

## Recommended Safety Parts

Item	Part No.	Description
L05	4822 267 40646	2P
L01	4822 265 30389	2P yellow
L02	4822 265 30389	2P yellow
1500	4822 256 92053	Fuse Holder
	4822 502 13712	SCREW.SELFTAP
1463	4822 252 51185	19398E1(0,63A)
1501	4822 070 32502	21802.5(2.5A)
1566	4822 252 51175	19398E1 (2,5A)
1572	4822 071 52502	19372(2.5A)
1580	4822 252 51186	19398E1(2,0A)
2423	4822 121 40479	390nF 10% 250V
2423	4822 121 42376	470nF 5% 250V
2425	4822 121 70434	11nF 5% 1.6KV
2425	4822 121 70618	12nF 5% 1600V
2425	4822 121 70637	8.2nF 5% 1600V
2426	4822 121 40488	22nF 10% 400V
2426	4822 121 42934	27nF 10% 400V
2427	4822 121 40479	390nF 10% 250V
2427	5322 121 44128	680nF 10% 250V
2433	4822 126 12274	1500pF 10%R(HR) 2KV
2450	4822 121 40518	100nF 10% 250V
2500	4822 121 70285	470nF 10% 250V
2506	4822 121 40487	100nF 10% 400V
2511	4822 126 11141	2.2nF 10% 1KV
2512	4822 126 11141	2.2nF 10% 1KV
2520	4822 124 41525	100nF 20% 25V
2540	4822 126 12426	330pF 10% 1KV
2550	4822 126 13474	2.2nF 20% 400V
2559	4822 124 40433	47uF 20% 25V
2565	4822 124 41525	100uF 20% 25V
2568	4822 126 12426	330pF 10% 1KV
2582	4822 124 41525	100uF 20% 25V
2609	4822 124 40433	47uF 20% 25V
3401	4822 052 11229	22Ω 5% 0.5W
3402	4822 052 11229	22Ω 5% 0.5W
3430	4822 117 11433	2k7 5%
3431	4822 117 11433	2k7 5%
3443	4822 052 10688	6Ω 5% 0.33W
3461	4822 052 10228	2Ω 5% 0.33W
3462	4822 052 10228	2Ω 5% 0.33W
3464	4822 052 11568	5Ω 5% 0.5W
3465	4822 053 20225	2MΩ 5% 0.25W
3472	4822 052 10228	2Ω 5% 0.33W
3483	4822 050 24708	4Ω 1% 0.6W
3484	4822 050 24708	4Ω 1% 0.6W
3500	4822 116 21224	1M A/387V
3505	4822 113 80603	1.5Ω 10% 7W
3506	4822 116 40263	22Ω 276V 3k 25%
3524	4822 052 10109	10Ω 5% 0.33W
3540	4822 116 83027	R22 5% 3W
3541	4822 052 10102	1k 5% 0.33W
3545	4822 052 10339	33Ω 5% 0.33W
3588	4822 052 10228	2Ω 5% 0.33W
3752	4822 052 10828	8Ω 5% 0.33W
3753	4822 052 10828	8Ω 5% 0.33W
5410	4822 142 40351	TRANSF.DRIVER
5421	4822 156 50097	COIL
5421	4822 157 63079	COIL
5424	4822 157 53069	COIL
5430	4822 140 10526	LOT 21"
5430	4822 140 10527	LOT BLS 25"/28"
5430	4822 140 10528	LOT BM 25"/28"
5480	4822 158 10728	TRANSF. 11uH
5503	4822 157 63073	COIL.CHOKE
5550	4822 146 31469	TRANSF.supply
6423	4822 130 41275	BY228/20
6424	4822 130 41602	BYW95C/20
6462	4822 130 81175	BYD74G
6463	4822 130 81175	BYD74G
6480	4822 130 30621	1N4148
6481	4822 130 30621	1N4148
6510	4822 130 31933	1N5061
6511	4822 130 31933	1N5061
6512	4822 130 31933	1N5061

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Item	Part No.	Description
6513	4822 130 31933	1N5061
6524	4822 130 31631	BYV10-20
6530	4822 130 30621	1N4148
6567	4822 130 81175	BYD74G
6591	4822 130 30621	1N4148
6600	4822 130 30621	1N4148
6601	4822 130 30621	1N4148
6763	4822 130 30621	1N4148
7420	4822 130 63271	BU2508AF
7420	4822 130 63788	BU2506DF
7450	4822 130 44197	BC558B
7556	4822 130 10025	CNX82A
7561	4822 130 44197	BC558B
7591	4822 130 44197	BC558B
7602	4822 130 41344	BC337-40
7605	4822 130 44197	BC558B
2101	5322 126 10223	4.7nF 10% 63V
2104	5322 126 10223	4.7nF 10% 63V
2105	5322 126 10223	4.7nF 10% 63V
2108	5322 126 10223	4.7nF 10% 63V
2158	4822 124 40433	47uF 20% 25V
2184	4822 122 33172	390pF 5% 50V
2700	4822 122 33177	10nF 20% 50V
2703	5322 122 32654	22nF 10% 63V
2709	4822 122 33177	10nF 20% SOV
2712	5322 122 32654	22nF 10% 63V
3031	4822 051 20472	4k7 5% 0.1W
3032	4822 051 20472	4k7 5% 0.1W
3033	4822 051 20472	4k7 5% 0.1W
3162	4822 052 10478	4Ω 7 5% 0.33W
3193	4822 051 20472	4k7 5% 0.1W
3614	4822 051 20472	4k7 5% 0.1W
3624	4822 051 20472	4k7 5% 0.1W
3670	4822 051 20472	4k7 5% 0.1W
3704	4822 051 20008	0Ω JUMP. (0805)
3805	4822 052 10109	10Ω 5% 0.33W
3817	4822 051 20472	4k7 5% 0.1W
3826	4822 051 20121	120Ω 5% 0.1W
3847	4822 052 10109	10Ω 5% 0.33W
3860	4822 051 20472	4k7 5% 0.1W
6030	4822 130 30621	1N4148 (COL)
6031	4822 130 30621	1N4148 (COL)
6032	4822 130 30621	1N4148 (COL)
6700	4822 130 30621	1N4148 (CCL)
6830	4822 130 31983	BAT85 (COL)
7030	5322 130 41982	BC848B
7031	5322 130 41982	BC848B
7032	5322 130 41982	BC848B
7102	5322 130 41982	BC848B
7700	5322 130 41982	BC848B
7826	5322 130 41982	BC848B
7850	5322 130 41982	BC848B
	4822 255 70261	CRT-socket BTB
2300	4822 122 33172	390pF 5% 50V
2320	4822 122 33172	390pF 5% 50V
2321	4822 121 51408	33nF 10% 250V
2340	4822 122 33172	390pF 5% 50V
2360	4822 124 41525	100uF 20% 25V
2383	4822 124 40433	47pF 20% 25V
3309	4822 052 10102	1k 5% 0.33W
3329	4822 052 10102	1k 5% 0.33W
3349	4822 052 10102	1k 5% 0.33W
3360	4822 051 20121	120Ω 5% 0.1W
3369	4822 051 20121	120Ω 5% 0.1W
3370	4822 051 20121	120Ω 5% 0.1W
3386	4822 052 10128	1Ω 5% 0.33W
3387	4822 052 10109	10Ω 5% 0.33W
3388	4822 052 10689	68Ω 5% 0.33W
6344	4822 130 30621	1N4148
7301	5322 130 41982	BC848B
7321	5322 130 41982	BC848B
7340	5322 130 41982	BC848B
7360	5322 130 41982	BC848B
7365	5322 130 41982	BC848B

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Item	Part No.	Description
7366	5322 130 41982	BC848B
2382	5322 122 34123	1nF 10% 50V
2383	5322 122 34123	1nF 10% 50V
2386	5322 122 34123	1nF 10% 50V
2387	5322 122 34123	1nF 10% 50V
2388	5322 122 34123	1nF 10% 50V
2389	5322 122 34123	1nF 10% 50V
2390	5322 122 34123	1nF 10% 50V
2395	5322 122 34123	1nF 10% 50V
2396	4822 122 33172	390pF 5% 50V
2397	4822 122 33172	390pF 5% 50V
2452	5322 126 10223	4.7nF 10% 63V
2453	5322 126 10223	4.7nF 10% 63V
2454	5322 126 10223	4.7nF 10% 63V
2455	5322 126 10223	4.7nF 10% 63V
3395	4822 051 20008	0Ω JUMP. (0805)
6384	4822 130 30621	1N4148 (COL)
7382	5322 130 41982	BC848B
7383	5322 130 41982	BC848B
7357	5322 130 41982	BC848B
7389	5322 130 41982	BC848B
7415	5322 130 41982	BC848B
7420	5322 130 41982	BC848B
7427	5322 130 41982	BC848B
7430	5322 130 41982	BC848B
7432	5322 130 41982	BC848B
2000	5322 126 10223	4.7nF 10% 63V
7002	5322 130 41982	BC848B
	4822 502 13712	SCREW.SELFTAP
	4822 276 12597	SWITCH.MAIN5
	4822 265 30389	2P BTB
	4822 256 91766	Panel MAINS
2811	4822 124 41525	100uF 20% 25V
3520	4822 053 21475	4M7 5% 0.5W
3521	4822 053 21475	4M7 5% 0.5W
7811	4822 130 44197	BC558B
7812	4822 130 44197	BC558B
	(For 16:9 Only)	
3544	4822 051 20472	4k7 5% 0.1W
3547	4822 051 20472	4k75% 0.1W
6530	4822 130 34173	BZX79-C5V6 (COL)
7501	5322 130 41982	BC848B
7502	5322 130 41982	BC848B
2406	4822 124 41579	10uF 20% 50V
2420	532212234123	1nF 10% 50V
2426	4822 124 41525	100uF 20% 25V
2436	532212234123	1nF 10% 50V
3405	4822 051 20472	4k7 5% 0.1W
3427	4822 052 10479	47Ω 5% 0.33W
5402	4822 158 10728	TRANSF. 11uH
8402	4822 130 30621	1N4148 (CCL)
6403	4822 130 30621	1N4148 (CCL)
6404	4822 130 30621	1N4148 (CCL)
6405	4822 130 30621	1N4148 (CCL)
6420	4822 130 34173	BZX79-F5V6 (CCL)
7401	5322 130 41982	BC848B
7402	5322 130 41982	BC848B
7403	5322 130 41982	BC848B
7404	5322 130 41982	BC848B
7405	5322 130 41982	BC848B
7406	5322 130 41982	BC848B
7411	5322 130 41582	BC848B
7415	5322 130 41982	BC848B
7420	5322 130 41582	BC848B
7421	5322 130 41982	BC848B
7422	5322 130 41982	BC848B
7435	5322 130 41982	BC848B
2285	5322 122 32654	22nF 10% 63V
3278	4822 051 20332	3k3 5% 0.1W
3288	4822 052 10108	1Ω 5% 0.33W
3292	4822 052 10689	68Ω 5% 0.33W
7276	5322 130 41982	BC848B
7282	5322 130 41982	BC848B

## Electrical Adjustments

### Electrical alignments

**Alignment conditions:**  
All electrical adjustments should be performed under the following conditions:  
 • Power supply voltage: 240V ±10%, 50Hz ± 5%.  
 • Warm-up time: 10 minutes  
 • The voltages and oscillograms are measured in relation to the tuner earth.  
 • Test probe: Ri > 10MΩ; Ci < 2,5 pF.

### 1. Adjustments on the large signal panel

#### 1.1 95V/140V supply voltage

*For 21" TV-sets*  
Connect a volmeter to the cathode of D6567. With the aid of R3532 adjust the power supply voltage to 95V ± 0,5V.

*For sets > 21"*  
Connect a volmeter to the cathode of D6567. With the aid of R3559 adjust the power supply voltage to 140V ± 1V.

#### 1.2 VG2 adjustment

Connect a pattern generator displaying a full black picture. Switch the TV-set to the service default mode (see 7.4). Connect an oscilloscope to the picture tube cathodes for red, green and blue (pins 6, 8 and 11 of the picture tube socket). Set the oscilloscope to DC, 50V/div and 2 mS/div. Measure the DC level of the measuring pulses at the end of the frameblanking (see Fig. 7.1) Using the Vg2 potentiometer on the line transformer (bottom potentiometer) the measuring pulse with the highest level must be set to +160V ± 2V.

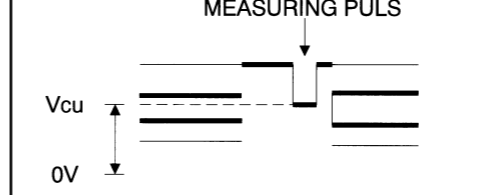


Fig. 7.1

### 1.3 Focusing

Is aligned using the focus potentiometer on the linetransformer (top potentiometer).

### 2. Alignments on the small signal panel

#### 2.1 40.4 MHz IF filter (only for sets with SECAM LL' reception)

Using a signal generator (b.v. PM5326) and a capacitor of 5,6 pF supply a 40,4 MHz signal ton pin 17 of the tuner. Connect an oscilloscope to pin 1 of filter 1016. Switch on the set and set the system selection (installationmenu) to BG. Set L5117 for minimal amplitude. Remove the supplied signal.

#### 2.2 AFC

Switch the set to service default mode (see 7.4). Using a pattern generator (e.g. PM5518) supply a signal on a frequency of 475,25 MHz. Align coil L51 14 for optimal picture quality.

#### 2.3 Picture demodulator (only for sets with SECAM LL' reception)

Using a signal generator (eg. PM5326) supply a 32.95 MHz signal via a 5,6 pF capacitor to pin 17 of the tuner. Align the signal level of the generator so that the DC-voltage on pin 5 of the tuner is 5V. Switch on the set and set the system selection (installation

menu) to system LL'. Align capacitor C2106 for minimal voltage on pin 5 of the tuner. Remove the supplied signal.

#### 2.4 RF-

## Service Notes

The contents of this service information:

- The power supply circuit diagram that is divided into two separate parts:
- 21" power supply circuit diagram
- power supply circuit diagram for 25" and 28"
- fault-finding tree for repairing the television because:
- the error register in the service menu is not filled in sets bearing code **QG00** for the Netherlands and Italy. For all other countries the error registers in the service menus of sets bearing code **QG03** and lower is not filled.
- Introduction of two new features, 16:9 module and WSSB (wide screen signalling bit detection) module, with accompanying copper track layout and spare parts list with accompanying diagram.

### Description of the new features in the MD1.1 TV set.

The WSSB enables the TV set to switch automatically to the various display formats (16:9 letterbox, 14:9 letterbox, 4:3) using signalling bits. The signalling bits are transmitted in line 23 of the video signal. IC7119 (TDA8366) is used to match the convergence to the various formats in cooperation with the 16:9 panel.

#### 1. MD1.1 E 28" WideScreen

The information published in the Service Manual and SI MD1.1 -E 95.01 is also valid for MD1.1 E 28" WideScreen sets. However, there is some diversity in the spare parts list (See Table 1).

#### 2. Microprocessors

The listed microprocessors (Table 1) can be used for "24" and "28" Widescreen MD1.1 E sets. When the  $\mu$ Ps are used in a "28" WS set, the option "28" in the Service Alignment Menu should be set to "Y". When the  $\mu$ Ps are used in a "24" WS set, the option "28" should be set to "N". "28 N" is the default value of these  $\mu$ Ps after replacement.

#### 3. Mechanics

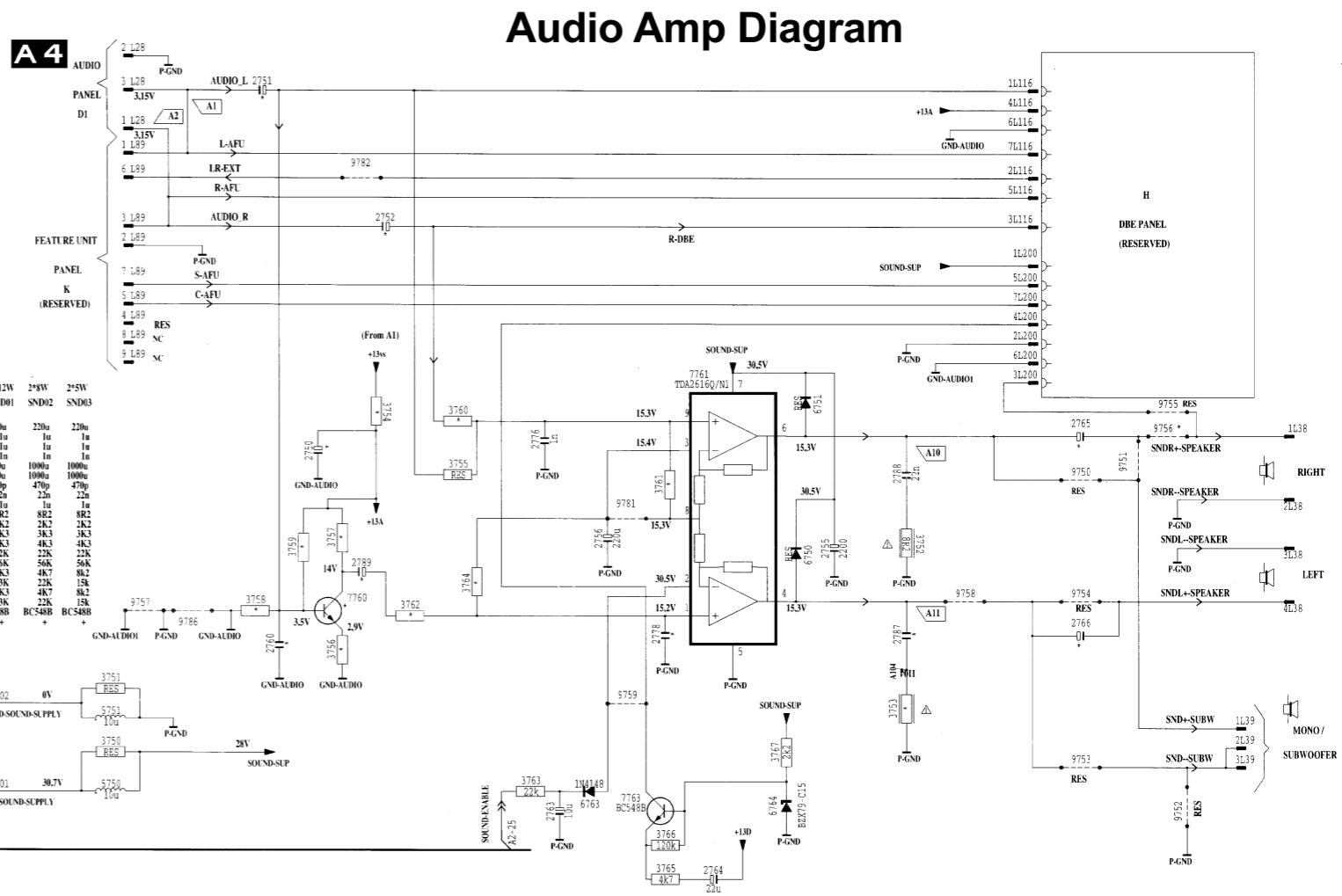
The mechanical execution of the WideScreen sets (24" and 28") differs from the other MD1.1 E sets. Service positions and other mechanical instructions are described in the MD1.2E Service section (Styling with top control and side input/output).

#### 4. Black Stretch Panel

In a number of MD1.1 E sets, a Black Stretch panel [F] is used. This panel increases the detail of dark parts of the picture. The schematic, layout and spare parts list of this panel are published in this SI.

Table 1

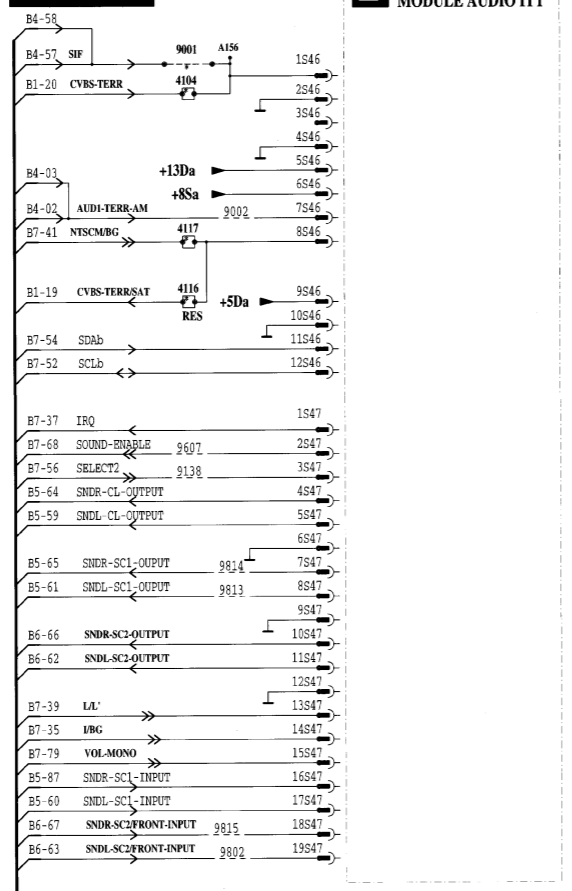
ITEM	DESCRIPTION	SERVICE CODE NUMBER
<b>LARGE SIGNAL PANEL</b>		
F1501	2183.15 (3.15A)	4822 070 33152
C2420	1nF 10%2KV	4822 126 13449
C2425	15nF 5%1.6KV	5322 121 44345
C2426	12nF 5%1.6KV	4822 121 70618
C2470	4.7nF 5% 250V	4822 121 43856
C2479	330nF 5% 63V	5322 121 42661
R3421	68K $\Omega$ 5% 0.5W	4822 116 52297
R3470	1.5M $\Omega$ 5% 0.5W	4822 116 81783
R3479	680K $\Omega$ 5% 0.5W	4822 116 52298
R3480	120K $\Omega$ 5% 0.5W	4822 116 52239
R3482	680K $\Omega$ 5% 0.5W	4822 116 52298
R3483	10 $\Omega$ 5% 0.5W	4822 116 52176
R3484	6.8R $\Omega$ 1% 0.6W	4822 050 26808
R3506	18 $\Omega$ -3K $\Omega$ PTC/PTC 25%	4822 117 12027
R3507	18 $\Omega$ -3K $\Omega$ PTC/PTC 25%	4822 117 12027
R3625	100 $\Omega$ LIN	4822 101 11319
R3626	4.7 $\Omega$ 1% 0.6W	4822 050 24708
R3627	10 $\Omega$ 5% 0.5W	4822 116 52176
L5421	Lin. Corr. Coil LC90	4822 157 10992
L5424	Bal. Coil	4822 157 10993
L5463	10 $\mu$ H	4822 157 51462
L5550	Transf. pow. 10300300-P1	4822 146 10705
D6424	BYW96E	5322 130 32042
D6482	BZX79-B68	4822 130 30864
T7480	IRF520FI	4822 130 61706
<b>SMALL SIGNAL PANEL</b>		
7600	$\mu$ P MIWS1111 (3324) (F,D,NL,I,E)	4822 900 10853
7600	$\mu$ P MIWS1211 (S,DK,N,FI,GB)	4822 900 10851
7600	$\mu$ P MIWS1311 (GB,E,P,GR)	4822 900 10852
7600	$\mu$ P MIWS1511 (3325) (GB,D,NL)	4822 900 10855
7600	$\mu$ P MIWS1611 (GB,HU,POL,CZ,RU)	4822 900 10854
<b>CRT PANEL</b>		
C2300	220pF 50V	4822 122 31173
R3304	47W 5%	4822 116 52195
R3310	5K6 $\Omega$ 5%	4822 116 52289
R3312	6K8 $\Omega$ 5%	4822 116 83961
R3324	47 $\Omega$ 5%	4822 116 52195
R3344	47 $\Omega$ 5%	4822 116 52195
L5381	39 $\mu$ H	4822 157 70703



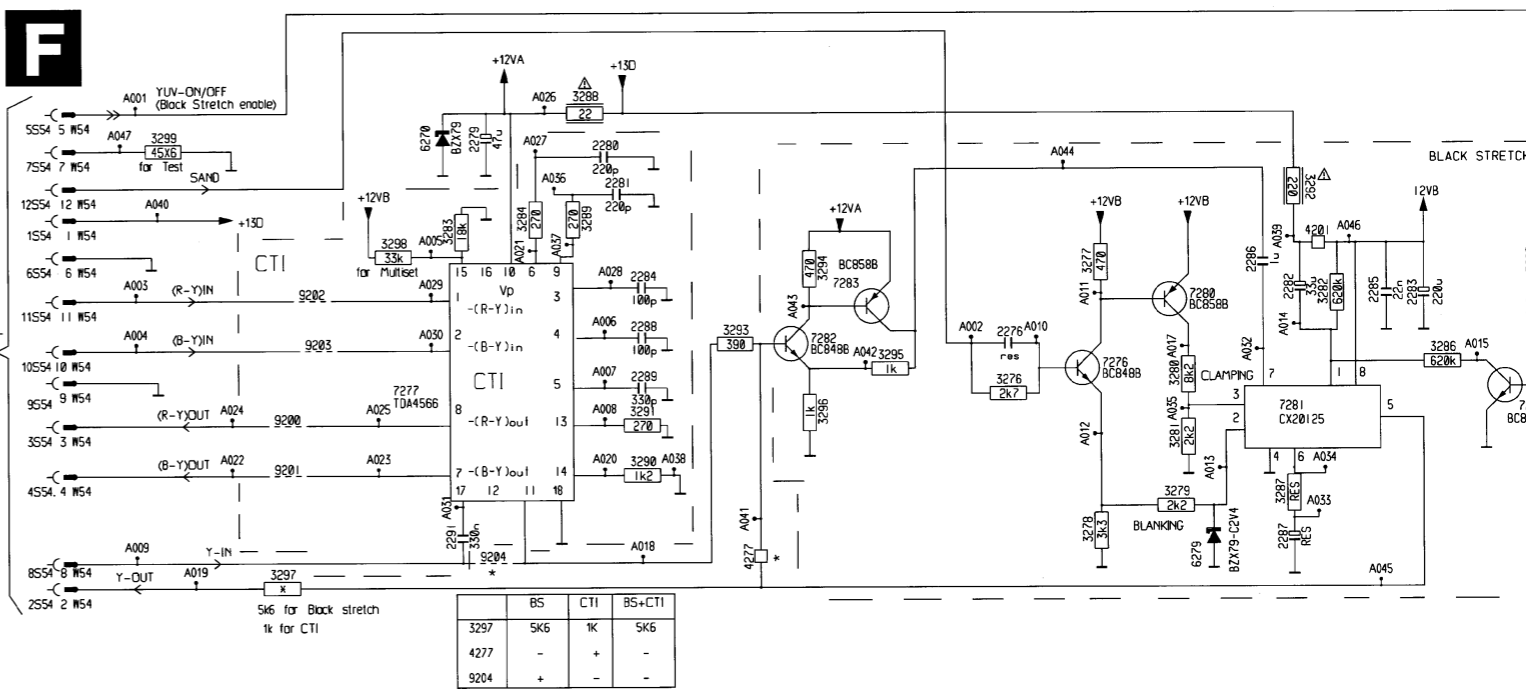
## B 8

MODULE AUDIO ITT

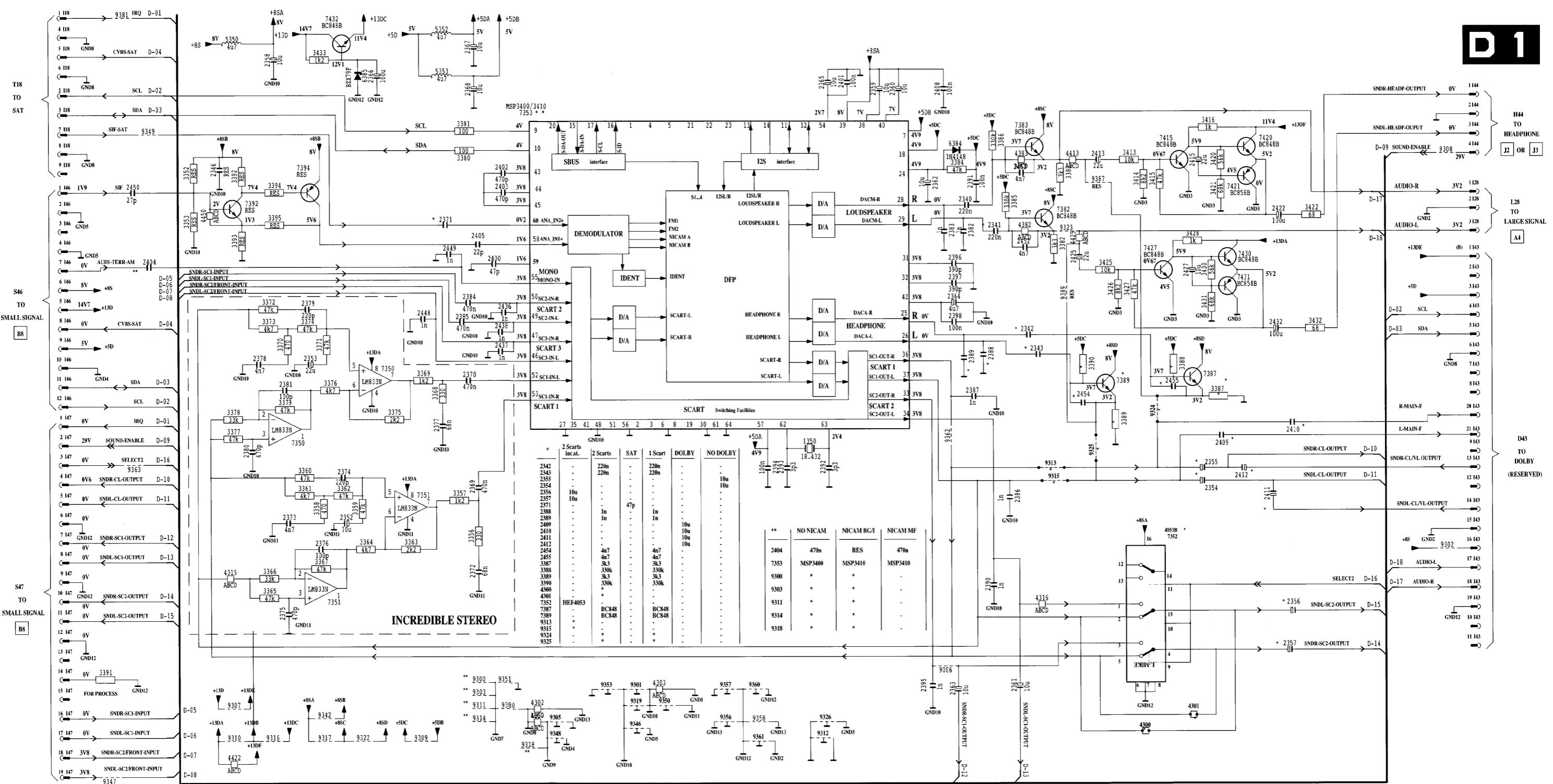
## Audio Module Interface Diagram



## CTI/Black Stretch Diagram



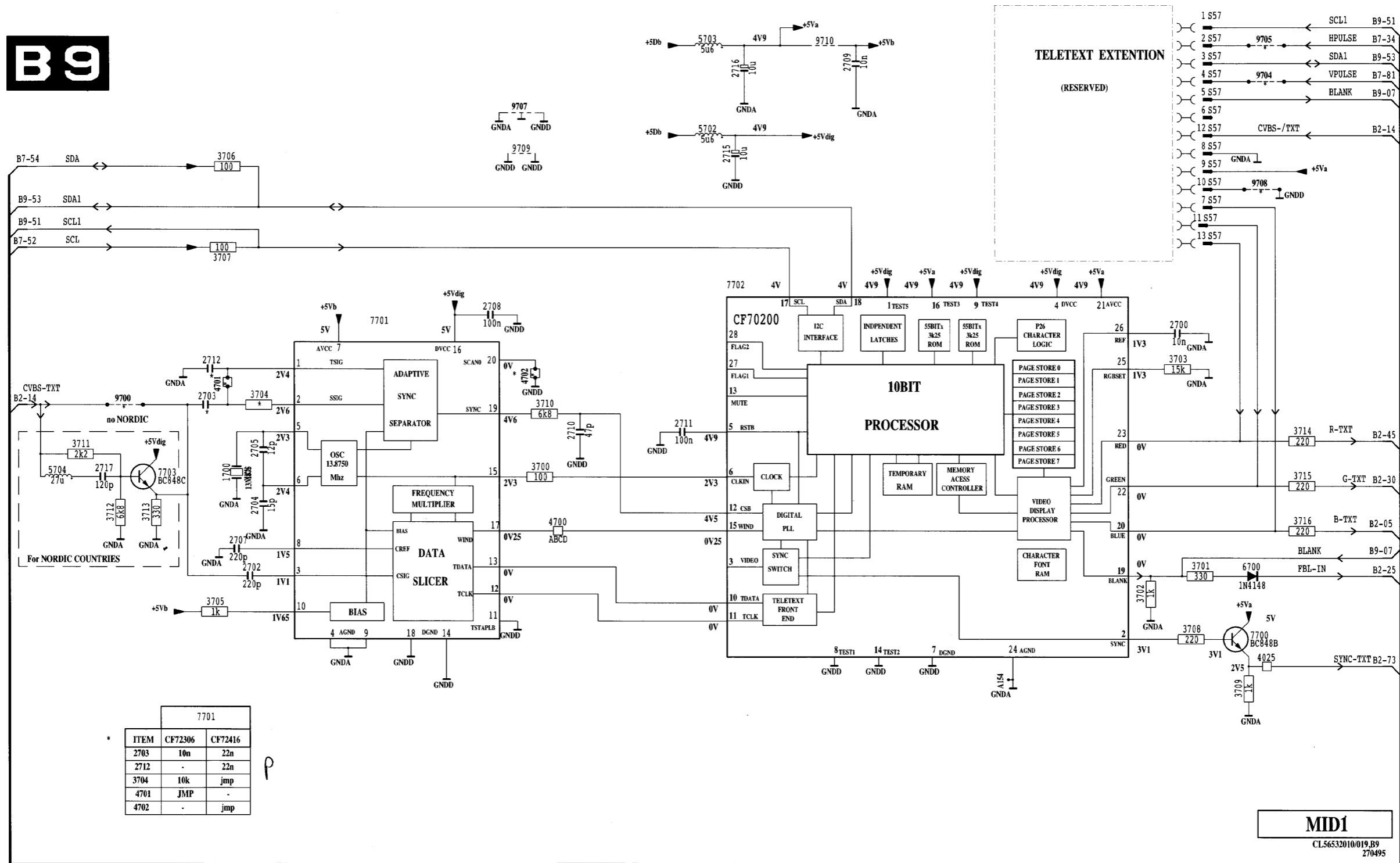
Audio Module Diagram





Text Diagram

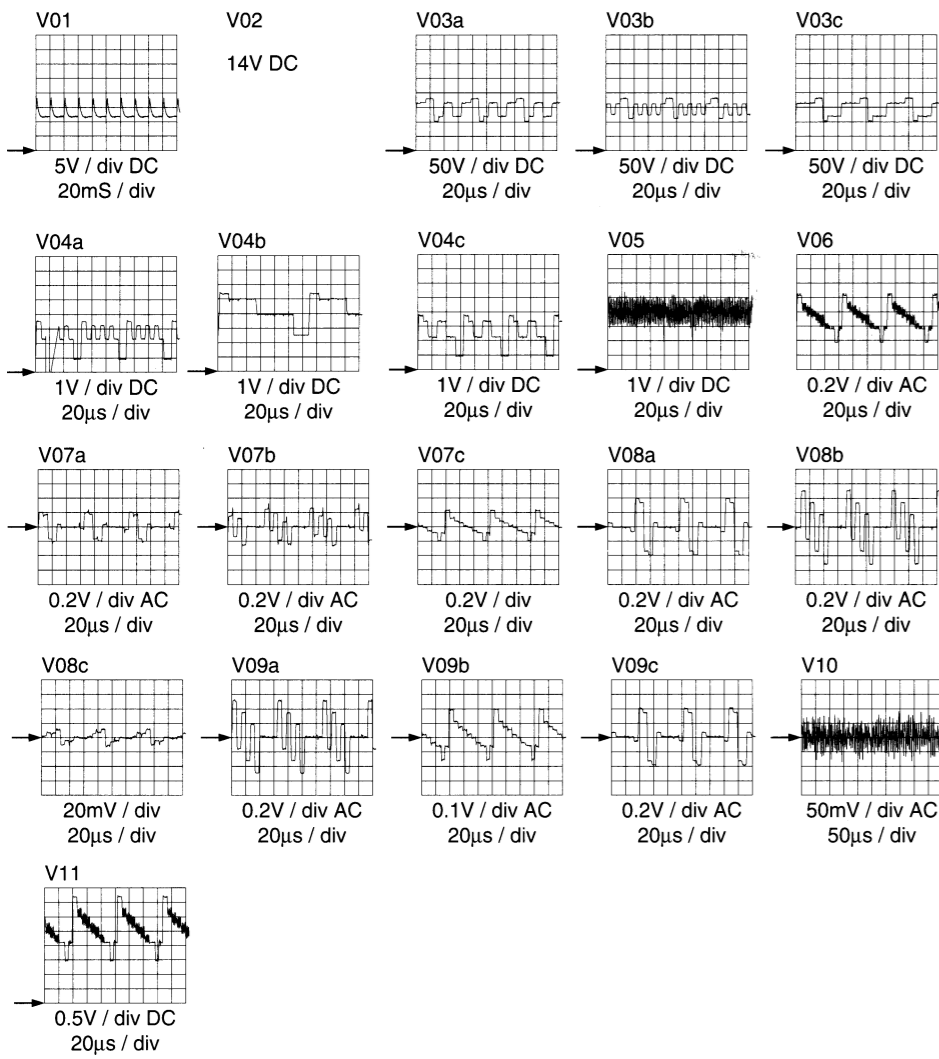
**B9**



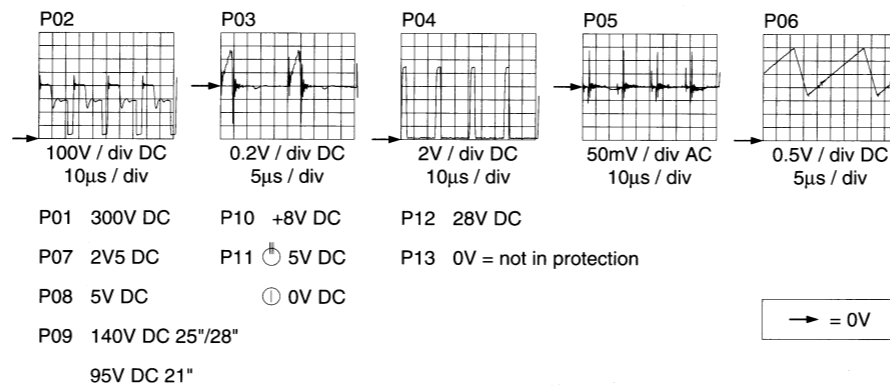


Waveforms

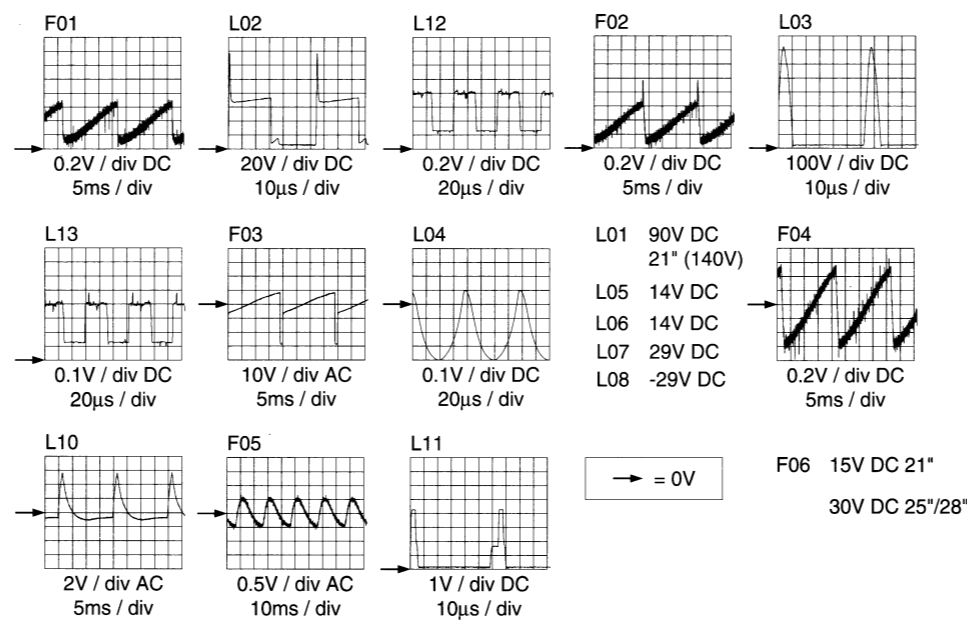
Video Processing Block Diagram



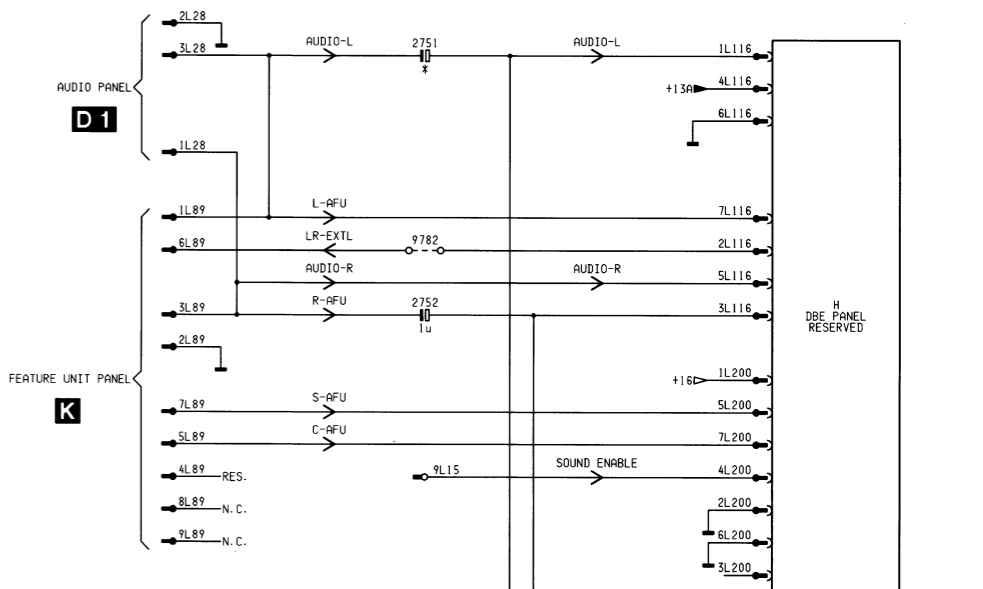
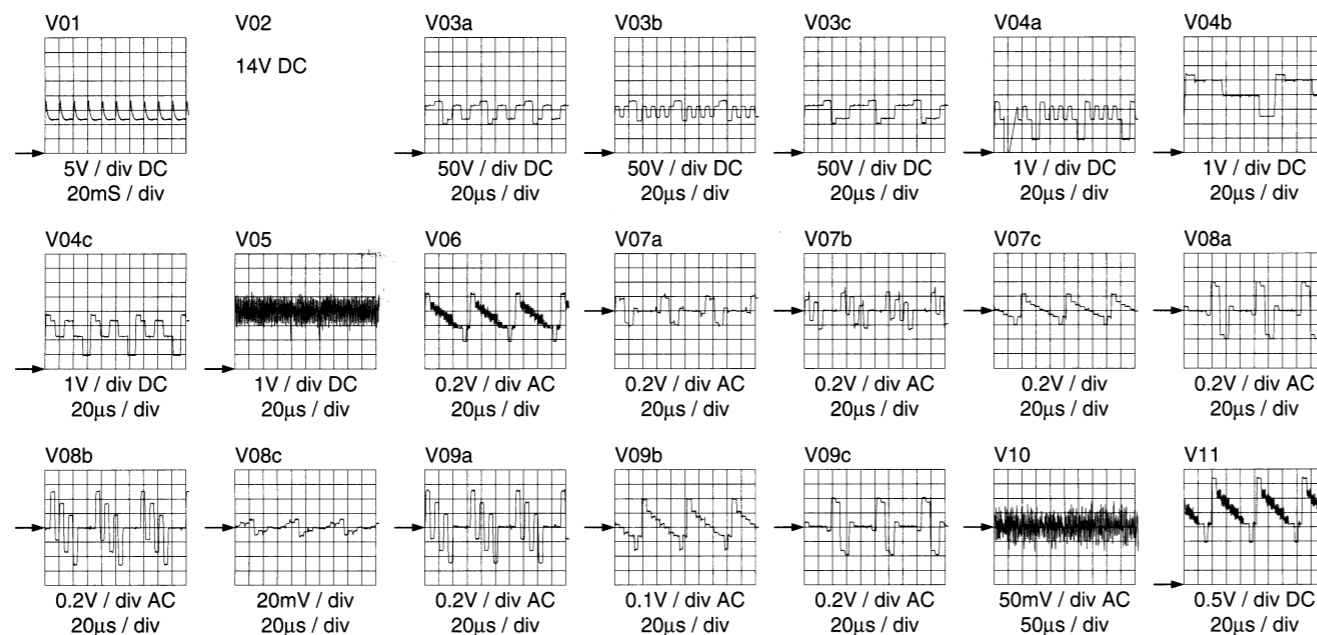
Power Supply



Synchronisation

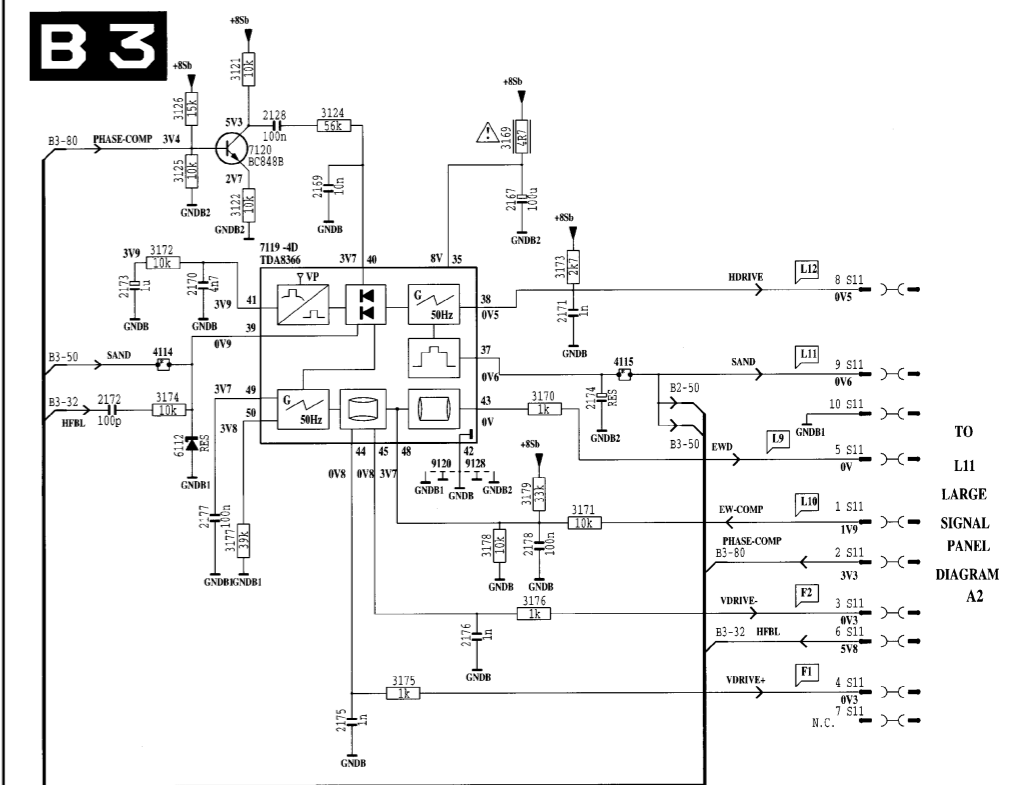


Small Signal Panel



Small Signal Panel Diagram

Synchronisation Diagram



Electrical Adjustments / Safety Parts / Service Notes / Controls Diagram / CRT Diagram / Euroconnector 1 & 2 / Fault Finding Tree ... (16:9) / Front Control Diagram

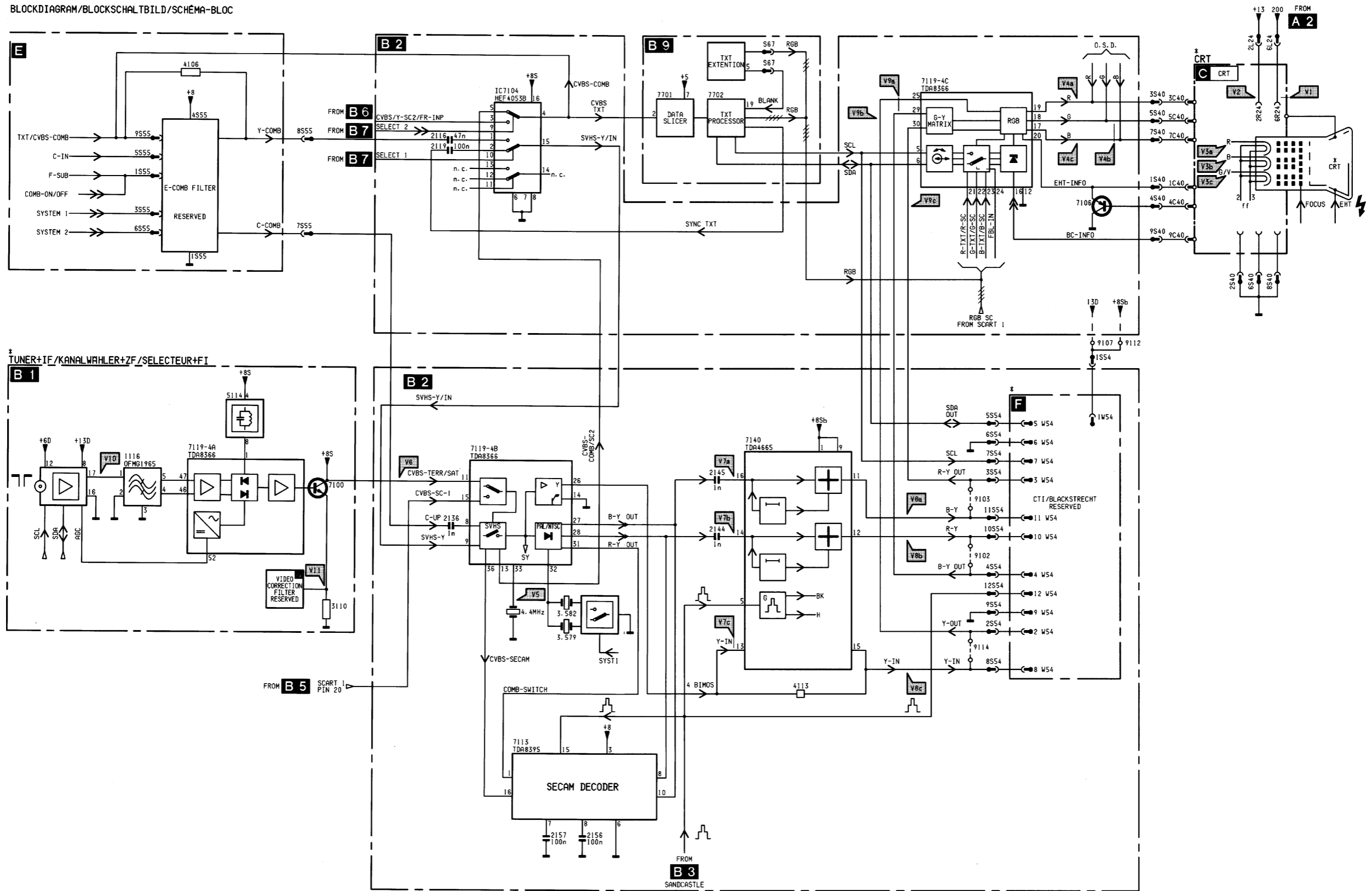
Horizontal Output Diagram / Audio Amp / Audio Module Interface / Audio Module / CTI/Black Stretch Diagram / Nicam Diagram / Power Supply Block / Tuner IF Diagram

Power Supply Diagram / Power Supply Diagrams (21" 16:9) (25/28"/16:9) / 16:9 Module Diagram / Small Signal Panel / Sound IF Diagram / Text Diagram / Sync. Diagram

Synchronisation Block / Testpoint Diagrams / Vertical Output Diagram / Video Processing / Video Processing Block / Waveforms / WSSB Module Diagram

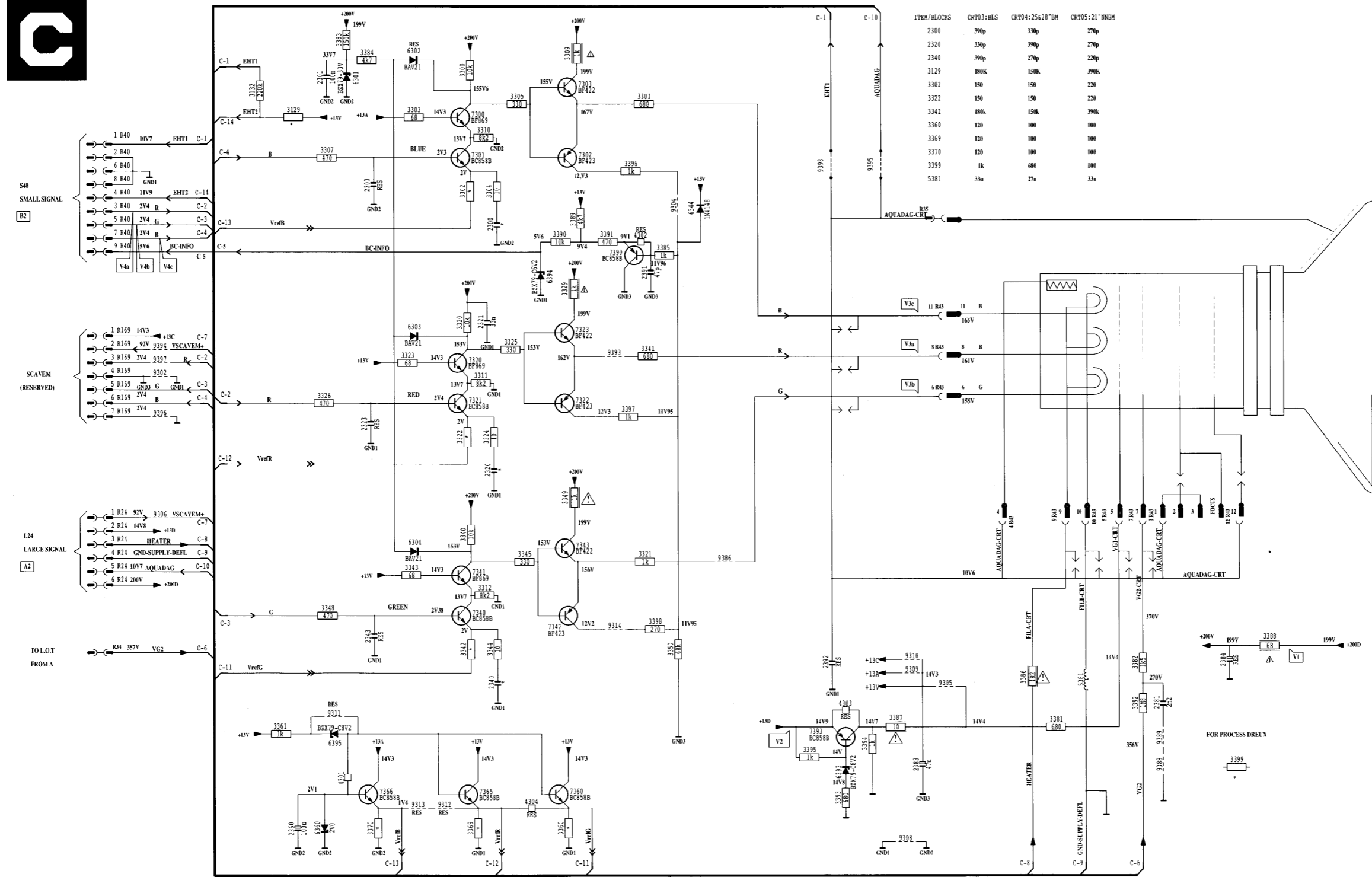
Video Processing Block Diagram

BLOCKDIAGRAM/BLOCKSCHALTBILD/SCHEMA-BLOC

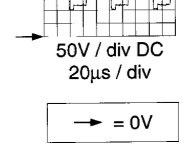
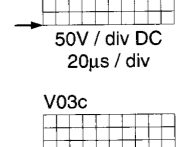
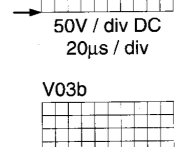
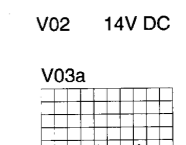
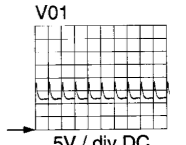




CRT Diagram

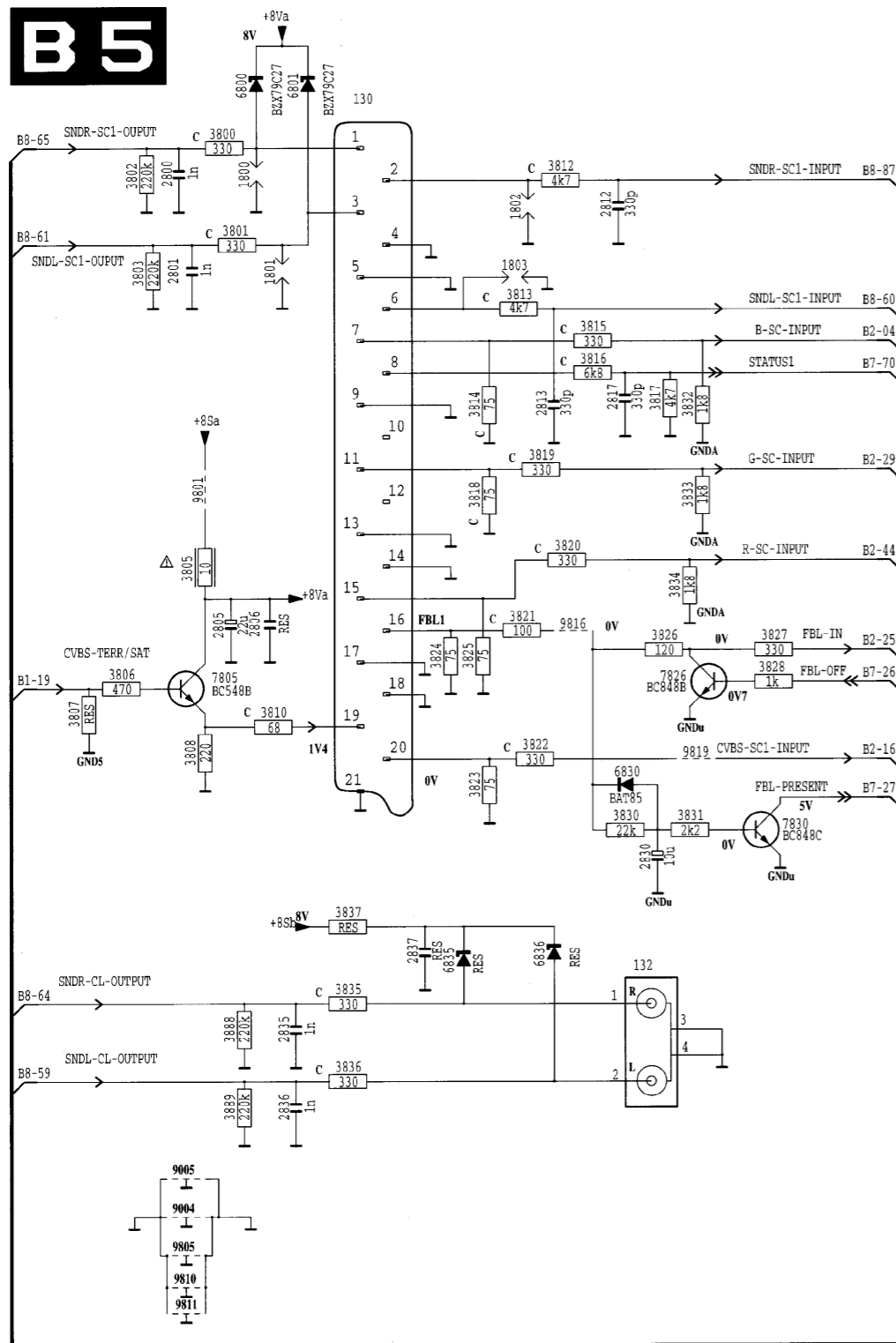


ITEM/BLOCKS	CRT03:BL5	CRT04:25x28"BM	CRT05:21"DMH
2300	390p	330p	270p
2320	330p	390p	270p
2340	390p	270p	230p
3129	180K	150K	390K
3302	150	150	220
3322	150	150	220
3342	180K	150K	390K
3360	120	100	100
3369	120	100	100
3370	120	100	100
3399	1k	680	100
5381	33u	27u	33u

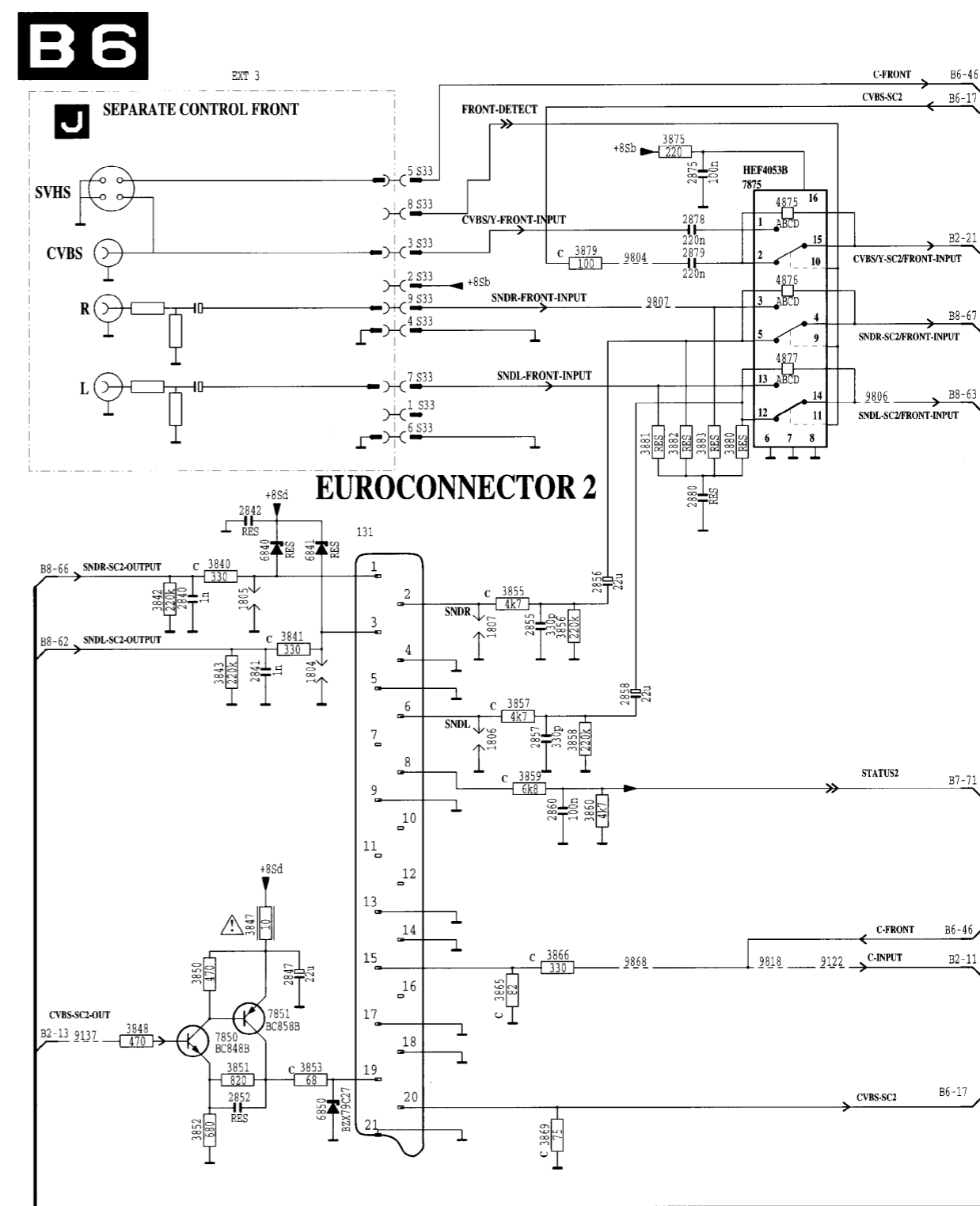


→ = 0V

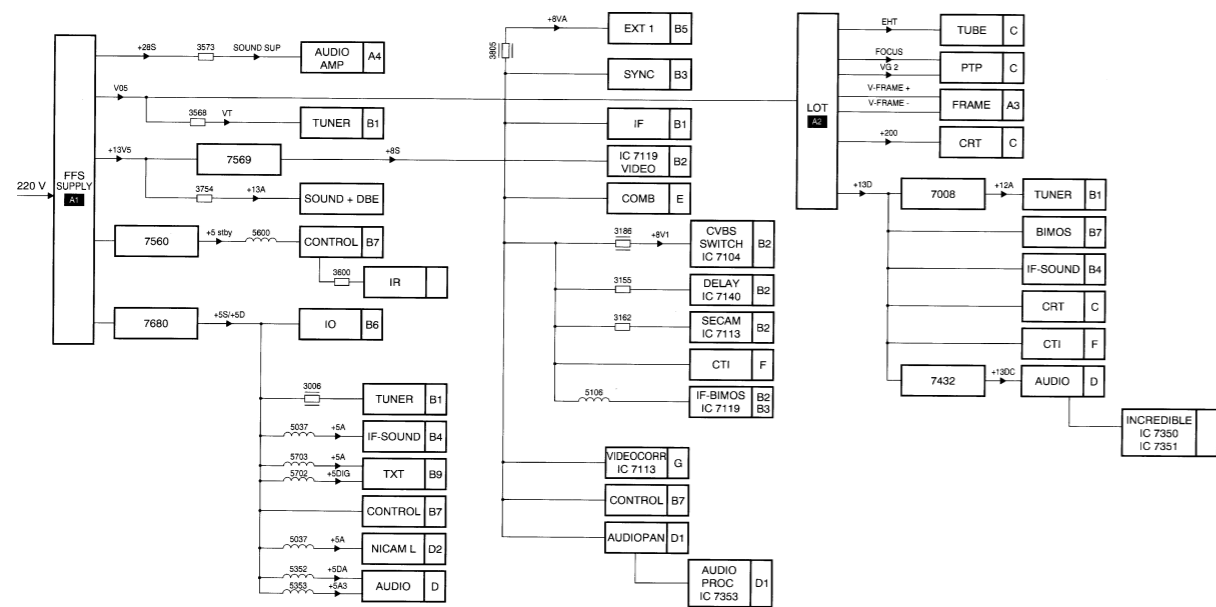
Euroconnector 1 Diagram



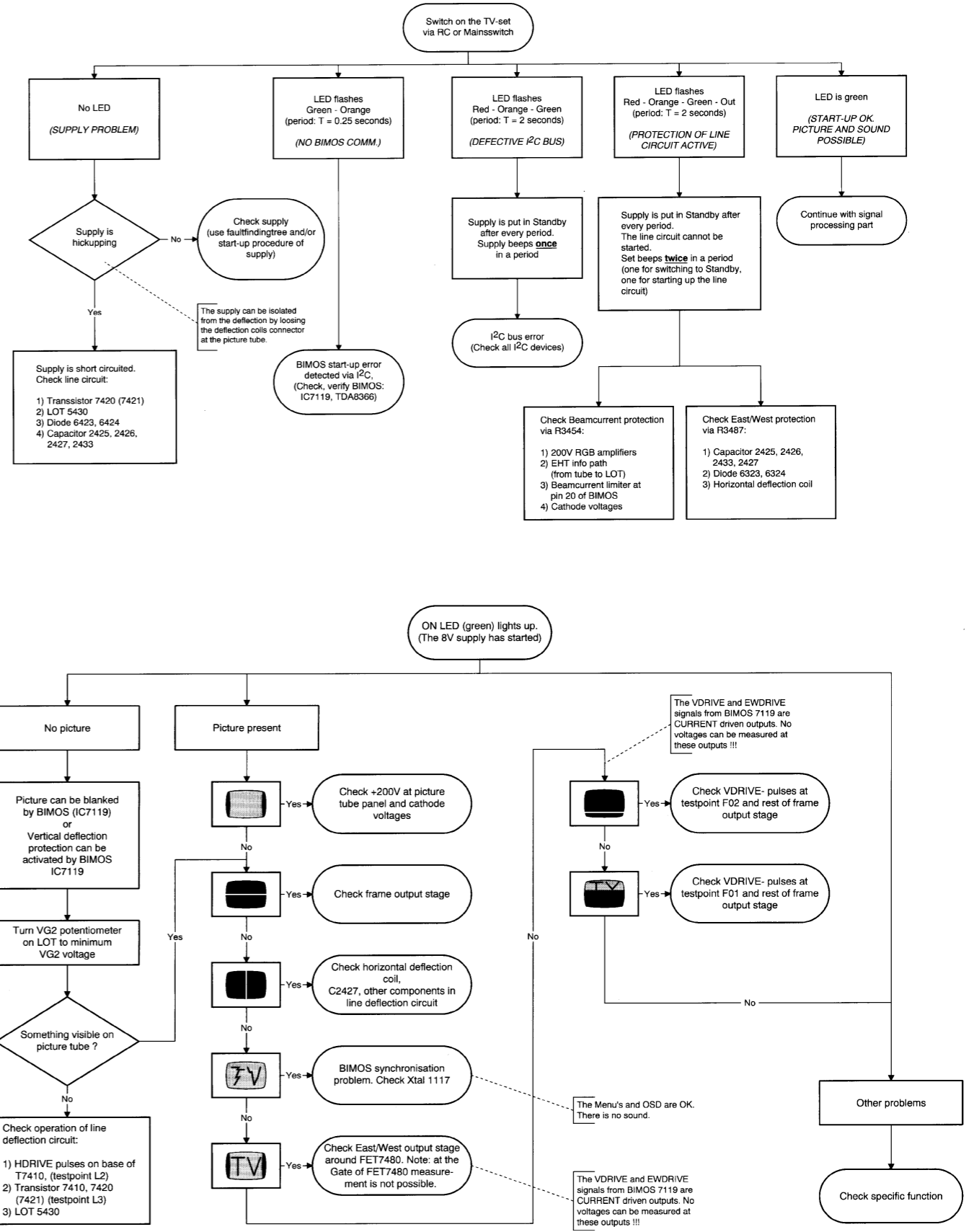
Euroconnector 2 Diagram



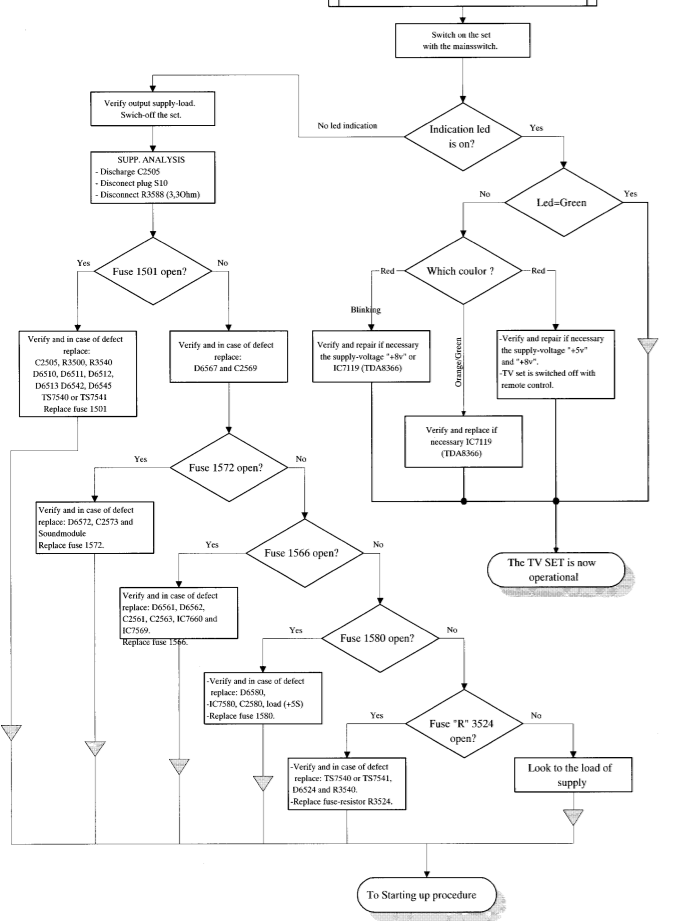
Fault Finding Tree



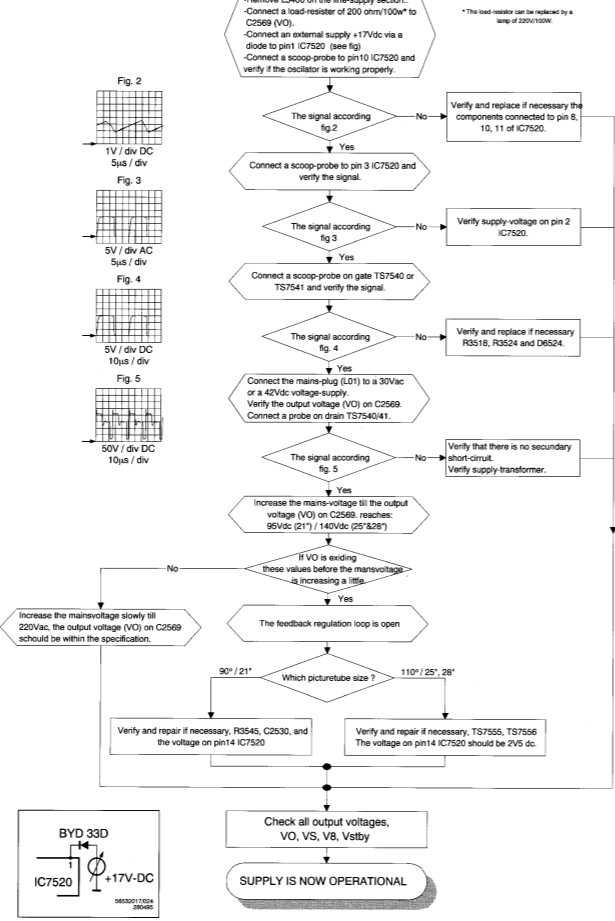
Fault Finding Tree (16:9)



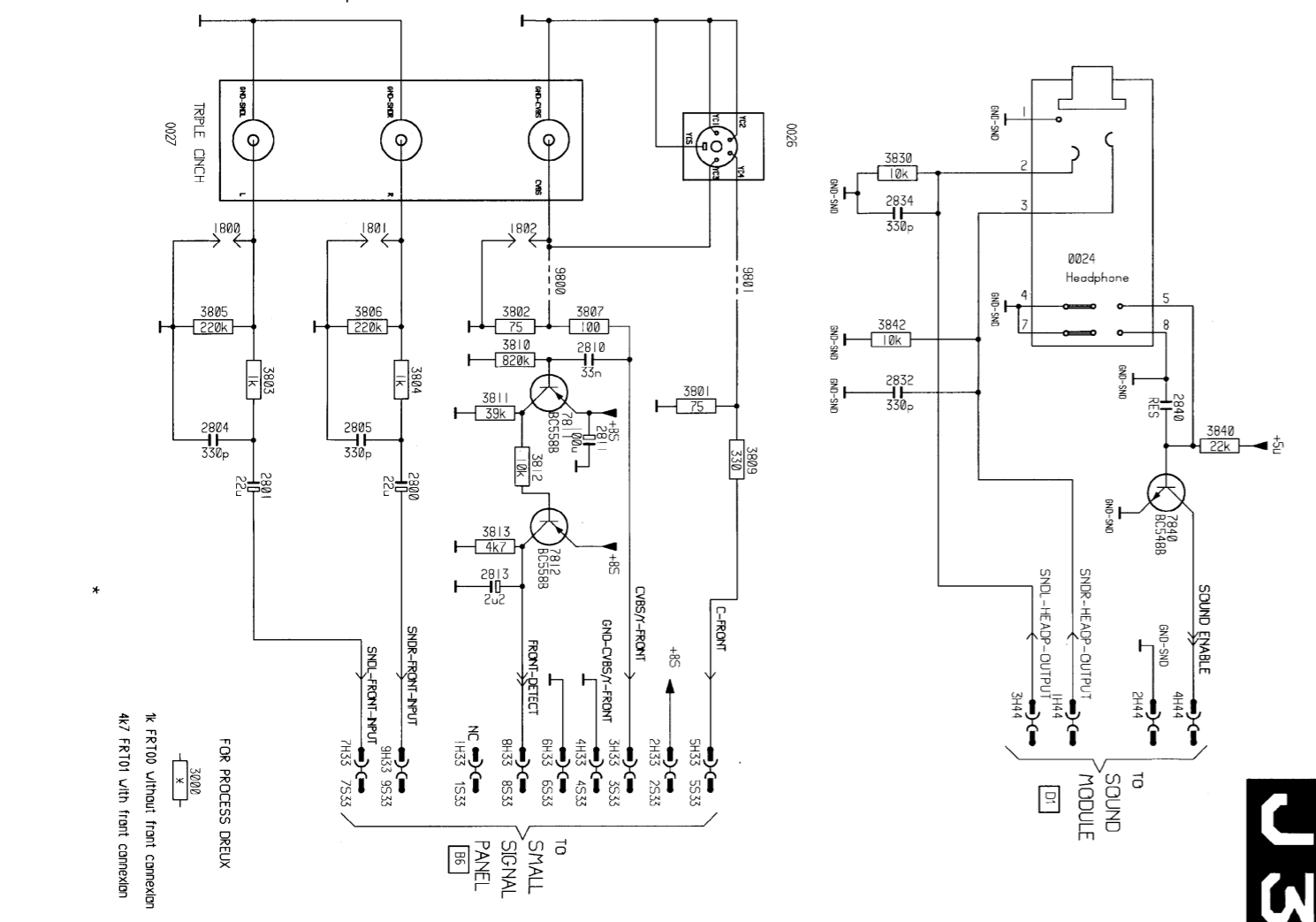
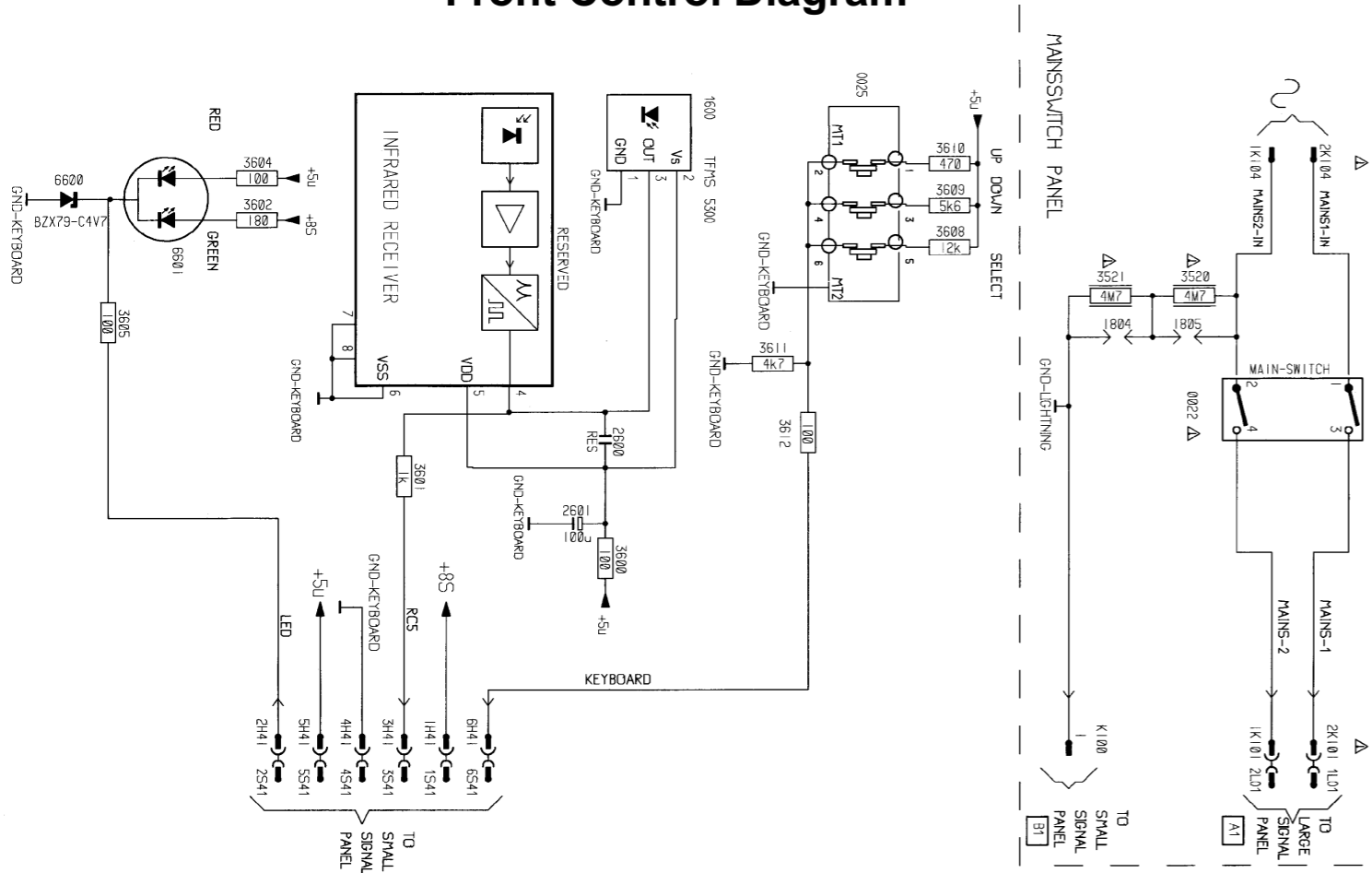
SUPPLY FAULT ANALYSIS



STARTING UP PROCEDURE

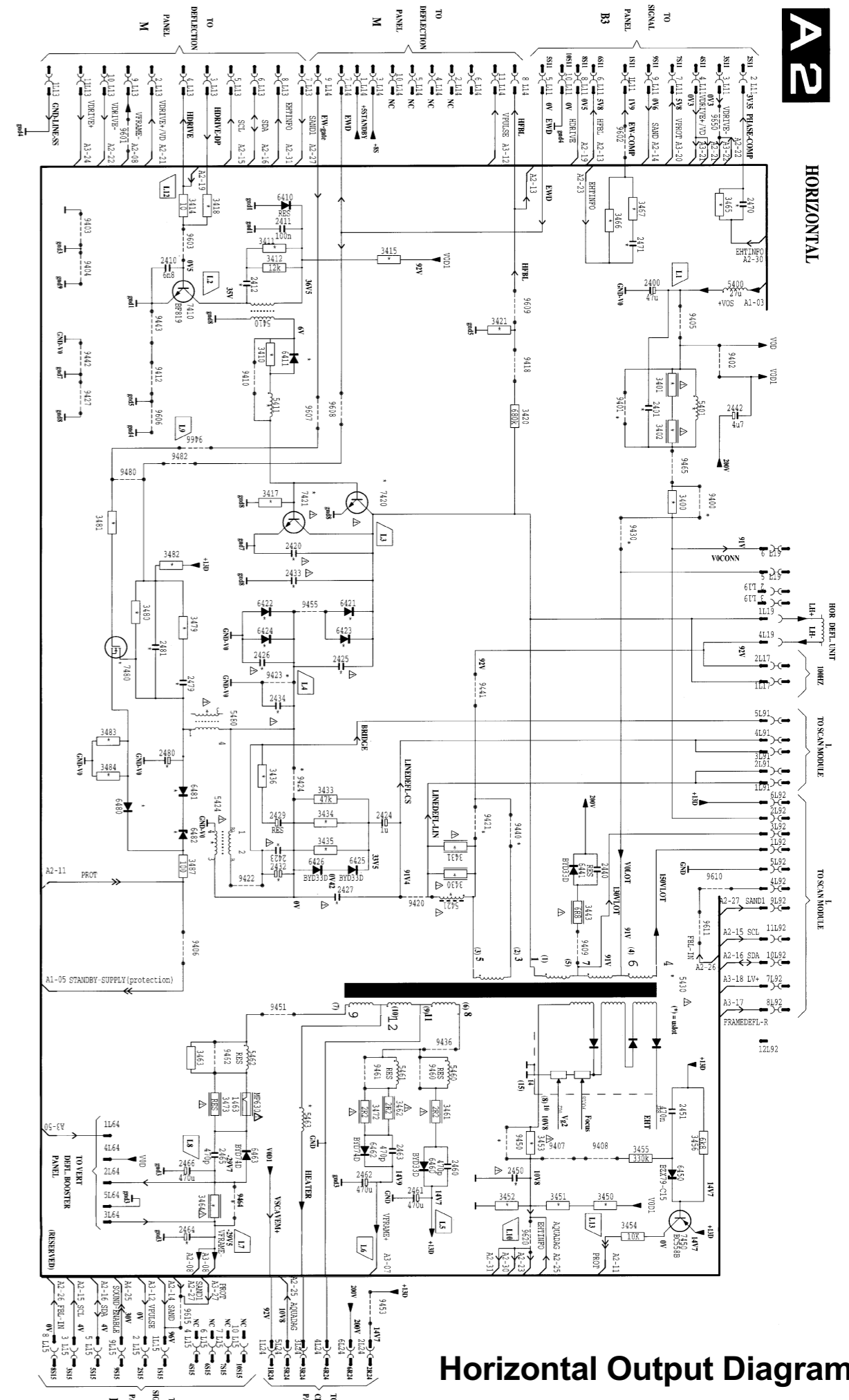


Front Control Diagram



A2

HORIZONTAL



Horizontal Output Diagram

J3

Electrical Adjustments / Safety Parts / Service Notes / Controls Diagram / CRT Diagram / Euroconnector 1 & 2 / Fault Finding Tree...(16:9) / Front Control Diagram

Horizontal Output Diagram / Audio Amp / Audio Module Interface / Audio Module / CTI/Black Stretch Diagram / Nicam Diagram / Power Supply Block / Tuner IF Diagram

Power Supply Diagram / Power Supply Diagrams (21" 16:9) (25/28"/16:9) / 16:9 Module Diagram / Small Signal Panel / Sound IF Diagram / Text Diagram / Sync. Diagram

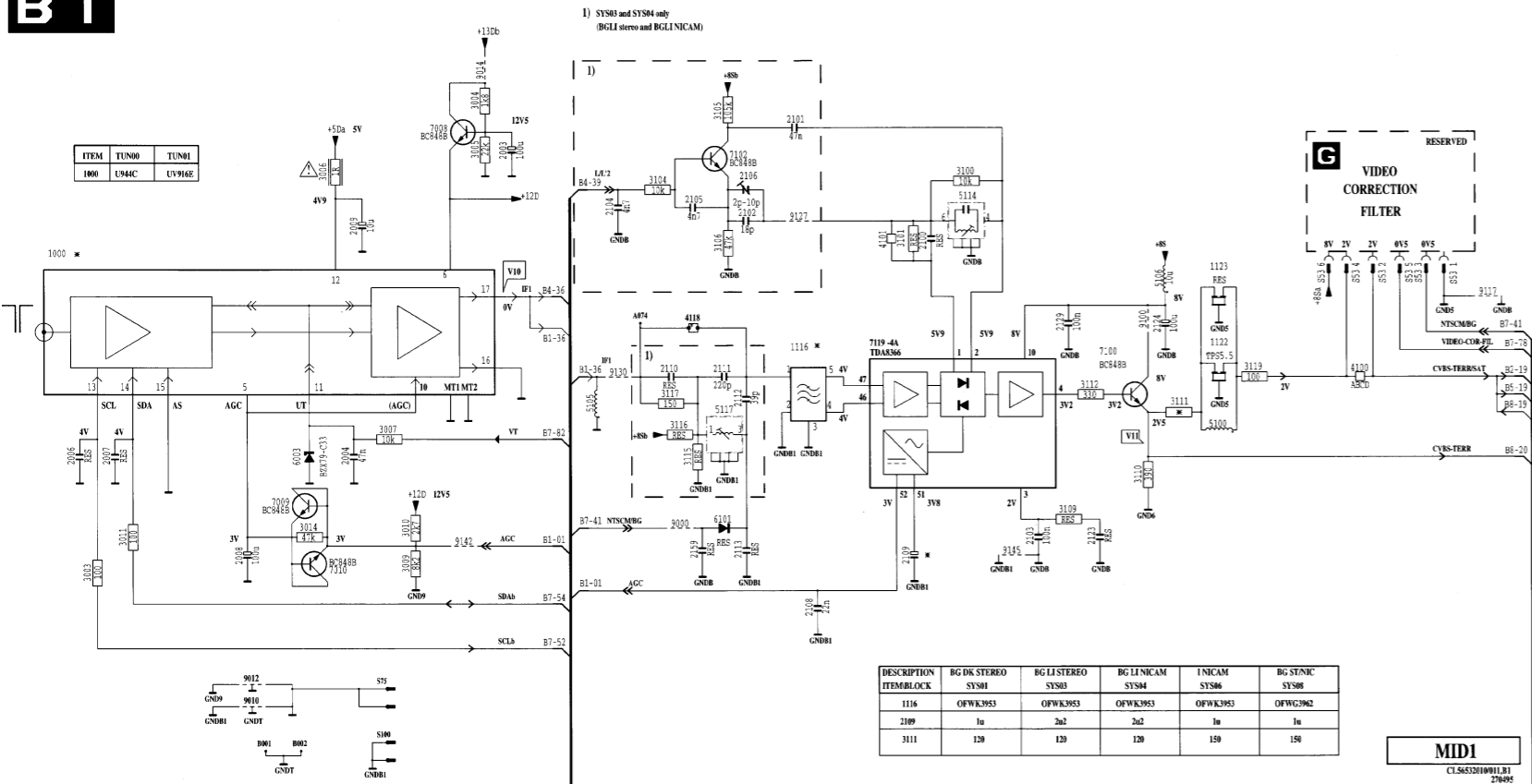
Synchronisation Block / Testpoint Diagrams / Vertical Output Diagram / Video Processing / Video Processing Block / Waveforms / WSSB Module Diagram





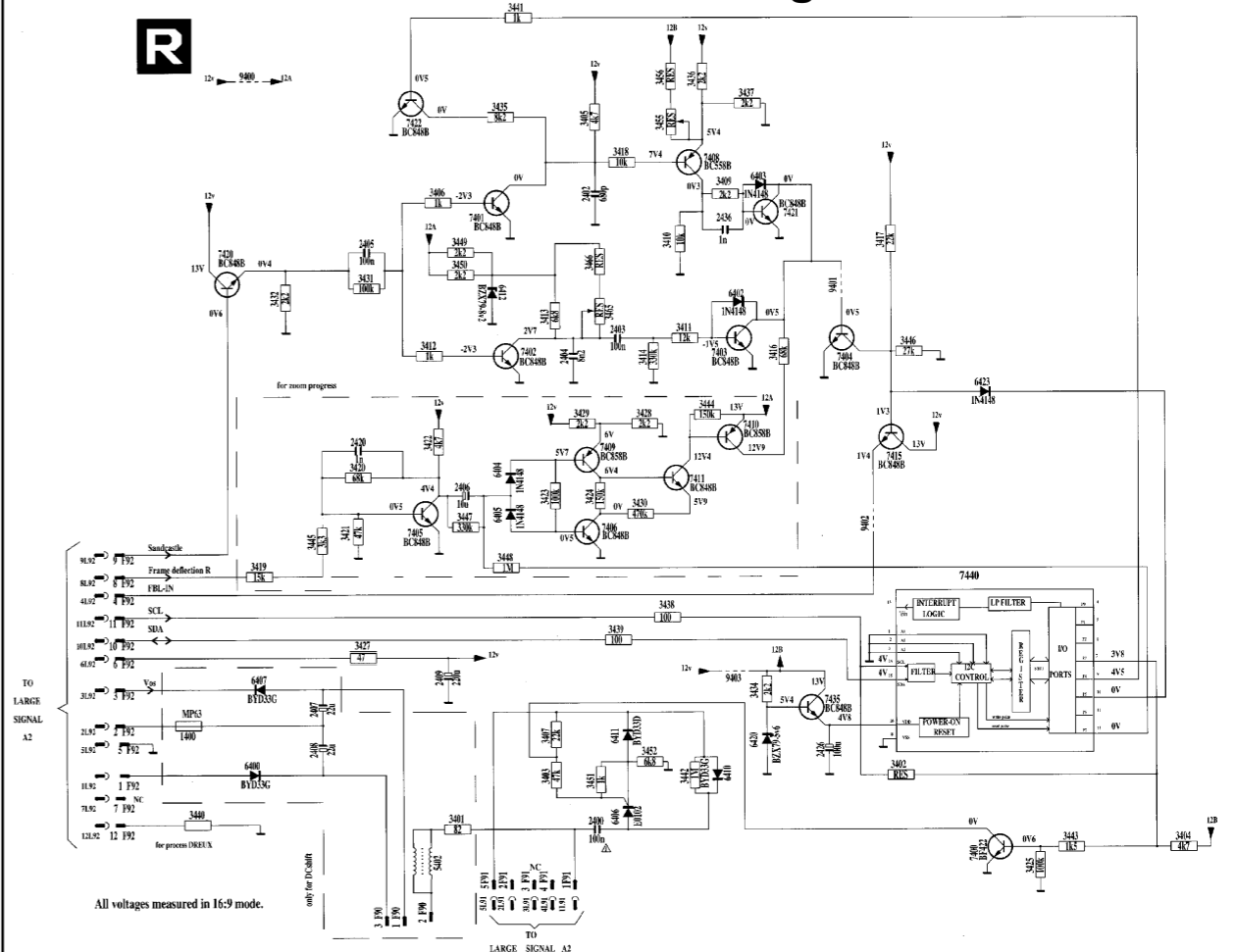
Tuner IF Diagram

B 1



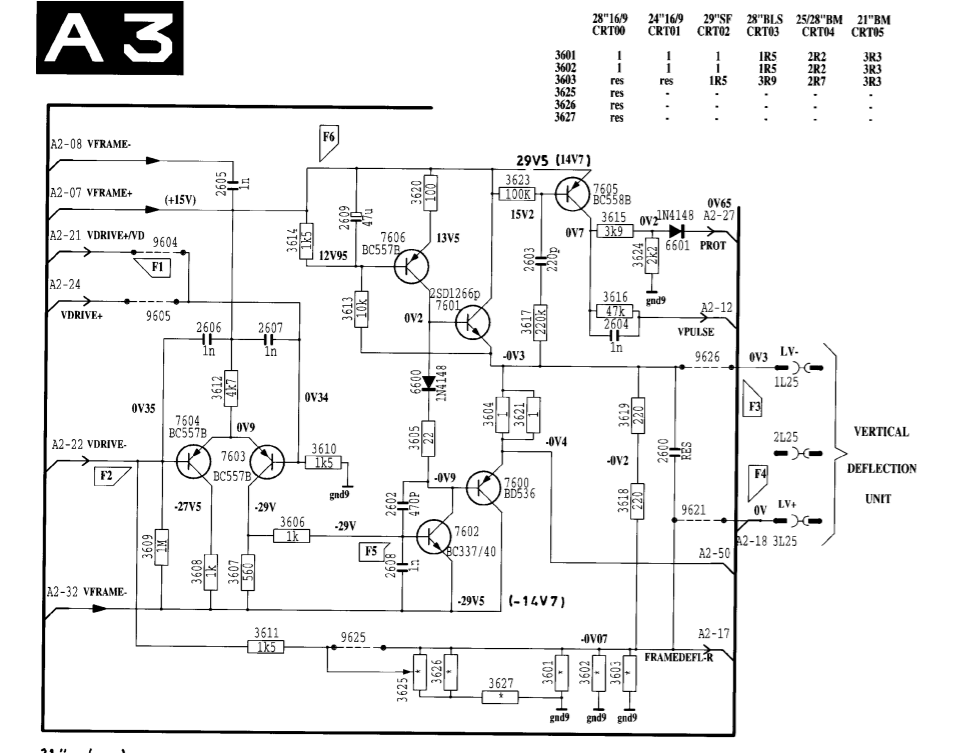
16:9 Module Diagram

R

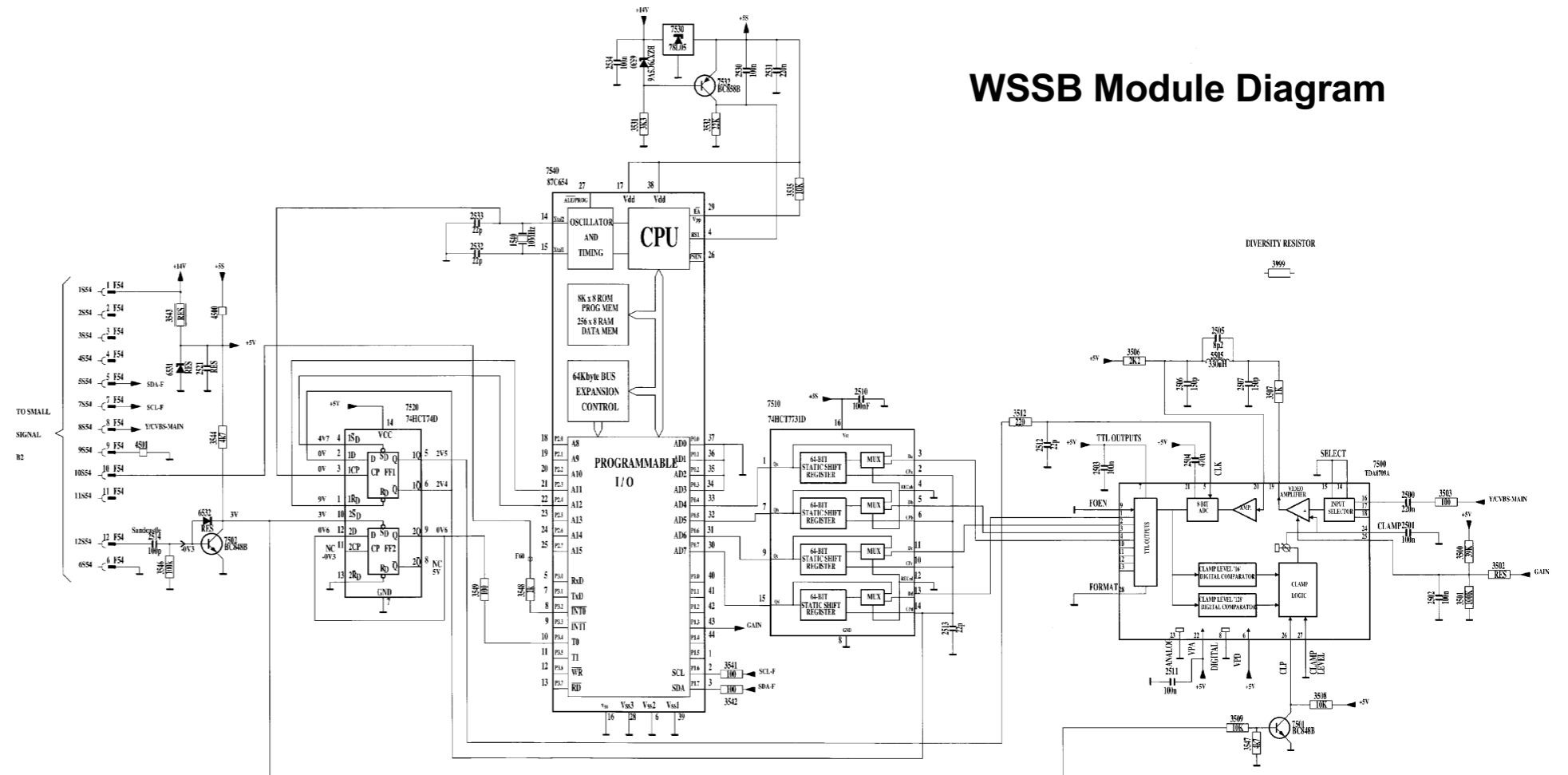


Vertical Output Diagram

A 3



WSSB Module Diagram



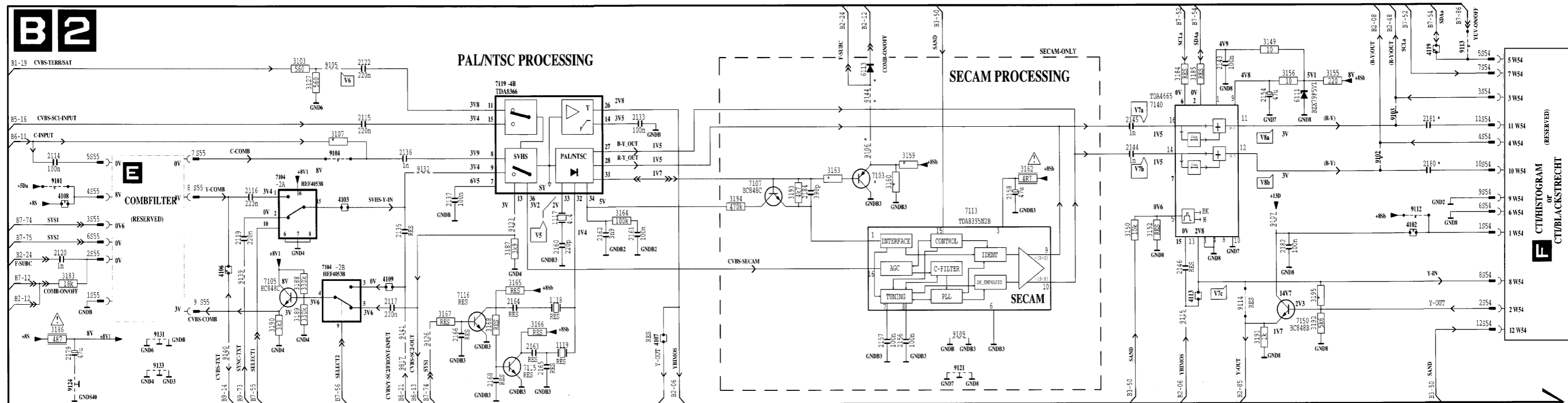
Electrical Adjustments / Safety Parts / Service Notes / Controls Diagram / CRT Diagram / Euroconnector 1 & 2 / Fault Finding Tree ... (16:9) / Front Control Diagram

Horizontal Output Diagram / Audio Amp / Audio Module Interface / Audio Module / CTI/Black Stretch Diagram / Nicam Diagram / Power Supply Block / Tuner IF Diagram

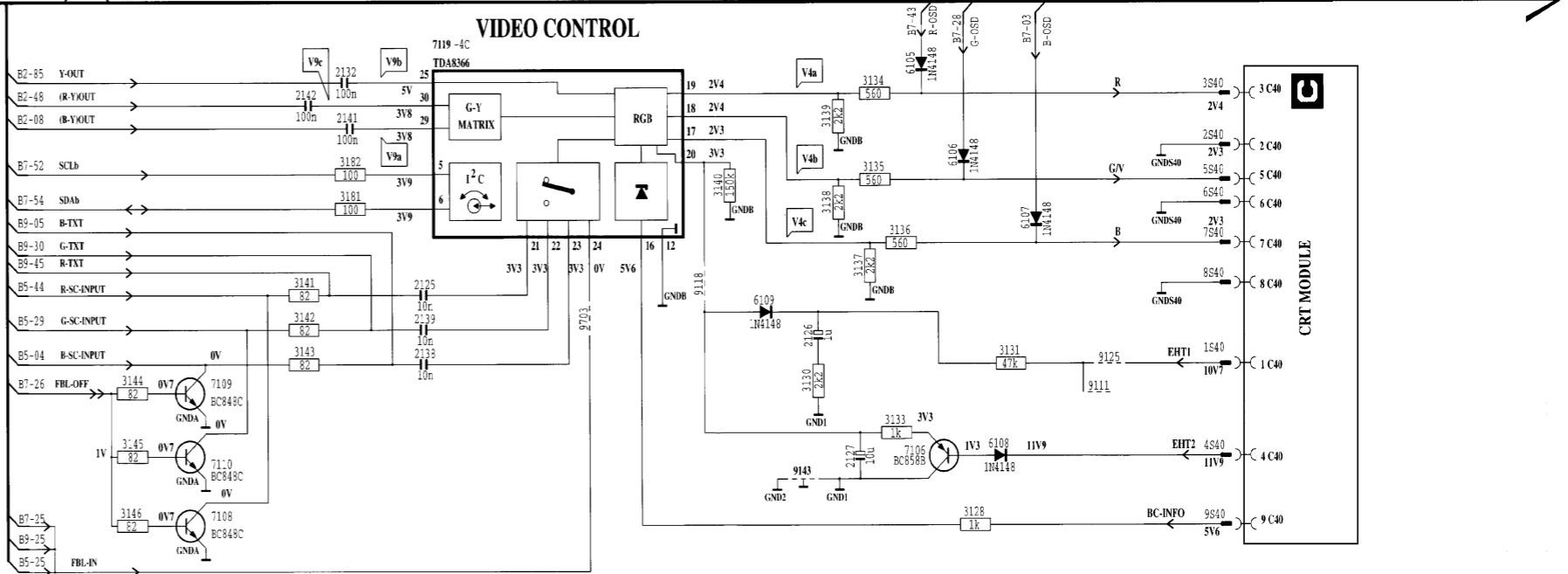
Power Supply Diagram / Power Supply Diagrams (21" 16:9) (25/28"/16:9) / 16:9 Module Diagram / Small Signal Panel / Sound IF Diagram / Text Diagram / Sync. Diagram

Synchronisation Block / Testpoint Diagrams / Vertical Output Diagram / Video Processing Block / Waveforms / WSSB Module Diagram

Video Processing Diagram



DESCRIPTION ITEM/BLOCK	COMBFILTER CMB00	NO COMBFILTER CMB01	CTI PCT00	NO BLACKSTRETCH + NO CTI PCT02
2180			220n	
2181			220n	
3107		470		
3159	22k			
3160	12k			
3163	2k7			1k
3195				
4102				
4106				
4108				
4119				
6113				
7103	BC858			
9101	+			
9102				+
9103				+
9104	+			
9106	+			
9112				
9113				
9144	+			



Electrical Adjustments / Safety Parts / Service Notes / Controls Diagram / CRT Diagram / Euroconnector 1 & 2 / Fault Finding Tree ... (16:9) / Front Control Diagram

Horizontal Output Diagram / Audio Amp / Audio Module Interface / Audio Module / CTI/Black Stretch Diagram / Nicam Diagram / Power Supply Block / Tuner IF Diagram

Power Supply Diagram / Power Supply Diagrams (21" 16:9) (25/28"/16:9) / 16:9 Module Diagram / Small Signal Panel / Sound IF Diagram / Text Diagram / Sync. Diagram

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