

COLOR TELEVISION RECEIVER



PAL/SECAM

ORION

Color 5188-2 RC

Color 1550-2 RC

KENDO CTV 90-20

MFR'S Version: G

RTV servis Horvat

Kešinci, 31402 Semeljci

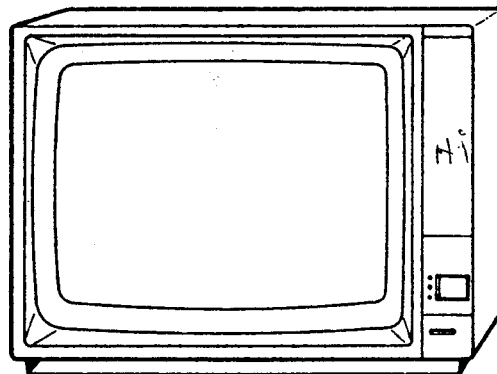
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Croatia



CONTENTS

	PAGE
SPECIFICATIONS	1
MAJOR COMPONENTS LOCATION GUIDE	2
ALIGNMENT INSTRUCTIONS	3 ~ 5
BLOCK DIAGRAM	6
MAIN P.C. BOARD	7
CONTROL / LED / POWER SWITCH / CRT P.C. BOARDS	8
CHASSIS SCHEMATIC DIAGRAMS	9 ~ 11
MECHANICAL EXPLODED VIEW	12
MECHANICAL REPLACEMENT PARTS LIST	13
ELECTRICAL REPLACEMENT PARTS LIST	14 , 15
INTERCHANGEABLE PARTS LIST	16

SPECIFICATIONS

PICTURE SIZE	20 inch
SYSTEM	PAL/SECAM
FREQUENCY RANGE VHF(L)	2 - 4, X - S2 ch, 47 - 118 MHz
VHF(H)	S3 - S10, 5 - 12, S11 - S20 ch
UHF	118 - 300 MHz
MAXIMUM SENSITIVITY VHF	21 - 69 ch, 470 - 862 MHz
UHF	20 dB
INTERMEDIATE FREQUENCY:	25 dB
Picture IF Carrier Frequency	38.9 MHz
Color Sub Carrier Frequency	34.47 MHz
Sound IF Carrier Frequency	33.4 MHz
SOUND INTERMEDIATE FREQUENCY	5.5 MHz
MAXIMUM OUTPUT POWER	2.0 W
10% THD OUTPUT POWER	1.8 W
POWER SOURCE	AC 220V

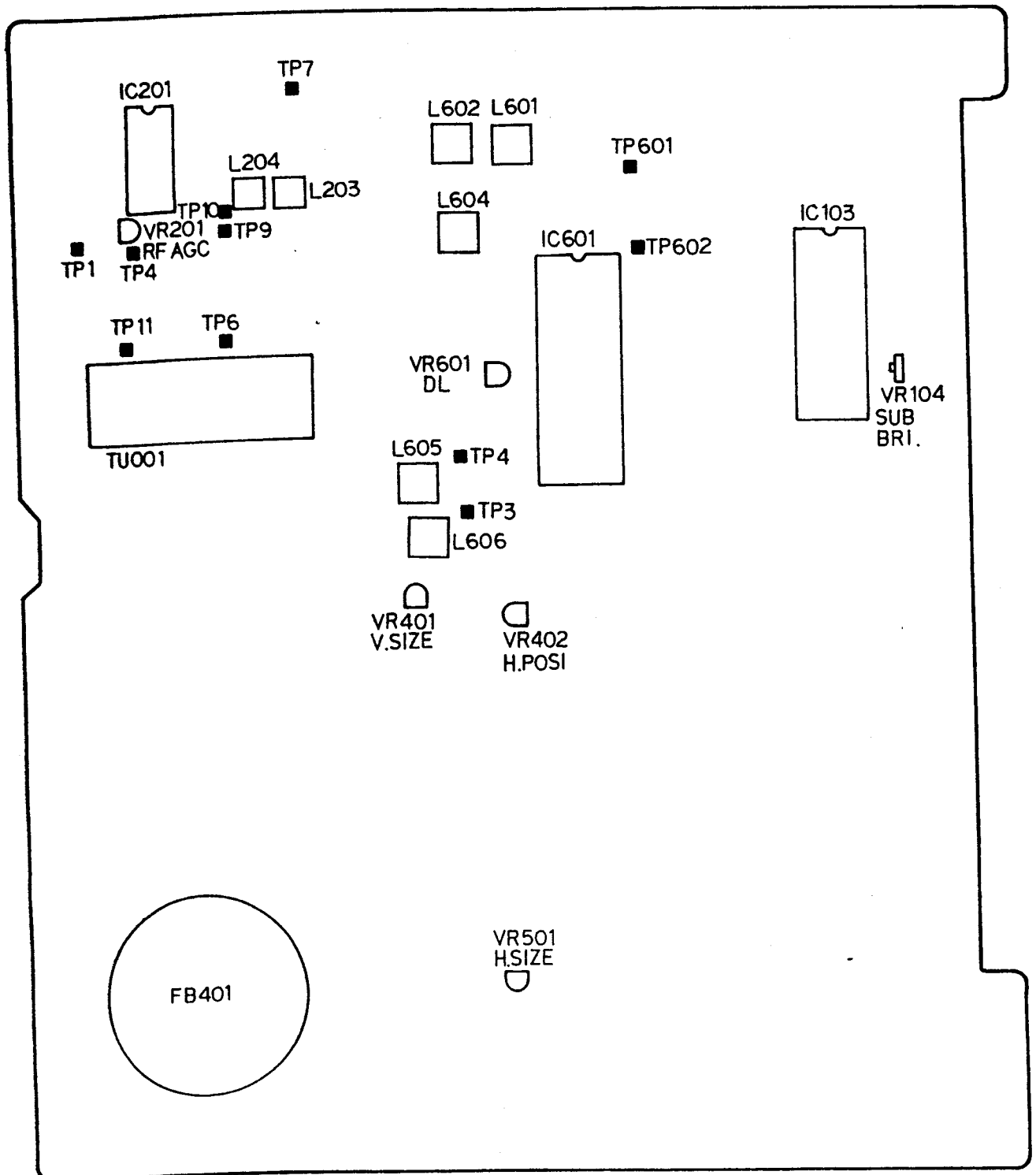
IMPORTANT

*FOR SERVICE WORK ALWAYS USE MAINS ISOLATING TRANSFORMER, CHASSIS IS LIVE.
(IRRESPECTIVE OF POLARITY OF MAINS PLUG.)

*IN CASE OF REMOVING PCB OR SOMETHING, AFTER UNFASTENING THE WIRE OR
CHANGING THE WIRE POSITION, IT IS IMPORTANT TO PUT THE FASTENING OF
WIRE AND THE POSITION OF WIRE AS IT WAS.
BECAUSE, PICTURE DISTORTION OR SOMETHING MAY APPEAR ON THE DISPLAY.
SO, BE SURE TO CONFIRM THE FASTENING AND POSITION OF WIRE BEFOREHAND.
THEN START TO THE OPERATION.

*INFERIOR SILICON GREASE CAN DAMAGE IC's AND TRANSISTORS.
WHEN REPLACING AN IC OR TRANSISTOR, USE ONLY SPECIFIED SILICON
GREASE (YG6260).
REMOVE ALL THE OLD SILICON BEFORE APPLYING NEW SILICON.

MAJOR COMPONENTS LOCATION GUIDE



ALIGNMENT INSTRUCTIONS

SHUT DOWN CIRCUIT

When the high voltage rises, a simultaneous voltage increase will develop at terminal 9 of the Horizontal Output Transformer (FB401), and be applied to pin 52 of IC401. If excessive high voltage is produced, the increased voltage developed exceeds the rating of zener diode D405 causing the Horizontal Oscillator to stop functioning and the high voltage system to shut down.

HORIZONTAL AND VERTICAL SIZE ADJUSTMENT

Adjust the control (VR501) and (VR401) so that the picture fills the picture from top to bottom and is proportionate to the width.

RF AGC ADJUSTMENT

The RF AGC control is adjusted at the factory and rarely requires re-adjustment unless the received picture exhibits too much snow or the receiver lacks sensitivity. Home adjustment can be made by tuning in a weak snowy station and adjusting RF AGC for the least amount of snow. For a more accurate adjustment, use the following procedure.

1. Receive the test pattern signal (80dB).
2. Adjust AGC pin of TV tuner (IP011) to 4.75V with VR201 control.

SUB BRIGHT ADJUSTMENT

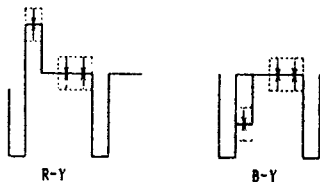
1. Receive the signal of Monochrome pattern.
2. Set the Bright (VR605-1) control to minimum position and Contrast (VR605-2) control to maximum position.
3. Adjust the Sub Bright (VR104) control to obtain a dim white pattern on 75% of gray scale.

FOCUS ADJUSTMENT

Adjust focus control on the flyback transformer for a defined picture.

HUE DELAY ADJUSTMENT

1. Receive the signal of DEM pattern.
2. Connect dual oscilloscope to IP601 and IP602.
4. Adjust waveform to straight line with VR601 and L603.



AFT ADJUSTMENT

1. Connect the output of the oscillator to the tuner pack IP.
2. Adjust L203 to keep constant DC voltage at IP006 with AFI ON and AFI OFF.

HORIZONTAL POSITION ADJUSTMENT

1. Receive the test pattern signal. (PAL Philips)
2. Adjust horizontal picture position to center with VR402.

COLOR PURITY ADJUSTMENT

The receiver must be operated 10 minutes prior to this procedure and the face plate of the CRT must be at room temperature. The following procedure is recommended while using a Dot/Bar Generator.

1. Check for correct location of all neck components. (Refer to Fig. 1)
2. Rough-in the static convergence at the center of the CRT, as explained in the static convergence.

3. Rotate the contrast control to maximum CCW position and rotate brightness control as far CW as possible without causing the picture to "bloom".
4. Rotate the Red (VR801) and Blue (VR804) Cut off controls to maximum CCW position. Rotate the Green (VR803) Cut off control sufficiently in a CW direction
5. Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
6. Begin the following adjustment with the tabs on the round purity magnet rings set together, slowly separate the two tabs while at the same time rotating them to adjust for a uniform green stripe at the center of the CRT screen.
7. Carefully slide the deflection yoke forward to achieve green (uniform green screen).
NOTE: Center purity is obtained by adjusting the tabs on the round purity magnet rings, outer edge purity is obtained by sliding the deflection yoke forward.
8. Check for red and blue field purity by reducing the output of the Green (VR803) Cut off control and alternately increasing output of Red (VR801) and Blue (VR804) Cut off controls and touch-up adjustments, if required.
9. Tighten deflection yoke clamp screw.

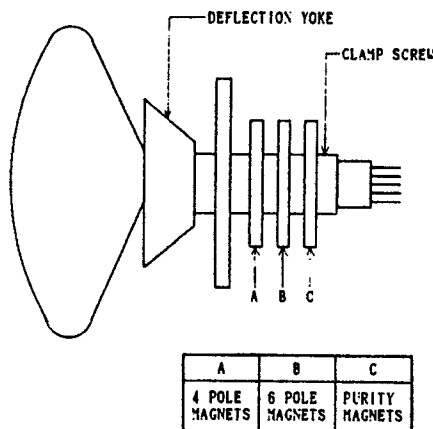


Fig. 1 Picture Tube Neck Component Location

BLACK AND WHITE TRACKING

The purpose of this procedure is to adjust the bias applied to the picture tube to obtain good black and white picture production at all brightness levels while, at the same time achieving maximum useable brightness. Proper RF AGC control adjustment should have been verified prior to performing this procedure.

1. With antenna connected to the receiver, go to a channel with strong reception. Adjust the fine tuning control so that the receiver will not produce a color picture while the following adjustment are being performed.
2. Rotate the Red (VR802) and Blue (VR805) Drive control fully CW and then back CCW to the center of their rotation ranges.
3. Rotate the Green (VR803), Red (VR801) and Blue (VR804) Cut off controls to the fully CCW end of their rotation ranges.
4. Set normal-service switch to service position. Adjust the voltage of test point (collector of green output transistor on CRT PCB) to DC150V with brightness control. Voltage measurement should be measured with an oscilloscope.
5. Rotate the screen control to the fully CCW end of its rotation range. Then, rotate it CW until a dim line of one pronounced color (green, red or blue) is obtained.

ALIGNMENT INSTRUCTIONS

6. The other two color Cut off controls must be rotated CW until a dim white line is obtained.
7. Set normal-service switch to normal position.
8. If required, perform touch-up adjustment of the Red (VR802) and Blue (VR805) Drive controls to produce a uniform monochrome picture.
9. Rotate the brightness and contrast controls fully CCW.
10. Rotate the brightness control CW until a dim raster is obtained.
11. If the screen does not display with uniformity, steps 2 through 10 of this procedure must be repeated.

STATIC CONVERGENCE ADJUSTMENT

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Connect the output of a Crosshatch Generator to the receiver and concentrating on the center of the CRT screen, proceed as follows:
 - a. Locate a pair of 4 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue lines.
 - b. After completing red and blue center convergence, locate a pair of 6 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue (magenta) and green lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue (magenta) and green lines.

DYNAMIC CONVERGENCE ADJUSTMENT

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

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Apply crosshatch pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
3. Tilt the deflection yoke up or down, and insert tilt adjustment wedges (1) and (2) between the deflection yoke and the CRT until the improper convergence illustrated in Fig. 2 (A) has been corrected.
4. Tilt the deflection yoke right and left, and insert tilt adjustment wedge (3) between the deflection yoke and the CRT until the improper convergence illustrated in Fig. 2 (B) has been corrected.
5. Alternately change spacing between, and depth of insertion of the three wedges proper dynamic convergence is obtained.
6. Use a strong adhesive tape to firmly secure each of the three wedges to the funnel of the CRT.
7. Check purity and adjust, if necessary.

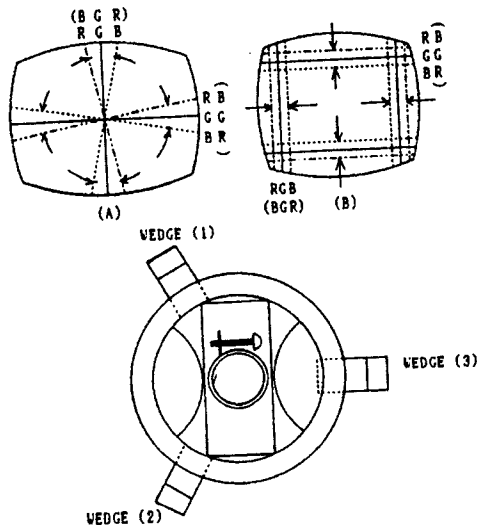


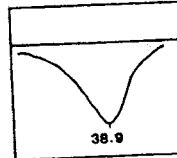
Fig. 2 Dynamic Convergence Adjustment

VIDEO IF AND TRAP ALIGNMENT

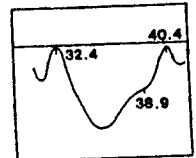
TEST EQUIPMENT CONNECTION
OSCILLOSCOPE Set AC-DC
SWEEP-MARKER GENERATOR

switch to AC position.
Connect H SCOPE and V SCOPE output cable from SWEEP-MARKER GENERATOR to H and V input connectors on the OSCILLOSCOPE, connect hot lead of SWEEP-MARKER OUTPUT cable to test point IPOO1 on PCB001; connect ground lead to chassis ground. Connect pick up SWEEP-MARKER INPUT cable to IPOO7; ground lead to chassis ground. (PROBE B)

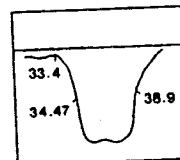
1. Connect 10K ohm variable resistor between IPOO4, B+ (12V) to ground. Install AGC VR to prevent saturation in waveform, then adjust AGC VR for proper size of waveform. On the other hand, in case IF AGC voltage is supplied externally, adjust for proper size of waveform on condition that IF AGC voltage is within 10V and is gradually decreased.
2. Adjust L204 to obtain maximum amplitude of response curve at 38.9 MHz. (Refer to Response Curve "A")
3. Re-connect hot lead of SWEEP-MARKER GENERATOR OUTPUT cable from IPOO1 to TV tuner TP. (With 2.7K ohm resistor)
4. Re-Connect SWEEP-MARKER GENERATOR INPUT cable from IPOO7 to IPO12. (PROBE A)
5. Adjust L207 to obtain maximum amplitude of response curve at 32.4 MHz. (Refer to Response Curve "B")
6. Connect a 100 ohm resistor between IPOO9 and IPO10. Re-Connect SWEEP-MARKER GENERATOR INPUT cable from IPO12 to IPOO7. (PROBE B)
7. Adjust L206 obtain maximum amplitude of response curve. (Refer to Response Curve "C")
8. Disconnect the 10K ohm variable resistor and 100 ohm resistor from the circuit. Disconnect COO6, C217 and C218. (solder bridge)
9. Re-Connect SWEEP-MARKER GENERATOR INPUT cable from IPOO7 to IPOO6. (PROBE B)
10. Set the AFT SW to ON position
11. Adjust L203 to place 38.9 MHz marker at reference line on response curve. (Refer to Response Curve "D")
12. Re-connect COO6, C217 and C218. (solder bridge)



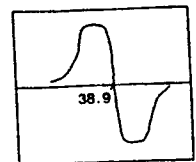
CURVE "A"



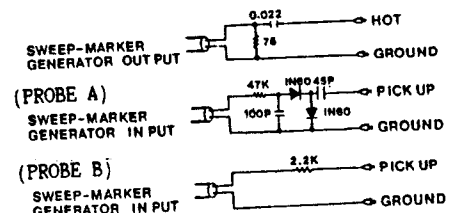
CURVE "B"



CURVE "C"



CURVE "D"



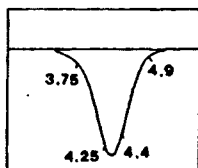
ALIGNMENT INSTRUCTIONS

SECAM CHROMA BANDPASS ALIGNMENT

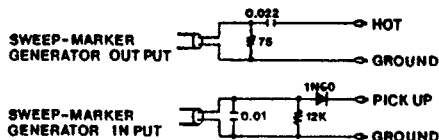
TEST EQUIPMENT CONNECTION

GENERAL PAL-SECAM switch to SECAM position.
SWEEP-MARKER GENERATOR ... Connect H. SCOPE and V. SCOPE output cable from SWEEP-MARKER GENERATOR to H. and V. input connectors on the OSCILLOSCOPE, connect hot lead of SWEEP-MARKER OUTPUT cable to TP on TV tuner; connect ground lead to chassis ground.
Connect pick up lead SWEEP-MARKER INPUT cable to IP604; ground lead to chassis ground.

1. Adjust L605 to obtain best overall response curve.
(Refer to Response Curve "E")



CURVE "E"



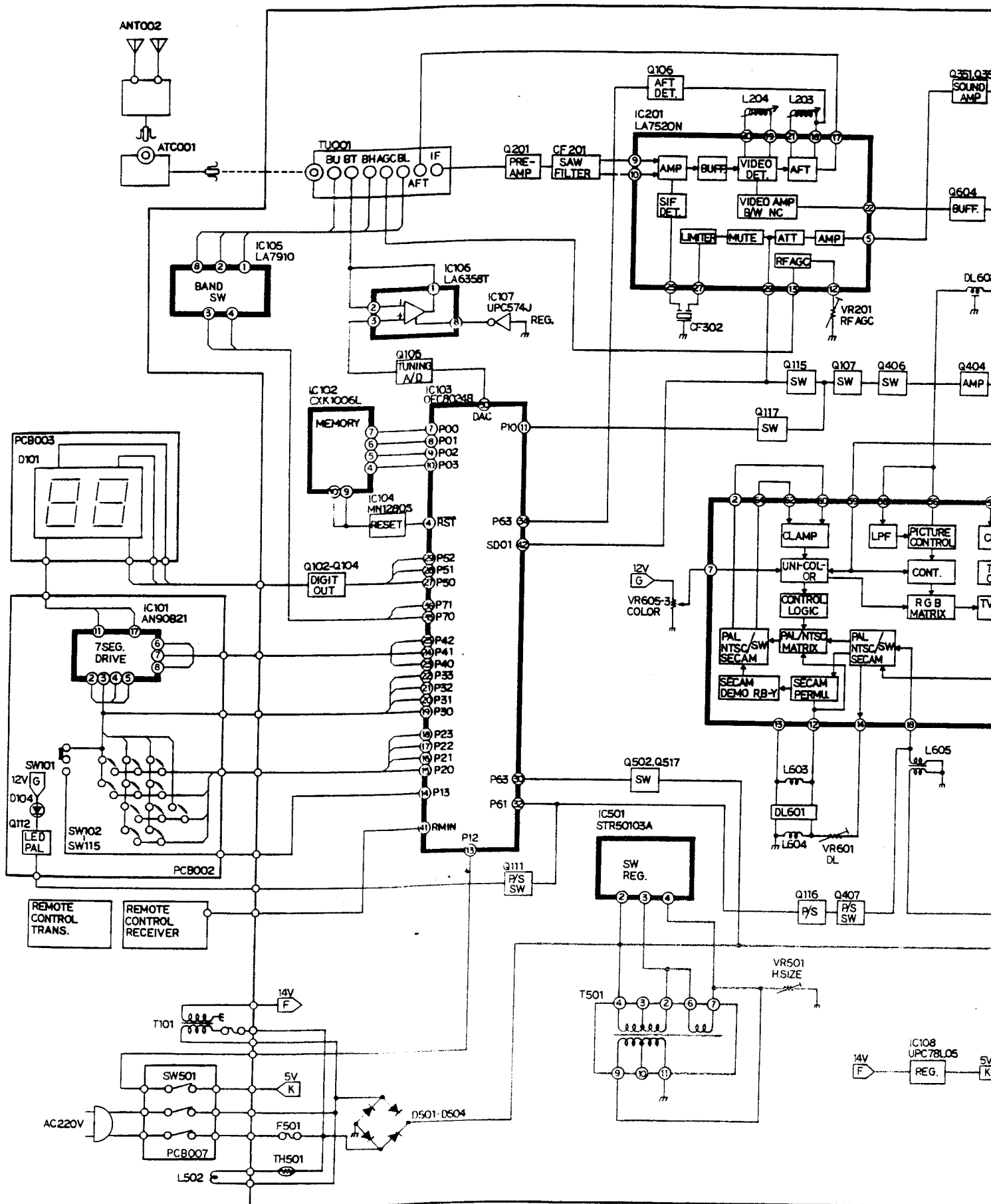
SECAM IDENT ADJUSTMENT

1. Receive the signal of secam color pattern.
2. Connect the DC voltmeter to IP603 and ground.
3. Adjust the voltage to maximum with L606.

SECAM PHASE ADJUSTMENT

1. Receive the signal of secam color pattern.
2. Adjust L601 and L602 not to change the color of the pattern while tuning the Color control from minimum to maximum position.

BLOCK DIAGRAM



BLOCK DIAGRAM

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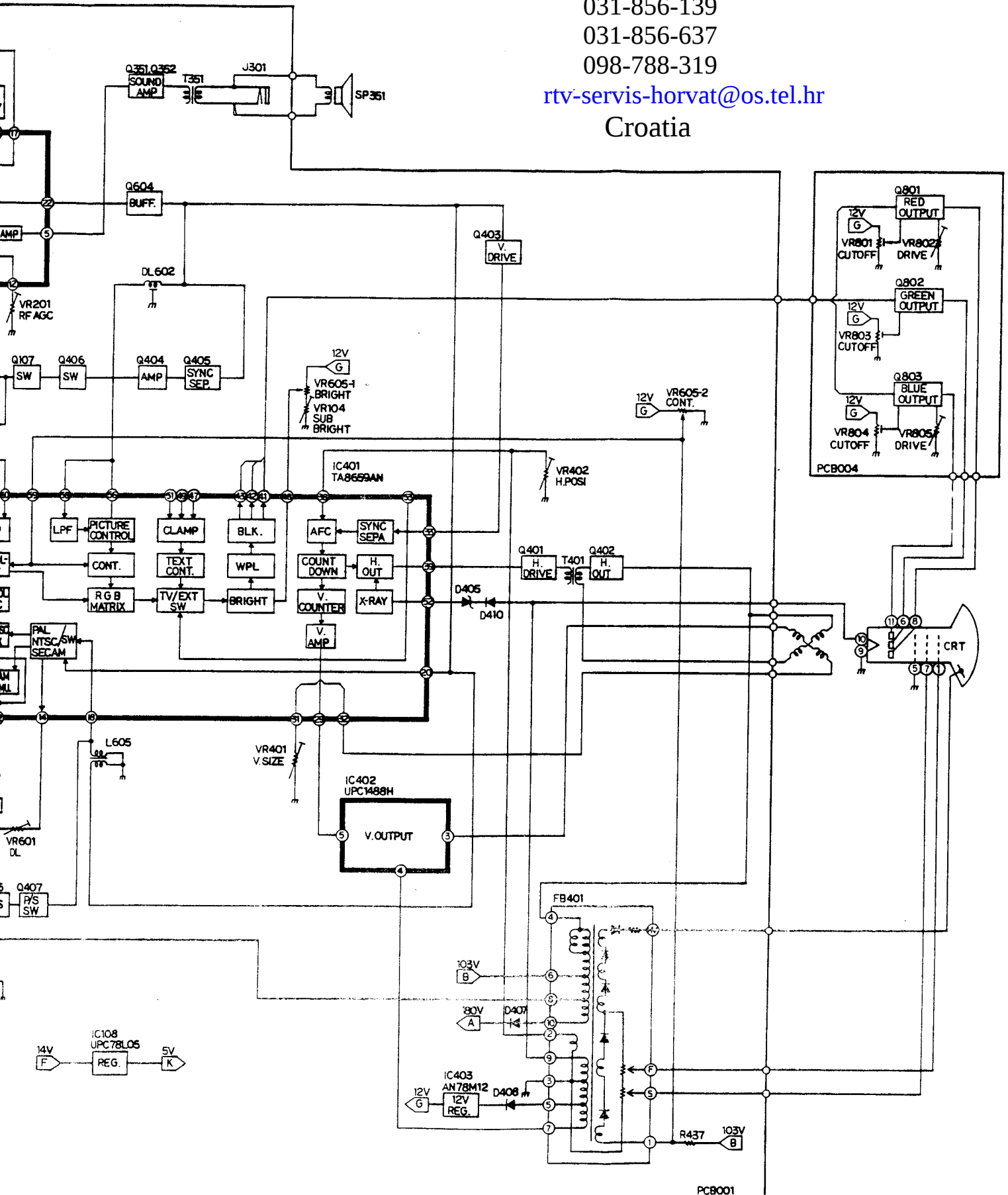
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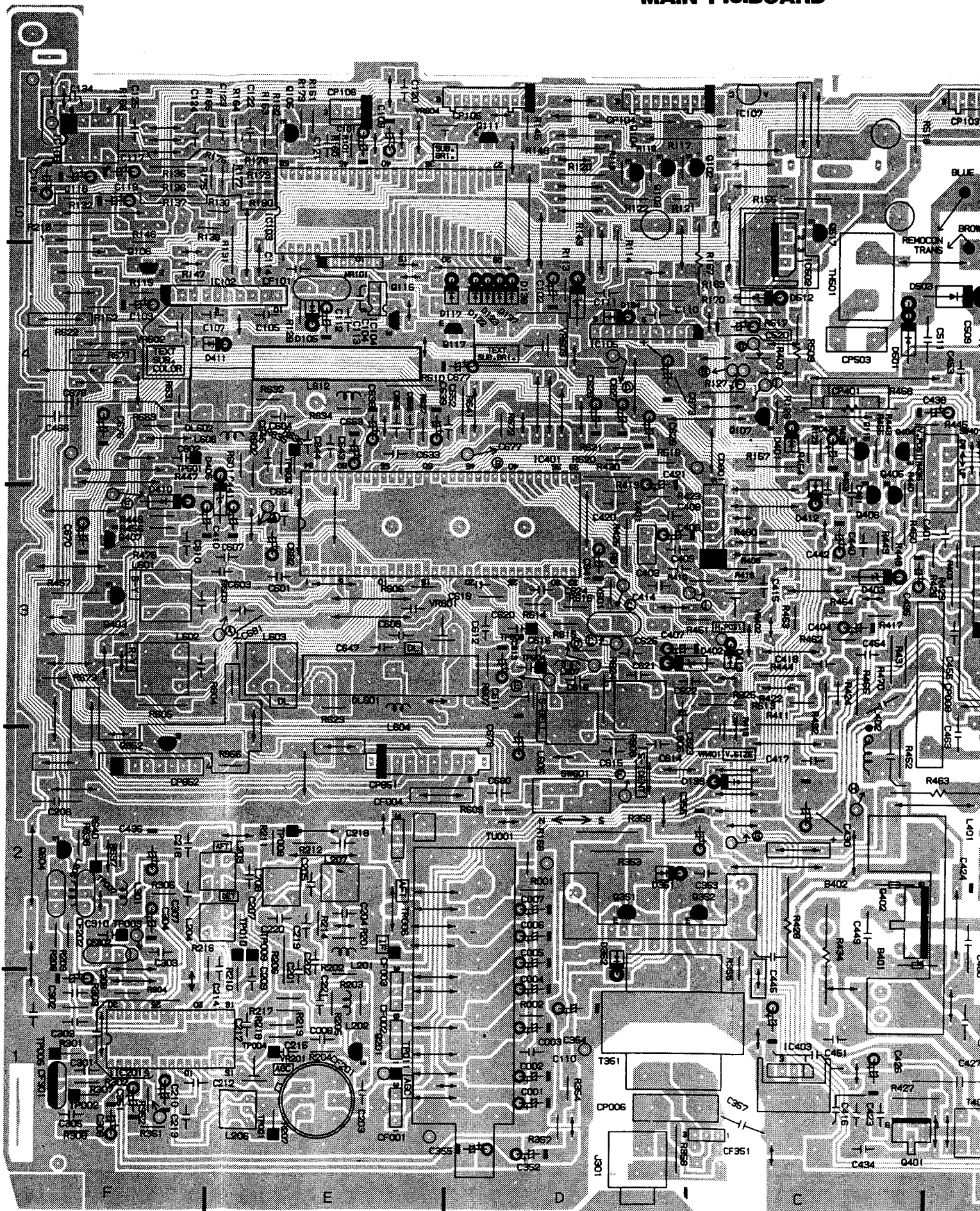
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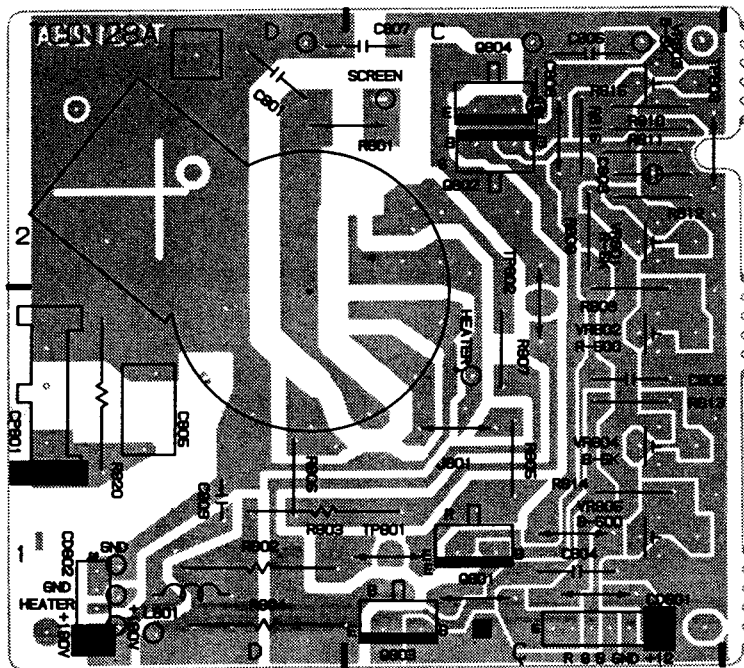


BLOCK DIAGRAM



[illegible]

CRT P.C.BOARD



POWER SW P.C.BOARD

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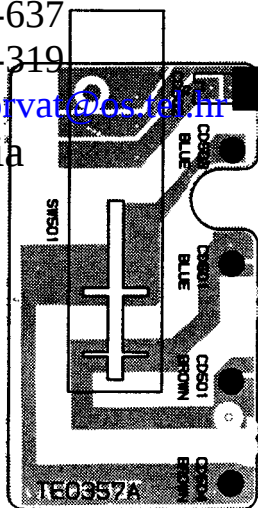
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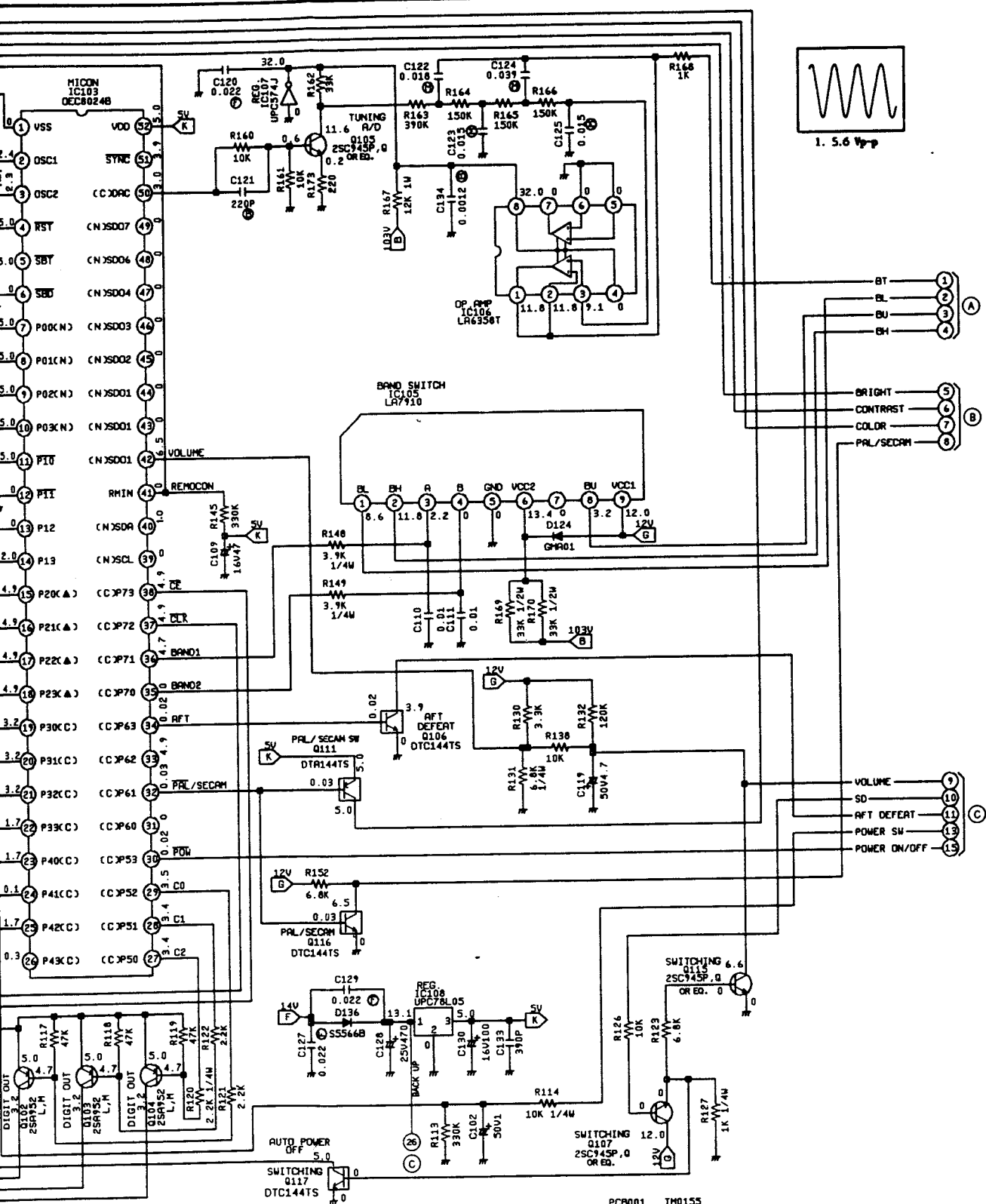
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CHASSIS SCHEMATIC DIAGRAM



CHASSIS SCHEMATIC

RTV servis Horvat

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031-856-139

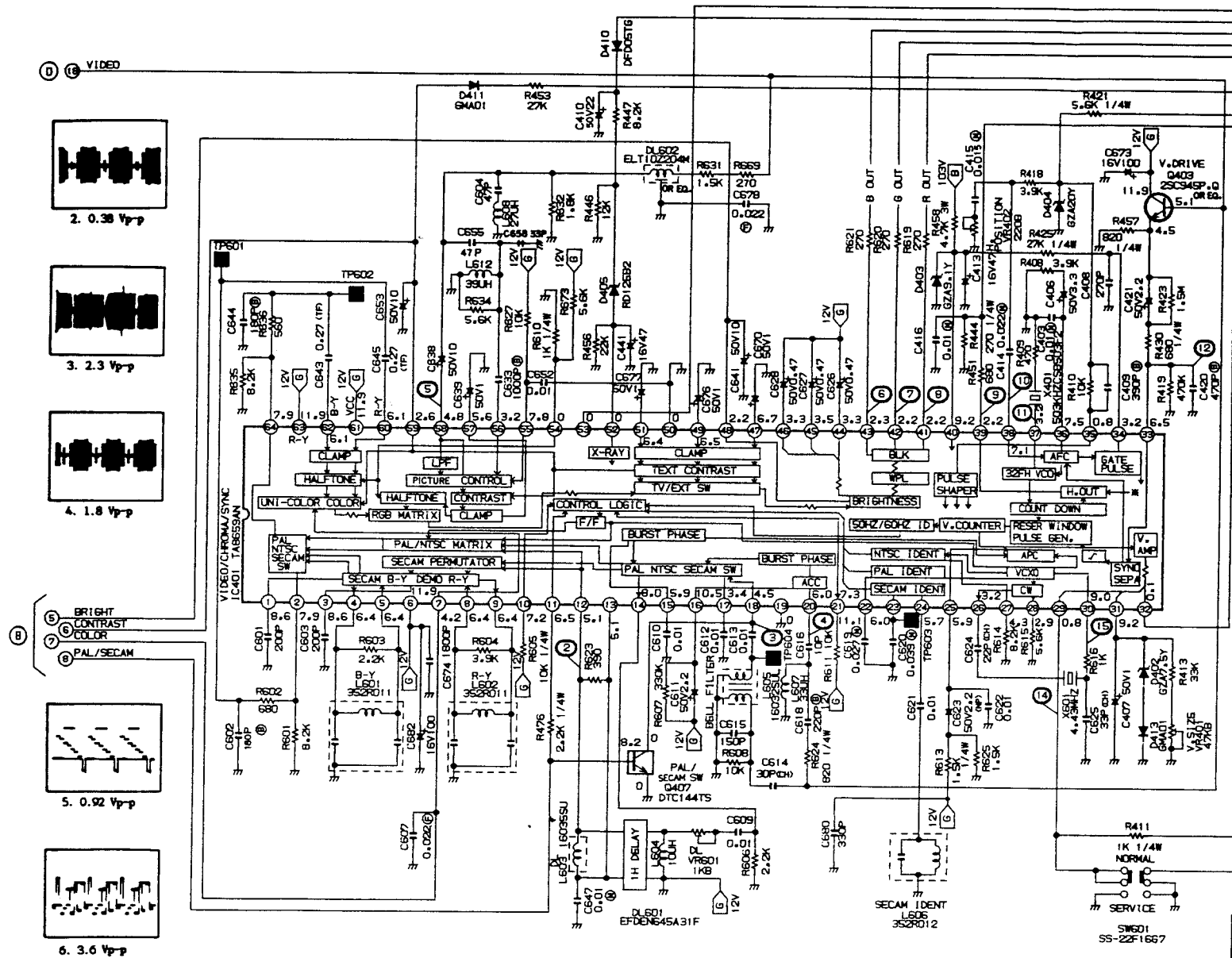
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CHASSIS SCHEMATIC



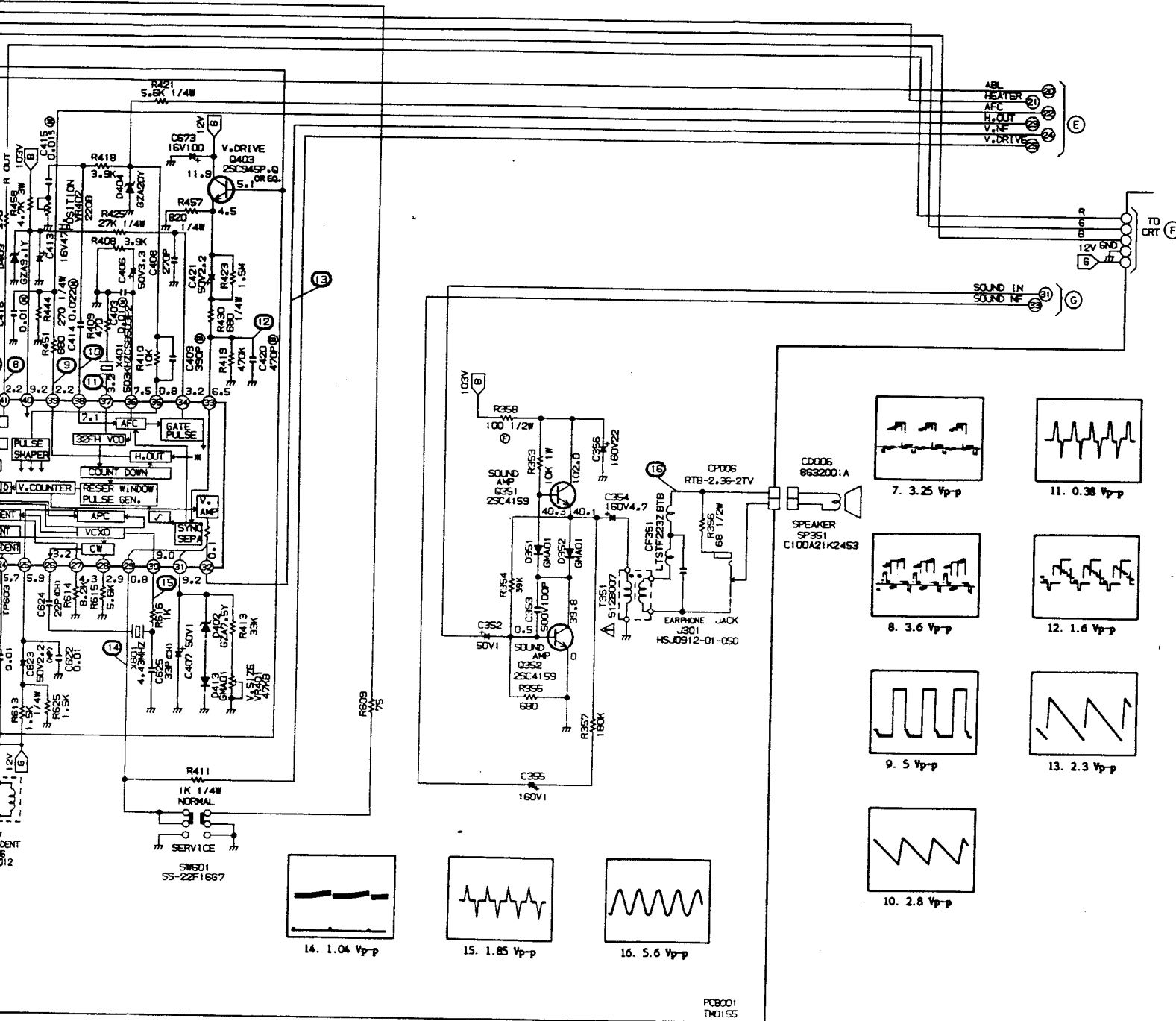
CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION

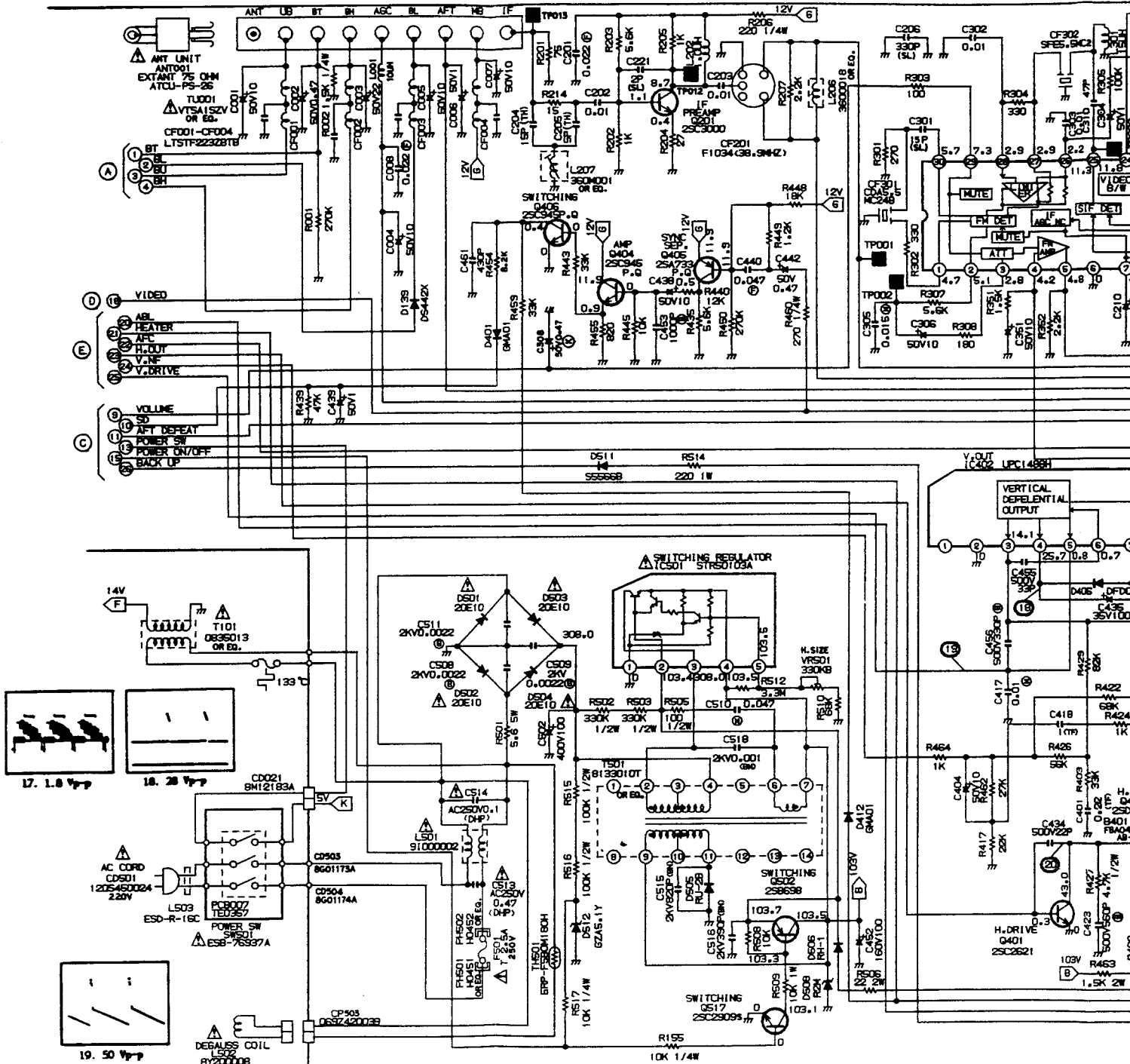
LES PIÉCES RÉPARÉES PAR UN Δ ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMÉNCLATURE DES PIÉCES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CHASSIS SCHEMATIC DIAGRAM



CHASSIS SCHEMATIC DIAGRAM

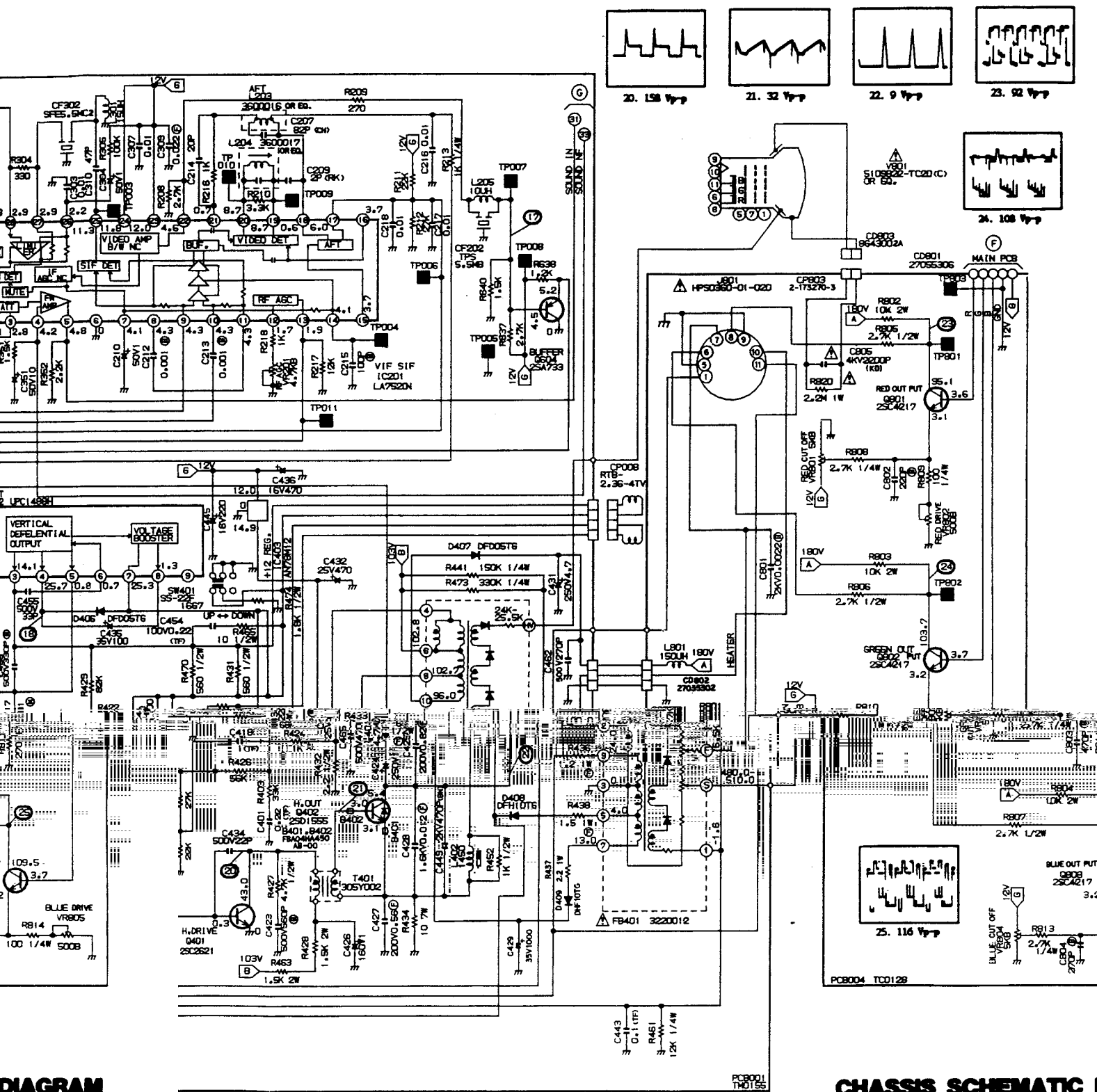


CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIÉCES RÉPARÉES PAR UN Δ ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMÉNCLATURE DES PIÉCES.

NOTE: THIS SCHEMATIC DIAGRAM IS FOR PRINTING AND SUBSTITUTION ONLY.

CHASSIS SCHEMATIC DIAGRAM



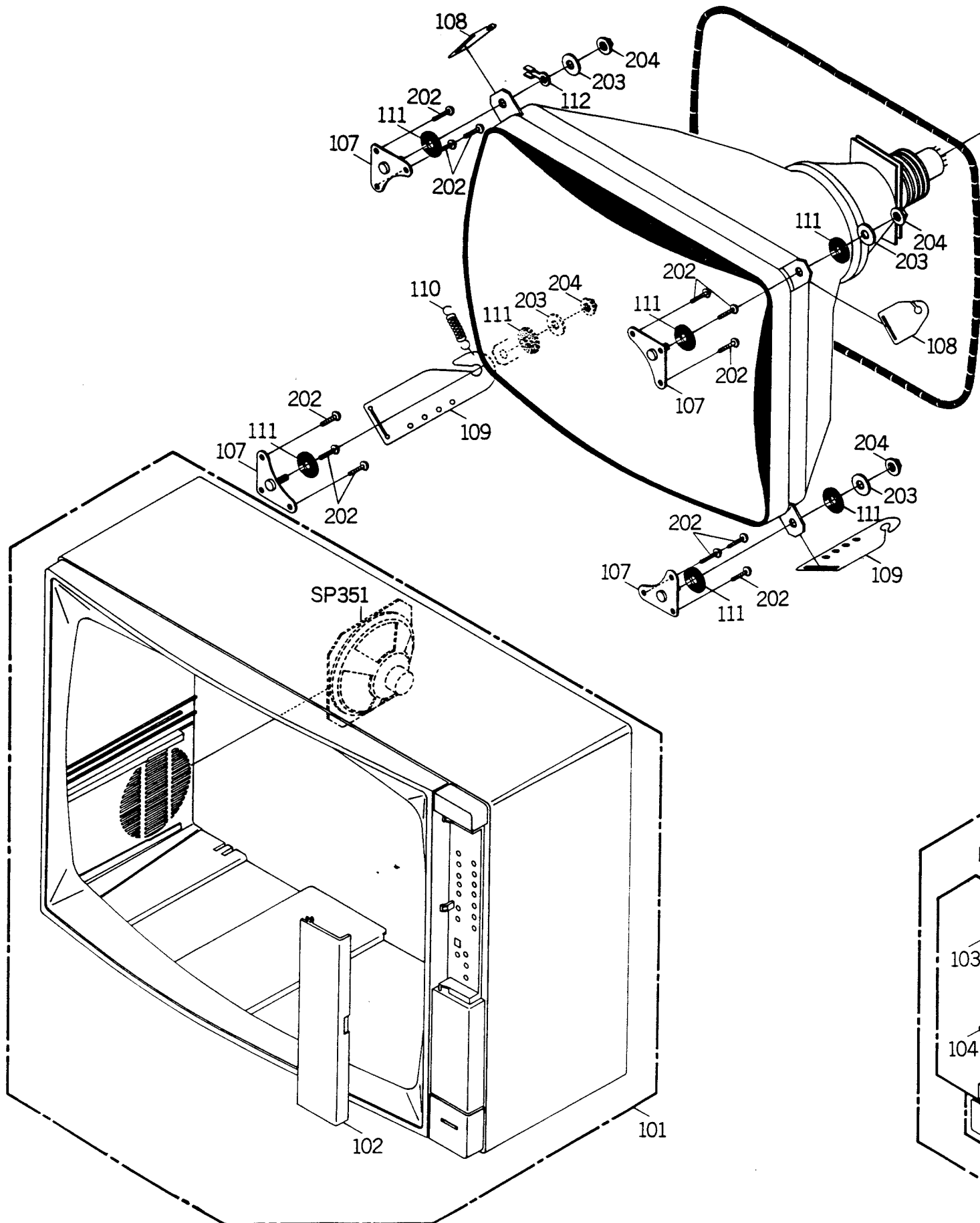
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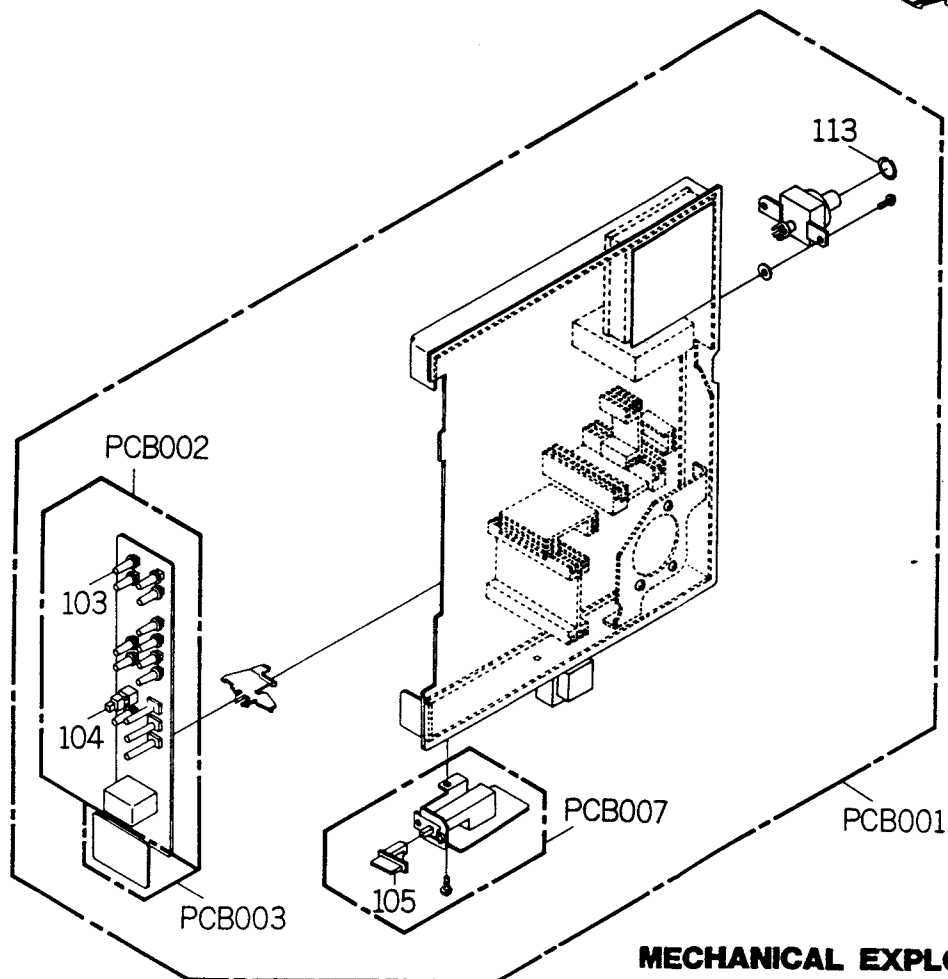
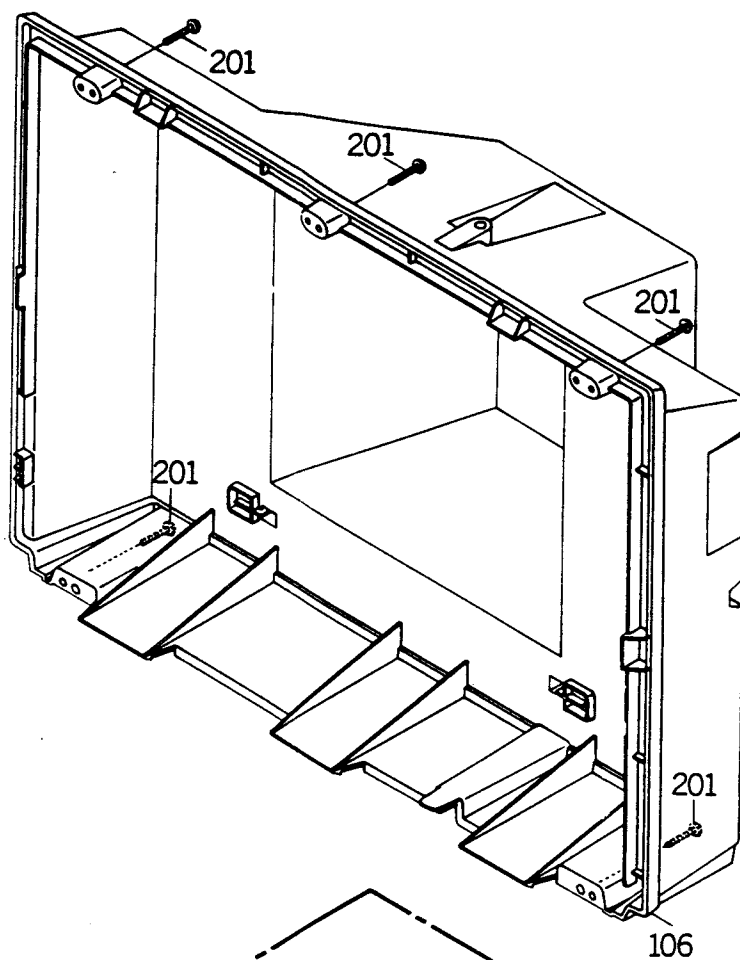
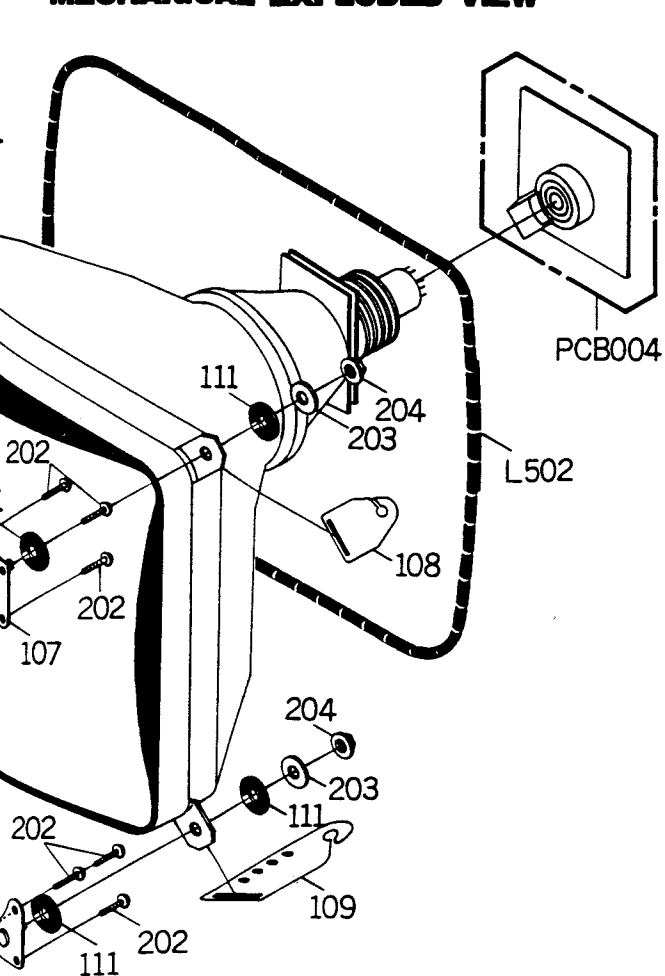
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CHASSIS SCHEMATIC

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW

MECHANICAL REPLACEMENT PARTS LIST

REF.NO	PART NO	DESCRIPTION	RTV servis Horvat
101	A35473A723	CABINET, FRONT ASS'Y	Kešinci, 31402 Semeljci 031-856-139 031-856-637 098-788-319 rtv-servis-horvat@os.tel.hr Croatia
102	713KPD0016	DOOR	
103	737KPA0013	BUTTON, CAP	
104	735JPA0112	BUTTON, CHANNEL	
105	736KPA0003	BUTTON, POWER	
106	A35473A743	CABINET, BACK ASS'Y	
		SHEET, RATING	
107	761JSA0184	FRAME, CRT	
108	751JNA0004	PLATE, EARTH WIRE	
109	751JNA0008	PLATE, EARTH WIRE	
110	741JUA0004	SPRING, EARTH	
111	800JR00003	SHEET, CRT SUPPORT	
112	753KSA0018	EARTH, LUG	
113	749JUA0002	SPRING, ANTENNA	
201	8117540A82	TAPPING(BO) TRUSS	4*18 BK
202	8110540B04	TAP TITE(P) TRUSS	4*20 CH
203	82A60B2161	WASHER	6.3*22*T1.6
204	8300560004	SL NUT	M6
---	JIAKTGA02A	GUARANTEE CARD	
---	J3546701A	INSTRUCTION BOOK	
---	J3546703A	SCHEMATIC DIAGRAM	
---	J3590128A	WARNING SHEET	
---	792JHA0067	PACKAGE, TOP	
---	792JHA0068	PACKAGE, BOTTOM	
---	793JCD1980	GIFT BOX	

THIS ELECTRICAL PARTS LIST IS A STANDARD PART LIST. BUT
INTERCHANGEABLE PARTS MAY BE USED IN THE UNIT.
SEE THE INTERCHANGEABLE PARTS LIST AFTER THE STANDARD PARTS LIST.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO	DESCRIPTION	REF. NO	PART NO	DESCRIPTION
-RESISTORS-			-SEMICONDUCTORS (CONT)-		
R002	R00104152J RC	1.5K OHM 1/4W	D412	D13TGMA010	DIODE, SILICON GMA-01-BT
R167	R31181123J R.METAL OXIDE	12 K OHM 1 W	D413	D13TGMA010	DIODE, SILICON GMA-01-BT
R353	R31181103J R.METAL OXIDE	10 K OHM 1 W	△ D501	D28020E100	DIODE, SILICON 20E10
R358	R61582101J R.FUSE	100 OHM 1/2W	△ D502	D28020E100	DIODE, SILICON 20E10
R428	R3118A152J R.METAL OXIDE	1.5K OHM 2 W	△ D503	D28020E100	DIODE, SILICON 20E10
R433	R61582680J R.FUSE	68 OHM 1/2W	△ D504	D28020E100	DIODE, SILICON 20E1C
R434	R5M2CE100J R.CEMENT	10 OHM 7 W	D505	D2B00RU2B0	DIODE, SILICON RU-2B
R436	R614811R2J R.FUSE	1.2 OHM 1 W	D506	D2BF00RH10	DIODE, RECTIFIER RH-1
R437	R615812R2J R.FUSE	2.2 OHM 1 W	D508	D2B000R2M0	DIODE, AVARANCHE R2M
R438	R614811R5J R.FUSE	1.5 OHM 1 W	D511	D25T5566B0	DIODE, RECTIFIER S5566B
R458	R3128B472J R.METAL OXIDE	4.7K OHM 3 W	D512	D93T05R10Y	DIODE, ZENER GZA5.1 Y BT
R463	R3118A152J R.METAL OXIDE	1.5K OHM 2 W	IC101	I01D10B210	IC AN90B21
R501	R5M2CD5R6K R.CEMENT	5.6 OHM 5 W	IC102	I30S1006L0	IC CXK1006L
R506	R3118A220J R.METAL OXIDE	22 OHM 2 W	IC103	I51D08024B	IC OEC8024B
R509	R31181103J R.METAL OXIDE	10K OHM 1 W	IC104	I01901280S	IC MN1280S
R514	R31181221J R.METAL OXIDE	220 OHM 1 W	IC105	I03S079100	IC LA7910
R673	R00106562J RC	5.6K OHM 1/6W	IC106	I03D06358T	IC LA6358T
R802	R3118A103J R.METAL OXIDE	10K OHM 2 W	IC107	I02190574J	IC UPC574J-T
R803	R3118A103J R.METAL OXIDE	10K OHM 2 W	IC108	I02A98L050	IC UPC78L05
R804	R3118A103J R.METAL OXIDE	10K OHM 2 W	IC201	I03DE7520N	IC LA7520N
△ R820	R03101225J RC	2.2M OHM 1 W	IC401	I05DE86590	IC TA8659AN
-CAPACITORS-			IC402	I02SD14880	IC UPC1488H
C134	C0K0B04B3K CC	1200 PF 50V	△ IC403	I01A98M120	IC AN78M12
C356	E0B5FB220M CE	22 UF 160V	IC501	I2B490103A	IC STR50103A
C425	P441F2824J CMPP	0.82 UF 200V	Q102	TA2T009520	TRANSISTOR, SILICON 2SA952-T
C427	P441F2564J CMPP	0.56 UF 200V	Q103	TA2T009520	TRANSISTOR, SILICON 2SA952-T
C428	P442F9123J CMPP	0.012 UF1600V	Q104	TA2T009520	TRANSISTOR, SILICON 2SA952-T
C429	E0B7F4102M CE	1000 UF 35V	Q105	TC2T009450	TRANSISTOR, SILICON 2SC945-T
C430	E0B7F3222M CE	2200 UF 25V	Q106	TN7TD03002	COMPOUND, TRANSISTOR(1C) DTC144TS
C431	E0B5FD4R7M CE	4.7 UF 250V	Q107	TC2T009450	TRANSISTOR, SILICON 2SC945-T
C449	C01B80702K CC	470 PF 2KV	Q111	TP7TD03002	COMPOUND, TRANSISTOR(1C) DTA144TS
C452	E0B5FB101M CE	100 UF 160V	Q112	TN7TD03001	COMPOUND, TRANSISTOR(1C) DTC144ESTP
C502	E0260H101T CE	100 UF 400V	Q115	TC2T009450	TRANSISTOR, SILICON 2SC945-T
C508	C02FB07H3K CC	0.0022UF 2KV	Q116	TN7TD03002	COMPOUND, TRANSISTOR(1C) DTC144TS
C509	C02FB07H3K CC	0.0022UF 2KV	Q117	TN7TD03002	COMPOUND, TRANSISTOR(1C) DTC144TS
C511	C02FB07H3K CC	0.0022UF 2KV	Q201	TC3T030000	TRANSISTOR, SILICON 2SC3000-AA
△ C513	P4440B474M CMPP	0.47 UF 250V	Q351	TC30041590	TRANSISTOR, SILICON 2SC4159
△ C514	P4440B104M CMPP	0.1 UF 250V	Q352	TC30041590	TRANSISTOR, SILICON 2SC4159

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO	DESCRIPTION	DESCRIPTION
		- COILS & TRANSFORMERS (CONT)-	- MISCELLANEOUS (CONT)-
048133010T	TRANSFORMER.SWITCHING 8133010T	DL602 103S000402 DELAY LINE	ELT10Z204M
	- JACKS-	EAR351 074U130009 EARPHONE	4U130009
0602101004	JACK.RCA 3.5	F501 0808T2R502 FUSE	T 2.5A 250V
0662130007	SOCKET.CRT	FB401 0432200121 TRANSFORMER.FLYBACK	3220012
		FH501 067M0T0004 HOLDER.FUSE	H0451
		FH502 067M0T0005 HOLDER.FUSE	H0452
		MS002 128B000017 MICA.SHEET	STR-50103MICA
		NR101 110E647302 R.NETWORK	RN3H7A473J04
		OS101 077M006004 REMOTE RECIVER	KEY-C00SV2
	- SWITCHES-		
0501201007	SWITCH.PUSH	SPPH11280A	
0504101113	SWITCH.TACT	EVQ-QTN09Q	
0504101113	SWITCH.TACT	EVQ-QTN09Q	
0504101113	SWITCH.TACT	EVQ-QTN09Q	
0504101113	SWITCH.TACT	EVQ-QTN09Q	
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0504101113	SWITCH.TACT	EVQ-QTN09Q	
0504101113	SWITCH.TACT	EVQ-QTN09Q	
0504101113	SWITCH.TACT	EVQ-QTN09Q	

INTERCHANGERABLE PARTS LIST

NOTE: THE FOLLOWING PART(S) MAY BE SUBSTITUTED FOR PARTS INDICATED IN THE BASIC PART(S) LIST (WITH THE SAME REF.NO.). THESE PARTS SHARE THE SAME ELECTRICAL CHARACTERISTICS AND OTHER ELEMENTS FOR COMMON USAGE. EITHER PART NUMBER MAY BE USED IN THIS UNIT.

REF.NO	DESCRIPTION (PART NO.)	DESCRIPTION (PART NO.)
Q105	2SC945-T (TC2T009450)	2SC945A(C)-T (TCLT009450)
Q107	2SC945-T (TC2T009450)	2SC945A(C)-T (TCLT009450)
Q115	2SC945-T (TC2T009450)	2SC945A(C)-T (TCLT009450)
Q403	2SC945-T (TC2T009450)	2SC945A(C)-T (TCLT009450)
L203	3600016 (033600016N)	3600016 (033600016G)
L204	3600017 (033600017N)	3600017 (033600017G)
L206	3600018 (033600018G)	3600018 (033600018N)
L207	360M001 (03360M001G)	360M001 (03360M001N)
T101	0835013 (040835013Z)	0835013 (040835013P)
T501	8133010T (048133010T)	8133010 (048133010S)
BT101	UM-4 (141T004003)	R03(UM-4(SP)) (1412004002)
BT102	UM-4 (141T004003)	R03(UM-4(SP)) (1412004002)
CF101	KBR-4.0MSTF (1003T4R001)	KBR-4.0M (10034R0001)
DL602	ELT10Z204M (103S000402)	ELT10Z204M (1031000402)
FH501	H0451 (067M0T0004)	773JEE0004 (067H000003)
FH502	H0452 (067M0T0005)	773JEE0004 (067H000003)
TU001	VTSA1SZV (0145P11004)	VTSA1SZV (0145J11004)
V801	5109B22-TC20 (098F200410)	510YUB22-TC1 (098K200418)