SERVICE MANUAL

BUSH

2866 NTX

ALBA BUSH harvard HiNARi

Contents

TECHNICAL DATA

CRT PANEL	
Visible Picture	66 cm
Deflection Angle	110°
Vertical Frequency	50Hz
Horizontal Frequency	15.625Hz

ELECTRONIC

Program Number	70+1 AV
Teletext	S. Text (Flof Text off)
Tuner	Cable tuner - 8 MHz spacing for Hyper Band
TV System	European CCIR system
Music Power	2x5Watt Rms 10% distortion

CONNECTIONS

Euro AV Socket	Include

MAIN STAGE

Mains Voltage	165-260VAC
Mains Frequency	50Hz
Power Consumption	115W
In Stby Mode	~15W

RECOMMENDATION FOR SERVICE REPAIRS

1- Use only original spare parts. Only use components with the same specifications for replacement.

2- Original fuse value only should be used.

3- Main leads and connecting leads should be checked for external damage before connection.

Check the insulation.

4- Parts contributing to the safety of the product must not be damaged or obviously unsuitable.

This is valid especially for insulators and insulating parts.

5- Thermally loaded solder pads are to be sucked off and re-soldered.

6- Ensure that the ventilation slots are not obstructed.

7- Potentials as high as 25 KV are present when this receiver is operating. Operation of the receiver outside the cabinet or with back cover removed involve a shock hazard from the receiver.

Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment.

Perfectly discharge the high potential of the picture tube before handling the tube. The picture tube is highly evacuated and if broken.

Glass fragments will be violently expelled.

Always discharge the picture tube anode to the receiver chassis to keep of the shock hazard before removing the anode cap.

8- Keep wire away from the high voltage or high temperature components.

9- When replacing a wattage resistor in circuit board, keep the resistor 10 mm away from circuit board.

HANDLING OF MOS CHIP COMPONENTS

MOS circuit requires special attention with regard to static charges. Static charges may occur with any highly insulating plastics and can be transferred to persons wearing clothes and shoes made of synthetic materials. Protective circuits on the inputs and outputs of mos circuits give protection to a limited extend only due to time of reaction.

Please observe the following instructions to protect the components against damage from static charges.

1- Keep mos components in conductive package until they are used. Most components must never be stored in styropor materials or plastic magazines.

2- Persons have to rid themselves of electrostatic charges by touching MOS components.

3- Hold the component by the body touching the terminals.

4- Use only grounded instruments for testing and processing purposes.

5- Remove or connect MOS ICs when operating voltage is disconnected.

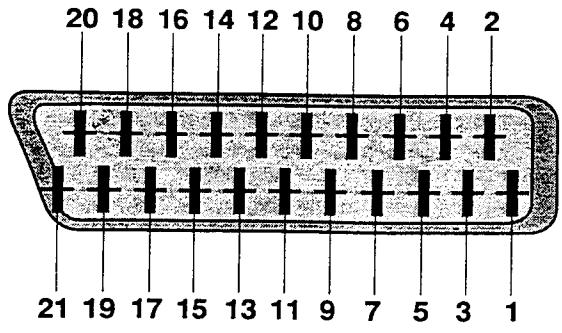
X-RAY RADIATION PRECAUTION

1- Excessive high voltage can be produce potentially hazardous X-RAY radiation. To avoid such hazard, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 25KV at zero beam current (minimum brightness) under 220V AC power source. The high voltage must not under any circumstance, exceed 30KV. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

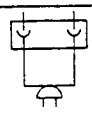
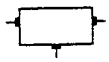
2- The primary source of X-RAY radiation in this TV receiver is the picture tube. For continued X-RAY radiation protection, the replacement tube must be exactly the same type tube as specified in the part list.

SPECIFICATIONS OF THE CONNECTOR (EURO SCART)

1- Audio output 1. right channel 0.5 VRMS/<1 k 0
2- Audio input 1. right channel 0.5 VRMS (connected to No.6)
3- Audio output 2. left channel 0.5 VRMS (connected to No.1)
4- GND (audio)
5- GND
6- Audio input 2. left channel 0.5 VRMS/>10k 0
7- RGB input, blue (B)
8- Switch signal video (status)
9- GND
10- Reserved for clock signals (not connected)
11- RGB input, green (G)
12- Reserved for remote control (not connected)
13- GND
14- GND switch signal RGB
15- RGB input, red (R)
16- Switch signal RGB
17- GND (video)
18- GND
19- Video output 1 Vpp/75 ohm
20- Video input 1 Vpp/75 ohm
21- Shield



COMPONENT DESCRIPTIONS

	POWER CORD
	SAW FILTER
	IR SENSOR
	VOLTAGE REGULATOR
	ON/OFF SWITCH
	LINE FILTER
	PTC
	NPN TRANSISTOR
	PNP TRANSISTOR
	CERAMIC FILTER
	COIL
	LINEARITY COIL
	FUSIBLE RESISTOR
	IW METAL OXIDE RESISTOR
	1/2W METAL OXIDE RESISTOR
	1/4 OR 1/6W CARBON FILM RESISTOR
	CERAMIC CAPACITOR /POLYESTER CAPACITOR
	ELECTROLYTIC CAPACITOR
	DIODE
	ZENER DIODE
	SWITCH JUMPER
	NET (INPUT)
	NET (OUTPUT)
	TACT SWITCH

SERVICE ADJUSTMENT AND ALIGNMENTS

HIGH VOLTAGE TEST

There is no high voltage adjustment component on the chassis. Changing of +145 depends on the supply voltage. If it's necessary to measure high voltage.

1- Connect the probe of high voltage tester to the anode of CPT.
2- Adjust contrast and brightness to minimum.
3- Measure the high voltage as 27 KV for 25 "and 28" screen size.
4- For maximum brightness, high voltage regulation should be 2KV dc max.

AGC ADJUSTMENT

1- Apply Philips pattern signal which is 60 dB uV to the RF input.
2- Adjust VR182 until find a picture without snowy.

VERTICAL ADJUSTMENT

1- Apply Philips pattern.
2- Cut down vertical amplitude with VR 576.
3- Center picture with three position key.
4- Make vertical adjustment with VR576 that will see lower and top lines of picture.

HORIZONTAL ADJUSTMENT

1- Apply Philips pattern signal.
2- Center the picture while shifting to right and left with VR 181.

STEREO / DUAL ADJUSTMENT

1- Connect oscilloscope 14 PIN out of IC901 (TDA9840).
2- Apply one channel signal with stereo publication.
3- Adjust sound signal of 1 KHz and 3KHz by means of VR326 that the difference between should be minimum.

TELETEXT ADJUSTMENT

1- Apply one channel signal with teletext publication.
2- Cut video signal which gone IC730.
3- Stop horizontal shifting of picture with VC 726.
4- Again connect video signal to IC730 and check picture.

ADJUSTMENT OF SUPPLY VOLTAGE

1- Apply Philips pattern signal.
2- Make the volume, brightness and contrast adjustment to minimum.
3- Adjust the supply voltage on the PIN cathode of D125 as Vsys = 145 + 0.5 by using VR101.

FOCUS ADJUSTMENT

Adjust the thickness of lines until being minimum, by focus trimpot on the EHT transformer. By using crosshatch or multi-burst test pattern.

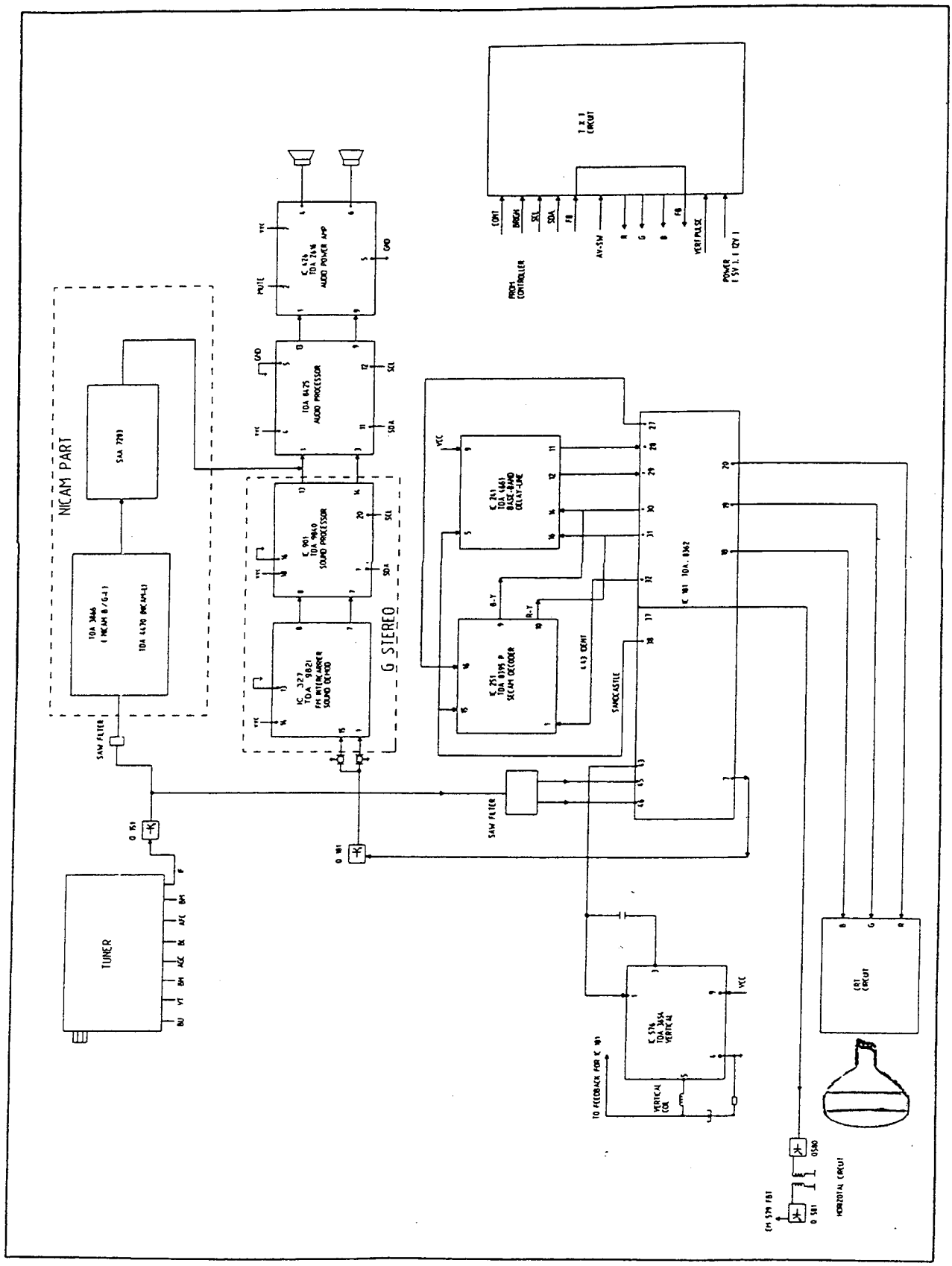
WHITE BALANCE ADJUSTMENT

1- Apply Philips pattern.
2- Adjust VR52, VR54 are trimpots to middle position and VR51, VR53 and VR55 are trimpots to minimum.
3- Adjust BRT, CONT, COL to min.
4- Adjust at lower grey bar of Philips pattern by screen trimpot that two bars should be seen.
5- Increase BRT control little and adjust white balance by using VR51, VR53, VR55 with eyes.
6- Apply white pattern. Settle screen probe of minolta, adjust Y = 5 nits with brightness.
7- Increase contrast until adjust X = Y = 270 - 276 nits by means of VR52, VR54.
8- Bring contrast to minimum. Adjust X = Y = 270 - 276 nts at Y = 5 nits by means of VR51, VR53, VR55.
9- Check white balance at high and low contrast level. Again make adjustment if it's necessary.

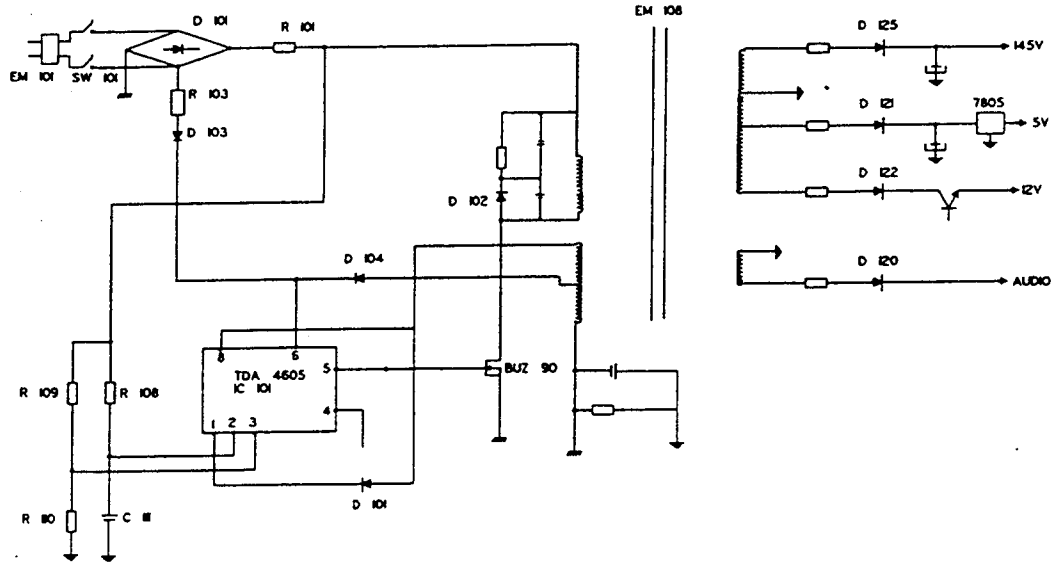
AFT ADJUSTMENT

1- Disconnect the if output tuner from if input.
2- Apply 38.9 MHz signal with PM5518 Philips pattern generator to IF input.
3- Connect a digital voltmeter to AFT PIN of IC476.
4- Adjust T181 coil until the voltage of IC476 is being 2.5Vdc.
5- Connect the IF input which input is disconnected in the beginning.

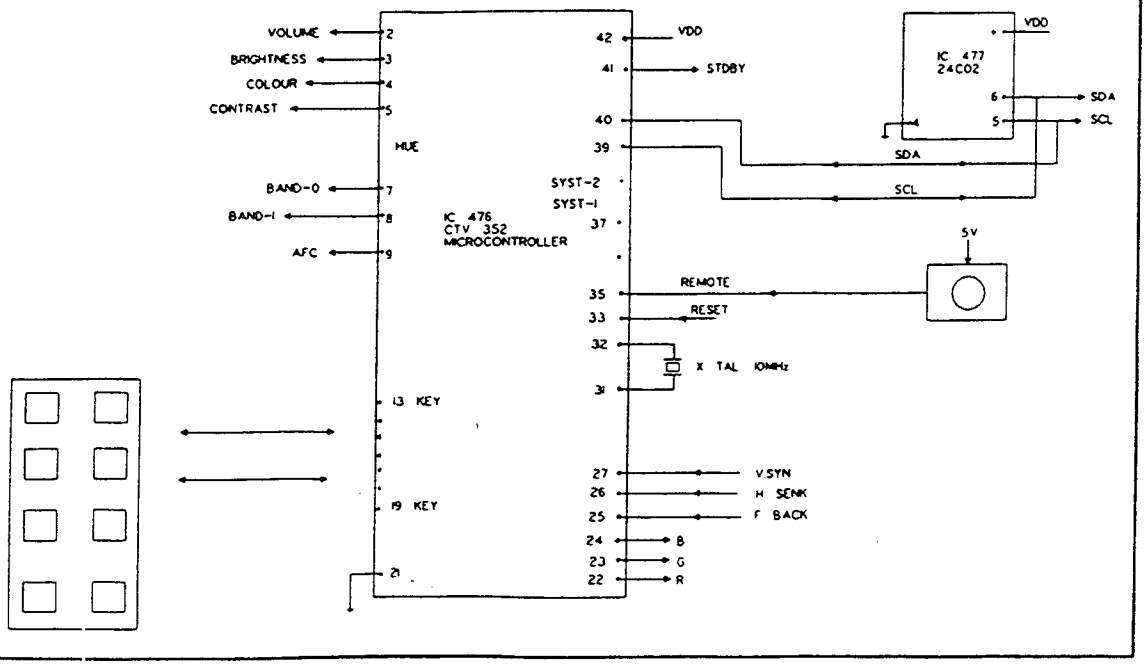
BLOCK DIAGRAM



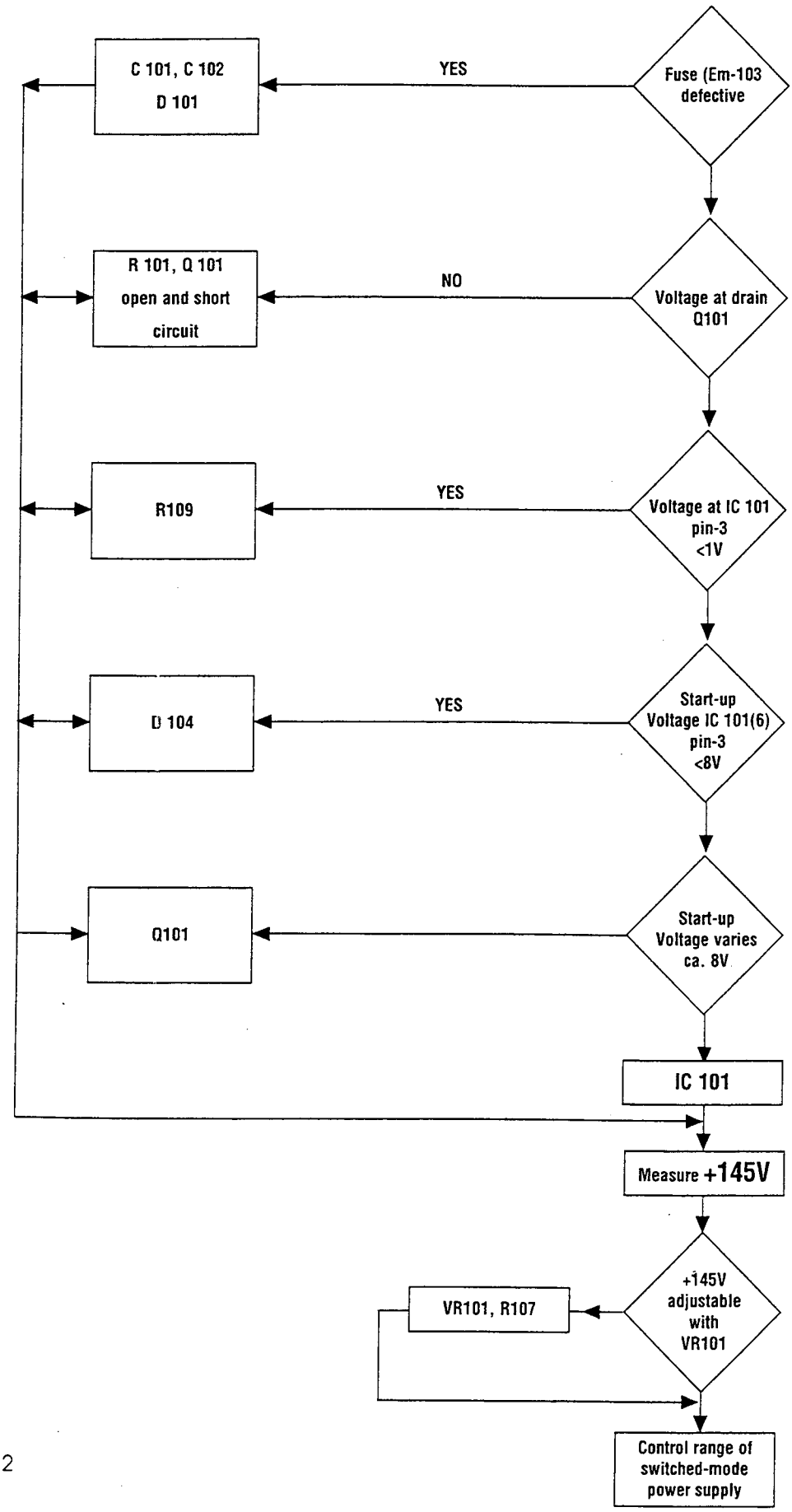
POWER CIRCUIT



CONTROLLER CIRCUIT



FAULT TRACING DIAGRAM - POWER SUPPLY



Power Supply With TDA4605

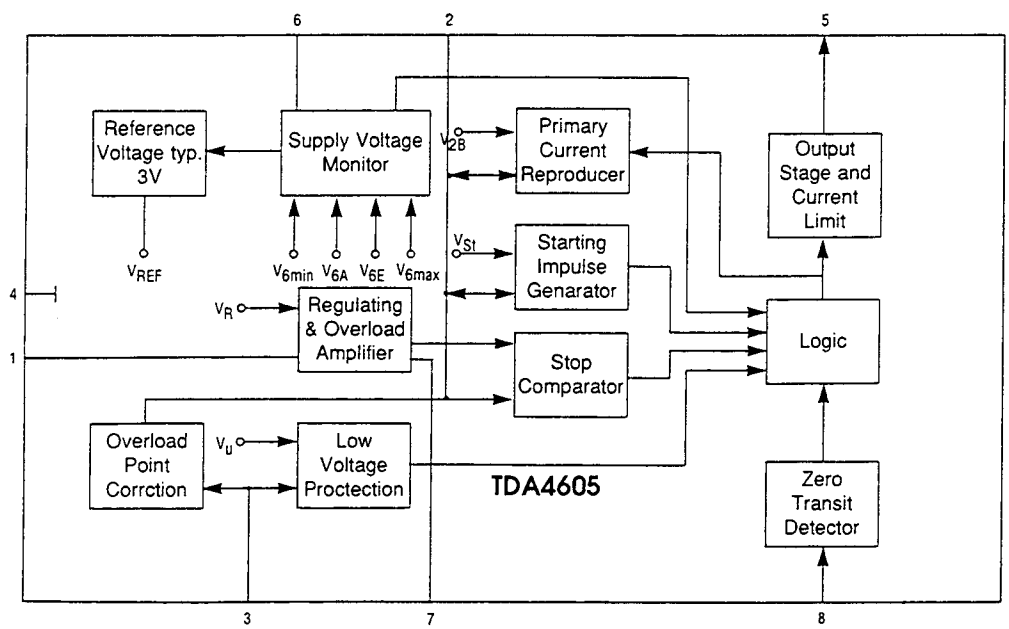
The IC TDA 4605 controls the MOS power transistor and performs all necessary regulation and monitoring functions in free running flyback converters.

FEATURES

- Overload protection
- Burst operation under short circuit conditions
- Loop error protection
- Switch-off if line voltage is too low
- Line voltage compensation of overload point
- Soft start for quite start up
- Chip over temperature protection
- On-chip parasitic transformer oscillation suppression circuit

TDA 4605-3

PINNING		PIN VOLTAGE	
		ST-BY	NORM.
1	Information Input Concerning Secondary Voltage	0.4V	0.4V
2	Information Input Regarding the Primary Current	1V	1.2V
3	Input for Primary Voltage Monitor	2.1V	2V
4	Ground	0V	0V
5	Output	0.8V	8V(10Vpp)
6	Supply voltage Input	12V	12.8V
7	Input for Soft-Start and Integrator Circuit	1.1V	1.9V
8	Input for the Feedback of the Oscillator	0.3V	0.4V



Pin Definitions and Functions

Pin No.	Function
1	**Information Input Concerning Secondary Voltage** By comparing the regulating voltage - obtained from the regulating winding of the transformer - with the internal reference voltage, the output impulse width on pin 5 is adjusted to the load of the secondary side (normal, overload, short-circuit, no load).
2	**Information Input Regarding the Primary Current** The primary current rise in the primary winding is simulated at pin 2 as a voltage rise by means of external RC-element. When a voltage level is reached thats derived from the regulating voltage at pin 1, the output impulse at pin 5 is terminated. The RC-element serves to set the maximum power at the overload point set.
3	**Input for Primary Voltage Monitoring** In the normal operation V3 is moving between the thresholds V3H and V3L (V3H > V3 > V3L)- V3 < V3L: SMPS is switched OFF (line voltage too low). V3 > V3H : Compensation of the overload point regulation (controlled by pin 2) starts at V3H : V3L = 1.7.
4	**Ground**
5	**Output** Push-pull output provides ±1 A for rapid charge and discharge of the gate capacitance of the power MOS-transistor.
6	**Supply Voltage Input** A stable internal reference voltage VREF is derived from the supply voltage also the switching thresholds V6A, V6E, V6 max and V6 min for the supply voltage detector. If V6 > V6E then VREF is switched on and switched off when V6 < V6A - In addition the logic is only enable for V6 min < V6 < V6 max-
7	**Input for Soft-Start** Start-up will begin with short pulses by connecting a capacitor from pin 7 to ground.
8	**Input for the Oscillation Feedback** After starting oscillation, every zero transition of the feedback voltage (falling edge) through zero (failing edge) triggers an output pulse at pin 5. The trigger threshold is at + 50 mV typical.

CTV352S (Micro controller) IC476

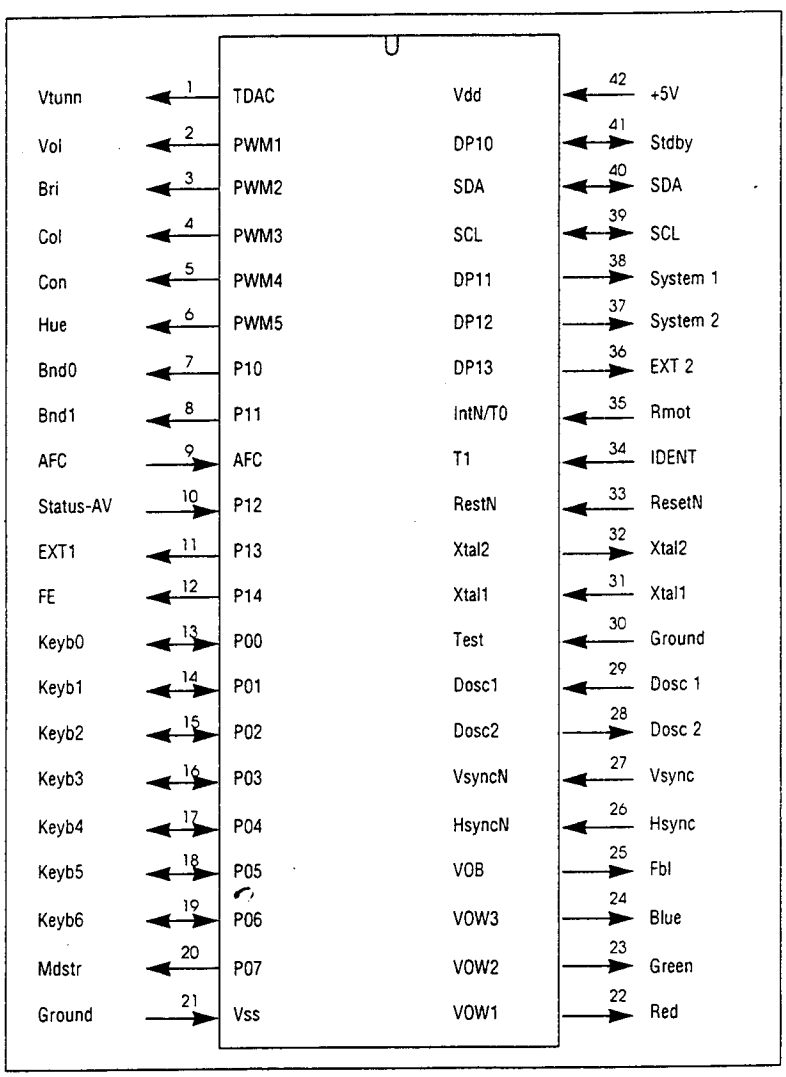
CTV352S is a low cost television receiver control system, based on the PCF84C841 micro controller. It is a voltage synthesis tuning (VST) system with on-screen-display (OSD) of all relevant control functions. Analogue picture settings are controlled by 4 on-chip digital to analogue convertors. Sound volume can be controlled by the fifth on-chip digital to analogue convertor in a mono-only system. Full sound (Volume, Bass, Treble, Balance) can be controlled via the I²C-bus in a German Stereo and/or Nicam configuration, using a Hi Fi sound audio processor.

CTV352S can control up to two SCART plugs and S-VHS plug.

A second tuner is controlled for satellite tuning.

The system is colour standard independent and can be used all over the world. It can select 3 systems (PAL, SECAM and NTSC) and has additional options for sound systems.

The pinning of CTV352S including the I/O expander is given below.



CTV352S PCA84C841
Pinning diagram of CTV352S with satellite tuner

CTV352S (Micro controller)

PCA84C841 pins	Port		Pin name	Function
1	TDAC		VTUNN	tuning voltage control output
2	PWM1		VOL	volume control output
3	PWM2		BRI	brightness control output
4	PWM3		COL	colour control output
5	PWM4		CON	contrast control output
6	PWM5		HUE	hue control output
7	P10	1)	BND-0	band-switch 0 output
8	P11	1)	BND-1	band-switch 1 output
9	AFC		AFC	analogue AFC sense input
10	P12		Status-AV	AV status input
11	P13	1)	EXT1	external source select output
12	P14	1)	FE	FE/AV select output
13	P00	1)	KEYB0	keyboard scan line input/output
14	P01	1)	KEYB1	keyboard scan line input/output
15	P02	1)	KEYB2	keyboard scan line input/output
16	P03	1)	KEYB3	keyboard scan line input/output
17	P04	1)	KEYB4	keyboard scan line input/output
18	P05	1)	KEYB5	keyboard scan line input/output
19	P06	1)	KEYB6	keyboard scan line input/output
20	P07	1)	MDSTR	system mode strobe output
21	Vss		GROUND	ground supply input
22	VOW1		RED	OSD red output
23	VOW2		GREEN	OSD green output
24	VOW3		BLUE	OSD blue output
25	VOB		FBL	OSD fast blanking output
26	HSYNCN		HSYNC	horizontal synchronization input
27	VSYNCN		VSYNC	vertical synchronization input
28	DOSC2		DOSC2	LC oscillator input for OSD
29	DOSC1		DOSC1	LS oscillator output for OSD
30	TEST			test input; connected to ground
31	XTAL1			oscillator input; 10 MHz crystal
32	XTAL2			oscillator output
33	RESETN			power-on reset input/output
34	T1		IDENT	horizontal coincidence input
35	INTN/T0		RMOT	RC-5 remote control input
36	DP13	1)	EXT2	external source select output
37	DP12	1)	SYSTEM2	System select output
38	DP11	1)	SYSTEM1	System select output
39	DP07		SCL	I²C-bus clock signal output
40	DP06		SDA	I²C-bus data signal output
41	DP10		STDBY	Standby/On control input/output
42	Vdd			+5V supply voltage input

Note: *1) These pins are read at "cold start", they define the configuration/options of the TV system controlled by CTV352S*

Table 1 *Pin description of PCA84C841 micro controller in CTV352S.*

256x8 - bit static CMOS eeprom with I²C-bus interface
PCF8582A (IC477)

GENERAL DESCRIPTION

The PCF8582A is a 2 Kbits 5 Volt electrically erasable programmable read only memory (EEPROM) organized as 256 by 8-bits. It is designed in a floating gate CMOS technology.

As data bytes are received and transmitted via the serial I²C-bus, an eight pin DIL package is sufficient. Up to eight PCF8582A devices may be connected to the I²C-bus.

Chip select is accomplished by three address inputs.

Timing of the Erase/Write cycle can be done in two different ways; either by connecting an external clock to the "Programming Timing Control", pin (7 or 13), or by using an internal oscillator. If the latter is used an RC time constant must be connected to pin 7 or 13.

FEATURES

- Non-volatile storage of 2 Kbits organized as 256 x 8
- Only one power supply required (5 V)
- On chip voltage multiplier for erase/write
- Serial input/output bus (I²C)
- Automatic word address incrementing
- Low power consumption
- One point erase/write timer
- Power on reset
- 10.000 erase/write cycles per byte
- 10 years non-volatile data retention
- Infinite number of read cycles
- Pin and address compatible to PCF8570, PCF8571, PCF8582 and PCD8572
- External clock signal possible.

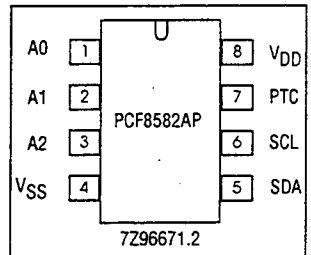
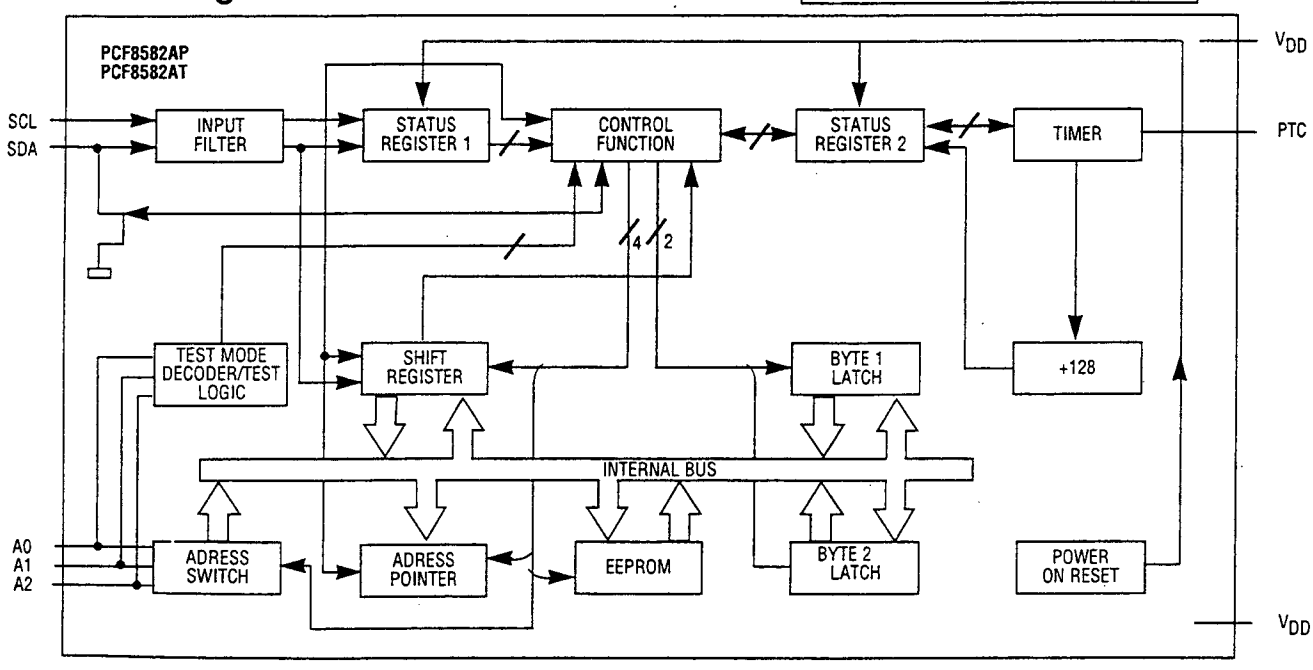


Fig.2 (a) Pinning diagram

1	A0	adress inputs/testmode select
2	A1	
3	A2	
4	V_{SS}	ground
5	SDA	I²C-bus lines
6	SCL	
7	PTC	programming time control
8	V_{DD}	positive supply

Block diagram



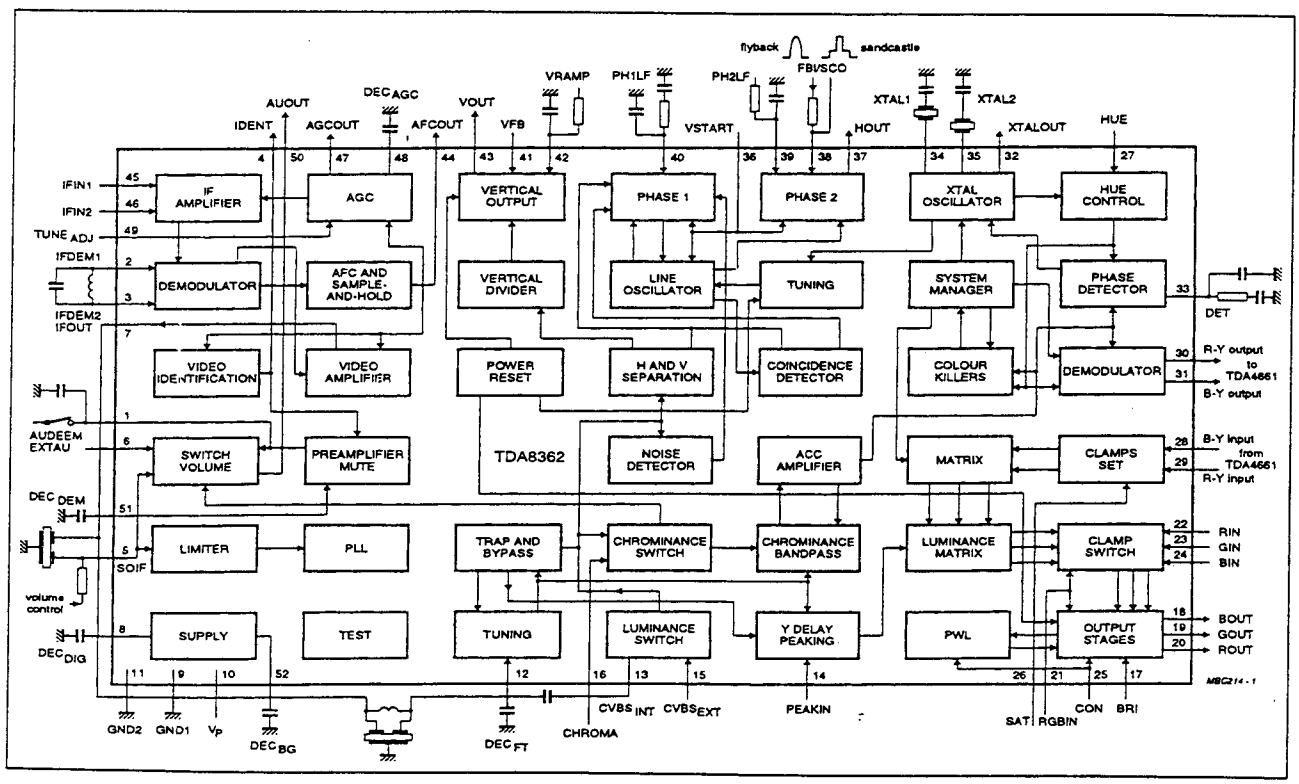
Video Processing Unit With
TDA8362/TDA8361

Video and time base is based on the TDA 8362 Multistandard TV Processor(Pal Decoder),TDA 4665 Base-band Delay Line and TDA8395 Secam Decoder.

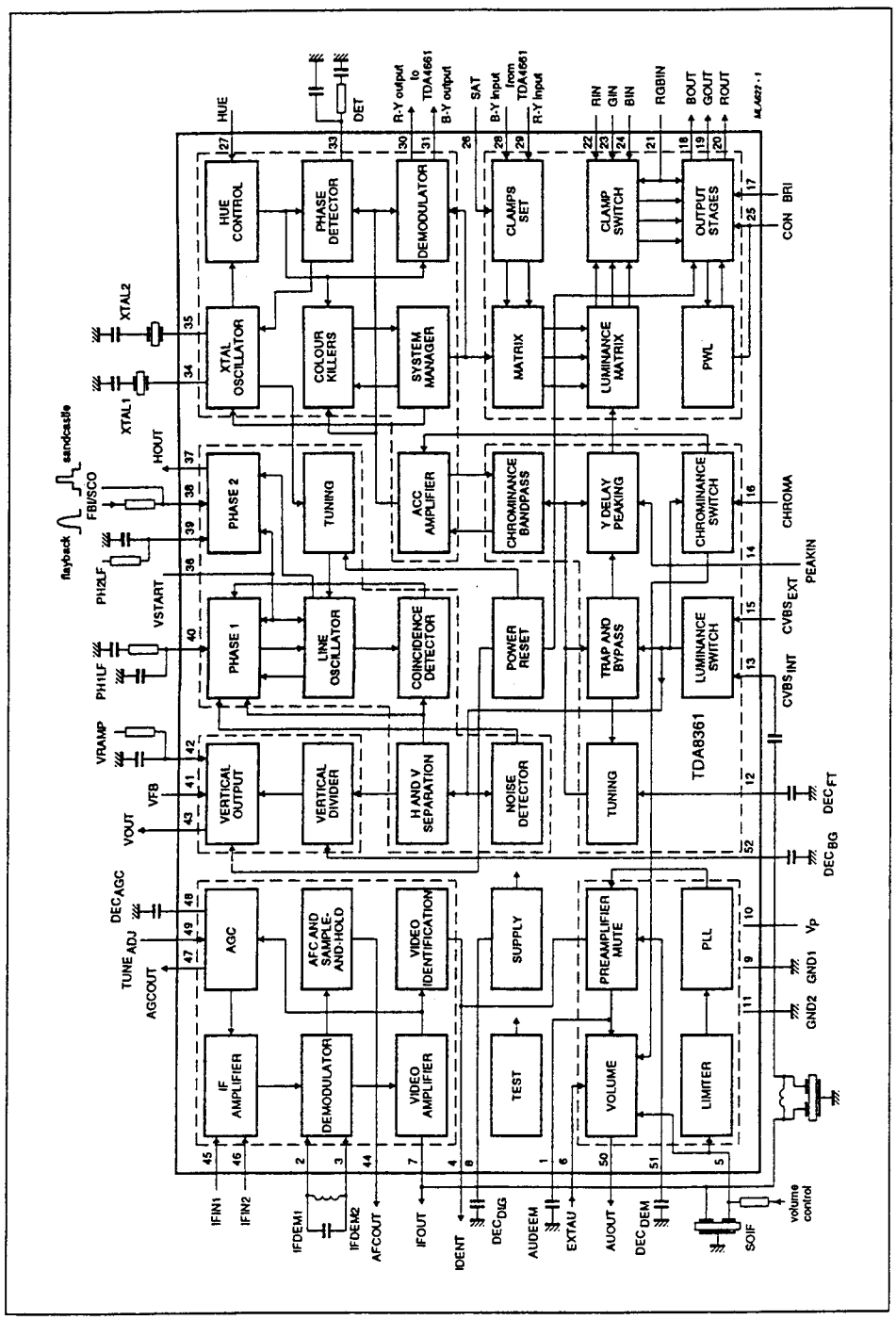
The Features of this Concept:

- Multistandard vision IF circuit (positive and negative modulation)
- Multistandard FM sound demodulator (4.5 MHz to 6.5 MHz)
- External Video and Audio Switches
- Integrated chrominance traps and baseband filters
- Integrated luminance delay line
- RGB control circuit with linear RGB inputs
- Horizontal synchronization with two loops and alignment-free horizontal oscillator without external components.
- Vertical count-down circuit (50-60 Hz) and vertical preamplifier
- Low dissipation
- Only one adjustment (vision IF demodulator)

Block Diagram



Block Diagram for TDA8361.

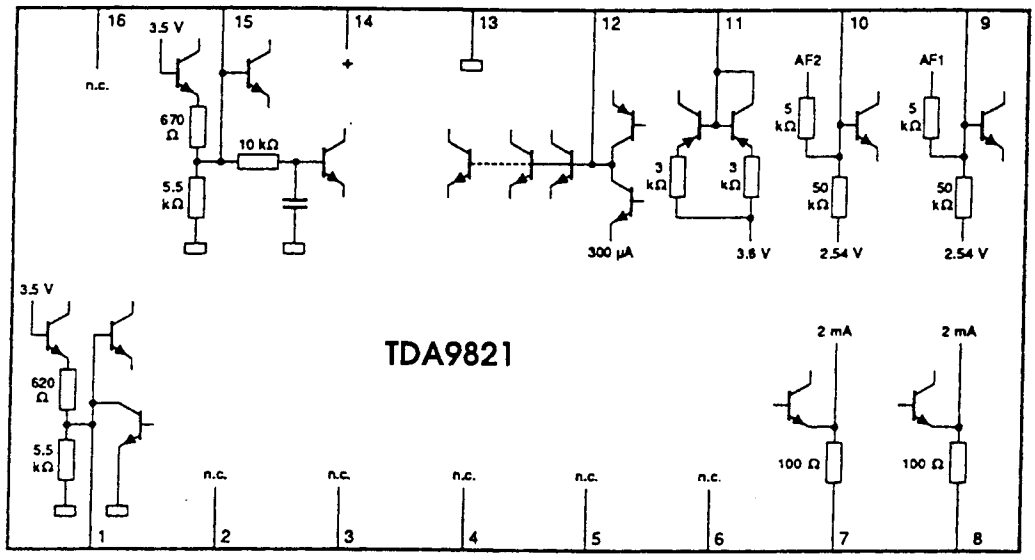


PINNING

PIN		PIN VOLTAGE
1	Audio deemphasis and +/- mod.switch Audio)	: 3V and 0.3Vrms(FM
2	IF-demodulator tuned circuit	: 6V
3	IF-demodulator tuned circuit	: 6V
4	Video identification output	: 5V
5	Sound IF plus volume control	: 0.5V - 4V
6	External audio input	: 4V
7	IF video output	: 2.5V and 2.0 Vpp (Video)
8	Decoupling digital supply	: 8V
9	Ground	: -
10	Positive supply (8V)	: 8V
11	Ground	: -
12	Decoupling filter tuning	: 3.25V
13	Internal CVBS input	: 4.25V
14	Peaking 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 - 4Vpp
19	G-output	: 2.5V - 4Vpp
20	R-output	: 2.5V - 4Vpp
21	RGB-insertion and blanking	: 0V TV and 1.5V RGB mode
22	R-input for insertion	: 3.3V and 0.7 Vpp
23	G-input for insertion	: 3.3V and 0.7 Vpp
24	B-input for insertion	: 3.3V and 0.7 Vpp
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(SEC)
33	Loop filter burst phase detector	: 4.5V
34	3.58 MHz X-tal connection	: 3V
35	4.43MHz X-tal connection	: 2V
36	Start horizontal oscillator	: 8V

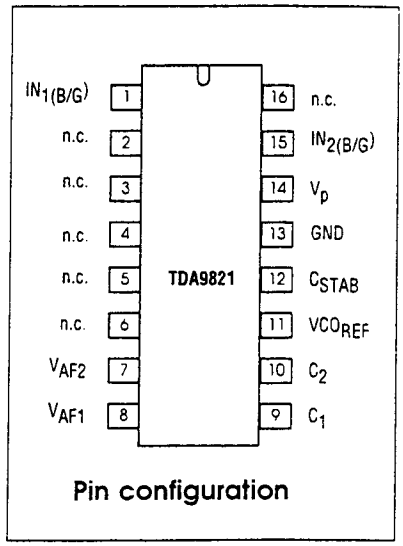
PIN		PIN VOLTAGE
37	Horizontal output	: 0.6Vp-p 15.6 KHz
38	Flyback input / sandcastle output	: 6Vpp
39	G2 loop filter	: 3V
40	G1 loop filter	: 3.75V
41	Vertical feedback input	: 2.5V and 1.0Vpp
42	Vertical ramp generator	: 2.5V and 1.5Vpp
43	Vertical output	: 2.5V
44	AFC output	: -
45	IF-input	: 4V
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

Dual Channel TV FM Intercarrier Sound Demodulator
TDA9821



internal circuits

PINNING		
SYMBOL	PIN	DESCRIPTION
$IN_{1(B/G)}$	1	First intercarrier input at 5.5 MHz
n.c.	2	not connected
n.c.	3	
n.c.	4	
n.c.	5	
n.c.	6	
V_{AF2}	7	Second audio output voltage
V_{AF1}	8	First audio output voltage
C_1	9	Decoupling capacitor
C_2	10	Decoupling capacitor
VCO_{REF}	11	VCO reference
C_{STAB}	12	Supply voltage stabilization
GND	13	Ground (0 V)
V_p	14	Supply voltage
IN2(B/G)	15	Second intercarrier input
n.c.	16	not connected



Pin configuration

FUNCTIONAL DESCRIPTION

The complete circuit consists of two sperate channels, each consisting of a limiter - amplifier, FM demodulator and AF amplifier. Circuit operation is as follows.

FM demodulators

The intercarrier signal is fed through external ceramic bandpass filters which are tuned to the sound carrier frequencies.

Each limiter amplifier is AC - coupled into an FM demodulators. The FM demodulator P_{LLS}, ensure that the demodulators are alignment - free. The FM demodulator outputs are amplified to 500m V_{RMS}. The hight amplification and DC eror signals of the P_{LLS}, which are super imposed on the FM demodulator outputs, require DC de - coupling at pin 9 and pin 10 of the AF amplifier inputs.

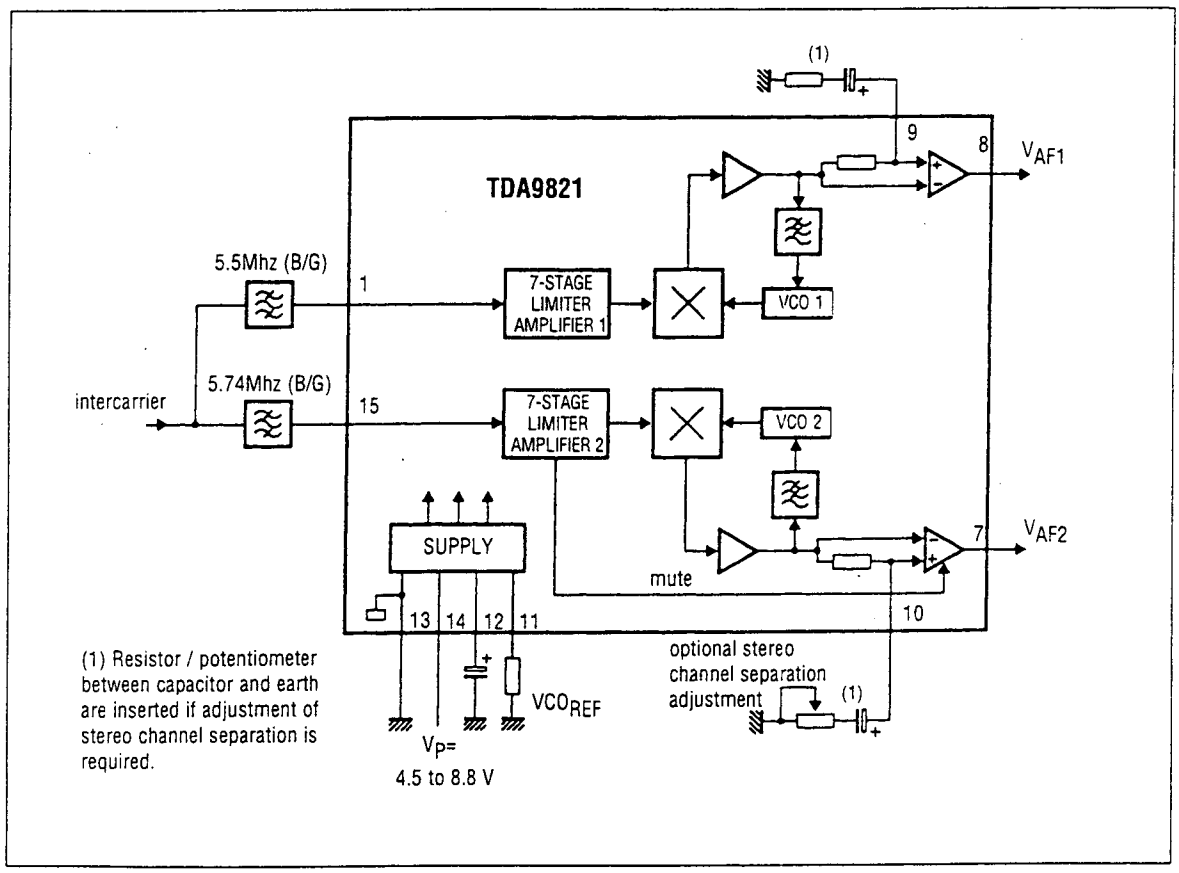
Stereo channel separation adjustment (optional).

Optimal stereo channel separation is achieved by adjusting VAF_1 (pin8) and VAF_2 (pin7) as follows:

a) VAF_1 by a resistor in series with the OC de - coupling capacitor at pin 9.

b) VAF_2 by a variable resistor in series with the DC decoupling capacitor on pin 10 to the same voltage as VAF_1. Normally stereo channel separation is adjuster in the stereo decoder for the B/G standard.

Block Diagram

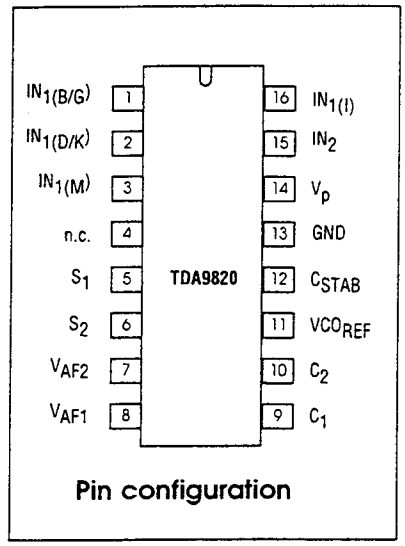


TV FM Intercarrier Sound Demodulator

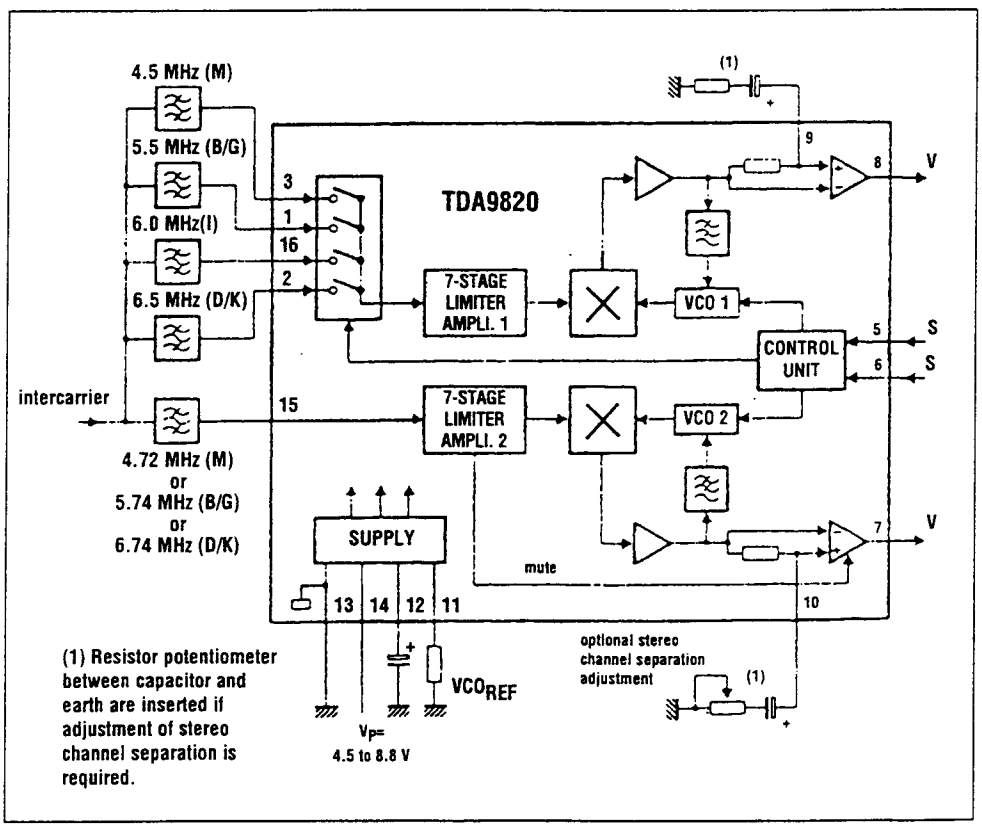
TDA9820

PINNING

SYMBOL	PIN	DESCRIPTION
$IN_{(B/G)}$	1	First intercarrier input at 5.5 MHz
$IN_{(D/K)}$	2	First intercarrier input at 6.5 MHz
$IN_{1(M)}$	3	First intercarrier input at 4.5 MHz
n.c.	4	Not connected
S_1	5	Standard switch bit 1
S_2	6	Standard switch bit 2
V_{AF2}	7	Second audio output voltage
V_{AF1}	8	First audio output voltage
C_1	9	Decoupling capacitor
C_2	10	Decoupling capacitor
VCO_{REF}	11	VCO reference
C_{STAB}	12	Supply voltage stabilization
GND	13	Ground
V_p	14	Supply voltage
IN_2	15	Second intercarrier input
IN_1	16	First intercarrier input at 6.0 MHz



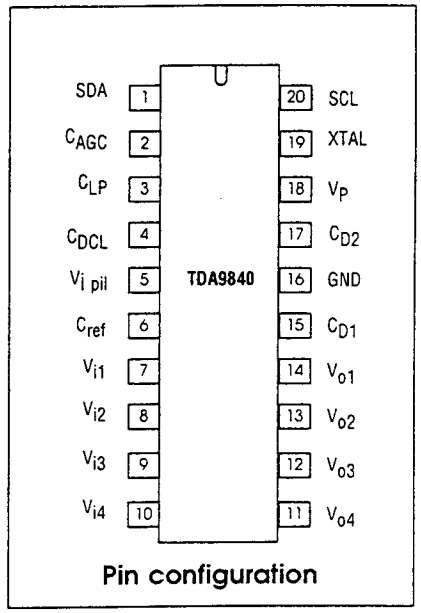
Pin configuration



Stereo/Dual Sound Processor with Digital Identification
TDA9840

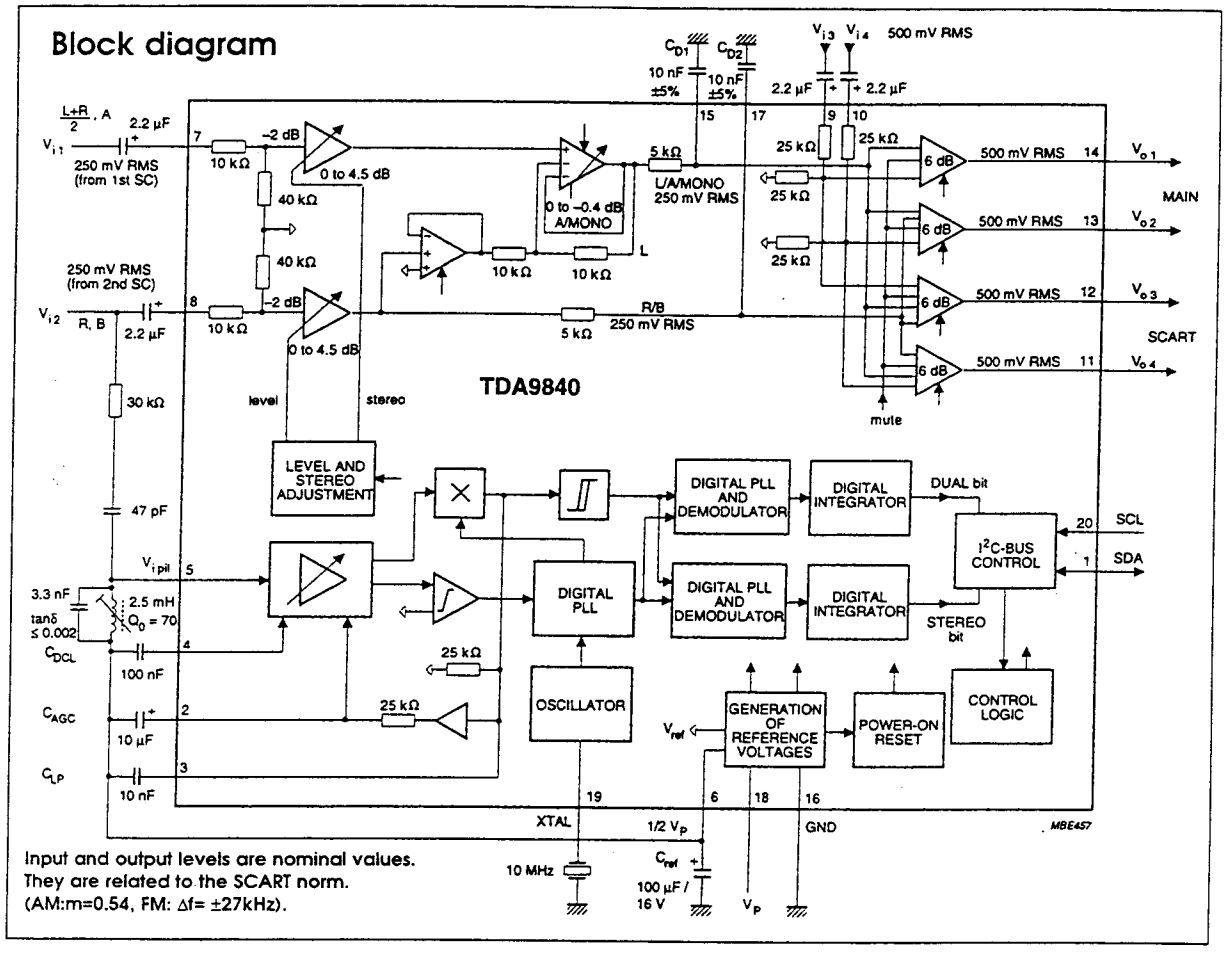
FEATURES

- Supply voltage 5 to 8 V.
- De - emphasis
- Source selector
- Level and stereo matrix adjustment possible via the I²C - bus
- I²C - bus transceiver
- AF inputs for NICAM or AM sound
- AF outputs for main and scart
- AF input and output signals selectable via the I²C - bus
- Information for identified transmission made is readable via I²C - bus
- Software is compatible with the TDA8415/25
- Quartz oscillator and clock generator
- Three digital integrators, alignment - free
- Two digital P_{LL}, alignment - free
- Stabilizer circuit for ripple rejection and constant output signals
- ESD protection of all pins.



Pin configuration

PINNING		
SYMBOL	**PIN**	**DESCRIPTION**
SDA	1	I2C-bus data input/output
C_{AGC}	2	AGC capacitor of pilot frequency amplifier
C_{LP}	3	Identification low-pass capacitor
C_{DCL}	4	DC loop capacitor
$V_{i\,pil}$	5	Pilot frequency input input voltage
C_{ref}	6	Capacitor of reference voltage (1/2 Vp)
$V_{i\,1}$	7	AF input signal Vi_1 (from 1st sound carrier)
$V_{i\,2}$	8	AF input signal Vi_2 (from 2nd sound carrier)
$V_{i\,3}$	9	AF input signal Vi_3 (NICAM or AM sound (standard L)
$V_{i\,4}$	10	AF input signal Vi_4 (NICAM)
$V_{0\,4}$	11	AF output signal Vo_4 (SCART)
$V_{0\,3}$	12	AF output signal Vo_3 (SCART)
$V_{0\,2}$	13	AF output signal Vo_2 (main)
$V_{0\,1}$	14	AF output signal Vo_1 (main)
C_{D1}	15	50 us de-emphasis capacitor of AF Channel 1
GND	16	Ground (0 V)
C_{D2}	17	50 µs de-emphasis capacitor of AF Channel 2
Vp	18	Supply voltage (+5 to +8V)
XTAL	19	10 MHz crystal input
SCL	20	I²C-bus clock input



FUNCTIONAL DESCRIPTION

The TDA9840 receives the signals from the FM - demodulators in a TV tw0 sound - carrier system. The circuit is realized by the bipolar process.
The IC is intended for use in economic TV and VTR receivers. There fore optimum relation ship between integration of functions and use of external components has been striven for Additionally a new type of identification circuit has been developed

AF signal handling

The input AF signals derived from the two sound carriers, are processed in analog form using operational amplifiers. The circuit incorporates Level - and stereo adjustment to correct the spreading in the FM detector output level.
De-emphasis is performed by two RC low - pass filter networks with internal resistors and external capacitors. This provides a frequency response with the tolarances given.
A source selector, controlled via I2C - bus allows selection of the different modes of operation in accordance with the transmitted signal. The device was designed for a nominal input signal (FM 54% modulation is equivalent)

IDENTIFICATION

The pilot signal is fed via an external RC hight - pass filter and single tuned LC band - pass filter to the input of a gain controlled amplifier. The external LC band - pass filter in combination with the external RC high - pass filter should have a loaded Q - factor of about 40 to 50 to ensure the highest identification sensitivity. By using a fixed coil to save the alignment, a Q factor of about 12 is proposed.

I²C-BUS TRANSCEIVER

The complate IC is controlled by a microcomputer via the I²C - bus. The built - in I²C - bus transceiver transmits the identification result to the I²C - bus receives the control data for the source selector and level control.

Power Supply

The different supply voltages and currents required for the analog and digital circuits are deceived from an internal band - gap reference circuit.

Power - on reset

When a power - on reset is activated by switching on the supply voltage or because of a supply voltage breakdown

Hi - Fi Stereo Audio Processor, I²C - Bus
TDA8425 (IC401)

GENERAL DESCRIPTION

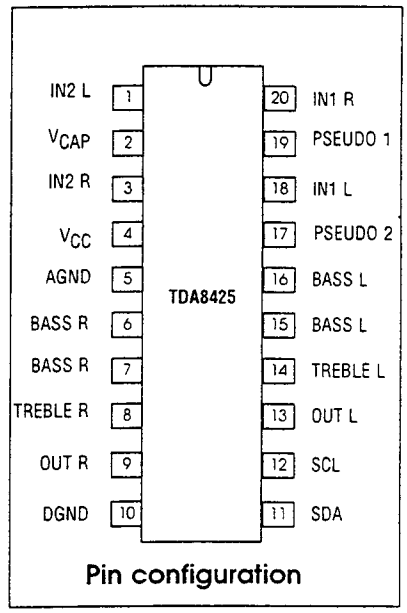
The TDA8425 is a monolithic bipolar integrated stereo sound circuit with a loudspeaker channel facility, digitally controlled via the I²C-bus for applicotion in Hi-Fi audio and television sound.

FEATURES

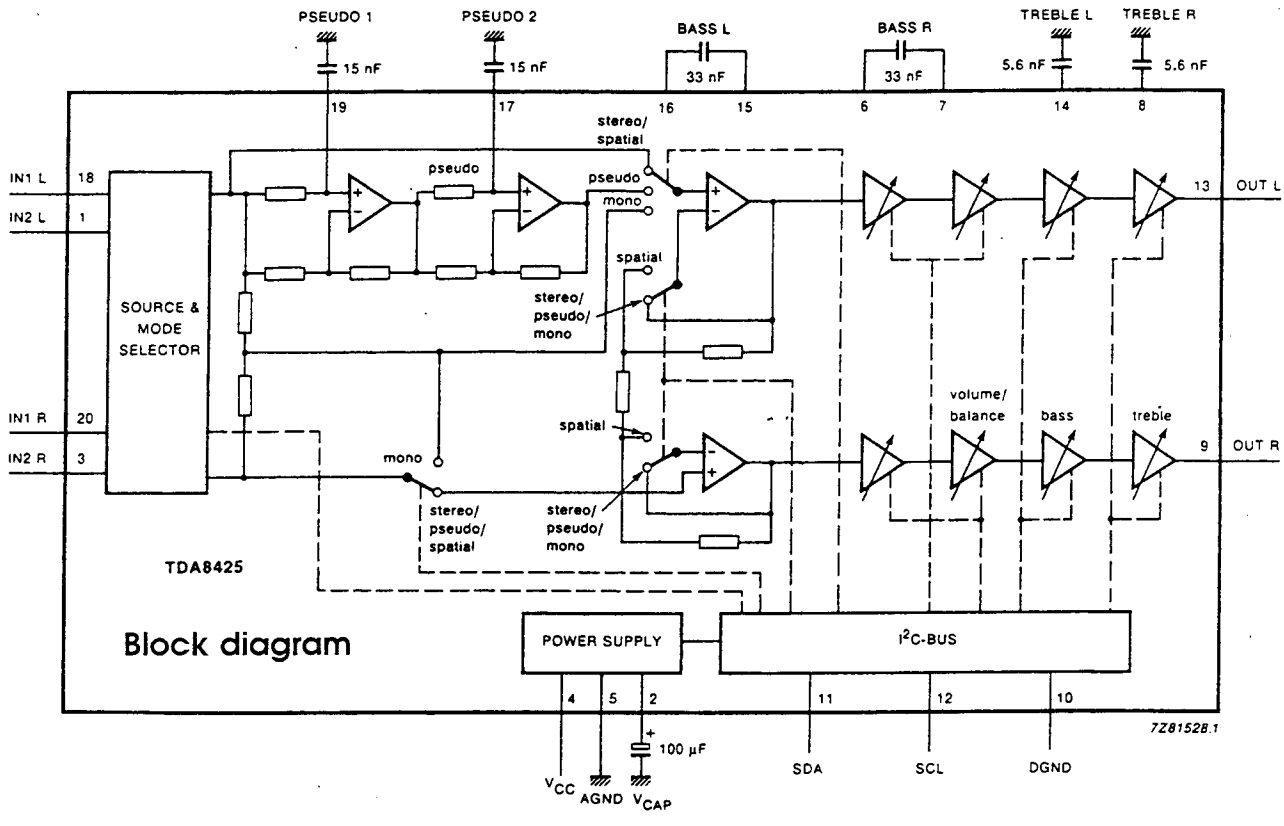
- Source and mode selector for two stereo channels
- Pseudo stereo, spatial stereo, linear stereo and forced mono switch
- Volume and balance control
- Bass, treble and mute control
- Power supply with power-on reset

QUICK REFERENCE DATA

parameter	symbol	min.	typ.	max.	unit
Supply voltage (pin 4)	V_{CC}	10.8	12.0	13.2	V
Input signal handling	V_I	2	-	-	V
Input sensitivity full power at the output stage	V_i	-	300	-	mV
Signal plus noise-to-noise ratio	(S+N)/N	-	86	-	dB
Total harmonic distortion	THD	-	0.05	-	%
Channel separation	α	-	80	-	dB
Volume control range	G	-64	-	6	dB
Treble control range	G	-12	-	12	dB
Bass control range	G	-12	-	15	dB

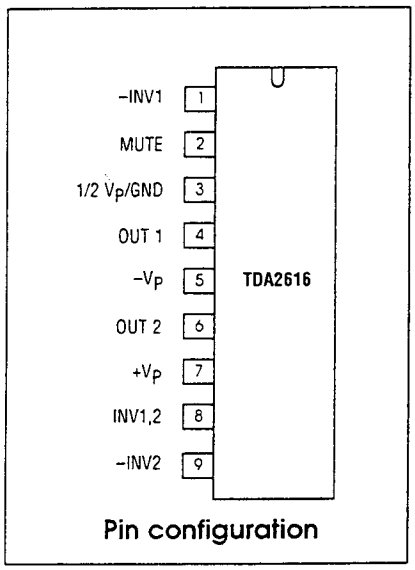


Pin configuration



Block diagram

Hi - Fi Power Amplifier
TDA2616



Pin configuration

PINNING		
SYMBOL	PIN	DESCRIPTION
-INV1	1	non-inverting input 1
MUTE	2	mute input
1/2 V_P/GND	3	1/2 supply voltage or ground
OUT 1	4	output 1
$-V_P$	5	supply voltage (negative)
OUT 2	6	output 2
$+V_P$	7	supply voltage (positive)
INV1,2	8	inverting inputs 1 and 2
-INV2	9	non-inverting input 2

QUICK REFERENCE DATA

Stereo application

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$\pm V_P$	Supply voltage range		7.5	–	21	V
P_O	Output power	$V_P = \pm 16$ V; THD = 0.5%	–	12	–	W
G_V	Internal voltage gain		–	30	–	dB
$\lvert G_V \rvert$	Channel unbalance		–	0.2	–	dB
α	Channel separation		–	70	–	dB
SVRR	Supply voltage ripple rejection		–	60	–	dB
V_{no}	Noise output voltage		–	70	–	µV

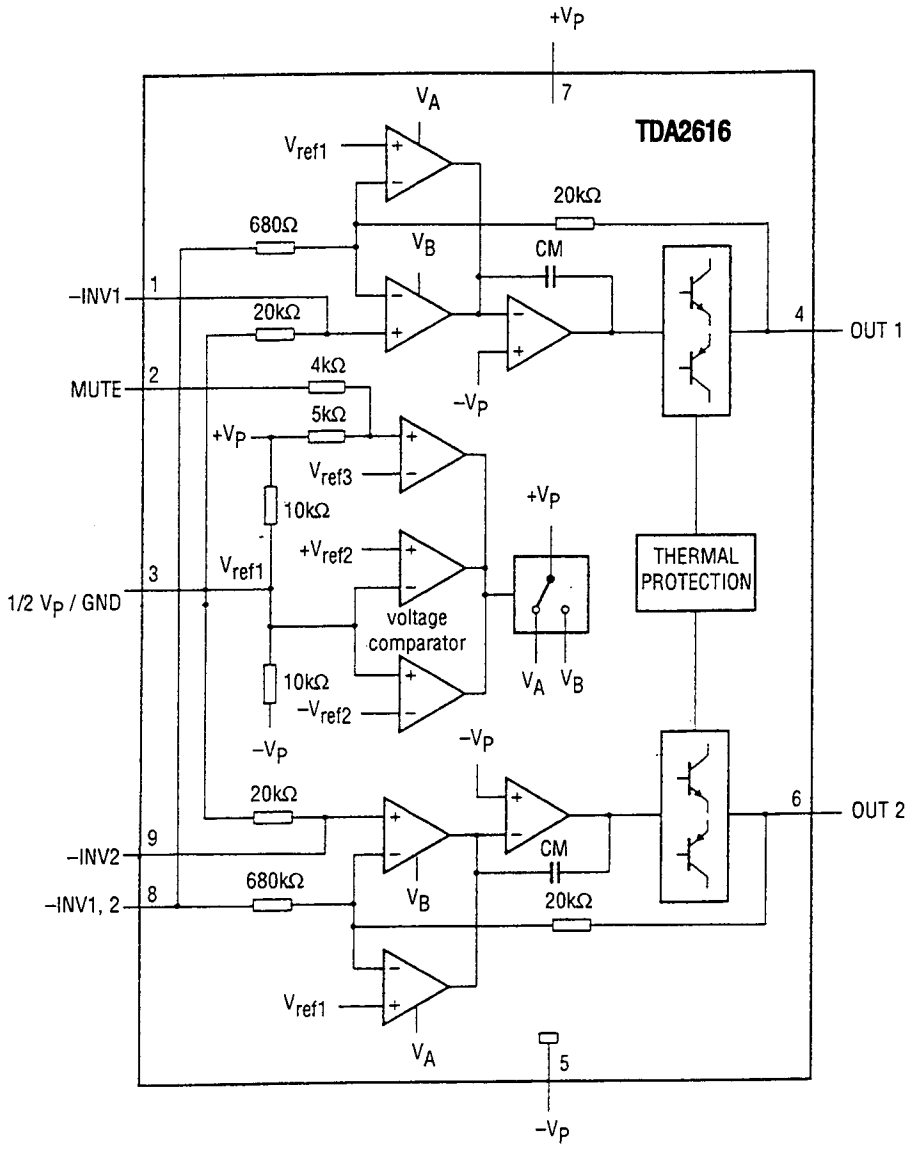
FUNCTIONAL DESCRIPTION

The TDA2616 is a HI - FI stereo amplifier designed for mains fed applications, such as stereo radio and TV. The circuit is optimally designed for symmetrical power supplies, but is also well-suited to asymmetrical power supply systems.

An output power of 2x12W can be delivered in to an 8 ohm load with a symmetrical power supply of ± 16V. The gain is internally fixed at 30db, thus offering a low gain spread and a very good gain balance between the two amplifiers (0.2db).

A special feature is the input mute circuit. This circuit disconnects the non - inverting inputs when the supply voltage drops below ± 6V, while the amplifier still retains its DC operating adjustment.

The device is provided with two thermal protection circuits. On circuit measures the average temperature of the crystal and the other measures the momentary temperature of the power transistors.



Block Diagram

Baseband Delay Line
TDA4661 (IC241)

FEATURES

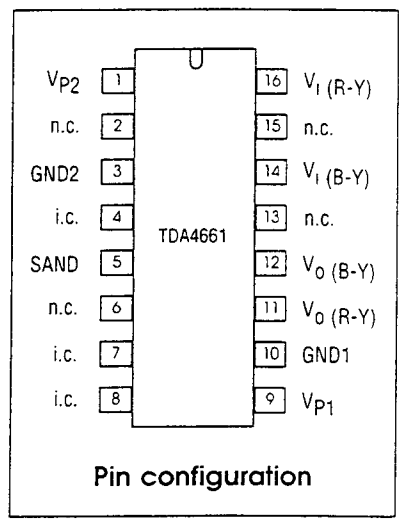
- Two comb filters, using the switched-capacitor technique, for one line delay time (64 µs)
- Adjustment-free application
- No crosstalk between SECAM colour carriers (diaphoty)
- Handles negative or positive colour-difference input signals
- Clamping of AC-coupled input signals (±(R-Y) and ±(B-Y))
- VCO without external components
- 3 MHz internal clock signal derived from a 6 MHz VCO, line-locked by the sandcastle pulse (64 µs line)
- Sample-and-hold circuits and low-pass filters to suppress the 3 MHz clock signal
- Addition of delayed and non-delayed output signals
- Output buffer amplifiers
- Comb filtering functions for NTSC colour-difference signals to suppress cross-colour

QUICK REFERENCE DATA

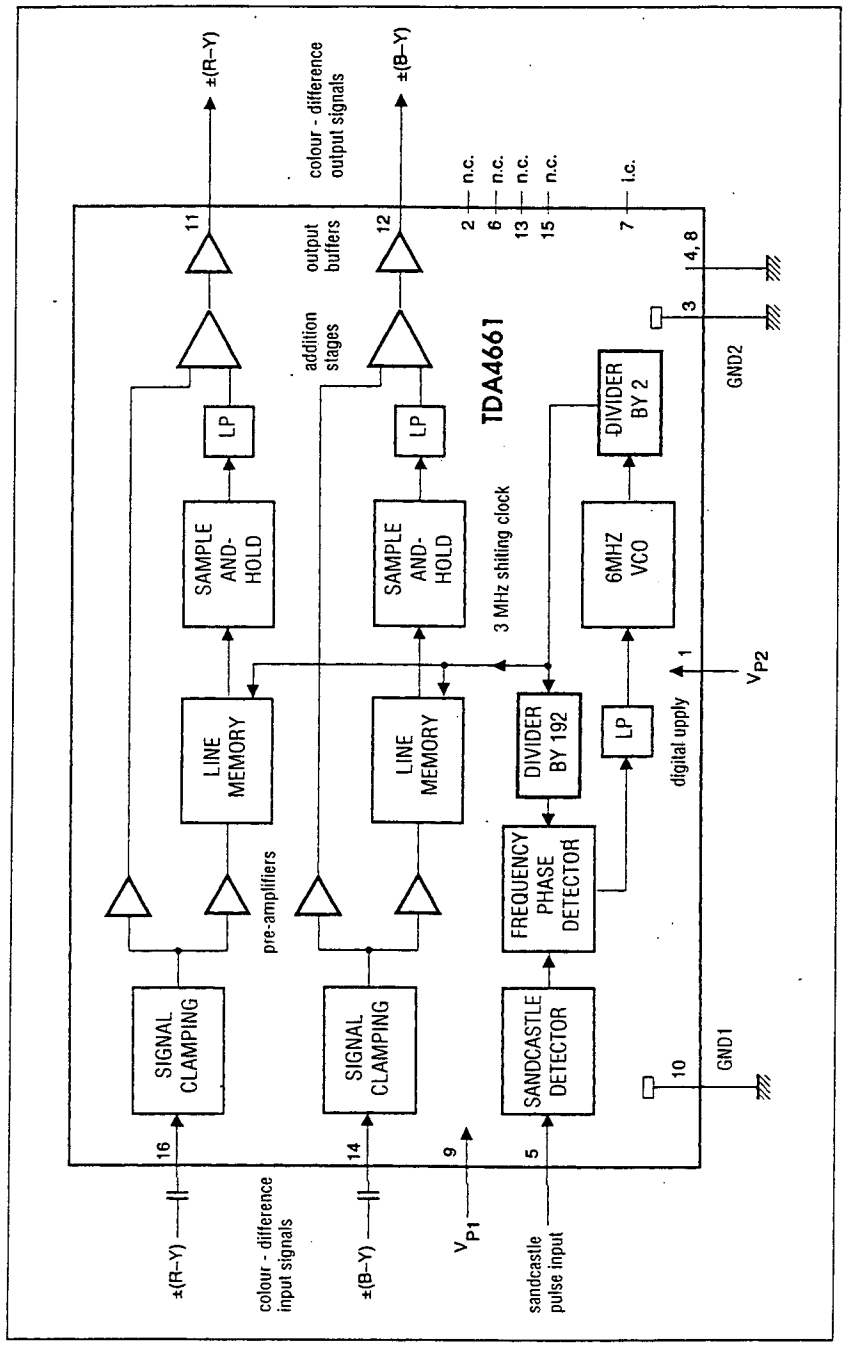
SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V_{P1}	analog supply voltage (pin 9)	4.5	5	6	V
V_{P2}	digital supply voltage (pin 1)	4.5	5	6	V
$I_{P\ tot}$	total supply current	-	4.7	9.4	mA
V_i	±(R-Y) input signal PAL/NTSC (peak-to-peak value, pin 16)	-	525	-	mV
	±(B-Y) input signal PAL/NTSC (peak-to-peak value, pin 14)	-	665	-	mV
	±(R-Y) input signal SECAM (peak-to-peak value, pin 16)	-	1.05	-	V
	±(B-Y) input signal SECAM (peak-to-peak value, pin 14)	-	1.33	-	V
G_V	gain V_O / V_i of colour-difference output signals				
	V_{11} / V_{16} for PAL and NTSC	5.5	6.0	6.5	dB
	V_{12} / V_{14} for PAL and NTSC	5.5	6.0	6.5	dB
	V_{11} / V_{16} for SECAM	-0.5	0	+0.5	dB
	V_{12} / V_{14} for SECAM	-0.5	0	+0.5	dB

PINNING

SYMBOL	PIN	DESCRIPTION
V_{P2}	1	+5 V supply voltage for digital part
n.c.	2	not connected
GND2	3	ground for digital part (0 V)
i.c.	4	internally connected
SAND	5	sandcastle pulse input
n.c.	6	not connected
i.c.	7	internally connected
i.c.	8	internally connected
V_{P1}	9	+5 V supply voltage for analog part
GND1	10	ground for analog part (0 V)
$V_{O\ (R-Y)}$	11	±(R-Y) output signal
$V_{O\ (B-Y)}$	12	±(B-Y) output signal
n.c.	13	not connected
$V_{i\ (B-Y)}$	14	±(B-Y) input signal
n.c.	15	not connected
$V_{i\ (R-Y)}$	16	±(R-Y) input signa



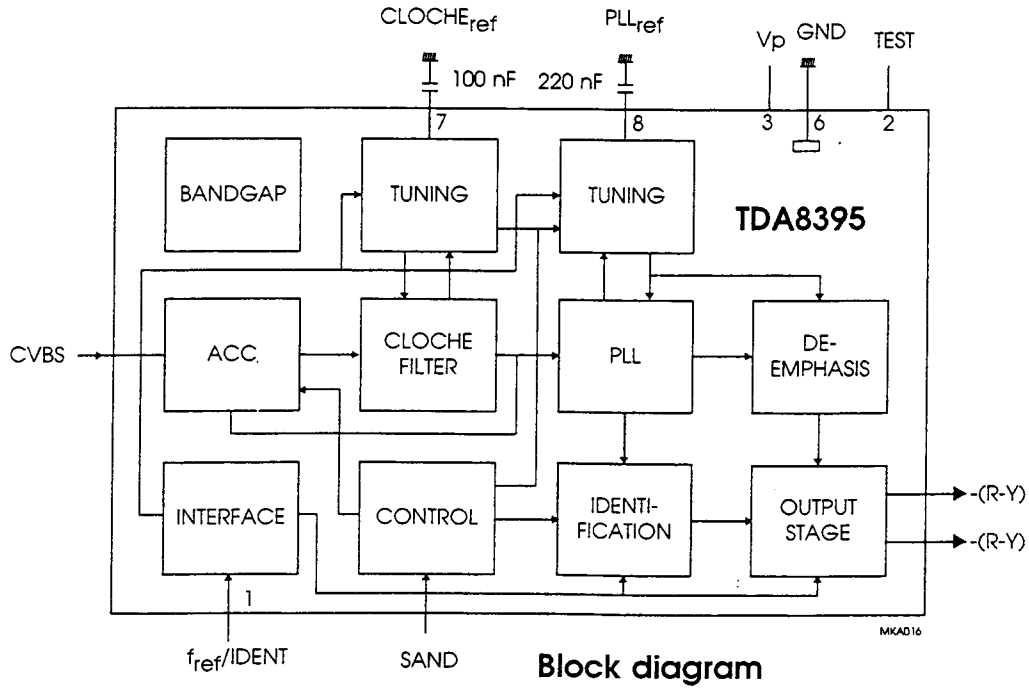
Pin configuration


±(R–Y)
colour - difference output signals
±(B–Y)
n.c.
n.c.
n.c.
n.c.
i.c.
11
output buffers
12
2
6
13
15
7
4, 8
addition stages
TDA4661
3
GND2
LP
LP
DIVIDER BY 2
SAMPLE AND-HOLD
SAMPLE AND-HOLD
3 MHz shifting clock
6MHZ VCO
LINE MEMORY
LINE MEMORY
DIVIDER BY 192
LP
1
V_{P2}
digital upply
pre-amplifiers
FREQUENCY PHASE DETECTOR
SIGNAL CLAMPING
SIGNAL CLAMPING
SANDCASTLE DETECTOR
10
GND1
16
14
9
5
±(R–Y)
colour - difference input signals
±(B–Y)
V_{P1}
sandcastle pulse input

TDA8395

The TDA8395 is a self calibrating fully integrated SECAM decoder.

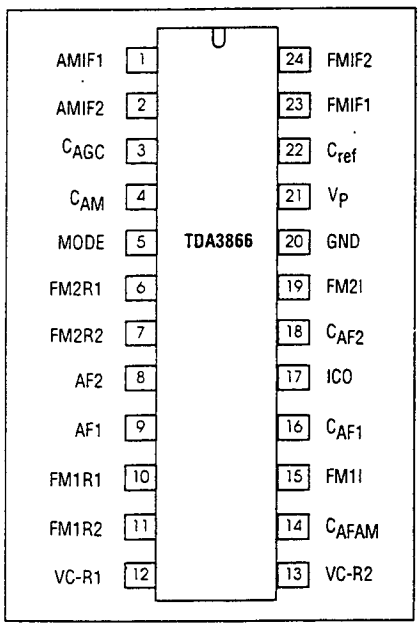
PINNING		PIN VOLTAGE
1	Reference frequency input	: -
2	Test output	: -
3	Positive supply voltage	: 8V
4	Not connected	: -
5	Not connected	: -
6	Ground	: 0V
7	Cloche reference filter	: -
8	PLL reference	: -
9	-(R-Y) output	: 1V
10	-(B-Y) output	: 1.3V
11	Not connected	-
12	Not connected	: -
13	Not connected	: -
14	Not connected	: -
15	Sandcastle pulse input	: 6Vpp
16	Video input	: -



Block diagram

Quasi - Split Sound Processor
TDA3866

PINNING		
SYMBOL	PIN	DESCRIPTION
AMIF1	1	AL IF difference input 1 for L standard (32.4 MHz)
AMIF2	2	AM IF difference input 2 for L standard
C_{AGC}	3	charge capacitor for AGC (FM and AM)
C_{AM}	4	charge capacitor for AM AGC
MODE	5	3-state input for standard select
FM2R1	6	reference circuit for FM2 (5.74 MHz)
FM2R2	7	reference circuit for FM2 (5.74 MHz)
AF2	8	AF2 output (AF out of 5.74MHz)
AF1	9	AF1 output (AF out of 5.5MHz or AM)
FM1R1	10	reference circuit for FM1 (5.5MHz)
FM1R2	11	reference circuit for FM1 (5.5MHz)
VC-R1	12	reference circuit for the vision carrier (38.9MHz)
VC-R2	13	reference circuit for the vision carrier (38.9MHz)
C_{AFAM}	14	DC-decoupling capacitor for AM demodulator (AF-AM)
FM1I	15	intercarrier input for FM1 (5.5MHz)
C_{AF1}	16	DC-decoupling capacitor for FM1 demodulator (AF1)
ICO	17	intercarrier output signal (5.5/5.74 MHz)
C_{AF2}	18	DC-decoupling capacitor for FM2 demodulator (AF2)
FM2I	19	intercarrier output signal (5.5/5.74 MHz)
GND	20	ground (0V)
V_P	21	+5 ... +8 V supply voltage
C_{ref}	22	charge capacitor for reference voltage
FM1F1	23	IF difference input 1 for B/G standard (38.9 MHz)
FM1F2	24	IF difference input 2 for B/G standard (38.9 MHz)



Pin configuration

FUNCTIONAL DESCRIPTION

The quasi split sound processor is for all standards. Dependent on the voltage on pin 5 either FM mode (B/G) or AM mode (1) is selected.

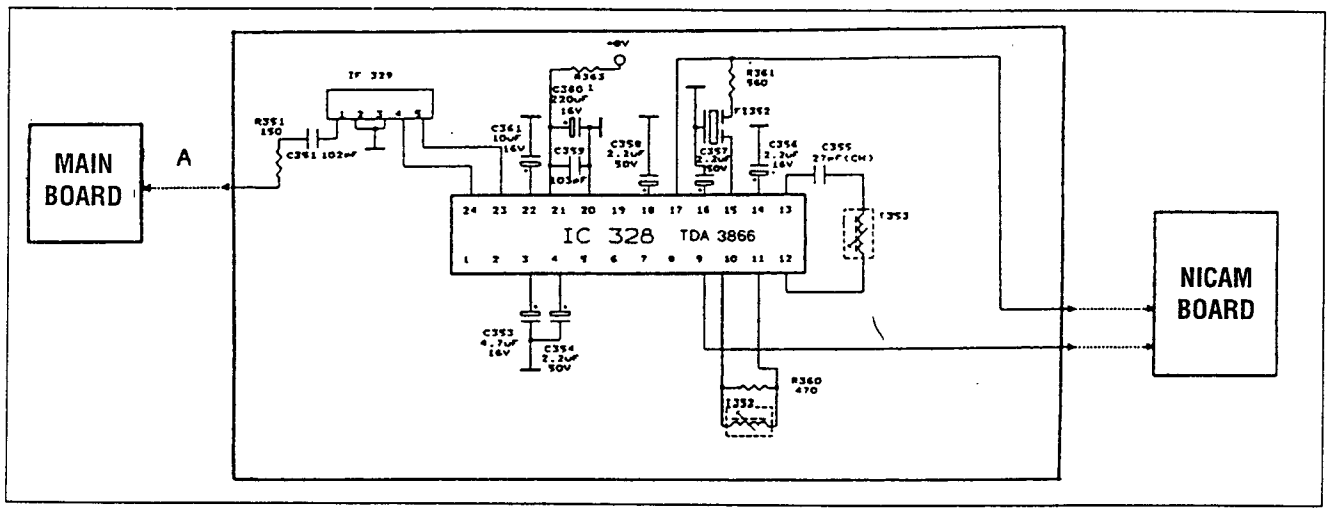
B/G standard (FM mode) pins 23 and 24 are active, AGC detector uses peak sync level. Sound carrier SC1 (5.5MHz) provides AF1, sound carrier SC2 (5.74 MHz) provides AF2. With no sound carrier SC2 on pin 19, AF2 output is muted (in midposition of the standard select switch FM mode without muting of AF2 is selected)

NICAM OPERATION PART

The IF signal, which is taken from the collector of Q151, passes through the saw filter and comes to the pins 23 and 24 of IC 328. After that 38.9 MHz or 39.5 MHz intercarrier signal comes out from pin 17 IC328. At the same time, the suitable mono carrier sound signal for I or BG system is received from 9th pin. The signal is transferred from the 17th pin to the pins 28 and 29 of SAA7283 by the help of intercarrier C814 and R806, R805. The other signal, which comes from the 9th pin, is given to the pins 7 and 16 of SAA7283 by using an amplifier. Then decoded NICAM or MONO sound is received from the pins 6, 15 of SAA7283.

Note: Video signal at the intercarrier is tuned to the minimum by T353.

Mono sounds width is width is tuned at the desired level by T352.



NICAM IF (B/G-1)

Terrestrial Digital Sound Decoder
(IC801) SAA7283

The SAA7283 is a single chip NICAM receiver solution, developing the well established high quality Terrestrial Digital Sound decoder family from Philips Semiconductors .This innovative IC with analogue front enc. ofiers more impressive features and flexibility with minimum external circuitry.

FEATURES

* Single chip solution including FM and vision filters, analogue demodulator and audic switching.
* Dual standard with automatic selection between PAL system I and BGH.
* Single low-radiation crystal oscillator for improved EMC.
* Stereo bitstream audio DACs.
* Programmable attenuator for matching levels of NICAM and FM audio sources at the output of the device.
* Full EBU specification NICAM 728 demodulation and decoding.
* Digital Audio Interface conforming with EBU/IEC 958.
* Auto-mute function which switches from NICAM to FM sound when NICAM fails.
* Compatible with either single ended or differential DQPSK input signals.
* Microcomputer controliable via I²C (up to 400 kHz specification)

APPLICATIONS

* Television Receivers.
* Video Cassette Recorders.

GENERAL DESCRIPTION

The SAA7283 takes, as input, a 2nd IF (intercarrier) Terrestrial TV PAL signal, and performs all the DOPSK demodulation, digital decoding and digital to analogue conversion necessary to produce a complete NICAM receiver on a single integrated circuit.

The demodulator function includes integrated beseband filters for pulse shaping and unwanted signal rejection, automatic gain control, a low jitter integrated VCO, digital monostables for precise data sampling points and a multistandard controller to enable automatic locking to either a PAL system I or PAL system BGH input signal.

The decoder function performs the descrambling, de-interieaving and reformatting operations required to recover the original data words.

The data words are processed through a stereo digital filter, digital de-emphasis network, second order noise shaper and 256 times oversampling Bitstream audio DAC. The SAA7283 then provides a switching output bufier for selecting between FM, NICAM and daisy chain inputs, and a programmable level attenuation matrix for matching levels of the FM and NICAM audio sources at the output of the device. An additional feature is the inciusion of a Digital Audio interface output IEC958, which may be disabled if required.

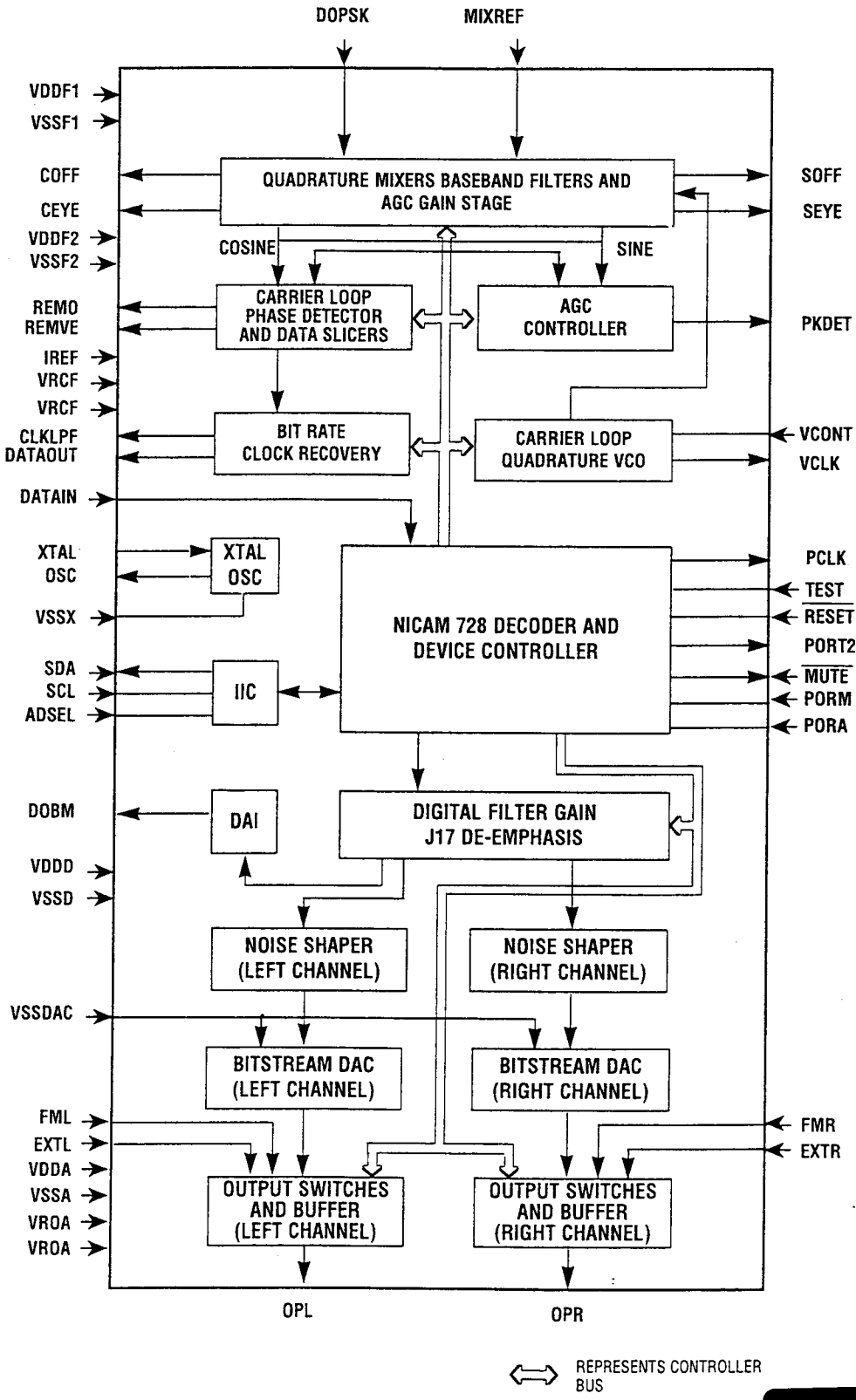
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MIN.	TYP	MAX.	UNIT
V_{DD}	supply voltage	4.5	5.0	5.5	V
I_{DD}	supply current	-	205	-	mA
fCLK	clock frequency	-	8.192	-	MHz
T_{amb}	operating ambient temperature range	-20	-25	-70	C

Terrestrial Digital Sound Decoder (TDSD3)

SAA7283

Block Diagram

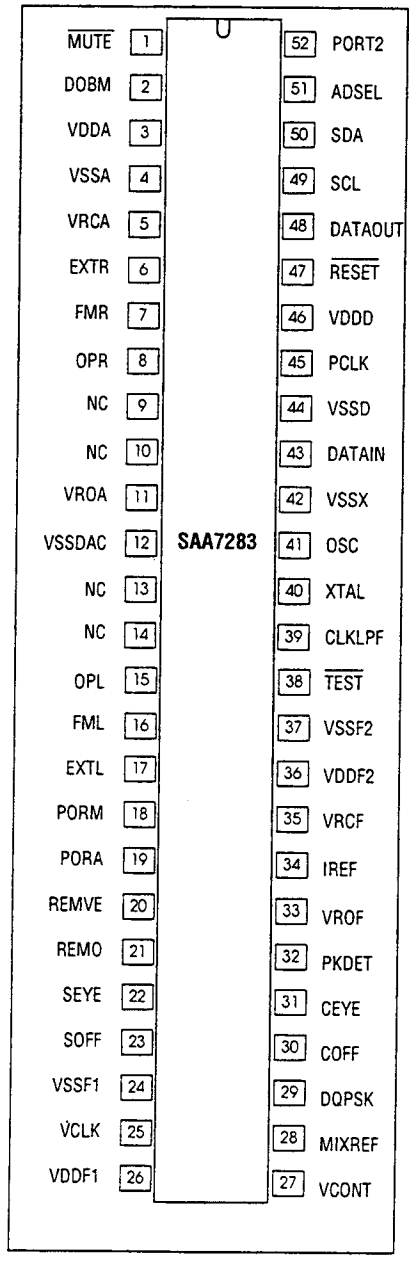


PINNING

SYMBOL	SOT319 OFP64	SOT247 SHDIL52	DESCRIPTION
NC	1, 5, 6, 9,10, 18, 19, 20, 26, 32, 33, 40, 51, 52, 58, 60, 64	9, 10, 13 14, 38	not connected - left open circuit in application.
EXTR	2	6	external analogue input to the night audio channel
FMR	3	7	FM sound input to the night audio channel
OPR	4	8	analogue output from the night audio channel
VROA	7	11	internal audio reference voltage buffer output
VSSDAC	8	12	guiet V_{SS} to DACs
OPL	11	15	analogue output from the left audio channel
FML	12	16	FM sound input to the left audio channel
EXTL	13	17	externel analogue input to the left audio channel
PORM	14	18	active low Power-On Reset Mute. Mute cleared by setting slience bit high in I²C. (internal pull-up)
PORA	15	19	Power-On Reset Audio select. (internal pull-up)
REMVE	16	20	carrier loop filter connection
REMO	17	21	carrier loop filter output
SEYE	21	22	sine channel eye pattern output for monitoring
SOFF	22	23	sine channel offset compensator capacitor
VSSF1	23	24	demodulator V_{SS}
VCLK	24	25	carrier loop VCO clock output for monitoring
VDDF1	25	26	demodulator V_{DD}
VCONT	27	27	carrier loop VCO control voltage input
MIXREF	28	28	mixer voltage reference or input when using differential DQPSK signal
DQPSK	29	29	DQPSK input signal
COFF	30	30	cosine channel offset compensator capacitor
CEYE	31	31	cosine channel eye pattern output for monitoring
PKDET	34	32	AGC peak detector storage capacitor
VROF	35	33	internal demodulator reference voltage buffered output
IREF	36	34	internal demodulator reference current output
VRCF	37	35	internal demodulator reference voltage unbufiered output
VDDF2	36	36	demodulator V_{DD}
VSSF2	39	37	demodulator V_{SS}
CLKLPF	41	39	clock loop phase comparator output
XTAL	42	40	8.192 MHz crystal oscillator input
OSC	43	41	8.192 MHz crystal oscillator output

SYMBOL	SOT319 OFP64	SOT247 SHDIL52	DESCRIPTION
VSSx	44	42	crystal oscillator V_{SS}
DATAIN	45	43	serial data input at 726 kbits/s to decoder
DATAOUT	46	48	serial data output at 728 kbits/s from demodulator
POLK	47	45	output clock at 728 kHz to DQPSK demodulator
VSSD	48	44	digital V_{SS}
VDDD	49	46	digital V_{DD}
$\overline{\text{RESET}}$	50	47	active low power-on reset
SOL	53	49	clock input for I^2C
SDA	54	50	data input/output for I^2C
ADSEL	55	51	input that defines I^2C address bit 0 (internal pull-up)
PORT2	56	52	output that is directly controlled from port2 bit in I^2C
$\overline{\text{MUTE}}$	57	1	active low mute input whose function is defined by mutebef bit in I^2C
DOBM	59	2	digital audio interface output that can be tri-stated via I^2C
VDDA	61	3	audio V_{DD}
VSSA	62	4	audio V_{SS}
VRCA	63	5	internal audio reference voltage buffer (high impedance node)

(IC801) SAA7283
Terrestrial Digital Sound Decoder (TDSD3)



TDSD3 IN SHDIL52
Pin Configuration

TDA4470

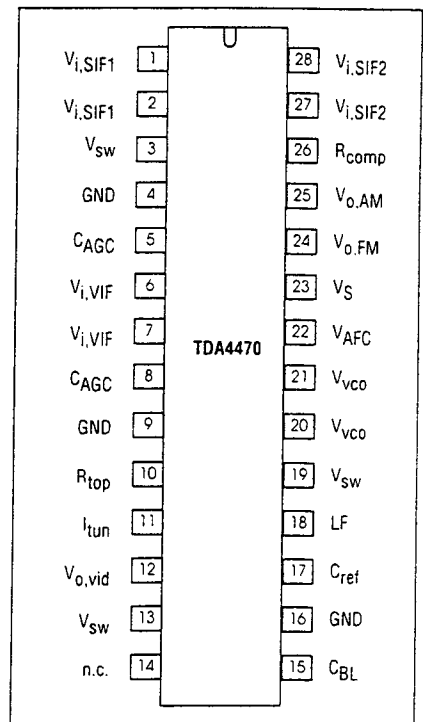
The TDA 4470 is an integrated bipolar circuit for multistandard video-sound IF (VIF/SIF) signal processing in TV/VCR and multimedia applications. The circuit processes all TV video IF signals with negative modulation (e.g. B/G standard), positive modulation (e.g. L standard) and the AM, FM/NICAM sound IF signals.

FEATURES

- 5V supply voltage; low power consumption
- Active carrier generation by FPLL principle (frequency-phase-locked-loop) for true synchronous demodulation
- Very linear video demodulation, good pulse response and excellent intermodulation figures
- VCO circuit is operating on picture carrier frequency
- Alignment-free AFC without external reference circuit, polarity of the AFC curve is switchable
- VIF-AGC for negative modulated signals (peak sync detection) and for positive modulation (peak white/black level detector)
- Tuner AGC with adjustable take over point
- Alignment-free quasi parallel sound (QPS) mixer for FM/NICAM sound IF signals
- Intercarrier output signal is gain controlled (necessary for digital sound processing)
- Complete alignment-free AM demodulator with gain controlled AF output
- Separate SIF-AGC with average detection
- Two independent SIF inputs
- Parallel operation of the AM demodulator and QPS mixer NICAM-L stereo sound
- Package and relevant pinning is compatible with the single standard version TDA4472; simplifies the design of an universal IF module

PINNING

SYMBOL	PIN	DESCRIPTION
$V_{i,SIF1}$	1	SIF1 input (symmetrical)
$V_{i,SIF1}$	2	SIF1 input (symmetrical)
V_{sw}	3	Input selector switch
GND	4	Ground
C_{AGC}	5	SIF-AGC (time constant)
$V_{i,VIF}$	6,7	VIF input (symmetrical)
C_{AGC}	8	VIF-AGC (time constant)
GND	9	Ground
R_{top}	10	Take over point, tuner AGC
I_{tun}	11	Tuner AGC output current
$V_{o,vid}$	12	Video output
V_{sw}	13	Standard switch
n.c.	14	not connected
G_{bl}	15	Black level capacitor
GND	16	Ground
C_{ref}	17	Internal reference voltage
LF	18	Loop filter
V_{sw}	19	AFC switch
V_{vco}	20,21	VCO circuit
V_{AFC}	22	AFC output
V_S	23	Supply voltage
$V_{o,FM}$	24	Intercarrier output
$V_{o,AM}$	25	Af output - AM sound
R_{comp}	26	Offset compensation
$V_{i,SIF2}$	27,28	BIF2 input (symmetrical)



Pin configuration

CIRCUIT DESCRIPTION

Vision IF amplifier

The video IF signal (VIF) is fed through a SAW filter to the differential input (pin 6-7) of the VIF amplifier. This amplifier consists of three AC-coupled amplifier stages. Each differential amplifier stages. Each differential amplifier is gain controlled by the automatic gain control (VIF-AGC). Output signal of the VIF amplifier is applied to the FPLL carrier generation and the video demodulator.

Tuner-and VIF-AGC

At pin 8 the VIF-AGC capacitor to generate a control voltage for setting gain of VIF amplifier and tuner in order to keep the video output signal at a constant level. Therefor in case of negative modulated signals (e.g. B/G standard) the sync level of the demodulated video signal is the criterion for a fast charge/discharge of the AGC capacitor. For positive modulation (e.g. L standard) the peak white level of video signal controls the charge current. In order to reduce reaction time for positive modulation, where a very large time constant is needed, an additonal black level detector controls the discharge current in the event of decreasing VIF input signal. The control voltage (AGC voltage at pin 8) is transferred to an internal control signal, and is fad to the tuner AGC to generate the tuner AGC current at pin 11 (open collector output). Take over point of the tuner AGC can be adjusted at pin 10 by a potentiometer or an external DC voltage (from interface circuit or microprocessor).

FPLL, VCO and AFC

The FPLL circuit (frequency phase locked loop) consists of a frequency and phase detector to generate control voltage for the VCO tuning. In the locked mode the VCO is controlled by the phase detector and in unlocked mode the frequency detector is superimposed. The VCO operates with an external resonance circuit (L and C parallel) and is controlled by internal varicaps. The VCO control voltage is also converted to a current and represents the AFC output signal at pin 22. With the AFC output signal at pin 22. With the AFC switch (pin 9) three operating conditions of the AFC are possible: AFC curve "rising" or "falling" and AFC "off".

A practicable VCO alignment of the external coil is the adjustment to zero AFC output current at pin 22. At centre frequency the AFC output current is equal to zero. The optional potentiometer at pin 26 allows an offset compensation of the VCO phase for improved sound quality (fine adjustment). Without a potentiometer (open circuit at pin 26) this offset compensation is not active.

The oscillator signal passes a phase shifter and supplies the in-phase signal (0°) of the generated picture carrier.

Video demodulation and amplifier

The video IF signal, which is applied from the gain controlled IF amplifier, is multiplied with the inphase component of the VCO signal. The video demodulator is designed for low distortion and largeb bandwidth. The demodulator output signal passes an integrated low pass filter for attenuation of the residual visiul carrier and is fed to the video amplifier. The video amplifier is realized by an operational amplifier with internal feedback and 8 MHz bandwidth (,3dB). A standard dependent DC level shift in this stage delivers the same sync level for positive and negative modulation. An additional noise clipping is provided. The video signal is fed to VIF-AGC and to the video output buffer. This amplifier with 6dB gain offers easy adaption of the sound trap. For nominal video IF modulation the video output signal at pin 12 is $2V_{pp}$.

Sound IF amplifier and SIF-AGC

The SIF amplifier is nearly identical with the 3-stage VIF amplifier. Merely the first amplifier stage exists twice and is switchable by a control voltage at pin 3. Therefore with a minimal external expense it is possible to switch between two different SAW filters. Both SIF inputs features excellent cross-talk attenuation and an input impedance which is independent from the switching condition.

The SIF-AGC is related to the average level of AM- or FM-carrier and controls the SIF amplifier to provide a constant SIF signal to the AM demodulator and QPS mixer.

AM demodulator

The alignment-free AM demodulator is realized by a synchronous detector. The modulated SIF signal from the SIF amplifier output is

multipled in phase with the limited SIF signal (AM is removed). The AF signal of the demodulator output is fed to the output amplifier and to the SIF-AGC. For all TV standards with negative video modulation (e.g. B/G standard) the AF output signal (pin 25) is switched off by the standard switch.

Quasi-Parallel-Sound (QPS) mixer

The QPS mixer is realized by a multiplier. The SIF signal (FM or NICAM carrier) is converted to the intercarrier frequency by the regenerated picture carrier (quadrature signal) which is provided from the VCO. The intercarrier signal is fed via an output amplifier to pin 24.

Standard switch

To have equal polarity of the video output signal the polarity can be switched in the demodulation stage in accordance with the TV standard. Additional a standard dependent DC level shift in the video amplifier delievers the same sync level. Parallel the correct VIF-AGC is selected for positive modulated VIF signals. In case of negative modulation (e.g.B/G standard) the AM output signal is switched off. For positive modulation (L standard) the AM demodulator and QPS mixer is active. This condition allows a parallel operation of the AM sound signal and the NICAM-L stereo sound.

AFC switch

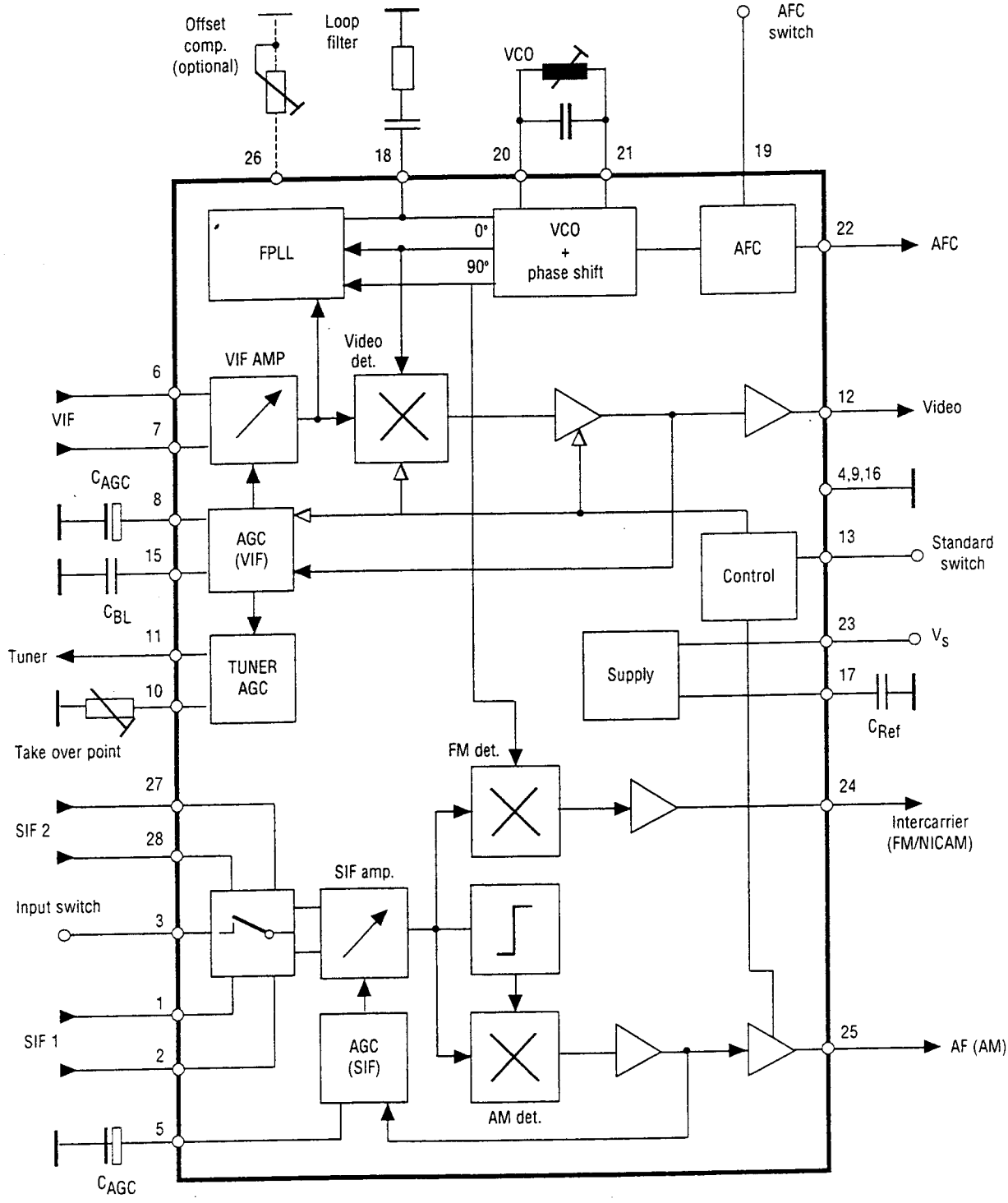
The AFC output signal at pin 22 can be controlled by a switching voltage at pin 19. It is possible to select an AFC output signal with rising- or falling AFC curve and to switch off the AFC.

VCR mode

For the VCR mode in a TV set (external video source selected) it is recommendable to switch off the IF circuit. With an external switching voltage at pin 6 or 7 the IF amplifier are switched off and all signal output levels at pin 12, 24, 25 are according to the internal DC voltage.

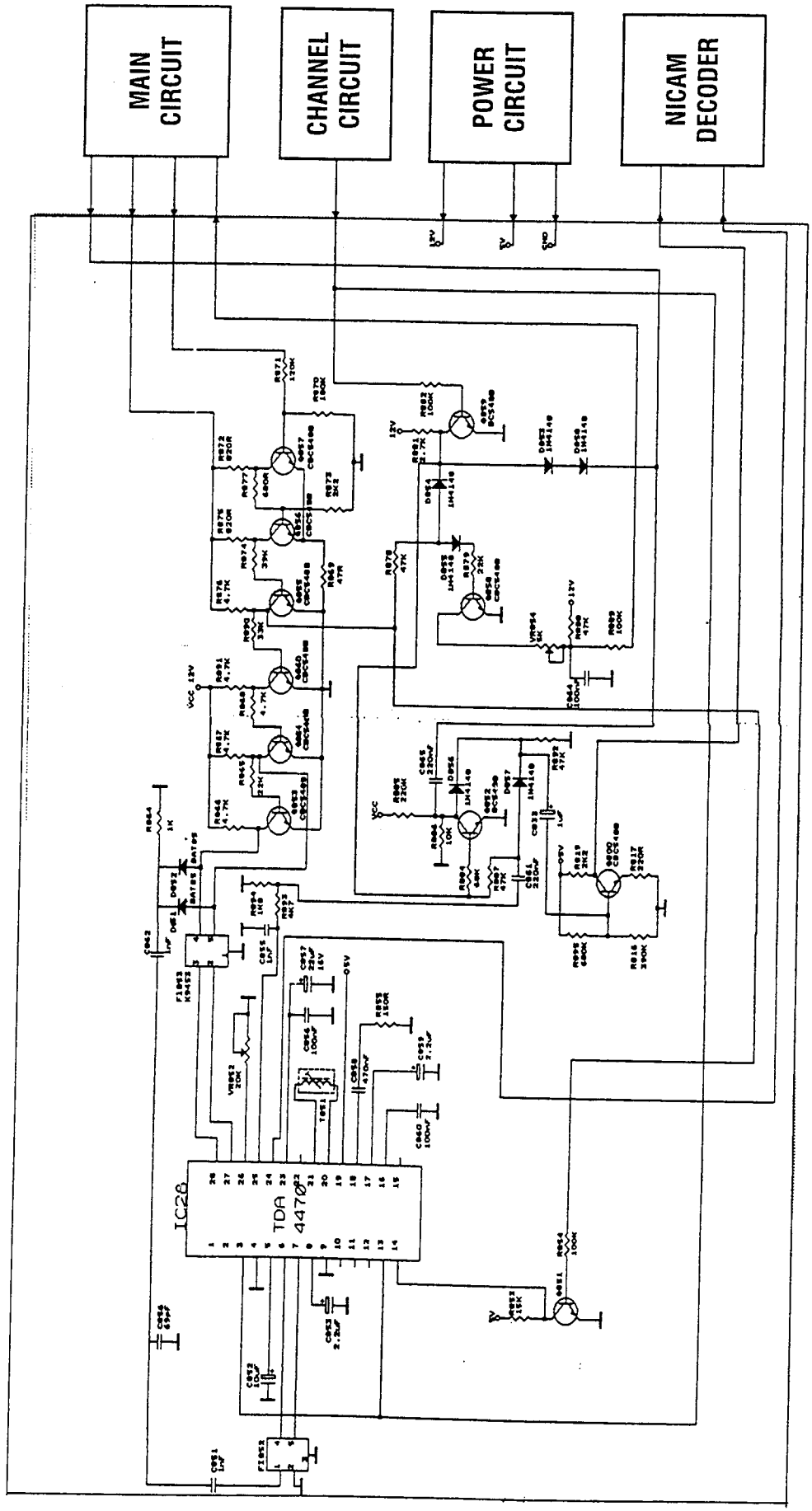
Internal voltage stabilizer

The internal bandgap reference ensures constant performance independant of supply voltage and temperature.



Block Diagram

NICAM L IF CIRCUIT



Verticals Deflection and Guard Circuit (110°)

TDA3654

GENERAL DESCRIPTION

The TDA3654 is a full performance vertical deflection output circuit for direct drive of the deflection coils and can be used for a wide range of 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

QUICK REFERENCE DATA

Output voltage	V_{5-2}	max.	60 V
Output current (peak to peak)	$I_{5(p-p)}$	max.	3 A
Supply voltage	V_{9-2}	max.	40 V
Guard circuit output voltage	V_{7-2}	max.	5,6 V
Operating ambient temperature range	T_{amb}		-25 to + 60°
Storage temperature	T_{stg}		-55 to + 1 50°

THERMAL RESISTANCE

From junction to mounting base	$R_{th\ j\text{-}mb}$	3.5 to 4K/W

RATINGS

Limiting values in accordance with the absolute maximum system (I EC 134).
Pins 2 and 4 are externally connected to ground.

Voltages Output voltage	V_{5-4}	0 to 60 V
Supply voltage	V_{9-4}	0 to 40 V
Supply voltage output stage	V_{6-4}	0 to 60 V
Supply input voltage	V_{1-2}	0 to V9-4 V
Input voltage switching circuit	V_{3-2}	0 to V9-4 V
External voltage at pin 7	V_{7-2}	0 to 5.6 V
Currents Repetitive peak output current	$\pm I_5RM$	max. 1.5 A
Non-repetitive peak output current (note 1)	$\pm I_5SM$	max. 3 A
Repetitive peak output current of flyback generator	$\pm I_8RM$	max. +1.5 A -1.6 A
Non-repetitive peak output current of flyback generator (note 1)	$\pm I_8SM$	max. 3 A
Currents		
Storage temperature range	T_{stg}	-65 to+ 150°C
Operating ambient temperature range	T_{amb}	-25 to+ 60°C
Operating junction temperature range (the output current at pin 5 should not exceed 2.5A)	T_j	-25 to+ 150°C

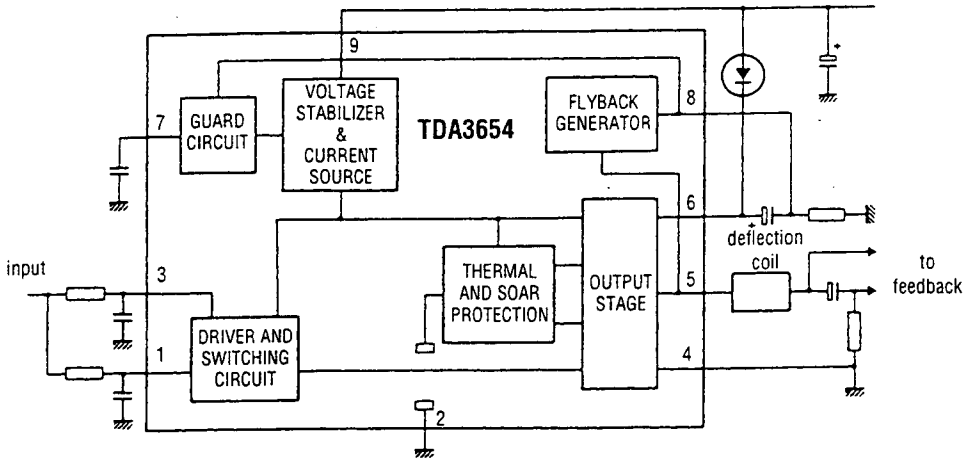
CHARACTERISTICS

Tamb= 25°C, supply voltage (V9-4) = 26V; unless otherwise stated; pin I externally connected to pin 3. Pins 2 and 4 externally connected to ground.

parameter	symbol	min.	typ.	max.	unit
Supply					
Supply voltage, pin 9 (note 2)	V_{9-4}	10		40	V
Supply voltage output stage	V_{6-4}	-	-	60	V
Supply current, pins					
6 and 9 (note 3)	I_6+I_9	35	55	85	mA
Quiescent current (note 4)	I_4	25	40	65	mA
Variation of quiescent current					
with temperature	TC	-	-0.04	-	mA/K
Output current					
Output current, pin 5					
(peak-to-peak)	$I_{5(p-p)}$	-	2.5	3	A
Output current flyback					
generator, pin 8	$+I_{8(p-p)}$	-	1.25	1.5	A
	$-I_{8(p-p)}$	-	1.35	1.6	A
Output voltage					
Peak voltage during flyback	V_{5-4}	-	-	60	V
Saturation voltage to supply					
at I_5 = -1.5 A	$V_{6-5(sat)}$	-	2.5	3.2	V
at I_5 = -1.5 A (note 5)	$V_{5-6(sat)}$	-	2.5	3.2	V
at I_5 = -1.2 A	$V_{6-5(sat)}$	-	2.2	2.7	V
at I_5 = -1.2 A (note 5)	$V_{5-6(sat)}$	-	2.3	2.8	V
Saturation voltage to ground					
at I_5 = 1.2 A	$V_{5-4(sat)}$	-	2.2	2.7	V
at I_5 = 1.5 A	$V_{5-4(sat)}$	-	2.5	3.2	V
Flyback generator					
Saturation voltage					
at I_8 = -1.6 A	$V_{9-8(sat)}$	-	1.6	2.1	V
at I_8 = -1.5 A (note 5)	$V_{8-9(sat)}$	-	2.3	3	V
at I_8 = -1.3 A	$V_{9-8(sat)}$	-	1.4	1.9	V
at I_8 = -1.2 A (note 5)	$V_{8-9(sat)}$	-	2.2	2.7	V
Leakage current at pin 8	$-I_8$	-	5	100	µA
Flyback generator active if:	V_{5-9}	4	-	-	V

CHARACTERISTICS (continued)

parameter	symbol	min.	typ.	max.	unit
Input					
Input current, pin 1, for I_5=1.5 A	I_1	-0.33	0.55		mA
Input voltage during scan, pin 1	V_{1-2}	-	2.35	3	V
Input current, pin 3, during scan (note 6)	I_3	0.03	-	-	mA
Input voltage, pin 3, during scan (note 6)	V_{3-2}	0.8	-	V_{9-4}	V
Input voltage, pin 1, during flyback	V_{1-2}	-	-	250	mV
Input voltage, pin 3, during flyback	V_{3-2}	-	-	250	mV
Guard circuit					
Output voltage, pin 7, R_L=1xx KΩ (note 9)	V_{7-2}	4.1	4.5	5.8	V
Output voltage, pin 7 at I_L=0.5 mA (note 9)	V_{7-2}	3.4	3.9	5.3	V
Internal series resistance of pin 7	Ri_7	0.95	1.35	1.7	KΩ
Guard circuit activates (note 7)	V_{8-2}	-	-	1.0	V
General Data					
Thermal protection activation range	T_j	158	175	192	°C
Thermal resistance					
From junction to mounting base	R_{thj-mb}	-3.5	4	k/W	
Power dissipation	P_{tot}	-			
Open loop gain at 1kHz, (note 8)	G_o	-	33	-	
Frequency response, -3dB (note 10)	f	-	60	-	kHz



TELETEXT CIRCUIT

Teletext stage consist of SAA5243, SAA5231 and GM76C88AL15 (8K8SRAM)

Note: SAA5345 should be used instead of SAA5345 and 8K8 SRAM) video signal goes to PIN 27 of IC (SAA5231). Analog signal translated to digital signal by SAA5231. PINS 18 and 20 IC730 oscillator input-output and operates with a XTAL (EM727) 6MHz. IC728 (SAA5243P) is teletext decoder. PIN 19 of teletext decoder is SCL (serial clock) and PIN 20 is SDA (serialdata) control. Text data in video signal that comes to IC728 (SAA5243) are separated in IC728 and R, G, B signal are produced by IC728. RGB signal go out from IC728 VIA PINS 13, 14, 15. PIN 17 of IC is for east blanking. PIN 8 is used by adjusting vertical deflection current. Therefore a vision can be obtained without flicker.

PCF84C81 (IC727) = This IC is A uP and converts SDA and SCL data for 5243 to a form so that SAA5243 can evaluate

8K8 SRAM (IC729) = This IC is a static ram and its memory 4 page at the same time for fastext system. When a new page is selected, memory IC changes its memory according to new page.

Teletext video processor

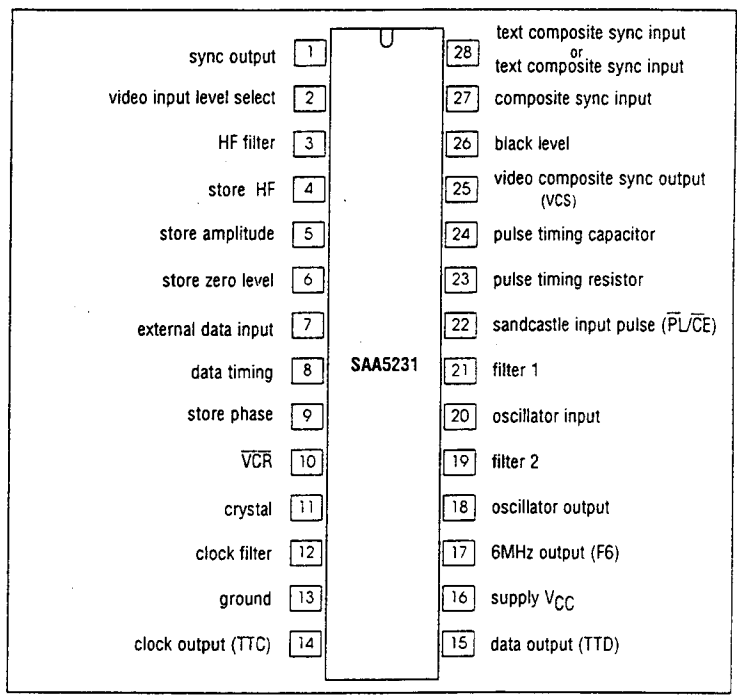
SAA5231 (IC730)

GENERAL DESCRIPTION

The SAA5231 is a bipolar integrated circuit intended as a successor to the SAA5030. It extracts Teletext Data from the video signal, regenerates Teletext Clock and synchronizes the text display to the television syncs. The integrated circuit is intended to work in conjunction with CCT (Computer Controlled Teletext), EUROM or other compatible devices.

FEATURES

- Adaptive data slicer
- Data clock regenerator
- Adaptive sync separator, horizontal phase detector and 6 MHz VCO forming display phase locked loop (PLL)

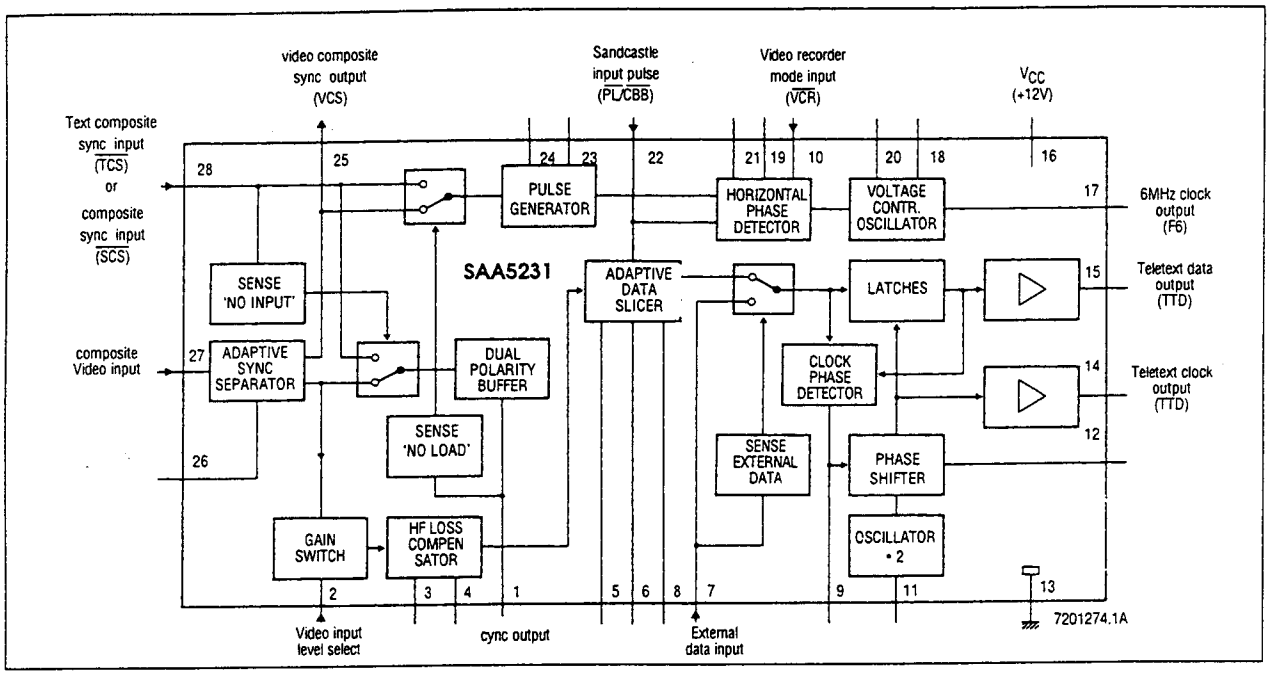


QUICK REFERENCE DATA

Supply voltage (pin 16)	V_{CC}	typ.	12 V
Supply current (pin 16)	I_{CC}	typ.	70 mA
Video input amplitude (pin 27) (peak-to-peak value)			
pin 2 LOW	$V_{27\text{-}13(p\text{-}p)}$	typ.	1 V
pin 2 HIGH	$V_{27\text{-}13(pp)}$	typ.	2,5V
Storage temperature range	T_{stg}		-20 to ± 125 °C
Operating ambient temperature range	T_{amb}		0 to + 70 °C

PACKAGE OUTLINE

28-lead dual in-line; plastic (SOT117).



Enhanced Computer Controlled Teletext Circuit (ECCT)

SAA5243 (IC728)

GENERAL DESCRIPTION

The SAA5243 is a MOS N-channel integrated circuit which performs all the digital logic functions of a 625-line World System Teletext decoder. It operates in conjunction with the teletext video processor SAA5231, standard static RAMs and is controlled via the 2-wire I²C bus. The device can be used to provide videotext display conforming to a serial character attribute protocol.

FEATURES

- Microcomputer controlled for flexibility
- High quality flicker-free display using a 12x10 character matrix
- Field flyback (lines 2 to 22), or full channel (all lines) data acquisition
- Up to four simultaneous page requests enabling acquisition during one magazine cycle
- Direct interface up to 8 K bytes static RAM
- Automatic language section of up to seven different languages
- 25th display row for software generated status messages
- Cursor control for videotext-telesofware
- 7-bits parity or 8-bit data acquisition
- Extension packet reception option
- Standard I²C bus slave transceiver (slave address 0010001)
- Single 5 volt power supply
- Mask programmable character sets
- Slave sync mode operation
- Odd/even field output for de-interlaced displays

Block diagram

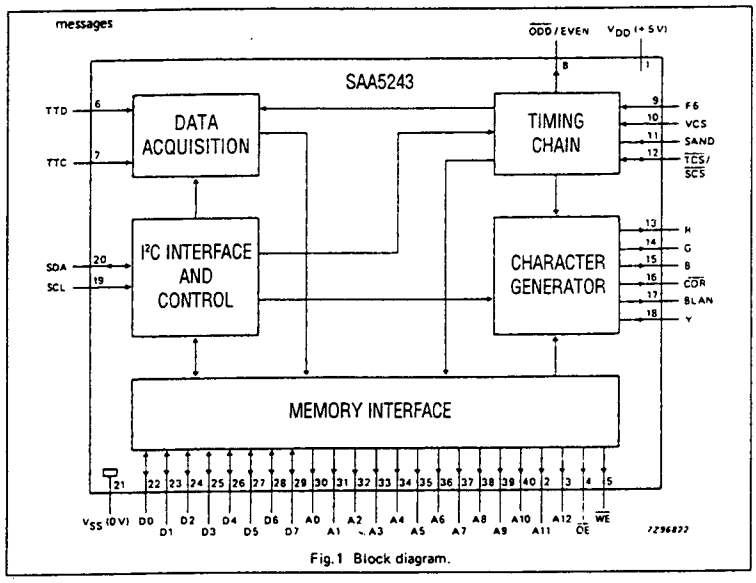
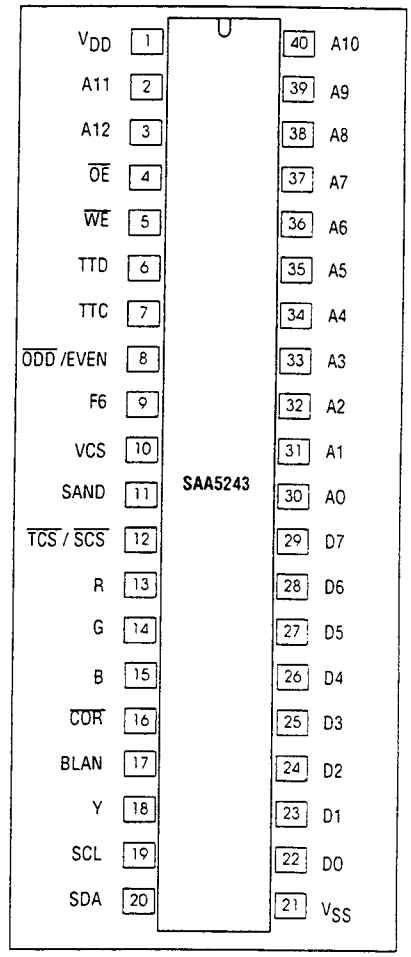


Fig.1 Block diagram.

PINNING

1	V_{DD}	**Power supply:** + 5 V power supply pin.
2,3,40	A11, A12, A10	**Chapter Address:** three outputs that select which 1 Kbyte chapter of external RAM is being accessed for any read or write cycle.
4	$\overline{OE}$	**Output Enable:** active low output signal used to control the reading of the external RAM. It occurs continuously at a 1 MHz rate.
5	$\overline{WE}$	**Write Enable:** active low output signal used to control the writing of data to the external RAM. It occurs for a valid write cycle only and is interleaved with the read cycles.
6	TTD	**Teletext Data:** input from the SAA5231 Video Input Processor (VIP2). It is clamped to V_{SS} for 4 to 8 µs of each television line to maintain the correct c.d.c. level following the external a.c. coupling.
7	TTC	**Teletext Clock:** 6,9375 MHz clock input from the SAA5231. It is internally a.c. coupled to an active clamp input buffer.
8	$\overline{ODD}$/EVEN	**Odd/Even:** for interlaced mode, the output changes once per field at 2 µs before the end of line 311 (624). The output is high for even fields and low for odd fields.
9	F6	**Character display clock:** 6 MHz clock input from the SAA5231. It is internally a.c. coupled to an active clamp input buffer.
10	VCS	**Video Composite Sync:** input from the SAA5231 derived from the incoming video signal. Sync pulses are active high.
11	SAND	**Sandcastle:** 3-level sandcastle output to the SAA5231 containing the phase locking and colour burst blanking information.
12	$\overline{TCS}/\overline{SCS}$	**Text Composite Sync/Scan Composite Sync:** as an output an active low composite sync waveform (TCS) with interlaced or noninterlaced format which is fed to the SAA5231 to drive the display timebases. Alternatively this pin can act as an input for an active low composite sync waveform (SCS) so 'slave' the display timing circuits.
13, 14, 15	R, G, B	**Red, Green, Blue:** these 3 open drain outputs are the character video signals to the television display circuits. They are active high and contain character and background information.
16	$\overline{COR}$	**Contrast Reduction:** open drain, active low output which allows selective contrast reduction of the television picture to enhance a mixed mode display.
17	BLAN	**Blanking:** open drain, active high output which controls the blanking of the television picture for a normal text display and for a mixed display.
18	Y	**Character foreground:** open drain, active high video output signal containing all the foreground information displayed on the television screen (e.g. for driving a display printer).
19	SCL	**Serial Clock:** input signal which is the I²C bus clock from the microcontroller.
20	SDA	**Serial Data:** is the I²C bus data line. It is an input/output function with an open drain output.
21	V_{SS}	**Ground:** 0 volts.
22-29	DO-D7	**8 RAM data lines:** 3-state input/output pins which carry the data bytes to and from the external RAM.
30-39	AO-A9	**RAM address:** 10 output signals that determine which byte location within a 1 Kbyte chapter of external RAM is accessed for any read or write cycle.



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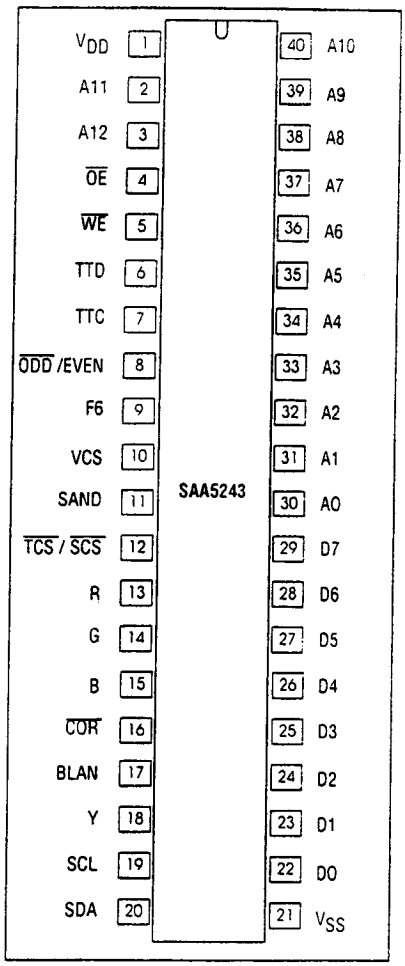
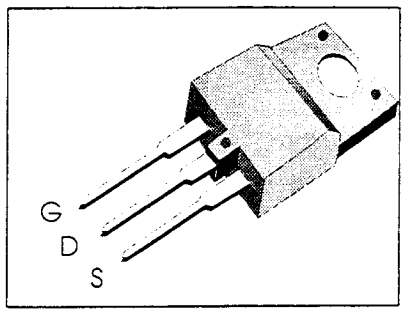
21	V_{SS}	**Ground:** 0 volts.
22-29	D0-D7	**8 RAM data lines:** 3-state input/output pins which carry the data bytes to and from the external RAM.
30-39	A0-A9	**RAM address:** 10 output signals that determine which byte location within a 1 Kbyte chapter of external RAM is accessed for any read or write cycle.



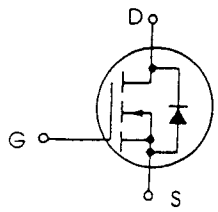
Power Field Effect Transistor

BUZ90



GENERAL DESCRIPTION

This TMOS IV Power FET is designed for high voltage, high speed, low loss power switching applications such as switching regulators, converters, motor controls, solenoid and relay drivers.



FEATURES

- Silicon gate for fast switching speeds
- Low $r_{DS(on)}$ – 2Ω max
- Rugged – SOA is power dissipation limited
- Source-to-drain diode characterized for use with inductive loads
- Low drive requirement $-V_{GS(th)}$ = 4 V max.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	600	Vdc
Drain-gate voltage (R_{GS} = 20kΩ)	V_{DGR}	600	Vdc
Gate-source voltage	V_{GS}	±20	Vdc
Drain current – continuous (T_C = 25°C)	I_D	4	Adc
–Pulsed	I_{DM}	16	
Total power dissipation @T_C = 25°C	P_D	75	Watts
Derate above 25°C		0.6	W/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance Junction to case	$R_{\theta JC}$	1.67	°C/W
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	275	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max.	Unit
OFF CHARACTERISTICS					
Drain-source breakdown voltage (V_{GS}) = 0, I_D = 0.25 mA)	$V_{(BR)DSS}$	600	-	-	Vdc
Zero gate voltage drain current	I_{DSS}				µAdc
(V_{DS} = 600 Volts, V_{GS} =0)		20	-	250	
(V_{DS} = 600 Volts, V_{GS} =0,Tj = 125°C)		100	-	1000	
Gate-body leakage current, forward (V_{GSF} = 20Vdc, V_{DS} =0)	I_{GSSF}	-	10	100	nAdc
Gate-body leakage current, reverse (V_{GSR} = 20Vdc, V_{DS} =0)	I_{GSSR}	-	10	100	nAdc

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max.	Unit
ON CHARACTERISTICS					
Gate threshold voltage (V_{DS} = V_{GS}, I_D = 1mA)	$V_{GS(th)}$	2.1	3	4	Vdc
Static drain-source on-resistance (V_{GS} = 10 Vdc, I_D = 2.5 Adc)	$r_{DS(on)}$	-	1.8	2	Ohm
Drain-source on-voltage (V_{GS} =10 v) (I_D = 2.5 Adc)	$V_{DS(on)}$	-	4.5	-	Vdc
Forward Transconductance (V_{DS} =25V, I_D =2.5 A)	gFS	1.5	2.5	-	mhos
DYNAMIC CHARACTERISTICS					
Input capacitance	C_{iss}	-	-	2000	pF
Output capacitance (V_{DS} = 25 V, V_{GS} = 0, f = 1 MHz)	C_{oss}	-	-	170	
Reverse transfer capacitance	C_{rss}	-	-	70	
SWITCHING CHARACTERISTICS					
Turn-on delay time	$t_{d(on)}$	-	-	45	ns
Rise time (V_{DD} =30 V, I_D = 2.5 A, V_{GS} = 10 V, R_{gen} = 50 ohms)	t_r	-	-	60	
Turn-off delay time	$t_{d(off)}$	-	-	140	
Fall time	tf	-	-	60	
SOURCE DRAIN DIODE CHARACTERISTICS					
Forward on-Voltage (I_S = 8 A, V_{GS} = 0)	V_{SD}	-	0.95	1.2	Vdc
Forward turn-on time (I_S= 4 A, DI_S/dt = 100 Aμs	t_{on}	Limited by stray inductance			
Reverse recovery time V_R = 100.V, V_{GS} = 0)	t_{rr}	-	1200	-	ns

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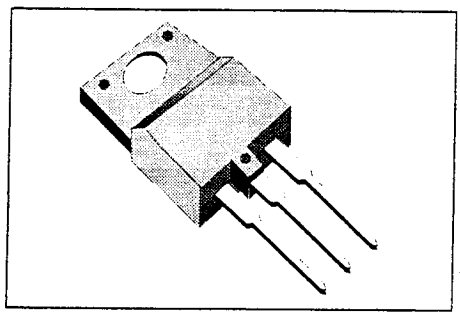
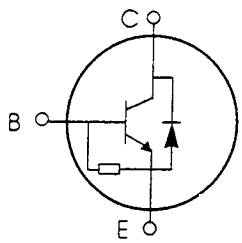
CRT Horizontal Deflection
High Voltage NPN Fastwitching Transistor
BUH515D

- High breakdown voltage capability
- Fully insulated package for easy mounting
- Low saturation voltage
- High switching speed
- Complete characterization of power losses and switching times as a function of negative base current for optimum drive

APPLICATIONS:
- Horizontal deflection stage in standard and high resolution dis-plays for TV's and monitors



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	1500	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	700	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_C	Collector Current	8	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	15	A
I_B	Base Current	5	A
I_{BM}	Base Peak Current (t_p < 5 ms)	8	A
P_{tot}	Total Dissipation at Tc = 25°C	60	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

BUH515D

THERMAL DATA

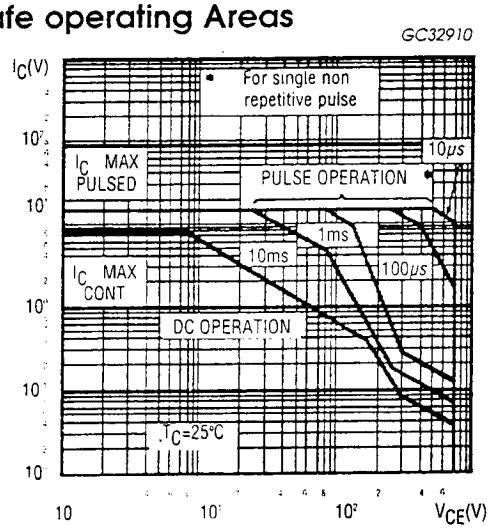
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	2.08	°C/W

ELECTRICAL CHARACTERISTICS (Tcase = 25°C unless otherwise specified)

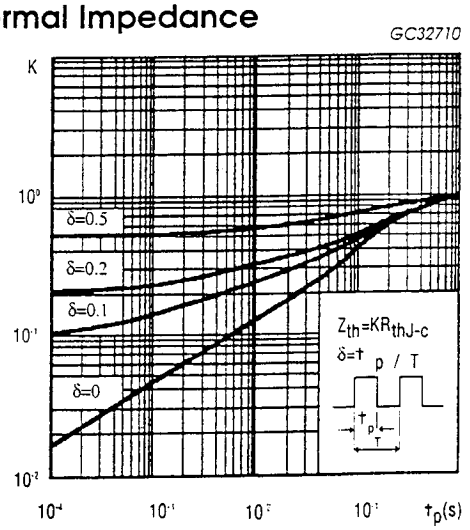
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 1500 V V_{CE} = 1500 V T_j = 125°C			1 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			300	mA
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 5 A I_B = 1.25 A			1.5	V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 5 A I_B = 1.25 A			1.3	V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 5 V I_C = 5 A V_{CE} = 5 V T_J = 100 °C	5 3			
t_s t_f	RESISTIVE LOAD Storage Time Fall Time	Vcc = 400 V I_C = 5 A I_{B1} = 1.25 A I_{B2} = 2.5 A		2.4 170	3.6 260	µs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	I_C = 5 A f = 15625 Hz I_{B1} = 1.25 A I_{B2} = 2.5 A $V_{ceflyback} = 1050 \sin\left\{\frac{\pi}{10} 10^6\right\} t$ V		3.5 4.50		µs ns
V_f	Diode Forward Voltage	I_F = 5 A			2	V

* *Pulsed: Pulse duration = 300 µs, duty cycle 1.5%*

Safe operating Areas



Thermal Impedance



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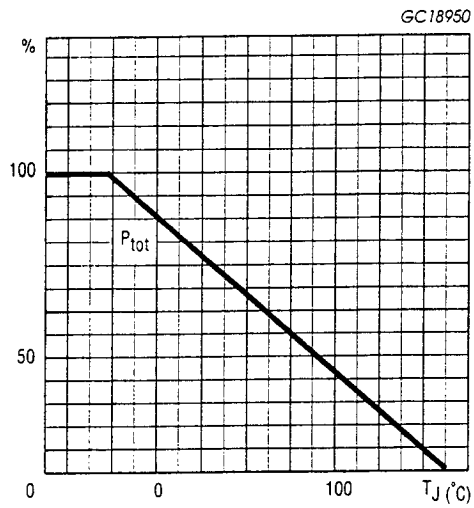
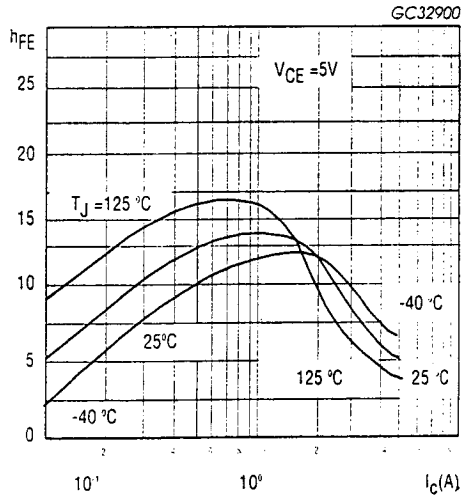
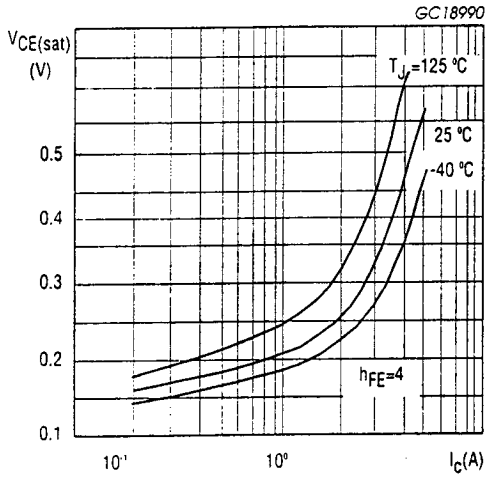
Derating Curves



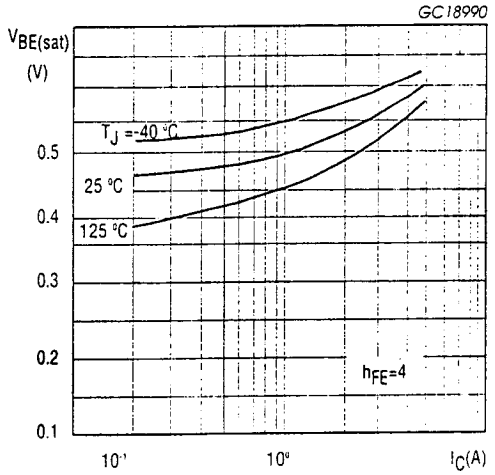
DC Current Gain



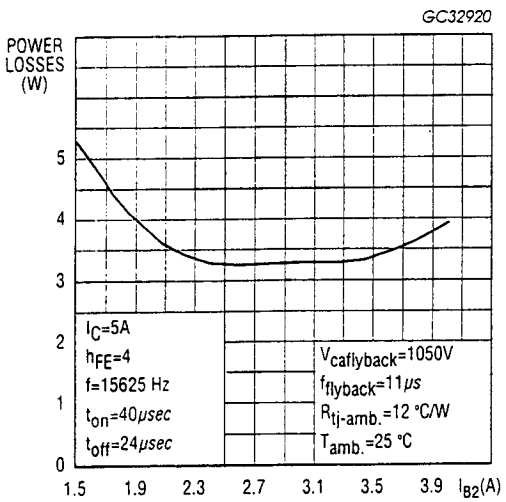
Collector-Emitter Saturation Voltage



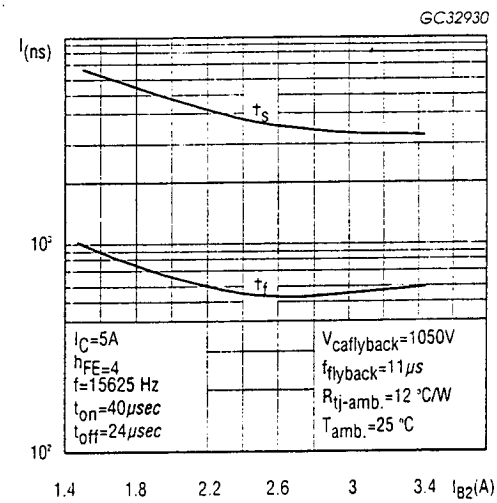
Base-Emitter Saturation Voltage



Power Losses at 16 KHz



Switching Time Inductive Load 16 KHz



Silicon NPN Epitaxial Planar RF Transistors

BF 869 - BF 871

Applications: Video-B-class power stages in TV-receivers

FEATURES:

- High reverse voltage
- BF 869 complementary to BF 870
- BF 871 complementary to BF 872

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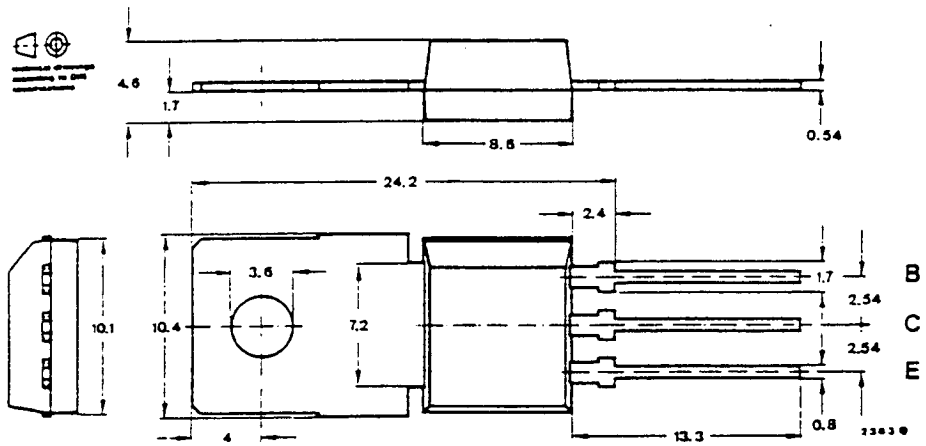
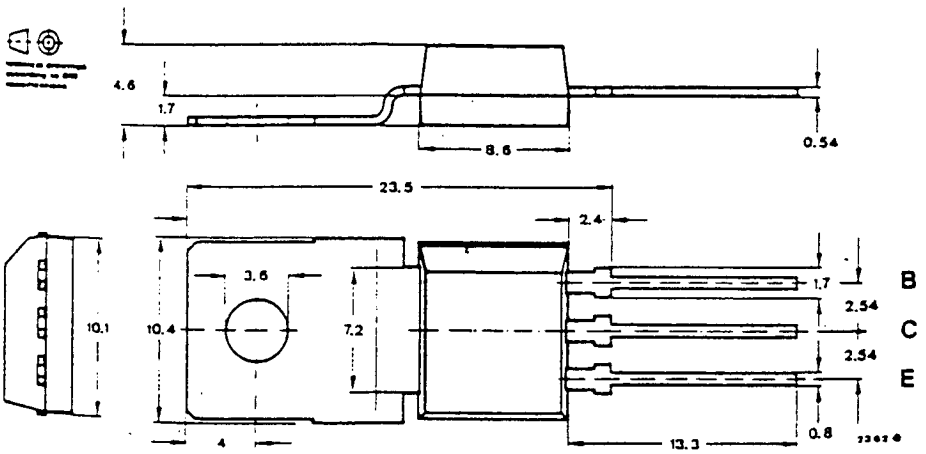
Dimensions in mm



BF 869 - BF 871

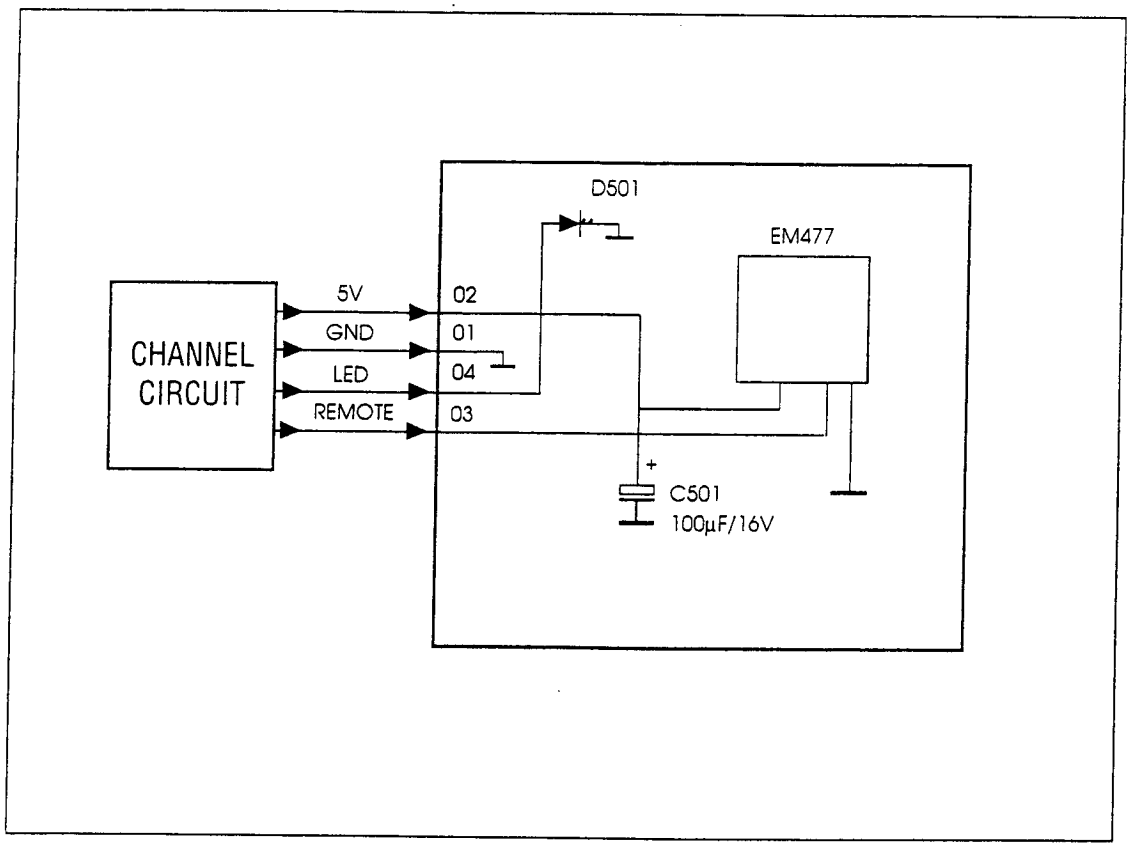


Absolute maximum ratings		**BF 869**	**BF 871**	
Collector-base voltage	V_{CBO}	250	300	V
Collector-emitter voltage	V_{CEO}	250		V
$R_{BE} \leq 2.7$ kΩ	V_{CER}		300	V
Emitter-base voltage	V_{EBO}	5		V
Collector current	I_C	50		mA
Collector peak current	I_{CM}	100		mA
Total power dissipation $T_{case} \leq 25$ °C	P_{tot}	5		W
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	-65...+150		°C

Thermal resistances		**Min.**	**Typ.**	**Max.**	**Unit**
Junction ambient	R_{thJA}			85	K/W
Junction case	R_{thJC}			25	K/W

Characteristics T_{amb} = 25°C, unless otherwise specified					
Collector cut-off current					
V_{CB}=200V	**BF 869**	I_{CBO}		100	nA
V_{CB}=250V, R_{BE}=2.7 kΩ	**BF 871**	I_{CER}		50	nA
V_{CE}=200V, R_{BE}=2.7 kΩ, T_j= 150°C		I_{CER}		10	µA
Emitter cut-off current					
V_{EB} = 5V		I_{EBO}		10	µA
Collector-emitter breakdown voltage					
I_C= 1 mA	**BF 869**	$V_{(BR)CEO}$	250		V
I_C = 1 µA, R_{BE} = 2.7 kΩ	**BF 871**	$V_{(BR)CER}$	300		V
DC forward current transfer ratio					
V_{CE} = 20 V, I_C = 25 mA		h_{FE}	50		
Gain bandwidth product					
V_{CB} = 10 V, I_C = 10 mA		f_T	60		MHz
Feedback capacitance					
V_{CB} = 30 V, I_C = 0, f =1 MHz		*Cure*		1.8	pF
Collector saturation RF voltage					
I_C = 25 mA, T_j = 150 °C		$V_{CEsatHF}$	20		V

REMOTE SENSOR CIRCUIT



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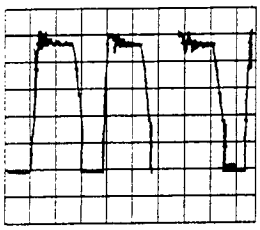
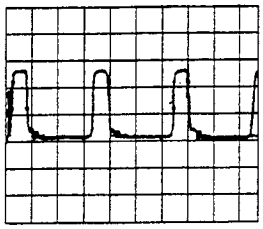
OSCILLOSCOPE SIGNALS

1) 5usn/div 100 volt/div



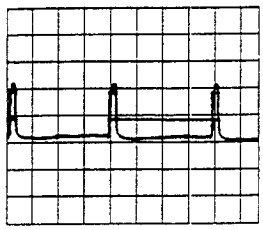
Collector of Q101

2) 20 usn/div 2 volt/div



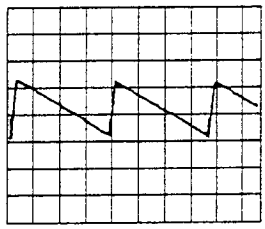
IC 476 pin 26

3) 5 msn/div 2 volt/div



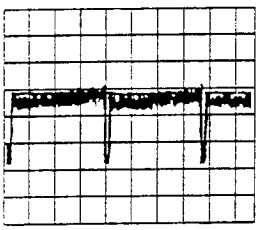
IC 476 pin 27

4) 5 msn/div 0.5 volt/div



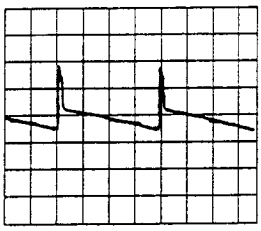
IC 481 pin 41

5) 5msn/div 1 volt/div



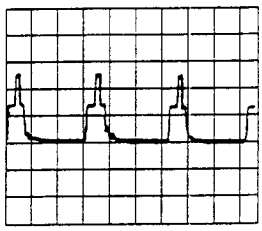
IC 577 pin 3

6) 5msn/div 20 volt/div



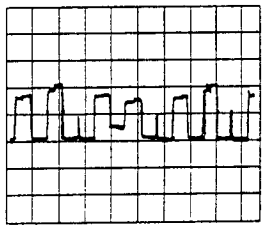
IC 577 pin 5

7) 20usn/div 2 volt/div



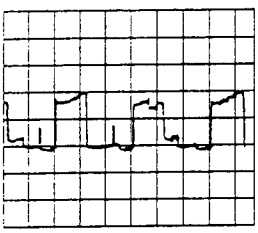
IC 181 pin 38

8) 20usn/div 2 volt/div



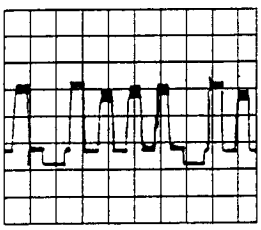
IC 181 pin 20

9) 20usn/div 2 volt/div



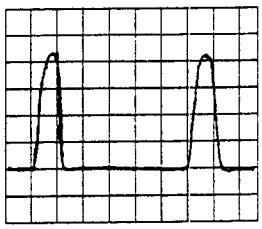
IC 181 pin 19

10) 10usn/div 2 volt/div



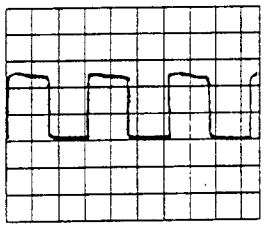
IC 181 pin 18

11) 10usn/div 250 volt/div



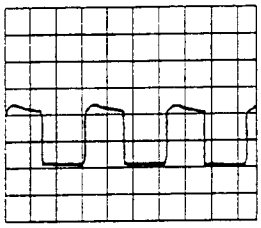
Collector of Q581

12) 20 usn/div 0.5 volt/div



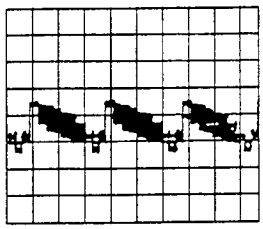
IC 181 pin 37

13) 20usn/div 50 volt/div



Collector of Q580

14) 20usn/div 1 volt/div



IC 181 pin 13

PIN VOLTAGES OF IC'S

Pin.	CTV352	24C02	TDA8361	TDA4665	TDA2616	TDA3654	TDA4605
1	4.5V	5V	3.2V	5.2V	15V	2.2V	0V
2	3.8V	0V	5.9V	0V	30V	0V	4.9V
3	2.5V	0V	5.9V	0V	15V	2.2V	0V
4	2.5V	0V	7.7V	0V	15.2V	0V	1.5V
5	3.7V	2.5V	0.1V	0.5V	0V	13.2V	6V
6	2.5V	2.9V	3.9V	0V	15.2V	27V	0.8V
7	0V	4.5V	3.2V	2.2V	30.4V	1.5V	0
8	5V	5V	1.6V	0V	15.2V	3.6V	
9	2.6V		0V	5.2V	15V	26.5V	
10	5V		7.8V	0V			
11	0V		0V	3V			
12	4V		3.5V	3V			
13	5V		4.5V	0V			
14	5V		4.2V	1V			
15	5V		3.5V	0V			
16	5V		0.1V	1.1V			
17	5V		2.6V				
18	0.1V		2V				
19	5V		2V				
20	5V		2.1V				
21	0V		0.2V				
22	0V		3.4V				
23	0V		3.3V				
24	0V		3.3V				
25	0V		2.3V				
26	0.9V		1.3V				
27	0V		5V				
28	5V		4V				
29	5V		4V				
30	0V		1.6V				
31	2.3V		1.6V				
32	2.2V		0V				
33	5V		5V				
34	4.2V		3.6V				
35	25V		2.6V				
36	0V		7.3V				
37	0V		0.4V				
38	0V		0.4V				
39	2.8V		3.3V				
40	2.4V		4V				
41	0V		2.6V				
42	5V		2.6V				
43			3.5V				
44			3.3V				
45			4.2V				
46			4.2V				
47			4.1V				
48			3.8V				
49			1.4V				
50			3.5V				
51			4.7V				
52			6.7V				

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* All voltages are in Volt
* Reading are taken with a digital multimeter.
* Reading are taken with a colour-bar signal input.

* Sound min.
* Contrast, Brightness, Color } Normal

PIN VOLTAGES OF IC'S

Pin.	TDA3866	TDA8425	SAA7283	SDA5243-5	GM76C88	SAA5231
1	0V	6V	4.7V	5V	0V	10.8V
2	0V	12V	2.3V	0.7V	3.7V	0V
3	1.9V	6V	4.8V	0.7V	1.7V	2.9V
4	0.1V	12V	0V	2.6V	2V	6.1V
5	3.4V	0V	2.3V	4.3V	3.3V	4.4V
6	1.8V	6V	1.7V	0.8V	1.1V	2.8V
7	1.8V	6V	2.4V	4V	1V	10.1V
8	2.6V	6V	2.4V	2.4V	3V	5.4V
9	2.1V	6V	0V	6.4V	3V	3.8V
10	1.8V	0V	0V	0.6V	3V	0V
11	1.8V	2.5V	2.4V	3.1V	0V	0.9V
12	6.5V	2.9V	0V	9.1V	0.3V	12.3V
13	0V	0.1V	0V	4V	0.3V	0V
14	1.9V	6V				
15	0V	6V				
16	1.6V	6V				
17	1.7V	6V				
18	4.2V	6V				
19	0V	6V				
20	0V	6V				
21	7.5V	6V				
22	4.3V					
23	1.8V					
24	1.8V					
25						
26						
27						
28						
29						
30						
31						
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34						
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37						
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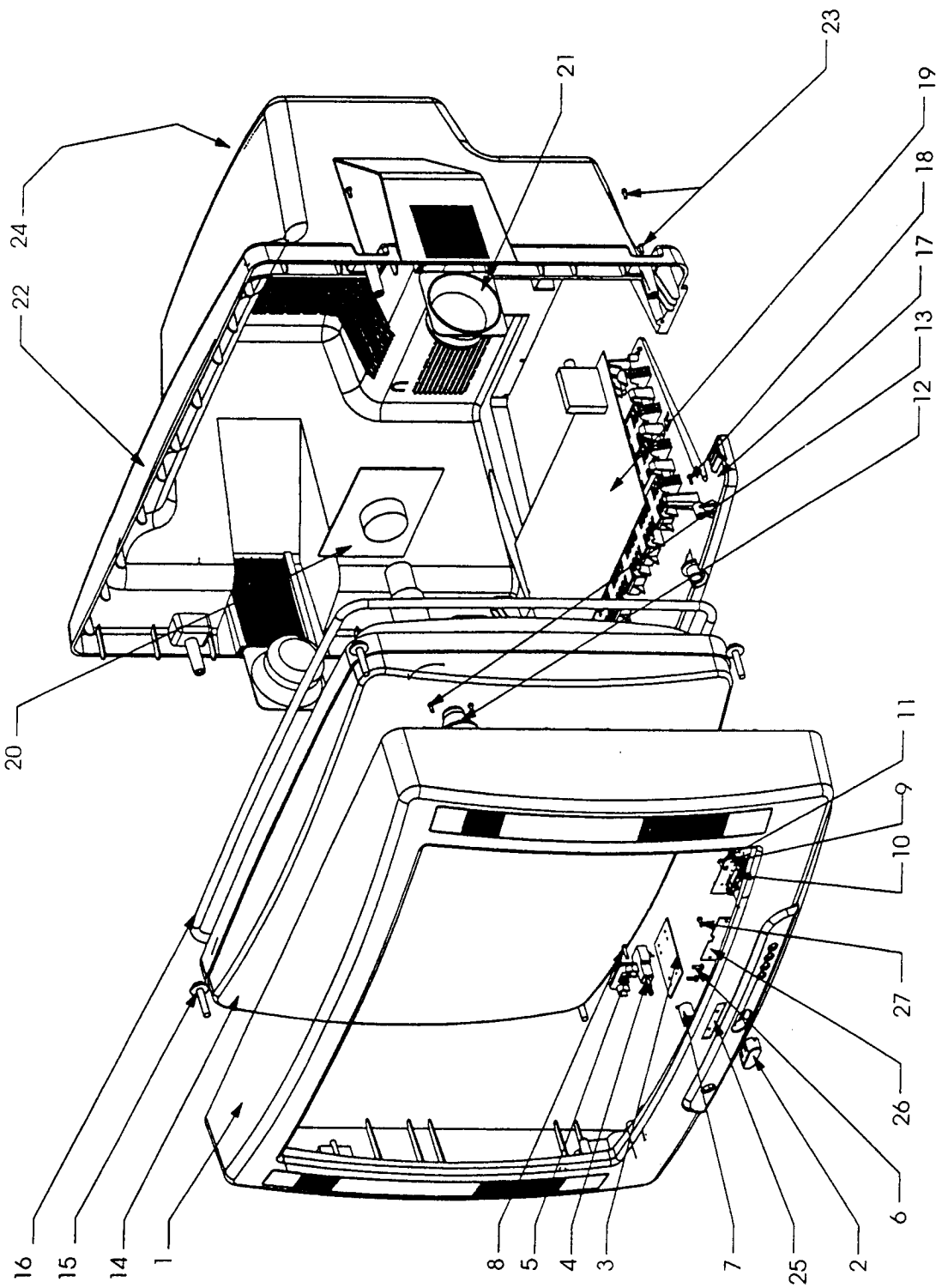
41						
42						
43						
44						
45						
46						
47						
48						
0V	0.1V	0.4V	3.1V			
2.3V	2.2V	0.3V	12.3V			
1.6V	0.2V	0.3V	6.4V			
4.7V	0V	0.1V	6.4V			
0V	2.9V	0.3V	5V			
2.4V	2.5V	0V	1.2V			
2.6V	0V	3.7V	5V			
2.4V	0.4V	2.6V	3.1V			
2.4V	0.3V	0.7V	1.6V			
0V	0.3V	0.7V	9.4V			
2.4V	0.1V	0.8V	0.6V			
5V	03V	4.9V	5.3V			
2.4V	4.2V	4.3V	4.2V			
2.4V	0.3V	4.9V	9V			
2.4V	0V					
2.3V	3V					
2.4V	3V					
1.3V	3V					
2.4V	1V					
2.3V	1V					
2.4V	3.3V					
4.8V	2V					
0V	1.7V					
4.7V	3.7V					
0V	3.7V					
3.4V	0.7					
2.4V						
0V						
2.4V						
0V						
2.3V						
4.7V						
4.6V						
2.5V						

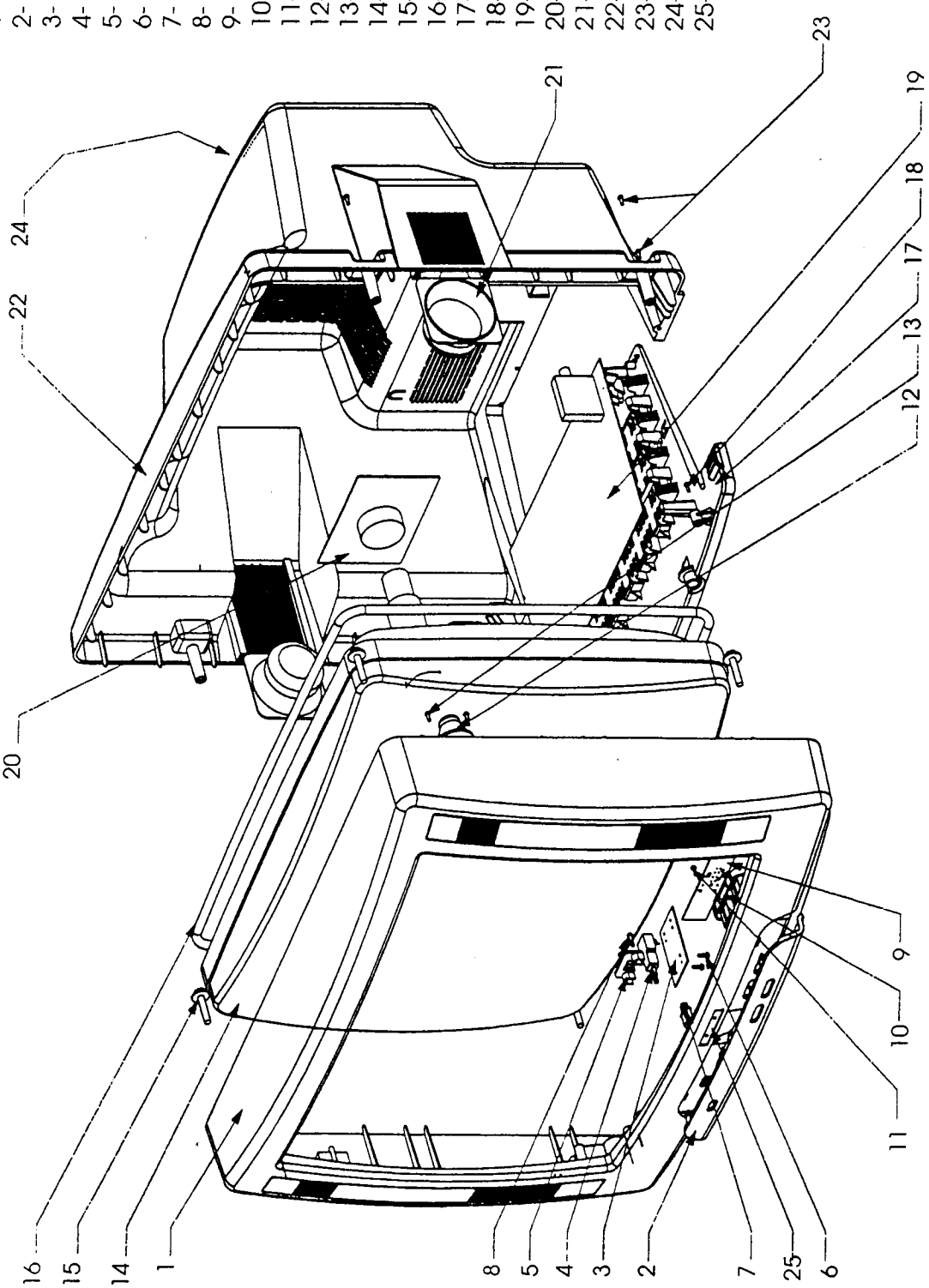
For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

28" ULTRA-001 CTV

1- FRONT CABINET
2- ACYRILIC WINDOW
3- ON/OFF PCB
4- ON-OFF SWITCH
5- ON-OFF HOLDER
6- SCREW Ø 2.9*9.5
7- ON-OFF BUTTON
8- SCREW Ø 2.9*9.5
9- MULTI BUTTON PCB
10- MULTI BUTTON
11- SCREW Ø 2.9*9.5
12- TWETEER
13- SCREW Ø 2.9*9.5
14- PICTURE TUBE
15- SCREW Ø 7*25
16- DEGAUSSING COIL
17- BOTTOM PANEL
18- SCREW Ø 3.9*16
19- MAIN PCB (SM-1 28")
20- CRT PCB ASSY
21- SPEAKER
22- BACK COVER
23- SCREW Ø 3.9*16
24- BACK COVER LABEL
25- LOGO
26- PREAMP. PCB
27- SCREW Ø 2.9*9.5



28" ULTRA-002 CTV



CHASSIS REPLACEMENT PART LIST

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Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
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	POS	COMPONENT	DESCRIPTION
OPTION :			
030020610231		RES.CAR.FILM	1 K 5% 1/4 W
032050733961	L120	RES.CER.INSULATED	3.3 R 10% 5 W
030010615111	R027	RES.CAR.FILM	150 R 5% 1/8 W
030010656211	R051	RES.CAR.FILM	5.6 K 5% 1/8 W
030010627111	R052	RES.CAR.FILM	270 R 5% 1/8 W
030010668111	R053	RES.CAR.FILM	680 R 5% 1/8 W
030010656211	R054	RES.CAR.FILM	5.6 K 5% 1/8 W
030010639111	R055	RES.CAR.FILM	390 R 5% 1/8 W
030010615211	R056	RES.CAR.FILM	1.5 K 5% 1/8 W
030010615211	R057	RES.CAR.FILM	1.5 K 5% 1/8 W
030010610111	R058	RES.CAR.FILM	100 R 5% 1/8 W
030010615111	R059	RES.CAR.FILM	150 R 5% 1/8 W
030010647011	R060	RES.CAR.FILM	47 R 5% 1/8 W
030010622111	R061	RES.CAR.FILM	220 R 5% 1/8 W
030208612311	R062	RES.M.O.FILM	12 K 5% 2 W
030059627211	R063	RES.NONFLAMABLE C.FILM	2.7 K 5% 1/2 W
030010656211	R064	RES.CAR.FILM	5.6 K 5% 1/8 W
030010615211	R065	RES.CAR.FILM	1.5 K 5% 1/8 W
030010610111	R066	RES.CAR.FILM	100 R 5% 1/8 W
030010615111	R067	RES.CAR.FILM	150 R 5% 1/8 W
030010647011	R068	RES.CAR.FILM	47 R 5% 1/8 W
030010622111	R069	RES.CAR.FILM	220 R 5% 1/8 W
030208612311	R070	RES.M.O.FILM	12 K 5% 2 W
030059627211	R071	RES.NONFLAMABLE C.FILM	2.7 K 5% 1/2 W
030010656211	R072	RES.CAR.FILM	5.6 K 5% 1/8 W
030010615211	R073	RES.CAR.FILM	1.5 K 5% 1/8 W
030010610111	R074	RES.CAR.FILM	100 R 5% 1/8 W
030010615111	R075	RES.CAR.FILM	150 R 5% 1/8 W
030010647011	R076	RES.CAR.FILM	47 R 5% 1/8 W
030010622111	R077	RES.CAR.FILM	220 R 5% 1/8 W
030208612311	R078	RES.M.O.FILM	12 K 5% 2 W
030059627211	R079	RES.NONFLAMABLE C.FILM	2.7 K 5% 1/2 W
030010615211	R080	RES.CAR.FILM	1.5 K 5% 1/8 W
030010622511	R081	RES.CAR.FILM	2.2 M 5% 1/8 W
030010647211	R082	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647211	R083	RES.CAR.FILM	4.7 K 5% 1/8 W
032057622941	R101	RES.CER.INSULATED	2.2 R 5% 5 W
030208668311	R102	RES.M.O.FILM	68 K 5% 2 W
030208668311	R103	RES.M.O.FILM	68 K 5% 2 W
030010622111	R105	RES.CAR.FILM	220 R 5% 1/8 W
030010656211	R106	RES.CAR.FILM	5.6 K 5% 1/8 W
030108668021	R107	RES.M.O.FILM	68 R 5% 1 W
030050633411	R108	RES.CAR.FILM	330 K 5% 1/2 W
030050622411	R109	RES.CAR.FILM	220 K 5% 1/2 W
030010633211	R110	RES.CAR.FILM	3.3 K 5% 1/8 W
030010647011	R111	RES.CAR.FILM	47 R 5% 1/8 W
030010651911	R112	RES.CAR.FILM	5.1 R 5% 1/8 W
030010610311	R114	RES.CAR.FILM	10 K 5% 1/8W
030103682521	R115	RES.COAT INSULATED	8M2 RCT 1 W
030105647811	R120	RES.M.FILM FUSING	0.47 R 5% 1 W
030105647811	R121	RES.M.FILM FUSING	0.47 R 5% 1 W

	POS	COMPONENT	DESCRIPTION
030105647811	R122	RES.M.FILM FUSING	0.47 R 5% 1 W
030108615311	R124	RES.M.O.FILM	15 K 5% 1 W
030010615011	R125	RES.CAR.FILM	15 R 5% 1/8 W
030010622311	R126	RES.CAR.FILM	22 K 5% 1/8 W
030010622311	R127	RES.CAR.FILM	22 K 5% 1/8 W
030010622211	R128	RES.CAR.FILM	2.2 K 5% 1/8 W
030108647311	R130	RES.M.O.FILM	47 K 5% 1 W
030108633911	R132	RES.M.O.FILM	3.3 R 5% 1 W
032010633921	R133	RES.CER.INSULATED	3.3 R 5% 1 W
030010615111	R151	RES.CAR.FILM	150 R 5% 1/8 W
030010612211	R152	RES.CAR.FILM	1.2 K 5% 1/8 W
030010612211	R153	RES.CAR.FILM	1.2 K 5% 1/8 W
030010656211	R154	RES.CAR.FILM	5.6 K 5% 1/8 W
030010610011	R155	RES.CAR.FILM	10 R 5% 1/8 W
030140668011	R156	RES.CAR.FILM	68 R 5% 1/6 W
030010610311	R161	RES.CAR.FILM	10 K 5% 1/8W
030010610311	R162	RES.CAR.FILM	10 K 5% 1/8W
030010610311	R163	RES.CAR.FILM	10 K 5% 1/8W
030010622311	R164	RES.CAR.FILM	22 K 5% 1/8 W
030020610231	R165	RES.CAR.FILM	1 K 5% 1/4 W
030010610311	R170	RES.CAR.FILM	10 K 5% 1/8W
030010610311	R172	RES.CAR.FILM	10 K 5% 1/8W
030010615311	R173	RES.CAR.FILM	15 K 5% 1/8 W
030010627111	R181	RES.CAR.FILM	270 R 5% 1/8 W
030010656211	R182	RES.CAR.FILM	5.6 K 5% 1/8 W
030010612111	R183	RES.CAR.FILM	120 R 5% 1/8 W
030010610111	R184	RES.CAR.FILM	100 R 5% 1/8 W
030010610111	R185	RES.CAR.FILM	100 R 5% 1/8 W
030010622111	R186	RES.CAR.FILM	220 R 5% 1/8 W
030010615211	R187	RES.CAR.FILM	1.5 K 5% 1/8 W
030010647211	R189	RES.CAR.FILM	4.7 K 5% 1/8 W
030010682211	R190	RES.CAR.FILM	8.2 K 5% 1/8 W
030010668111	R191	RES.CAR.FILM	680 R 5% 1/8 W
030020610331	R192	RES.CAR.FILM	10 K 5% 1/4W
030010610111	R193	RES.CAR.FILM	100 R 5% 1/8 W
030010610111	R194	RES.CAR.FILM	100 R 5% 1/8 W
030010610111	R195	RES.CAR.FILM	100 R 5% 1/8 W
030010610411	R196	RES.CAR.FILM	100 K 5% 1/8 W
030140610311	R197	RES.CAR.FILM	10 K 5% 1/6 W
030010610111	R199	RES.CAR.FILM	100 R 5% 1/8 W
030010622311	R200	RES.CAR.FILM	22 K 5% 1/8 W
030010647411	R201	RES.CAR.FILM	470 K 5% 1/8 W
030010612311	R202	RES.CAR.FILM	12 K 5% 1/8 W
030020682411	R203	RES.CAR.FILM	820 K 5% 1/4 W
030010633411	R204	RES.CAR.FILM	330 K 5% 1/8 W
030010656211	R205	RES.CAR.FILM	5.6 K 5% 1/8 W
030020647331	R207	RES.CAR.FILM	47 K 5% 1/4 W
030010622111	R241	RES.CAR.FILM	220 R 5% 1/8 W
030020610231	R242	RES.CAR.FILM	1 K 5% 1/4 W
030010610211	R351	RES.CAR.FILM	1 K 5% 1/8 W
030020647131	R360	RES.CAR.FILM	470 R 5% 1/4 W
030020656131	R361	RES.CAR.FILM	560 R 5% 1/4 W
039100639101	R363	RES.M.FILM FUSING	39 R 5% 1/4 W

	POS	COMPONENT	DESCRIPTION
030010610211	R401	RES.CAR.FILM	1 K 5% 1/8 W
030010610211	R402	RES.CAR.FILM	1 K 5% 1/8 W
030020610031	R403	RES.CAR.FILM	10 R 5% 1/4 W
030020610231	R404	RES.CAR.FILM	1 K 5% 1/4 W
030020610131	R406	RES.CAR.FILM	100 R 5% 1/4 W
030020610131	R407	RES.CAR.FILM	100 R 5% 1/4 W
030020610231	R408	RES.CAR.FILM	1 K 5% 1/4 W
030059622911	R432	RES.NONFLAMABLE C.FILM	2.2 R 5% 1/2 W
030059622911	R433	RES.NONFLAMABLE C.FILM	2.2 R 5% 1/2 W
030010615311	R473	RES.CAR.FILM	15 K 5% 1/8 W
030010627211	R476	RES.CAR.FILM	2.7 K 5% 1/8 W
030010633211	R477	RES.CAR.FILM	3.3 K 5% 1/8 W
030010622511	R478	RES.CAR.FILM	2.2 M 5% 1/8 W
030010610111	R479	RES.CAR.FILM	100 R 5% 1/8 W
030010612311	R480	RES.CAR.FILM	12 K 5% 1/8 W
030010656211	R481	RES.CAR.FILM	5.6 K 5% 1/8 W
030010615311	R482	RES.CAR.FILM	15 K 5% 1/8 W
030020639331	R483	RES.CAR.FILM	39 K 5% 1/4 W
030010647311	R485	RES.CAR.FILM	47 K 5% 1/8 W
030010615411	R486	RES.CAR.FILM	150 K 5% 1/8 W
030010627311	R487	RES.CAR.FILM	27 K 5% 1/8 W
030020610231	R488	RES.CAR.FILM	1 K 5% 1/4 W
030020647331	R489	RES.CAR.FILM	47 K 5% 1/4 W
030020610411	R490	RES.CAR.FILM	100 K 5% 1/4 W
030010610211	R498	RES.CAR.FILM	1 K 5% 1/8 W
030010622411	R499	RES.CAR.FILM	220 K 5% 1/8 W
030010610411	R500	RES.CAR.FILM	100 K 5% 1/8 W
030010610211	R501	RES.CAR.FILM	1 K 5% 1/8 W
030010610211	R511	RES.CAR.FILM	1 K 5% 1/8 W
030010615211	R512	RES.CAR.FILM	1.5 K 5% 1/8 W
030010615211	R514	RES.CAR.FILM	1.5 K 5% 1/8 W
030010615211	R516	RES.CAR.FILM	1.5 K 5% 1/8 W
030010675011	R518	RES.CAR.FILM	75 R 5% 1/8 W
030010622311	R520	RES.CAR.FILM	22 K 5% 1/8 W
030010610311	R521	RES.CAR.FILM	10 K 5% 1/8W
030010610311	R522	RES.CAR.FILM	10 K 5% 1/8W
030010610311	R523	RES.CAR.FILM	10 K 5% 1/8W
030020627331	R524	RES.CAR.FILM	27 K 5% 1/4 W
030010610311	R525	RES.CAR.FILM	10 K 5% 1/8W
030010610211	R526	RES.CAR.FILM	1 K 5% 1/8 W
030010610311	R527	RES.CAR.FILM	10 K 5% 1/8W
030010610511	R528	RES.CAR.FILM	1 M 5% 1/8 W
030010610211	R529	RES.CAR.FILM	1 K 5% 1/8 W
030010610111	R533	RES.CAR.FILM	100 R 5% 1/8 W
030010633211	R534	RES.CAR.FILM	3.3 K 5% 1/8 W
030010610111	R535	RES.CAR.FILM	100 R 5% 1/8 W
030010633211	R536	RES.CAR.FILM	3.3 K 5% 1/8 W
030010610111	R537	RES.CAR.FILM	100 R 5% 1/8 W
030010622211	R538	RES.CAR.FILM	2.2 K 5% 1/8 W
030010610311	R544	RES.CAR.FILM	10 K 5% 1/8W
030010610111	R545	RES.CAR.FILM	100 R 5% 1/8 W
030010610111	R546	RES.CAR.FILM	100 R 5% 1/8 W
030020622331	R548	RES.CAR.FILM	22 K 5% 1/4W

	POS	COMPONENT	DESCRIPTION
030010622211	R549	RES.CAR.FILM	2.2 K 5% 1/8 W
030010610411	R550	RES.CAR.FILM	100 K 5% 1/8 W
030010647011	R575	RES.CAR.FILM	47 R 5% 1/8 W
030020647031	R575	RES.CAR.FILM	47 R 5% 1/4 W
030010647211	R576	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647211	R577	RES.CAR.FILM	4.7 K 5% 1/8 W
030059622111	R578	RES.NONFLAMABLE C.FILM	220 R 5% 1/2 W
030010615311	R579	RES.CAR.FILM	15 K 5% 1/8 W
030010610111	R580	RES.CAR.FILM	100 R 5% 1/8 W
030010656311	R581	RES.CAR.FILM	56 K 5% 1/8 W
030010618311	R582	RES.CAR.FILM	18 K 5% 1/8 W
030108615911	R584	RES.M.O.FILM	1.5 R 5% 1 W
030059615111	R585	RES.NONFLAMABLE C.FILM	150 R 5% 1/2 W
030020622131	R586	RES.CAR.FILM	220 R 5% 1/4 W
030059656111	R587	RES.NONFLAMABLE C.FILM	560 R 5% 1/2 W
030010612311	R588	RES.CAR.FILM	12 K 5% 1/8 W
030010647411	R589	RES.CAR.FILM	470 K 5% 1/8 W
030010647311	R590	RES.CAR.FILM	47 K 5% 1/8 W
030010633311	R591	RES.CAR.FILM	33 K 5% 1/8 W
030010610411	R592	RES.CAR.FILM	100 K 5% 1/8 W
030010610311	R593	RES.CAR.FILM	10 K 5% 1/8W
030010622211	R594	RES.CAR.FILM	2.2 K 5% 1/8 W
030010618211	R595	RES.CAR.FILM	1.8 K 5% 1/8 W
030010610211	R596	RES.CAR.FILM	1 K 5% 1/8 W
030010610411	R597	RES.CAR.FILM	100 K 5% 1/8 W
030010668211	R598	RES.CAR.FILM	6.8 K 5% 1/8 W
030010618411	R599	RES.CAR.FILM	180 K 5% 1/8 W
030010622211	R600	RES.CAR.FILM	2.2 K 5% 1/8 W
030010622211	R601	RES.CAR.FILM	2.2 K 5% 1/8 W
030010647211	R602	RES.CAR.FILM	4.7 K 5% 1/8 W
030010622111	R603	RES.CAR.FILM	220 R 5% 1/8 W
030108633911	R604	RES.M.O.FILM	3.3 R 5% 1 W
030218610211	R605	RES.M.O.FILM	1 K 5% 3 W
030010647211	R606	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647011	R607	RES.CAR.FILM	47 R 5% 1/8 W
030218610311	R608	RES.M.O.FILM	10 K 5% 3 W
032053620211	R609	RES.CER.INSULATED	2 K 10% 5 W
030108615911	R610	RES.M.O.FILM	1 R 5% 1 W
032107739901	R611	RES.CER.INSULATED	3.9 R 10 W
030010627211	R612	RES.CAR.FILM	2.7 K 5% 1/8 W
030059647811	R614	RES.NONFLAMABLE C.FILM	0.47 R 5% 1 W
030010610211	R617	RES.CAR.FILM	1 K 5% 1/8 W
030105610911	R618	RES.M.FILM FUSING	1 R %5 1 W
030108647011	R619	RES.M.O.FILM	47 R 5% 1 W
030020612121	R672	RES.CAR.FILM	120 R 5% 1/4 W
030020647331	R576	RES.CAR.FILM	47 K 5% 1/4 W
030010675011	R694	RES.CAR.FILM	75 R 5% 1/8 W
030010668111	R695	RES.CAR.FILM	680 R 5% 1/8 W
030010633311	R696	RES.CAR.FILM	33 K 5% 1/8 W
030010633311	R697	RES.CAR.FILM	33 K 5% 1/8 W
030010675011	R700	RES.CAR.FILM	75 R 5% 1/8 W
030010668111	R701	RES.CAR.FILM	680 R 5% 1/8 W
030010675011	R702	RES.CAR.FILM	75 R 5% 1/8 W

	POS	COMPONENT	DESCRIPTION
030020639331	R882	RES.CAR.FILM	39 K 5% 1/4 W

OPTION : These parts will be used whenever IC 2616 is used instead of IC 1521

030140622211	R468	RES.CAR.FILM	2.2 K 5% 1/6 W
030140610311	R469	RES.CAR.FILM	10 K 5% 1/6W
030140610311	R470	RES.CAR.FILM	10 K 5% 1/6W
030140647211	R471	RES.CAR.FILM	4.7 K 5% 1/6 W
030140656211	R472	RES.CAR.FILM	5.6 K 5% 1/8 W

OPTION : These parts are used for D/K System

030020622131	R332	RES.CAR.FILM	220 R 5% 1/4 W
030010610211	R334	RES.CAR.FILM	1 K 5% 1/8 W
030020622131	R341	RES.CAR.FILM	220 R 5% 1/4 W

OPTION : These parts will not be used for PAL-I System

030010647211	R166	RES.CAR.FILM	4.7 K 5% 1/8 W
030010610311	R167	RES.CAR.FILM	10 K 5% 1/8W
030010647211	R168	RES.CAR.FILM	4.7 K 5% 1/8 W
030010610311	R169	RES.CAR.FILM	10 K 5% 1/8W
030010622311	R171	RES.CAR.FILM	22 K 5% 1/8 W
030020612121	R328	RES.CAR.FILM	120 R 5% 1/4 W
030020622131	R331	RES.CAR.FILM	220 R 5% 1/4 W
030010610211	R335	RES.CAR.FILM	1 K 5% 1/8 W
030020647231	R336	RES.CAR.FILM	4.7 K 5% 1/4 W
030010627311	R337	RES.CAR.FILM	27 K 5% 1/8 W
030020610031	R338	RES.CAR.FILM	10 R 5% 1/4 W
030010610211	R339	RES.CAR.FILM	1 K 5% 1/8 W
030010647311	R495	RES.CAR.FILM	47 K 5% 1/8 W
030010647311	R497	RES.CAR.FILM	47 K 5% 1/8 W
030010618211	R720	RES.CAR.FILM	1.8 K 5% 1/8 W
030020610131	R901	RES.CAR.FILM	100 R 5% 1/4 W
030020630311	R902	RES.CAR.FILM	30 K 5% 1/4 W
030020610031	R903	RES.CAR.FILM	10 R 5% 1/4 W
030020610131	R906	RES.CAR.FILM	100 R 5% 1/4 W

OPTION : These are not used for Teletext with FLOF Option except NICAM-L Stereo Option

030020610131	R758	RES.CAR.FILM	100 R 5% 1/4 W
030020610131	R759	RES.CAR.FILM	100 R 5% 1/4 W
030020610331	R775	RES.CAR.FILM	10 K 5% 1/4W

OPTION : These parts are used FTZ Option

030010615011	R026	RES.CAR.FILM	15 R 5% 1/8 W

OPTION : These parts will be used for SECAM System

030010610011	R251	RES.CAR.FILM	10 R 5% 1/8 W
030010622311	R252	RES.CAR.FILM	22 K 5% 1/8 W

For Service Manuals Contact
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8 Cherry Tree Rd, Chinnor
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Email:- enquiries@mauritron.co.uk

	POS	COMPONENT	DESCRIPTION
030010668111	R703	RES.CAR.FILM	680 R 5% 1/8 W
030010675011	R704	RES.CAR.FILM	75 R 5% 1/8 W
030010647011	R706	RES.CAR.FILM	47 R 5% 1/8 W
030010610211	R707	RES.CAR.FILM	1 K 5% 1/8 W
030010675011	R708	RES.CAR.FILM	75 R 5% 1/8 W
030010668111	R709	RES.CAR.FILM	680 R 5% 1/8 W
030020627231	R712	RES.CAR.FILM	2.7 K 5% 1/4 W
030010610211	R716	RES.CAR.FILM	1 K 5% 1/8 W
030010610211	R718	RES.CAR.FILM	1 K 5% 1/8 W
030010610211	R719	RES.CAR.FILM	1 K 5% 1/8 W
030020622131	R721	RES.CAR.FILM	220 R 5% 1/4 W
030025610011	R801	RES.M.FILM FUSING	10 R %5 1/4 W
030020618231	R802	RES.CAR.FILM	1.8 K 5% 1/4 W
030010633311	R803	RES.CAR.FILM	33 K 5% 1/8 W
030025610911	R804	RES.M.FILM FUSING	1 R %5 1/4 W
030010610211	R805	RES.CAR.FILM	1 K 5% 1/8 W
030020610131	R806	RES.CAR.FILM	100 R 5% 1/4 W
030020610331	R807	RES.CAR.FILM	10 K 5% 1/4W
030035610911	R808	RES.M.FILM FUSING	1 R %5 1/4 W
030020622331	R809	RES.CAR.FILM	22 K 5% 1/4 W
030010610511	R810	RES.CAR.FILM	1 M 5% 1/8 W
030020622011	R811	RES.CAR.FILM	22 R 5% 1/4 W
030020668411	R812	RES.CAR.FILM	680 K 5% 1/4 W
030010610211	R814	RES.CAR.FILM	1 K 5% 1/8 W
030020610331	R816	RES.CAR.FILM	10 K 5% 1/4W
030010610211	R817	RES.CAR.FILM	1 K 5% 1/8 W
030010610211	R818	RES.CAR.FILM	1 K 5% 1/8 W
030010627211	R819	RES.CAR.FILM	2.7 K 5% 1/8 W
030010610111	R852	RES.CAR.FILM	100 R 5% 1/8 W
030020610031	R853	RES.CAR.FILM	10 R 5% 1/4 W
030010610211	R854	RES.CAR.FILM	1 K 5% 1/8 W
030010615111	R855	RES.CAR.FILM	150 R 5% 1/8 W
030020610031	R856	RES.CAR.FILM	10 R 5% 1/4 W
030010647311	R857	RES.CAR.FILM	47 K 5% 1/8 W
030010647311	R858	RES.CAR.FILM	47 K 5% 1/8 W
030010610211	R864	RES.CAR.FILM	1 K 5% 1/8 W
030010622311	R865	RES.CAR.FILM	22 K 5% 1/8 W
030010647211	R866	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647211	R867	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647211	R868	RES.CAR.FILM	4.7 K 5% 1/8 W
030010647011	R869	RES.CAR.FILM	47 R 5% 1/8 W
030140612411	R870	RES.CAR.FILM	120 K 5% 1/6 W
030140612411	R871	RES.CAR.FILM	120 K 5% 1/6 W
030140682121	R872	RES.CAR.FILM	820 R 5% 1/6W
030010622211	R873	RES.CAR.FILM	2.2 K 5% 1/8 W
030020639331	R874	RES.CAR.FILM	39 K 5% 1/4 W
030140682121	R875	RES.CAR.FILM	820 R 5% 1/6W
030010647211	R876	RES.CAR.FILM	4.7 K 5% 1/8 W
030010668211	R877	RES.CAR.FILM	6.8 K 5% 1/8 W
030010647311	R878	RES.CAR.FILM	47 K 5% 1/8 W
030010622311	R879	RES.CAR.FILM	22 K 5% 1/8 W
030010647311	R880	RES.CAR.FILM	47 K 5% 1/8 W
030010627211	R881	RES.CAR.FILM	2.7 K 5% 1/8 W

	POS	COMPONENT	DESCRIPTION
OPTION : These parts will be used for TELETEXT Option			
037720007751	EM727	RESONATOR,CERAMIC	6 MHz
030010610211	R7**	RES.CAR.FILM	1 K 5% 1/8 W
030020647131	R734	RES.CAR.FILM	470 R 5% 1/4 W
030010610211	R735	RES.CAR.FILM	1 K 5% 1/8 W
030020633231	R736	RES.CAR.FILM	3.3 K 5% 1/4 W
030020618231	R737	RES.CAR.FILM	1.8 K 5% 1/4 W
030020633231	R738	RES.CAR.FILM	3.3 K 5% 1/4 W
030020618231	R739	RES.CAR.FILM	1.8 K 5% 1/4 W
030020633231	R740	RES.CAR.FILM	3.3 K 5% 1/4 W
030020618231	R741	RES.CAR.FILM	1.8 K 5% 1/4 W
030010612211	R743	RES.CAR.FILM	1.2 K 5% 1/8 W
030020610331	R744	RES.CAR.FILM	10 K 5% 1/4W
030020633231	R745	RES.CAR.FILM	3.3 K 5% 1/4 W
030020622131	R746	RES.CAR.FILM	220 R 5% 1/4 W
030020647131	R747	RES.CAR.FILM	470 R 5% 1/4 W
030020668311	R748	RES.CAR.FILM	68 K 5% 1/4 W
030020668211	R749	RES.CAR.FILM	6.8 K 5% 1/4 W
030020610331	R750	RES.CAR.FILM	10 K 5% 1/4W
030020622331	R751	RES.CAR.FILM	22 K 5% 1/4 W
030020622331	R753	RES.CAR.FILM	22 K 5% 1/4 W
030020610331	R754	RES.CAR.FILM	10 K 5% 1/4W
030020647231	R755	RES.CAR.FILM	4.7 K 5% 1/4 W
030020610131	R756	RES.CAR.FILM	100 R 5% 1/4 W
030020610131	R757	RES.CAR.FILM	100 R 5% 1/4 W
030020610131	R761	RES.CAR.FILM	100 R 5% 1/4 W
030010622211	R762	RES.CAR.FILM	2.2 K 5% 1/8 W
030010615311	R763	RES.CAR.FILM	15 K 5% 1/8 W
030020647231	R765	RES.CAR.FILM	4.7 K 5% 1/4 W
030020622131	R768	RES.CAR.FILM	220 R 5% 1/4 W
030010632211	R776	RES.CAR.FILM	8.2 K 5% 1/8 W
030020633331	R777	RES.CAR.FILM	33 K 5% 1/4 W
030010633311	R778	RES.CAR.FILM	33 K 5% 1/8 W
030020647231	R779	RES.CAR.FILM	4.7 K 5% 1/4 W
030010615211	R780	RES.CAR.FILM	1.5 K 5% 1/8 W
030020647131	R781	RES.CAR.FILM	470 R 5% 1/4 W
030020647131	R782	RES.CAR.FILM	470 R 5% 1/4 W

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	POS	COMPONENT	DESCRIPTION
OPTION :			
040030046801		CAP.CERAMIC	68 PF 5% 50 V SL
040070041021		CAP.CERAMIC	1 NF +80-20% 50 V F
040070041021	C030	CAP.CERAMIC	1 NF +80-20% 50 V F
040040051821	C031	CAP.CERAMIC	1.8 NF 10% 50 VB
042140164771	C051	CAP.ELECT.	470 UF 20% 16 V
040030043921	C052	CAP.CERAMIC	390 PF 10% 50 V SL
040030043921	C053	CAP.CERAMIC	390 PF 10% 50 V SL
040040042211	C054	CAP.CERAMIC	220 PF 10% 50 V SL
042446862251	C055	CAP.ELECT.	2.2 UF 20% 250 V
040040171021	C056	CAP.CERAMIC	1000 PF 10% 2 KV BN
040040171021	C057	CAP.CERAMIC	1000 PF 10% 2 KV BN
042440861061	C058	CAP.ELECT.	10 UF 20% 250 V
040071041041	C059	CAP.CERAMIC	100 NF +80-20% 50 V F
619007261041	C102	CAP.POLYPROPYLENE	0.100 UF 20% 275 VAC
040040152211	C103	CAP.CERAMIC	2200 PF 10% 1 KV BN
040040152211	C104	CAP.CERAMIC	2200 PF 10% 1 KV BN
042719901071	C105	CAP.ELECT.AL EL	100 UF 20% 400 V
618003023601	C106	CAP.POLYPROPYLENE	0.033 UF 5% 630 V
040040171021	C107	CAP.CERAMIC	1000 PF 10% 2 KV BN
040040041011	C108	CAP.CERAMIC	100 PF 10% 50 V SL
042416501051	C109	CAP.ELECT.	1 UF 20% 50 V GP
621005003321	C110	CAP.POLYESTER	0.0033UF 20% 50 V
621003006831	C111	CAP.POLYESTER	0.0068 UF 5% 50 V
042447164761	C112	CAP.ELECT.	47 UF 20% 16 V
621004002241	C113	CAP.M.POLYESTER	0.22 UF 10% 50 V
040050151011	C115	CAP.CERAMIC	100 PF 20% 1 KV BN
040050202221	C116	CAP.CERAMIC SAFETY	2200 PF 20% 4 KV MX
040040154711	C120	CAP.CERAMIC	470 PF 10% 1 KV BN
042416351081	C121	CAP.ELECT.	1000 UF 20% 35 V
040040154711	C122	CAP.CERAMIC	470 PF 10% 1 KV BN
042412161081	C123	CAP.ELECT.	1000 UF 20% 16 V
040040154711	C124	CAP.CERAMIC	470 PF 10% 1 KV BN
042440251081	C125	CAP.ELECT.	1000 UF 20% 25 V
042412250471	C127	CAP.ELECT.	47 UF 20% 250 V
042416502261	C128	CAP.ELECT.	22 UF 20% 50 V
040070041031	C129	CAP.CERAMIC	10 NF +80-20% 50 V F
042412250471	C130	CAP.ELECT.	47 UF 20% 250 V
040070021031	C131	CAP.CERAMIC	100 NF +80-20% 25 V F
042440251081	C135	CAP.ELECT.	1000 UF 20% 25 V
040070021031	C136	CAP.CERAMIC	100 NF +80-20% 25 V F
042140164771	C137	CAP.ELECT.	470 UF 20% 16 V
040070021031	C138	CAP.CERAMIC	100 NF +80-20% 25 V F
040070042231	C139	CAP.CERAMIC	22 NF +80-20% 50 V F
042417162271	C140	CAP.ELECT.	220 UF 20% 16 V
042140164771	C141	CAP.ELECT.	470 UF 20% 16 V
040070042231	C142	CAP.CERAMIC	22 NF +80-20% 50 V F
040070041021	C151	CAP.CERAMIC	1 NF +80-20% 50 V F
040070041031	C152	CAP.CERAMIC	10 NF +80-20% 50 V F
040070041021	C153	CAP.CERAMIC	1 NF +80-20% 50 V F
040070041021	C154	CAP.CERAMIC	1 NF +80-20% 50 V F
042412161081	C161	CAP.ELECT.	1000 UF 20% 16 V

	POS	COMPONENT	DESCRIPTION
040070021031	C162	CAP.CERAMIC	100 NF +80-20% 25 V F
042416501051	C163	CAP.ELECT.	1 UF 20% 50 V GP
042446161061	C164	CAP.ELECT.	10 UF 20% 16 V
042417163361	C165	CAP.ELECT.	33 UF 20% 16 V
620004000351	C167	CAP.M.POLYESTER	0.330 UF 10% 50 V
040040044721	C181	CAP.CERAMIC	4700 PF 10% 50 V B
040034041201	C182	CAP.CERAMIC	12 PF 5% 50 V CH
042446161061	C183	CAP.ELECT.	10 UF 20% 16 V
040070021031	C184	CAP.CERAMIC	100 NF +80-20% 25 V F
042417162271	C185	CAP.ELECT.	220 UF 20% 16 V
040070021031	C186	CAP.CERAMIC	100 NF +80-20% 25 V F
040070021031	C187	CAP.CERAMIC	100 NF +80-20% 25 V F
621004004731	C188	CAP.POLYESTER	0.047 UF 10% 50 V
042446161061	C189	CAP.ELECT.	10 UF 20% 16 V
621004001041	C190	CAP.M.POLYESTER	0.1 UF 10% 50 V
042446161061	C191	CAP.ELECT.	10 UF 20% 16 V
040070021031	C192	CAP.CERAMIC	100 NF +80-20% 25 V F
040070021031	C193	CAP.CERAMIC	100 NF +80-20% 25 V F
040070021031	C194	CAP.CERAMIC	100 NF +80-20% 25 V F
042446161061	C195	CAP.ELECT.	10 UF 20% 16 V
042446161061	C196	CAP.ELECT.	10 UF 20% 16 V
040070021031	C197	CAP.CERAMIC	100 NF +80-20% 25 V F
618024004721	C198	CAP.POLYESTER	0.0047UF 10% 50 V
040032041801	C200	CAP.CERAMIC	18 PF 5% 50 V CH
040070021031	C201	CAP.CERAMIC	100 NF +80-20% 25 V F
042446161061	C202	CAP.ELECT.	10 UF 20% 16 V
618014002221	C203	CAP.POLYESTER	0.0022UF 10% 50 V
618024004721	C204	CAP.POLYESTER	0.0047UF 10% 50 V
042416501051	C205	CAP.ELECT.	1 UF 20% 50 V GP
040071042221	C206	CAP.CERAMIC	2.2 NF 80-20% 50 V
621004001041	C207	CAP.M.POLYESTER	0.1 UF 10% 50 V
040070042231	C208	CAP.CERAMIC	22 NF +80-20% 50 V F
040070042231	C209	CAP.CERAMIC	22 NF +80-20% 50 V F
042184502251	C210	CAP.ELECT.	2.2 UF 20% 50 V
040070021031	C211	CAP.CERAMIC	100 NF +80-20% 25 V F
042446161061	C213	CAP.ELECT.	10 UF 20% 16 V
042184502251	C214	CAP.ELECT.	2.2 UF 20% 50 V
040070021031	C241	CAP.CERAMIC	100 NF +80-20% 25 V F
042140161071	C242	CAP.ELECT.	100 UF 20% 16 V
040070021031	C243	CAP.CERAMIC	100 NF +80-20% 25 V F
040070021031	C244	CAP.CERAMIC	100 NF +80-20% 25 V F
040070041021	C245	CAP.CERAMIC	1 NF +80-20% 50 V F
040070041021	C246	CAP.CERAMIC	1 NF +80-20% 50 V F
040032041501	C351	CAP.CERAMIC	15 PF 5% 50 V CH
042446164751	C353	CAP.ELECT.	4.7 UF 20% 16 V
042414162251	C354	CAP.ELECT.	2.2 UF 20% 16 V
040040042701	C355	CAP.CERAMIC	27 PF 10% 50 V SL
042414162251	C356	CAP.ELECT.	2.2 UF 20% 16 V
042414162251	C357	CAP.ELECT.	2.2 UF 20% 16 V
042414162251	C358	CAP.ELECT.	2.2 UF 20% 16 V
040070041031	C359	CAP.CERAMIC	10 NF +80-20% 50 V F
042417162271	C360	CAP.ELECT.	220 UF 20% 16 V
042446161061	C361	CAP.ELECT.	10 UF 20% 16 V

	POS	COMPONENT	DESCRIPTION
040070041021	C401	CAP.CERAMIC	1 NF +80-20% 50 V F
621004002241	C402	CAP.M.POLYESTER	0.22 UF 10% 50 V
042140161071	C403	CAP.ELECT.	100 UF 20% 16 V
040070041021	C404	CAP.CERAMIC	1 NF +80-20% 50 V F
621004002241	C405	CAP.M.POLYESTER	0.22 UF 10% 50 V
040070021031	C406	CAP.CERAMIC	100 NF +80-20% 25 V F
042417162271	C407	CAP.ELECT.	220 UF 20% 16 V
621003003331	C408	CAP.POLYESTER	0.033 UF 5% 50 V
621003006831	C409	CAP.POLYESTER	0.0068 UF 5% 50 V
621004004731	C409	CAP.POLYESTER	0.047 UF 10% 50 V
621004002241	C410	CAP.M.POLYESTER	0.22 UF 10% 50 V
621004002241	C411	CAP.M.POLYESTER	0.22 UF 10% 50 V
621004004731	C412	CAP.POLYESTER	0.047 UF 10% 50 V
621003003331	C413	CAP.POLYESTER	0.033 UF 5% 50 V
621004001531	C414	CAP.POLYESTER	0.015 UF 10% 50 V
621004001531	C417	CAP.POLYESTER	0.015 UF 10% 50 V
042140161071	C428	CAP.ELECT.	100 UF 20% 16 V
040070021031	C429	CAP.CERAMIC	100 NF +80-20% 25 V F
042412161081	C430	CAP.ELECT.	1000 UF 20% 16 V
040070021031	C431	CAP.CERAMIC	100 NF +80-20% 25 V F
042412161081	C432	CAP.ELECT.	1000 UF 20% 16 V
042416351081	C433	CAP.ELECT.	1000 UF 20% 35 V
040070021031	C434	CAP.CERAMIC	100 NF +80-20% 25 V F
040070042231	C435	CAP.CERAMIC	22 NF +80-20% 50 V F
040070042231	C436	CAP.CERAMIC	22 NF +80-20% 50 V F
621004001041	C473	CAP.M.POLYESTER	0.1 UF 10% 50 V
618013002231	C475	CAP.POLYESTER	0.022 UF 5% 50 V
620004000351	C476	CAP.M.POLYESTER	0.330 UF 10% 50 V
042184502251	C477	CAP.ELECT.	2.2 UF 20% 50 V
042416161051	C478	CAP.ELECT.	1 UF 20% 16 V
042184502251	C479	CAP.ELECT.	2.2 UF 20% 50 V
042416161051	C481	CAP.ELECT.	1 UF 20% 16 V
040042042201	C482	CAP.CERAMIC	22 PF 10% 50 V CH
040042042201	C483	CAP.CERAMIC	22 PF 10% 50 V CH
040042042201	C484	CAP.CERAMIC	22 PF 10% 50 V CH
040042042201	C485	CAP.CERAMIC	22 PF 10% 50 V CH
621004004731	C486	CAP.POLYESTER	0.047 UF 10% 50 V
621004001041	C487	CAP.M.POLYESTER	0.1 UF 10% 50 V
040032041801	C488	CAP.CERAMIC	18 PF 5% 50 V CH
040032041801	C489	CAP.CERAMIC	18 PF 5% 50 V CH
042194504751	C490	CAP.ELECT.	4.7 UF 20% 50 V
040070041031	C491	CAP.CERAMIC	10 NF +80-20% 50 V F
040070041021	C492	CAP.CERAMIC	1 NF +80-20% 50 V F
040070021031	C493	CAP.CERAMIC	100 NF +80-20% 25 V F
042417162271	C494	CAP.ELECT.	220 UF 20% 16 V
042140164771	C496	CAP.ELECT.	470 UF 20% 16 V
040040041011	C497	CAP.CERAMIC	100 PF 10% 50 V SL
040070041031	C498	CAP.CERAMIC	10 NF +80-20% 50 V F
040070041031	C576	CAP.CERAMIC	10 NF +80-20% 50 V F
040070041021	C577	CAP.CERAMIC	1 NF +80-20% 50 V F
040040044711	C578	CAP.CERAMIC	470 PF 10% 50 V SL
042448504761	C579	CAP.ELECT.	47 UF 20% 50 V
040071041041	C580	CAP.CERAMIC	100 NF +80-20% 50 V F

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	POS	COMPONENT	DESCRIPTION
042416351081	C581	CAP.ELECT.	1000 UF 20% 35 V
042184502251	C582	CAP.ELECT.	2.2 UF 20% 50 V
042410252281	C583	CAP.ELECT.	2200 UF 20% 25 V
621004001041	C584	CAP.M.POLYESTER	0.1 UF 10% 50 V
621004001041	C585	CAP.M.POLYESTER	0.1 UF 10% 50 V
620004072241	C586	CAP.M.POLYESTER	0.22 UF 10% 63 V
619005064741	C587	CAP.M.POLYESTER	0.470 UF 10% 63 V
042416502261	C588	CAP.ELECT.	22 UF 20% 50 V
042412161081	C589	CAP.ELECT.	1000 UF 20% 16 V
040070041021	C590	CAP.CERAMIC	1 NF +80-20% 50 V F
042506508251	C591	CAP.ELECT.BIPOLAR	8.2 UF 10% 50 V
040071042221	C593	CAP.CERAMIC	2.2 NF 80-20% 50 V
040040174711	C594	CAP.CERAMIC	470 PF 10% 2 KV BN
040040154711	C601	CAP.CERAMIC	470 PF 10% 1 KV BN
042414861051	C602	CAP.ELECT.	1 UF 20% 250 V
040046151021	C603	CAP.CERAMIC	1000 PF 10% 1 KV BN
042416501051	C605	CAP.ELECT.	1 UF 20% 50 V GP
042416501051	C606	CAP.ELECT.	1 UF 20% 50 V GP
040040142211	C608	CAP.CERAMIC	220 PF 10% 500 V B
040040152211	C609	CAP.CERAMIC	2200 PF 10% 1 KV BN
040070041031	C676	CAP.CERAMIC	10 NF +80-20% 50 V F
040034043311	C687	CAP.CERAMIC	330 PF 5% 50 V
040034043311	C692	CAP.CERAMIC	330 PF 5% 50 V
040070021031	C801	CAP.CERAMIC	100 NF +80-20% 25 V F
042447164761	C802	CAP.ELECT.	47 UF 20% 16 V
042447164761	C803	CAP.ELECT.	47 UF 20% 16 V
040070021031	C804	CAP.CERAMIC	100 NF +80-20% 25 V F
042447164761	C805	CAP.ELECT.	47 UF 20% 16 V
040070021031	C806	CAP.CERAMIC	100 NF +80-20% 25 V F
042447164761	C807	CAP.ELECT.	47 UF 20% 16 V
042447164761	C808	CAP.ELECT.	47 UF 20% 16 V
040070021031	C809	CAP.CERAMIC	100 NF +80-20% 25 V F
621004004731	C810	CAP.POLYESTER	0.047 UF 10% 50 V
042446161061	C811	CAP.ELECT.	10 UF 20% 16 V
042446161061	C812	CAP.ELECT.	10 UF 20% 16 V
040070021031	C813	CAP.CERAMIC	100 NF +80-20% 25 V F
040040041011	C814	CAP.CERAMIC	100 PF 10% 50 V SL
040032041001	C815	CAP.CERAMIC	10 PF 5% 50 V CH
042446161061	C816	CAP.ELECT.	10 UF 20% 16 V
040040042211	C817	CAP.CERAMIC	220 PF 10% 50 V SL
042446161061	C818	CAP.ELECT.	10 UF 20% 16 V
040070021031	C819	CAP.CERAMIC	100 NF +80-20% 25 V F
042416501051	C820	CAP.ELECT.	1 UF 20% 50 V GP
040070021031	C821	CAP.CERAMIC	100 NF +80-20% 25 V F
042447164761	C822	CAP.ELECT.	47 UF 20% 16 V
618013002231	C823	CAP.POLYESTER	0.022 UF 5% 50 V
620004000351	C824	CAP.M.POLYESTER	0.330 UF 10% 50 V
040040041011	C825	CAP.CERAMIC	100 PF 10% 50 V SL
040040041011	C826	CAP.CERAMIC	100 PF 10% 50 V SL
042100161071	C827	CAP.ELECT.	0.22 UF 20% 16 V
619005064741	C828	CAP.M.POLYESTER	0.470 UF 10% 63 V
042140161071	C829	CAP.ELECT.	100 UF 20% 16 V
040032041501	C831	CAP.CERAMIC	15 PF 5% 50 V CH

	POS	COMPONENT	DESCRIPTION
040040044721	C833	CAP.CERAMIC	4700 PF 10% 50 V B
040040044721	C851	CAP.CERAMIC	4700 PF 10% 50 V B
042184502251	C852	CAP.ELECT.	2.2 UF 20% 50 V
042184502251	C853	CAP.ELECT.	2.2 UF 20% 50 V
042416502261	C854	CAP.ELECT.	22 UF 20% 50 V
042416502261	C857	CAP.ELECT.	22 UF 20% 50 V
619005064741	C858	CAP.M.POLYESTER	0.470 UF 10% 63 V
042184502251	C859	CAP.ELECT.	2.2 UF 20% 50 V
040070021031	C860	CAP.CERAMIC	100 NF +80-20% 25 V F
040040041011	C861	CAP.CERAMIC	100 PF 10% 50 V SL
040040044721	C862	CAP.CERAMIC	4700 PF 10% 50 V B

OPTION : These parts will be used whenever IC 2616 is used instead of IC 1521

042140161071	C472	CAP.ELECT.	100 UF 20% 16 V

OPTION : These parts will not be used for PAL-I System

042446161061	C166	CAP.ELECT.	10 UF 20% 16 V
042446161061	C169	CAP.ELECT.	10 UF 20% 16 V
040040044701	C327	CAP.CERAMIC	47 PF 10% 50 V CH
040040044701	C328	CAP.CERAMIC	47 PF 10% 50 V CH
040040044701	C332	CAP.CERAMIC	47 PF 10% 50 V CH
040040044701	C333	CAP.CERAMIC	47 PF 10% 50 V CH
042184502251	C336	CAP.ELECT.	2.2 UF 20% 50 V
042184502251	C337	CAP.ELECT.	2.2 UF 20% 50 V
042184502251	C338	CAP.ELECT.	2.2 UF 20% 50 V
040070041031	C339	CAP.CERAMIC	10 NF +80-20% 50 V F
042140161071	C340	CAP.ELECT.	100 UF 20% 16 V
042446161061	C901	CAP.ELECT.	10 UF 20% 16 V
040070041031	C902	CAP.CERAMIC	10 NF +80-20% 50 V F
040070021031	C903	CAP.CERAMIC	100 NF +80-20% 25 V F
619202005621	C904	CAP.STYROFLEX	0.0036UF 2% 50 V
040070041021	C905	CAP.CERAMIC	1 NF +80-20% 50 V F
042417162271	C906	CAP.ELECT.	220 UF 20% 16 V
042184502251	C907	CAP.ELECT.	2.2 UF 20% 50 V
042184502251	C908	CAP.ELECT.	2.2 UF 20% 50 V
040070041031	C913	CAP.CERAMIC	10 NF +80-20% 50 V F
040070041031	C914	CAP.CERAMIC	10 NF +80-20% 50 V F
040070021031	C915	CAP.CERAMIC	100 NF +80-20% 25 V F
040040042211	C916	CAP.CERAMIC	220 PF 10% 50 V SL
042417162271	C916	CAP.ELECT.	220 UF 20% 16 V

OPTION : These parts are not used for NICAM Stereo Option

619007261041	C101	CAP.POLYPROPYLENE	0.100 UF 20% 275 VAC
621003006831	C412	CAP.POLYESTER	0.0068 UF 5% 50 V
040034043311	C415	CAP.CERAMIC	330 PF 5% 50 V
040034043311	C418	CAP.CERAMIC	330 PF 5% 50 V
042184502251	C911	CAP.ELECT.	2.2 UF 20% 50 V
042184502251	C912	CAP.ELECT.	2.2 UF 20% 50 V

OPTION : These are not used for Teletext with FLOF Option except NICAM-L Stereo Option

042416501051	C755	CAP.ELECT.	1 UF 20% 50 V GP
042140161071	C756	CAP.ELECT.	100 UF 20% 16 V
040070042231	C757	CAP.CERAMIC	22 NF +80-20% 50 V F

	POS	COMPONENT	DESCRIPTION
OPTION : These parts are used FTZ Option			
040042042201	C026	CAP.CERAMIC	22 PF 10% 50 V CH
040030045091	C027	CAP.CERAMIC	5 PF 5% 50 V CH
040030045091	C028	CAP.CERAMIC	5 PF 5% 50 V CH
040032041001	C029	CAP.CERAMIC	10 PF 5% 50 V CH
OPTION : These parts are used for NICAM Stereo Option			
619325252201	C101	CAP.POLYPROPYLENE	0.220 UF 20% 250 VAC
621004004731	C412	CAP.POLYESTER	0.047 UF 10% 50 V
040034043311	C415	CAP.CERAMIC	330 PF 5% 50 V
042184502251	C416	CAP.ELECT.	2.2 UF 20% 50 V
040034043311	C418	CAP.CERAMIC	330 PF 5% 50 V
042184502251	C419	CAP.ELECT.	2.2 UF 20% 50 V
OPTION : These parts will be used for SECAM System			
042140161071	C251	CAP.ELECT.	100 UF 20% 16 V
040070021031	C252	CAP.CERAMIC	100 NF +80-20% 25 V F
621004001041	C253	CAP.M.POLYESTER	0.1 UF 10% 50 V
620004072241	C254	CAP.M.POLYESTER	0.22 UF 10% 63 V
OPTION : These parts will be used for TELETEXT Option			
040032041501	C728	CAP.CERAMIC	15 PF 5% 50 V CH
040070041021	C729	CAP.CERAMIC	1 NF +80-20% 50 V F
040040044711	C730	CAP.CERAMIC	470 PF 10% 50 V SL
040070042231	C731	CAP.CERAMIC	22 NF +80-20% 50 V F
040040044711	C732	CAP.CERAMIC	470 PF 10% 50 V SL
040040041011	C733	CAP.CERAMIC	100 PF 10% 50 V SL
040032041501	C734	CAP.CERAMIC	15 PF 5% 50 V CH
040040042701	C735	CAP.CERAMIC	27 PF 10% 50 V SL
040070041031	C736	CAP.CERAMIC	10 NF +80-20% 50 V F
621004004731	C737	CAP.POLYESTER	0.047 UF 10% 50 V
040032041801	C739	CAP.CERAMIC	18 PF 5% 50 V CH
621004004731	C740	CAP.POLYESTER	0.047 UF 10% 50 V
042446161061	C741	CAP.ELECT.	10 UF 20% 16 V
040040042211	C742	CAP.CERAMIC	220 PF 10% 50 V SL
621003006831	C743	CAP.POLYESTER	0.068 UF 5% 50 V
042184502251	C744	CAP.ELECT.	2.2 UF 20% 50 V
042140164771	C747	CAP.ELECT.	470 UF 20% 16 V
040070042231	C748	CAP.CERAMIC	22 NF +80-20% 50 V F
040070042231	C749	CAP.CERAMIC	22 NF +80-20% 50 V F
040070041031	C750	CAP.CERAMIC	10 NF +80-20% 50 V F
042140161071	C751	CAP.ELECT.	100 UF 20% 16 V
040070021031	C752	CAP.CERAMIC	100 NF +80-20% 25 V F
040070042231	C753	CAP.CERAMIC	22 NF +80-20% 50 V F
042140161071	C754	CAP.ELECT.	100 UF 20% 16 V
042446161061	C760	CAP.ELECT.	10 UF 20% 16 V
042446161061	C761	CAP.ELECT.	10 UF 20% 16 V
040830002011	VC726	CAP.CER.TRIMMER	20 PF

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	POS	COMPONENT	DESCRIPTION
OPTION :			
046247018001		TRANSISTOR	BC337
046926168331	Q051	TRANSISTOR	JC 558
046014055311	Q052	TRANSISTOR	JC 547 A
046472261011	Q053	TRANSISTOR	BF 869
046014055311	Q054	TRANSISTOR	JC 547 A
046472261011	Q055	TRANSISTOR	BF 869
046014055311	Q056	TRANSISTOR	JC 547 A
046472261011	Q057	TRANSISTOR	BF 869
046000000121	Q101	TRANSISTOR	BUZ90A
046000999001	Q121	TRANSISTOR	BD 135
046924114001	Q122	TRANSISTOR	BF 422
046014055311	Q123	TRANSISTOR	JC 547 A
046001259011	Q151	TRANSISTOR	BF 370
046014055311	Q181	TRANSISTOR	JC 547 A
046000022101	Q476	TRANSISTOR	PH2369
046014055311	Q479	TRANSISTOR	JC 547 A
046014055311	Q482	TRANSISTOR	JC 547 A
046014055311	Q483	TRANSISTOR	JC 547 A
046014055311	Q484	TRANSISTOR	JC 547 A
046014055311	Q485	TRANSISTOR	JC 547 A
046014055311	Q576	TRANSISTOR	BC368
046926168331	Q577	TRANSISTOR	JC 558
046926168331	Q578	TRANSISTOR	JC 558
046000999001	Q579	TRANSISTOR	BD 135
046000000051	Q580	TRANSISTOR	2SC1573A
046932183031	Q581	TRANSISTOR	BUH515D 6A 1500 V
046014055311	Q676	TRANSISTOR	JC 547 A
046014055311	Q677	TRANSISTOR	JC 547 A
046014055311	Q678	TRANSISTOR	JC 547 A
046014055311	Q800	TRANSISTOR	JC 547 A
046466263281	Q851	TRANSISTOR	BC 548 A
046466074281	Q852	TRANSISTOR	BC 548 B
046466074281	Q853	TRANSISTOR	BC 548 B
046466074281	Q854	TRANSISTOR	BC 548 B
046466074281	Q855	TRANSISTOR	BC 548 B
046466074281	Q856	TRANSISTOR	BC 548 B
046466074281	Q857	TRANSISTOR	BC 548 B
046466074281	Q858	TRANSISTOR	BC 548 B
046466074281	Q859	TRANSISTOR	BC 548 B
OPTION : These parts will be used whenever IC 2616 is used instead of IC 1521			
046014055311	Q472	TRANSISTOR	JC 547 A
046014055311	Q473	TRANSISTOR	JC 547 A
OPTION : These parts will not be used for PAL-I System			
046926168331	Q161	TRANSISTOR	JC 558
046926168331	Q162	TRANSISTOR	JC 558
046926168331	Q163	TRANSISTOR	JC 558
046014055311	Q477	TRANSISTOR	JC 547 A
046014055311	Q478	TRANSISTOR	JC 547 A
046014055311	Q681	TRANSISTOR	JC 547 A

	POS	COMPONENT	DESCRIPTION
OPTION : These parts will be used for TELETEXT Option			
046014055311	Q726	TRANSISTOR	JC 547 A
046014055311	Q727	TRANSISTOR	JC 547 A
046014055311	Q728	TRANSISTOR	JC 547 A
046014055311	Q729	TRANSISTOR	JC 547 A
046014055311	Q730	TRANSISTOR	JC 547 A

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	POS	COMPONENT	DESCRIPTION
OPTION :			
048210411001		DIODE	1N4148
048210411001		DIODE	1N4148
048322107011		DIODE	BB809
048210411001	D051	DIODE	1N4148
048210411001	D052	DIODE	1N4148
048210411001	D053	DIODE	1N4148
048210411001	D054	DIODE	1N4148
048210411001	D055	DIODE	1N4148
048210411001	D056	DIODE	1N4148
048321423201	D057	DIODE	1N4007
048320915221	D101	DIODE,BRIDGE	1.2 A 600 V
048000000021	D102	DIODE	BYV 95C
048000000011	D103	DIODE	BYD 33D
048000000011	D104	DIODE	BYD 33D
048000000011	D105	DIODE	BYD 33D
048542613621	D107	DIODE,ZENER	6.2 V
048000000021	D120	DIODE	BYV 95C
048000000021	D121	DIODE	BYV 95C
048000000021	D122	DIODE	BYV 95C
048000000141	D124	DIODE,TEMP.COMP.ZENER	UPC574J
048000000021	D125	DIODE	BYV 95C
048320605201	D126	DIODE,ZENER	12 V
048210411001	D181	DIODE	1N4148
048210411001	D182	DIODE	1N4148
048210411001	D186	DIODE	1N4148
048210411001	D187	DIODE	1N4148
048100255101	D241	DIODE,ZENER	5.1 V 0.5 W 5%
048210411001	D477	DIODE	1N4148
048210411001	D479	DIODE	1N4148
048210411001	D482	DIODE	1N4148
048210411001	D487	DIODE	1N4148
048210411001	D488	DIODE	1N4148
048210411001	D489	DIODE	1N4148
048210411001	D490	DIODE	1N4148
048210411001	D491	DIODE	1N4148
048210411001	D494	DIODE	1N4148
048210411001	D495	DIODE	1N4148
048210411001	D496	DIODE	1N4148
048210411001	D497	DIODE	1N4148
048210411001	D498	DIODE	1N4148
048210411001	D499	DIODE	1N4148
048321423201	D576	DIODE	1N4007
048990222221	D577	DIODE	BY 228
048000000001	D578	DIODE	BYV 95B
048000000021	D579	DIODE	BYV 95C
048544926101	D580	DIODE,ZENER	7.5V
048000000021	D581	DIODE	BYV 95C
048210411001	D733	DIODE	1N4148
048000000191	D801	DIODE	BB405
048210411001	D802	DIODE	1N4148
048210200001	D851	DIODE	BAT85

	POS	COMPONENT	DESCRIPTION
048210200001	D852	DIODE	BAT85
048210411001	D853	DIODE	1N4148
048210411001	D854	DIODE	1N4148
048210411001	D855	DIODE	1N4148

OPTION : These parts will be used whenever IC 2616 is used instead of IC 1521

048210411001	D472	DIODE	1N4148

OPTION : These parts are used for B/G or SECAM-LL' Systems

048210411001	D486	DIODE	1N4148

OPTION : These parts will not be used for PAL-I System

048210411001	D161	DIODE	1N4148
048210411001	D162	DIODE	1N4148
048210411001	D163	DIODE	1N4148

OPTION : These parts are used for FLOF option (for CTV models with TELETEXT)

048100255101	D728	DIODE,ZENER	5.1 V 0.5 W 5%

OPTION : These parts will be used for TELETEXT Option

048210411001	D727	DIODE	1N4148
048210411001	D729	DIODE	1N4148
048210411001	D730	DIODE	1N4148
048210411001	D731	DIODE	1N4148
048210411001	D732	DIODE	1N4148
048210411001	D734	DIODE	1N4148
048210411001	D735	DIODE	1N4148

OPTION :

608780002411	EM120	COIL	FILTER 3.5x10x1.3 H
608780002411	EM577	COIL	FILTER 3.5x10x1.3 H
608780002411	EM578	COIL	FILTER 3.5X10X1.3H
608080000071	L051	COIL,AXIAL FIXED	100 UH J
608380002361	L121	COIL,CHOKE	150 UH
608380002361	L122	COIL,CHOKE	150 UH
608980000111	L151	COIL,AXIAL FIXED	1 UH J
608000000021	L152	COIL,AXIAL FIXED	10 UH J
608080000161	L181	COIL,AXIAL FIXED	6.8 UH J
608000000021	L182	COIL,AXIAL FIXED	10 UH J
608980000101	L476	COIL,AXIAL FIXED	12 UH J
608980004001	L576	COIL	E-W INDUCTOR
608080000191	L676	COIL,AXIAL FIXED	8.2 UH J
608080000191	L678	COIL,AXIAL FIXED	8.2 UH J
608980000111	L680	COIL,AXIAL FIXED	1 UH J
608000000021	L730	COIL,AXIAL FIXED	10 UH J
608080000161	L801	COIL,AXIAL FIXED	6.8 UH J
608280001881	T181	COIL,TOKO	40 MHz
608280001611	T352	COIL,TOKO	7M 5.7MHz IFT
608280001601	T353	COIL,TOKO	38.9 MHz IFT
608080003041	T851	COIL,TOKO	38.9 MHZ

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	POS	COMPONENT	DESCRIPTION
OPTION : These parts will not be used for PAL-I System			
608000000021	L326	COIL,AXIAL FIXED	10 UH J
608000000021	L332	COIL,AXIAL FIXED	10 UH J
608180000111	L901	COIL,AXIAL FIXED	2.5 MH J
OPTION : These parts are used FTZ Option			
608280001871	T026	COIL,TOKO	31.9 MHz
608280001881	T027	COIL,TOKO	40 MHz
OPTION : These parts will be used for TELETEXT Option			
608180000101	L726	COIL,AXIAL FIXED	15 UH
OPTION :			
049030000501	EM182	CRYSTAL,QUARTZ	4.433619 MHz
049030000151	EM476	CRYSTAL	10.00 MHz
049030000081	EM801	CRYSTAL	8.192 MHz
OPTION : These parts will not be used for PAL-I System			
049030000151	EM901	CRYSTAL	10.00 MHz
OPTION : These are not used for Teletext with FLOF Option except NICAM-L Stereo Option			
049030000451	EM729	CRYSTAL	9.8304MHZ
OPTION : These parts will be used for TELETEXT Option			
049030000161	EM726	CRYSTAL	13.875MHz
OPTION :			
045000000761	IC101	IC	TDA4605-5
045018113181	IC122	IC	LM7808 8V 1A
045238103081	IC123	IC	LM7805 5V 1A
045000000851	IC328	IC	TDA 3866
045000000701	IC401	IC	TDA 8425
045100311401	IC426	IC	TDA 1521 (TDA 2615)
045101070211	IC476	IC	CTV352S
045000000061	IC477	IC	PCF 8582P
045000000831	IC576	IC	TDA 3654
045000000841	IC801	IC	SAA 7283 ZP
045000001001	IC851	IC	TDA 4470 B
OPTION : These parts will be used whenever IC 2616 is used instead of IC 1521			
045000001051	IC476	IC	TDA2616
OPTION : These parts are used only for B/G System			
045190160321	IC327	IC	TDA 9821
OPTION : These parts are used for B/G or D/K System			
045000000741	IC327	IC	TDA 9820
OPTION : These parts are used for D/K System or NICAM-L Stereo Option			
045238103251	IC728	IC	SAA5243P/H
OPTION : These parts are used except D/K System or NICAM-L Stereo Option			
045076070431	IC728	IC	SAA5243P/T

	POS	COMPONENT	DESCRIPTION
OPTION : These parts will not be used for PAL-I System			
045000000751	IC901	IC	TDA 9840
OPTION : These are not used for Teletext with FLOF Option except NICAM-L Stereo Option			
045000000071	IC727	IC (FLOF)	PCF84C81/CTV972(MAB8441P)
OPTION : These parts will be used for SECAM System			
045000000711	IC181	IC	TDA 8362
045000000721	IC241	IC	TDA 4661
045000000731	IC251	IC	TDA 8395
OPTION : These parts can be used for all Systems except SECAM System			
045190083671	IC181	IC	TDA 8361
045000000881	IC241	IC	TDA 4662
OPTION : These parts are used for Teletext Option except NICAM-L Stereo Option			
045000000001	IC729	IC	GM76C88AL (FCB61C65-70P)
045076070401	IC730	IC	SAA5231
OPTION :			
037730007801	FI852	FILTER SAW	K3953M
037730007771	FI853	FILTER SAW	K9453M
OPTION : These parts are used for B/G System			
037730007071	FI181	FILTER	5.5MHZ , TRAP
037730008211	FI326	FILTER,CERAMIC	5.5 MHz SFE 5.5 MB
037730007841	FI329	FILTER SAW	IF 38.9 MHZ FILTER
037730008211	FI329	FILTER,CERAMIC	5.5 MHz SFE 5.5 MB
OPTION : These parts are used for B/G or D/K System			
037730007731	FI183	FILTER SAW	K-2950
OPTION : These parts are used for D/K System			
037730007091	FI182	FILTER	6.5MHZ CER.TRAP
049030000531	FI330	FILTER,CERAMIC	6.5 MHz SFE 6.5 MB
OPTION : These parts will not be used for PAL-I System			
037720007861	FI331	FILTER,CERAMIC	5.74 MHz SFE 5.74MC2-MB
037720007861	FI332	FILTER,CERAMIC	5.74 MHz SFE 5.74MC2
OPTION : These parts are used for PAL-I System with NICAM Stereo Option			
037720007801		FILTER	40.4MHZ CER.TRAP
OPTION : These parts are used for PAL or B/G Systems			
049040000531	FI183	FILTER SAW	G-1962
OPTION : These parts will be used for PAL-I System			
037720007821	FI182	FILTER	6 MHZ CER.TRAP
037790007871	FI183	FILTER SAW	OFWJ1952M
037720007831	FI352	FILTER,CERAMIC	6 MHz SFE 6.0 MB
OPTION :			
034710303641	EM105	POSISTOR	96209PH95175 (30 OHM)

	POS	COMPONENT	DESCRIPTION
OPTION :			
611180015021	VR051	TRIMPOT,CARBON	5 K 20% 0.5W HORZ.
611180012021	VR052	TRIMPOT,CARBON	2 K 20% 0.5W HORZ.
611180015021	VR053	TRIMPOT,CARBON	5 K 20% 0.5W HORZ.
611180012021	VR054	TRIMPOT,CARBON	2 K 20% 0.5W HORZ.
611180015021	VR055	TRIMPOT,CARBON	5 K 20% 0.5W HORZ.
611380105021	VR101	TRIMPOT,CARBON	5 K 20% 0.5W VERT.
611380011031	VR181	TRIMPOT,CARBON	10 K 20% 0.5W VERT.
611380011031	VR182	TRIMPOT,CARBON	10 K 20% 0.5W VERT.
611380015011	VR576	TRIMPOT,CARBON	500 R 20% 0.5W VERT.
611380012031	VR577	TRIMPOT,CARBON	20 K 20% 0.5W VERT.
611380012031	VR578	TRIMPOT,CARBON	20 K 20% 0.5W VERT.
611380105021	VR579	TRIMPOT,CARBON	5 K 20% 0.5W VERT.PIHER
611380011031	VR851	TRIMPOT,CARBON	10 K 20% 0.5W VERT.
611380011031	VR852	TRIMPOT,CARBON	10 K 20% 0.5W VERT.
611380011031	VR853	TRIMPOT,CARBON	10 K 20% 0.5W VERT.
OPTION : These parts will not be used for PAL-I System			
611380011021	VR326	TRIMPOT,CARBON	1 K 20% 0.5W VERT.
OPTION :			
075030510071		CONNECTOR B. TO BOARD	5 P FEMALE
075100211021	EM102	CONNECTOR 2P	5285-02A (MAINS)
075100211781	EM106	CONNECTOR 2P	5287-02A (DEGAUSS.)
075030710871	EM113	CONNECTOR B. TO BOARD	7 P FEMALE
075030611051	EM116	CONNECTOR B. TO BOARD	6 P FEMALE
075030261001	EM580A	CONNECTOR 2P	5283-02A (HORZ.)
075030211001	EM580B	CONNECTOR 2P	5279-02A (VERT.)
002052000401	WC051	WIRE CONNECTOR	5 PIN WIRE CON.W 2 CNN
075030511001	WC051	CONNECTOR	5P
075030411011	WC052	CONNECTOR	4P (3P)
002032000001	WC406	WIRE CONNECTOR	3 PIN WIRE CON.W 2 CNN
075030311021	WC406	CONNECTOR	3P
002042000041	WC477	WIRE CONNECTOR	4 PIN WIRE CON.W 2 CNN
075030411001	WC477	CONNECTOR	4P
075030411001	WC479	CONNECTOR	4P
002042000031	WC576	WIRE CONNECTOR	4 (3P) PIN WIRE CON.W 2 CNN
075030411011	WC576	CONNECTOR	4P (3P)
075030211011	WC577	CONNECTOR	2P
075030311021	WC732	CONNECTOR	3P

C733	CONNECTOR	4P	075030411001 W
C734	CONNECTOR	5P	075030511001 W

t be used for PAL-I System

M114	CONNECTOR B. TO BOARD	7 P FEMALE	OPTION : These parts will no
M115	CONNECTOR B. TO BOARD	6 P FEMALE	075030710871 E
C326	WIRE CONNECTOR	2 PIN WIRE CON.W 2 CNN	075030611051 E
C326	CONNECTOR	2P	002022000011 W
C327	CONNECTOR	2P	075030211011 W
			075030211011 W

	POS	COMPONENT	DESCRIPTION
OPTION : These parts will be used for TELETEXT Option			
002042000011	WC726	WIRE CONNECTOR	4 PIN WIRE CON.W 2 CNN
075030411001	WC726	CONNECTOR	4P
002022000001	WC731	WIRE CONNECTOR	2 PIN WIRE CON.W 2 CNN
075030211011	WC731	CONNECTOR	2P
OPTION :			
Inch and Model name ?!!		PREAMPLIFIER	For all 28" CTV models
OPTION :			
602470003360	EM111	TRANSFORMER	SUPLY (SMPS)
602300033051	EM576	TRANSFORMER	HORIZONTAL DRIVE
604200000240	EM580	FBT	TRANSFORMER FLYBACK
OPTION : These parts will not be used for PAL-I System			
616800020051	EM151	TUNER	SAMSUNG
OPTION : These parts will be used for PAL-I System			
	EM151	TUNER	SAMSUNG
OPTION : These are PLASTIC parts			
Inch and Model name ?!!		Switch Power	For all 28" CTV models
OPTION :			
Inch and Model name ?!!		Socket	CRT
OPTION :			
002099502001	EM102	HARNESS ASS'Y 2P, 1 CNN	BROWN/BLUE (MAINS) 70 CM H4
002021000301	EM106	HARNESS ASS'Y 2P, 1 CNN	BLACK/WHITE (DEGAUSS.) 35 CM H2
002344500031	EM580A	HARNESS ASS'Y 2P, 1 CNN	RED/WHITE (HORIZONTAL) 40 CM H3
002344500021	EM580B	HARNESS ASS'Y 2P, 1 CNN	BROWN/BLACK (VERTICAL) 40 CM H'
OPTION :			
067420001811	EM103	FUSE,SLOW	3.15 A / 250 V
OPTION : These parts will not be used for PAL-I System			
002528554031	EM102	CORD POWER	AC CORD 2X500 UH
OPTION : These parts will be used for PAL-I System			
002528503011	EM102	CORD POWER	LTBS 0.75 SQM 3M W PLUG
OPTION : These are ASSY parts			
Inch and Model name ?!!		Complete GERMAN Stereo + TXT	For all 28" CTV models
Inch and Model name ?!!		Complete Keyboard PCB	For all 28" CTV models
Inch and Model name ?!!		Complete NICAM Stereo + TXT PC	For all 28" CTV models
Inch and Model name ?!!		CRT PCB	For all 28" CTV models
Inch and Model name ?!!		East/West Correction Board	For all 28" CTV models
Inch and Model name ?!!		Main Board with GERMAN Stereo	For all 28" CTV models
Inch and Model name ?!!		Main Board with NICAM Stereo +	For all 28" CTV models
Inch and Model name ?!!		Remote Control	For all 28" CTV models
Inch and Model name ?!!		Speaker	For all 28" CTV models
Inch and Model name ?!!		Tube	For all 28" CTV models
Inch and Model name ?!!		Tweeter	For all 28" CTV models

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	POS	COMPONENT	DESCRIPTION
OPTION : These are PLASTIC parts			
Inch and Model name ?!!		Cabinet Foot	For all 28" CTV models
Inch and Model name ?!!		Control Panel Label	For all 28" CTV models
Inch and Model name ?!!		CRT Bracket	For all 28" CTV models
Inch and Model name ?!!		Display Window	For all 28" CTV models
Inch and Model name ?!!		Door Lock	For all 28" CTV models
Inch and Model name ?!!		Front cabinet	For all 28" CTV models
Inch and Model name ?!!		Front Door	For all 28" CTV models
Inch and Model name ?!!		Holder for Main PCB	For all 28" CTV models
Inch and Model name ?!!		Holder for Rear Cabinet	For all 28" CTV models
Inch and Model name ?!!		Logo for Front cabinet	For all 28" CTV models
Inch and Model name ?!!		On-off Button	For all 28" CTV models
Inch and Model name ?!!		Power Cord	For all 28" CTV models
Inch and Model name ?!!		Rear Cabinet	For all 28" CTV models
Inch and Model name ?!!		Speaker Cabinet	For all 28" CTV models
Inch and Model name ?!!		Speaker Grill	For all 28" CTV models
Inch and Model name ?!!		Speaker Holder	For all 28" CTV models

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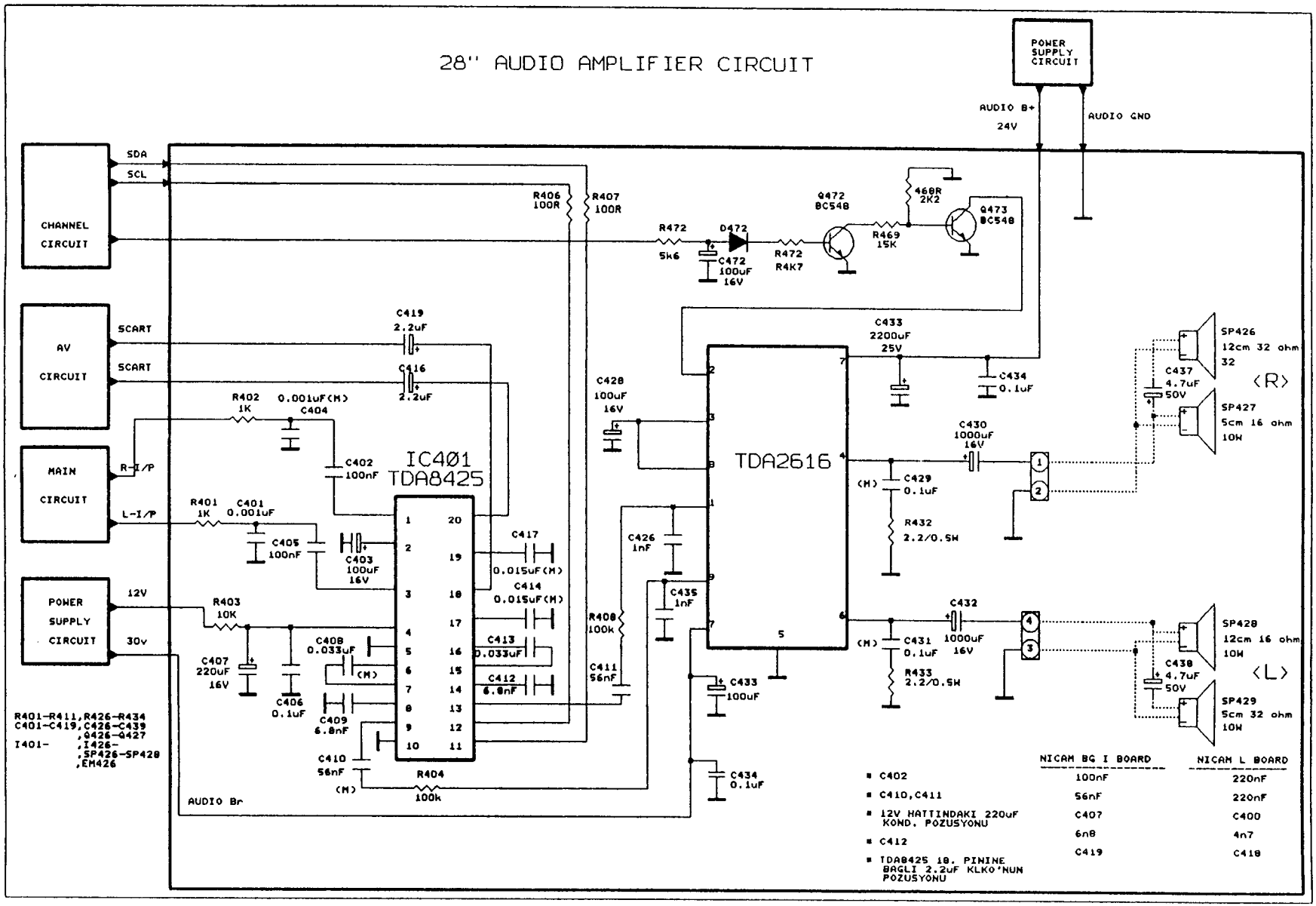
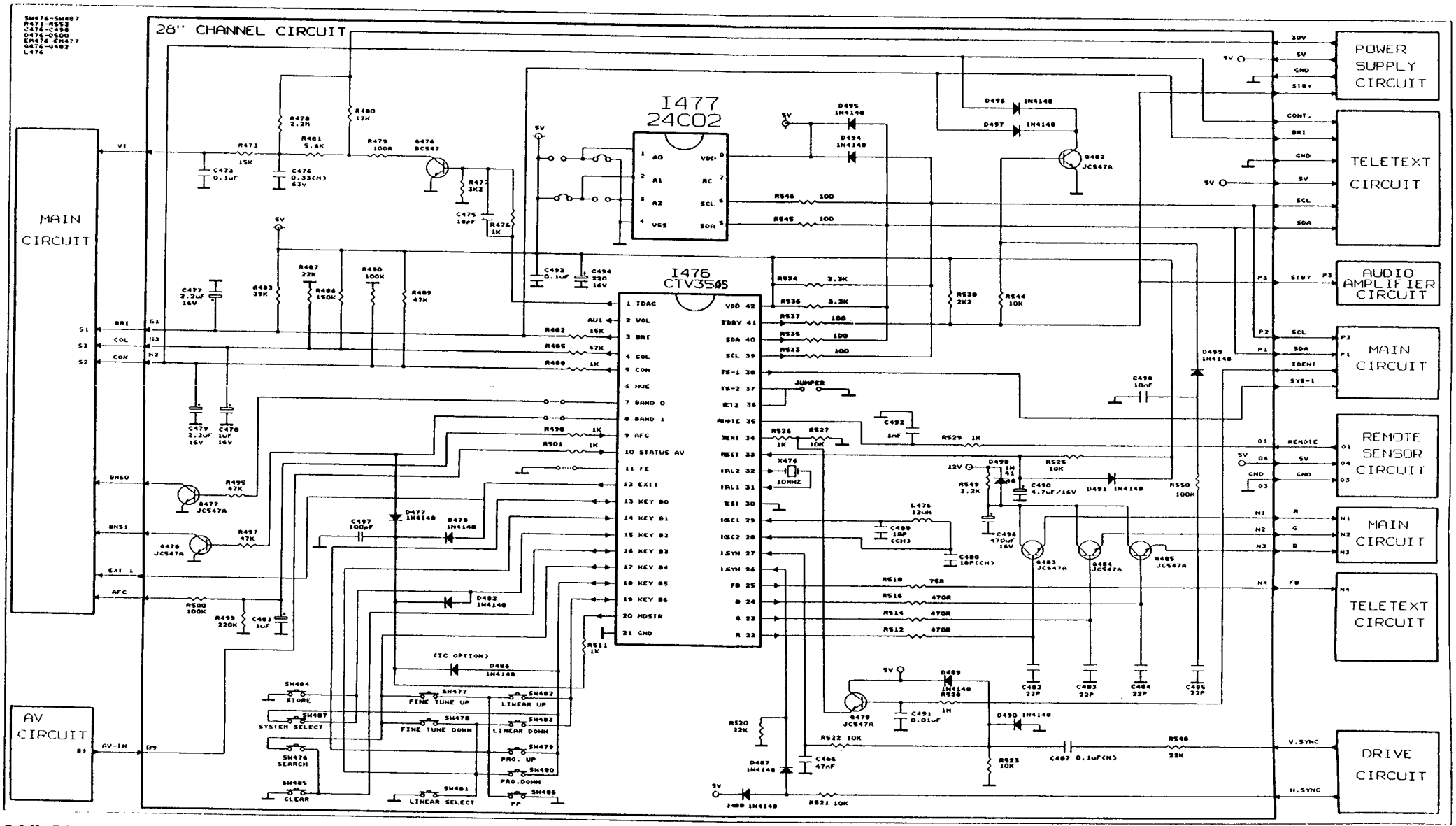


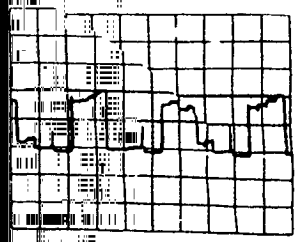
28" AUDIO AMPLIFIER CIRCUIT

* IF YOUR TV SET IS NICAM STEREO INSTEAD OF GERMAN STEREO,
THIS AREA MUST BE CHANGED WITH NICAM 1 AND NICAM 2 SCHEMATICS



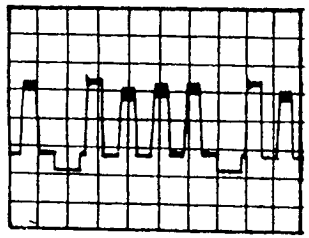
28" CHANNEL CIRCUIT

9) 20 usn/div 2 volt/div



C-181 pin 19

10) 10 usn/div 2 volt/div



IC-181 pin 18

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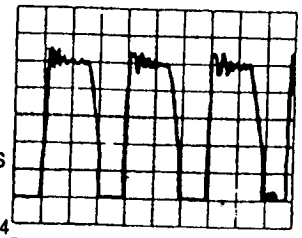
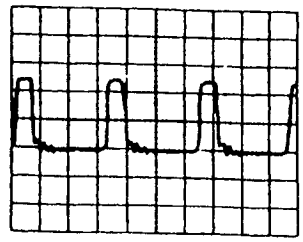
1) 5 usn/div 100 volt/div



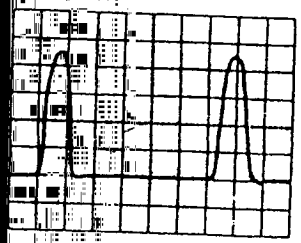
Collector of Q101

2) 20 usn/div 2volt/div



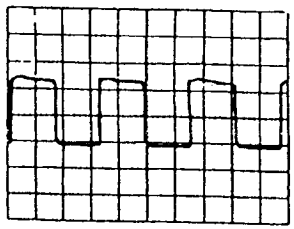
IC-476 pin 26

11) 10 usn/div 250 volt/div



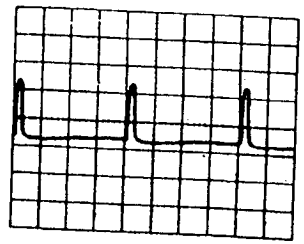
Collector of Q 581

12) 20 usn/div 0.5 volt/div



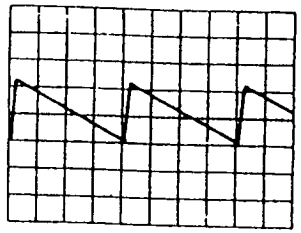
IC-181 pin 37

3) 5m sn/div 2volt/div



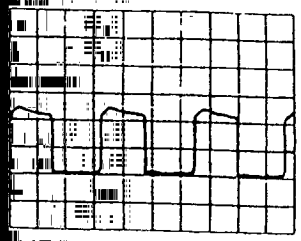
IC-476 pin 27

4) 5 msn/div 0,5 volt/div



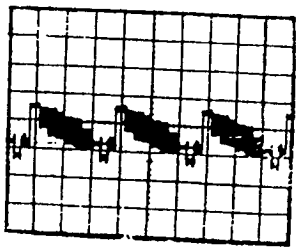
IC-181 pin 41

13) 20 usn/div 50 volt/div



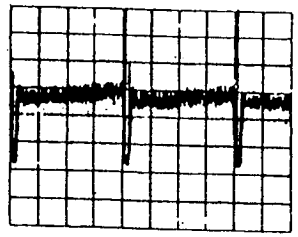
Collector of Q 580

14) 20 usn/div 1 volt/div



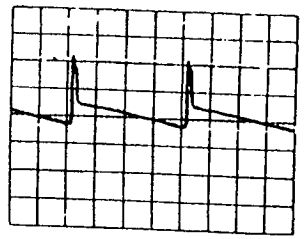
IC-181 pin 13

5) 5 msn/div 1 volt/div



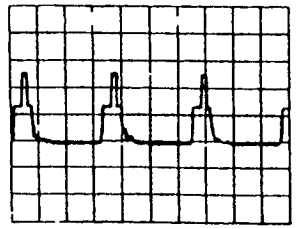
IC-576 pin 5

6) 5 msn/div 20 volt/div

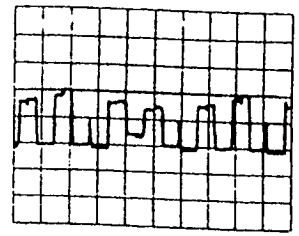


IC-576 pin 3

7) 20 usn/div 2 volt/div



8) 20 usn/div 2 volt/div



OSCILLOSCOPE SHAPES

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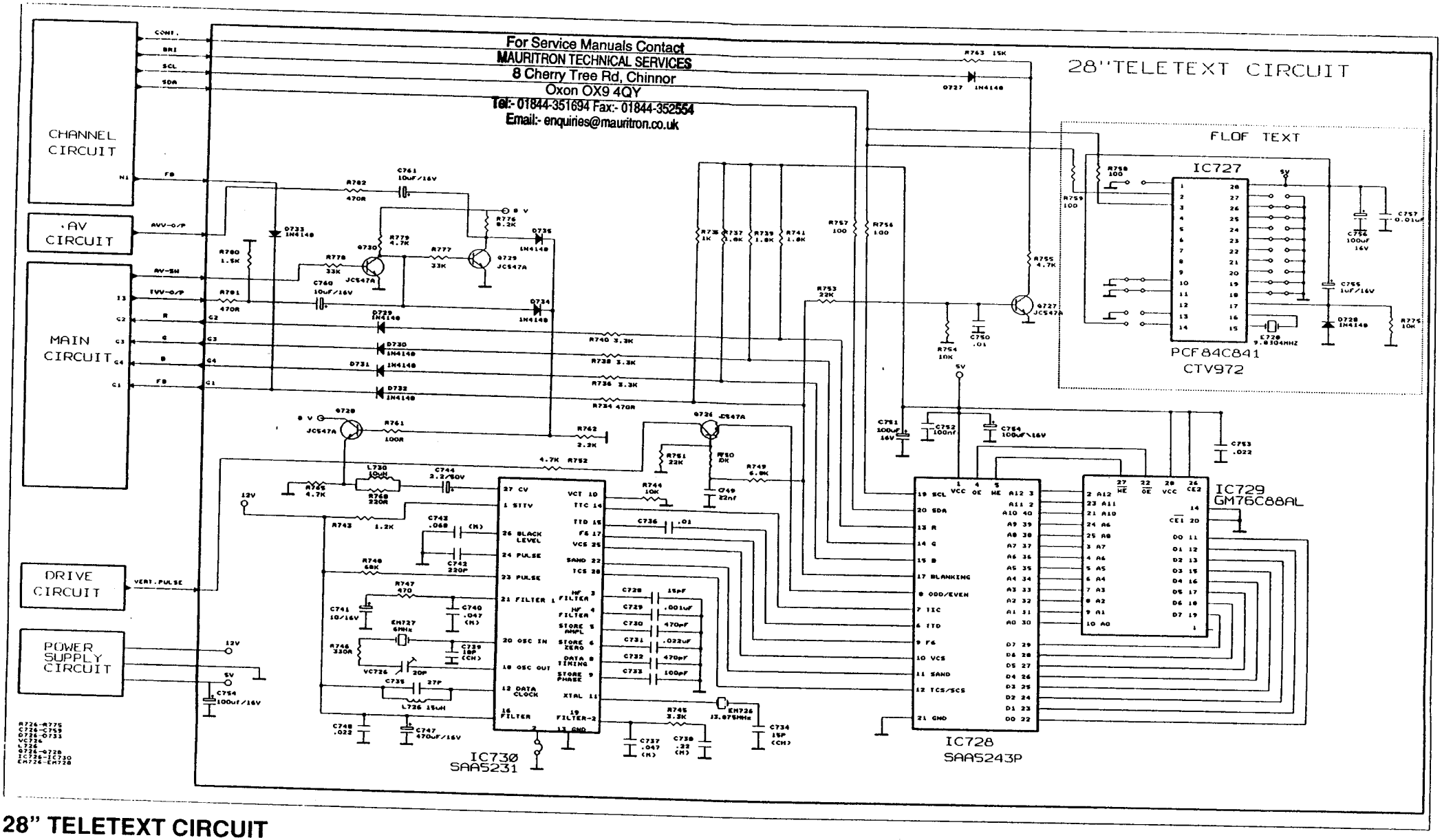

28" TELETEXT CIRCUIT

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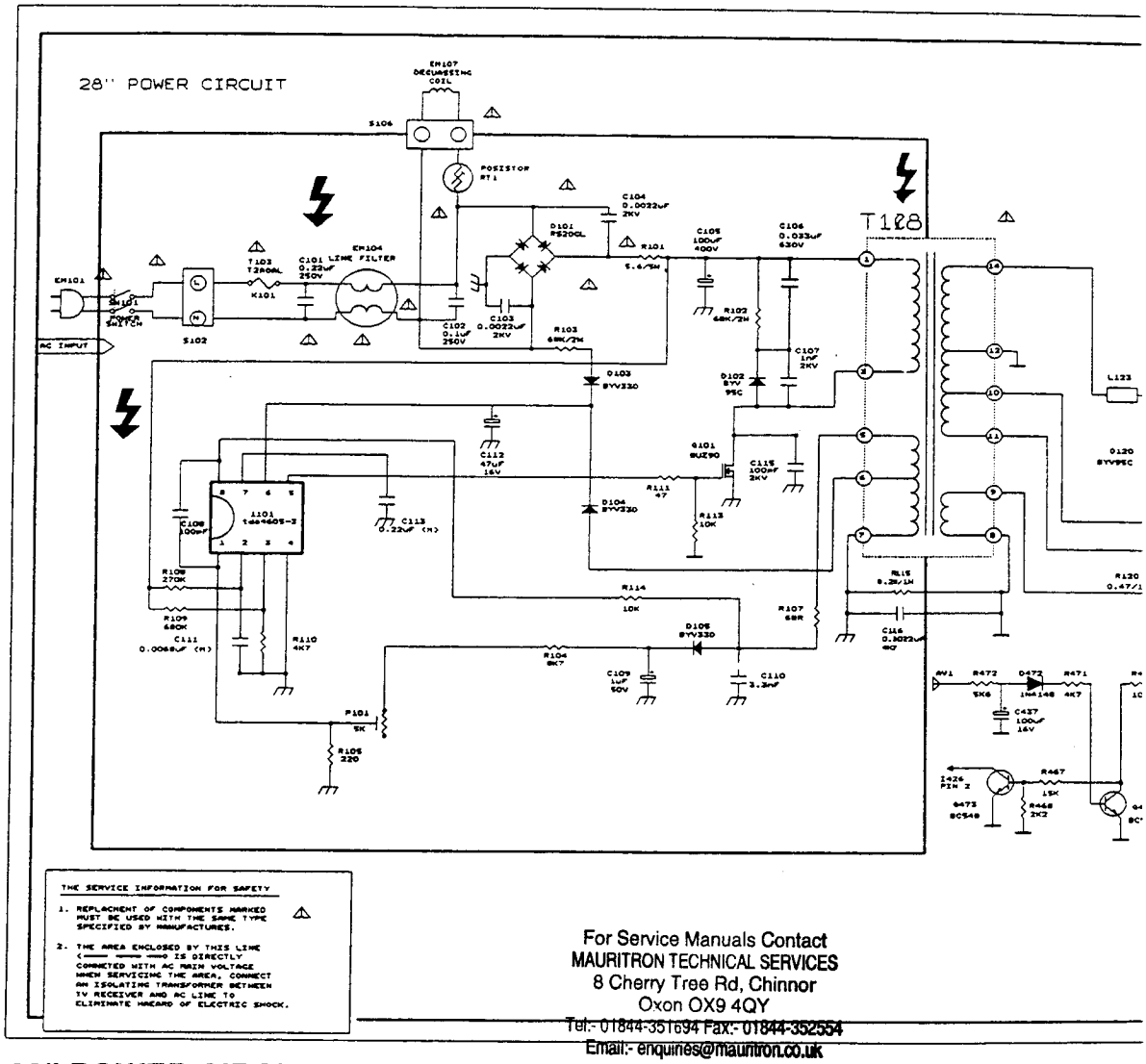

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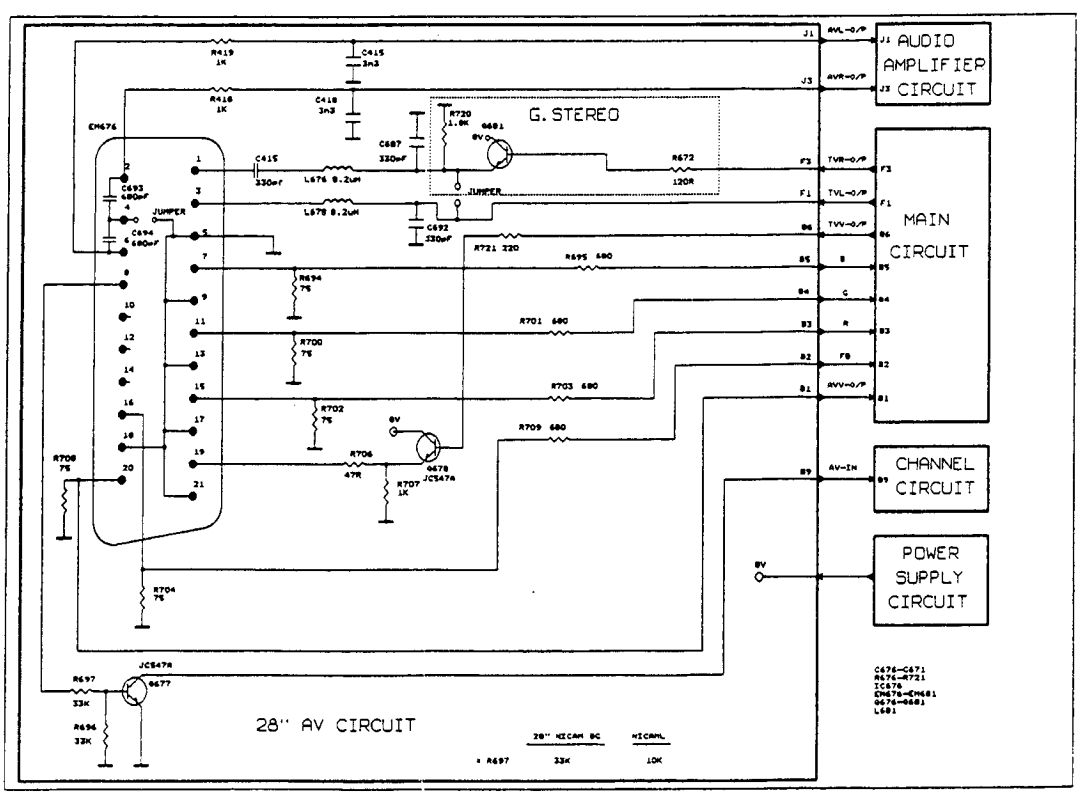
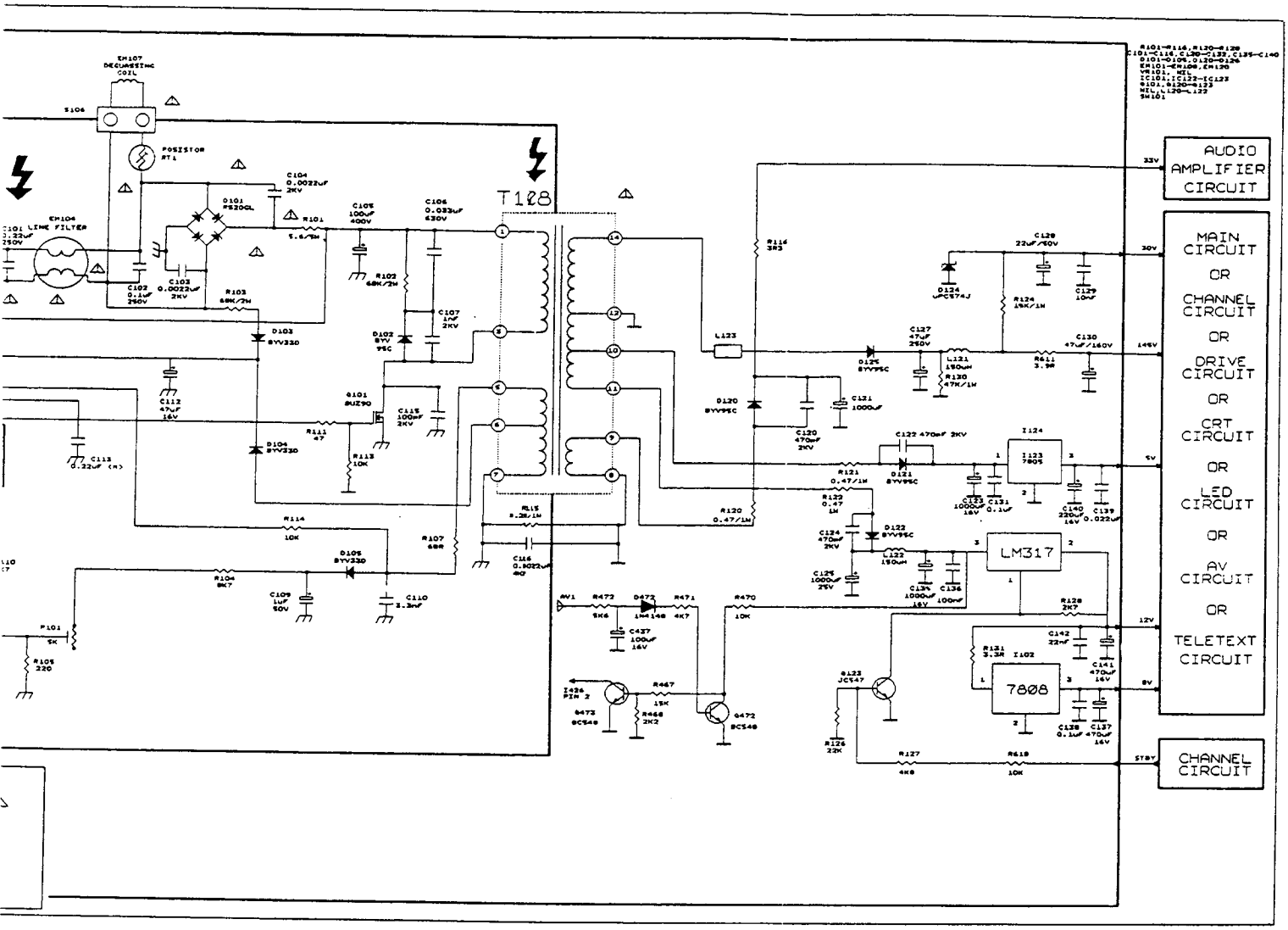
28" POWER CIRCUIT



28" AV CIRCUIT



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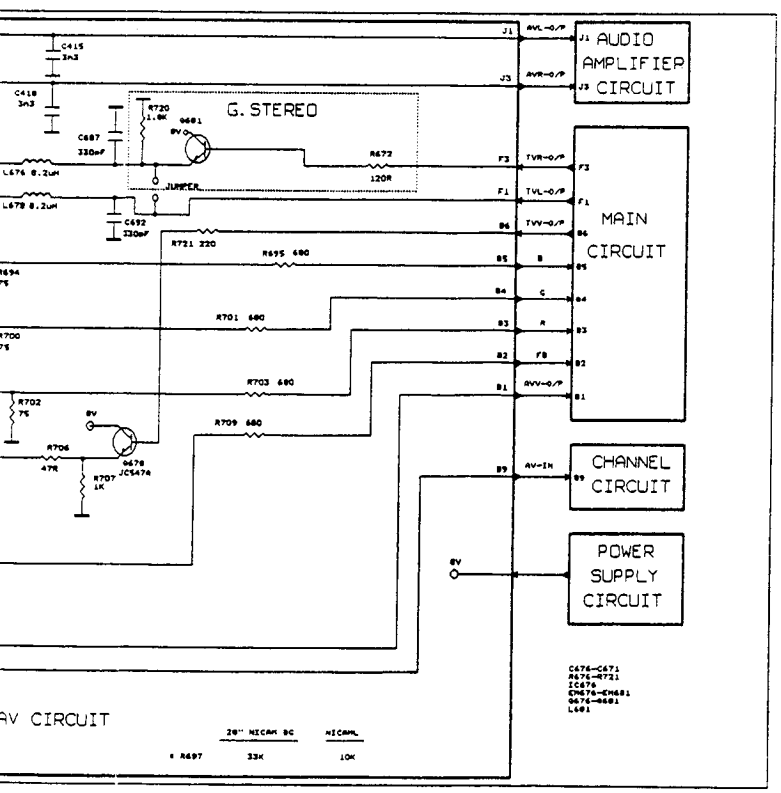
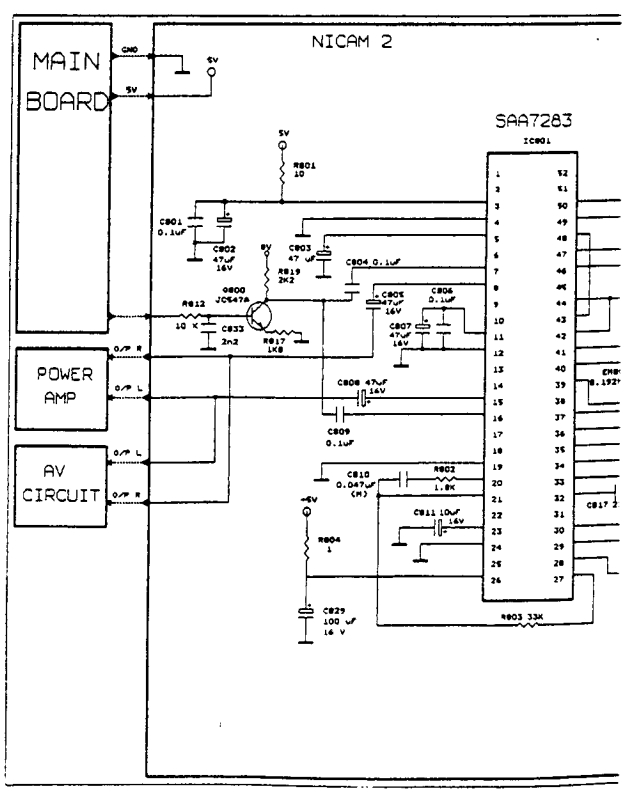
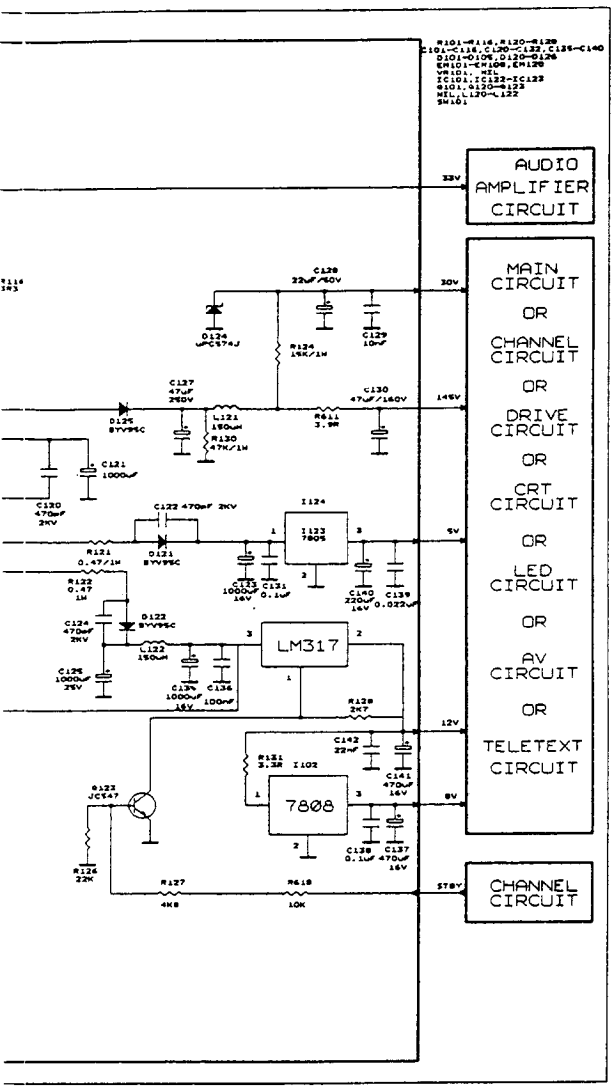




28" NICAM 2 CIRCUIT



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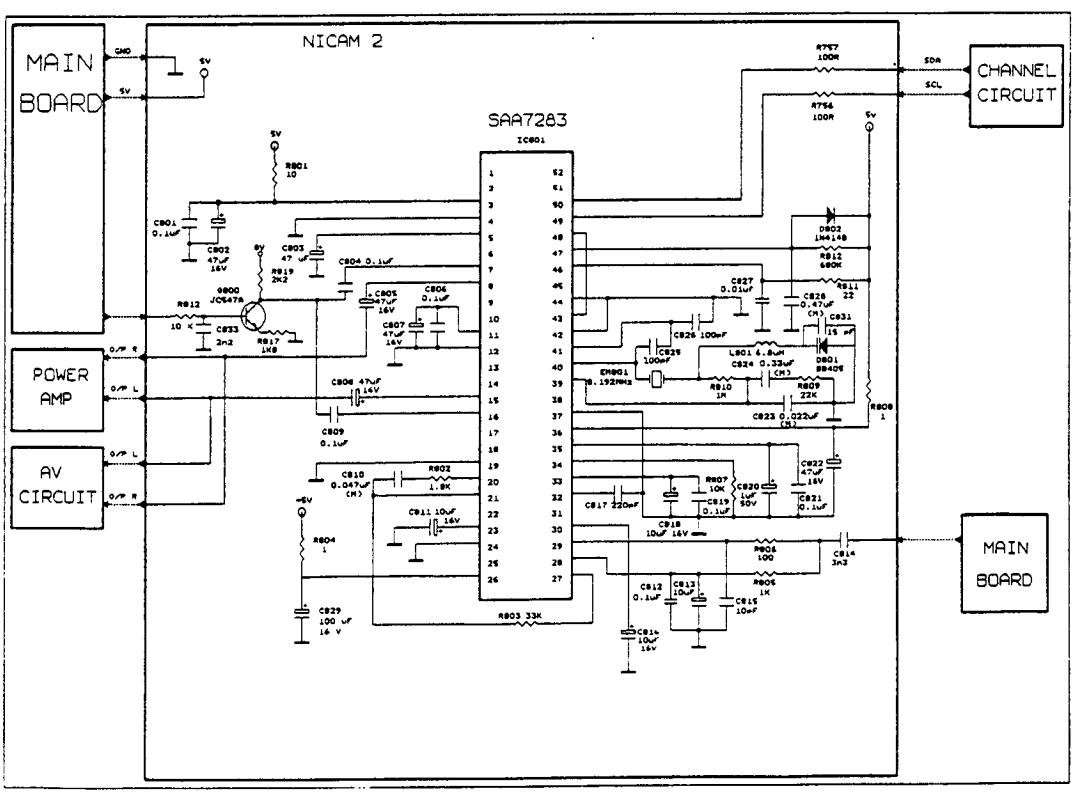
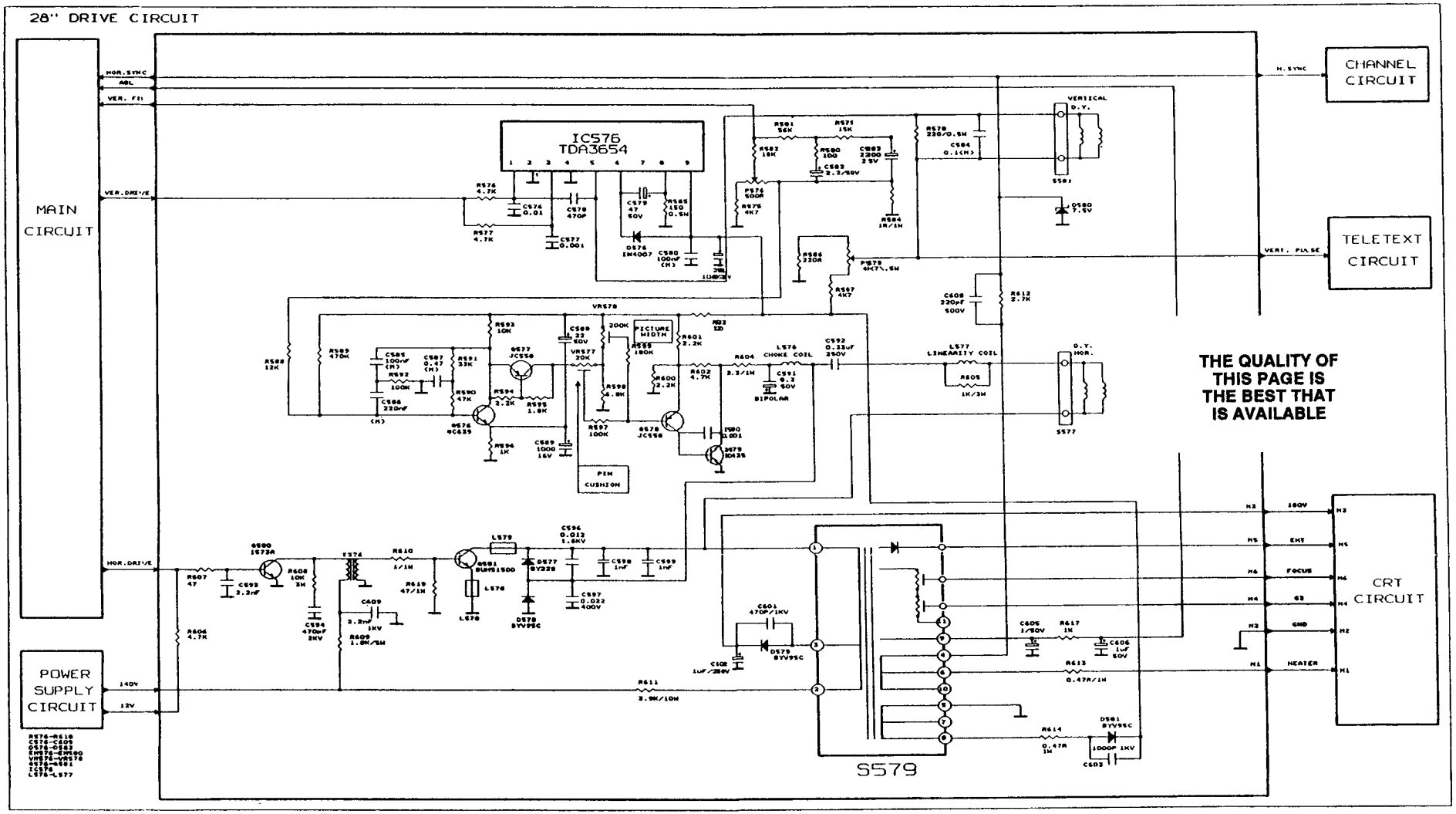


28" NICAM 2 CIRCUIT



28" DRIVE CIRCUIT

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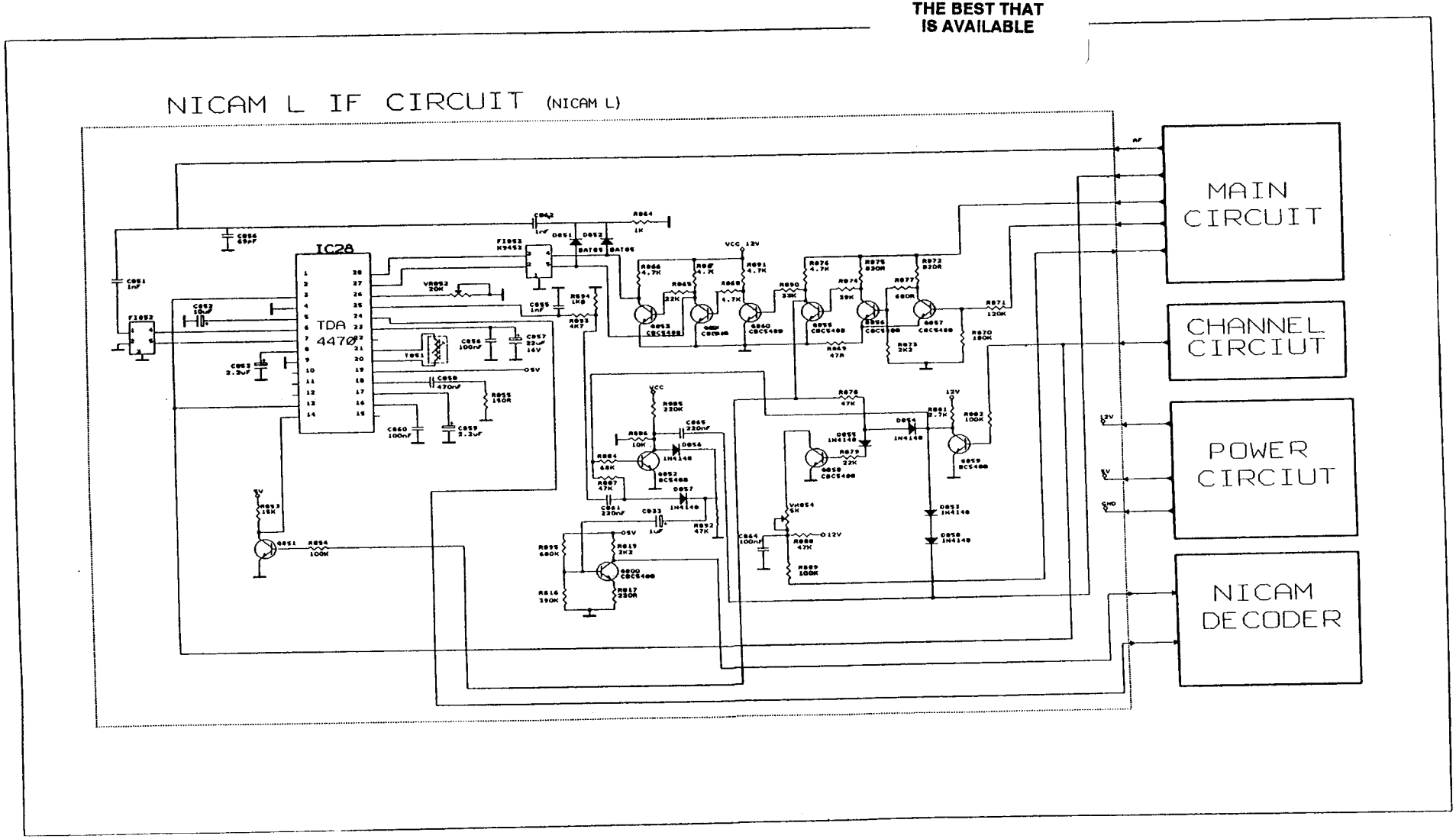

28" NICAM L IF CIRCUIT

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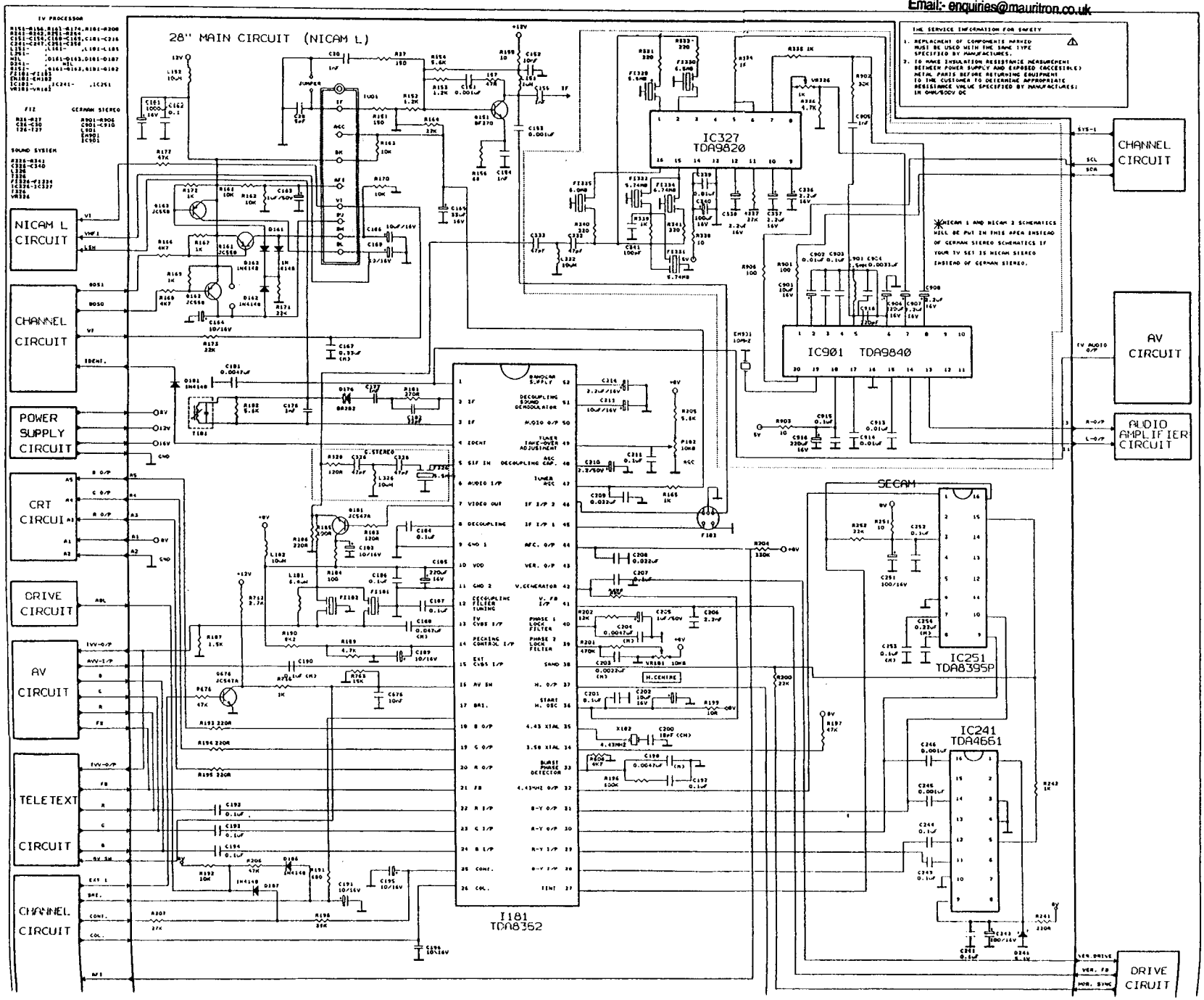
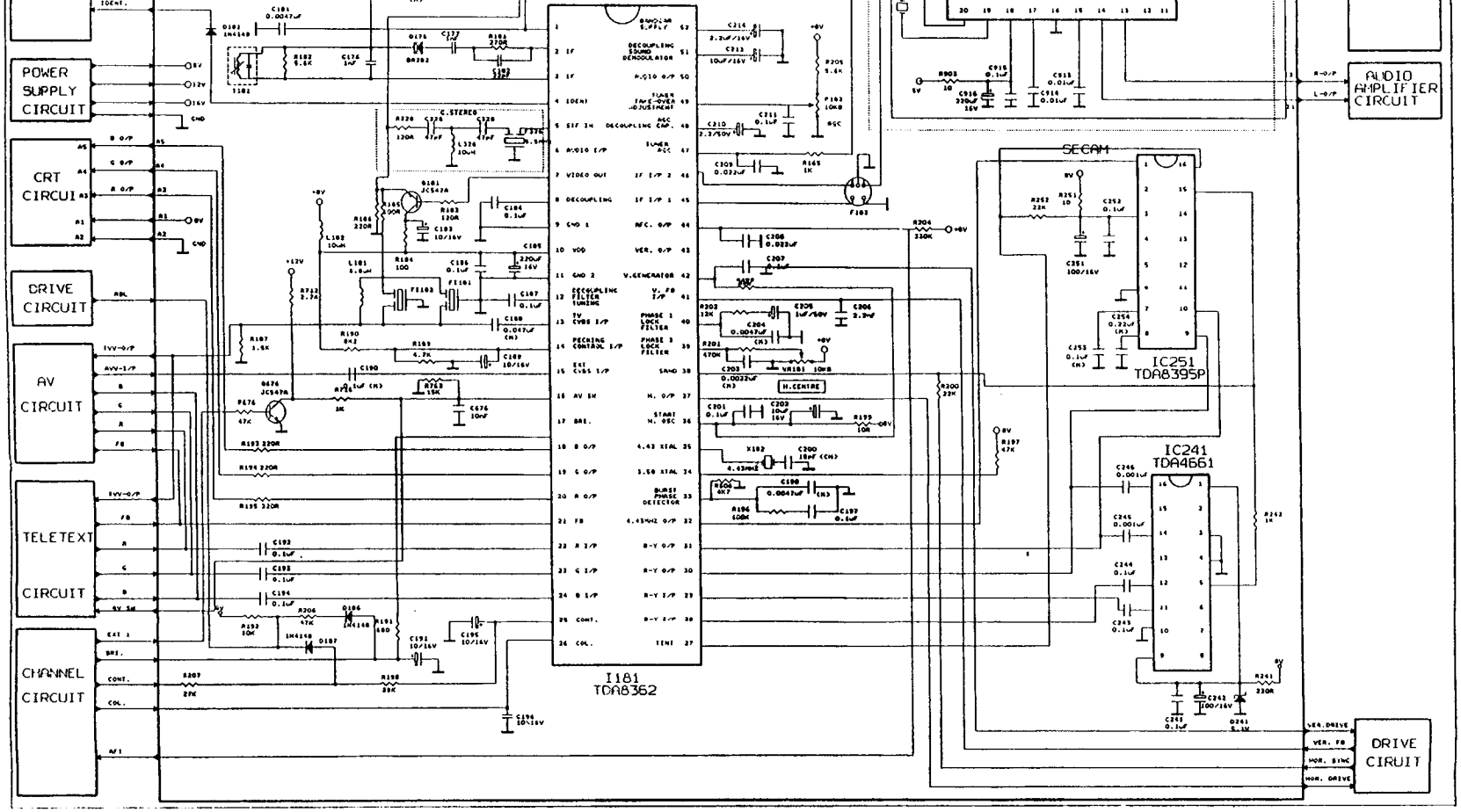
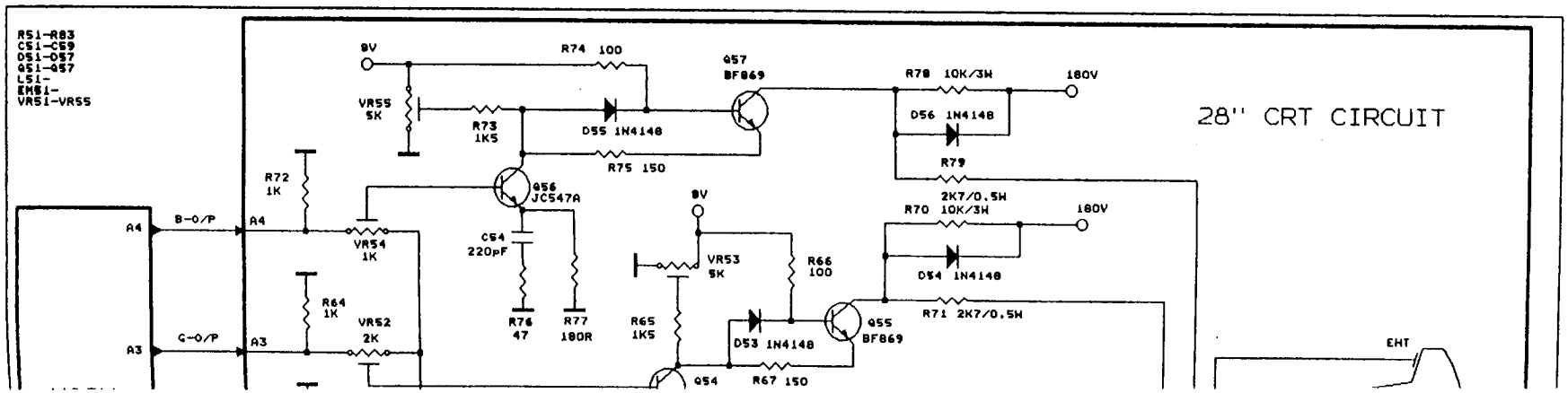
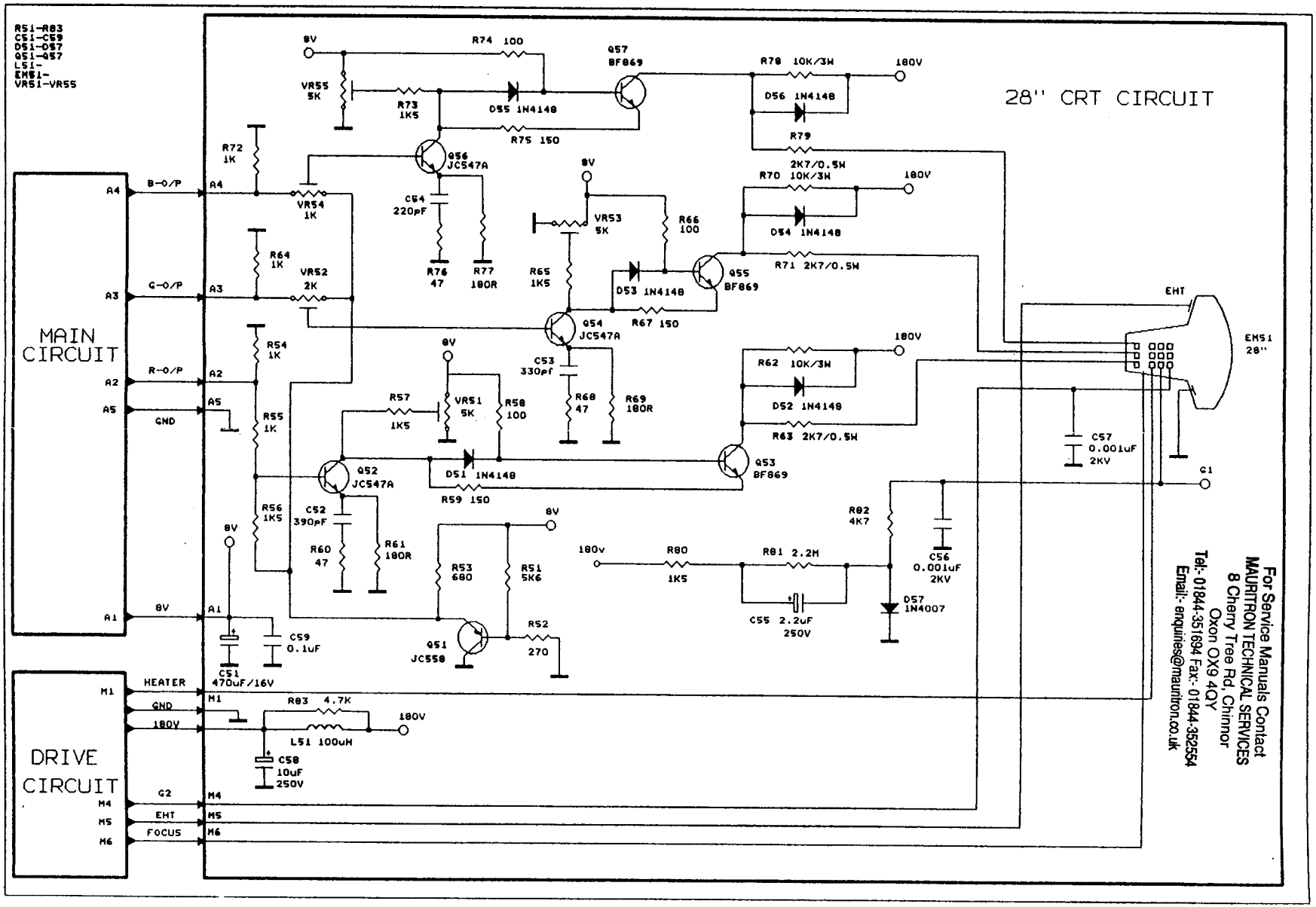




28" MAIN CIRCUIT (NICAM L)



28" MAIN CIRCUIT (NICAM L)



28" CRT CIRCUIT

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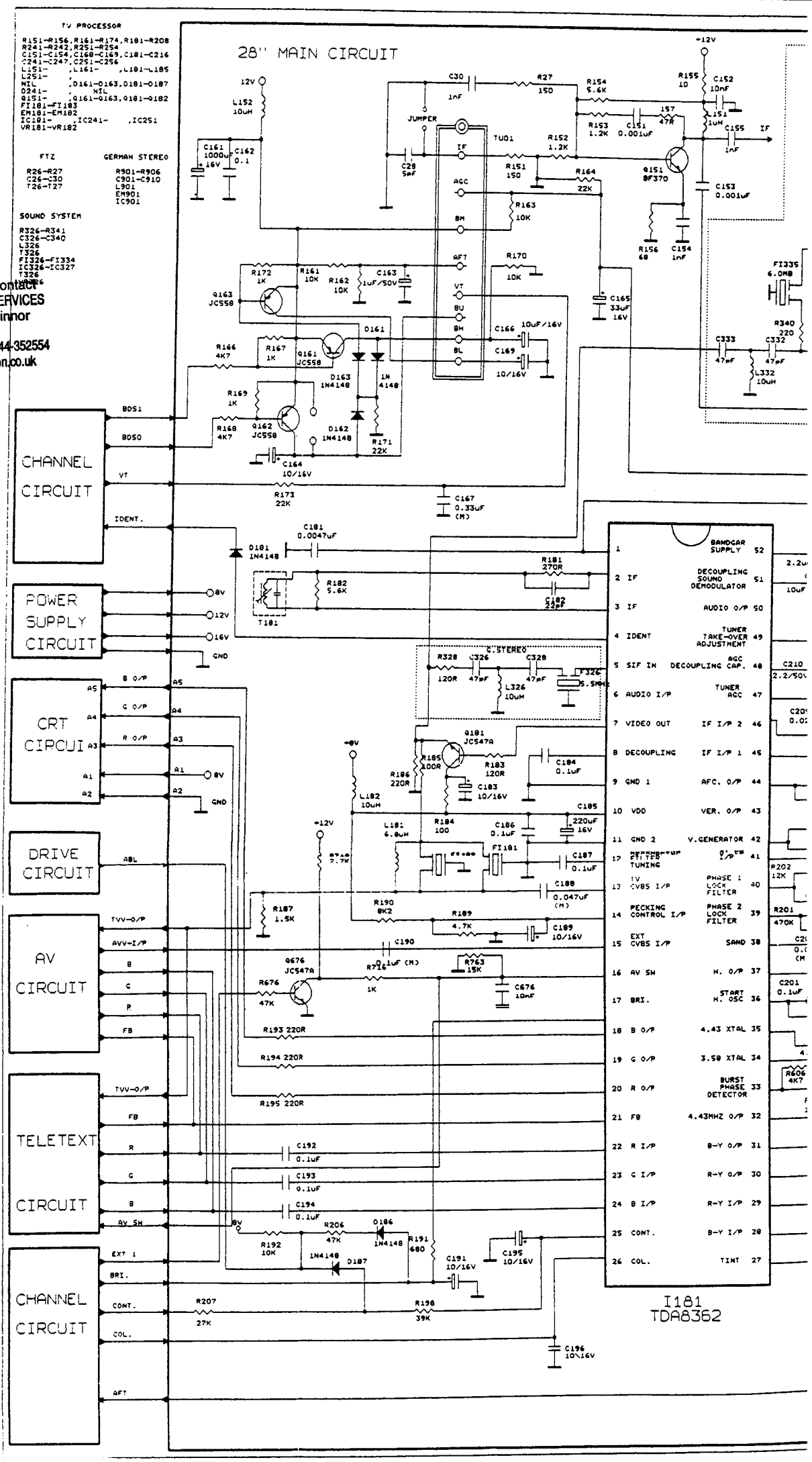

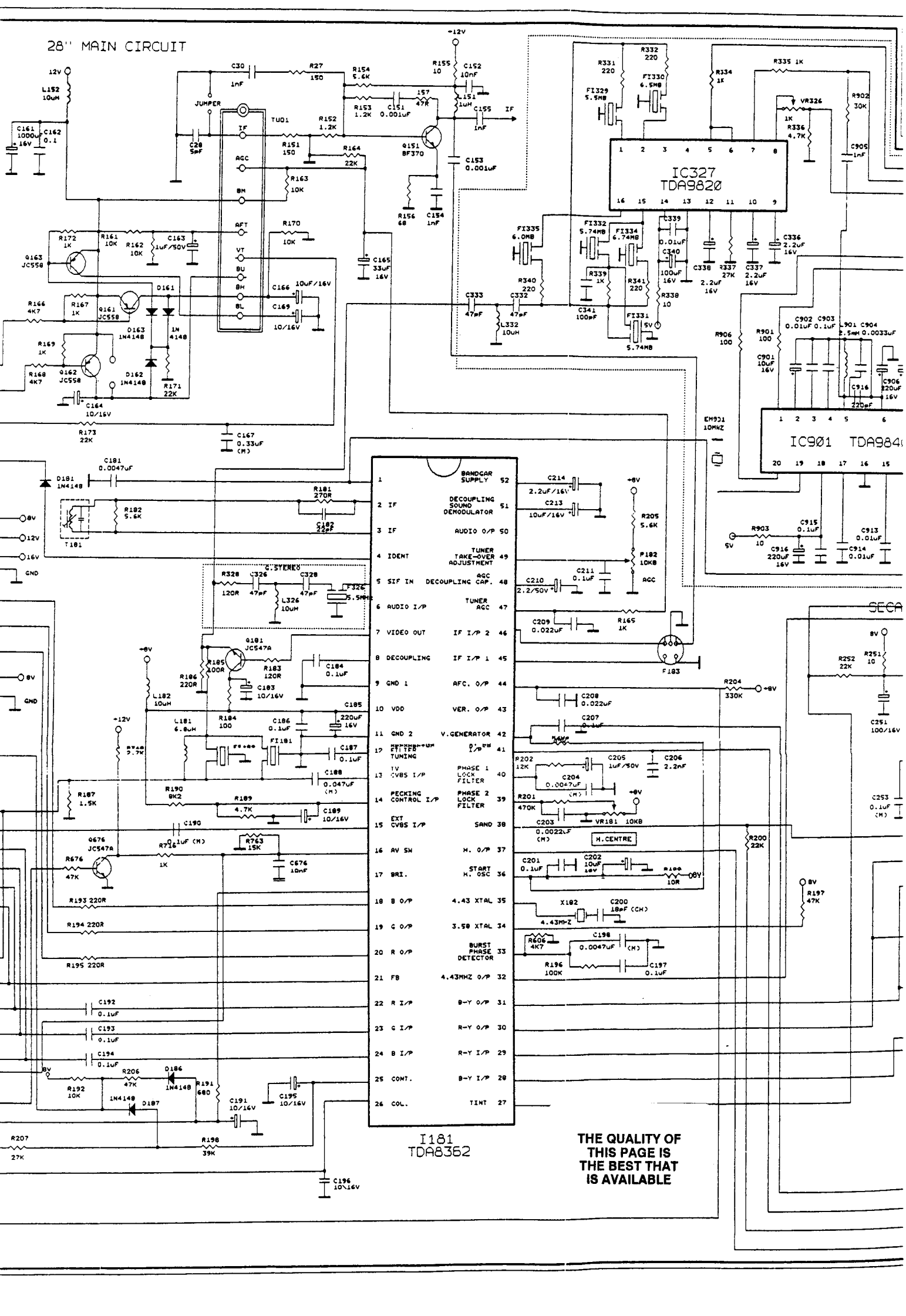
28" MAIN CIRCUIT
IC327
TDA9820
IC901 TDA984
I181
TDA8362
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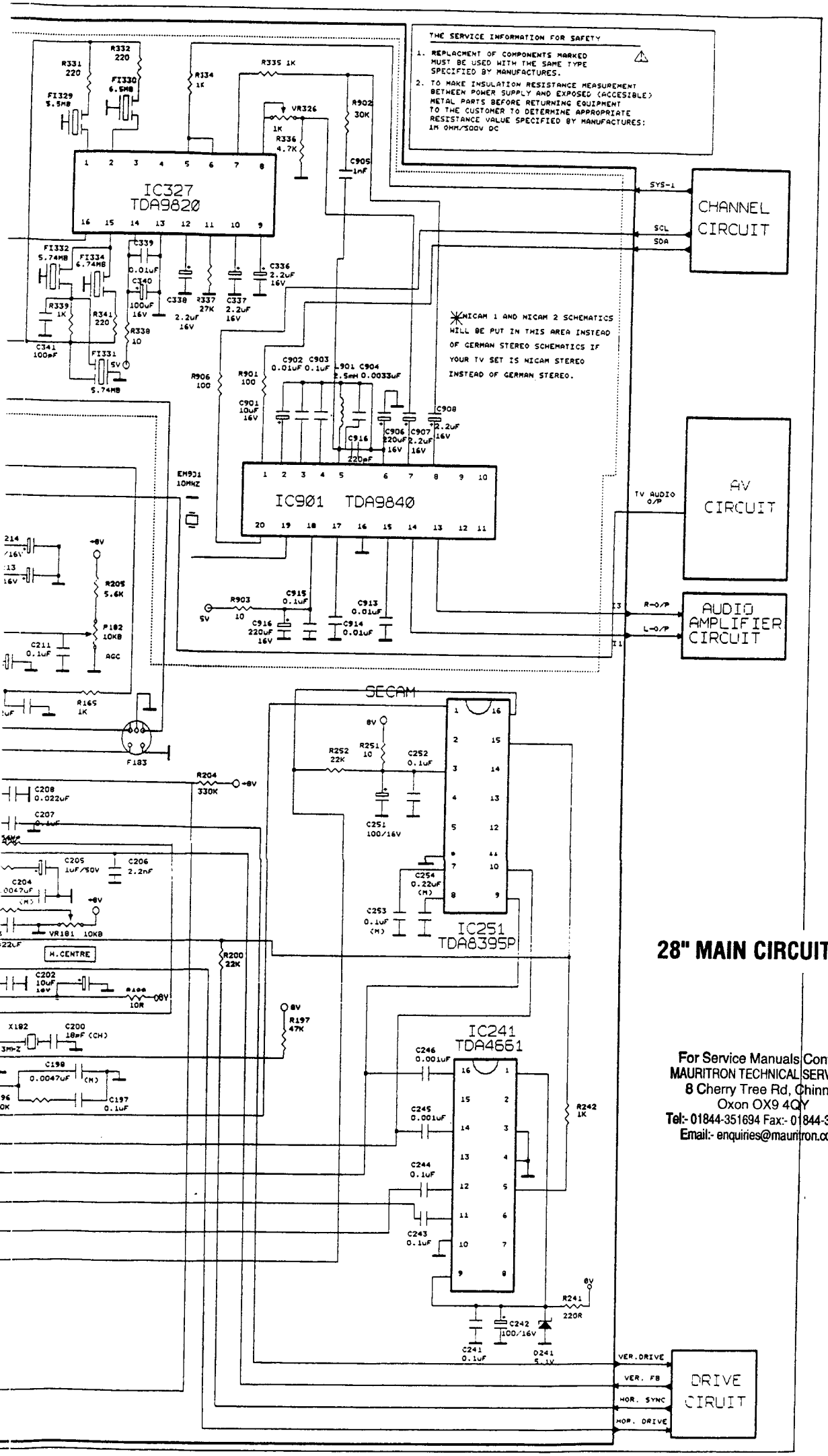

28" MAIN CIRCUIT

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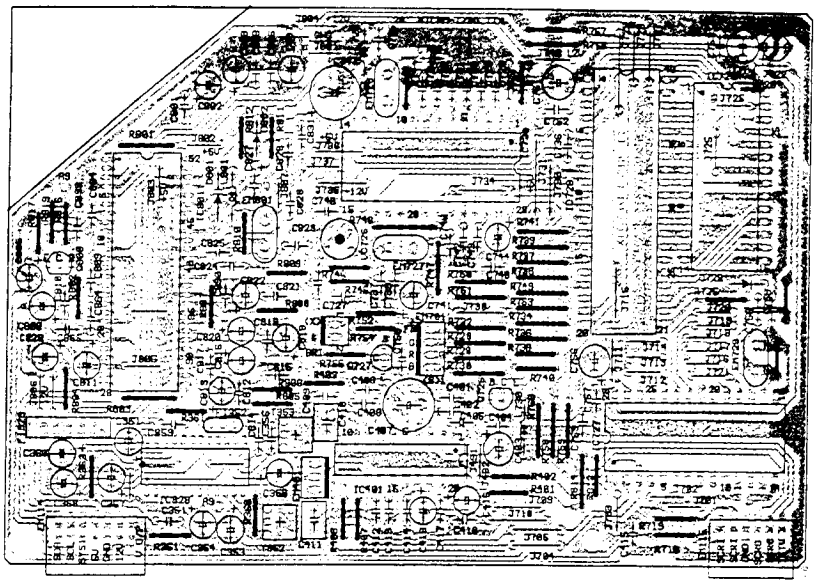
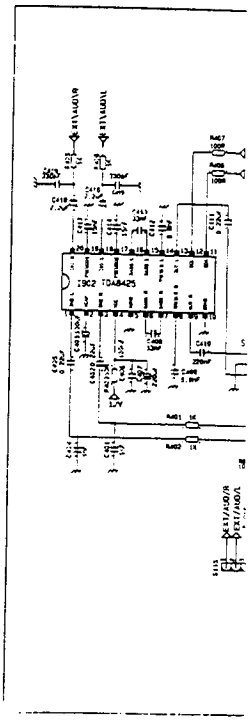
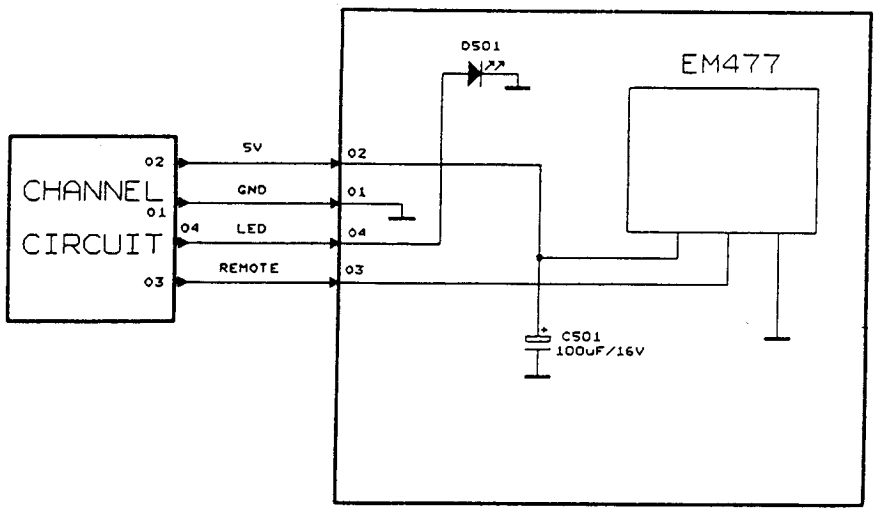


NICAM - I/BG - TXT



28" A2+NICAM I

28" REMOTE SENSOR CIRCUIT



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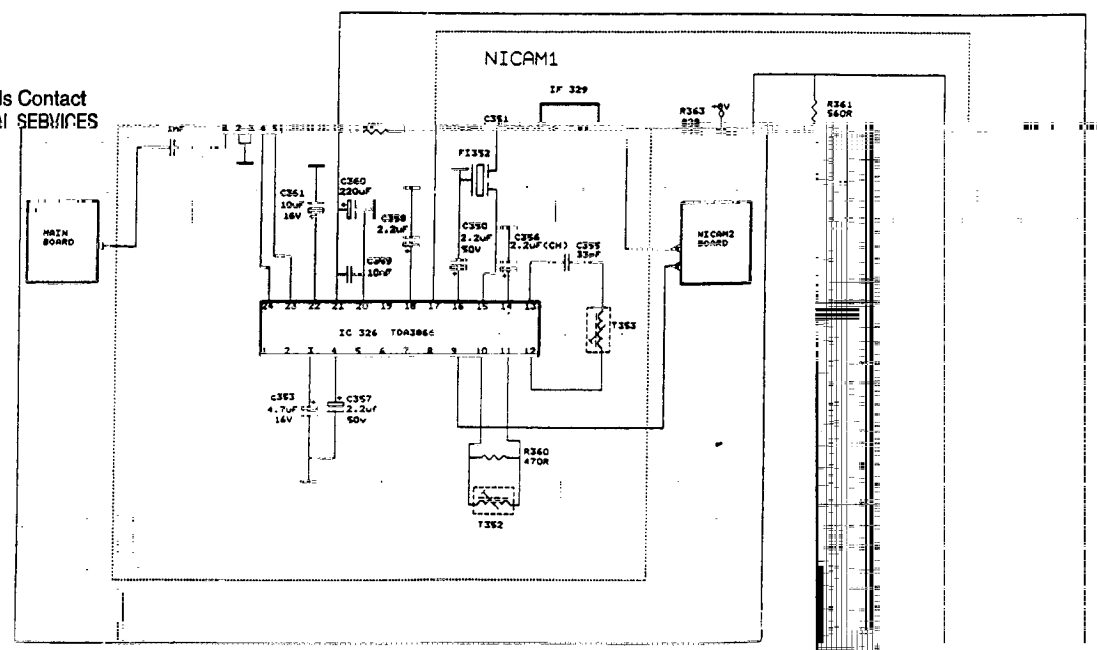
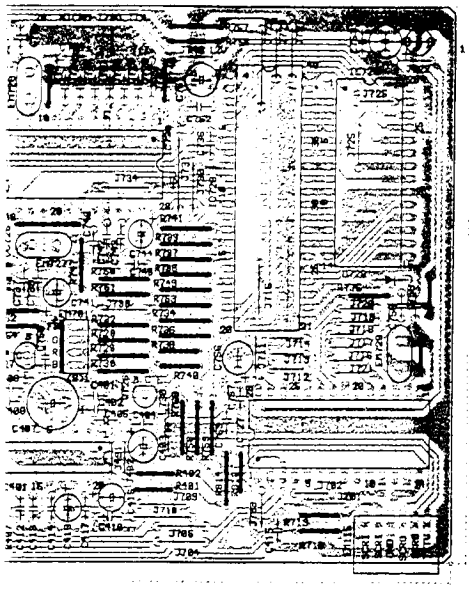
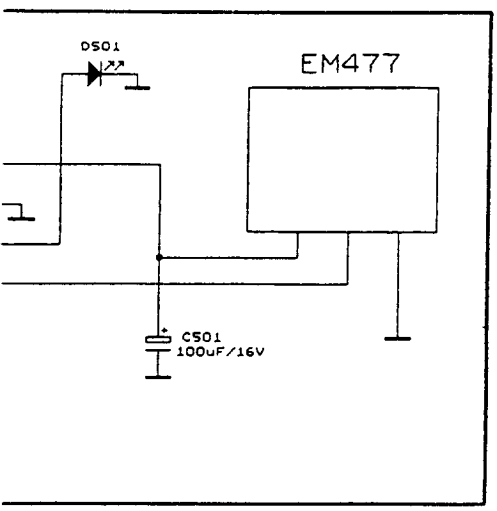
Email:-

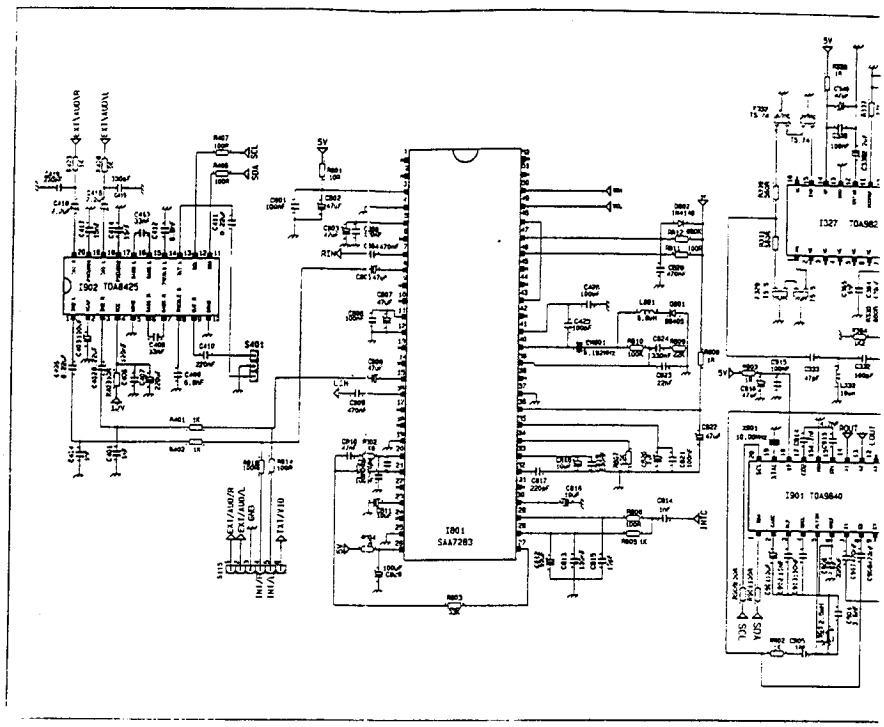


28" NICAM 1 CIRCUIT



TE SENSOR CIRCUIT





28" A2+NICAM L+TXT CIRCUIT

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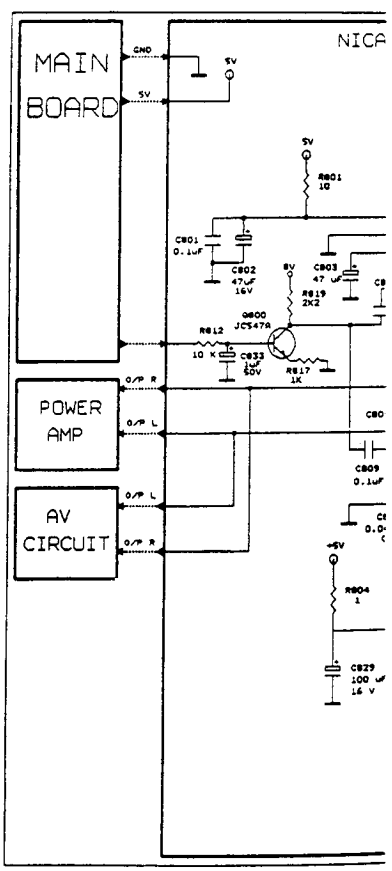
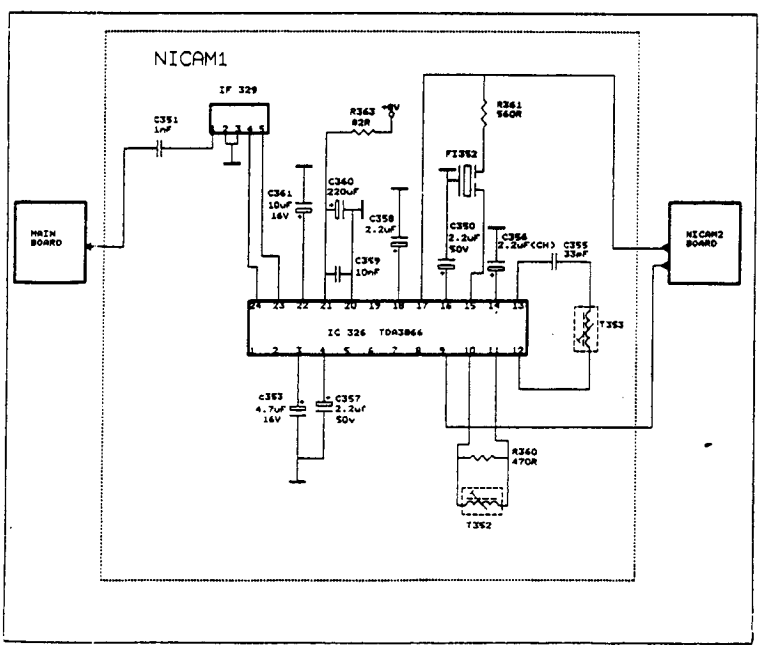
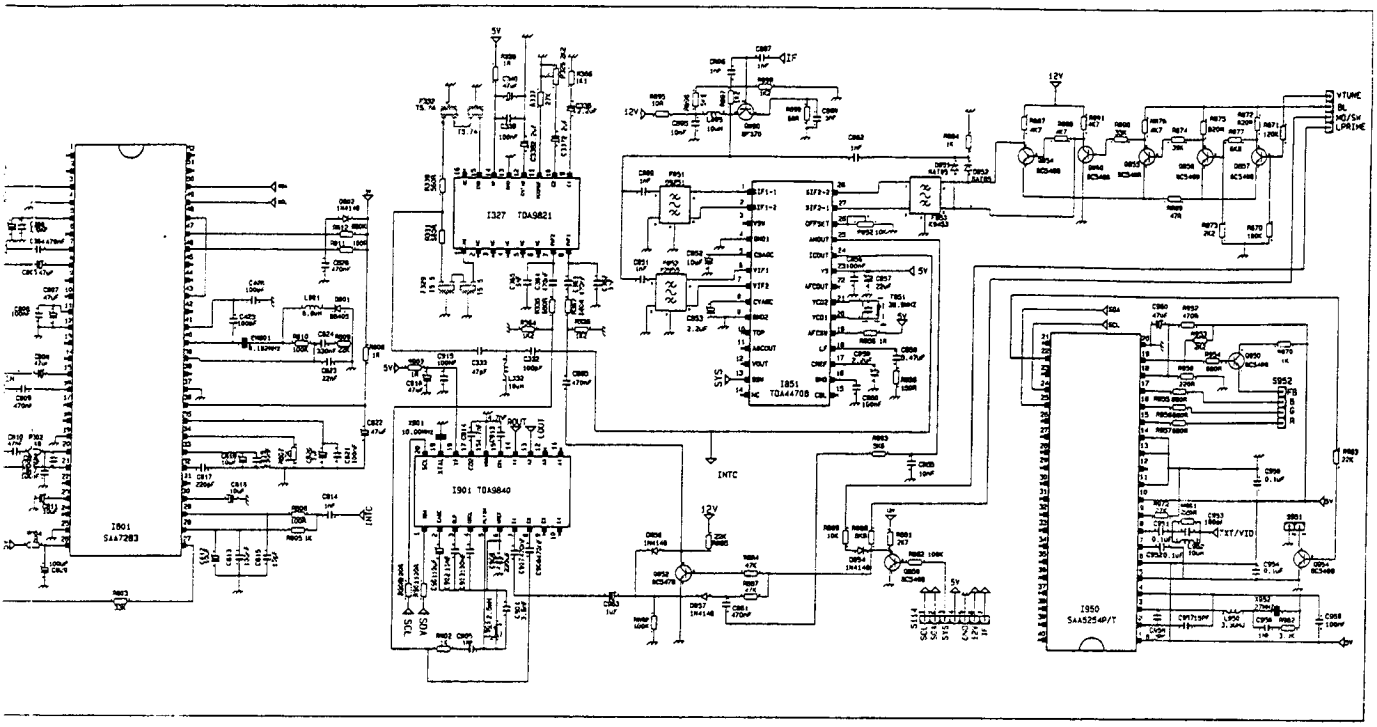
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk



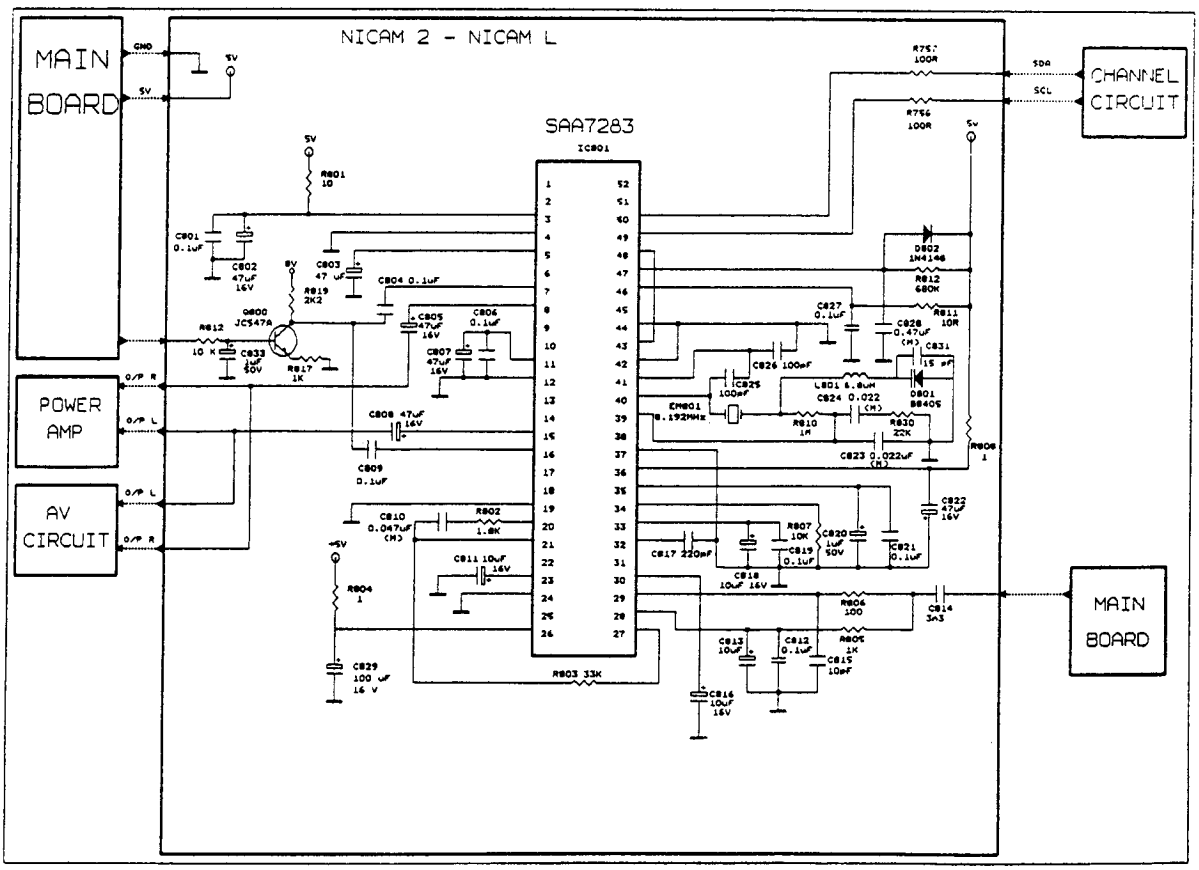
28" NICAM 2 - NICAM L C



28" NICAM 1 CIRCUIT



CIRCUIT



28" NICAM 2 - NICAM L CIRCUIT

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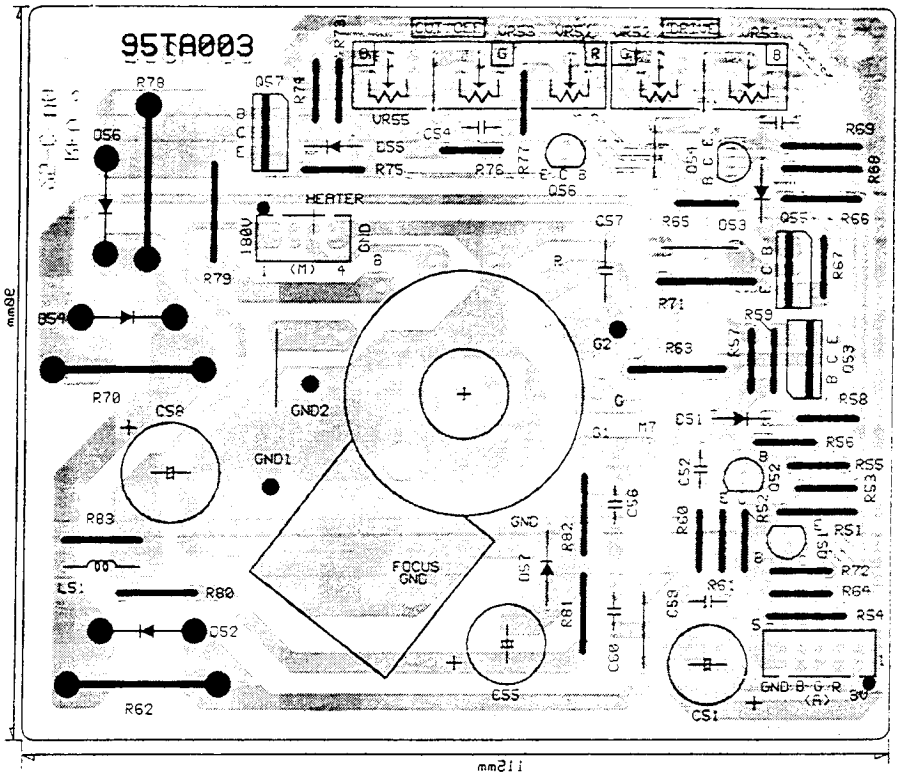

CRT PCB

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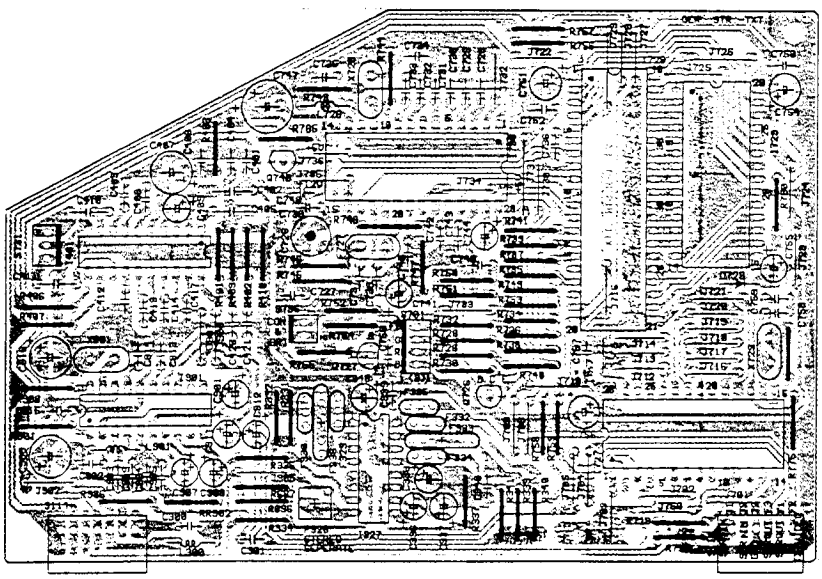
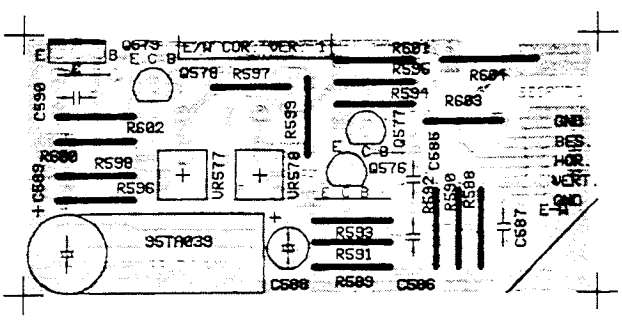
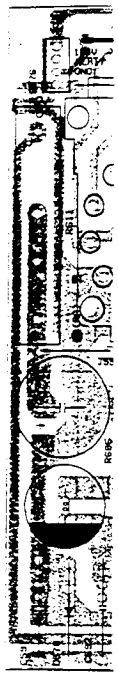


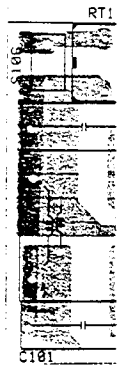
28" GERMAN STEREO / TXT PCB

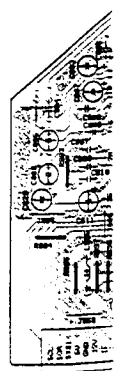


E/W CORRECTION PCB

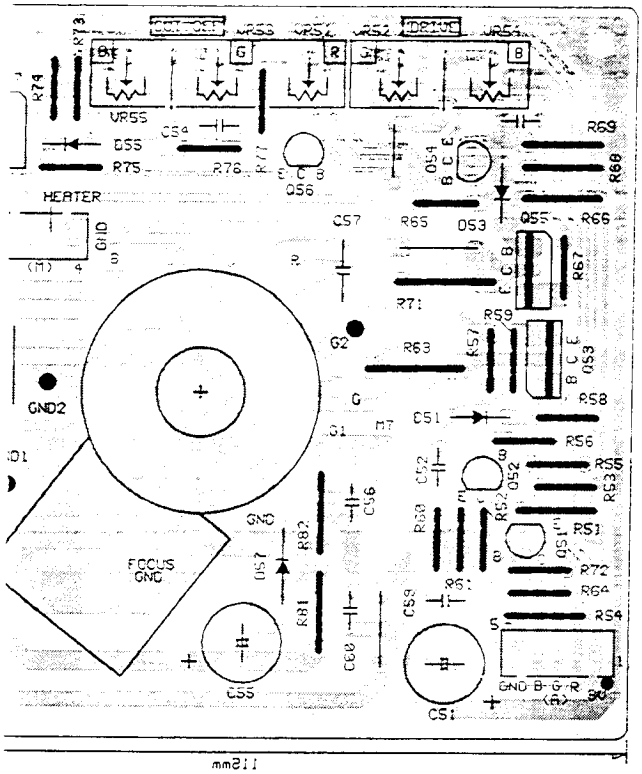


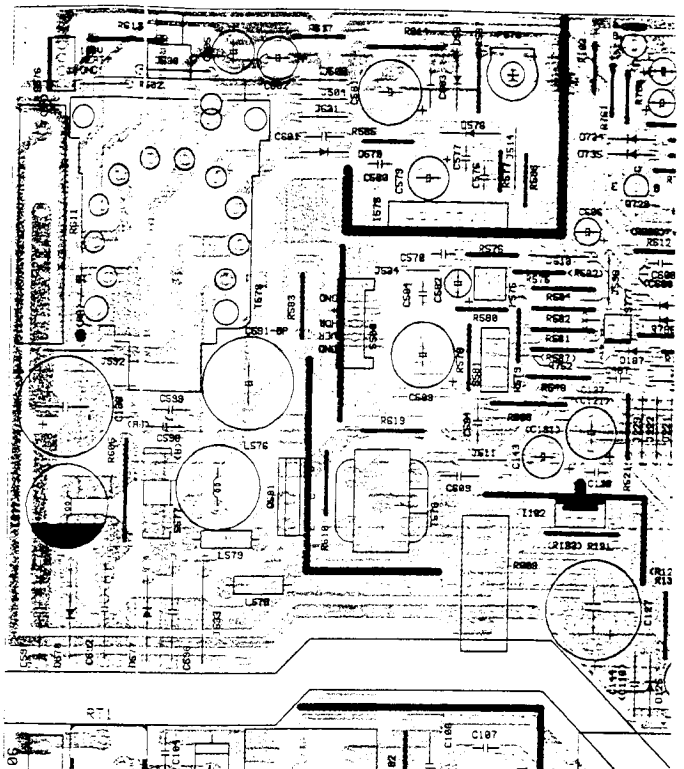
28" MA

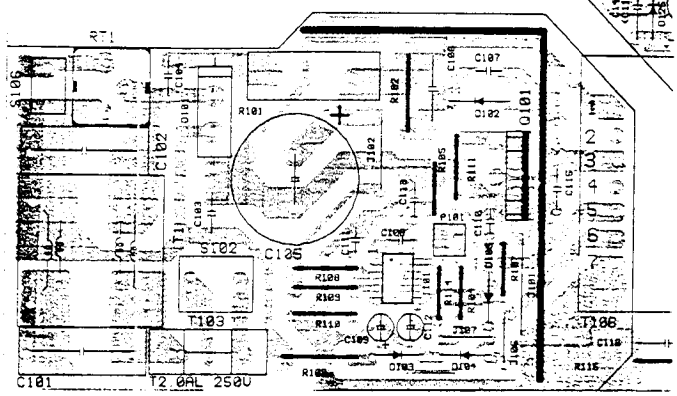




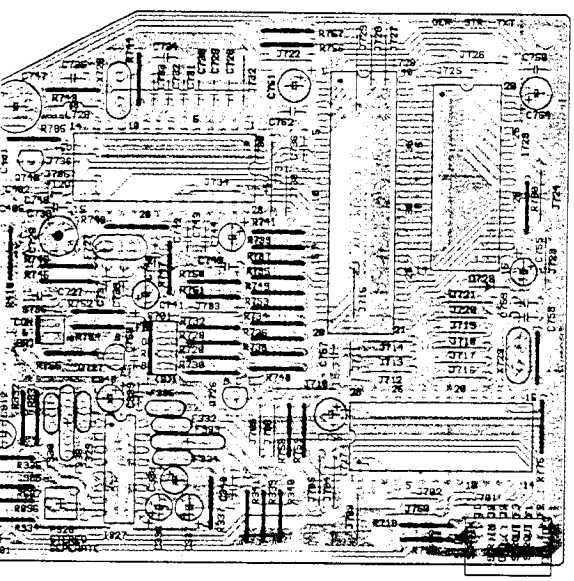
28" A2



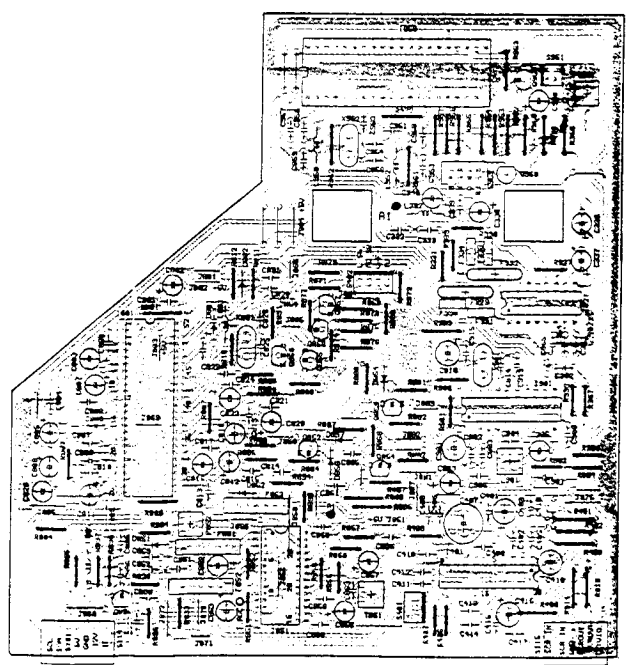




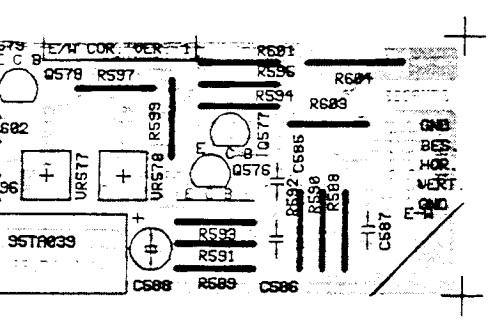
28" MAIN PCB



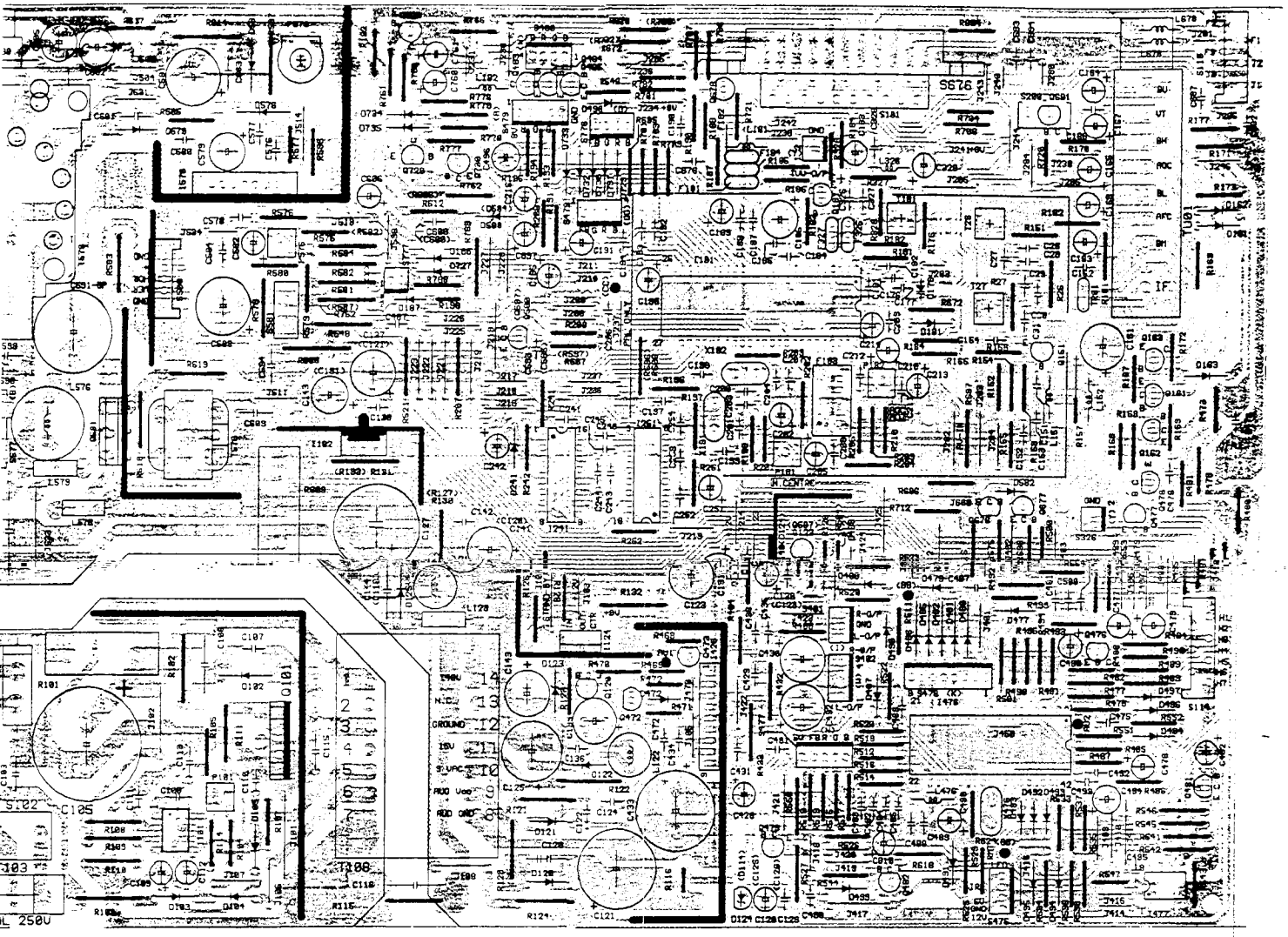
TEREO / TXT PCB



28" A2+NICAM L+TXT PCB



ORRECTION PCB



CB

P

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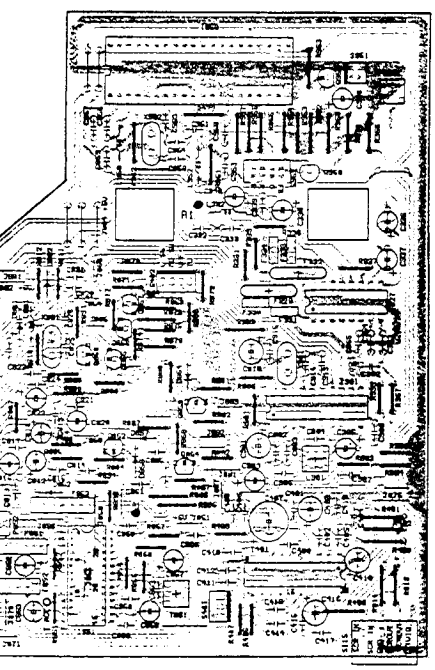
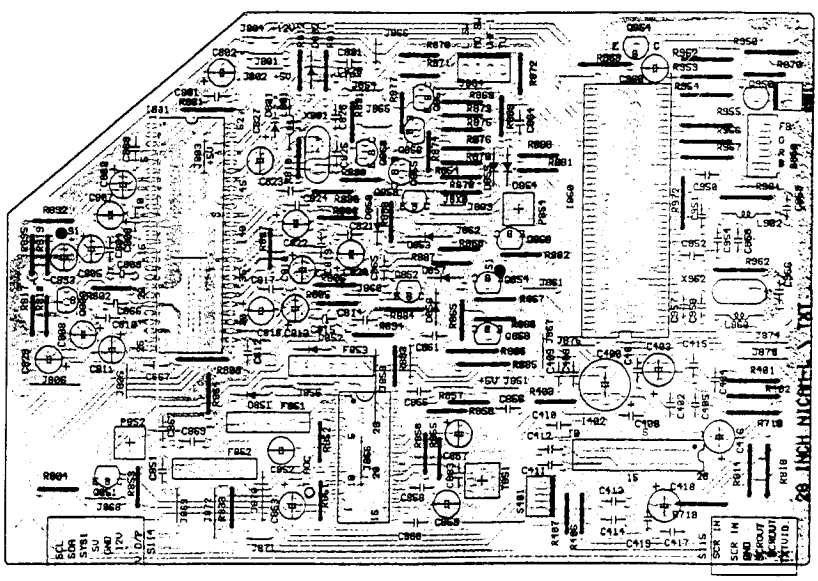


AM L+TXT PCB



28" NICAM L / TXT PCB

CA