

COLOUR TELEVISION

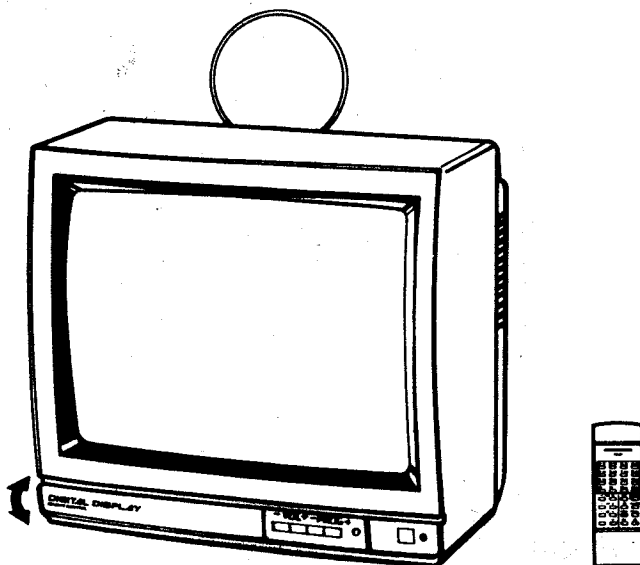
SERVICE MANUAL

BPL
KDR 9103

Ref 047 (no. 041)

CONTENTS		Page No.
1.	SPECIFICATIONS	2
2.	BLOCK DIAGRAM	3
3.	INSTALLATION & SERVICE CONTROL ADJUSTMENTS	4
4.	SAFETY PRECAUTIONS	5
5.	PURITY & CONVERGENCE ADJUSTMENTS	6
6.	CABINET PARTS LIST	10
7.	CHASSIS ELECTRICAL PARTS LIST	11
8.	WAVEFORMS & VOLTAGES	17
9.	CIRCUIT DIAGRAM	

SPECIFICATION



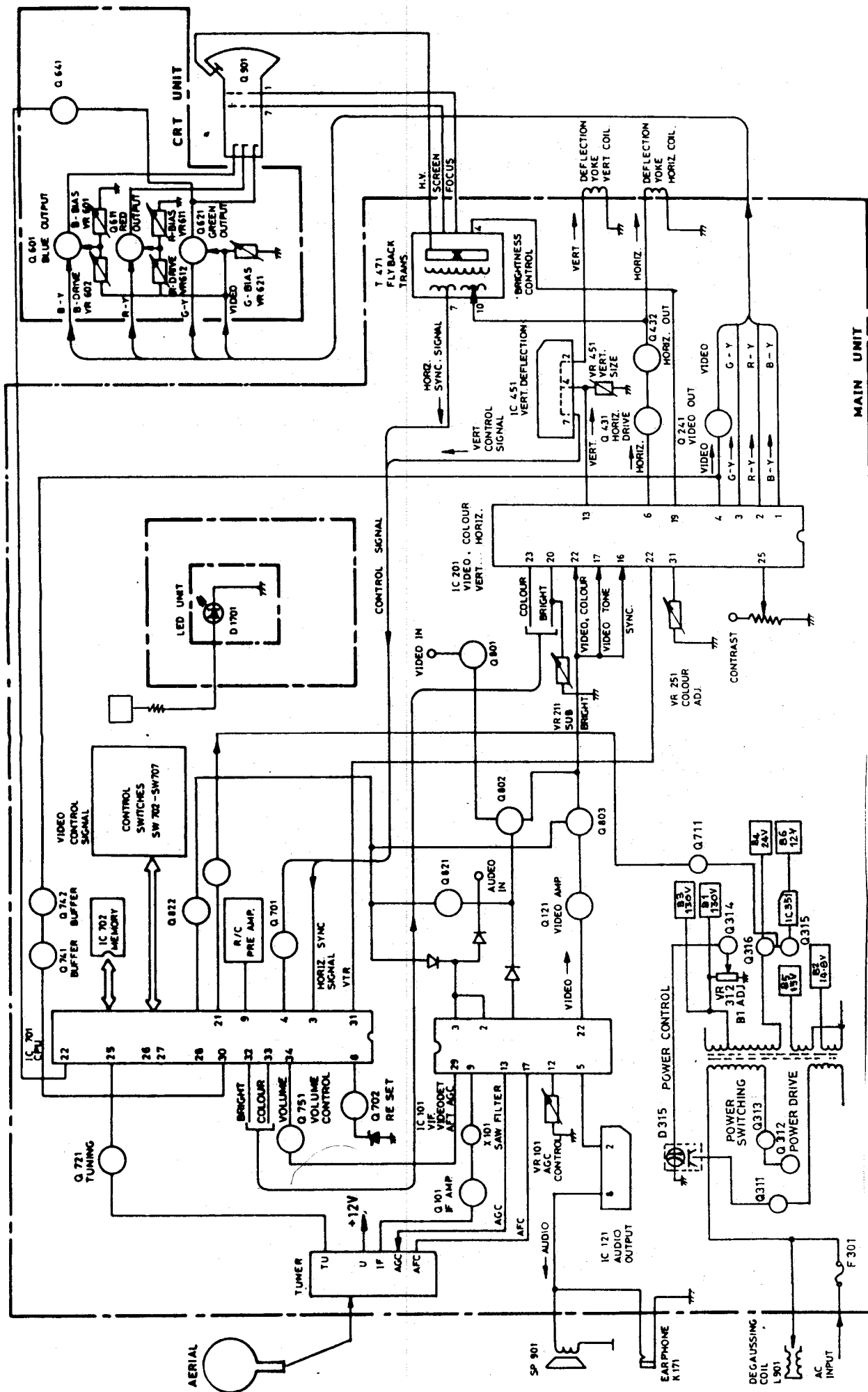
Power Source AC 220V/240V, 50Hz/60Hz
 Power Consumption 46W
 Television System CCIR-I
 Colour Reception System ... PAL
 Channel Coverage UHF:21-69
 Video IF 38.9MHz
 Sound IF 32.9MHz
 Aerial Input Impedance 75ohms
 Picture Tube 37cm diagonal 90 degree deflection
 Sound Output 2.0W
 Dimensions 365(W)X320(H)X390(D)mm
 Weight 10Kg

Give complete "SERVICE REF.No." for parts order or servicing.

This TV receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications. Refer to the specifications for the design specifications.

* Specifications subject to change without notice

BLOCK DIAGRAM



MAIN UNIT

B1 POWER SUPPLY ADJ.

TUNING DISPLAY WIDTH ADJ.

B1 ADJ. VR 311

TP B

T 281

BALANCE L 211 VR 751

SUB BRIGHT VR 211

VR 751

0751

AGC VR 101

KSV 2

SERVICE TIP KSV 1

VR 121 VIDEO DET. ADJ.

TP F

VIDEO AMP Q 121

VERT SIZE VR 451

VIDEO PHASE VR 411

VIDEO DET. ADJ.

AGC ADJ.

HORIZ. CENTER ADJ.

SUB BRIGHTNESS ADJ.

VERT. ADJ.

VERT. CENTER ADJ.

Vertical centring can be adjusted by connecting vertical tip to anyone of three terminals.

CRT UNIT

SCREEN (BOTTOM)

FOCUS ADJ. (TOP)

COLOUR ADJUSTMENT

TP.6 B Q 621 GREEN OUT PUT

Q 611 RED OUT PUT

Q 601 BLUE OUT PUT

Q 641

VR 602 B DRIVE

VR 612 R DRIVE

VR 601 B BIAS

VR 611 R BIAS

VR 621 G BIAS

GREY SCALE AND TRACKING ADJ.

HORIZONTAL WIDTH ADJUSTMENT

- NOTE: Horiz. width adjustment affects high voltage and sub brightness. Therefore, recheck SUB-BRIGHTNESS and HIGH VOLTAGE.

Grey	Grey
Yellow	
Cyan	
Green	
Magenta	
Red	
Blue	
Black	

- 4 -

SAFETY PRECAUTIONS

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.

INSTALLATION AND SERVICE ADJUSTMENTS

X-RADIATION PRECAUTION The primary source of X-RADIATION in television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specified limits. Refer to this service manual, high voltage for specific high voltage limits. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for +B1 volt power supply adjustment, and high voltage check to maintain the high voltage within the specified limits.

AGC ADJUSTMENT

NOTE: Do not attempt this adjustment with weak signal.

1. Tune receiver to most clearest(or strongest) UHF station in your area.
Set brightness and contrast controls to maximum.
Set colour control to minimum.
2. Set the AGC(VR101)control to mid-range.
3. Turn AGC control in direction which causes snow to appear, then in the opposite direction until the snow just disappears.

SUB BRIGHTNESS ADJUSTMENT

1. Connect a DC meter between "TP-H"(positive lead) and "TP-G" (negative lead) on main unit.
2. Tune the receiver to mono-chrome circular pattern.
3. Set brightness to maximum and contrast to minimum.
Set colour to minimum.
4. Adjust sub brightness control(VR211) for 0.2V.
NOTE: If picture tube is replaced, Check sub brightness adjustment.

VERTICAL ADJUSTMENT

1. Tune the receiver to monochrome circular pattern.
2. Adjust vertical size (VR451) control for full scan.

HORIZONTAL CENTER ADJUSTMENT

1. Tune the receiver to mono-chrome circular pattern.
2. Set the brightness and contrast to maximum.
3. Adjust Video Phase (VR411) for optimum horiz center position.

B1 POWER SUPPLY ADJUSTMENT

1. Connect DC meter to "TP-B" and ground.
Set the +B1 adjustment control(VR311) to mid-range.
2. Set brightness and contrast to minimum.
Tune the receiver to an active channel and synchronise picture.
3. Adjust +B1 adjustment control for 131 ± 0.5 volt DC.

TUNING DISPLAY WIDTH ADJUSTMENT

1. Tune the receiver to monochrome circular pattern.
2. Set the mode switch (SW702A) to on.
Tuning bar is displayed on screen.
3. Adjust VR751 for optimum tuning bar width.
Set the mode switch to off.

VIDEO DET. ADJUSTMENT

1. Tune receiver to colour bar pattern (see Fig 1).
Connect the oscilloscope to TP-F.
2. Adjust VR121 for $1.0 \pm 0.03Vp-p$ (Video det. waveform).

GREY SCALE AND TRACKING ADJUSTMENT

Tune the receiver to monochrome pattern.

1. Set brightness and colour to normal, contrast to maximum.
2. Connect the service tip to KSV-2(service condition).
3. Set screen control to minimum(fully counter clockwise).
4. Turn screen control to obtain just visible one coloured line.
5. Adjust each bias (VR621-Green,VR601-Blue,VR611-Red) controls alternately until a dim white line is produced.
6. Re-connect the service tip to KSV-1(normal condition).
7. Adjust red(VR612)and blue(VR602)drive controls alternately to produce normal black and white picture.
8. Check for proper grey scale tracking at all brightness levels.

NOTE: If grey scale adjustment is made after picture tube replacement, check high voltage and sub-brightness adjustments.

COLOUR ADJUSTMENT(PAL)

Receive colour bar pattern. (See Fig. 1)

Set's controls: Brightness maximum.

Colour maximum.

Contrast mid-range.

ADJUST	REMARKS
Connect the oscilloscope to TP6B on CRT unit	
1 VR251,T281	Adjust VR251,T281 to obtain each 1H waveform(amplitude) for same as shown below.  B-Y WAVEFORM Figure-2
2 L211	Adjust L211 to obtain proper waveform as shown in Fig. 2

FOCUS ADJUSTMENT

Adjust focus control on the left side of the chassis for well scanning lines.

HIGH VOLTAGE CHECK

1. Tune the receiver to mono-chrome circular pattern.
2. Set brightness and contrast to maximum.
3. Connect a high voltage probe to anode lead at picture tube.
4. High voltage must measure between 20-22KV.
NOTE: If picture tube is replaced,check high voltage.

PURITY AND CONVERGENCE ADJUSTMENT

Caution: Convergence and purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity and convergence. If adjustment is required, the adjustments should be made in the following sequence.

PURITY ADJUSTMENTS

1. Use a colour (Red, Green and Blue) pattern signal. Receiver should be operated for at least ten minutes.
2. Place the picture tube facing east or west and demagnetize the picture tube and receiver using an external degaussing coil.
3. Turn off Red and Blue rasters and provide only Green raster on CRT screen.
4. Loosen the screw holding the deflection yoke and remove the 3 D.Y. wedges, and slide the deflection yoke fully forward.

5. Rotate the two purity magnet tabs (widen or narrow the mutual angle made by the two tabs) to centre your vertical green stripe, see illustration. (If the vertical green stripe is not obtained, slide the deflection yoke backward).

NOTE: Do not move the vertical centre position by adjusting purity magnet.

6. Slowly slide the deflection yoke backward (or forward) until a uniform green raster is obtained. If some part of screen is contaminated with other colours (in most cases it will appear at corner of screen), put the purity correction magnet chip on back of that corner near the deflection yoke. See Figure-A to position the purity correction magnet chip. Slide and rotate the purity correction magnet until pure green screen is obtained. Use necessary chips until uniform green is obtained overall the screen. Use the tape (or adhesive) to fix the magnet on the picture tube.

7. Check the purity of the red and blue rasters for uniformity.

(Turn up red raster and turn off green and blue rasters. Turn up blue raster and turn off green and red rasters).

Readjust the deflection yoke position if necessary until all rasters are pure. If part of the screen at each direction (East, West, North or South) is coloured, demagnetize the receiver and picture tube and adjust the deflection yoke position slightly forward or backward.

8. Tighten the mounting screw of the deflection yoke and mount D.Y. wedges.

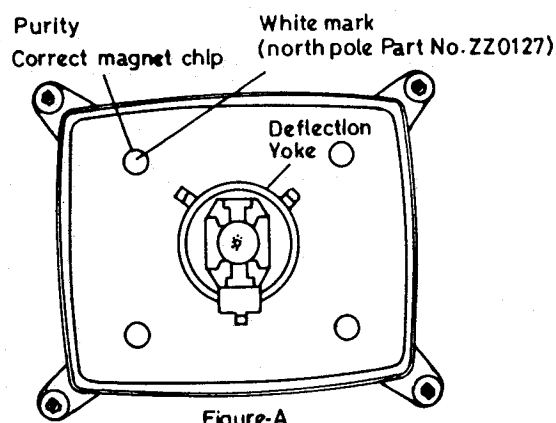
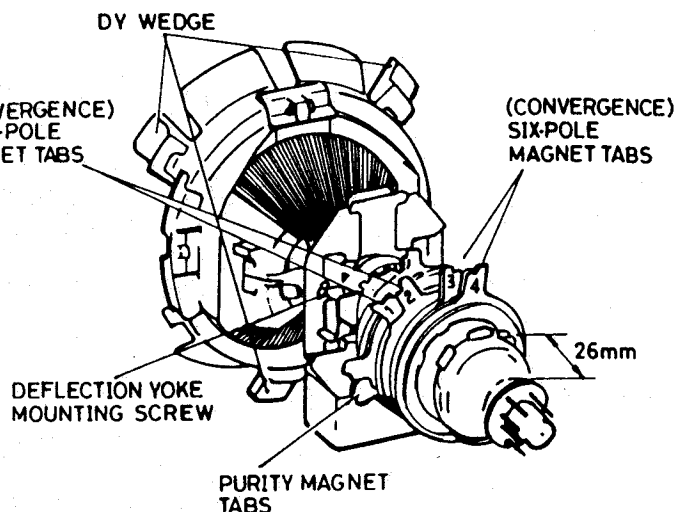
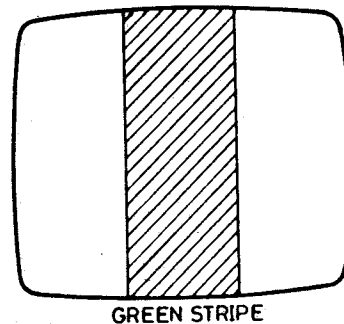
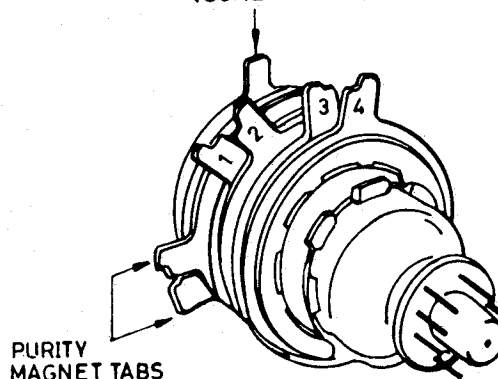


Figure-A



LOCKING RING (SOME MODELS)



PURITY AND CONVERGENCE MAGNETS

SER REF No. 041

CENTRE CONVERGENCE

1. Turn off green raster and provide blue and red raster on CRT.
2. To superimpose the red/blue vert. lines, spread (or narrow) the angle of magnet tab 1 between tab 2. See Fig. 1.
3. To superimpose the red/blue horiz. lines, rotate the magnet tabs 1 and 2 together (keeping the angle of magnet tabs 1 and 2). See Fig. 1.
4. Turn up green raster.
5. To superimpose the green and magenta (blue/red) vert. lines, spread (or narrow) the angle of magnet tab 3 between tab 4. See Fig-2.
6. To superimpose the green and magenta (blue/red) horiz. lines, rotate the magnet tabs 3 and 4 together (keeping the angle of magnet tabs 3 and 4). See Fig-2.

Now forming white cross-hatch pattern at centre of screen. Fasten locking ring.

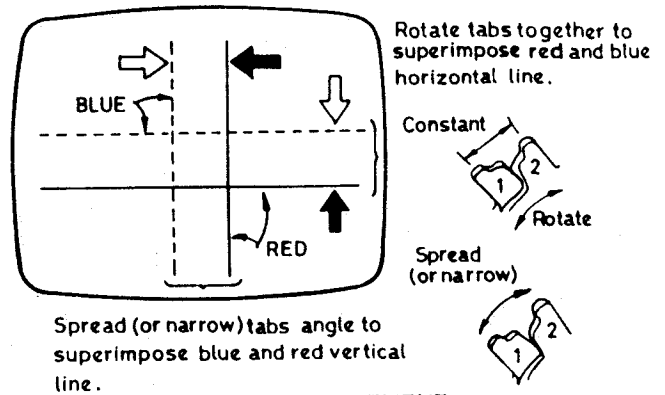


Figure 1. BLUE AND RED LINE MOVEMENT

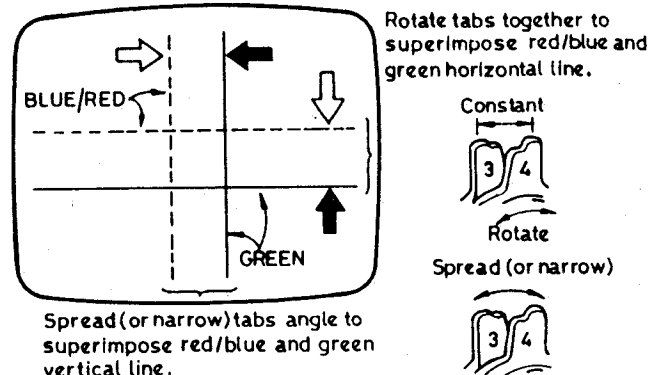
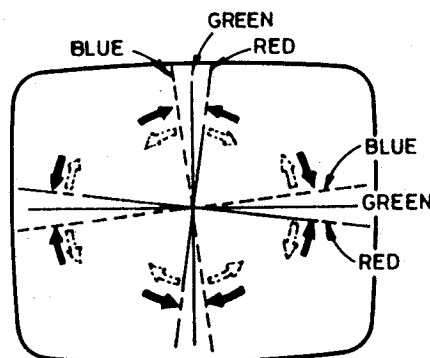


Figure 2. BLUE/RED AND GREEN LINE MOVEMENT

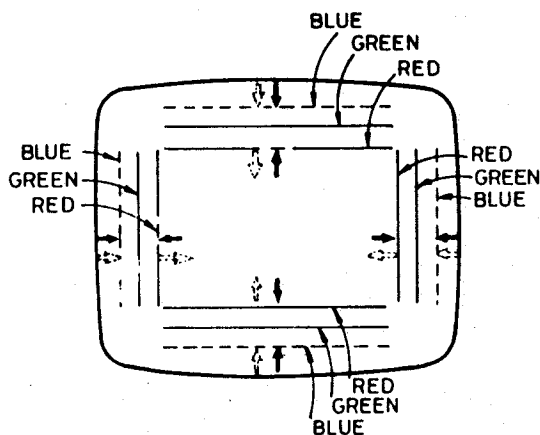
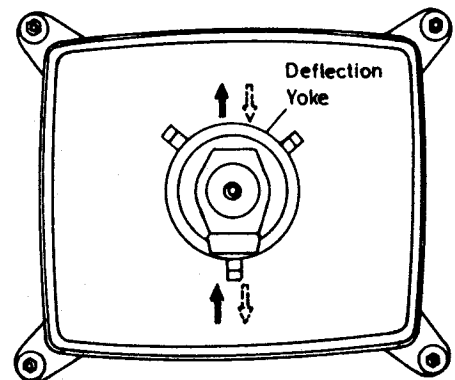
OUTER AREA CONVERGENCE

If mis-convergence on the outer area exists, as follow adjustment.



Swing the Deflection Yoke the ← direction, Red/Blue lines on the screen move the ← direction.

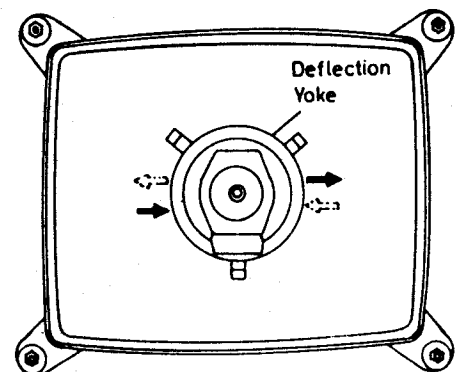
Swing the Deflection Yoke the ⇐ direction, Red/Blue lines on the screen move the ⇐ direction.



Swing the Deflection Yoke the ← direction, Red/Blue lines on the screen move the ← direction.

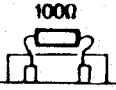
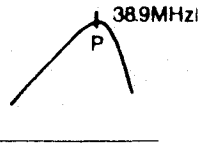
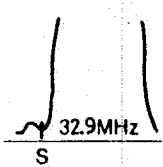
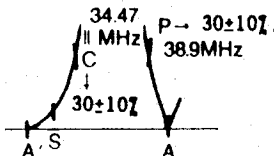
Swing the Deflection Yoke the ⇐ direction, Red/Blue lines on the screen move the ⇐ direction.

To fasten the Deflection Yoke, Insert and fix the D.Y. spacer.

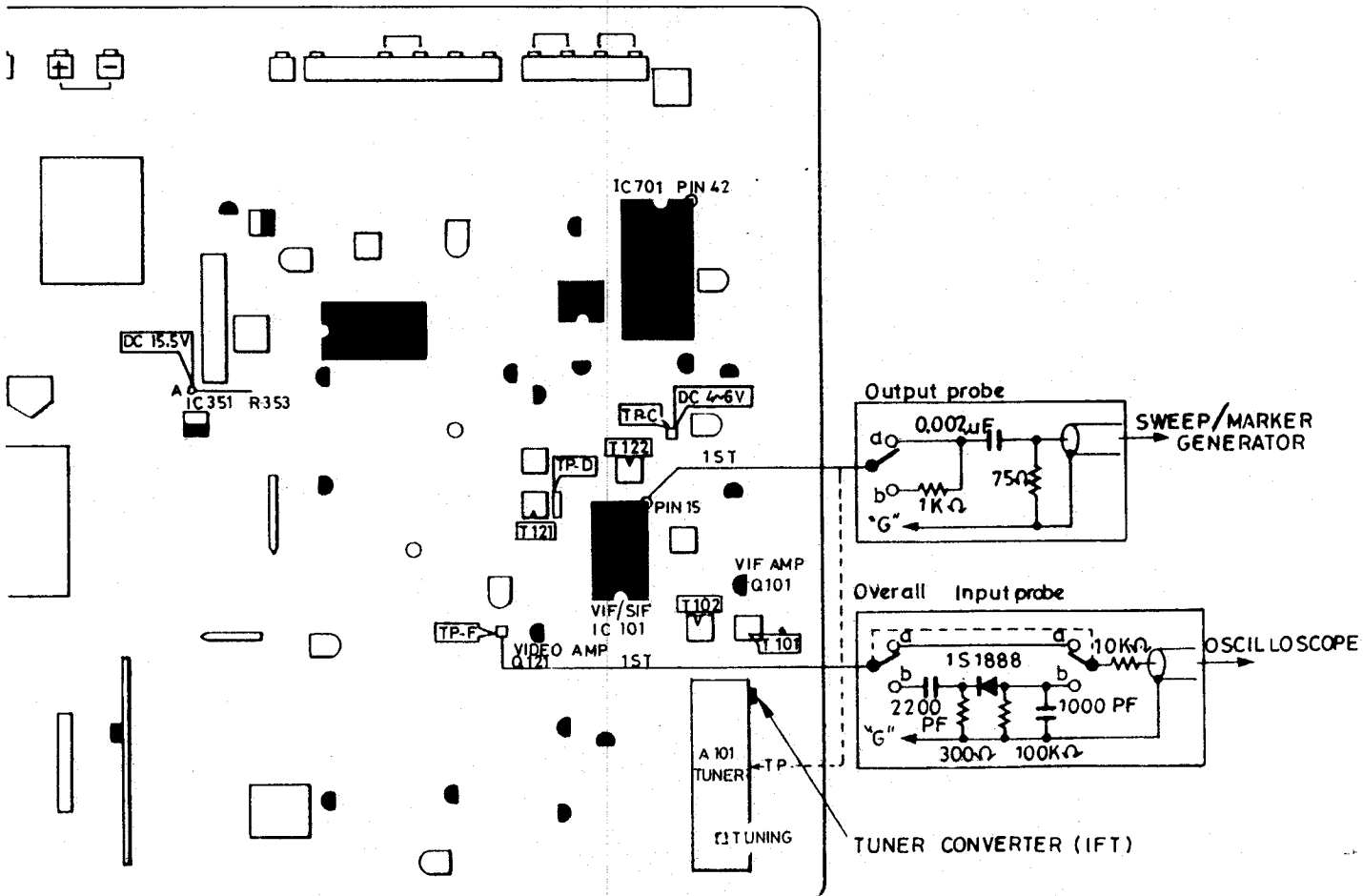


ADJUSTMENTS

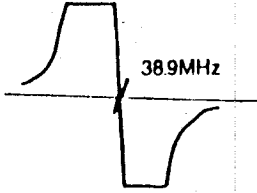
VIF Adjustment

Item	1st waveform	Sound Trap Adj.	Overall waveform
CONNECTION DC 15.5V DC 4 - 6V Output probe Input probe DC 12V (Tuning) DC 5V	R353-A TP-C IC101-pin 15 TP-F A101-Tuning ter. IC701-pin 42	R353-A TP-C IC101-pin 15 TP-F A101-Tuning ter. IC701-pin 42	R353-A TP-C Tuner-TP TP-F A101-Tuning ter. IC701-pin 42
CONDITION Output probe Input probe Damping resistor VR121 Channel band	a side a side — counterclockwise end UHF	a side a side — counterclockwise end UHF	b side a side TP-D counterclockwise end UHF 
ADJUSTMENTS	Adjust T121 for maximum response at 38.9MHz	Adjust T122 for minimum response at 32.9MHz	1) Adjust tuner converter to make C = P 2) Adjust T101 for proper shape waveform as shown in figure. 3) If using T101 causes unbalancing waveform, repeat steps 1) and 2).
WAVEFORMS			

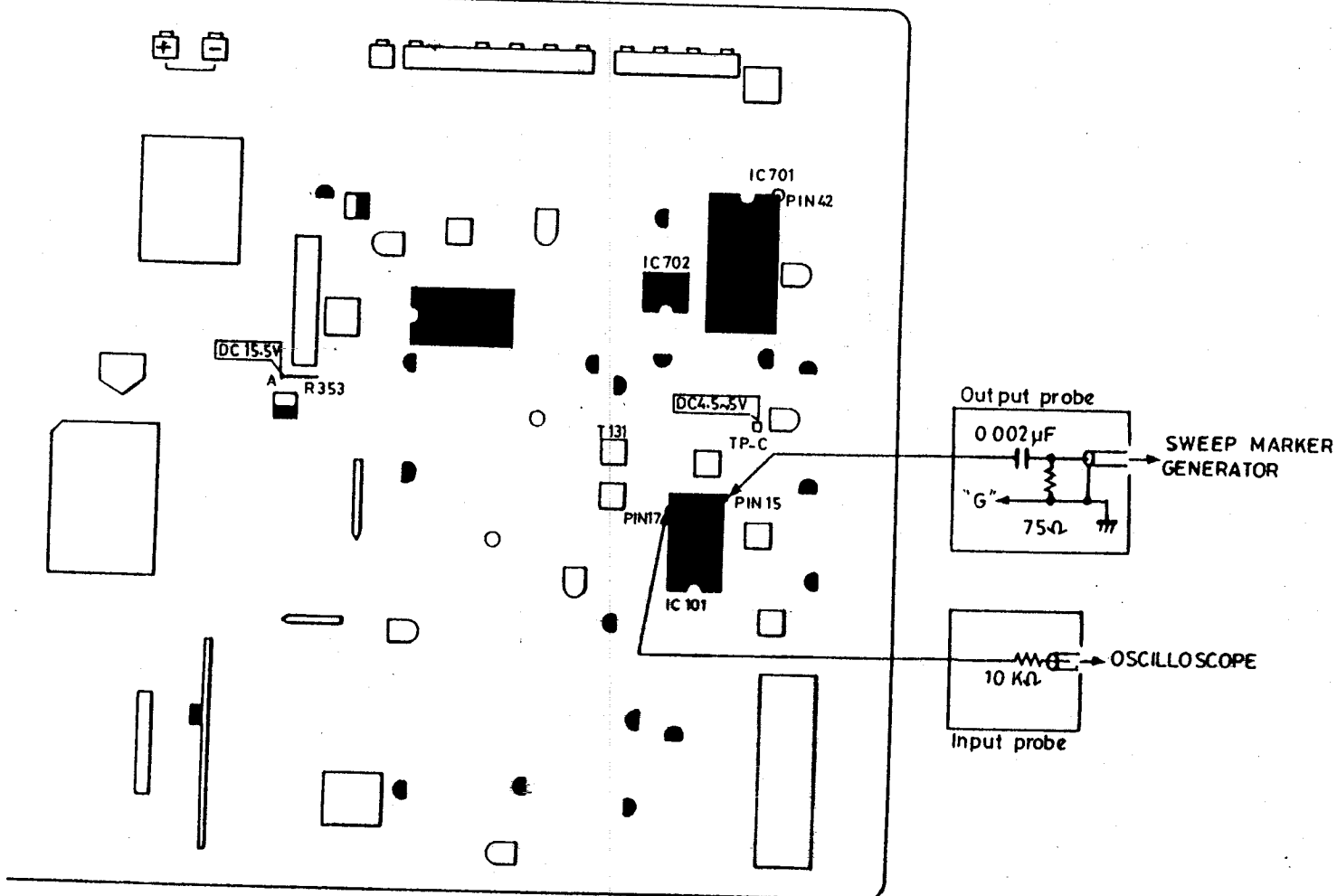
MAIN UNIT



AFT Adjustment

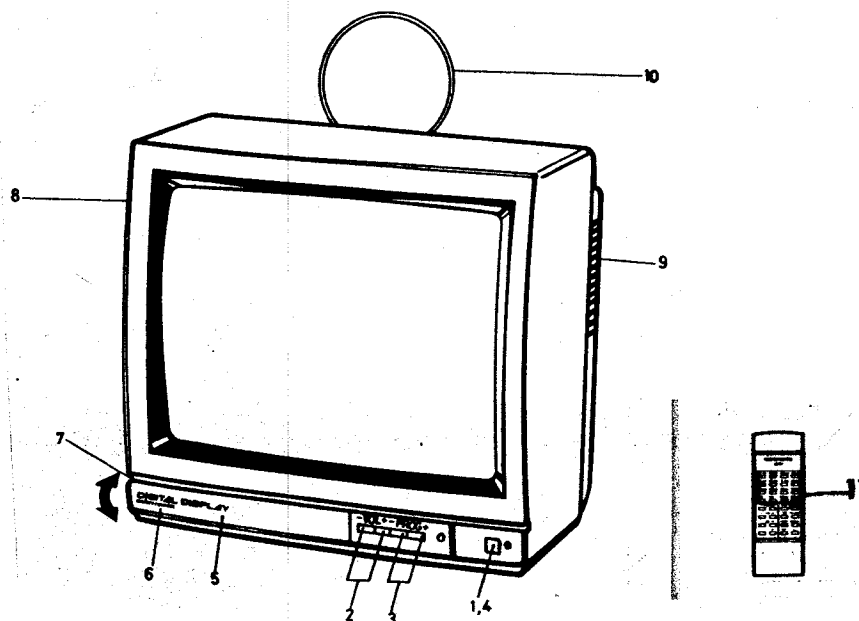
Item		
CONNECTION	DC 15.5V	R353-A
	DC 4.5 ~ 5V	TP-C
	Output probe	IC101-pin 15
	Input probe	IC101-pin 17
	DC 5V	IC701-pin 42
ADJUSTMENT		Adjust T131 for 38.9MHz marker is just on reference line.
WAVEFORM		

MAIN UNIT



CABINET PARTS LIST

NOTE: Parts order must contain Service Ref.No., Key No,Part No. and Description.



Key			Key		
No.	Part No.	Description	No.	Part No.	Description
1.	324-424-06	Power Button	7.	324-724-01	Escutcheon Dec. Sheet
2.		Touch Button Assy	8.	324-314-05	Cabinet Front
3.	324-424-07	Panel Decoration Plate	9.	324-414-12	Cabinet Back
4.	324-324-01	Spring (Power Button)	10.	E324-523-02	Loop Antenna Assy
5.	324-414-08	Door	11.	RC901-02	Remote Control Transmitter
6.	324-714-01	Control Dec. Sheet			

CHASSIS ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER COMPONENTS INDICATED BY A MARK  IN THIS PARTS LIST AND THE CIRCUIT DIAGRAM SHOW COMPONENTS WHOSE VALUE HAVE SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK 

Note : Parts order must contain Model No., Circuit Ref. No., Part No. and Description

For Service Manuals
MAURITRON SERVICES
8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554
email:- mauritron@diat.pipex.com

REF.NO.	TYPE	DESCRIPTION	REF.NO.	TYPE	DESCRIPTION
R101	RDB1201JPBANN	CARBON 1.2 K JA 1/4W	R252	RDB3902JPBANN	CARBON 39 K JA 1/4W
R102	RDB4701JPBANN	CARBON 4.7 K JA 1/4W	R261	RDB3904JPBANN	CARBON 3.9 M JA 1/4W
R103	RDB1001JPBANN	CARBON 1 K JA 1/4W	R262	RDB1502JPBANN	CARBON 15 K JA 1/4W
R104	RDB680JPBANN	CARBON 68 JA 1/4W	R263	RDB1202JPBANN	CARBON 12 K JA 1/4W
R105	RDB2200JPBANN	CARBON 220 JA 1/4W	R271	RDB1204JPBANN	CARBON 1.2 M JA 1/4W
R106	RDB2200JPBANN	CARBON 220 JA 1/4W	R281	RDB3900JPBANN	CARBON 390 JA 1/4W
R107	RDB1501JPBANN	CARBON 1.5 K JA 1/4W	R282	RDB5600JPBANN	CARBON 560 JA 1/4W
R109	RDB1501JPBANN	CARBON 1.5 K JA 1/4W	R283	RDB5600JPBANN	CARBON 560 JA 1/4W
R111	RDB2702JPBANN	CARBON 27 K JA 1/4W	R291	RDB3301JPBANN	CARBON 3.3 K JA 1/4W
R121	RDB2701JPBANN	CARBON 2.7 K JA 1/4W	R293	RDB3301JPBANN	CARBON 3.3 K JA 1/4W
R122	RDB560JPBANN	CARBON 56 JA 1/4W	R295	RDB3301JPBANN	CARBON 3.3 K JA 1/4W
R123	RDB2701JPBANN	CARBON 2.7 K JA 1/4W	R301	RDA2203JPCANN	CARBON 220 K JA 1/2W
R124	RDB2700JPBANN	CARBON 270 K JA 1/4W	R302	RWXA63R9KZAN	WIRE WOUND 3.9 KA 6W
R125	RDB1001JPBANN	CARBON 1 K JA 1/4W	R311	RDB1502JPBANN	CARBON 15 K JA 1/4W
R126	RDB4700JPBANN	CARBON 470 JA 1/4W	R312	RDB2201JPBANN	CARBON 2.2 K JA 1/4W
R127	RDB4700JPBANN	CARBON 470 JA 1/4W	R313	RDB5602JPBANN	CARBON 56 K JA 1/4W
R130	RDB1001JPBANN	CARBON 1 K JA 1/4W	R314	RDB5601JPBANN	CARBON 5.6 K JA 1/4W
R131	RDB1001JPBANN	CARBON 1 K JA 1/4W	R315	RDB4702JPBANN	CARBON 47 K JA 1/4W
R136	RDB1003JPBANN	CARBON 100 K JA 1/4W	R317	RDB1001GPBANN	CARBON 1 K JA 1/4W
R137	RDB1003JPBANN	CARBON 100 K JA 1/4W	R319	RDB3900JPBANN	CARBON 390 JA 1/4W
R139	RDB2703JPBANN	CARBON 270 K JA 1/4W	R320	RDA1203JPCANN	CARBON 120 K JA 1/2W
R151	RDB1001JPBANN	CARBON 1 K JA 1/4W	R321	RDA1203JPCANN	CARBON 120 K JA 1/2W
R152	RDB4700JPBANN	CARBON 470 JA 1/4W	R322	RDB1502JPBANN	CARBON 15 K JA 1/4W
R153	RDB2700JPBANN	CARBON 270 JA 1/4W	R324	RS268R0JGDANN	OXIDE-MT 68 JA 2W
R154	RDB2202JPBANN	CARBON 22 K JA 1/4W	R325	RS268R0JGDANN	OXIDE-MT 68 JA 2W
R155	RDB1202JPBANN	CARBON 12 K JA 1/4W	R326	RDB2201GPBANN	CARBON 2.2 K JA 1/4W
R156	RDB5600JPBANN	CARBON 560 JA 1/4W	⚠ R331	RCXAA5604KGN	SOLID 5.6 M KA 1/2W
R171	RFXAA33R0JPN	FUSIBLE RES 33 J- 1/2W	⚠ R332	RCXAA5604KGN	SOLID 5.6 M KA 1/2W
R172	RDB1501JPBANN	CARBON 1.5 K JA 1/4W	R351	RFXAA14R70JPN	FUSIBLE RES 4.7 J- 1W
R173	RDB1501JPBANN	CARBON 1.5 K JA 1/4W	R352	RFXAA1R20JPN	FUSIBLE RES 1.2 J- 1/2W
R174	RDB3901JPBANN	CARBON 3.9 K JA 1/4W	R353	RS239R0JGDANN	OXIDE-MT 39 JA 1W
R176	RDB1R50JPBANN	CARBON 1.5 K JA 1/4W	R361	RDB10R0JPBANN	CARBON 10 JA 1/4W
R177	RDA56R0JPCANN	CARBON 56 JA 1/2W	R372	RDB2201JPBANN	CARBON 2.2 K JA 1/4W
R179	RDB1000JPBANN	CARBON 100 JA 1/4W	R401	RDB2700JPBANN	CARBON 270 JA 1/4W
R183	RDB3303JPBANN	CARBON 330 K JA 1/4W	R402	RDB1803JPBANN	CARBON 180 K JA 1/4W
R185	RDB1002JPBANN	CARBON 10 K JA 1/4W	R411	RDB6801JPBANN	CARBON 6.8 K JA 1/4W
R201	RDB1501JPBANN	CARBON 1.5 K JA 1/4W	R412	RDB4701JPBANN	CARBON 4.7 K JA 1/4W
R202	RDB2201JPBANN	CARBON 2.2 K JA 1/4W	R413	RDB2702JPBANN	CARBON 27 K JA 1/4W
R204	RDB8201JPBANN	CARBON 8.2 K JA 1/4W	R414	RDB1001JPBANN	CARBON 1 K JA 1/4W
R205	RDB5601JPBANN	CARBON 5.6 K JA 1/4W	R421	RDB1501JPBANN	CARBON 1.5 K JA 1/4W
R206	RDB4700JPBANN	CARBON 470 JA 1/4W	R423	RDB5601JPBANN	CARBON 5.6 K JA 1/4W
R211	RDB4702JPBANN	CARBON 47 K JA 1/4W	R424	RDB2700JPBANN	CARBON 270 JA 1/4W
R212	RDB1203JPBANN	CARBON 120 K JA 1/4W	R431	RDB3301JPBANN	CARBON 3.3 K JA 1/4W
R214	RDB1801JPBANN	CARBON 1.8 K JA 1/4W	R432	RDB3300JPBANN	CARBON 330 JA 1/4W
R215	RDB1002JPBANN	CARBON 10 K JA 1/4W	R433	RDB1001JPBANN	CARBON 1 K JA 1/4W
R231	RDB2703JPBANN	CARBON 270 K JA 1/4W	R434	RDA1001JPCANN	CARBON 1 K JA 1/2W
R232	RDB1001JPBANN	CARBON 1 K JA 1/4W	R435	RDA2700JPCANN	CARBON 270 JA 1/2W
R233	RCA1501KPCANN	SOLID 1.5 K KA 1/2W	R436	RWXA6100KZAN	WIRE WOUND 10 KA 6W
R234	RDB3302JPBANN	CARBON 33 K JA 1/4W	R442	RDB2203JPBANN	CARBON 220 K JA 1/4W
R235	RDB2702JPBANN	CARBON 27 K JA 1/4W	R443	RS14700JGCANN	OXIDE-MT 470 JA 1W
R236	RDB8202JPBANN	CARBON 82 K JA 1/4W	R451	RDB5600JPBANN	CARBON 560 JA 1/4W
R237	RDB3302JPBANN	CARBON 33 K JA 1/4W	R453	RDB1202JPBANN	CARBON 12 K JA 1/4W
R241	RDB4701JPBANN	CARBON 4.7 K JA 1/4W	R455	RDB1501JPBANN	CARBON 1.5 K JA 1/4W
R242	RDB3300JPBANN	CARBON 330 JA 1/4W	R456	RDB8202GPBANN	CARBON 82 K JA 1/4W
R243	RDB8200JPBANN	CARBON 820 JA 1/4W	R457	RDB4702JPBANN	CARBON 47 K JA 1/4W
R244	RDB1502JPBANN	CARBON 15 K JA 1/4W	R458	RDB1803JPBANN	CARBON 180 K JA 1/4W
R245	RDB82R0JPBANN	CARBON 82 JA 1/4W	R459	RDB6802JPBANN	CARBON 68 K JA 1/4W
R251	RDB1001JPBANN	CARBON 1 K JA 1/4W	R460	RDB1002JPBANN	CARBON 10 K JA 1/4W

REF.NO.	TYPE	DESCRIPTION	REF.NO.	TYPE	DESCRIPTION
C136	CF1H473KAAANN	POLYSTER 0.047UK 50V	C361	CK30371KAHHJN	CERAMIC 470P K 2K
C151	CK1H472KABBJN	CERAMIC 4700P K 50V	C362	CEXAE2C221HR1	ELECT 220U M 160V
C152	CK1H472KABBJN	CERAMIC 4700P K 50V	C366	CE2C100MBEANN	ELECT 10U M 160V
C153	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C371	CE1V471MAAANN	ELECT 470U M 35V
C154	CE1E4R7MAAANN	ELECT 4.7U M 25V	C372	CE1A101MAAANN	ELECT 100U M 10V
C155	CF1H562KAAANN	POLYESTER 5600P K 50V	C401	CE1H3R3MAAANN	ELECT 3.3U M 50V
C156	CE1C100MAAANN	ELECT 10U M 16V	C402	CK1H182KABBJN	CERAMIC 1800P K 50V
C157	CE1H2R2MAAANN	ELECT 2.2U M 50V	C411	CK1H102KABBJN	CERAMIC 1000P K 50V
C171	CEC102MAAANN	ELECT 1000U M 16V	C412	BP-CC1H470JABGJN	CERAMIC 47P J 50V
C172	CE1H2R2MAAANN	ELECT 2.2U M 50V	C421	CEC102MAAANN	ELECT 1000U M 16V
C173	CF1H682KAAANN	POLYESTER 6800P K 50V	C422	CF1H333KAAANN	POLYESTER 0.033UK 50V
C174	CE1C100MAAANN	ELECT 10U M 16V	C423	CP1E2R2MAAANN	NP-ELECT 2.2U M 25V
C176	CE1C100MAAANN	ELECT 10U M 16V	C424	CF1H223KAAANN	POLYESTER 0.022UK 50V
C177	CG1J474JAVAJN	MT-POLYEST 0.47U J 63V	C425	CF1H152JAAANN	POLYESTER 1500P J 50V
C178	CE1E471MAAANN	ELECT 470U M 25V	C431	CF1H563KAAANN	POLYESTER 0.056UK 50V
C181	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C432	CK2H392KAABJN	CERAMIC 3900P K 500V
C201	CP1E100MADANN	NP-ELECT 10U M 25V	C433	CK2H102KAABJN	CERAMIC 1000P K 500V
C202	BP-CC1H680JABGJN	CERAMIC 68P J 50V	C434	CE1V470MAAANN	ELECT 47U M 35V
C203	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	△C435	CHXAA3Y512AAN	MT-POLYPRO 5600P J 1.5K
C211	CE1C100MAAANN	ELECT 10U M 16V	C436	CK38151JAHJN	CERAMIC 150P J 3K
C212	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C437	CF1H393KAAANN	POLYESTER 0.47U K 50V
C213	BP-CC1H121JABRJN	CERAMIC 120P J 50V	C441	CN2D124JBEANN	MT-POLYEST 0.12U J 200V
C214	CE1HR47MAAANN	ELECT 0.47U M 50V	C442	CN2D154JBEANN	MT-POLYEST 0.15U J 200V
C221	CE1C101MAAANN	ELECT 100U M 16V	C443	CE2C4R7MEEANN	ELECT 4.7U M 160V
C222	CF1H104KAAANN	POLYESTER 0.1U K 50V	C451	CE1V221MAAANN	ELECT 220U M 35V
C224	CE1C221MAAANN	ELECT 220U M 16V	C452	CE1V471MAAANN	ELECT 470U M 35V
C231	CE2A1R0MAAANN	ELECT 1U M 100V	C454	CK2H102KAABJN	CERAMIC 1000P K 500V
C232	CE1H1R0MAAANN	ELECT 1U M 50V	C455	CE1H1R0MAAANN	ELECT 1U M 50V
C233	CE1C100MAAANN	ELECT 10U M 16V	C457	CF1H393JAAANN	POLYESTER 0.039UJ 50V
C251	BP-CC1H560JABRJN	CERAMIC 56P J 50V	C458	CF1H104JAAANN	POLYESTER 0.1U K 50V
C252	BP-CC1H101JABRJN	CERAMIC 100P J 50V	C459	CT1E1R0KADANN	TA-SOLID 1U K 25V
C253	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C460	CF1H683KAAANN	POLYESTER 0.068UK 50V
C261	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C461	CE1E102MAAANN	ELECT 1000U M 25V
C262	CP1H1R0MADANN	NP-ELECT 1U M 50V	C462	CF2A104KAFANN	POLYESTER 0.1U K 100V
C263	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C463	CF1H182KAAANN	POLYESTER 1800P K 50V
C264	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C464	CP1H1R0MADANN	NP-ELECT 1U M 50V
C265	CE1HR47MAAANN	ELECT 0.47U M 50V	C465	BP-CC2H560KAAGJN	CERAMIC 56P K 500V
C271	CF1H183KAAANN	POLYESTER 0.018UK 50V	C466	BP-CC1H560JABGJN	CERAMIC 56P J 50V
C281	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C701	CE1A101MAAANN	ELECT 100U M 10V
C282	CC1H151JABRJN	CERAMIC 150P J 50V	C702	CC1H330JABCJN	CERAMIC 33P J 50V
C283	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C703	CC1H330JABCJN	CERAMIC 33P J 50V
C284	CK1H103ZABFJN	CERAMIC 0.01U Z 50V	C706	CK1H101KABBJN	CERAMIC 100P K 50V
C285	BP-CC1H270JABRJN	CERAMIC 27P J 50V	C707	CK1H102KABBJN	CERAMIC 1000P K 50V
C302	CG2J104KAAANN	MT-POLYEST 0.1U K 630V	C709	CF1H153KAAANN	POLYESTER 0.015UK 50V
C303	CK3A102MAHJN	CERAMIC 1000P M 1K	C710	CF1H472KAAANN	POLYESTER 4700P K 50V
C304	CK3A102MAHJN	CERAMIC 1000P M 1K	C711	CF1H104KAAANN	POLYESTER 0.1U K 50V
C305	CK3A102MAHJN	CERAMIC 1000P M 1K	C721	CE1H4R7MAAANN	ELECT 4.7U M 50V
C306	CK3A102MAHJN	CERAMIC 1000P M 1K	C722	CK1H181KABBJN	CERAMIC 180P K 50V
C307	CEXAE2N101PR1	ELECT 100U M 450V	C723	CF1H104KAAANN	POLYESTER 0.1U K 50V
C311	CE2C4R7MEEANN	ELECT 4.7U M 160V	C724	CF1H104KAAANN	POLYESTER 0.1U K 50V
C314	CF1H393KAAANN	POLYESTER 0.039UK 50V	C731	CE1C470MAAANN	ELECT 47U M 16V
C315	CF1H123JAAANN	POLYESTER 0.012UJ 50V	C741	CK1H103ZABFJN	CERAMIC 0.01U Z 50V
C316	CK30681KAHHJN	CERAMIC 680P K 2K	C742	CK1H103ZABFJN	CERAMIC 0.01U Z 50V
△C332	CKXAA2G471ADNH	CERAMIC 470P M 400V	C743	BP-CC1H270JABRJN	CERAMIC 27P J 50V
C351	CK3A471KAHHJN	CERAMIC 470P K 1K	C744	BP-CC1H270JABRJN	CERAMIC 27P J 50V
C352	CE1E471MAAANN	ELECT 470U M 25V	C751	CK1H101KABBJN	CERAMIC 100P K 50V
C354	CE1V471MAAANN	ELECT 470U M 35V	C752	CE1C100MAAANN	ELECT 10U M 16V
C356	CE1E102MAAANN	ELECT 1000U M 25V	C753	CE1E4R7MAAANN	ELECT 4.7U M 25V
C358	CE1C221MAAANN	ELECT 220U M 16V	C755	CE1H1R0MAAANN	ELECT 1U M 50V

REF.NO.	TYPE	DESCRIPTION	REF.NO.	TYPE	DESCRIPTION
C756	BP-CC1H390JABGJN	CERAMIC 39P J 50V	Q241	T2SA10150SAN	TR 2SA1015-0(SAN)
C757	CK1H391KABBJN	CERAMIC 390P K 50V	Q311	T2SA10150	TR 2SA1015-0
C801	BP-CC1H270JABRJN	CERAMIC 27P J 50V	Q312	T2SC3807RCYAN	TR 2SC3807-R-CTV-YA
C802	CE1C220MAAANN	ELECT 22U M 16V	Q313	T2SD1710-CYBN	TR 2SD1710-CTV-YB
C803	CP1C330MAAANN	NP-ELECT 33U M 16V	Q371	T2SC2568(1)-K-N	TR 2SC2568(1)-K
C804	CP1C470MAAANN	NP-ELECT 47U M 16V	Q431	T2SC23830SANN	TR 2SC2383-0(SAN)
C821	CE1H1ROMMAAAN	ELECT 1U M 50V	Q432	T2SD1649-CYBN	TR 2SD1649-CTV-YB
C822	CE1H1ROMMAAAN	ELECT 1U M 50V	Q701	T2SC1815-GR-N	TR 2SC1815-GR
C823	CP1H1ROMADANN	NP-ELECT 1U M 50V	Q702	T2SA10150	TR 2SA1015-0
C824	CE1C100MAAANN	ELECT 10U M 16V	Q711	T2SC1815-GR-N	TR 2SC1815-GR
DIODES			Q721	T2SC1815-GR-N	TR 2SC1815-GR
D221	1N4007	DIODE 1N4007	Q741	T2SC2216(SANN)	TR 2SC2216 (SAN)
D231	1N4148	DIODE 1N4148	Q742	T2SC1815-GR-N	TR 2SC1815-GR
D241	1N4148	DIODE 1N4148	Q751	T2SC1815-GR-N	TR 2SC1815-GR
D242	1N4148	DIODE 1N4148	Q801	T2SC1815-GR-N	TR 2SC1815-GR
D243	1N4148	DIODE 1N4148	Q802	T2SA10150	TR 2SA1015-0
D301	1N5408	DIODE 1N5408	Q803	T2SA10150	TR 2SA1015-0
D302	1N5408	DIODE 1N5408	Q821	T2SC1815-GR-N	TR 2SC1815-GR
D303	1N5408	DIODE 1N5408	Q822	T2SA10150	TR 2SA1015-0
D304	1N5408	DIODE 1N5408	INTEGRATED CIRCUITS		
D311	DZEGA02-06E-N	ZENER EGA02-06E	IC101	6LA7520---N	IC LA7520
D312	DDEU1	DIODE EU1	IC171	6AN5265---N	IC AN5265
D314	1N4148	DIODE 1N4148	IC201	6M51308SP-N	IC M51308SP
D315	DCON3161A-R-N	PHOTO COUPLEE ON3161A-R-N	IC351	6AN78M12-LB-N	IC AN78M12-LB
D316	1N4148	DIODE 1N4148	IC451	6LA7830---N	IC LA7830
D317	DDES1---N	DIODE ES1	IC701	6MN15245SAY1N	IC MN15245SAY-1
D351	DDEU27---N	DIODE EU27	IC702	6CXK1011P-N	IC CXK1011P
D352	DDEU2---N	DIODE EU2	IC721	6H2T33---N	IC H2T33
D353	DDEU27---N	DIODE EU27	PEAKING COIL		
D361	DDEU2A---N	DIODE EU2A	L100	LDAK680	PEAKING COIL 68U K
D371	1N4007	DIODE 1N4007	L105	LDAK150	PEAKING COIL 15U K
D375	CTZ6.2A	ZENER 6.2V 5 500mW	L106	LDAK100	PEAKING COIL 10U K
D441	DDEB43-04-N	DIODE ERB43-04	L121	LDAK150	PEAKING COIL 15U K
D451	1N4007	DIODE 1N4007	L201	LG0044	DELAY LINE
D452	1N4148	DIODE 1N4148	L202	LDAK101	PEAKING COIL 100U K
D701	1N4148	DIODE 1N4148	L211	SL0007XC	S COIL
D702	1N4148	DIODE 1N4148	L221	LPAK390	PEAKING COIL 39U K
D704	1N4148	DIODE 1N4148	L251	LDAK4R7	PEAKING COIL 4.7U K
D706	1N4148	DIODE 1N4148	L281	LDAK8R2	PEAKING COIL 8.2U K
D707	DZRD3.6EL---N	ZENER RD3.6EL	L282	L7309A	1H DELAY LINE
D721	1N4148	DIODE 1N4148	L302	L80003	LINE FILTER
D742	1N4148	DIODE 1N4148	L421	LDAK100	PEAKING COIL 10U K
D801	1N4148	DIODE 1N4148	L442	4A4ML1AC0063	LINEARITY COIL
D802	1N4148	DIODE 1N4148	L451	LPAK330	PEAKING COIL 33U K
D821	1N4148	DIODE 1N4148	L712	LDAK100	PEAKING COIL 10U K
D822	1N4148	DIODE 1N4148	L721	LDAK100	PEAKING COIL 10U K
D823	1N4148	DIODE 1N4148	L741	LDAK150	PEAKING COIL 15U K
D824	1N4148	DIODE 1N4148	L801	LDAJ330	PEAKING COIL 33U J
TRANSISTORS			L821	LDAK100	PEAKING COIL 10U K
Q101	T2SC2216(SANN)	TR 2SC2216 SANN	L822	LDAK101	PEAKING COIL 100U K
Q121	T2SC1815-GR-N	TR 2SC1815-GR			

REF.NO.	TYPE	DESCRIPTION	REF.NO.	TYPE	DESCRIPTION
TRANSFORMERS			R612	RCA3301KPCANN	SOLID 3.3K KA 1/2W
T101	ST0007XV	S TRANS	R613	RDB1500JABANN	CARBON 150 JA 1/4W
T103	ST0199XV	S TRANS	R621	RS21202JGDANN	OXIDE-MT 12K JA 2W
T121	SL0005XV	S COIL	R622	RCA3301KPCANN	SOLID 3.3K KA 1/2W
T122	SL0047XV	S COIL	R623	RDB1500JABANN	CARBON 150 JA 1/4W
T131	ST0084AV	S TRANS	R624	RDB2700JPBANN	CARBON 270 JA 1/4W
T281	ST0125XC	S TRANS	R631	RCA2703KPCANN	SOLID 270K KA 1/2W
△T311	AE0137	CONVERTER TRANS	R632	RDB3300JPBANN	CARBON 33 JA 1/4W
△T371	PT0146A	POWER TRANS	R643	RDB8200JPBANN	CARBON 820 JA 1/4W
T431	AD0001A	DRIVE TRANS	VARIABLE RESISTORS		
△T471	FD0125	FLY BACK TRANS	VR601	GF0185XH	VR 5K
MISCELLANEOUS			VR602	GF0184XH	VR B-500
△F301	F31S2R5C2SUTX	FUSE 250V 2.5A	VR611	GF0185XH	VR 5K
A101	TD0123EUD	U VARACTOR TUNER	VR612	GF0184XH	VR B-500
A701	324-514-07	RC PRE AMP	VR621	GF0185XH	VR 5K
K171	EK1052	PHONO JACK	CAPACITORS		
K801	EK1050Y	RCA JACK 1P	C601	CK1H391KABBJN	CERAMIC 390P K 50V
K821	EK1050W	RCA JACK 1P	C602	CK1H681KABBJN	CERAMIC 680P K 50V
PS301	902P44E180MR14	THERMISTOR	C611	CK1H391KABBJN	CERAMIC 390P K 50V
△SW301	ES0210	PUSH SWITCH	C612	CK1H471KABBJN	CERAMIC 470P K 50V
SW701	ES0332	PUSH SWITCH	C621	CK1H391KABBJN	CERAMIC 390P K 50V
SW702A-	ES0334	PUSH SWITCH	C622	CK1H561KABBJN	CERAMIC 560P K 50V
SW703	ES0210	PUSH SWITCH	C631	CK3D102PAHEJN	CERAMIC 1000P P 2K
SW704	ES0210	PUSH SWITCH	C632	CK3D102PAHEJN	CERAMIC 1000P P 2K
SW705	ES0210	PUSH SWITCH	TRANSISTORS		
SW706	ES0210	PUSH SWITCH	Q601	T2SC2228-D--N	TR 2SC2228-D
SW707A-	ES0333	PUSH SWITCH	Q611	T2SC2228-D--N	TR 2SC2228-D
X101	KAF-38.9MRMK-1	SAW FILTER	Q621	T2SC2228-D--N	TR 2SC2228-D
X121	TPS6.0MB	CERAMIC FILTER	Q641	T2SC2228-D--N	TR 2SC2228-D
X151	SFE6.0MB	CERAMIC FILTER	MISCELLANEOUS		
X152	CDA6.0MC	CERAMIC FILTER	K601	EK0708	CRT SOCKET
X261	EX0004AC	CRYSTAL OSCILLATOR	OUT OF CIRCUIT BOARD		
X421	EX00155X0	CERAMIC OSCILLATOR			
X701	EX0080X0	CERAMIC OSCILLATOR	△9901	A34JRH61X	CRT
D1701	D2SLP-5770-N	LED SLP-577D	△L901	LJ0104CJA	DEGAUSSING COIL
CRT UNIT			SP901	VS012BCA	SPEAKER
			△W901	E6049KB	AC CORD
RESISTORS			W902	JG0050	GROUNDING CONNECTOR
R601	RS21202JGDANN	OXIDE-MT 12K JA 2W			
R602	RCA3301KPCANN	SOLID 3.3K KA 1/2W			
R603	RDB1500JABANN	CARBON 150 JA 1/4W			
R611	RS21202JGDANN	OXIDE-MT 12K JA 2W			

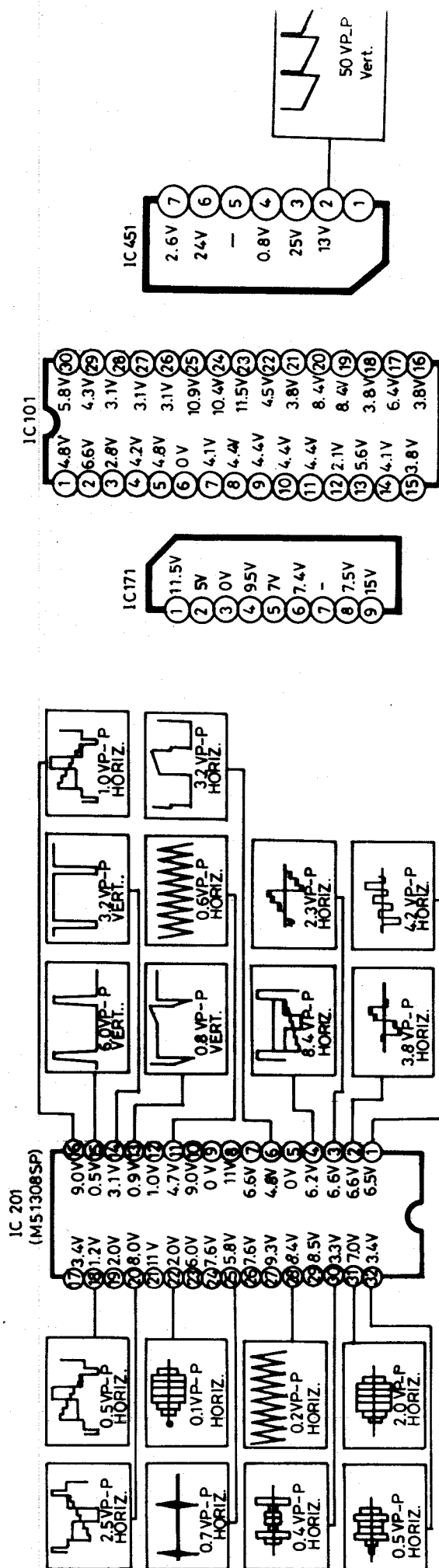
WAVEFORMS AND VOLTAGES - I

SERVICE PRECAUTION:

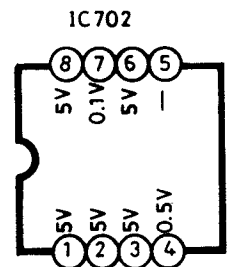
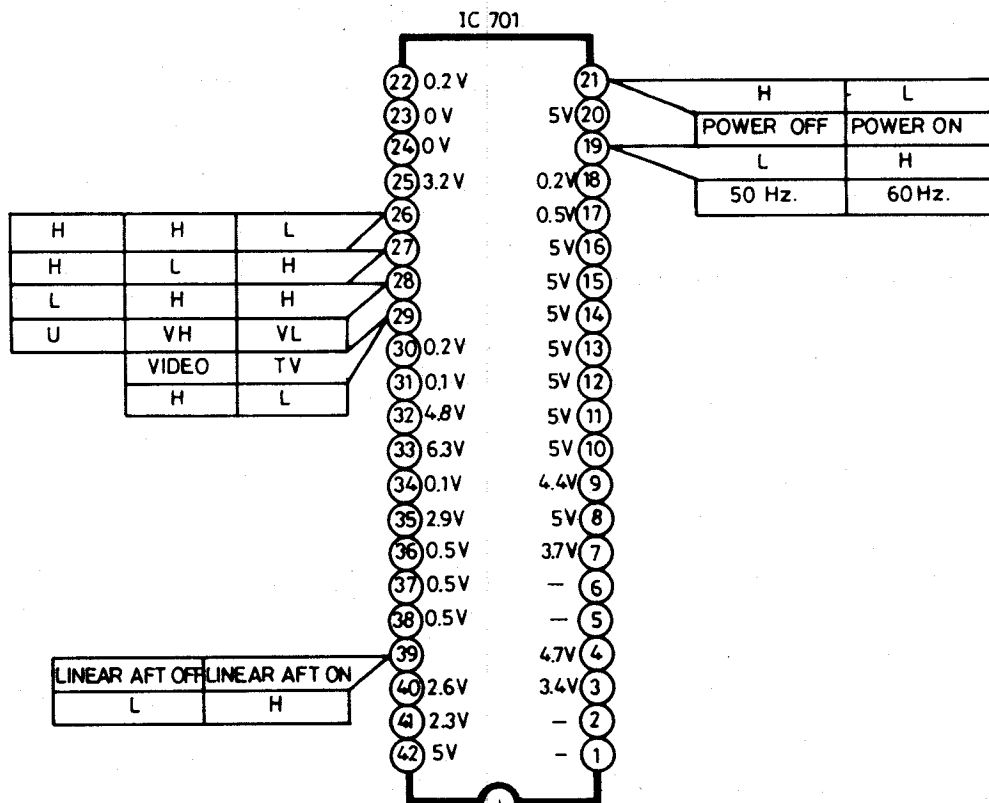
THE AREA ENCLOSED BY THIS LINE () IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE. WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK

PRODUCT SAFETY NOTICE:

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A MARK  IN THIS CIRCUIT DIAGRAM SHOW COMPONENTS WHOSE VALUE HAVE SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE PARTS LIST OF SERVICE MANUAL BE USED FOR COMPONENTS REPLACEMENT POINTED OUT BY THE MARK.



WAVEFORMS AND VOLTAGES-II



Q 121		
VOLT	WAVEFORM	
B 1.9V		
C 11V	-----	
E 1.2V		

Q 241		
VOLT	WAVEFORM	
B 6.2V		
C 0V	-----	
E 6.4V		

Q 312		
VOLT	WAVEFORM	
B 0V		
C -0.15V		
E 0V	-----	

Q 313		
VOLT	WAVEFORM	
B -0.15V		
C 280V		
E 0V	-----	

Q 431		
VOLT	WAVEFORM	
B 0.015V		
C 18.1V		
E 0V	-----	

Q 432		
VOLT	WAVEFORM	
B 1.9V		
C 137V		
E 1.95V		

Q 601		
VOLT	WAVEFORM	
B 3.9V		
C 104V		
E 3.3V	-----	

Q 611		
VOLT	WAVEFORM	
B 4.0V		
C 103V		
E 3.4V	-----	

Q 621		
VOLT	WAVEFORM	
B 3.9V		
C 100V		
E 3.3V	-----	

Q 101		
VOLT		
B 1.0V		
C 3.8V		
E 0.2V		

Q 311		
VOLT		
B 37.5V		
C 0.1V		
E 38.0V		

Q 371		
VOLT		
C 16V		
B 5.5V		
E 8V		

Q 701		
VOLT		
C 4.5V		
B 0.2V		
E ---		

Q 711		
VOLT		
C 4.9V		
B 0V		
E 0V		

Q 721		
VOLT		
C 8V		
B 0.4V		
E ---		

Q 731		
VOLT		
C 0V		
B 11V		
E 11V		

Q 732		
VOLT		
C 11V		
B 10V		
E 11V		

Q 733		
VOLT		
C 0		
B 11V		
E 11V		

Q 741		
VOLT		
C 11V		
B 6.5V		
E 5.8V		

Q 742		
VOLT		
C 0.1V		
B 1V		
E 0.1V		

Q 801		
VOLT		
C 11V		
B 3.5V		
E 3V		

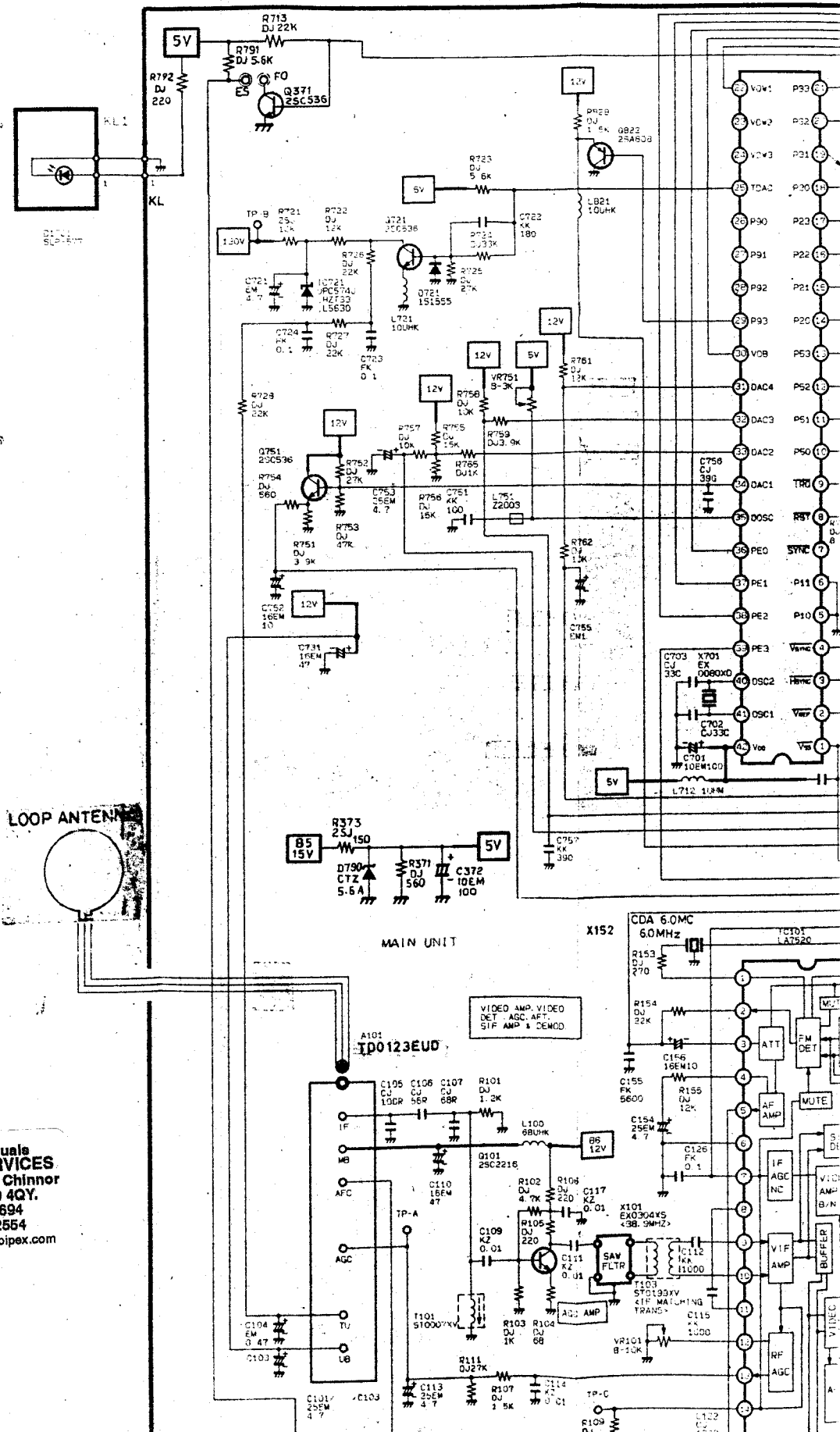
Q 802		
VOLT		
C ---		
B 7.2V		
E 5.3V		

Q 803		
VOLT		
C ---		
B 3.6V		
E 4.3V		

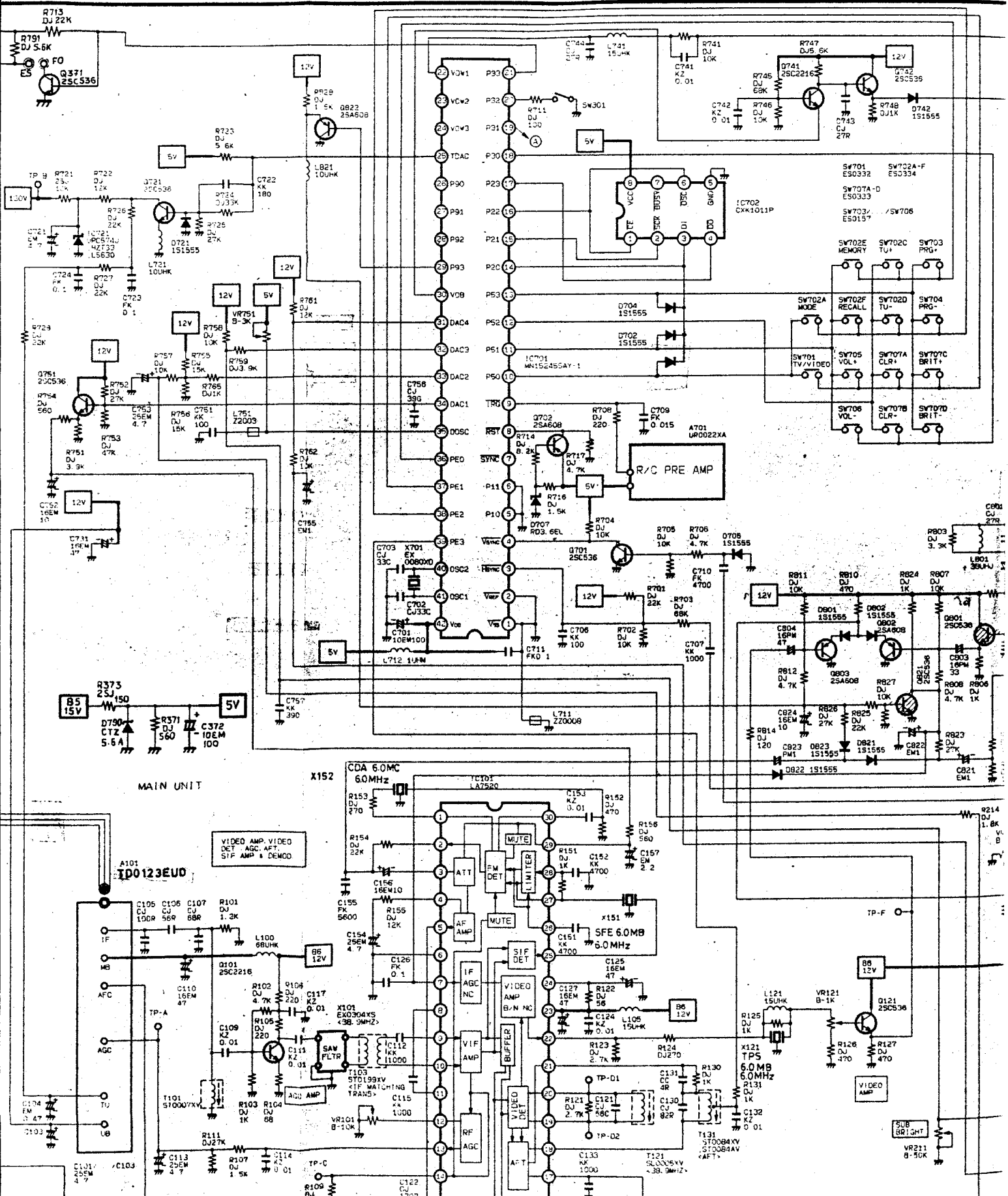
Q 821		
VOLT		
C 5.5V		
B 0V		
E ---		

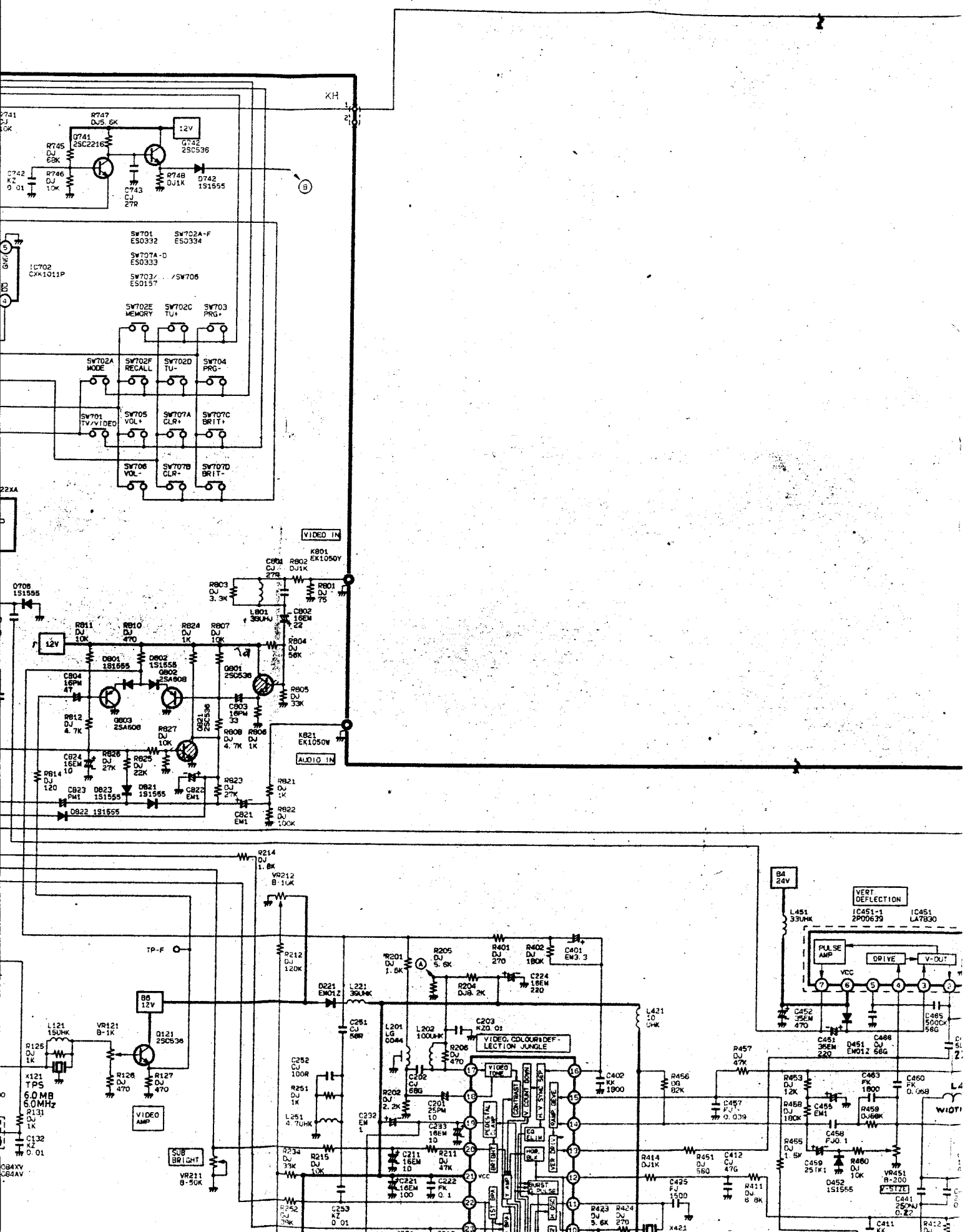
WAVEFORMS AND VOLTAGES-III

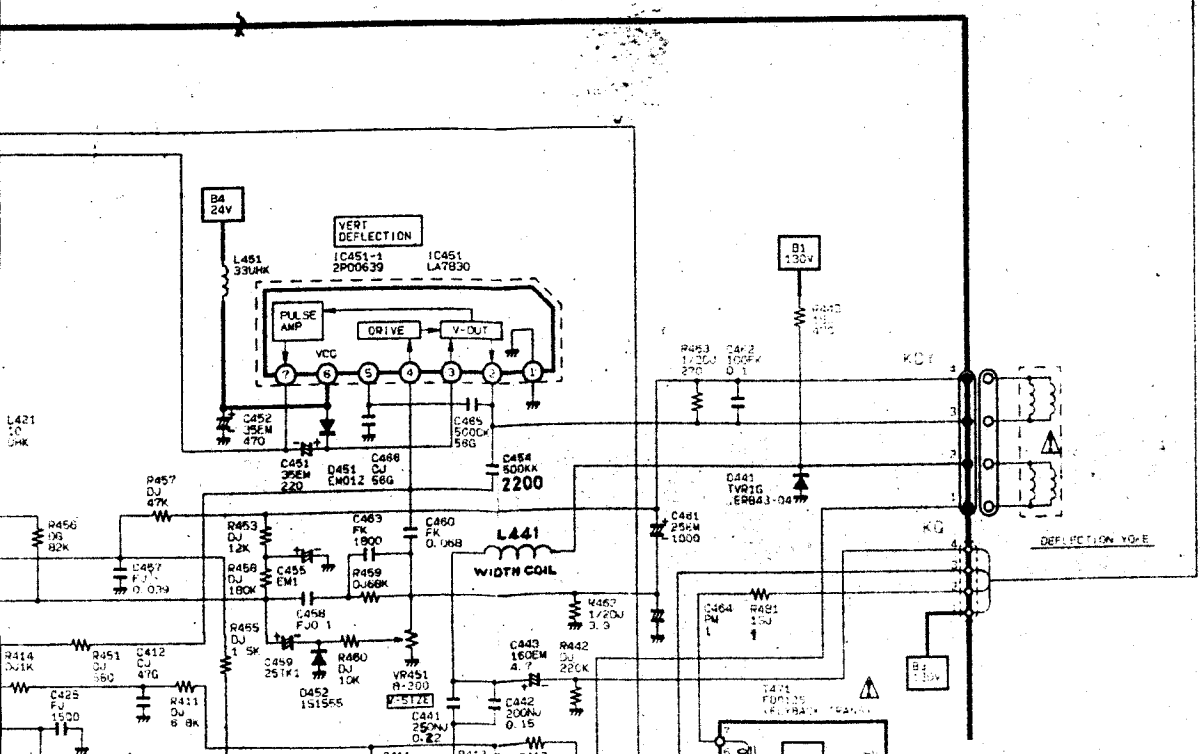
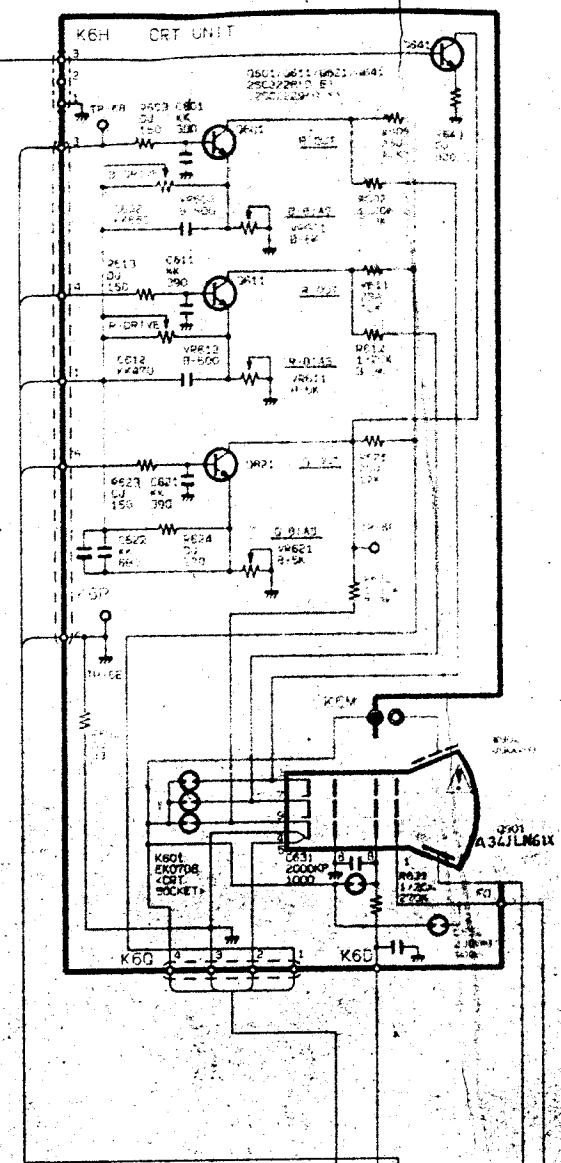
MODEL 9103 KDR

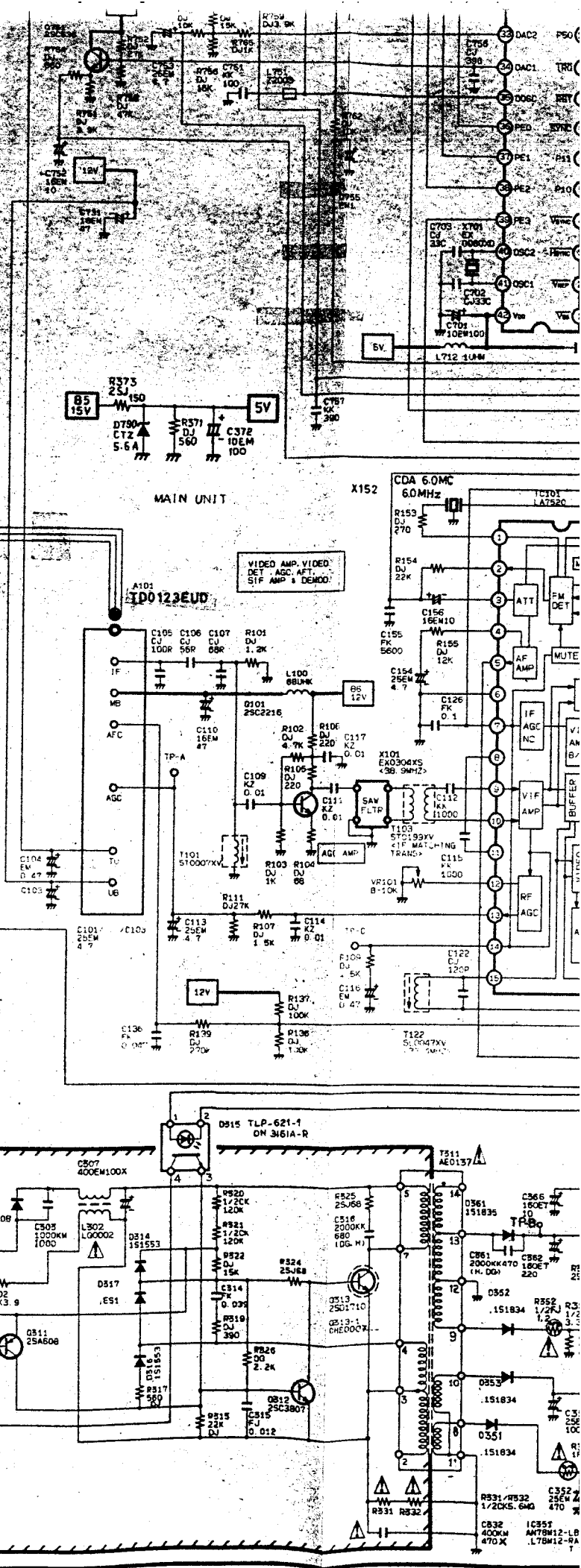


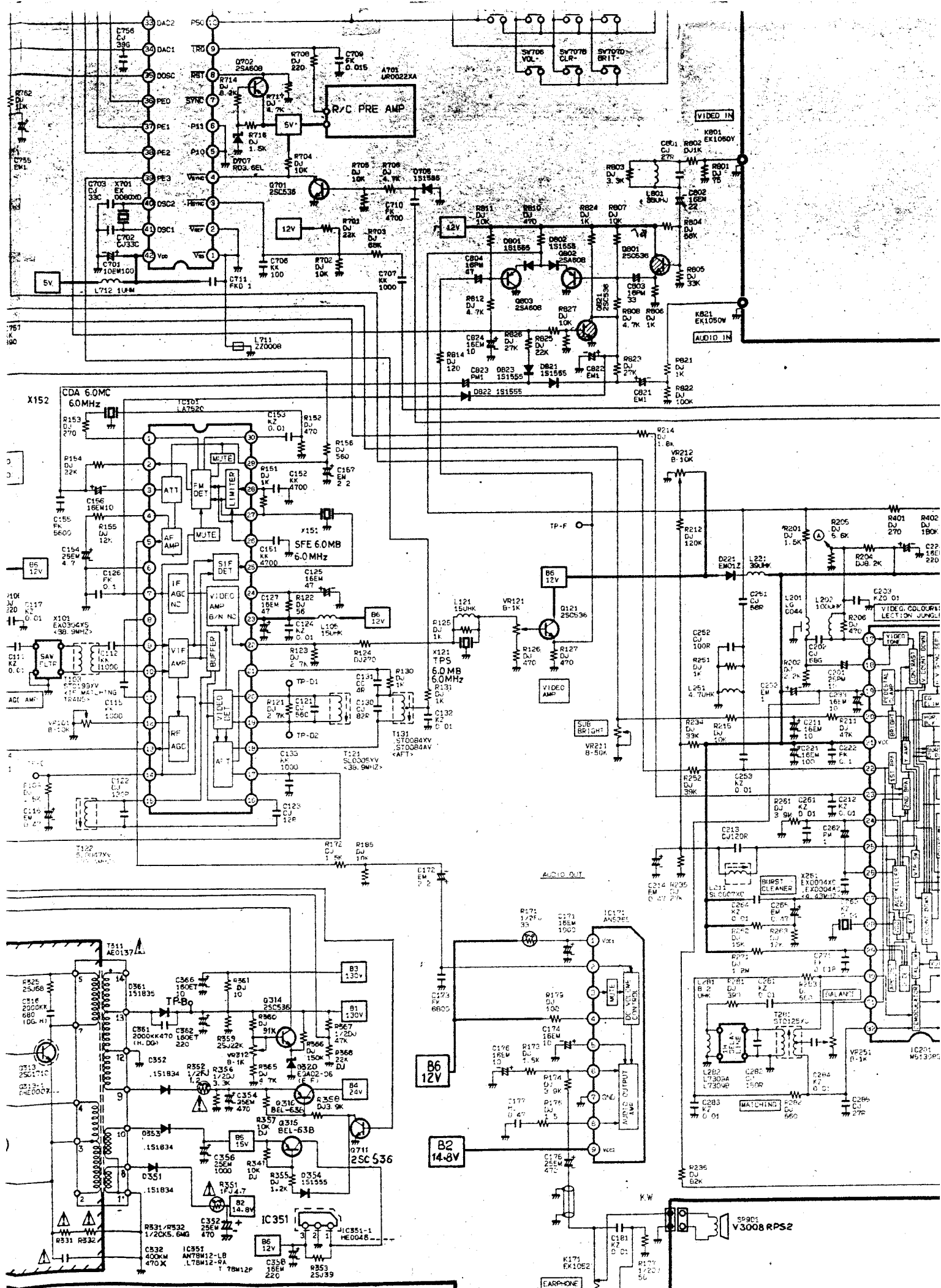
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 8 Cherry Tree Road, Chinnor
 Oxfordshire, OX9 4QY.
 Tel (01844) 351694
 Fax (01844) 352554
 email:- mauritron@dial.pipex.com



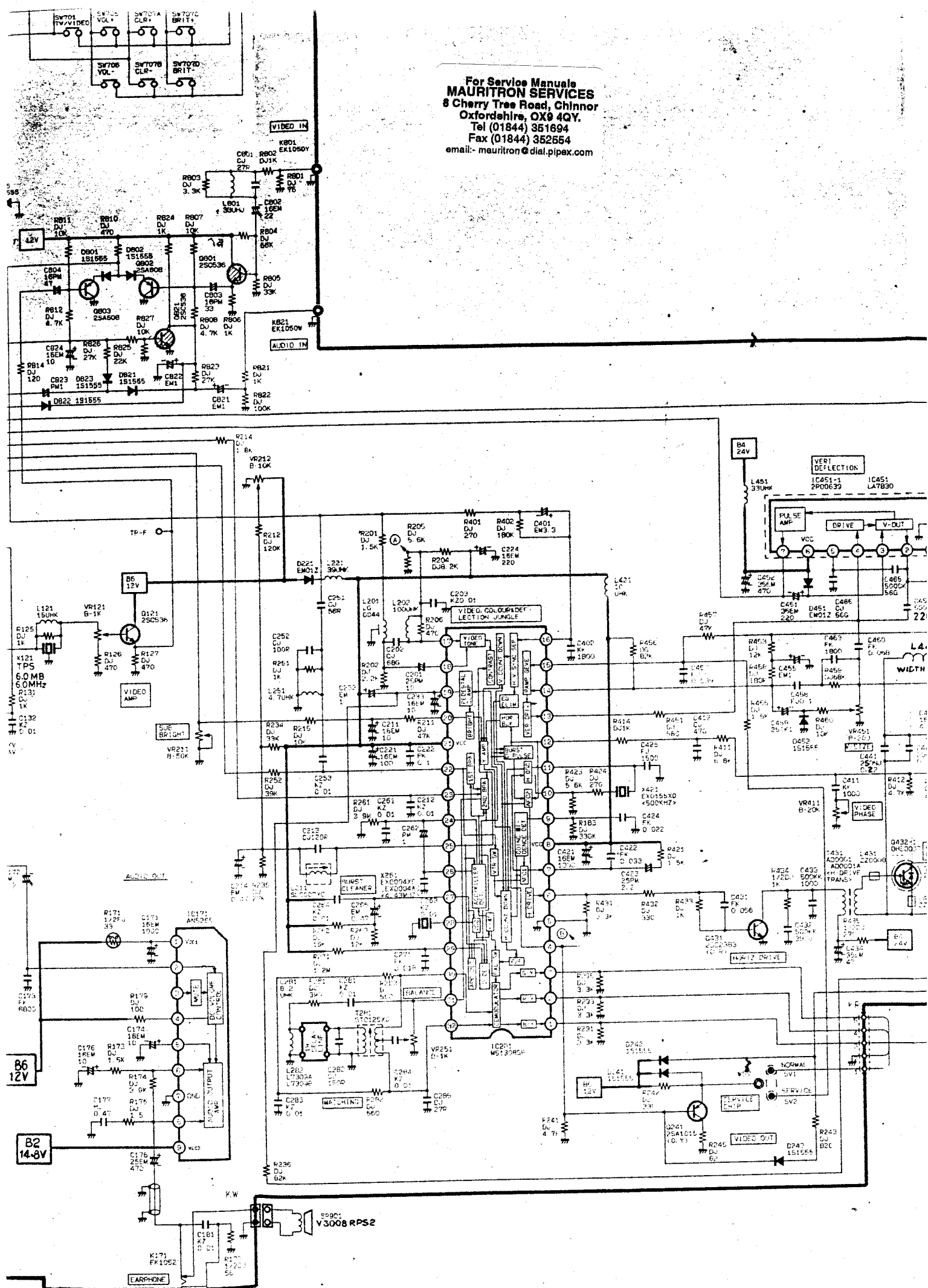


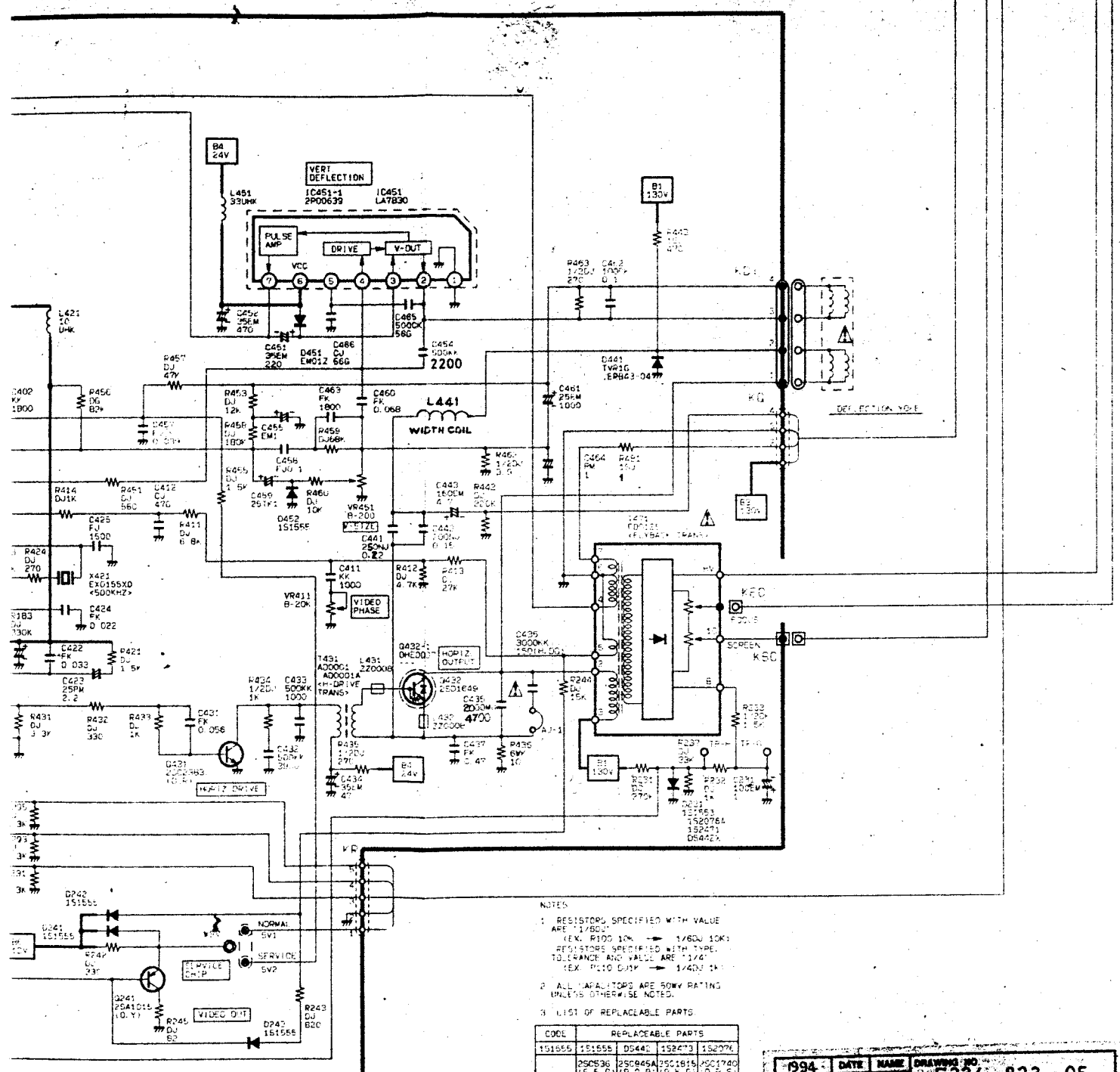






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NOTES

1. RESISTORS SPECIFIED WITH VALUE
(EX. R100 10K → 1/600 10K)
RESISTORS SPECIFIED WITH TYPE,
TOLERANCE AND VALUE ARE 1/4"
(EX. R10 0.5W → 1/40 1K)
2. ALL CAPACITORS ARE 50VW RATING
UNLESS OTHERWISE NOTED.
3. LIST OF REPLACEABLE PARTS.

CODE		REPLACEABLE PARTS			
151555	151555	D5441	152473	152076	
25C536	25C536	25C945A	25C1815	25C1741	
	(E.F.G.)	(P.Q.R.)	(T.Y.G.)	(Q.S.T.)	
	25C1740S				
	(Q.R.S.)				
25A008	29A608	25A564A	25A933	25A933	
	(E.F.)	(Q.R.)	(Q.R.)	(Q.P.)	
	25A1015				
	(O.Y.)				

1994	DATE	NAME	DRAWING NO.
DRAWN	4-5-94	M.H.H.	E324-823-05
CHECKED	7-5-94	J.S.	PART NAME
APPROVED	7-5-94	J.S.	CKT. DIAGRAM
USED ON	9103	FOR	SCALE
			SHEET
			OF
			SHEETS