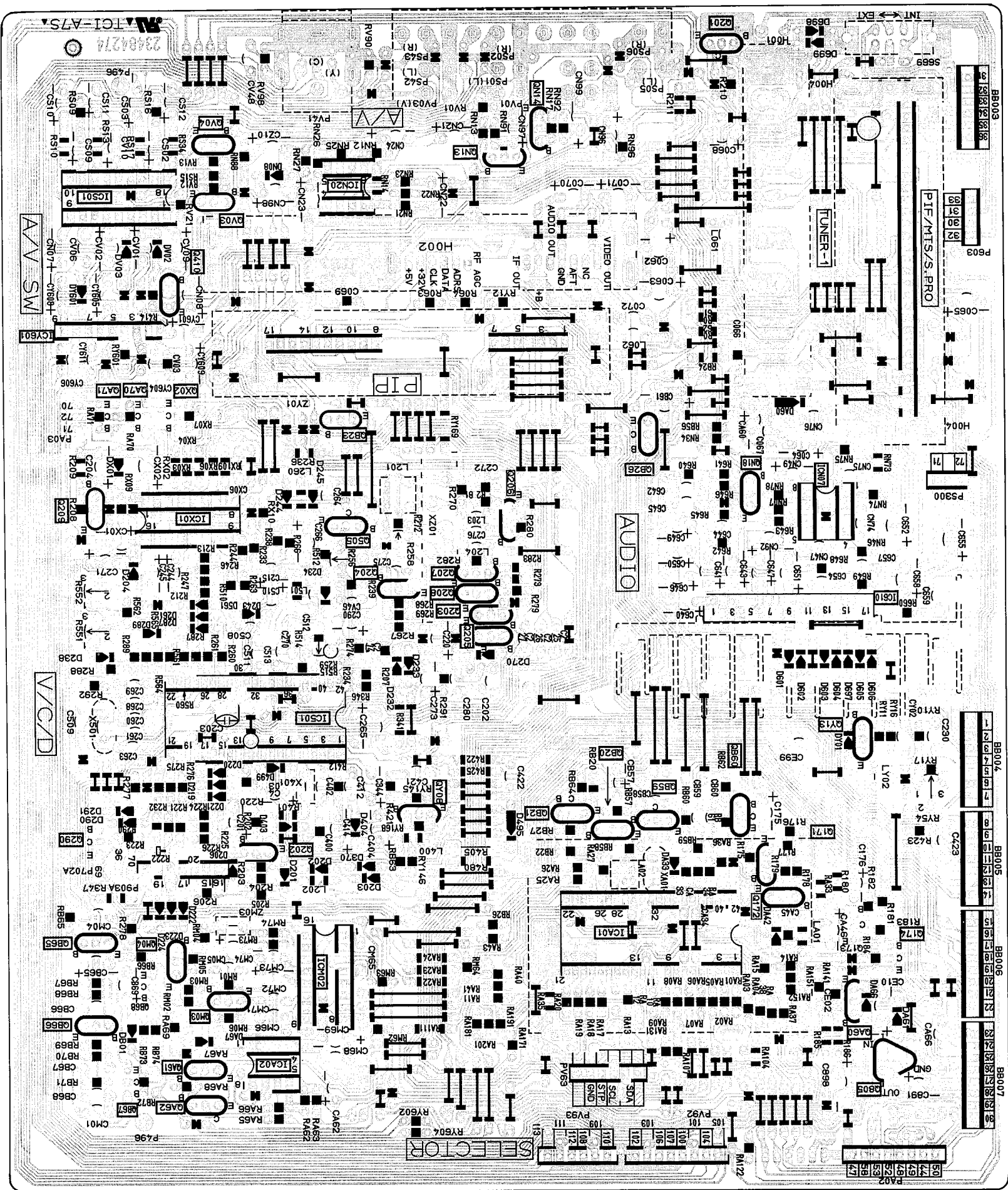
Location No.	Part No.	Description
QM04	23114530	Transistor, 2SA933S-Q
QN13	A6342206	Transistor, 2SC2878-A(TE)
QN14	A6342206	Transistor, 2SC2878-A(TE)
QN18	A6342206	Transistor, 2SC2878-A(TE)
QV03	A6000030	Transistor, RN1003
QV04	A6000030	Transistor, RN1003
QX02	23114528	Transistor, 2SC1740S-Q
QY08	A6534053	Transistor, 2SA1015-Y(TE)
QY13	A6317499	Transistor, 2SC1815-BL(T)
D201	23118859	Diode, 1SS133
D202	23118859	Diode, 1SS133
D203	23118859	Diode, 1SS133
D204	23118859	Diode, 1SS133
D205	23118859	Diode, 1SS133
D206	23118859	Diode, 1SS133
D219	23118859	Diode, 1SS133
D220	23118859	Diode, 1SS133
D221	23118859	Diode, 1SS133
D222	23118859	Diode, 1SS133
D223	23118859	Diode, 1SS133
D224	23118859	Diode, 1SS133
D232	23118859	Diode, 1SS133
D233	23118859	Diode, 1SS133
D234	23316333	Diode, Zener, UZ12BSB
D238	23316339	Diode, Zener, UZ15BSB
D243	23118859	Diode, 1SS133
D244	23118859	Diode, 1SS133
D245	23316339	Diode, Zener, UZ15BSB
D261	23118859	Diode, 1SS133
D270	23316328	Diode, Zener, UZ10BSC
D287	23118859	Diode, 1SS133
D289	23118859	Diode, 1SS133
D290	23118859	Diode, 1SS133
D291	23118859	Diode, 1SS133
D301	23118094	Diode, EU2A
D302	23118094	Diode, EU2A
D303	23316794	Diode, SC570A
D305	A7150258	Diode, 1SS176
D331	23118859	Diode, 1SS133
D370	23118859	Diode, 1SS133
D381	23316309	Diode, Zener, UZ5.6BSB
D403	23316325	Diode, Zener, UZ9.1BSB
D404	23316332	Diode, Zener, UZ12BSA
D406	23118094	Diode, EU2A
D408	23118052	Diode, RU4Z
D425	23316333	Diode, Zener, UZ12BSB
D471	A7568460	Diode, TVR-1B
△D472	23115774	Diode, Zener, RD6.2E(4)
D492	23118859	Diode, 1SS133
D495	23316327	Diode, Zener, UZ10BSB
D499	23316792	Diode, SC215
D561	23118859	Diode, 1SS133
D601	23118859	Diode, 1SS133
D602	23118859	Diode, 1SS133
D603	23118859	Diode, 1SS133
D604	23118859	Diode, 1SS133
D605	23118859	Diode, 1SS133
D606	23118859	Diode, 1SS133
D697	23316348	Diode, Zener, UZ20BSB
D698	23118859	Diode, 1SS133
D699	23118859	Diode, 1SS133
D704	A7150258	Diode, 1SS176
D705	A7150258	Diode, 1SS176
D706	A7568475	Diode, TVR-2D

Location No.	Part No.	Description
D707	A7568475	Diode, TVR-2D
D710	A7150258	Diode, 1SS176
△D801	23316391	Diode, D3SB60 (4109)
D820	23316315	Diode, Zener, UZ6.8BSB
D821	23316309	Diode, Zener, UZ5.6BSB
D840	23115532	Diode, ERB12-01
D841	23115532	Diode, ERB12-01
D842	23115532	Diode, ERB12-01
D843	23115532	Diode, ERB12-01
D844	23118859	Diode, 1SS133
D862	A7801233	SCR, SF0R3G42(G5H1)
D863	A7568752	Diode, 1S1887A
D864	23118060	Diode, AL01Z
D865	23118060	Diode, AL01Z
D866	23118060	Diode, AL01Z
D867	23316324	Diode, Zener, UZ9.1BSB
D868	23316362	Diode, Zener, UZ30BSA
D870	23316370	Diode, Zener, UZ36BSA
D878	23316370	Diode, Zener, UZ36BSA
D879	A7150351	Diode, 1SS178
D883	23118943	Diode, ERC20-04
D884	23316399	Diode, EL1Z
D885	23316184	Diode, FML-G12S
D888	23118339	Diode, Zener, R2M
D901	23316298	Diode, Zener, UZ4.3BSA
D902	23118859	Diode, 1SS133
DA33	23316312	Diode, Zener, UZ6.2BSB
DA42	23316312	Diode, Zener, UZ6.2BSB
DA60	23316694	Diode, Zener, UZT33
DA61	23118859	Diode, 1SS133
DA66	23118859	Diode, 1SS133
DA67	23316308	Diode, Zener, UZ5.6BSA
DB01	23118859	Diode, 1SS133
DC50	23358515	Diode (LED), SCL003DC3FXG, Orange
DD01	A7568460	Diode, TVR-1B
DD02	23316582	Diode, ERC20-06
DD03	A7568752	Diode, 1S1887A
DD04	23118859	Diode, 1SS133
DE50	23358504	Diode (LED), SCL003URC3FX, Red
DG50	23358515	Diode (LED), SCL003DC3FXG, Orange
DG51	23358503	Diode (LED), SCL003MC3FX, Green
DM01	23118859	Diode, 1SS133
DN08	23316285	Diode, Zener, UZ2.2BSB
DR81	A7150351	Diode, 1SS178
DV02	23316332	Diode, Zener, UZ12BSA
DV03	23316332	Diode, Zener, UZ12BSA
DX01	23316312	Diode, Zener, UZ6.2BSB
DY01	23118859	Diode, 1SS133
DY601	23316325	Diode, Zener, UZ9.1BSC
MISCELLANEOUS		
BB003	23902749	Connector, 6P
BB004	23902750	Connector, 7P
BB005	23902750	Connector, 7P
BB006	23902751	Connector, 8P
BB007	23902751	Connector, 8P
BB033	23368517	Connector, 6P
BB044	23368518	Connector, 7P
BB055	23368518	Connector, 7P
BB066	23368519	Connector, 8P

Location No.	Part No.	Description
BB077	23368519	Connector, 8P
△F801	23144888	Fuse, 5.0A
F801A	23165433	Holder, Fuse
△F802	23144805	Fuse, 1.6A
F802A	23165433	Holder, Fuse
△F803	23144842	Fuse, 5.0A
H003	23344376	RF Switch, RSU132X7
H003A	23740989	Nut
H004	23148206	Module, US IF/MTS/S.PRO, VMMU41U-12
K910	23120219	Remote Sensor, IR-9106A-K
P003	23161665	Terminal, 4P
△P801	23176006	Power Cord
P910	23164725	Plug, 2P
PS01	23365334	Jack Phono, 8P
PS02	23365334	Jack Phono, 8P
PS05	23365334	Jack Phono, 8P
PS06	23365334	Jack Phono, 8P
PS30	23365701	Jack, 1S3P
PS31	23365701	Jack, 1S3P
PS42	23365334	Jack Phono, 8P
PS43	23365334	Jack Phono, 8P
PV01	23365334	Jack Phono, 8P
PV03	23365334	Jack Phono, 8P
PV30	23365701	Jack, 1S3P
PV31	23365701	Jack, 1S3P
PV41	23365259	Jack, 4P
S201	23344333	Switch, Lever, 1C3P
S669	23145409	Switch, Slide, 2C2P
SA01	23145226	Switch, Push, 1C1P
SA02	23145226	Switch, Push, 1C1P
SA06	23145226	Switch, Push, 1C1P
SA07	23145226	Switch, Push, 1C1P
SA08	23145226	Switch, Push, 1C1P
SA09	23145226	Switch, Push, 1C1P
SA10	23145226	Switch, Push, 1C1P
△SR81	23146916	Power Relay, DG1U-12
SV01	23344108	Switch, Push, 4C2P
△V901A	23902068	Socket, CRT, 10P
W661	23151258	Speaker, SPK-1258, 70x130mm, 8 ohm
W662	23151258	Speaker, SPK-1258, 70x130mm, 8 ohm
W663	23351080	Speaker, SPK-1352, 100x100mm, 6 ohm
X401	23153721	Ceramic Resonator, 503kHz, TCR1023
X501	23153961	Crystal, 3.58MHz
XA01	23153395	Ceramic Resonator, 7.76MHz, TCR1063
XZ01	23250140	Glass Delay, NTSC, 3.58MHz, CN1736T
ZM03	23153721	Ceramic Resonator, 503kHz, TCR1023
ZY01	23148210	PIP, Module, PMUS01H
PC BOARD ASSEMBLIES		
U005	23702923	SCAN Mod. Board, PB4621-3
U810	23702908	Power/Def Board, PB4621-1
U901	23702909	CRT Drive Board, PB4621-2
M021Z	23701651	Key-LED Board, PB3527-1
M022Z	23701652	A/V Board, PB3527-2
M051Z	23702883	Main Board, PB4620

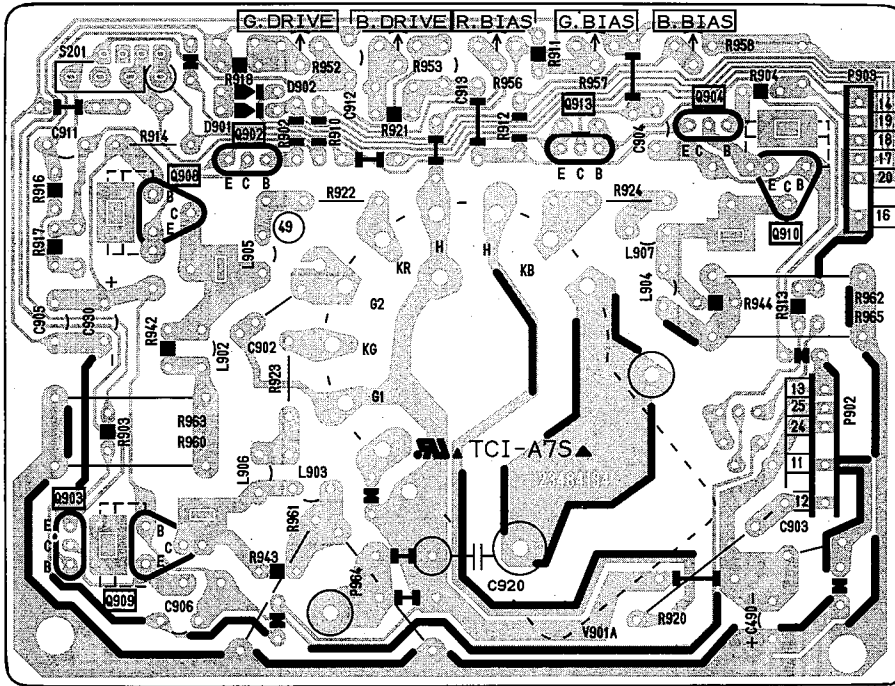
Location No.	Part No.	Description
PICTURE TUBE		
△V901	23312541	Picture Tube, A68KSA30X02D
TUNER		
△H001	23321140	Tuner, UHF/VHF, EL859L2
△H002	23321116	Tuner, UHF/VHF, EL912L
ACCESSORIES		
K912	23120463	Remote Hand Unit, CT-9725
Y101	23562102	Owner's Manual, English, CN27D90
Y101	23562157	Owner's Manual, English/French, TV27D90
Y106	23994678	TESC Sheet
Y107	23142003	Adapter, Antenna Matching, AD503J

MAIN BOARD PB4620
BOTTOM (FOIL) SIDE



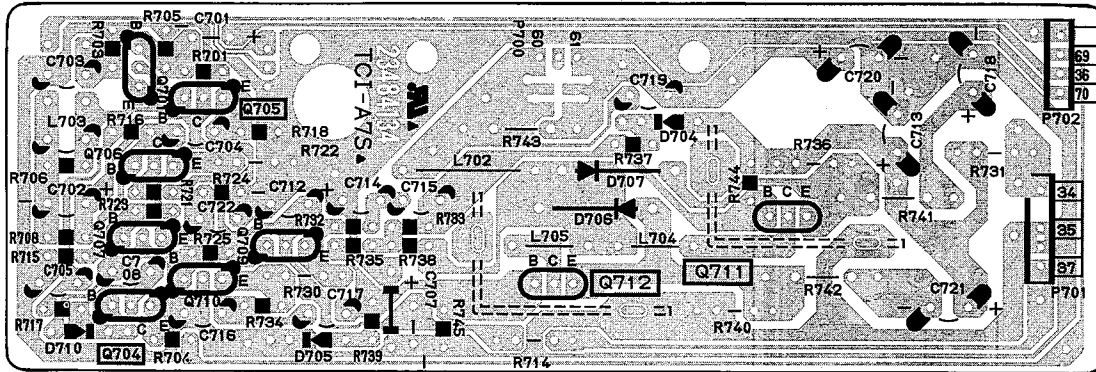
CRT DRIVE BOARD PB4621-2

BOTTOM (FOIL) SIDE



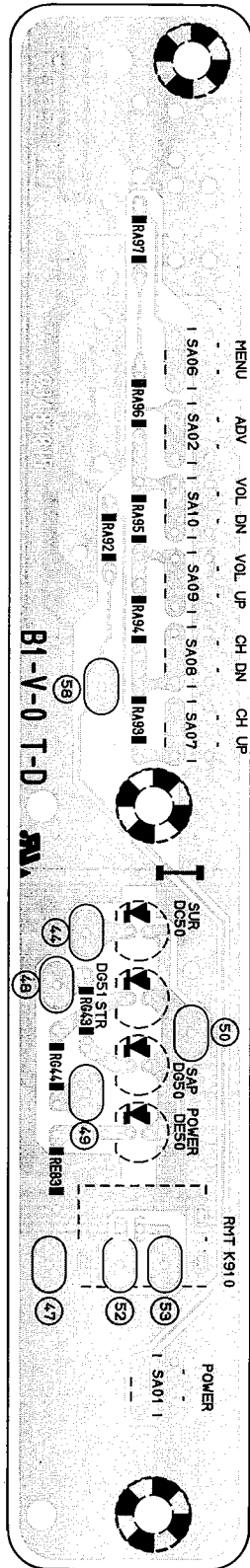
SCAN MOD. BOARD PB4621-3

BOTTOM (FOIL) SIDE



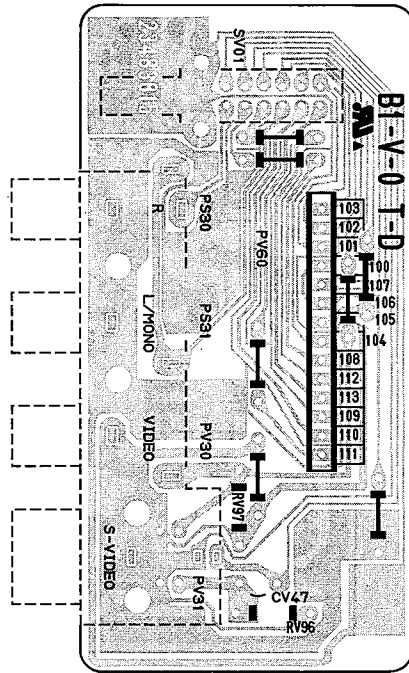
KEY/LED BOARD PB3527-1

BOTTOM (FOIL) SIDE



FRONT AV BOARD PB3527-2

BOTTOM (FOIL) SIDE



TERMINAL VIEW OF TRANSISTORS

① 2SC1569
2SD2023
2SD880



② 2SC2229
2SC2655



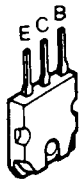
③ 2SA562TM
2SA949
2SA1015
2SC933S
2SC1815N
2SC2878
2SC752GTM



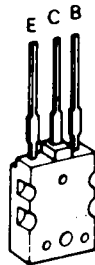
④ RN1003
RN1201
RN1204
RN1206
RN2204
RN2206



⑤ 2SB688



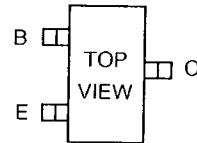
⑥ 2SD1428



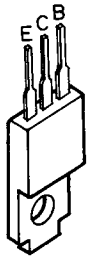
⑦ 2SC2068



⑧ 2SC2712
2SA1162
RN1402
RN1403
RN1404



⑨ 2SA1306



MEMO

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