TELETECH CT-7800

MODEL

SERVICE MANUAL

CONTENTS

PAGE NO

DO NOT CHANGE ANY MODULE UNLESS THE SET IS SWITCH 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.

- Components marked with the warning symbol on the circuit diagram are cristical for safety and must only be replaced with an identical component.
- Power resistor and fusable resistors must be mounted in an identical manner to the original component.
- When servicing this TV, check that the EHT does not exceed 27KV.

TV set switched off :

Make short-ciccuit between HV-CRT clip and CRT ground layer

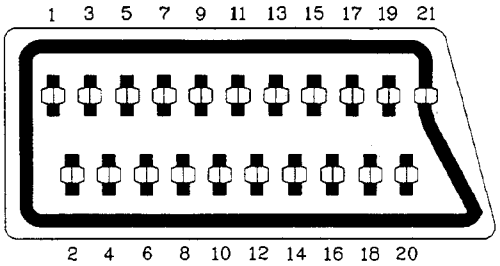
Short C808 (150μF) before changing IC801 or other components in primary side of SMPS.

Measurements

Voltage readings and oscilloscope traces are measured under following conditions :

- Antenna Signal 60dBμV from colorbar generator. (100% white, 75% color saturation)
- Brightness, Contrast, Color set for a normal picture
- Mains supply, 220V AC, 50Hz.

PERI-TV SOCKET



SCART 1 (SC401)

1	AF right outpot	0.5Vrms / 1K
2	AF right input	0.5Vrms / 10K
3	AF left output	0.5Vrms / 1K
4	Ground AF	
5	Ground blue	
6	AF left input	0.5Vrms / 1K
7	Blue input	0.7Vpp / 75R
8	AV switching input	9.5-12Vdc/10R
9	Graund green	
10	-	
11	Green input	0.7Vpp / 75R
12	-	
13	Ground red	
14	Ground blanking	
15	Red input	0.7Vpp / 75R
16	Blanking input	1-3Vpp / 75R
17	Ground CVS output	
18	Ground blanking input	
19	CVS output	1Vpp / 75R
20	CVS input	1Vpp / 75R
21	Ground	

SCART 2 (SC402) (OPTIONAL)

1	AF right outpot	0.5Vrms / 1K
2	AF right input	0.5Vrms / 10K
3	AF left output	0.5Vrms / 1K
4	Ground AF	
5	Ground blue	
6	AF left input	0.5Vrms / 1K
7	-	
8	-	
9	Graund green	
10	-	
11	-	
12	-	
13	Ground red	
14	Ground blanking	
15	-	
16	-	
17	Ground CVS output	
18	Ground blanking input	
19	CVS output	1Vpp / 75R
20	CVS input	1Vpp / 75R
21	Ground	

1. INTRODUCTION

11AK12 is a 110 degree chassis capable of driving 28 inch tubes at appropriate beam currents. The chassis is capable of working in PAL. The sound system is capable of giving 2x8watts RMS Audio power output 8watt at 10% THD.

One four page simple TELETEXT, TOPTEXT, FASTEXT is provided. The chassis is equipped with 21-pin scart connectors can accept via scart the SVHS format from VCRs so equipped.

2. SMALL SIGNAL PART WITH TDA8362A :

The TDA8362A combines all small signal functions required for a colour TV receiver, except tuning.

2.1. Vision IF amplifier, video demodulator and identification circuit :
The vision IF amplifier consists of three AC-coupled differential stages. The gain control per stage is more than 20dB, which results in a total gain control of 64dB min. The IF amplifier inputs can be coupled directly to the SAW filter output. The input impedance is 2 Kohm in parallel with 3pF. The input sensitivity for on-set of AGC is 70μV (typ.), for IF frequencies between 38.9MHz and 58.75MHz. The reference carrier for the video demodulator is obtained via passive regeneration of the picture carrier. The reference tuned circuit is connected between pin 2 and 3. The IC can handle positive and negative modulated signals, the polarity of the modulation can be switched at pin 1. A transmitter identification circuit operates independently of the synchronization circuit, to allow separate use of the front-end section and the display section of the TDA8362A. The output voltage at pin4 will be high with transmitter identification and low without identification (sound muted).

2.2. AGC , tuner AGC and AFC :
The AGC detector operates at top-synch level for signals with negative modulation and at peak-white level for positive modulated signals. For positive modulated signals the AGC time constant is long to avoid visible variations of the video output signal. To obtain an acceptable AGC speed with positive modulation an extra circuit checks whether the AGC detector is activated every frame period. The speed will be increased if this circuit detects that the video output signal has not reached 80% of peak white level for approximately 100ms. Externally a diode (D201) takes care that the tuner AGC voltage can be reduced rather quickly, which is only required if positive modulated signals have to be processed. The tuner AGC take-over point can be set by adjusting the DC voltage at pin 49, with a potentiometer of 10Kohm (VR402). The tuner AGC (pin 47) is an open collector output stage with an output swing of 2mA min. The voltage swing, required by the tuner, can be obtained with an external resistive network, connected at pin 47. Pin 47 may rise 2V above the actual supply voltage, without damaging the IC. This feature is provided because most tuners require a 9V AGC voltage level for min gain. The AFC circuit is driven by the same reference signal as the video demodulator. A sample and hold circuit avoids video break-through from the video demodulator to the AFC voltage. The AFC output voltage range is from 0 to Vcc.

2.3. Sound circuit :
The sound carrier which is present at the video output pin 7 is fed via the sound bandpass to the sound input at pin 5. This pin has a double function; sound IF input (AC) and volume control (DC). The filtered intercarrier signal is fed to an amplifier / limiter circuit and is demodulated by a PLL demodulator. This PLL demodulator tunes automatically to the incoming frequency, hence no alignment is required. The AF signal (pin 50) has an amplitude of 350 mV_{rms} at maximum volume control setting. The volume control setting is between 0 and 5V, volume control is logarithmic. The deemphasis capacitor (C401) is connected externally at pin 1. The non-controlled audio signal (Peri-television) is also obtained from pin 1 via an amplifier stage (Q406). Audio input signal from an external source (SCART) with an amplitude up to 350m V_{rms} ($\pm$ 6dB) can be fed to pin6. The audio switch is controlled via the chroma input pin 16, as described in Chapter 8. The volume control operates upon the external audio input signal, when the TDA8362A is switched to the external mode.

2.4. Horizontal and vertical synchronization :
The incoming video signal, pin 13 for the internal signal and pin 15 for an external CVBS signal, is fed to the synchronization seperator circuit. Internally the black level and the top synch level are detected, next the synchronization pulses are amplified to a fixed level and sliced at 50% of that level. The separated synchronization pulses are fed to the first phase detector circuit and to the coincidence detector. The components which determine the loop gain of the first phase detector are connected at pin 40 (C422, C423 and R438). The coincidence detector is only used to detect whether the line oscillator is synchronised. When the IC is operating in internal mode, this information is fed to the ident pin as transmitter identification. The line oscillator is running at twice the line frequency and is derived from the X-tal oscillator frequency of the colour decoder, consequently no adjustment is required. The second phase detector generates the pulses for the horizontal driver stage (pin 37). The loop filter capacitor (C424) is connected at (pin 39). Horizontal shift can be obtained by a potentiometer (VR401), a series resistor (R440).

The TDA8362A has a separate start-up circuit for the horizontal oscillator (pin 36). The vertical drive pulses (pin 44) are generated by a divider circuit. The vertical ramp generator components are connected at pin 43. AC and DC feedback voltage from the vertical deflection stage must be connected at pin 42.

2.5. Integrated video filters :
The TDA8362A has an alignment-free internal chroma bandpas sand trap circuit. These filters are realised by means of gyrator circuit and they are tuned by tracking to the frequency of the X'tal controlled oscillator. The luminance delay is also realised by gyrator circuits. For SECAM an extra delay is built-in to adjust for the correct delay of the luminance signal.

2.6. Colour decoder :
The colour decoder contains an alignment-free X-tal oscillator, a dual killer circuit and the colour difference signals demodulators. The decoder adapts automatically for PAL and NTSC signals. Two X-tal pins are present so no external switching is required. With the SECAM add-on decoder TDA8395 an alignment free multi-standard decoder with automatic selection is built. The burst phase detector locks the X-tal oscillator with the burst signal.

2.7. RGB controller :
The colour difference signals are matrixed with the luminance signal to obtain RGB output signals (pin 18, 19 and 20). External RGB signals (pin 22, 23 and 24) coming from the Peri-television connector are interfaced by linear amplifiers. The contrast and brightness control and the peak white limiter operate on internal and external signals as well as RGB signals. The data insertion pin 21 has a second detection level at 4V. Above this level the RGB outputs are blanked. In this way OSD signals can be supplied directly to the inputs of the video output stages without any interaction to the RGB outputs of the colour decoder part of the TDA8362A. The output signal has an amplitude of about 2 V_{BL-WH} at nominal input signals and nominal control settings. The black current stabilisation is realized by means of a feedback from the video output amplifiers to the RGB output circuit. The black current of the three guns of the picture tube is internally measured and stabilised. The leakage current is measured during the first line and the following 3 lines, the 3 guns are adjusted to the required level. Maximum acceptable leakage current is $\pm 100\mu A$. The nominal value of the black current is $10\mu A$. The maximum current that can be supplied to the measuring input (pin 14) is $250\mu A$. The currents flowing into this pin will be higher during scan. For this reason, it is necessary that the excessive current is by-passed by means of an external clamping circuit. A resistor in series (R473) and a capacitor (C410) are connected to pin 14. The black current stabilisation circuit is not activated when the TV receiver is switched on and the RGB outputs are blanked; contrast, brightness control pins are short circuited. Only during the measuring lines, the output will supply a voltage of 5 V to the video output stage so that it can be detected whether the picture tube is warming up. When the current supplied to the measuring input (pin 14) exceeds $190\mu A$, the stabilisation circuit is activated and the contrast and brightness control pins are released. The switch-on behaviour of the picture is determined by the external time constant of the contrast control network.

2.8. Switches for external audio, CVBS and S-VHS signals :
The audio and CVBS switches are controlled via the chroma input pin 16, according to the following table :

Level pin 16	Int.CVBS	Ext.CVBS	Chroma	Chr.trap	Audio
DCV (INT.)	on	off	off	on	int.
3V S-VHS	off	on(Y)	on	off	ext.
DC7.5V (EXT.)	off	on(CVBS)	off	on	ext.

3. TUNER
Either a UHF-only TFK 3011 or a UHF/VHF 2000 KHC is used as tuner. The frequency range is

SYSTEM	C.C.I.R	
Channels	off-air	cable
VHF - LOW	51MHz to 65MHz	S1 to S6
VHF - HIGH	178MHz to 227MHz	S7 to S41
UHF	474MHz to 858MHz	-

The tuner has a voltage gain of approximately 40dB with a gain reduction capability of typically 40dB for band 1 and 3 and a minimum AGC of 30dB for band 4 and 5. It has a noise figure of typically 7dB for band 1 and 3, 8dB for band 4 and 9dB for band 5.

4. SECAM DECODER TDA8395 (FOR MODELS WITH SECAM SYSTEM ONLY)

The SECAM decoder TDA8395 which is used in conjunction with the TDA8362A includes the Cloche filter, demodulator and identification circuit. The resonance frequency of the Cloche filter is controlled during the calibration period and offset during scan for the right resonance frequency. The required reference frequency for calibration is connected at pin 1 and is obtained from the TDA8362A (pin 32). The two-level sandcastle pulse has to be connected at pin 15 (TDA8362A pin38) and is used for generation of the blanking periods and provides clock information for the identification circuit.

The chroma signal at pin 16 connected to pin 27 of the TDA8362A, is demodulated by a PLL demodulator, which uses the reference frequency and a band gap reference to force the PLL to the desired demodulation characteristic.

5. BASEBAND DELAY LINE TDA4661

The TDA4661 are integrated base band delay lines of 64uS for colour TV receivers. It is connected to the TDA8362A and TDA8395 without the need of switches and alignments. The TDA4661 consists of two main blocks:

- Two comb filters with a delay time of 64uS.
- Internal clock generation of 3MHz, line locked via the sandcastle pulse.

The TDA4661 operates according to the mode demanded by the colour transmission standard.In the PAL mode it operates as a geometric adder to satisfy the requirements of PAL demodulation and in the SECAM mode the delay line repeates the colour difference signal on consecutive horizontal scan lines.

6. VERTICAL OUTPUT STAGE WITH TDA3654

The TDA3654 is a vertical deflection output circuit for drive of various deflection systems with currents up to $3A_{p\text{-}p}$. The output pin is pin 5. The output power transistors are protected by the cooperation of thermal protection circuit, the current-voltage detector, the short-circuit protection and the special measures in the internal circuit layout. Pin 1 is the input for the driver of the output stage. The signal at pin 1 is also applied via external resistors to pin 3 which is the input of a switching circuit. When the flyback starts, this switching circuit rapidly turns off the lower output stage and so limits the turn-off dissipation. The amplitude of the flyback voltage which is present at pin 8 is determined by the value of the external resistor at pin 8. When there is no deflection current and the flyback generator is not activated, the voltage at pin 8 reduces to less than 1V. The guard circuit will then produce a DC voltage at pin 7, which can be used to blank the picture tube and thus prevent screen damage. The internal voltage stabilizer provides a stabilized supply of 6V to drive the output stage, which prevents the drive current of the output stage being affected by supply voltage variations.

7. HORIZONTAL DEFLECTION STAGE

The horizontal drive pulses, from pin 37 of the TDA8362A, are connected to base of driver transformer Q601 via resistor R439. The base current of the driver transistor is supplied via R601 (pin 37 is an open-collector output). The driver transformer (TR601) drives the BU506D deflection transistor (Q602). TR602 is the EHT transformer. The 112V supply voltage for the transformer is connected at pin 3. TR602 generates the EHT-, focus- and G2- voltage, required by the picture tube. Furthermore the 200V supply and heater voltages are derived from this transformer. The beam current information from pin 7 of TR602 is used for reducing the contrast at too high beam currents, for stabilizing the voltages derived from the power supply and for stabilization of the vertical amplitude. The flyback voltage is AC-coupled and clipped between +8V and ground by diodes D601 and D602 to obtain a well-shaped flyback pulse for feedback to the TDA8362A (pin 38).

8. EAST - WEST CORRECTION STAGE WITH TDA8145

A differential amplifier OP1 (OP2) is driven by a vertical frequency sawtooth current of $\pm 33\mu A$ which is produced via an external resistor from the sawtooth voltage. The non-inverting input of this amplifier (PIN 1) is connected with a reference voltage corresponding to the DC level of the sawtooth voltage. This DC voltage should be adjustable for the keystone correction. The rectified output current of this amplifier drives the parabola network which provides a parabolic output arrent.

This output current produces the correspanding voltage due to the voltage drop across the external resistor at PIN 7.

If the input is overmodulated ($>40\mu A$), the internal current is limited to $40\mu A$. This limitation can be used for suppressing the parasitic parabolic current generated during the flyback time of the frame sawtoth.

A comparator OP2 is driven by the parabolic current. The second input of the comparator (PIN 8) is connected with a horizontal frequency sawtooth voltage the DC level of which can be changed by the external circuitry for the adjustment of picture with.

The horizontal frequency pulse-width modulated output signal drives the final stage. It consists of a class DC pulse-pull output amplifier that drives, via an external inductor, the diode modulator.

9. SOUND OUTPUT STAGE TDA2611A

TDA2611A is used as the AF output amplifier. It is supplied by +24V coming from a separate winding in the SMPS transformer. Pin 50 of the TDA8362 is AC-coupled to the input pin 7 of the TDA2611A via a resistor divider. Maximum audio output power for 1 KHz signal with 30% modulation is 1.5W.

10. MICROCONTROLLER (CTV351S, CTV551S)

A. CTV351S is a TV receiver control system using all the functions of a PCA84C841 microcontroller. The system has Voltage Synthesis Tuning (VST). Sound and picture are controlled by the five DACs of the PCA84C841. The system is independent of the TV transmission standards. Control of a four-page teletext decoder is an option in the basic system. A 2K memory which allows 90 programmes to be stored is used (IC502).

CTV351S has the following features:

- Voltage synthesis tuning via a 14-bit DAC
- On-screen display
- Control of two transmission standards
- Direct control of four-page teletext decoder
- Full peri-TV switching
- German stereo and/or Nicam or mono-only soun control

B. CTV551S is a TV receiver control system using all the functions of a P83C055 microcontroller. The system has Voltage Synthesis Tuning (VST). Sound and picture are controlled by the five DACs of the P83C055. The system is independent of the TV transmission standards. Control of a four-page teletext decoder is an option in the basic system. A 4K memory which allows 100 programmes to be stored is used (IC502).

CTV551S has the following features:

- Voltage synthesis tuning via a 14-bit DAC
- On-screen display
- Control of two transmission standards
- Direct control of four-page teletext decoder
- Full peri-TV switching
- German stereo and/or Nicam or mono-only soun control
- Menu operating

10. POWER SUPPLY (SMPS)

The DC voltages required at various parts of the chassis are provided by an SMPS transformer controlled by the IC TDA4605-2 which is designed for driving, controlling and protecting the switching transistor BUZ90 of SMPS. This transformer produces 150V for FBT input, 33V for tuning circuitry of microcontroller, 26V for audio output, 26V for vertical output (field scan) and 16V which is converted to a regulated +12V for tuner and some other ICs and transistors. This 12V is also used to obtain 8V by means of the regulator LM7808 for TDA8362A and some other ICs and transistors and 5V by means of regulator for teletext and sound circuitry. 5V is obfained from 16V out for controller.

11. CRT BASEBOARD

When RGB signals enter the input of the video amplifier stage (CRT baseboard), they are amplified by means of three symmetrical class-B type video amplifier stages. For this purpose, three BF869S high-voltage, video output power transistors are used. So, high gain-bandwidth product is achieved Furthermore, voltage changes at the outputs of amplifiers caused by temperature variations are compensated by means of an additional circuitry. Black current information (BCI) is send to TDA8362A (Refer to TDA8362A RGB).

12. TELETEXT STAGE

There are four teletext options:

- Simple text (1 page) using SAA5254P/T
- Simple text (4 page) using SAA5246 + 8K8 RAM
- FASTEXT (4 page) using SAA5246 + 8K8 RAM + PCF84C81
- TOPTEXT using CTV990

SPECIFICATIONS

POWER SUPPLIESA

NOMINAL : 220 - 240V AC 50Hz.

The chassis is fully mains isolated and is stabilized across mains voltage rangefrom 175V to 265V for less than 0.75 % change in picture size. No mains input adjustment is required.

POWER CONSUMPTION

Typlcally : MAXIMUM : 120W
MINIMUM : 130W

FREQUENCY COVERAGE

Hyperband (VHF CH 2 to UHF CH 69 includìng CATV) : 47 - 862 MHz

UHF (CH 21-69) : 471 - 862 MHz

SENSITIVITY

34 dBμV or less for any channel wìth a locked colour picture

MAXIMUM SIGNAL INPUT

95 dBμV or more for any channel

IF FREQUENCIES (in MHz)

	VISION	SOUND
B/G (EUROPE) :	38.9	33.4
I (UK) :	39.5	33.5
L' (FRANCE) :	32.7	39.2
L (FRANCE) :	39.2	32.7
D/K (RUSSIA) :	38.0	31.5

AUDIO OUTPUT

MAXIMUM : 2x8W RMS
(Audio power output 8watt at 10% THD)

BEAM CURRENT LIMITING

1300μA

EHT

MAXIMUM : 27KV

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 attemping 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 attemping 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.
- 60 dBmV signal at any channel frequency
- Color bar pattern and 1KHz sound signal
- Mains 220-240V AC, 50Hz

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 $\pm$ 0.5V_{DC}
4) Set the BCS and VOL to normal picture and sound.

VISION DEMODULATOR AND AFC

1) Set the pattern generator for 10μV, 38.9 MHz (B/G models) or 39.5 MHz (for I models) or 38.0 MHz (for D/K 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 $\pm$ 0.1 V_{DC} (M4)
5) After the adjustment procedure, please disconnect all external connections.

2) 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 centering,
   and focus potentiometer (on EHT transformer) for optimum focusing.

TUNER AGC

1) Check the voltage at pin 1of TUNER (TP4)
2) Adjust the VR402 to get 1V voltage at 4M by decreasing the amplitude of the signal from maximum to desired value.

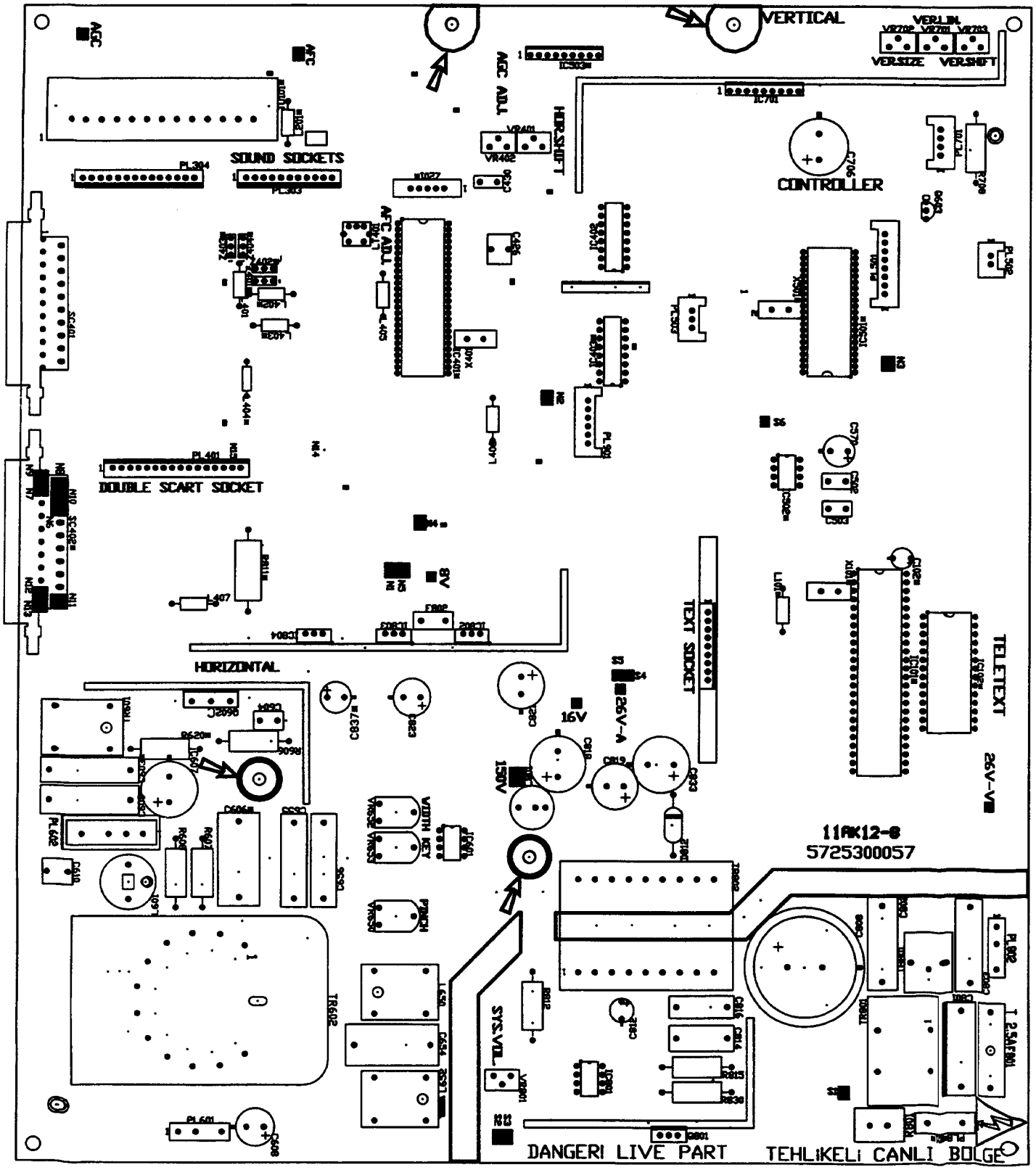
SCREEN VOLTAGE

1) Set the pattern generator for grey scale.
2) Set the BCS (Brightness, Contrast, Saturation) to minumum.
3) Measure cathode voltages on the CRT base board by using a 1/1000 probe.
4) Adjust screen pot of FBT for 175 ± 2V reading on maximum cathode voltage.

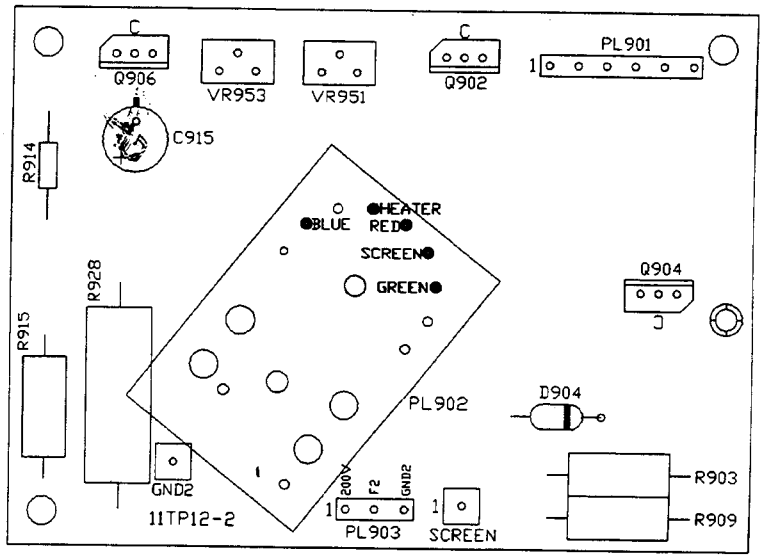
CRT BASEBOARD
CUT-OFF VOLTAGES AND WHITE BALANCE

1) Set the pattern generator for grey scale.
2) Use 1/1000 prob to measure the voltage at green cathode.
   Adjust the voltage obsened at this cathode by the screen potentiometer
   (on EHT transformer) ssss that the voltage will be 10V less than its maximum value.
3) Display the white patern on screen and set all analog controls to its minumum value.
4) You can adjust the white balance by the colour analyzer. Place the prolse 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.

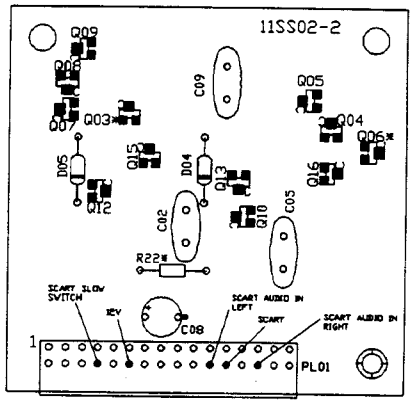
MAIN CHASSIS PLUG IDENTIFICATION, SETTING AND MEASUREMENT POINT



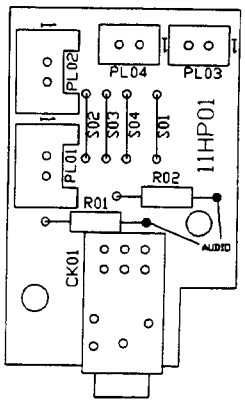
SETTING AND MEASUREMENT POINTS FOR MODULES



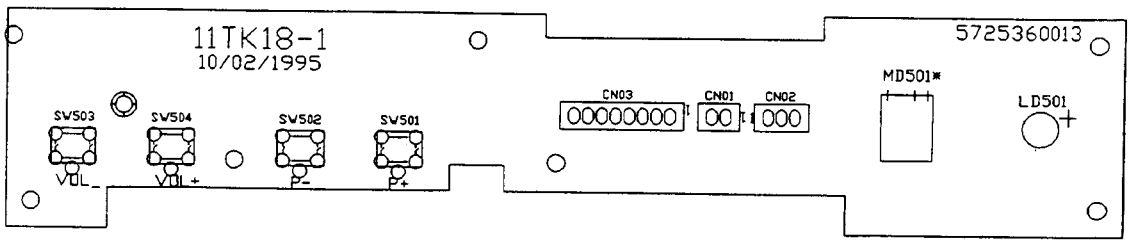
11TP12 CRT MODULE



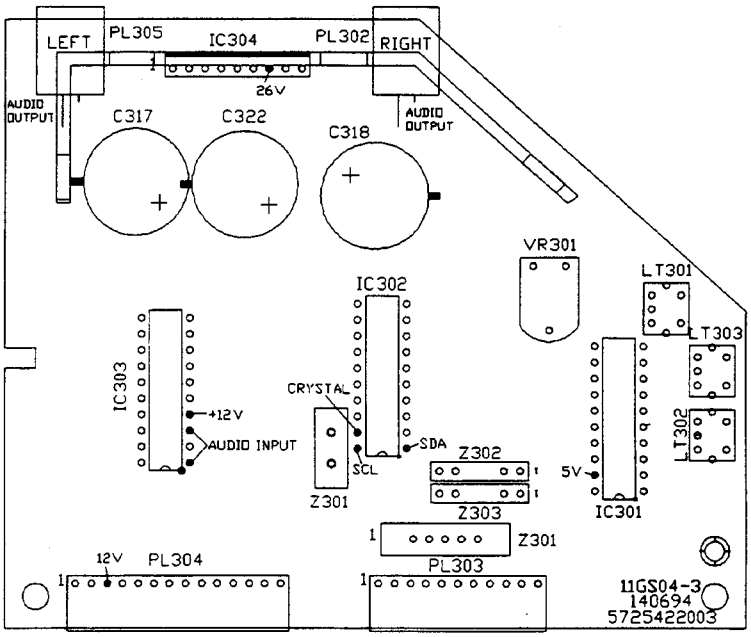
11SS02-2 DOUBLE SCART MODULE



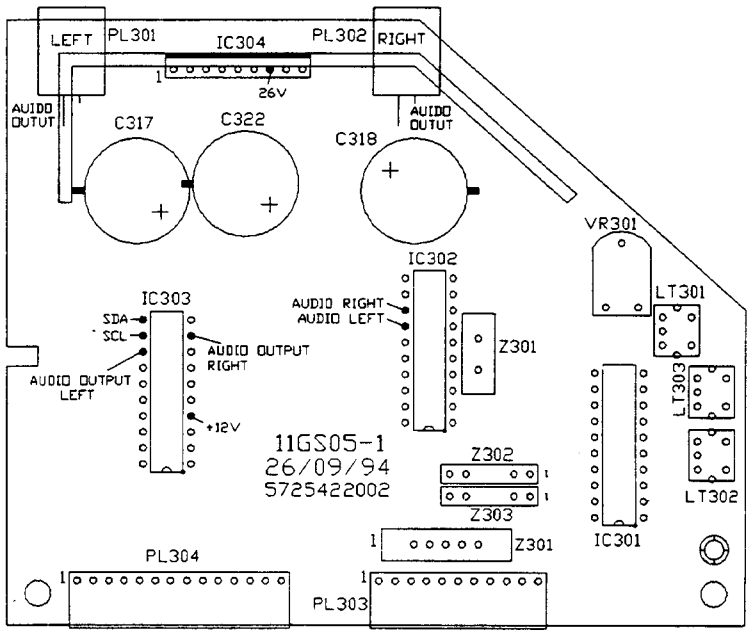
11HP01 HEADPHONE MODULE



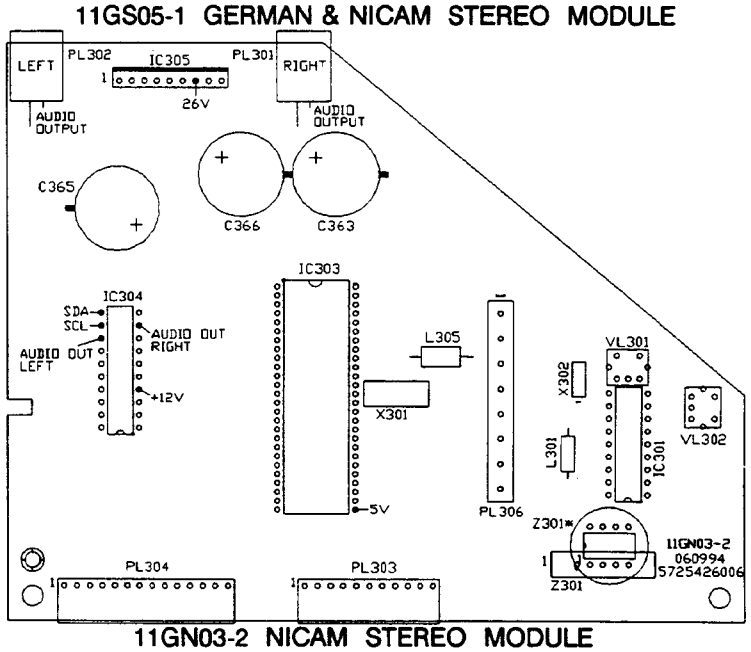
11TK18 TOUCH BOARD MODULE



11GS04-3 GERMAN STEREO SOUND MODULE



11GS05-1 GERMAN & NICAM STEREO MODULE



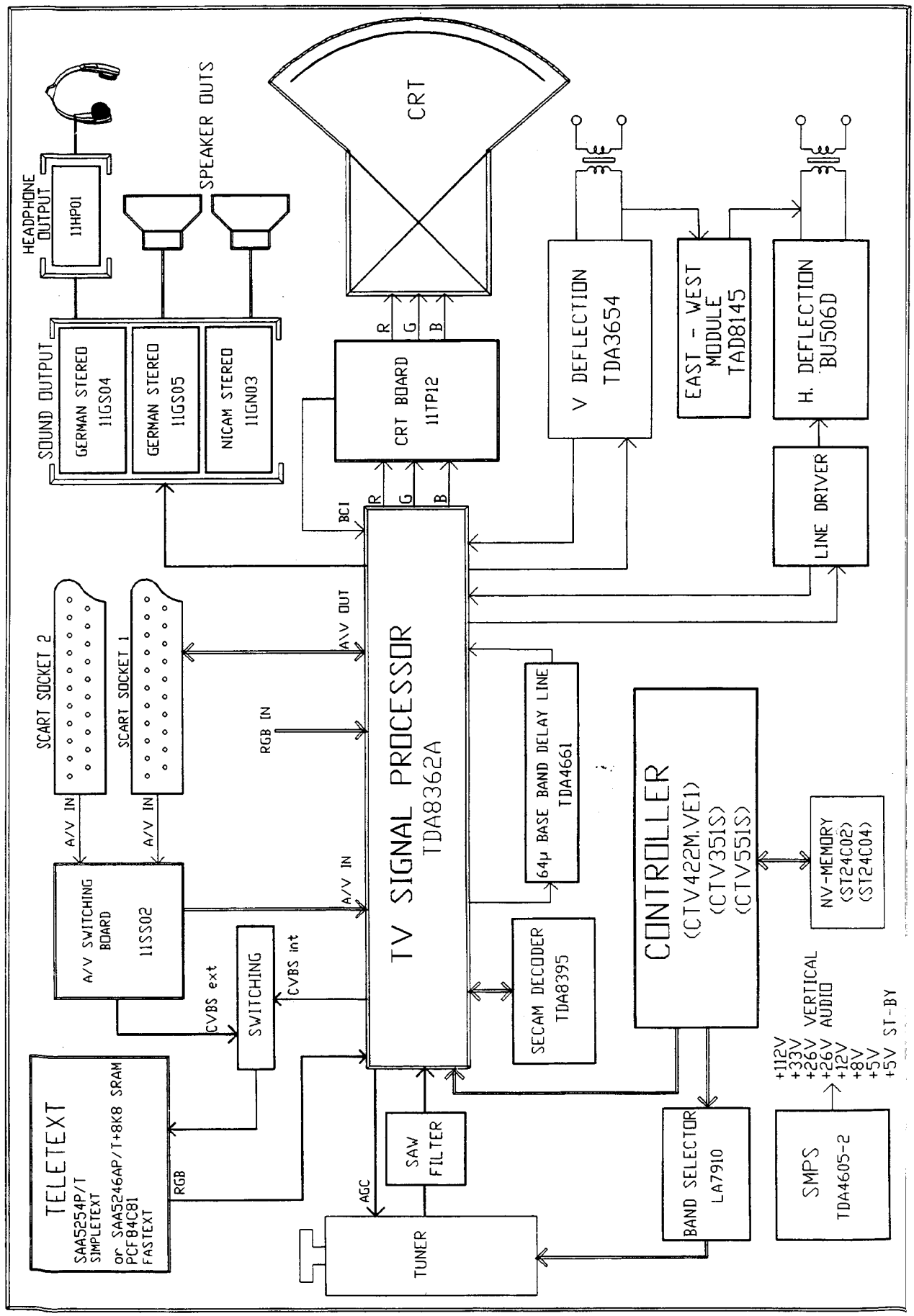
11GN03-2 NICAM STEREO MODULE

MAIN PCB FAULT FINDING GUIDE

AT FIRST CHECK ALL THE SUPPLY VOLTAGES, THEN CHECK FOLLOWING RELEVANT POINTS FOR TROUBLE SHOOTING. TROUBLES SHOULD BE THE SAME AT ALL CHANNELS.

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 SIZE	C603, SYSTEM VOLTAGE (115V)
HORIZONTAL FOLD	SYSTEM VOLTAGE (115V)
FLUE PICTURE	TR602, G3 (FOCUS), EHT, FLAMENT VOLTAGE
DARK PICTURE	TR602 G2 (FOCUS), BRIGNES, CONTRAST VOLTAGE
NOISY PICTURE	AGC VOLTAGE, RF SIGNAL
VERTICAL/HORIZONTAL SYNC.	IC401
INTERFERENCE	TUNER (TU201), Z201
NO SOUND	IC401, (PIN5)
LOW SOUND	IC401 (PIN5, SOUND CONTROL VOLTAGE), R303, IC301
SOUND DISTORTION	IC301, 26V
POP NOISE	Q301, C307
CONTRAST	IC401 (PIN25)
BRIGHTNESS	IC401 (PIN17)
COLOUR	IC401 (PIN26)
AUTO TUNING	Q501
MEMORY	IC502
BAND SELECT	IC503
NO VIDEO AT SCART	SET AV MODE, CHECK IC401 (PIN5 , PIN6)
NO SOUND AT SCART	IC401 (PIN6)
MISSING CHARACTER AT TELETEXT	SIGNAL AT PIN8 OF IC1101
REMOTE CONTROLLER	BATTERY, IR DIODE, CURRENT PATH OF IR DIODE

GENERAL BLOCK DIAGRAM OF CHASSIS 11AK12



IC DESCRIPTIONS AND INTERNAL BLOCK DIAGRAM

MAIN BOARD

SOUND BOARD

TELETEXT BOARD

TDA8362A

MONOLYTHIC INTEGRATED PAL / NTSC TV PROCESSOR

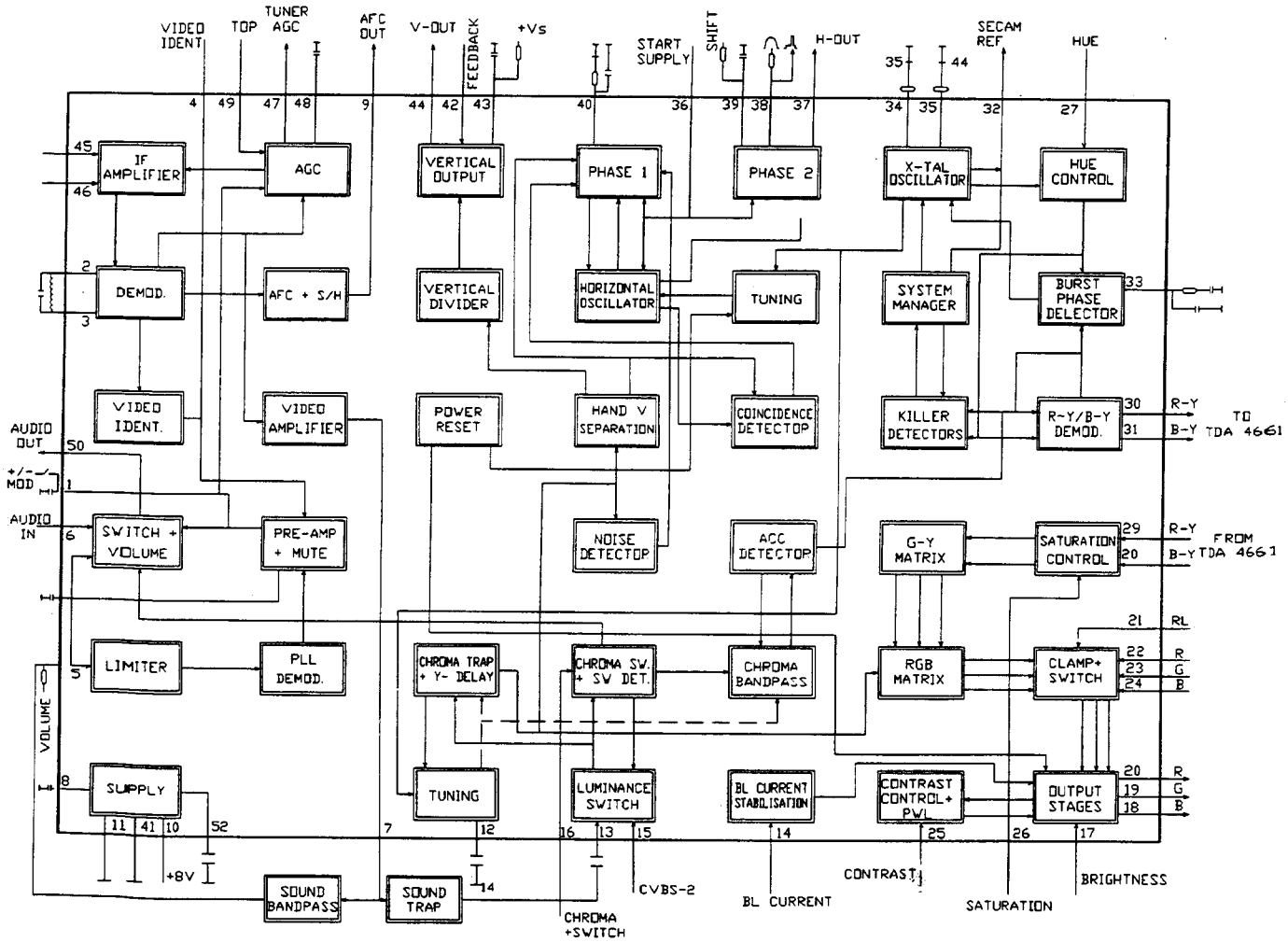
GENERAL DESCRIPTION : The TDA8362A is nearly identical to the TDA8362. The main difference between the 2 devices is that the TDA8362A contains a black-current stabilisation circuit. Because of the required input pin for the black-current stabilisation circuit the luminance peaking function has been omitted in the TDA8362A. All other functions of the 2 IC's are identical.

FEATURES :

- Multi-standard vision IF amplifier suitable for negative and positive modulation.
- Multi-standard FM sound demodulator (4.5MHz to 6.5MHz).
- Source selection for external A/V inputs (seperate Y/C signals can also be applied).
- Integrated chroma trap and bandpass filters (autocalibrated).
- Luminance delay line integrated.
- Alignment-free PAL/NTSC decoder with automatic search system.
- Easy interfacing with the TDA8395 (SECAM decoder) for multi-standard applications.
- RGB-control circuit with linear RGB inputs and fast blanking.
- Black-current stabilisation circuit.
- Horizontal synchronisation with two control loops and alignment-free horizontal oscillator without external components.
- Vertical count-down circuit (50/60Hz) and vertical preamplifier.
- Low dissipation (only 700mW).
- Only one adjustment (vision IF demodulator).

PINNING	PIN VOLTAGE
1- Audio deemphasis and +/- mod. switch	3V
2- IF-demodulator tuned circuit	6V
3- IF-demodulator tuned circuit	6V
4- Video indentification output	5V
5- Sound IF plus volume control	0.5V - 4V
6- External audio input	4V
7- IF video output	3.25V
8- Decoupling digital supply	1.8V
9- AFC output	-
10- Positive supply (8V)	8V
11- Ground	-
12- Decoupling filter tuning	3.25V
13- Internal CVBS input	4.25V
14- Black-current input	4V
15- External CVBS input	3.5V
16- Chroma + A/V switch input	0V (TV) - 8V (AV)
17- Brightness control input	1V - 3.5V
18- B-output	2.5V - 3.5V
19- G-output	2.5V - 3.5V
20- R-output	2.5V - 3.5V
21- RGB-insertion and blanking	-
22- R-input for insertion	3.3V
23- G-input for insertion	3.3V
24- B-input for insertion	3.3V
25- Contrast control input	0V - 3V
26- Saturation control input	0V - 3V
27- Hue control input (or chroma out)	6V
28- B-Y input signal	4V
29- R-Y input signal	4V
30- R-Y output signal	1.5V
31- B-Y output signal	1.5V
32- 4.43MHz output for TDA8395	1.6V (PAL) 4.5V (SECAM)
33- Loop filter burst phase detector	4.5V
34- 3.58MHz X-tal connrection	3V
35- 4.43MHz X-tal connection	2V
36- Start horizontal oscillator	8V

37- Horizontal output ..... : 0.6Vp-p 15.6 KHz
38- Flyback input / sandcastle output ..... : -
39- G2 loop filter ..... : 3V
40- G1 loop filter ..... : 3.75V
41- Ground ..... : -
42- Vertical feedback input ..... : 2.5V
43- Vertical ramp generator ..... : 2.5V
44- Vertical output ..... : 2.5V
45- IF-input ..... : 4V
46- IF-input ..... : 4V
47- Tuner AGC output ..... : -
48- AGC decoupling capacitor ..... : 4V
49- Tuner take-over adjustment ..... : -
50- Audio output ..... : 3.4V
51- Decoupling sound demodulator ..... : 4.5V
52- Decoupling bandgap supply ..... : 6.5V



BLOCK DIAGRAM OF TDA8362A

TDA4661

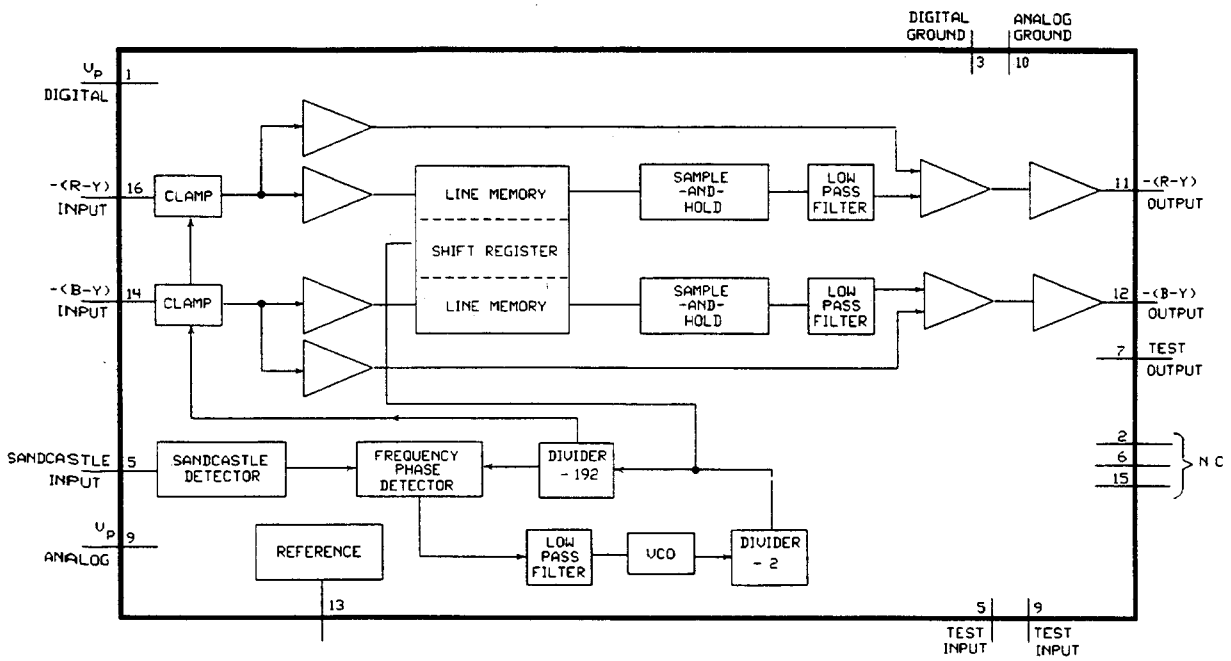
64 micro-second BASEBAND DELAY LINE

GENERAL DESCRIPTION: The TDA4661 is an integrated baseband delay line circuit. It provides a delay of 64μs for the colour difference signals. (R-Y) and (B-Y), in multi-standard TVs.
The colour difference signals are AC-coupled to pins 16 to 14 respectively and clamped at the input stages. The signals are then fed via buffers to the delay line circuit. The delay line circuit is driven by a 3MHz internal clock which enables the circuit to produce the required delay of 64μs.
The outputs from the delay line circuit are fed through sample-and-hold and low-pass filters to suppress the clock signal. The delayed and non-delayed are then added and fed to the output pins, 11 and 12, via buffers.
The internal clock is derived from a 6MHz voltage controlled oscillator (VCO) which is line-locked via a PLL to the sandcastle pulse at pin 5.

FEATURES :

- Two comp filters using the switched-capacitor technique and with delay time of 64μs.
- Generation of a 3MHz internal clock that is line-locked via the sandcastle pulse.

PINNING	PIN VOLTAGE
1- Digital supply voltage	: 5V
2- Not connected	: -
3- Digital ground	: -
4- Test input	: -
5- Sandcastle input	: -
6- Not connected	: -
7- Test input	: -
8- Test input	: -
9- Analog supply voltage	: -
10- Analog ground	: -
11- -(R-Y) output	: 3.25V
12- -(B-Y) output	: 3.25V
13- Reference current	: -
14- -(B-Y) input	: 1.35V
15- Not connected	: -
16- -(R-Y) input	: 1.35V



BLOCK DIAGRAM OF TDA4661

TDA3654

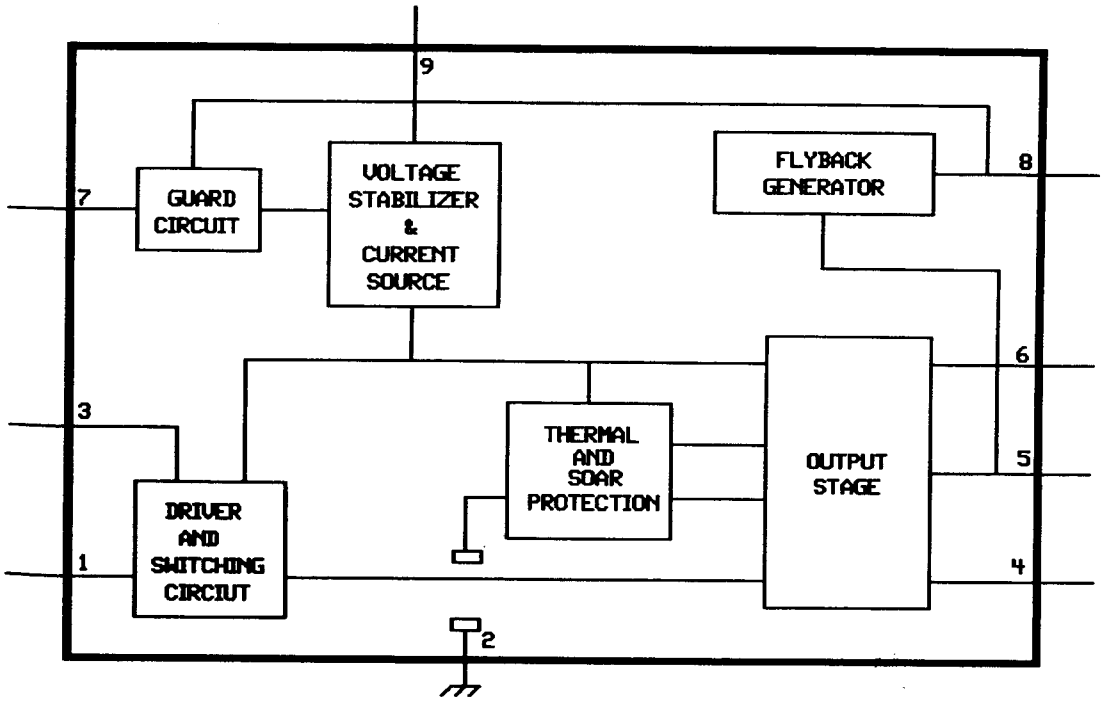
VERTICAL DEFLECTION AND GUARD CIRCUIT (110°)

GENERAL DESCRIPTION: The TDA3654 is a ful performance vertical deflection output circuit for direct drive of the deflection coils and can be used for a wide range 90° and 110° deflection systems. A guard circuit is provided which blanks the picture tube screen in the absence of deflection current.

FEATURES:

- Direct drive to the deflection coils
- 90° and 110° deflection system
- Internal blanking guard circuit
- Internal voltage stabilizer

PINNING	PIN VOLTAGE
1. Output Stage Driver Input	2.2V
2. Ground	-
3. Switching Circuit Input	1.1V
4. Output Stage Ground	-
5. Output Voltage	13V
6. Supply Voltage for the Output Stage	26V
7. DC Voltage produced by the Guard Circuit	5.2V
8. Flyback Generator Output	6V
9. Supply Voltage	26V



BLOCK DIAGRAM OF TDA3654

TDA4605-2

SWITCH MODE POWER SUPPLY CONTROLLER

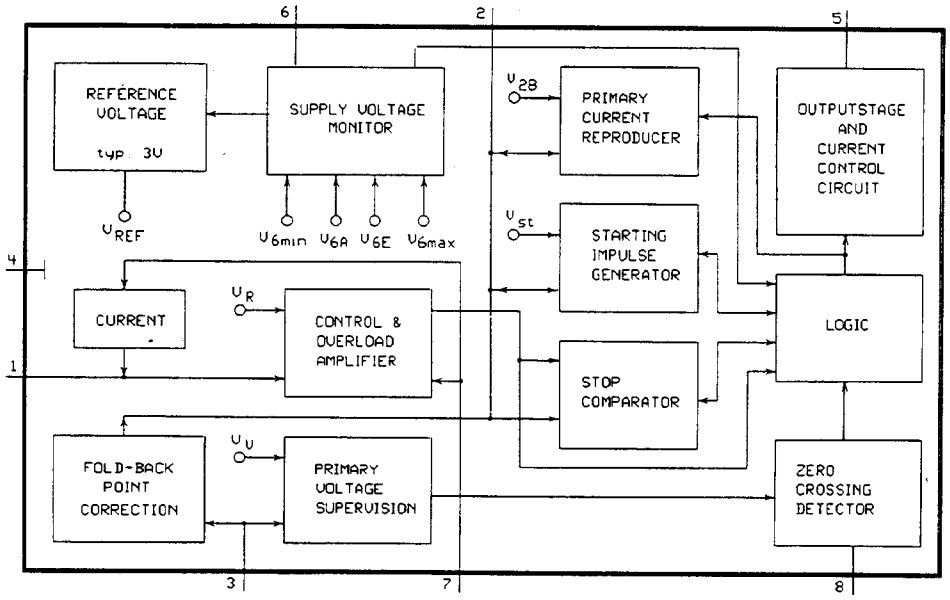
GENERAL DESCRIPTION: The TDA4605-2 is an integrated circuit designeted to regulate and control the power mosfet of a a switching power supply. Because of its wide operational range and high voltage stability even at high load changes, this IC can be used not only in TV receivers and video recorders but also in power supplies. HI-FI set and active speakers.

FEATURES:

- Fold-back characteristics provides overload protection for external components.
- Burst operation under secondary short-circuit condition implemented.
- Protection against open or a short of the control loop.
- Switch-off line voltage is too low (undervoltage switch-off).
- Line voltage depending compensation of foldback point.
- Soft-start for quite start-up without noise generated by the trasformer.
- Chip over-temperature protection (thermal shutdown).
- On-chip ringing suppression circuit against parasitic oscillations of the transformer.

PINNING

	PIN VOLTAGE ST-BY	NORM.
1. Information Input Concerning Secondary Voltage	0.4	0.4
2. Information Input Regarding the Primary Current	1	1.2
3. Input for Primary Voltage Monitor	2.1	2
4. Ground	0	0
5. Output	0.8	8
6. Supply voltage Input	12	12.8
7. Input for Soft-Start and Integrator Circuit	1.	1.9
8. Input for the Feedback of the Oscillatore	0.3	0.4



BLOCK DIAGRAM OF TDA4605-2

ST24C02

2K CMOS Serial Electrically Erasable PROM

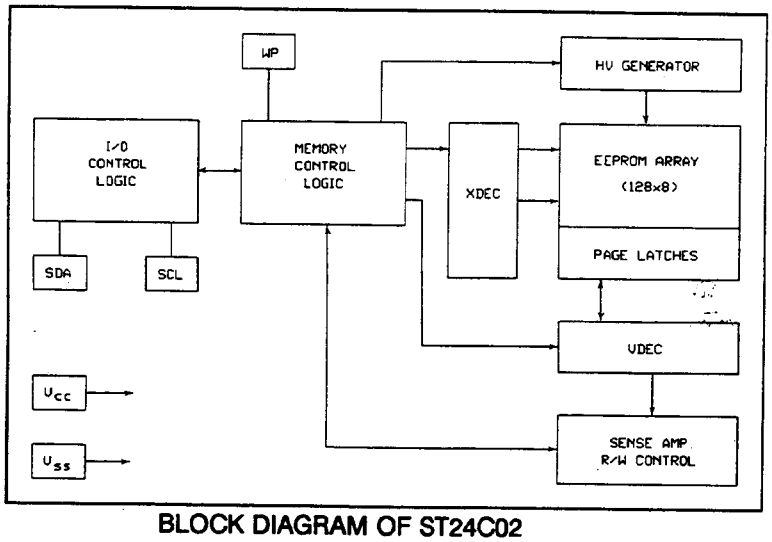
GENERAL DESCRIPTION: The 24LC02B is 2K bit Electrically Erasable PROM. The device is organized as a single block of 128x8-bit or 256x3-bit memory with a two wire serial interface. Low voltage design permits operation down to 2.5 volts with a standby and active currents of only 5mA and 1mA respectively. The 24LC02B also has page-write capability for up to 8 bytes of data.

FEATURES :

- Single supply with operation down to 2.5 Volts
- Low power CMOS technology
  - 1mA active current typical
  - 10mA standby current typical at 5.5V
  - 5mA standby current typical at 3.0V
- Organized as a single block of 128 bytes (128x8) or 256 bytes (256x8)
- Two wire serial interface bus
- 100KHz and 400KHz compatibllity
- Self-timed write cycle (including auto-erase)
- Page-write buffer for up to 8 bytes
- 2μs typical write cycle time for page-write
- Hardware write protect for entire memory
- Can be operated as a serial ROM
- Factory programming (OTP) available
- ESD protection > 4.000V
- 1.000.000 ERASE/WRITE cycles (typical)
- Data retention > 40 years
- 8-pin DIP or SOIC package
- Available for extended temperature ranges
  - Commercial : 0'C to + 70'C
  - Industrial : -40'C to + 85'C

PINNING — PIN VOLTAGE

1. 90 Program ..... : 5V
2. No Connection ..... : 0V
3. No Connection ..... : 0V
4. Ground ..... : 0V
5. Serial Address/Data I/O ..... : 5V
6. Serial Clock ..... : 5V
7. Write protect input ..... : 5V
8. +2,5V to 5.5V Power supply ..... : 5V



BLOCK DIAGRAM OF ST24C02

ST24C04

4K-Bit Serial E^2PROM

GENERAL DESCRIPTION:

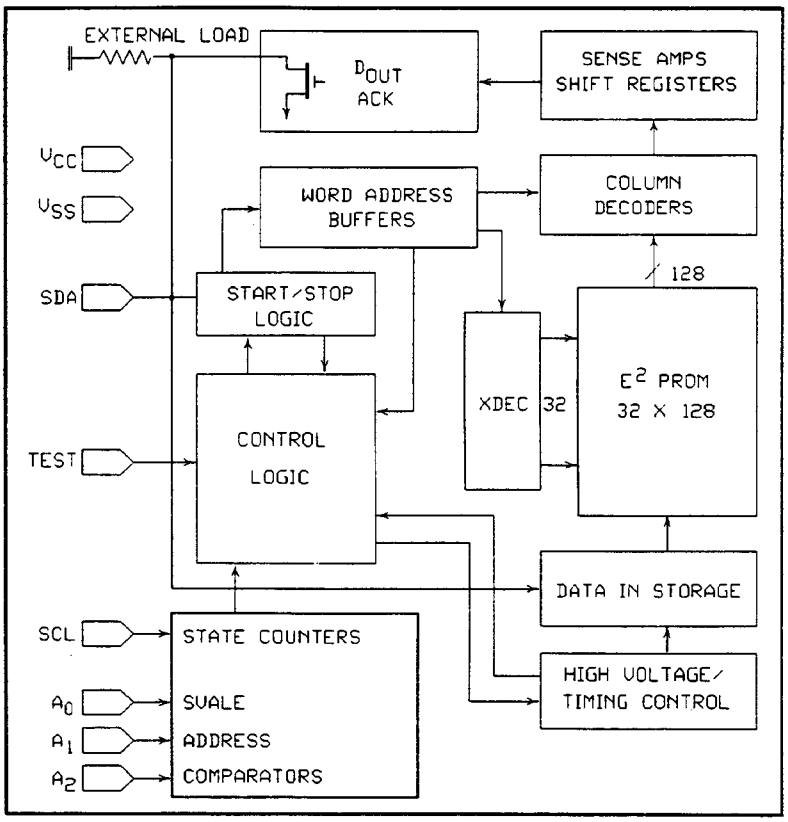
The CAT24C04/CAT24C04I is a 4K bit Serial CMOS E^2PROM internally organized as 512x8 bits. Catalyst's advanced CMOS tecnology substantially reduces device power requirements. The CAT24C04/CAT24C04I features a 16 byte page write buffer. The device operates via the I^2C bus serial interface and is available in 8 pin DIP, 8 pin SO and 14 pin SO packages.

FEATURES :

- I^2C bus compatible
- Low power CMOS technology
- 16 byte page write buffer
- Self-Timed Write Cycle with Auto-Clear
- 100.000 Program/Erase Cycles
- 100 year data retention
- 8 pin DIP, 8 pin SO or 14 pin SO package
- Optional High Endurance Device Available

PINNING — PIN VOLTAGE

1- Devive address input ..... : 5V
2- Device address input ..... : 5V
3- Device address input ..... : 5V
4- Ground ..... : -
5- Serial data / Address ..... : 5V
6- Serial clock ..... : 5V
7- Connect to TEST ..... : -
8- +5V power supply ..... : 5V



BLOCK DIAGRAN OF ST24C04

FCB61C65

8K x 8 FAST CMOS LOW - POWER STATIC RAM

GENERAL DESCRIPTION: The FCB61C65 is a 65536-bit fast, low-power, static random access memory organized as 8192 words of 8 bits each. The chip enable inputs CE1 and CE2 are available for memory expansion and to control the low-power / stand-by mode. The device operates from a 5 V power supply and has an access time of 55 ns and 70 ns. The FCB61C65 is ideally suited for memory applications where fast access time, low power and ease of use are required. The FCB61C65 is a CMOS device which uses a 6 transistor memory cell.

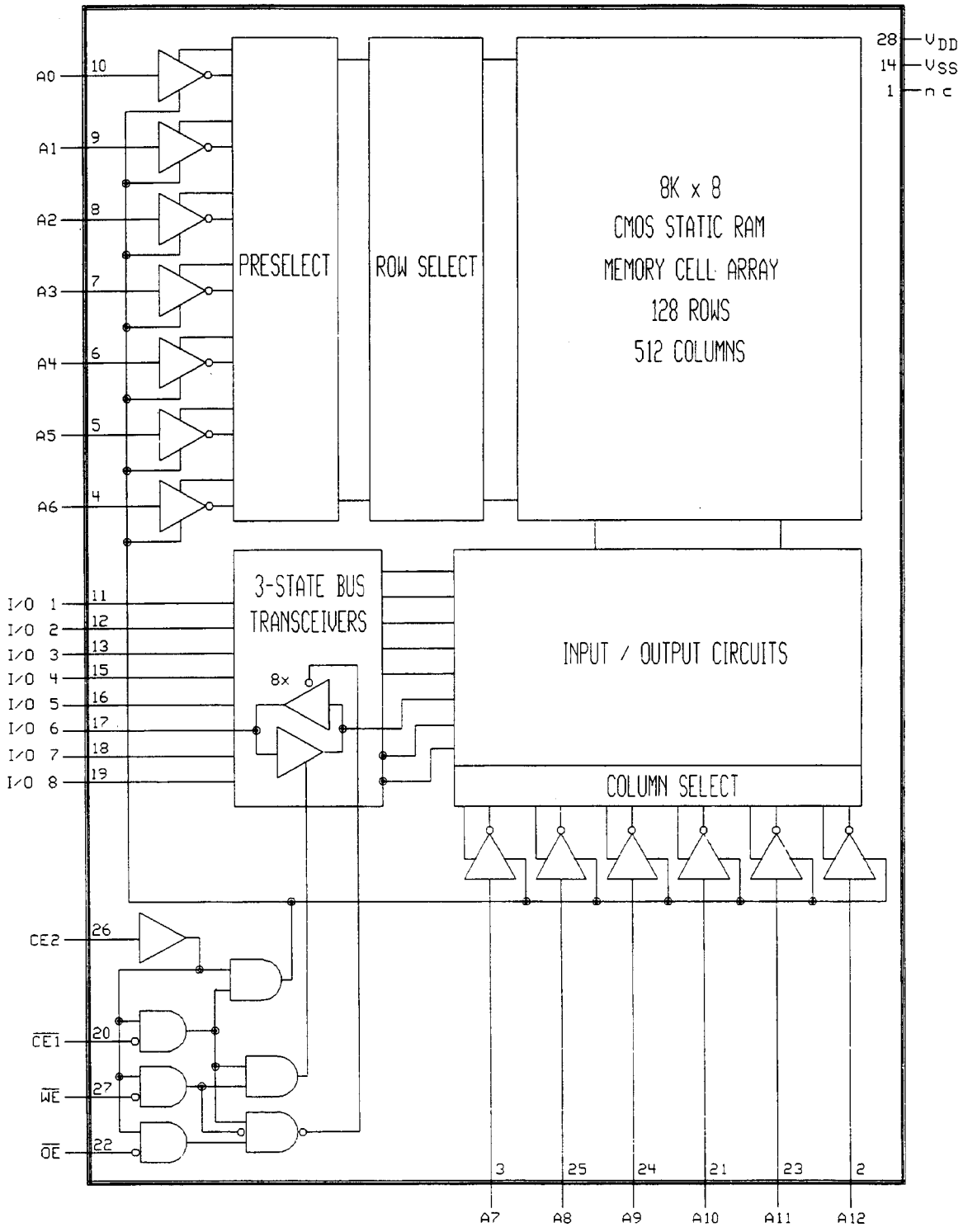
FEATURES:

- Operating supply voltage
- Inputs and outputs ESD protected
- Automatic power-down after a completed read access
- Access time: 55 ns and 70 ns
- Low current consumption:
- Suitable for battery back-up
- Latched data outputs giving stable data between consecutive accesses
- Easy memory expansion
- Common data I/O interface
- All inputs and outputs TTL and CMOS compatible
- All inputs have a Schmitt trigger switching action
- Three-state outputs
- Operating temperature 0 °C to +70 °C

PINNING

PIN VOLTAGE

1. Not Connected: -
2. Address Input A12: -
3. Address Input A7: -
4. Address Input A6: -
5. Address Input A5: -
6. Address Input A4: -
7. Address Input A3: -
8. Address Input A2: -
9. Address Input A1: -
10. Address Input A0: -
11. Data I/O 1: -
12. Data I/O 2: -
13. Data I/O 3: -
14. Ground: -
15. Data I/O 4: -
16. Data I/O 5: -
17. Data I/O 6: -
18. Data I/O 7: -
19. Data I/O 8: -
20. Chip Enable 1 (CE1): -
21. Address Input 10: -
22. Output Enable (OE): -
23. Address Input A11:
24. Address Input A9: -
25. Adress Input A8: -
26. Chip Enable 2 (CE2): -
27. Write Enable (WE): -
28. +5V Supply: -



BLOCK DIAGRAM OF PCB61C65

PCA84C841

MICROCONTROLLERS FOR CTV 351S

GENERAL DESCRIPTION: CTV351S is a low cost television receiver control system, based on the PCA84C841 microcontroller. It is a voltage synthesis tuning (VST) system with on-screen-display (OSD) of all relevant control function. Analogue picture settings are controled by 4 on-clip digital to analogue convertors. Sound volume can be controlled by the fifty on-chip digital to analogue convertor in a mono-only system. Full sound (Volume, Bass, Trable, Balance) can be controlled via the I^2C-bus in a German Stereo and/or Nicam configuration, using a Hi-Fi sound audio processor.
CTV351S can control up to two SCART plugs and an S-VHS plug.
The system is colour standard independent and can be used all over the world. It can select 3 system (PAL, SECAM and NTSC) and has additional options for sound systemsn.
The system fulfils numerous and varied requirements and has options to make it applicable to all markers.
The PCA84C841 is a member of the MAB8400/PCF84C00 microcontroller family. It is a one-chip microcontroller with an 8-bit CPU, 8K ROM, 192 bytes RAM, 8-bit timer/event counter and single level, 3-source interrupt structure. It is mounted in a 42 pin shrunk DIL package. Manufactured in CMOS technology and operating from a single supply voltage between 3.5V and 5.5V, it runs at a oscillation frequencies up to 10MHz and contains about 80 single and double byte and cycle instruction. Up to 17 general purpose bidiractional I/O lines and 11 I/O lines with a combained function are available. One 8-bit I/O port can sink up to 10mA and can therefore be used to drive directly a LED display.

FEATURES :

TUNING;

- Voltage synthesis tuning system via 14 bits digital to analogue convertor.
- Automatic search tuning based on analogue AFC signal and on IDENT (Video recognition) signal.
- Tuning in up to 4 different bands.
- Manual search tuning.
- Direct program number entry.
- One and two program number entry.
- Step program up and down.
- Last-tuned programme registration and swap function.
- Silent tuning.
- Dark program switching.
- Automatic following per program.

CONTROL;

- Up to 28 local control commands.
- Remote control according the RC-5 world standart.

DISPLAY;

Off-screen LED display of stand-by mode.

On-screen display of :

- Menu operations.
- Remote control command reception.
- Selected source (Programme, AV-1, AV-2, GRB, AV-S).
- Selected sound mode (MONO, DUAL-I, DUAL-II, STEREO).
- One or two digit programme number entry. (-/--).
- Selected tuner band VHF-1, VHF-3, UHF and VHF-Hyper.
- Selected system (SYS-1, SYS-2).
- Analogue tuning bar in search mode.
- Store and clear programme mode.
- Sound mute.
- Analogue control; recall, store and clear preferred settings.
- Analogue control of; volume, brightness, coluor, contrast, hue, balance, trable, bass.
- Analogue control status bars.
- Selected sleep timer.

SOUND ;

- Volume control.
- Optional balance, treble and bass control.
- Mute control function.
- Automatic sound muting during tuning.
- Automatic sound muting during program switching.
- Optional German Stereo sound decoding.
- Optional Nicam Sound decoding

VIDEO ;

- Control of brightness, colour, contrast and hue in 64 steps (8 steps/second).
- System standart control of two different standards.
- Additional three button control possibility for all analogue colour and sound controls.

PERI-TV ;

- Peripheral Tv plug signal switching. Two SCART plugs and S-VHS plugs are supported. Up to four peri sources can be selected (CVBS on SCART-1, RGB on SCART-1, CVBS on SCART-II and S-VHS). For all peri sources full sound switching is optionally available.
  Automatic switching to CVBS on SCART-I. Any source (Peripheral or front-end) except CVBS on SCART-I can be overruled by auto cvbs switching.

MEMORY ;

- Storage of 40 or 90 preferred programmes.
- Storage of 14 bit tuning DAC value, band select, system standard, dual language preference and automatic following enable control bits for each programme.
- Storage of preferred analogue picture and sound control settings.
- Storage of system standard and sound mode selection for for peripheral audio/video sources.

OPTIONS ;

- Theree band, four band or UHF-only tuner.
- Different tuner and AFC characteristics.
- Peripheral audio/video TV plug control.
- System control.
- German Stereo and/or Nicam or mono-only sound control.
- 40 or 90 pre-programmed preferred channels. (128 or 256 bytes of NV-memory).
- One page, four page or high performance teletext.
- OSD text or symbolds with or without background.
- Remote fine tuning.
- Analogue control of hue.
- Remote control commands search, store, fine tuning and system standard select anabled or disabled.

POWER-ON ;

- Main switch sense input to check whether TV has to be switched-on or to standby mode.
- The program provides a fixed delay of 1.2 seconds and screen blanking about 100msec to allow the switch-mode power-supply to stabilize.
- After power-on reset of the microcontroller and first time switching-on of the set, the system tunes to the first available valid programme and recalls analogue picture and sound control presets from non-volatile memory. If all programmes are "cleared" the programme number is forced to 1 anyway.

STANDBY ;

- Standby command.
- Sleep timer expiration after 15, 30, 45, ... up to 120 minutes.
- Automatic switching to standby mode when the system is in front-end mode and during the last 5 munites no valid input signal is received or no valid remote or local control command is detected.
- Switching on witout the third momentary contact on the mains switch.

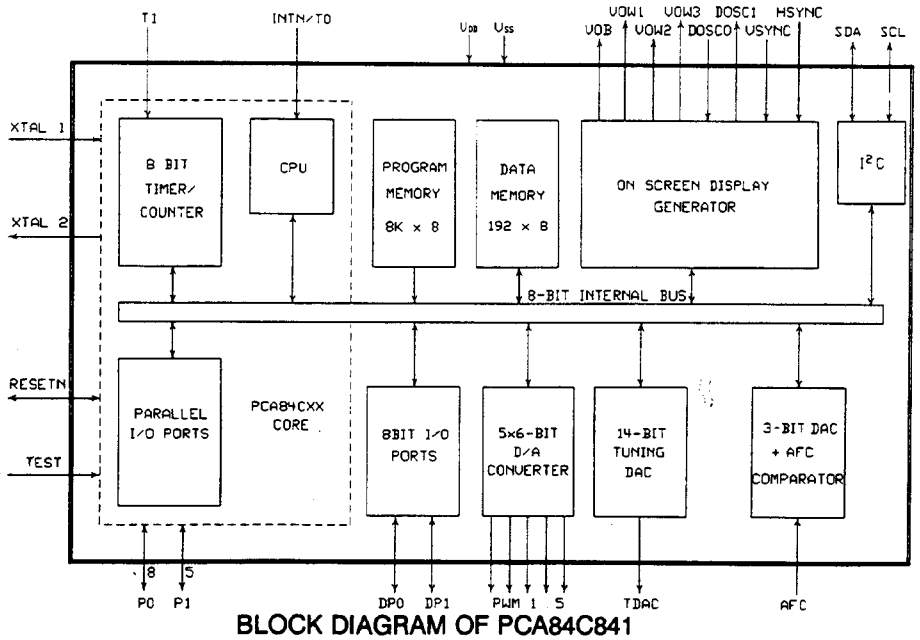
PRODUCTION SERVICE MODE :

- CTV351S is equipped with a special Production Servive Mode, in order to prevent the set from switching of after 5 minutes if no IDENT is present. This mode is veryuseful during factory burn-in trsts..

TELETEXT (These functions only for CTV351S) :

- Either: a single page teletext control system by means of SAA5254. All normal teletext function are available. A special signal for de-interlace purposes is available on the odd/even output of the SAA5244.
- Or : a 4 page teletext control system with SAA5246 and an 8k8 SRAM. All normal teletext functions are available. A special signal for de-interlalce purposes is available on the odd/even pin of the SAA5246.
- Or : Control of additional special teletext features like FASTEXT, TOP, LIST, packet X/26 (for Spain and Eastern Europe), using a second microcontroller containing a teletext software package CTV97xS or CTV99xS.

PINNING	PIN VOLTAGE
1- Tuning voltage control output	: 5V(Front of band) 0V (End of band)
2- Volume control output	: 0 - 5V
3- Brightness control output	: 0 - 5V
4- Colour control output	: 0 - 5V
5- Contrast or hue control output	: 0 - 5V
6- Tone, balance or hue control output	: -
7- Band-switch 0 output	: -
8- Band-switch 1 output	: -
9- Analogue AFC sense input	: 2-4V
10- AV status input	: -
11- External source select output	: -
12- FE/AV select output	: 5V (TV) - 0V (AV)
13- Keyboard scan line input/output	: -
14- Keyboard scan line input/output	: -
15- Keyboard scan line input/output	: -
16- Keyboard scan line input/output	: -
17- Keyboard scan line input/output	: -
18- Keyboard scan line input/output	: -
19- Keyboard scan line input/output	: -
20- System mode strobe output	: 5V
21- Ground supply input	: -
22- OSD red output	: -
23- OSD green output	: -
24- OSD blue output	: -
25- OSD fast blanking output	: -
26- Horizontal synchronization input	: -
27- Vertical synchronization input	: -
28- LC oscillator input for OSD	: 5V
29- LS oscillator output for OSD	: 5V
30- Test input; connected to ground	: -
31- Oscillator input; 10MHz crystal	: -
32- Oscillator output	: 2V
33- Power-on reset input/output	: 5V
34- Horizontal coincidence input	: 4.5V
35- RC-5 remote control input	: 4V
36- External source select output	: -
37- System select output	: -
38- System select output	: -
39- I^2C-bus clock signal output	: 5V
40- I^2C-bus data signal output	: 5V
41- Standby/On control input/output	: 0V (ST-BY) - 5V (OPEN)
42- +5V supply voltage input	: 5V



BLOCK DIAGRAM OF PCA84C841

P83C055

MICROCONTROLLERS FOR CTV 551S VE1

The P83C055 is a derivative of Philips' industry-standard 80C51 microcontroller that is intended for use as the central control mechanism in a television receiver or tuner. The OTP-type is P87C055. It is a one-chip microcontroller with an 8-bit CPU, 16K ROM, 256 bytes RAM and two 8-bit timer/event counters. It is mounted in a 42 pin shrung DIP package. Manufactured in CMOS technology and operating from a single supply voltage between 4.5V and 5.5V, it rung at a 12MHz oscillation frequency and contains about 80 single and double byte and cycle instructions. Up to 15 general purpose bidirectional I/O lines and 9 I/O lines with a combined function are available. One 8-bit I/O port can sink up to 10mA and can therefore be be used to drive directly a LED display.
The circuit contains an external interrupt input which can be used to decode the serial remote control data. The internal 14-bit timer is used as a timing reference for the remote control decoding, scanning of the local keyboard and general system timing in general.

FEATURES :

TUNING;

- Voltage synthesis tuning system via a 14 bit digital to analog converter
- Automatic search tuning up and down based on analog AFC singnal and on IDENT (video recognition) signal
- Tuning in up to 4 different bands
- Manual search tuning
- Direct program number entry
- One and two digits program number entry
- Step program up and down
- Last-tuned program registration and swap function
- Silent tuning
- Dark program switching
- Program lock and TV lock with three digits password
- Automatic following per program

CONTROL ;

- Up to 28 local control commands
- Remote control according to the RC-5 world standard
- Menu controlled User Interface

DISPLAY ;

Off-screen LED display of Standby mode.
On screen display of (OSD) :

- Menu operations
- Remote control command reception
- Two digit program number entry
- Selected tuner band VHF-1, VHF-3, and UHF-Hyper
- Analog tuning bar in search mode
- Selected source (Program, AV-1, AV-2, RGB, AV-S)
- Store program mode
- Selected sound mode (MONO, DUAL-I, DUAL-II, STEREO)
- Selected colour standard mode
- Sound mute
- Selected sleep timer
- No ident timer
- Locked program status
- Message up to 30 charracters
- Analog control; recall and store preferred settings
- Analog control mod : Brightness, colour, contrast hue, volume, balance, treble and bass
- Decimal analog control value and status bar for every selected analog control

SOUND ;
- Volume control in 64 steps (8 steps/second)
- Optional balance, treble and bass control
- Mute control function
- Automatic sound muting during tuning
- Automatic sound muting during program switching
- Automatic sound recall for first 40 programs and external sources
- Optional German Stereo sound decoding
- Optional Nicam sound decoding

VIDEO ;
- Control of brightness, colour contrast and hue in 64 steps (8 steps/second)
- Colour standard control of two different standards

PERI-TV ;
- Peripheral TV plug signal switching. Two SCART plugs and S-VHS plug are supported. Up to four peri sources can be selected (CVBS on SCART-I, CVBS on SCART-II, RGB on SCART-I and S-VHS). For all peri sources full sound switching is optionally available. Automatic switching to CVBS on SCART-I. Any source (peripheral or front-end) except CVBS on SCART-I can be overruled by auto cvbs switching.

MEMORY ;
- Storage of 100 preferred programs
- Storage of 14 bit tuning DAC value, band select, system standard, dual language preference and following enable control bits for each program
- Storage of preferred analog picture and sound control settings
- Storage of preferred volume value only for first 40 programs (programs 0....39) and external sources

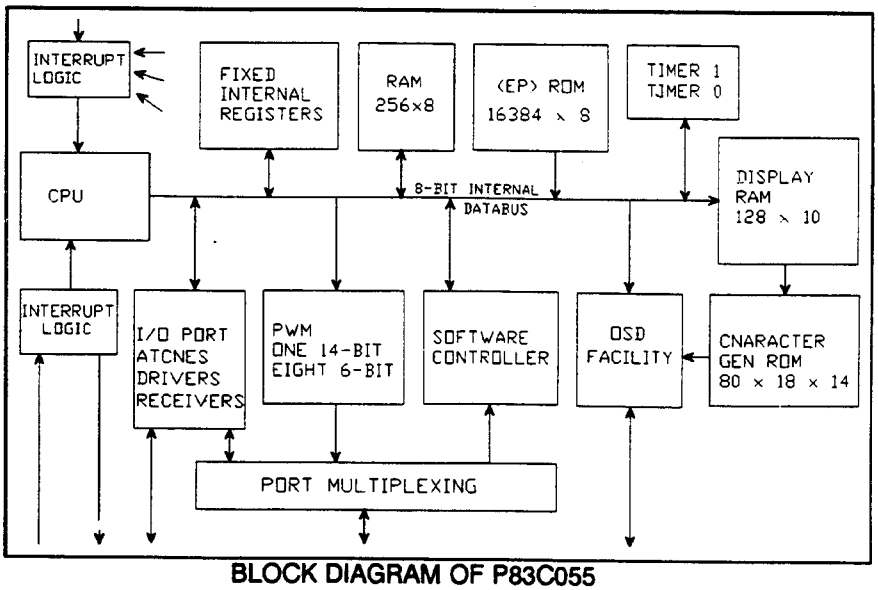
OPTIONS ;
- Three-band, four-band or UHF-only tuner
- Different tuner and AFC characteristics
- Peripheral audio/video TV plug control
- System control
- German stereo and/or Nicam or mono-only sound control
- Four or three language selection for OSD
- One page or four page teletext
- Analog control of hue

POWER ON ;
- The program provides a fixed delay of 1.2 seconds and screen blanking of about 100msec to allow the switch-mode power supply to stabilize.
- After power-on reset of the microcontroller and first time switching-on of the set, system tunes to program 1 and recalls analog picture and sound control presets from non-valatile memory.

STAND-BY ;
- Sleep timer selection of 15, 30, 45, ..., up to 120 minutes.
- Automatic switching to standby mode when the system is in front-end mode and during the last 5 minutes no valid input signal is received or no valid remote or local control command is detected. (All complete received commands with system address 0, TV commands will restart the 5 minute timer. All these commands will also result in an OSD message).

TELETEXT :
The following teletext options are possible :
- A single page teletext control system with SAA5254.
- A 4-page teletext control system with SAA5246AP/T and an 8K8 SRAM.
- A 4-page teletext control system with SAA5281.
- Control of the special teletext feature TOP / FASTEXT using a second microcontroller containing new software package CTV988S and teletext decoder SAA5281.

PINNING	PIN VOLTAGE
1- Tuning voltage control output	: 5V (Front of band) - 0V (End of band)
2- Volume control output	: 0 - 5V
3- Brightness control output	: 0 - 5V
4- Colour control output	: 0 - 5V
5- Contrast control output	: 0 - 5V
6- Tone, balance or hue control output	: -
7- Band-switch 0 output	: -
8- Band-switch 1 output	: -
9- Analogue AFC sense input	: 5V
10- SECAM-L switch output	: -
11- AV status input	: -
12- Ext./int audio/video source control output	: 5V (TV) - 0V (AV)
13- Keyboard scan line input/output	: -
14- Keyboard scan line input/output	: -
15- Keyboard scan line input/output	: -
16- Keyboard scan line input/output	: -
17- Keyboard scan line input/output	: -
18- Keyboard scan line input/output	: -
19- Keyboard scan line input/output	: -
20- System mode input	: 5V
21- Ground supply input	: -
22- OSD red output	: -
23- OSD green output	: -
24- OSD blue output	: -
25- OSD fast blanking output	: -
26- Horizontal synchronization input	: 0
27- Vertical synchronization input	: -
28- Connection to LC oscillator of DOS clock	: 5V
29- Connection to LC oscillator of DOS clock	: 5V
30- OSD back/fore-ground pixel selection	: -
31- Oscillator input; 12MHz chrystal	: -
32- Oscillator output	: -
33- Power-on reset input/output	: 2V
34- Horizontal coincidence input	: 5V
35- RC-5 Remote control input	: 4V
36- External source select output (EXT-2)	: -
37- External source select output (EXT-1)	: -
37- System select output	: -
39- I^2C-bus clock signal output	: 5V
40- I^2C-bus data signal output	: 5V
41- Standby-/on control input/output	: 0V (ST-BY) - 5V (AIK)
42- +5V supply voltage input	: 5V



BLOCK DIAGRAM OF P83C055

LA7910

TV TUNER BAND SELECTOR

GENERAL DESCRIPTION: The LA7910 is an IC for tuner band selection of electronic tuning type television set. This IC is used for producing the VHF channel "L" band power supply, VHF channel "H" band power supply, UHF channel power supply for tuner and the CAPT power supply according to the band select signal of 2 inputs.

FUNCTIONS :

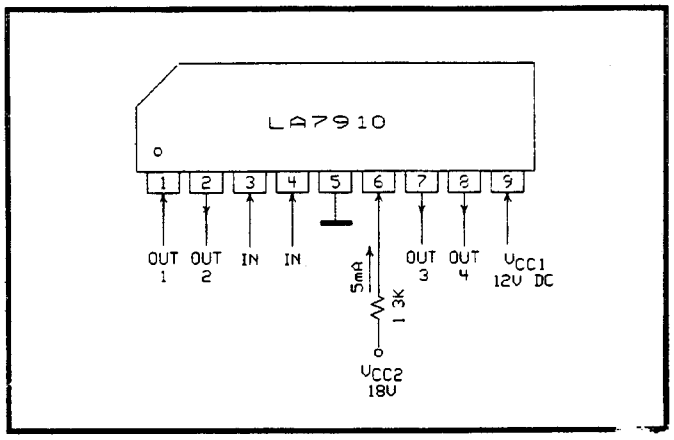
- VHF "L" band power supply output
- VHF "H" band power supply output
- UHF power supply output
- CATV power supply output

FEATURES

- 2 inputs and 4 outputs
- Low output saturation voltage : 0.25V typ., $I_O = 60mA$
- Compact 9-pin single-end package

PINNING

	PIN VOLTAGE			
	WHF-L	VHF-H	UHF	CATV
1- Output :	12	0	0	0
2- Output :	0	12	0	0
3- Input :	0	1	0	0
4- Input :	0	0	1	1
5- Ground :	-	-	-	-
6- Supply voltage (18V) :	13.5	13.5	13.5	13.5
7- Output :	0	0	12	0
8- Output :	0	0	0	12
9- Supply voltage (12V DC) :	12	12	12	12



BLOCK DIAGRAM OF LA7910

TDA8145

TV EAST/WEST CORRECTION CIRCUIT FOR SQUARE TUBES

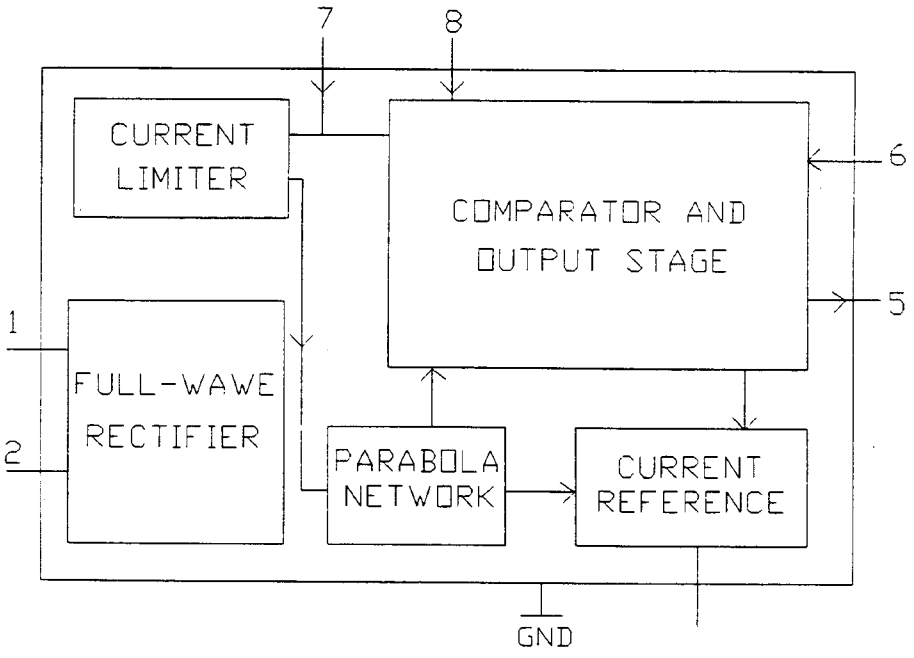
GENERAL DESCRIPTION: The TDA8145 is a monolithic integrated circuit in a 8-pin minidip plastic package designet for use in the square CTR east-west, pincushion correction by driving a diode modulator in TV and monitor applications.

FEATURES :

- Low dissipation
- Square generator for parabolic current specially designed for square CRT correction
- External keystone adjustment (symmetry of the parabola)
- Input for dynamic field correction (beam current change)
- Static pictura width adjustment
- Pulse - Width modulator
- Final stage D-class with energy redelivery
- Plastic parabola suppression, during flyback time of the sawtooth

PINNING **PIN VOLTAGE**

1. Keystone correction input .....:
2. Frame sawtooth current input .....:
3. Current reference .....:
4. Ground .....:
5. Output .....:
6. +Vs .....:
7. Parabola output inverting input .....:
8. Non - inverting input 100μA current sink .....:



BLOCK DIAGRAM OF TDA8145

TDA8395

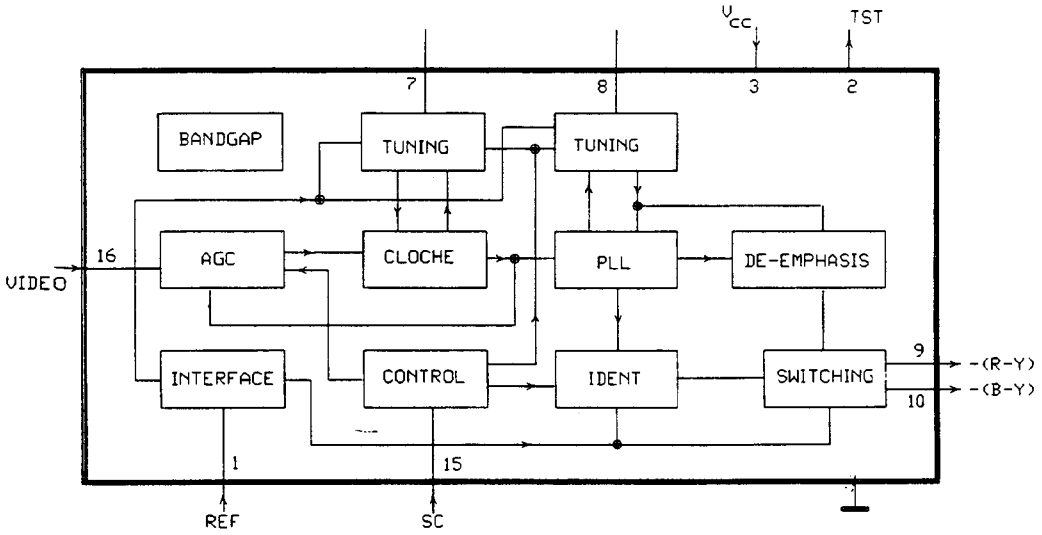
SECAM DECODER

GENERAL DESCRIPTION: The TDA8395 is a self-calibrating, fully integrated SECAM decoder. It should preferably be applicated in combination with the PAL/NTSC decoder TDA8362 or TDA8366 and with the switched capacitor baseband delay TDA4661. It includes HF- and HF-filters, demodulator and identification. Luminance is not processed in this circuit. It needs no adjustments and very few external components. It needs very highly accurate reference frequency for calibration and a two-level sand-castle for blanking and burstgating.

FEATURES :

- Fully integrated filters
- Alignment free
- For use with baseband delay

PINNING	PIN VOLTAGE
1- Frequency referance	: 1.6V (PAL) 4.5V (SECAM)
2- TEST	: -
3- Supply Voltage	: 8V
4- NC.	: -
5- NC.	: -
6- Ground	: -
7- Cloche Reference	: 3.25V
8- PLL Referance	: 4.25V
9- Colour Difference Signal (R-Y)	: 1.5V
10- Colour Difference Signal (B-Y)	: 1.5V
11- NC.	: -
12- NC.	: -
13- NC.	: -
14- NC.	: -
15- Sandcastle	: -
16- Video input	: 5.5V



BLOCK DIAGRAM OF TDA8395

TDA1521A

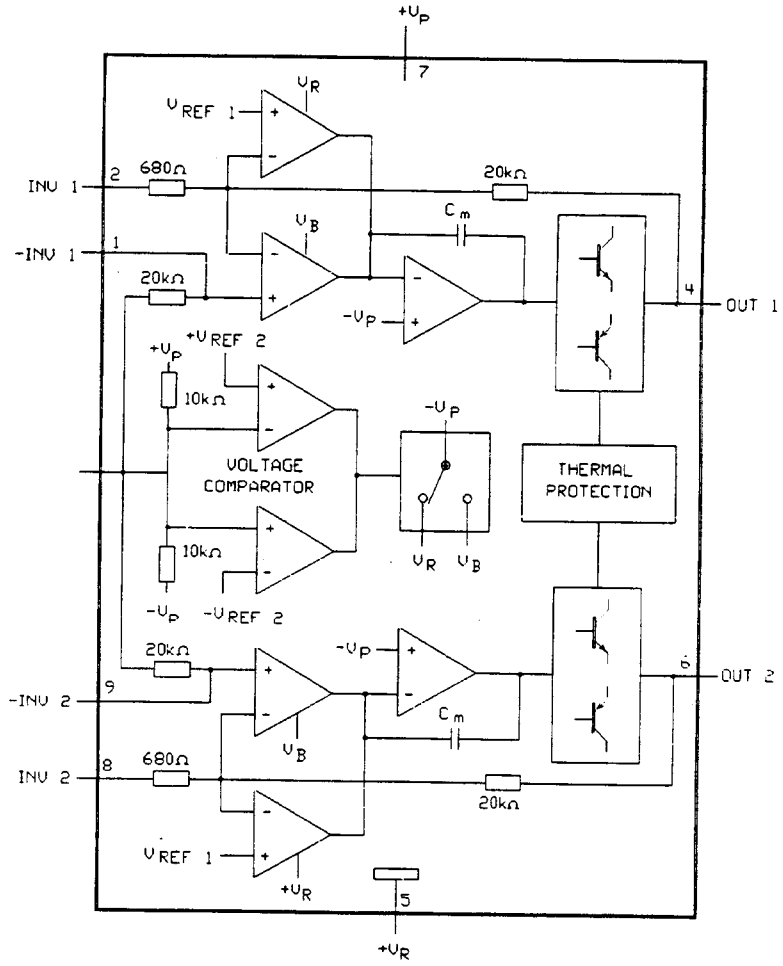
2 X 6W HI-FI AUDIO POWER AMPLIFIER

GENERAL DESCRIPTION: The TDA1521A is dual hi-fi audio power amplifier encapsulated in a 9-lead plastic power package. The device is especially designed for mains fed applications.

FEATURES :

- Requires very few external components
- Input muted during power-on and off (no switch-on or switch-off clicks)
- Low offset voltage between output and ground
- Excellent gain balance between channels
- Hi-fi according to IEC 268 and DIN 45500
- Short - circuit - proof
- Thermally protected

PINNING	PIN VOLTAGE
1. Non-inverting Input 1	: 13.5V
2. Inverting Input 1	: 13.7V
3. Ground	: 13.6V
4. Output 1	: 13.7V
5. Negative Supply Voltage	: 0V
6. Output 2	: 13.67V
7. Positive Supply Voltage	: 27.18V
8. Inverting Input 2	: 13.65V
9. Inverting Input 2	: 13.4V



BLOCK DIAGRAM OF TDA1521A

TDA3857

QUASI-SPLIT SOUND PROCESSOR WITH TWO FM DEMODULATORS

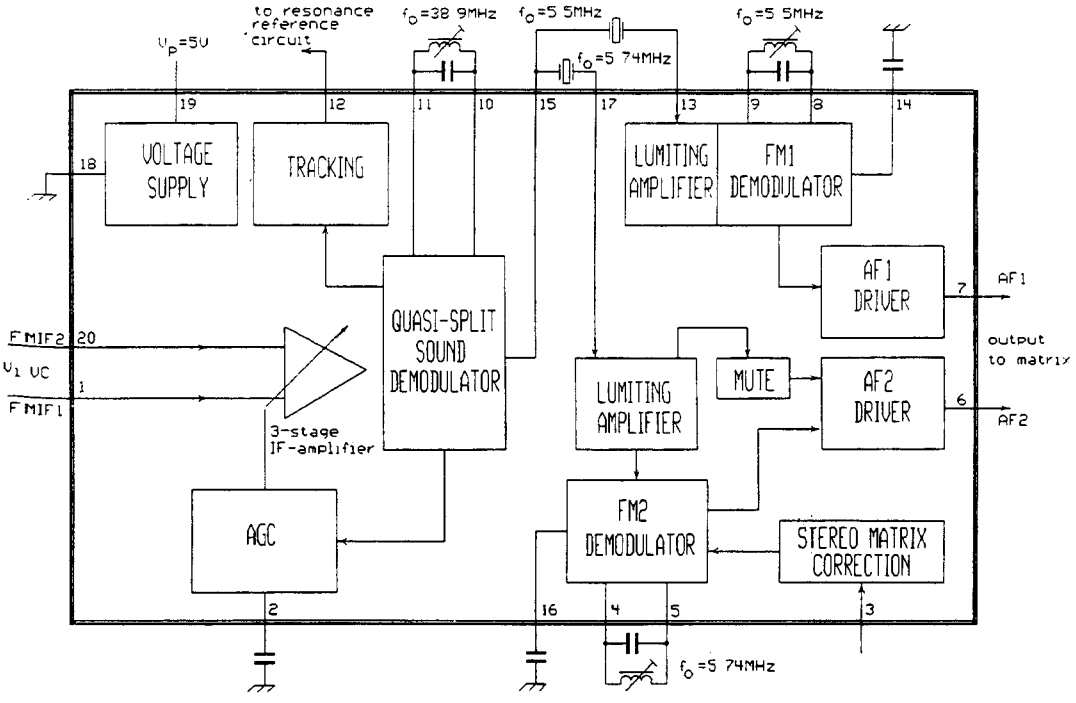
GENERAL DESCRIPTION: Symmetrical IF inputs. Gain controlled wideband IF amplifier. AGC generation due to peak sync Reference amplifier for the generation of the vision carrier. Optimized limiting amplifier for AM suppression in the regenerated vision carrier signal and 90° phase shifter. Intercarrier mixer for FM sound, output with low-pass filter. Separate signal processing for 5.5 and 5.74MHz. intercarriers. Wide supply voltage range, only 300mW power dissipation at 5V.

FEATURES

- Quasi-split sound processor for all FM standards e. g. B/G
- Reducing of spurious video signals by tracking function and AFC for the vision carrier reference circuit; (indispensable for NICAM)
- Automatic muting of the AF2 signal (at B/G) by the input level.
- Layaut-compatible with TDA3856 (24 pins) and TDA3858 (32 pins)

PINNING — PIN VOLTAGE

1. If difference input 1 for B/G standard (38.9MHz) ..... : 1.8V
2. Charge capacitor for AM AGC ..... : 2.06V
3. Input for stereo matrix correction ..... : 2.5V
4. Reference circuit for FM2 (5.74MHz) ..... : 1.8V
5. Reference circuit for FM2 (5.74MHz) ..... : 1.8V
6. AF2 output (Af out of 5.74MHz) ..... : 2.13V
7. AF1 output (Af out of 5.5MHz or AM) ..... : 2.1V
8. Reference circuit for FM1 (5.5MHz) ..... : 1.8V
9. Reference circuit for FM1 (5.5MHz) ..... : 1.8V
10. Reference circuit for vision carrier (38.9MHz) ..... : 4V
11. Reference circuit for the vision carrier (38.9MHz) ..... : 4V
12. DC output level for tracking ..... : 2V
13. Intercarrier input for FM1 (5.5MHz) ..... : 0V
14. DC-decoupling capacitor for FM1 demodufator (AF1) ..... : 2.48V
15. Intercarrier output signal (5.5/5.74MHz) ..... : 1.55V
16. DC-decoupling capacitor for FM2 demodulator (AF2) ..... : 1.8V
17. Intercarrier input for (5.74MHz) ..... : 0.11V
18. Ground ..... : 0V
19. +5.....+8V dupply voltage (Pin 28 not connected) ..... : 5V
20. If difference input 2 for B/G standard (38.9MHz) ..... : 1.8V



BLOCK DIAGRAM OF TDA3857

TDA8425/V7

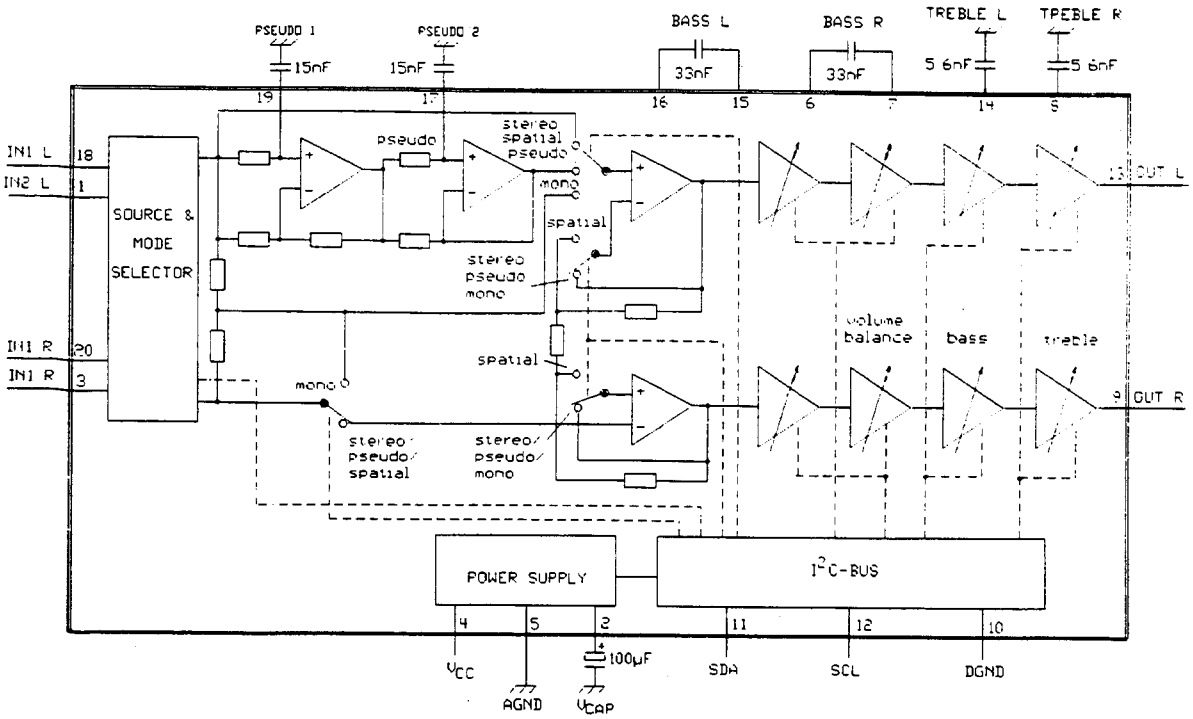
HI-FI STEREO AUDIO PROCESSOR; I^2C-BUS

GENERAL DESCRIPTION: The TDA8425 is monolithic bipolar integrated stereo sound circuit with a loudspeaker channel facility, digitally controlled via the I^2C-bus for application in hi-fi audio and television sound.

FEATURES :

- Source and mode selector for two stereo channels
- Pseudo stereo, spatial stereo, linear stereo and forced mono switch
- Volume and balance control
- Bass, treble and mute controla
- Power supply with power-on reset

PINNING	PIN VOLTAGE
1. Input 2 (Left)	: 5.83V
2. External decouplage capacitor (V_{CAP})	: 11.66V
3. Input 2 (Right)	: 5.84V
4. Supply voltage	: 11.76V
5. Ground	: 0V
6. Bass (Right)	: 5.84V
7. Bass (Right)	: 5.85V
8. Treble (Right)	: 5.85V
9. Output (Right)	: 5.85V
10. Ground	: 0V
11. Voltage Range	: 4.3V
12. Voltage Range	: 4.3V
13. Output (Left)	: 5.85V
14. Treble (Left)	: 5.85V
15. Bass (Left)	: 5.85V
16. Bass (Left)	: 5.84V
17. External capacitors 2	: 5.84V
18. Input 1 (Left)	: 5.83V
19. External capacitor 1	: 5.83V
20. Input (Right)	: 5.83V



BLOCK DIAGRAM OF TDA8425

TDA2611A

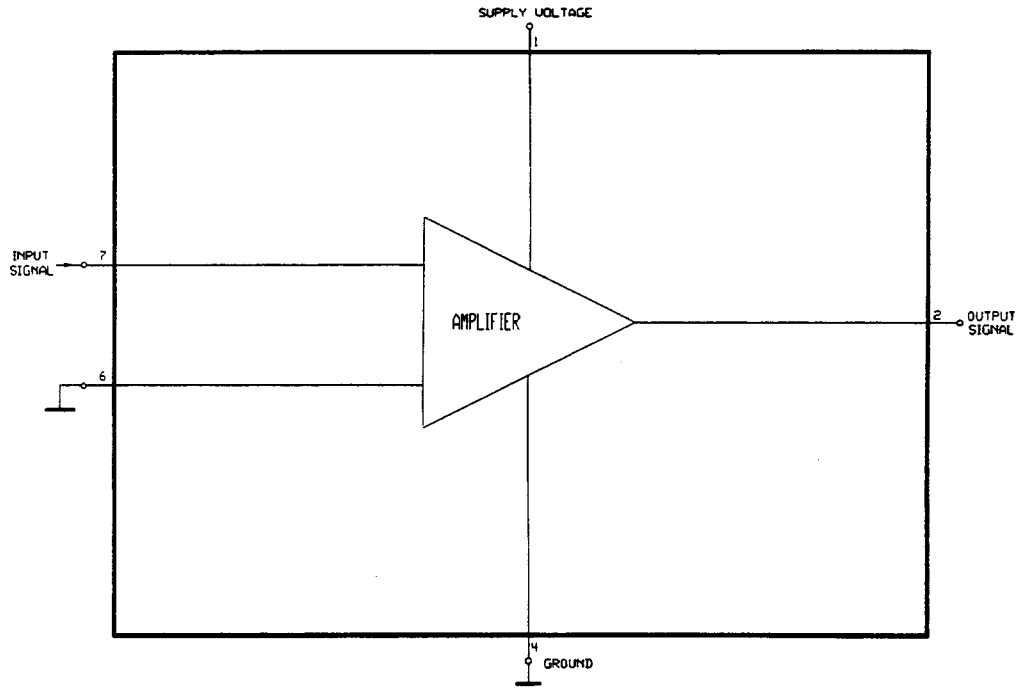
5 W AUDIO POWER AMPLIFIER

GENERAL DESCRIPTION: The TDA2611A is a 5 watt, high supply voltage, audio amplifier used for sound power amplification purposes in TV broadcasting.

FEATURES :

- Possibility for increasing the input impedance
- Single in-line (SIL) construction for easy mounting
- Very suitable for application in mains-fed apparatus
- Extremely low number of external components
- Thermal protection
- Well defined open loop gain circuitry with simple quiescent current setting and fixed integrated closed loop gain

PINNING	PIN VOLTAGE
1. Supply Voltage Input	: 28V
2. Amplified Signal Output	: 2.2VPP 1KHz, 13.2V DC, 14.2V (Mute)
3. No Connection	: -
4. Ground	: -
5. No Connection	: -
6. Ground	: -
7. Input Signal	: 1.25V
8. No Connection	: -
9. Input Impedanceri	: -



BLOCK DIAGRAM OF TDA2611A

TDA9840

STEREO / DUAL SOUND PROCESSOR WITH DIGITAL IDENTIFICATION

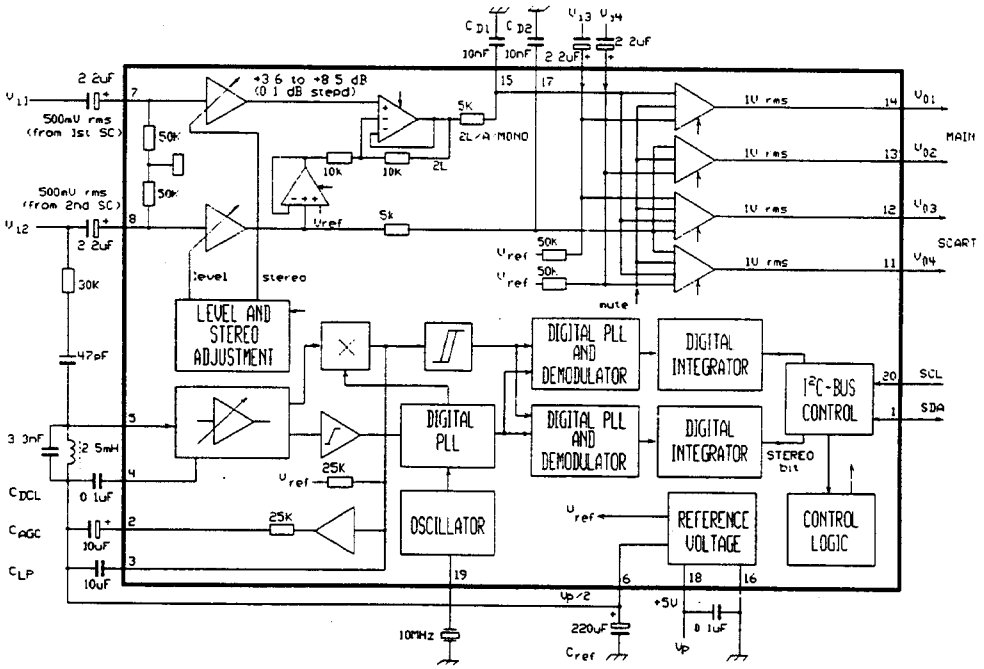
GENERAL DESCRIPTION: The TDA9840 is a stereo/dual sound processor for TV and VRT sets. Its digital identification ensures safe operation by using internal digital PLL filter technique with extremely small bandwidth (switching time maximum 2 s).

FEATURES

- Level and stereo matrix adjustment possible via the I^2C-bus.
- Two additional AF inputs for NICAM and AM sound.
- Outputs for MAIN and SCART.
- AF input and AF output signals selectable via the I^2C-bus.
- Pilot frequency regeneration for mixer by digital PLL.
- Demodulation of sound identification (117 and 274Hz) by digital PLL and digital integration.
- Information for idendified transmission mode readable via the I^2C-bus.
- Supply voltage +5 to +8V.

PINNING — PIN VOLTAGE

1. I^2C-bus data line ..... : 2.8V
2. AGC capacitor of pilot frequency amplifier ..... : 3.4V
3. LOW-PASS capacitor ..... : 2.7V
4. DC loop capacitor ..... : 2.5V
5. Pilot frequency input ..... : 2.52V
6. Capacitor of reference voltage (Vp/2) ..... : 2.52V
7. AF input 1 signal (From 1st sound carrier) ..... : 2.5V
8. AF input 2 signal (From 2nd sound carrier) ..... : 2.5V
9. AF input 3 signal (Additional input) ..... : 2.5V
10. AF input 4 signal (Additional input) ..... : 2.5V
11. AF output 4 signal ..... : 2.5V
12. AF output 3 signal ..... : 2.53V
13. AF output 2 signal ..... : 2.5V
14. AF output 1 signal ..... : 2.5V
15. 50us De-emphasis capacitor of channel 1 ..... : 2.5V
16. Ground ..... : 0V
17. 50us De-emphasis capacitor of channel 2 ..... : 2.5V
18. Supply voltage (+5 to +8V) ..... : 5V
19. 10MHz crystal ..... : 3.3V
20. I^2C-bus clock line ..... : 3.15V



BLOCK DIAGRAM OF TDA9840

TDA8416

TV AND VTR STEREO/DUAL SOUND PROCESSOR WITH INTEGRATED FILTERS AND I²C-BUS CONTROL

GENERAL DESCRIPTION: The TDA8416 is a processor of stereo/dual language signals (B/G-standard) for stereo sound television receivers and VTRs, using the switched-capacitor technque. The AF signals at the TDA8416 inputs must be "(L+R)/2" or "language A" on one channel and "R" or "language B" on the second channel (where L = left and R = right). The carrier frequency of the second channel is also modulated by an identification signal (stereo or dual sound). The device is controlled by a microcomputer via the two-line, bidirectional I2C-bus.

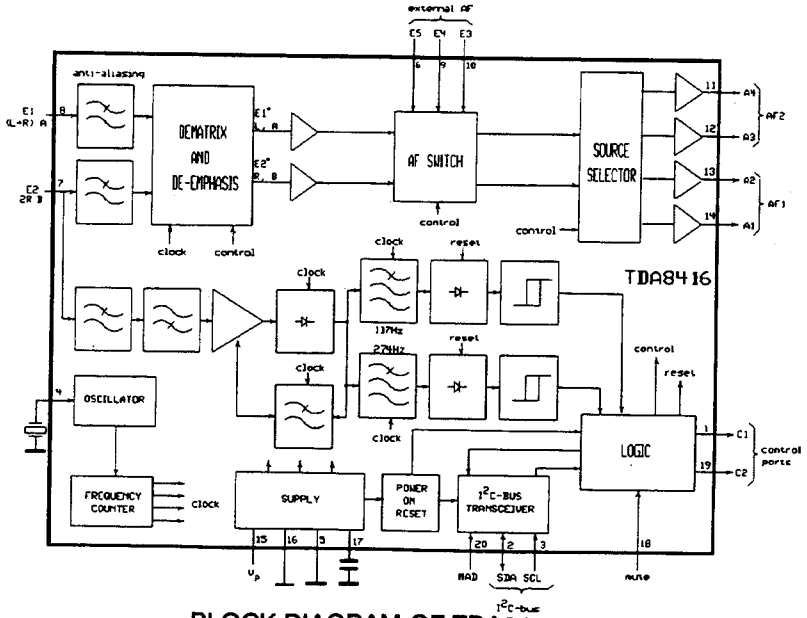
FEATURES

- Use of the switched-capacitor technique for signal processing.
- Small amount of peripheral components.
- Integrated anti-aliasing filters.
- Low distortion AF signal handling.
- Integrated de-emphasis with a time constant of 50us.
- Two general purpose output ports.
- Full ESD protection.

PINNING

PIN VOLTAGE

1. Control port C1 ..... : 5.7V
2. SDA, serial data line (I2C-bus) ..... : 11.5V
3. SCL, serial clock line (I2C-bus) ..... : 5.7V
4. Oscillator input (Or Quartz) ..... : 11.6V
5. Digital ground ..... : 0V
6. External af input (E5) ..... : 5.7V
7. Sound channel input AF2 (E2) ..... : 5.8V
8. Sound channel input AF1 (E1) ..... : 5.8V
9. External AF input (E4) ..... : 5.8V
10. External AF input (E3) ..... : 0V
11. Output A4 AF 2 output ..... : 3.10V
12. Output A3 AF 2 output ..... : 3.16V
13. Output A2 AF 1 output ..... : 5.78V
14. Output A1 AF 1 output ..... : 5.78V
15. Supply voltage Vp ..... : 5.78V
16. Analogue ground ..... : 5.76V
17. Ripple rejection improvement ..... : 5.75V
18. Mute input ..... : 5.75V
19. Control port C2 ..... : 5.75V
20. Module address (Mod) ..... : 5.75



BLOCK DIAGRAM OF TDA8416

TDA2546A

5.5 MHz DEMODULATION

GENERAL DESCRIPTION: The TDA2546A is monolithic integrated circuit for quasi-split-sound processing 5.5MHz demodulation, in television receivers.

FEATURES :

1st i.f. (V.C.: vision carrier plus S.C.: sound carrier

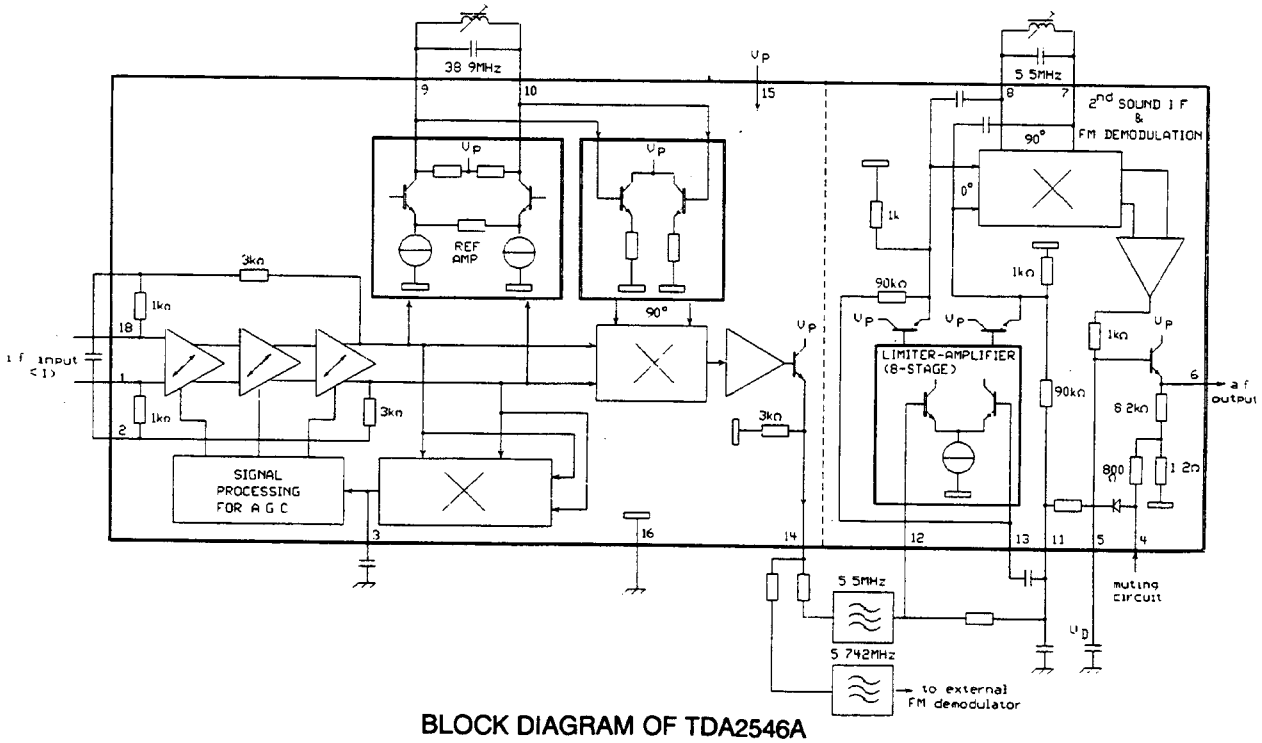
- 3-stage gain controlled i.f. amplifier.
- A.G.C. circuit.
- Reference amplifier and limiter amplifier for vision carrier (V.C.) processing.
- Linear multiplier for quadrature demodulation.

2nd i.f. (5.5MHz signal)

- 8-stage limiter amplifier
- Quadrature demodulator
- A.F. amplifier with de-emphasis
- AV switch

PINNING — PIN VOLTAGE

1. If input 1 ..... :4.8V
2. G-STAB ..... :4.8V
3. C AGC ..... :6.15V
4. Muting ..... :0.6V
5. Af deemphasis ..... :4.77V
6. Af output ..... :4.12V
7. FM demodulator input ..... :3V
8. FM demodulator output ..... :3V
9. Vision demodulator input ..... :5.64V
10. Vision demodulator output ..... :5.64V
11. Reference voltage ..... :2V
12. FM input ..... :2V
13. FM reference ..... :2V
14. Intercorrier output ..... :6.08V
15. Supply voltage ..... :12.52V
16. Ground ..... :0V
17. G-STAP ..... :4.8V
18. If input 2 ..... :4.83V



BLOCK DIAGRAM OF TDA2546A

SAA5254P/T

INTEGRATED VIP AND TELETEXT (IVT1.1X)

GENERAL DESCRIPTION: This complete single page teletext decoder is a derivative from the SAA5244A, it overcomes the one weakness of this device by incorporating automatic packet 26 processing for language extension. The SAA5244A was restricted to the main West European languages since it could only handle 7-bit data, the inclusion of the automatic X/26 processing increases the range of countries to include all those currently transmitting World System Teletext.

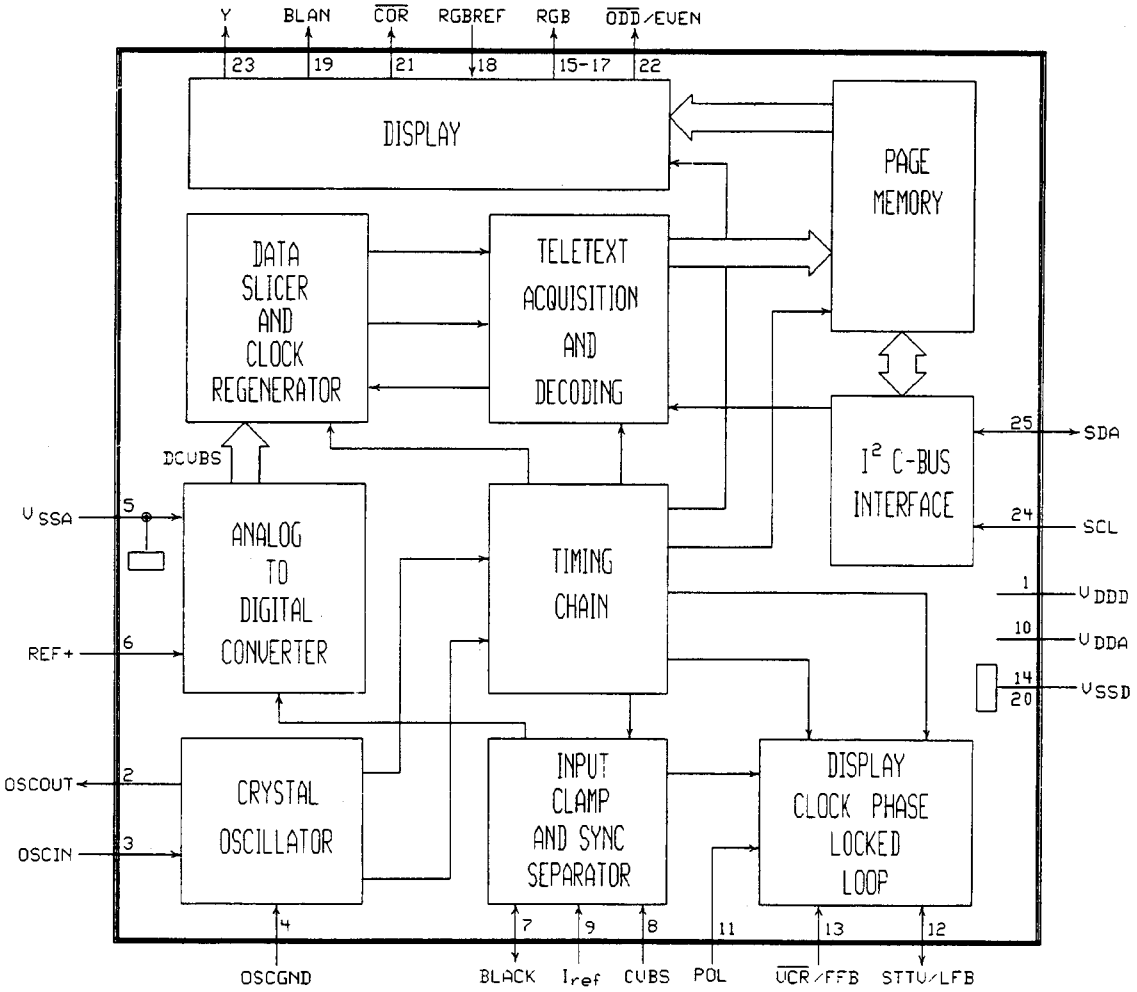
FEATURES

- Completed teletext decoder including page memory and FASTEXT links in a single 40-pin DIL package
- Automatic processing of extension packet 26 for widest possible language decoding.
- 100% hardware-compatible with the SAA5244 - plug-in replacement and extra market.
- 100% software compatible with the SAA5244 - except if the special OSD symbols were used with the SAA5244A.
- Low software overhead for the control microprocessor.
- Wide range of language options will be available :
  - /E West European
  - /H East European
  - /T Euro-Turkish

  Contact IPM for the latest available options.
- Hardware and software compatible to the SAA5249 "Instant" access teletext decoder.

PINNING

	PIN VOLTAGE TV	TEXT
1. V_{DD} +5V digital supply voltage	5V	5V
2. OSCOUT, 27 MHz crystal oscillator output	2V	2V
3. OSCIN, 27 MHz oscillator input	3.50V	3.50V
4. OSCGND, crystal oscillator ground	0V	0V
5. VSS(A), analog ground	0V	0V
6. REF+, Positive reference voltage for the ADC.	5V	5V
7. BLACK, Video black level storage	2.2V	2.2V
8. CVBS, Composite video input	2.5V	2.5V
9. IREF, Reference current input	2.5V	2.5V
10. VDD(A), +5V analog supply voltage	5V	5V
11. POL, STTV/LFB/FFB polarity select	5V	5V
12. STTV/LFB, Sync to TV output pin/line flyback input	1.6V	1.9V
13 VCR/FFB, PLL time constant switch/field flyback input	5V	5V
14. VSS(D), Connected to VSS(D) for normal operation	0V	0V
15. R, Dot rate character output of the RED colour information	0V	0.7V
16. G, Dot rate character output of the GREEN colour information	0V	0.7V
17. B, Dot rate character output of the BLUE colour information	0V	0.7V
18. RGBREF, Input dc voltage to define the output high level on the RGB pins	5V	5V
19. BLAN, Dot rate fast blanking output	0V	3V
20. VSS(D), digital ground	0V	0V
21. COR, Programmable output to provide contrast reduction of the TV picture for mixed text and picture displays or when viewing newsflash/subtitle pages. Open drain circuit	4V	0V
22. ODD/EVEN, 25Hz output synchronized with the CVBS input's field sync pulses to produce a non-interlaced display by adjustment of the vertical deflection currents	0V	2.5V
23. Y, Dot rate character output of teletext foreground coulor information	0V	0V
24. SCL, Serial clock input for I2C-bus.	5V	3V
25. SDA, Serial data port for the I2C-bus.	5V	2.5V
26-40. i.c., Internally connected. Must be left open circuit in application	5V	5V



BLOCK DIAGRAM OF SAA5254P/T

SAA5246AP/T

INTEGRATED VIP AND TELETEXT (IVT)

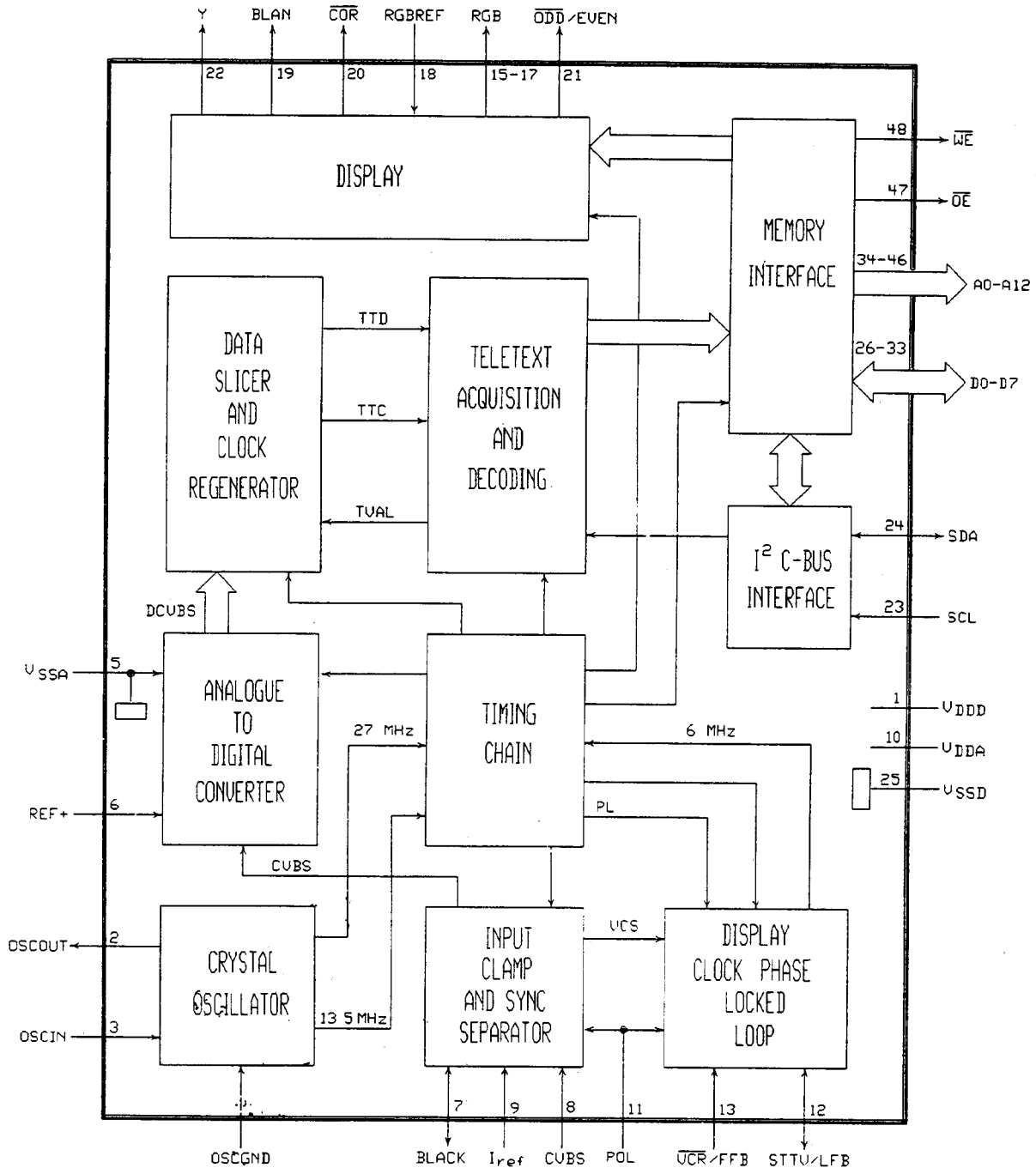
GENERAL DESCRIPTION: The Integrated VIP and Teletext (IVT) is a teletext decoder (contained within a single chip package) for decoding 625-line based World System Teletext transmissions. The teletext decoder hardware is based on the Enhanced Computer Controlled Teletext (ECCT) device (SAA5243) with some additional features; existing ECCT software remains compatible.
The Video Input Processor (VIP) section of the device uses mixed analog and digital designs for the data slicer and the display clock phase-locked loop functions. As a result the number of external components is greatly reduced and no critical or adjustable components are required.

FEATURES

- Complete teletext decoder in a single package
- Single +5V power supply
- Digital data slicer and display clock phase-locked loop reduce peripharel components to a minimum
- Both video and scan related synchronization modes are supported
- 4/8 page acquisition system is software compatible with ECCT
- RGB interface to standard colour decoder ICs, push-pull output drive; requires only 2 external resistors
- Data capture performance comparable with SAA5231 (VIP2)
- Software compatibility with ECCT maintained
- Interfaces with 8K x 8-bit static RAM
- Optional storage of packet 24 in the display memory
- Packet 8/30/2 mapped to a different extension chapter, as an aid for VCR programming applications
- Automatic ODD/EVEN output control
- Control of display PLL free-run and rolling header via I2C-bus
- Software readable ROM version national option
- No vertical jitter in absence of input signal and reduced horizontal jitter
- Rolling headers correctly disabled

PINNING

	PIN VOLTAGE	
	TV	TEXT
1. VDDD, +5V digital supply voltage	5V	5V
2. OSCOUT, 27MHz crystal oscillator output	2V	2V
3. OSCIN, 27MHz crystal oscillator input	3.50V	3.50V
4. OSCGND, crystal oscillator ground	3.5V	3.5V
5. VSSA, analog ground	0V	0V
6. REF+, Positive reference voltage for the ADC.	5V	5V
7. BLACK, Video black level storage	2.2V	2.2V
8. CVBS, Composite video input	2.5V	2.5V
9. IREF, Reference current input	2.5V	2.5V
10. VDDA, +5V analog supply voltage	5V	5V
11. POL, STTV/LFB/FFB polarity select	5V	5V
12. STTV/LFB, Sync to TV output pin/line flyback input.	1.6V	1.9V
13. VCR/FFB, PLL time constant switch/field input	5V	5V
14. VSSD, Connected to VSSD for normal operation.	0V	5V
15. R, Dot rate character output of the RED colour information.	0V	5V
16. G, Dot rate character output of the GREEN colour information	0V	5V
17. B, Dot rate character output of the BLUE colour information	0V	5V
18. RGBREF, Input DC voltage to define the output for RGB pins	2.5V	2.5V
19. BLAN, Dot rate fast blanking output.	0V	2.3V
20. COR, Programmable output for contrast reduction	0V	2.3V
21. ODD/EVEN, 25Hz output synchronized with the CVBS input's	4.5V	2.45V
22. Y, Dot rate character output of teletext foreground colour information.	0V	0V
23. SCL, Serial clock input for I2C-bus.	4.5V	4.5V
24. SDA, Serial data port for I2C-bus.	4.5V	4.5V
25. VSSD, digital ground	0V	0V
26-33. D0-D7, Data lines for the page RAM	-	-
34-46. A0-A12, Address lines for the page RAM	-	-
47. OE, Output enable to the page RAM	4.5V	4.5V
48. WE, Write enable to the page RAM	5V	5V



BLOCK DIAGRAM OF SAA5246AP/T

PCF 84C81

SINGLE-CHIP 8-BIT MICROPHOTOGRAPH

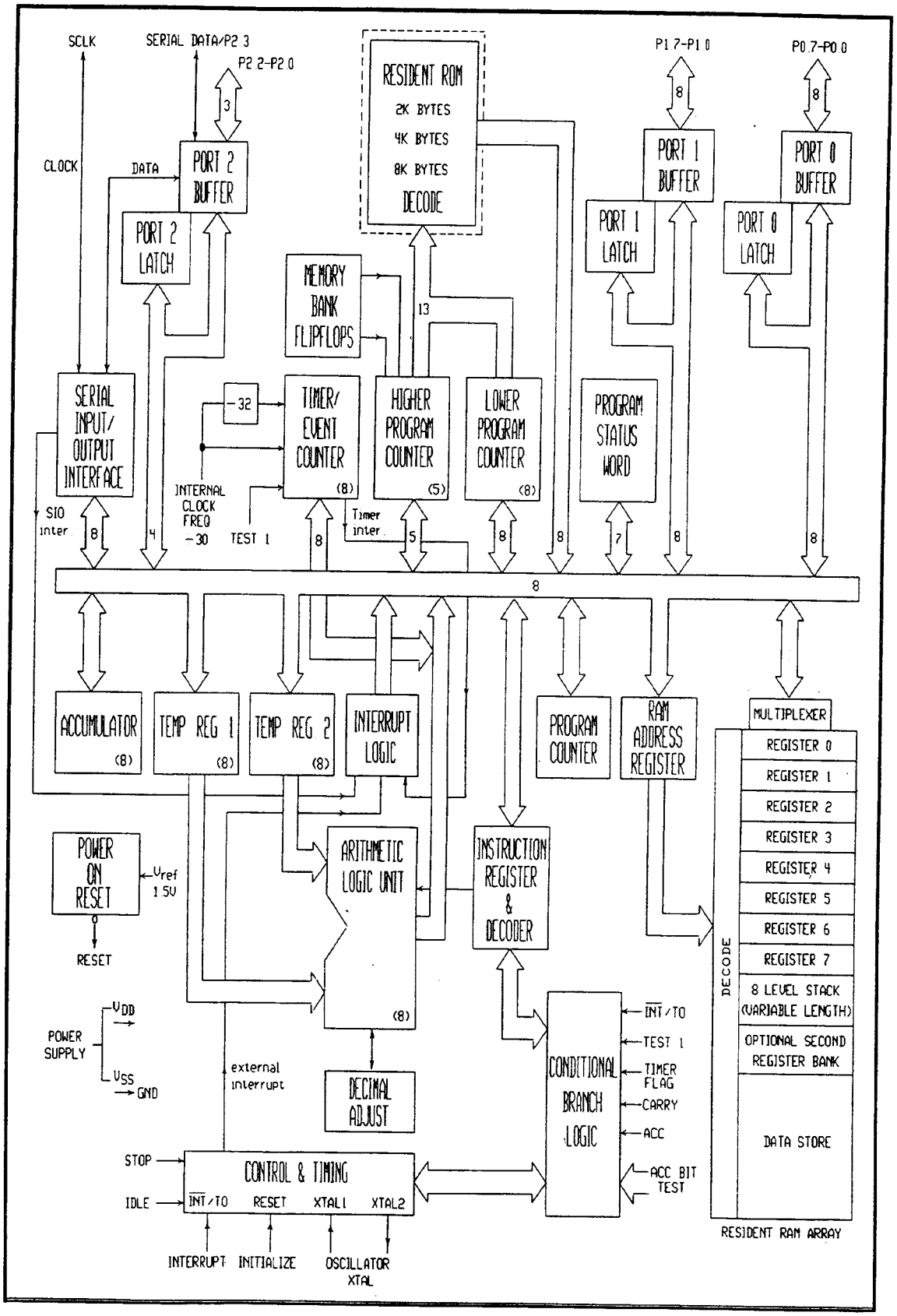
GENERAL DESCRIPTION: An advanced CMOS process is used to manufacture the PCF 84C81 microcontroller. It has 20 quasi-bidirectional I/O port lines, a serial I/O interface, a single-level vectored interrupt structure, an 8-bit timer/event counter, on-chip clock oscillator and clock circuits. This efficient controller also perform well as arithmetic processor. It has facilities for both binary and BCD arithmetic plus bit-handling capabilities.

FEATURES:

- 8K x 8 ROM
- 256 x 8 RAM
- 20 quasi-bidirectional I/O port lines
- Two test inputs, one of which is also the external interrupt input
- Single-level vectored interrupts: external, timer/event counter and serial I/O
- Interface for serial data transfer on two lines (serial I/O data via an existing port line and clock via a dedicated line)
- 8-bit programmable timer/event counter
- Clock frequency range: 100 KHz to 10 MHz
- Over 80 instructions all of 1 or 2 cycles
- Single supply voltage (2.5 to 5.5 V)
- STOP and IDLE modes
- Power-on reset circuit
- Operating temperature range: -40 to +85°C

PINNING

	PIN VOLTAGE	
	WITH TEXT	WITHOUT TEXT
1. 4-bit I/O Port Bit 2 (P2.2)	5V	5V
2. 4-bit I/O Port Bit 3 (P2.3)	4.4V	4.4V
3. Bidirectional Clock for Serial I/O	4.4V	4.4V
4. 8-bit I/O Port Bit 0 (P0.0)	5V	5V
5. 8-bit I/O Port Bit 1 (P0.1)	5V	5V
6. 8-bit I/O Port Bit 2 (P0.2)	0V	0V
7. 8-bit I/O Port Bit 3 (P0.3)	4.18V	0V
8. 8-bit I/O Port Bit 4 (P0.4)	5V	5V
9. 8-bit I/O Port Bit 5 (P0.5)	0V	0V
10. 8-bit I/O Port Bit 6 (P0.6)	5V	5V
11. 8-bit I/O Port Bit 7 (P0.7)	0V	0V
12. Interrupt Input / Test Input 0	0.2V	0V
13. Test Input 1	0.2V	0V
14. Ground	0V	0V
15. Oscillator Input	2.46V	2.46V
16. Oscillator Output	2.46V	2.46V
17. Reset Input	5V	0V
18. 8-bit I/O Port Bit 0 (P1.0)	5V	5V
19. 8-bit I/O Port Bit 1 (P1.1)	5V	5V
20. 8-bit I/O Port Bit 2 (P1.2)	0V	5V
21. 8-bit I/O Port Bit 3 (P1.3)	0V	0V
22. 8-bit I/O Port Bit 4 (P1.4)	5V	5V
23. 8-bit I/O Port Bit 5 (P1.5)	0V	0V
24. 8-bit I/O Port Bit 6 (P1.6)	5V	5V
25. 8-bit I/O Port Bit 7 (P1.7)	0V	0V
26. 4-bit I/O Port Bit 0 (P2.0)	5V	5V
27. 4-bit I/O Port Bit 1 (P2.1)	5V	5V
28. Power Supply	5V	5V



BLOCK DIAGRAM OF PCF84C81

ELECTRONIC COMPONENT PART LIST

	1005020750	**CHS.ASSY.12-1133291421113BA**
	8061223006	KNURL WASHER C ZNSY 3*6*04
	5326065027	HEATSINK SMPS (AK12)
	5326065024	HEATSINK REGULATOR (AK12)
	5105135040	SPRING TR.HOLDER (MEDIUM)
	5127025014	SHIELD MAIN BOARD (AK12)
	8051110300	NUT C ZN BOTTOM M3
	5326065026	HEATSINK HORIZONTAL (AK12)
	5326065025	HEATSINK VERTICAL (AK12)
	5120030004	CHASSIS BRACKET AK12
	5127025015	SHIELD PRESBAND (AK12)
C101	3062230396	CAP SER 22NF 50V Z F
C102	3081000856	CAP EL 10UF 50V M
C103	3011041036	CAP MKT 100NF 63V J
C104	3055600836	CAP CER 56PF 50V J SL
C105	3051500136	CAP SER 15PF 50V J CH
C106	3061020146	CAP SER 1NF 50V K B
C108	3083390856	CAP EL 3.3UF 50V M
C109	3083390856	CAP EL 3.3UF 50V M
C110	3011041036	CAP MKT 100NF 63V J
C111	3011041036	CAP MKT 100NF 63V J
C112	3011041036	CAP MKT 100NF 63V J
C113	3081000856	CAP EL 10UF 50V M
C114	3062230396	CAP SER 22NF 50V Z F
C115	3081000856	CAP EL 10UF 50V M
C116	3061040396	CAP SER 100NF 50V Z F
C117	3081000856	CAP EL 10UF 50V M
C130	3054700136	CAP SER 47PF 50V J CH
C133	3053910136	CAP SER 390PF 50V J CH
C201	3081000856	CAP EL 10UF 50V M
C202	3084700556	CAP EL 47UF 35V M
C203	3061030396	CAP SER 10NF 50V Z F
C204	3061030396	CAP SER 10NF 50V Z F
C205	3061030396	CAP SER 10NF 50V Z F
C206	3011041036	CAP MKT 100NF 63V J
C207	3064720146	CAP SER 4.7NF 50V K B
C208	3081000856	CAP EL 10UF 50V M
C209	3081000856	CAP EL 10UF 50V M
C210	3081000856	CAP EL 10UF 50V M
C401	3063920146	CAP CER 3.9NF 50V K B
C402	3051200136	CAP SER 12PF 50V J CH
C404	3011041036	CAP MKT 100NF 63V J
C405	3062230396	CAP SER 22NF 50V Z F
C406	3081000856	CAP EL 10UF 50V M
C407	3064730396	CAP SER 47NF 50V Z F
C408	3064730396	CAP SER 47NF 50V Z F
C409	3011041036	CAP MKT 100NF 63V J
C410	3051010836	CAP SER 100PF 50V J SL
C411	3061020146	CAP SER 1NF 50V K B
C413	3068210146	CAP SER 820PF 50V K B
C414	3061040396	CAP SER 100NF 50V Z F
C415	3061040396	CAP SER 100NF 50V Z F
C416	3061020146	CAP SER 1NF 50V K B
C417	3061020146	CAP SER 1NF 50V K B
C418	3061040396	CAP SER 100NF 50V Z F
C419	3064720146	CAP SER 4.7NF 50V K B
C420	3051800836	CAP SER 18PF 50V J SL
C421	3081000856	CAP EL 10UF 50V M
C422	3081090856	CAP EL 1UF 50V M
C423	3064720146	CAP SER 4.7NF 50V K B
C424	3062220146	CAP SER 2.2NF 50V K B
C425	3063320146	CAP SER 3.3NF 50V K B
C426	3023330036	CAP KP 33NF 63V J
C427	3012231136	CAP MKT 22NF 100V J
C428	3082290856	CAP EL 2.2UF 50V M
C429	3081000856	CAP EL 10UF 50V M
C430	3062230396	CAP SER 22NF 50V Z F
C431	3082290856	CAP EL 2.2UF 50V M
C434	3011041036	CAP MKT 100NF 63V J
C435	3011041036	CAP MKT 100NF 63V J
C436	3011041036	CAP MKT 100NF 63V J
C438	3081000856	CAP EL 10UF 50V M
C439	3068210146	CAP SER 820PF 50V K B
C445	3011041036	CAP MKT 100NF 63V J
C446	3061040396	CAP SER 100NF 50V Z F
C448	3053310836	CAP SER 330PF 50V J SL
C449	3052210836	CAP SER 220PF 50V J SL
C451	3054700136	CAP SER 47PF 50V J CH
C456	3064730396	CAP SER 47NF 50V Z F
C464	3081010356	CAP EL 100UF 16V M
C465	3054700836	CAP SER 47PF 50V J SL
C466	3054700836	CAP SER 47PF 50V J SL
C467	3054700836	CAP SER 47PF 50V J SL
C484	3083300856	CAP EL 33UF 50V M
C485	3083300856	CAP EL 33UF 50V M
C487	3081000856	CAP EL 10UF 50V M
C495	3051510836	CAP SER 150PF 50V J SL
C496	3061520146	CAP SER 1.5NF 50V K B
C497	3061520146	CAP SER 1.5NF 50V K B
C501	3051010836	CAP SER 100PF 50V J SL
C502	3012241036	CAP MKT 220NF 63V J
C503	3011041036	CAP MKT 100NF 63V J
C504	3061040396	CAP SER 100NF 50V Z F
C506	3084790856	CAP EL 4.7UF 50V M
C507	3081090856	CAP EL 1UF 50V M
C508	3084790856	CAP EL 4.7UF 50V M
C509	3062220146	CAP SER 2.2NF 50V K B
C510	3061040396	CAP SER 100NF 50V Z F
C511	3051800836	CAP SER 18PF 50V J SL
C512	3051800836	CAP SER 18PF 50V J SL
C513	3061040396	CAP SER 100NF 50V Z F
C514	3081000856	CAP EL 10UF 50V M
C515	3061040396	CAP SER 100NF 50V Z F
C516	3082200856	CAP EL 22UF 50V M
C570	3081010356	CAP EL 100UF 16V M
C601	3014721136	CAP MKT 4.7NF 100V J
C602	3014741036	CAP MKT 470NF 63V J
C603	3032228078	CAP MKP 2.2NF 2KV %3.5
C604	3011041548	CAP MKT 100NF 250V K
C605	3083391356	CAP EL 3.3UF 160V M
C606	3034341538	CAP MKP 430NF 250V J
C607	3084701458	CAP EL 47UF 250V M (HR)
C608	3081001554	CAP EL 10UF 350V M
C609	3032243058	CAP MKP 220NF 250V M
C610	3011051156	CAP MKT 1UF 100V M
C611	3012231136	CAP MKT 22NF 100V J
C612	3016821136	CAP MKT 6.8NF 100V J
C613	3062220146	CAP SER 2.2NF 50V K B
C614	3204094846	CAP CER 4PF 2KV K SL
C615	3051010836	CAP SER 100PF 50V J SL
C650	3084700856	CAP EL 47UF 50V M
C651	3061040396	CAP SER 100NF 50V Z F
C652	3011541036	CAP MKT 150NF 63V J
C653	3013321036	CAP MKT 3.3NF 63V J
C654	3034341538	CAP MKP 430NF 250V J
C655	3037527078	CAP MKP 7.5NF 1.6KV 3.5%
C656	3022735038	CAP KP 27NF 630V J
C657	3062220146	CAP SER 2.2NF 50V K B
C658	3061030396	CAP SER 10NF 50V Z F
C701	3064720146	CAP SER 4.7NF 50V K B
C702	3063330146	CAP CER 33NF 50V K B
C703	3062220146	CAP SER 2.2NF 50V K B
C704	3012241036	CAP MKT 220NF 63V J
C705	3083390856	CAP EL 3.3UF 50V M
C706	3081520654	CAP EL 1500UF 40V M
C707	3081011054	CAP EL 100UF 63V M
C708	3082210654	CAP EL 220UF 40V M
C801	3011041558	CAP MKT 100NF 250V M AC
C802	3011041558	CAP MKT 100NF 250V M AC
C803	3011041558	CAP MKT 100NF 250V M AC
C804	3201021156	CAP CER 1NF 1KV M B
C805	3201021156	CAP CER 1NF 1KV M B
C806	3201021156	CAP CER 1NF 1KV M B
C807	3201021156	CAP CER 1NF 1KV M B
C808	3102211656	CAP EL 220UF 400V M (FOR 28")
C809	3014731036	CAP MKT 47NF 63V J
C810	3014721036	CAP MKT 4.7NF 63V J
C812	3084700556	CAP EL 47UF 35V M
C813	3064720146	CAP SER 4.7NF 50V K B
C814	3023335044	CAP PP 33NF 630V K
C816	3032215048	CAP MPP 0.22NF 630V K
C817	3081090856	CAP EL 1UF 50V M
C818	3084701458	CAP EL 47UF 250V M (HR)
C819	3084710854	CAP EL 470UF 50V M
C820	3081000856	CAP EL 10UF 50V M
C821	3081020454	CAP EL 1000UF 25V M
C822	3201021156	CAP CER 1NF 1KV M B
C823	3082210356	CAP EL 220UF 16V M
C824	3202227458	CAP SER 2.2NF 4KV M
C825	3012241036	CAP MKT 220NF 63V J
C826	3061040396	CAP SER 100NF 50V Z F
C827	3081010456	CAP EL 100UF 25V M
C828	3012241036	CAP MKT 220NF 63V J
C829	3062714146	CAP SER 270PF 500V K B
C831	3081000856	CAP EL 10UF 50V M
C832	3061020146	CAP SER 1NF 50V K B

C833	3081520654	CAP EL 1500UF 40V M
C834	3061040396	CAP SER 100NF 50V Z F
C835	3011041036	CAP MKT 100NF 63V J
C836	3061040396	CAP SER 100NF 50V Z F
C837	3081010456	CAP EL 100UF 25V M
CV1	3081020554	CAP EL 1000UF 35V M
D102	3531941480	DIODE 1N4148
D103	3531941480	DIODE 1N4148
D104	3531941480	DIODE 1N4148
D105	3531941480	DIODE 1N4148
D106	3531941480	DIODE 1N4148
D107	3531941480	DIODE 1N4148
D108	3531941480	DIODE 1N4148
D201	3531941480	DIODE 1N4148
D400	3531941480	DIODE 1N4148
D402	3531941480	DIODE 1N4148
D403	3531941480	DIODE 1N4148
D405	5913225000	JUMPER WIRE 0.6MM
D430	3531941480	DIODE 1N4148
D502	3531941480	DIODE 1N4148
D503	3531941480	DIODE 1N4148
D504	3531941480	DIODE 1N4148
D505	3531941480	DIODE 1N4148
D506	3531941480	DIODE 1N4148
D507	3531941480	DIODE 1N4148
D508	3531941480	DIODE 1N4148
D510	3531941480	DIODE 1N4148
D512	3531941480	DIODE 1N4148
D513	3531941480	DIODE 1N4148
D514	3571903600	DIODE ZENER 3.6V ZPD
D518	3313910437	RES CF 1/4W 390R J
D520	5913225000	JUMPER WIRE 0.6MM
D525	3531941480	DIODE 1N4148
D528	3531941480	DIODE 1N4148
D601	3531941480	DIODE 1N4148
D602	3531941480	DIODE 1N4148
D603	3551900330	DIODE BYD33J
D604	3551901570	DIODE BA157
D610	5913225000	JUMPER WIRE 0.6MM
D651	3531941480	DIODE 1N4148
D652	3531941480	DIODE 1N4148
D653	3551902280	DIODE GUC BY228
D654	3551902991	DIODE BY299
D701	3551900330	DIODE BYD33J
D801	3551940070	DIODE 1N4007
D802	3551940070	DIODE 1N4007
D803	3551940070	DIODE 1N4007
D804	3551940070	DIODE 1N4007
D806	3531941480	DIODE 1N4148
D807	3531941480	DIODE 1N4148
D808	3551901590	DIODE BA159
D810	3551949370	DIODE 1N4937
D811	3551500261	DIODE BYM26D
D812	3551949370	DIODE 1N4937
D813	3571933000	DIODE ZENER 33V UZT 33B
D814	3551500953	DIODE BYW95A
D820	3571905100	DIODE ZENER 5.1V ZPD
F801	3807250050	FUSE 2.5A 250V 5*20MM
F801	5357055001	FUSE HOLDER TK79-A
F802	5913225000	JUMPER WIRE 0.6MM
IC101	3621552461	IC SAA 5246AP/E
IC102	3621561650	IC SRAM 8K8 FCB61C65-70P
IC401	3621583623	IC TDA8362A/N2
IC402	3621546611	IC TDA4661/V2
IC501	3621503510	IC PCA84C841P/152(CTV351S.VE1)
IC502	3621624020	IC ST24C02
IC503	3620279100	IC LA7910
IC601	3621581450	IC TDA8145
IC701	3621536540	IC TDA3654/N3
IC801	3621846050	IC TDA4605-2
IC802	3650003170	IC LM317T
IC803	3620978080	IC LM7808
IC804	3620078050	IC LM78M05 BIG
L101	4011104512	FIXED COIL 1UH Q45 M-A
L102	5913225000	JUMPER WIRE 0.6MM
L103	4012106522	FIXED COIL 10UH Q65 K-A
L201	4011104512	FIXED COIL 1UH Q45 M-A
L401	4011680032	FIXED COIL 6.8UH J AXI
L402	5913225000	JUMPER WIRE 0.6MM
L403	4011225511	FIXED COIL 2.2UH Q55 M-AX
L404	4011225511	FIXED COIL 2.2UH Q55 M-AX
L405	4012106522	FIXED COIL 10UH Q65 K-A
L406	4012106522	FIXED COIL 10UH Q65 K-A
L407	4013156022	FIXED COIL 150UH Q60 K
L501	4262125026	CHOKE PEAKING COIL 12UH Q50 K
L601	4090109000	LINEARITY COIL 50UH (06-06A)
L650	4015100019	FIXED COIL INJ.10MH M
L652	4014100018	FIXED COIL BRIDGE 1MH
L801	4013150017	COIL CHOKE 150UH 0.82A RAD
L802	4012224022	FIXED COIL 22UH Q40 K
LT401	4020006031	ADJ.COIL VIF 38.9MHZ 0=60
PL303	3861501101	CONN.MALE 11P MOLEX
PL304	3861501401	CONN.MALE 14P MOLEX
PL501	3861200800	CONN.MALE 8P (2008)
PL502	3861200201	CONN.MALE 2P (2002)
PL503	3861200301	CONN.MALE 3P (2003)
PL601	3861820304	CONN.MALE 3P (EKINLER)
PL602	3861820404	CONN.MALE 4P (EKINLER)
PL701	3861200400	CONN.MALE 4P (2004)
PL801	3864010201	PIN 2P
PL802	3864010301	PIN 3P TELESET (PL802)
PL901	3861200601	CONN.MALE 6P (2006)
Q101	3611905480	TR BC548B
Q102	3611905480	TR BC548B
Q103	3611905480	TR BC548B
Q104	3611905480	TR BC548B
Q105	3611905480	TR BC548B
Q201	3611905480	TR BC548B
Q401	3611905480	TR BC548B
Q403	3611905480	TR BC548B
Q404	3611905480	TR BC548B
Q408	3611905480	TR BC548B
Q501	3611502400	TR BF240
Q503	3611905580	TR BC558B
Q504	3611905480	TR BC548B
Q509	3611905580	TR BC558B
Q601	3611506390	TR BC639
Q602	3611505083	TR BU508A
Q603	3611905480	TR BC548B
Q604	3611905480	TR BC548B
Q605	3611905480	TR BC548B
Q701	3611905480	TR BC548B
Q702	3611905580	TR BC558B
Q801	3611500900	TR BUZ90
Q802	3611905480	TR BC548B
R102	3311020437	RES CF 1/4W 1K J
R103	3312230437	RES CF 1/4W 22K J
R104	3314730437	RES CF 1/4W 47K J
R105	3311020437	RES CF 1/4W 1K J
R106	3312220437	RES CF 1/4W 2.2K J
R107	3311020437	RES CF 1/4W 1K J
R108	3312730437	RES CF 1/4W 27K J
R110	3311030437	RES CF 1/4W 10K J
R111	3312730437	RES CF 1/4W 27K J
R112	3311030437	RES CF 1/4W 10K J
R113	3311020437	RES CF 1/4W 1K J
R114	3311020437	RES CF 1/4W 1K J
R115	3316820437	RES CF 1/4W 6.8K J
R116	3311020437	RES CF 1/4W 1K J
R117	3312720437	RES CF 1/4W 2.7K J
R118	3311030437	RES CF 1/4W 10K J
R119	3313330437	RES CF 1/4W 33K J
R120	3312230437	RES CF 1/4W 22K J
R121	3311010437	RES CF 1/4W 100R J
R122	3311010437	RES CF 1/4W 100R J
R123	3312220437	RES CF 1/4W 2.2K J
R124	3312220437	RES CF 1/4W 2.2K J
R125	3312220437	RES CF 1/4W 2.2K J
R126	3311020437	RES CF 1/4W 1K J
R127	3312720437	RES CF 1/4W 2.7K J
R128	5913225000	JUMPER WIRE 0.6MM
R130	3314720437	RES CF 1/4W 4.7K J
R132	3312730437	RES CF 1/4W 27K J
R133	3311010437	RES CF 1/4W 100R J
R150	3311530437	RES CF 1/4W 15K J
R201	3311030437	RES CF 1/4W 10K J
R202	3313330437	RES CF 1/4W 33K J
R203	3311030437	RES CF 1/4W 10K J
R204	3311220437	RES CF 1/4W 1.2K J
R205	3314720437	RES CF 1/4W 4.7K J
R401	3313910437	RES CF 1/4W 390R J
R402	3316820437	RES CF 1/4W 6.8K J
R403	3311020437	RES CF 1/4W 1K J
R404	3311020437	RES CF 1/4W 1K J
R405	3313910437	RES CF 1/4W 390R J
R406	3311020437	RES CF 1/4W 1K J
R407	3311510437	RES CF 1/4W 150R J
R408	3311020437	RES CF 1/4W 1K J
R409	3311010437	RES CF 1/4W 100R J
R410	3318210437	RES CF 1/4W 820R J
R412	3317500437	RES CF 1/4W 75R J
R416	3311030437	RES CF 1/4W 10K J

R417	3311030437	RES CF 1/4W 10K J
R418	3312710437	RES CF 1/4W 270R J
R419	3312710437	RES CF 1/4W 270R J
R420	3312710437	RES CF 1/4W 270R J
R421	3317500437	RES CF 1/4W 75R J
R422	3317500437	RES CF 1/4W 75R J
R423	3317500437	RES CF 1/4W 75R J
R425	3315130437	RES CF 1/4W 51K J
R426	3311030437	RES CF 1/4W 10K J
R427	3311040437	RES CF 1/4W 100K J
R428	3313330437	RES CF 1/4W 33K J
R430	3311030437	RES CF 1/4W 10K J
R431	3311540437	RES CF 1/4W 150K J
R432	3316850437	RES CF 1/4W 6.8M J
R433	3311020437	RES CF 1/4W 1K J
R434	3311020437	RES CF 1/4W 1K J
R436	3318220437	RES CF 1/4W 8.2K J
R437	3311040437	RES CF 1/4W 100K J
R438	3311530437	RES CF 1/4W 15K J
R439	3311010437	RES CF 1/4W 100R J
R440	3313940437	RES CF 1/4W 390K J
R441	3321060457	RES MF 1/4W 10M G
R442	3311240437	RES CF 1/4W 120K J
R443	3315620437	RES CF 1/4W 5.6K J
R444	3311030437	RES CF 1/4W 10K J
R445	3317500437	RES CF 1/4W 75R J
R455	3317500437	RES CF 1/4W 75R J
R457	3311250437	RES CF 1/4W 1.2M J
R460	3311020437	RES CF 1/4W 1K J
R469	3311020437	RES CF 1/4W 1K J
R473	3316220437	RES CF 1/4W 6.2K J
R478	5913225000	JUMPER WIRE 0.6MM
R480	3311020437	RES CF 1/4W 1K J
R481	3311020437	RES CF 1/4W 1K J
R482	3311020437	RES CF 1/4W 1K J
R489	3315610437	RES CF 1/4W 560R J
R493	3315610437	RES CF 1/4W 560R J
R494	3315610437	RES CF 1/4W 560R J
R498	3311010437	RES CF 1/4W 100R J
R499	3314700437	RES CF 1/4W 47R J
R501	3315620437	RES CF 1/4W 5.6K J
R502	3311520437	RES CF 1/4W 1.5K J
R503	3311040437	RES CF 1/4W 100K J
R504	3311530437	RES CF 1/4W 15K J
R505	3311030437	RES CF 1/4W 10K J
R506	3313930437	RES CF 1/4W 39K J
R510	3311030437	RES CF 1/4W 10K J
R511	3312230437	RES CF 1/4W 22K J
R512	3318230437	RES CF 1/4W 82K J
R513	3313940437	RES CF 1/4W 390K J
R514	3311530437	RES CF 1/4W 15K J
R515	3311040437	RES CF 1/4W 100K J
R517	3311530437	RES CF 1/4W 15K J
R518	3314730437	RES CF 1/4W 47K J
R519	3311530437	RES CF 1/4W 15K J
R520	3316820437	RES CF 1/4W 6.8K J
R521	3311520437	RES CF 1/4W 1.5K J
R522	3315620437	RES CF 1/4W 5.6K J
R523	3315620437	RES CF 1/4W 5.6K J
R524	3312720437	RES CF 1/4W 2.7K J
R528	5913225000	JUMPER WIRE 0.6MM
R529	5913225000	JUMPER WIRE 0.6MM
R530	5913225000	JUMPER WIRE 0.6MM
R533	3312230437	RES CF 1/4W 22K J
R534	3313330437	RES CF 1/4W 33K J
R537	3314720437	RES CF 1/4W 4.7K J
R538	3313320437	RES CF 1/4W 3.3K J
R539	3313320437	RES CF 1/4W 3.3K J
R541	3311020437	RES CF 1/4W 1K J
R542	3314720437	RES CF 1/4W 4.7K J
R543	3311020437	RES CF 1/4W 1K J
R549	3316230437	RES CF 1/4W 62K J
R550	3315620437	RES CF 1/4W 5.6K J
R551	3311010437	RES CF 1/4W 100R J
R552	3311010437	RES CF 1/4W 100R J
R558	3314740437	RES CF 1/4W 470K J
R559	3312210437	RES CF 1/4W 220R J
R561	3311830437	RES CF 1/4W 18K J
R566	5913225000	JUMPER WIRE 0.6MM
R570	5913225000	JUMPER WIRE 0.6MM
R571	3311030437	RES CF 1/4W 10K J
R572	3311020437	RES CF 1/4W 1K J
R601	3314720437	RES CF 1/4W 4.7K J
R602	3311020437	RES CF 1/4W 1K J
R603	3352211137	RES MO 1W 220R J
R604	3353312137	RES MO 2W 330R J
R605	3312700437	RES CF 1/4W 27R J
R606	3372241137	RES MG 1W 220K J
R607	3354722137	RES MO 2W 4.7K J
R608	3354722137	RES MO 2W 4.7K J
R609	3311040437	RES CF 1/4W 100K J
R610	3311030437	RES CF 1/4W 10K J
R611	3312240437	RES CF 1/4W 220K J
R612	3312430437	RES CF 1/4W 24K J
R613	3312230437	RES CF 1/4W 22K J
R614	3311030437	RES CF 1/4W 10K J
R615	3313340437	RES CF 1/4W 330K J
R616	3311030437	RES CF 1/4W 10K J
R617	3311040437	RES CF 1/4W 100K J
R618	3311030437	RES CF 1/4W 10K J
R619	3311530437	RES CF 1/4W 15K J
R650	3318220437	RES CF 1/4W 8.2K J
R651	3314720437	RES CF 1/4W 4.7K J
R652	3311230437	RES CF 1/4W 12K J
R654	3362700237	RES FUSE 1/2W 27R J
R655	3316820437	RES CF 1/4W 6.8K J
R656	3311030437	RES CF 1/4W 10K J
R657	3314730437	RES CF 1/4W 47K J
R658	3362290237	RES FUSE 1/2W 2.2R J
R659	3311540437	RES CF 1/4W 150K J
R660	3311540437	RES CF 1/4W 150K J
R661	3311040437	RES CF 1/4W 100K J
R665	3313940437	RES CF 1/4W 390K J
R670	3311030437	RES CF 1/4W 10K J
R671	3316890437	RES CF 1/4W 6.8R J
R701	3313920437	RES CF 1/4W 3.9K J
R702	3311030437	RES CF 1/4W 10K J
R703	3316830437	RES CF 1/4W 68K J
R704	3311830437	RES CF 1/4W 18K J
R705	3311030437	RES CF 1/4W 10K J
R706	3326880237	RES MF 1/2W 0.68R J
R707	3313320437	RES CF 1/4W 3.3K J
R708	3352212134	RES MO 2W 220R J
R709	3313310237	RES CF 1/2W 330R J
R710	3312710237	RES CF 1/2W 270R J
R711	3364791137	RES FUSE 1W 4.7R J
R715	3311020437	RES CF 1/4W 1K J
R716	3316820437	RES CF 1/4W 6.8K J
R720	3362280237	RES FUSE 1/2W 0.22R J
R801	3382295130	RES WW 5W 2.2R J RAD.
R802	3311040237	RES CF 1/2W 100K J
R803	3315620437	RES CF 1/4W 5.6K J
R804	3318240237	RES CF 1/2W 820K J
R805	3313341137	RES CF 330K 1W J
R807	3313910437	RES CF 1/4W 390R J
R808	3311030437	RES CF 1/4W 10K J
R809	3364781137	RES FUS 0.47R 1W J
R810	3311010437	RES CF 1/4W 100R J
R811	3363395137	RES FUSE 5W 3.3R J
R812	3353301137	RES MO 33R 1W J
R813	3311030437	RES CF 1/4W 10K J
R814	3314720437	RES CF 1/4W 4.7K J
R815	3355632137	RES MO 2W 56K J
R816	3374750237	RES MG 1/2W 4.7M J
R818	3352231137	RES MO 1W 22K J
R820	3363380437	RES FUSE 1/4W 0.33R J
R821	3362280237	RES FUSE 1/2W 0.22R J
R822	3314730437	RES CF 1/4W 47K J
R823	3362280237	RES FUSE 1/2W 0.22R J
R824	3311010437	RES CF 1/4W 100R J
R825	3311030437	RES CF 1/4W 10K J
R826	3311040237	RES CF 1/2W 100K J
R827	3313320457	RES CF 1/4W 3.3K G
R828	3313910457	RES CF 1/4W 390R G
R829	3352211137	RES MO 1W 220R J
R830	3355632137	RES MO 2W 56K J
R840	3311020437	RES CF 1/4W 1K J
S105	5913225000	JUMPER WIRE 0.6MM
S109	5913225000	JUMPER WIRE 0.6MM
S110	5913225000	JUMPER WIRE 0.6MM
S121	5913225000	JUMPER WIRE 0.6MM
S200	5913225000	JUMPER WIRE 0.6MM
S201	5913225000	JUMPER WIRE 0.6MM
S202	5913225000	JUMPER WIRE 0.6MM
S401	5913225000	JUMPER WIRE 0.6MM
S402	5913225000	JUMPER WIRE 0.6MM
S408	5913225000	JUMPER WIRE 0.6MM
S409	5913225000	JUMPER WIRE 0.6MM
S412	5913225000	JUMPER WIRE 0.6MM
S415	5913225000	JUMPER WIRE 0.6MM
S416	5913225000	JUMPER WIRE 0.6MM
S420	5913225000	JUMPER WIRE 0.6MM
S505	5913225000	JUMPER WIRE 0.6MM
S508	5913225000	JUMPER WIRE 0.6MM
S510	5913225000	JUMPER WIRE 0.6MM
S511	5913225000	JUMPER WIRE 0.6MM
S512	5913225000	JUMPER WIRE 0.6MM
S513	5913225000	JUMPER WIRE 0.6MM
S515	5913225000	JUMPER WIRE 0.6MM
S516	5913225000	JUMPER WIRE 0.6MM
S517	5913225000	JUMPER WIRE 0.6MM
S518	5913225000	JUMPER WIRE 0.6MM
S601	5913225000	JUMPER WIRE 0.6MM
S850	5913225000	JUMPER WIRE 0.6MM

SC401	3862050004	SOCKET SCART (R)
TH801	3391803000	THERM.PTC DEGAUSS DUAL 250V
TR601	4050002112	LINE DRIVER 110'
TR602	4030002111	TRF FBT (04&12)
TR801	4060002110	LINE FILTER 2*32MH
TR802	4040905110	TRF SMPS 28"(AK12)
TU101	3924224301	TUNER KHC2000 (VECO3)
VR401	3341031100	RES ADJ 0.15W 10K M HOR
VR402	3341031100	RES ADJ 0.15W 10K M HOR
VR650	3341041210	RES ADJ 0.15W 100K M VER.
VR652	3341031210	RES ADJ 0.15W 10K M VER
VR701	3344723310	RES ADJ 0.15W 4.7K M HOR
VR702	3341011100	RES ADJ 0.15W 100R M HOR
VR703	3341031100	RES ADJ 0.15W 10K M HOR
VR801	3342521100	RES ADJ 0.15W 2.5K M HOR
X101	3840127020	XTAL 27MHZ.
X401	3840144310	XTAL 4.433619 MHZ
X501	3840110020	XTAL 10MHZ
Z201	3750219630	FILTER SAW G1963
Z401	3780105500	FILTER SER TRAP TPS 5.5MHZ
	2046500920	**UKV B.ASSY.UV12**
	5105035006	SINGLE BATTERY CONTACT (+)
	5105035005	SINGLE BATTERY CONTACT (-)
	4400103010	RUBBER PAD TRP10
	8412012909	SCREW SK C ZNSY YSMB 2.9*9.5
	5105035007	DOUBLE BATTERY CONTACT UKV-900
C100	3084700056	CAP EL 47UF 6.3V M (4*7MM)
D100	3515033300	LED INFRARED IR333
IC1	3621530109	IC SAA3010T
Q101	3611905481	TR BC548C
Q102	3611903270	TR BC327
R100	3316820830	RES SMD 1/8W 6.8K J
R101	3311010830	RES SMD 1/8W 100R J
R102	3311020830	RES SMD 1/8W 1K J
R103	3316800830	RES SMD 1/8W 68R J
R104	3311030830	RES SMD 1/8W 10K J
R105	3314730830	RES SMD 1/8W 47K J
R106	3311590830	RES SMD 1/8W 1R5 J
X100	3840142900	XTAL REZ 429KHZ
	2052500100	**JACK B.ASSY.HP01 (STEREO)**
JK01	3863120100	JACK HEADPHONE JY3531-01-010
PL01	3861200201	CONN.MALE 2P (2002)
PL02	3861200201	CONN.MALE 2P (2002)
PL03	4930400200	CON.ASSY 2/40 SPEAKER
PL04	4930400200	CON.ASSY 2/40 SPEAKER
R01	3315610237	RES CF 1/2W 560R J
R02	3315610237	RES CF 1/2W 560R J
S02	5913225000	JUMPER WIRE 0.6MM
S04	5913225000	JUMPER WIRE 0.6MM
	2050200208	ON/OFF ASSY.PROM/VDE/2.5/50
	4390103001	SWITCH ON/OFF
	4930500203	CABLE AC 2/50 W/CONN (VDE)
	4941412500	POWER CORD 2.5MT (VDE)
	5515035005	CABLE TIE
	5522025360	SWITCH INSULATION DOOR LK101
	2046400100	**SOUND B.ASSY.SS02 DOUBLE SCART**
C01	3014741036	CAP MKT 470NF 63V J
C02	3014741036	CAP MKT 470NF 63V J
C03	3014741036	CAP MKT 470NF 63V J
C04	3014741036	CAP MKT 470NF 63V J
C05	3014741036	CAP MKT 470NF 63V J
C06	3014741036	CAP MKT 470NF 63V J
D01	3531941480	DIODE 1N4148
D02	3531941480	DIODE 1N4148
D03	3531941480	DIODE 1N4148
D04	3531941480	DIODE 1N4148
D05	3531941480	DIODE 1N4148
D06	3531941480	DIODE 1N4148
PL01	3864010800	PIN F 8P/2.5MM
Q01	3611908488	TR BC848B SMD
Q013	3611908488	TR BC848B SMD
Q015	3611908488	TR BC848B SMD
Q02	3611908488	TR BC848B SMD
Q03	3611908488	TR BC848B SMD
Q04	3611908588	TR BC858B SMD
Q05	3611908488	TR BC848B SMD
Q06	3611908488	TR BC848B SMD
Q07	3611908488	TR BC848B SMD
Q08	3611908488	TR BC848B SMD
Q09	3611908488	TR BC848B SMD
Q10	3611908488	TR BC848B SMD
Q11	3611908488	TR BC848B SMD
Q12	3611908488	TR BC848B SMD
Q14	3611908488	TR BC848B SMD
R01	3311030830	RES SMD 1/8W 10K J
R02	3311030830	RES SMD 1/8W 10K J
R03	3311030830	RES SMD 1/8W 10K J
R04	3311030830	RES SMD 1/8W 10K J
R05	3311040830	RES SMD 1/8W 100K J
R06	3311040830	RES SMD 1/8W 100K J
R07	3314730830	RES SMD 1/8W 47K J
R08	3311020830	RES SMD 1/8W 1K J
R09	3314730830	RES SMD 1/8W 47K J
R10	3311030830	RES SMD 1/8W 10K J
R11	3311040830	RES SMD 1/8W 100K J
R12	3311040830	RES SMD 1/8W 100K J
R13	3314730830	RES SMD 1/8W 47K J
R14	3311020830	RES SMD 1/8W 1K J
R15	3314730830	RES SMD 1/8W 47K J
R16	3311030830	RES SMD 1/8W 10K J
R17	3311040830	RES SMD 1/8W 100K J
R18	3311040830	RES SMD 1/8W 100K J
R19	3314730830	RES SMD 1/8W 47K J
R20	3311020830	RES SMD 1/8W 1K J
R21	3314730830	RES SMD 1/8W 47K J
R22	3317500830	RES SMD 1/8W 75R J
	2036001200	**TOUCH B.ASSY.TK18**
CN01	4930600200	CON.ASSY 2/60 FC
CN02	4930600301	CON.ASSY.3/60 PRE-AMP
CN03	4930420801	CONN.ASSY.8/42
LD501	3511023100	LED RED AK07/08
MD501	3660536000	PREAMPLIFIER TFMS5360
SW501	4390415000	SWITCH TACT
SW502	4390415000	SWITCH TACT
SW503	4390415000	SWITCH TACT
SW504	4390415000	SWITCH TACT
	2038009920	**CRT B.ASSY.TP12-1 28 PHL (N2)**
C901	3061020146	CAP SER 1NF 50V K B
C902	3054710836	CAP SER 470PF 50 J SL
C903	3061020146	CAP SER 1NF 50V K B
C904	3061020146	CAP SER 1NF 50V K B
C905	3054710836	CAP SER 470PF 50 J SL
C906	3068210146	CAP SER 820PF 50V K B
C907	3061020146	CAP SER 1NF 50V K B
C908	3054710836	CAP SER 470PF 50 J SL
C909	3068210146	CAP SER 820PF 50V K B
C910	3055610836	CAP SER 560PF 50V J SL
C911	3055610836	CAP SER 560PF 50V J SL
C912	3055610836	CAP SER 560PF 50V J SL
C913	3201024148	CAP SER 1NF 2KV K B
C914	3084790856	CAP EL 4.7UF 50V M
C915	3081010356	CAP EL 100UF 16V M
C916	3061040396	CAP SER 100NF 50V Z F
D901	5913225000	JUMPER WIRE 0.6MM
D902	5913225000	JUMPER WIRE 0.6MM
D903	5913225000	JUMPER WIRE 0.6MM
D904	3551940030	DIODE 1N4003 TA
D905	3551940030	DIODE 1N4003 TA
D906	3551940030	DIODE 1N4003 TA
D907	3531941480	DIODE 1N4148
D908	3531941480	DIODE 1N4148
GND2	8073022504	RIVET BR 2.5*4.5
PL901	4930450602	CON.ASSY.6/45 (CRT)
PL902	3862021000	SOCKET CRT NARROWNECK METALLO
PL903	4930360300	CON.ASSY 3/36 FLAMAN
Q902	3611508690	TR BF869S
Q904	3611508690	TR BF869S
Q906	3611508690	TR BF869S
Q907	3611504210	TR BF421
Q908	3611504210	TR BF421
Q909	3611504210	TR BF421
Q911	3611905580	TR BC558B
R901	3311220437	RES CF 1/4W 1.2K J
R903	3351032137	RES MO 2W 10K J
R905	5913225000	JUMPER WIRE 0.6MM
R906	3311510437	RES CF 1/4W 150R J
R907	3311820437	RES CF 1/4W 1.8K J
R909	3351032137	RES MO 2W 10K J
R911	5913225000	JUMPER WIRE 0.6MM
R912	3311510437	RES CF 1/4W 150R J
R913	3311220437	RES CF 1/4W 1.2K J
R915	3351032137	RES MO 2W 10K J
R917	5913225000	JUMPER WIRE 0.6MM
R918	3311510437	RES CF 1/4W 150R J
R919	3316840437	RES CF 1/4W 680K J
R920	3311220437	RES CF 1/4W 1.2K J
R921	3311520237	RES CF 1/2W 1.5K J
R922	3316840437	RES CF 1/4W 680K J
R923	3311220437	RES CF 1/4W 1.2K J
R924	3311520237	RES CF 1/2W 1.5K J
R925	3316840437	RES CF 1/4W 680K J
R926	3311220437	RES CF 1/4W 1.2K J
R927	3311520237	RES CF 1/2W 1.5K J
R928	3356892137	RES MO 2W 6.8R J
R929	3314740237	RES CF 1/2W 470K J
R931	3311540437	RES CF 1/4W 150K J
R932	3319130437	RES CF 1/4W 91K J
R933	3315620437	RES CF 1/4W 5.6K J
R934	3311510437	RES CF 1/4W 150R J
R936	3312200437	RES CF 1/4W 22R J
R952	3314710437	RES CF 1/4W 470R J
S901	5913225000	JUMPER WIRE 0.6MM
SCREEN	5353035051	TEST PIN 1.1MM
VR951	3341021200	RES ADJ 0.15W 1K M HOR
VR953	3341021200	RES ADJ 0.15W 1K M HOR

	1027000000	SPEAKER BRACKET ASSY.7294/95
	5507030012	SPEAKER LID (R) 7294/95 (I)
	5507030013	SPEAKER LID (L) 7294/95 (I)
	5537030000	SPK.BRACKET 7294/95 (I)
	5560130000	ISOLATION FOAM
	5560130001	ACOUSTIC SPONGE
	3970801000	SPEAKER 8R 10W
	4930400200	CON.ASSY 2/40 SPEAKER
	4930600201	CON.ASSY 2/60 (SPEAKER)
	5537015000	SPK.BRACKET COVER 7294/95 (I)
	2042601520	**SOUND B.ASSY.GN03 NIBG351W/FTZ**
	8051110300	NUT C ZN BOTTOM M3
	5326065015	HEATSINK GN03/GS04/GS05/SN03
	8214013006	SCREW C NI YSMB M3*6
C301	3054720030	CAP SMD 4.7NF 50V J
C302	3061030240	CAP SMD 10NF 50V K
C303	3013341036	CAP MKT 330NF 63V J
C304	3054720030	CAP SMD 4.7NF 50V J
C305	3064730240	CAP SMD 47NF 50V K X7R
C309	3061040240	CAP SMD 100NF 50V K
C310	3062230240	CAP SMD 22NF 50V K R
C311	3081000856	CAP EL 10UF 50V M
C312	3061030240	CAP SMD 10NF 50V K
C313	3082200856	CAP EL 22UF 50V M
C314	3061040240	CAP SMD 100NF 50V K
C315	3081000856	CAP EL 10UF 50V M
C316	3061030240	CAP SMD 10NF 50V K
C318	3081000856	CAP EL 10UF 50V M
C319	3081090856	CAP EL 1UF 50V M
C320	3081000856	CAP EL 10UF 50V M
C321	3061040240	CAP SMD 100NF 50V K
C322	3012231136	CAP MKT 22NF 100V J
C323	3061040240	CAP SMD 100NF 50V K
C324	3014741036	CAP MKT 470NF 63V J
C325	3014741036	CAP MKT 470NF 63V J
C326	3081000856	CAP EL 10UF 50V M
C327	3013341036	CAP MKT 330NF 63V J
C328	3061030240	CAP SMD 10NF 50V K
C329	3081000856	CAP EL 10UF 50V M
C330	3012231136	CAP MKT 22NF 100V J
C333	3051000020	CAP SMD 10PF 50V D COG
C335	3052210030	CAP SMD 220PF 50V J
C337	3061030240	CAP SMD 10NF 50V K
C338	3081000856	CAP EL 10UF 50V M
C339	3012231136	CAP MKT 22NF 100V J
C340	3061030240	CAP SMD 10NF 50V K
C341	3051010030	CAP SMD 100PF 50V J
C342	3061030240	CAP SMD 10NF 50V K
C343	3051010030	CAP SMD 100PF 50V J
C344	3062230240	CAP SMD 22NF 50V K R
C345	3081000856	CAP EL 10UF 50V M
C348	3012231136	CAP MKT 22NF 100V J
C349	3014741036	CAP MKT 470NF 63V J
C350	3061040240	CAP SMD 100NF 50V K
C351	3081010356	CAP EL 100UF 16V M
C355	3011041036	CAP MKT 100NF 63V J
C356	3081010356	CAP EL 100UF 16V M
C357	3011041036	CAP MKT 100NF 63V J
C358	3014741036	CAP MKT 470NF 63V J
C360	3012231136	CAP MKT 22NF 100V J
C361	3012231136	CAP MKT 22NF 100V J
C362	3081010556	CAP EL 100UF 35V M
C363	3081520654	CAP EL 1500UF 40V M
C364	3011041036	CAP MKT 100NF 63V J
C365	3081020554	CAP EL 1000UF 35V M
C366	3081020554	CAP EL 1000UF 35V M
C368	3082290856	CAP EL 2.2UF 50V M
C369	3062230240	CAP SMD 22NF 50V K R
C370	3014731036	CAP MKT 47NF 63V J
C371	3011031036	CAP MKT 10NF 63V J
C372	3821120600	JUMPER SMD 1206
C373	3012231136	CAP MKT 22NF 100V J
C374	3014741036	CAP MKT 470NF 63V J
C375	3014721036	CAP MKT 4.7NF 63V J
C376	3821120600	JUMPER SMD 1206
C377	3015621036	CAP MKT 5.6NF 63V J
C379	3048210936	CAP PS 820PF 50V J
C380	3062230240	CAP SMD 22NF 50V K R
C381	3014741036	CAP MKT 470NF 63V J
C382	3014741036	CAP MKT 470NF 63V J
C383	3016831036	CAP MKT 68NF 63V J
C384	3011041036	CAP MKT 100NF 63V J
C385	3014721036	CAP MKT 4.7NF 63V J
C387	3056810836	CAP SER 680PF 50V J SL
C389	3012231136	CAP MKT 22NF 100V J
D303	3520504050	DIODE VAR CAPBB405
D304	3531941488	DIODE 1N4148 SMD
D305	5913225000	JUMPER WIRE 0.6MM
IC301	3621525461	IC TDA2546A V4
IC303	3621572830	IC SAA7283ZP
IC304	3621584250	IC TDA 8425/V7
IC305	3621515210	IC TDA1521A
L301	4011680032	FIXED COIL 6.8UH J AXI
L305	4011680032	FIXED COIL 6.8UH J AXI
PL301	3861200200	CONN.MALE 2P (2702)
PL302	3861200200	CONN.MALE 2P (2702)
PL303	3861501102	CONN.FEMALE 11P MOLEX (AHPB)
PL304	3861501402	CONN.FEMALE 14P MOLEX
Q302	3611908488	TR BC848B SMD
Q303	3611908488	TR BC848B SMD
Q304	3611908488	TR BC848B SMD
R301	3318210830	RES SMD 1/8W 820R J
R302	3318210830	RES SMD 1/8W 820R J
R303	3311010437	RES CF 1/4W 100R J
R304	3311010437	RES CF 1/4W 100R J
R305	3311520830	RES SMD 1/8W 1.5K J
R307	3311500830	RES SMD 15R 1/8W J
R308	3313310830	RES SMD 1/8W 330R J
R311	3314740830	RES SMD 1/8W 470K J
R312	3312230830	RES SMD 1/8W 22K J
R313	3311030830	RES SMD 1/8W 10K J
R318	3312220830	RES SMD 1/8W 2.2K J
R319	3311040437	RES CF 1/4W 100K J
R322	3311010830	RES SMD 1/8W 100R J
R326	3313310437	RES CF 1/4W 330R J
R329	3314720830	RES SMD 1/8W 4.7K J
R332	3311530437	RES CF 1/4W 15K J
R334	3311020830	RES SMD 1/8W 1K J
R335	3311010437	RES CF 1/4W 100R J
R336	3311010437	RES CF 1/4W 100R J
R337	3311040830	RES SMD 1/8W 100K J
R338	3318290437	RES CF 1/4W 8.2R J
R339	3318290437	RES CF 1/4W 8.2R J
R340	5913225000	JUMPER WIRE 0.6MM
R341	3311230437	RES CF 1/4W 12K J
R342	3312430437	RES CF 1/4W 24K J
R348	3062220240	CAP SMD 2.2NF 50V K R
R349	3315610830	RES SMD 1/8W 560R J
R350	3318210830	RES SMD 1/8W 820R J
R351	3312240830	RES SMD 1/8W 220K J
R352	3311230437	RES CF 1/4W 12K J
R353	3312430437	RES CF 1/4W 24K J
R354	3311040830	RES SMD 1/8W 100K J
R355	3316840830	RES SMD 1/8W 680K J
R356	3062220240	CAP SMD 2.2NF 50V K R
R360	3311520830	RES SMD 1/8W 1.5K J
R362	3315610830	RES SMD 1/8W 560R J
R363	3318210830	RES SMD 1/8W 820R J
R364	3312230830	RES SMD 1/8W 22K J
R365	3312240830	RES SMD 1/8W 220K J
R367	3311040830	RES SMD 1/8W 100K J
R369	3313330830	RES SMD 1/8W 33K J
R390	3054720030	CAP SMD 4.7NF 50V J
R391	3054720030	CAP SMD 4.7NF 50V J
S301	3821120600	JUMPER SMD 1206
VL301	4020006031	ADJ.COIL VIF 38.9MHZ 0=60
VL302	4020003030	ADJ.COIL 113CNS-K1763HM
X301	3840181921	XTAL 8.192MHZ
Z301	3750292510	FILTER SAW OFWG9251M
Z302	3760105500	FILTER SER 5.5MHZ SFE 5.5MB
	1003004710	CRT ASSY.28/PHL A66EAK71X01
	3962821122	CRT 28/PHL A66EAK71X01
	4072511000	DEGAUSS COIL 25
	4915402073	CABLE 1/40 CRT EARTHING (25)
	4930450200	CON.ASSY 2/45 VERT.DEFL.
	4930450201	CON.ASSY 2/45 HORZ.DEF.
	5105135002	EARTH SPRING D51/56
	5515035007	DEGAUSS COIL HOLDER W.NAIL (I)
	2042200850	**SOUND B.ASSY.GS04 351 1SC 12**
	8051110300	NUT C ZN BOTTOM M3
	5326065015	HEATSINK GN03/GS04/GS05/SN03
	8061223006	KNURL WASHER C ZNSY 3*6*04
	8214013006	SCREW C NI YSMB M3*6
C301	3054720030	CAP SMD 4.7NF 50V J
C302	3061030240	CAP SMD 10NF 50V K
C303	3082200856	CAP EL 22UF 50V M
C304	3082290856	CAP EL 2.2UF 50V M
C305	3082290856	CAP EL 2.2UF 50V M
C306	3052700136	CAP SER 27PF 50V J CH
C307	3061030240	CAP SMD 10NF 50V K
C308	3048210936	CAP PS 820PF 50V J
C309	3048210936	CAP PS 820PF 50V J
C310	3084790856	CAP EL 4.7UF 50V M
C311	3054720030	CAP SMD 4.7NF 50V J
C317	3081020554	CAP EL 1000UF 35V M
C318	3081020554	CAP EL 1000UF 35V M
C319	3081010556	CAP EL 100UF 35V M
C320	3012231136	CAP MKT 22NF 100V J
C321	3012231136	CAP MKT 22NF 100V J
C322	3081520654	CAP EL 1500UF 40V M
C323	3061040240	CAP SMD 100NF 50V K
C330	3061040240	CAP SMD 100NF 50V K
C331	3014741036	CAP MKT 470NF 63V J
C333	3014741036	CAP MKT 470NF 63V J
C338	3014741036	CAP MKT 470NF 63V J
C339	3081010456	CAP EL 100UF 25V M
C340	3061040240	CAP SMD 100NF 50V K
C341	3011041036	CAP MKT 100NF 63V J
C342	3081010456	CAP EL 100UF 25V M
C343	3011041036	CAP MKT 100NF 63V J

C344	3014741036	CAP MKT 470NF 63V J
C345	3015621036	CAP MKT 5.6NF 63V J
C346	3061020146	CAP SER 1NF 50V K B
C347	3015621036	CAP MKT 5.6NF 63V J
C348	3011041036	CAP MKT 100NF 63V J
C349	3015621036	CAP MKT 5.6NF 63V J
C350	3082290856	CAP EL 2.2UF 50V M
C351	3016831036	CAP MKT 68NF 63V J
C352	3082290856	CAP EL 2.2UF 50V M
C360	3053310030	CAP SMD 330PF 50V J
C361	3053310030	CAP SMD 330PF 50V J
C364	3061020146	CAP SER 1NF 50V K B
C365	3051810030	CAP SMD 180PF 50V J
C366	3061820240	CAP SMD 1.8NF 50V K R
C367	3061030240	CAP SMD 10NF 50V K
C368	3061030240	CAP SMD 10NF 50V K
C369	3061040240	CAP SMD 100NF 50V K
C371	3082290856	CAP EL 2.2UF 50V M
C372	3081000856	CAP EL 10UF 50V M
C373	3082210356	CAP EL 220UF 16V M
C374	3082290856	CAP EL 2.2UF 50V M
C375	3082290856	CAP EL 2.2UF 50V M
D302	5913225000	JUMPER WIRE 0.6MM
IC301	3621538570	IC TDA3857/V3
IC302	3621598400	IC TDA9840/V2
IC303	3621584250	IC TDA 8425/V7
IC304	3621515210	IC TDA1521A
L301	4012475036	FIXED COIL 4.7MH Q50 J
LT301	4020006031	ADJ.COIL VIF 38.9MHZ 0=60
LT302	4020003030	ADJ.COIL 113CNS-K1763HM
LT303	4020003030	ADJ.COIL 113CNS-K1763HM
PL301	3861200200	CONN.MALE 2P (2702)
PL302	3861200200	CONN.MALE 2P (2702)
PL303	3861501102	CONN.FEMALE 11P MOLEX (AHPB)
PL304	3861501402	CONN.FEMALE 14P MOLEX
R301	3315610830	RES SMD 1/8W 560R J
R302	3315610830	RES SMD 1/8W 560R J
R304	3314710830	RES SMD 1/8W 470R J
R305	3314710830	RES SMD 1/8W 470R J
R307	3311010830	RES SMD 1/8W 100R J
R308	3311010830	RES SMD 1/8W 100R J
R311	3318290437	RES CF 1/4W 8.2R J
R312	3318290437	RES CF 1/4W 8.2R J
R313	3311040830	RES SMD 1/8W 100K J
R314	5913225000	JUMPER WIRE 0.6MM
R322	3312730830	RES SMD 1/8W 27K J
R323	3312730830	RES SMD 1/8W 27K J
R330	3311030830	RES SMD 1/8W 10K J
R331	3311030830	RES SMD 1/8W 10K J
R334	3313320830	RES SMD 1/8W 3.3K J
R335	3314710830	RES SMD 1/8W 470R J
R336	3311010437	RES CF 1/4W 100R J
R337	3311010437	RES CF 1/4W 100R J
R338	3313320830	RES SMD 1/8W 3.3K J
R339	3314720830	RES SMD 1/8W 4.7K J
R340	3314720830	RES SMD 1/8W 4.7K J
R341	3312730830	RES SMD 1/8W 27K J
R360	3312220830	RES SMD 1/8W 2.2K J
R361	3312220830	RES SMD 1/8W 2.2K J
R364	3314710830	RES SMD 1/8W 470R J
VR301	3341031210	RES ADJ 0.15W 10K M VER
X301	3840110020	XTAL 10MHZ
Z301	3750292510	FILTER SAW OFWG9251M
Z302	3760105701	FILTER SER SFT 5.74MA
Z303	3760105501	FILTER SER SFT 5.5MA
	2050200211	ON/OFF ASSY.PROM/FTZ/2.4/50
	4390103001	SWITCH ON/OFF
	4930500203	CABLE AC 2/50 W/CONN (VDE)
	4941412405	POWER CORD 2.4MT (W/FILTER)
	5515035005	CABLE TIE
	5522025360	SWITCH INSULATION DOOR LK101

	2042200820	**SOUND B.ASSY.GS05 CTV551**
C301	3054720030	CAP SMD 4.7NF 50V J
C302	3061030240	CAP SMD 10NF 50V K
C303	3082200856	CAP EL 22UF 50V M
C304	3082290856	CAP EL 2.2UF 50V M
C305	3082290856	CAP EL 2.2UF 50V M
C306	3052700136	CAP SER 27PF 50V J CH
C308	3048210936	CAP PS 820PF 50V J
C309	3048210936	CAP PS 820PF 50V J
C310	3084790856	CAP EL 4.7UF 50V M
C311	3054720030	CAP SMD 4.7NF 50V J
C317	3081020554	CAP EL 1000UF 35V M
C318	3081020554	CAP EL 1000UF 35V M
C319	3081010556	CAP EL 100UF 35V M
C320	3012231136	CAP MKT 22NF 100V J
C321	3012231136	CAP MKT 22NF 100V J
C322	3081020554	CAP EL 1000UF 35V M
C323	3061040240	CAP SMD 100NF 50V K
C330	3061040240	CAP SMD 100NF 50V K
C331	3014741036	CAP MKT 470NF 63V J
C333	3014741036	CAP MKT 470NF 63V J
C338	3014741036	CAP MKT 470NF 63V J
C339	3081010456	CAP EL 100UF 25V M
C340	3061040240	CAP SMD 100NF 50V K
C341	3011041036	CAP MKT 100NF 63V J
C342	3081010456	CAP EL 100UF 25V M
C343	3014731036	CAP MKT 47NF 63V J
C344	3014741036	CAP MKT 470NF 63V J
C345	3015621036	CAP MKT 5.6NF 63V J
C346	3061020146	CAP SER 1NF 50V K B
C347	3015621036	CAP MKT 5.6NF 63V J
C348	3014731036	CAP MKT 47NF 63V J
C349	3015621036	CAP MKT 5.6NF 63V J
C350	3082290856	CAP EL 2.2UF 50V M
C351	3016831036	CAP MKT 68NF 63V J
C352	3082290856	CAP EL 2.2UF 50V M
C360	3053310030	CAP SMD 330PF 50V J
C361	3053310030	CAP SMD 330PF 50V J
C364	3061020146	CAP SER 1NF 50V K B
C367	3061040240	CAP SMD 100NF 50V K
C369	3012241036	CAP MKT 220NF 63V J
C374	3082290856	CAP EL 2.2UF 50V M
C375	3082290856	CAP EL 2.2UF 50V M
IC301	3621538570	IC TDA3857
IC302	3621584160	IC TDA 8416
IC303	3621584250	IC TDA 8425/V7
IC304	3621515210	IC TDA1521A
LT301	4020006031	ADJ.COIL VIF 38.9MHZ 0=60
LT302	4020003030	ADJ.COIL 113CNS-K1763HM
LT303	4020003030	ADJ.COIL 113CNS-K1763HM
PL301	3861200200	CONN.MALE 2P TUNIK (2702)
PL302	3861200200	CONN.MALE 2P TUNIK (2702)
PL303	3861501102	CONN.FEMALE 11P MOLEX (AHPB)
PL304	3861501402	CONN.FEMALE 14P MOLEX
Q301	3611908488	TR BC848B SMD
Q302	3611908488	TR BC848B SMD
R301	3315610830	RES SMD 1/8W 560R J
R302	3315610830	RES SMD 1/8W 560R J
R304	3314710830	RES SMD 1/8W 470R J
R305	3314710830	RES SMD 1/8W 470R J
R307	3311010830	RES SMD 1/8W 100R J
R308	3311010830	RES SMD 1/8W 100R J
R313	3311040830	RES SMD 1/8W 100K J
R314	3363391529	RES FUSE 1.5W 3.3R K
R322	3313330830	RES SMD 1/8W 33K J
R323	3313330830	RES SMD 1/8W 33K J
R324	3311020830	RES SMD 1/8W 1K J
R325	3311030830	RES SMD 1/8W 10K J
R326	3311030830	RES SMD 1/8W 10K J
R330	3311030830	RES SMD 1/8W 10K J
R331	3311030830	RES SMD 1/8W 10K J
R334	3313320830	RES SMD 1/8W 3.3K J
R335	3313310830	RES SMD 1/8W 330R J
R338	3313320830	RES SMD 1/8W 3.3K J
R339	3311030830	RES SMD 1/8W 10K J
R340	3311030830	RES SMD 1/8W 10K J
R341	3313310830	RES SMD 1/8W 330R J
R350	3311030830	RES SMD 1/8W 10K J
R351	3318220830	RES SMD 1/8W 8.2K J
R360	3311020830	RES SMD 1/8W 1K J
R361	3314720830	RES SMD 1/8W 4.7K J
R362	3311020830	RES SMD 1/8W 1K J
R363	3314720830	RES SMD 1/8W 4.7K J
VR301	3341031210	RES ADJ 1/6W 10K K VER.
X301	3840110020	XTAL 10MHZ
Z301	3750292510	FILTER SAW OFWG9251M
Z302	3760105701	FILTER SER SFT 5.74MA
Z303	3760105501	FILTER SER SFT 5.5MA

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 TDA8395	---	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 5.5/6.0MHZ SFE 5.5/6.0MB	5.5 MHz	5.5 MHz	5.5 MHz	5.5 MHz	5.5 MHz	6.0 MHz	6.0 MHz
Z404*	FILTER SER 6.5MHZ SFE 6.5MB	---	---	---	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 WIR	JUMPER WIRE	CONNECTED	JUMPER WIR	---	---	LINK
D522*	DIODE 1N4148	---	---	CONNECTED	---	---	---	---
J01	JUMPER WIRE	---	---	---	CONNECTED	---	---	---
J02	JUMPER WIRE	---	---	---	---	---	---	---
J03	JUMPER WIRE	---	---	---	---	CONNECTED	CONNECTED	CONNECTED
L402*	FIXED COIL 6.8UH	JUMPER WIR	JUMPER WIRE	JUMPER WIR	CONNECTED	JUMPER WIR	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

COMPONENT DIFFERENCES DEFENDING ON SOUND

	TYPE	GERMAN STEREO	NICAM+GERMA STEREO
11GN02	NICAM+GERMAN STEREO	---	CONNECTED
11GN03	NICAM STEREO	---	CONNECTED
11GS04	GERMAN STEREO	CONNECTED	---
PL303*	CONN MALE 11P	CONNECTED	CONNECTED
PL304*	CONN MALE 14P	CONNECTED	CONNECTED
C505*	CAP EL 1UF 50V M	---	---
C403*	CAP EL 2.2UF 16V M	---	---
C433*	CAP SER 47PF 50V J SL	---	---
C447*	CAP EL 2.2UF 16V M	---	---
C450*	CAP SER 1NF 50V K B	---	---
C452*	CAP EL 33UF 16V M	---	---
C484*	CAP EL 33UF 16V M	CONNECTED	CONNECTED
C485*	CAP EL 33UF 16V M	CONNECTED	CONNECTED
C486*	CAP EL 10UF 50V M	---	---
C836*	CAP SER 100NF 50V ZF	CONNECTED	CONNECTED
C837*	CAP EL 100UF 25V M	CONNECTED	CONNECTED
D501*	DIODE 1N4148	---	---
Q406*	TR BC548B	---	---
Q413*	TR BC548B	---	---
R404*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R408*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R424*	RES CF 1/4W 1K J	---	---
R450*	RES CF 1/4W 820R J	---	---
R451*	RES CF 1/4W 150R J	---	---
R452*	RES CF 1/4W 220K J	---	---
R453*	RES CF 1/4W 100K J	---	---
R454*	RES CF 1/4W 10K J	---	---
R478*	RES CF 1/4W 10K J	JUMPER WIR	JUMPER WIRE
R479*	RES CF 1/4W 100K J	---	---
R490*	RES CF 1/4W 56K J	---	---
R491*	RES CF 1/4W 68K J	---	---
R492*	RES CF 1/4W 1K J	---	---
*R495**	*RES CF 1/4W 1K J*	---	---
R508*	RES CF 1/4W 270K J	---	---
R509*	RES CF 1/4W 1K J	---	---
R520*	RES CF 1/4W 6.8K J	CONNECTED	CONNECTED
S201	JUMPER WIRE	CONNECTED	CONNECTED
S202	JUMPER WIRE	CONNECTED	CONNECTED
S402	JUMPER WIRE	CONNECTED	CONNECTED
S405	JUMPER WIRE	---	---
S407	JUMPER WIRE	---	---
S410	JUMPER WIRE	---	---
S415	JUMPER WIRE	CONNECTED	CONNECTED
S416	JUMPER WIRE	CONNECTED	CONNECTED
S503	JUMPER WIRE	---	---
S506	JUMPER WIRE	---	---
S512	JUMPER WIRE	CONNECTED	CONNECTED
S513	JUMPER WIRE	CONNECTED	CONNECTED

COMPONENTS DIFFERENCES DEPENDING ON TEXT

	TYPE	1-PAGE SIMPLE TEXT	4-PAGE SIMPLE TEXT
S. TEXT	ITS COMPONENTS ARE ON THE CHASSI	CONNECTED	CONNECTED
IC101 *	SAA5246/SAA5254	SAA5254AP(3)	SAA5246AP(4)
IC102 *	SRAM 8K8	---	CONNECTED
X101*	27MHz	CONNECTED	CONNECTED
JT1	JUMPER WIRE	CONNECTED	---
C101*	CAP SER 22NF 50V ZF	CONNECTED	CONNECTED
C102*	CAP EL 10UF 50V M	CONNECTED	CONNECTED
C103*	CAP MY 100NF 50V K	CONNECTED	CONNECTED
C104*	CAP SER 15PF/56PF 50V J SL	CAP SER 15PF 50V J CH	CAP SER 56PF 50V J SL
C105*	CAP SER 10PF/15PF 50V J CH	CAP SER 10PF 50V D CH	CAP SER 15PF 50V J CH
C106*	CAP SER 1NF 50V KB	---	CONNECTED
C108*	CAP EL 3.3UF 50V M	CONNECTED	CONNECTED
C109*	CAP EL 3.3UF 50V M	CONNECTED	CONNECTED
C110*	CAP MY 100NF 50V K	CONNECTED	CONNECTED
C111*	CAP MY 100NF 50V K	CONNECTED	CONNECTED
C112*	CAP MY 100NF 50V K	CONNECTED	CONNECTED
C113*	CAP EL 10UF 50V M	CONNECTED	CONNECTED
C114*	CAP SER 22NF 50V ZF	CONNECTED	CONNECTED
C115*	CAP EL 10UF 50V M	CONNECTED	CONNECTED
C116*	CAP SER 100NF 50V ZF	---	CONNECTED
C117*	CAP EL 10UF 50V M	---	CONNECTED
C118*	CAP SER 1NF 50V KB	CONNECTED	---
C130*	CAP SER 47PF 50V J	CONNECTED	CONNECTED
C133*	CAP SER 390PF 50V J CH	CONNECTED	CONNECTED
D102*	DIODE 1N4148	CONNECTED	CONNECTED
D103*	DIODE 1N4148	CONNECTED	CONNECTED
D104*	DIODE 1N4148	CONNECTED	CONNECTED
D105*	DIODE 1N4148	CONNECTED	CONNECTED
D106*	DIODE 1N4148	CONNECTED	CONNECTED
D107*	DIODE 1N4148	CONNECTED	CONNECTED
D108*	DIODE 1N4148	CONNECTED	CONNECTED
L101*	FIXED COIL 1UH Q45 M-A	---	CONNECTED
L102*	FIXED COIL 4.7UH Q70 K-A	CONNECTED	JUMPER WIRE
L103*	FIXED COIL 10UH Q65 K-A	CONNECTED	CONNECTED
Q101*	TR BC548B	CONNECTED	CONNECTED
Q102*	TR BC548B	CONNECTED	CONNECTED
Q103*	TR BC548B	CONNECTED	CONNECTED
Q104*	TR BC548B	---	CONNECTED
Q105*	TR BC548B	CONNECTED	CONNECTED
R102*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R103*	RES CF 1/4W 22K J	CONNECTED	CONNECTED
R104*	RES CF 1/4W 47K J	CONNECTED	CONNECTED
R105*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R106*	RES CF 1/4W 2.2K J	CONNECTED	CONNECTED
R107*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R108*	RES CF 1/4W 27K J	CONNECTED	CONNECTED
R110*	RES CF 1/4W 10K J	CONNECTED	CONNECTED
R111*	RES CF 1/4W 27K J	CONNECTED	CONNECTED
R112*	RES CF 1/4W 10K J	CONNECTED	CONNECTED
R113*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R114*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R116*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R117*	RES CF 1/4W 2.7K J	CONNECTED	CONNECTED
R118*	RES CF 1/4W 10K J	CONNECTED	CONNECTED
R119*	RES CF 1/4W 33K J	CONNECTED	CONNECTED
R120*	RES CF 1/4W 22K J	CONNECTED	CONNECTED
R121*	RES CF 1/4W 100R J	CONNECTED	CONNECTED
R122*	RES CF 1/4W 100R J	CONNECTED	CONNECTED
R123*	RES CF 1/4W 2.2K J	CONNECTED	CONNECTED
R124*	RES CF 1/4W 2.2K J	CONNECTED	CONNECTED
R125*	RES CF 1/4W 2.2K J	CONNECTED	CONNECTED
R126*	RES CF 1/4W 1K J	CONNECTED	CONNECTED
R128*	RES CF 1/4W 33K J	JUMPER WIRE	JUMPER WIRE
R130*	RES CF 1/4W 4.7K J	CONNECTED	CONNECTED
R131*	RES CF 1/4W 3.3K J	CONNECTED	---
R132*	RES CF 1/4W 27K J	CONNECTED	CONNECTED
R133*	RES CF 1/4W 100R J	CONNECTED	CONNECTED
R707*	RES CF 1/4W 3.3K J	CONNECTED	CONNECTED
S101	JUMPER WIRE	CONNECTED	---
S102	JUMPER WIRE	CONNECTED	---
S103	JUMPER WIRE	CONNECTED	---
S104	JUMPER WIRE	CONNECTED	---
S105	JUMPER WIRE	---	CONNECTED
S106	JUMPER WIRE	CONNECTED	---
S107	JUMPER WIRE	CONNECTED	---
S109	JUMPER WIRE	CONNECTED	CONNECTED
S110	JUMPER WIRE	CONNECTED	CONNECTED
S121	JUMPER WIRE	CONNECTED	CONNECTED

COMPONENDT DIFFERENCES DEFENDING ON FTZ

	TYPE	WITHOUT FTZ	WITH FTZ
CABLE	220V CABLE	CONNECTED(1)	VDE & FILTER(2)
C413*	CAP SER 820PF 50V K B	---	CONNECTED
C439*	CAP SER 820PF 50V K B	---	CONNECTED
C465*	CAP SER 47PF 50V J SL	---	CONNECTED
C466*	CAP SER 47PF 50V J SL	---	CONNECTED
C467*	CAP SER 47PF 50V J SL	---	CONNECTED
C496*	CAP SER 1.5NF 50V K B	---	CONNECTED
C497*	CAP SER 1.5NF 50V K B	---	CONNECTED
R418*	RES CF 1/4W 100R/270R J	RES CF 1/4W 100R J	RES CF 1/4W 270R J
R419*	RES CF 1/4W 100R/270R J	RES CF 1/4W 100R J	RES CF 1/4W 270R J
R420*	RES CF 1/4W 100R/270R J	RES CF 1/4W 100R J	RES CF 1/4W 270R J
R433*	RES CF 1/4W 1K J	JUMPER WIRE	CONNECTED
R434*	RES CF 1/4W 1K J	JUMPER WIRE	CONNECTED
R489*	RES CF 1/4W 560R J	JUMPER WIRE	CONNECTED
R493*	RES CF 1/4W 560R J	JUMPER WIRE	CONNECTED
R494*	RES CF 1/4W 560R J	JUMPER WIRE	CONNECTED
S400	JUMPER WIRE	CONNECTED	---

COMPONENTS DIFFERENCES DEPENDING ON SYSTEM

	TYPE	CTV551S VE1	CTV351S VE1
IC501*	IC CTV 551S/422M/351S/322M	CTV551S VE1	CTV351S VE1
IC502*	IC PCF8594/24C04/24C02	IC PCF8594/24C04	IC 24C02
X501*	XTAL 12MHz/10MHz	XTAL 12MHz	XTAL 10MHz
C511*	CAP SER 33PF/18PF 50V J SL	CAP SER 33PF 50V J SL	CAP SER 18PF 50V J S
C512*	CAP SER 33PF/18PF 50V J SL	CAP SER 33PF 50V J SL	CAP SER 18PF 50V J S
C517*	CAP MKT 100NF 63V J	CONNECTED	---
C831*	CAP EL 10UF 50V / 100UF 16V M	CAP EL 100UF 16V M	CAP EL 10UF 50V M
D510*	RES CF 1/4W 10K J/DIODE 1N4148	RES CF 1/4W 10K J	DIODE 1N4148
D511*	DIODE 1N4148	---	---
D512*	RES CF 1/4W 3.3K J /DIODE ZENER 3.6	RES CF 1/4W 3.3K J	DIODE 1N4148
D514*	DIODE ZENER 3.6V/ RES CF 1/4W 390R	RES CF 1/4W 390R J	DIODE ZENER 3.6V
D518*	DIODE ZENER 3.6V/ RES CF 1/4W 390R	DIODE ZENER 3.6V	RES CF 1/4W 390R J
D525*	DIODE 1N4148	---	CONNECTED
Q407*	TR BC548B	---	---
Q503*	TR BC558B/BC548B	TR BC548B	TR BC558B
Q504*	TR BC548B	CONNECTED	CONNECTED
Q511*	TR BC548B	CONNECTED	---
R206*	RES CF 1/4W 10M J	---	---
R448*	RES CF 1/4W 10K J	---	---
R449*	RES CF 1/4W 62K J	---	---
R510*	RES CF 1/4W 27K/10K J	RES CF 1/4W 27K J	RES CF 1/4W 10K J
R512*	RES CF 1/4W 27K/82K J	RES CF 1/4W 27K J	RES CF 1/4W 82K J
R513*	RES CF 1/4W 150K/390K J	RES CF 1/4W 150K J	RES CF 1/4W 390K J
R514*	RES CF 1/4W 27K/15K J	RES CF 1/4W 27K J	RES CF 1/4W 15K J
R515*	RES CF 1/4W 270K/100K J	RES CF 1/4W 270K J	RES CF 1/4W 100K J
R519*	RES CF 1/4W 47K/15K J	RES CF 1/4W 47K J	RES CF 1/4W 15K J
R525*	RES CF 1/4W 47K J	CONNECTED	---
R526*	RES CF 1/4W 47K J	CONNECTED	---
R533*	RES CF 1/4W 47K/22K J	RES CF 1/4W 47K J	RES CF 1/4W 22K J
R534*	RES CF 1/4W 33K J	---	CONNECTED
R535*	RES CF 1/4W 47K J	---	---
R542*	RES CF 1/4W 4.7K J	JUMPER WIRE	CONNECTED
R545*	RES CF 1/4W 1K J	CONNECTED	---
R546*	RES CF 1/4W 5.6K J	CONNECTED	---
R547*	RES CF 1/4W 47K J	CONNECTED	---
R548*	RES CF 1/4W 47K J	CONNECTED	---
R549*	RES CF 1/4W 62K J	CONNECTED	CONNECTED
R550*	RES CF 1/4W 5.6K J	CONNECTED	CONNECTED
R561*	RES CF 1/4W 18K J	CONNECTED	CONNECTED
R564*	RES CF 1/4W 4.7K J	CONNECTED	---
R565*	RES CF 1/4W 4.7K J	CONNECTED	---
R566*	RES CF 1/4W 4.7K J	CONNECTED	JUMPER WIRE
R573*	RES CF 1/4W 12K J	CONNECTED	---
R574*	RES CF 1/4W 47K J	CONNECTED	---
R575*	RES CF 1/4W 47K J	CONNECTED	---
R576*	RES CF 1/4W 47K J	CONNECTED	---
R581*	RES CF 1/4W 1K J	CONNECTED	---
R582*	RES CF 1/4W 4.7K J	CONNECTED	---
R583*	RES CF 1/4W 4.7K J	CONNECTED	---
R584*	RES CF 1/4W 4.7K J	CONNECTED	---
R614*	RES CF 1/4W 4.7K/10K J	RES CF 1/4W 4.7K J	RES CF 1/4W 10K J
R618*	RES CF 1/4W 27K/10K J	RES CF 1/4W 27K J	RES CF 1/4W 10K J
S504	JUMPER WIRE	---	---
S508	JUMPER WIRE	---	CONNECTED
S514	JUMPER WIRE	CONNECTED	---
S515	JUMPER WIRE	---	CONNECTED
S516	JUMPER WIRE	CONNECTED	CONNECTED
S517	JUMPER WIRE	---	CONNECTED
S518	JUMPER WIRE	---	CONNECTED
S850	JUMPER WIRE	---	CONNECTED
S851	JUMPER WIRE	CONNECTED	---

COMPONENT DIFFERENCES DEPENDING ON SCART AND SOUND

	TYPE	SINGLE SCART	GERMAN STEREO DOUBLE SCART
	CABLE 0.6MM BLUE (8cm)	---	CONNECTED
11SS02	SCART MODULE	---	CONNECTED
SC402*	SCART SOCKET	---	CONNECTED
C440*	CAP EL 100UF 16V M	---	CONNECTED
C462*	CAP EL 33UF 16V M	---	CONNECTED
C463*	CAP EL 33UF 16V M	---	CONNECTED
D524*	DIODE 1N4148	---	CONNECTED
J401	JUMPER WIRE/RES CF 1/4W 10K J	CONNECTED	RES CF 1/4W 10K J
J402	JUMPER WIRE/RES CF 1/4W 10K J	CONNECTED	RES CF 1/4W 10K J
Q414*	TR BC548B	---	CONNECTED
Q415*	TR BC548B	---	CONNECTED
Q416*	TR BC548B	---	CONNECTED
R409*	RES CF 1/4W 100R/1K J	RES CF 1/4W 100R J	RES CF 1/4W 1K J
R416*	RES CF 1/4W 10K/1K J	RES CF 1/4W 10K J	RES CF 1/4W 1K J
R417*	RES CF 1/4W 10K/1K J	RES CF 1/4W 10K J	RES CF 1/4W 1K J
R465*	RES CF 1/4W 75R J	---	CONNECTED
R483*	RES CF 1/4W 1K J	---	CONNECTED
R484*	RES CF 1/4W 820R/330R J	---	RES CF 1/4W 330R J
R485*	RES CF 1/4W 1K J	---	CONNECTED
R486*	RES CF 1/4W 820R/330R J	---	RES CF 1/4W 330R J
R487*	RES CF 1/4W 75R J	---	CONNECTED
R488*	RES CF 1/4W 1K J	---	CONNECTED
R497*	RES CF 1/4W 100R J	---	CONNECTED
S200	JUMPER WIRE	CONNECTED	---
S408	JUMPER WIRE	CONNECTED	---
S409	JUMPER WIRE	CONNECTED	---
S411	JUMPER WIRE	---	---
S412	JUMPER WIRE	CONNECTED	---
S414	JUMPER WIRE	---	---

COMPONENTS DIFFERENCES DEPENDING ON TDA8362A N1/N2

	TYPE	CTV351S VE1 TDA 8362A N1	CTV351S VE1 TDA 8362A N2	CTV551S VE1 TDA 8362A N1	CTV551S VE1 TDA 8362A N2
IC401*	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/47K15K/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

COMPONENT DIFFERENCES DEPENDING ON CRT

	TYPE	28" PHILIPS A66EAK77X01	28" THOMSON (VCL) A66ECY13X31
R709*	RES CF 1/2W 330R J	RES CF 1/2W 330R J	RES CF 1/2W 330R J
C705*	CAP EL 3.3UF 50V M	CAP EL 3.3UF 50V M	CAP EL 3.3UF 50V M
R705*	RES CF 1/4W 10K J	RES CF 1/4W 10K J	RES CF 1/4W 10K J
R710*	RES CF 1/2W 270R J	RES CF 1/2W 270R J	RES CF 1/2W 270R J

POWER SUPPLY VOLTAGE 150V

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

COMPONENT DIFFERENCES ON ALL MODELS

	TYPE	ALL OPTION
PL801*	2P 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	—

CHS.ASSY.11AK12

C603	3032228078	CAP MKP 2.2NF 2KV %3.5
C606	3034341538	CAP MKP 430NF 250V J
C607	3084701458	CAP EL 47UF 250V M (HR)
C609	3032243058	CAP MKP 220NF 250V M
C614	3204094846	CAP CER 4PF 2KV K SL
C654	3034341538	CAP MKP 430NF 250V J
C655	3037527078	CAP MKP 7.5NF 1.6KV 3.5%
C656	3022735038	CAP KP 27NF 630V J
C801	3011041558	CAP MKT 100NF 250V M AC
C802	3011041558	CAP MKT 100NF 250V M AC
C803	3011041558	CAP MKT 100NF 250V M AC
C804	3201021156	CAP CER 1NF 1KV M B
C805	3201021156	CAP CER 1NF 1KV M B
C806	3201021156	CAP CER 1NF 1KV M B
C807	3201021156	CAP CER 1NF 1KV M B
C808	3102211656	CAP EL 220UF 400V M (FOR 28")
C814	3023335044	CAP PP 33NF 630V K
C816	3032215048	CAP MPP 0.22NF 630V K
C818	3084701458	CAP EL 47UF 250V M (HR)
C822	3201021156	CAP CER 1NF 1KV M B
C824	3202227458	CAP CER 2.2NF 4KV M
D102	3531941480	DIODE 1N4148
D103	3531941480	DIODE 1N4148
D104	3531941480	DIODE 1N4148
D105	3531941480	DIODE 1N4148
D106	3531941480	DIODE 1N4148
D107	3531941480	DIODE 1N4148
D108	3531941480	DIODE 1N4148
D109	3531941480	DIODE 1N4148
D201	3531941480	DIODE 1N4148
D400	3531941480	DIODE 1N4148
D402	3531941480	DIODE 1N4148
D403	3531941480	DIODE 1N4148
D430	3531941480	DIODE 1N4148
D502	3531941480	DIODE 1N4148
D503	3531941480	DIODE 1N4148
D504	3531941480	DIODE 1N4148
D505	3531941480	DIODE 1N4148
D506	3531941480	DIODE 1N4148
D507	3531941480	DIODE 1N4148
D508	3531941480	DIODE 1N4148
D513	3531941480	DIODE 1N4148
D515	3531941480	DIODE 1N4148
D518	3571903600	DIODE ZENER 3.6V ZPD
D521	3531941480	DIODE 1N4148
D523	3531941480	DIODE 1N4148
D524	3531941480	DIODE 1N4148
D528	3531941480	DIODE 1N4148
D601	3531941480	DIODE 1N4148
D602	3531941480	DIODE 1N4148
D603	3551900330	DIODE BYD33J
D604	3551901570	DIODE BA157
D651	3531941480	DIODE 1N4148
D652	3531941480	DIODE 1N4148
D653	3551902280	DIODE GUC BY228
D701	3551900330	DIODE BYD33J
D806	3531941480	DIODE 1N4148
D807	3531941480	DIODE 1N4148
D808	3551901590	DIODE BA159
D810	3550827200	DIODE BYV27-200
D811	3551500261	DIODE BYM26D
D812	3550827200	DIODE BYV27-200
D813	3571933000	DIODE ZENER 33V UZT 33B
D814	3551500953	DIODE BYW95A
D820	3571905100	DIODE ZENER 5.1V ZPD
DX01	3531941480	DIODE 1N4148
IC101	3621552814	IC SAA5281 P/R M3
IC401	3621583624	IC TDA8362A/N3
IC403	3621583951	IC TDA8395 N2
IC501	3621505511	IC P83C055BBP/147 (CTV551SVE2)
IC502	3621585940	IC PCF8594E-2P
IC503	3620279100	IC LA7910
IC601	3621581450	IC TDA8145
IC701	3621536540	IC TDA3654/N3
IC801	3621846050	IC TDA4605-2
IC802	3650003170	IC LM317T
IC803	3620978080	IC LM7808
L501	4262125026	CHOKE PEAKING COIL 12UH Q50 K
LT401	4020006031	ADJ.COIL VIF 38.9MHZ Q=80
Q501	3611502400	TR BF240
Q601	3611506390	TR BC639
Q602	3611505083	TR BU508AF
Q801	3611500900	TR BUZ90
R606	3372241137	RES MG 1W 220K J
R654	3362700237	RES FUSE 1/2W 27R J
R658	3362290237	RES FUSE 1/2W 2.2R J
R711	3364791137	RES FUSE 1W 4.7R J
R720	3362280237	RES FUSE 1/2W 0.22R J
R801	3382295130	RES WW 5W 2.2R J RAD.
R809	3364781137	RES FUS 0.47R 1W J
R811	3363395137	RES FUSE 5W 3.3R J
R816	3374750237	RES MG 1/2W 4.7M J
R820	3363380437	RES FUSE 1/4W 0.33R J
R821	3362280237	RES FUSE 1/2W 0.22R J
R823	3362280237	RES FUSE 1/2W 0.22R J
TH801	3391803000	THERM.PTC DEGAUSS DUAL 250V
TR602	4030002113	TRF FBT 110 LH W/PLUG
TR802	4040905110	TRF SMPS 28"(AK12)
VR650	3341041210	RES ADJ 0.15W 100K M VER.
VR652	3341031210	RES ADJ 0.15W 10K M VER
X101	3840127020	XTAL 27MHZ.
X401	3840144310	XTAL 4.433619 MHZ
X501	3840112020	XTAL 12MHZ
Z201	3750229500	FILTER SAW K2950
Z401	3780105500	FILTER SER TRAP TPS 5.5MHZ
Z402	3780106500	FILTER SER TRAP TPS 6.5MHZ
IC402	3621546650	IC TDA4665/V4
F801	3807250050	FUSE 2.5A 250V 5*20MM

SOUND B.ASSY.GS06

C308	3048210936	CAP PS 820PF 50V J
C309	3048210936	CAP PS 820PF 50V J
C317	3081020554	CAP EL 1000UF 35V M
C318	3081020554	CAP EL 1000UF 35V M
C376	3048210936	CAP PS 820PF 50V J
IC301	3621538570	IC TDA3857/V3
IC302	3621598400	IC TDA9840/V2
IC303	3621584250	IC TDA 8425/V7
LT301	4020006031	ADJ.COIL VIF 38.9MHZ Q=80
LT302	4020003030	ADJ.COIL 113CNS-K1763HM (T3)
LT303	4020003030	ADJ.COIL 113CNS-K1763HM (T3)
LT304	4020003030	ADJ.COIL 113CNS-K1763HM (T3)
VR301	3341031210	RES ADJ 0.15W 10K M VER
X301	3840110020	XTAL 10MHZ
Z301	3750292510	FILTER SAW OFWG9251M
Z302	3760105701	FILTER SER SFT 5.74MA
Z303	3760105501	FILTER SER SFT 5.5MA
Z304	3760106500	FILTER SER 6.5 MHZ SFE 6.5MB
IC305	3621515210	IC TDA1521A

CRT B.ASSY.TP12 28 PHL/PAN/VCL

C913	3201024148	CAP CER 1NF 2KV K B
D907	3531941480	DIODE 1N4148
D908	3531941480	DIODE 1N4148
Q902	3611508690	TR BF869S
Q904	3611508690	TR BF869S
Q906	3611508690	TR BF869S
Q907	3611504210	TR BF421
Q908	3611504210	TR BF421
Q909	3611504210	TR BF421
R928	3362280437	RES FUS 0.22R 1/4W J

TXT.B.ASSY.TT14 FAST&TOPTEXT

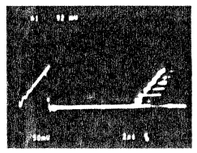
IC170	3621583654	IC PCB83C654/CTV988
X170	3840110020	XTAL 10MHZ

SOUND B.ASSY.SS02 351&551 FTZ

D01	3531941480	DIODE 1N4148
D03	3531941480	DIODE 1N4148
D04	3531941488	DIODE 1N4148 SMD
Q01	3611908488	TR BC848B SMD
Q02	3611908488	TR BC848B SMD
Q04	3611908488	TR BC848B SMD
Q05	3611908488	TR BC848B SMD
Q07	3611908488	TR BC848B SMD
Q08	3611908488	TR BC848B SMD
Q09	3611908488	TR BC848B SMD
Q10	3611908488	TR BC848B SMD
Q11	3611908488	TR BC848B SMD
Q12	3611908488	TR BC848B SMD
Q13	3611908488	TR BC848B SMD
Q14	3611908488	TR BC848B SMD
Q15	3611908488	TR BC848B SMD
Q16	3611908488	TR BC848B SMD
S01	3531941488	DIODE 1N4148 SMD
S02	3531941488	DIODE 1N4148 SMD

TOUCH B.A.TK19 GRN 7282/92(12)

LD501	3519029300	LED RED/GREEN LTL293SJ
MD501	3660536000	PREAMPLIFIER TFMS5360
SW501	4390415000	SWITCH TACT
SW502	4390415000	SWITCH TACT
SW503	4390415000	SWITCH TACT
SW504	4390415000	SWITCH TACT
	4390103001	SWITCH ON/OFF



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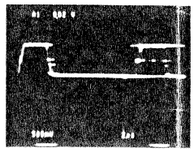
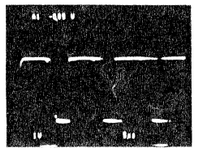


(X10) WF 2

(X100) WF 3



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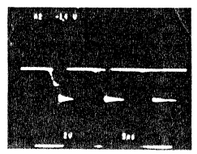
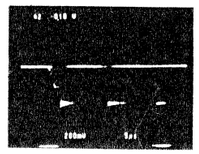
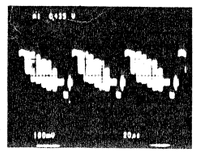


(X100) WF 5



(X100) WF 6



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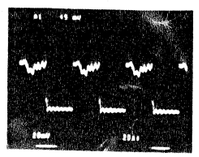

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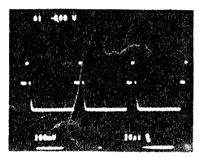
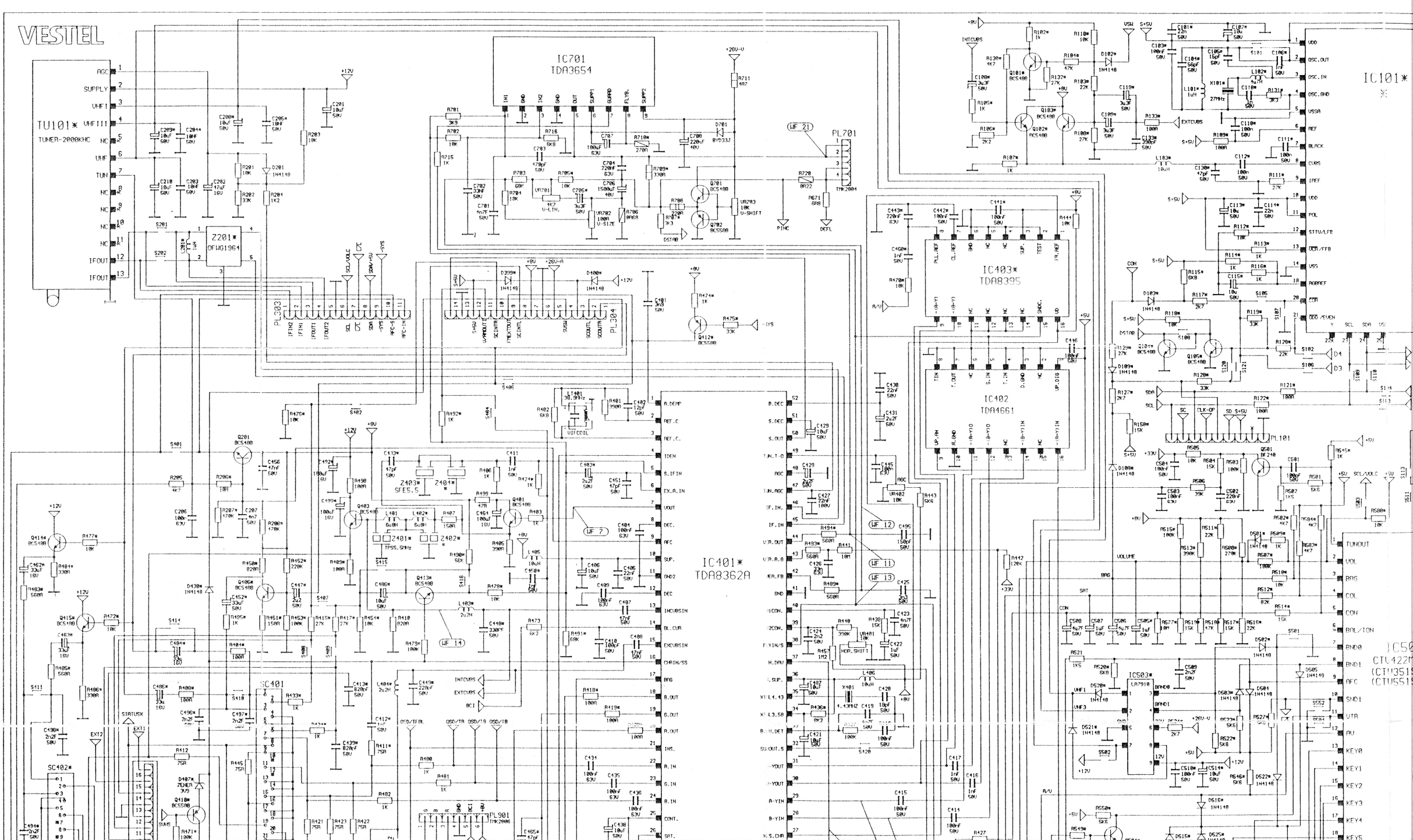
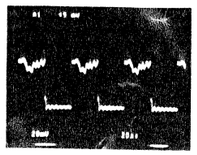


(X10) WF 9



WF 7



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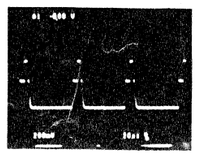
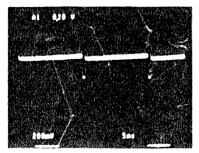
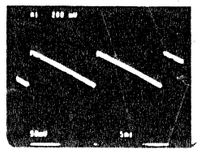


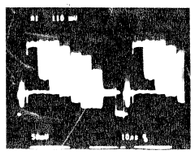
(X10) WF 9



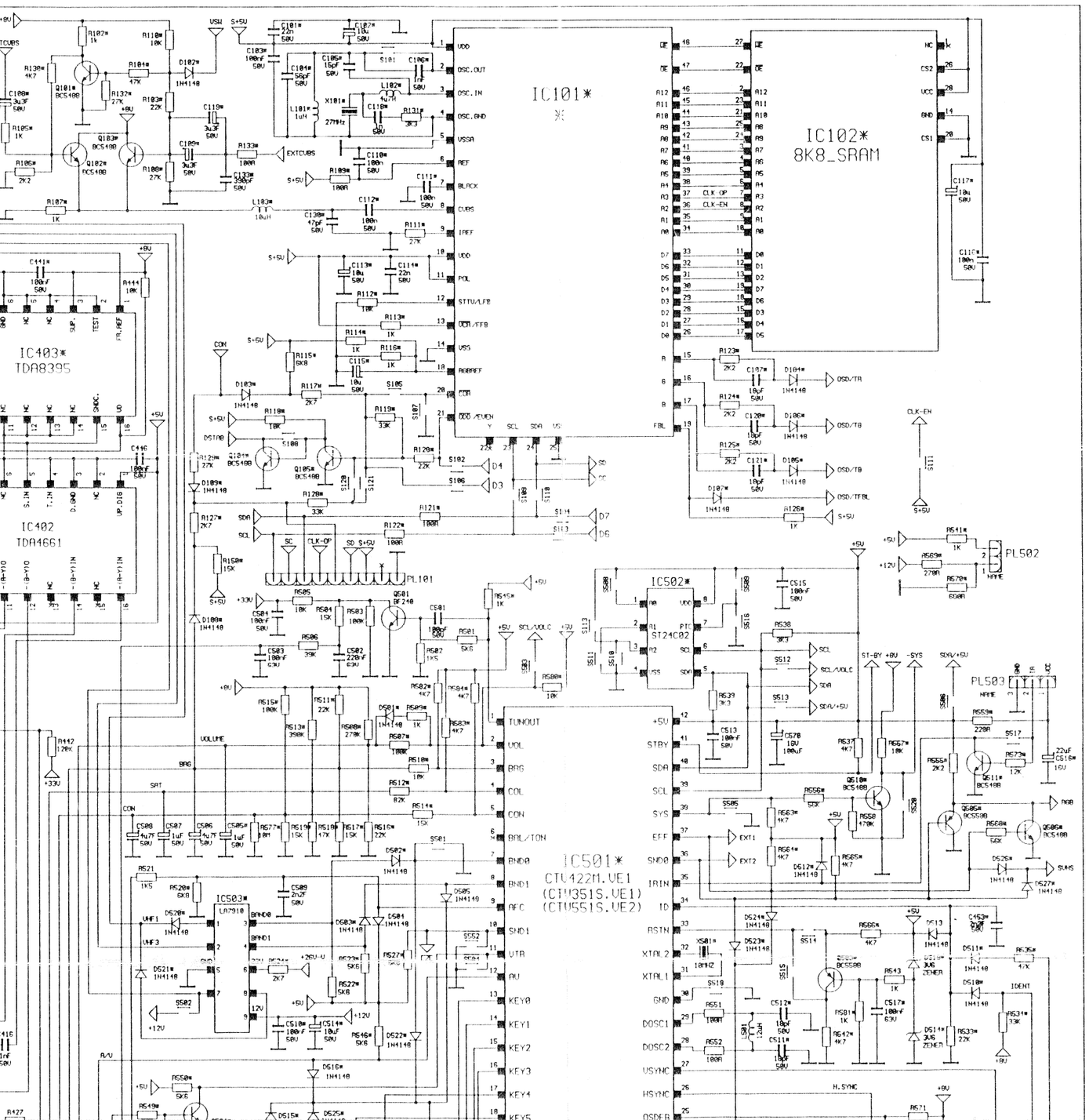
(X10) WF 10

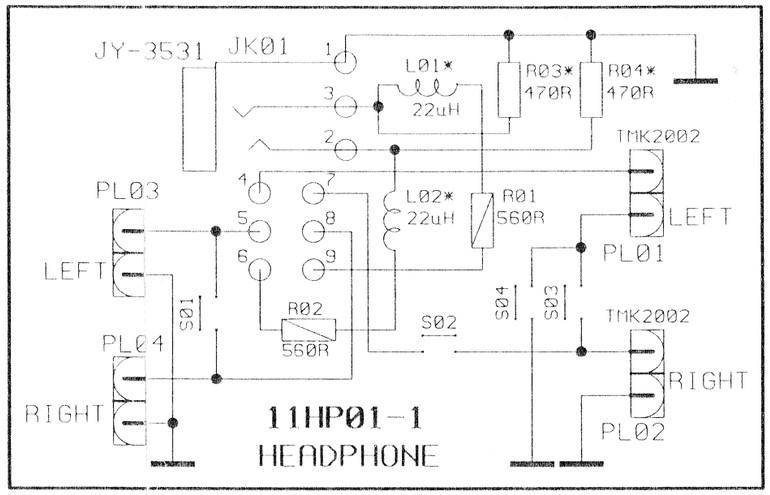


(X10) WF 11



(X10) WF 12

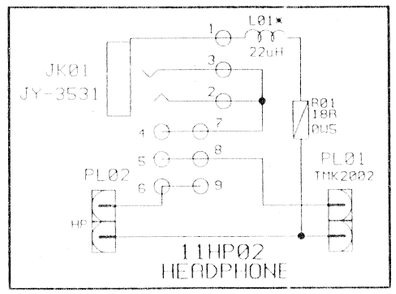


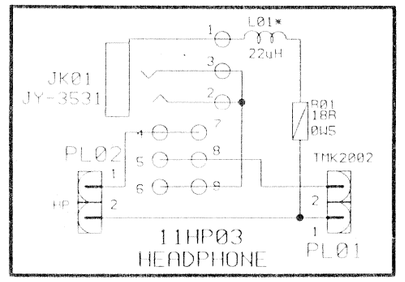


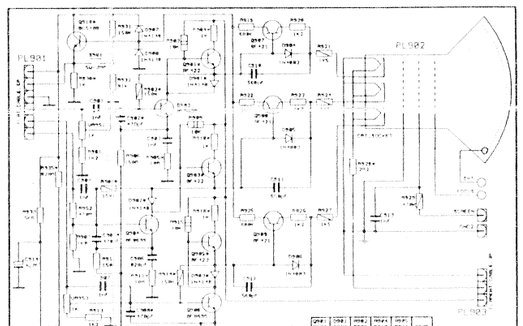
SPEAKER OPTIONS	S02	S03	S04
ONE SPEAKER	N.C.	N.C.	CON
TWO SPEAKERS IN PARALLEL	CON	N.C.	CON
TWO SPEAKERS IN SERIES	N.C.	CON	N.C.
STEREO	CON	N.C.	CON

STEREO-MONO INPUT	S01	R01
MONO WITH STEREO JACK	CON	CON
MONO WITH MONO JACK	N.C.	N.C.
STEREO	N.C.	CON.

FTZ OPTION	L01*	L02*	R03*	R04*
WITH FTZ	CON	CON	CON	CON
WITHOUT FTZ	JMP.	JMP.	N.C	N.C







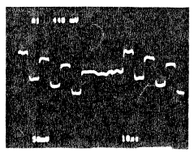
IC401*
TDA8362A

IC501
CTV422N.
(CTV351S.
(CTV551S.

SAFETY COMPONENTS MARKED WITH ⚠ MUST BE REPLACED
WITH ORIGINAL OR APPROVED COMPONENTS ONLY
(ALL PRINTED CIRCUIT BOARDS AND REAR COVER ARE SAFETY COMPONENTS)

ATTENTION
THE MANUFACTURER RESERVES THE RIGHT TO CHANGE THE DESING AND
SPECIFICATION WITHOUT PRIOR NOTICE OR WARNING

11AK12 MAIN BOARD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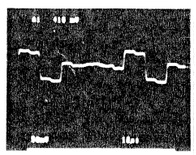
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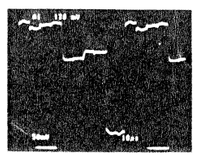
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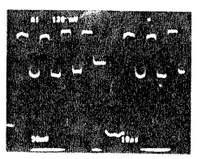
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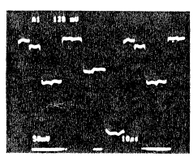
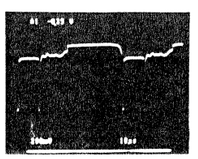

(X10) WF 17


(X10) WF 18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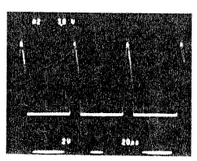
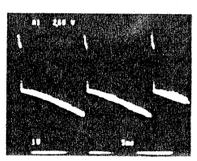
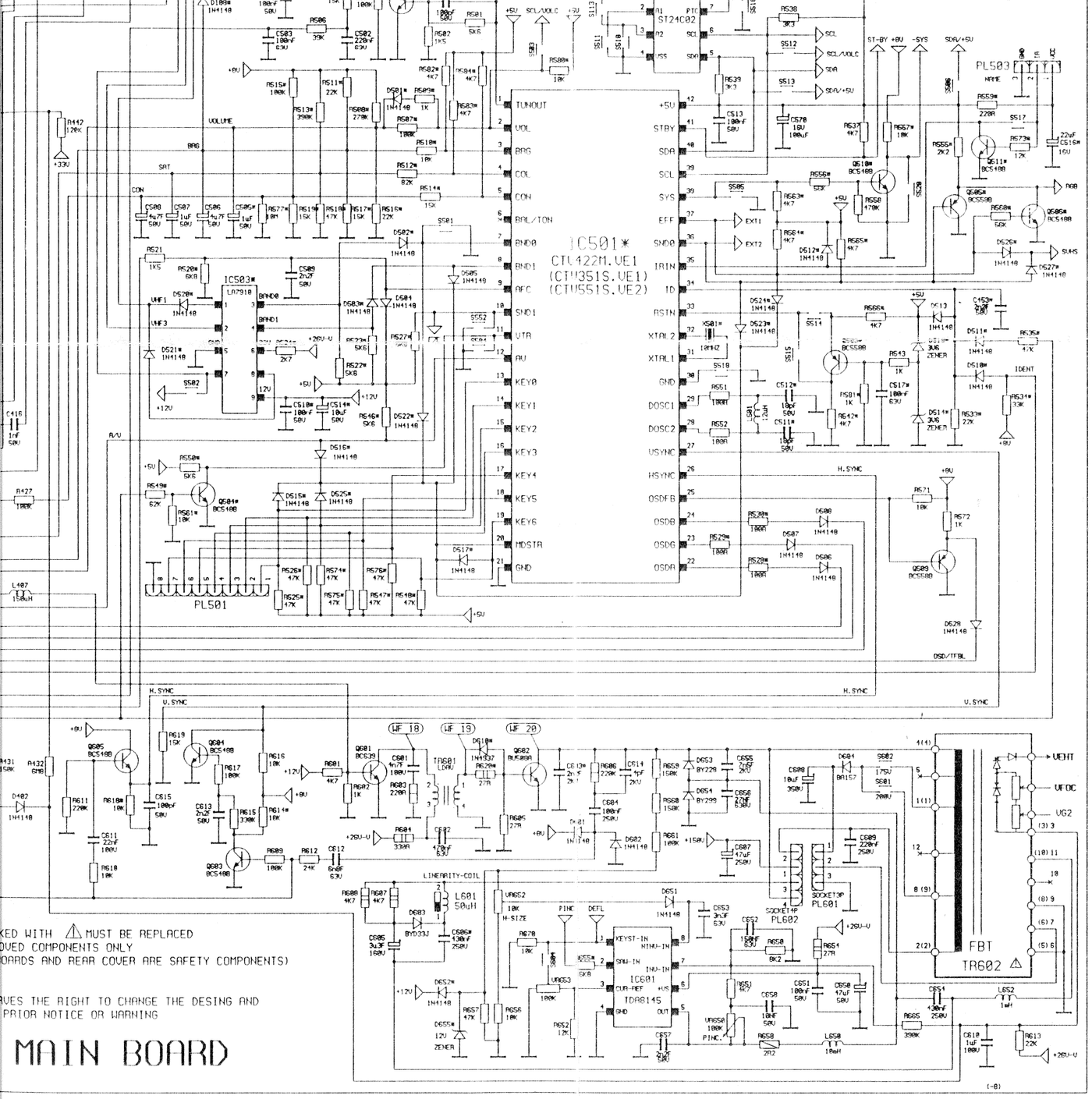

(X100) WF 20

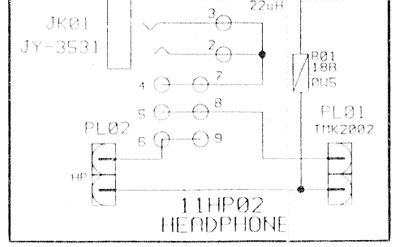

(X10) WF 21

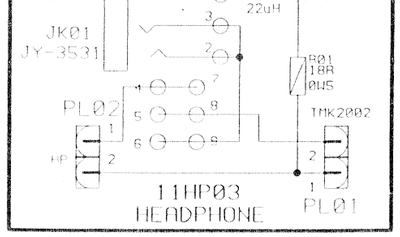
KED WITH ⚠ MUST BE REPLACED
QUED COMPONENTS ONLY
OARDS AND REAR COVER ARE SAFETY COMPONENTS)

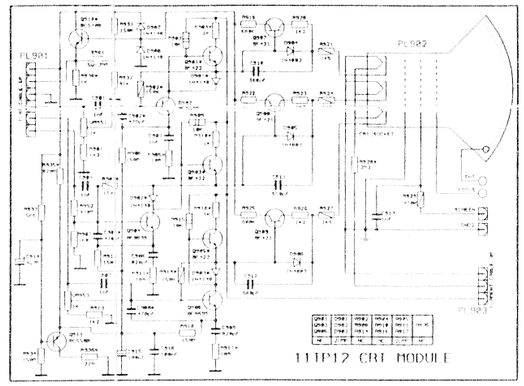
RVES THE RIGHT TO CHANGE THE DESING AND
PRIOR NOTICE OR WARNING

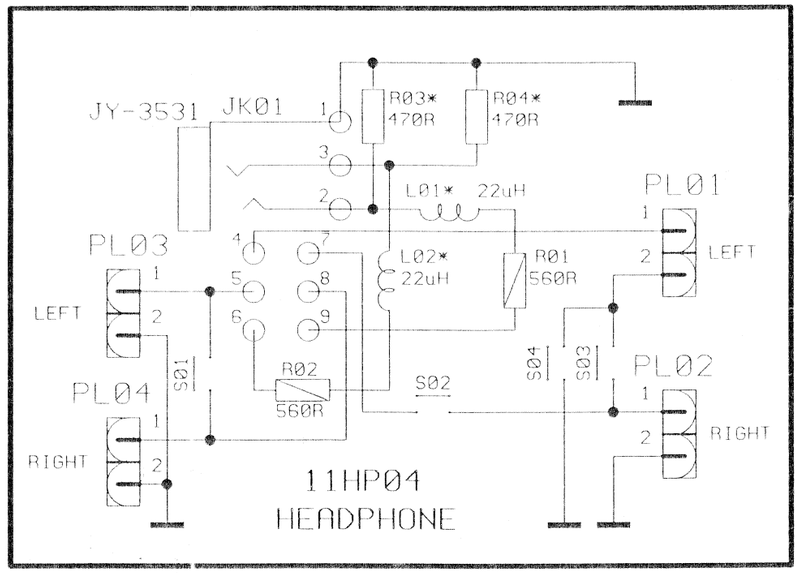
MAIN BOARD







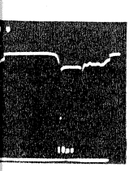




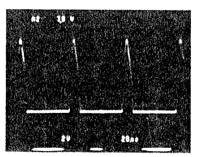
SPEAKER OPTIONS	S02	S03	S04
ONE SPEAKER	N.C.	N.C.	CON
TWO SPEAKERS IN PARALLEL	CON	N.C.	CON
TWO SPEAKERS IN SERIES	N.C.	CON	N.C.
STEREO	CON	N.C.	CON

STEREO-MONO INPUT	S01	R01
MONO WITH STEREO JACK	CON	CON
MONO WITH MONO JACK	N.C.	N.C.
STEREO	N.C.	CON.

FTZ OPTION	L01*	L02*	R03*	R04*
WITH FTZ	CON	CON	CON	CON
WITHOUT FTZ	JMP.	JMP.	N.C	N.C



WF 19



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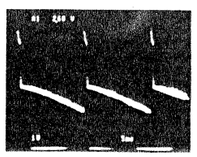

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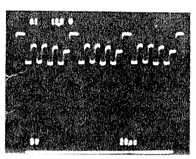

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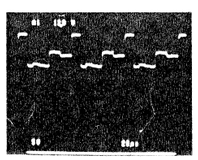

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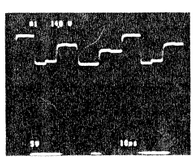

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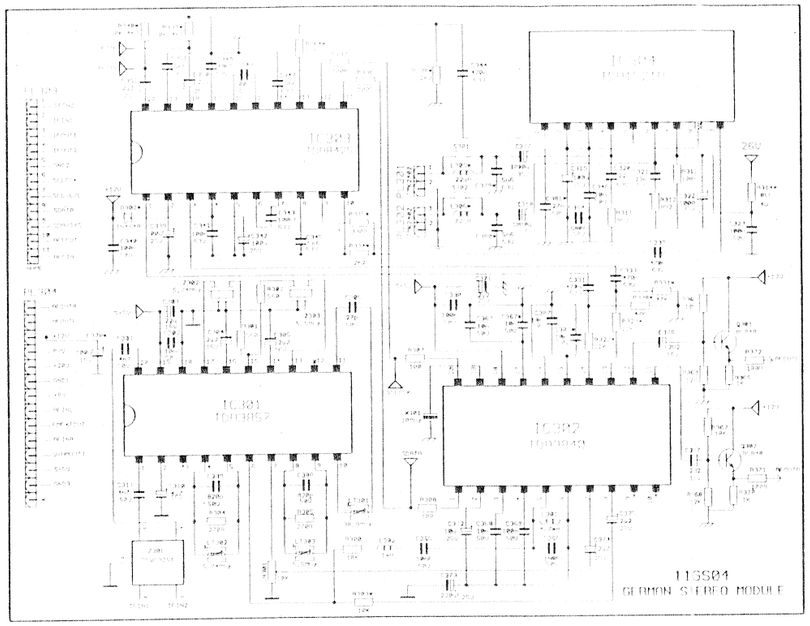
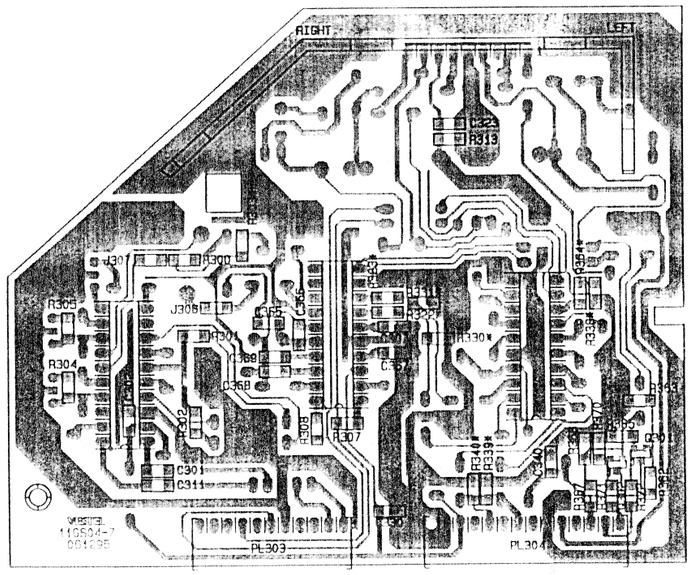
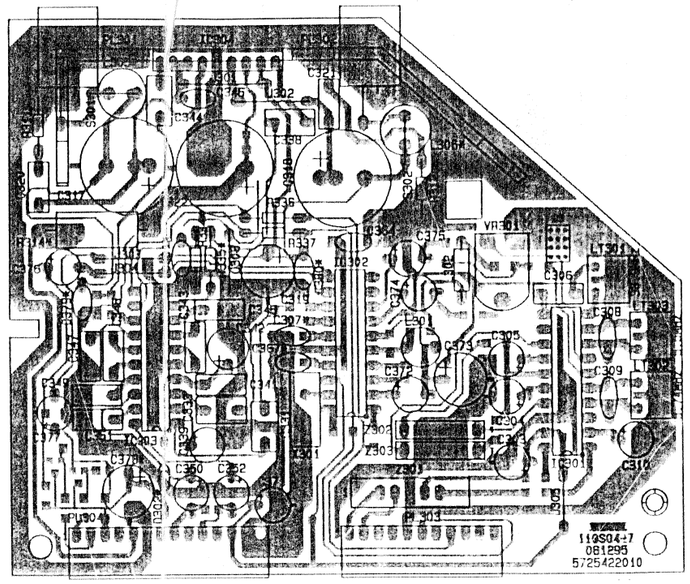
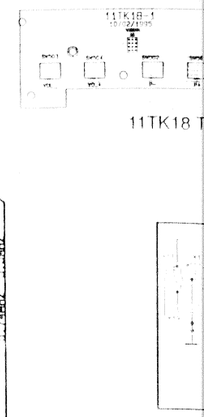




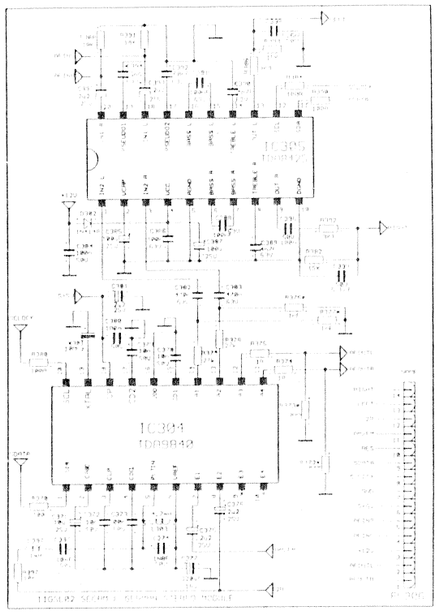
11GS04-3 GERMAN STEREO SOUND MODULE (SMD SIDE)

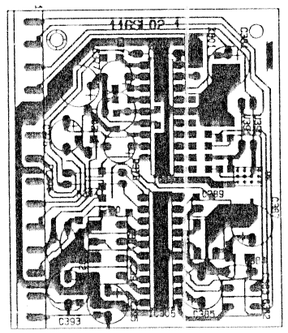


11GS04-3 GERMAN STEREO SOUND MODULE

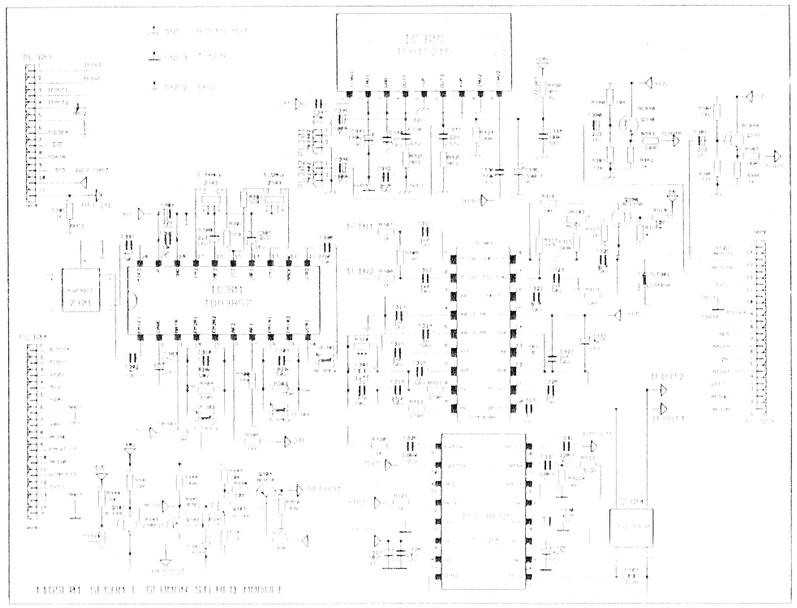


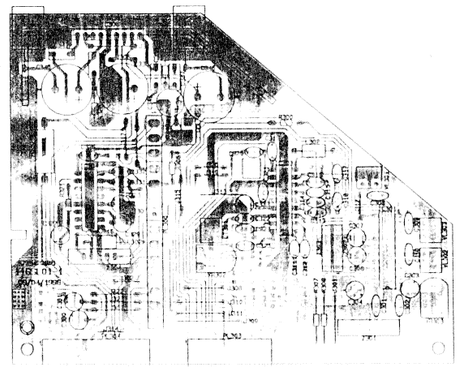
11TK18 T



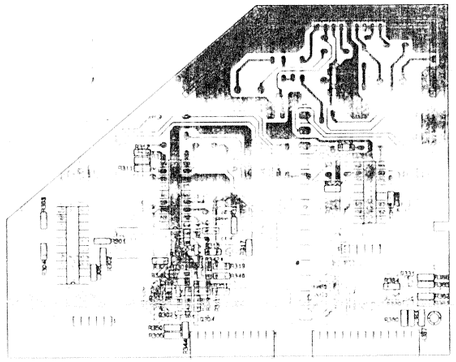


11GSLC2 SECAM-L GERMAN STEREO MODULE

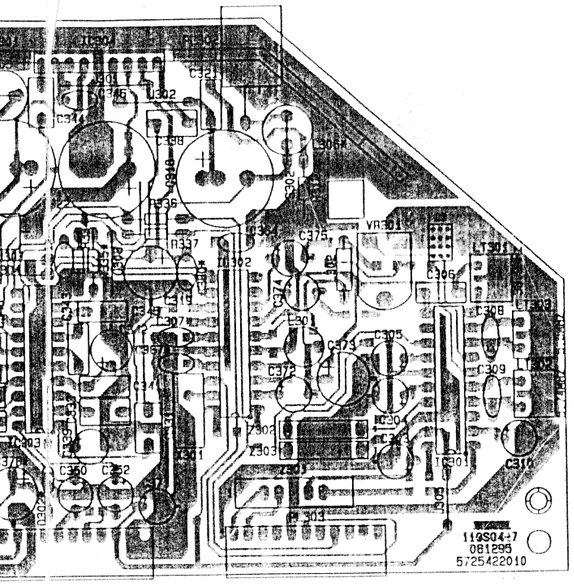




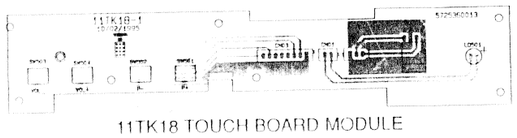
11GSL01 SECAM-L GERMAN STEREO MODULE



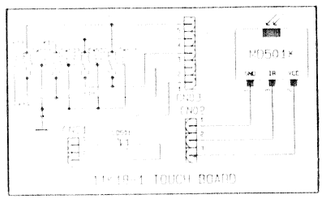
11GSL01 SECAM-L GERMAN STEREO MODULE (SMD SIDE)

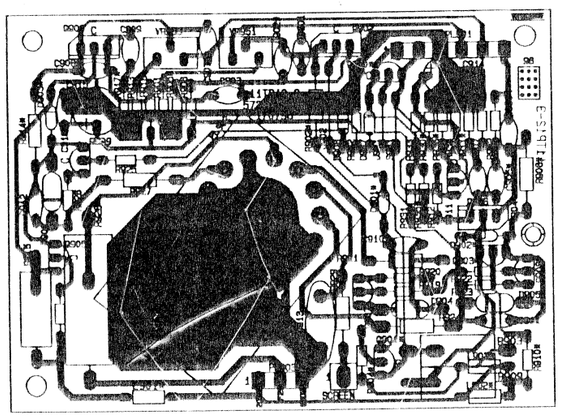


11GS04-3 GERMAN STEREO SOUND MODULE

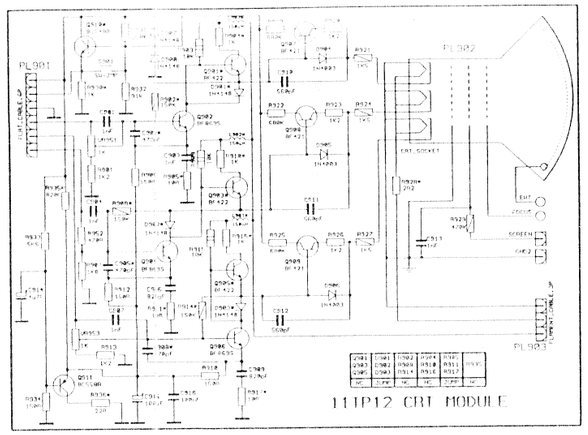


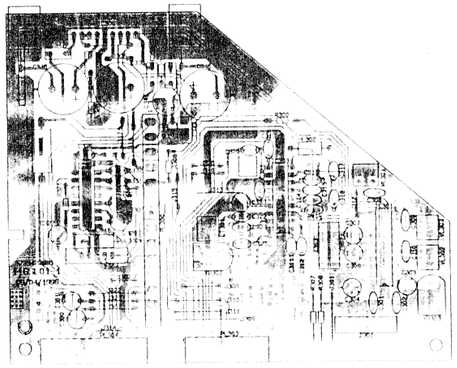
11TK18 TOUCH BOARD MODULE



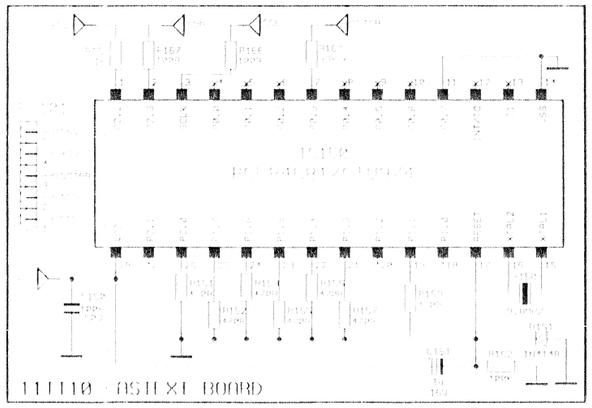


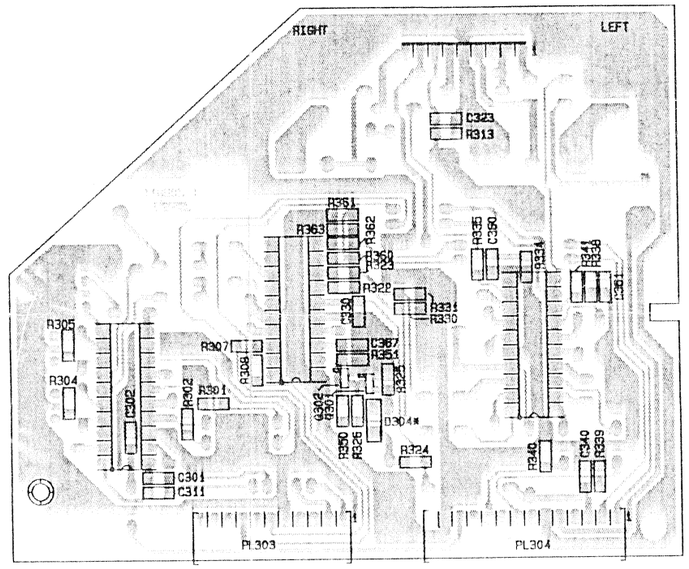
11TP12 CRT MODULE



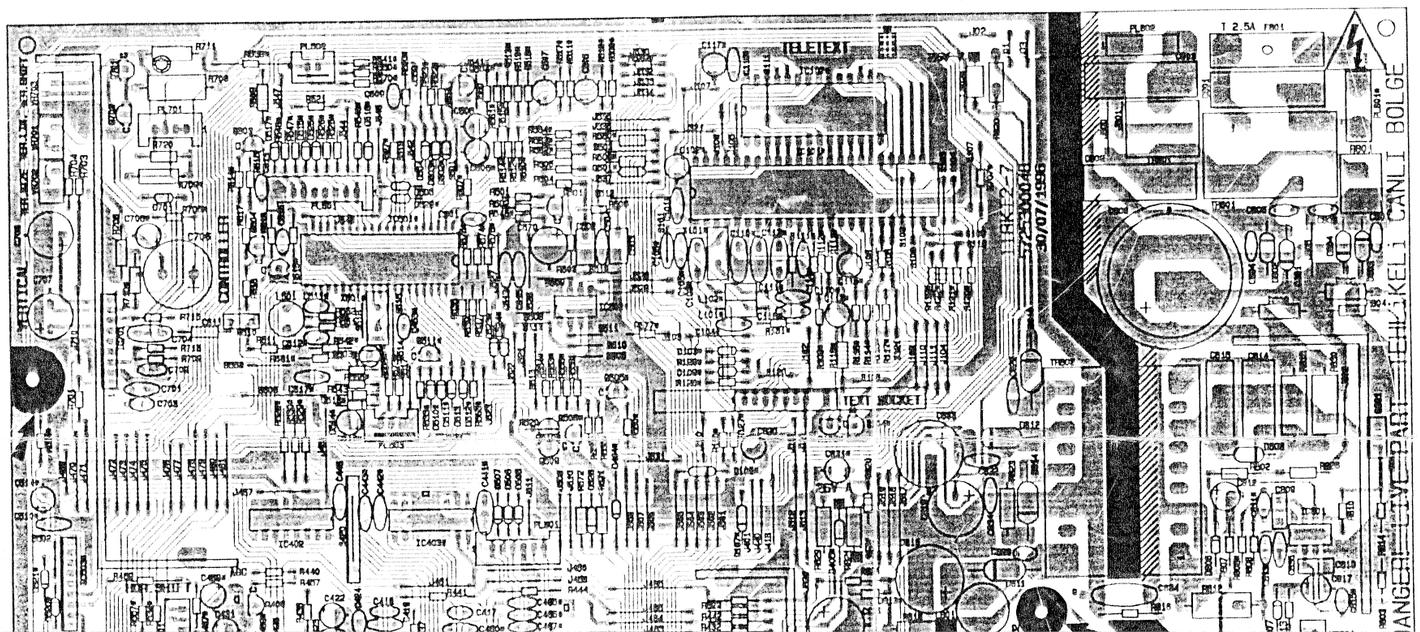


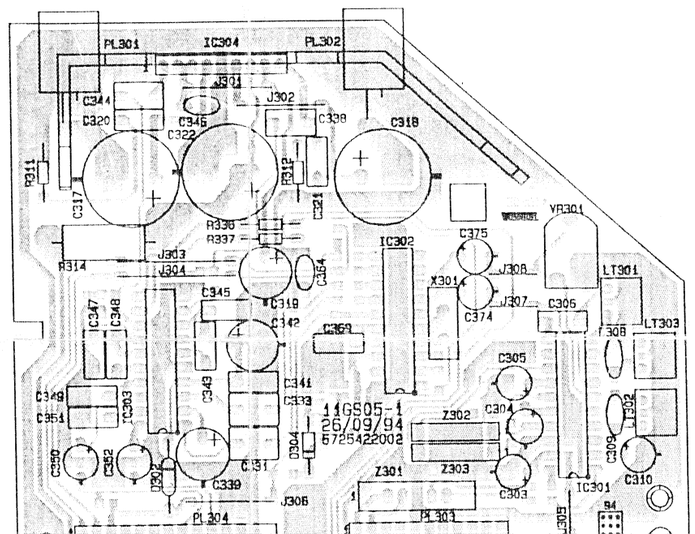
11GSL01 SECAM L GERMAN STEREO MODULE

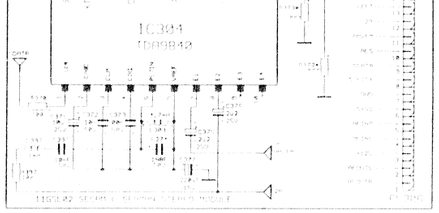




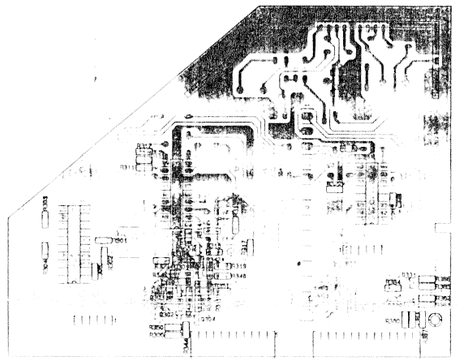
11GS05-1 GERMAN & NICAM STEREO MODULE (SMD SIDE)



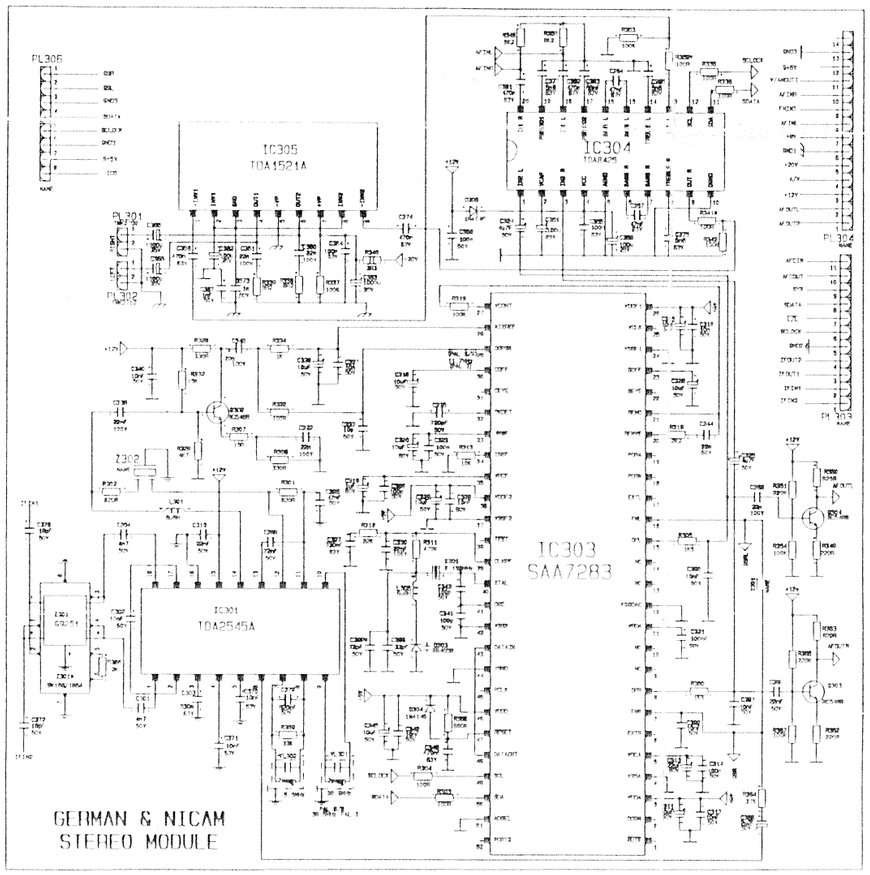


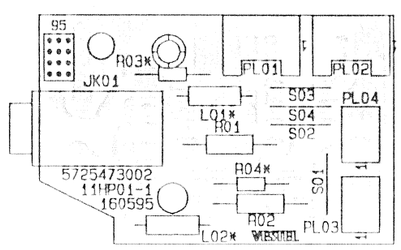


11GSLC2 SECAM-L GERMAN STEREO MODULE

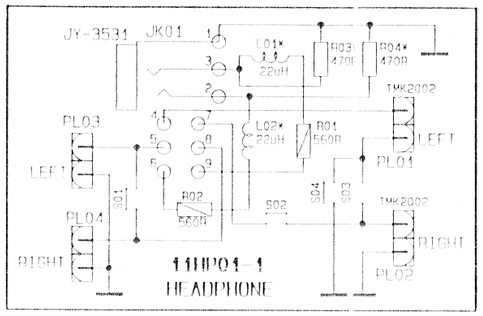


11GSL01 SECAM-L GERMAN STEREO MODULE (SMD SIDE)





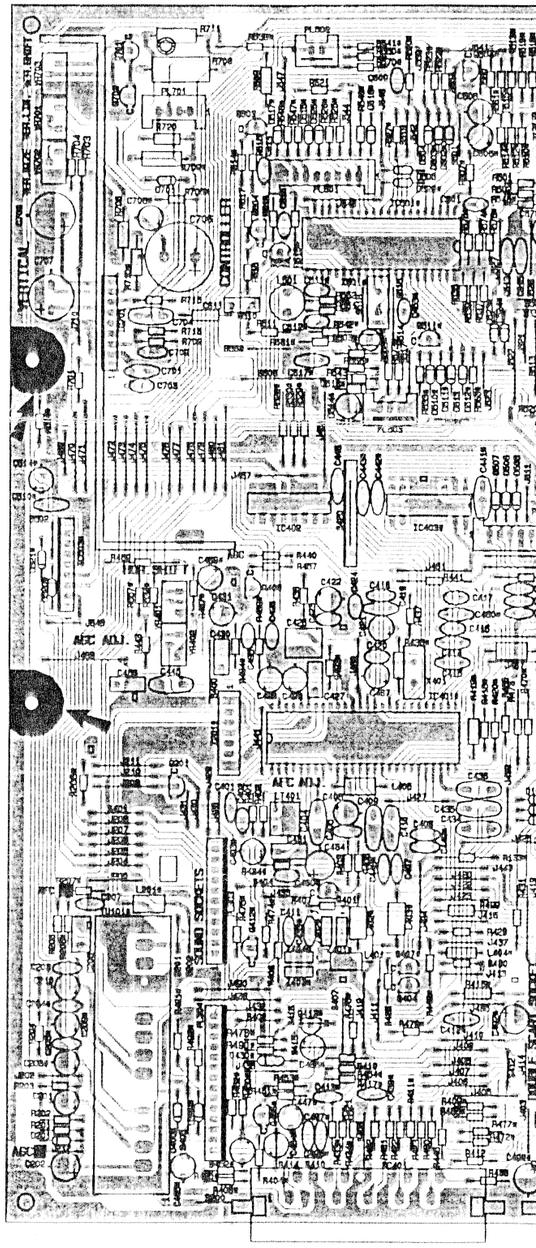
11HP01 HEADPHONE MODULE

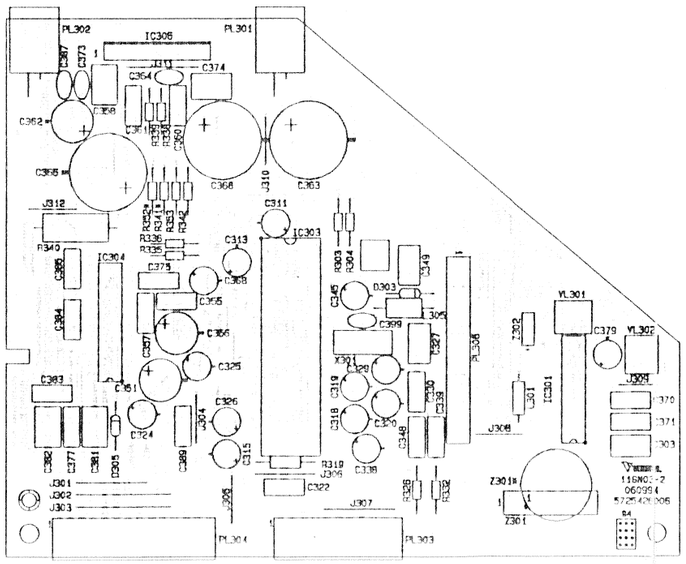


SPEAKER OPTIONS	S02	S03	S04
ONE SPEAKER	N.C	N.C	CON
TWO SPEAKERS IN PARALLEL	CON	N.C	CON
TWO SPEAKERS IN SERIES	N.C	CON	N.C
STEREO	CON	N.C	CON

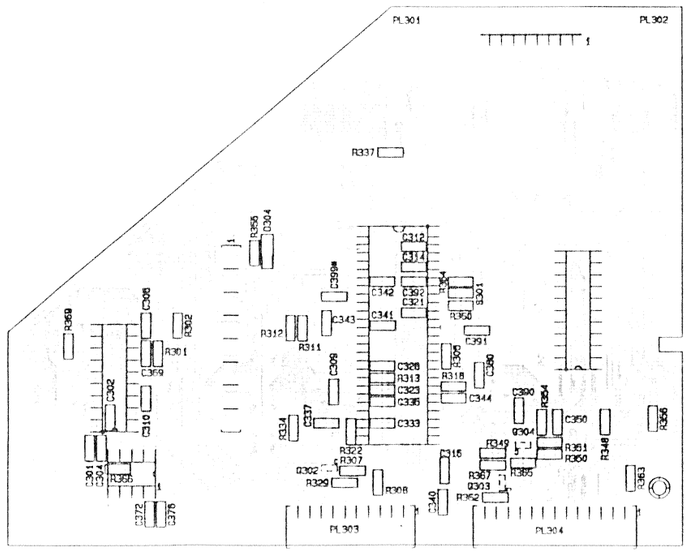
STEREO-MONO INPUT	S01	R01
MONO WITH STEREO JACK	CON	CON
MONO WITH MONO JACK	N.C	N.C
STEREO	N.C	CON

FTZ OPTION	01*	02*	R03*	R04*
WITH FTZ	ON	CON	CON	CON
WITHOUT FTZ	JMP	JMP	N.C	N.C

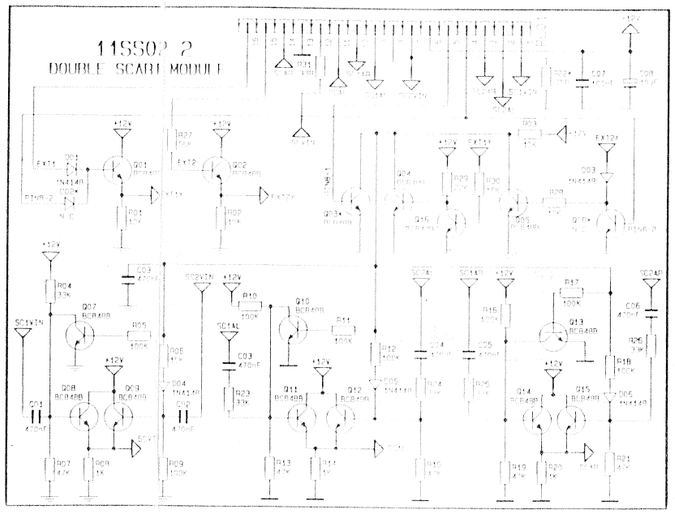


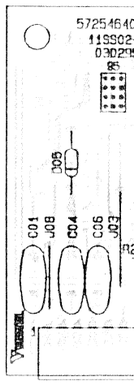


11GN03-2 NICAM STEREO MODULE

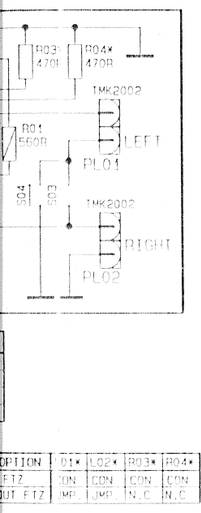


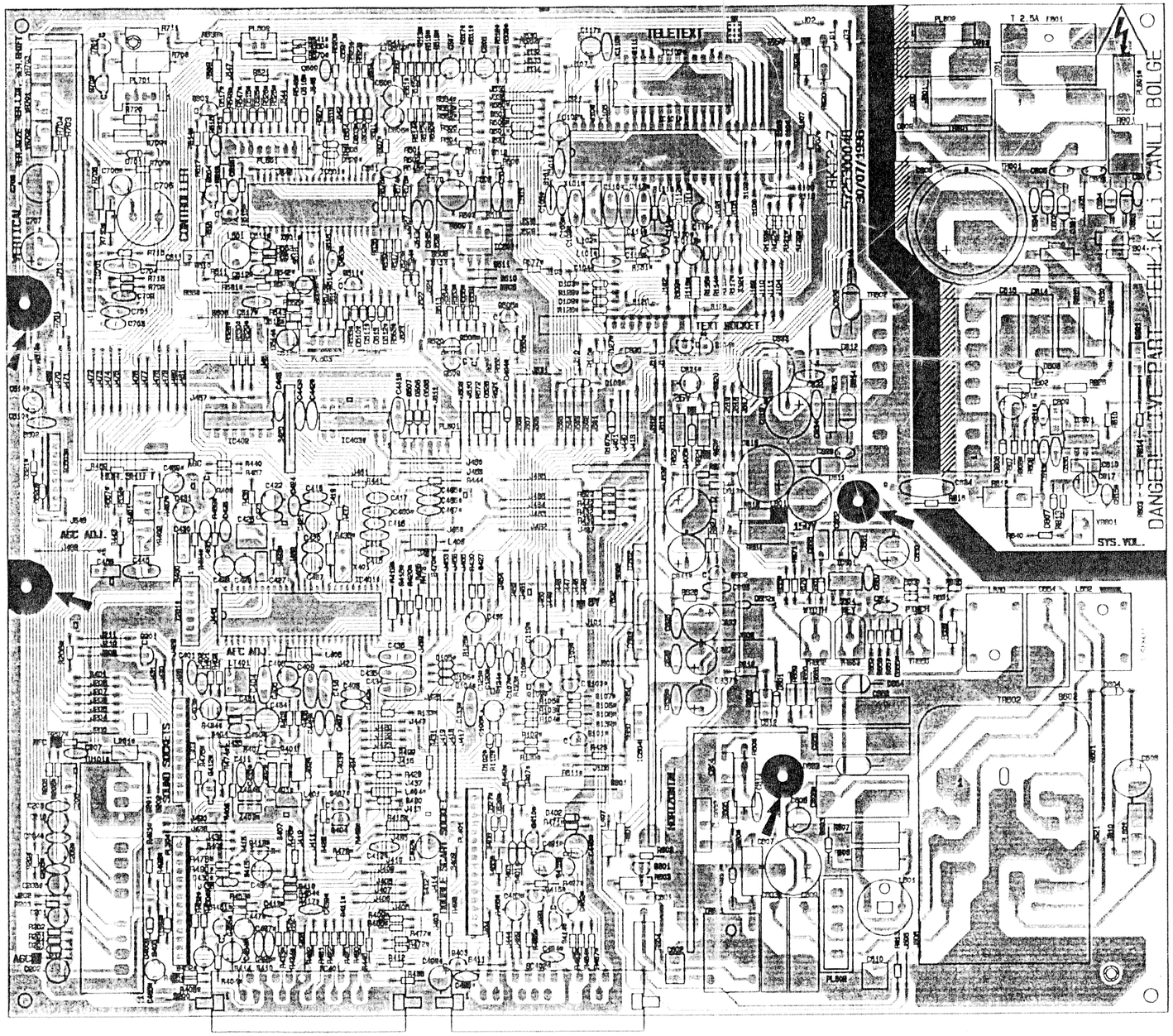
11GN03-2 NICAM STEREO MODULE (SMD SIDE)





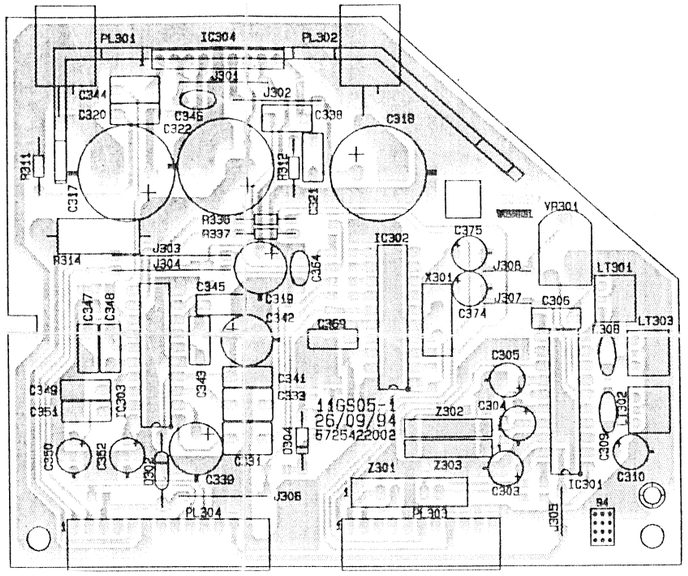
11SS02-2 DOUBL



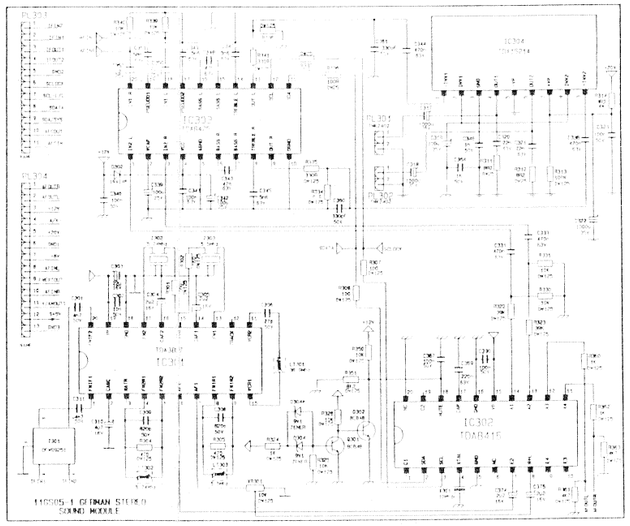


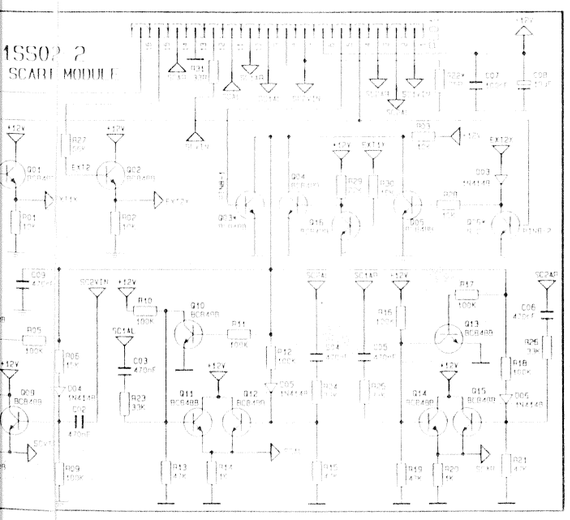
11AK12 MAIN BOARD

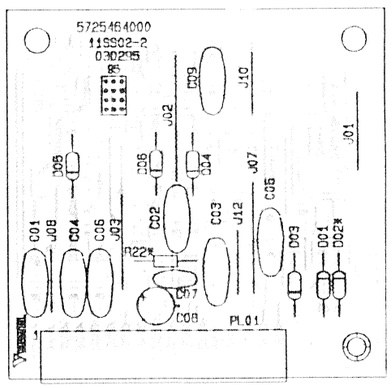
11GS05-1 GERMAN & NICAM STEREO MODULE (SMD SIDE)



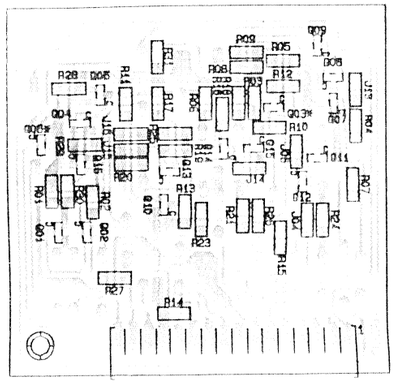
11GS05-1 GERMAN & NICAM STEREO MODULE



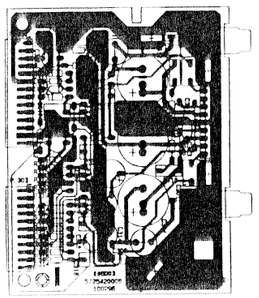




11SS02-2 DOUBLE SCRAT MODULE (SMD SIDE)



11SS02-2 DOUBLE SCRAT MODULE



11SD03 SOUND MODULE