

General Information

1995
Covers Models: CRV 72NT
CTV 551S, CTV 351S
CRT's:
A66EAK77X01
A66ECY13X31

Specifications

Power Supplies

Nominal: 220-240V AC 50Hz
The chassis is fully mains isolated and is stabilized across mains voltage range from 175V to 265V for less than 0.75% change in picture size. No mains input adjustment is required.

Power Consumption

Typically: Maximum: 120W
Minimum: 130W

Frequency Coverage

Hyperband
(VHF CH 2 to UHF CH 69 including CATV): 47.862 Mhz
UHF (CH 21-69): 471-862 Mhz

Sensitivity

34 dBuV or less for any channel with a locked colour picture.

Maximum Signal Input

95 dBuV or more for any channel.

IF Frequencies

B/G/Europe: 38.9MHz - Vision
33.4MHz - Sound

I (UK):

39.5MHz - Vision
33.5MHz - Sound

Audio Output

Maximum : 2x8W RMS
(Audio power output 8W at 10% THD)

Beam Current Limiting

EHT 1300uA
Maximum : 27Kv

Service Adjustments

Do not change any module unless the set is switched off.
The mains supply side of the switch mode power supply transformer is live. Use an isolating transformer.
The receivers fulfill completely the safety requirements.

Safety precautions
Servicing of this TV should only be carried out by a qualified person.

1: Components marked with the warning symbol on the circuit diagram are critical for safety and must only be replaced with an identical component.

2: Power resistor and fusible resistors must be mounted in an identical manner to the original component.

3: When servicing this TV, check that the EHT does not exceed 27Kv.

TV set switched off:

Make short circuit between HV-CRT clip and CRT ground layer.
Short C808 (150uF) before changing IC801 or other components in primary side of SMPS.

Measurements

Voltage readings and oscilloscope traces are measured under following conditions:

1: Antenna signal 60dBuV from colour bar generator. (100% white, 75% colour saturation).

2: Brightness, Contrast, Colour set for a normal picture.

3: Mains supply, 220V AC, 50 Hz.

Servicing Adjustments and Alignments

The following preset adjustment procedures are not required during installation and should be made, if necessary, after servicing.

Warning

EHT Shock Hazard:

The EHT must be safely discharged before attempting to disconnect the EHT lead from the tube anode.

Clip one end of a convenient lead, such as a meter lead, to the tube earthing strap on the tube body, fold back the suction cap and discharge the EHT through the lead. Press in one side of the spring clip which protects into the tube cavity to ease removal of the EHT connector.

Important

Do not disturb the tube neck adjustments as these have been set for optimum performance during the tube manufacture.

Before attempting the following adjustments, the receiver should be tuned with the brightness, contrast and colour controls adjusted for the best picture and all measurements are to be made after a warm-up period of approximately 5 minutes, unless stated otherwise.

1: 60 dBmV signal at any channel frequency.

2: Colour bar pattern and 1 KHz sound signal.

3: Mains 220-240V AC, 50 Hz.

The adjustments should be carried out in the following order for convenience.

SMPS System Voltage

1: Set the BCS (Brightness, Contrast, Saturation) and VOL (Volume) to minimum.

2: Check the voltage at the shorted pins of socket PL602 (TP1).

3: If necessary, adjust VR801 150 ± 0.5V DC.

4: Set the BCS and VOL to normal picture and sound.

Vision Demodulator and AFC

1: Set the pattern generator for 10uV, 38.9 Mhz (B/G models) or 39.5 Mhz (for I models) RF output.

2: Connect the Rf output of the pattern generator to any one input of SAW filter and connect the other input of SAW filter

to ground through 10nF capacitor (No antenna input applied)

3: Check the voltage at the base of Q201 (TP2)

4: Adjust the VR401 3.5 ± 0.1V DC (M4)

5: After the adjustment procedure, please disconnect all external connections

Picture Geometry and Focus

1: Set the pattern generator for centre-cross, circle and cross hatch composite pattern.

2: VR702: Adjustment of vertical size
VR701: Adjustment of vertical linearity
VR703: Adjustment of vertical shift
VR652: Adjustment of horizontal width
VR650: Adjustment of pincushion correction
VR401: Adjustment of horizontal centring and focus potentiometer (on EHT transformer) for optimum focussing.

Component Differences Tables

COMPONENT DIFFERENCES ON ALL MODELS		
	TYPE	ALL OPTION
PL801*	29 220V SOCKET	CONNECTED
C448*	CAP SER	CONNECTED
C449*	CAP SER	CONNECTED
C494*	CAP SER	----
C498*	CAP SER	----
C499*	CAP SER	----
C516*	CAP SER	CONNECTED
C603*	CAP SER	----
C811*	CAP SER	----
D401*	DIODE 1N4148	----
D405*	DIODE 1N4148	JUMPER WIRE
D430*	DIODE 1N4148	CONNECTED
D652*	DIODE 1N4148	CONNECTED
D655*	DIODE 1N4148	----
D813*	DIODE 1N4148	----
F802*	JUMPER WIRE	JUMPER WIRE
J603	JUMPER WIRE	RES CF 1/4W 6.8R J
J800	JUMPER WIRE	----
L201*	FIXED COIL	CONNECTED
L403*	FIXED COIL	CONNECTED
L404*	FIXED COIL	CONNECTED
L802*	FIXED COIL	CONNECTED
R109*	RES CF 1/4W	----
R207*	RES CF 1/4W	----
R208*	RES CF 1/4W	----
R476*	RES CF 1/4W	----
R507*	JUMPER WIRE	----
R515*	JUMPER WIRE	CONNECTED
R516*	JUMPER WIRE	----
R527*	RES CF 1/4W	----
R528*	RES CF 1/4W	JUMPER WIRE
R529*	RES CF 1/4W	JUMPER WIRE
R530*	RES CF 1/4W	JUMPER WIRE
R541*	RES CF 1/4W 1K J	CONNECTED
R559*	RES CF 1/4W	CONNECTED
R563*	RES CF 1/4W	----
R569*	CF 270R 1/4W J	----
R570*	CF 680R 1/4W J	JUMPER WIRE
R577*	RES CF 1/4W	----
R580*	JUMPER WIRE	----
R655*	RES CF 1/4W	CONNECTED
R806*	RES CF 1/4W	----
R811*	RES CF 1/4W	CONNECTED
S111	JUMPER WIRE	----
S404	JUMPER WIRE	----
S420	JUMPER WIRE	CONNECTED
S483	JUMPER WIRE	----
S509	JUMPER WIRE	----
S510	JUMPER WIRE	CONNECTED
S511	JUMPER WIRE	CONNECTED
S552	JUMPER WIRE	----
S601	JUMPER WIRE	CONNECTED
S602	JUMPER WIRE	----
S604	JUMPER WIRE	----
S801	JUMPER WIRE	----

Tuner AGC

1: Check the voltage at pin 1 of Tuner (TP4)

2: Adjust the VR402 to get 1V voltage at 4M by decreasing the amplitude of the signal from maximum to desired value.

Screen Voltage

1: Set the pattern generator for grey scale.

2: Set the BCS (Brightness, Contrast, Saturation) to minimum.

3: Measure the cathode voltages on the CRT base board by using a 1/1000 probe.

4: Adjust the screen pot of FBT for 175 2V reading on maximum cathode voltage.

CRT Baseboard Cut Off Voltages and White Balance

1: Set the pattern generator for grey scale.

2: Use 1/1000 probe to measure the voltage at green cathode. Adjust the voltage observed at this cathode by the screen potentiometer (on EHT transformer) that the voltage will be 10V less than its maximum value.

3: Display the white pattern on screen and set all analogue controls to its minimum value.

4: You can adjust the white balance by the colour analyzer. Place the probe of the colour analyzer to the centre of the screen and adjust the potentiometers VR951 & VR953 to get X=285 ± 1V and Y=293 ± 1V value on analyzer.

Fault Finding Guide

TROUBLE	CHECK POINTS
No Picture, No Sound	Tuner voltages, input/output signals OK Q401, IC401
No Picture, Sound Ok	Int CVBS in, IC401, Screen voltage
No Colour	IC401, IC402, IC403, X401
No Vertical Deflection	26V, R711, PL701, IC701
Vertical Linearity	C705, VR701
Vertical Size	R704, VR702
Vertical Shift	VR703, R708, Q701, Q702
Vertical Fold	26V, R711
Horizontal Linearity	L601, C606
Horizontal Fold	System voltage (115V)
Horizontal Size	C603, System voltage (115V)
Flue Picture	TR602, G3 (Focus), EHT, Filament voltage
Dark Picture	TR602, G2 (Focus) Brightness, Contrast voltage
Noisy Picture	AGC voltage, RF signal
Vertical/Horizontal Sync.	IC401
Interference	Tuner (TU201), Z201
No Sound	IC401 (Pin 5)
Low Sound	IC401 (Pin 5, Sound control voltage), R303, IC301
Sound Distortion	IC301, 26V
Pop Noise	Q301, C307
Contrast	IC401 (Pin 25)
Brightness	IC401 (Pin 17)
Colour	IC401 (Pin 26)
Auto Tuning	Q501
Memory	IC502
Band Select	IC503
No Video at SCART	Set AV mode, check IC401 (Pin 5, Pin 6)
No Sound at SCART	IC401 (Pin 6)
Missing Character at Teletext	Signal at Pin 8 of IC101
Remote Controller	Battery, IR Diode, Current path of IR diode

COMPONENT DIFFERENCES DEPENDING ON SYSTEM

	TYPE	PAL B/G	PAL-SEC B/G	PAL-SEC B/G-L/L'	PAL-SEC B/G-D/K'	SECAM D/K'	PAL I-1 (UHF)	PAL I-2 (VHF/UHF)
TU101*	TUNER KHC2000/TFK3011	KHC2000	KHC2000	KHC2000	KHC2000	KHC2000	TFK3011	KHC2000
IC403*	IC L7A8395	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
IC503*	IC LA7910	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
Z201*	FILTER SAW	OFWG1963	OFWG1963	OFWG1963	OFWK2954	OFWK2954	OFWJ1953(3)	OFWJ1953(3)
Z401*	FILTER SER TRAP TPS 5.5/6.0 MHZ	5.5 MHZ	5.5 MHZ	5.5 MHZ	5.5 MHZ	5.5 MHZ	6.0 MHZ	6.0 MHZ
Z402*	FILTER SER TRAP TPS 6.5 MHZ	----	----	----	CONNECTED	CONNECTED	----	----
Z403*	FILTER SER 5.5/6.0 MHZ SFE 5.5/6.0 MB	5.5 MHZ	5.5 MHZ	5.5 MHZ	5.5 MHZ	5.5 MHZ	6.0 MHZ	6.0 MHZ
Z404*	FILTER SER 6.5 MHZ SFE 6.5 MB	----	----	----	CONNECTED	CONNECTED	----	----
C204*	CAP SER 10NF 50V Z F	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
C205*	CAP SER 10NF 50V Z F	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
C208*	CAP EL 10UF 50V M	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
C209*	CAP EL 10UF 50V M	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
C441*	CAP SER 100NF 50V Z F	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
C442*	CAP SER 100NF 50V Z F	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
C443*	CAP MKT 220NF 63V J	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
C460*	CAP SER 1NF 50V K B	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
C510*	CAP SER 100NF 50V Z F	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
C514*	CAP EL 10UF 50V M	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
D502*	DIODE 1N4148	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
D503*	DIODE 1N4148	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
D520*	DIODE 1N4148	JUMPER WIRE	JUMPER WIRE	CONNECTED	JUMPER WIRE	----	----	LINK
D522*	DIODE 1N4148	----	----	CONNECTED	----	----	----	----
J01	JUMPER WIRE	----	----	----	CONNECTED	----	----	----
J02	JUMPER WIRE	----	----	----	----	----	----	----
J03	JUMPER WIRE	----	----	----	----	CONNECTED	CONNECTED	CONNECTED
L402*	FIXED COIL 6.8UH	JUMPER WIRE	JUMPER WIRE	JUMPER WIRE	CONNECTED	JUMPER WIRE	LINK	LINK
Q412*	TR BC558B	----	----	CONNECTED	----	----	----	----
Q510*	TR BC548B	----	----	CONNECTED	----	----	----	----
R470*	RES CF 1/4W 10K J	----	CONNECTED	CONNECTED	CONNECTED	----	----	----
R474*	RES CF 1/4W 1K J	----	----	CONNECTED	----	----	----	----
R522*	RES CF 1/4W 5.6K J	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
R523*	RES CF 1/4W 5.6K J	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
R524*	RES CF 1/4W 2.7K J	CONNECTED	CONNECTED	CONNECTED	CONNECTED	CONNECTED	----	CONNECTED
R556*	RES CF 1/4W 56K J	----	----	CONNECTED	----	----	----	----
R557*	RES CF 1/4W 10K J	----	----	CONNECTED	----	----	----	----
S401	JUMPER WIRE	CONNECTED	CONNECTED	----	CONNECTED	CONNECTED	CONNECTED	CONNECTED
S501	JUMPER WIRE	----	----	----	----	----	CONNECTED	----
S502	JUMPER WIRE	----	----	----	----	----	CONNECTED	----
S505	JUMPER WIRE	CONNECTED	CONNECTED	----	CONNECTED	CONNECTED	CONNECTED	CONNECTED

COMPONENTS DIFFERENCES DEPENDING ON TDA 8362A N1,N2

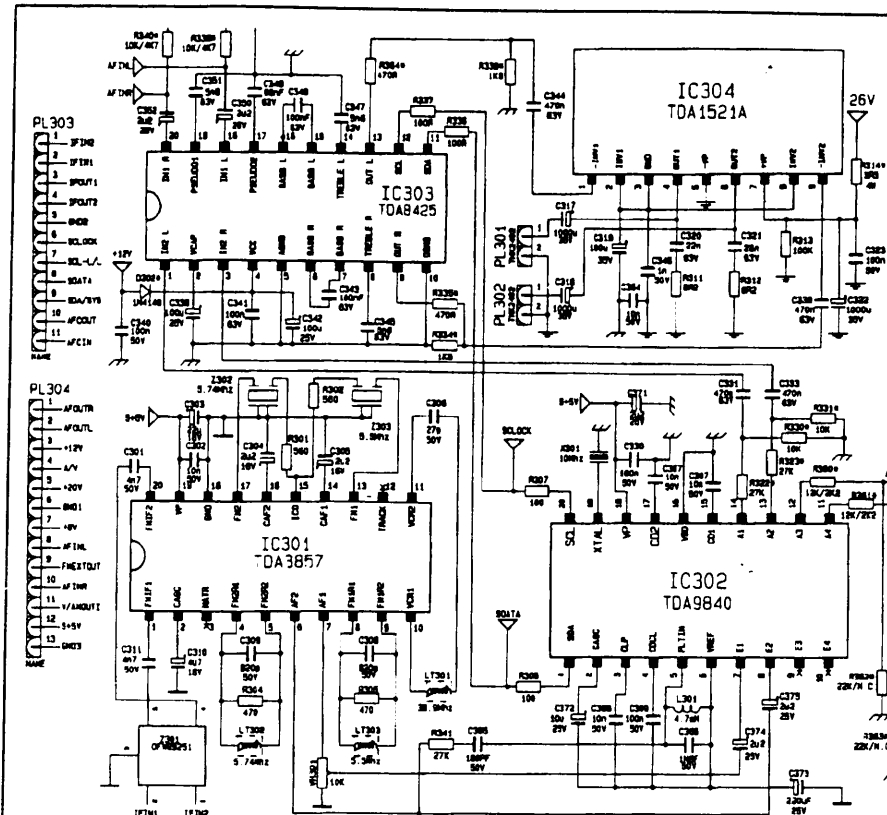
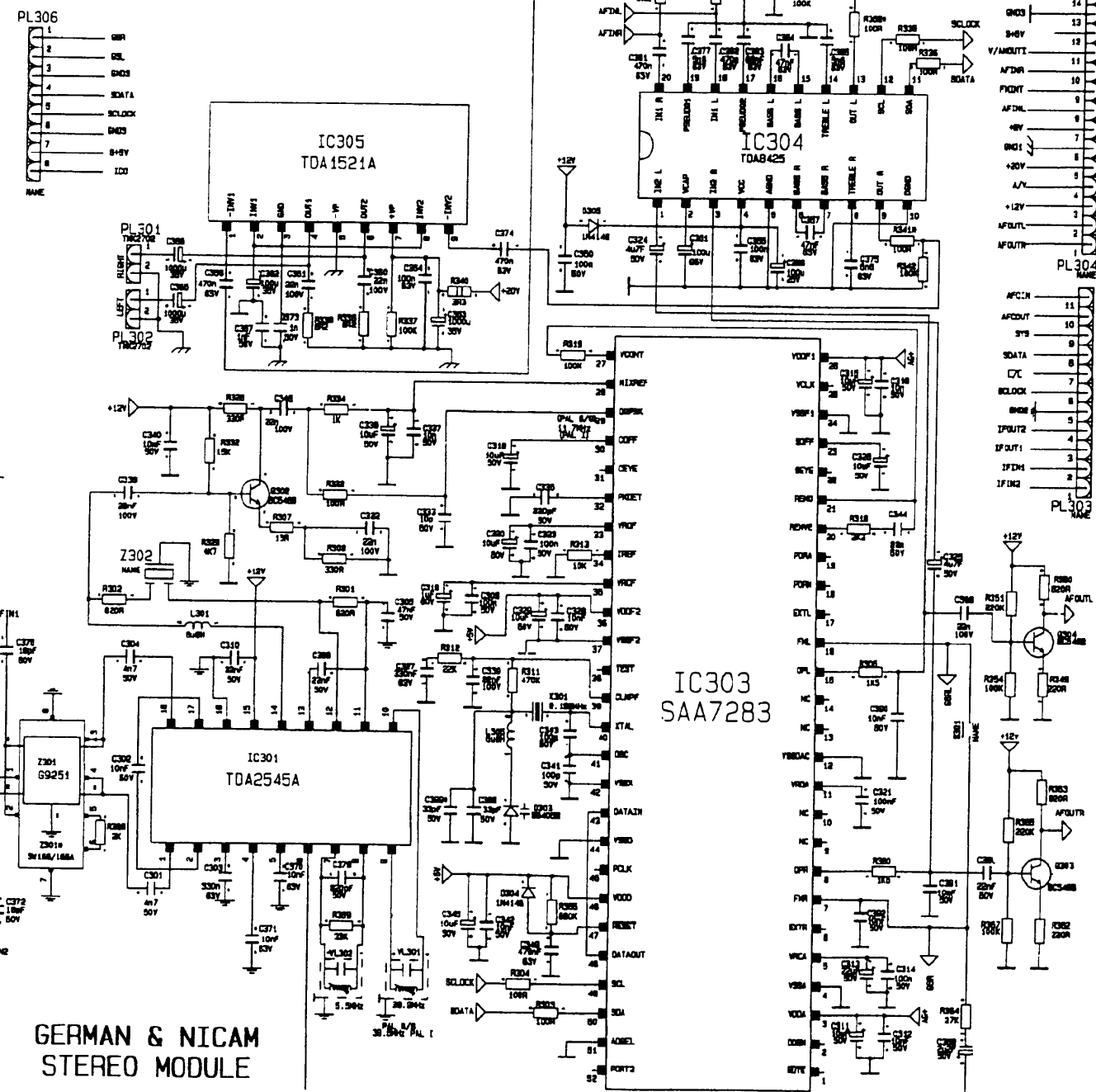
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C401*	TDA 8362A N1,N2	TDA 8362A N1	TDA 8362A N2	TDA 8362A N1	TDA 8362A N2
R115*	RES CF 1/4W 8.2K/6.8K J	RES CF 1/4W 8.2K J	RES CF 1/4W 6.8K J	RES CF 1/4W 8.2K J	RES CF 1/4W 6.8K J
R127*	RES CF 1/4W 1K/2.7K J	RES CF 1/4W 1K J	RES CF 1/4W 2.7K J	RES CF 1/4W 1K J	RES CF 1/4W 2.7K J
R150*	RES CF 1/4W 15K/3.9K J	----	RES CF 1/4W 15K J	----	RES CF 1/4W 15K J
R436*	RES CF 1/4W 47K/8.2K J	RES CF 1/4W 47K J	RES CF 1/4W 8.2K J	RES CF 1/4W 47K J	RES CF 1/4W 8.2K J
R511*	RES CF 1/4W 39K/22K/180K/82K J	RES CF 1/4W 39K J	RES CF 1/4W 22K J	RES CF 1/4W 180K J	RES CF 1/4W 82K J
R517*	RES CF 1/4W 10K/15K/39K/62K J	RES CF 1/4W 10K J	RES CF 1/4W 15K J	RES CF 1/4W 39K J	RES CF 1/4W 62K J
R518*	RES CF 1/4W 39K/47K/15K/18K J	RES CF 1/4W 39K J	RES CF 1/4W 47K J	RES CF 1/4W 15K J	RES CF 1/4W 18K J

COMPONENTS DIFFERENCES DEPENDING ON SOUND AND CONTROL SYSTEM

	TYPE	STEREO CTV551S VE1	STEREO CTV351S VE1
D399*	DIODE 1N4148	CONNECTED	----
D400*	DIODE 1N4148	CONNECTED	CONNECTED
D521*	DIODE 1N4148	CONNECTED	----
J207	JUMPER WIRE/DIODE 1N4148	CONNECTED	CONNECTED
J456	JUMPER WIRE/RES CF 1/4W 560R	CONNECTED	CONNECTED
R460*	RES CF 1/4W 1K/3.3K J	RES CF 1/4W 1K J	RES CF 1/4W 1K J
R475*	RES CF 1/4W 33K J/DIODE 1N4148	DIODE 1N4148	----
R572*	RES CF 1/4W 1K/330R J	RES CF 1/4W 1K J	RES CF 1/4W 1K J

COMPONENTS DIFFERENCES DEPENDING ON SOUND AND CONTROL SYSTEM

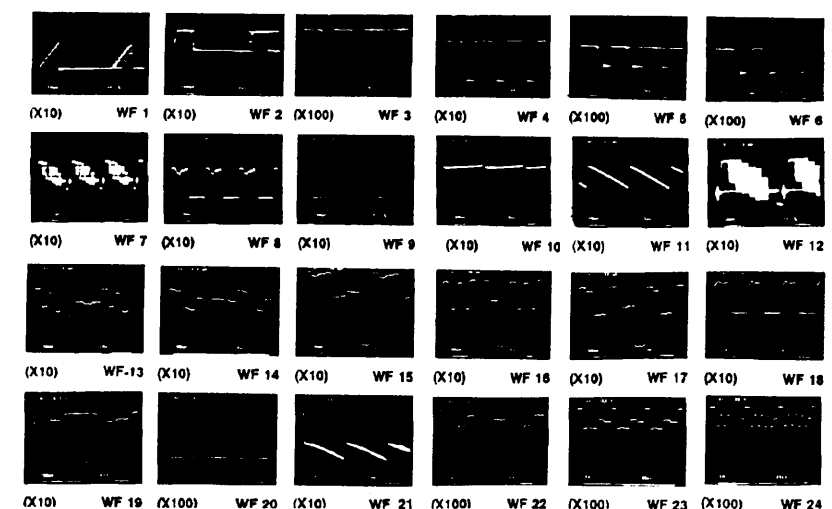
	TYPE	STEREO CTV551S VE1	STEREO CTV351S VE1
D399*	DIODE 1N4148	CONNECTED	----
D400*	DIODE 1N4148	CONNECTED	CONNECTED
D521*	DIODE 1N4148	CONNECTED	----
J207	JUMPER WIRE/DIODE 1N4148	CONNECTED	CONNECTED
J456	JUMPER WIRE/RES CF 1/4W 560R	CONNECTED	CONNECTED
R460*	RES CF 1/4W 1K/3.3K J	RES CF 1/4W 1K J	RES CF 1/4W 1K J
R475*	RES CF 1/4W 33K J/DIODE 1N4148	DIODE 1N4148	----
R572*	RES CF 1/4W 1K/330R J	RES CF 1/4W 1K J	RES CF 1/4W 1K J



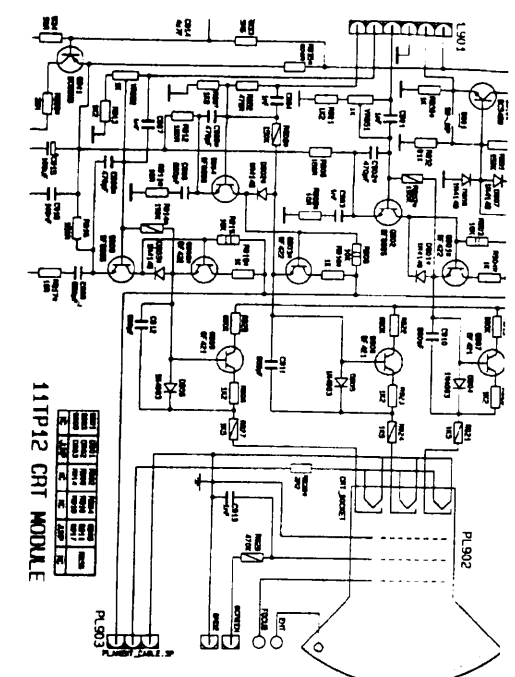
Audio Diagrams

NICAM
Diagram

Waveforms



CRT Diagram



SCART Diagram

