COLOR TELEVISION RECEIVER

PAL/SECAM

ORION

COLOR 512 DK

Bei technischen Änderungen können Ergänzungsblätter angefordert werden.

Specifications are subject to change without notice.

CHASSIS CODE A

Bestell-Nr.:

4451

SPECIFICATIONS

PICTURE SIZE		20 inch
SYSTEM		PAL/SECAM
FREQUENCY RANGE:	VHF(L)	2 - 4, X - S2 ch
	VHF(H)	S3 - S10, 5 - 12, S11 - S20 ch
	UHF	21 - 69 ch
MAXIMUM SENSITIVITY:	VHF	20 dB
	UHF	25 dB
INTERMEDIATE FREQUENCY:		
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
SPEAKER		8 ohm
POWER SOURCE		AC 220V

IMPORTANT

*USE AN ISOLATION TRANSFORMER WHEN PERFORMING ANY SERVICE ON THIS CHASSIS.

*WHEN REMOVING A PCB OR RELATED COMPONENT, AFTER UNFASTENING OR CHANGING WIRE, BE SURE TO PUT WIRE BACK IN ITS ORIGINAL POSITION.

*INFERIOR SILICON GREASE CAN DAMAGE IC's AND TRANSISTORS.
WHEN REPLACING AN IC's OR TRANSISTORS, USE ONLY SPECIFIED SILICON GREASE (YG6260M).
REMOVE ALL OLD SILICON BEFORE APPLYING NEW SILICON.

CONTENTS

ELECTRICAL ADJUSTMENTS

1. BEFORE ELECTRICAL ADJUSTMENT

These are adjustments when you replace electric parts or PCB ass'y.
When you repair the electric circuit, please read these adjustments.

1-1: Prepare the following measurement tools for the electrical adjustment.

1. Oscilloscope (2 Channel Type)
2. Digital Voltmeter
3. Color Bar Generator
4. Sweepmarker Generator
5. VIF Unit

2. BASIC ADJUSTMENT

2-1: VIF AND AFT

NOTE
Connect input and output terminal of the sweepmarker generator to circuit as shown in Fig. 2-1-a, then adjust it.

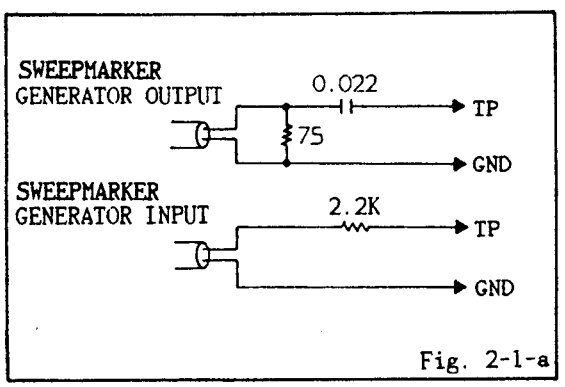
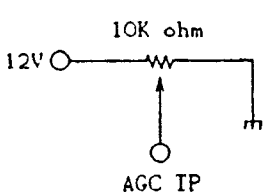


Fig. 2-1-a

1. Connect output terminal of the sweepmarker generator to TP001.
2. Connect input terminal of the sweepmarker generator to TP007.
3. Connect the volume 10K ohm to IF AGC terminal (TP004), 12V line and ground, then adjust to make the waveform of the oscilloscope be easy to watch.



4. Adjust L204 until the waveform marker (38.9MHz) will become as shown in Fig. 2-1-b.

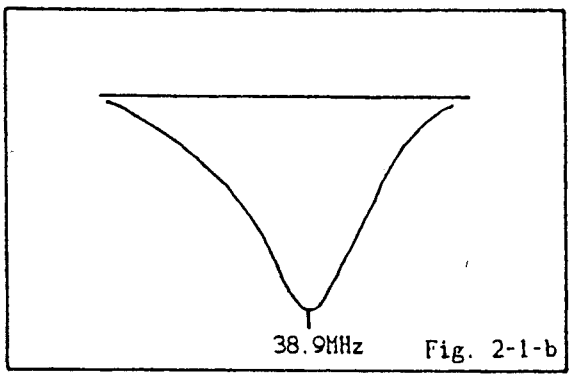


Fig. 2-1-b

5. Disconnect output terminal of the sweepmarker generator from TP001, then connect it to TP of the Tuner Pack.
6. Connect the resistor 100 ohm between TP009 and TP010.
7. Adjust L206 until the waveform will become as shown in Fig. 2-1-c.

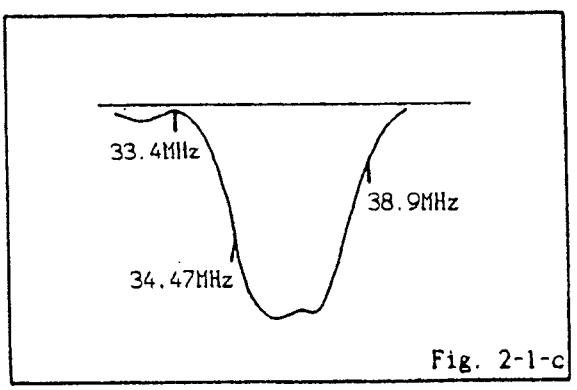


Fig. 2-1-c

8. Disconnect the volume 10K ohm and resistor 100 ohm.
9. Input a 38.9MHz signal to TP of the tuner pack.
10. Connect the digital voltmeter to TP006.
11. Adjust L203 until the AFT ON mode voltage is as same as the AFT OFF mode voltage.

2-2: BELL FILTER

NOTE
Connect input and output terminal of the sweepmarker generator to circuit as shown in Fig. 2-2-a, then adjust it.

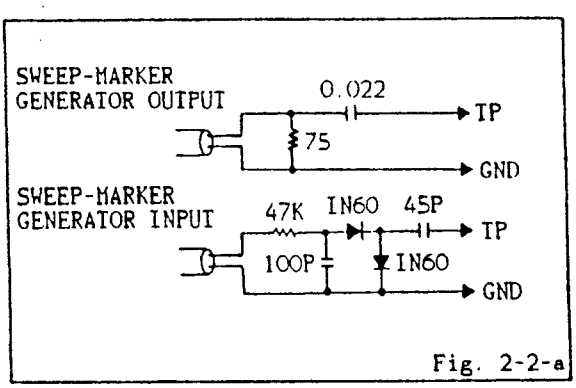
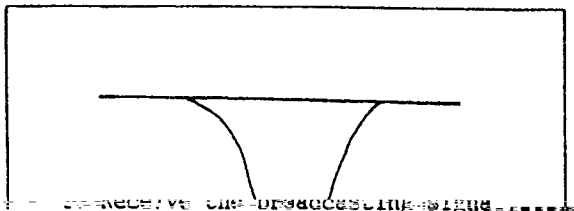


Fig. 2-2-a

ELECTRICAL ADJUSTMENTS

1. Connect output terminal of the sweepmarker generator to TP of the Tuner Pack.
2. Connect input terminal of the sweepmarker generator to TP604.
3. Adjust L605 until the waveform will become as shown in Fig. 2-2-b.



. 2-2-b

2. Adjust the focus control until picture will be distinct.

2-8: VERTICAL SIZE

1. Receive the crosshatch pattern from the color bar generator.
2. Adjust the bright and contrast controls until the crosshatch pattern is distinct.
3. Adjust VR401 until the center of crosshatch is square.
4. Receive broadcasting signal, then confirm picture is normal

2-9: HUE DELAY

1. Receive the DEM Pattern.
2. Connect the dual oscilloscope to TP601 and TP602.
3. Adjust L603 and VR601 until the waveform will be straight line. (Refer to Fig. 2-3)

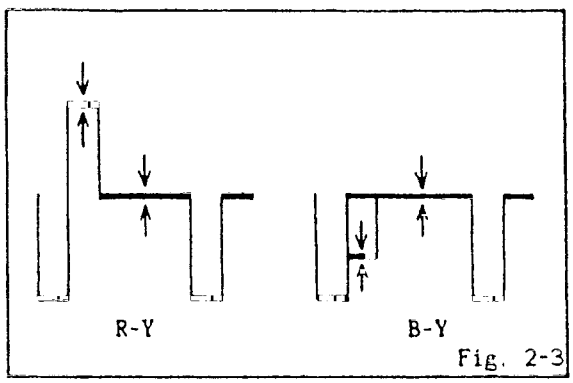


Fig. 2-3

2-10: HORIZONTAL POSITION

1. Receive the color bar pattern.
2. Adjust VR402 until the color width of both of screen edges will be equal.
3. Receive broadcasting signal, then confirm picture is normal

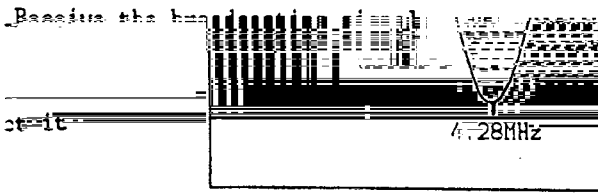
2-11: SUB BRIGHT

1. Receive the monochrome pattern.
2. Set the bright control to minimum position.
3. Set the contrast control to maximum position.
4. Adjust VR102 until 75% of gray scale is dim.

2-12: VERTICAL POSITION

1. Receive the color bar pattern.
2. Adjust SW401 until horizontal line of the color bar will come to around center of the CRT.
6. Adjust the bright and contrast controls until the cut off voltage will be DC150V.
7. Adjust the screen control until horizontal line will light slightly.
8. Set the service switch to normal position.
9. Adjust the Drive controls red (VR802) and blue (VR805) until the screen will be white.
10. Set the bright and contrast controls to minimum position.
11. Adjust the cut off controls red (VR801) and blue (VR804) until the screen will be white.

2-7: FOCUS



2-3: SECAM IDENT

1. Receive the SECAM color bar
2. Set the PAL/SECAM switch to
3. Set the AFT switch ON posit
4. Connect a digital voltmeter
5. Adjust L606 until voltage w (More than 8V)

2-4: SECAM PHASE

1. Receive the SECAM color bar
2. Set the PAL/SECAM switch to
3. Adjust L601 and L602 until pattern is not changed even color control from minimum

2-5: RF AGC

NOTE
Adjust after performing adju section 2-1.

2-5-A: Weak electric field case

1. Receive the noisy channel.
2. Adjust VR201 until noise wi
3. Change the channel, confirm are normal.

2-5-B: Strong electric field ca (When diagonal streaks, interference appear.)

1. Adjust VR201 until diagonal be weak.
2. When it is not good conditi adjusting VR201, install th to the antenna terminals, t step (1) again.
3. Confirm noise will appear.
4. Change the channel, confirm are normal.

2-6: CUT OFF AND WHITE BALAN

1. Receive the White 100% Patt bar generator.
2. Set the Cut off controls re blue (VR804) to minimum pos
3. Set the Drive controls red blue (VR805) to center posi
4. Set the service switch to t position.
5. Connect the oscilloscope to

ELECTRICAL ADJUSTMENTS

2-13: SIF

NOTE
Connect input and output terminal of the sweepmarker generator to circuit as shown in **Fig. 2-1-a**, then adjust it.

1. Connect output terminal of the sweepmarker generator to TP003.
2. Connect input terminal of the sweepmarker generator to TP002.
3. Connect the volume 10K ohm to IF AGC terminal (TP004), 12V line and ground, then adjust to make the waveform of the oscilloscope be easy to watch.
4. Adjust **L6101** until the waveform marker (6.5MHz) will become as shown in **Fig. 2-4-a**.

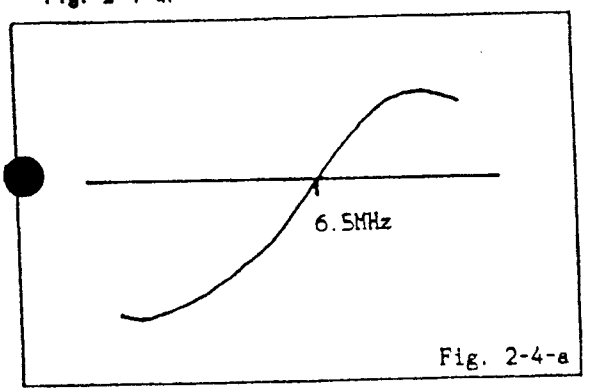


Fig. 2-4-a

5. Move the waveform marker(5.5MHz) to the top of the waveform by using the **L6102**.
6. Adjustment **L6104** until the waveform of step 5 is maximum.
7. Adjust **L6102** until the waveform marker (5.5MHz) will become as shown in **Fig. 2-4-a**.

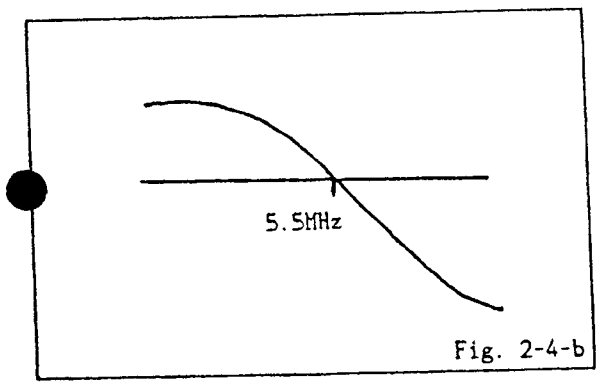


Fig. 2-4-b

3. PURITY AND CONVERGENCE ADJUSTMENT

NOTE
1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Power ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE
Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at ends are equally wide.
3. Move the deflection yoke backward (To neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

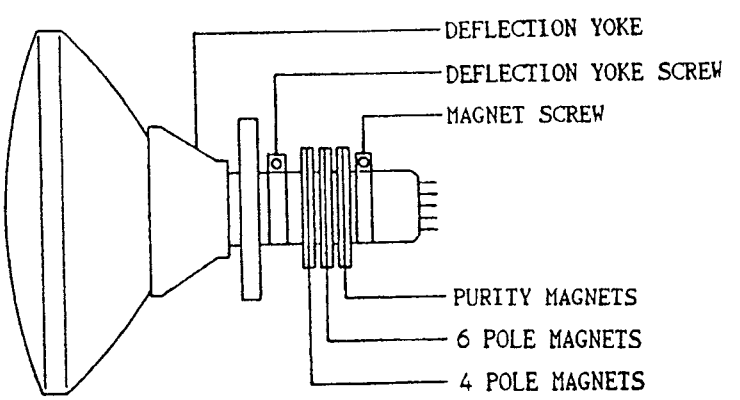


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE
Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

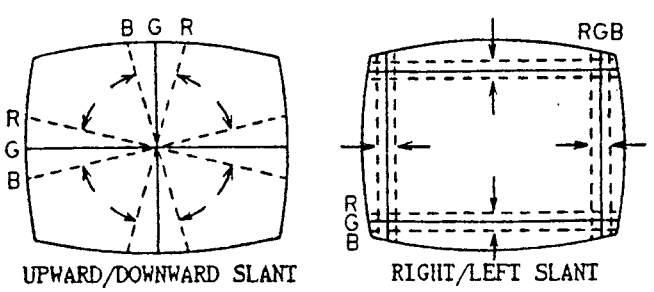
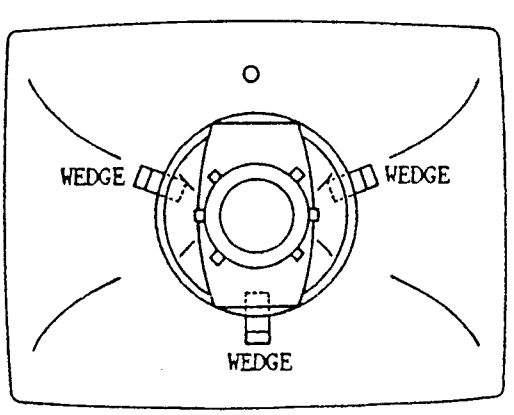


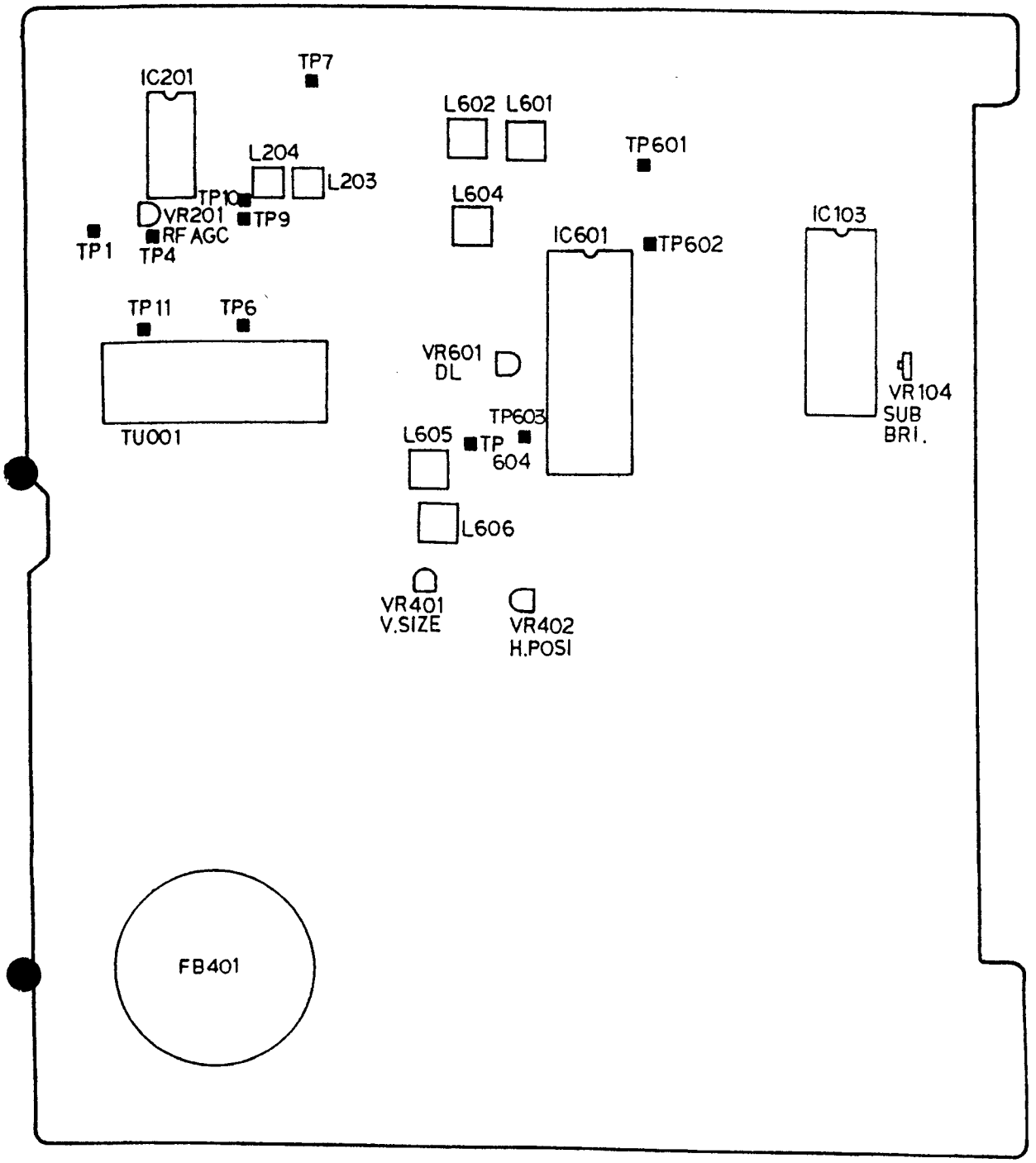
Fig. 3-2-a



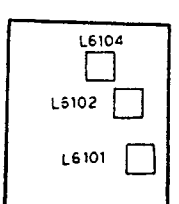
WEDGE POSITION

Fig. 3-2-b

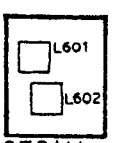
MAJOR COMPONENTS LOCATION GUIDE



MAIN P.C.BOARD



SUB SOUND P.C.BOARD



SECAM
P.C.BOARD

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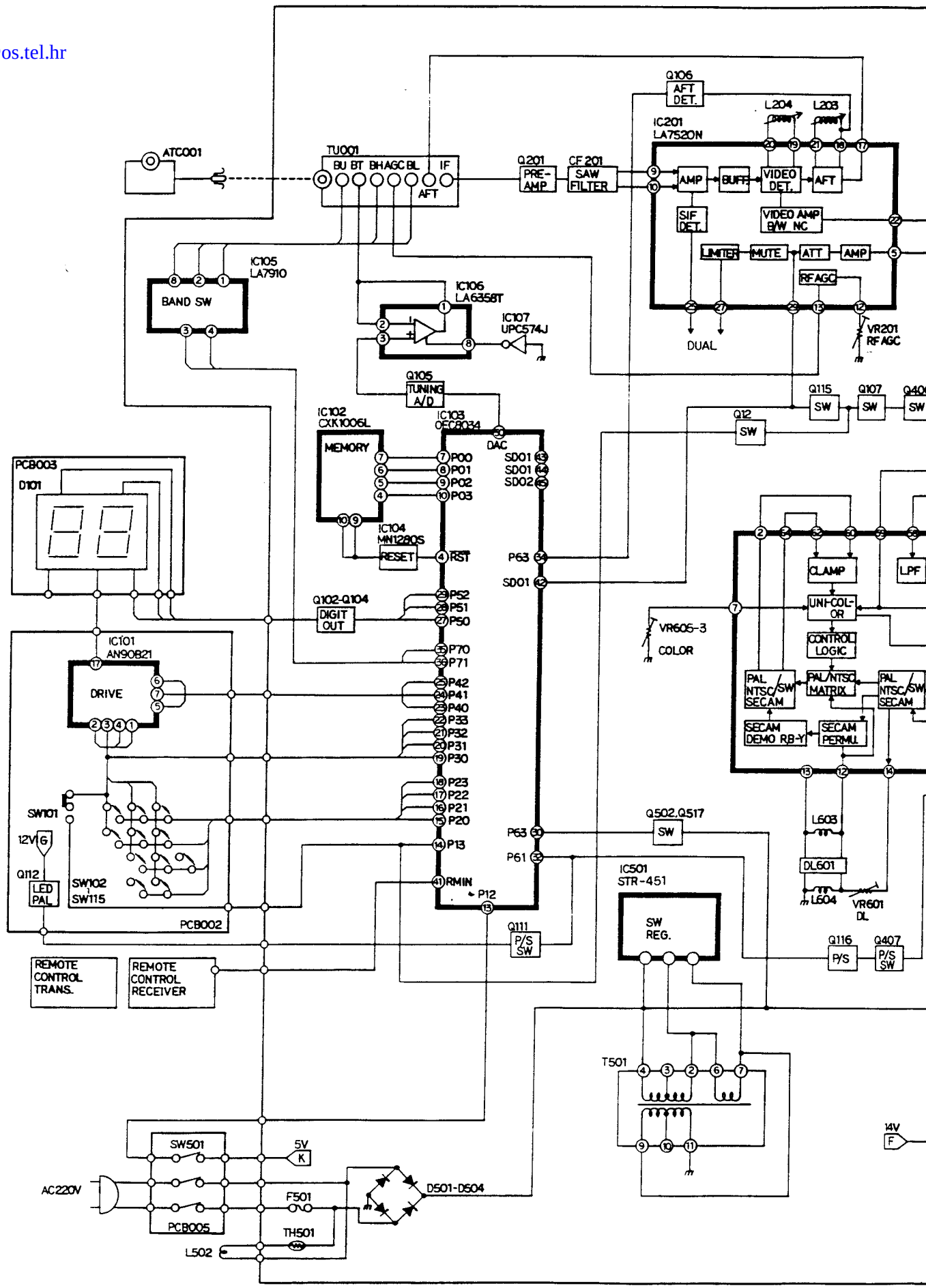
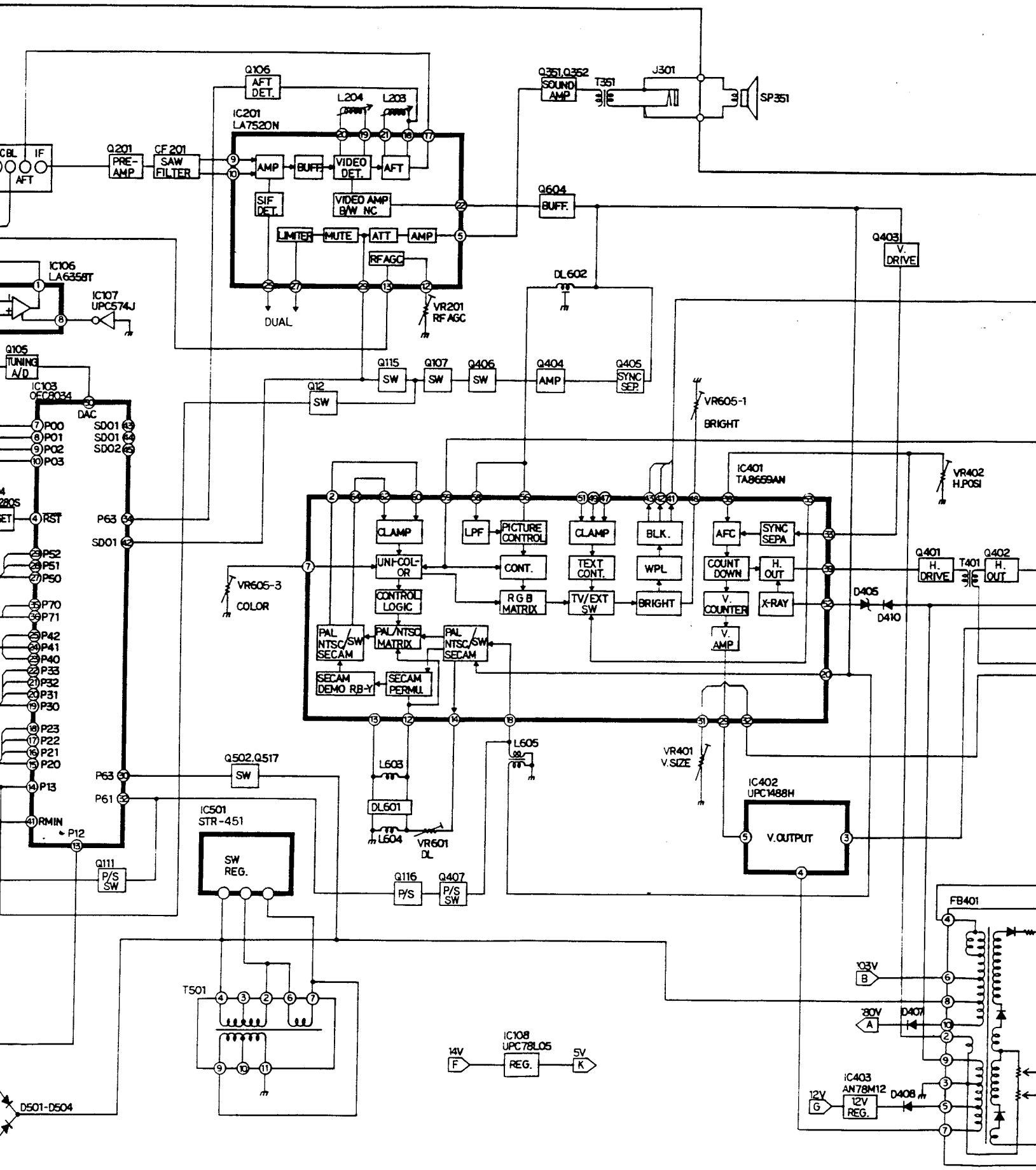


BLOCK DIAGRAM



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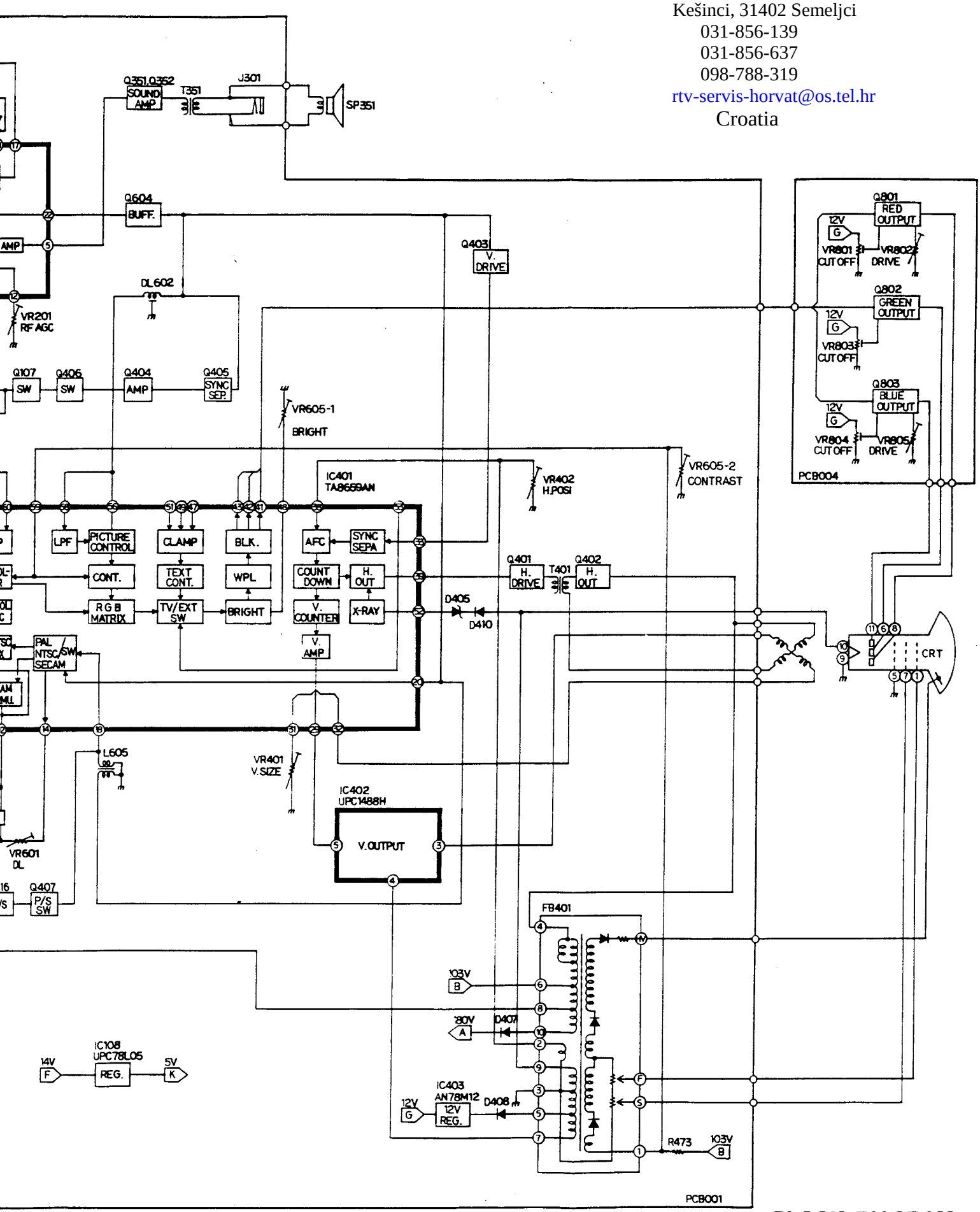

BLOCK DIAGRAM
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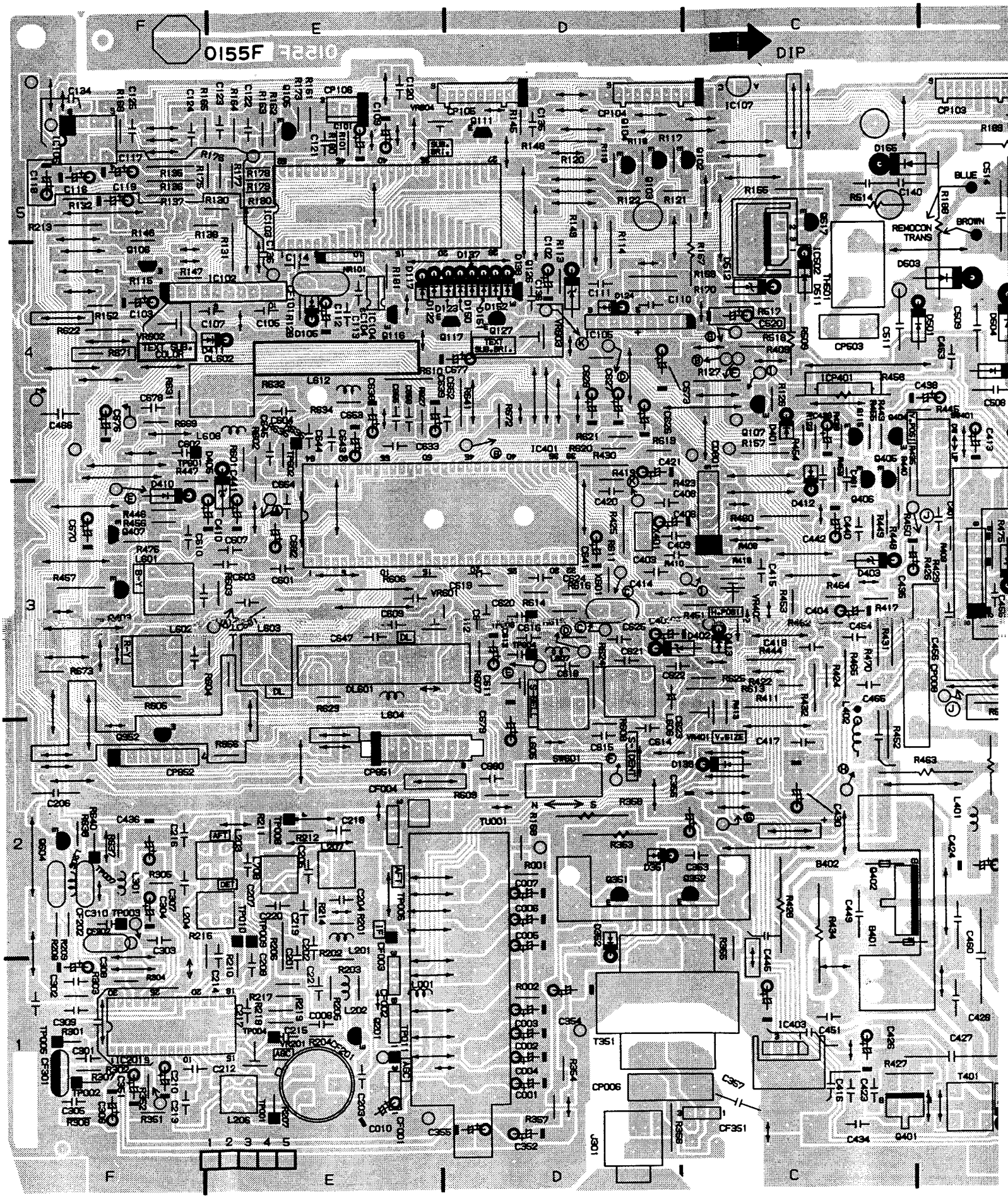
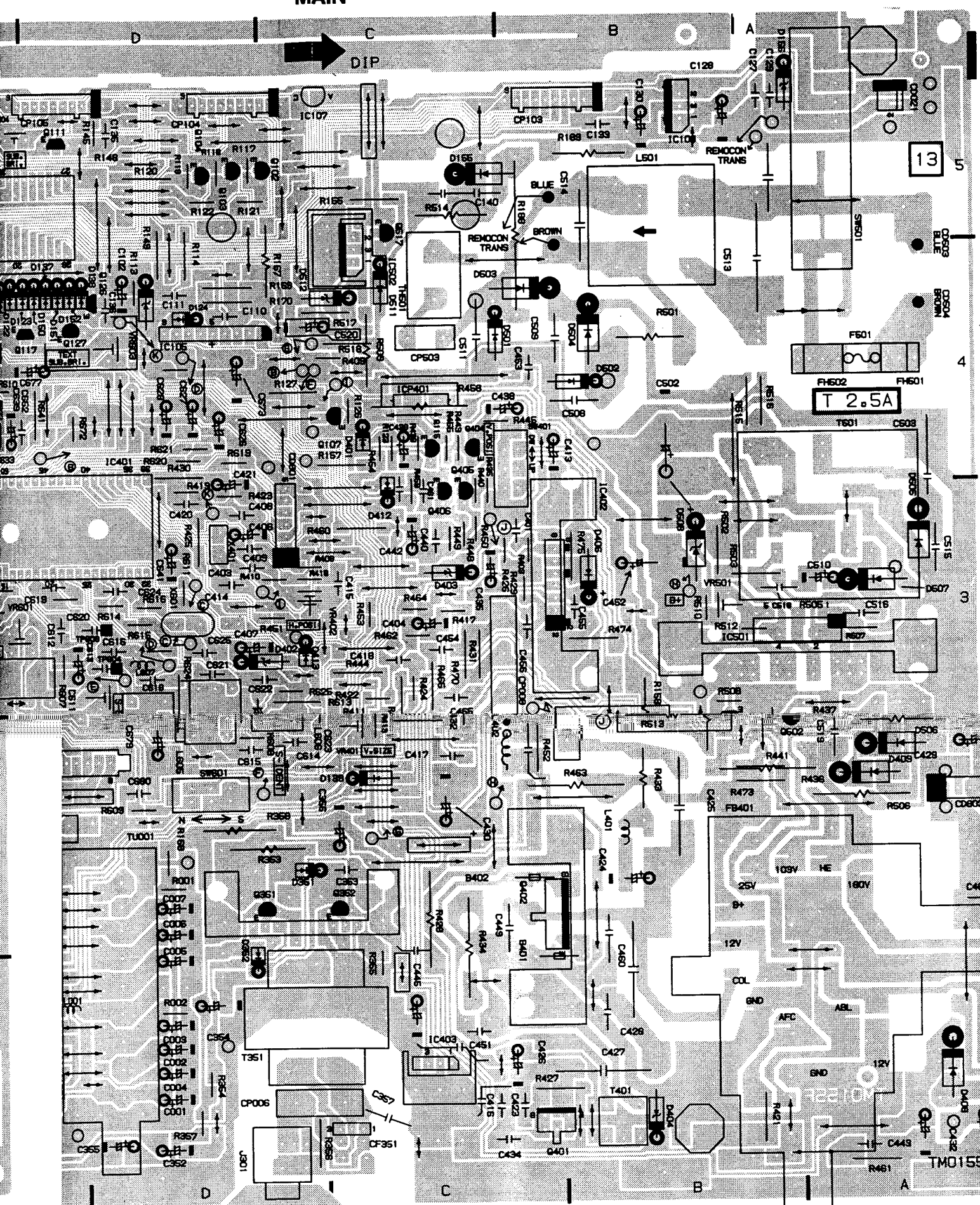
PRINTED CIRCUIT BOARD

MAIN



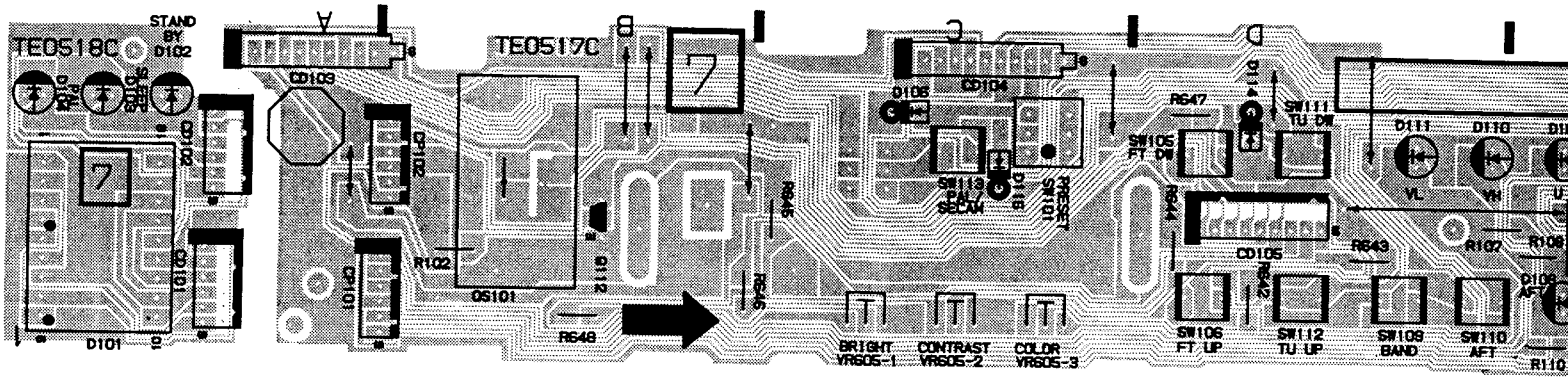
PRINTED CIRCUIT BOARD

MAIN

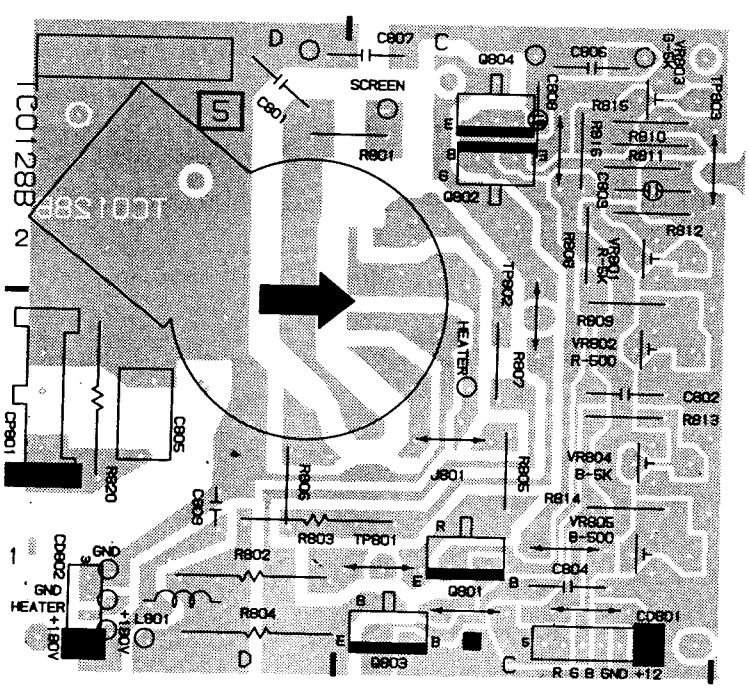


PRINTED CIRCUIT BOARDS

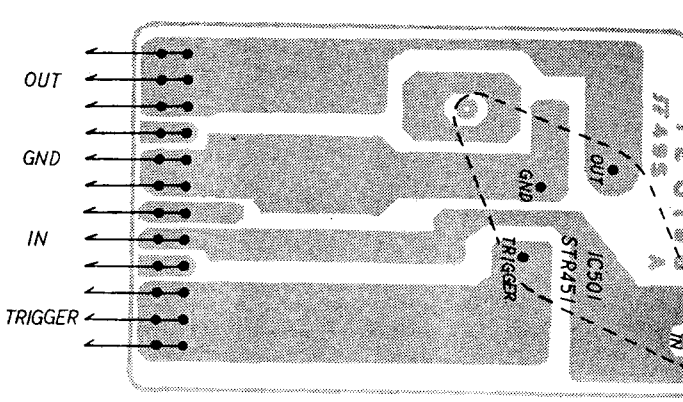
CONTROL/LED



CRT



POWER



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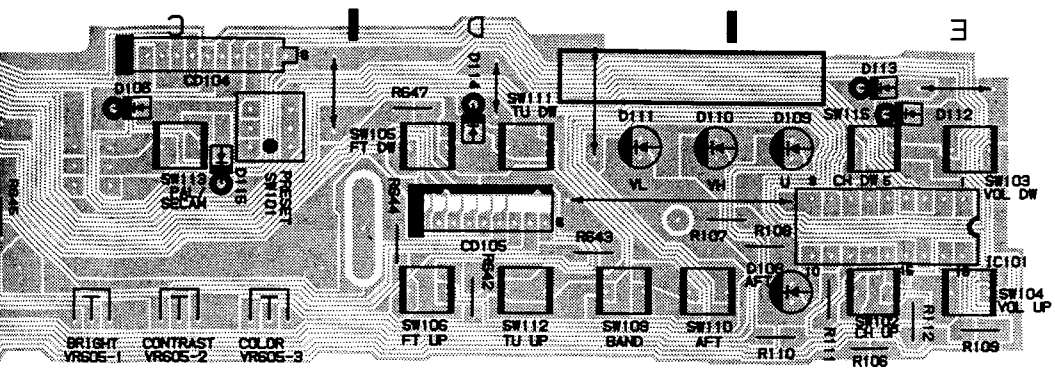
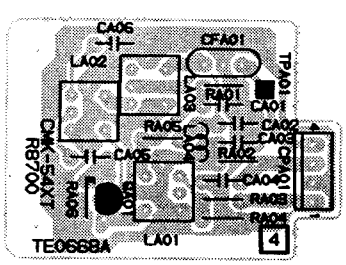
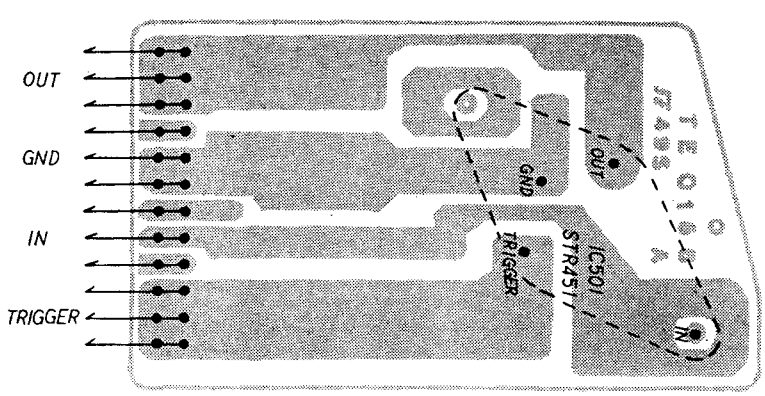
CONTROL/LED



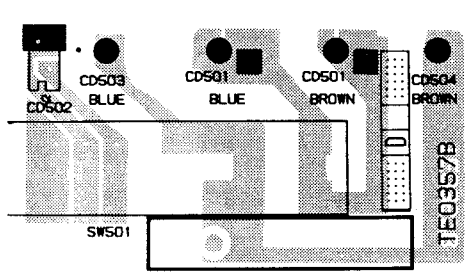
DUAL

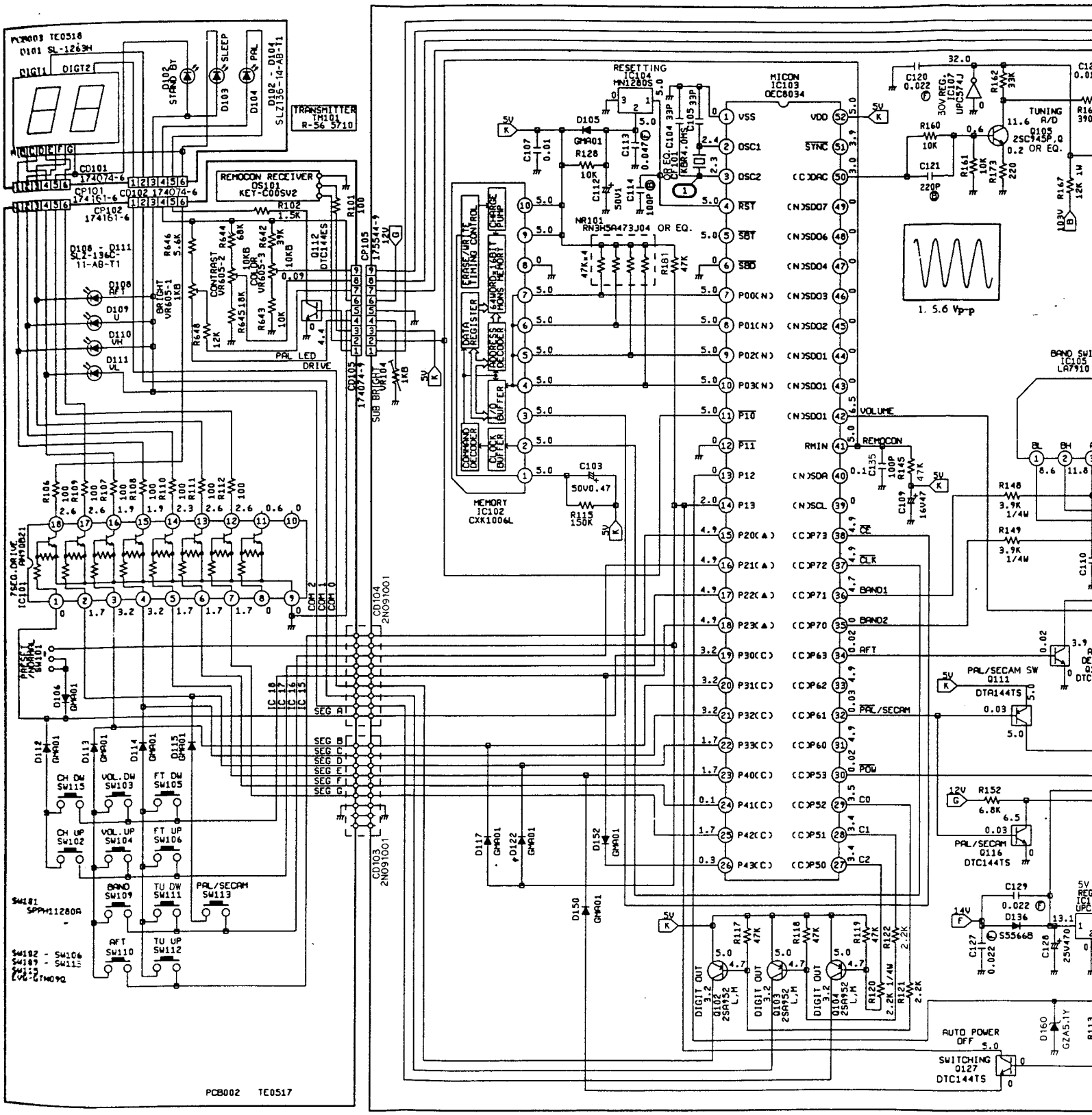


POWER



POWER SWITCH





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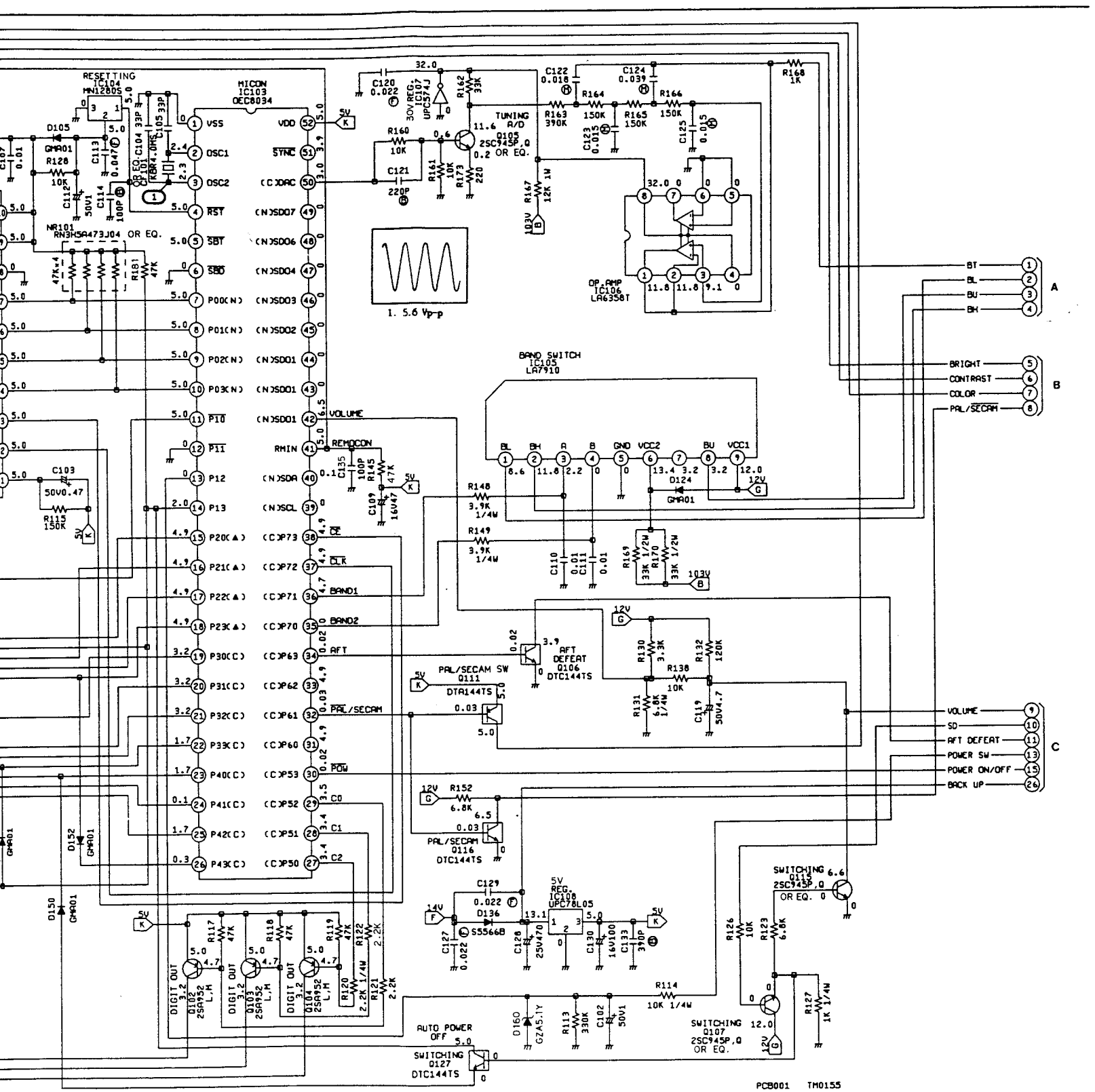
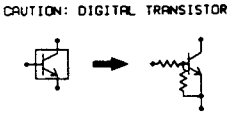
MICON SCHEMATIC DIAGRAM



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

CAUTION: DIGITAL TRANSISTOR



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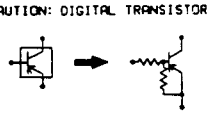
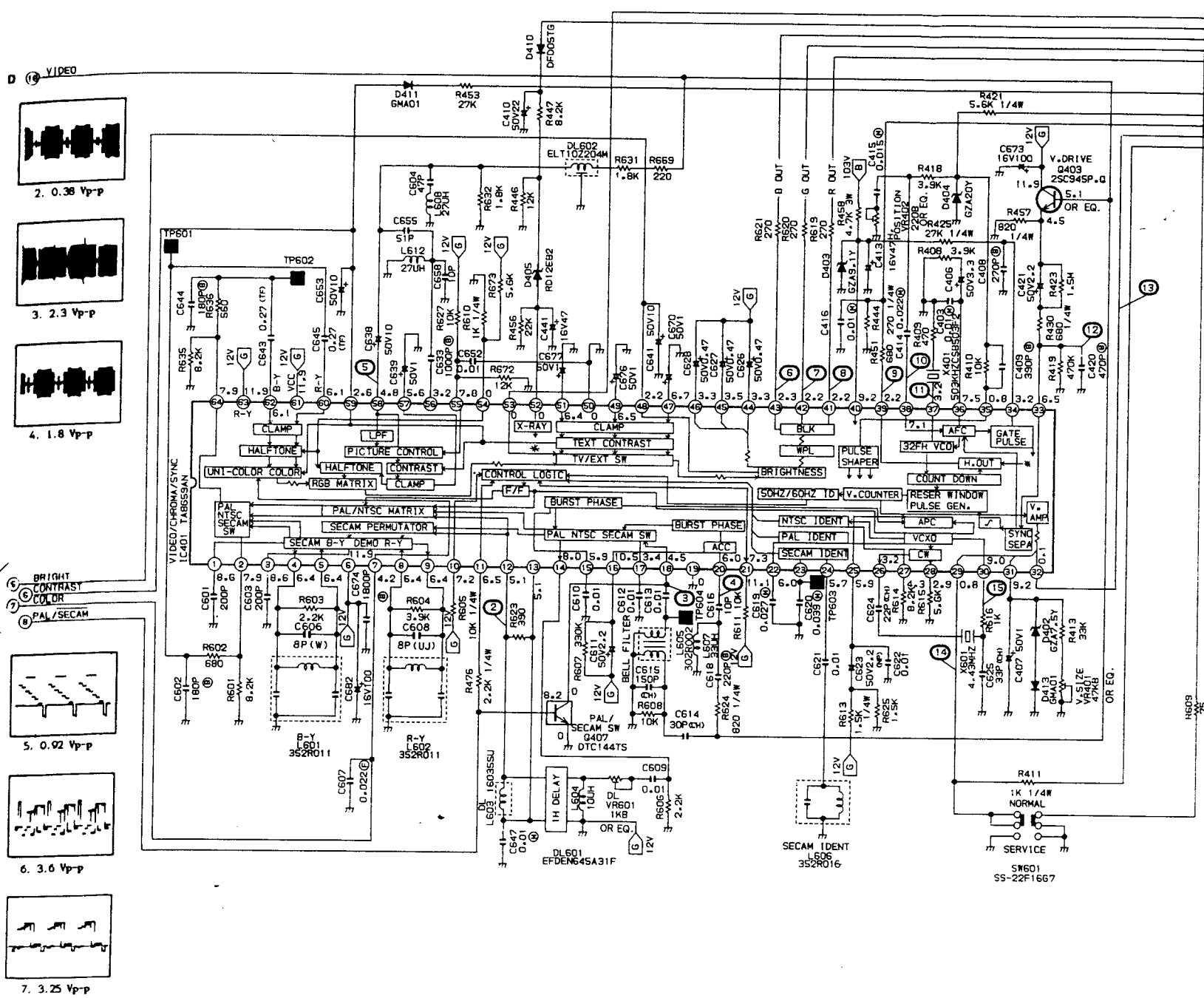


CHROMA/AUDIO SCHEMATIC DIAGR



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

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

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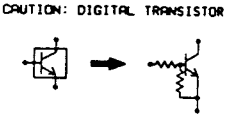
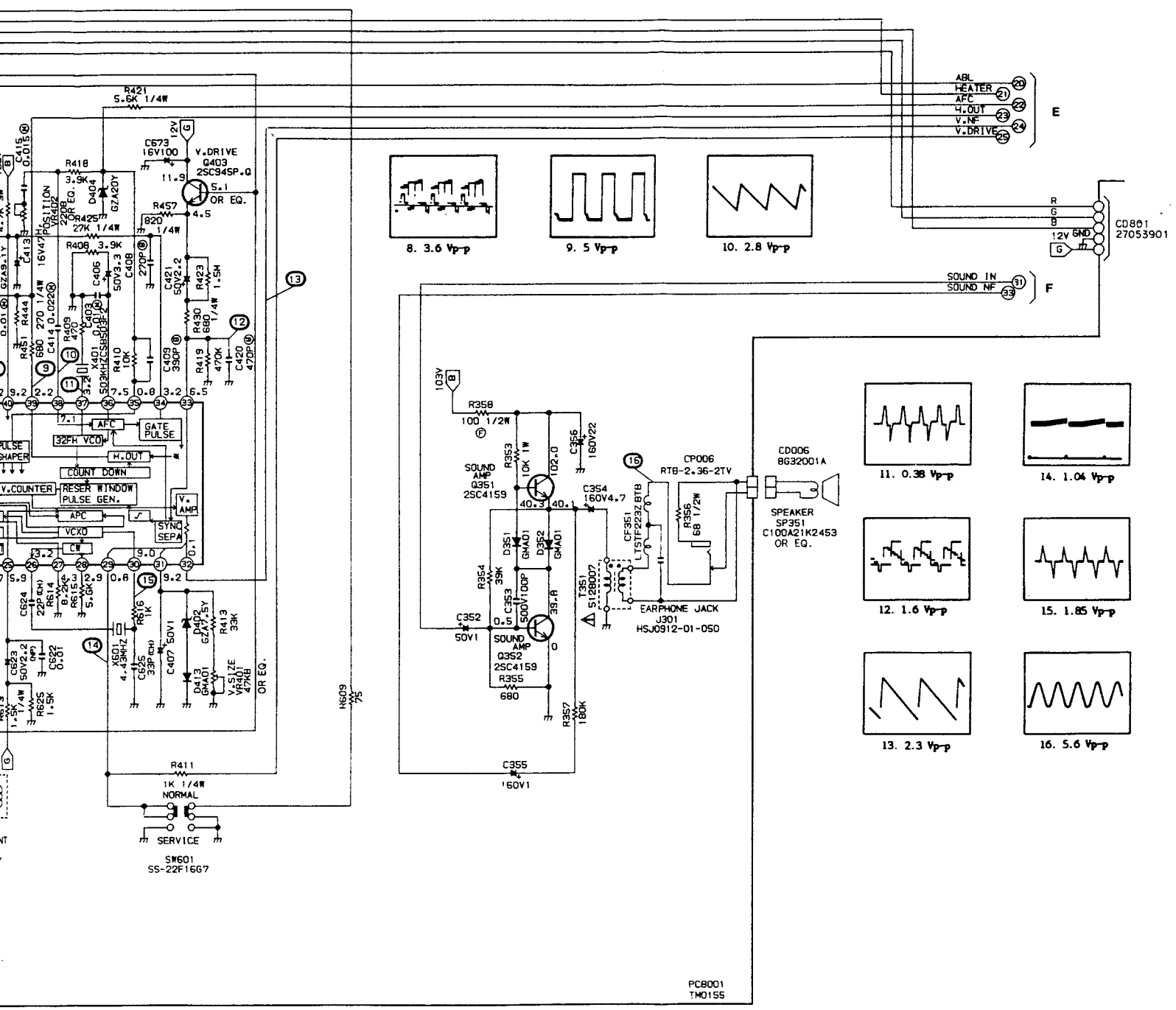


A/AUDIO SCHEMATIC DIAGRAM



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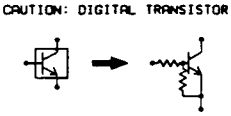
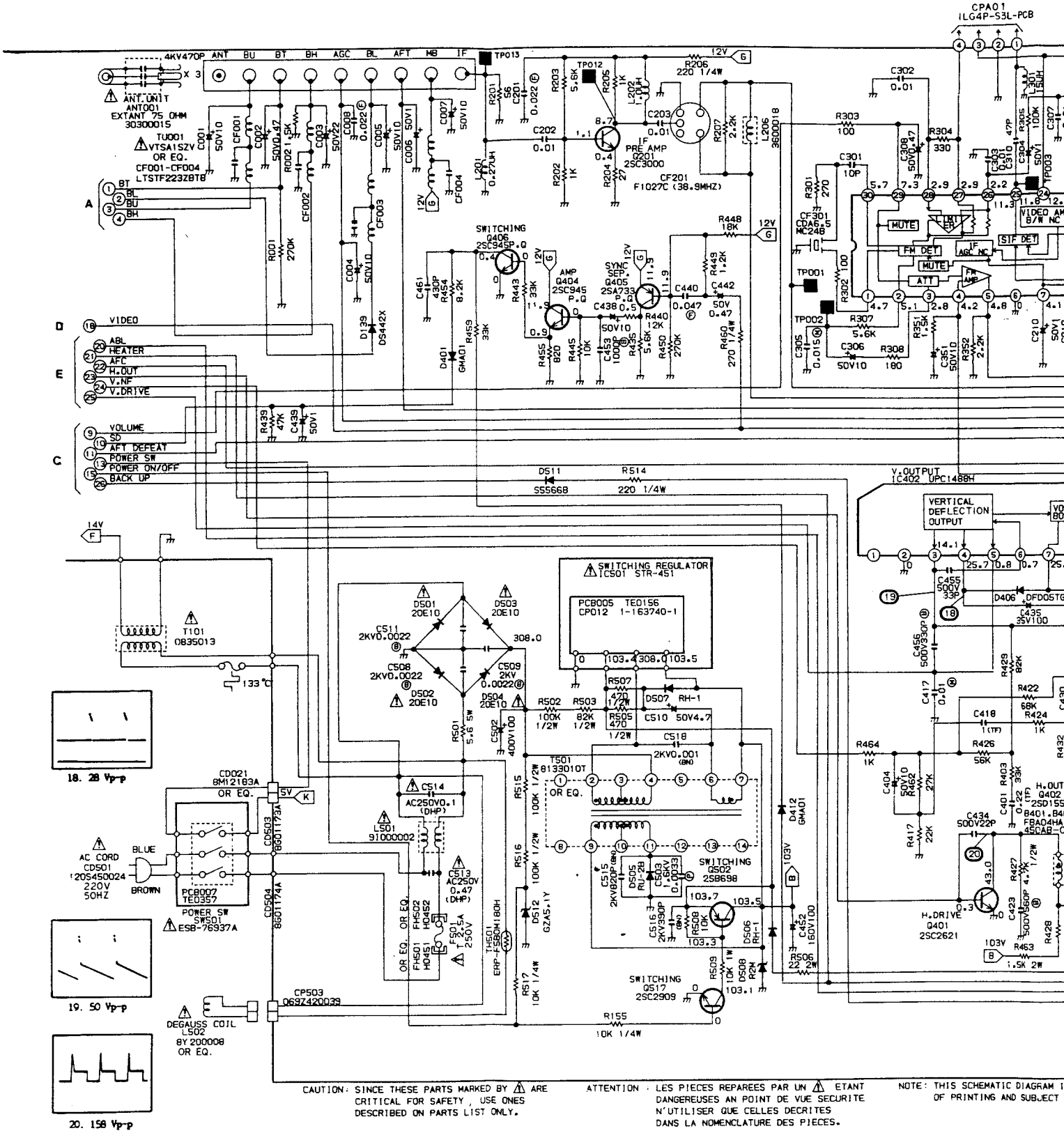
CAUTION: DIGITAL TRANSISTOR



CHROMA/AUDIO SCHEMATIC DIAGRAM

1-9643

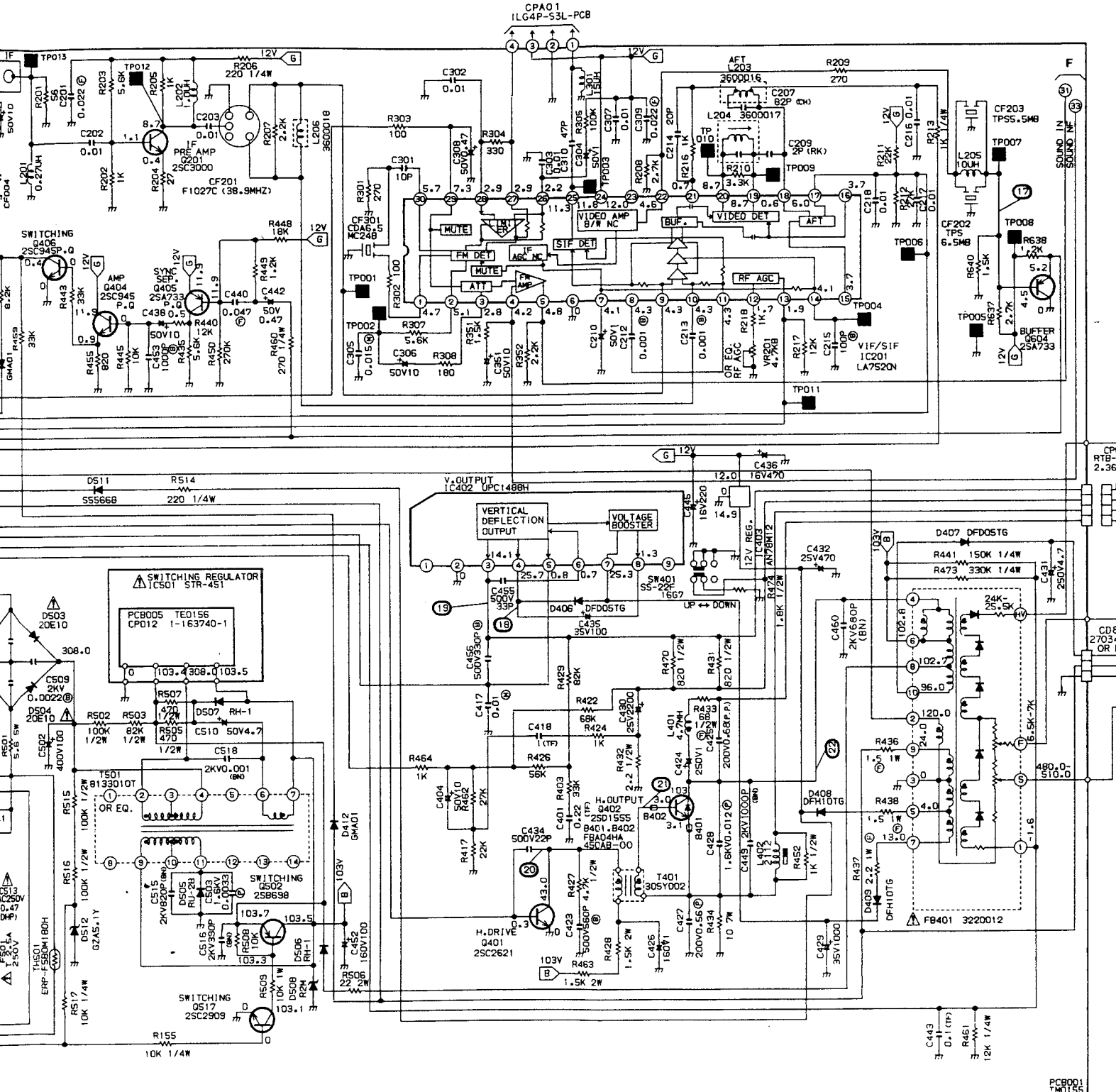


CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM I OF PRINTING AND SUBJECT

IF/DEFLECTION/POWER SCHEMATIC DIAGRAM



S MARKED BY ⚠ ARE
ETY, USE ONES
TS LIST ONLY.

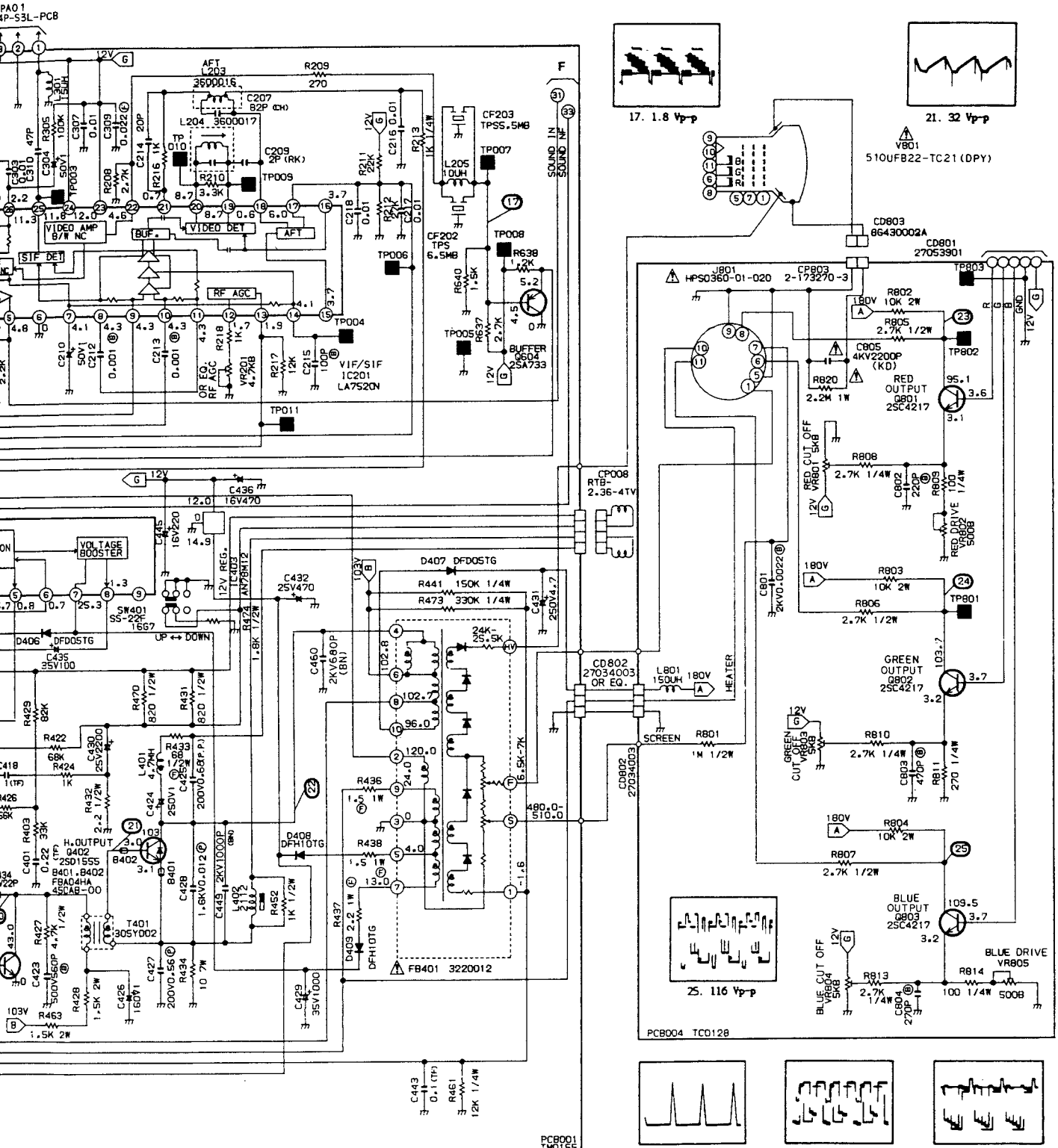
ATTENTION : LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

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

NOTE: F,G,H,I, AND J MARKED AROUND THE PARTS IN THE SCHEMATIC DIAGRAM INDICATE THE FOLLOWING ERROR RATE.
F: ±1%, G: ±2%, H: ±3%, I: ±4%, J: ±5%

IF/DEFLECT
SC

OWER SCHEMATIC DIAGRAM



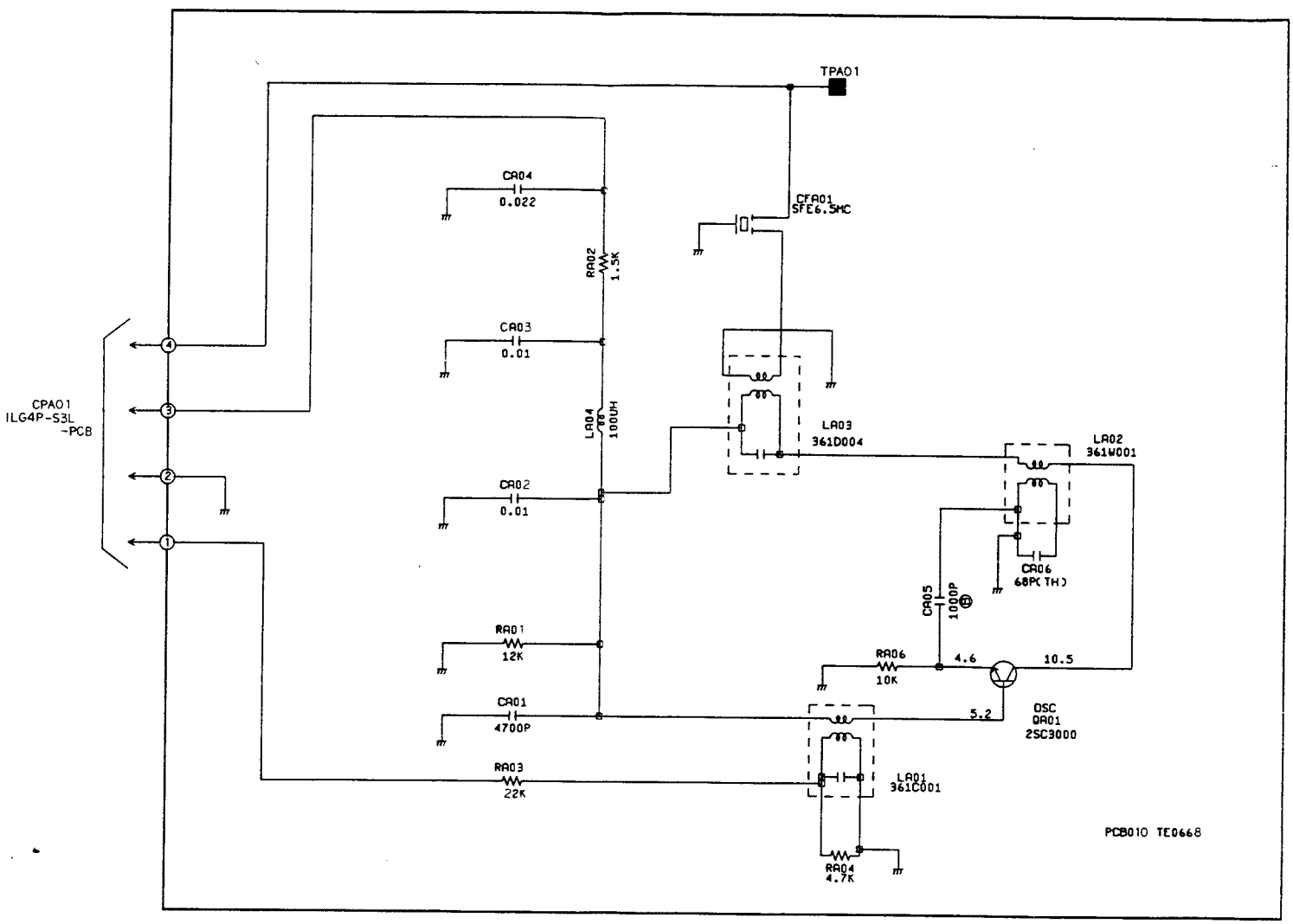
EMATIC DIAGRAM IS THE LATEST AT THE TIME
ING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: F,G,H,I, AND J MARKED AROUND THE PARTS IN THE SCHEMATIC DIAGRAM INDICATE THE FOLLOWING ERROR RATE.
F: ±1%, G: ±2%, H: ±3%, I: ±4%, J: ±5%.

IF/DEFLECTION/POWER SCHEMATIC DIAGRAM

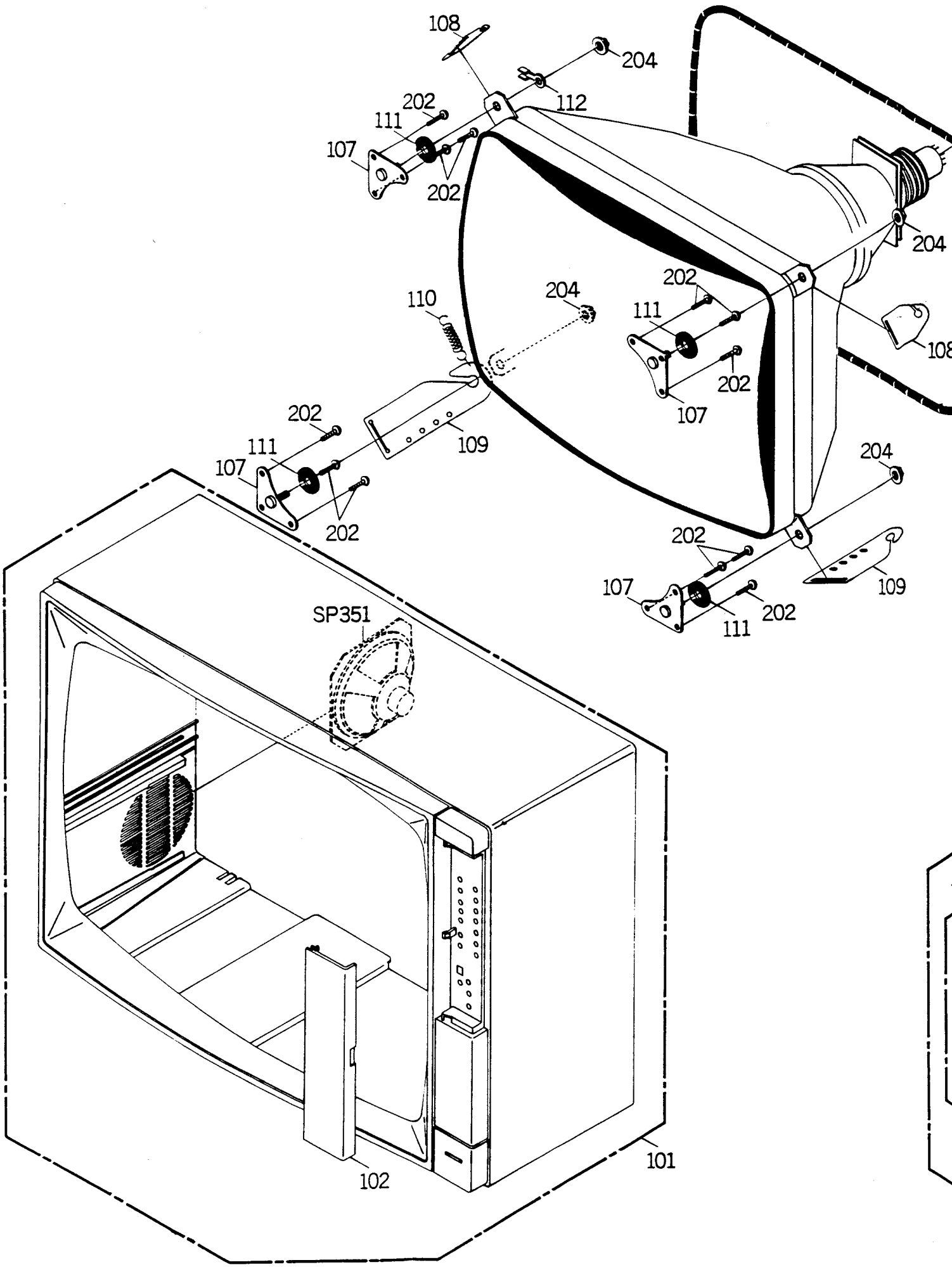
1-9644

DUAL SCHEMATIC DIAGRAM



NOTE: THIS
OF PR

DUAL


108
204
112
202
111
107
202
204
202
110
204
111
202
107
108
202
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107
109
204
202
107
111
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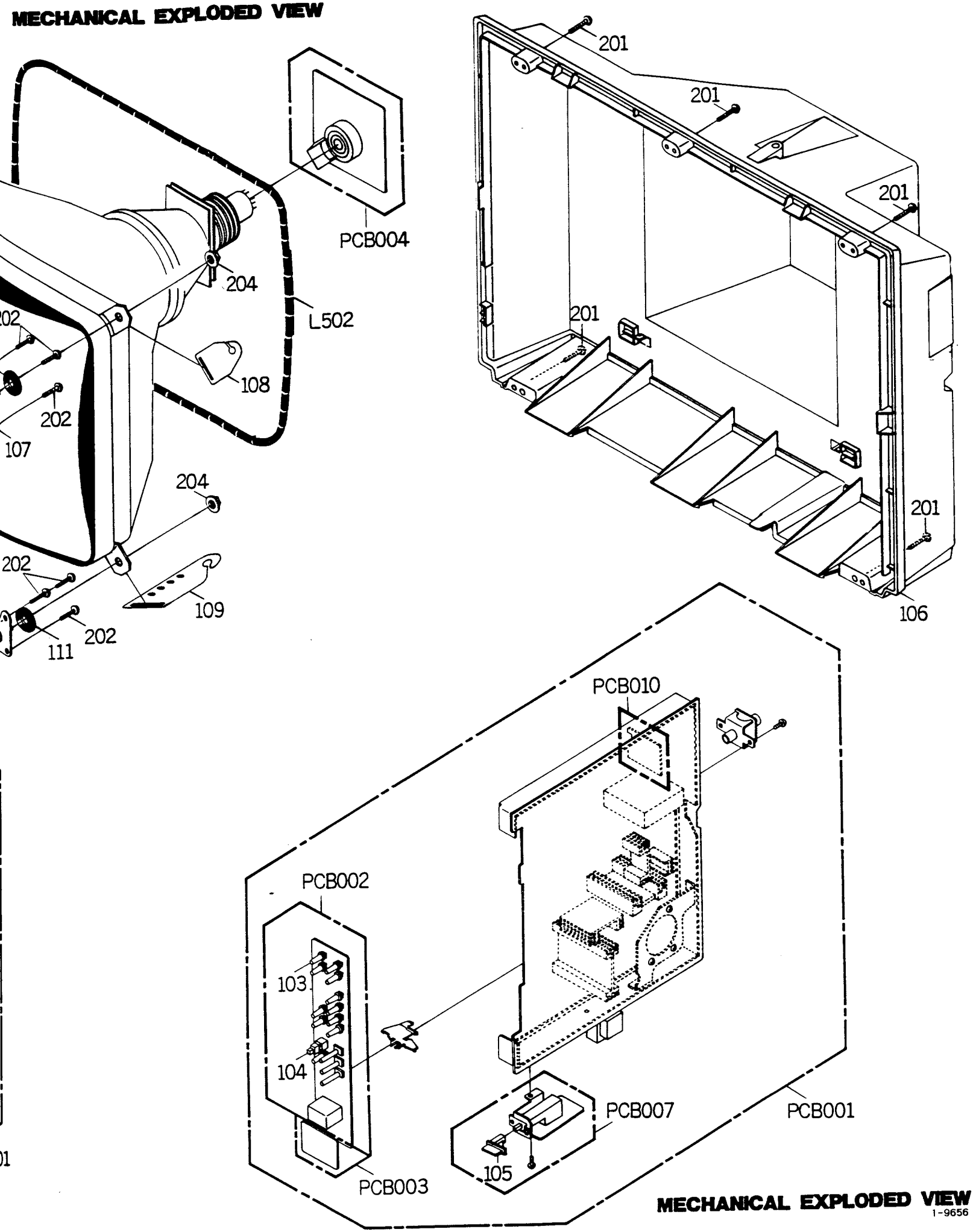
109
SP351
101
102

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW

1-9656

REF.NO	PART NO	DESCRIPTION	
101	A354B1A720	CABINET,FRONT ASS'Y	
	701JPJ0764	CABINET,FRONT	
	7230002338	PLATE,DISPLAY	
	7240000010	SHEET,WARNING	
	7240000558	PLATE,OPERATION	
102	713JPD0017	DOOR	
103	737SPA0002	BUTTON,CAP	
104	735SPA0002	BUTTON,CHANNEL	
105	736SPA0003	BUTTON,POWER	
106	A354B1A740	CABINET,BACK ASS'Y	
	702JPA0302	CABINET,BACK	
	7222021125	SHEET,RATING	
107	761KSA0062	FRAME,CRT	
108	751JNA0004	PLATE,EARTH WIRE	
109	751JNA0008	PLATE,EARTH WIRE	
110	741TUA0003	SPRING,EARTH	
111	800JR00003	SHEET,CRT SUPPORT	
112	753KSA0018	EARTH,LUG	
201	8117540A62	TAPPING(B0) TRUSS	4*16
202	8110240B04	TAP TITE(P) BIND	4*20
204	8300560254	SL NUT WH25	M6
---	J354B101A	INSTRUCTION BOOK	
---	J354B103A	SCHEMATIC DIAGRAM	
---	J3540128A	WARNING SHEET	
---	J4511102A	GUARANTEE CARD	
---	791JHA0018	SHEET,LIGHTRON	
---	792JHA0067	PACKAGE,TOP	
---	792JHA0068	PACKAGE,BOTTOM	
---	793JCD2161	GIFT BOX	

THIS ELECTRICAL PARTS LIST IS 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	
RESISTORS			
R167	R31181123J	R.METAL OXIDE	12K OHM 1 W
R353	R31181103J	R.METAL OXIDE	10K OHM 1 W
R358	R61582101J	R.FUSE	100 OHM 1/2W
R426	R3118A152J	R.METAL OXIDE	1.5K OHM 2 W
R433	R61582680J	R.FUSE	68 OHM 1/2W
R434	R5M2CE100J	R.CEMENT	10 OHM 7 W
R436	R614811R5J	R.FUSE	1.5 OHM 1 W
R437	R615812R2J	R.FUSE	2.2 OHM 1 W
R438	R614811R5J	R.FUSE	1.5 OHM 1 W
R458	R3128B472J	R.METAL OXIDE	4.7K OHM 3 W
R463	R3118A152J	R.METAL OXIDE	1.5K OHM 2 W
R501	R5M2CD5R6K	R.CEMENT	5.6 OHM 5 W
R506	R3118A220J	R.METAL OXIDE	22 OHM 2 W
R509	R31181103J	R.METAL OXIDE	10K OHM 1 W
R802	R3118A103J	R.METAL OXIDE	10K OHM 2 W
R803	R3118A103J	R.METAL OXIDE	10K OHM 2 W
R804	R3118A103J	R.METAL OXIDE	10K OHM 2 W
⚠ R820	R03101225J	RC	2.2M OHM 1 W
CAPACITORS			
C002	E0B705R47M	CE	0.47 UF 50V
C356	E085FB220M	CE	22 UF 160V
C425	P441F2684J	CMPP	0.68 UF 200V
C427	P441F2564J	CMPP	0.56 UF 200V
C428	P442F9123J	CMPP	0.012 UF1600V
C429	E087F4102M	CE	1000 UF 35V
C430	E087F3222M	CE	2200 UF 25V
C431	E025FD4R7M	CE	4.7 UF 250V
C449	C01BBN713K	CC	0.001 UF 2KV B
C452	E0B5FB101M	CE	100 UF 160V
C502	E0260H101T	CE	100 UF 400V
C503	P442F9332J	CMPP	0.0033UF1600V
C508	C02FB07H3K	CC	0.0022UF 2KV B
C509	C02FB07H3K	CC	0.0022UF 2KV B
C511	C02FB07H3K	CC	0.0022UF 2KV B
⚠ C513	P4440B474M	CMPP	0.47 UF 250V
⚠ C514	P4440B104M	CMPP	0.1 UF 250V
C515	C03BBN7W2K	CC	820 PF 2KV
C516	C01BB07N2K	CC	390 PF 2KV B
C518	C01BBN713K	CC	0.001 UF 2KV B
C674	C0A0B04G3K	CC	1800 PF B
C801	C02FB07H3K	CC	0.0022UF 2KV B
⚠ C805	C03FE09H3M	CC	2200 PF 4KV E
SEMICONDUCTORS			
D101	0040322001	LED DISPLAY IC	SL-1263H
D102	002132Q030	LED	SLZ136-14-AB-T1
D103	002132Q030	LED	SLZ136-14-AB-T1
D104	002132Q030	LED	SLZ136-14-AB-T1
D105	D13TGMA010	DIODE,SILICON	GMA-01-BT
D106	D13TGMA010	DIODE,SILICON	GMA-01-BT
D108	002132Q020	LED	SLZ-136C-11-AB-T1
D109	002132Q020	LED	SLZ-136C-11-AB-T1
D110	002132Q020	LED	SLZ-136C-11-AB-T1
D111	002132Q020	LED	SLZ-136C-11-AB-T1
D112	D13TGMA010	DIODE,SILICON	GMA-01-BT
D113	D13TGMA010	DIODE,SILICON	GMA-01-BT
D114	D13TGMA010	DIODE,SILICON	GMA-01-BT
D115	D13TGMA010	DIODE,SILICON	GMA-01-BT
D117	D13TGMA010	DIODE,SILICON	GMA-01-BT
D122	D13TGMA010	DIODE,SILICON	GMA-01-BT
D124	D13TGMA010	DIODE,SILICON	GMA-01-BT
D136	D25T5566B0	DIODE,RECTIFIER	S5566B(TPA3)
D139	D13TDS442X	DIODE,SILICON	DS442X-BT
D150	D13TGMA010	DIODE,SILICON	GMA-01-BT
D152	D13TGMA010	DIODE,SILICON	GMA-01-BT
D160	D93T05R10Y	DIODE,ZENER	GZA5.1 Y BT-T
D351	D13TGMA010	DIODE,SILICON	GMA-01-BT
D352	D13TGMA010	DIODE,SILICON	GMA-01-BT
D401	D13TGMA010	DIODE,SILICON	GMA-01-BT
D402	D93T07R50Y	DIODE,ZENER	GZA7.5 Y BT
D403	D93T09R10Y	DIODE,ZENER	GZA9.1 Y BT
D404	D93T02000Y	DIODE,ZENER	GZA20 Y BT
D405	D92T0120B2	DIODE,ZENER	RD12EB 2 TA11R
D406	D23TFD05TG	DIODE,RECTIFIER	DFD05TG-BT
D407	D23TFD05TG	DIODE,RECTIFIER	DFD05TG-BT
D408	D23FFH10TG	DIODE,RECTIFIER	DFH10TG-KB4
D409	D23FFH10TG	DIODE,RECTIFIER	DFH10TG-KB4
D410	D23TFD05TG	DIODE,RECTIFIER	DFD05TG-BT
D411	D13TGMA010	DIODE,SILICON	GMA-01-BT
D412	D13TGMA010	DIODE,SILICON	GMA-01-BT
D413	D13TGMA010	DIODE,SILICON	GMA-01-BT
⚠ D501	D28020E100	DIODE,SILICON	20E10

REF.NO	PART NO	DESCRIPTION	
SEMICONDUCTORS (CONT)			
⚠ D502	D28020E100	DIODE,SILICON	20E10
⚠ D503	D28020E100	DIODE,SILICON	20E10
⚠ D504	D28020E100	DIODE,SILICON	20E10
D505	D2B00RU2B0	DIODE,SILICON	RU-2B
D506	D2BF00RH10	DIODE,RECTIFIER	RH-1
D507	D2BF00RH10	DIODE,RECTIFIER	RH-1
D508	D2B000R2M0	DIODE,AVALANCHE	R2M
D511	D25T5566B0	DIODE,RECTIFIER	S5566B(TPA3)
D512	D93T05R10Y	DIODE,ZENER	GZA5.1 Y BT-T
IC101	I01D10B210	IC	AN90B21
IC102	I30S1006L0	IC	CXK1006L
IC103	I51D080340	IC	OEC8034
IC104	I01901280S	IC	MN1280S
IC105	I03S079100	IC	LA7910
IC106	I03D06358T	IC	LA6358T
IC107	I02190574J	IC	UPC574J-T
IC108	I02A98L050	IC	UPC78L05
IC201	I03DE7520N	IC	LA7520N
IC401	I05DE86590	IC	TA8659AN
IC402	I02SD14880	IC	UPC1488H
IC403	I01A98M120	IC	AN78M12
⚠ IC501	I2B3904510	IC	STR-451
Q102	TALT009520	TRANSISTOR,SILICON	2SA952(C)-T
Q103	TALT009520	TRANSISTOR,SILICON	2SA952(C)-T
Q104	TALT009520	TRANSISTOR,SILICON	2SA952(C)-T
Q105	TCLT009450	TRANSISTOR,SILICON	2SC945A(C)-T
Q106	TN7TD03002	COMPOUND,TRANSISTOR	DTC144TSTP
Q107	TCLT00945Q	TRANSISTOR,SILICON	2SC945A(C)-T Q
Q111	TP7TD03002	COMPOUND,TRANSISTOR	DTA144TSTP
Q112	TN7TD03001	COMPOUND,TRANSISTOR	DTC144ESTP
Q115	TCLT00945Q	TRANSISTOR,SILICON	2SC945A(C)-T Q
Q116	TN7TD03002	COMPOUND,TRANSISTOR	DTC144TSTP
Q127	TN7TD03002	COMPOUND,TRANSISTOR	DTC144TSTP
Q201	TC3T030000	TRANSISTOR,SILICON	2SC3000-AA
Q351	TC30041590	TRANSISTOR,SILICON	2SC4159
Q352	TC30041590	TRANSISTOR,SILICON	2SC4159
Q401	TC3Q02621E	TRANSISTOR,SILICON	2SC2621E-RAC
Q402	TD5F015550	TRANSISTOR,SILICON	2SD1555
Q403	TCLT009450	TRANSISTOR,SILICON	2SC945A(C)-T
Q404	TCLT00945Q	TRANSISTOR,SILICON	2SC945A(C)-T Q
Q405	TALT00733Q	TRANSISTOR,SILICON	2SA733(C)-T Q
Q406	TCLT00945Q	TRANSISTOR,SILICON	2SC945A(C)-T Q
Q407	TN7TD03002	COMPOUND,TRANSISTOR	DTC144TSTP
Q502	TB3T00698E	TRANSISTOR,SILICON	2SB698E-AA
Q517	TC3T029090	TRANSISTOR,SILICON	2SC2909-AA
Q604	TALT007330	TRANSISTOR,SILICON	2SA733(C)-T
Q801	TC3F042170	TRANSISTOR,SILICON	2SC4217-RAC
Q802	TC3F042170	TRANSISTOR,SILICON	2SC4217-RAC
Q803	TC3F042170	TRANSISTOR,SILICON	2SC4217-RAC
QA01	TC3T030000	TRANSISTOR,SILICON	2SC3000-AA
COILS & TRANSFORMERS			
L201	021JA6R27M	COIL	0.27 UH
L202	0216731R0M	COIL	1.0 UH
L203	033600016C	COIL,VIDEO IFT	3600016
L204	033600017C	COIL,VIDEO IFT	3600017
L205	021JA6100K	COIL	10 UH
L206	033600018C	COIL,VIDEO IFT	3600018
L301	021JA6150K	COIL	15 UH
L401	021679472K	COIL	4.7 MH
L402	0221000012	COIL,LINEARITY	21000012
⚠ L501	0291000002	COIL,LINE FILTER	91000002
⚠ L502	028Y200008	COIL,DEGAUSS	8Y200008
L601	03352R011C	COIL,CHROMA	352R011
L602	03352R011C	COIL,CHROMA	352R011
L603	03352R007C	COIL,CHROMA	16035SU
L604	021JA6100K	COIL	10 UH
L605	03302R002C	COIL,CHROMA	302R002
L606	03352R016C	COIL,CHROMA	352R016
L607	021JA6330K	COIL	33 UH
L608	021JA6270K	COIL	27 UH
L612	021JA6270K	COIL	27 UH
L801	021JA2151K	COIL	150 UH
LA01	03361C001G	COIL,SOUND IFT	361C001
LA02	03361W001G	COIL,SOUND IFT	361W001
LA03	03361D004G	COIL,SOUND IFT	361D004
LA04	021JA6101K	COIL	100 UH
⚠ T101	0408350137	TRANSFORMER POWER AC	0835013
⚠ T351	0451280070	TRANS.,SOUND OUTPUT	5128007
T401	03305Y002C	TRANS.,HORIZONTAL DRIVE	305Y002
T501	048133010T	TRANSFORMER,SWITCHING	8133010T

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO	PART NO	DESCRIPTION	
JACKS			
J301	0602101004	JACK,RCA 3.5	HSJ0912-01-050
⚠ J801	0662130007	SOCKET,CRT	HPS0360-01-020
SWITCHES			
SW101	0501201007	SWITCH PUSH	SPPH11280A
SW102	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW103	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW104	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW105	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW106	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW109	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW110	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW111	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW112	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW113	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW115	0504101T13	SWITCH TACT	EVQ-QTN09Q
SW401	0510B22001	SWITCH SLIDE	SS-22F16G7
⚠ SW501	0530102008	SWITCH PUSH	ESB-76937A
SW601	0510B22001	SWITCH SLIDE	SS-22F16G7
VARIABLE RESISTORS			
VR104	V115213B03	VR,SEMIFIXED	EVN-K0AA00B13
VR201	V1163Q3B02	VR,SEMIFIXED	EVN-D4AA00BQ3
VR401	V1163Q4B03	VR,SEMIFIXED	EVM4LGA00BQ4
VR402	V1163H2B02	VR,SEMIFIXED	EVN-D4AA00BE2
VR601	V116313B02	VR,SEMIFIXED	EVN-D4AA00B13
VR605	V029300007	VR,ROTARY	RK09Z3330012
VR801	V175C53B01	VR,SEMIFIXED	RVA0911H304-1-502M
VR802	V175C52B01	VR,SEMIFIXED	RVA0911H304-1-501M
VR803	V175C53B02	VR,SEMIFIXED	RVA0911H304-2-502M
VR804	V175C53B03	VR,SEMIFIXED	RVA0911H304-3-502M
VR805	V175C52B03	VR,SEMIFIXED	RVA0911H304-3-501M
P.C. BOARDS ASS'Y			
PCB001	A354B1A01AC	PCB ASS'Y	TM0155-C
PCB002	A354B1A03A	PCB ASS'Y	TE0517
PCB003	A354B1A20A	PCB ASS'Y	TE0518
PCB004	A354B1A11A	PCB ASS'Y	TC0128
PCB005	A354B1A02A	PCB ASS'Y	TE0156
PCB007	A354B1A38A	PCB ASS'Y	TE0357
PCB010	A354B1A24A	PCB ASS'Y	TE0668
MISCELLANEOUS			
⚠ ANT001	0630300015	ANT.UNIT	30300015
B401	024JT03551	CORE,BEADS	FBA04HA450AB-00
B402	024JT03551	CORE,BEADS	FBA04HA450AB-00
BT101	141T004003	BATTERY,MANGAN	UM-4
BT102	141T004003	BATTERY,MANGAN	UM-4
CD006	068G32001A	CORD EIS CONNECTOR	8G32001A
CD021	068M12183A	CORD JUMPER	8M12183A
CD101	0694260080	CONNECTOR PCB SIDE	174074-6
CD102	0694260080	CONNECTOR PCB SIDE	174074-6
CD103	122N091001	CORD JUMPER	2N091001
CD104	122N091001	CORD JUMPER	2N091001
CD105	0694290080	CONNECTOR PCB SIDE	174074-9
⚠ CD501	120S450024	CORD AC	120S450024
CD503	068G01173A	CORD CONNECTOR	8G01173A
CD504	068G01174A	CORD CONNECTOR	8G01174A
CD801	1227053901	CORD JUMPER	27053901
CD802	1227034003	CORD JUMPER	27034003
CD803	068G43002A	CORD UX CONNECTOR	8G43002A
CFA01	1012006R52	FILTRE,CERAMIC	SFE6.5MC
CF001	116F3TH4Z1	FILTER,EMI	LTSTF223ZBTB
CF002	116F3TH4Z1	FILTER,EMI	LTSTF223ZBTB
CF003	116F3TH4Z1	FILTER,EMI	LTSTF223ZBTB
CF004	116F3TH4Z1	FILTER,EMI	LTSTF223ZBTB
CF101	1003T4R001	CERAMIC OSCILLATOR	KBR-4.0MSTF
CF201	1027038R94	FILTER,SAW	F1027C
CF202	1012106R51	FILTER,CERAMIC TRAP	TPS6.5MB
CF203	1012105R51	FILTER,CERAMIC TRAP	TPS5.5MB
CF301	101226R503	FILTER,CERAMIC	CDA6.5MC24B
CF351	116F3TH4Z1	FILTER,EMI	LTSTF223ZBTB
CP006	069Z320018	CONNECTOR PCB SIDE	RTB-2.36-2TV
CP008	069Z340018	CONNECTOR PCB SIDE	RTB-2.36-4TV
CP012	0694FC0010	F-CHIP	1-163740-1
CPA01	069HF4007A	F-CHIP	ILG4P-S3L-PCB
CP101	0694260090	CONNECTOR PCB SIDE	174161-6
CP102	0694260090	CONNECTOR PCB SIDE	174161-6
CP105	0694290260	CONNECTOR PCB SIDE	175544-9
CP503	069Z420039	CONNECTOR PCB SIDE	069Z420039
CP803	0694430100	CORD UX CONNECTOR	2-173270-3
DL601	104114R43G	DELAY LINE GLASS	EFDEN645A31F
DL602	103S000402	DELAY LINE	ELT10Z204M

REF.NO	PART NO	DESCRIPTION	
MISCELLANEOUS (CONT)			
EAR351	074U130009	EARPHONE	4U130009
⚠ F501	0808T2R502	FUSE	T 2.5A 250V
⚠ FB401	0432200121	TRANSFORMER,FLYBACK	3220012
FH501	067M0T0004	HOLDER,FUSE	H0451
FH502	067M0T0005	HOLDER,FUSE	H0452
MS002	128B000016	MICA,SHEET	TO-3(5)
NR101	110E447301	R,NETWORK	RN3H5A473J
OS101	077M006004	REMOTE RECEIVER	KEY-C00SV2
S001	128F100005	SPACER	BUSH-T
S002	128F100005	SPACER	BUSH-T
SP351	070B043001	SPEAKER	0100A21K2453
TH501	D810M180H0	DEGAUSS ELEMENT	ERP-F5B0M180
TM101	076M027001	TRANSMITTER	R-56 5710
⚠ TU001	0145P11004	TUNER,UHF-VHF	VTSA1SZV
⚠ V801	098G200438	TUBE,CATHODE RAY	510UFB22-TC21
X401	1002R50301	CERAMIC OSCILLATOR	CSB503F2
X601	10064R43B2	CRYSTAL HC-49/U	4.43361875MH

RESISTOR
RC.....CARBON RESISTOR

CAPACITORS
CC.....CERAMIC CAPACITOR
CE.....ALUMI ELECTROLYTIC CAPACITOR
CP.....POLYESTER CAPACITOR
CPP.....POLYPROPYLENE CAPACITOR
CPL.....PLASTIC CAPACITOR
CMP.....METAL POLYESTER CAPACITOR
CMPL.....METAL PLASTIC CAPACITOR
CMPP.....METAL POLYPROPYLENE CAPACITOR
CST.....STYROL CAPACITOR

INTERCHANGEABLE 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)
CD021	8M12183A (068M12183A)	8G12183A (068G12183A)
CD802	2Q034002 (122Q034002)	27034003 (1227034003)
CF101	KBR-4.0MSTF (1003T4R001)	KBR-4.0M (10034R0001)
EAR351	4U130009 (074U130009)	SE100-335 (074N130007)
FH501	H0451 (067M0T0004)	773JEE0004 (067H000003)
FH502	H0452 (067M0T0005)	773JEE0004 (067H000003)
⚠ L502	8Y200008 (028Y200008)	8J200008 (028J200008)
NR101	RGLE4X473J (1102447302)	RN3H5A473J (110E447301)
Q105	2SC945A(C)-T (TCLT009450)	2SC945-T (TC2T009450)
Q107	2SC945A(C)-T (TCLT009450)	2SC945-T (TC2T009450)
Q115	2SC945A(C)-T (TCLT009450)	2SC945-T (TC2T009450)
Q403	2SC945A(C)-T (TCLT009450)	2SC945-T (TC2T009450)
SP351	C100A21K2453 (070B043001)	CP100001-01 (070R143004)
T501	8133010T (048133010T)	8133010 (0481330105)
⚠ TU001	VTSA1SZV (0145P11004)	VTSA1SZV (0145J11004)
VR201	EVN-D4AA00BQ3 (V1163Q3B02)	RH0615CS3J0E (V1263Q3B01)
VR401	EVM4LGA00BQ4 (V1163Q4B03)	RH0624CS4J0A (V1263Q4B03)
VR402	EVN-D4AA00BE2 (V1163H2B02)	RH0615CJ2J1D (V1263H2B01)
VR601	EVN-D4AA00B13 (V1163I3B02)	RH0615C13J0F (V1263I3B01)