

CTV-2000XT - XKT
CTV-2100XT - XKT

Service Manual

VIF ALIGNMENT

A. Preparation Step (See Fig. 1)

- (i) Connect AGC bias voltage to pin 10 at IC102, the DC supply should be turned off this time.
- (ii) Connect $\pm 4V$ B+ bias voltage to D404 (-) and Ground.
- (iii) Connect $\pm 4V$ B+ bias voltage to c917 (+) and Ground.
- (iv) Connect sweep generator to tuner test point and Ground.

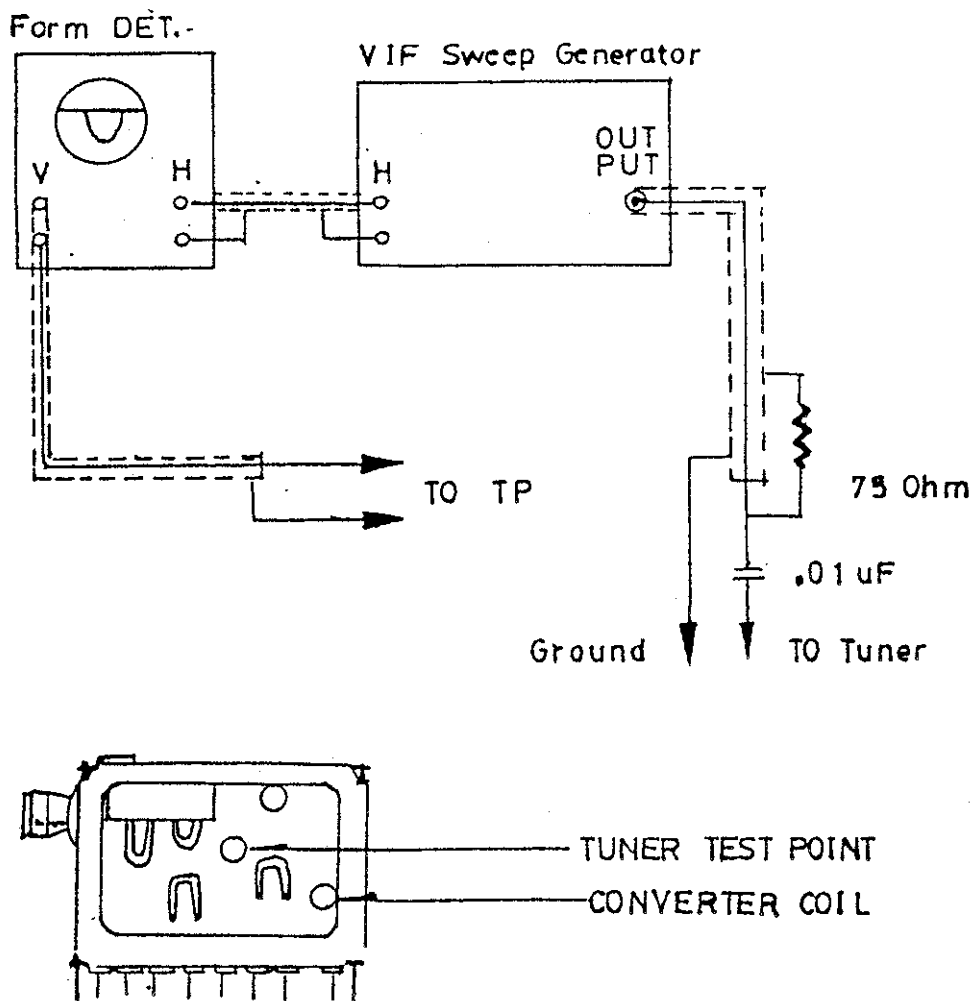


Fig.1

B. Tank Coil Alignment Step (See Fig. 2)

- (i) Calibrate the Division of waveform Detector equal to 1V per div.
- (ii) The output of sweep generator should be $-50\text{dB} \pm 3\text{dB}$.
- (iii) Connect the waveform detector between TP106 and ground.
- (iv) Connect a 47K Resistor between pin 7 to pin 22 at IC102.
- (v) Connect a 4K7 Resistor between pin 23 to Ground at IC102.
- (vi) Adjust AGC bias until the waveform just saturate.
- (vii) Adjust T101 to obtain the waveform as Fig.2.

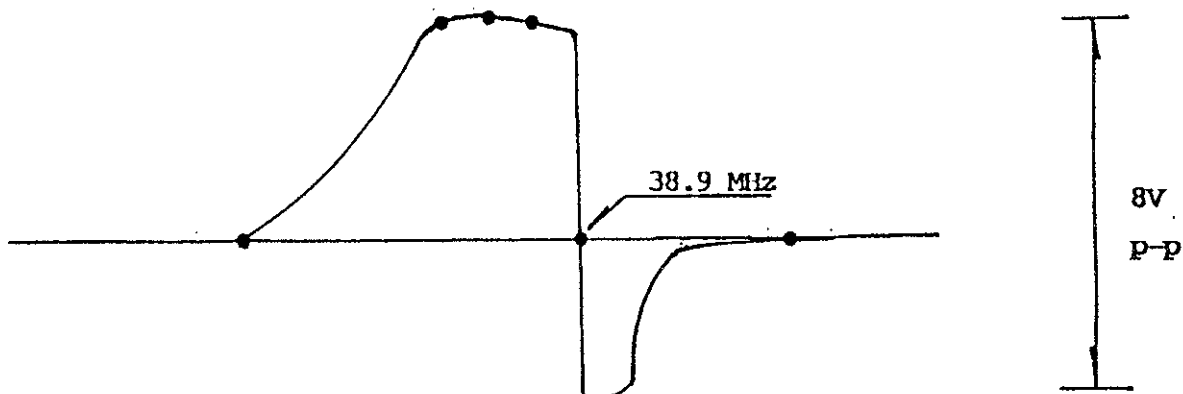


Fig. 2

(C) VIF ALIGNMENT

- (1) Connect waveform detector to TP102 and Ground.
- (ii) Connect 100 ohm resistor between TP103 and TP104.
- (iii) Reduce output level of sweep generator to $-50\text{dB} \pm 3\text{dB}$.
- (iv) Adjust AGC bias to maintain the waveform achieve 1V p-p.
- (V) Adjust tuner convertor coil to obtain the waveform as Fig.3.

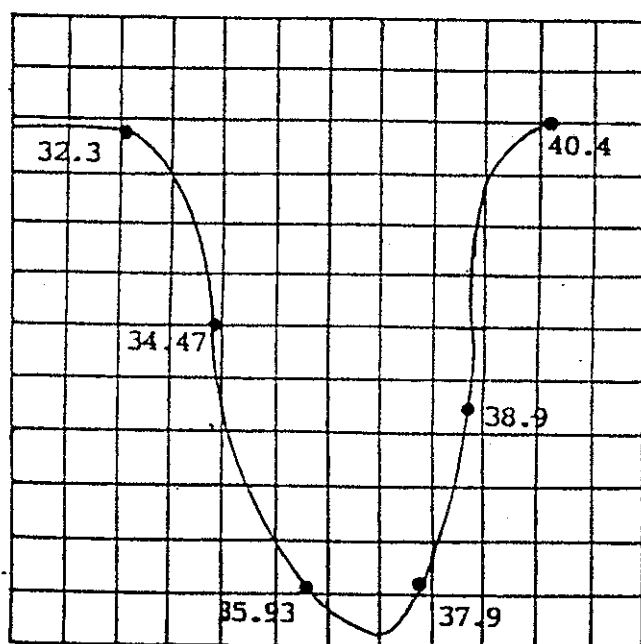


Fig. 3 .

E. SOUND TANK COIL ALIGNMENT

- (i) Connect Philips Pattern Generator to tuner test point and Ground (Frequency is 38.0 MHz color bar)
- (ii) Connect Digital multimeter to PIN 12 at IC101.
- (iii) Adjust T103 to obtain a DC $2.8V \pm 0.1V$

F. SIF ALIGNMENT

- (i) Connect the sweep generator to TP105.
- (ii) Connect waveform detect to PIN 1 and PIN 3 at CN306.
- (iii) Connect AGC Bias voltage to TP101.
- (iv) The output of sweep generator should be $-40\text{dB} \pm 3\text{dB}$.
- (v) Adjust T104 and T102 to obtain the waveform as Fig.5.

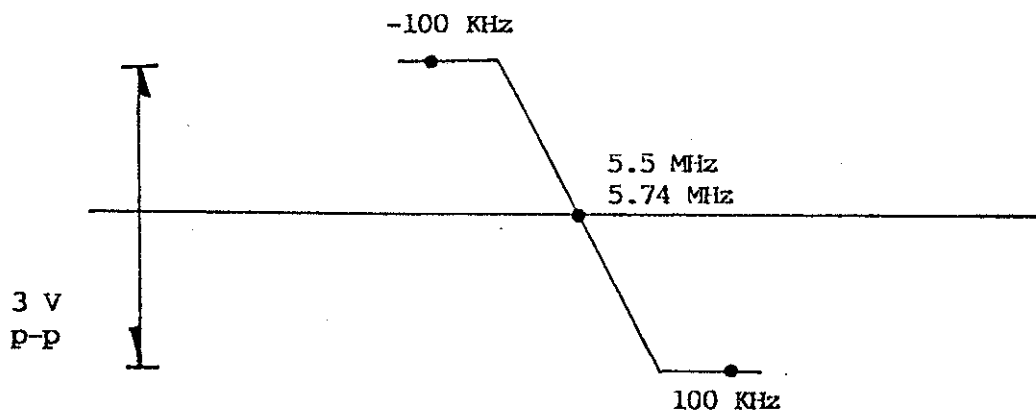


Fig. 5

G. STEREO and Dual Sound Alignment

- (1) Receive color bar pattern (with stereo and Dual Sound).
- (2) Connect oscilloscope to TP001 and TP002.
- (3) Adjust T001, VR001 and VR003 to obtain a maximum amplitude as Fig.6 & Fig. 7.

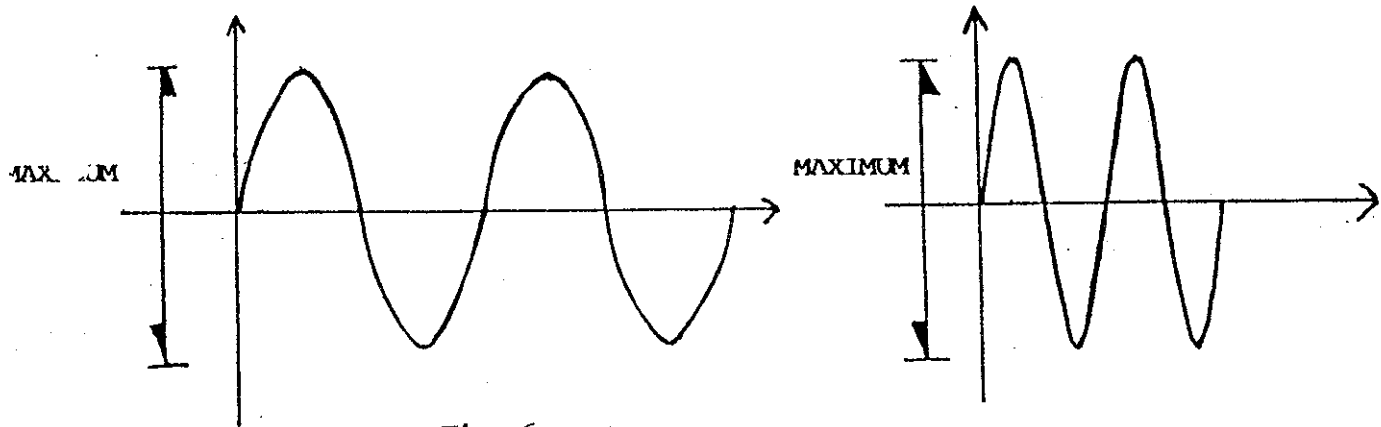


Fig. 6

H. Separation Alignment

- (1) Receive color bar pattern (with stereo sound, L 3 KHz R 1 KHz).
- (2) Connect Digital multimeter to PIN 1 at CN201 and ground.
- (3) Adjust volume control to obtain a 0.89 Vrms.
- (4) Switch off the left channel signal (3 KHz) from the signal generator.
- (5) Adjust VR002 to make a minimum output level.

PAL COLOUR ALIGNMENT

- (1) Receive Philips Pattern.
- (2) Connect Oscilloscope to TP305.
- (3) Set color control to maximum position.
- (4) Adjust T301, CT301 and VR302 to obtain the waveform as Fig.6.

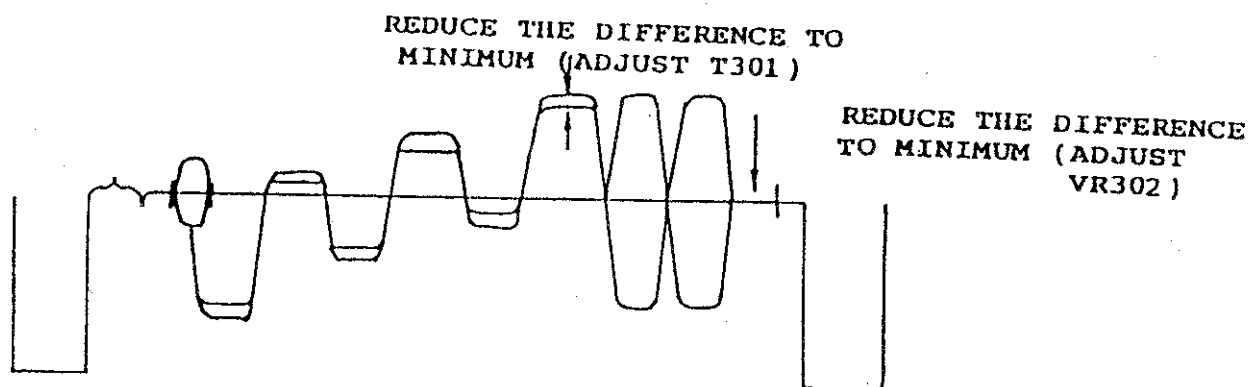


Fig.6

B+ ADJUSTMENT

- 1) Connect a digital volt meter to TPB+ and ground.
- 2) Set Brightness, contrast and colour to minimum.
- 3) Adjust VR901 and obtain a reading of 112v. (FOR ORION CRT)

HORIZONTAL CIRCUIT ADJUSTMENT

- 1) Receive Monoscope Pattern input signal 80dBuV ± 3 dB.
- 2) Connect terminal 25 pin of IC102 and the ground with the Elect.Cap. 10/16
- 3) Adjust VR103 to obtain the picture running at center.
- 4) Adjust VR102 to obtain the picture at center.

VERTICAL CIRCUIT ADJUSTMENT

- 1) Receive the Monoscope Pattern.
- 2) Adjust V-size (VR401) to obtain a normal picture.

WHITE BALANCE ALIGNMENT STEP

(deguss the picture by deguassing coil if necessary)

- 1) Turn the brightness, contrast and picture control to minimum value.
- 2) Turn VR501,502,504 to middle position. Turn VR503,505 to middle position.
- 3) Turn VR301 to middle position.
- 4) Receive a black and white pattern.
- 5) Connect a digital meter between G2 and Ground on CRT Board.
- 6) Adjust screen volume on FBT to obtain a 310V.
- 7) Adjust VR502,503,504,505 to obtain a uniformly white picture (9300°K)

SUB-BRIGHTNESS ALIGNMENT

- 1) Receive a colour bar pattern.
- 2) Turn the brightness, contrast and colour to minimum.
- 3) Adjust VR301 until the brightest bar can just be screen.

FOCUS ALIGNMENT

- 1) Set the brightness and contrast to middle position.
- 2) Receive a monoscope pattern.
- 3) Adjust focus control to obtain sharpest picture.

AGC ALIGNMENT

- 1) Receive CH69 (UHF) and input field strength in 63dB ± 3 dB input.
- 2) Adjust VR101 to the point where noise is disappeared.

SECAM COLOUR ALIGNMENT

A. Bell filter alignment

- (i) Receive secam color bar pattern.
- (ii) Connect oscilloscope to TP303.
- (iii) Turn T305 to obtain waveform as Fig.7.

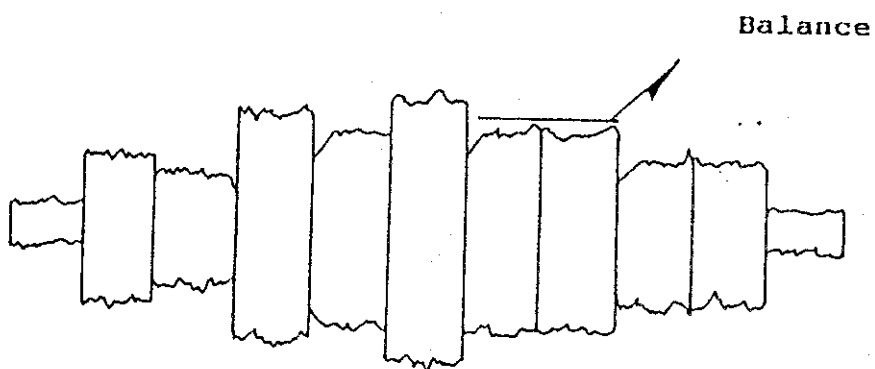


Fig.7

C. Secam Colour Killer Alignment

- (i) Receive secam colour Bar signal.
- (ii) Connect a DC digital meter to 1C305 pin 21.
- (iii) Tune T302 to obtain a maximum voltage.

B. Discriminator alignment

- (1) Receive secam colour Bar signal.
- (2) Connect the osilloscope to TP301.
- (3) Turn T304 to obtain the Fig.8.

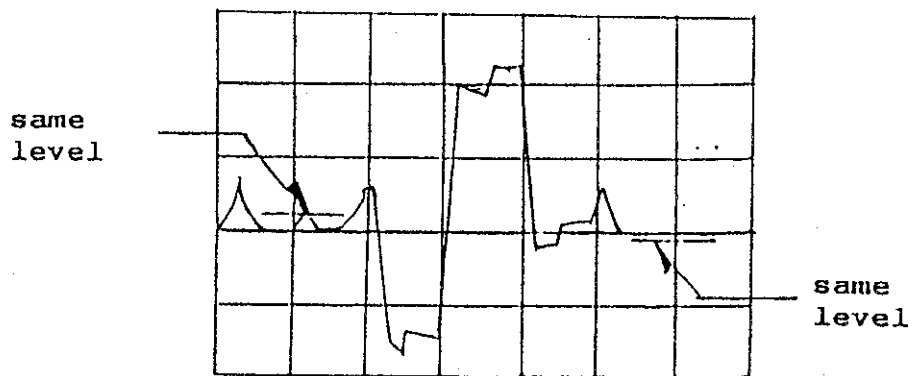


Fig.8

- (4) Connet the osilloscope to TP302.
- (5) Turn T303 to obtain Fig.9.

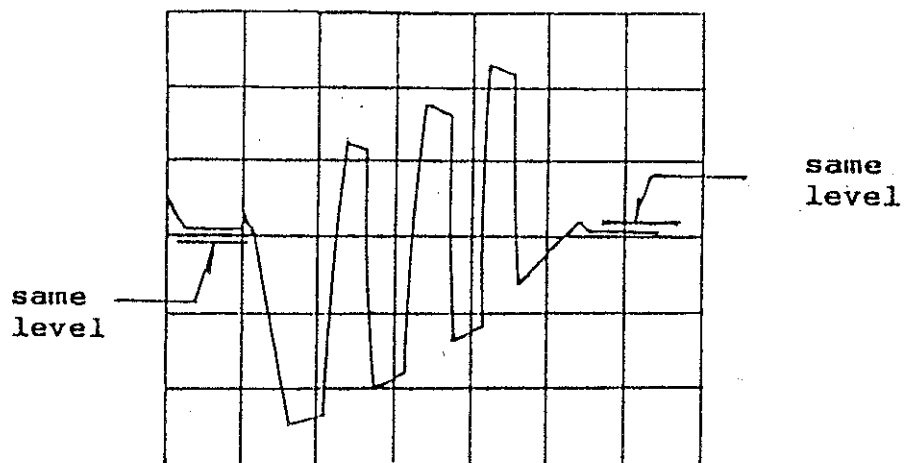


Fig.9

VOLTAGE TABLE FOR IC

SYMBOL PIN NO.	IC601 (V)	IC102 (V)	IC302 (V)	IC304 (V)	IC301 (V)
1	4.33	5.4	3.6	3.4	0.09
2	0.82	2.9	GND	11.2	0
3	4.85	2.8	3.6	8.4	0
4	4.85	3.5	3.6	8.3	0
5	4.85	3.2	3.6	8.2	0
6	NC	GND	3.6	0.86	0
7	0.04	11.6	3.6	0.1	0
8	0.02	5.6	0.01	4.1	0
9	2.5	5.6	0.14	4.1	0
10	4.1	2.4	0.02	4.1	GND
11	GND	1.85	3	2.7	0.1
12	4.5	NC	0.02	3.1	0
13	5	3	3	NC	0.1
14	5	1.5	11.2	3.9	0
15	5	NC	0.02	3.9	0.1
16	5	GND	3.0	2.6	0
17	5	3.5		1.9	0.09
18	0.1	5.0		GND	0
19	5	6.6		3.4	0.09
20	5	5.6		3.4	5
21	GND	5.6			
22	0	9.5			
23	0	2.8			
24	0	2.8			
25	0	4.6			
26	0.4	0.8			
27	-0.02	0.8			
28	5	3.3			
29	4.6				
30	GND				
31	2.4				
32	2.4				
33	5				
34	0.6				
35	4.9				
36	4.9				
37	0.02				
38	GND				
39	3.3				
40	2.8				
41	0.25				
42	5				

NOTE : VOLTAGE ARE TAKEN UNDER TUNED CONDITION WITH

CONTRAST : Maximum Position
 BRIGHTNESS : Maximum Position
 COLOR : Maximum Position
 SIGNAL INPUT : 80 dBuV \pm 3dB
 CHANNEL SETTING : The Last Channel of UHF High
 SIGNAL PATTERN : Colour Bar

VOLTAGE TABLE FOR IC

SYMBOL PIN NO.	IC801 (V)		SYMBOL PIN NO.	IC801 (V)	
1	5		43	4.2	
2	1.8		44	0.8	
3	1.9		45	0.8	
4	0.03		46	0.8	
5	GND		47	2.5	
6	4.9		48	5.0	
7	2.2				
8	2.4				
9	2.5				
10	5.0				
11	GND				
12	2.1				
13	5				
14	GND				
15	0.42				
16	0.5				
17	0.4				
18	3.8				
19	4.5				
20	0.8				
21	2.5				
22	NC				
23	4.3				
24	4.3				
25	GND				
26	0.5				
27	0.5				
28	0.5				
29	0.3				
30	0.5				
31	4.2				
32	0.3				
33	0				
4	3.7				
35	3.6				
36	3.6				
37	1.2				
38	1.3				
39	3.8				
40	2.2				
41	2.2				
42	4.2				

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VOLTAGE TABLE FOR IC

SYMBOL PIN NO.	IC305	IC303	IC901	IC401	IC201
	(V)	(V)	(V)	(V)	(V)
1	7.9	5.1	10.6	1.2	1.2
2	8.7	0	GND	GND	0.01
3	7.9	3.8	5	1.3	GND
4	4.8	0		GND	15.3
5	5.6	3.9		12.6	0.01
6	8.6	3.5		25	1.2
7	5.3	GND		NC	14.2
8	4.9	GND		5.7	7.9
9	GEN	3.3		24.6	15.2
10	2.4	3.8			8.0
11	2.4	0.8			14.2
12	8.2	5.1			GND
13	12.1	5.1			
14	6.05	NC			
15	3.43	4.4			
16	8.3	9.8			
17	2.9	3.4			
18	8.1	9.5			
19	2.8	NC			
20	5.8	3.1			
21	7.9	NC			
22	4.3	4.4			
23	GEN	GND			
24	0.9	5.1			
25	0.059				
26	0.05				
27	0.06				
28	5.9				

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VOLTAGE TABLE FOR IC

SYMBOL PIN NO.	IC701 (V)	IC602 (V)	IC101 (V)	IC103 (V)	IC802 (V)
1	3.0	GND	1.8	15.5	
2	3	5	2.1	GND	
3	0	GND	2.6	11.9	
4	NC	GND	1.8		
5	NC	2.9	1.8		
6	NC	3.3	2.1		
7	0	5	2.1		
8	NC	5	1.8		
9	0		1.8		
10	0		4.0		
11	0		4.0		
12	0		3.0		
13	0		0.04		
14	GND		1.65		
15	0		1.76		
16	0		3.0		
17	0		0.03		
18	0		GND		
19	0		5		
20	0		1.78		
21	3.0				
22	3.0				
23	3.0				
24	NC				
25	3.0				
26	3.0				
27	3.0				
28	3				

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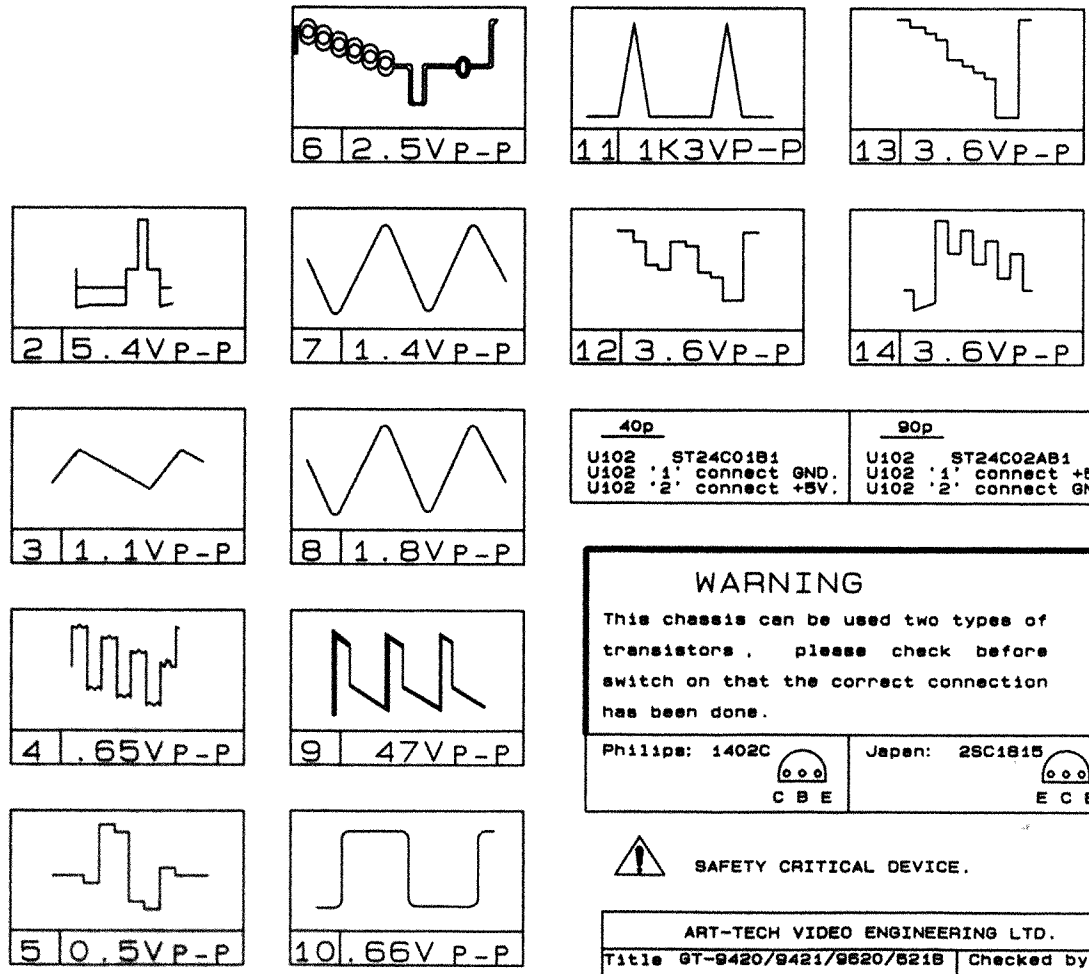
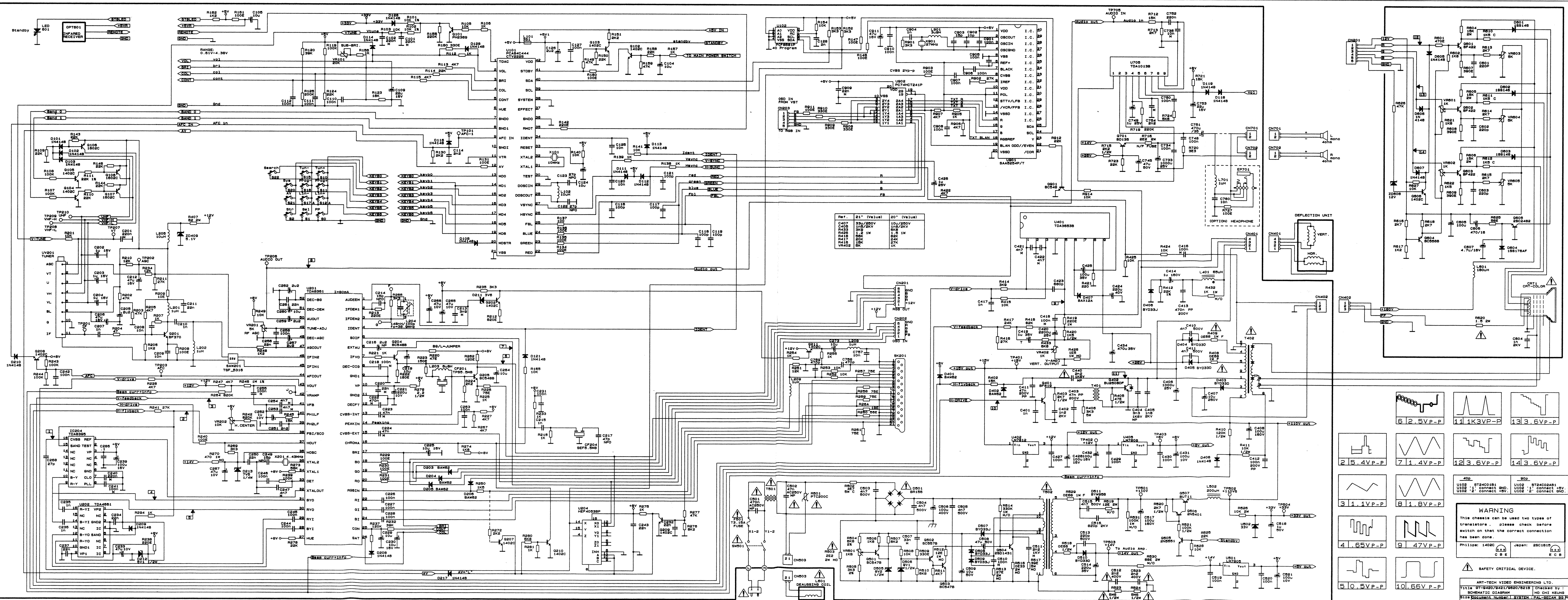
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VOLTAGE TABLE FOR IC

SYMBOL PIN NO.	IC005 (V)	IC006 (V)	IC007,008 (V)	IC009 (V)	IC010 (V)
1	2.1	2.0	5.2	2.6	5.2
2	0.78	GND	1.4	2.6	NC
3	0.61	2.3	1.4	2.6	NC
4	0.61	5.3	GND	GND	5.2
5	0.61	3.9	5.2	5.2	GND
6	GND	4.0	5.2	1.4	5.2
7	GND	4.0	5.2	1.4	GND
8	GND	3.9	11.4	1.4	2.6
9	3.1	1.2			2.6
10	7.1	2.1			2.6
11	0.61	4.2			GND
12	2.1	5.3			GND
13	0.78	4.2			5.2
14	0.78	GND			GND
15	0.78	2.3			4.8
16	11.3	2.6			2.3
17		NC			2.2
18		NC			5.2
19		GND			2.6
20		3.3			NC
21					2.3
22					NC
23					5.2
24					NC
25					GND
26					NC
27					0.03
28					5.2

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WARNING
This chassis can be used two types of transistors. Please check before switch on that the correct connection has been done.
Philips: 1402C
Japan: 2SC1815