CONTENTS

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. It is advised to insert an isolation transformer in the AC supply before servicing a hot chassis.

2. Potentials as high as 33KV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by any one who is not competent with the precautions necessary when working on the high voltage equipment. Always discharge the anode of the tube.

3. When servicing observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all the parts which have been overheated or damaged by the short circuit.

4. Always use the manufacturer's replacement safety components. The critical safety components marted with V on the schematics diagrams should not te replaced by substitutes. Substitution my create electrical shock, fire or other hazard. Take attention to replace the spacers with the originals.
Furthermore where a short circuit has occurred, replace those componenets that indicate evidence of overheating.

5. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.

6. When the receiver is not being used for a period of time, unplug the power cord from the AC outlet.

7. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC plug and connect a jumper between the live and neutral pins.

2. Push the receiver's power switch.

3. Measure the resistance value with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screw

heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis the reading should be between aMohm and the 20Mohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

LEAKAGE CURRENT HOT CHECK

1. Plug the AC plug directly in to the AC outlet. Do not use an isolation transformer for this check.
2. Connuct a 2Kohm 10W resistor in series with an exposed metallic part on the receiver and an earth, such as water pipe.
3. Use an AC voltmeter with high impedance to measure the potential across the resistor.
4. Check each exposed metallic part and check the voltage at the each point.
5. The potential at the any point should not exceed 1.4 Vrms. In case a measurement is outside the limits specified, there is the possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.
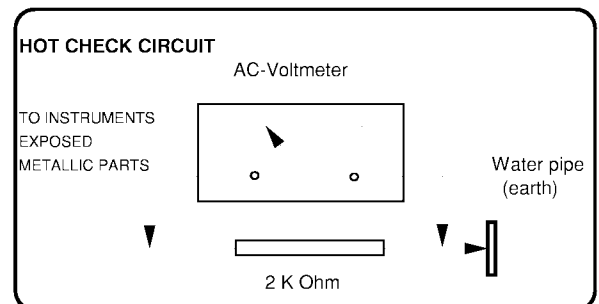
X-RAY RADIATION WARNING

The primary source of X-ray radiation in this receiver is the picture tube. The chassis is specially constructed to limit X-ray radiation. For continnued X-ray radiation protection, replace the tube with the same type of the original one.
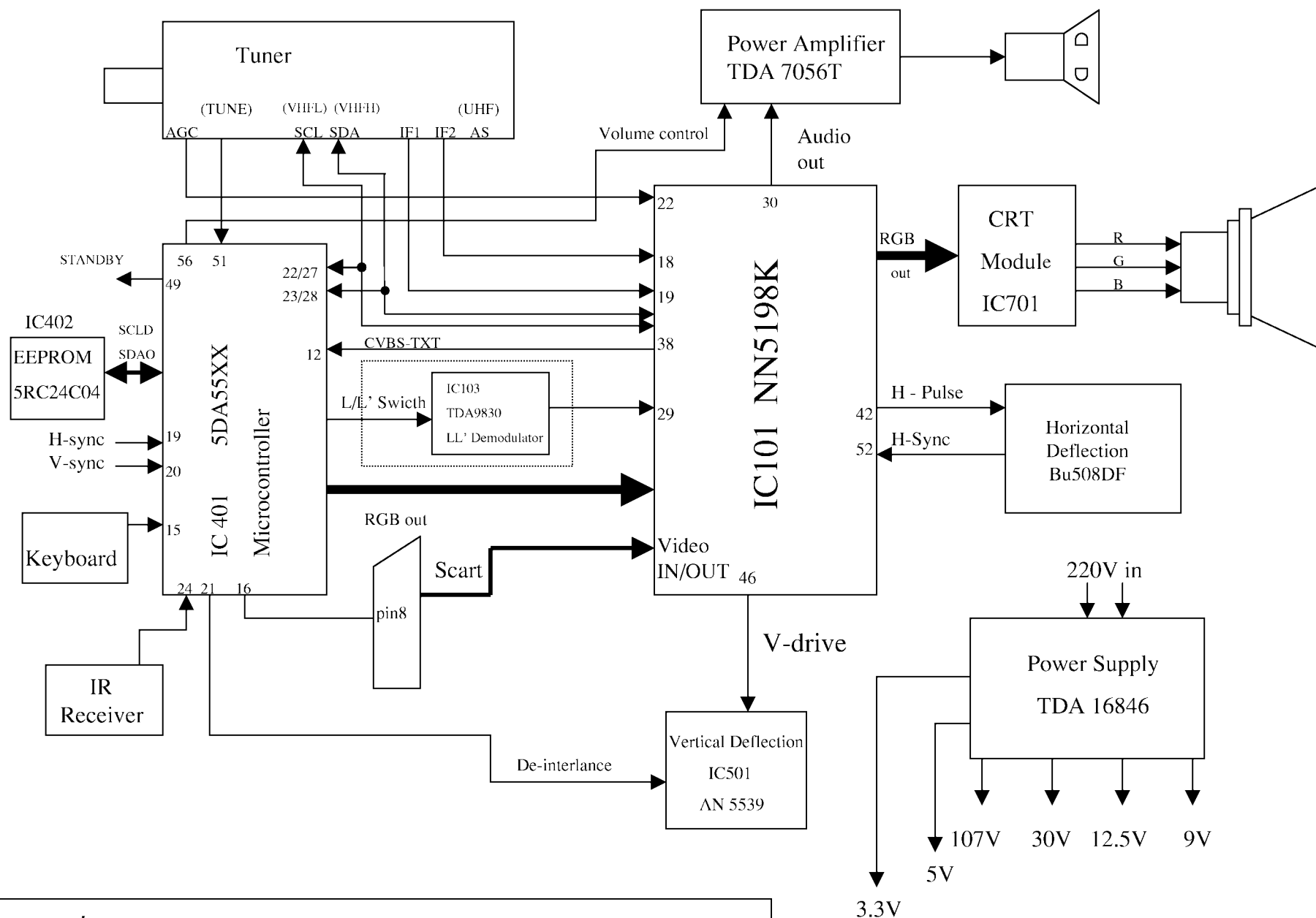
CAUTION
SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP.

TECHNICAL SPECIFICATIONS AND THE FEATURES

Power source:	220-240V AC, 50-60Hz

Power consumption:		65W	14"
		85W	20"
		85W	21"

Aerial impedance :   75Ohm, Coaxial type

Receiving system*:
PAL BG
PAL SECAM BG
PAL SECAM BG DK
PAL SECAM BG LL'
PAL I

Receiving channels:
VHF BAND I, CH2-4
VHF BAND III, CH5-12
CATV CHANNELS S1-S41
UHF BAND CH21-69

Audio outputs :
2.5W RMS at %10 THD
16 OHM SPEAKER

High Voltage :
23KV ±0.5KV
25.5KV ±0.5KV

Focus voltage :   %25.6±%38 of EHT
Grid 2 voltage :   0-1400V
Heater voltage :   6.3±0.2Vrms

Video/Audio Terminals :
AV1 IN   Video 1 Vpp, 75Ohm
                                  Audio 0.5Vrms, >10Kohm
                                  RGB
AV1 OUT   Video 1Vpp,75Ohm
                                  Audio 0.5Vrms,>1Kohm
AV2 IN (RCA-OPTIONAL)   Video 1Vpp,75Ohm
                                  Audio 0.5Vrms,>10Kohm

Operating temperature :   0-45 Degrees

Safety   :   IEC 65/BS P2N

X-Ray radiation   :   ACC. IEC 65/BS P2N

• : TV set is produced to receive "one" of these colour and sound systems.

2

Tuner

(TUNE) (VHF-L) (VHF-H)   (UHF)

AGC   SCL SDA   IF1 IF2 AS

Power Amplifier TDA 7056T

Volume control

Audio out

STANDBY

IC402

SCLD

SDAO

EEPROM 5RC24C04

H-sync

V-sync

Keyboard

IR Receiver

56 51

49

22/27

23/28

12

5DA55XX

IC 401   Microcontroller

19

20

15

24 21   16

L/L' Swicth

IC103

TDA9830

LL' Demodulator

RGB out

Scart

pin8

22   30

18

19

38

29

Video IN/OUT 46

IC101 NN5198K

CVBS-TXT

RGB out

CRT Module IC701

R
G
B

H - Pulse

H-Sync

42

52

Horizontal Deflection Bu508DF

V-drive

De-interlance

Vertical Deflection IC501 AN 5539

220V in

Power Supply TDA 16846

107V   30V   12.5V   9V

5V

3.3V

12.4/5 CHASSIS BLOCK DIAGRAM

BASIC SPECIFICATION AND DESCIPTION OF TDA16846 (IC601)

Description

TheTDA16846 is optimized to control free running or fixed frequency flyback converters with or with-out Power Factor Correction (Current Pump). To provide low power consumption at light loads, this device reduces the switching frequency continuously with load, towards an adjustable minimum (e.g. 20kHz in standby mode). Additionally, the start up current is very low. To avoid switching stresses of the power devices, the power transistor is always switched on at minimum voltage. A special circuit is implemented to avoid jitter. The device has several protection functions: VCC over- and undervoltage, mains undervoltage, current limiting and 2 free usable fault comparators. Regulation can be done by using the internal error amplifier or an opto coupler feedback (additional input). The out-put driver is ideally suited for driving a power MOSFET, but it can also be used for a bipolar transistor. Fixed frequency and synchronized operation are also possible.

Pin Description

Pin	Symbol	Function
1	OTC	Off Time Circuit
2	PCS	Primary Current Simulation
3	RZI	Regulation and Zero Crossing Input
4	SRC	Soft-Start and Regulation Capacitor
5	OCI	Opto Coupler Input
6	FC2	Fault Comparator 2
7	SYN	Synchronization Input
8		N. C.
9	REF	Reference Voltage and Current
10	FC1	Fault Comparator 1
11	PVC	Primary Voltage Check
12	GND	Ground
13	OUT	Output
14	VCC	Supply Voltage

Short Description of the Pin Functions

Pin 1: A parallel RC- circuit between this pin and ground determines the ringing suppression time and the standby- frequency.

Pin 2: A capacitor between this pin and ground and a resistor between this pin and the anode of the primary elcap quantifies the max. possible output power of the SMPS.

Pin 3: This is the input of the error amplifier and the zero crossing input. The output of a voltage divider between the control winding and ground is connected to this input. If the pulses at pin 3 exceed a 5V threshold, the control voltage at pin 4 is lowered.

Pin 4: This is the pin for the control voltage. A capacitor has to be connected between this pin and ground. The value of this capacitor determines the duration of the softstart and the speed of the control.

Pin 5: If an opto coupler for the control is used, it´s output has to be connected between this pin and ground. The voltage divider at pin 3 has then to be changed, so that the pulses at pin 3 are below 5V.

Pin 6: Fault comparator 2: If a voltage > 1.2 V is applied to this pin, the SMPS stops.

Pin 7: If fixed frequency mode is wanted, a parallel RC circuit has to be connected between this pin and ground. The RC- value determines the frequency. If synchronized mode is wanted, sync pulses have to be fed into this pin.

Pin 8: Not connected.

8

Pin 9: Output for reference voltage (5 V). With a resistor between this pin and ground the fault comparator 2 (pin 6) is enabled.
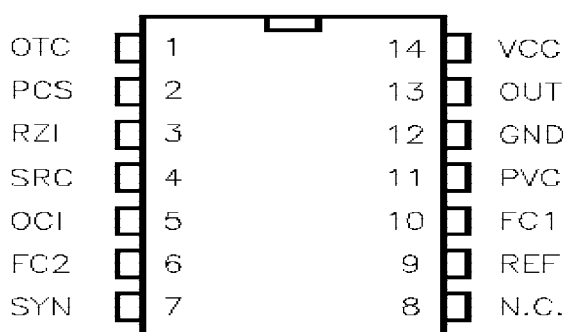
Pin 10: Fault comparator 1: If a voltage > 1 V is applied to this pin, the SMPS stops.

Pin 11: This is the input of the primary voltage check. The voltage at the anode of the primary elcap has to be fed to this pin via a voltage divider. If the voltage of this pin falls below 1V, the SMPS is switched off. A second function of this pin is the primary voltage dependent fold back point correction (only active in free running mode).

Pin 12: Common ground.

Pin 13: Output signal. This pin has to be connected across a serial resistor with the gate of the power transistor.

Pin 14: Connection for supply voltage and startup capacitor. After startup the supply voltage is produced by the control winding of the transformer and rectified by an external diode.

```
OTC  []  1        14  []  VCC
PCS  []  2        13  []  OUT
RZI  []  3        12  []  GND
SRC  []  4        11  []  PVC
OCI  []  5        10  []  FC1
FC2  []  6         9  []  REF
SYN  []  7         8  []  N.C.
```

Absolute maximum ratings

Parameter	Symbol	Min	Max	Unit	Remark
Supply Voltage at Pin 14	V_{CC}	-0.3	17	V	
Voltage at Pin 1, 4, 5, 6, 7, 9, 10		-0.3	6	V	
Voltage at Pin 2, 8, 11		-0.3	17	V	
Voltage at Pin 3 Current into Pin 3	RZI	-10	6	V mA	$V3 < -0.3V$
Current into Pin 9	REF	-1		mA	
Current into Pin 13	OUT	-100	100	mA mA	$V13 > V_{CC}$ $V13 < 0 V$
ESD Protection				kV	MIL STD 883C method 3015.6, 100pF,1500Ω
Operating Ambient Temperature	T_A	0	70	°C	
Storage Temperature	T_{stg}	-65	125	°C	
Operating Junction Temperature	T_J		125	°C	
Thermal Resistance Junction-Ambient	R_{thJA}			K/W	P-DIP-14-3
Soldering Temperature			260	°C	
Soldering Time			10	s	

All voltages listed are referenced to ground (0V, V_{SS}) except where noted.

	IC101 NN5198K/50991K VIDEO CONTROLLER IC				
PIN NO.	Pin Description	PIN VOLTAGES (VDC)	Pin NO.	Pin Description	PIN VOLTAGES (VDC)
1	TEST	–	27	QIF DETECT OUTPUT	3.60
2	SCL	2.39	28	SIF INPUT	3.40
3	CHROMA APC FILTER	5.60	29	EXTERNAL AUDIO INPUT	3.90
4	ABCL	3.28	30	AUDIO OUTPUT	4.21
5	Ys INPUT	0.38	31	BLACK LEVEL DETECT FILTER	4.41
6	EXTERNAL R INPUT	4.85	32	DE - EMPHASIS FILTER/AUDIO MONITOR OUTPUT	4.32
7	EXTERNAL G INPUT	4.85	33	VCC1 (CHROMA)	9
8	EXTERNAL B INPUT	5.10	34	VIF DETECT OUTPUT	5.30
9	VCC1 (VCJ)	9.20	35	VCC3 (DAC)	4.65
10	R OUTPUT	3.05	36	VIDEO OUTPUT	5.24
11	G OUTPUT	3.05	37	TEST 2	0
12	B OUTPUT	2.95	38	Y INPUT/VERTICAL SYNC, INPUT	4.18
13	GND (VCJ)	0.12	39	HORIZONTAL SYNC, INPUT	4.10
14	CHROMA VCX 01 (4,43MHz)	0.24	40	CHROMA VCX 02 (3.58 MHz)	2.68
15	SECAM PLL REF, FILTER	0.05	41	VCC2 (HORIZONTAL VCC)	6.15
16	VCC1 (VIF/SIF)	9.00	42	HORIZONTAL PULSE OUTPUT	1.25
17	SECAM BELL REF, FILTER	0.13	43	HORIZONTAL AFC1 FILTER	3.32
18	VIF INPUT (1)	2.80	44	AUDIO DE - COUPLING FILTER	3.09
19	VIF INPUT (2)	2.80	45	VERTICAL SAW TOOTH	1.17
20	GND (VIF/SIF)	–	46	VERTICAL OUTPUT	3.20
21	QIF INPUT	2.66	47	VERTICAL AGC FILTER	3.10
22	RF AGC OUTPUT	4.84	48	VDD1 (CMOS)	4.97
23	AFT OUTPUT	4.05	49	SCP/CW OUTPUT/X - RAY	0.68
24	EXTERNAL VIDEO/CHROMA INP	3.14	50	VSS (CMOS)	0
25	IF AGC FILTER	6.71	51	SDA	1.85
26	VIF APC FILTER	3.40	52	FBP INPUT	0.38

AN5539LF
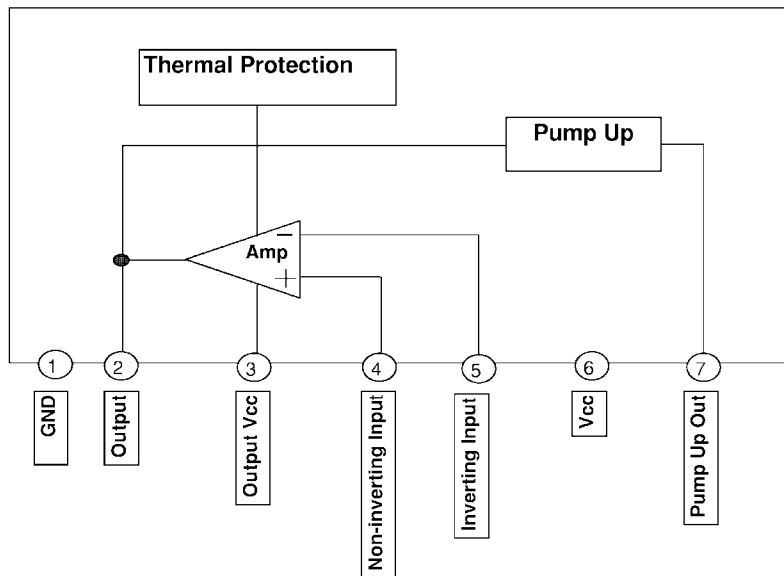
Pin No.	Pin Name
1	GND
2	Vertical Output
3	Vertical Output Power Supply
4	Non-inverting Input
5	Inverting Input
6	Power Supply
7	Pump-up Output

IC401 SDA5552/SDA5521 MICROCONTROLLER IC

PİN NO.	Pin Description	Pin NO.	Pin Description
1	I/O PIN -open collector	27	SDA1-OUT
2	TV INT- Multimedia mode	28	SDA1-IN
3	ON-LINE-Multimedia mode	29	GND
4	LL' SWITCH	30	VDD-3.3V SUPPLY
5	BAND SELECT (no function for 12.5 models)	31	NO CONNECTION
6	BAND SELECT (no function for 12.5 models)	32	NO CONNECTION
7	LL' AV Selection	33	RESET PIN
8	SERVICE PIN (no fuction for normal operation)	34	NO CONNECTION
9	VDD_2.5 supply pin	35	XTAL1- INPUT OF THE INVERTING OSCILLATOR AMPLIFIER
10	GND	36	XTAL2- INPUT OF THE INVERTING OSCILLATOR AMPLIFIER
11	VDD_3.3 supply pin	37	VDD_2.5 supply pin
12	CVBS-TXT input	38	R OUTPUT FOR OSD AND TXT
13	VDDA_2.5 supply pin	39	G OUTPUT FOR OSD AND TXT
14	GND	40	B OUTPUT FOR OSD AND TXT
15	LOCAL KEYBOARD İNPUT	41	FBL OUT
16	STATUS PIN	42	VDDA_2.5 supply pin
17	AFT	43	GND
18	POWER CTRL	44	VDD_3.3 supply pin
19	HORIZONTAL SYNC INPUT	45	AV SELECTION
20	VERTICAL SYNC INPUT	46	RGB SELECTION
21	ODD/EVEN OUTPUT	47	NO CONNECTION
22	SCL1-OUT	48	GND
23	SCL1-IN	49	STAND BY (ON-OFF) PIN
24	INFRARED RECEIVER INPUT	50	NO CONNECTION
25	SCL0-SDA0 INPUT	51	TUNING VOLTAGE (NO CONNECTION FOR 12.5 MODELS)
26	SCL0-SDA0 INPUT	52	VOLUME CONTROL PIN

IC103 TDA9830 TV SOUND AM DEMODULATOR AND AUDIO SWITCH

FEATURES
• Adjustment free wideband synchronous AM demodulator
• Audio source-mute switch (low noise)
• Audio level according EN50049
• 5 to 8 V power supply or 12 V alternative
• Low power consumption.

GENERAL DESCRIPTION
The TDA9830, a monolithic integrated circuit, is designed for AM-sound demodulation used in L- and L'- standard.
The IC provides an audio source selector and also mute switch.

PINNING

SYMBOL	PIN	DESCRIPTION
IFIN	1	sound IF differential input signal
n.c.	2	not connected
C_{AGC}	3	AGC capacitor
C_{REF}	4	REF voltage filtering capacitor
n.c.	5	not connected
AMOUT	6	AM demodulator output
AMIN	7	input signal (from AM) to audio switch
AFOUT	8	output signal from audio switch
EXTIN	9	input signal (from external) to audio switch
SWITCH	10	switch input select control
V_{p2}	11	Supply voltage +12 V (alternative)
MUTE	12	mute control
GND	13	ground (0 V)
V_{p1}	14	supply voltage +5 to +8 V
n.c.	15	not connected
IFIN	16	sound IF differential input signal

Fig.2 Pin configuration.

12
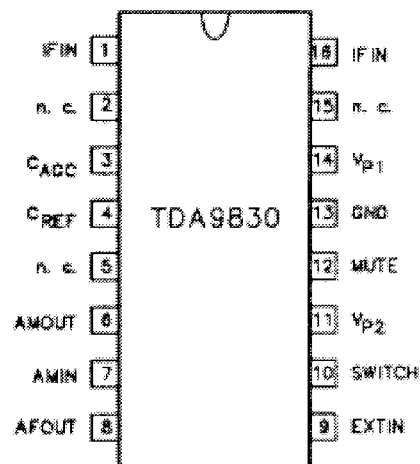
ELECTRICAL ADJUSTMENTS

ENTERING THE SERVICE MODE: You need the special remote control to enter and exit the service menu of the TV (you can order it from manufacturer). All buttons of service RC are same with user remote control, only service in/out key was added to the service remote control.

For multimedia models : you have to enter 7,5,9 and 2 while the picture menu is displayed to enter service menu. Press "0" to exit from service menu.

1-POWER SUPPLY VOLTAGE

Connect a digital voltmeter to the cathode of D610 diode at the AV1 mode of the TV and set the screen voltge to the minumum. Adjust the main supply voltage +B with P601 potentiometer to the following voltage value.

14 inch	A33LPE02X01	106V DC
20 inch	A4ECR143X51	118V DC
21 inch	A51EER 133X41	118V DC

Adjust the screen potentiometer to the level where a picture is just visible.

2- INTERMEDIATE FREQUENCY ADJUSTMENTS

Before starting this adjustment follow this procedure:

Enter service mode, chanğe "VIDEO" header to "NEW". Then exit from service mode.

ATTENTION!!! : Above procedure must be done after replacing the Video IC (IC101) or EEPROM IC. IF adjustment must be repeated after "VIDEO" header displays "NEW".

For BG, DK, I standard: Adjust the frequency of pattern generator to the 38.9Mhz and switch it to colour bar pattern. Connect the RF output of pattern generator to the pin 1 of F101. Enter service mode. Adjust the "AFT38" item of service menu to read the voltage value 1.45VDC +-100mV DC at the pin#23 of IC101. Exit from service mode.

For SECAM LL' Standart : Adjust the frequency of pattern generator to the 33.9 MHz and switch it to colour bar pattern. Connect the RF output of pattern generator to the pin 1 of F101. Enter service mode. Adjust the "AFT33"item of service menu to read the voltage value 1.45VDC ± 100mV DC at the pin#23 of IC101. Exit from service mode.

3-AGC ADJUSTMENTS

Apply a signal at the channel 32 with 32 with 60±1dBuV level to the antenna input (switch sound carrier Off and switch "Video Ext" On).

Connect an oscilloscope to the pin#11 (IF2) of Tuner and ground.

Enter service mode and go "AGC" header.

Adjust the amplitude to the value given below (which is monitored on oscilloscope) using the Volume+/Volume- key of remote control.

12.5 chassis for BG,DK,I	**Standards:**	630mVpp±20mVpp
12.5 chassis for LL'	**Standards:**	450mVpp±20mVpp
12.4 chassis for BG,DK,	**Standards:**	630mVpp±20mVpp
12.4 chassis for LL'	**Standards:**	450mVpp±20mVpp
12.4 chassis for I'	**Standards:**	500mVpp±20mVpp
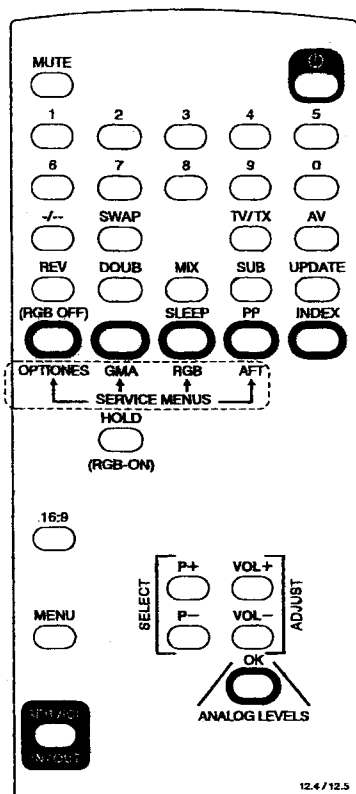
4- SERVICE MODE SETUP

ITEM	SELECTION
TUNER	SHARP&ALPS
	PHILLIPS
	P.SONIC
	TEMIC
	FULL BAND
	UHF ONLY
FULL BAND and UHF ONLY	items are valid only for 12.4 (voltage synthezirs) chassis.
AV2	NO: Single scart
	YES: Single scart+front AV
CLR.S	PAL
	PAL/NTSC : SECAM is iden tified automatically.
SND.S	BG
	I
	BG+DK
	BG+LL'
TEXT	DEFAULT : Teletext
	FASTEXT : Fastext

Service Remote Control

4- GEOMETRY ADJUSTMENTS

Enter service mode. Select Green Button in Service Menu. "H.POS" is for horizontal position, "V.HEI" is for vertical size, "LNRTY" is for vertical linearity, "S.COR" is for S-correction adjustment.

5- SCREEN ADJUSTMENT

Enter service mode. Select Yellow Button in Service Menu. Select "SCRN" item. Press Vol + or - button. You will see white horizontal line at center of the screen. Adjust the screen potentiometer to the just visiable level of horizontal line. Return to PICTURE MODE by pressing VOL+

6- WHITE BALANCE ADJUSTMENT

Enter the service mode. Select Yellow Button in Service Menu. Select and adjust "G.CUT" to the 128. Adjust "R.CUt" and "B.CUT" for cut off adjustment. Select and adjust "R.DRV" and "B.DRV" for white balace. Exit from service mode.

7- PRESET VALUES OF SERVICE MENU ITEMS
Below given values are average values and can vary according to the CRT type and chassis type.

SIZE	RED Menu Button			GREEN Menu Button						YELLOW Menu Button							BLUE Menu Button	
	AGC	ST.BY	VIDEO	H.POS	V.POS	V.HEI	LNRT V	S.COR	Y.DLY	G.CUT	R.CUT	B.CUT	R.DRV	B.DRV	SCRN	SECBL	AFT38	AFT33
14"	19	NO	OLD	14	4	64	46	0	1	128	127	124	59	53	0	48	40	61
20"	19	NO	OLD	13	4	80	47	0	1	128	128	119	58	59	0	48	40	61
21"	19	NO	OLD	14	4	81	47	0	1	128	128	121	55	56	0	48	40	61

WAVE FORMS

1. IC 101 (NN 5198K)
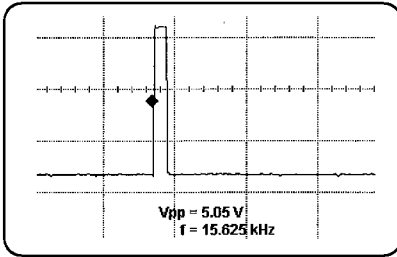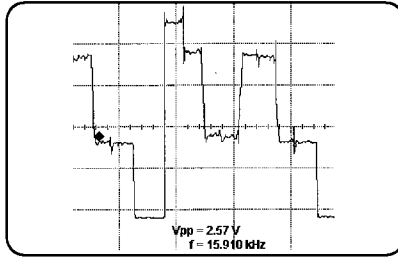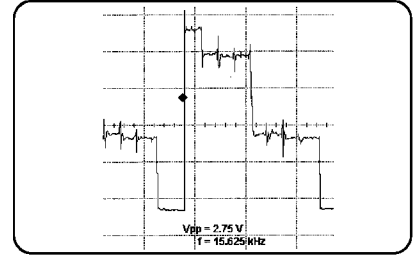
Vpp = 5.05 V
f = 15.625 kHz

Pin no: 5 (OSD ON)

Vpp = 2.57 V
f = 15.910 kHz

Pin no: 10

Vpp = 2.75 V
f = 15.625 kHz

Pin no: 11

Vpp = 2.51 V
f = 15.625 kHz

Pin no: 12

Vpp = 1.0 V
f = 1 kHz

Pin no: 30

Vpp = 1.95 V
f = 1 kHz

Pin no: 32

Vpp = 2.20 V
f = 20.150 kHz

Pin no: 34

Vpp = 2.20 V
f = 67.1 kHz

Pin no: 36

Vpp = 2.06 V
f = 68.849 kHz

Pin no: 38

Vpp = 1.75 V
f = 15.625 kHz

Pin no: 39

Vpp = 3.1 V
f = 15.625 kHz

Pin no: 42

Vpp = 2.40 V
f = 50 Hz
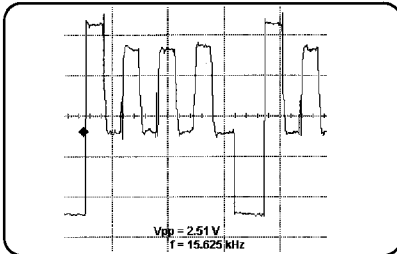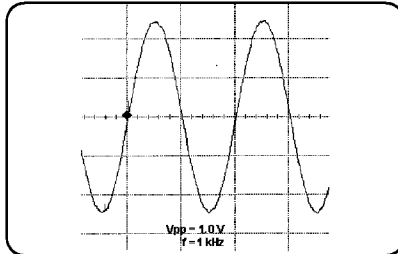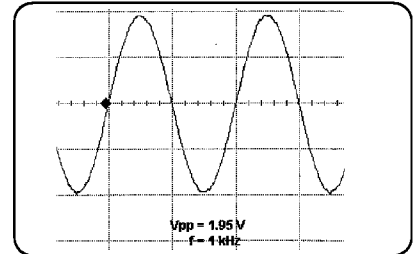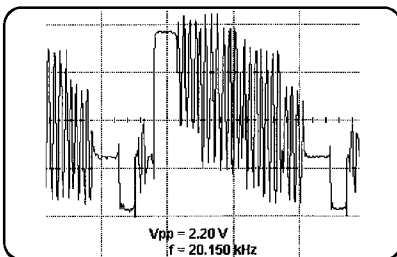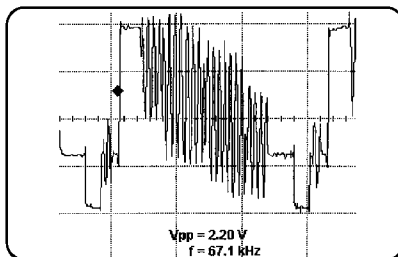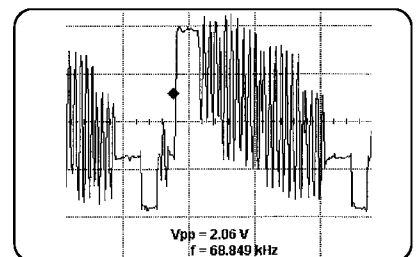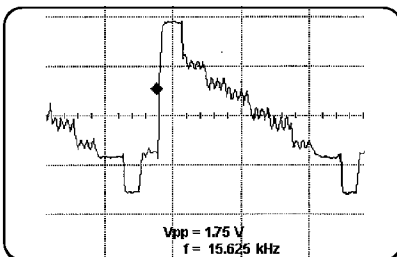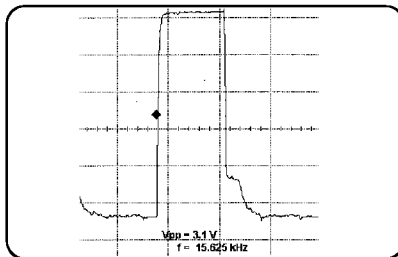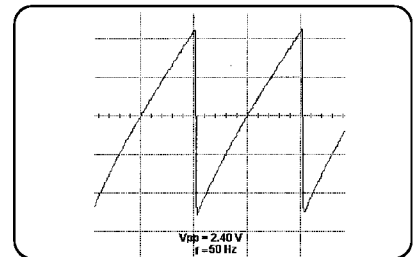
Pin no: 46

2. IC 401 (SDA 555XL)
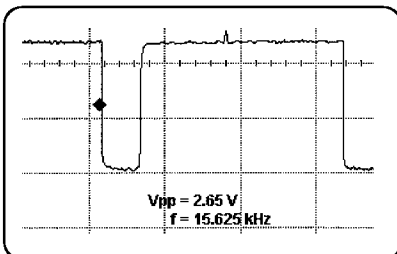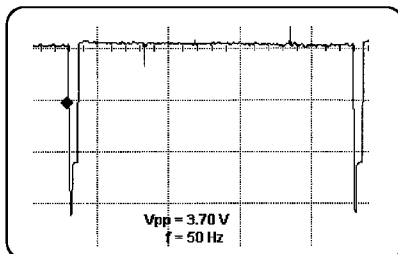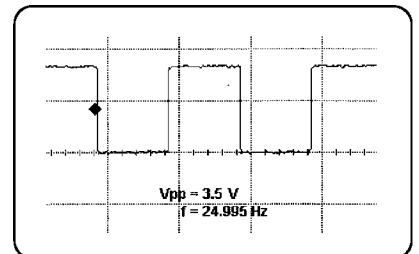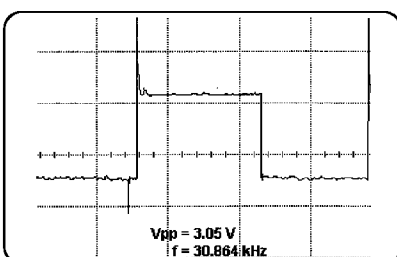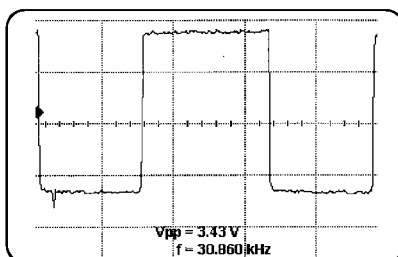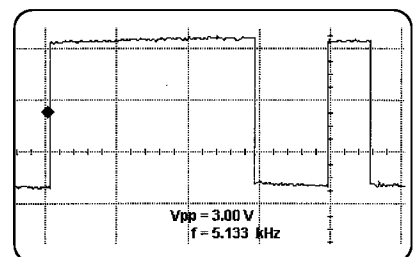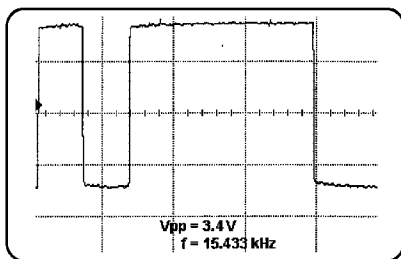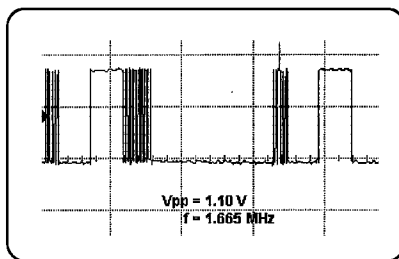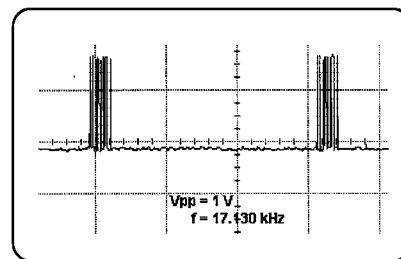
Vpp = 2.65 V
f = 15.625 kHz

Pin no: 19

Vpp = 3.70 V
f = 50 Hz

Pin no: 20

Vpp = 3.5 V
f = 24.995 Hz

Pin no: 21

Vpp = 3.05 V
f = 30.864 kHz

Pin no: 22

Vpp = 3.43 V
f = 30.860 kHz

Pin no: 23

Vpp = 3.00 V
f = 5.133 kHz

Pin no: 27

15

Vpp = 3.4 V
f = 15.433 kHz

Pin no: 28

Vpp = 1.10 V
f = 1.665 MHz

Pin no: 38

Vpp = 1 V
f = 17.130 kHz

Pin no: 39

Vpp = 1.36 V
f = 15.625 kHz

Pin no: 40

Vpp = 3.24 V
f = 15.625 kHz

Pin no: 41

3. IC 501 (AN 5539)

Vpp = 53.3 V
f = 50 Hz

Pin no: 2

Vpp = 394 mV
f = 50 Hz

Pin no: 5

Vpp = 27.8 V
f = 50 Hz

Pin no: 7

4. IC 601 (TDA 16846)

Vpp = 5.86 V
f = 57.080 kHz

Pin no: 3 (TV ON)

Vpp = 6.1 V
f = 20.71 kHz
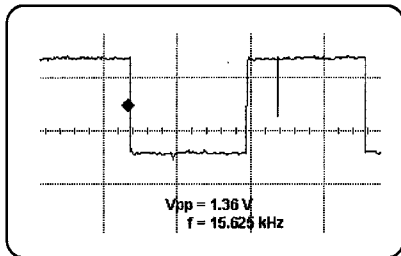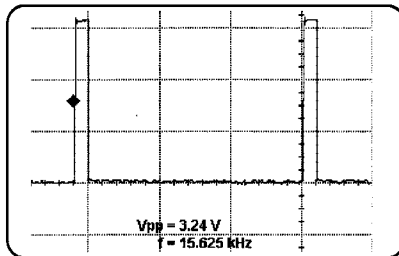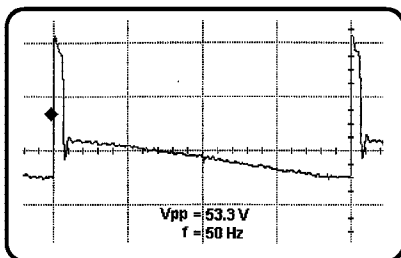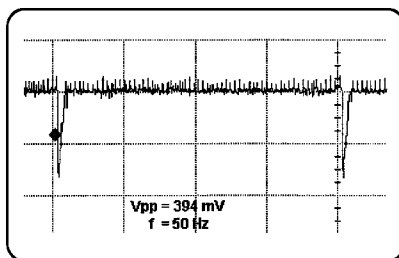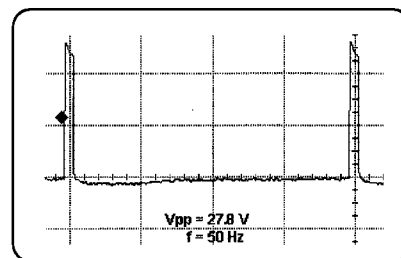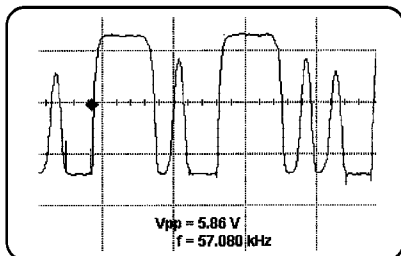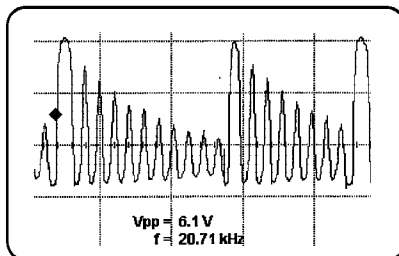
Pin no: 3 (TV Stand-By)

5. T 503 (BC 848 NPN)

Vpp = 12.63 V
f = 40.220 kHz

Pin no: 13 (TV ON)

Vpp = 12.76 V
f = 20.400 kHz

Pin no: 13 (TV Stand-By)

Vpp = 681 mV
f = 15.625 Hz

Base

6. T 504 (BC 848 NPN)

Vpp = 0.7 V
f = 15.625 kHz

Base

7. T 505 (2 SK3065)

Vpp = 3.16 V
f = 15.625 kHz
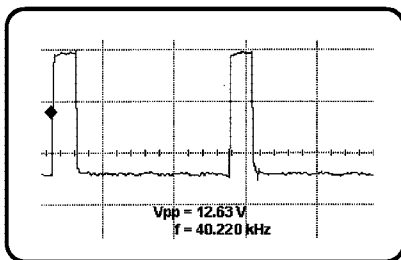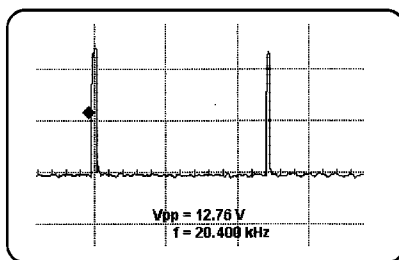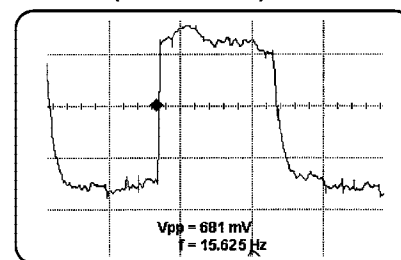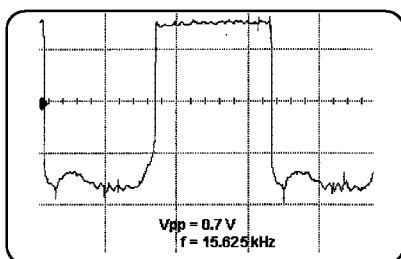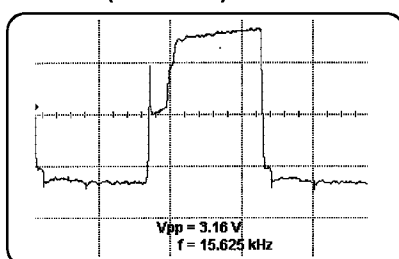
Drain

T 505 (2 SK3065)

Vpp = 6.4 V
f = 15.625 kHz

Gate

16
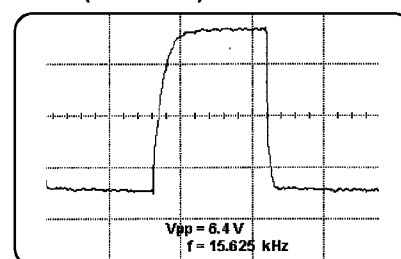
CONVERGENCE ADJUSTMENTS

Note: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

• Centre Convergence Adjustment

1. Receive crosshatch pattern with a colour bar signal generator.
2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 16) and superimpose red and blue vertical lines in the centrel area of the picture screen. (See figure).
4. Turn the both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the centre of the screen. (See figure)
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3,4,5 to ensure best convergence, the adjustment must be undertaken with great care because of the interaction between 4 and 6 pole magnets.
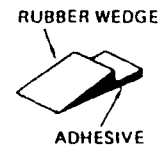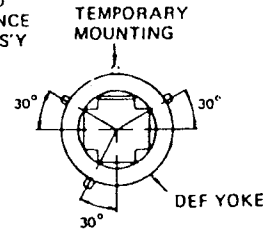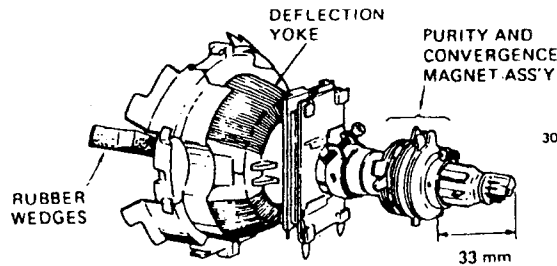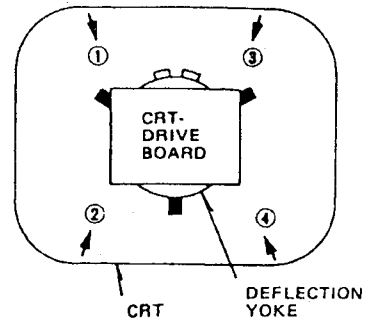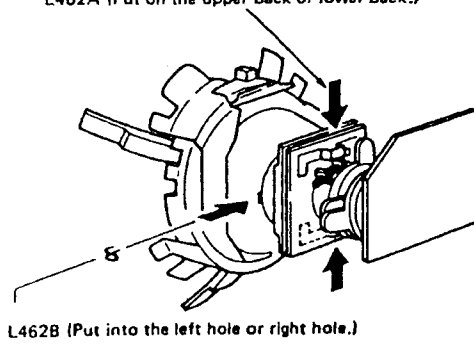
• Circumference Convergence Adjustment

1. Loosen the clamping screw of deflection yoke to allow the yoke to tilt.
2. Put a wedge as shown in figure 15 temporarily. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick 3 adhesive tapes on wedges.

CONVERGENCE COMPENSATOR

Compensators L462A and L462B are used to correct misconvergence (Red-Green) at the top center or bottom center on screen, when the misconvergence is still evident even though the yoke adjustment is tried. Compensator L462C is also used to correct misconvergence (Vertical shift of Red or Blue) at four corners on screen.
1. To correct horizontal misconvergence (Red-Green), put compensator L462A on the yoke back (see figure right) to find a position for minimizing misconvergence. Mark the position and remove protective paper on the rear of L462A to stick it in place. Apply adhesives on buth yoke and L462A.
2. To correct vertical misconvergence (Red-Green), put the tips of compensator L462B into either of the holes on the yoke core and apply adhesives.
3. To correct up or down shift of Red at top right or bottom right corner, put compensator L462C at point 1 ve 2 or the pisture tube (see figure right.) to find a position for minimizing misconvergence. Mark the position and remove protective paper on the rear of L462C to stick it in place.

L462A (Put on the upper back or lower back.)

L462B (Put into the left hole or right hole.)

CRT-DRIVE BOARD

① ③

② ④

CRT

DEFLECTION YOKE

DEFLECTION YOKE

PURITY AND CONVERGENCE MAGNET ASS'Y

TEMPORARY MOUNTING

RUBBER WEDGE

ADHESIVE

RUBBER WEDGES

33 mm

30° 30°

DEF YOKE

30°

RUBBER WEDGES LOCATION

4-POLE MAGNETS

PURITY MAGNETS
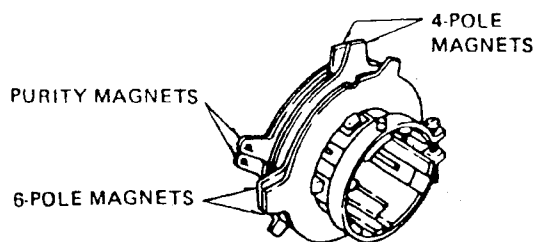
6-POLE MAGNETS

CONVERGENCE MAGNET ASSEMBLY

ADJUST THE ANGLE (VERTICAL LINES)

FIXED

ROTATE TWO TABS AT THE SAME TIME (HORIZONTAL LINES)

ADJUSTMENT OF MAGNETS

BLU   RED

BLU
RED
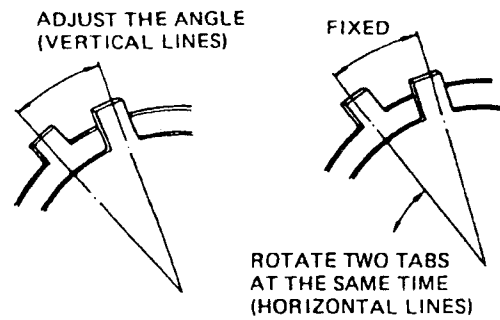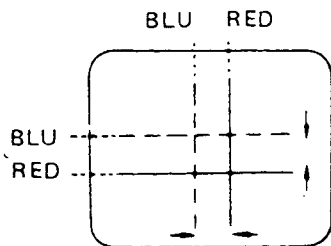
4-POLE MAGNETS MOVEMENT

RED/BLU   GRN

RED/BLU
GRN
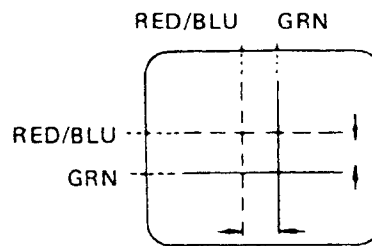
6-POLE MAGNETS MOVEMENT

Centre Convergence by Convergence Magnets

BGR

R B
G G
B R

RGB
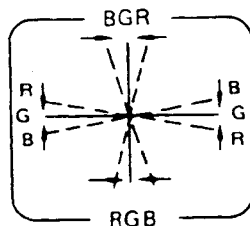
INCLINE THE YOKE UP (OR DOWN)

B
G
R

RG B

BGR   R
G
B
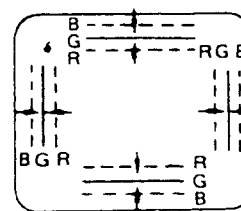
INCLINE THE YOKE RIGHT (OR LEFT)

Circumference Convergence by DEF Yoke

Dot Movement Pattern

18

CHANNEL FRQENCY TABLE (BG,I,DK,LL')

CHANNEL NO	BG	I	DK	L/L'			
CH1		49.75	49.75	47.75			
CH2	48.25	59.25	59.25	55.75			
CH3	55.25	77.25	77.25	60.50			
CH4	62.25	85.25	85.25	63.75			
CH5	175.25	93.25	93.25	176.00			
CH6	182.25	175.25	175.25	184.00			
CH7	189.25	183.25	183.25	192.00			
CH8	196.25	191.25	191.25	200.00			
CH9	203.25	199.25	199.25	208.00			
CH10	210.25	207.25	207.25	216.00			
CH11	217.25	215.25	215.25	189.25			
CH12	224.25	223.25	223.25	182.25			
CH13	53.75	45.75		196.25			
CH14	62.25	53.75		210.25			
CH15	82.25	61.75					
CH16	175.25	69.75					
CH17	183.25	95.25					
CH18	192.25						
CH19	201.25						
CH20	210.25						
CH21	471.25	471.25	471.25	471.25			
CH22	479.25	479.25	479.25	479.25			
CH23	487.25	487.25	487.25	487.25			
CH24	495.25	495.25	495.25	495.25			
CH25	503.25	503.25	503.25	503.25			
CH26	511.25	511.25	511.25	511.25			
CH27	519.25	519.25	519.25	519.25			
CH28	527.25	527.25	527.25	527.25			
CH29	535.25	535.25	535.25	535.25			
CH30	543.25	543.25	543.25	543.25			
CH31	551.25	551.25	551.25	551.25			
CH32	559.25	559.25	559.25	559.25			
CH33	567.25	567.25	567.25	567.25			
CH34	575.25	575.25	575.25	575.25			
CH35	583.25	583.25	583.25	583.25			
CH36	591.25	591.25	591.25	591.25			
CH37	599.25	599.25	599.25	599.25			
CH38	607.25	607.25	607.25	607.25			
CH39	615.25	615.25	615.25	615.25			
CH40	623.25	623.25	623.25	623.25			
CH41	631.25	631.25	631.25	631.25			
CH42	639.25	639.25	639.25	639.25			
CH43	647.25	647.25	647.25	647.25			
CH44	655.25	655.25	655.25	655.25			
CH45	663.25	663.25	663.25	663.25			
CH46	671.25	671.25	671.25	671.25			
CH47	679.25	679.25	679.25	679.25			
CH48	687.25	687.25	687.25	687.25			
CH49	695.25	695.25	695.25	695.25			
CH50	703.25	703.25	703.25	703.25			
CH51	711.25	711.25	711.25	711.25			
CH52	719.25	719.25	719.25	719.25			
CH53	727.25	727.25	727.25	727.25			
CH54	735.25	735.25	735.25	735.25			
CH55	743.25	743.25	743.25	743.25			
CH56	751.25	751.25	751.25	751.25'			
CH57	759.25	759.25	759.25	759.25			
CH58	767.25	767.25	767.25	767.25			
CH59	775.25	775.25	775.25	775.25			

CH60	783.25	783.25	783.25	783.25			
CH61	791.25	791.25	791.25	791.25			
CH62	799.25	799.25	799.25	799.25			
CH63	807.25	807.25	807.25	807.25			
CH64	815.25	815.25	815.25	815.25			
CH65	823.25	823.25	823.25	823.25			
CH66	831.25	831.25	831.25	831.25			
CH67	839.25	839.25	839.25	839.25			
CH68	847.25	847.25	847.25	847.25			
CH69	855.25	855.25	855.25	855.25			
CH70				863.25			
CH71							
CH72							
CH73							
CH74	69.25						
CH75	76.25						
CH76	83.25						
CH77	90.25						
CH78	97.25						
CH79	59.25						
CH80	93.25						
S1	105.25	103.25	103.25	116.75			
S2	112.25	111.25	111.25	128.75			
S3	119.25	119.25	119.25	140.75			
S4	126.25	127.25	127.25	152.75			
S5	133.25	135.25	135.25	164.75			
S6	140.25	143.25	143.25	176.75			
S7	147.25	151.25	151.25	188.75			
S8	154.25	159.25	159.25	200.75			
S9	161.25	167.25	167.25	212.75			
S10	168.25	231.25	231.25	224.75			
S11	231.25	239.25	239.25	236.75			
S12	238.25	247.25	247.25	248.75			
S13	245.25	255.25	255.25	260.75			
S14	252.25	263.25	263.25	272.75			
S15	259.25	271.25	271.25	284.75			
S16	266.25	279.25	279.25	296.75			
S17	273.25	287.25	287.25	55.75			
S18	280.25	295.25	295.25	60.50			
S19	287.25	303.25	303.25	63.75			
S20	294.25						
S21	303.25			303.25			
S22	311.25	311.25	311.25	311.25			
S23	319.25	319.25	319.25	319.25			
S24	327.25	327.25	327.25	327.25			
S25	335.25	335.25	335.25	335.25			
S26	343.25	343.25	343.25	343.25			
S27	351.25	351.25	351.25	351.25			
S28	359.25	359.25	359.25	359.25			
S29	367.25	367.25	367.25	367.25			
S30	375.25	375.25	375.25	375.25			
S31	383.25	383.25	383.25	383.25			
S32	391.25	391.25	391.25	391.25			
S33	399.25	399.25	399.25	399.25			
S34	407.25	407.25	407.25	407.25			
S35	415.25	415.25	415.25	415.25			
S36	423.25	423.25	423.25	423.25			
S37	431.25	431.25	431.25	431.25			
S38	439.25	439.25	439.25	439.25			
S39	447.25	447.25	447.25	447.25			
S40	455.25	455.25	455.25	455.25			
S41	463.25	463.25	463.25	463.25			