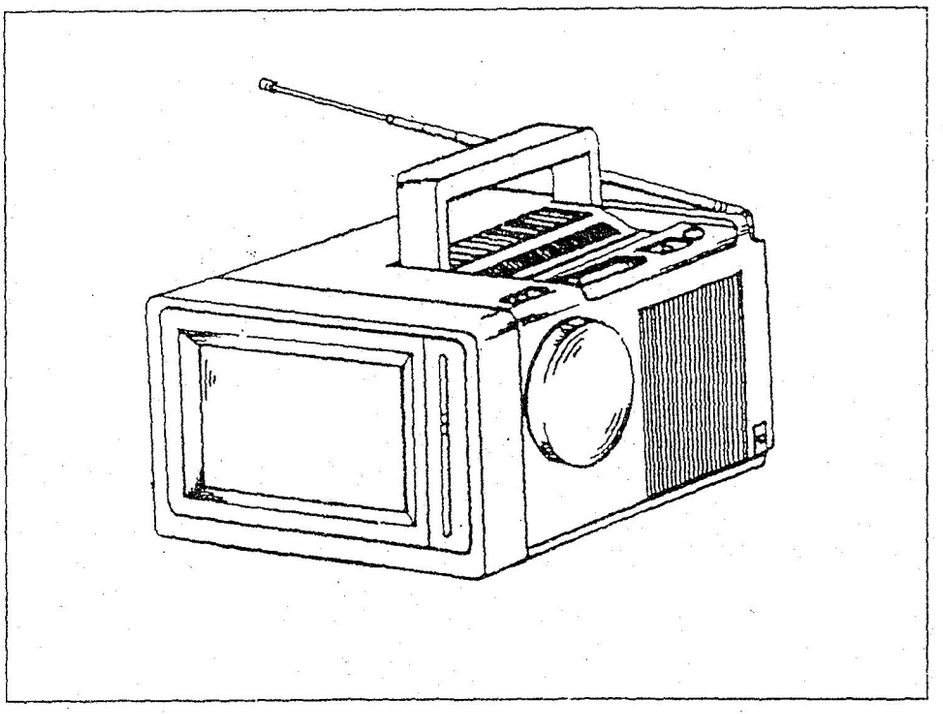
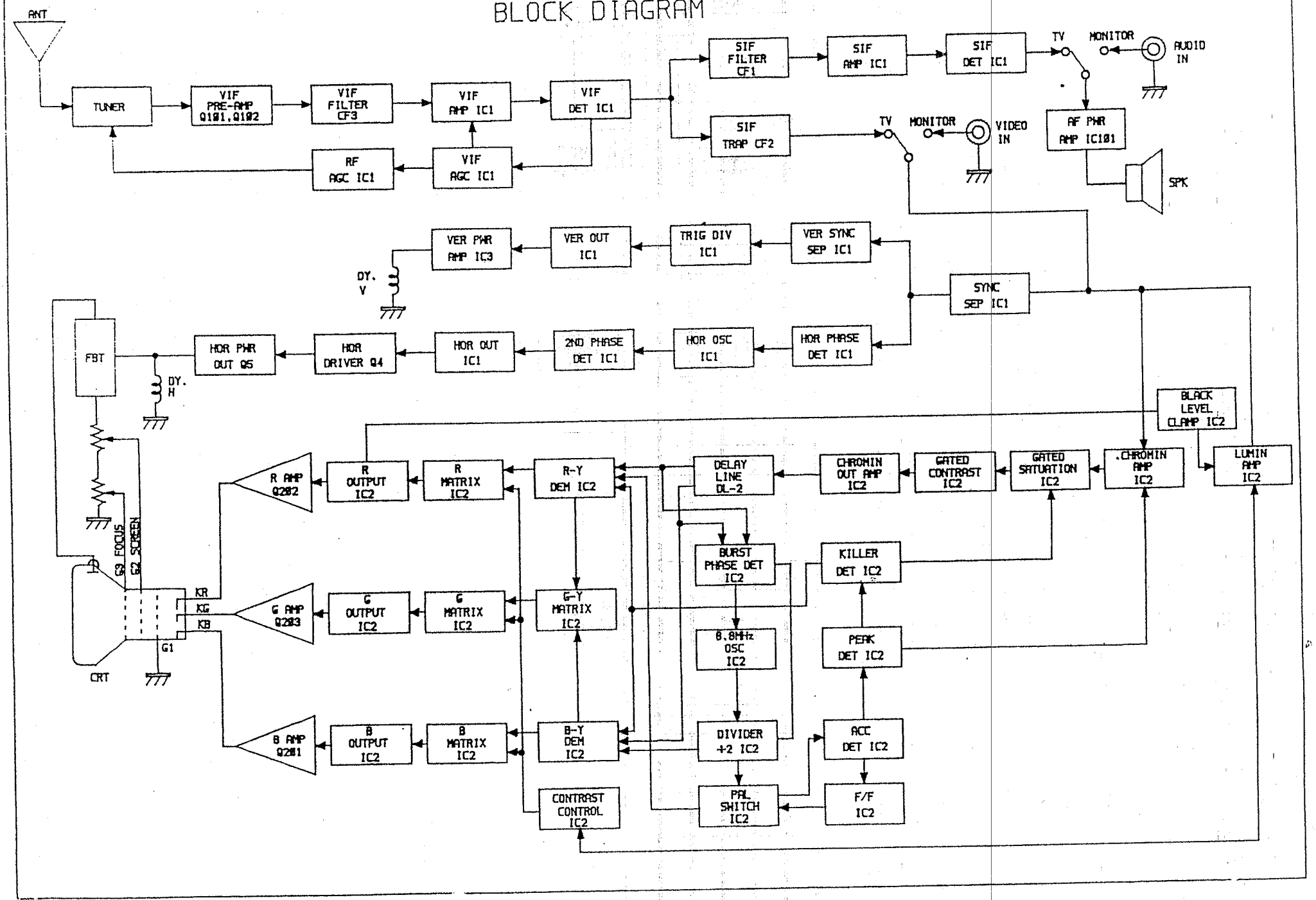
SuperTech
SOUND & VISION

SERVICE MANUAL

MODEL : CTV-903



BLOCK DIAGRAM



TV ELECTRICAL SPECIFICATION

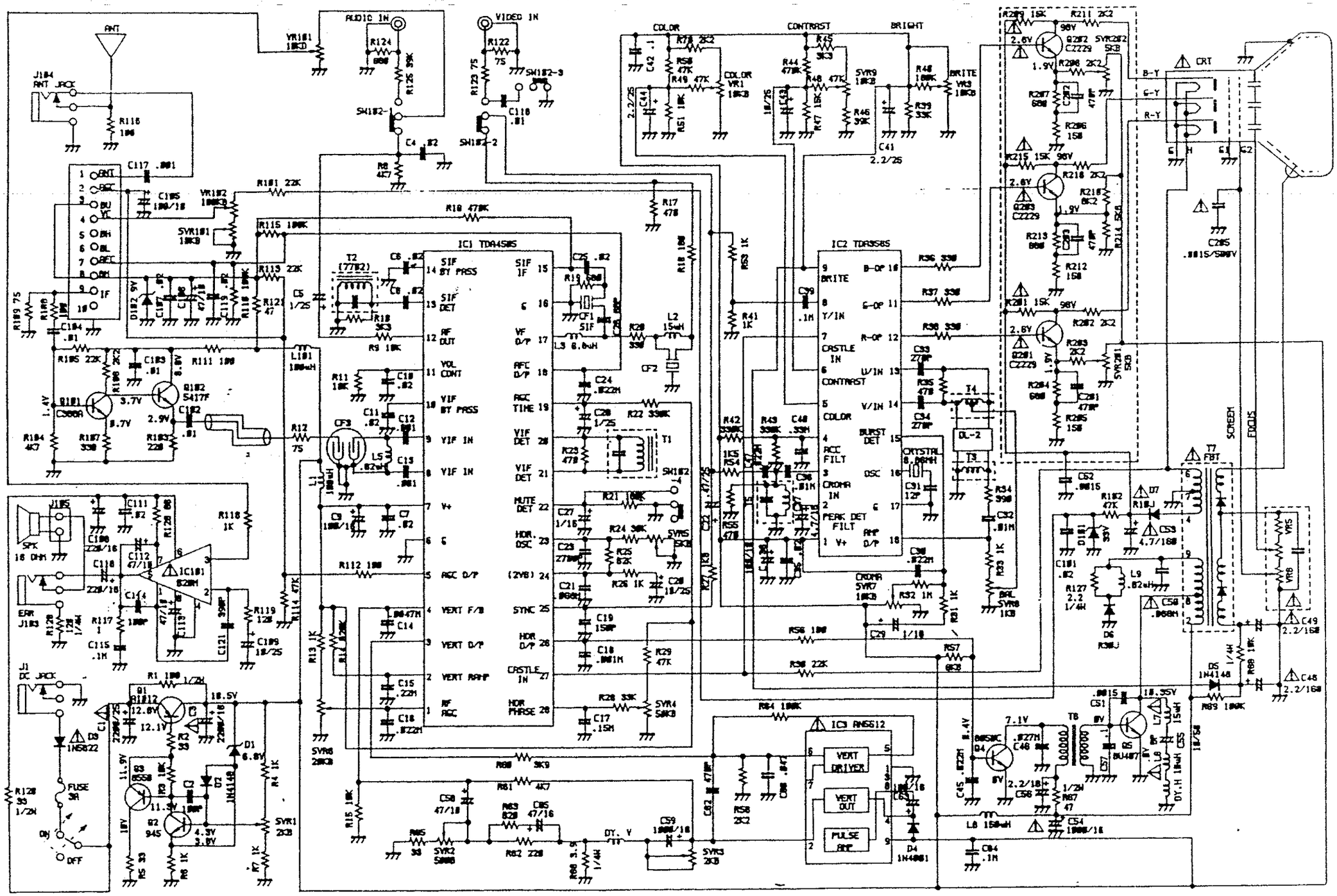
MODEL NO: OUTPUT: 50 mW
SUPPLY VOLTAGE : DC 13.5V LOAD : 16 ohm
GERERAL INFORMATION : TV 75 OHM INPUT ANT. SIFE VOLTAGE 0 dB =1uV

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
VL BAND										
TUNING RANGE	HIGH	MHZ	62.25	65.0						
	LOW	MHZ	48.25	45.0						
MAX/USABLE SENS	CH - 2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 3	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 4	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - 3	dB	40	50						
IMAGE REJ.	CH - 3	dB	40	50						
DIAL CALIB.	CH - 2	MHZ	± 7							
	CH - 3	MHZ	± 7							
	CH - 4	MHZ	± 7							
VH BAND										
TUNING RANGE	HIGH	MHZ	224.25	226.0						
	LOW	MHZ	175.25	170.0						
MAX/USABLE SENS	CH - 5	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 9	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 12	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - 9	dB	50	60						
IMAGE REJ.	CH - 9	dB	40	50						
DIAL CALIB.	CH - 5	MHZ	± 7							
	CH - 9	MHZ	± 7							
	CH - 12	MHZ	± 7							

DESCRITTION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
UHF BAND										
TUNING RANGE	HIGH	MHZ	855.25	857.0						
	LOW	MHZ	471.25	468.0						
MAX/USABLE SENS	CH - 21	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 30	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 40	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 50	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 60	dB	36/52	30 /46	/	/	/	/	/	/
IF REJ.	CH - 40	dB	40	50						
IMAGE REJ.	CH - 40	dB	40	50						
DIAL CALIB.	CH - 14	CH	± 4							
	CH - 30	CH	± 4							
	CH - 40	CH	± 4							
	CH - 50	CH	± 4							
	CH - 60	CH	± 4							
ADJ. PIX. ATT.		dB	20	30						
ADJ. SND. ATT.		dB	20	30						
SELF. SND. ATT.		dB	20±6							
CONTRAST RANGE		dB	4	6						
SOUND										
MAX. OUTPUT		mW	500	600						
THD. OUTPUT 10 %		mW	500	600						
REF. THD		%	5	3						
S /N		dB	30	35						
AM SUPP.		dB	25	30						
MIN. HUM		mV	30	15						
RESPONSE	FH 6 KHZ	dB	-3±10	-3±3						
	FL 125 HZ	dB	-3±6	-3±3						
SIF. FREQ. ERROR		KHZ	±100							
LIMIT SENS.		dB	80	70						

DESCRITTION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
PICTURE										
HOR . FREQ .		HZ	±500	0						
HOR. PULL-IN	+	HZ	300	600						
		HZ	300	600						
VERT. RANGE	+	HZ								
	-	HZ								
LINEARITY	VERT.	%	20	15						
	HOR.	%	25	15						
PINCUSHION	DIST.	%	2	1						
BARREL	DIST.	%	2	1						
KEYSTANE	DIST.	%	2	1						
V /H	RATIO	%	100±5	100						
LUMINANCE	MAX	lux	80	100						
	MIN	lux	50	30						
VA TEST										
H. V.	MAX	KV	13±1	13						
H. V.	MIN	KV	12±1	12						
BEAM CURRENT	MAX	uA	60	50						
BEAM CURRENT	MIN	uA	15	0						
REG. VOLTAGE		V	11±.2	11						
DELAY AGC. VOLTAGE		V	6±.5	6						
REG. RIPPLE VOLTAGE		mV	30	15						
DC CONSUMPTION		W	20	17						
AC CONSUMPTION		W	35	30						

SCHEMATIC DIAGRAM



⚠ THIS MARK INDICATES THAT THE ADJACENT COMPONENT IS CONSIDERED CRITICAL WITH RESPECT TO THE RISKS OF FIRE AND ELECTRICAL SHOCK ASSOCIATED WITH THE PRODUCT. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY [illegible] THE PARTS ATTACHED

WARNING: AFTER COMPLETING THE SERVICING OF THIS PRODUCT AND BEFORE RETURNING IT TO YOUR CUSTOMER, MEASURE THE RESISTANCE BETWEEN BOTH PRONGS OF THE AC PLUG AND ALL EXPOSED METAL PARTS TO BE SURE IT EXCEEDS 2.2 MEGAOHMS (POWER SWITCH: IF ANY SHOULD BE IN ITS ON POSITION). IF THE RESISTANCE MEASURED IS LESS THAN 2.2 MEGAOHMS, THE UNIT SHOULD NOT BE RETURNED TO THE CUSTOMER UNTIL THE CAUSE FOR THE REDUCED [illegible] HAS BEEN CORRECTED AND THE UNIT

Note:
(1) All resistance values are indicated in "ohm" (k = 10^3 ohm, M = 10^6 ohm).
(2) All capacitance values are indicated in "μF" (P = 10^6 μF).

REGULATOR ADJUSTMENT

1. Connect TV to DC 12V-14V
2. Adjust vertical and horizontal oscillator controls until display is synced.
3. Connect a DC digital voltmeter or other precision accuracy voltmeter to the collector of the regulator output transistor (or any 11 volt test point).

HORIZONTAL OSCILLATOR

ADJUSTMENT

Adjust core of horizontal hold SVR5 until the picture hold in sync.

1. POWER ADJUSTMENT

   Adjust the power adjust SVR1, enable voltmeter to DC 11V.

2. VERTICAL HIGHTNESS ALIGNMENT

   Adjust the vertical hightness SVR2 enable the circle of picture approach to circle.

3. HORIZONTAL POSITION ALIGNMENT

   Adjust horizontal position SVR4, let the square signal in the center of the screen.

4. RF AGC ALIGNMENT

   Adjust RF AGC SVR6 at input signal intensity 50dB, the screen could looking clear and 80dB the screen don't inflect.

5. WHITE BALANCE ALIGNMENT

   Adjust the SVR201, SVR202 at center position. Adjust screen VR, let the screen will be little brightness.
   Adjust SVR201 let the screen to be yellow, and then adjust SVR202 let the screen approach to white.

6. FOCUS ADJUSTMENT

   Adjust focus VR let the strip in the screen to be lightnest.

7. SCREEN ADJUSTMENT

   Adjust screen VR let the brightness suit as desired.

CANCEL VENETAIN BLINED ALIGNMENT

* Set TV/Monitor switch at monitor.
* The video signal of demodulation pattern send to video in jack.
* The demondulation pattern on screen is from left side to right side, bar 2, bar 3, bar 4 sequently on up side.

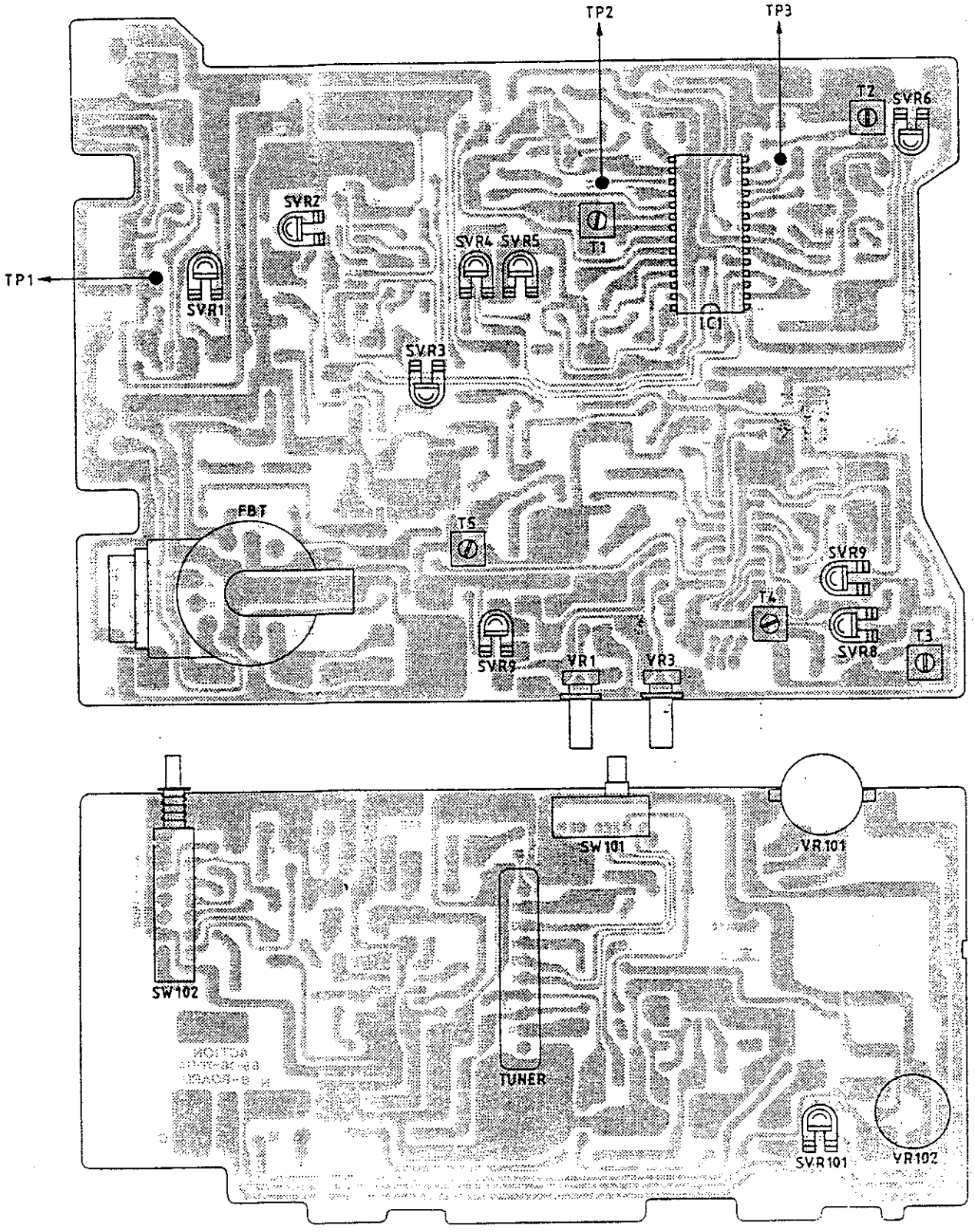
1) Mistuned T3 to top.
2) Cancel venetain blind on bar 3 by SVR7.
3) Cancel venetain blind on bar 1 and bar 4 by T4
4) Switch generator to color bar, adjust T3 for minimum venetain blind on purple area.

GENERAL ALIGNMENT INSTRUCTIONS

1. VIDEO IF ALIGNMENT

   TEST EQUIPMENT CONNECTION (See figure)

CHASSIS ALIGNMENT POINTS



ALIGNMENT PROCEDURE

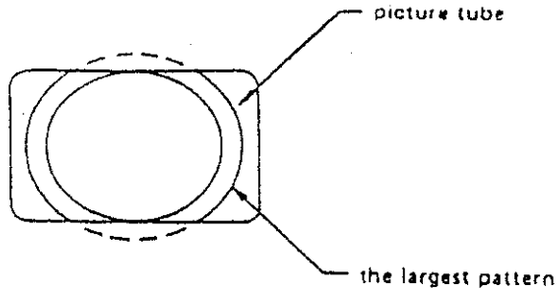
STEP	GENERATOR	SCOPE	ADJUST	REMARKS
Adjust Sound Detection Coil T2	System B,C,G,H 5.5MHz, System M,N 4.5MHz, System I 6MHz, System D,K,Kl 6.5MHz, 1kHz FM MOD Deviation 25kHz 80dB Output.	Connect to the Pin 12 of IC1	T2	Adjust T2 so the signal of 1kHz in scope may be max.

VERTICAL DEFLECTION ALIGNMENT

(1) Tune the receiver in a test pattern.

(2) Adjust V-SIZE CONTROL SVR3

When the inside of the largest circle of test pattern reaches near round pattern. (See the figure)



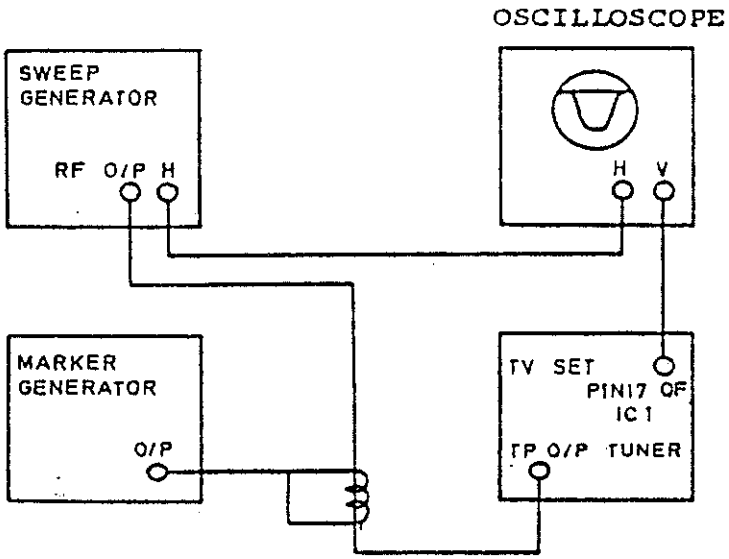
OSCILLOSCOPE: Connect to the base of IC1 PIN17.

SWEEP GENERATOR: Connect through a MATCHING PAD to the test point (T.P) of the tuner.

MARKER GENERATOR: Couple loosely to the output cable of sweep generator.

DC SUPPLIES: Connect a SVR 1M OHM between IC1 PIN 19 and ground. Add DC + 12V at DC Jack.

Adjust Sweep Generator to lowest signal level consistent with usable			
Step	Sweep Frequency	Marker Frequency	Remark
Adjust VIF Detector T1 for marker point maximum	25-45 MHz (45-65MHz for Japan). 30-50 MHz for CCIR.	System B,C,G,H 36.7MHz System I 37.3MHz System M,N 44MHz (57MHz for Japan) (34.7MHz for Austraria system)	In the parenthesis for exception.



VIDEO IF ALIGNMENT CONNECTING FIGURE

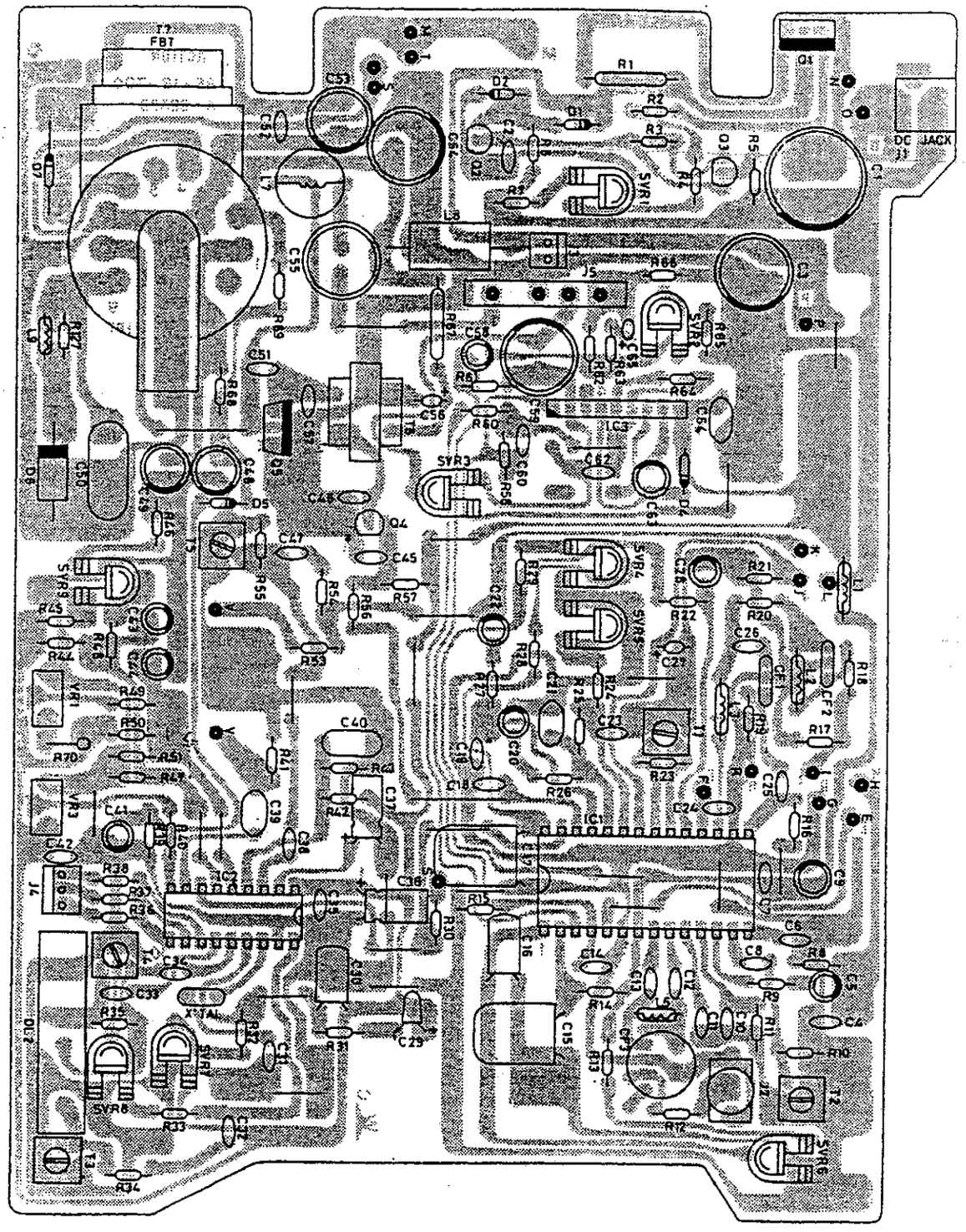
2. SOUND IF ALIGNMENT

TEST EQUIPMENT CONNECTION

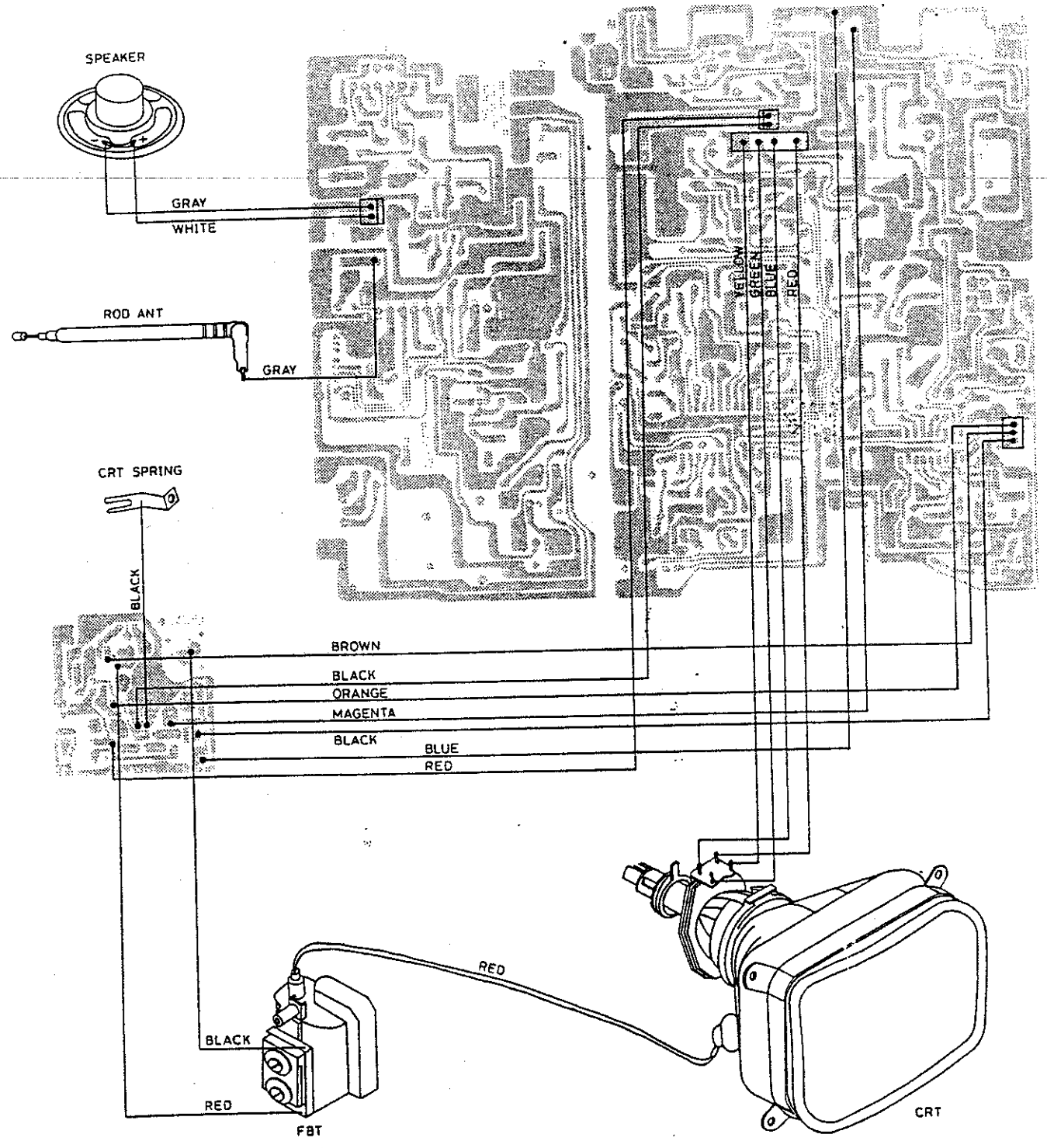
SIGNAL GENERATOR: Connect to the IC1 PIN 17 through a MATCHING PAD.

OSCILLOSCOPE: Connect to the PIN 12 of IC1

MAIN P.C.B. (Top View)

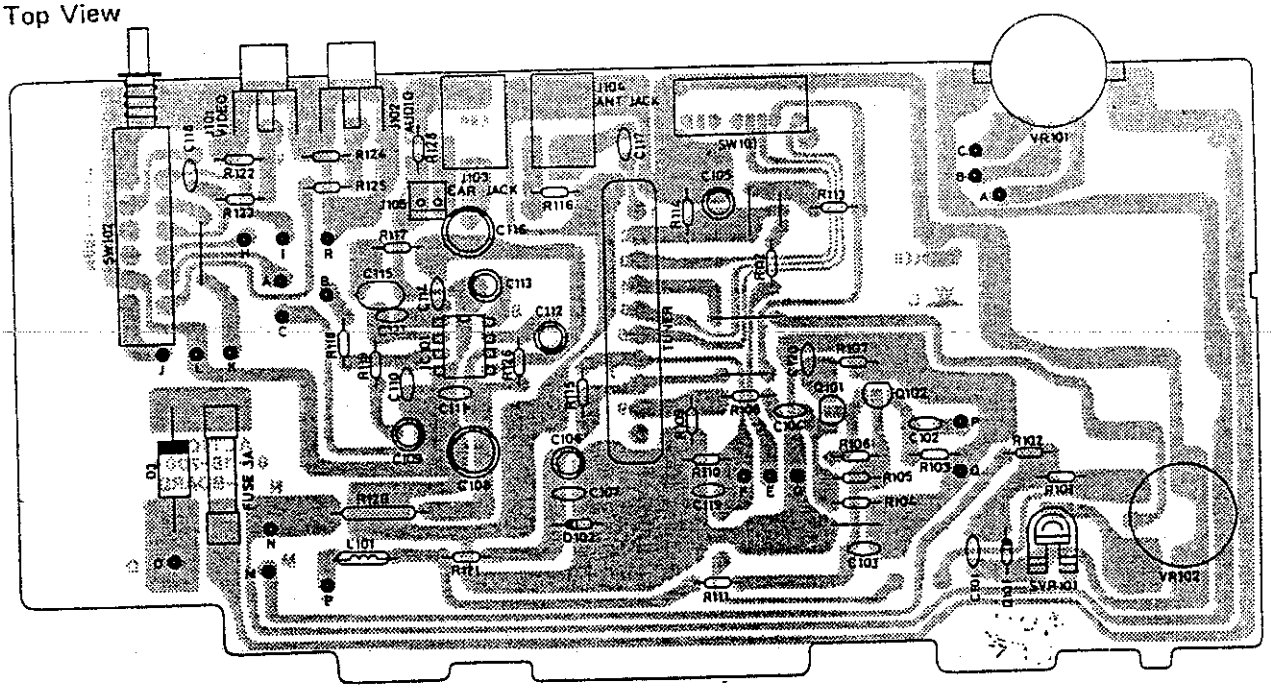


WIRING DIAGRAM



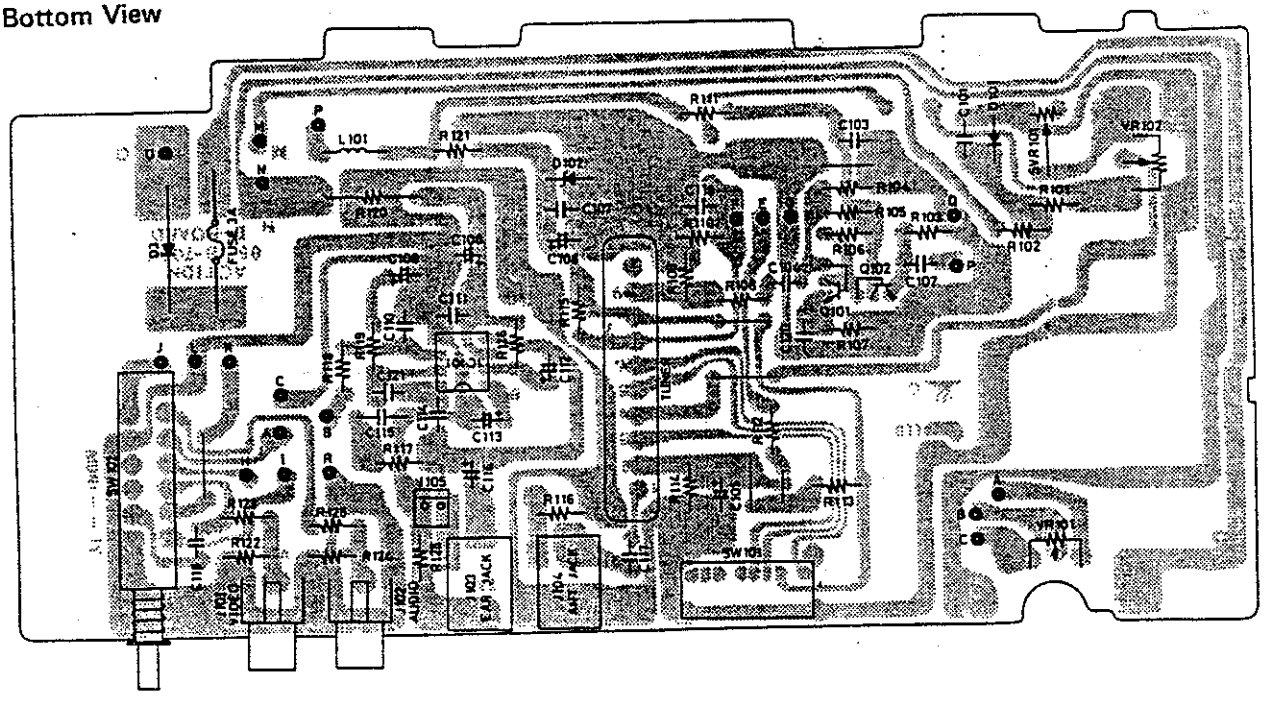
TUNING P.C.B.

Top View

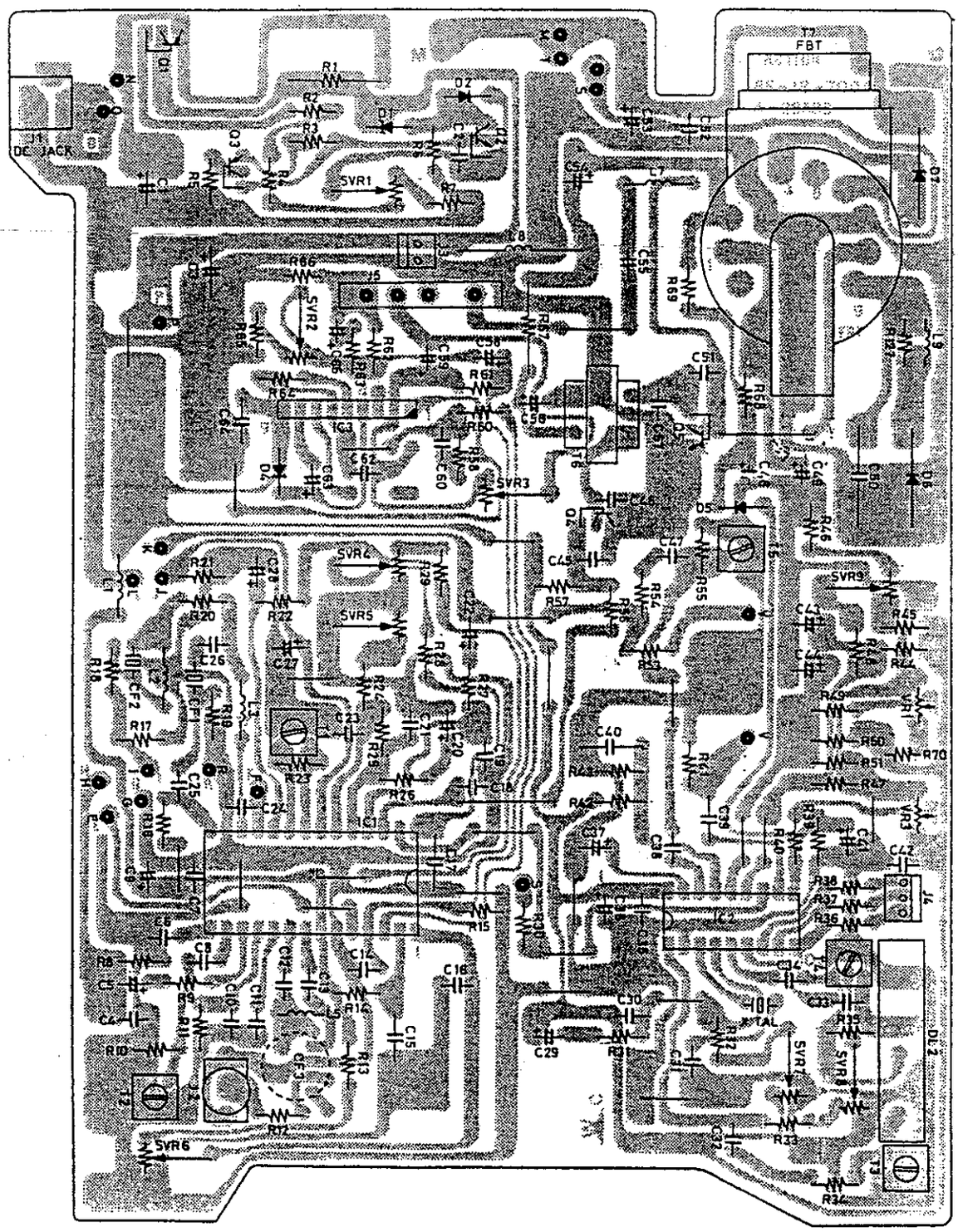


TUNING P.C.B.

Bottom View

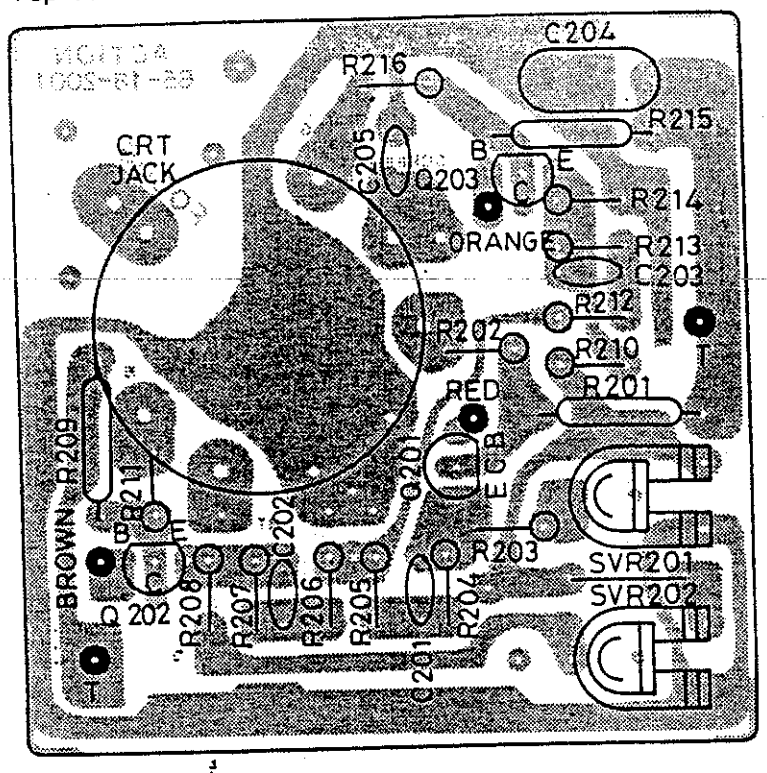


MAIN P.C.B. (Bottom View)



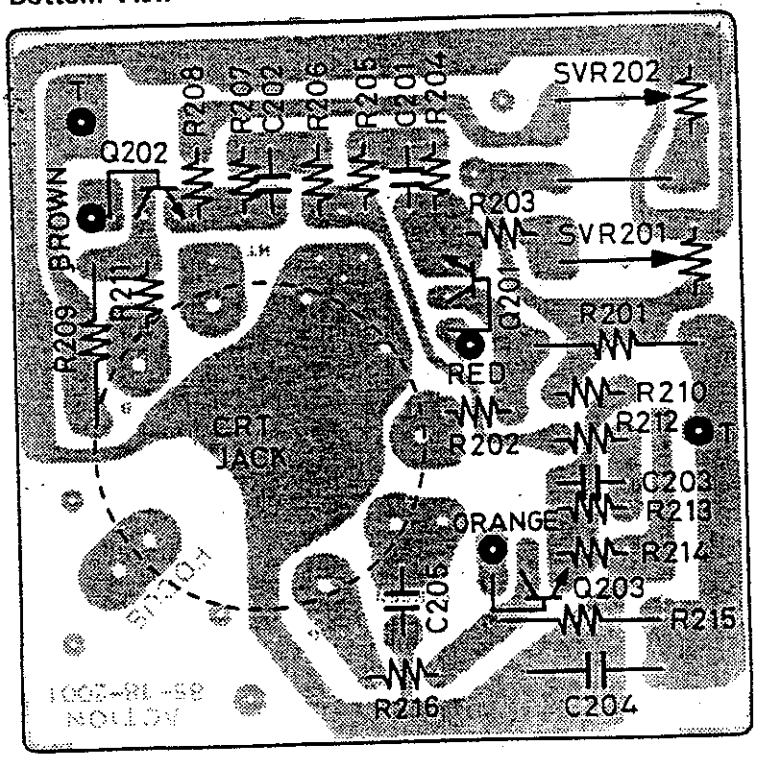
CRT SOCKET P.C.B.

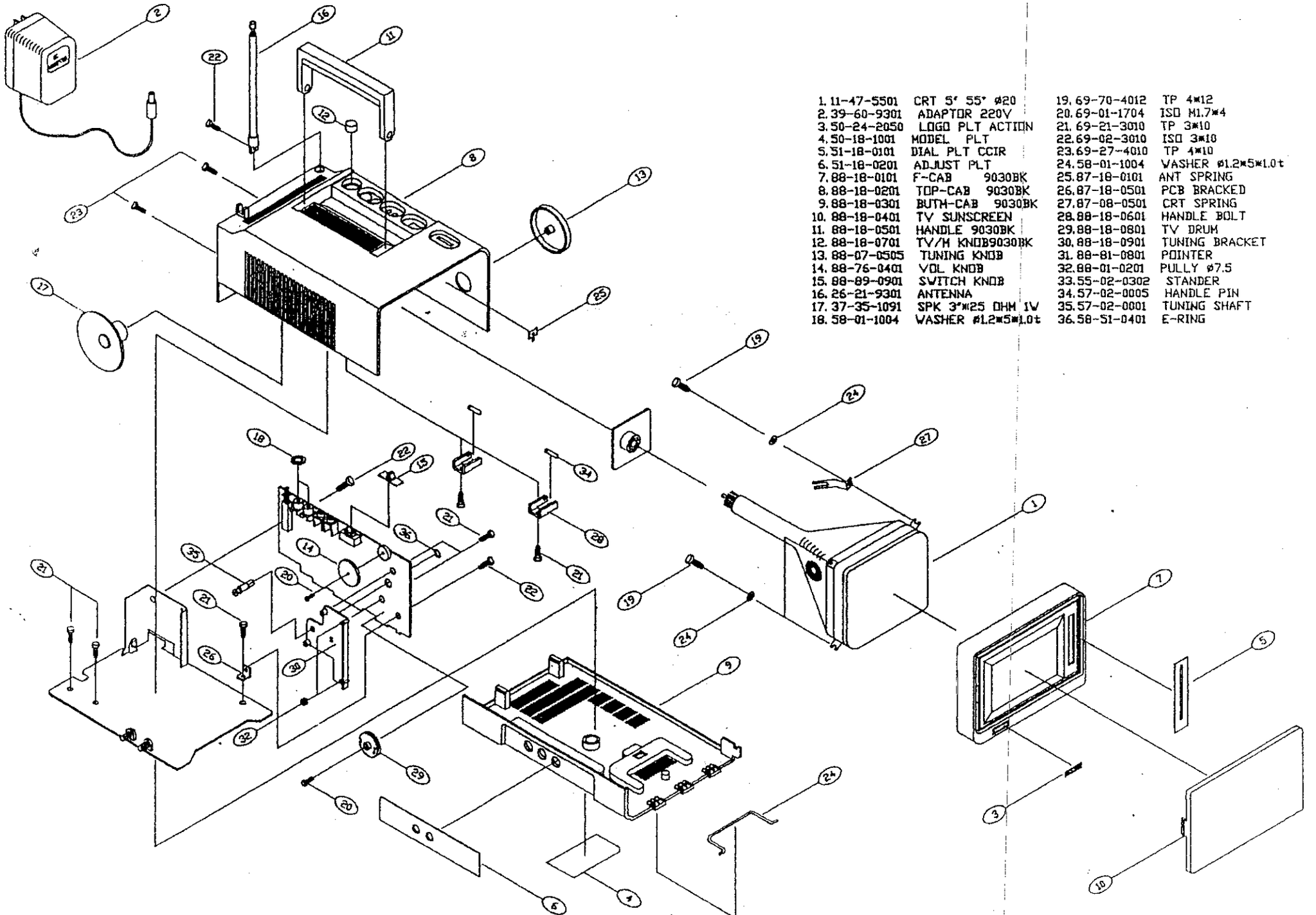
Top View



CRT SOCKET P.C.B.

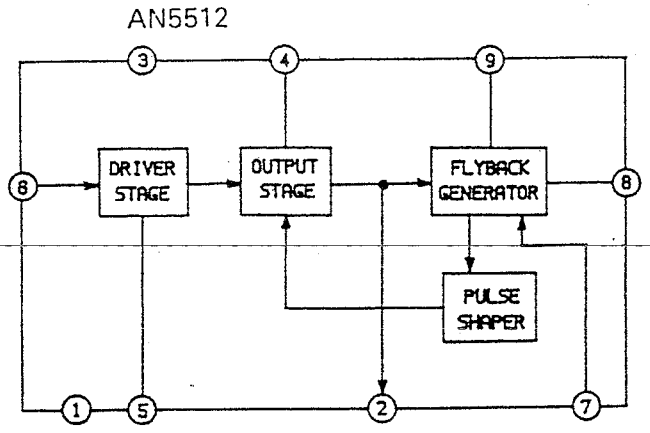
Bottom View

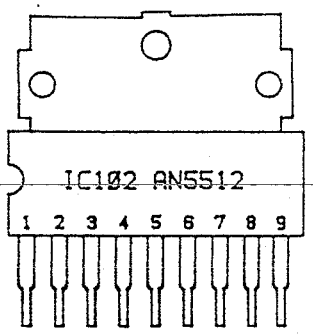




1. 11-47-5501	CRT 5" 55° ø20	19. 69-70-4012	TP 4*12
2. 39-60-9301	ADAPTOR 220V	20. 69-01-1704	ISO M1.7*4
3. 50-24-2050	LOGO PLT ACTION	21. 69-21-3010	TP 3*10
4. 50-18-1001	MODEL PLT	22. 69-02-3010	ISO 3*10
5. 51-18-0101	DIAL PLT CCIR	23. 69-27-4010	TP 4*10
6. 51-18-0201	ADJUST PLT	24. 58-01-1004	WASHER ø1.2*5*1.0t
7. 88-18-0101	F-CAB 9030BK	25. 87-18-0101	ANT SPRING
8. 88-18-0201	TOP-CAB 9030BK	26. 87-18-0501	PCB BRACKED
9. 88-18-0301	BUTH-CAB 9030BK	27. 87-08-0501	CRT SPRING
10. 88-18-0401	TV SUNSCREEN	28. 88-18-0601	HANDLE BOLT
11. 88-18-0501	HANDLE 9030BK	29. 88-18-0801	TV DRUM
12. 88-18-0701	TV/M KNOB9030BK	30. 88-18-0901	TUNING BRACKET
13. 88-07-0505	TUNING KNOB	31. 88-81-0801	POINTER
14. 88-76-0401	VOL KNOB	32. 88-01-0201	PULLY ø7.5
15. 88-89-0901	SWITCH KNOB	33. 55-02-0302	STANDER
16. 26-21-9301	ANTENNA	34. 57-02-0005	HANDLE PIN
17. 37-35-1091	SPK 3"*25 OHM 1W	35. 57-02-0001	TUNING SHAFT
18. 58-01-1004	WASHER ø1.2*5*1.0t	36. 58-51-0401	E-RING

IC BLOCK DIAGRAM



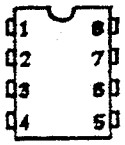


IC LEAD IDENTIFICATIONS

1. GND (0V)
2. Output (4.0V)
3. NC (0V)
4. Supply Voltage For Output (9.5V)
5. Drive Tr. Collector (5.3V)
6. Input (0.6V)
7. Trigger Pules Input (0.6V)
8. Pulse Amp. Output (0V)
9. Vcc (10.3V)

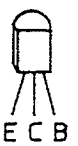
IC LEAD IDENTIFICATIONS

IC103
TBA 820M

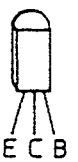


1. Frequency Compensation (0.6V)
2. Gain Setting (0.5V)
3. Input (0V)
4. Ground (0V)
5. Output (5.5V)
6. Supply Voltage (11.5V)
7. Bootstrap (12.1V)
8. Ripple Rejection (7.7V)

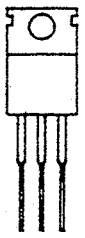
TRANSISTORS PIN DESIGNATION



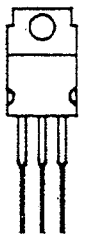
1. 8550
2. C388A
3. C945
4. 8050C
5. 5417F



C2229



2SA1012



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