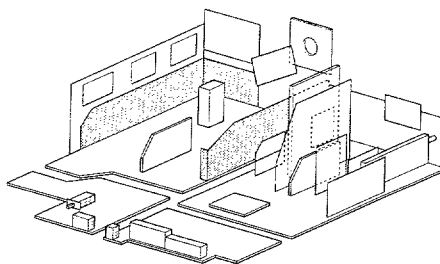


Service
Service
Service



FL2.24
FL2.26
FL4.27

AA

Service Manual

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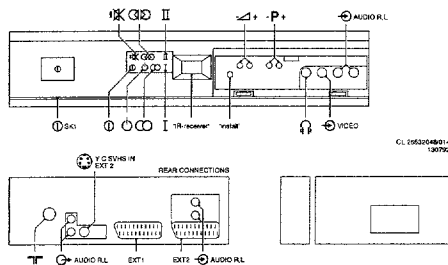
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1. Technical data

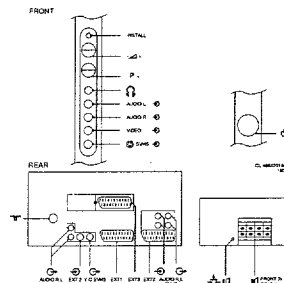
Mains voltage	: 220 - 240 V (± 10%)
	: 50 Hz - 60 Hz (± 5%)
Aerial input impedance	: 75 Ω - koaxial
Minimum aerial voltage	: 30 μV (VHF), 40 μV (UHF)
Maximum aerial voltage VHF/S/UHF	: 180 mV
Programmes	: 0 - 99
VCR programmes	: 0, 50 - 99

2. Connection facilities and Chassis overview

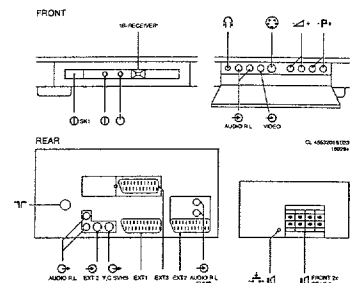
FL1



FL2

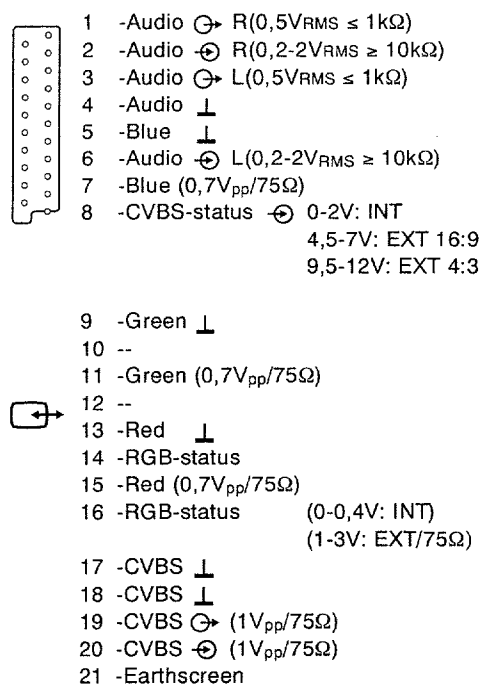


FL4

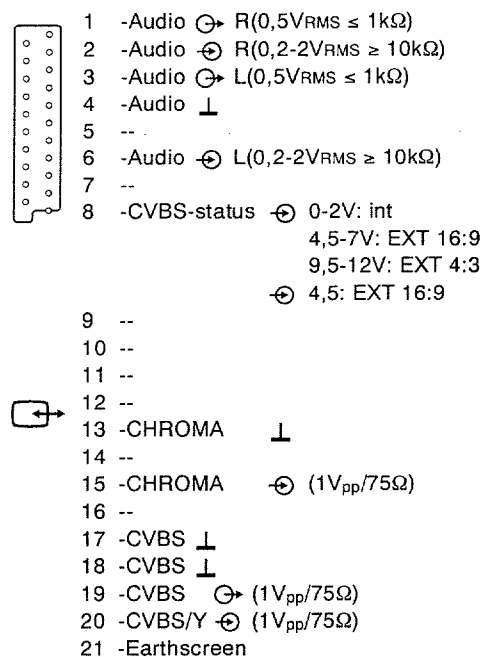


Specification of the connectors

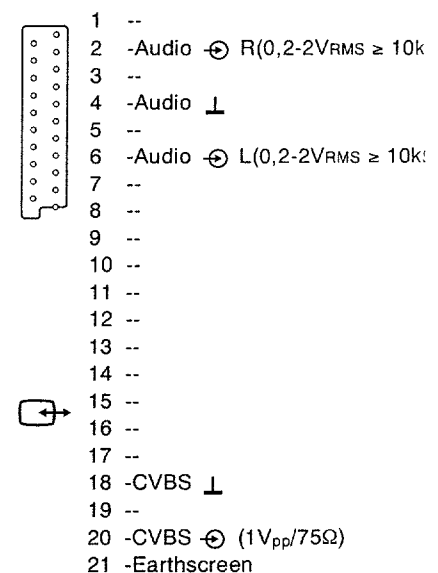
EXT1 (AUX): RGB+CVBS



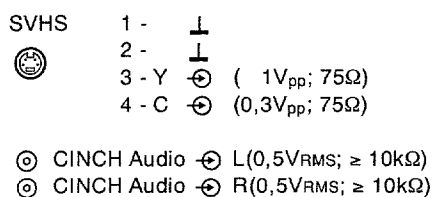
EXT2 (VCR): Y/C+CVBS



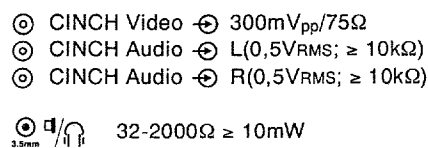
EXT3: CVBS



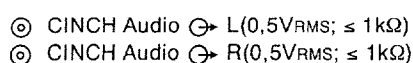
EXT2 (SVHS) (rear)



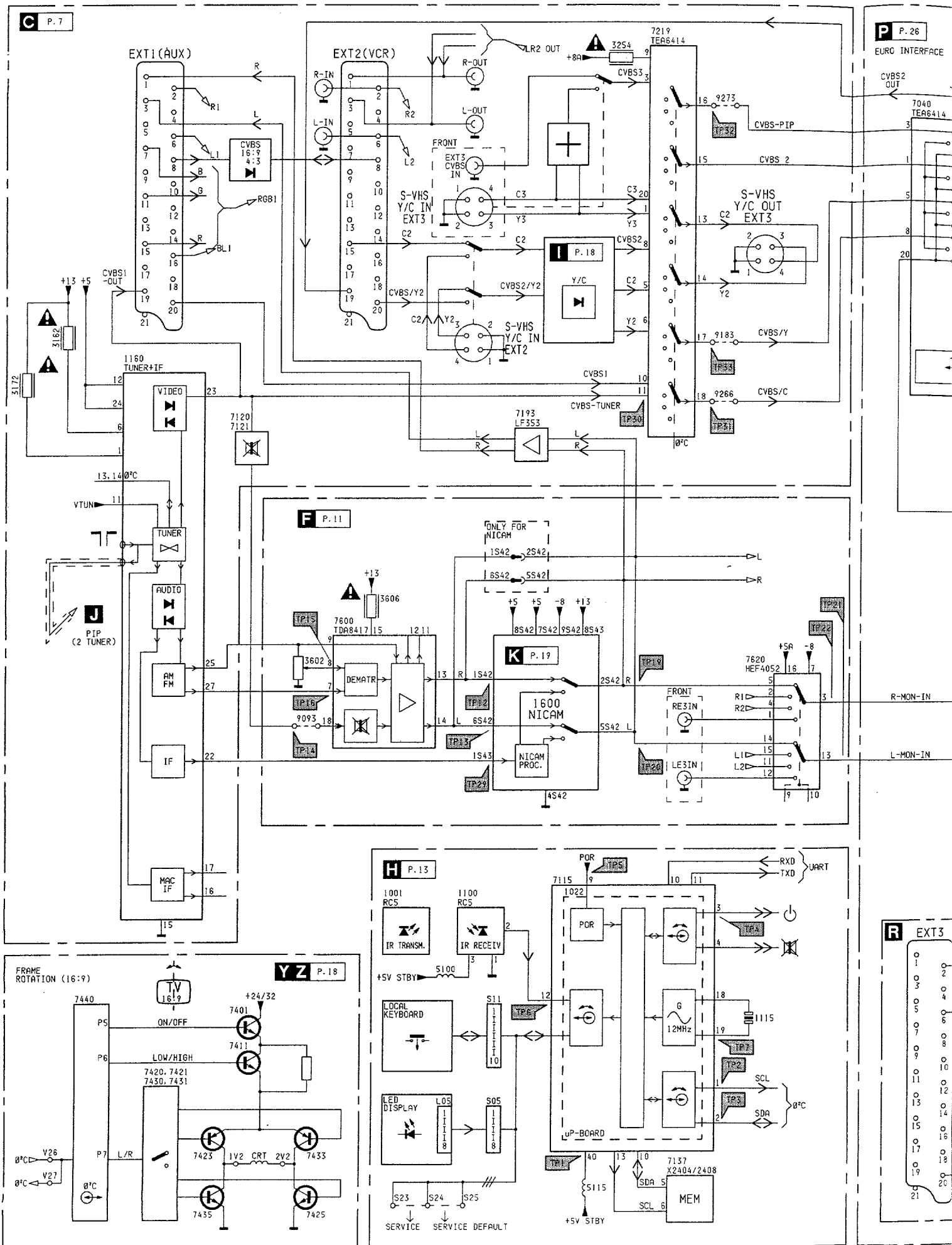
EXT3 (front)

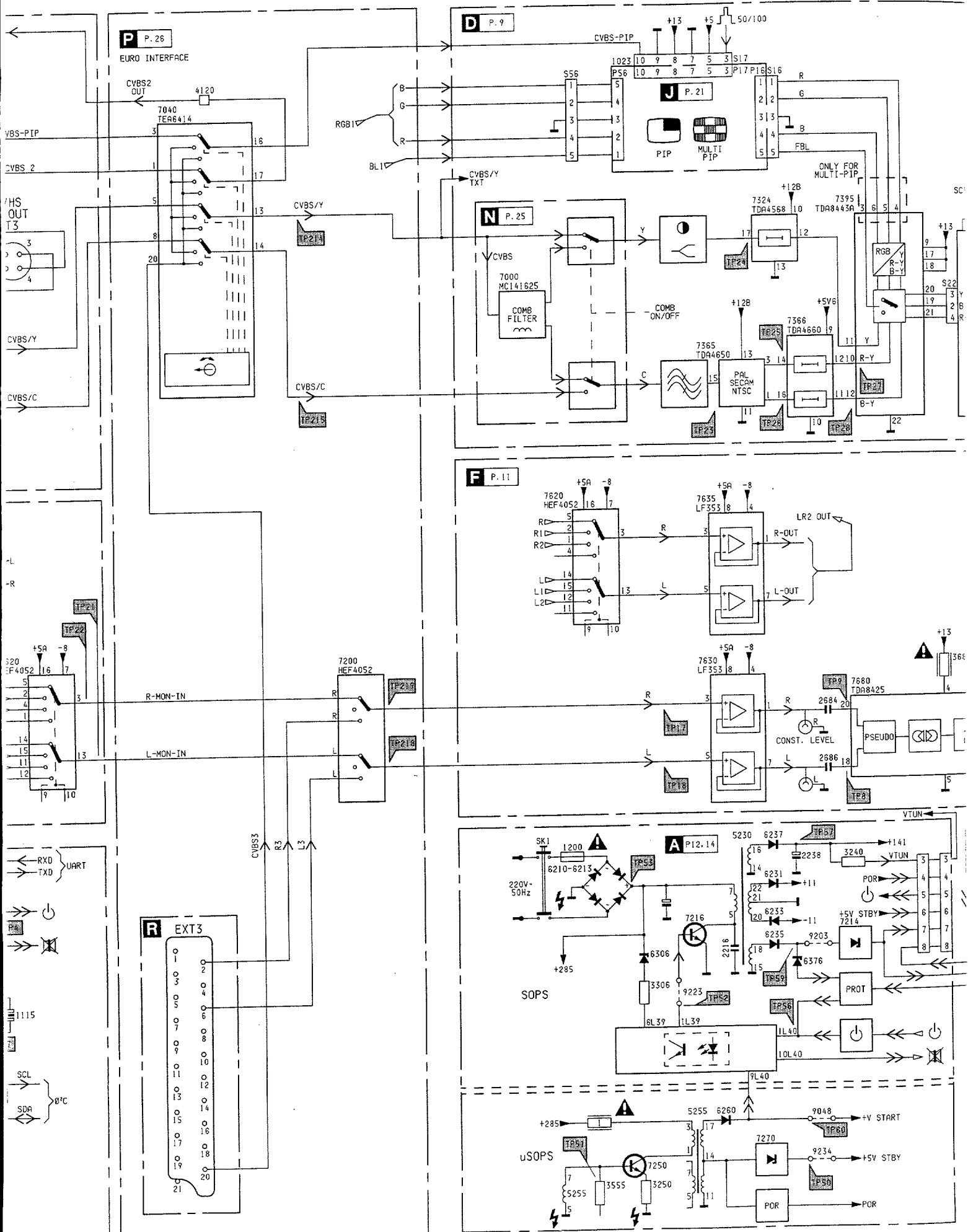


Audio out (rear)

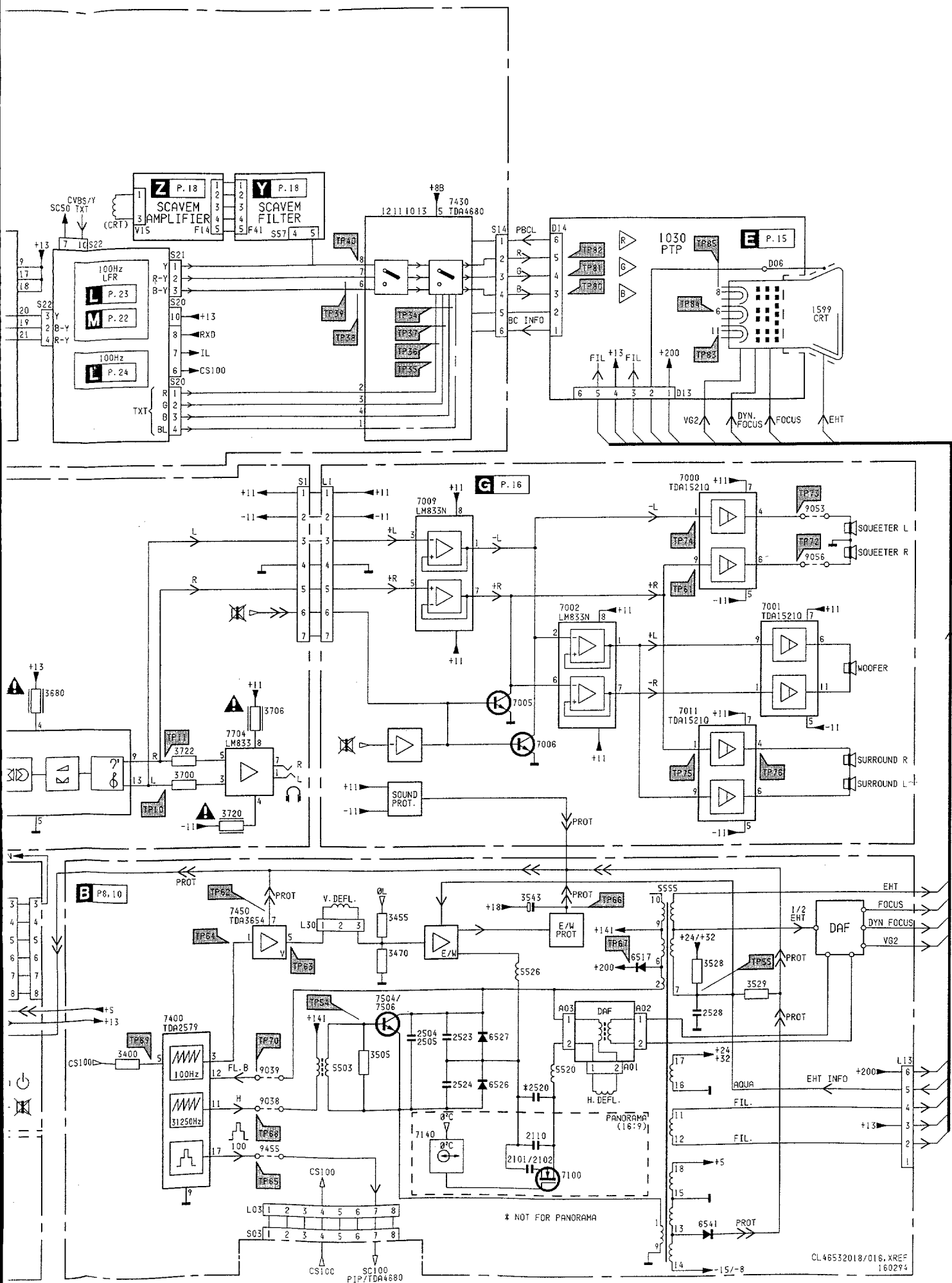


Blockdiagram / Blockschaltbild /

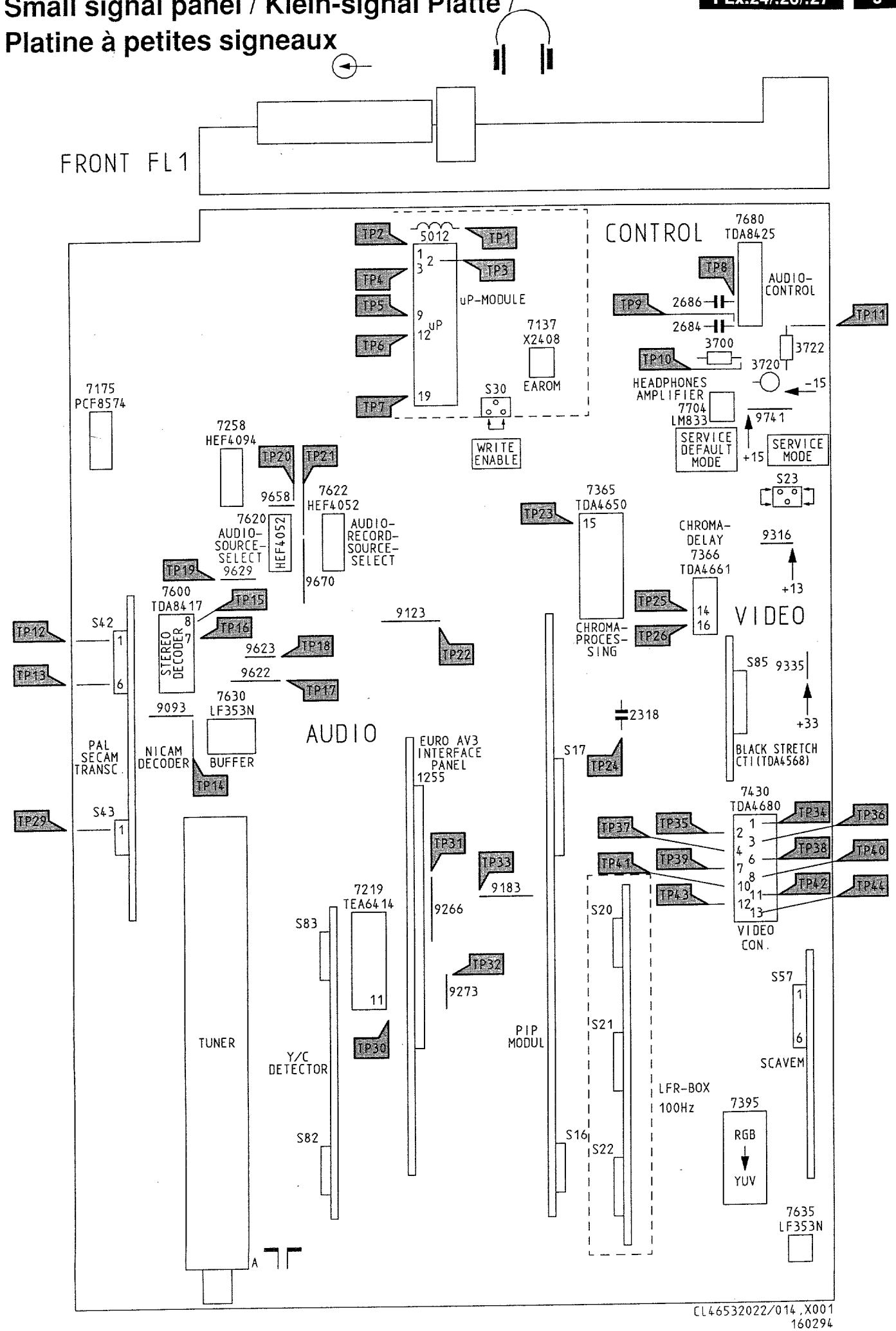


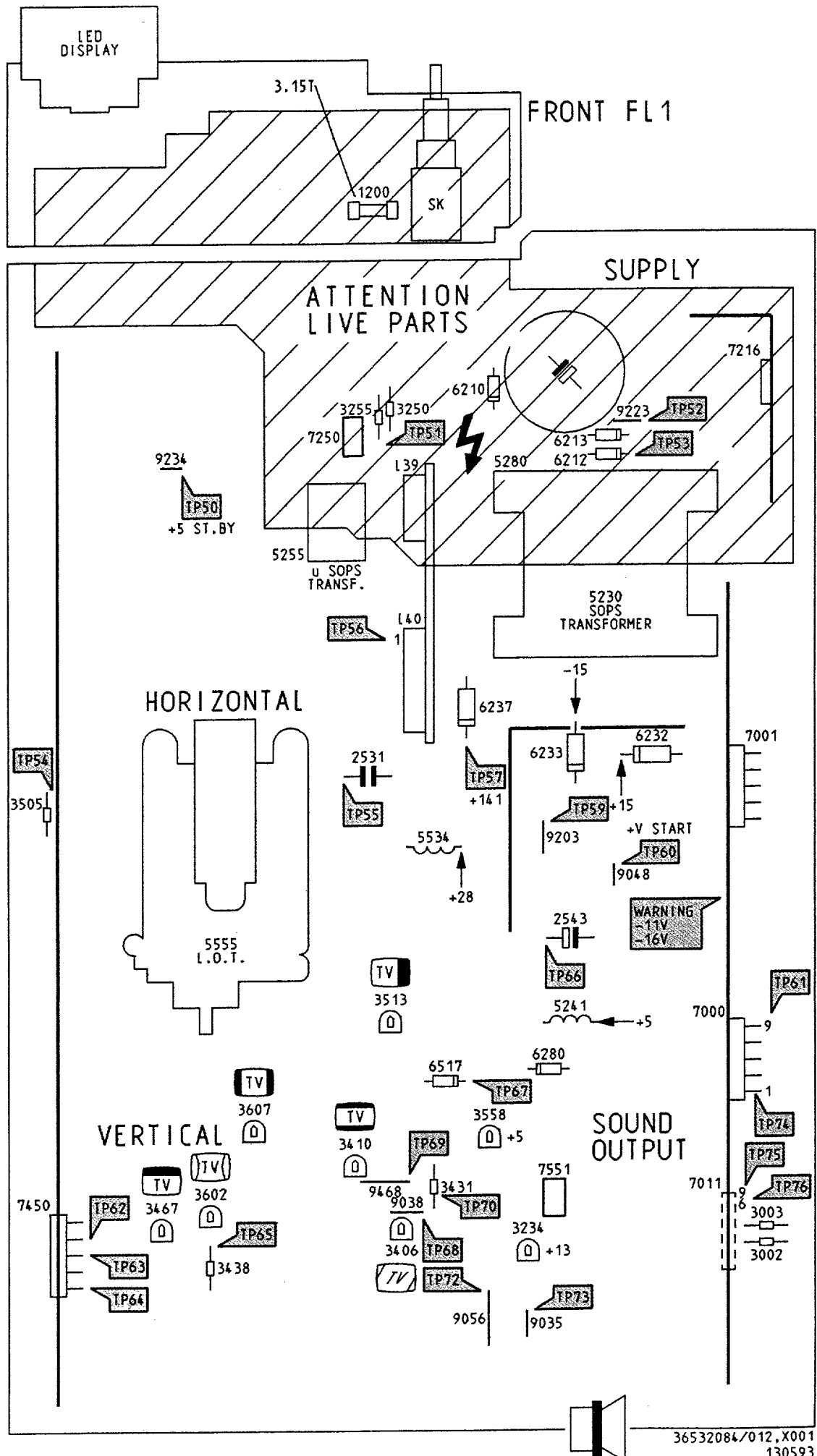


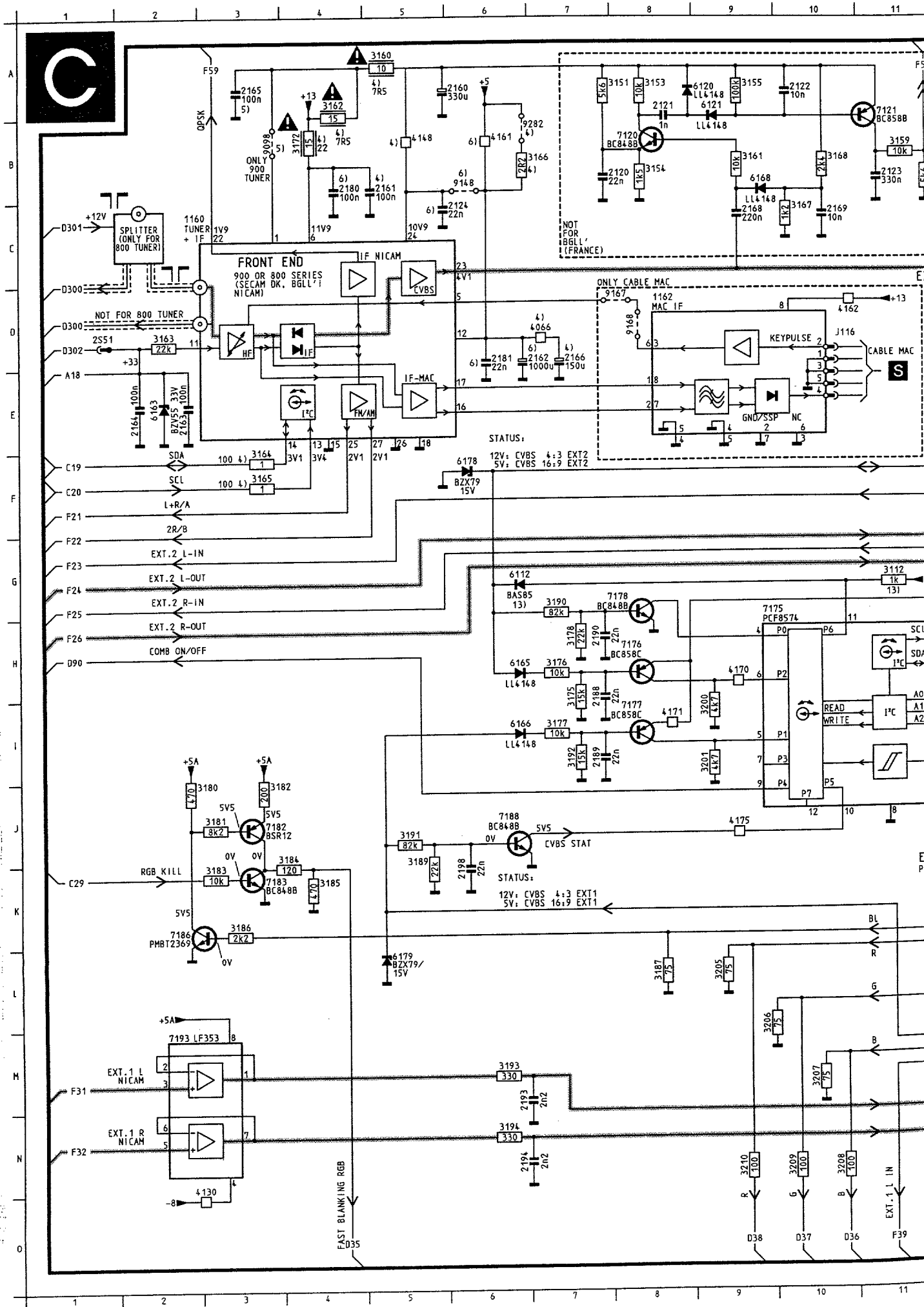
4 Diagramme schématique



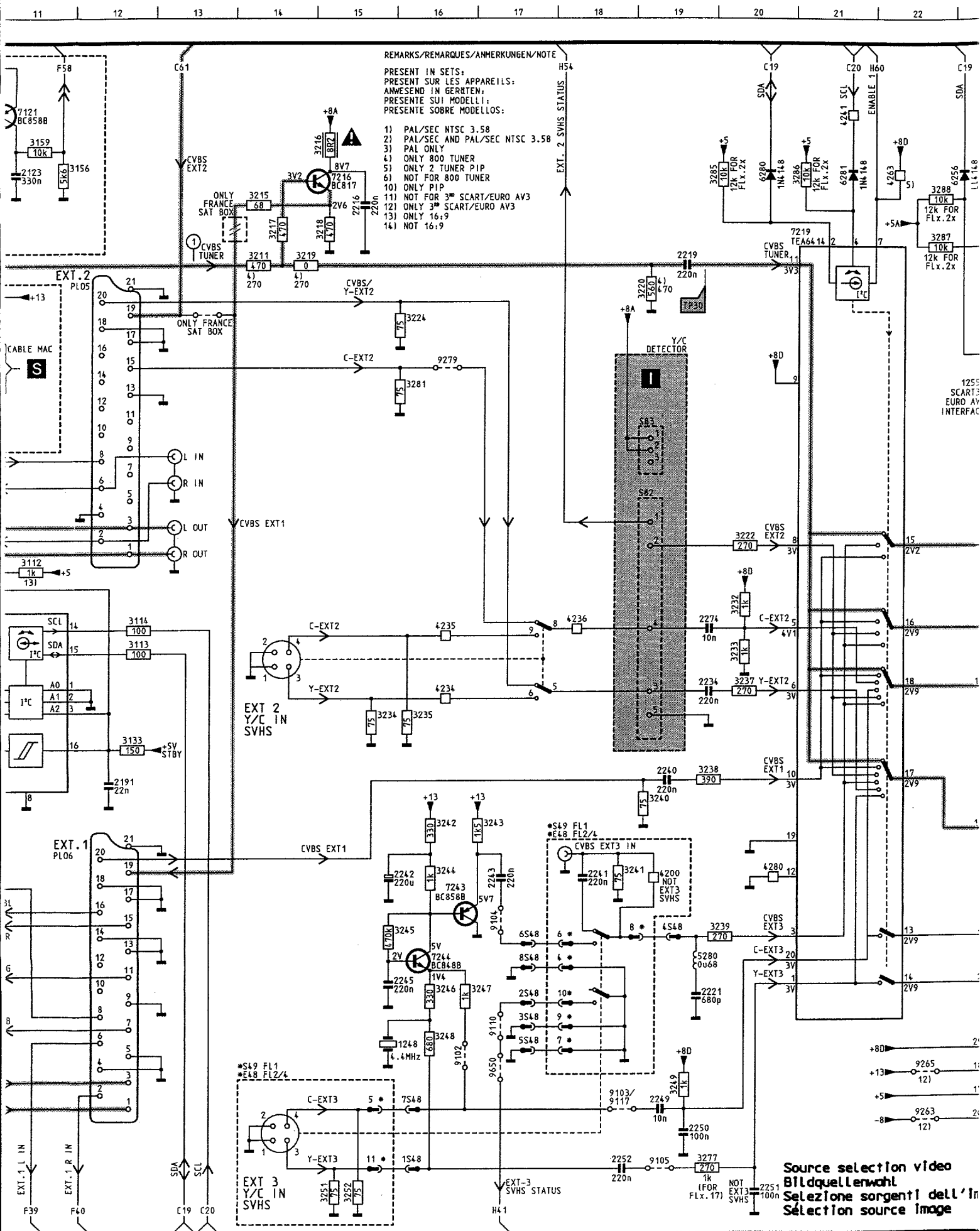
Small signal panel / Klein-signal Platte /
Platine à petites signaux

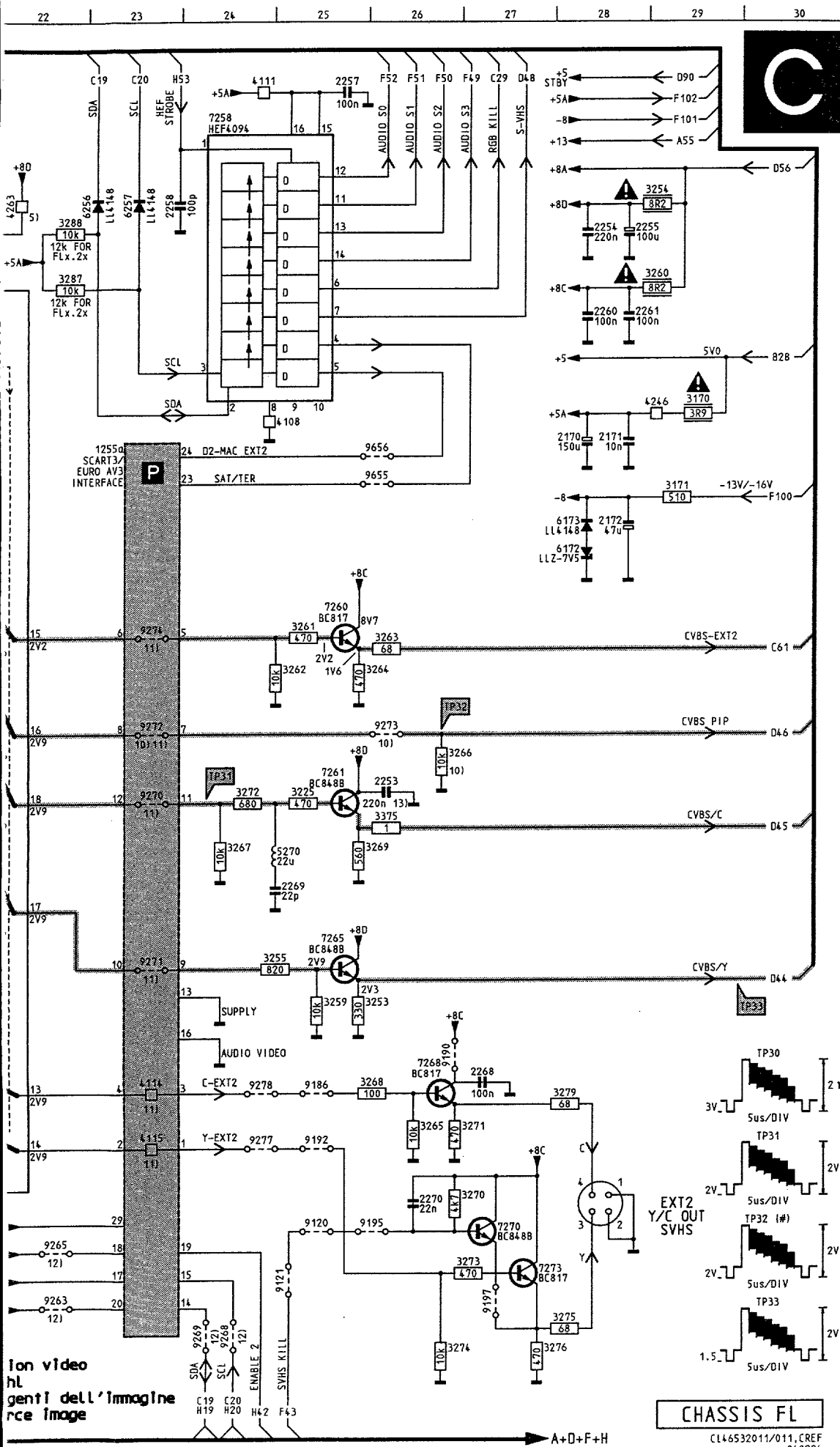




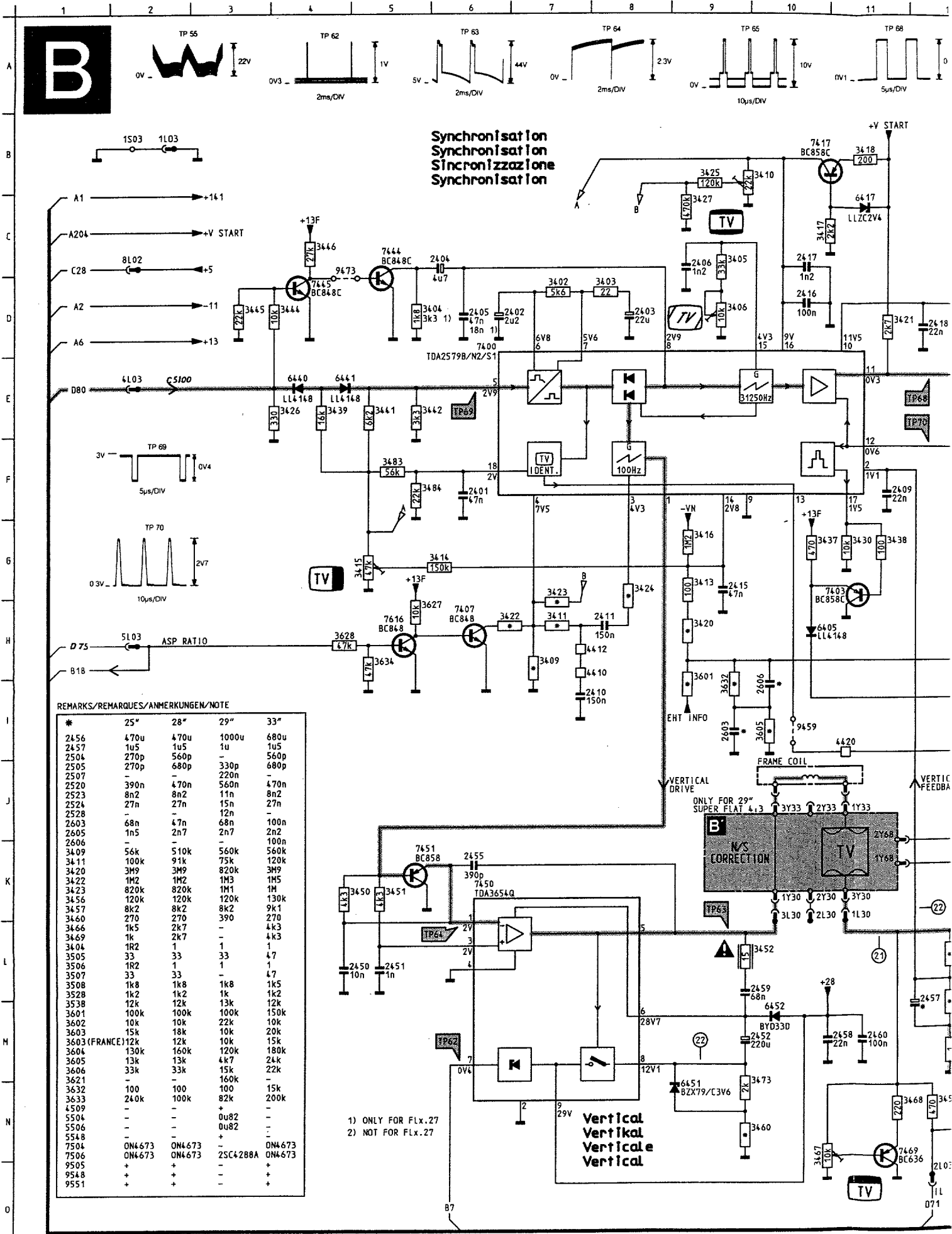


7 Sélection de source



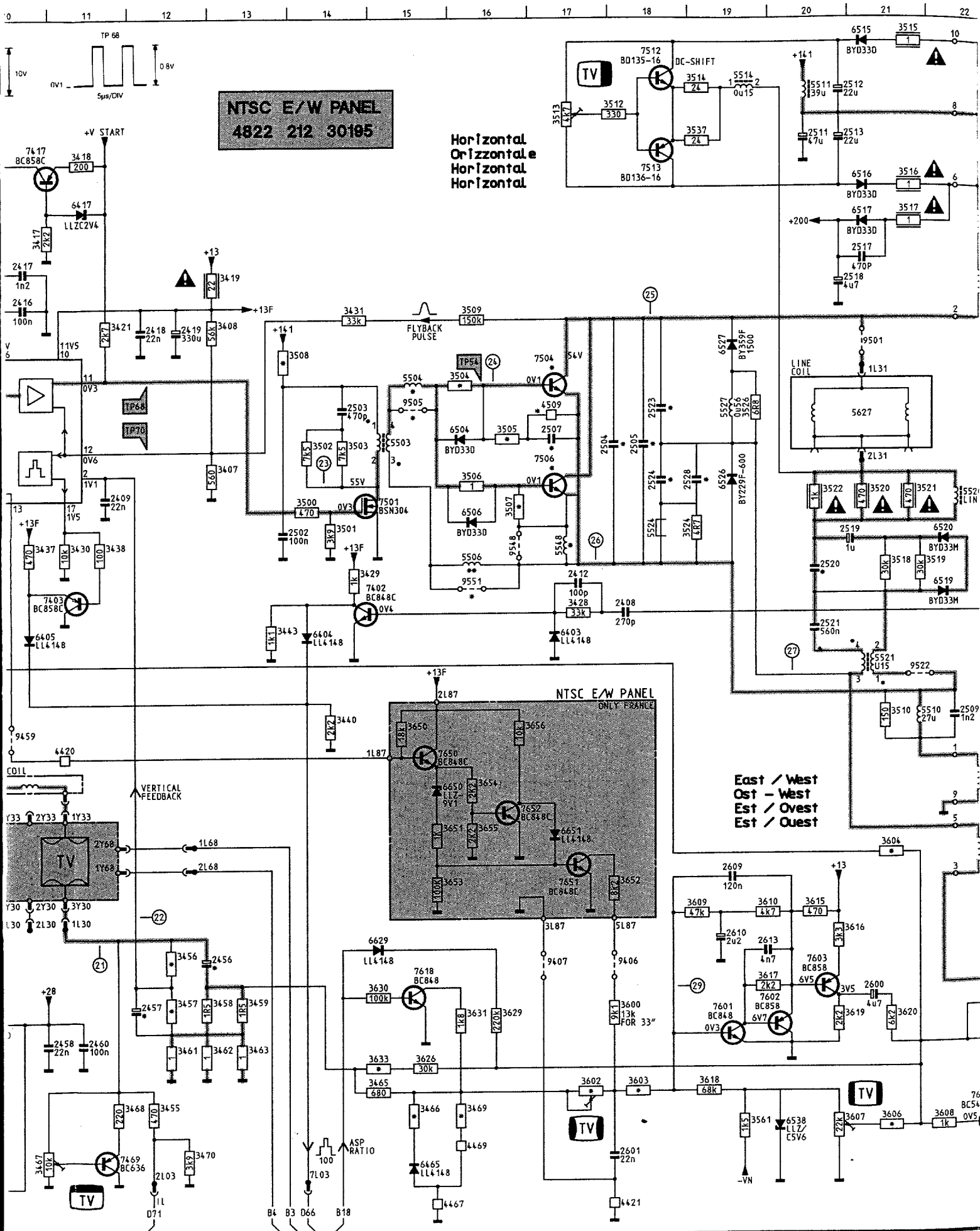


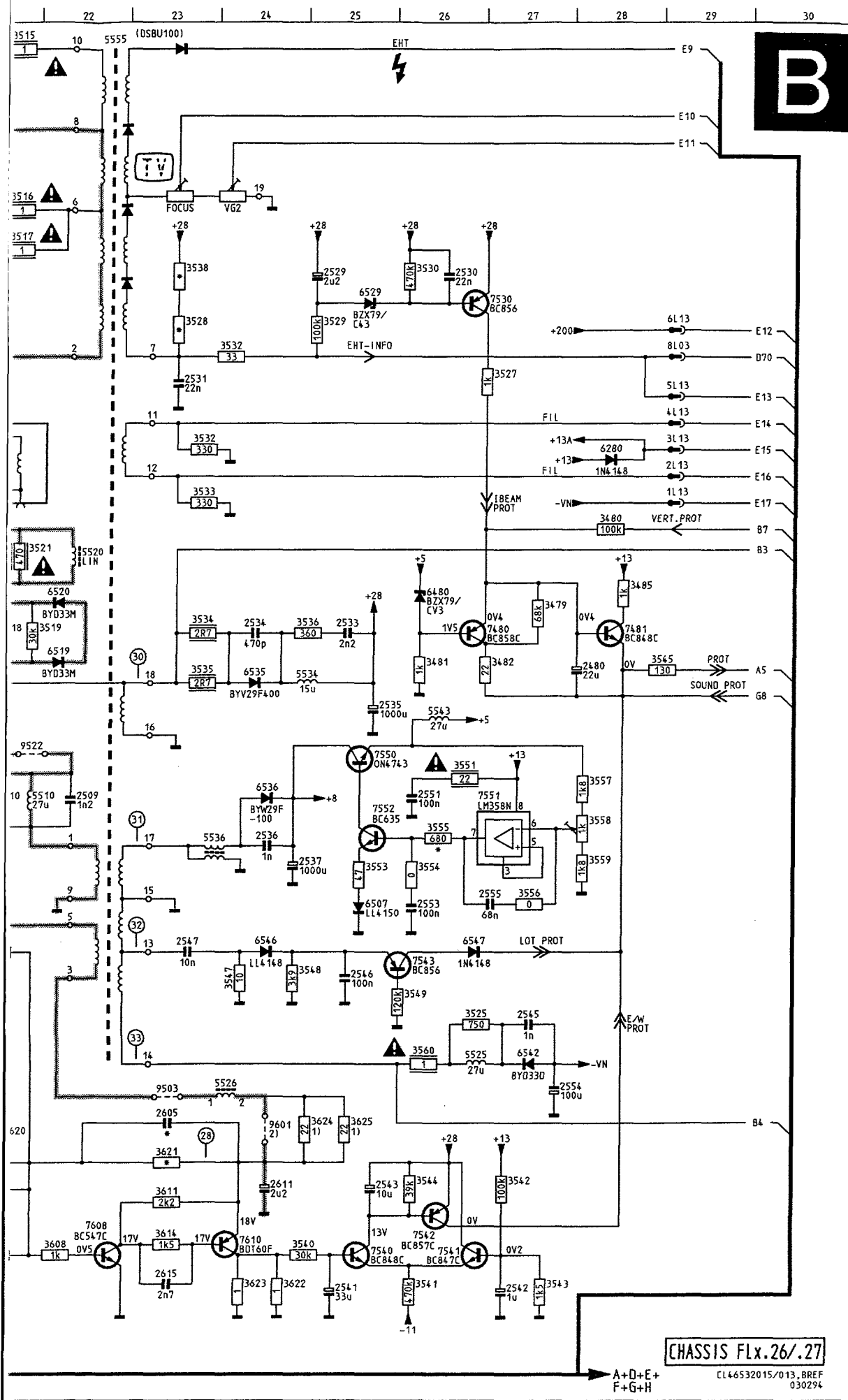
1160	C 2	3237	I20	9192	L25
1162	D 8	3238	J19	9195	M26
1248	M16	3239	L20	9197	M27
1255	E23	3240	J19	9263	M22
2120	B 7	3241	K18	9265	M22
2121	A 8	3242	J16	9268	N24
2122	A10	3243	J17	9269	N24
2123	B11	3244	K16	9270	I23
2124	C 6	3245	L16	9271	J23
2160	A 6	3246	L16	9272	H23
2161	B 5	3247	L16	9273	H26
2162	D 7	3248	M16	9274	G23
2163	E 2	3249	N19	9277	L24
2164	E 2	3251	O15	9278	L24
2165	A 3	3252	O15	9279	E16
2166	D 7	3253	K25	9282	B 6
2168	C 9	3254	B29	9650	M17
2169	C10	3255	J25	9655	E26
2170	E28	3259	K25	9656	E26
2171	E28	3260	C29		
2172	F28	3261	G25		
2180	B 4	3262	G25		
2181	D 6	3263	G26		
2188	I 7	3264	G25		
2189	I 7	3265	L26		
2190	H 7	3266	H26		
2191	J12	3267	I24		
2193	M 6	3268	L26		
2194	N 6	3269	I25		
2198	K 6	3270	M27		
2216	C15	3271	L27		
2219	C19	3272	I24		
2221	L19	3273	N27		
2234	I19	3274	N26		
2240	J19	3275	N28		
2241	K18	3276	N27		
2242	K15	3277	O19		
2243	K17	3279	L28		
2245	L15	3281	E16		
2249	N19	3285	B19		
2250	N19	3286	B21		
2251	O20	3287	C22		
2252	O18	3288	B22		
2253	H26	3375	I26		
2254	C28	4066	D 7		
2255	C28	4108	E25		
2257	A25	4111	A24		
2258	B23	4114	L23		
2260	C28	4115	L23		
2261	C28	4130	N 3		
2268	L27	4148	B 5		
2269	J25	4161	B 6		
2270	M26	4162	D10		
2274	H19	4170	H 9		
3112	G11	4171	I 8		
3113	H12	4175	J 9		
3114	H12	4200	K19		
3133	I12	4234	I16		
3151	A 7	4235	H16		
3153	A 8	4236	H18		
3154	B 8	4241	B21		
3155	A 9	4246	D29		
3156	B11	4263	B22		
3159	B11	4280	K20		
3160	A 5	5270	I25		
3161	B 9	5280	L19		
3162	A 4	6112	G 6		
3163	D 2	6120	A 9		
3164	F 3	6121	A 9		
3165	F 3	6163	E 2		
3166	B 7	6165	H 6		
3167	C10	6166	I 6		
3168	B10	6168	B 9		
3170	D29	6172	F28		
3171	E29	6173	F28		
3172	B 4	6178	F 6		
3175	I 7	6179	L 5		
3176	H 7	6256	B23		
3177	I 7	6257	B23		
3178	H 7	6280	B20		
3180	I 2	6281	B21		
3181	J 3	7120	B 8		
3182	I 3	7121	B11		
3183	K 3	7175	H 9		
3184	J 4	7176	H 8		
3185	K 4	7177	I 8		
3186	K 3	7178	G 8		
3187	L 8	7182	J 3		
3189	J 5	7183	K 3		
3190	G 7	7186	K 2		
3191	J 5	7188	J 6		
3192	I 7	7193	M 2		
3193	M 6	7216	B15		
3194	N 6	7219	C20		
3200	I 9	7243	K16		
3201	I 9	7244	L16		
3205	L 9	7258	A24		
3206	L 9	7260	G25		
3207	M10	7261	H25		
3208	N10	7265	J25		
3209	N10	7268	K26		
3210	N 9	7270	M27		
3211	C14	7273	N27		
3215	C14	9098	B 3		
3216	B15	9102	M16		
3217	C14	9103	N18		
3218	C15	9104	K17		
3219	C14	9105	O19		
3220	D19	9110	M17		
3222	G20	9120	M25		
3224	D16	9121	N25		
3225	I25	9148	B 6		
3232	H20	9167	D 8		
3233	H20	9168	D 8		
3234	I15	9186	L25		
3235	I16	9190	K26		



REMARKS/REMARQUES/ANMERKUNGEN/NOTE				
*	25"	28"	29"	33"
2456	470u	470u	1000u	680u
2457	1u5	1u5	1u	1u5
2504	270p	560p	-	560p
2505	270p	680p	330p	680p
2507	-	-	220n	-
2520	390n	470n	560n	470n
2523	8n2	8n2	11n	8n2
2524	27n	27n	15n	27n
2528	-	-	12n	-
2603	68n	47n	68n	100n
2605	1n5	2n7	2n7	2n2
2606	-	-	-	100n
3409	56k	510k	560k	560k
3411	100k	91k	75k	120k
3420	3M9	3M9	820k	3M9
3422	1M2	1M2	1M3	1M5
3423	820k	820k	1M1	1M
3456	120k	120k	120k	130k
3457	8k2	8k2	8k2	9k1
3460	270	270	390	270
3466	1k5	2k7	-	4k3
3469	1k	2k7	-	4k3
3404	1R2	1	1	1
3505	33	33	33	47
3506	1R2	1	1	1
3507	33	33	-	47
3508	1k8	1k8	1k8	1k5
3528	1k2	1k2	1k	1k2
3538	12k	12k	13k	12k
3601	100k	100k	100k	150k
3602	10k	10k	22k	10k
3603	15k	18k	10k	20k
3603(FRANCE)	12k	12k	10k	15k
3604	130k	160k	120k	180k
3605	13k	13k	4k7	24k
3606	33k	33k	15k	22k
3621	-	-	160k	-
3632	100	100	100	15k
3633	240k	100k	82k	200k
4509	-	-	-	-
5504	-	-	0u82	-
5506	-	-	0u82	-
5548	-	-	-	-
7504	ON4673	ON4673	-	ON4673
7506	ON4673	ON4673	2SC4288A	ON4673
9505	+	+	-	+
9548	+	+	-	+
9551	+	+	-	+

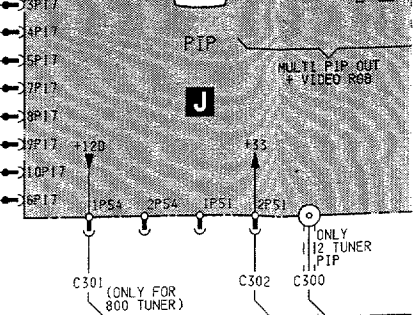
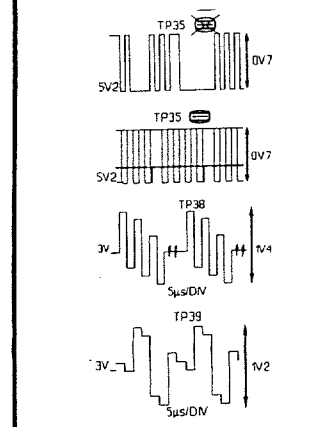
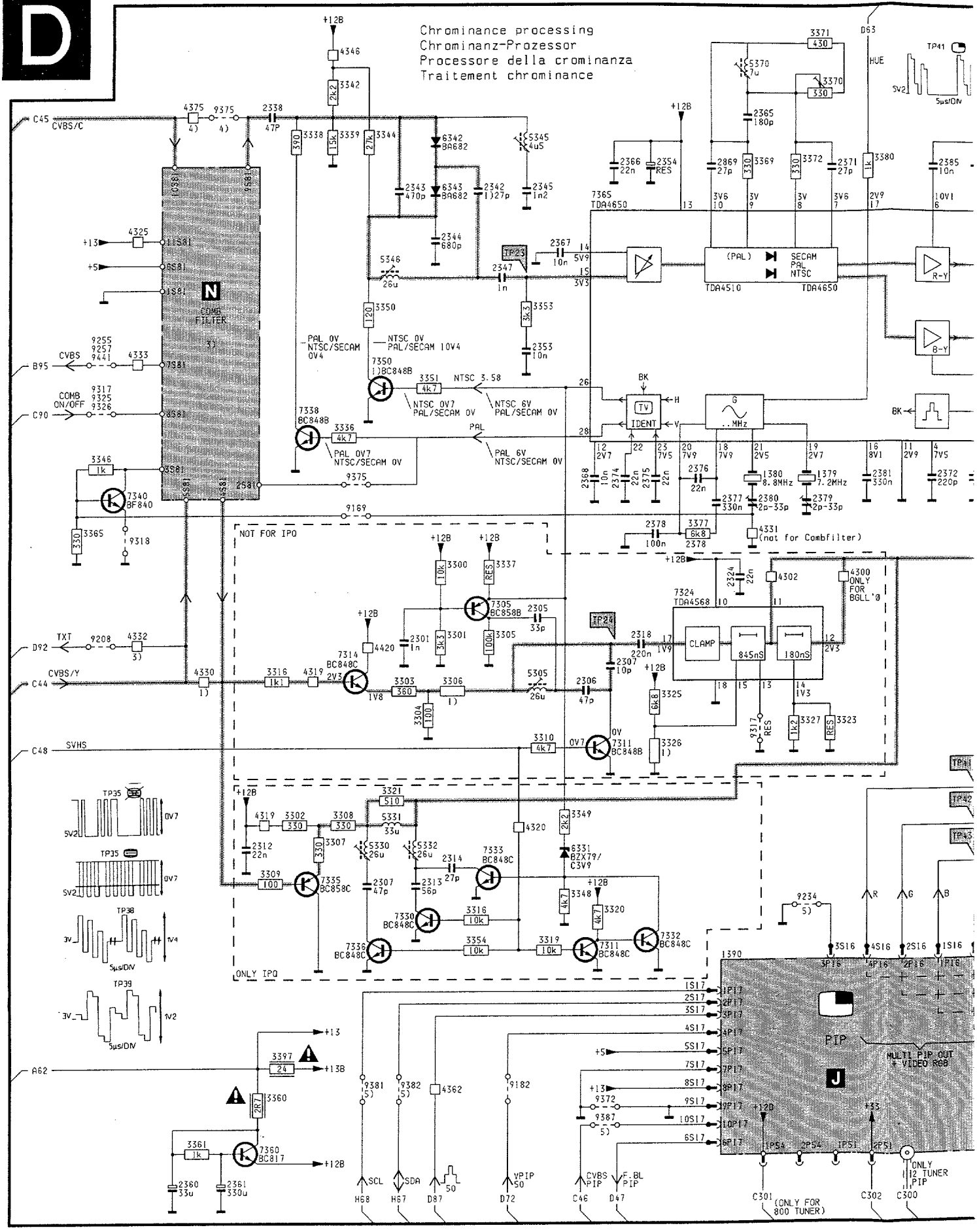
- 1) ONLY FOR FLx.27
- 2) NOT FOR FLx.27

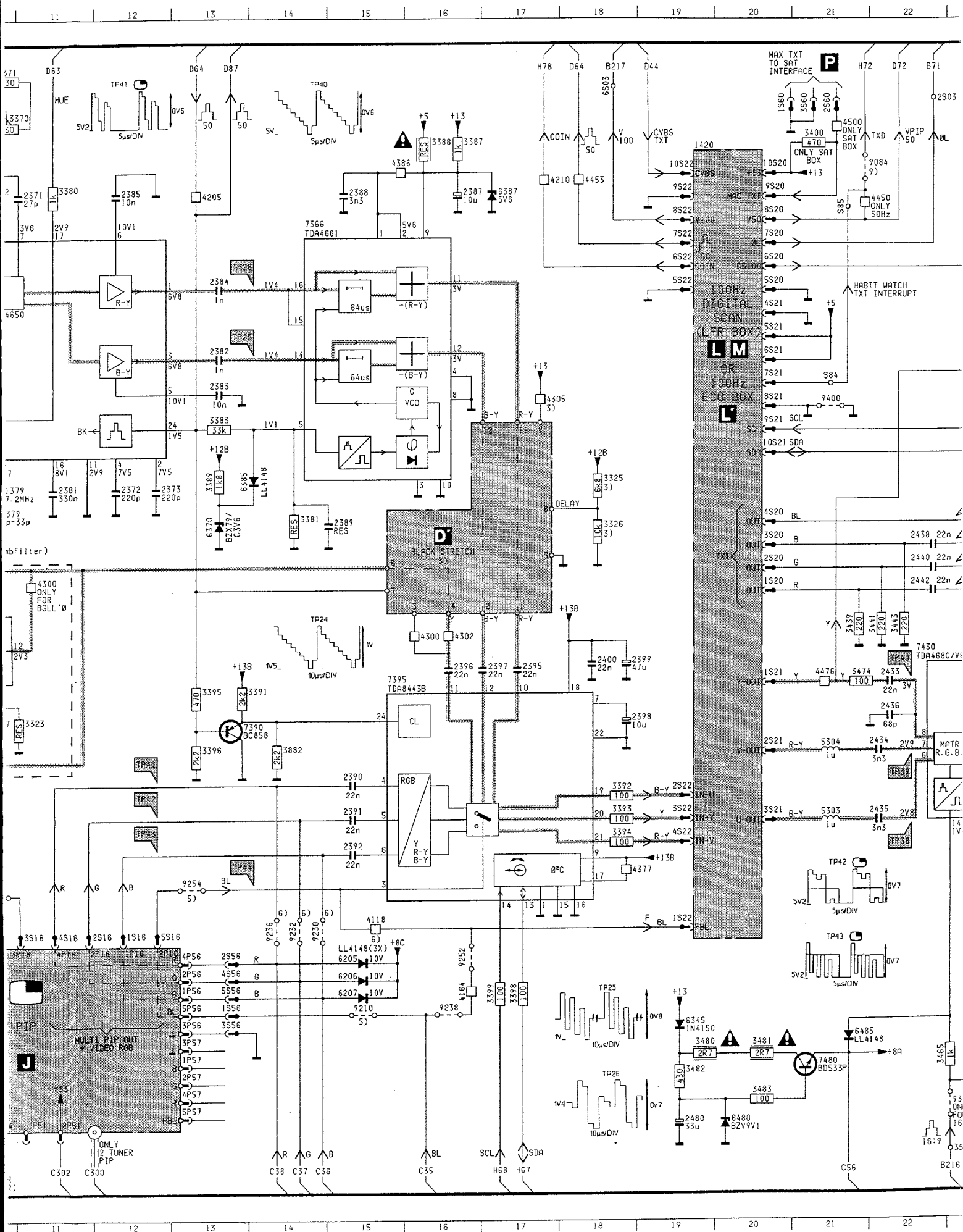


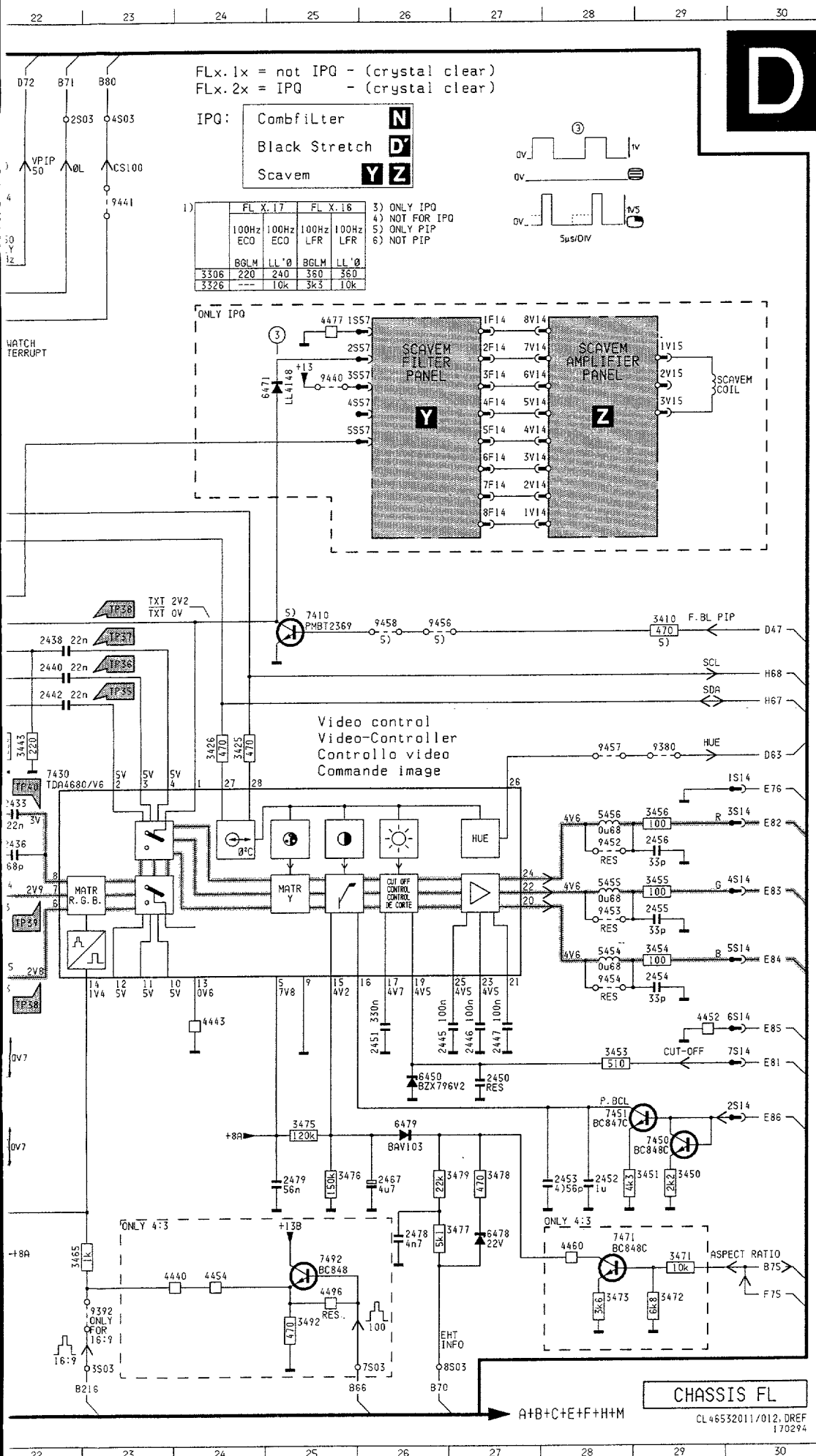


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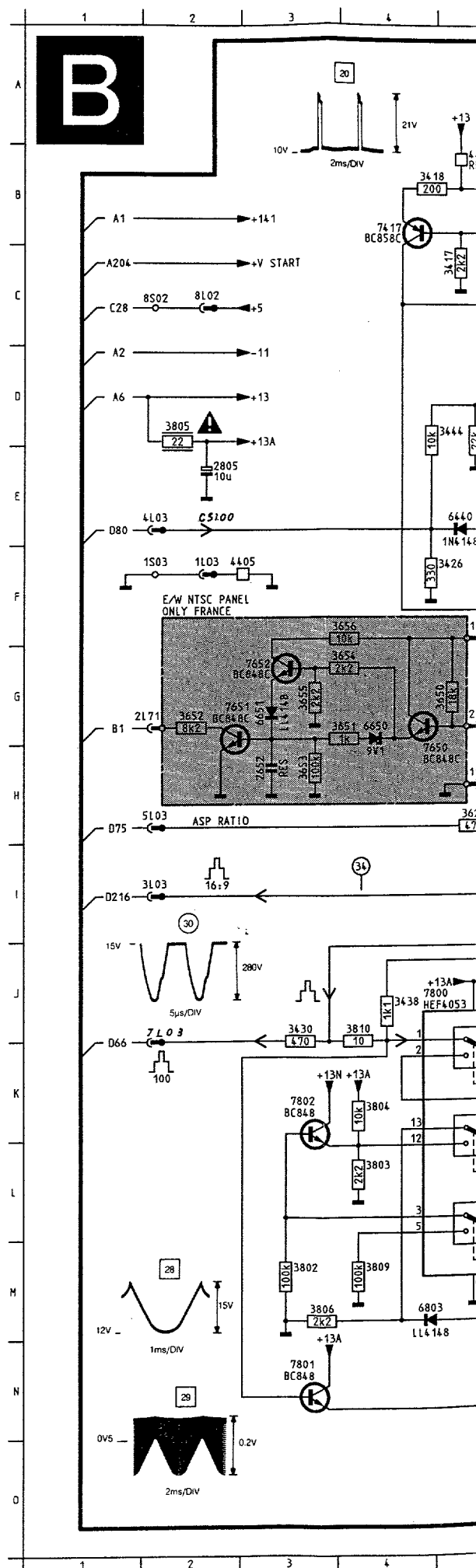
Chrominance processing
Chrominanz-Prozessor
Processore della crominanza
Traitement chrominance

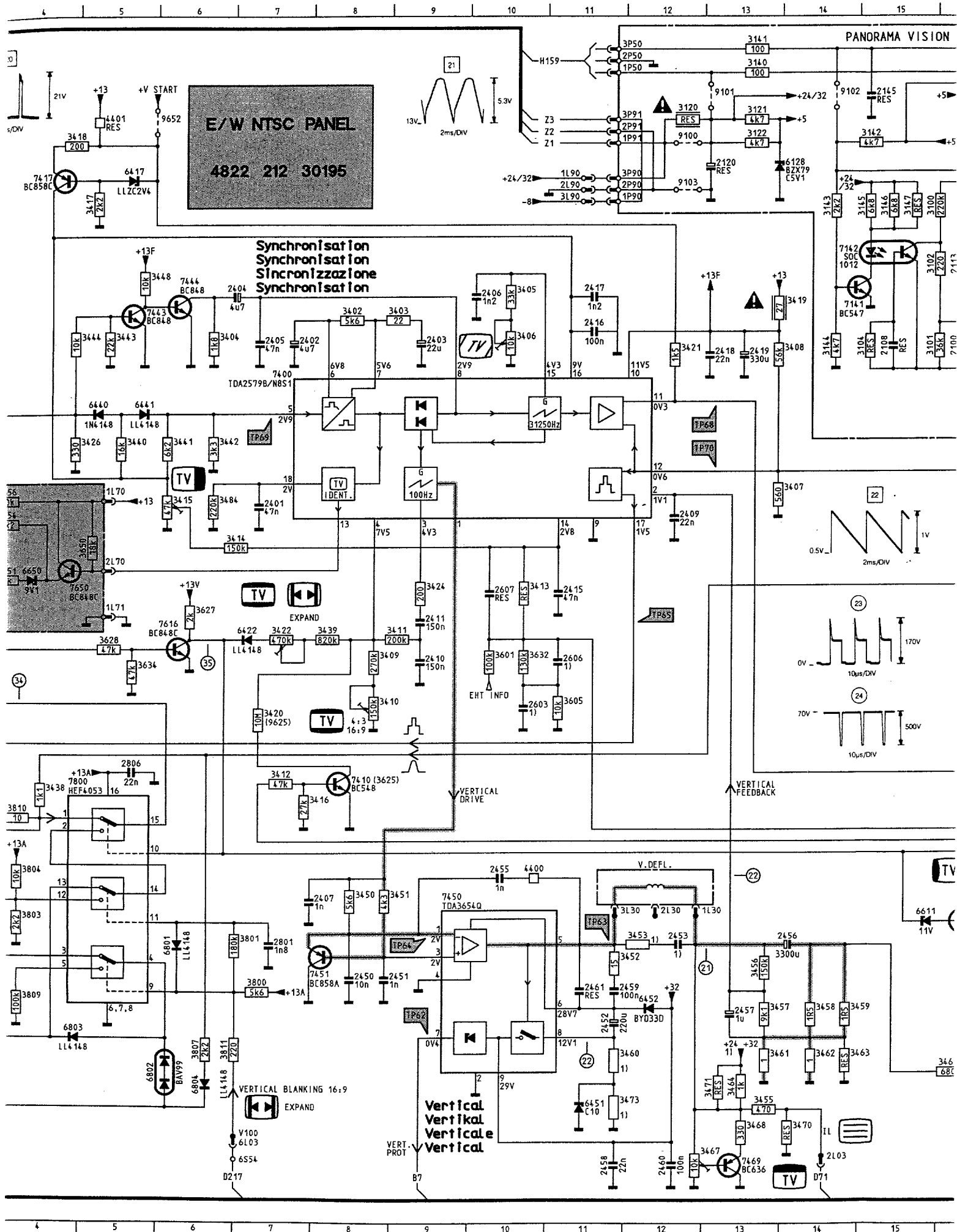


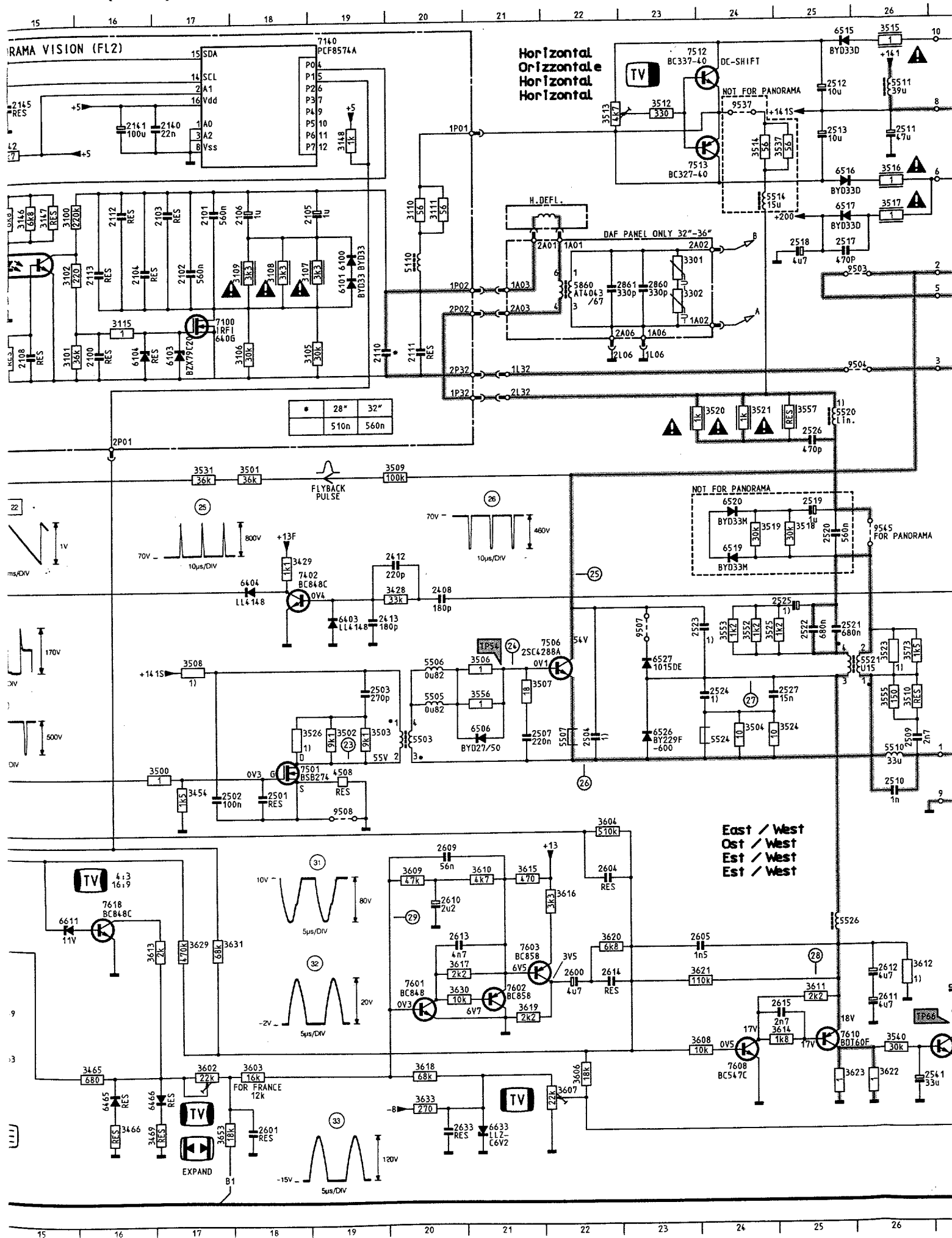


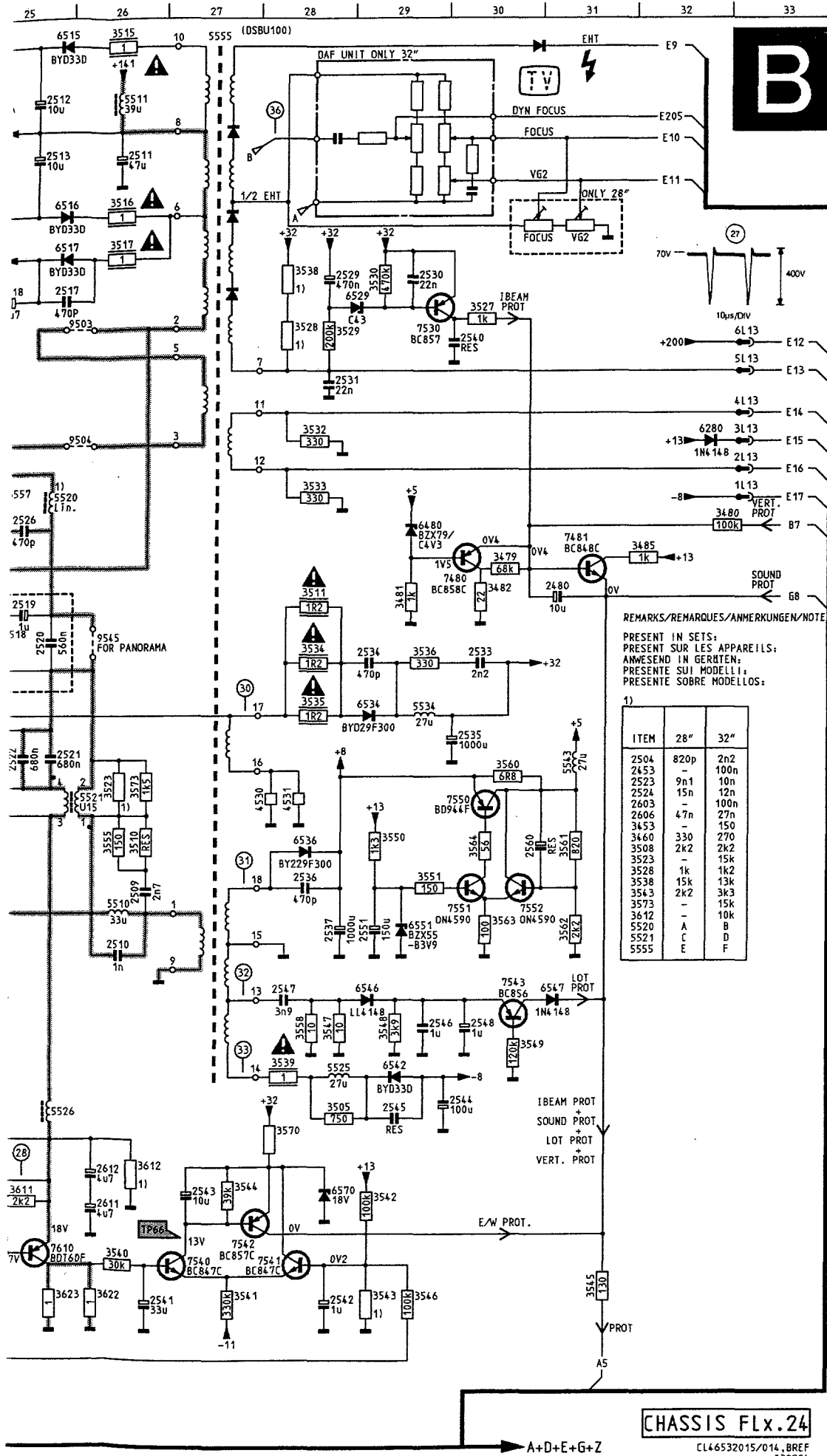


1379	F10	3370	B10	7332	L 8
1380	F10	3371	A10	7333	K 6
1390	L 9	3372	B10	7335	K 4
1420	B19	3377	G 9	7356	L 5
2301	H 5	3380	B11	7358	F 4
2305	H 7	3381	G14	7340	G 2
2306	I 8	3383	E13	7350	E 5
2307	I 8	3387	B16	7360	N 4
2307	K 5	3388	B16	7365	C 8
2312	K 3	3389	F13	7366	C14
2313	K 6	3391	I13	7390	I13
2314	K 6	3392	J18	7395	I15
2318	H 8	3393	J18	7410	G25
2324	H 9	3394	K18	7430	H22
2338	B 4	3395	I13	7450	L29
2342	C 6	3396	J13	7451	L28
2343	C 5	3397	M 4	7471	M28
2344	C 6	3398	M17	7480	N21
2345	C 7	3399	M17	7492	N25
2347	D 7	3400	B21	9084	B21
2353	E 7	3410	G29	9169	G 5
2354	C 8	3425	H24	9182	N 7
2360	O 3	3426	H24	9208	H 2
2361	O 3	3439	H21	9210	M15
2365	B10	3441	H22	9230	L14
2366	C 8	3443	H22	9232	L14
2367	D 7	3450	M29	9234	K10
2368	F 8	3451	M29	9236	L14
2371	C11	3453	K28	9238	M16
2372	F12	3454	J29	9252	L16
2373	F12	3455	J29	9254	K13
2375	F 8	3456	I29	9255	E 2
2376	F 9	3465	N22	9317	E 2
2377	G 9	3471	N29	9317	I10
2378	G 8	3472	N29	9318	G 2
2378	G 9	3473	N28	9372	N 8
2379	G10	3474	I21	9375	B 3
2380	G10	3475	L25	9375	F 5
2381	F11	3476	M25	9380	H29
2382	E13	3477	M26	9381	N 5
2383	E13	3478	M27	9382	N 5
2384	D13	3479	M26	9387	N 8
2385	C12	3480	M19	9392	N23
2387	C16	3481	M20	9400	E21
2388	C15	3482	N19	9440	D25
2389	G15	3483	N20	9441	B23
2390	J15	3492	N25	9452	I28
2391	J15	3882	J14	9453	J28
2392	K15	4118	L15	9454	K28
2395	I17	4164	M16	9456	G26
2396	I16	4205	C13	9457	H28
2397	I17	4210	B17	9458	G26
2398	I18	4300	H11		
2399	I18	4300	H16		
2400	I18	4302	H10		
2433	I22	4302	H16		
2434	J22	4305	E17		
2435	J22	4319	I 4		
2436	I22	4319	J 4		
2438	G22	4320	K 7		
2440	G22	4325	C 2		
2442	H22	4330	I 3		
2445	K26	4331	G10		
2446	K27	4332	H 2		
2447	K27	4333	E 2		
2450	L27	4346	A 5		
2451	K26	4362	N 6		
2452	M28	4375	B 3		
2453	M28	4377	K18		
2454	K29	4386	B15		
2455	J29	4420	H 5		
2456	I29	4440	N24		
2467	M26	4443	K24		
2478	M26	4450	C22		
2479	M25	4452	K29		
2480	N19	4453	B18		
2869	C 9	4454	N24		
3300	G 6	4460	N28		
3301	H 6	4476	I21		
3302	J 4	4477	D25		
3303	I 5	4496	N25		
3304	I 6	4500	B21		
3305	H 6	5303	K21		
3306	I 6	5304	J21		
3307	K 4	5305	I 7		
3308	J 5	5330	K 5		
3309	K 4	5331	J 5		
3310	I 7	5332	K 6		
3316	I 4	5345	B 7		
3318	L 6	5346	D 5		
3319	L 7	5370	A10		
3320	K 8	5454	J28		
3321	J 5	5455	J28		
3323	I11	5458	I28		
3325	F18	6205	L15		
3325	I 8	6206	M15		
3326	I 8	6331	K 7		
3327	I10	6342	B 6		
3336	F 5	6343	C 6		
3337	G 6	6345	M19		
3338	B 4	6370	G13		
3339	B 5	6385	F13		
3342	B 5	6387	C17		
3344	B 5	6450	L26		
3346	F 2	6471	D25		
3348	K 7	6478	M27		
3349	J 7	6479	L26		
3350	D 5	6480	N20		
3351	E 6	6485	M21		
3353	D 7	7305	H 6		
3354	L 6	7311	J 8		
3356	N 4	7311	L 8		
3361	N 3	7314	H 5		
3365	G 1	7324	H 9		
3369	B10	7330	L 5		







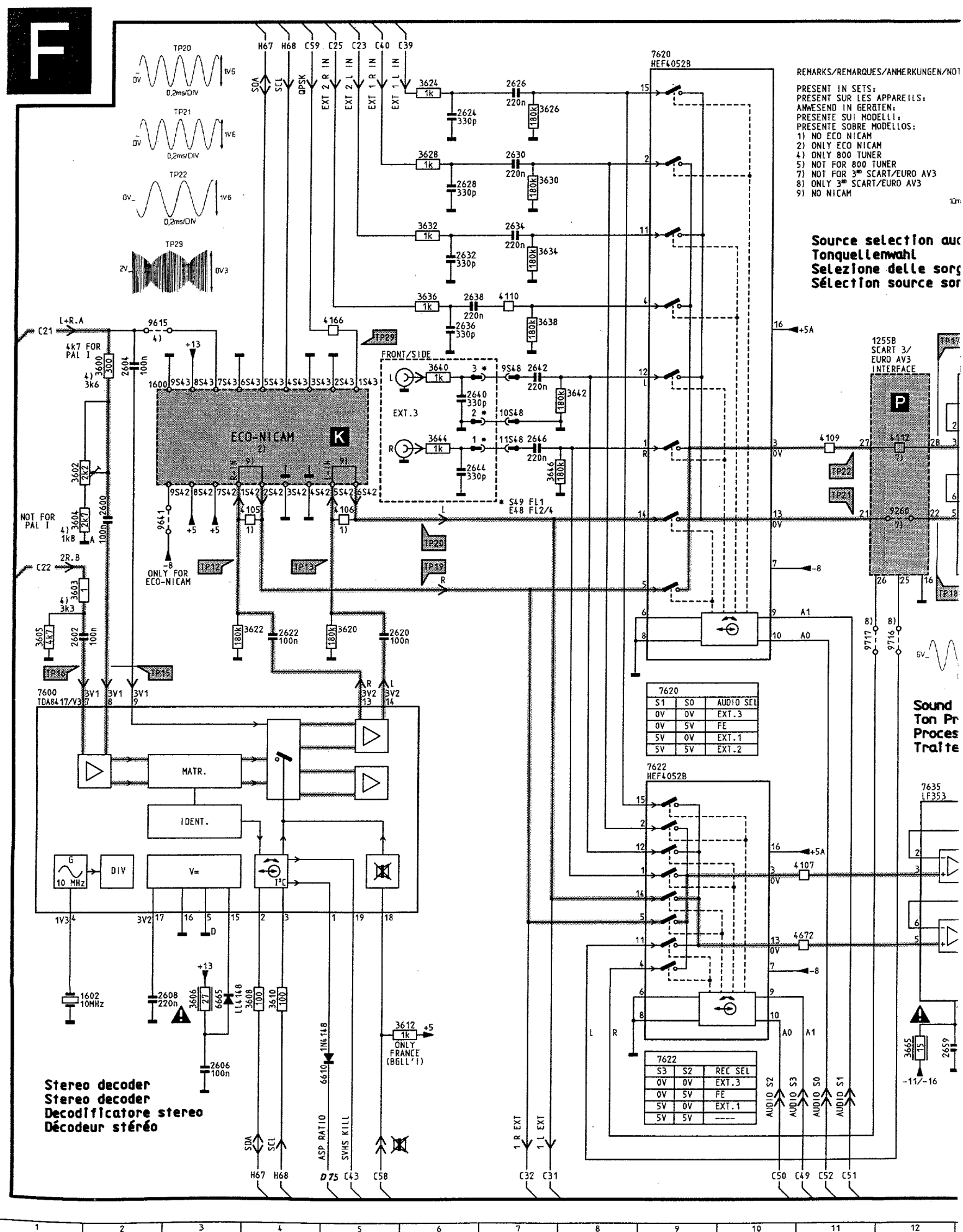


REMARKS/REMARQUES/ANMERKUNGEN/NOTE

PRESENT IN SETS:
PRESENT SUR LES APPAREILS:
ANWESEND IN GERÄTEN:
PRESENTI SUI MODELLI:
PRESENTE SOBRE MODELOS:

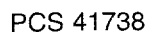
ITEM	28"	32"
2504	820p	2n2
2453	-	100n
2523	9n1	10n
2524	15n	12n
2603	-	100n
2606	47n	27n
3453	-	150
3508	330	270
3523	2k2	15k
3528	1k	1k2
3538	15k	13k
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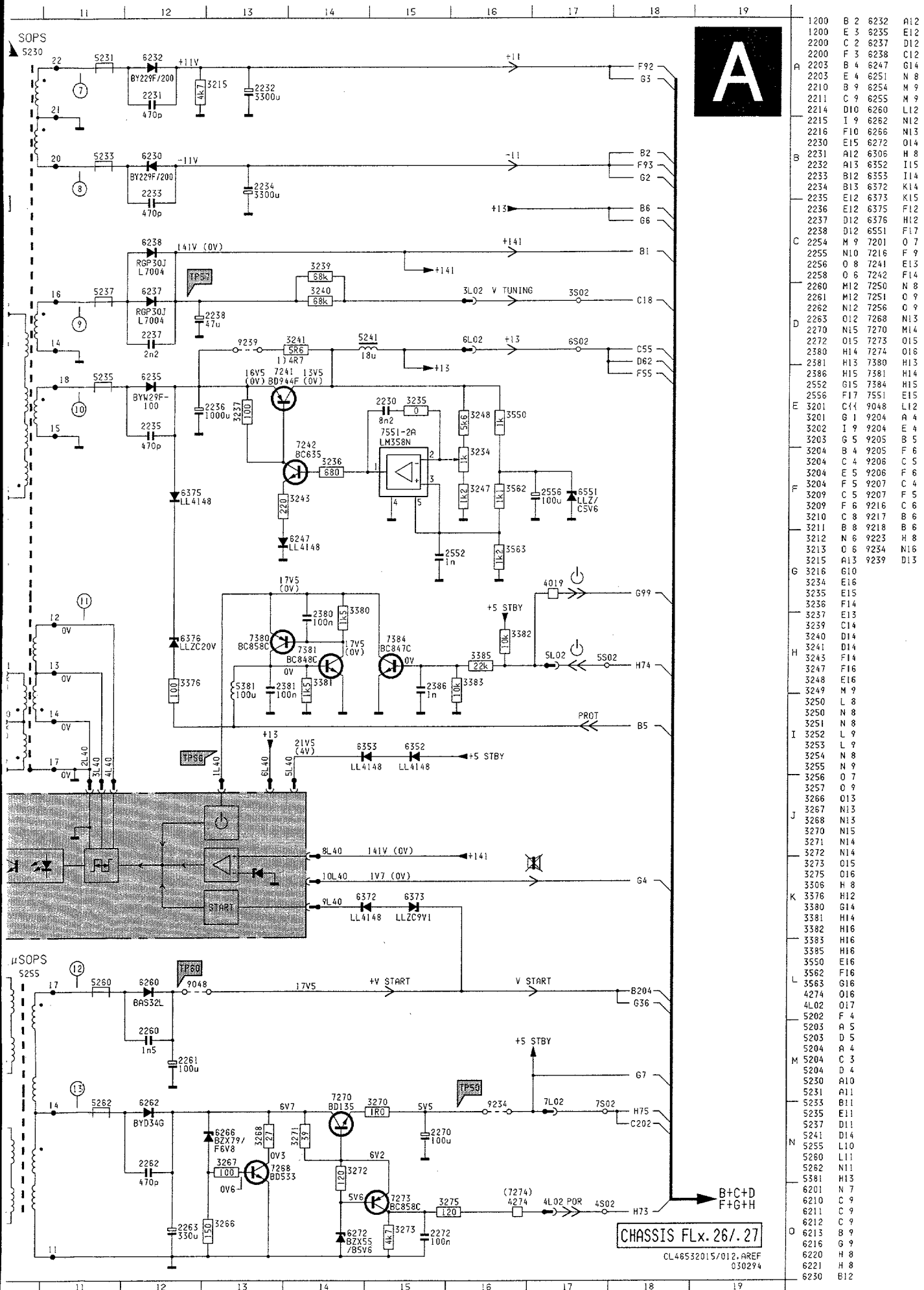
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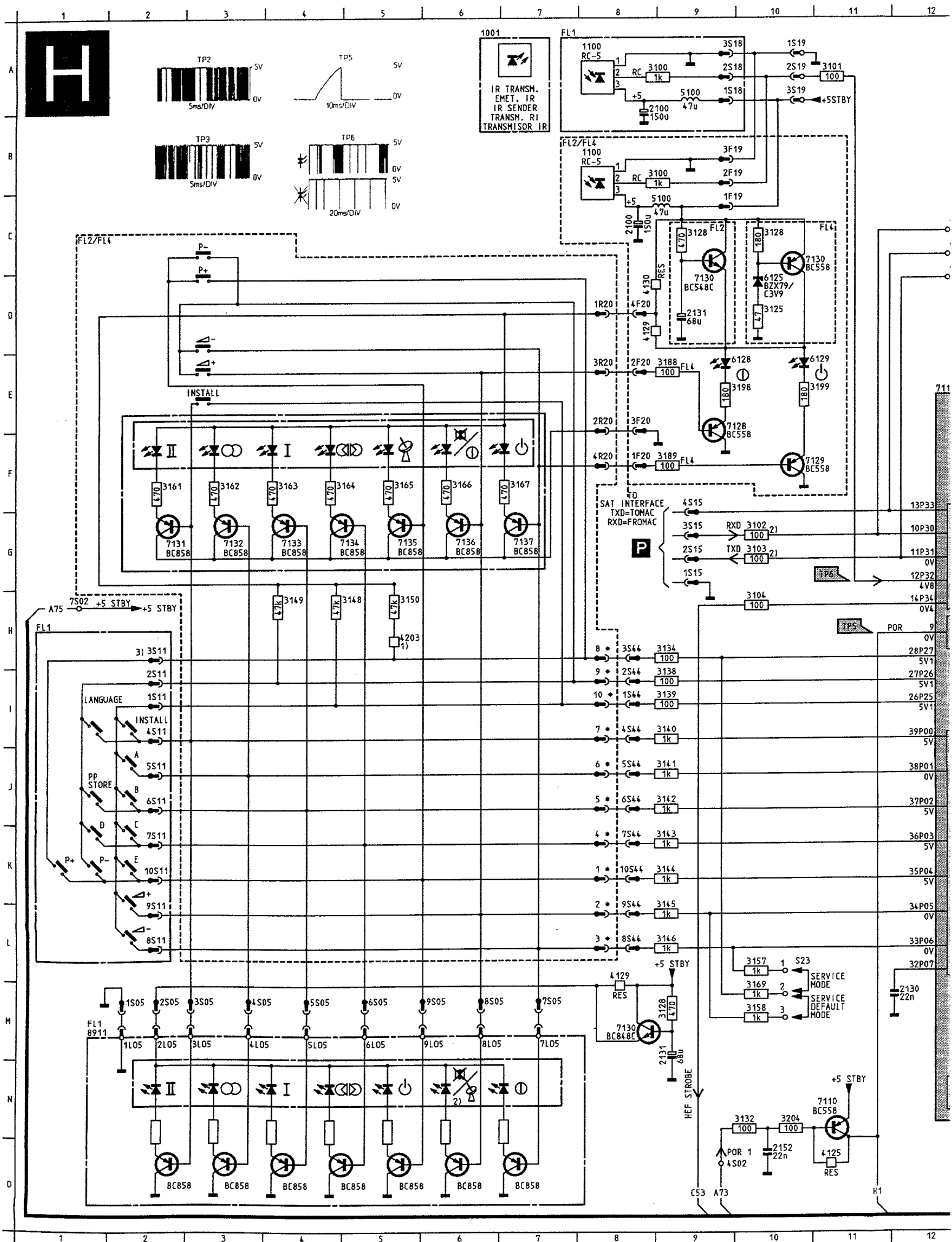


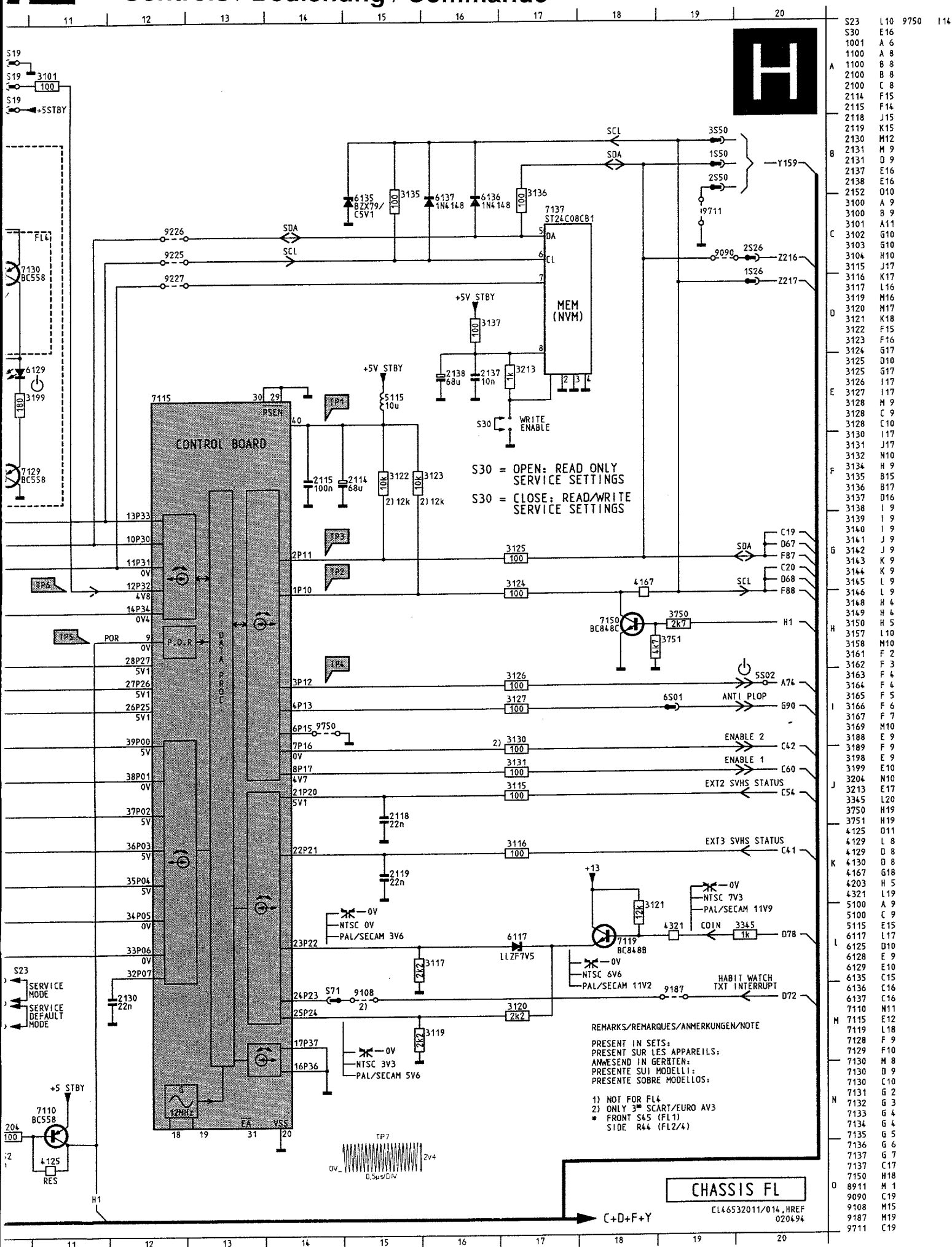


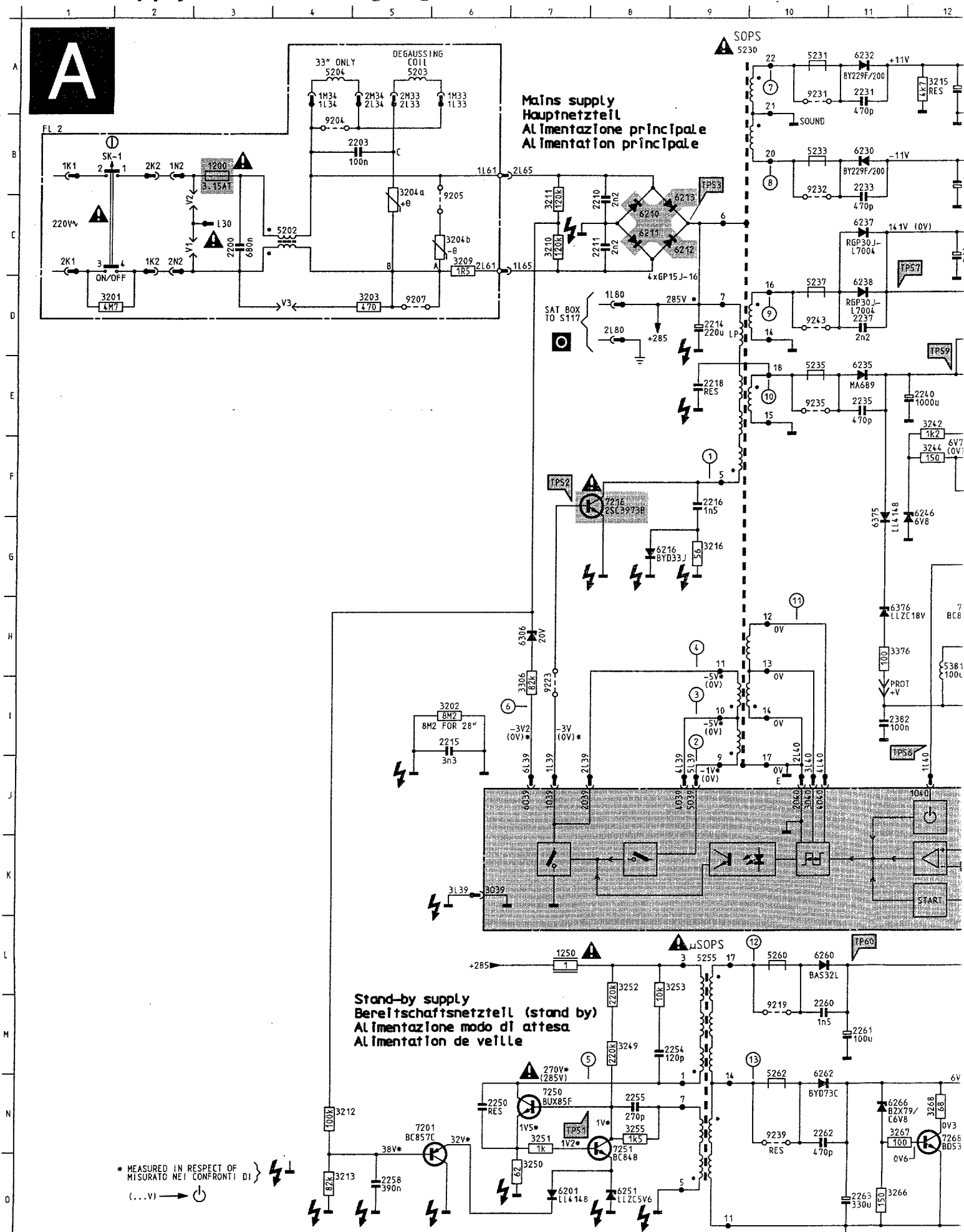
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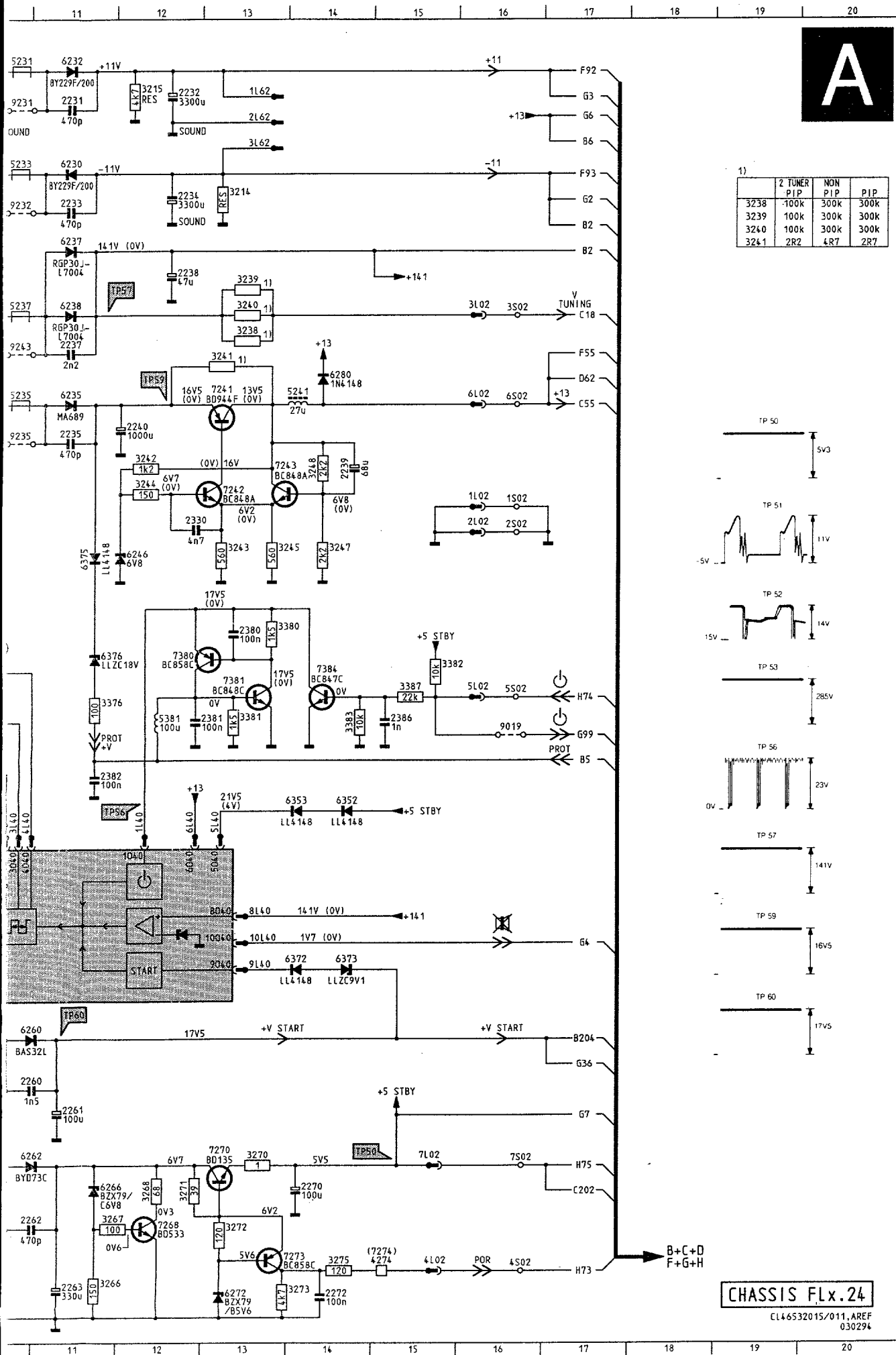




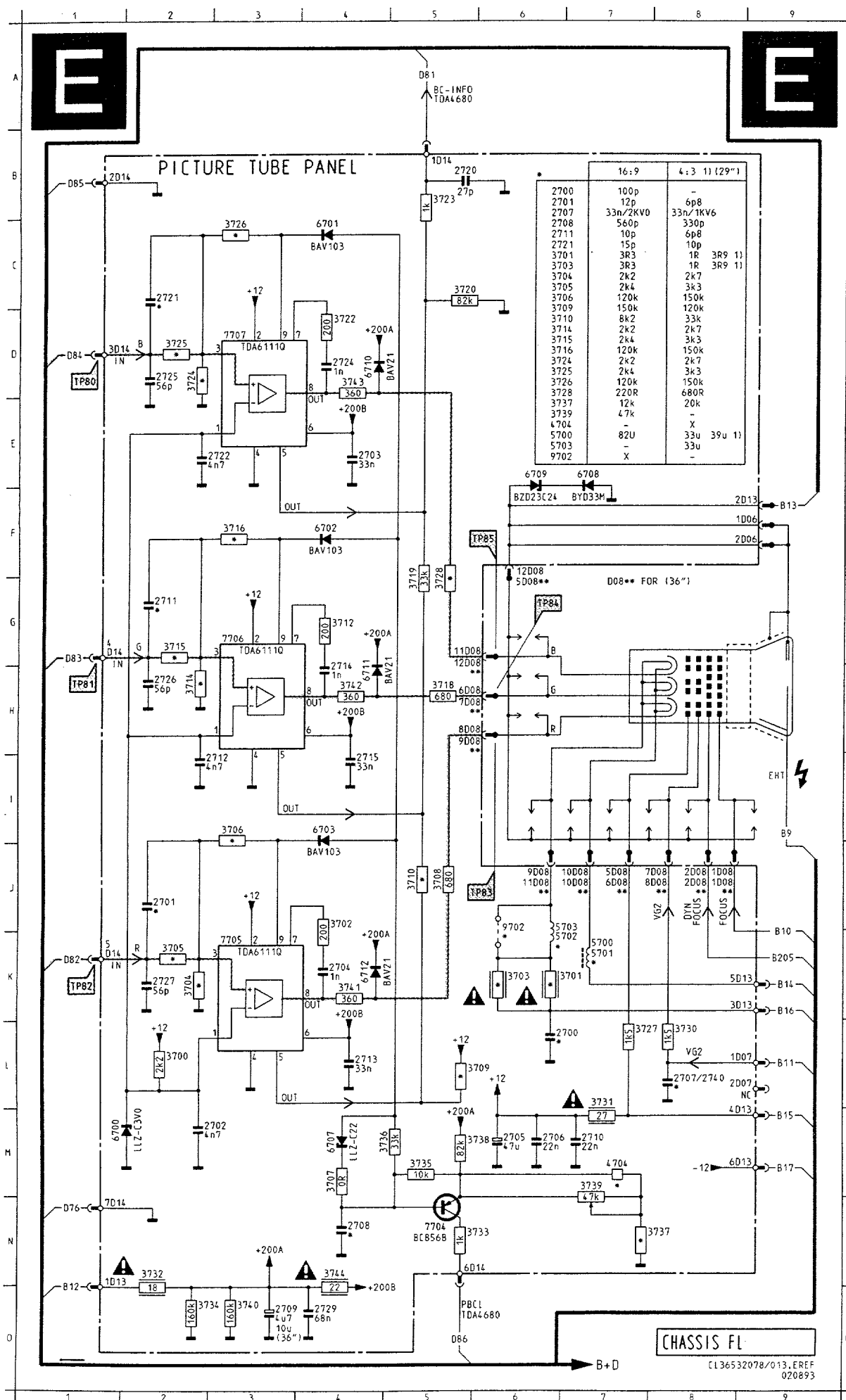








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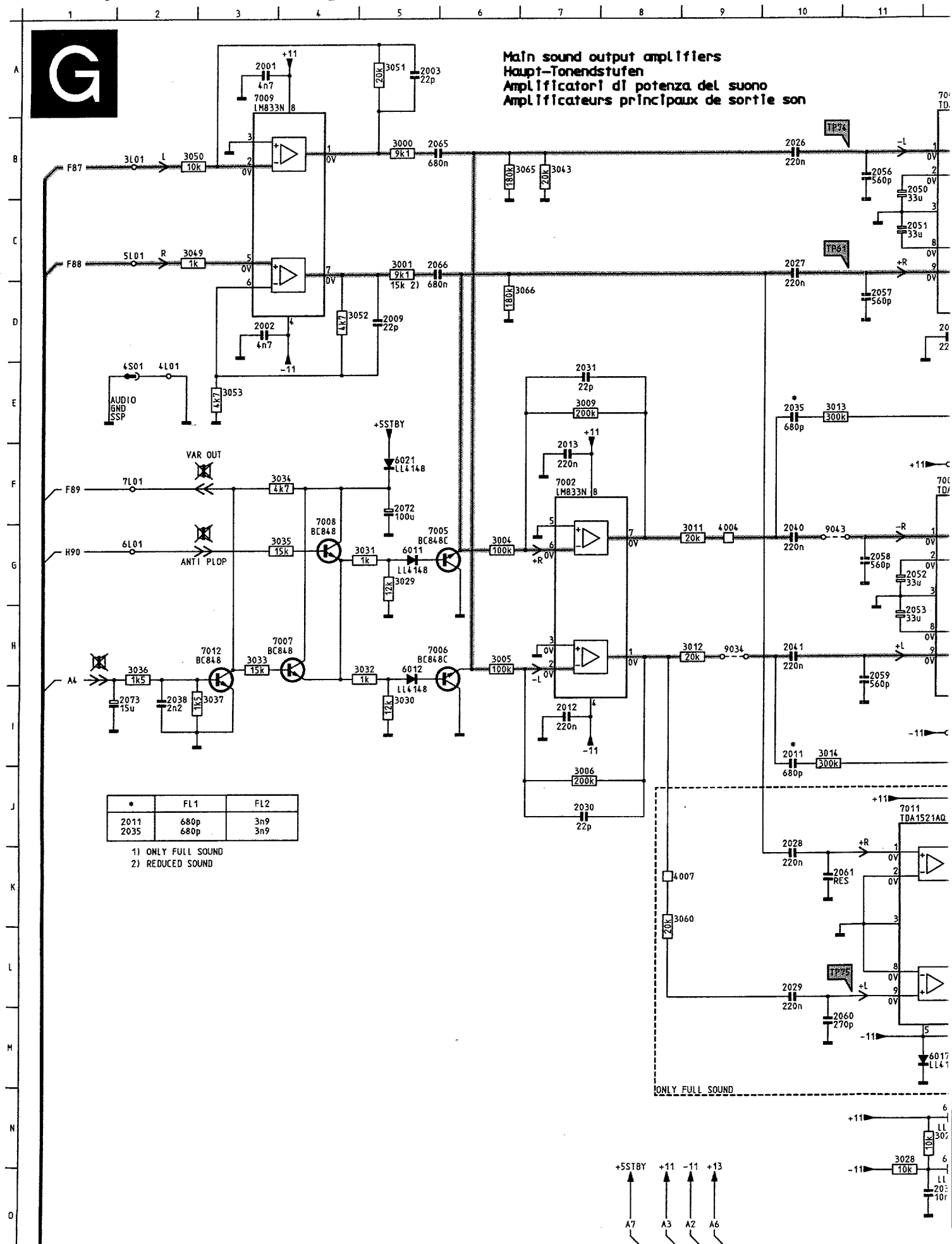


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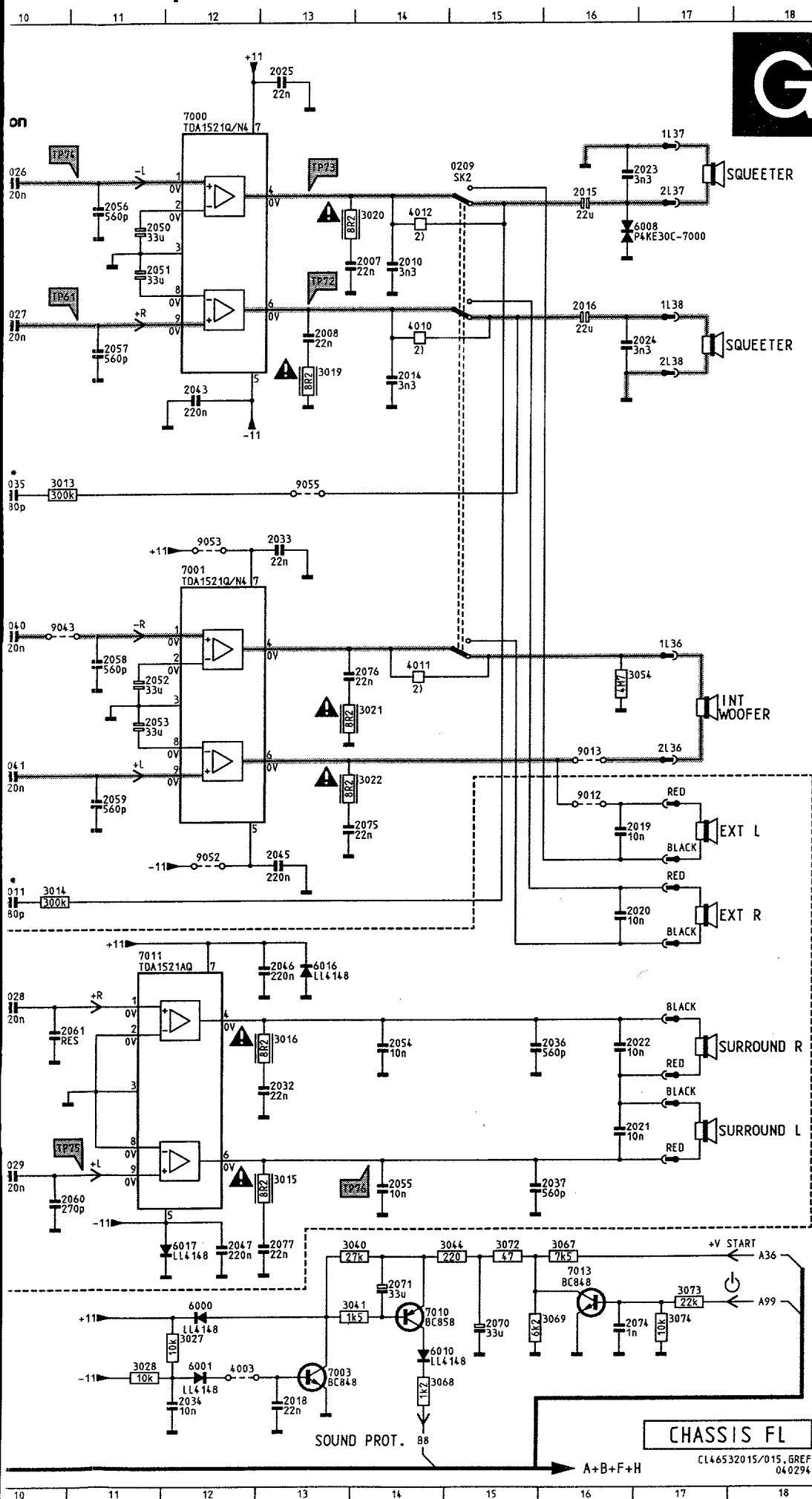
A

B

C



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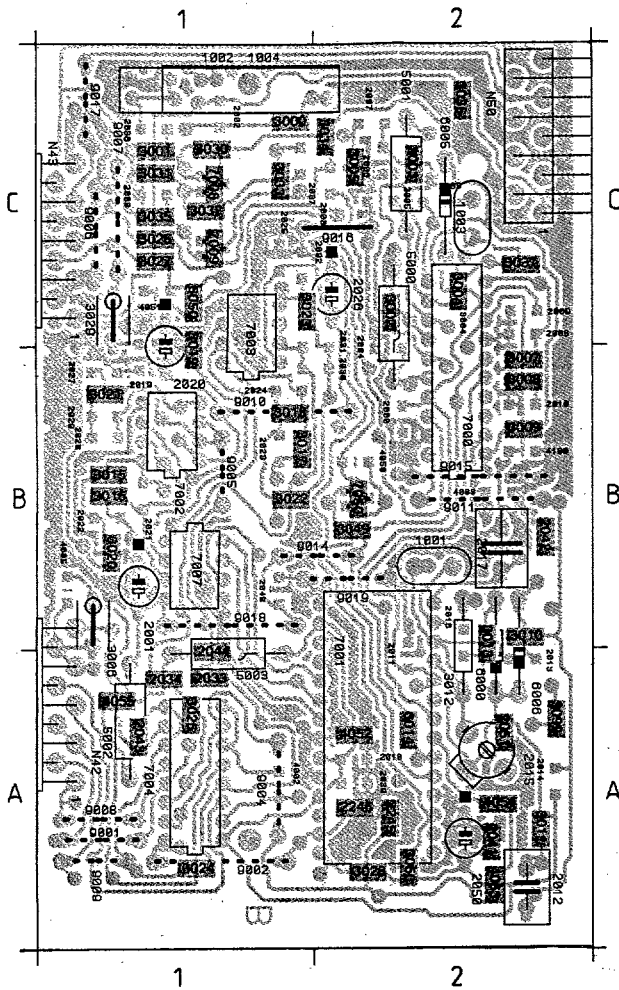


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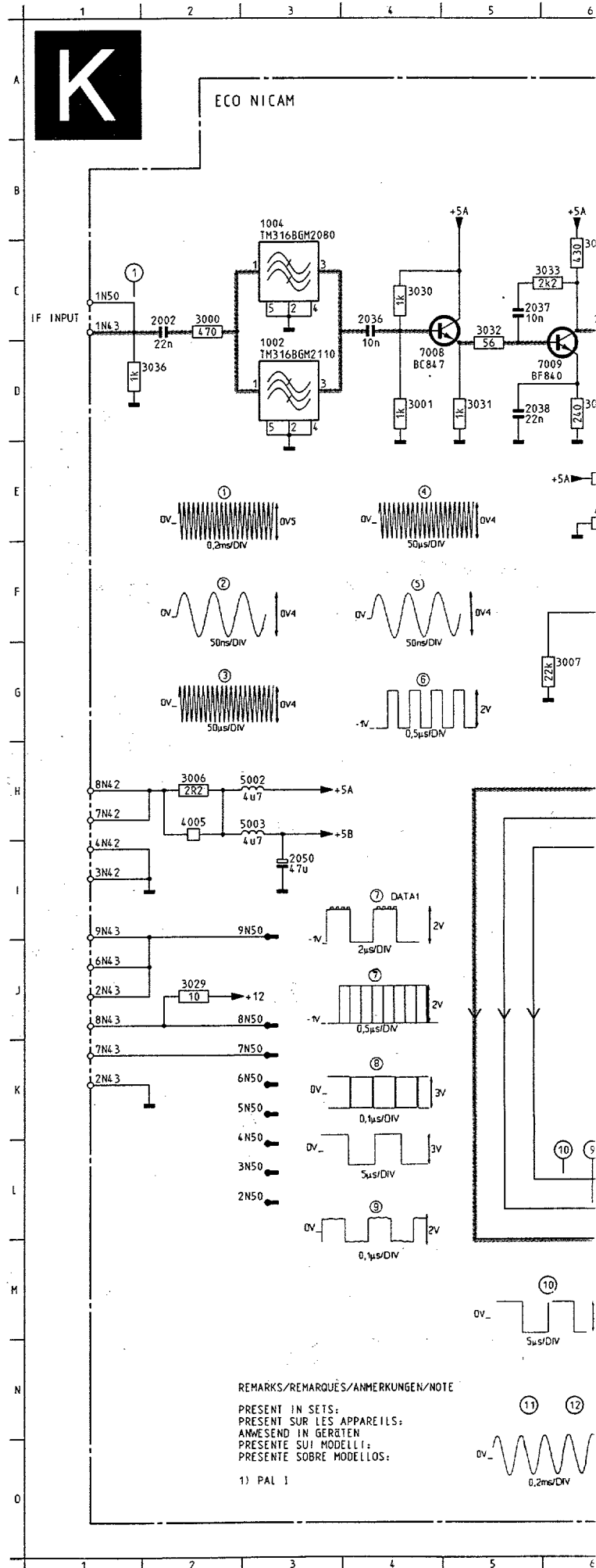
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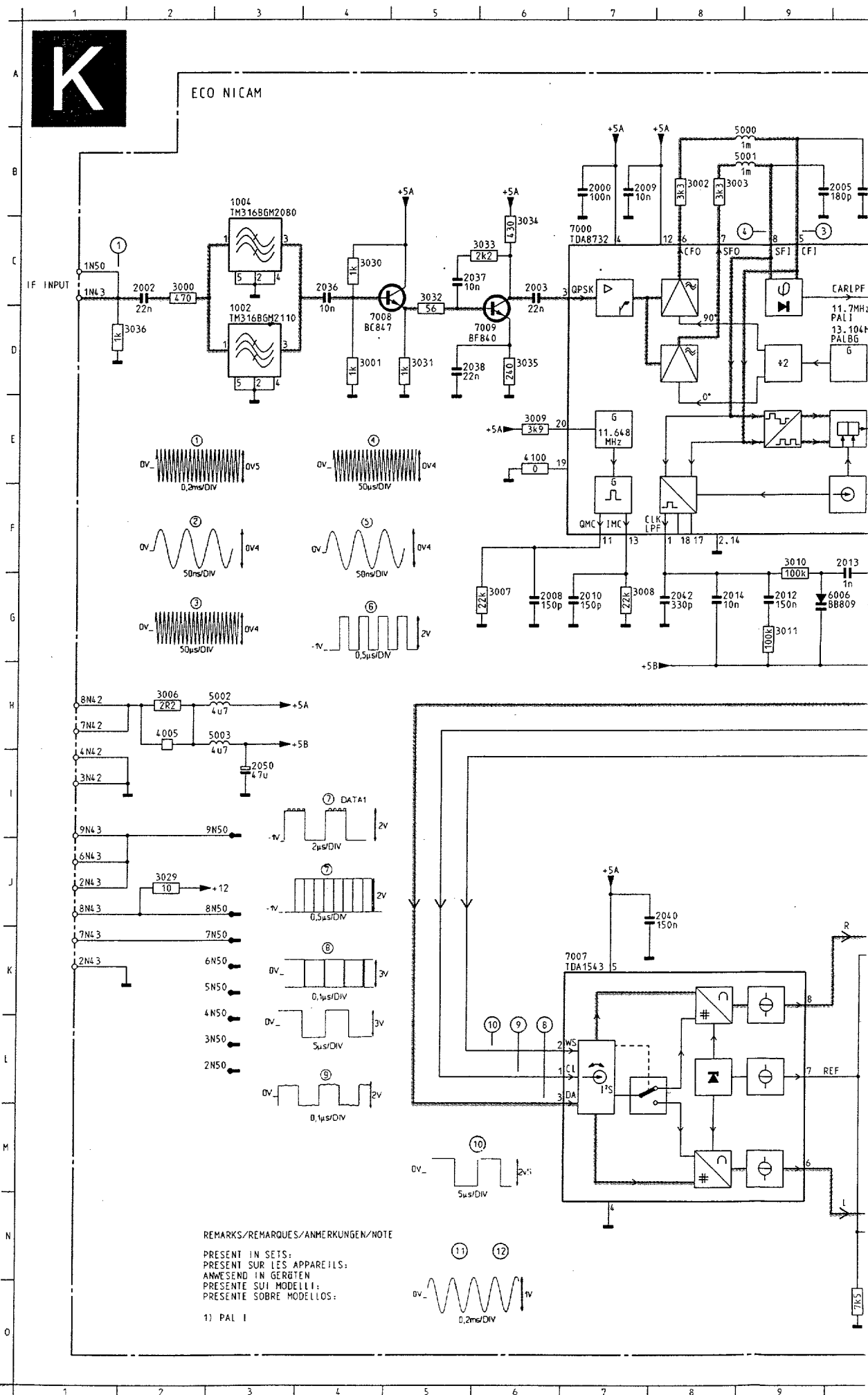
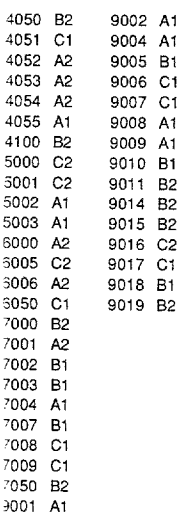
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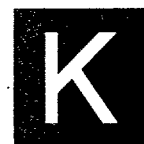
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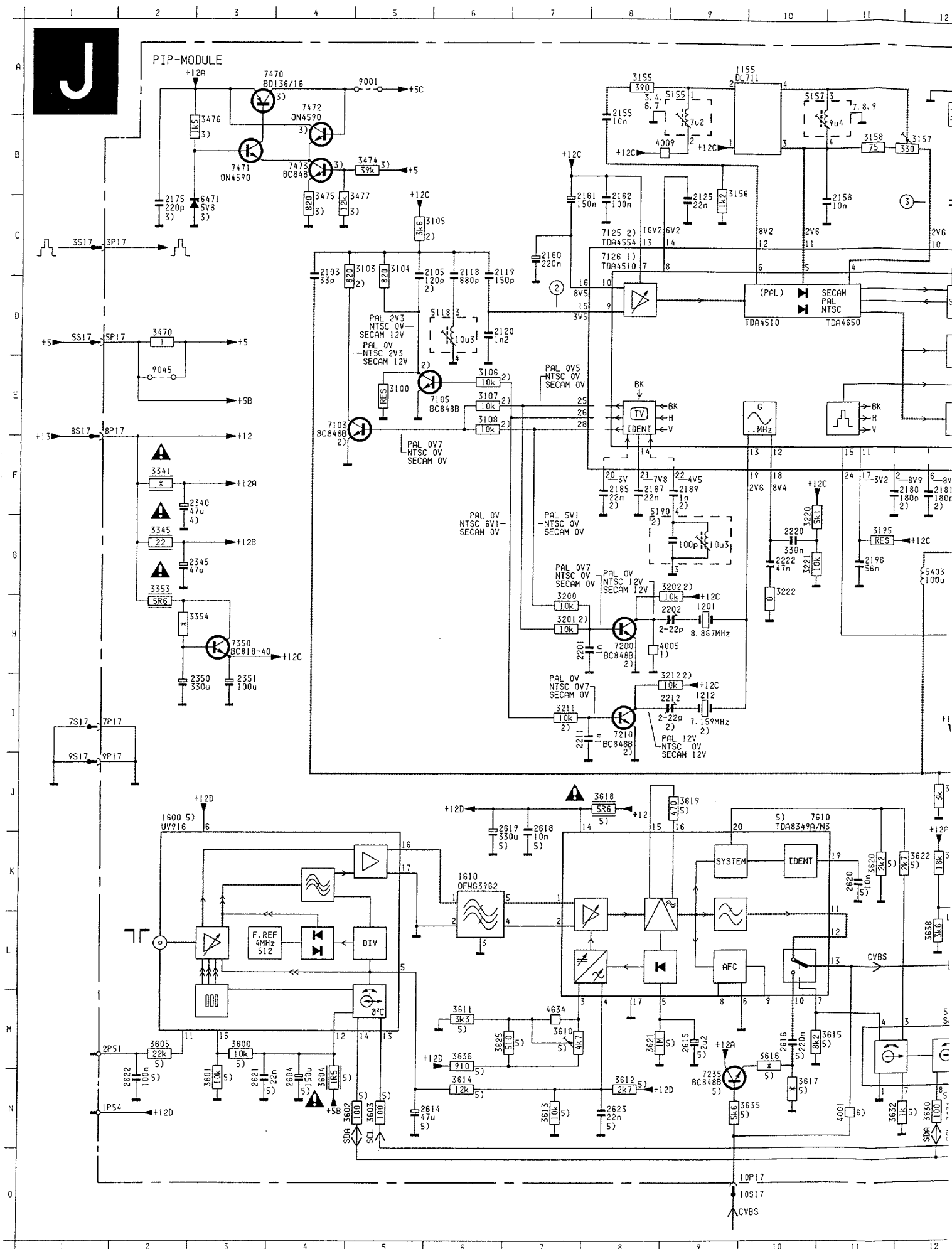
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1004	C1	2024	B1	3000	C1	3025	A1	4100	B2	9009	A1
2000	B2	2025	C1	3001	C1	3026	C1	5000	C2	9010	B1
2001	B1	2026	C2	3002	C2	3027	C1	5001	C2	9011	B2
2002	C1	2027	B1	3003	C2	3028	A2	5002	A1	9014	B2
2003	C2	2028	B1	3004	C2	3029	C1	5003	A1	9015	B2
2004	B2	2029	B1	3005	C2	3030	C1	6000	A2	9016	C2
2005	C2	2030	B2	3006	B1	3031	C1	6005	C2	9017	C1
2006	C2	2031	B2	3007	B2	3032	C1	6006	A2	9018	B1
2007	C2	2032	C1	3008	B2	3033	C1	6050	C1	9019	B2
2008	B2	2033	A1	3009	B2	3034	C2	7000	B2		
2009	C2	2034	A1	3010	A2	3035	C1	7001	A2		
2040	B2	2035	C2	3011	A2	3036	C2	7002	B1		
2011	A2	2036	C1	3012	A2	3037	C2	7003	B1		
2012	A2	2037	C1	3013	A2	3049	B2	7004	A1		
2013	A2	2038	C1	3014	A2	3050	A2	7007	B1		
2014	A2	2039	A2	3015	B1	3099	A2	7008	C1		
2015	A2	2040	B1	3016	B1	4002	A1	7009	C1		
2016	A2	2041	A2	3017	B1	4003	B2	7050	B2		
2017	B2	2042	B2	3018	B1	4005	B1	9001	A1		

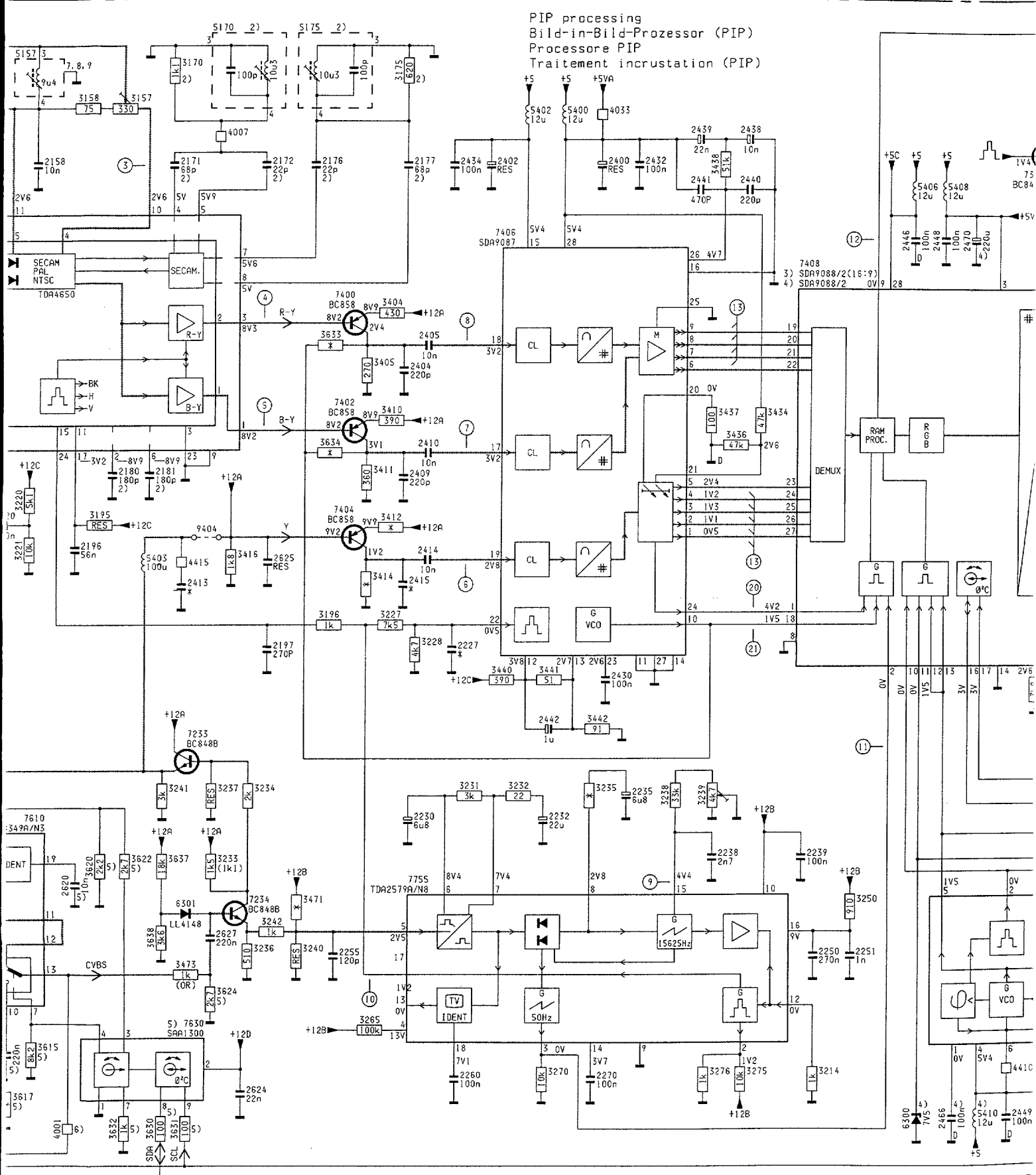


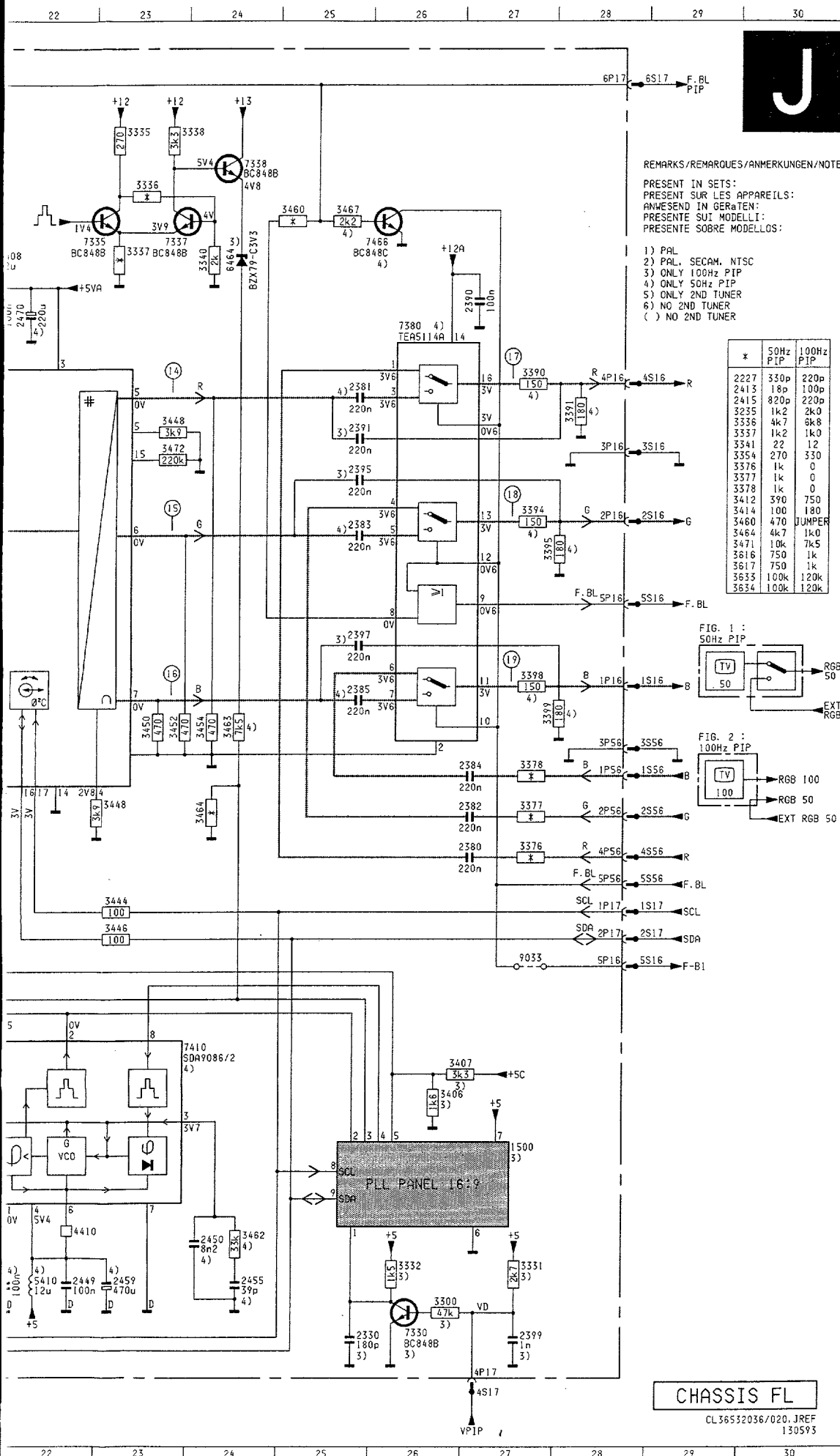




P16	C2	21
P17	C4	21
P51	B5	21
P54	A5	21
P56	A1	21
P57	A1	21
1155	A4	21
1201	B4	21
1212	B4	21
1500	B2	21
1600	B5	21
1610	C5	21
2103	B4	21
2105	C4	21
2118	C4	21
2119	C4	21

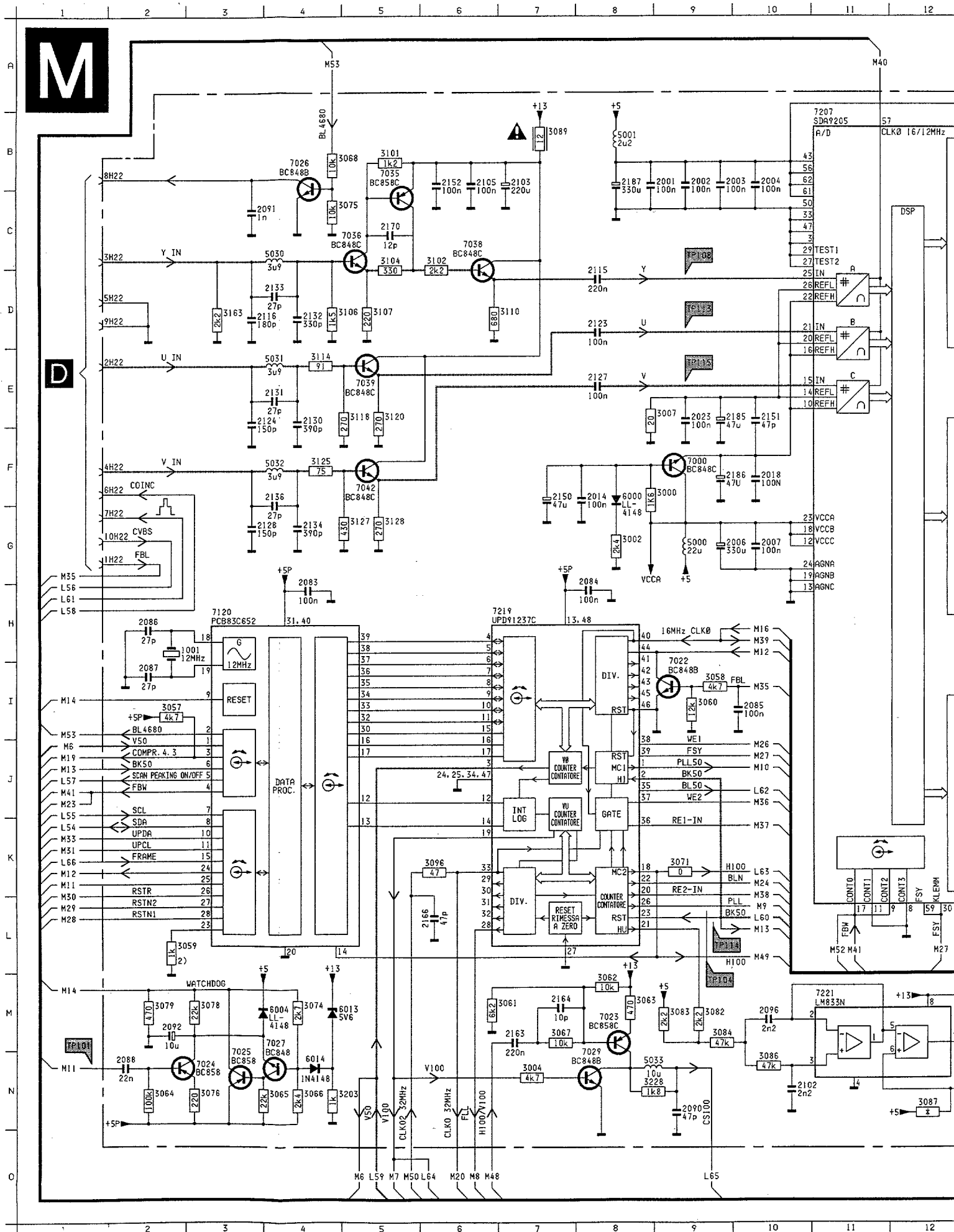




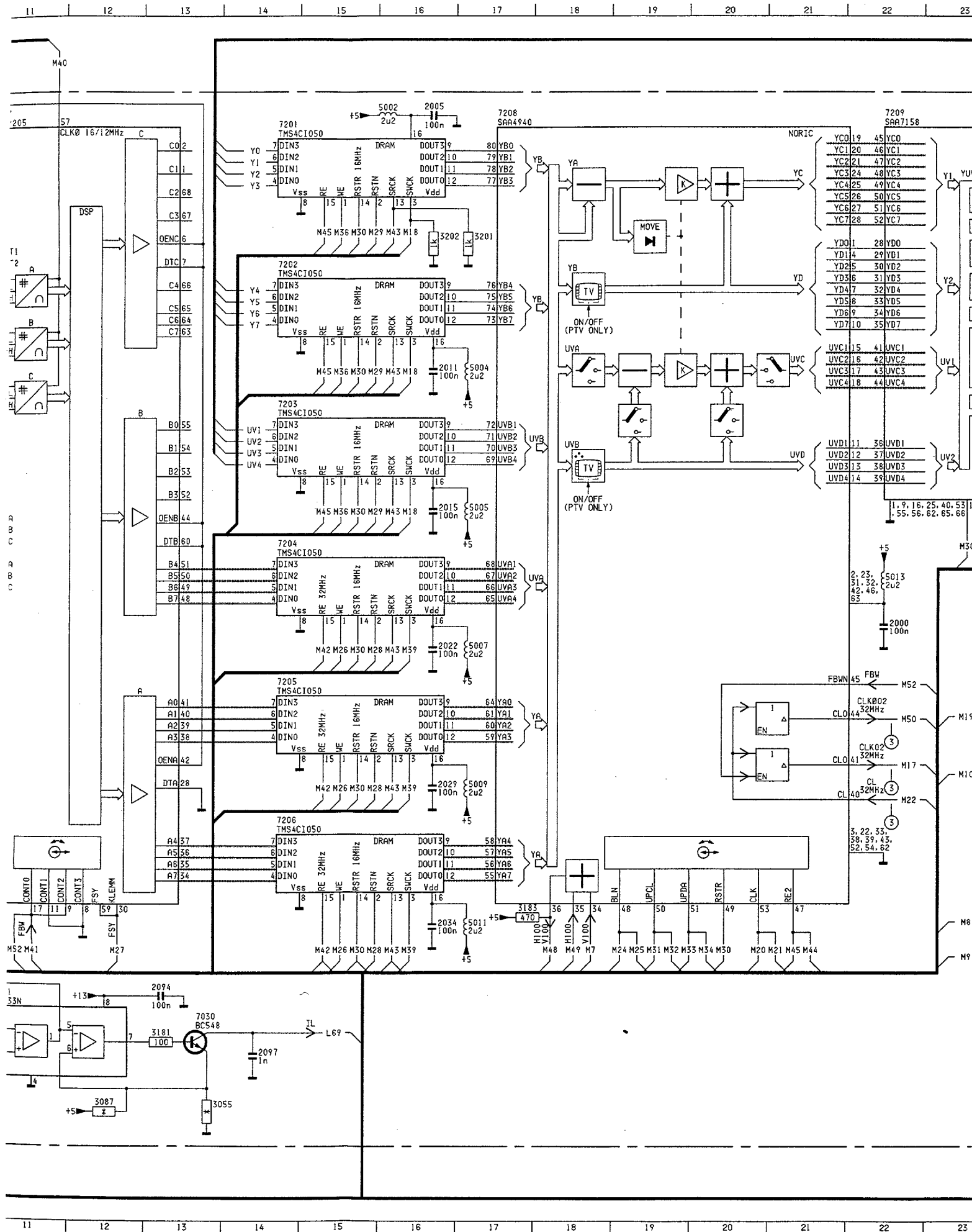


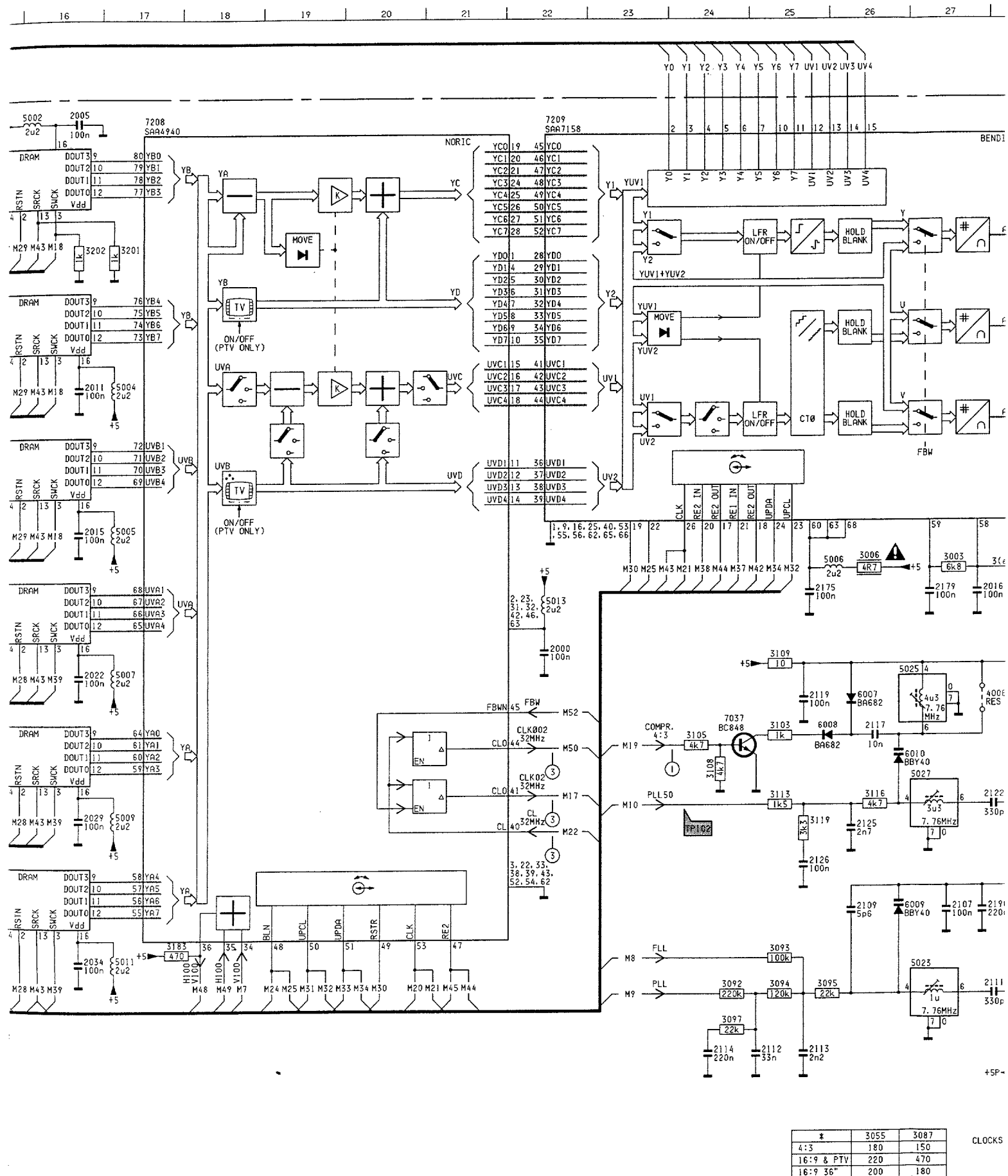
1155	A 9	3201	H 7	4007	B13
1201	H 9	3202	G 9	4009	B 8
1212	I 9	3211	I 7	4033	B17
1500	L27	3212	I 9	4410	M22
1600	J 2	3214	M20	4415	G12
1610	K 6	3220	G10	4634	M 7
2103	D 4	3221	G10	5118	D 5
2105	D 5	3222	G10	5155	A 8
2118	D 6	3227	H15	5157	A10
2119	D 6	3228	H15	5170	A13
2120	D 6	3231	J16	5175	A14
2125	C 9	3232	J16	5190	G 8
2155	B 8	3233	K13	5400	B17
2158	C11	3234	J13	5402	B16
2160	C 7	3235	J17	5405	G12
2161	C 7	3236	L13	5406	C21
2162	C 8	3237	J13	5408	C21
2171	C12	3238	J18	5410	M22
2172	C13	3239	J19	6300	N21
2175	C 2	3240	L14	6301	K12
2176	C14	3241	J12	6464	C24
2177	C15	3242	L13	6471	C 3
2180	F11	3250	K20	7103	E 4
2181	F12	3265	M15	7105	E 5
2185	F 8	3270	M17	7125	C 8
2187	F 8	3275	M19	7126	C 8
2189	F 9	3276	M19	7200	H 8
2196	G11	3300	N26	7210	I 8
2197	H13	3331	N27	7233	I12
2201	H 7	3332	N26	7234	K13
2202	H 9	3335	A23	7235	N 9
2211	I 7	3336	B23	7235	N26
2212	I 9	3337	C25	7335	C23
2220	G10	3338	A23	7337	C23
2222	G10	3340	C24	7338	B24
2227	H16	3341	F 2	7350	H 3
2230	J15	3345	G 2	7380	D26
2232	J17	3353	G 2	7400	D14
2235	J18	3354	H 2	7402	E14
2238	K19	3376	I27	7404	G14
2239	K20	3377	I27	7406	C16
2250	L20	3378	M27	7408	D20
2251	L20	3390	D27	7410	K23
2255	L14	3391	D28	7466	C26
2260	M16	3394	F27	7470	A 3
2270	M17	3395	F27	7471	B 3
2330	Q25	3398	G27	7472	A 4
2340	F 2	3399	H27	7475	B 4
2345	G 2	3404	D15	7610	J11
2350	I 2	3405	E15	7630	M13
2351	I 3	3406	L26	7755	K15
2380	I27	3407	L26	9001	A 5
2381	D25	3410	F15	9033	J27
2382	I27	3411	F15	9045	E 2
2383	F25	3412	G15	9404	G13
2384	H27	3414	G15		
2385	H25	3416	G13		
2390	C27	3434	E19		
2391	E25	3436	F19		
2395	E25	3437	E19		
2397	Q25	3438	C19		
2399	Q27	3440	I16		
2400	C17	3441	I17		
2402	C16	3442	I17		
2404	E15	3444	J23		
2405	E15	3446	J23		
2409	F15	3448	E23		
2410	F15	3448	I23		
2413	H12	3450	H23		
2414	G15	3452	H23		
2415	H15	3454	H24		
2430	I17	3460	B25		
2432	C18	3462	M24		
2434	C16	3463	H24		
2438	B19	3464	I24		
2439	B18	3467	B25		
2440	C19	3470	D 2		
2441	K14	3471	K18		
2442	I17	3472	E23		
2446	C21	3473	L12		
2448	C21	3474	B 5		
2449	N22	3475	B 4		
2450	M24	3476	B 3		
2455	N24	3477	B 4		
2459	N23	3600	M 3		
2466	N21	3601	N 3		
2470	C22	3602	N 5		
2604	N 4	3603	N 5		
2614	N 5	3604	N 4		
2615	M 9	3605	M 2		
2616	M10	3610	M 7		
2618	K 7	3611	M 6		
2619	K 6	3612	N 8		
2620	K11	3613	N 7		
2621	N 3	3614	N 6		
2622	N 2	3615	M11		
2623	N 8	3616	M10		
2624	N13	3617	M10		
2625	G13	3618	J 8		
2627	L13	3619	J 9		
3100	E 5	3620	K11		
3103	C 5	3621	M 8		
3104	C 5	3622	K12		
3105	C 5	3624	L13		
3106	E 6	3625	M 6		
3107	E 6	3630	N12		
3108	E 6	3631	N12		
3155	A 8	3632	N12		
3156	B 9	3633	E14		
3157	B12	3634	F14		
3158	B11	3635	N10		
3170	A12	3636	M 6		
3175	A15	3637	K12		
3195	G11	3638	L12		
3196	H14	4001	N11		
3200	H 7	4005	H 8		

LFR box FLx.24/.26 (Digital Scan)

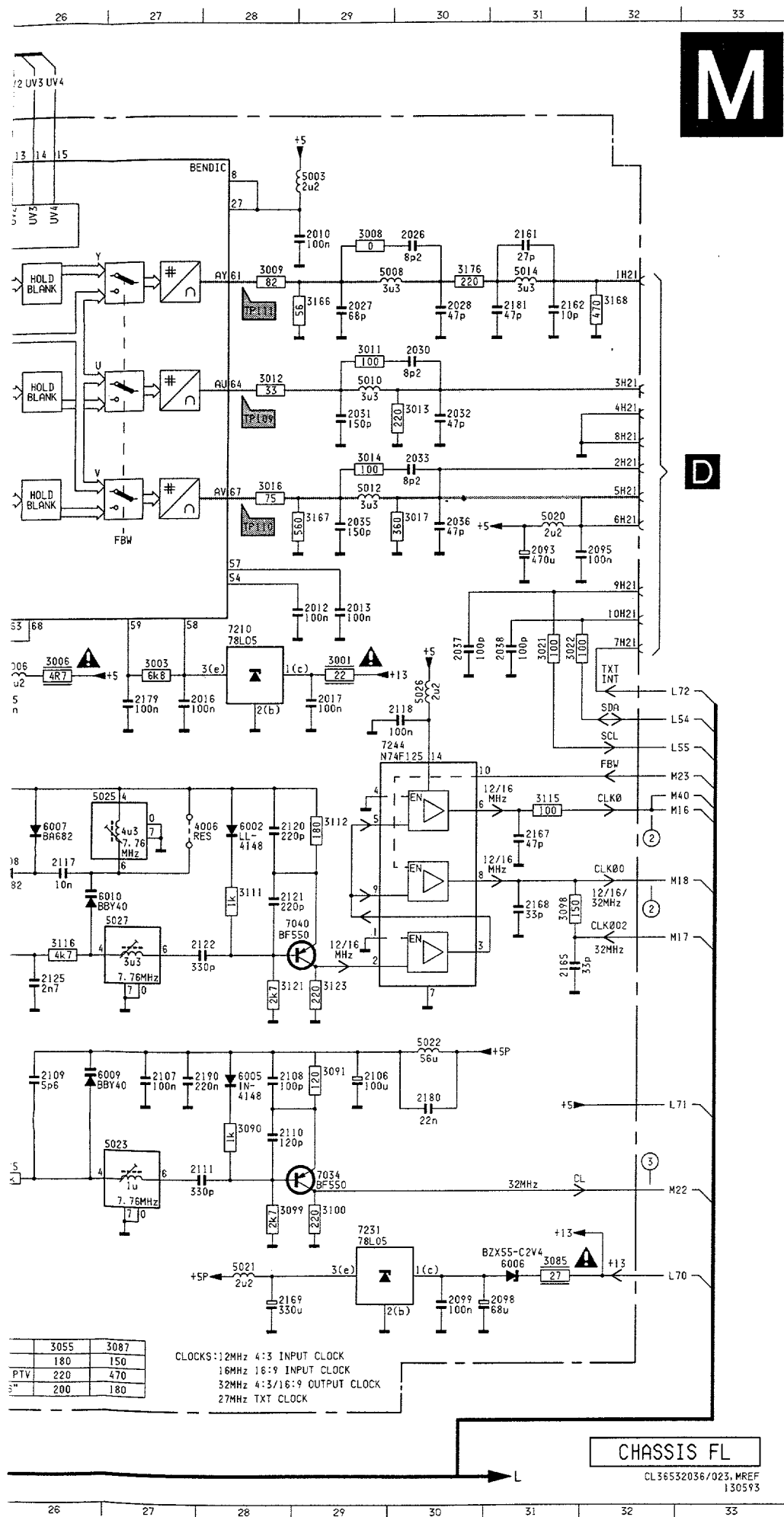


LFR box FLx.24/.26 (Digital Scan)

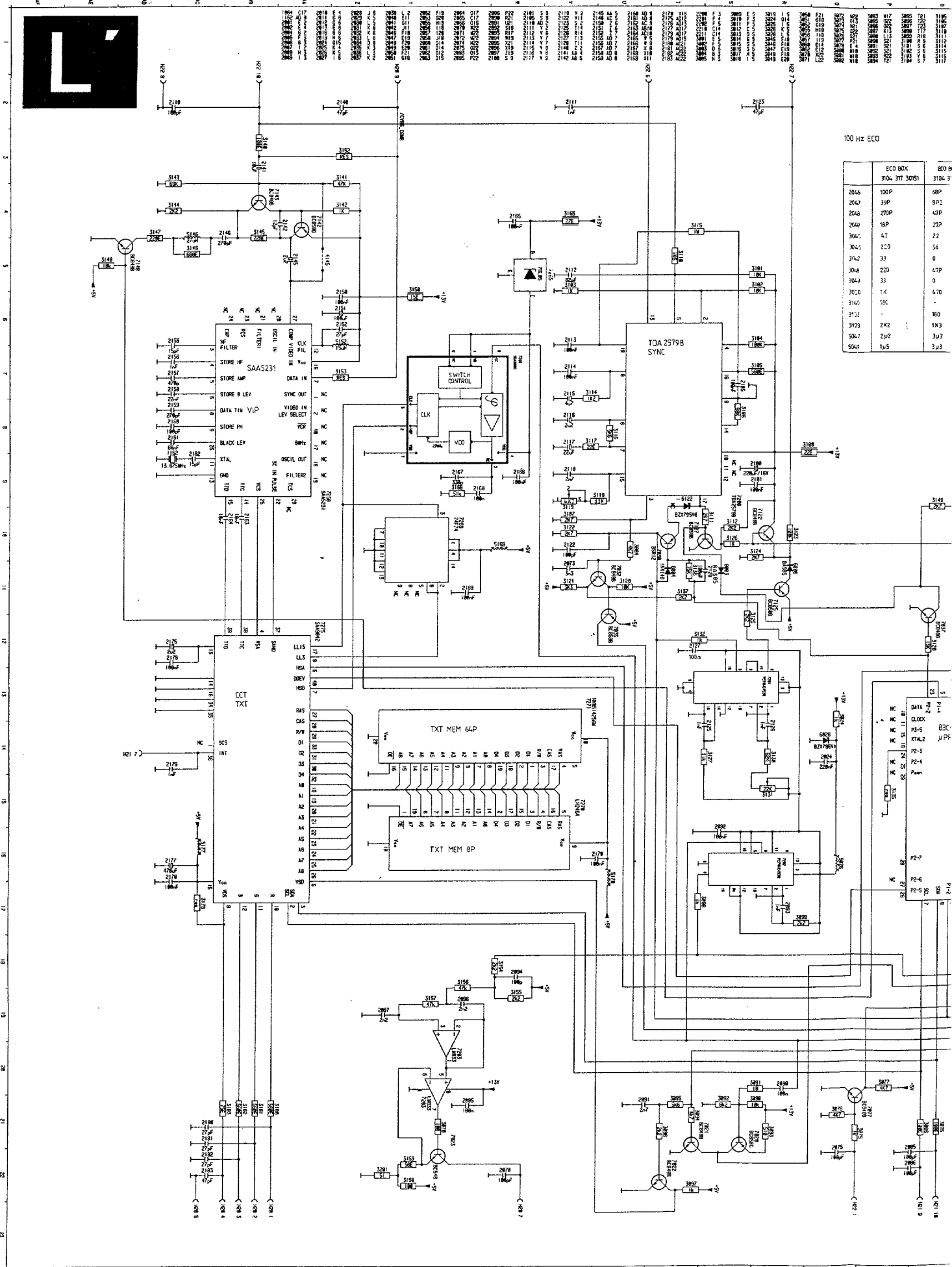




LFR box FLx.24/.26 (Digital Scan)



1001	H 2	3021	G31	7026	B 4
2000	H22	3022	G31	7027	M 4
2001	B 9	3055	N13	7029	N 8
2002	B 9	3057	I 2	7030	M13
2003	B 9	3058	I 9	7034	L29
2004	B10	3059	L 2	7035	B 5
2005	B16	3060	I 9	7036	C 5
2006	G 9	3061	M 6	7037	I24
2007	G10	3062	M 8	7038	C 6
2010	C29	3063	M 8	7039	E 5
2011	E16	3064	N 2	7040	J29
2012	F29	3065	N 4	7042	F 5
2013	F29	3066	N 4	7120	H 3
2014	F 8	3067	M 7	7201	B14
2015	G16	3068	B 4	7202	D14
2016	G27	3071	K 9	7203	E14
2017	G29	3074	M 4	7204	G14
2018	F10	3075	C 4	7205	I14
2022	H16	3076	N 3	7206	K14
2023	E 9	3078	M 3	7207	B11
2026	C30	3079	M 2	7208	B17
2027	C29	3082	M 9	7209	B22
2028	C30	3083	M 9	7210	G28
2029	J16	3084	M 9	7219	H 6
2030	D30	3085	M31	7221	M11
2031	D29	3086	N10	7231	M29
2032	D30	3087	N12	7244	H29
2033	E30	3089	B 7		
2034	L16	3090	L28		
2035	F29	3091	K29		
2036	F30	3092	L24		
2037	G30	3093	L25		
2038	G31	3094	L25		
2083	H 4	3095	L25		
2084	H 8	3096	K 6		
2085	I10	3097	M24		
2086	H 2	3098	I31		
2087	I 2	3099	M28		
2088	N 2	3100	M29		
2090	N 9	3101	B 5		
2091	C 3	3102	C 6		
2092	M 2	3103	I25		
2093	F31	3104	C 5		
2094	M13	3105	I24		
2095	F32	3106	D 4		
2096	M10	3107	D 5		
2097	N14	3108	J24		
2098	N31	3109	H25		
2099	N30	3110	D 7		
2102	N10	3111	I28		
2103	B 7	3112	I29		
2105	B 6	3113	J25		
2106	K29	3114	E 4		
2107	K27	3115	H31		
2108	K28	3116	J26		
2109	K26	3118	E 5		
2110	L28	3119	J25		
2111	L28	3120	E 5		
2112	M25	3121	J28		
2113	M25	3123	J29		
2114	M24	3125	F 4		
2115	D 8	3127	G 5		
2116	D 3	3128	G 5		
2117	I26	3163	D 3		
2118	G30	3166	C29		
2119	I25	3167	E29		
2120	I28	3168	C52		
2121	I28	3176	C30		
2122	J28	3181	M13		
2123	D 8	3183	L17		
2124	E 3	3201	C17		
2125	J26	3202	C16		
2126	K25	3203	N 4		
2127	E 8	3228	N 8		
2128	G 3	4006	I27		
2130	E 4	5000	G 9		
2131	E 4	5001	B 8		
2132	D 4	5002	B16		
2133	D 4	5003	B29		
2134	G 4	5004	E17		
2136	F 4	5005	G17		
2150	F 7	5006	G26		
2151	E10	5007	H17		
2152	B 6	5008	C29		
2161	C31	5009	J17		
2162	C31	5010	D29		
2163	M 7	5011	L17		
2164	M 7	5012	E29		
2165	J31	5013	G22		
2166	L 6	5014	C31		
2167	I31	5020	E31		
2169	N28	5021	M28		
2170	C 5	5022	K30		
2175	G25	5023	L27		
2179	G27	5025	H26		
2180	K30	5026	G30		
2181	C31	5027	J27		
2185	E 9	5030	C 4		
2186	F 9	5031	E 4		
2187	B 8	5032	F 4		
2190	K27	5033	N 8		
3000	F 9	6000	F 8		
3001	G29	6002	I28		
3002	G 8	6004	M 4		
3003	G27	6006	M31		
3004	N 7	6007	I26		
3006	G26	6008	I25		
3007	E 9	6009	K26		
3008	C29	6010	I26		
3009	C28	6013	M 4		
3011	D29	6014	N 4		
3012	D28	7000	F 9		
3013	D30	7022	I 9		
3014	E29	7023	M 8		
3016	E28	7024	N 3		
3017	E30	7025	N 3		



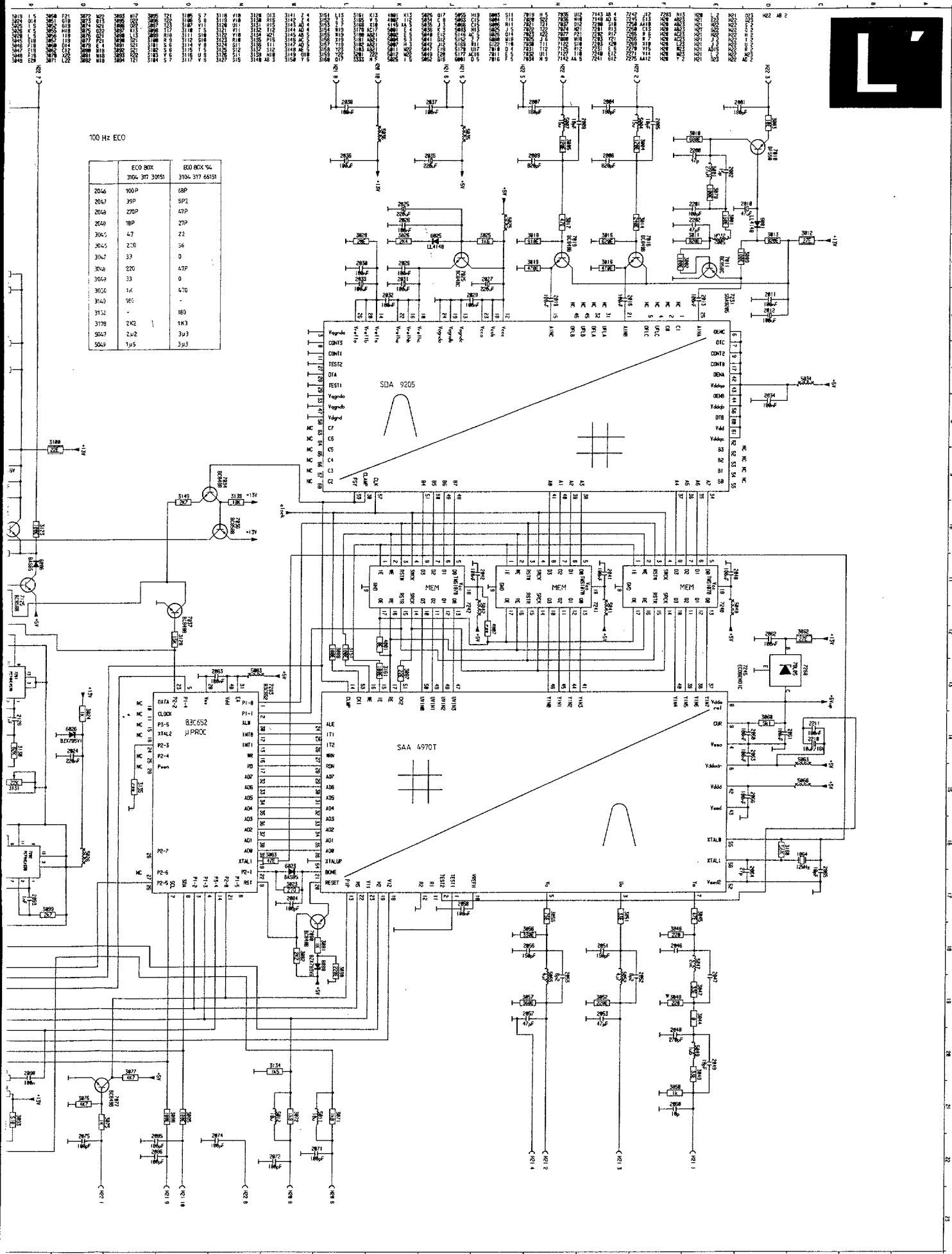
100 Hz ECO

	ECD BOX F104 277 30151	ECO BK 3104 3'
3044	100P	68P
3047	39P	5P2
3048	270P	47P
3049	18P	27P
3047	47	22
3047	210	56
3047	33	0
3048	220	47P
3049	33	0
3050	14	470
3049	100	
3049	2K2	180
3047	210	1K3
3049	145	303

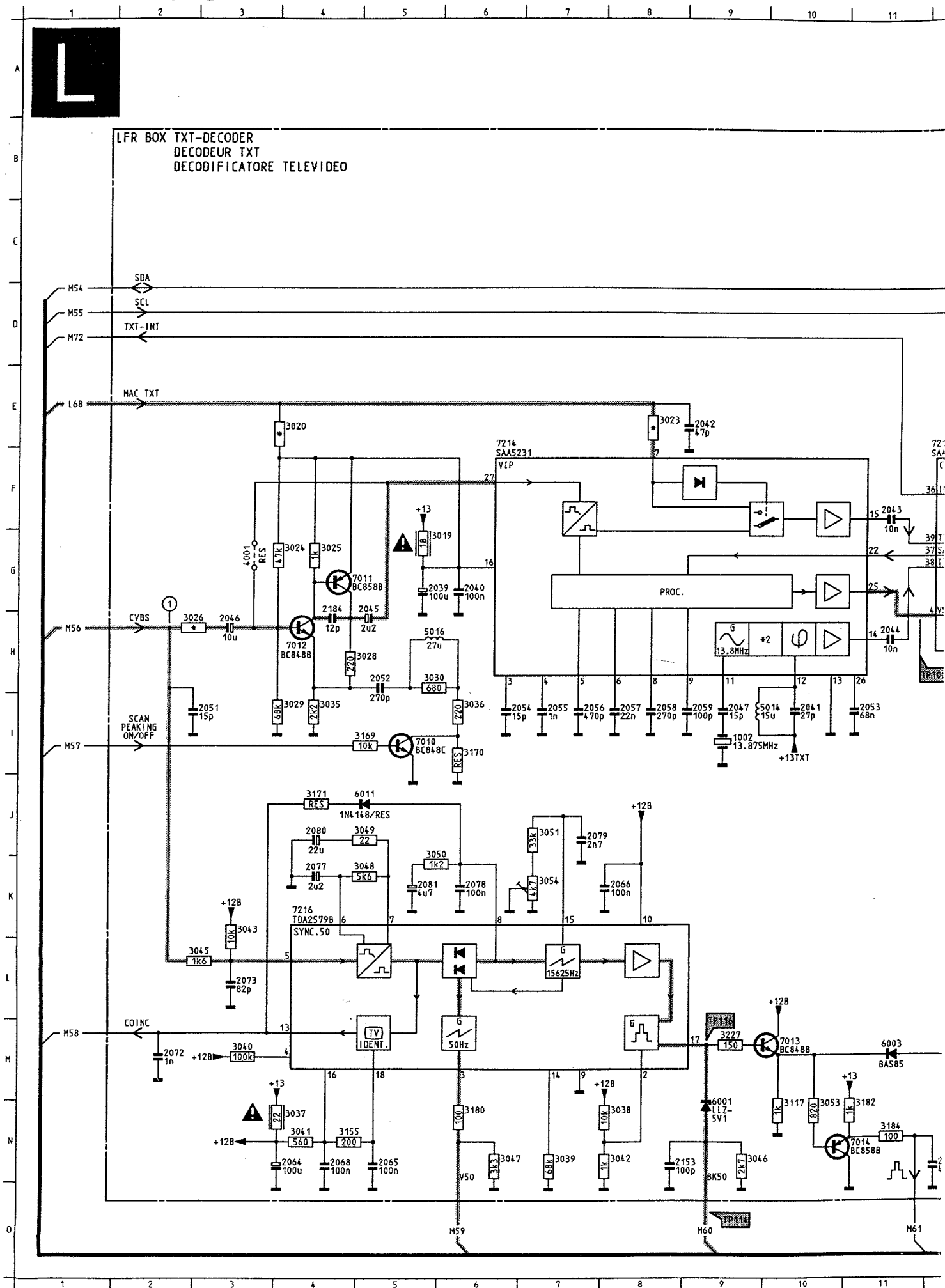


100 Hz ECO

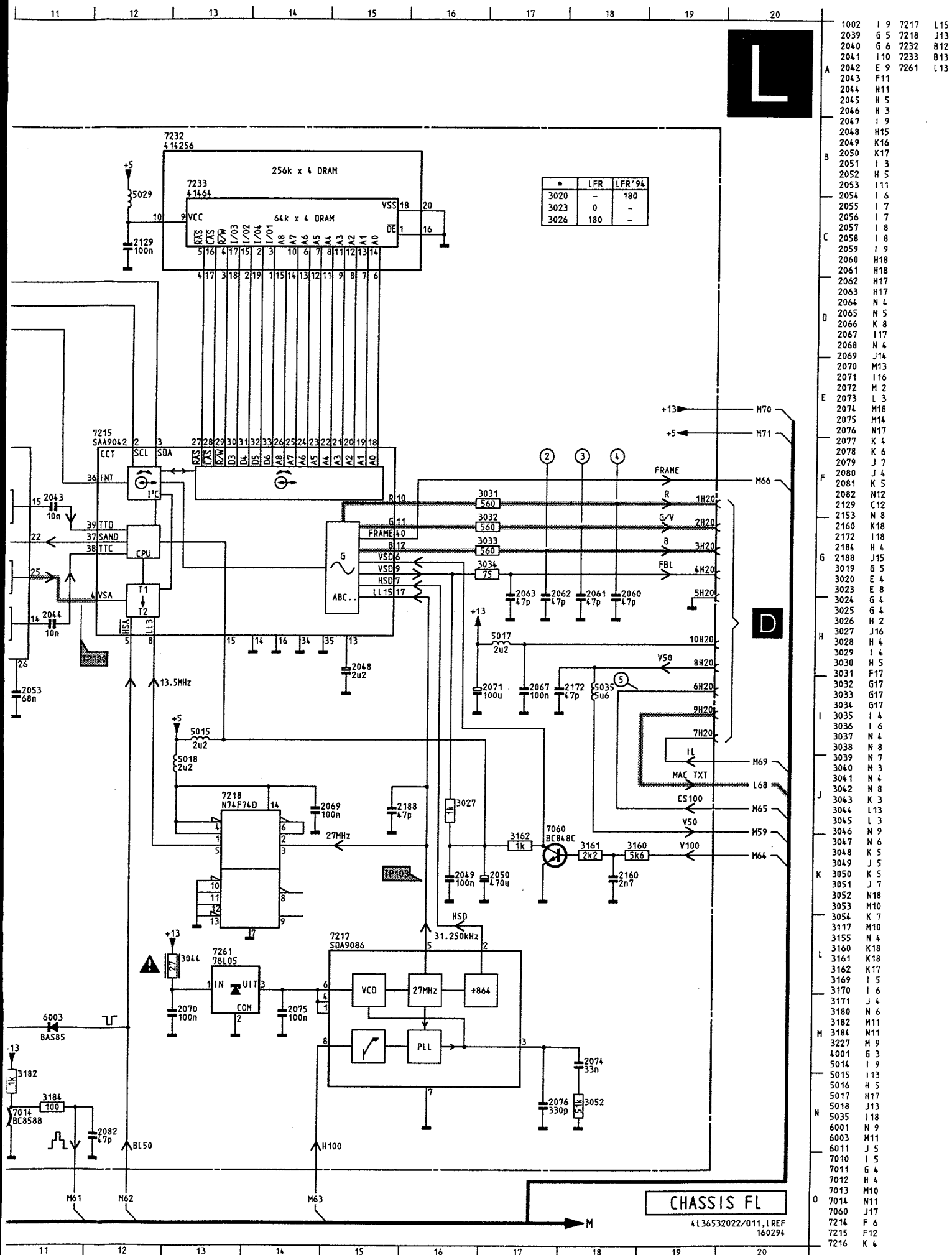
	ECO BOX	ECO BOX %
	3104.317 31051	3104.317 6151
2046	100P	68P
2047	39P	59P
2048	27P	47P
2049	18P	27P
2045	47	22
2046	270	36
2047	33	0
2048	220	47P
2049	33	0
2050	14	470
2140	165	-
2142	-	180
2178	242	1K3
2567	242	343
2569	145	343

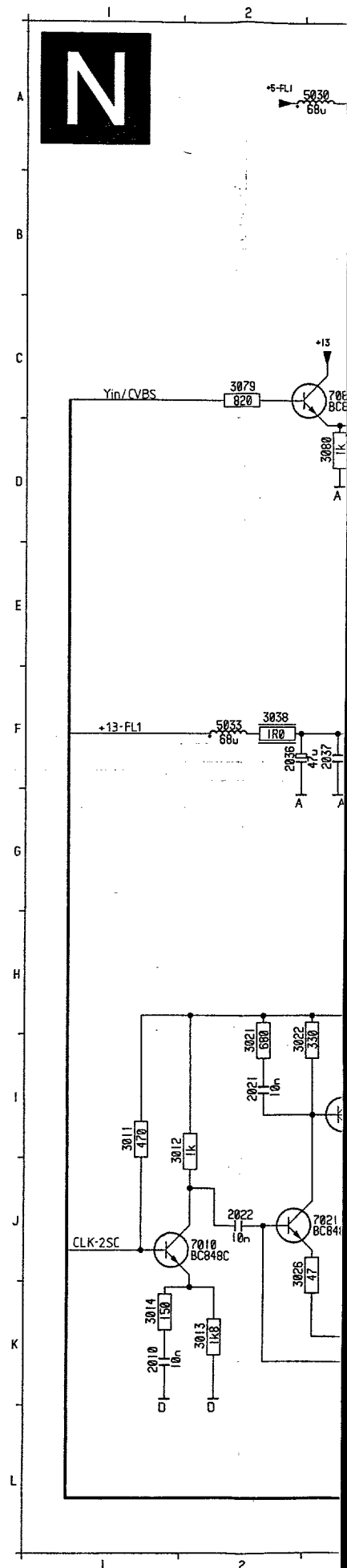
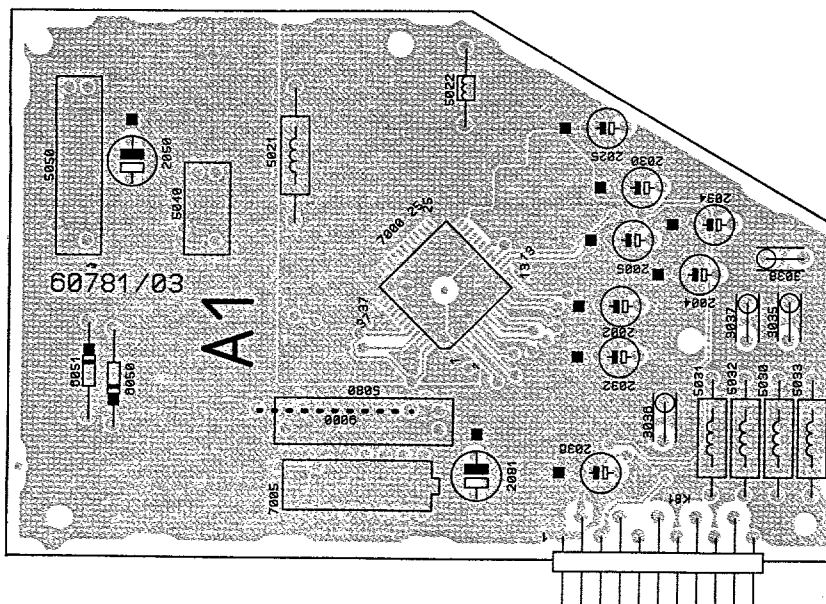
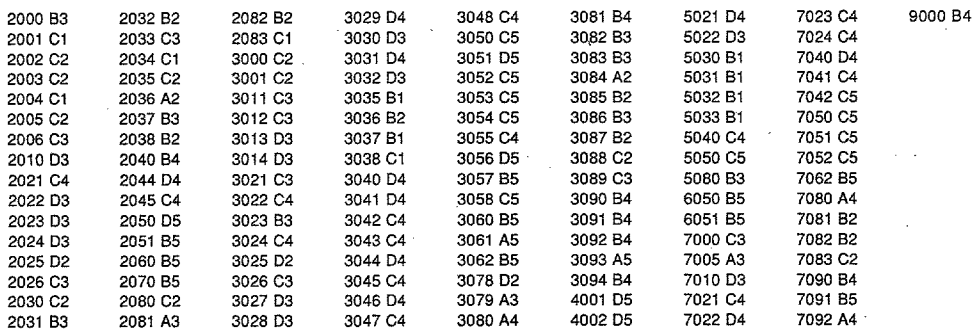


LFR box (Digital Scan)

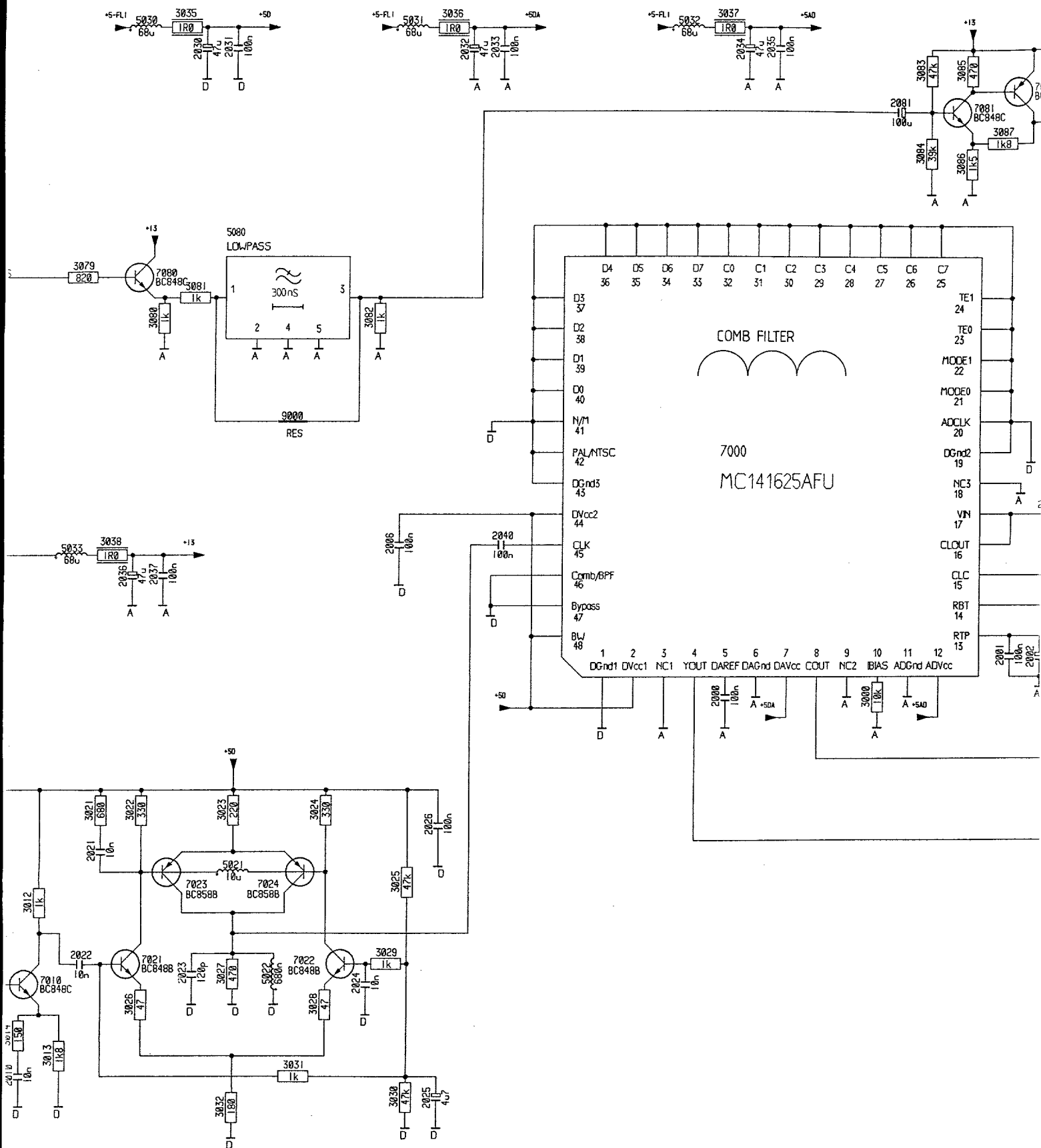


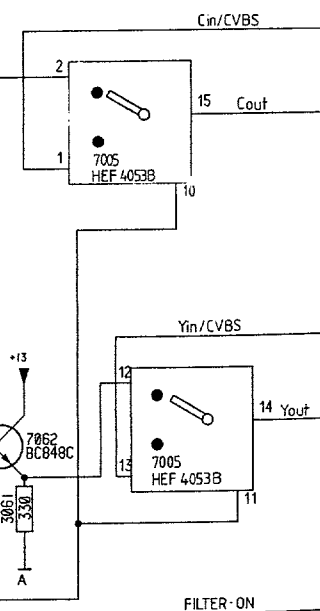
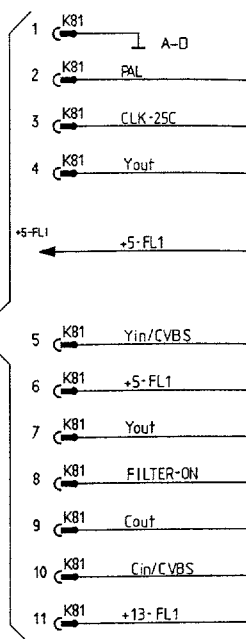
LFR box (Digital Scan)





Comb filter / Kamm-Filter / Filtre en peigne







2000	G 8	K81	B19
2001	G11	K81	B19
2002	G11	K81	C19
2003	G12	K81	D19
2004	G12	K81	D19
2005	G13	K81	D19
2006	F 5	K81	E19
2010	K 1	K81	E19
2021	I 2	K81	E19
2022	J 2	K81	E19
2023	J 3		
2024	K 3		
2025	I 5		
2026	A 3		
2030	A 3		
2031	A 3		
2032	A 6		
2033	A 6		
2034	A 8		
2035	A 9		
2036	F 2		
2037	F 3		
2038	B18		
2040	F 6		
2044	G15		
2045	G18		
2050	I14		
2051	I16		
2060	I18		
2070	K16		
2080	F11		
2081	B10		
2082	A12		
2085	D14		
3000	G10		
3001	G12		
3011	I 1		
3012	I 1		
3013	K 2		
3014	K 1		
3021	I 2		
3022	I 2		
3023	I 3		
3024	I 4		
3025	I 5		
3026	J 2		
3027	J 3		
3028	J 4		
3029	J 5		
3030	K 5		
3031	K 4		
3032	K 3		
3035	A 3		
3036	A 8		
3037	A 8		
3038	F 2		
3040	F15		
3041	G15		
3042	F15		
3043	G16		
3044	G15		
3045	G13		
3046	G15		
3047	G17		
3048	G17		
3050	H14		
3051	I14		
3052	H15		
3053	I15		
3054	I15		
3055	I12		
3056	I14		
3057	I16		
3058	I16		
3060	I17		
3061	I18		
3062	J17		
3078	C13		
3079	C 2		
3080	D 3		
3081	C 3		
3082	D 5		
3083	A10		
3084	B10		
3085	A11		
3086	B11		
3087	B11		
3088	D12		
3089	D12		
3090	K20		
3091	K19		
3092	J19		
3093	J17		
3094	K17		
4001	H14		
4002	J13		
5021	I 3		
5022	J 4		
5030	A 3		
5031	A 5		
5032	A 8		
5033	F 3		
5040	F13		
5050	H12		
5080	C 5		
6050	I17		
6051	I17		
7000	E 8		
7005	K15		
7005	G19		
7005	I19		
7010	J 2		
7021	J 4		
7022	J 4		
7023	T 3		
7024	I 4		
7040	G16		
7041	F16		
7042	G17		
7050	I15		
7051	I15		
7052	I16		
7062	I18		
7080	C 3		
7081	B11		
7082	B11		
7083	D13		
7090	K19		
7091	K18		
7092	K17		
9000	E 4		
K81	B19		

A

B

C

D

E

F

G

H

I

J

K

L

A-D

K-25C

out

FL1

n/CVBS

5-FL1

out

FILTER-ON

out

in/CVBS

13-FL1

in/CVBS

5 Cout

/CVBS

14 Yout

53B

11

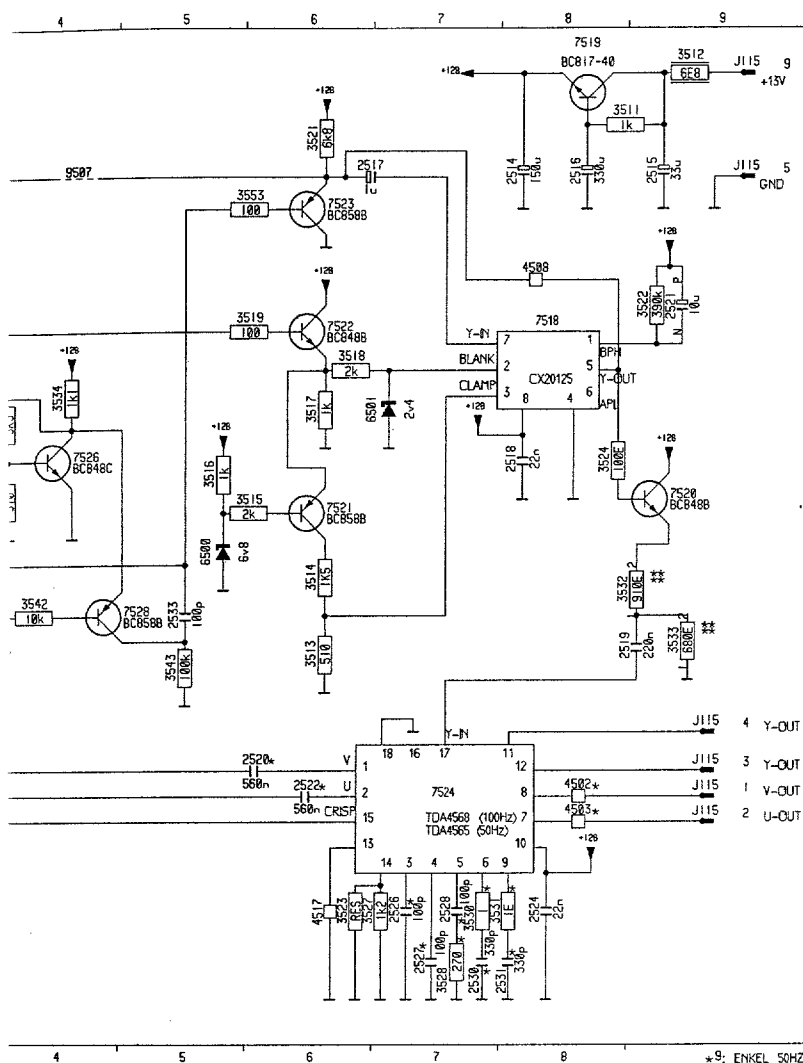
LTER-ON

3090 PAL

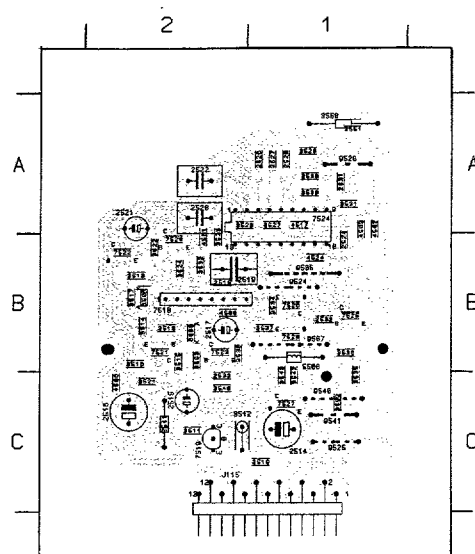
470

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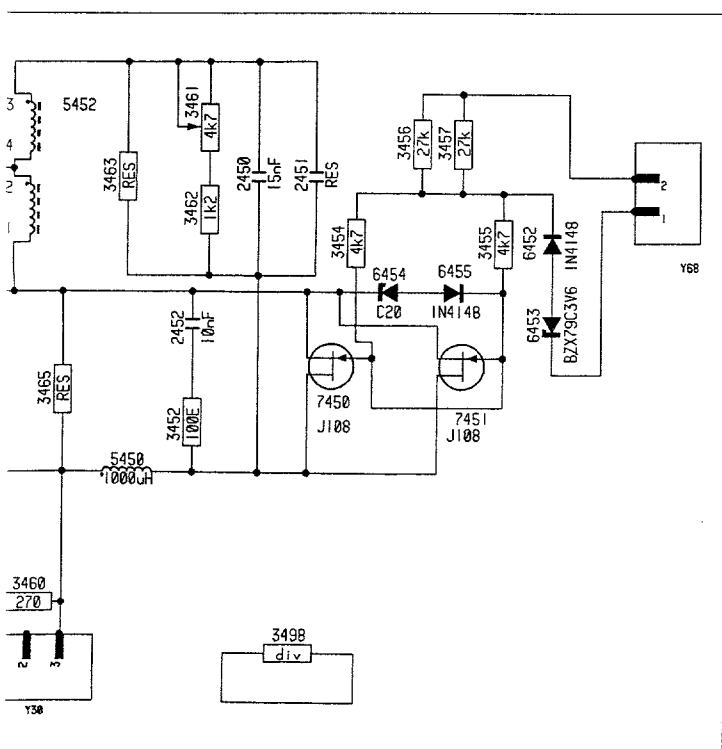
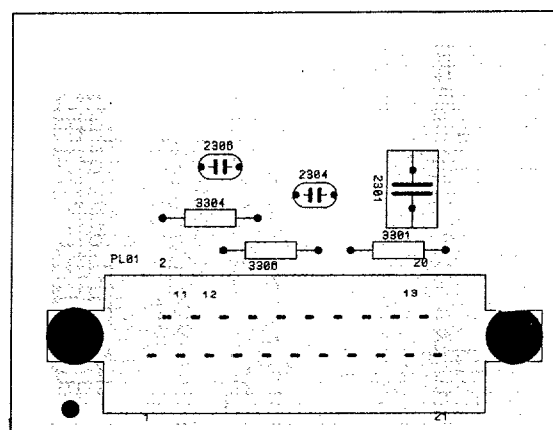
Black stretch



	2514	A	2514
	2515	A	2515
	2516	A	2516
	2517	A	2517
	2518	A	2518
	2519	A	2519
	2520	A	2520
	2521	A	2521
	2522	A	2522
	2523	A	2523
	2524	A	2524
	2525	A	2525
	2526	A	2526
	2527	A	2527
	2528	A	2528
	2529	A	2529
	2530	A	2530
	2531	A	2531
	2532	A	2532
	2533	A	2533
	2534	A	2534
	2535	A	2535
	2536	A	2536
	2537	A	2537
	2538	A	2538
	2539	A	2539
	2540	A	2540
	2541	A	2541
	2542	A	2542
	2543	A	2543
	2544	A	2544
	2545	A	2545
	2546	A	2546
	2547	A	2547
	2548	A	2548
	2549	A	2549
	2550	A	2550
	2551	A	2551
	2552	A	2552
	2553	A	2553
	2554	A	2554
	2555	A	2555
	2556	A	2556
	2557	A	2557
	2558	A	2558
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	2562	A	2562
	2563	A	2563
	2564	A	2564
	2565	A	2565
	2566	A	2566
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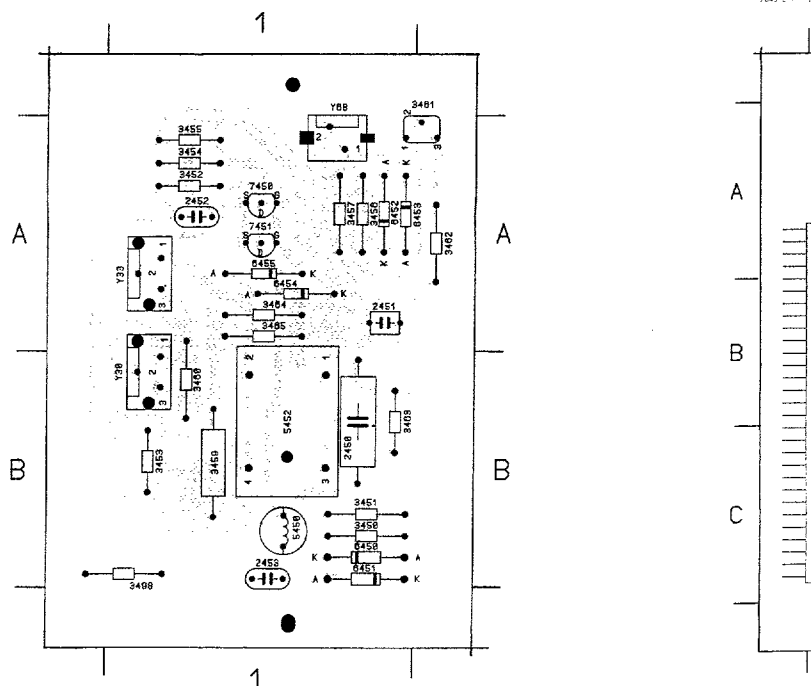


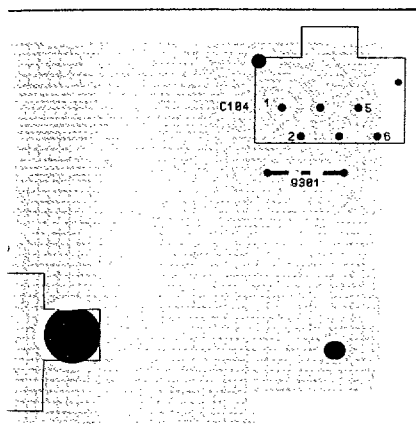
Euro AV3 Connector



North-South (29")

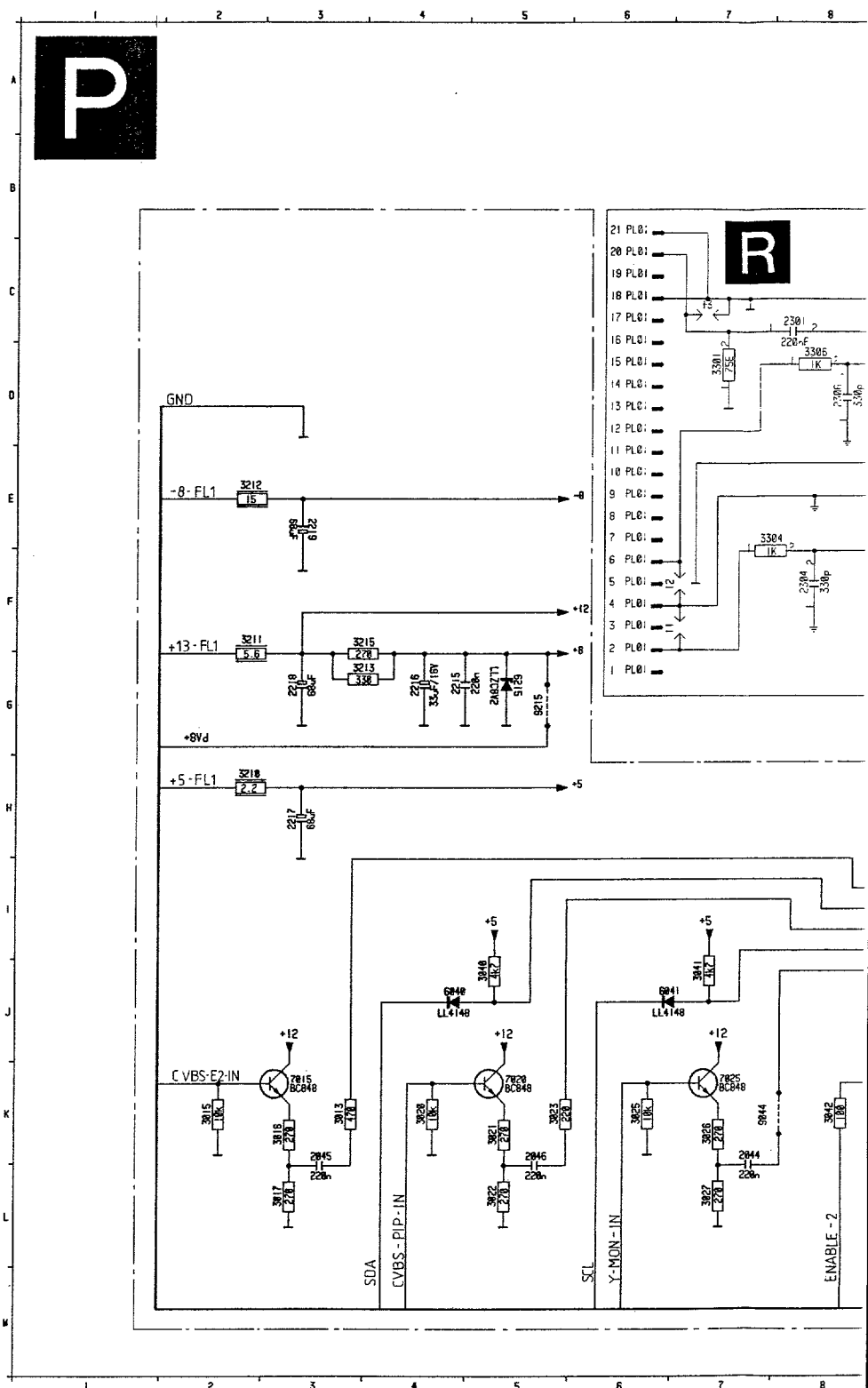
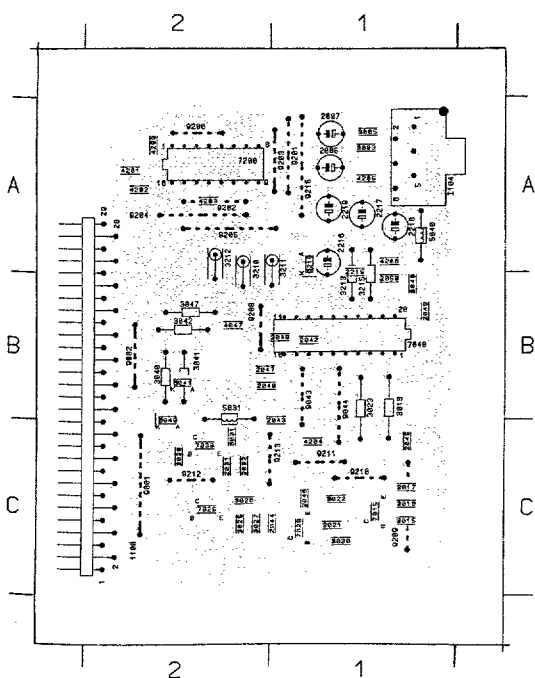
2450 B 1	3451 B 1	3455 A 1	3463 B 1	5452 B 1	6454 A 1	Y33 A 1
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2452 A 1	3453 B 1	3459 B 1	3465 A 1	5451 B 1	7450 A 1	
2453 B 1	3454 A 1	3460 A 1	3466 B 1	5452 A 1	7451 A 1	
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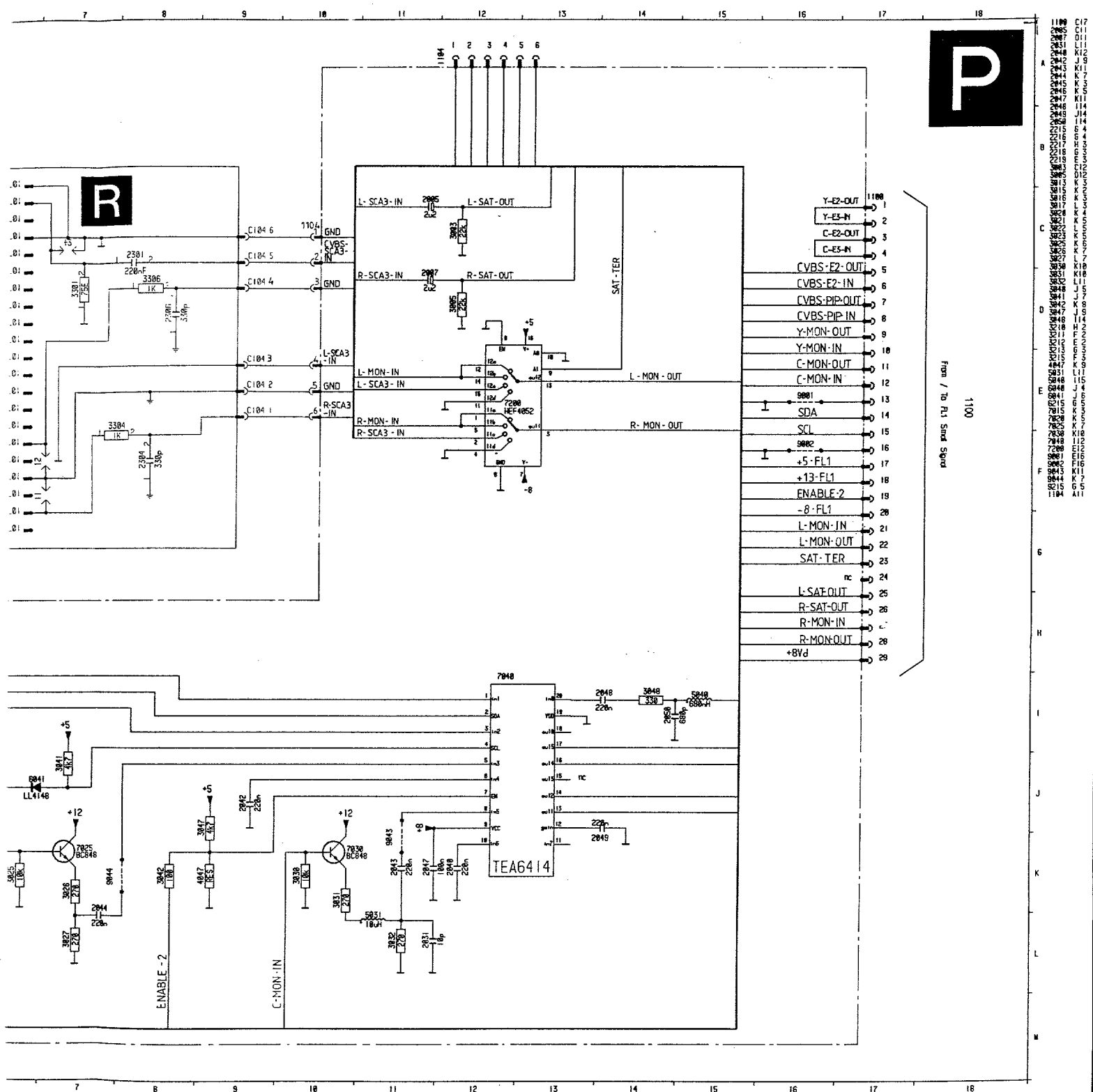




Euro AV3 Interface

1100 C 2	2045 C 1	2215 A 1	3022 C 1	3041 B 2	4847 B 2	5440 A 1	7200 A 2	9204 A 2	9104 A 1
2085 A 1	2047 B 2	3003 A 1	3023 C 1	3042 B 2	4200 A 2	6040 B 2	9001 C 2	9205 A 1	
2087 A 1	2046 B 1	3005 A 1	3025 C 2	3043 B 2	4201 A 2	6041 B 2	9002 C 2	9205 B 2	
2081 C 2	2049 B 1	3015 C 1	3026 C 2	3046 B 1	4202 A 2	6042 C 1	9012 C 1	9205 C 1	
2040 B 2	2050 B 1	3015 C 1	3027 C 2	3016 A 2	4203 A 2	7015 C 1	9044 C 1	9016 C 1	
2042 B 1	2015 A 1	3016 C 1	3028 C 1	3011 A 1	4204 C 1	7020 C 1	9009 A 2	9211 C 1	
2049 B 1	2015 B 1	3017 C 1	3031 C 2	3012 A 2	4205 A 1	7025 C 2	9001 A 1	9012 C 2	
2044 C 1	2017 A 1	3020 C 1	3030 C 2	3013 A 1	4206 A 1	7030 C 2	9002 A 2	9015 C 1	
2045 C 1	2016 A 1	3021 C 1	3040 B 2	3015 A 1	5031 B 2	7040 B 1	9003 A 1	9015 A 1	





7. Electrical adjustments

Setting conditions

- * Unless stated otherwise, the supply voltage used is: 220 - 240V $\pm$ 10%; 50 - 60Hz $\pm$ 5%
- * Voltages and oscillograms are measured in relation to tuner earth. **Never** use the cooling plates as earth.
- * Warming-up time $\approx$ 10 minutes
- * For all measurements it is true that:
probe Ri > 1M Ω ; Ci < 10pF

1. Electrical settings on the large signal panel

1.1 +141V supply voltage

Supply the mains voltage; this must be isolated from the mains.

Connect a voltmeter over C2238.

Using R3371, on the SOPS DRIVE CIRCUIT (fig. 7.2) set the supply voltage to +141V $\pm$ 0.5V.

1.2 +5V supply voltage (FLx.x6/FLx.x7)

Connect a voltmeter to pin 8 of L02

Adjust the voltage to 5.4V using R3558

1.3 +13V supply voltage (FLx.x6/FLx.x7)

Connect a voltmeter to pin 6 of connector L02

Adjust the voltage to 14.2V using R3234.

1.4 Focusing

This is set with the focus potentiometer (top one on the Line output transformer/DAF Unit).

1.5 Dynamic 1) Astigmatic focus

This is set with the aid of the potentiometer on the bottom right of the DAF transformer. Repeat the adjustment of the Vg2 and focus.

1.6 Vg2 setting

Supply an aerial signal.

Set the contrast to maximum and the brightness and saturation to nominal.

Using an oscilloscope set to field frequency, measure the direct voltage level of the measurement pulse (fig. 7.1) on pin 9 of IC7705, IC7706 and IC7707 in relation to earth. Now adjust the highest voltage level found with the aid of the Vg2 potentiometer (bottom left on the Line output transformer/DAF unit) to 150V $\pm$ 2V.

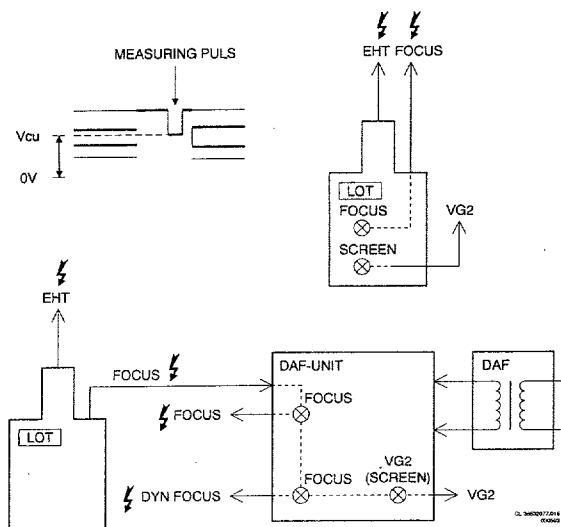


Fig. 7.1

1.7 Horizontal synchronisation

Connect point 5-IC7400 to point 9-IC7400.

Supply an aerial signal and set the receiver.

Adjust potentiometer R3406 until the picture is straight.

Break the through connection.

1.8 Horizontal centring

Feed in a test pattern that makes the horizontal linearity visible (e.g. a symmetrical cross pattern or a test circle). Adjust the DC offset current through the horizontal deflection coil using R3513 so that the horizontal linearity is optimal (the distance between the two vertical lines should be equal on both the left and right hand sides of the picture). It is also possible to use a ruler for this purpose. The picture can then be centred using R3415.

1.9 Picture width

Set using potentiometer R3607.

1.10 Vertical centring

Set using potentiometer R3467.

1.11 Picture height

Set using potentiometer R3410.

1.12 Picture height

Movie expand on: set using potentiometer R3422.

Movie expand off: set using potentiometer R3410.

1.13 East/West correction

Set using potentiometer R3602.

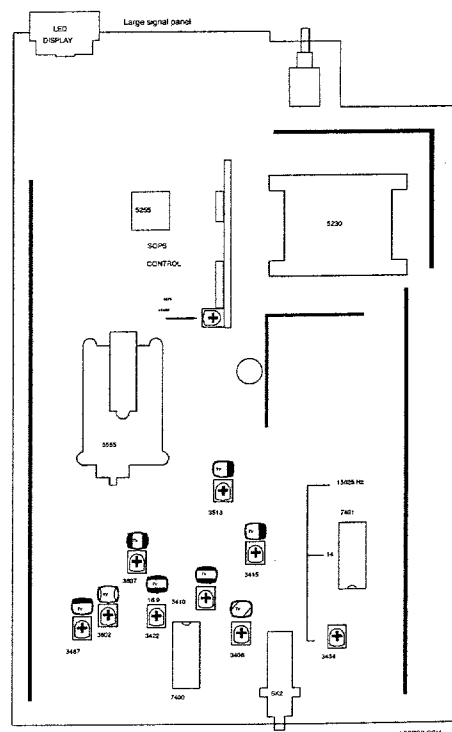


Fig. 7.2

Electrical adjustments

3. Electrical adjustments on the LFR box

3.1 Synchronisation

Connect point 5 of IC7216 to earth. Adjust R3054 until the picture is straight.
Remove the short circuit.

3.2 16MHz oscillator

Apply a PAL/SECAM signal. Measure the signals at point 1 of IC7219 and at point 5 of IC7216 simultaneously with an oscilloscope (fig. 7.9). Adjust coil L5027 so that the positive-going flank of the signal at point 1 of IC7219 comes 7.62 μ sec after the negative-going flank of the sync pulse in the video signal (point 5 of IC7216).

3.3 32MHz oscillator

Force the STABLE OSD command to the microprocessor, by disconnecting the set from a possible antenna input signal. Measure the frequency at point 41 of IC7208. Using L5023 set the frequency to 32 MHz $\pm$ 50 KHz.

3.4 12MHz oscillator

Switch on compress.
Measure the signals on point 1 of IC7219 and on point 5 of IC7216 simultaneously with an oscilloscope (fig. 7.9). Adjust coil L5025 so that the rising flank of the signal on point 1 of IC7219 comes 7.62 μ sec after the negative flank of the sync pulse in the video signal (point 5 of IC7216).

4. Electrical settings on the ECO-NICAM decoder panel

4.1 Neutral frequency adjustment

Connect a frequency counter via a probe (Ci $\leq$ 15pF) to pin 19 of IC7001 (SAA 7280) and pin 15 (GND).
Adjust C2015 in such a manner that the clock frequency is set at 728.025 kHz. ($\pm$ 5Hz)

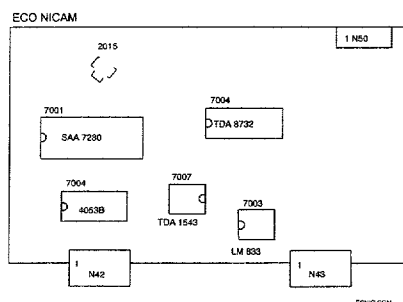


Fig. 7.6

5. Y/C detector adjustment

5.1 PAL/SECAM

Inject a chroma signal of 4.418 MHz/200mV on pin 15 of EXT2 SCART (PL05).
Connect an oscilloscope to the collector of T7266 (T7). Using L5201 adjust the 4.418 MHz signal to maximum amplitude.

5.2 NTSC

As PAL/SECAM but with a signal of 3.582 MHz/200mV. Adjust with L5200.

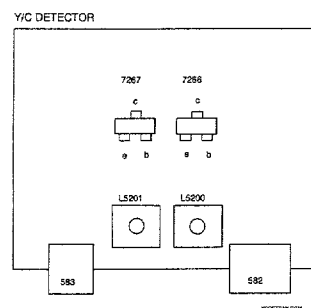


Fig. 7.7

6. Electrical settings on the PIP panel

Setting conditions

Before carrying out each setting, it should be ensured that a P.I.P. picture with colour bar is visible on the screen and the unit should have reached its operating temperature (after $\approx$ 20 min.).

6.1 Horizontal synchronisation

Supply an aerial or generator signal.
Connect pin 28-IC7125 to pin 13-IC7125.
Connect pin 5-IC7755 to earth.
Measure the frequency on pin 17-IC7755 and set this to 15,625 Hz $\pm$ 25 Hz with R3239.
Remove the short circuits.

6.2 AGC

If the picture from a strong local transmitter is distorted, adjust 3160 until the picture is not distorted.

6.3 Setting for PIP modules with TDA4554

6.3.1 Chroma bandpass filter

Connect a signal generator (e.g. PM 5326) to pin 10 of P17 and set its frequency to 4.286 MHz/0.2 Vpp.
Connect pin 27-IC7125 to 13-IC7125.
Connect an oscilloscope to pin 15-IC7125.
Set L5118 to maximum amplitude.
Remove the interconnection.

6.3.2 PAL chroma auxiliary oscillator

Connect a pattern generator and supply a PAL colour bar pattern. Connect pin 17-IC7125 (TDA4554) to earth.
Set C2202 so that the colour of the PIP picture is practically still. Remove the interconnection.

6.3.3 NTSC chroma auxiliary oscillator

Connect a pattern generator and supply an NTSC M colour bar pattern. Connect pin 17-IC7125 to earth. Set C2212 so that the colour of the PIP picture is practically still. Remove the interconnection.

6.3.4 The delay line

Connect a pattern generator and supply a PAL colour bar signal. Connect the X-input of the oscilloscope to pin 1-IC7125 (TDA4554). Connect the Y-input of the oscilloscope to pin 3-IC7125 (TDA4554). Set the oscilloscope to the X-Y position.
Set L5155 and L5157 so that the vectors lie in one line (points which are furthest from the origin).
Set the pattern generator to the "DEM" mode.
Set R3157 so that the vectors lie on top of one another in the origin.

