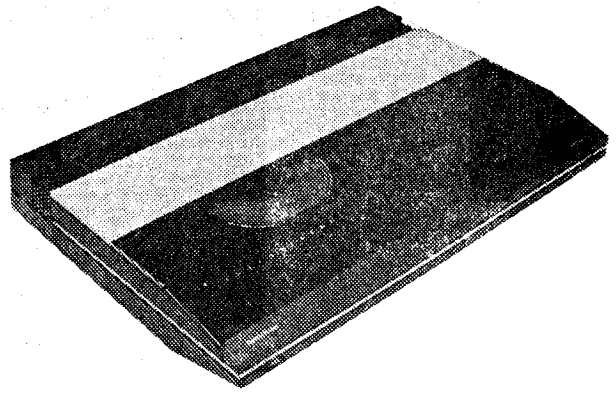


Bang & Olufsen



Beogram CDX Type 5121/22/23/25

1056

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel: 01844-351894 Fax: 01844-352554
Email: enquiries@mauritron.co.uk

SERVICE MANUAL

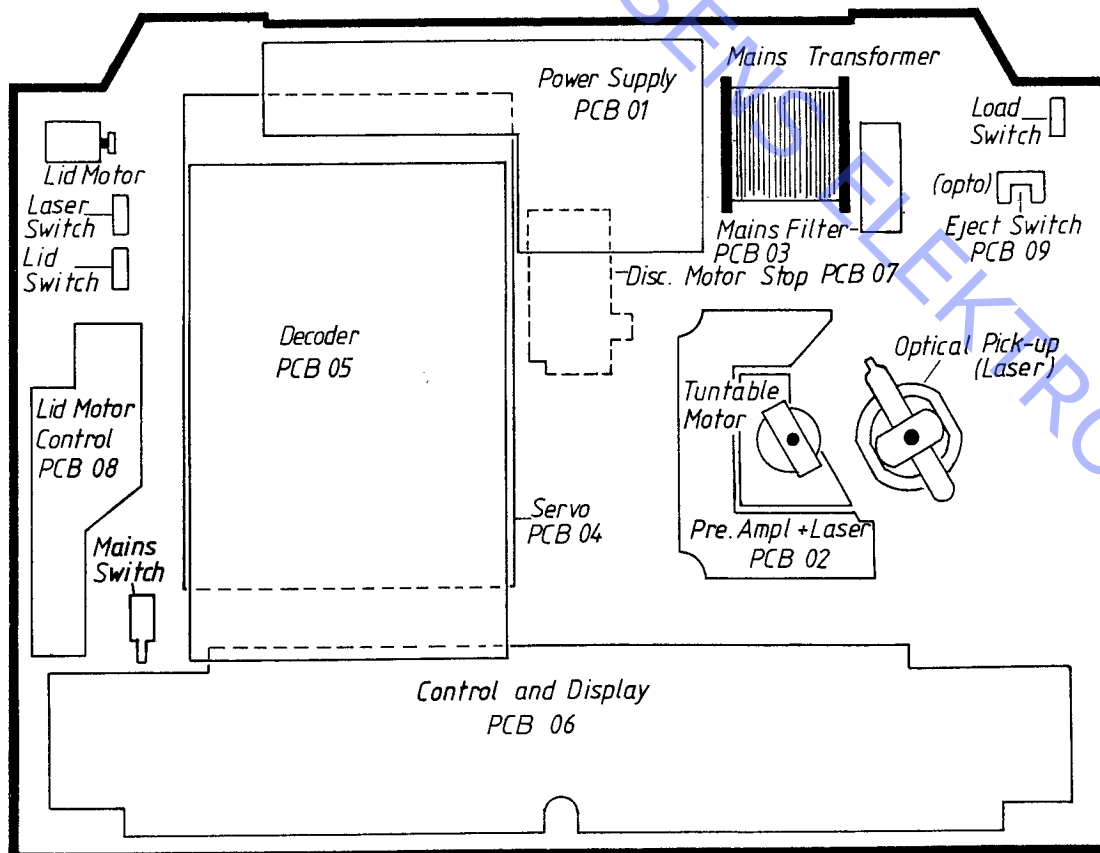


ABO-CENTER V/HENRIKSENS ELEKTRONIK

01 Power Supply	page 1-4	06 Control and Display	page 1-17
02 Pre. Ampl. & Laser	page 1-13	07 Motor Stop	page 1-15
03 Mains Filter	page 1-4	08 Motor Control	page 1-16
04 Servo	page 1-5, 1-8	09 Eject Switch	page 1-16
05 Decoder	page 1-9, 1-12		

ABO-CENTER V/HENRIKSELEKTRONIK

BOTTOM WIEV



CAUTIONS

The light pin is much more sensitive to static charge than a MOS IC. Careless treatment during servicing may reduce life expectancy drastically. For this reason care should be taken that during servicing the potentials of the aids and yourself equal the potential of the mechanism.

The CD-mechanism is provided with self-lubricating bearings and should thus NOT be lubricated.

Attention:

To prevent adjustments in the mechanism from changing, no screws other than those mentioned should be loosened.

Ensure that the player is not resting on the shaft of the turntable motor or the light pin during repairs and measurements.

Symbol for Safety Components



When replacing components with this symbol components with identical part numbers are to be used. The new component must be fitted in the same way as the one replaced.

CLASS 1
LASER PRODUCT

For order to make the product work when placed in service position, see page 7 dismantling.

DIAGRAM EXPLANATION

The respective diagrams are named, e.g. SERVO 1. The cable connections between the diagrams are described by the name of the diagram to which the connection goes, as well as by the socket and pin number (or a designation) on the diagram in question.

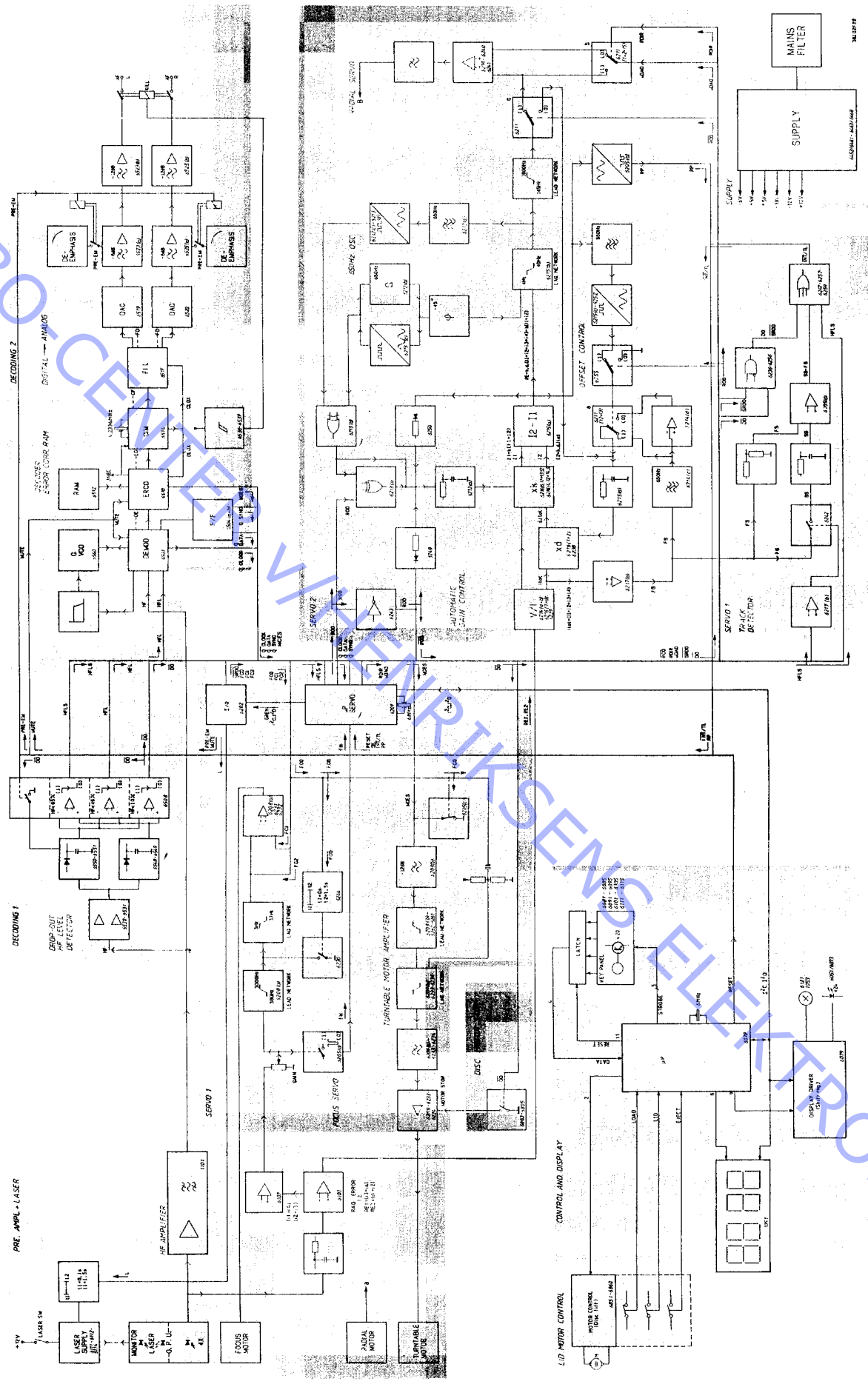
System of co-ordinates

The most closely written diagrams and PCB drawings are provided with a system of co-ordinates.

The position numbers with attached co-ordinate designation can be found at the top of the diagram pages and next to the PCB drawings.

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BLOCK DIAGRAM



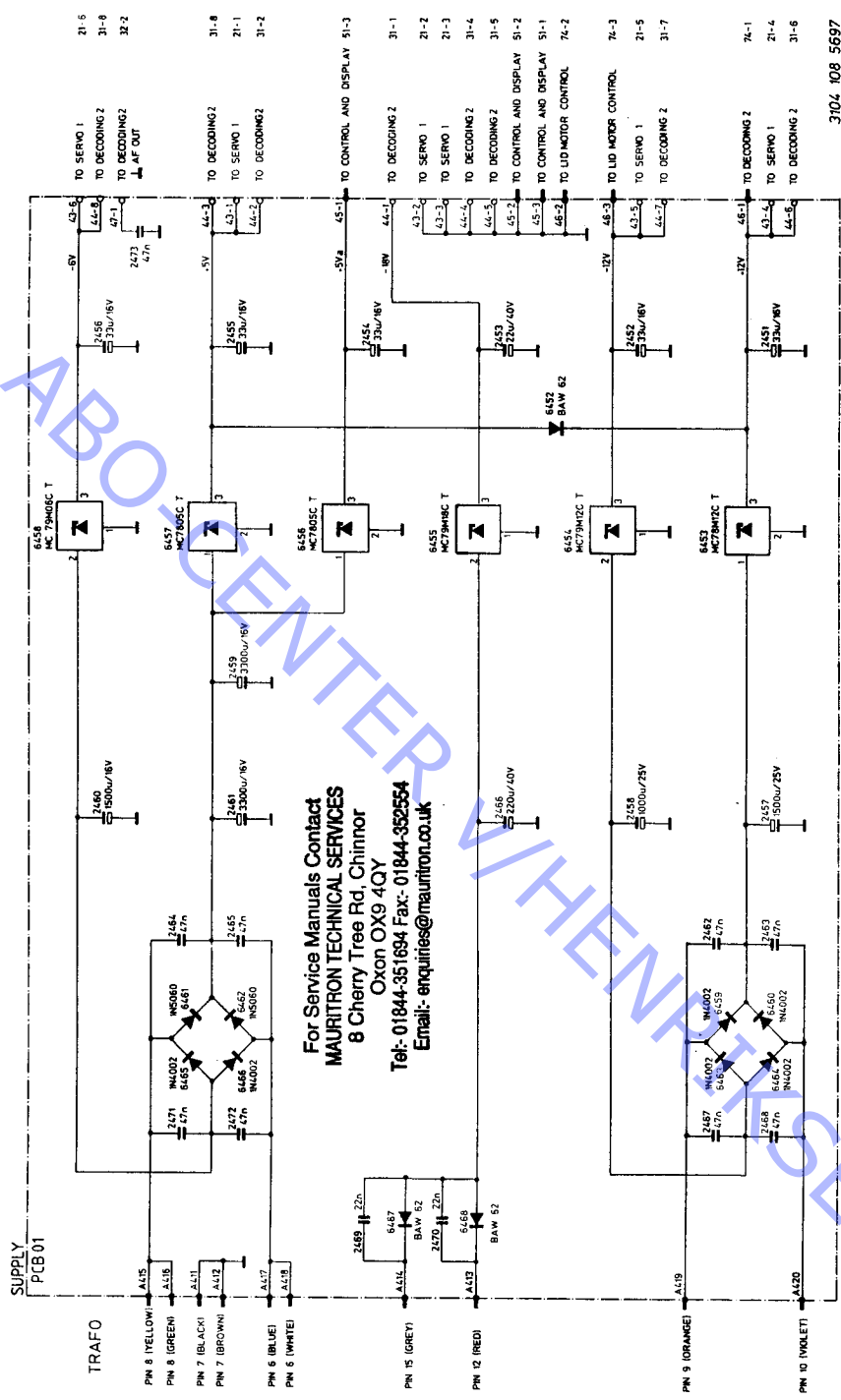
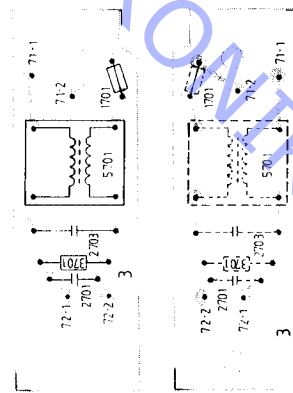
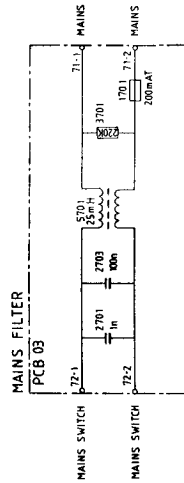
Semi-conductors



IC's

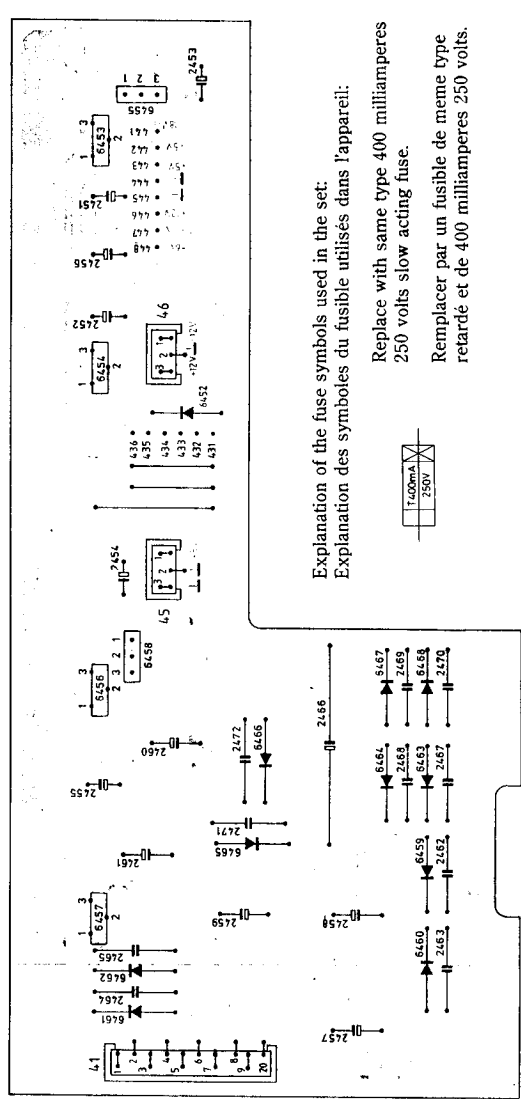
6453	8340049	105	MC78M12C
6454	8340356	105	MC79M12C
6455	8340814	105	MC79M18C
6456	8340065	105	MC7805C
6457			
6458	8340815	105	MC79M064
6452	8300359	209	BAW 62
6459-	8300023	209	1N4002
6460			
6461	8300436	209	1N5060
6462			
6463-	8300023	209	1N4002
6466			
6467	8300359	209	BAW 62
6468			

Diodes



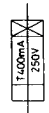
For Service Manuals Contact
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 Email: enquiries@mauritron.co.uk

3104 108 5697

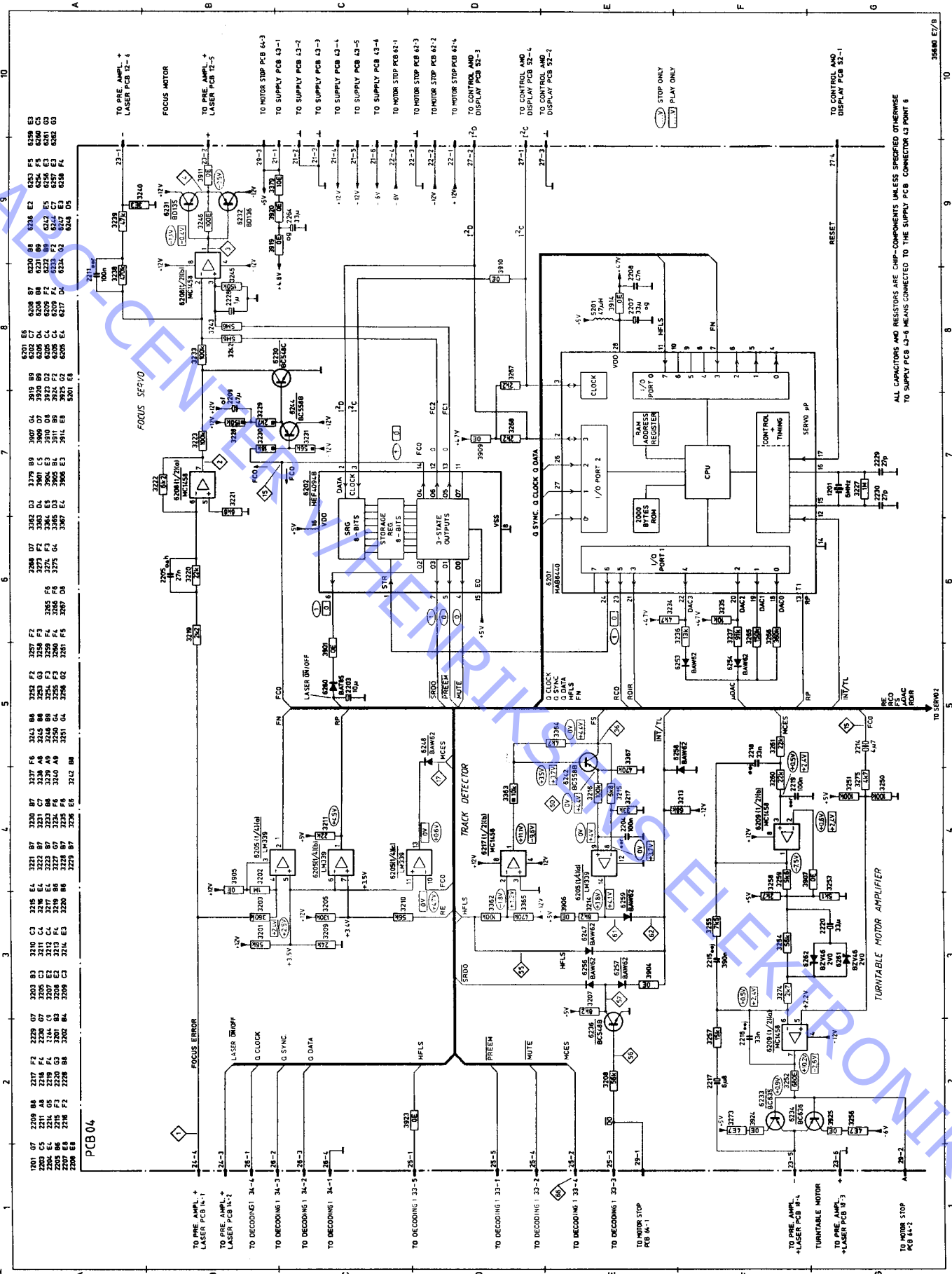


Explanation of the fuse symbols used in the set.
 Explanation des symboles du fusible utilisés dans l'appareil:

Replace with same type 400 milliampères
 250 volts slow acting fuse.
 Remplacer par un fusible de même type
 retardé et de 400 milliampères 250 volts.



SERVO 1



ALL CAPACITORS AND RESISTORS ARE CHIP-COMPONENTS UNLESS SPECIFIED OTHERWISE TO SUPPLY PCB 43-6 MEANS CONNECTED TO THE SUPPLY PCB CONNECTOR 43 PORT 6

35480 E7/8

SERVO 8005165 - PCB4

1201	G3	2208	H2	2228	E2	2237	M	2249	G4	2256	E3	2266	G3	3305	B4	3310	B4	3318	B4	3318	B4
2203	B4	2210	H3	2210	E3	2238	M	2240	M	2241	E4	2242	G3	3307	B4	3312	B4	3317	B4	3317	B4
2205	G2	2214	H3	2216	E2	2244	G3	2258	G4	2264	G4	2268	G4	3308	B4	3314	B4	3320	B4	3320	B4
2207	G3	2216	H3	2218	E2	2246	G3	2260	G4	2266	G4	2270	G4	3310	B4	3316	B4	3322	B4	3322	B4
3221	E3	3220	G3	3242	E3	3251	G3	3255	H2	3261	H2	3273	H2	3320	B4	3326	B4	3332	B4	3332	B4
3223	F3	3232	B2	3243	E3	3252	H2	3256	H2	3262	H2	3274	H2	3322	B4	3328	B4	3334	B4	3334	B4
3225	E3	3234	C3	3246	E2	3254	E2	3258	H2	3264	H2	3276	H2	3324	B4	3330	B4	3336	B4	3336	B4
3226	E3	3234	C3	3246	E2	3254	E2	3258	H2	3264	H2	3276	H2	3324	B4	3330	B4	3336	B4	3336	B4
3228	D4	3305	D4	3312	G4	3320	G4	3341	C5	3350	H3	3357	G4	3363	B4	3372	H4	3380	B4	3380	G3
3229	D3	3306	D4	3313	F4	3323	H4	3342	C5	3351	G4	3358	G4	3364	B4	3373	H4	3381	B4	3381	G3
3230	D4	3307	E4	3314	E3	3324	H4	3344	C5	3353	G3	3360	G4	3368	B4	3376	H4	3384	B4	3384	G3
3231	D4	3308	E4	3315	E3	3325	H4	3346	C5	3355	G3	3362	G4	3370	H4	3379	H4	3386	B4	3386	G2
3232	C4	3311	G4	3318	E3	3326	C5	3349	G3	3356	G3	3362	G4	3374	H4	3383	H4	3391	B4	3391	G2
3233	G2	3394	E4	3399	D4	3907	H3	3913	H4	3924	H2	3931	H2	3938	E4	3946	E4	3952	E4	3952	E2
3234	G2	3395	E4	3399	D4	3907	H3	3913	H4	3924	H2	3931	H2	3938	E4	3946	E4	3952	E4	3952	E2
3235	D4	3396	F3	3397	F3	3908	H2	3914	C5	3925	H2	3932	H2	3939	E4	3947	H4	3954	E4	3954	E2
3236	D4	3397	F3	3398	F3	3909	H2	3915	C5	3926	H2	3933	H2	3940	E4	3948	H4	3955	E4	3955	E2
3237	D4	3398	F3	3399	F3	3910	H2	3916	C5	3927	H2	3934	H2	3941	E4	3949	H4	3956	E4	3956	E2
3238	E3	3247	G3	3252	G4	3267	C3	3273	G3	3283	H2	3293	G3	3301	B4	3311	B4	3319	B4	3319	B4
3239	G3	3247	G3	3252	G4	3267	C3	3273	G3	3283	H2	3293	G3	3301	B4	3311	B4	3319	B4	3319	B4
3240	G3	3249	G4	3254	G4	3269	C3	3275	G3	3285	H2	3295	G3	3303	B4	3313	B4	3321	B4	3321	B4
3241	G3	3250	G4	3255	G4	3270	C3	3276	G3	3286	H2	3296	G3	3304	B4	3314	B4	3322	B4	3322	B4
3242	E3	3251	G4	3256	G4	3271	C3	3277	G3	3287	H2	3297	G3	3305	B4	3315	B4	3323	B4	3323	B4

Semi-conductors

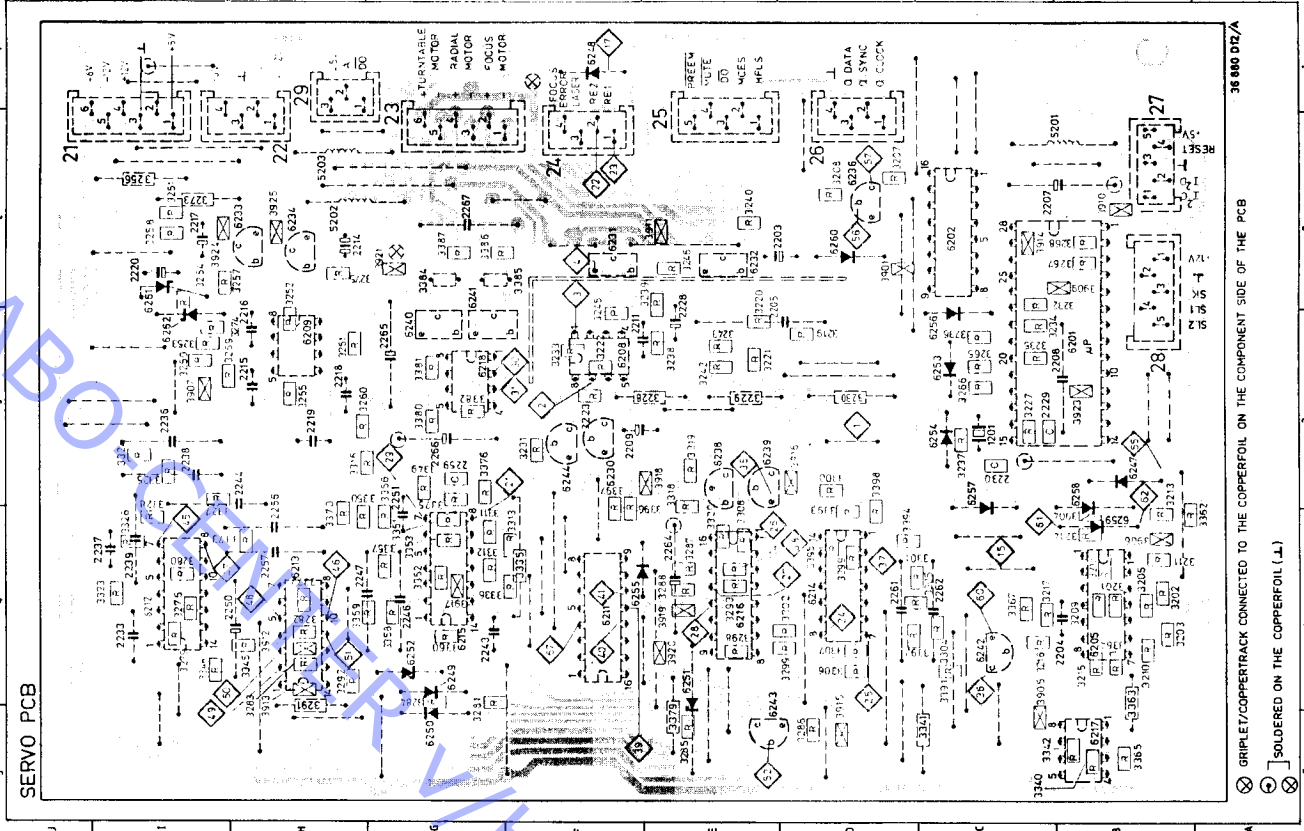
17	20	32	42	102	103	136	209	218

Transistors

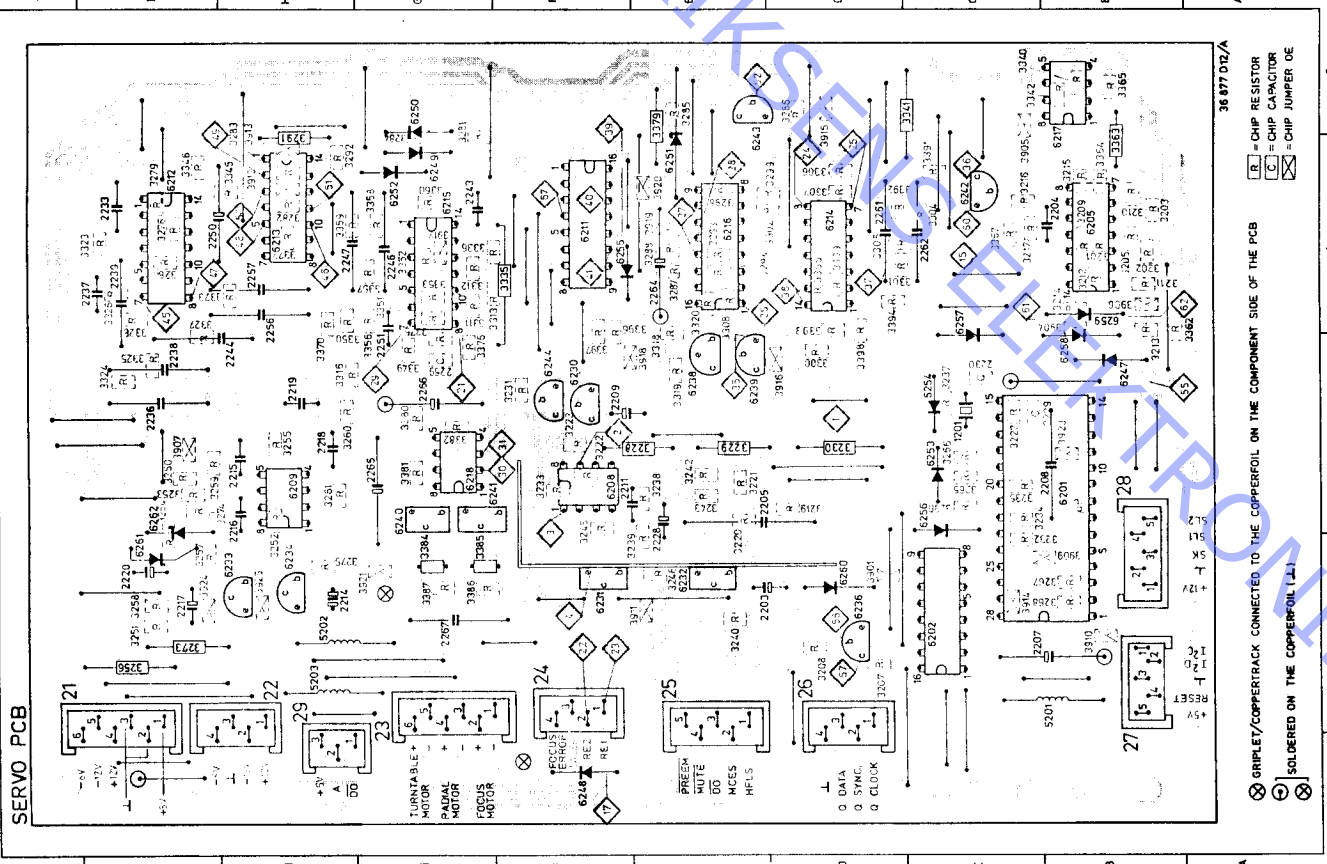
6230	8320285 20	BC 549C	6239	8320108 20	BC 548B
6231*	8320239 32	BD 135	6240*	8320240 32	BD 136
6232*	8320240 32	BD 136	6241*	8320239 32	BD 135
6233	8320378 17	BD 635	6242	8320104 20	BC 558B
6234	8320632 17	BC 636	6243	8320108 20	BC 548B
6236	8320108 20	BC 548B	6244	8320104 20	BC 558B
6238	8320089 42	BF 494	6213	8340346 136	HEF 4070B
6201A	8340843 136	MAB 8440	6214	8340157 102	LM 324
6202	8340782 136	HEF 4094B	6215		
6205	8340317 102	LM 339	6216	8340301 101	TCA 240
6208	8340048 103	MC 1458	6217	8340048 103	MC 1458
6209			6218	8340141 103	µA 741
6211A	8340340 102	HEF 4053	6253	8300359 209	BAW 62
6212	8340157 102	LM324	6259		
6247-	8300359 209	BAW 62	6260	8300489 218	BAT 85
6250	8300169 209	BZX79/CSV1	6261	8300354 209	BZV46/2V0
6251	8300438 209	BZX79/C2V4	6262		

* Specially selected or adapted sample.

Diodes



SERVO 8005165 - PCB4



2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500
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Semi-conductors

Transistors

IC's

Diodes

17	20	32	42	102	103	136	209	218
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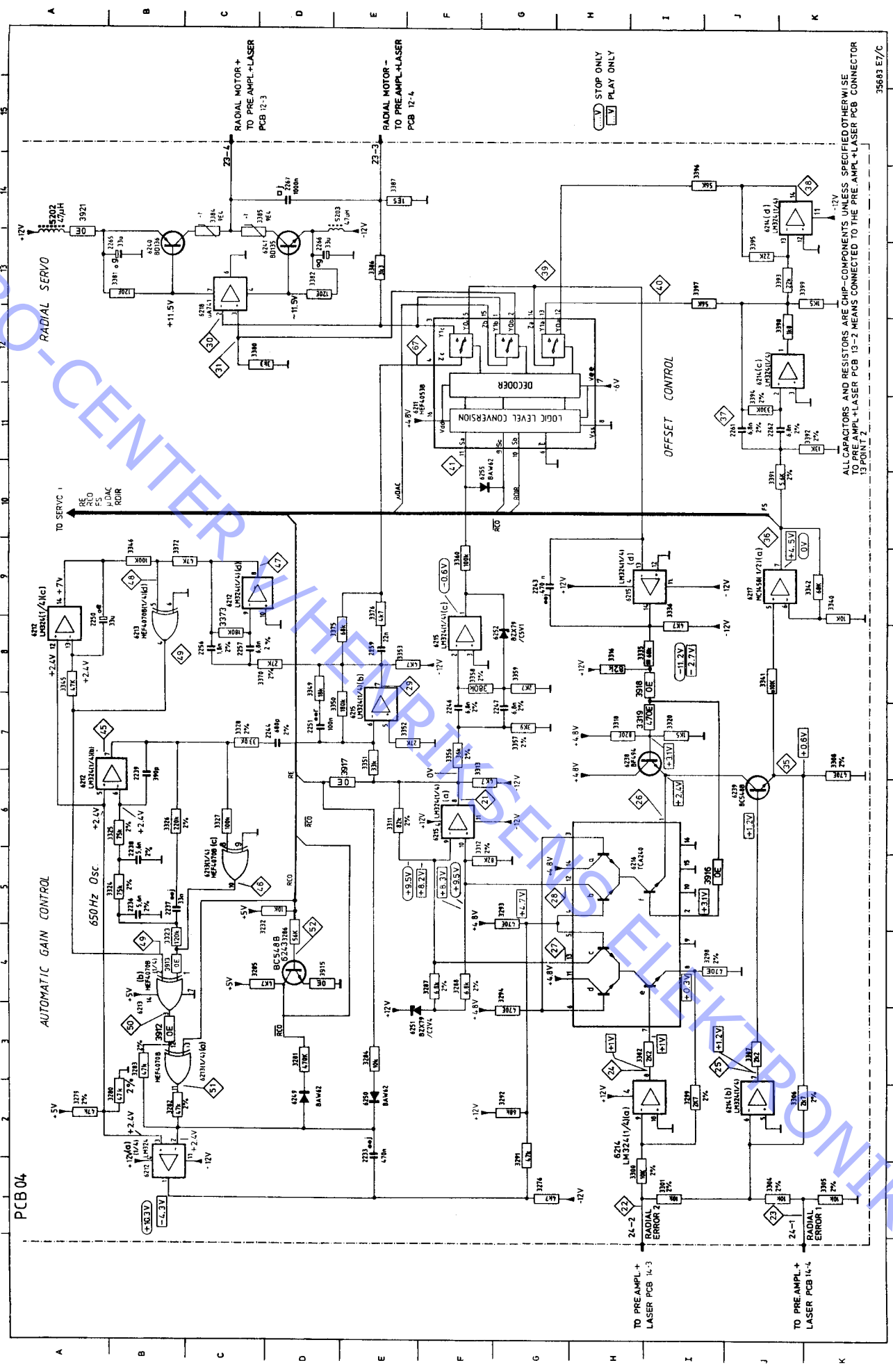
6230	8320285 20	BC 548C	8320108 20	BC 548B
6231*	8320239 32	BD 135	8320240 32	BD 136
6232*	8320240 32	BD 136	8320239 32	BD 135
6233	8320378 17	BD 635	8320104 20	BC 558B
6234	8320632 17	BC 636	8320108 20	BC 548B
6236	8320108 20	BC 548B	8320104 20	BC 558B
6238	8320089 42	BF 494		
6201Δ	8340606 136	MAB 8440	8340346 136	HEF 4070B
6202	8340782 136	HEF 4094B	8340157 102	LM 324
6205	8340317 102	LM 339		
6208	8340048 103	MC 1458	8340301 101	TCA 240
6209			8340048 103	MC 1458
6211Δ	8340340 102	HEF 4053	8340141 103	μA 741
6212	8340157 102	LM324		
6247-	8300359 209	BAW 62		
6250	8300169 209	BZX79/C5V1		
6251	8300438 209	BZX79/C2V4		
6252				

*Specially selected or adapted sample.

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 Email: enquiries@mauritron.co.uk

SERVO 2

3001 A13



TO SERVO 1
 TO PRE-AMPL. LASER PCB 12-3
 TO PRE-AMPL. LASER PCB 12-4
 TO PRE-AMPL. LASER PCB 14-3
 TO PRE-AMPL. LASER PCB 14-4

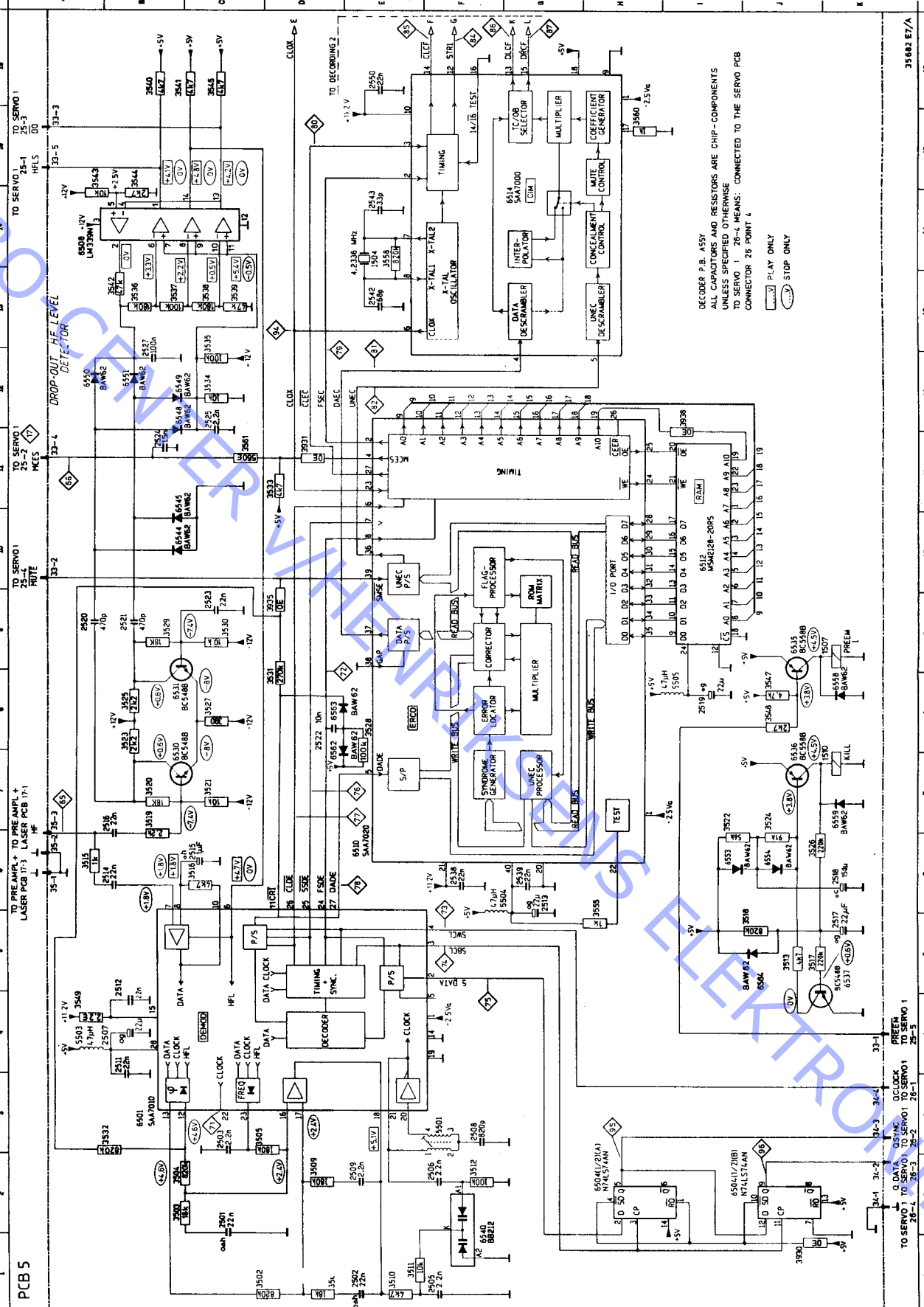
STOP ONLY
 PLAY ONLY

ALL CAPACITORS AND RESISTORS ARE CHIP-COMPONENTS UNLESS SPECIFIED OTHERWISE TO PRE-AMPL. LASER PCB 13-2 MEANS CONNECTED TO THE PRE-AMPL. LASER PCB CONNECTOR 13 POINT 2

35683 E7/C

DECODING 1

- 1504 E14 2501 C2 2506 F2 2512 B4 2517 K5 2522 D8 2528 F6 3507 D1 3513 J5 3519 B7 3524 J7 3529 B9 3534 C12 3539 C13 3544 B14 3549 A4
- 1507 K 9 2502 E1 2507 B4 2513 G6 2518 K6 2523 O9 2529 B3 2534 D4 2539 B1 2545 A6 2550 D7 2555 A5 2560 D2 2565 G3 2570 E8 2575 J9
- 1510 K7 2503 C3 2508 F3 2514 B6 2519 B8 2525 D2 2531 C1 2537 B7 2543 D3 2549 B5 2554 G6 2559 D5 2564 B2 2569 E7 2574 F7 2579 C4 2584 A8 2589 J6
- 2505 F1 2511 B9 2516 E4 2521 D6 2526 G8 2532 C6 2537 F4 2542 E2 2547 D1 2552 A7 2557 B8 2562 G5 2567 E1 2572 D8 2577 A1 2582 B4 2587 J3
- 2508 F5 2514 B5 2520 G7 2525 D9 2530 E3 2535 G9 2540 B6 2545 F2 2550 H4 2555 K7 2560 L1 2565 M2 2570 N3 2575 O4 2580 P5
- 2509 E2 2515 G4 2521 I6 2527 K8 2533 M0 2539 O2 2545 Q4 2551 R6 2557 T8 2563 V0 2569 X2 2575 Z4 2581 B6 2587 D8
- 2512 B3 2518 E5 2524 G7 2530 I9 2536 K1 2542 M3 2548 O5 2554 Q7 2560 R9 2566 T1 2572 V3 2578 X5 2584 Z7 2590 B9
- 2515 G8 2521 I0 2527 K2 2533 M4 2539 O6 2545 Q8 2551 R0 2557 T2 2563 V4 2569 X6 2575 Z8 2581 B0
- 2518 E9 2524 G1 2530 I3 2536 K5 2542 M7 2548 O9 2554 Q1 2560 R3 2566 T5 2572 V7 2578 X9 2584 Z1
- 2521 I2 2527 K4 2533 M6 2539 O8 2545 Q0 2551 R2 2557 T4 2563 V6 2569 X8 2575 Z0
- 2524 G3 2530 I5 2536 K7 2542 M9 2548 O1 2554 Q3 2560 R5 2566 T7 2572 V9 2578 X1
- 2527 K8 2533 M0 2539 O2 2545 Q4 2551 R6 2557 T8 2563 V0 2569 X2 2575 Z4
- 2530 I9 2536 K1 2542 M3 2548 O5 2554 Q7 2560 R9 2566 T1 2572 V3 2578 X5 2584 Z7
- 2533 M2 2539 O4 2545 Q6 2551 R8 2557 T0 2563 V2 2569 X4 2575 Z6
- 2536 K3 2542 M5 2548 O7 2554 Q9 2560 R1 2566 T3 2572 V5 2578 X7 2584 Z9
- 2539 O8 2545 Q0 2551 R2 2557 T4 2563 V6 2569 X8 2575 Z0
- 2542 M9 2548 O1 2554 Q3 2560 R5 2566 T7 2572 V9 2578 X1
- 2545 Q4 2551 R6 2557 T8 2563 V0 2569 X2 2575 Z4
- 2548 O5 2554 Q7 2560 R9 2566 T1 2572 V3 2578 X5 2584 Z7
- 2551 R6 2557 T8 2563 V0 2569 X2 2575 Z4
- 2554 Q7 2560 R9 2566 T1 2572 V3 2578 X5 2584 Z7
- 2557 T8 2563 V0 2569 X2 2575 Z4
- 2560 R9 2566 T1 2572 V3 2578 X5 2584 Z7
- 2563 V9 2569 X1 2575 Z3 2581 B5
- 2566 T0 2572 V2 2578 X4 2584 Z6
- 2569 X0 2575 Z2 2581 B4
- 2572 V1 2578 X3 2584 Z5
- 2575 Z3 2581 B5
- 2578 X4 2584 Z6
- 2581 B5
- 2584 Z6
- 2587 D8
- 2590 P5



DECODER P.B. ASSY
 ALL CAPACITORS AND RESISTORS ARE CHIP - COMPONENTS
 UNLESS SPECIFIED OTHERWISE
 TO SERVO 1 26-4 MEANS: CONNECTED TO THE SERVO PCB
 CONNECTOR 25 POINT 4
 [Symbol] PLAY ONLY
 [Symbol] STOP ONLY

35682 E7/A

DECODER 8005166 - PCB5

1506	D5	3500	A5	3508	B3	3514	B2	3519	E3	3542	C2	3543	C2	3545	A4	3552	A4	3557	A5	3570	E6	3581	E4	3582	E4	3583	E5	3584	E5	3585	E5	3586	E5	3587	E5	3588	E5	3589	E5	3590	E5	3591	E5	3592	E5	3593	E5	3594	E5	3595	E5	3596	E5	3597	E5	3598	E5	3599	E5	3600	E5	3601	F5	3602	F4	3603	F4	3604	F4	3605	F4	3606	F4	3607	F4	3608	F4	3609	F4	3610	F4	3611	F4	3612	F4	3613	F4	3614	F4	3615	F4	3616	F4	3617	F4	3618	F4	3619	F4	3620	F4	3621	F4	3622	F4	3623	F4	3624	F4	3625	F4	3626	F4	3627	F4	3628	F4	3629	F4	3630	F4	3631	F4	3632	F4	3633	F4	3634	F4	3635	F4	3636	F4	3637	F4	3638	F4	3639	F4	3640	F4	3641	F4	3642	F4	3643	F4	3644	F4	3645	F4	3646	F4	3647	F4	3648	F4	3649	F4	3650	F4	3651	F4	3652	F4	3653	F4	3654	F4	3655	F4	3656	F4	3657	F4	3658	F4	3659	F4	3660	F4	3661	F4	3662	F4	3663	F4	3664	F4	3665	F4	3666	F4	3667	F4	3668	F4	3669	F4	3670	F4	3671	F4	3672	F4	3673	F4	3674	F4	3675	F4	3676	F4	3677	F4	3678	F4	3679	F4	3680	F4	3681	F4	3682	F4	3683	F4	3684	F4	3685	F4	3686	F4	3687	F4	3688	F4	3689	F4	3690	F4	3691	F4	3692	F4	3693	F4	3694	F4	3695	F4	3696	F4	3697	F4	3698	F4	3699	F4	3700	F4
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Semi-conductors

20	102	103	136	209	214

Transistors

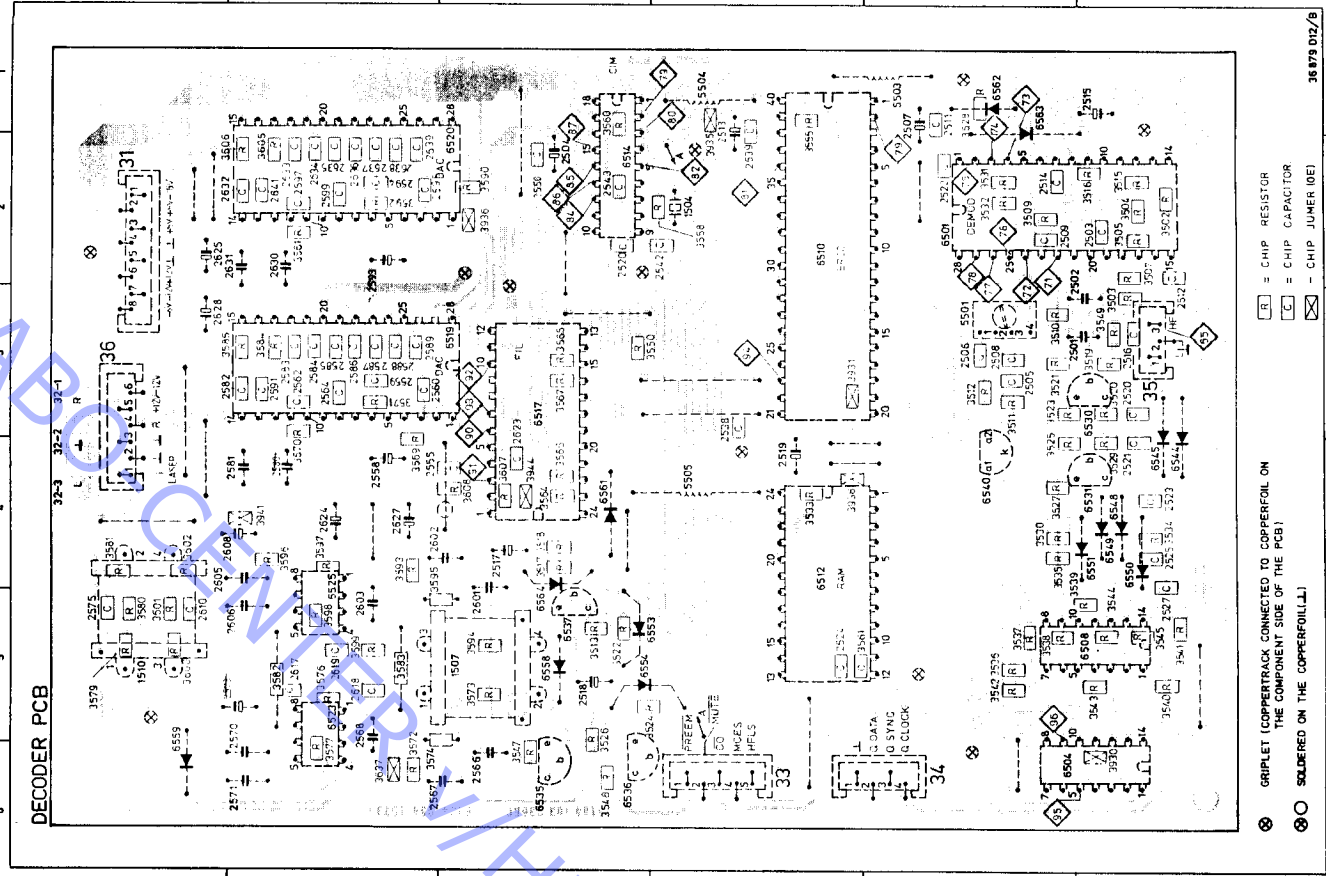
6530	8320108 20	BC 548B	6537	8320108 20	BC 548B
6531			6540		
6535	8230104 20	BC 558B			
6536					

IC's

6501A	8340807 136	SAA 7010	6514A	8340810 136	SAA 7000
6504	8340366 136	N74LS74AN	6517A	8340811 136	SAA 7030
6508	8340317 102	LM 339N	6519A	8340812 136	TDA 1540P
6510A	8340808 136	SAA 7020	6520		
6512A	8340809 136	MSM 2128-20RS	6523	8340250 103	NL 5532N
			6525		
6544-	8300359 209	BAW 62	6562-	8300359 209	BAW 62
6559			6564		
6561	8300245 214	BAX 18			

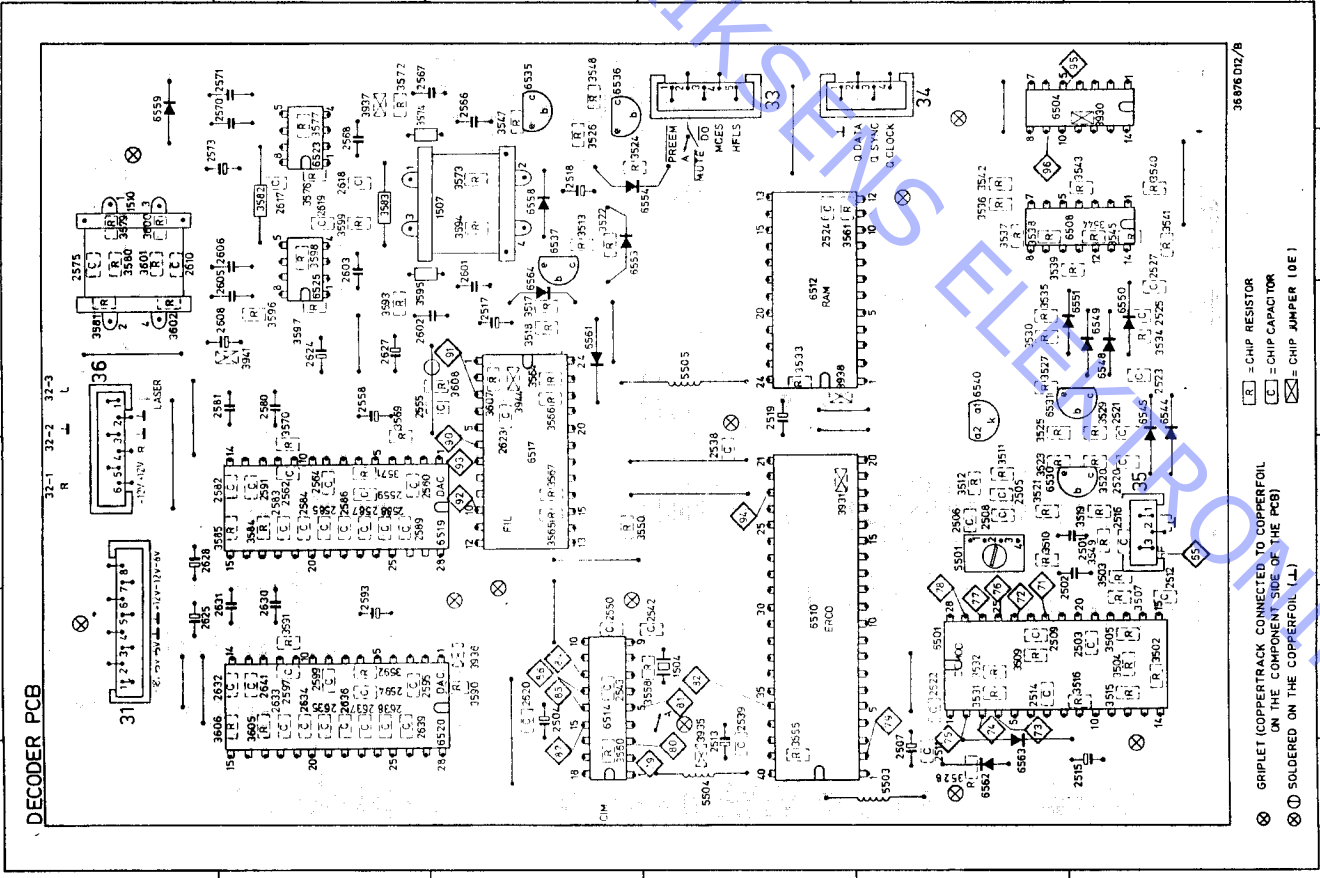
Diodes

6561	8300245 214	BAX 18
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38 879 012/8

DECODER 8005166 - PCB5



DECODER PCB

36876 DTZ/B

⊗ GRIPLET COPPERTRACK CONNECTED TO COPPERFOIL (ON THE COMPONENT SIDE OF THE PCB)

⊘ SOLDERED ON THE COPPERFOIL (L)

⊞ = CHIP RESISTOR

⊞ = CHIP CAPACITOR

⊞ = CHIP JUMPER (OE)

20	102	103	136	209	214
5503	8320108 20	BC 548B	6537	8320108 20	BC 548B
6531			6540		
6535	8230104 20	BC 558B			
6536					
6501A	8340807 136	SAA 7010	6514A	8340810 136	SAA 7000
6504	8340366 136	N74LS74AN	6517A	8340811 136	SAA 7030
6508	8340317 102	LM 339N	6519A	8340812 136	TDA 1540P
			6520		
6510A	8340808 136	SAA 7020	6523	8340250 103	NL 5532N
6512A	8340809 136	MSM	6525		
6544-	8300359 209	BAW 62	6562-	8300359 209	BAW 62
6559			6564		
6561	8300245 214	BAX 18			

Semi-conductors

Transistors

IC's

Diodes

For Service Manuals Contact

MAURITRON TECHNICAL SERVICES

8 Cherry Tree Rd, Chinnor

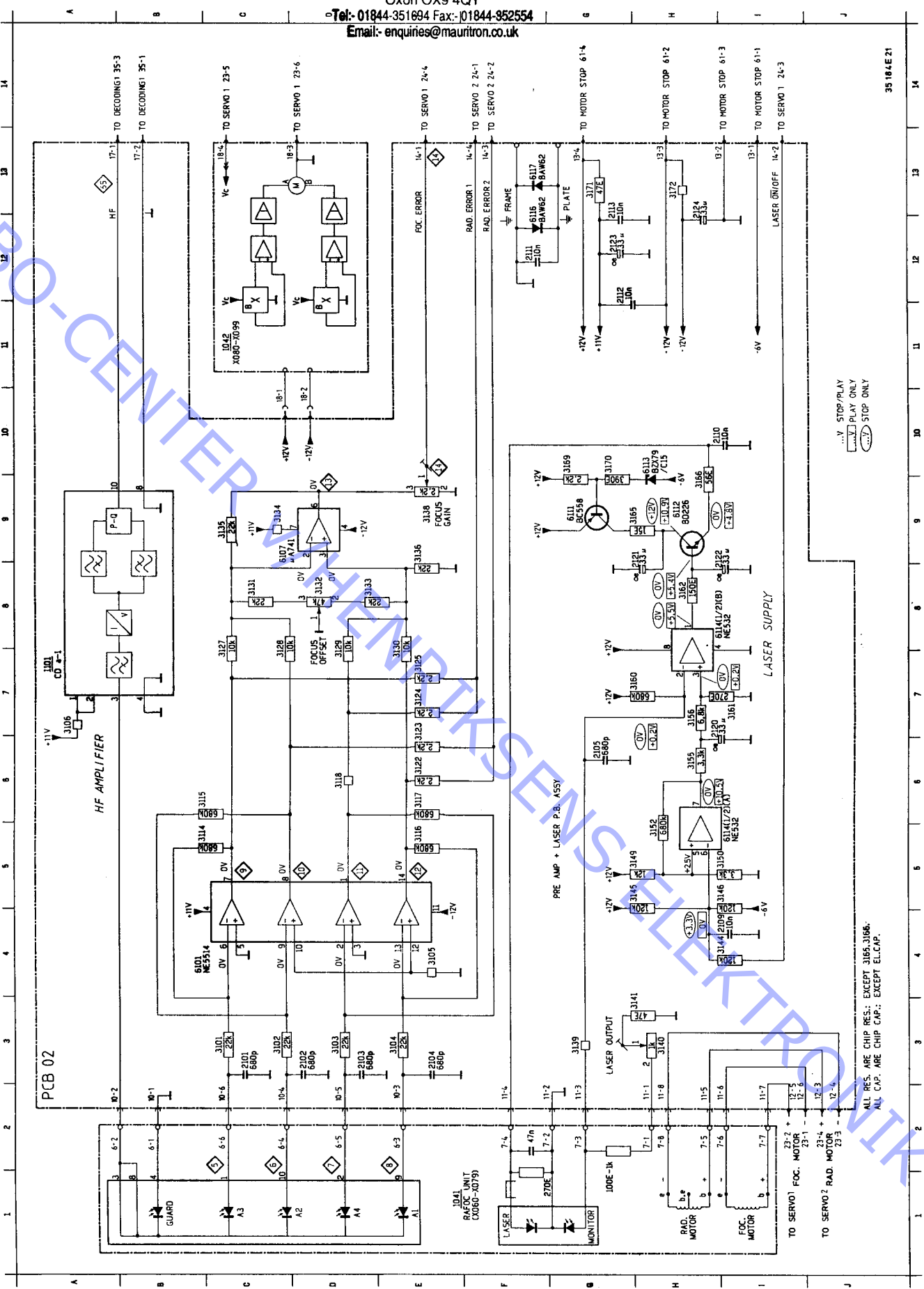
Oxon OX9 4QY

Tel: 01844-351694 Fax: 01844-352554

Email: enquiries@mauritron.co.uk

PRE-AMPL. + LASER

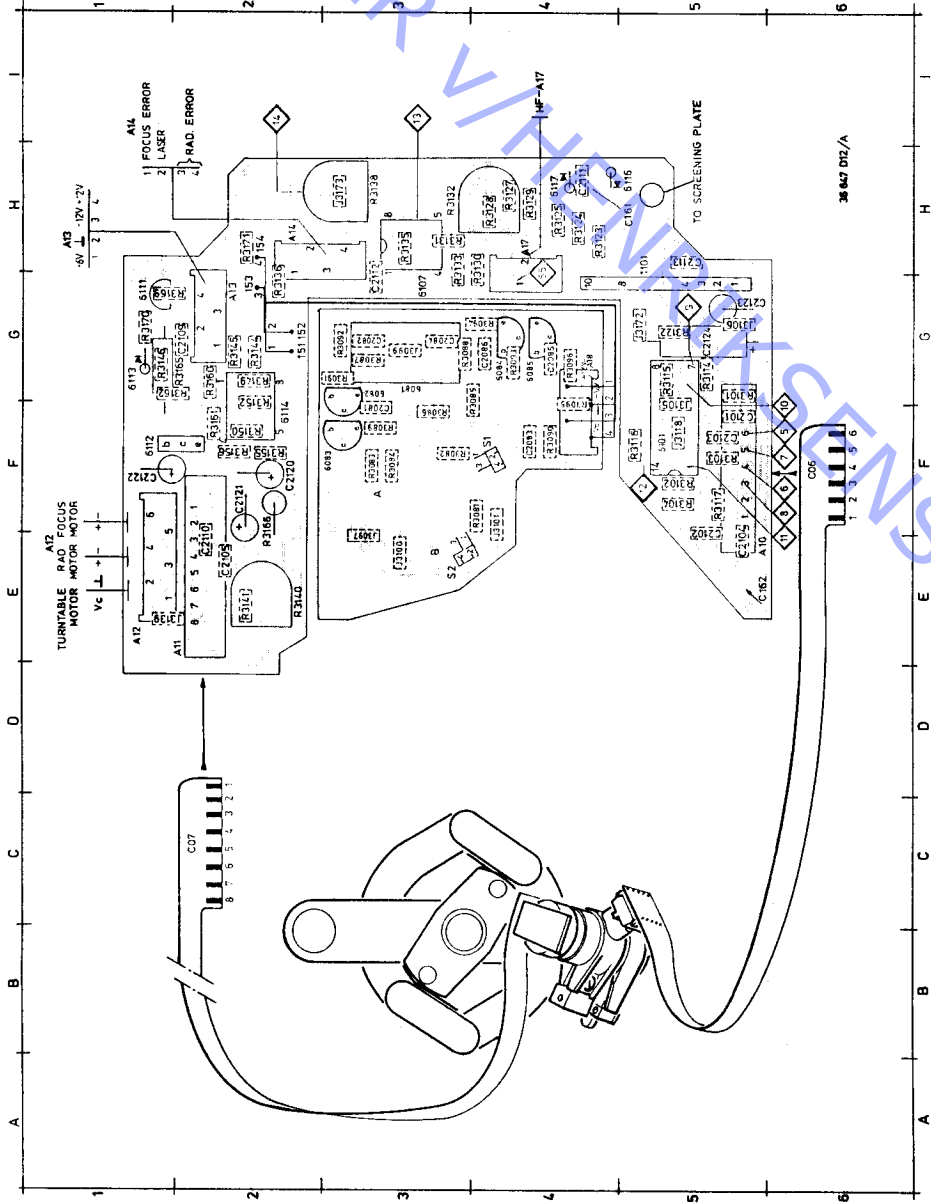
- 1101 A 7 2104 E 3
- 2101 C 3 2105 G 6
- 2102 D 3 2109 I 4
- 2103 0 3 2110 H 0
- 3101 C 3 3105 E 4
- 3102 C 3 3106 A 7
- 3103 D 3 3108 B 5
- 3104 E 3 3115 B 6
- 3105 E 5 3123 E 7
- 3106 A 7 3117 E 6
- 3107 D 6 3125 E 7
- 3108 B 5 3122 E 6
- 3109 C 3 3124 E 7
- 3110 H 0 3129 D 8
- 3111 B 6 3133 D 8
- 3112 E 6 3134 C 9
- 3113 H 0 3135 C 9
- 3114 B 5 3141 C 3
- 3115 B 6 3144 I 4
- 3116 E 6 3145 G 5
- 3117 E 6 3152 H 7
- 3118 D 6 3161 I 7
- 3119 C 3 3169 C 0
- 3120 H 0 3170 D 0
- 3121 F 12 2121 H 9
- 3122 E 6 2122 G 12
- 3123 E 7 2123 H 3
- 3124 E 7 2124 H 7
- 3125 E 7 2124 H 3
- 3126 G 12 2125 G 12
- 3127 C 0 2126 H 7
- 3128 C 0 3128 C 0
- 3129 D 8 3129 D 8
- 3130 E 8 3134 C 9
- 3131 C 0 3135 C 9
- 3132 C 0 3140 H 3
- 3133 D 8 3141 C 3
- 3134 C 9 3144 I 4
- 3135 C 9 3145 G 5
- 3136 E 9 3146 H 3
- 3137 I 5 3156 H 7
- 3138 E 9 3166 H 9
- 3139 C 3 3169 C 0
- 3140 H 3 3170 D 0
- 3141 C 3 3171 G 9
- 3142 I 4 3172 H 3
- 3143 H 0 3173 F 13
- 3144 I 4 3174 G 10
- 3145 G 5 3175 F 13
- 3146 H 3 3176 G 9
- 3147 H 3 3177 G 9
- 3148 I 4 3178 G 9
- 3149 G 5 3179 G 9
- 3150 G 5 3180 G 9
- 3151 G 5 3181 I 7
- 3152 H 7 3182 H 8
- 3153 H 9 3183 H 9
- 3154 H 9 3184 H 9
- 3155 H 9 3185 H 9
- 3156 H 7 3186 H 7
- 3157 H 7 3187 H 7
- 3158 H 7 3188 H 7
- 3159 H 7 3189 H 7
- 3160 H 7 3190 H 7
- 3161 I 7 3191 H 7
- 3162 H 9 3192 H 9
- 3163 H 9 3193 H 9
- 3164 H 9 3194 H 9
- 3165 H 7 3195 H 7
- 3166 H 9 3196 H 9
- 3167 H 9 3197 H 9
- 3168 H 9 3198 H 9
- 3169 C 0 3199 C 0
- 3170 D 0 3200 D 0
- 3171 G 9 3201 G 9
- 3172 H 3 3202 H 3
- 3173 F 13 3203 F 13
- 3174 G 10 3204 G 10
- 3175 F 13 3205 F 13
- 3176 G 9 3206 G 9
- 3177 G 9 3207 G 9
- 3178 G 9 3208 G 9
- 3179 G 9 3209 G 9
- 3180 G 9 3210 G 9
- 3181 I 7 3211 I 7
- 3182 H 8 3212 H 8
- 3183 H 9 3213 H 9
- 3184 H 9 3214 H 9
- 3185 H 9 3215 H 9
- 3186 H 7 3216 H 7
- 3187 H 7 3217 H 7
- 3188 H 7 3218 H 7
- 3189 H 7 3219 H 7
- 3190 H 7 3220 H 7
- 3191 H 7 3221 H 7
- 3192 H 9 3222 H 9
- 3193 H 9 3223 H 9
- 3194 H 9 3224 H 9
- 3195 H 7 3225 H 7
- 3196 H 9 3226 H 9
- 3197 H 9 3227 H 9
- 3198 H 9 3228 H 9
- 3199 C 0 3229 C 0
- 3200 D 0 3230 D 0



..V STOP/PLAY
 ..V PLAY ONLY
 ..V STOP ONLY

ALL RES. ARE CHIP RES.: EXCEPT 3165, 3166.
 ALL CAP. ARE CHIP CAP.: EXCEPT EL.CAP.

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



Semi-conductors

17	20	32	102

1101	3089	G4	6085	G4
2085	G3	H3	H3	H3
2084	F4	H2	G2	G1
2085	F3	H1	F1	F1
2101	G4	E2	E2	H4
2102	F5	G2	G2	H4
2105	F5	G2	G2	H4
2109	G2	F2	F2	H4
2111	H4	F2	F2	H4
3106	G5	F2	F2	H4
3113	G5	F2	F2	H4
3116	F5	G2	G2	H4
3117	F5	G2	G2	H4
3118	F5	G2	G2	H4
3124	H4	H2	H2	H4
3125	H4	H2	H2	H4
3127	H4	H2	H2	H4
3128	H4	H2	H2	H4
3129	H4	H2	H2	H4
3130	H4	H2	H2	H4

IC's

6101	8340813	136	NE 5514
6107	8340141	103	µA 741
6114	8340313	103	NE 532N
9404	3351000		Hall IC
6113	8300313	209	BZX79/C15
6116	8300359	209	BAW 62
6117			

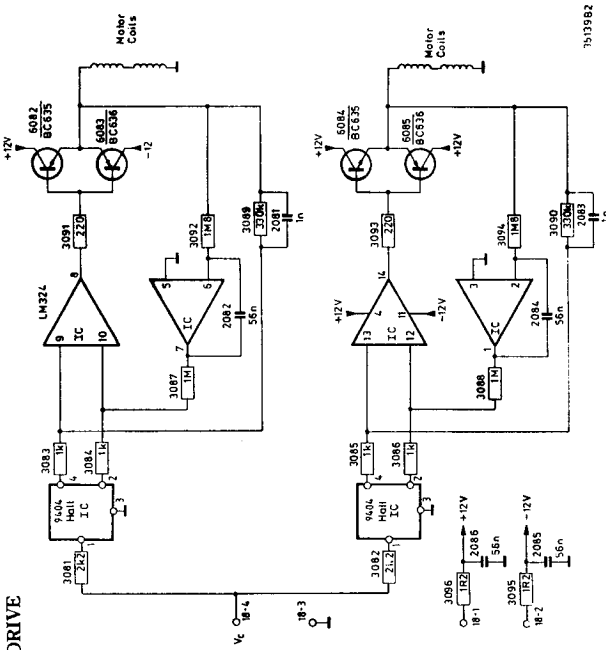
Diodes

6082	8320378	17	BC 635
6083	8320632	17	BC 636
6084	8320378	17	BC 635
6085	8320632	17	BC 636
6111	8320104	20	BC 558
6112	8320296	32	BD 226
6081	8340157	102	LM 324

103	136	209

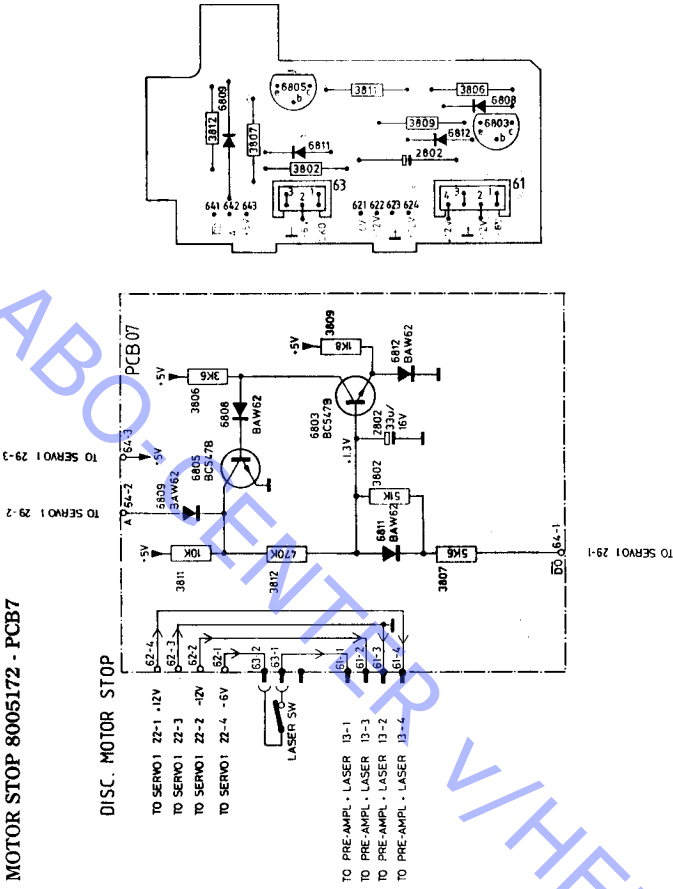
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2085	C3	C3	C3	3132	G2
2084	C3	C3	C3	3133	G4
2085	C3	C3	C3	3138	D5
2101	C3	C3	C3	3138	D6
2102	C3	C3	C3	3138	D6
2105	C3	C3	C3	3138	D6
2109	C3	C3	C3	3138	D6
2111	C3	C3	C3	3138	D6
2112	C3	C3	C3	3138	D6
2120	C3	C3	C3	3138	D6
2122	C3	C3	C3	3138	D6
2123	C3	C3	C3	3138	D6
3084	C3	C3	C3	3138	D6
3085	C3	C3	C3	3138	D6
3086	C3	C3	C3	3138	D6
3087	C3	C3	C3	3138	D6

DISC MOTOR DRIVE

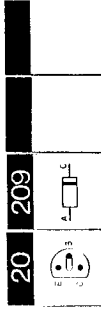


7513982

MOTOR STOP 8005172 - PCB7



Semi-conductors



Transistors

6803	8320097 20	BC 547C
6805		

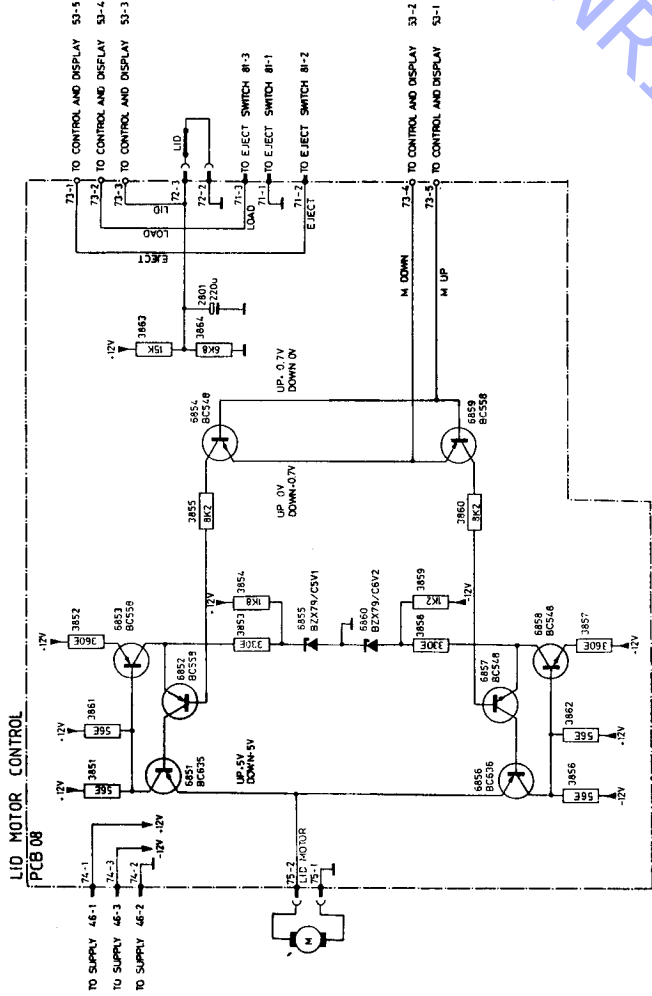
Diodes

6808	8300359 209	BAW 62
6809		
6811	8300359 209	BAW 62
6812		

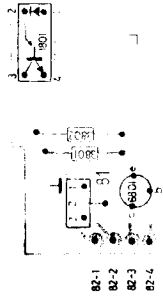
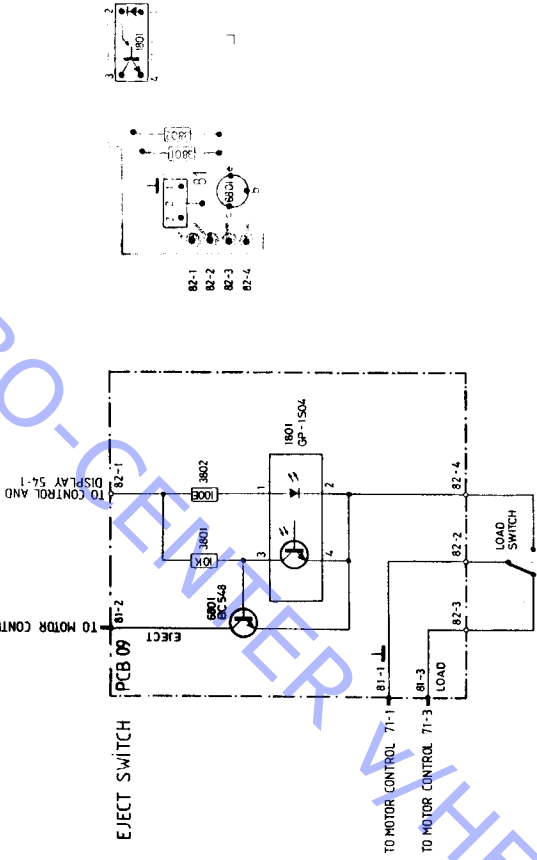
For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4QY
 Tel:- 01844-351694 Fax:- 01844-352554
 Email:- enquiries@maurtron.co.uk

ELEKTRONIK

MOTOR CONTROL 8005170 - PCB8



EJECT SWITCH 8005174 - PCB9



Transistors

6801	8320108 20	BC 548B
------	------------	---------

Opto.

1801	8330156	GP-1504
------	---------	---------

Switch survey

When the top lid is closed, the switches are in the following positions:

- LOAD is off
- LASER is on
- LID is on
- EJECT pin 12 of IC6078 is high

When the button EJECT is pressed, the following things happen:

- LOAD goes on, then EJECT pin 12 of IC6078 goes low as long as the button is pressed. As the lid opens, LASER goes off, and when the lid is in its upper position, LID goes off.

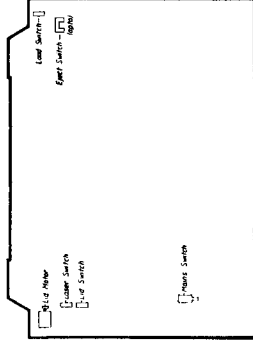
Semi-conductors



Transistors

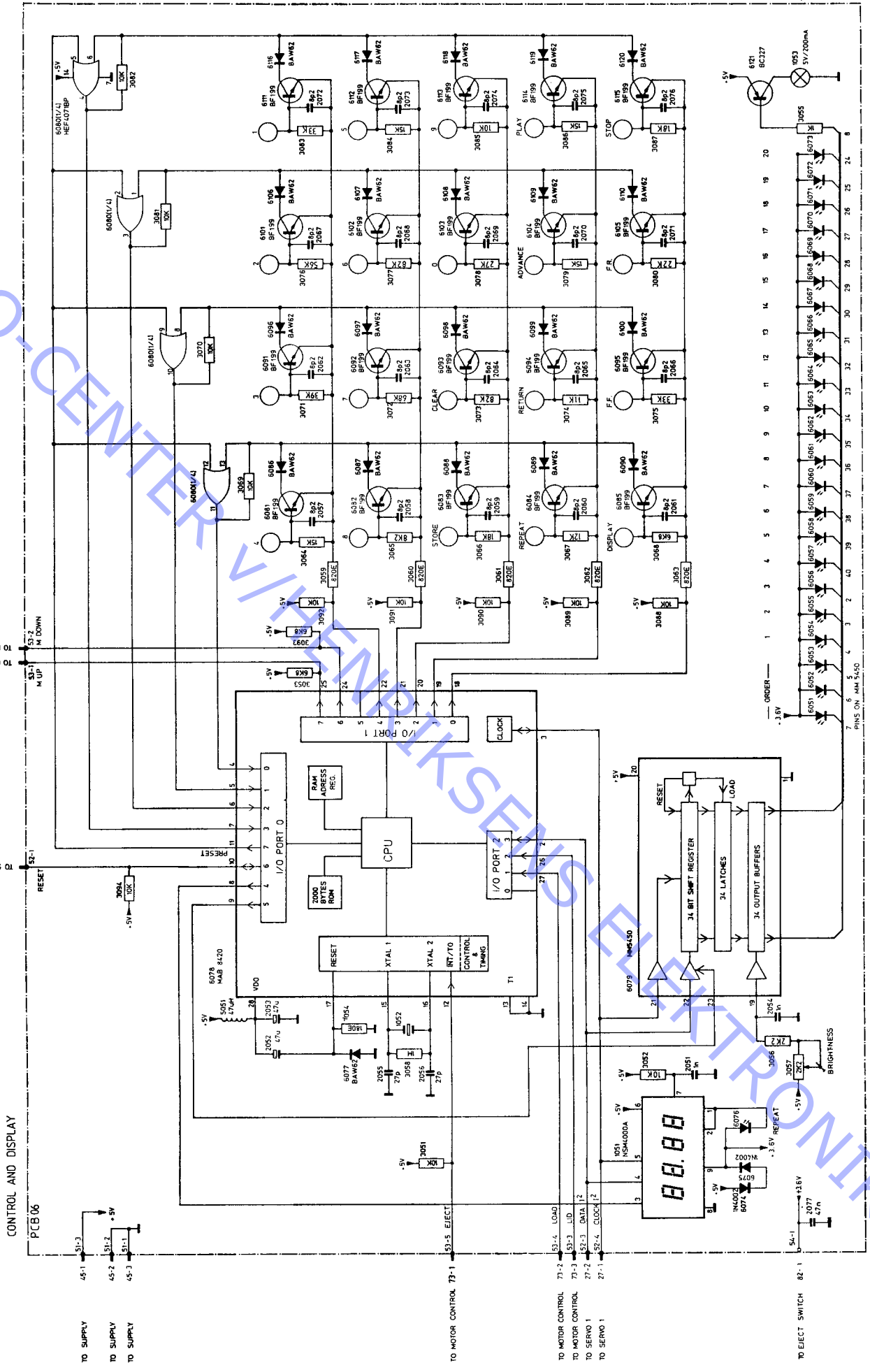
6851	8320378 17	BC 635
6852	8320104 20	BC 558B
6853		
6854	8320108 20	BC 548B
6855	8300169 209	BZK79/CSV1
6856	8320632 17	BC 636
6857	8320108 20	BC 548B
6858		
6859	8320104 20	BC 558B
6850	8300201 209	BZK79/CSV2

Diodes

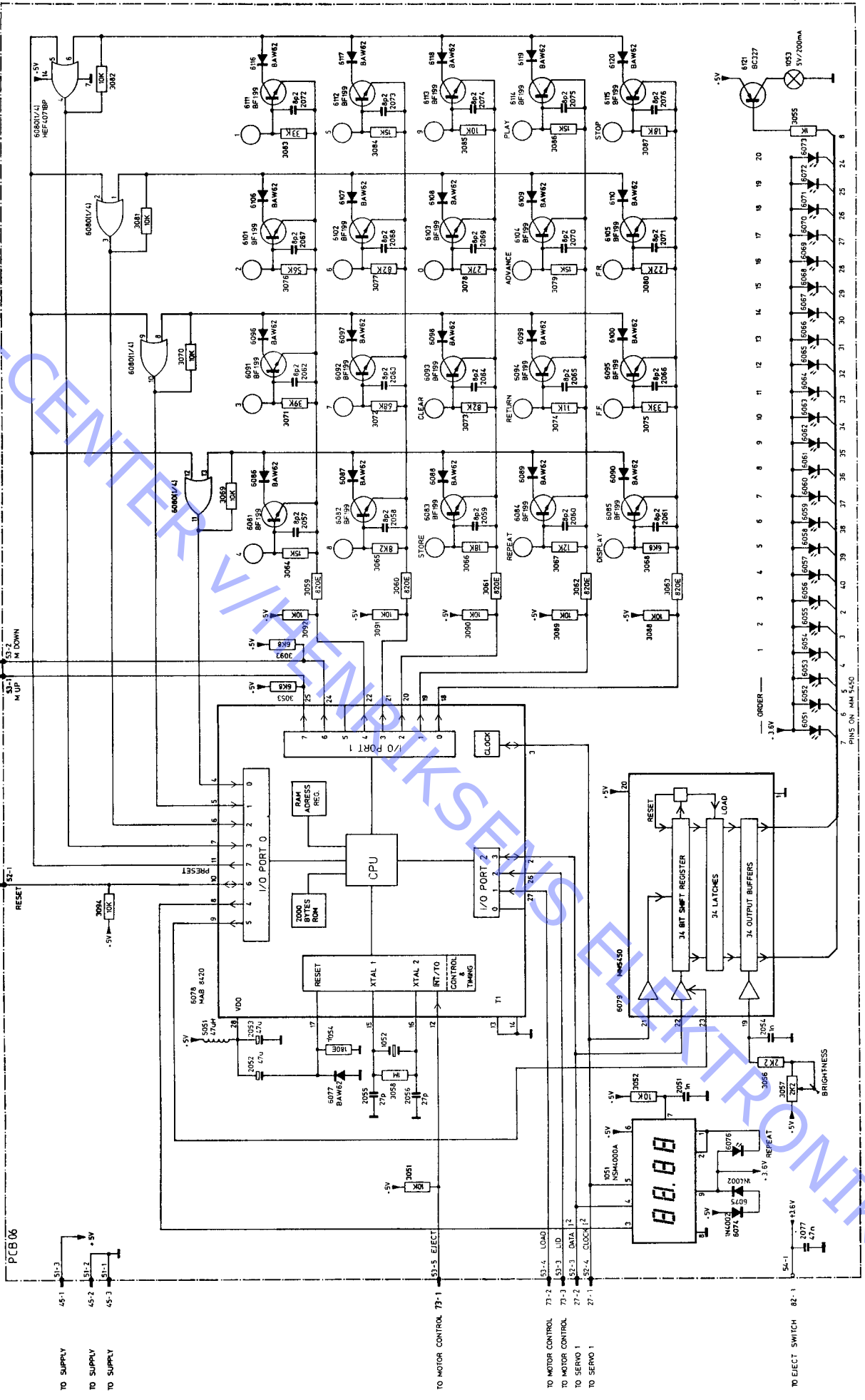


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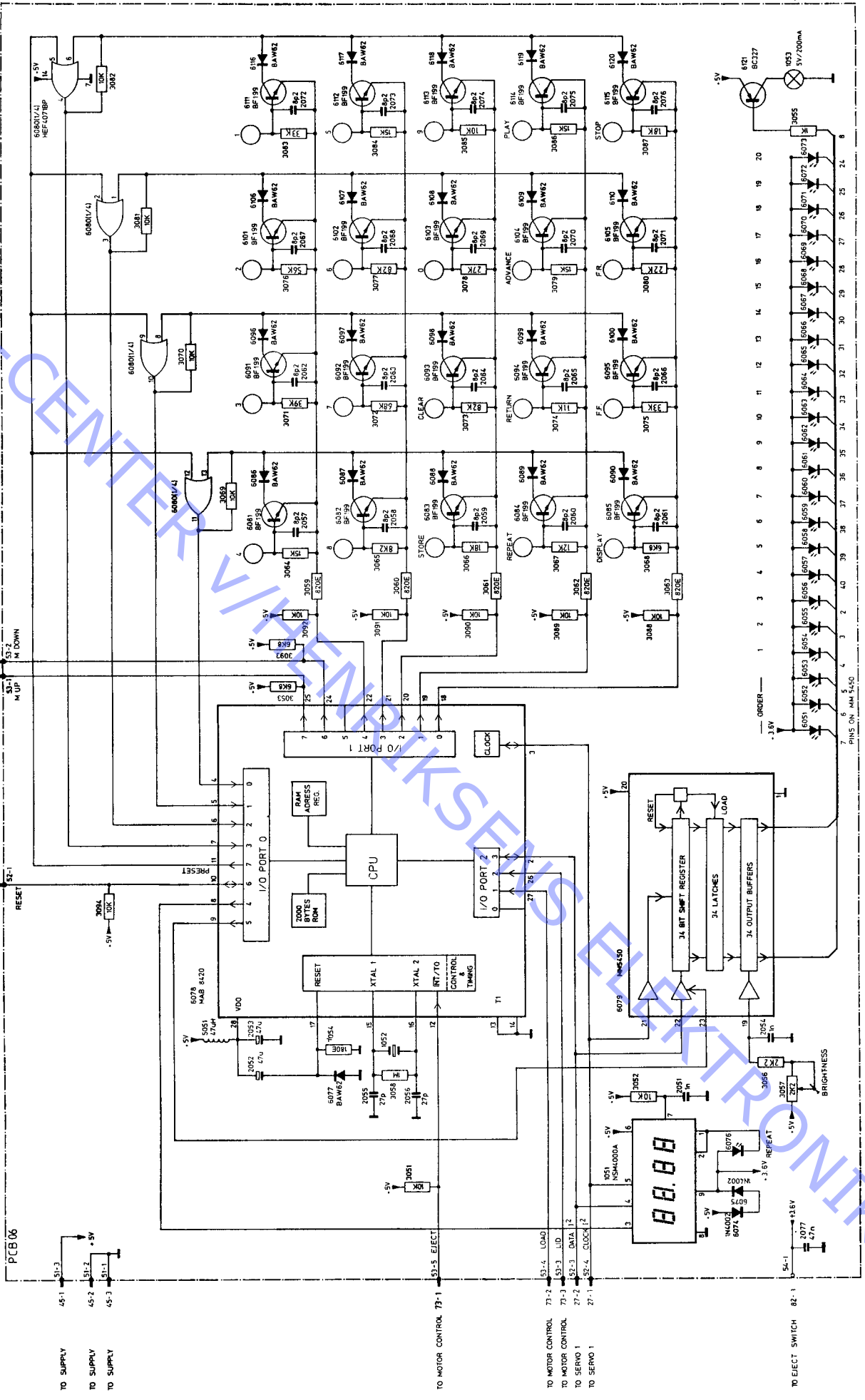
CONTROL AND DISPLAY



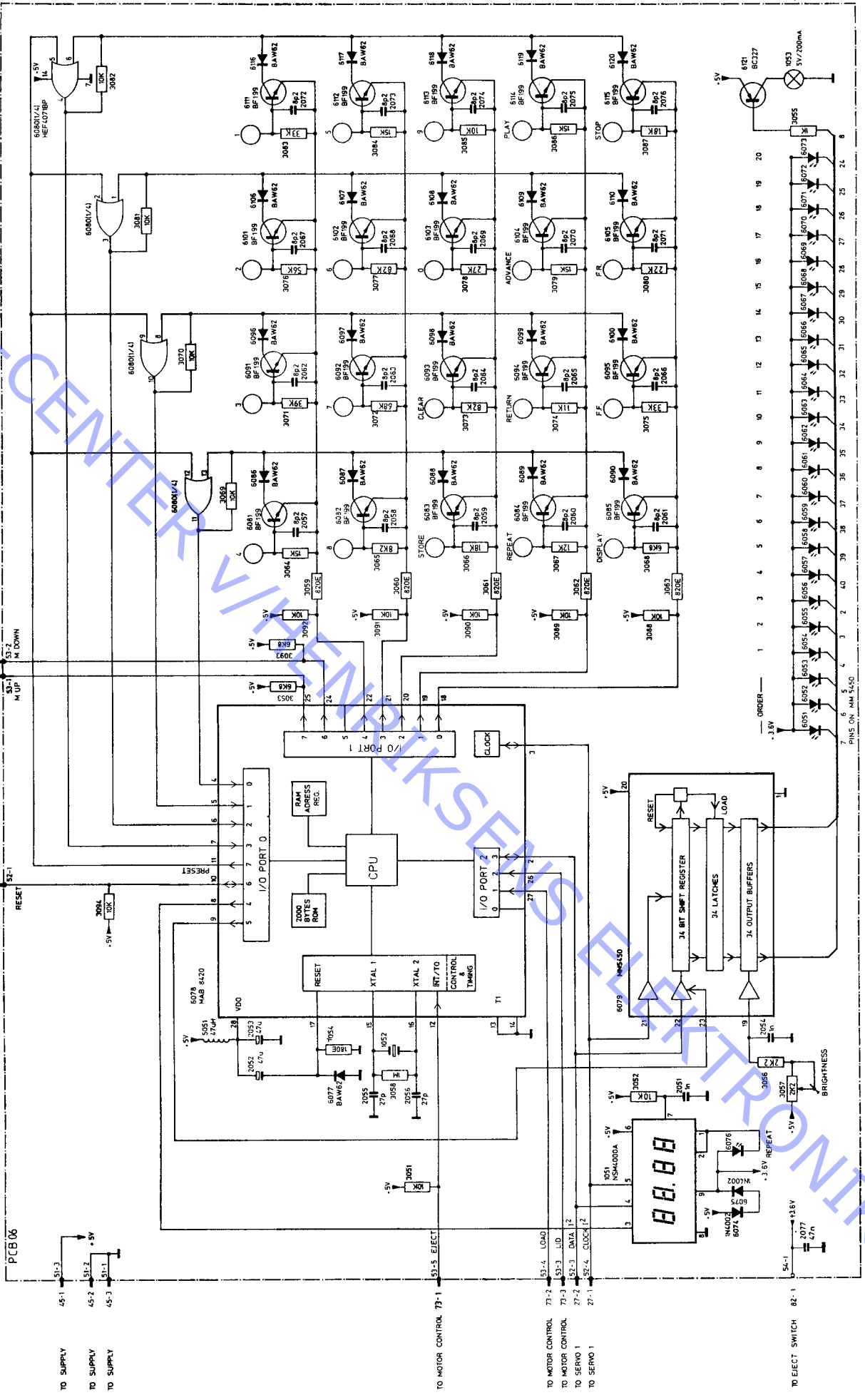
CONTROL AND DISPLAY



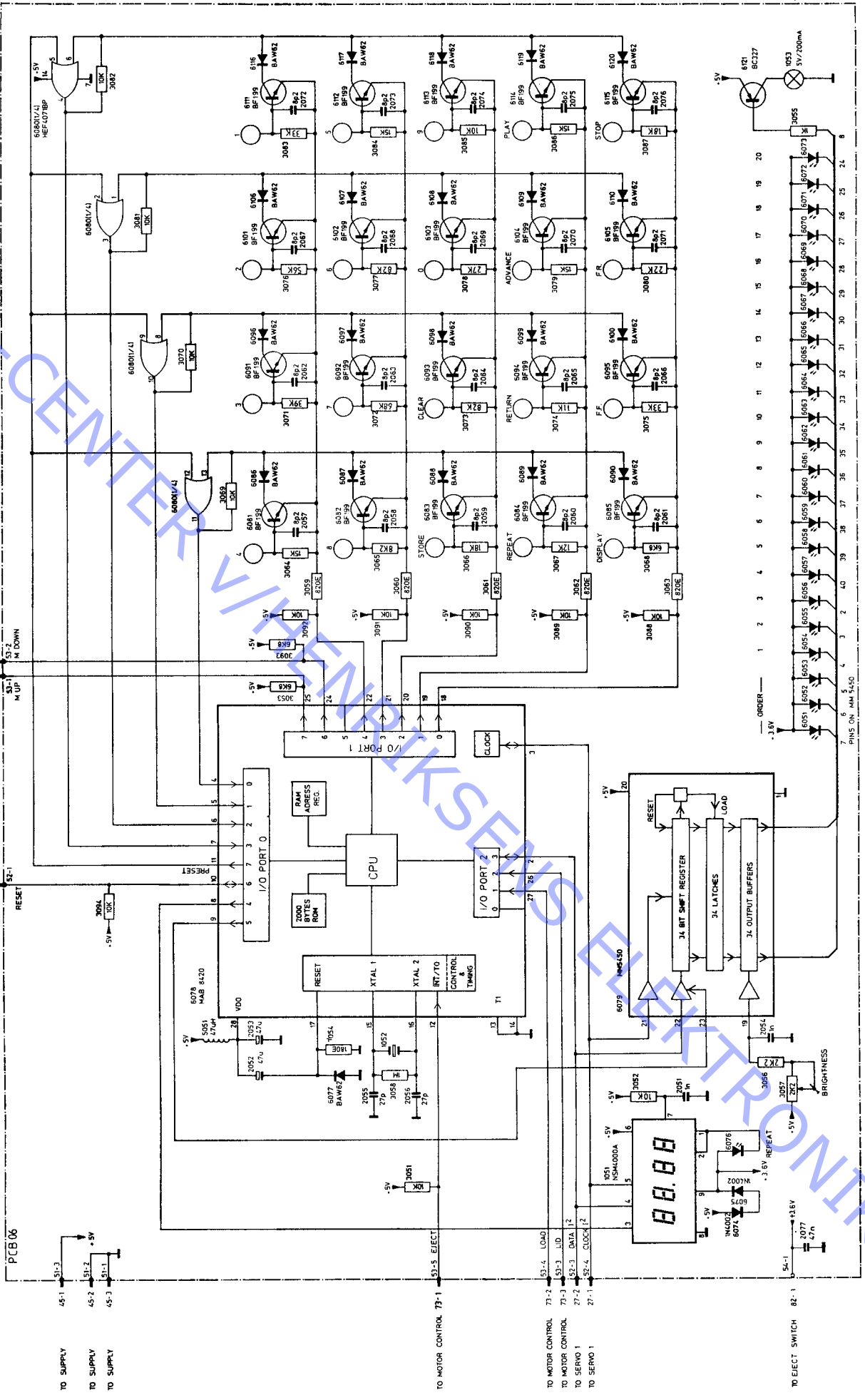
CONTROL AND DISPLAY



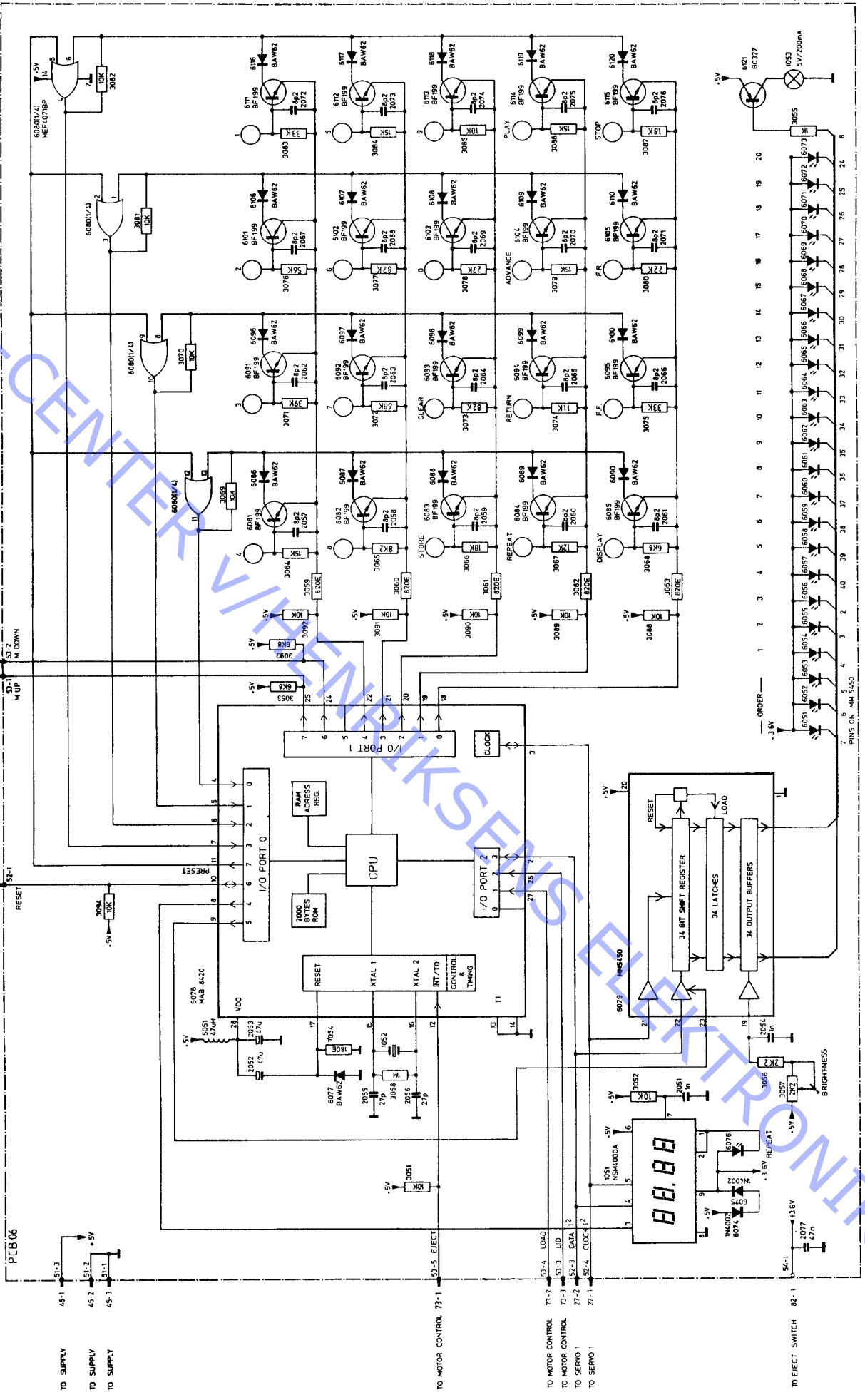
CONTROL AND DISPLAY



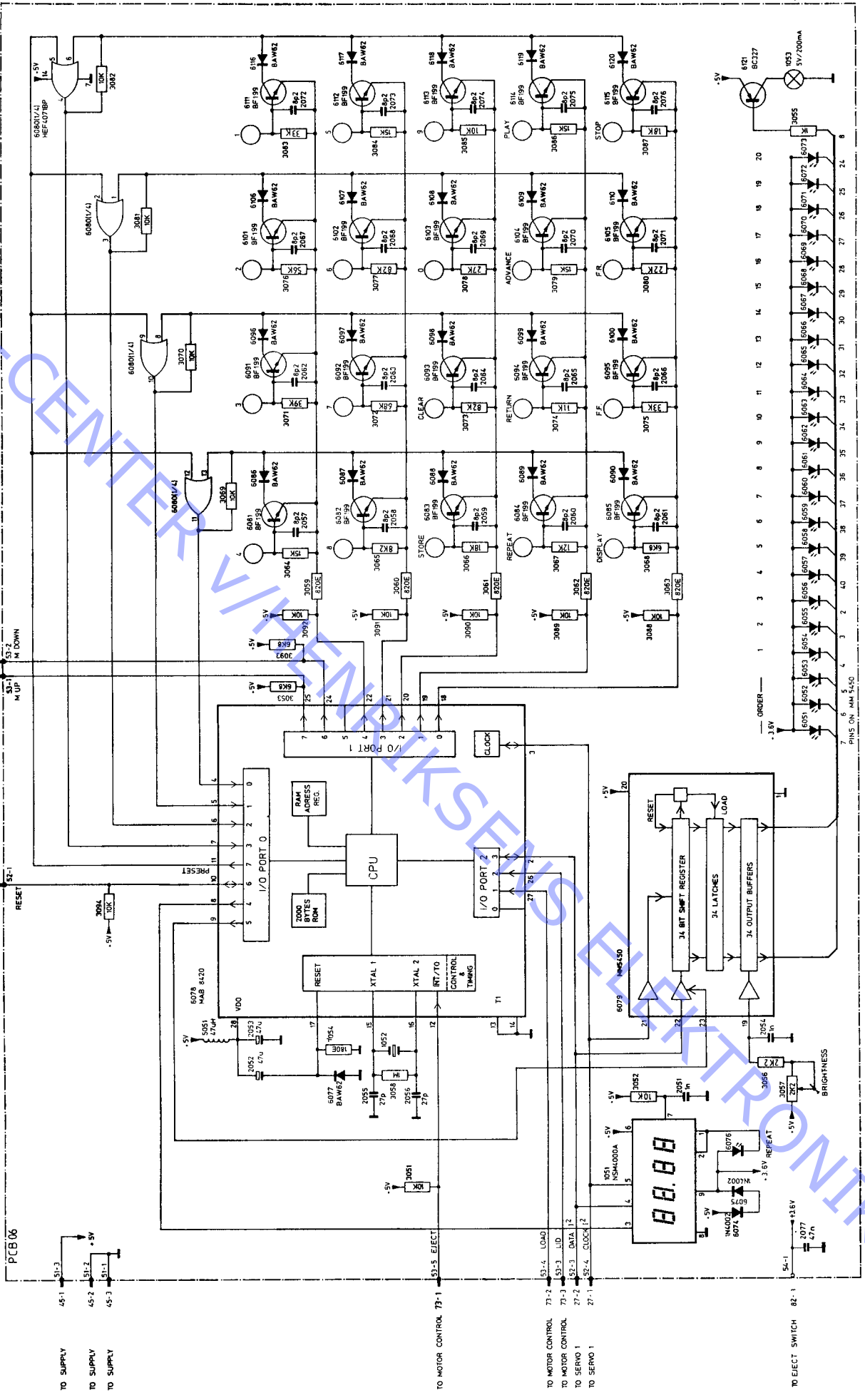
CONTROL AND DISPLAY



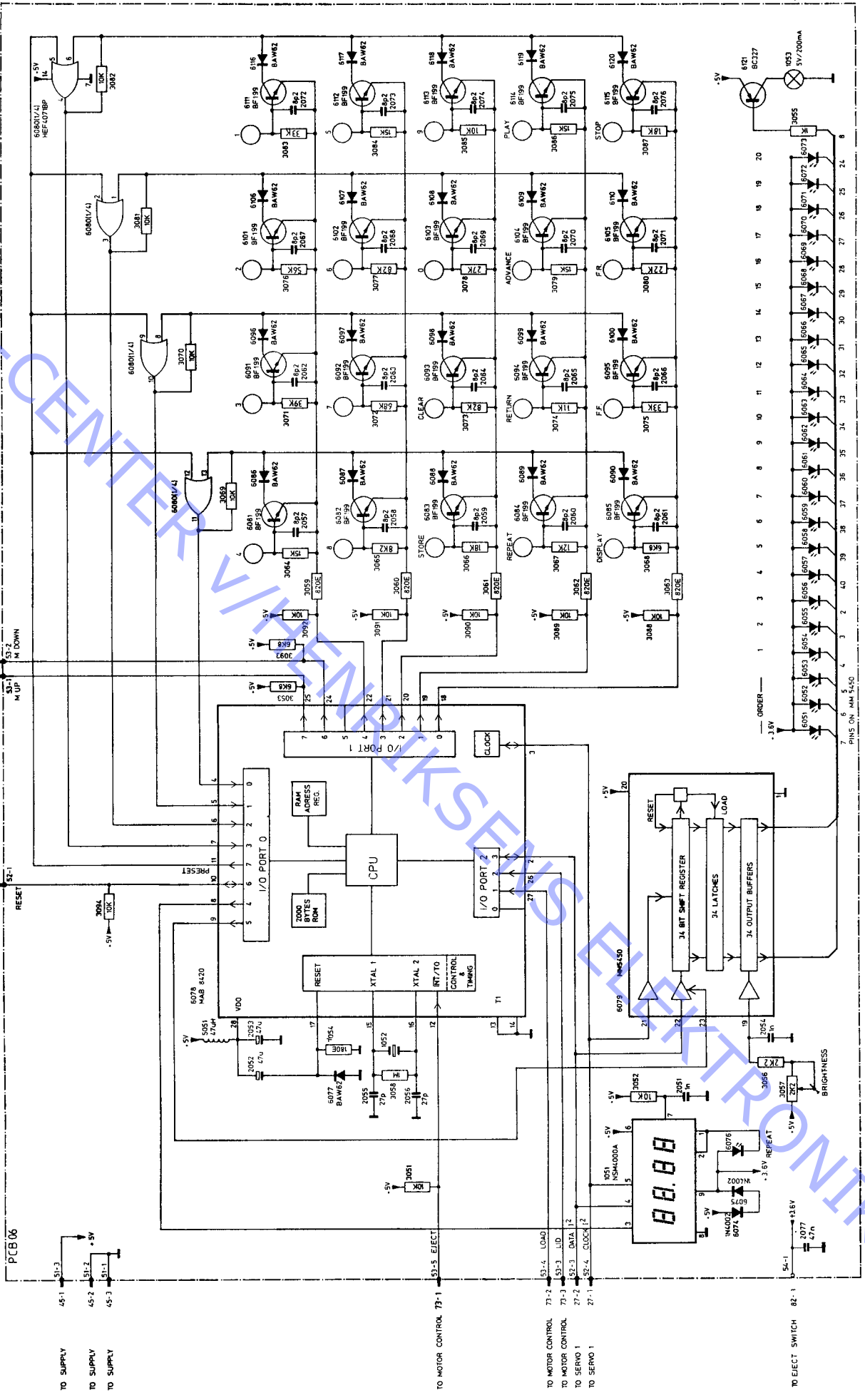
CONTROL AND DISPLAY



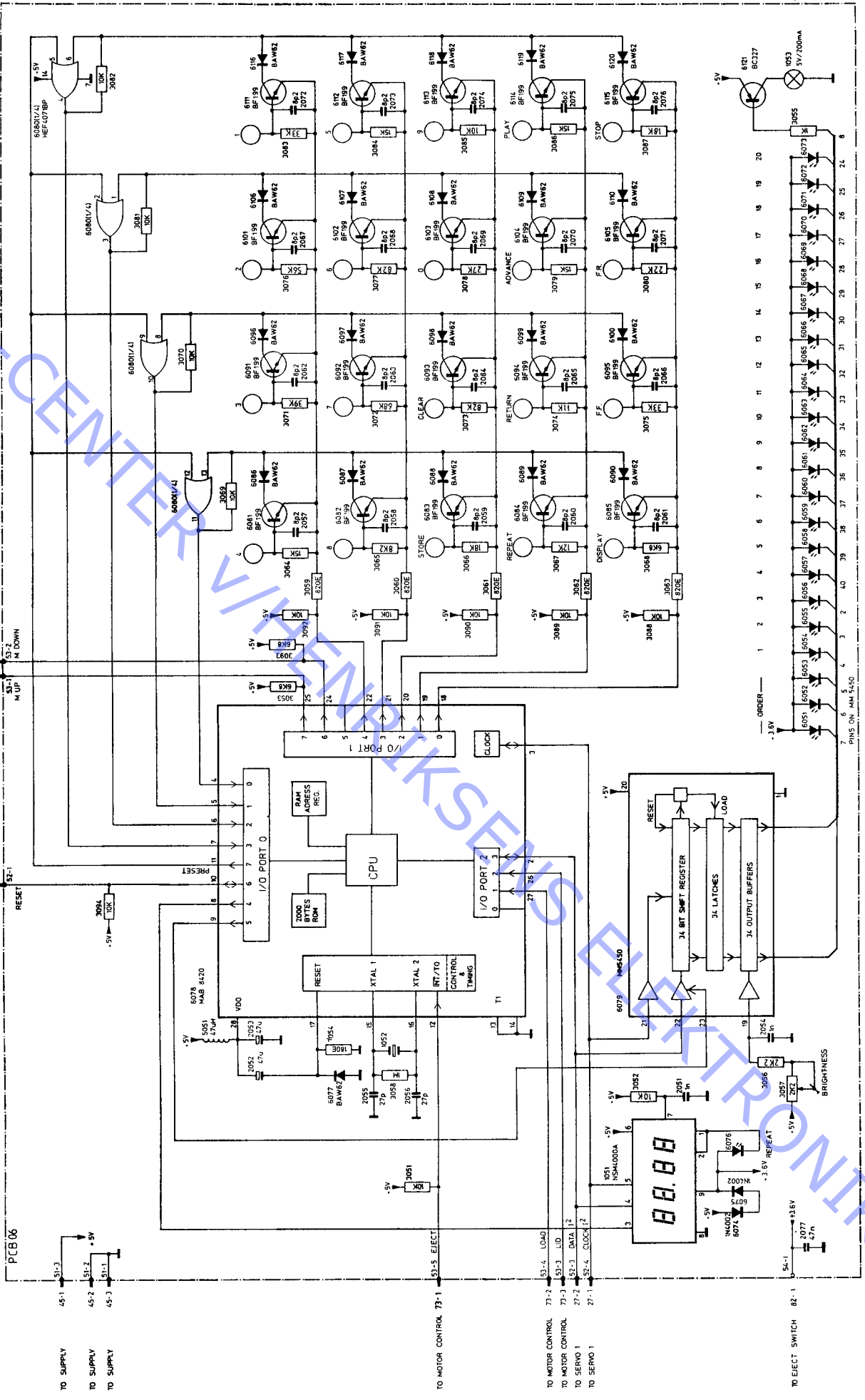
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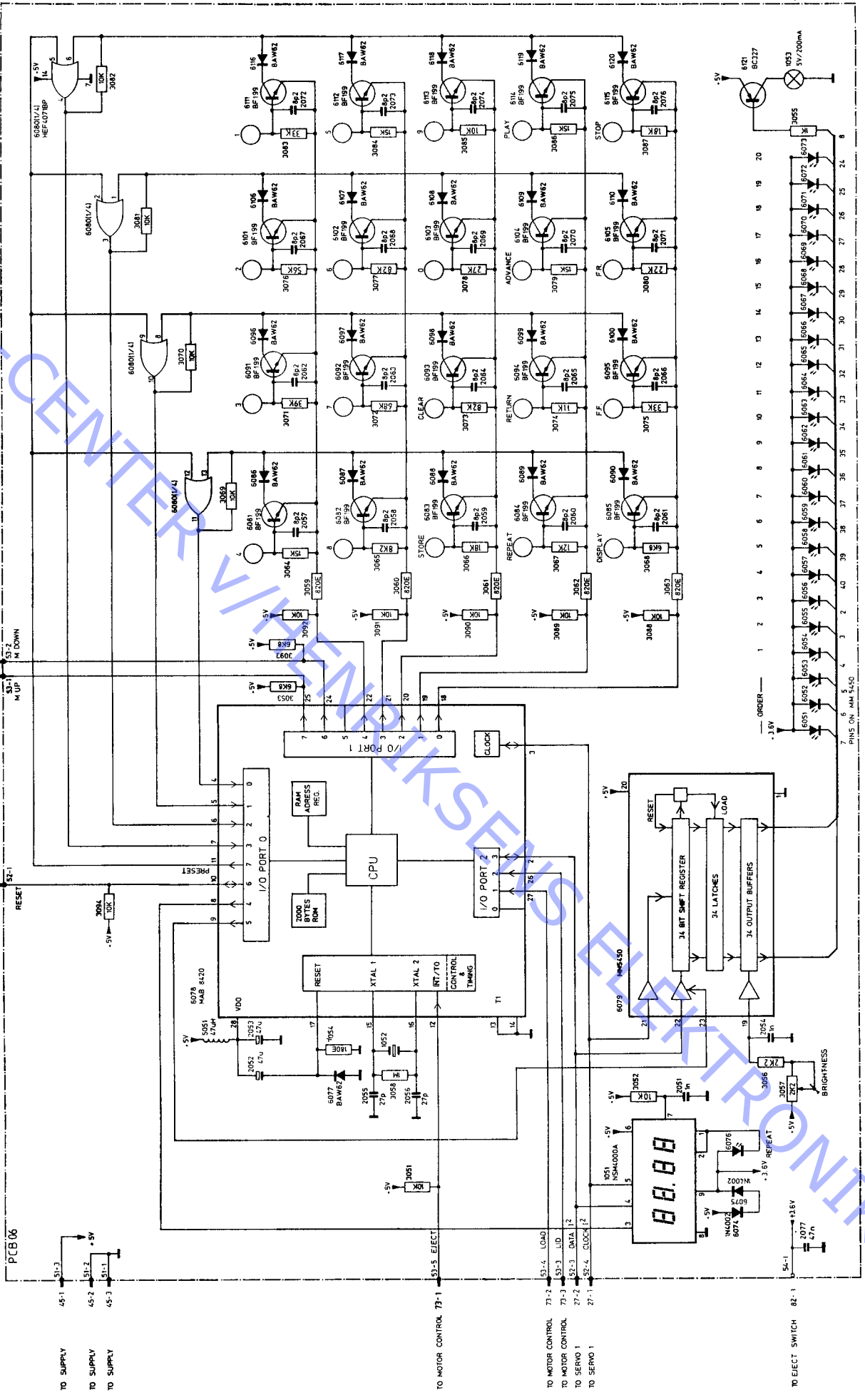
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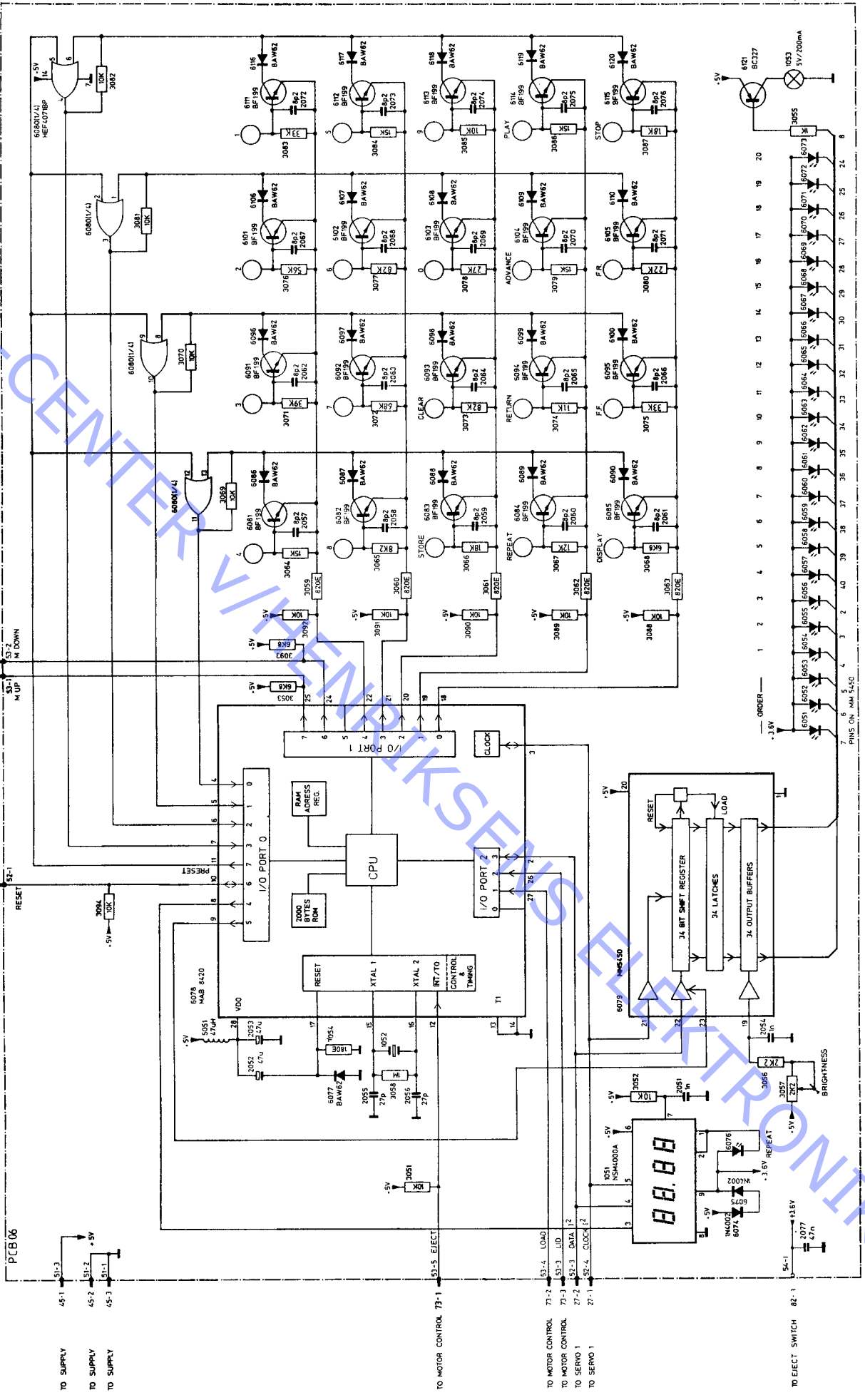
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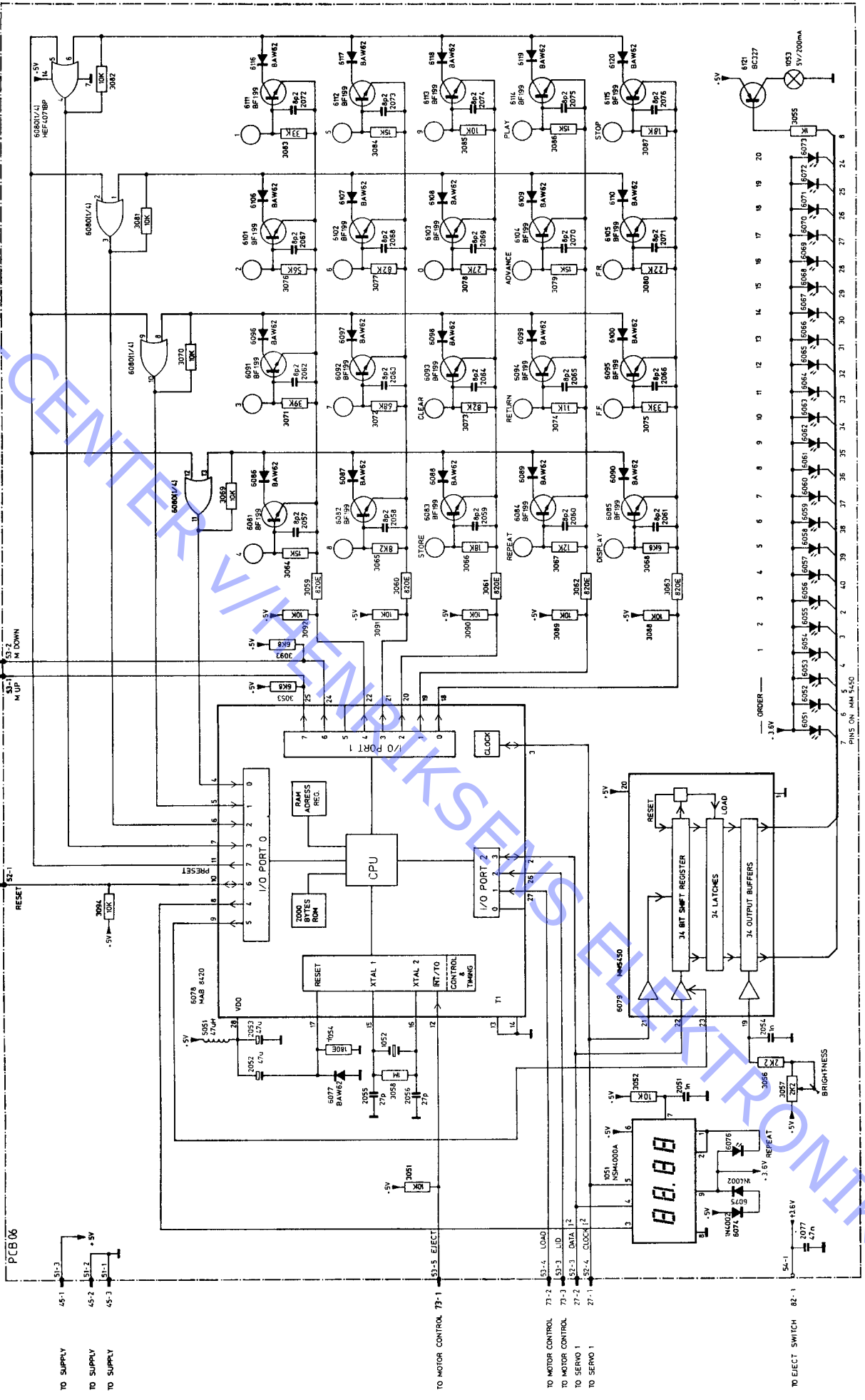
CONTROL AND DISPLAY



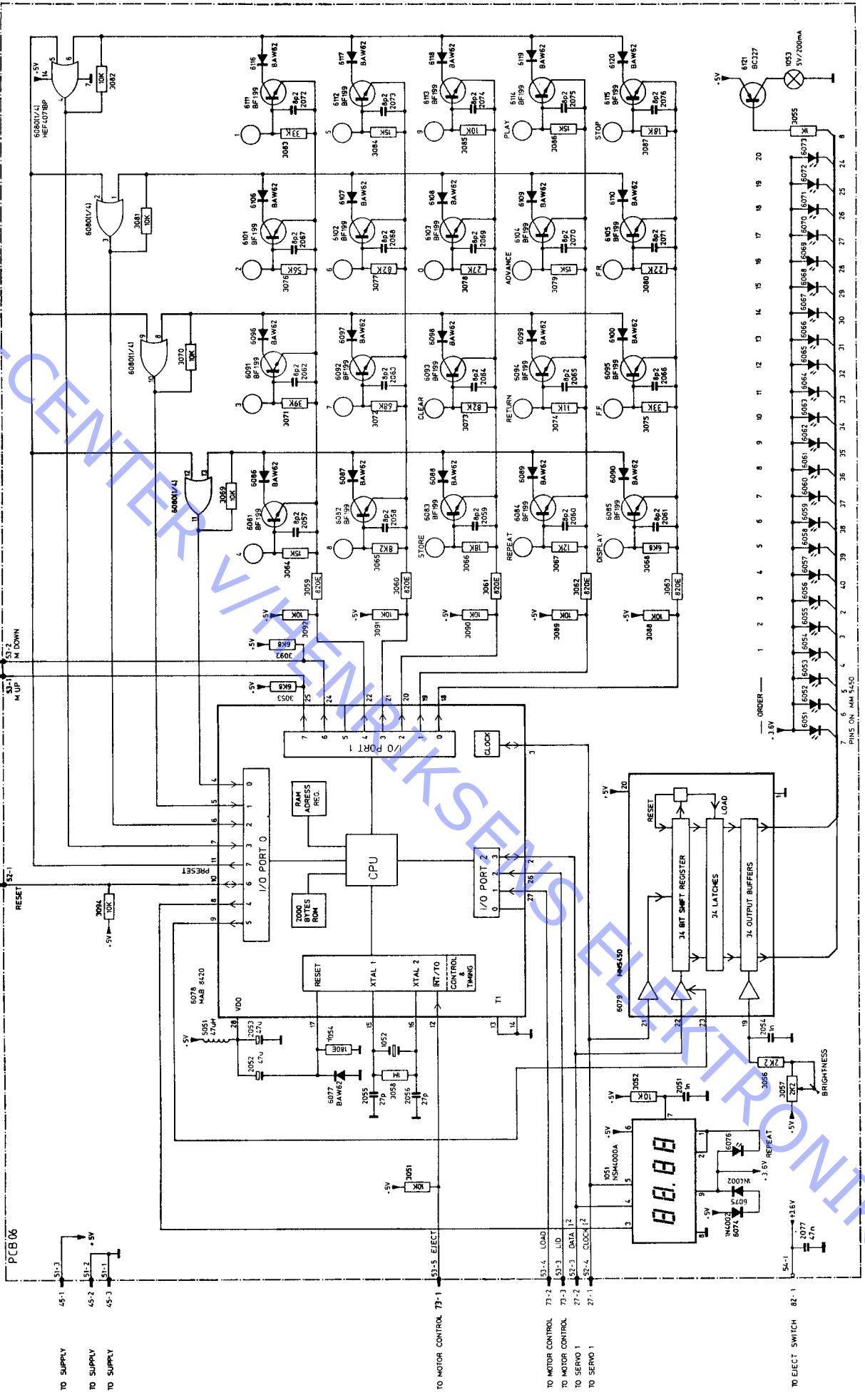
CONTROL AND DISPLAY



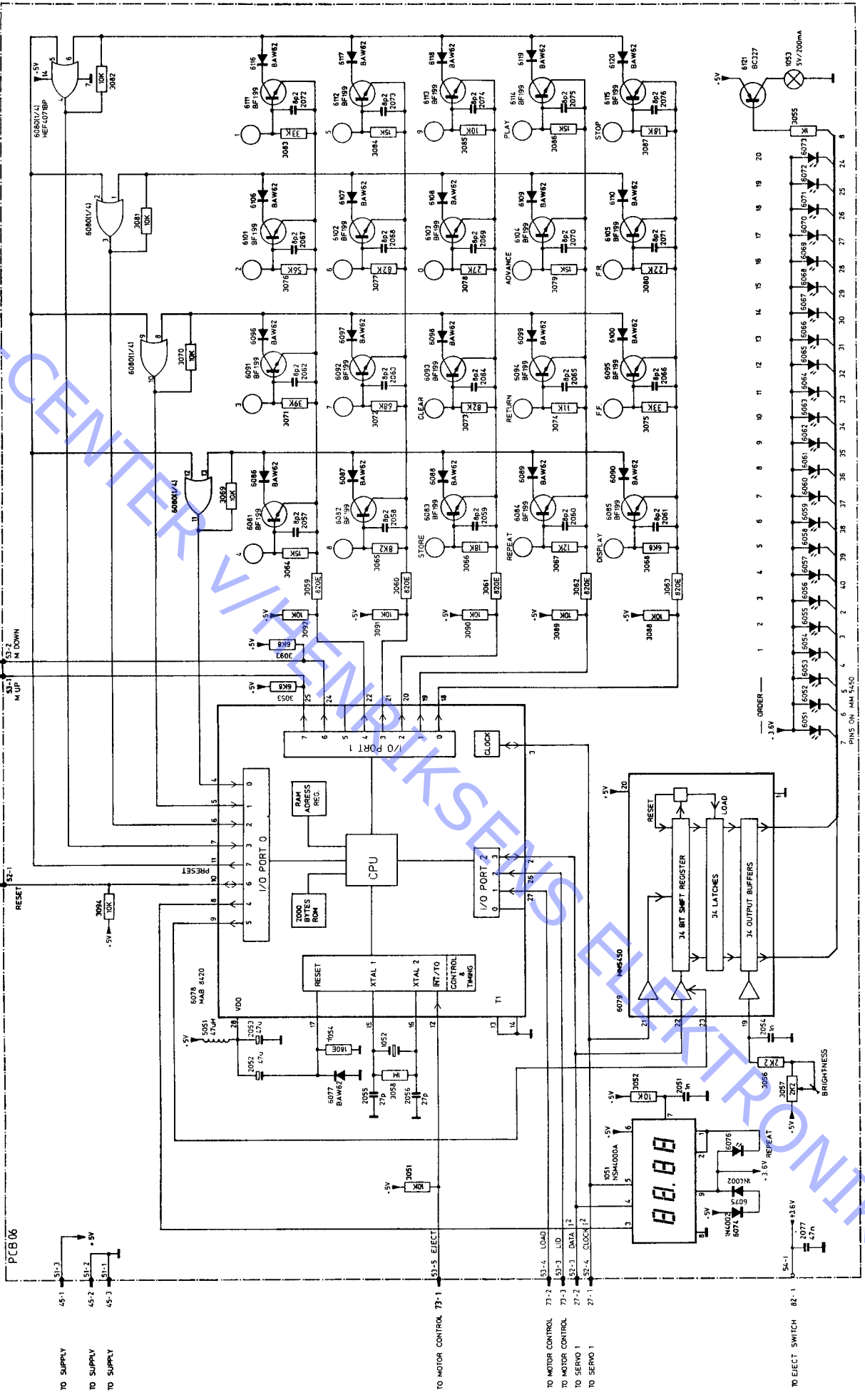
CONTROL AND DISPLAY



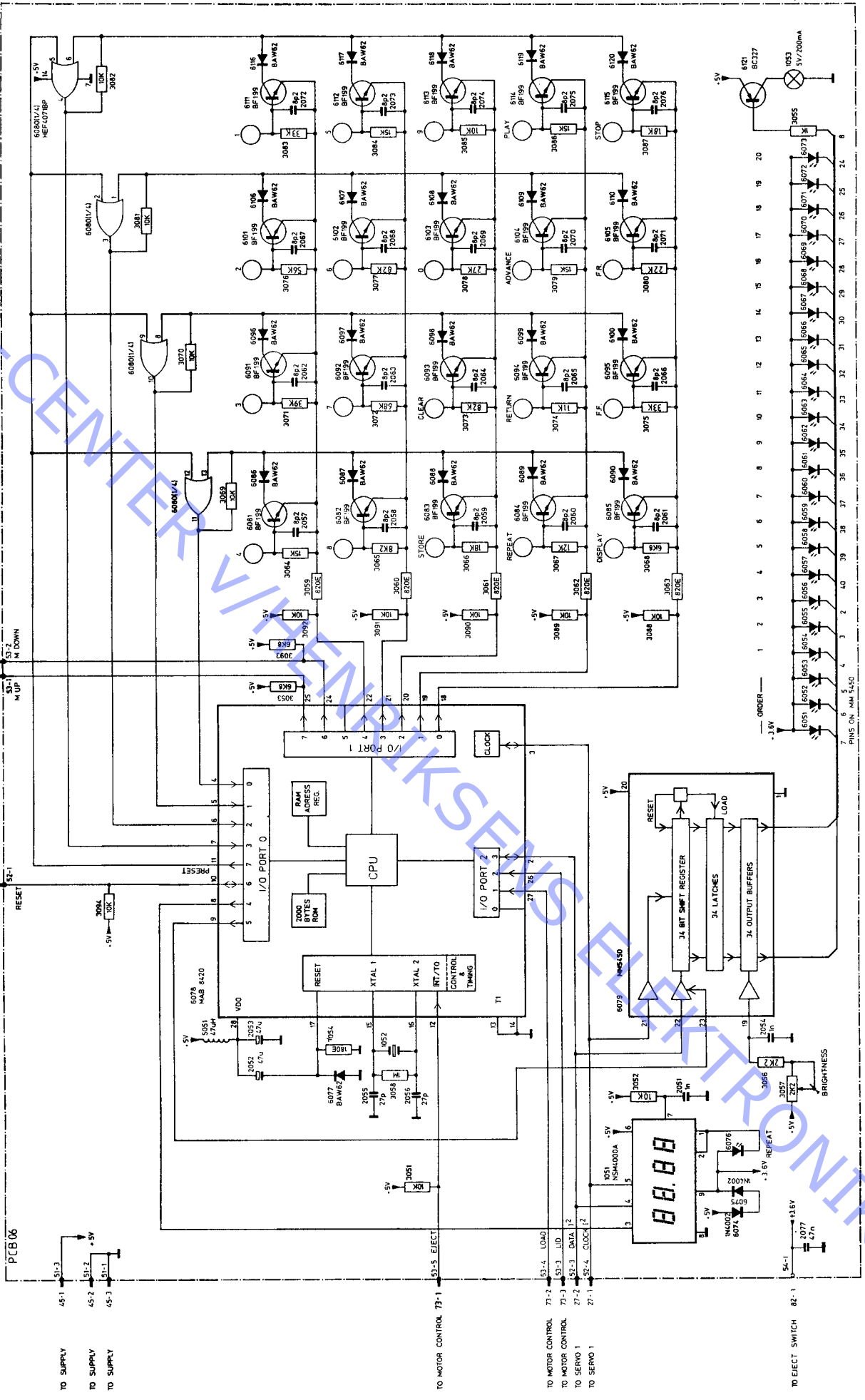
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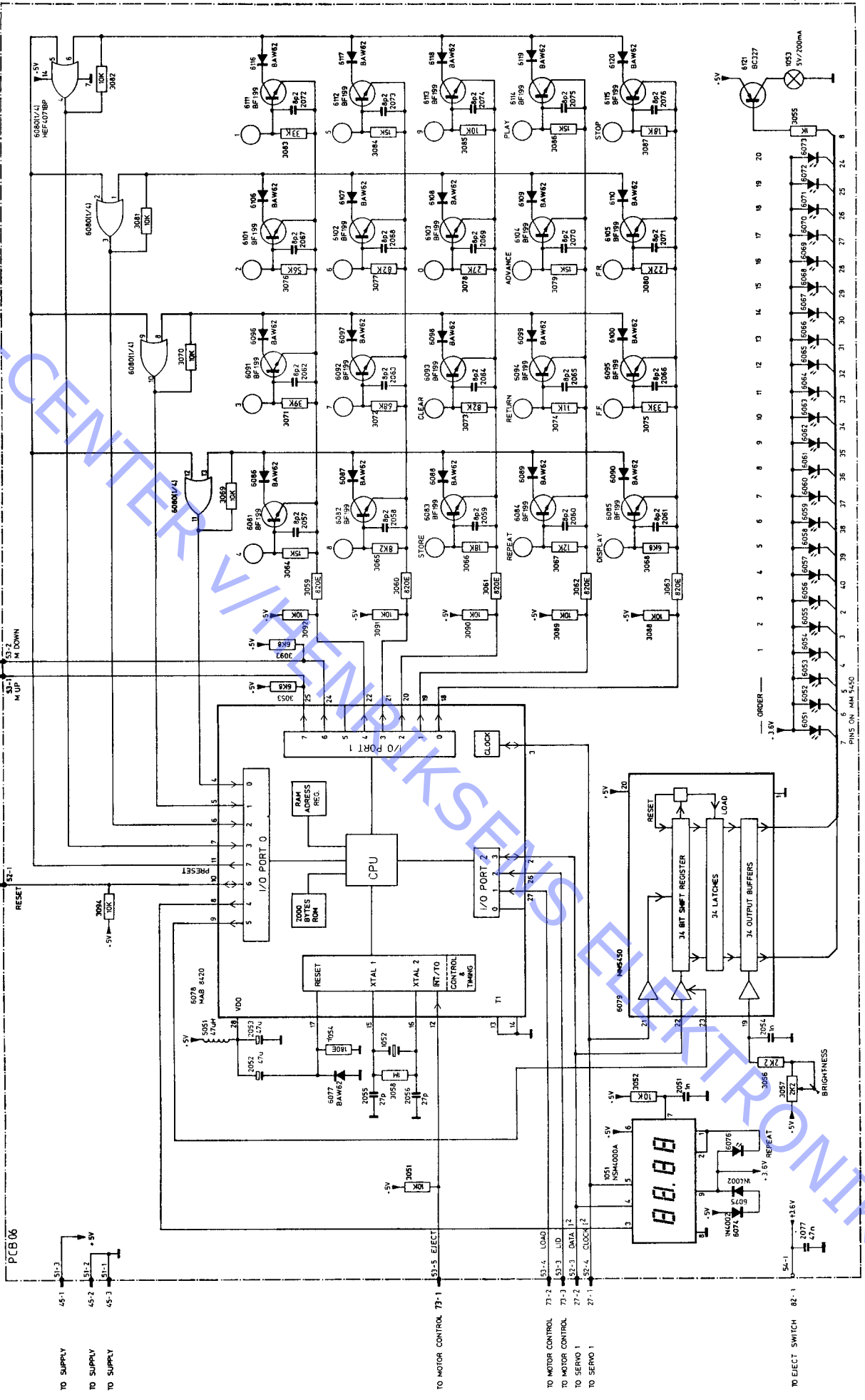
CONTROL AND DISPLAY



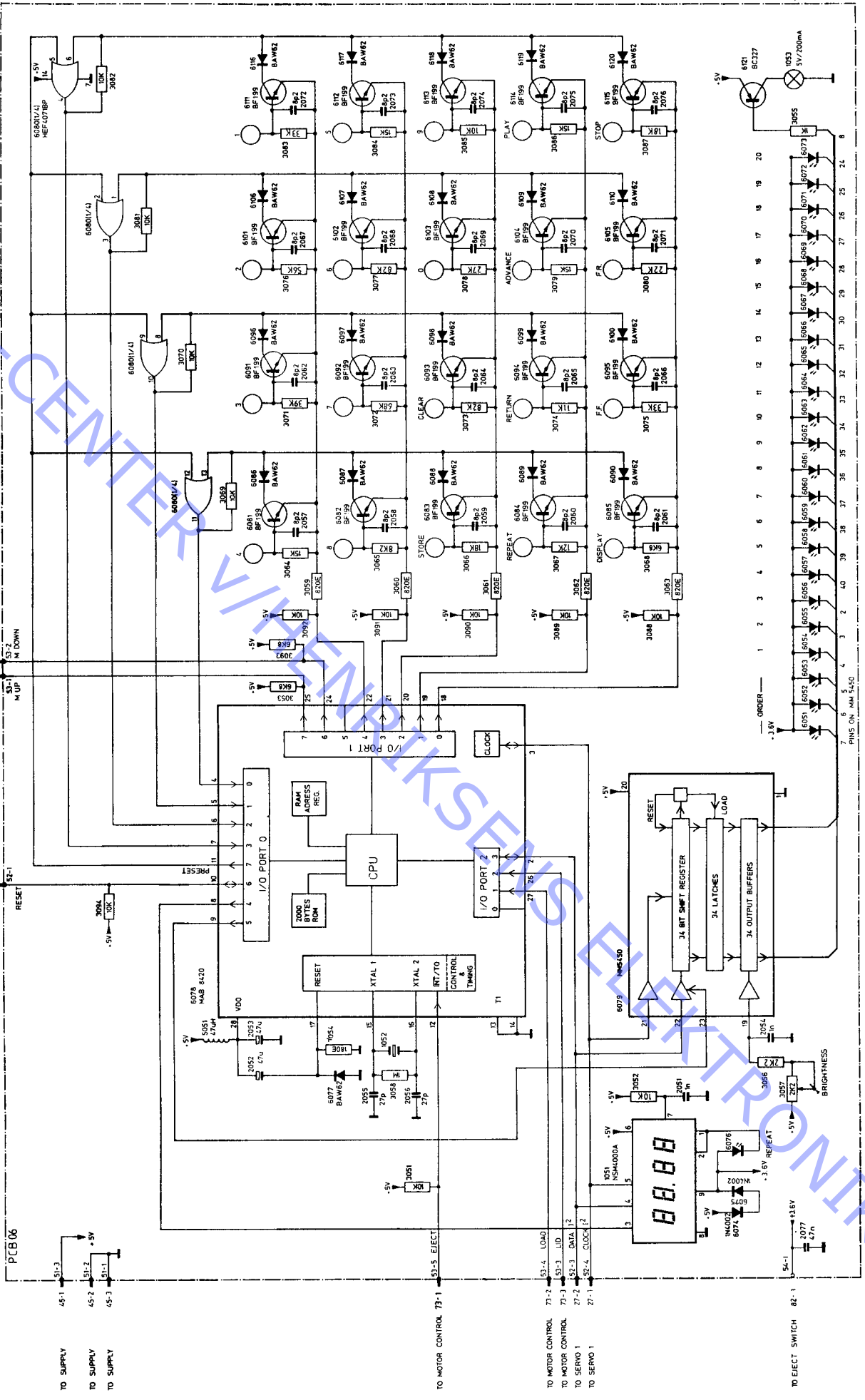
CONTROL AND DISPLAY



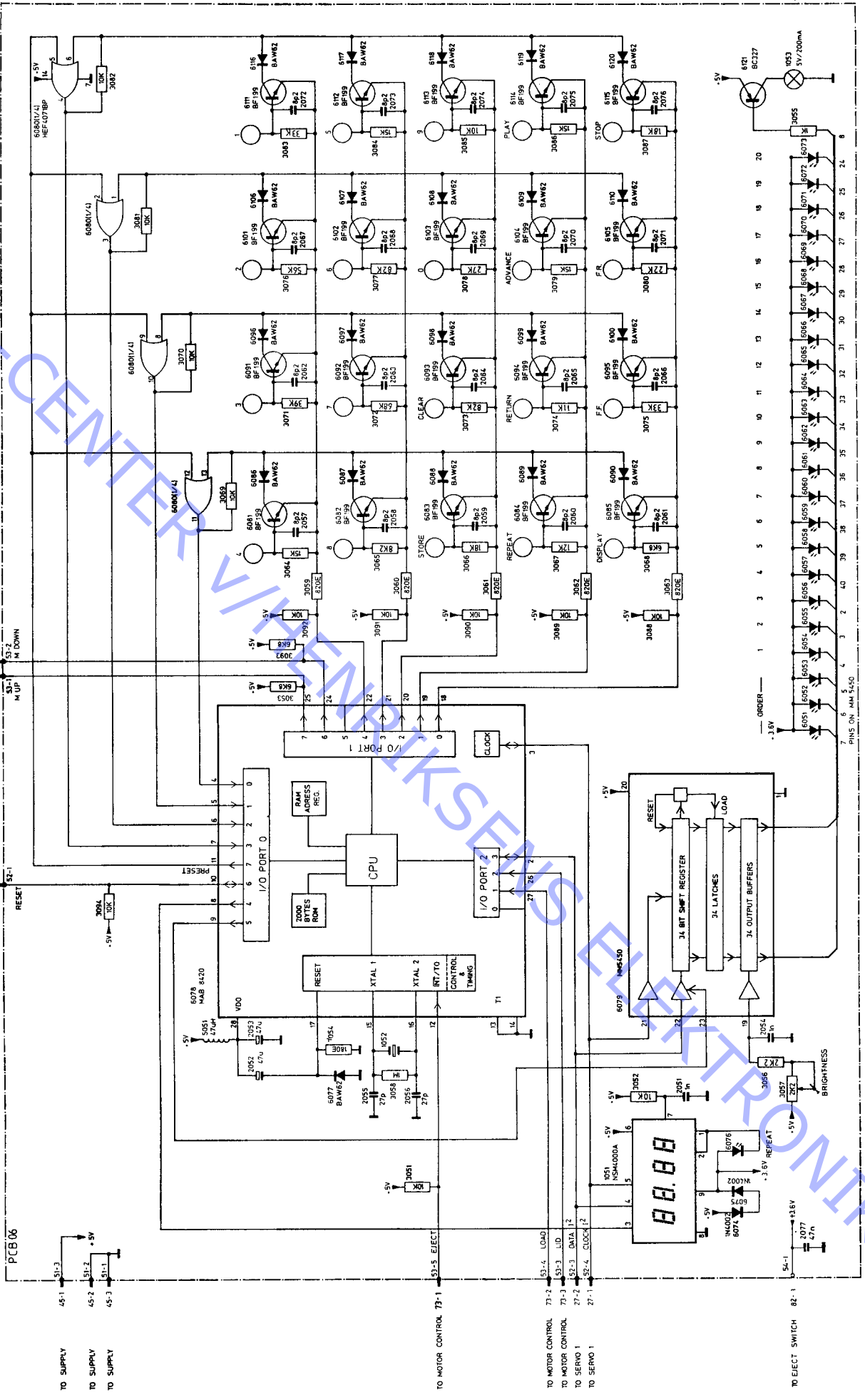
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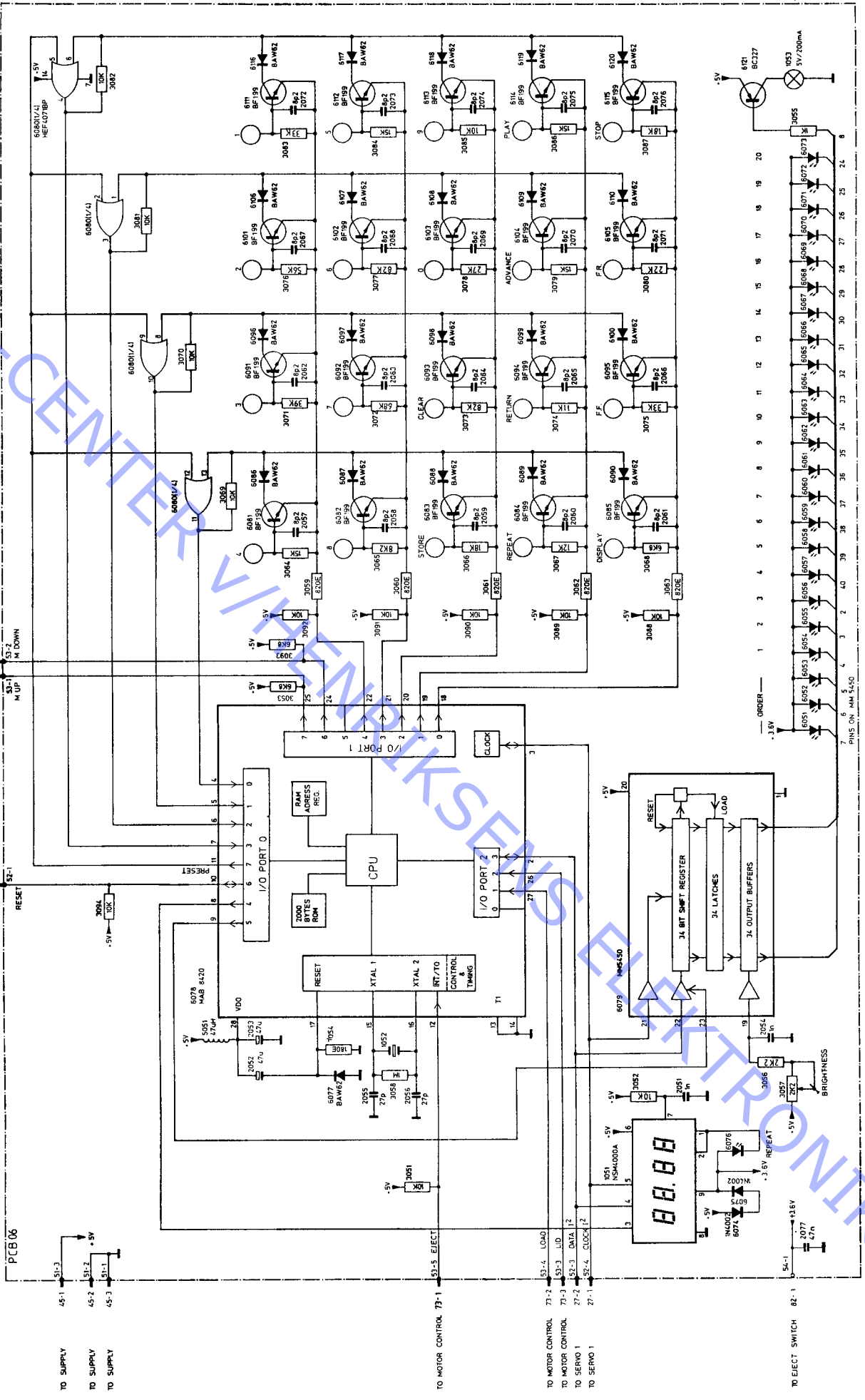
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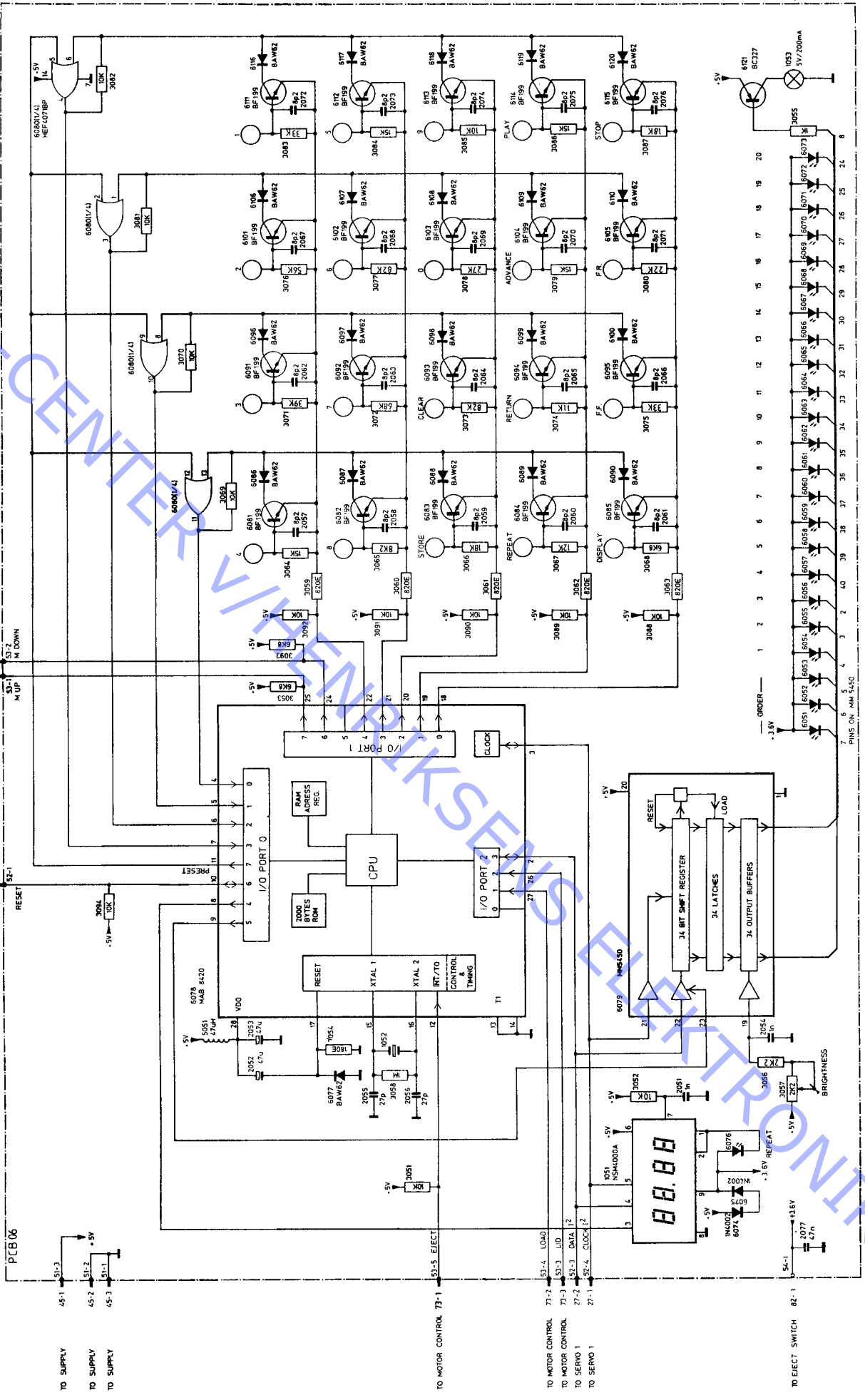
CONTROL AND DISPLAY



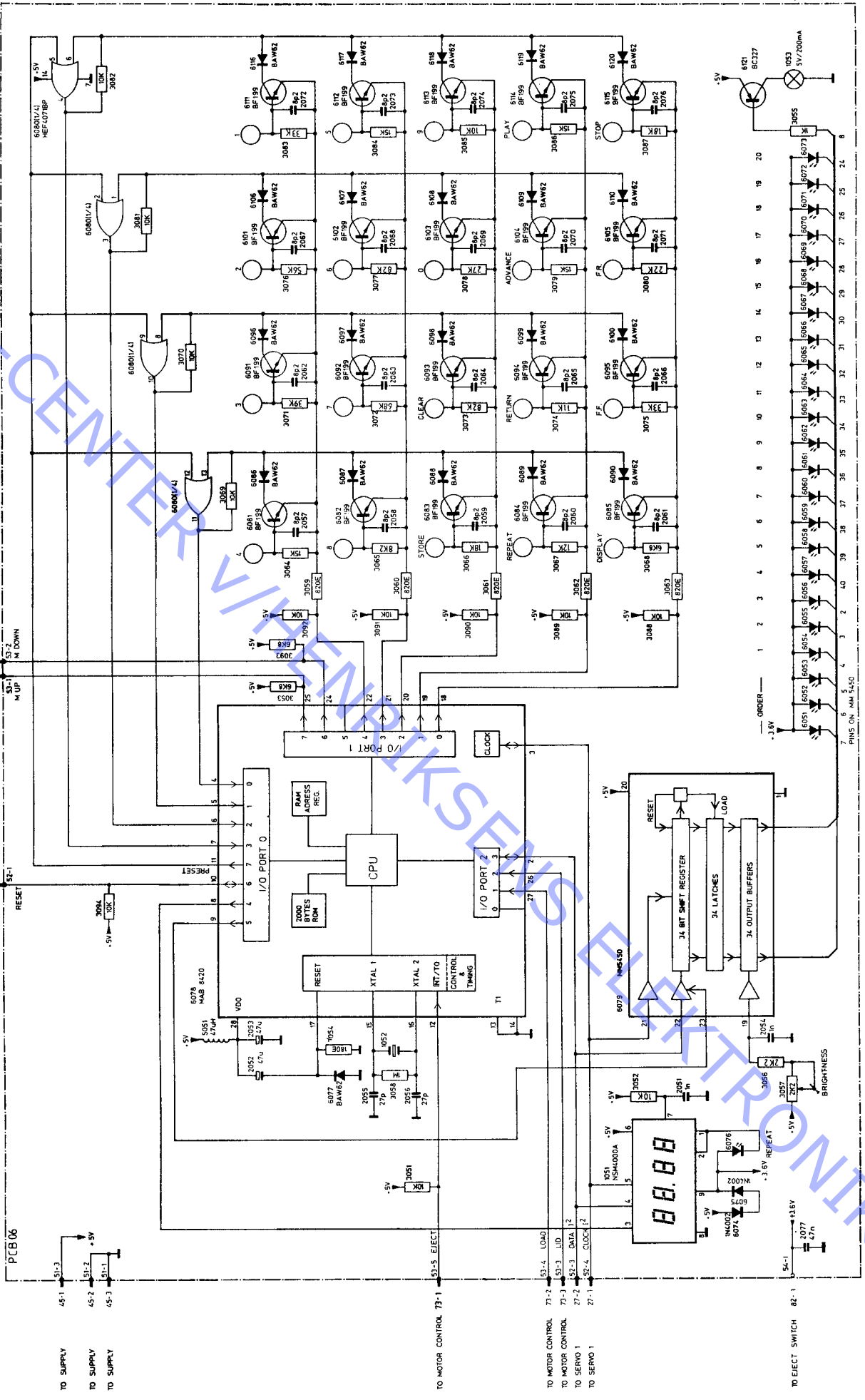
CONTROL AND DISPLAY



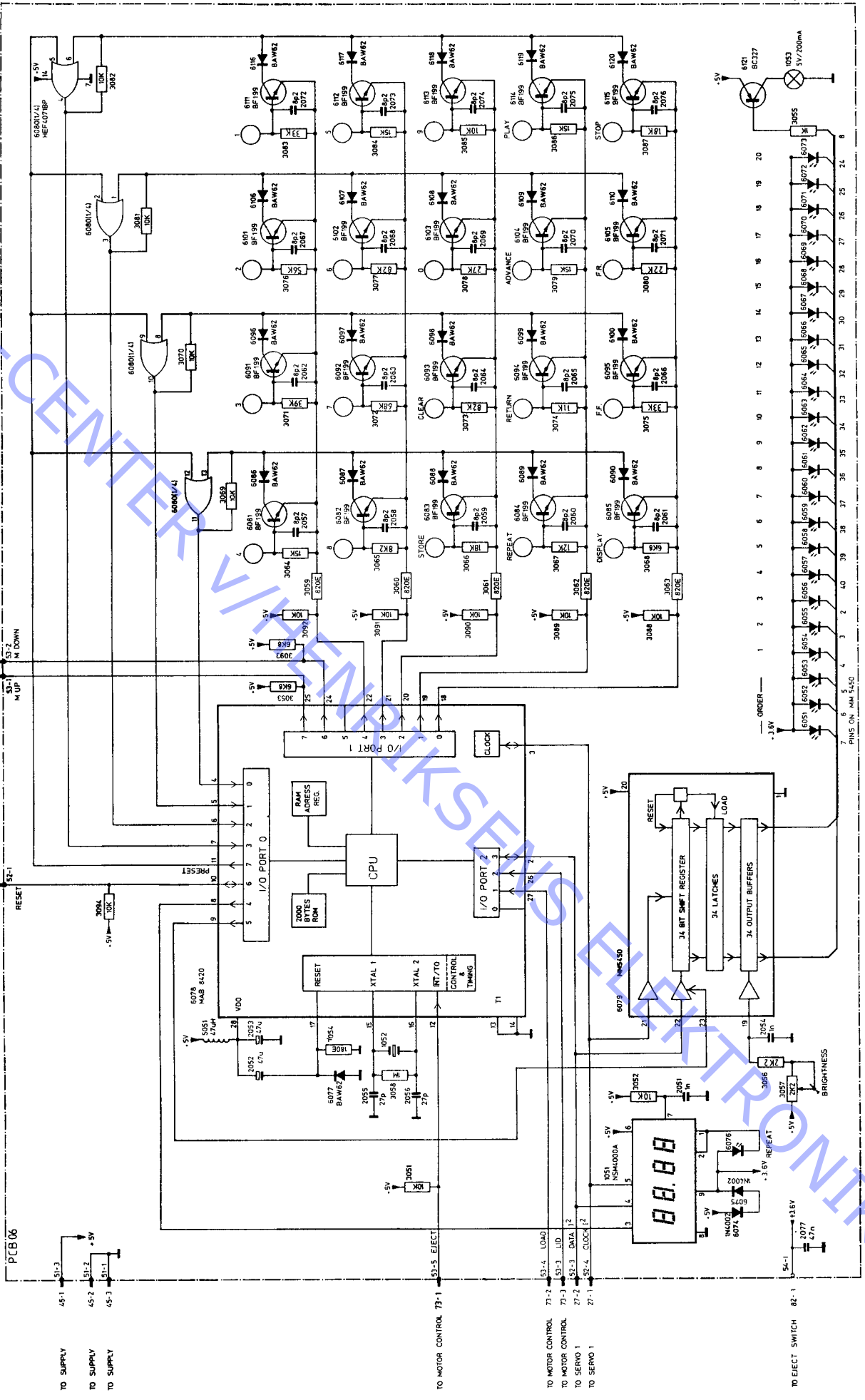
CONTROL AND DISPLAY



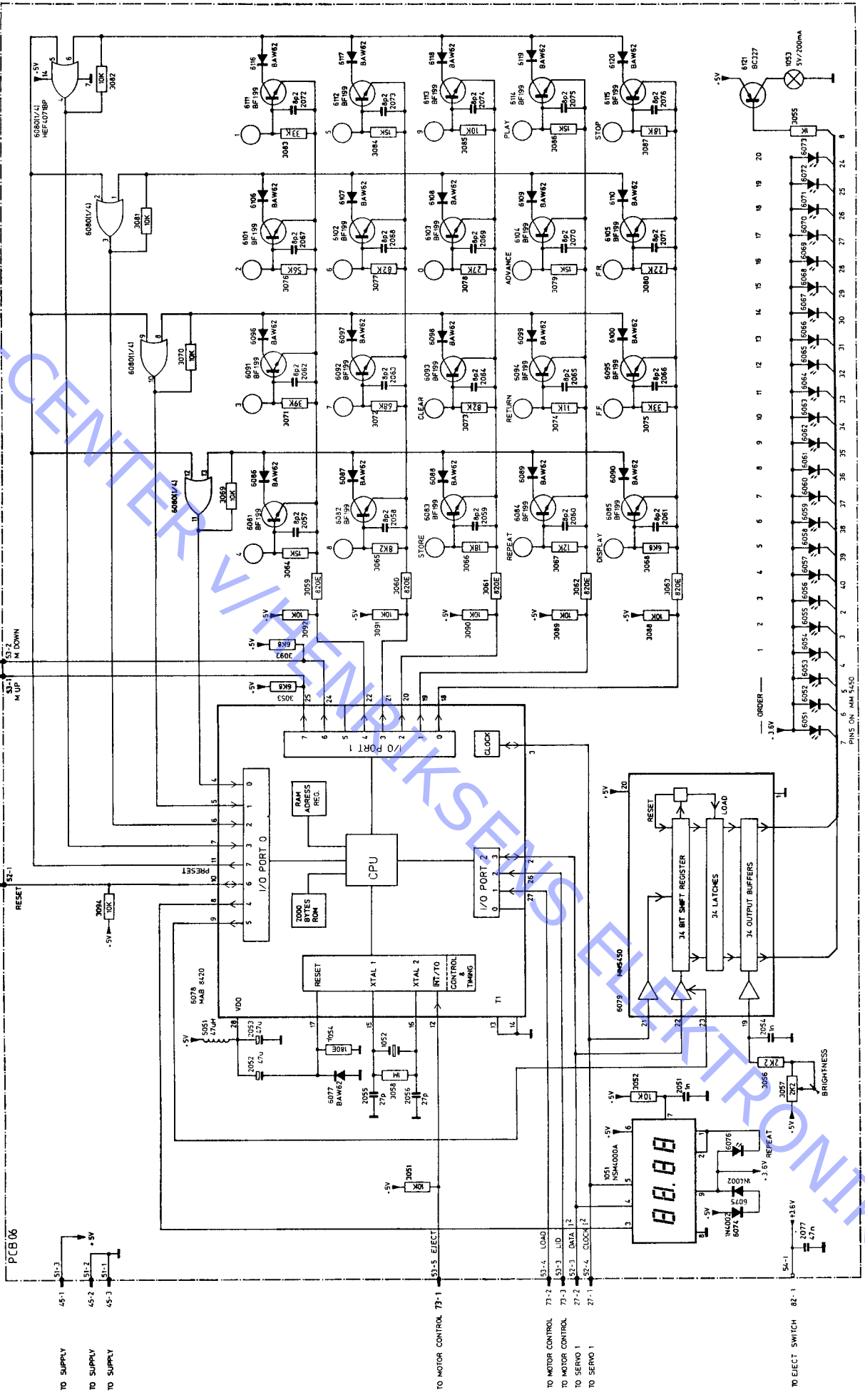
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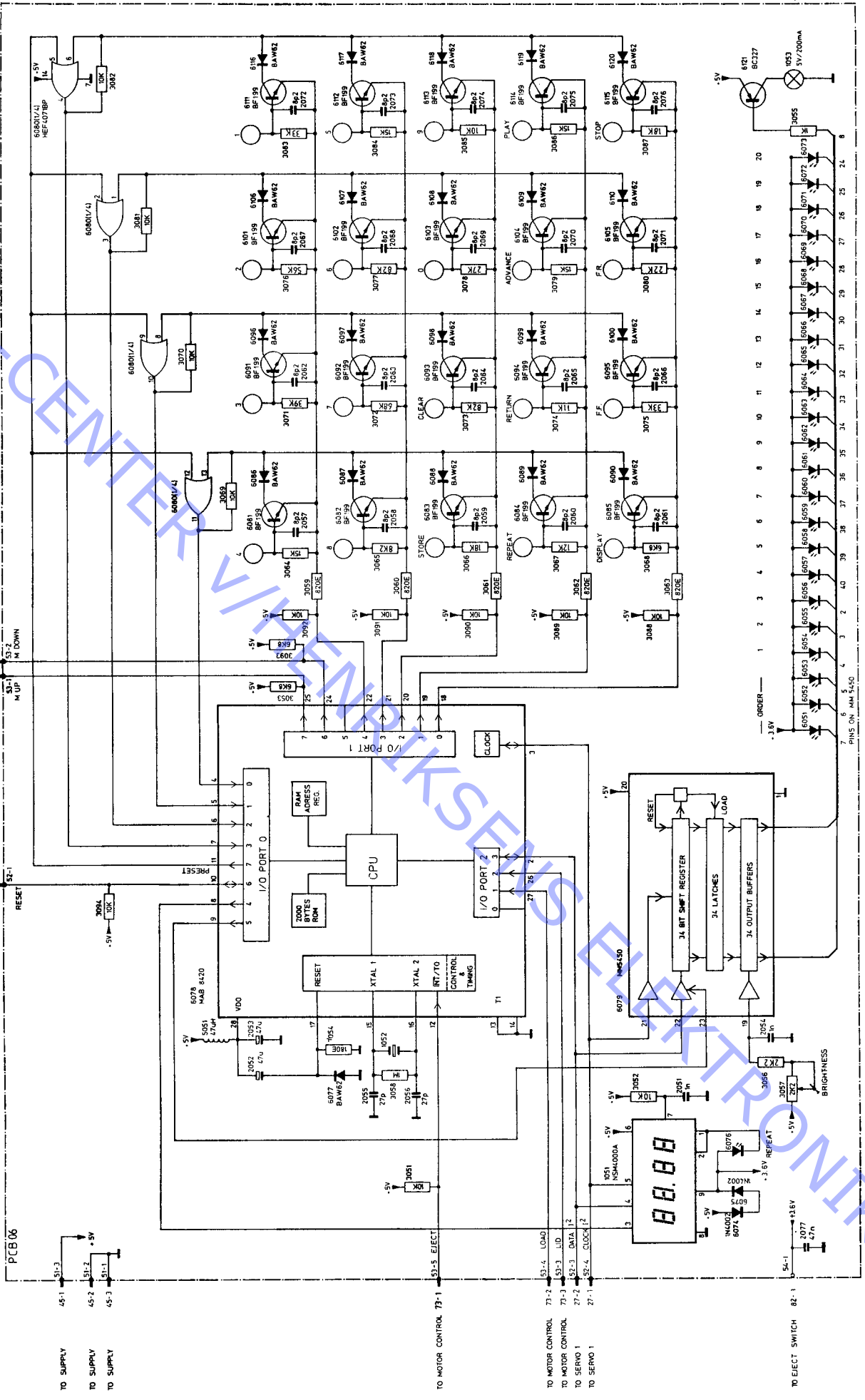
CONTROL AND DISPLAY



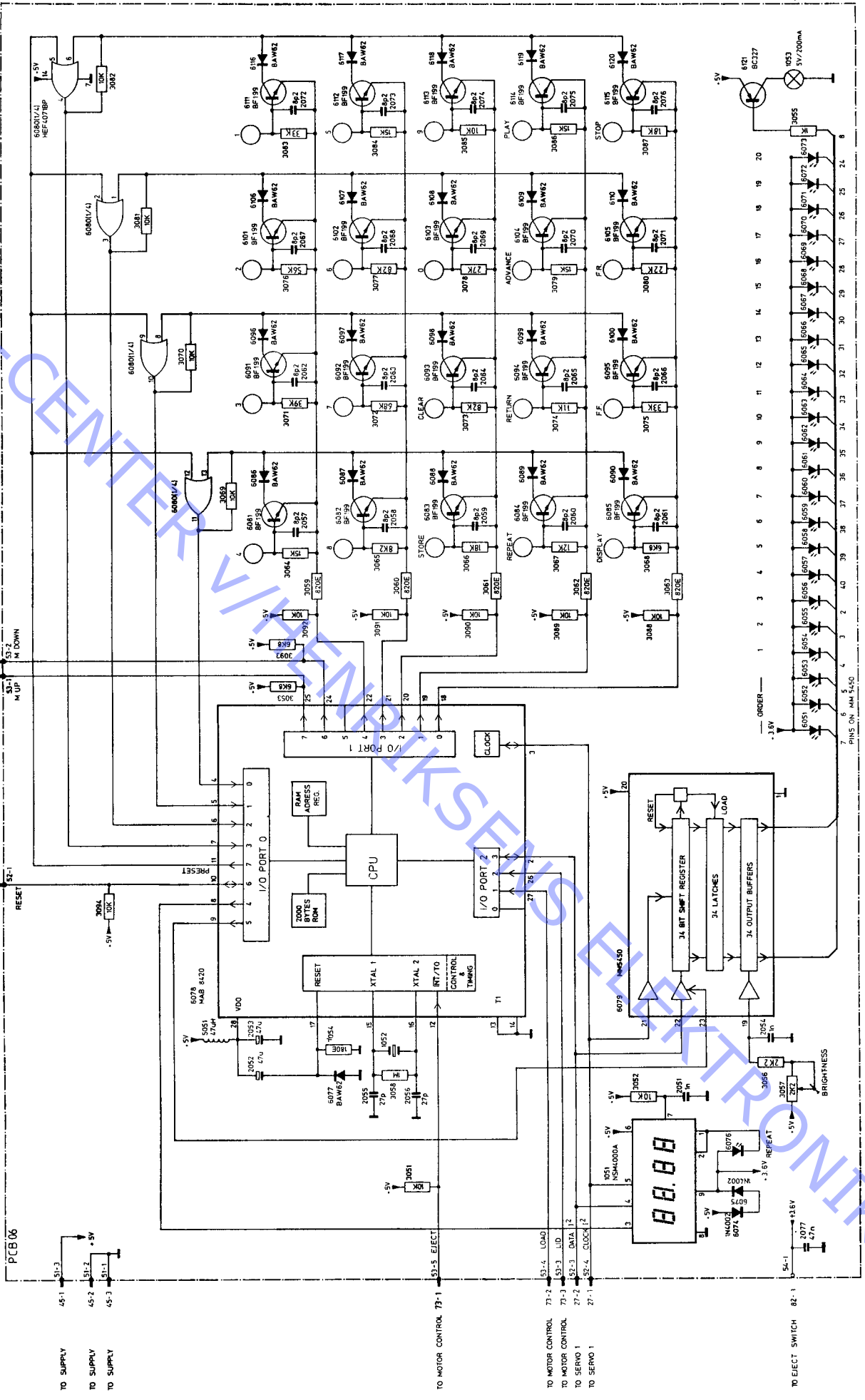
CONTROL AND DISPLAY



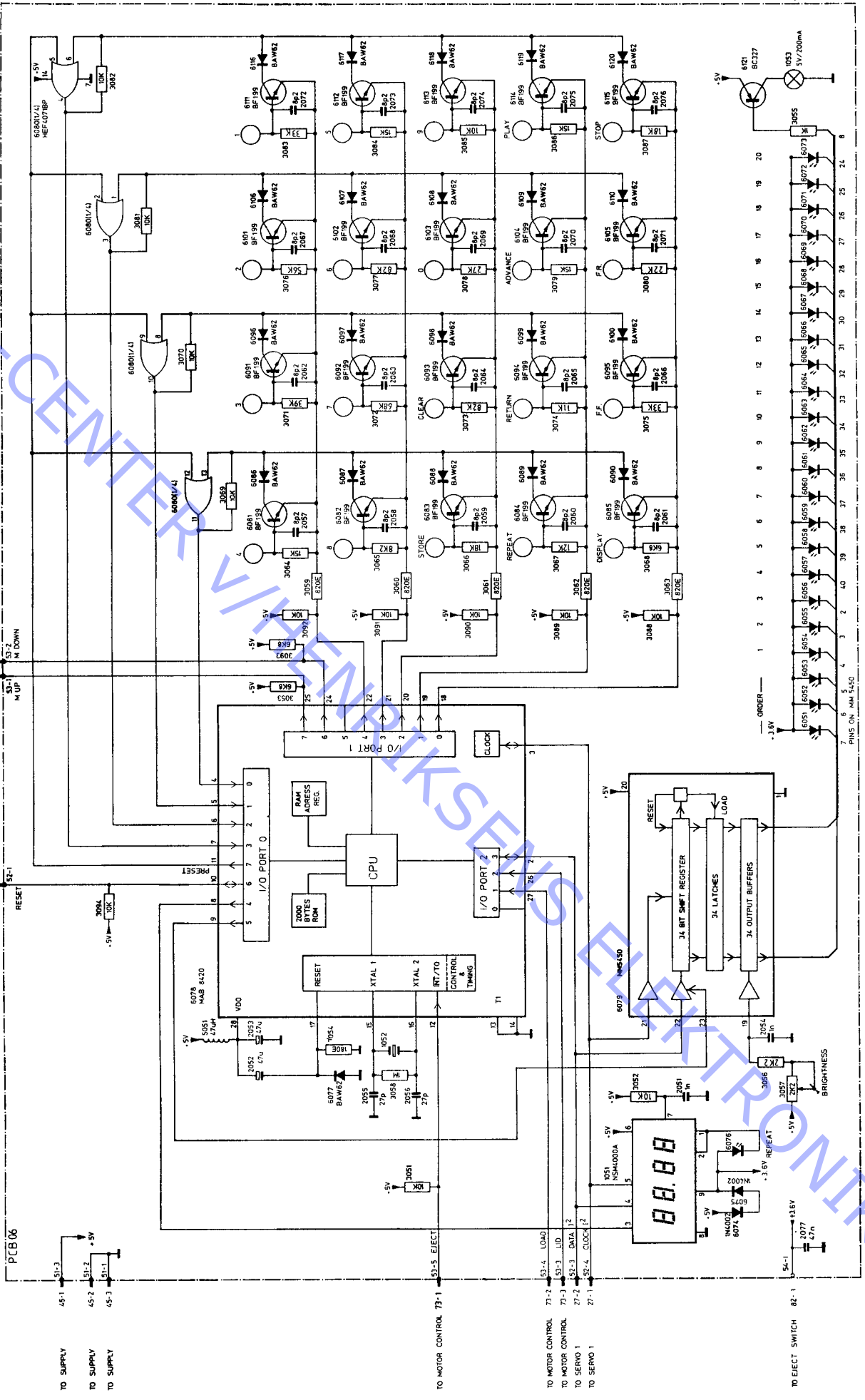
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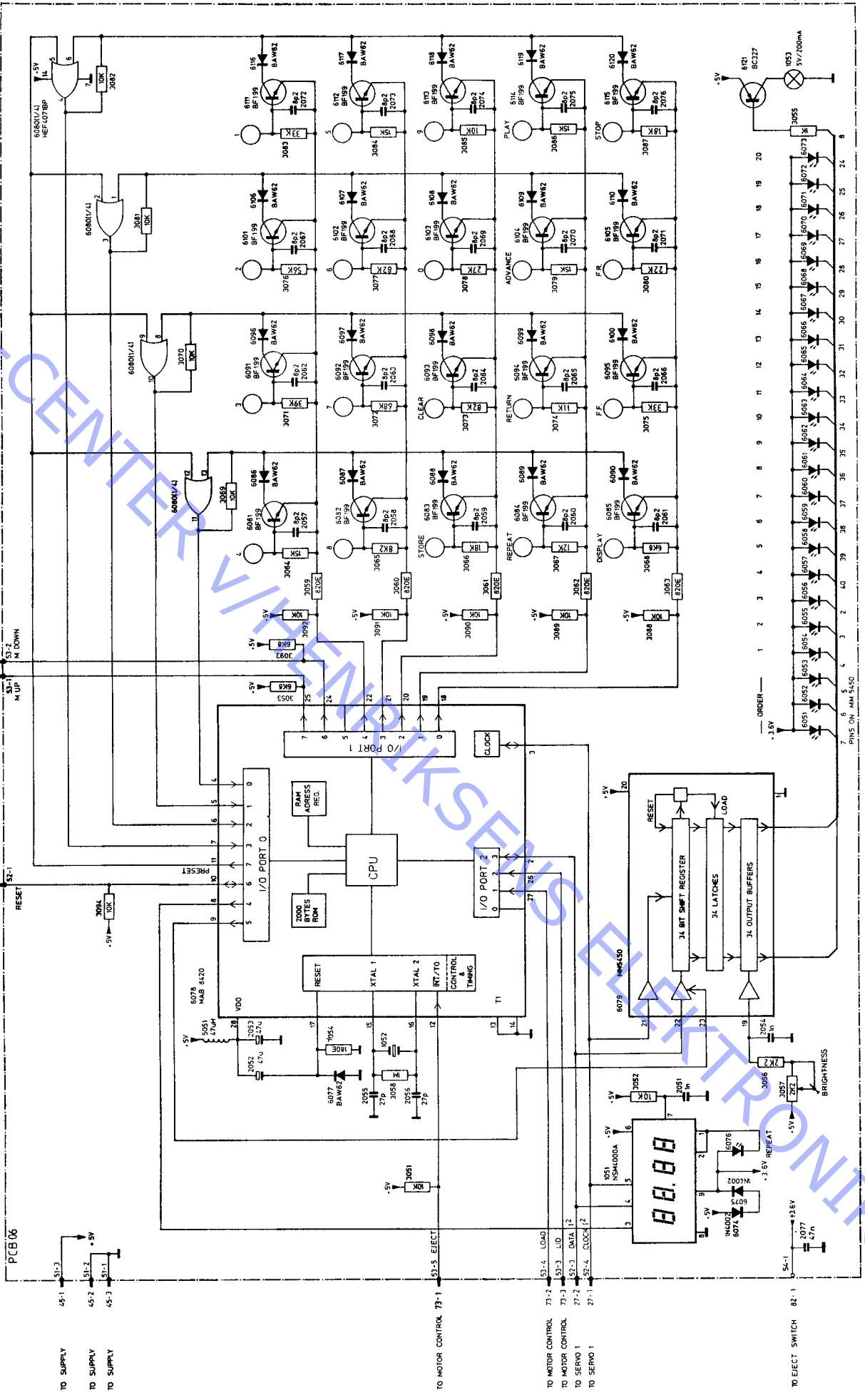
CONTROL AND DISPLAY



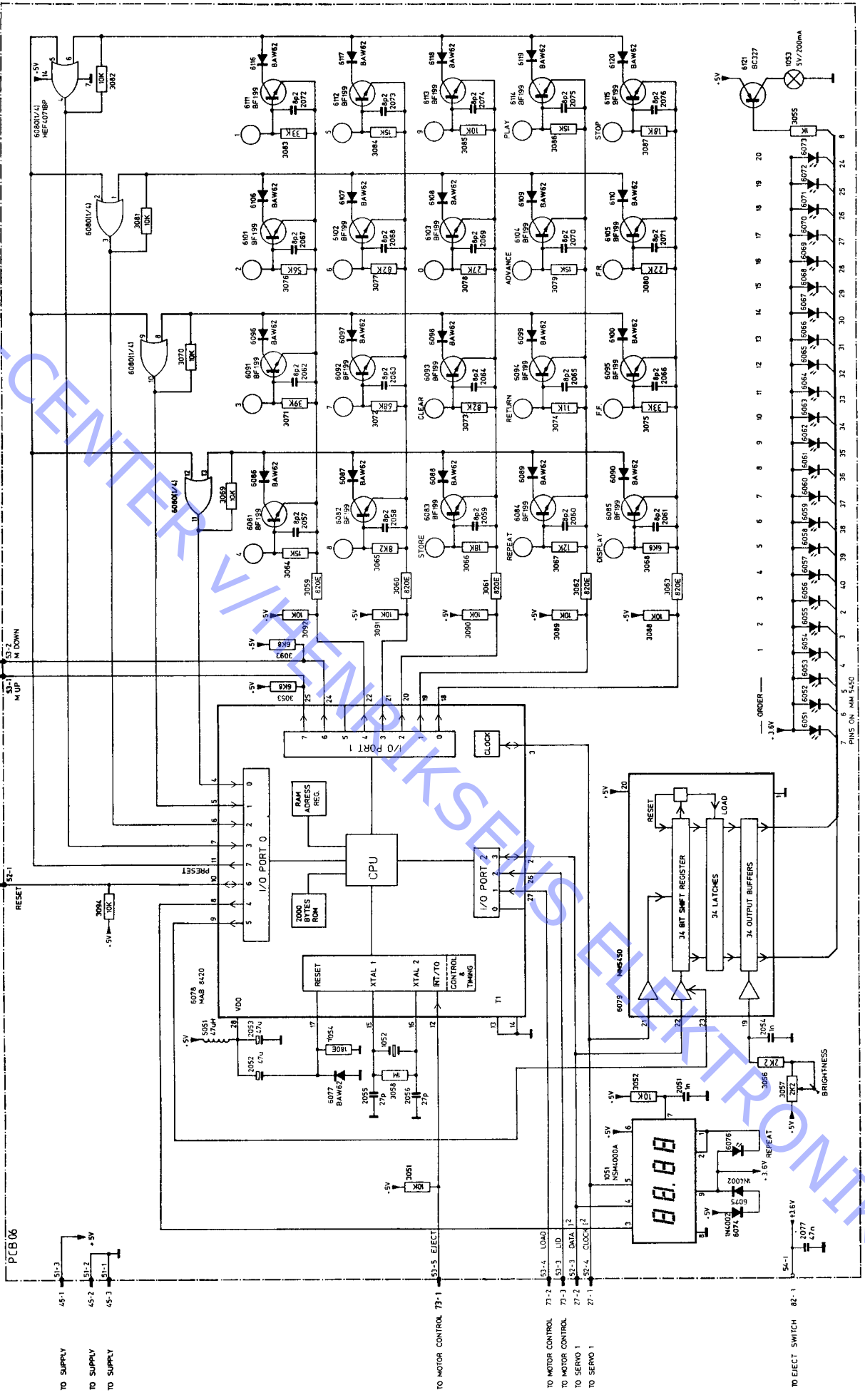
CONTROL AND DISPLAY



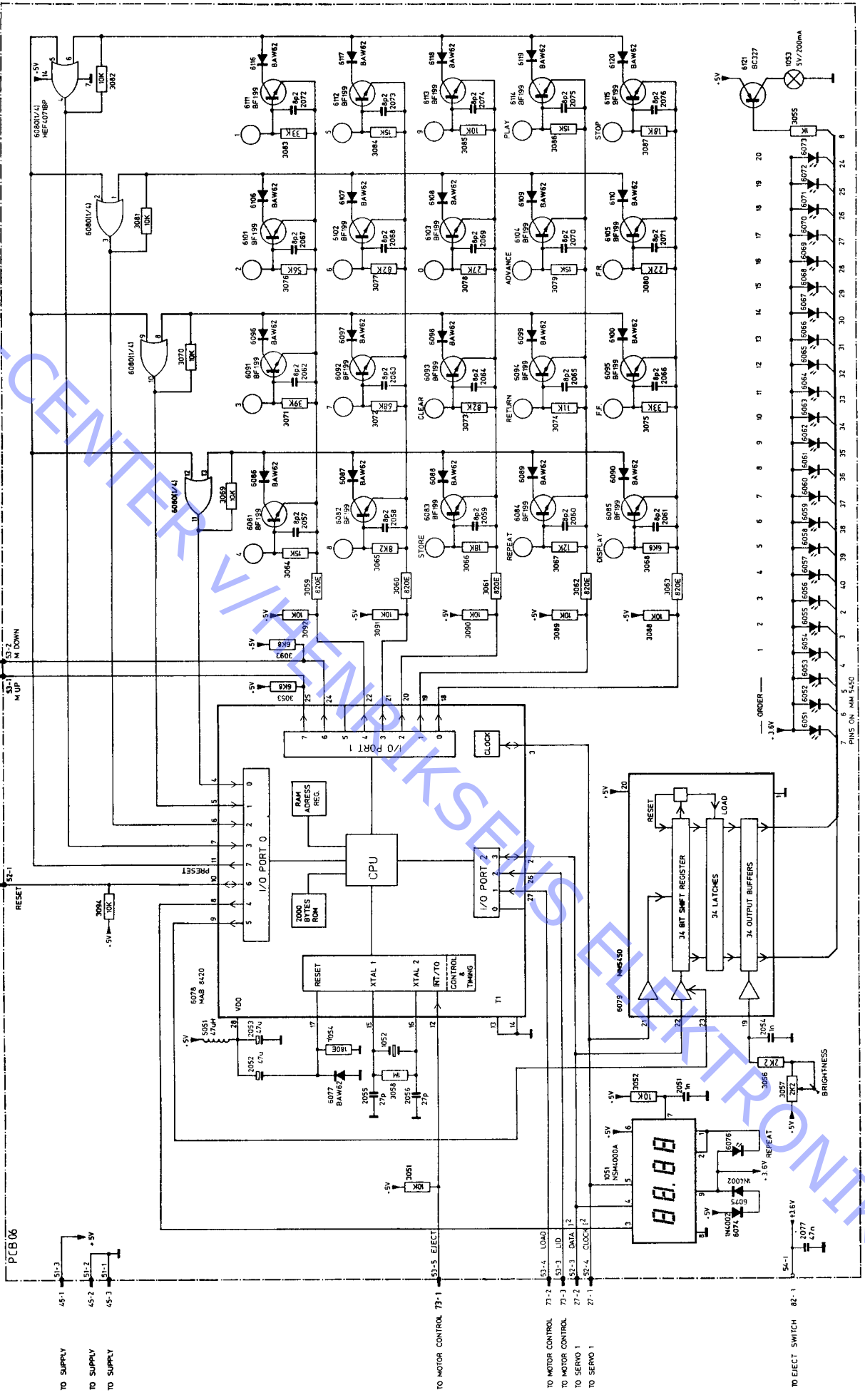
CONTROL AND DISPLAY



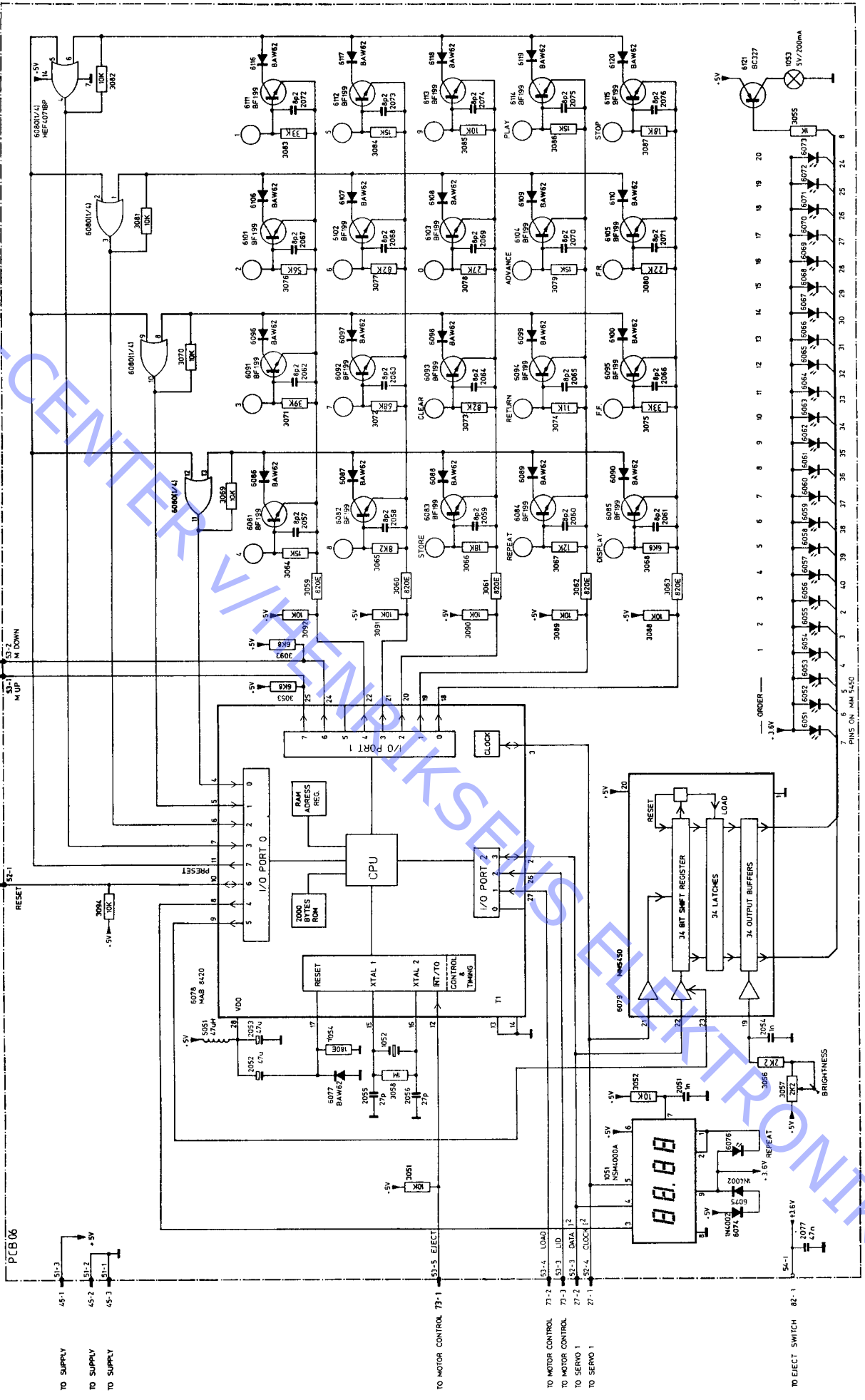
CONTROL AND DISPLAY



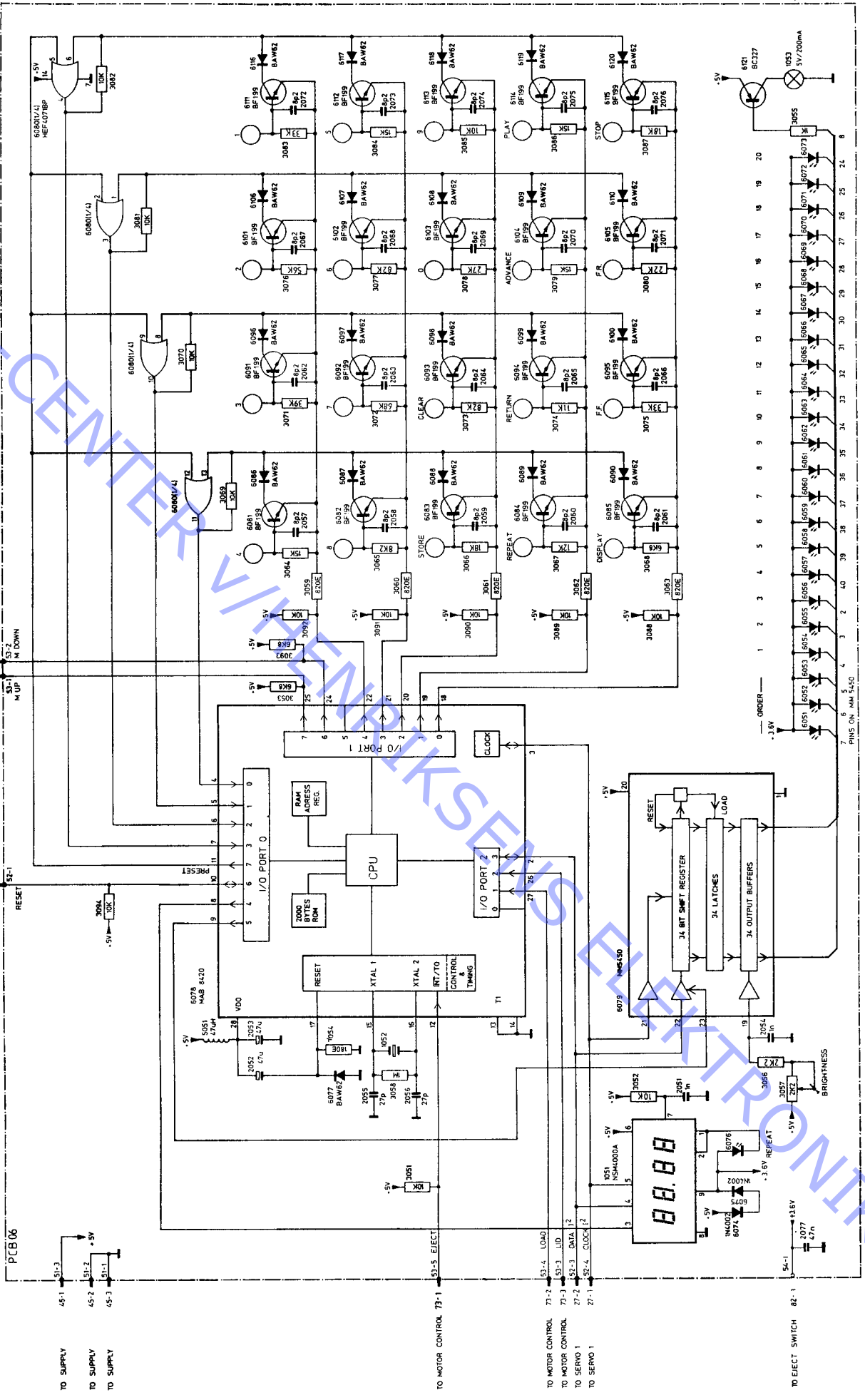
CONTROL AND DISPLAY



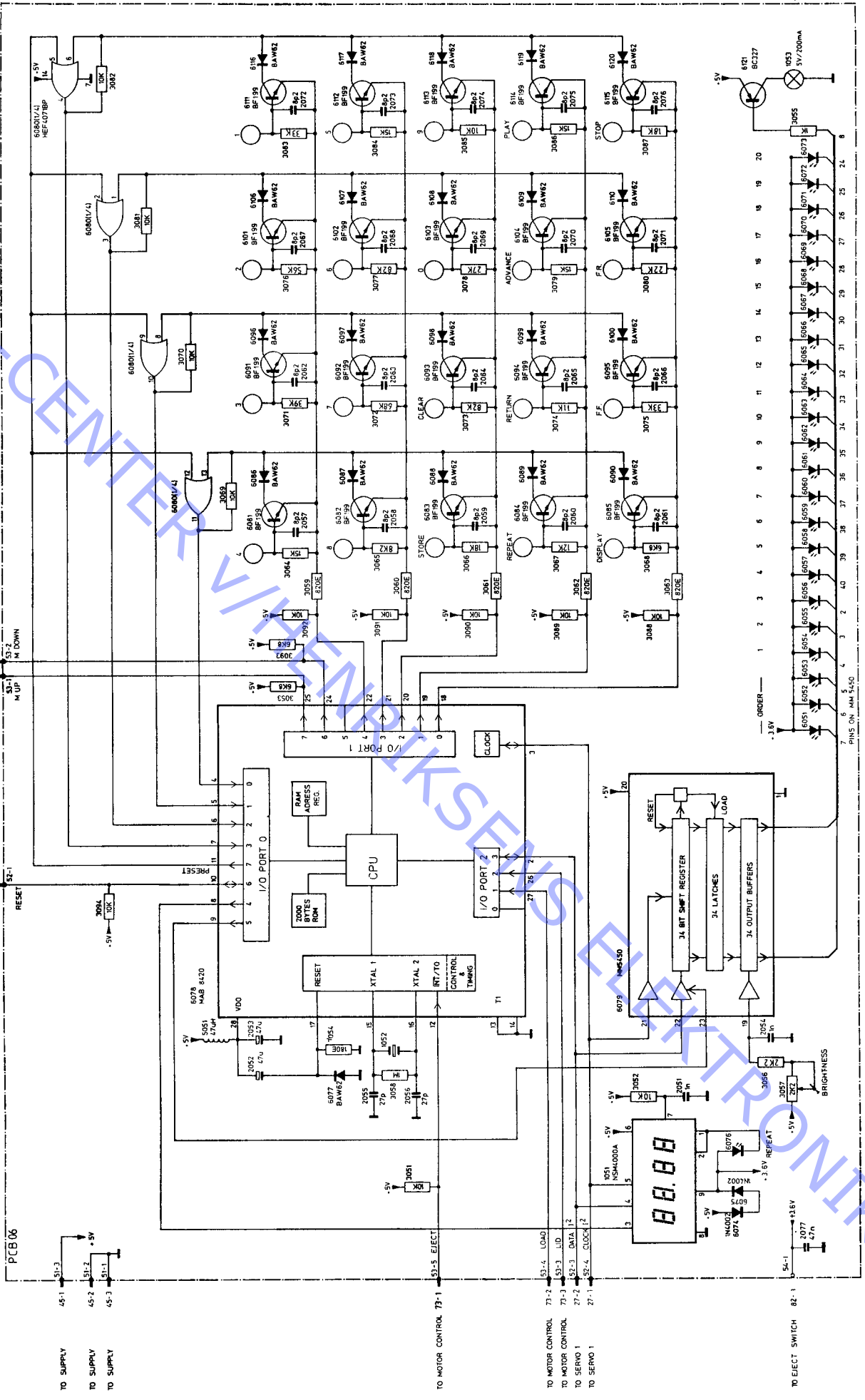
CONTROL AND DISPLAY



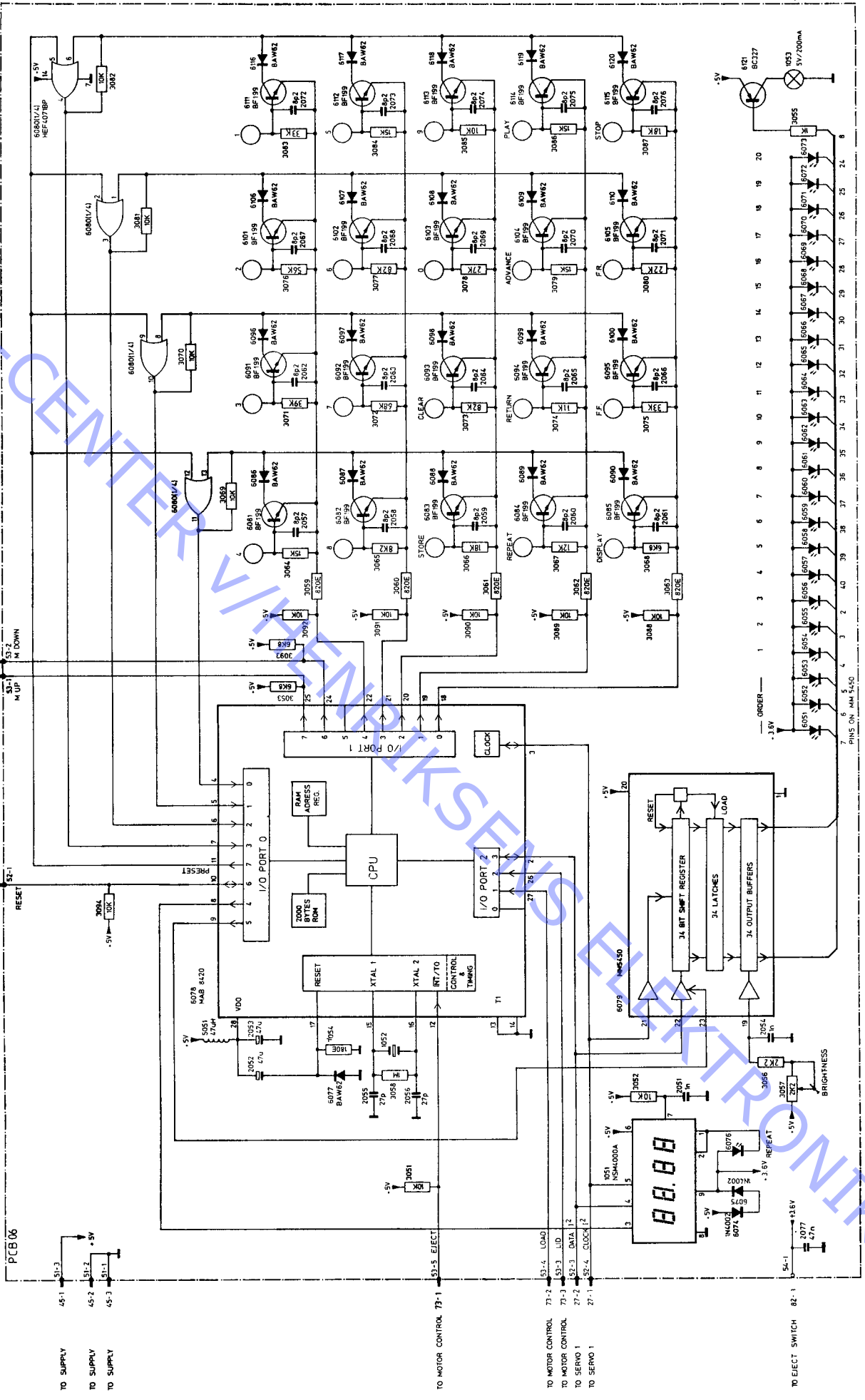
CONTROL AND DISPLAY



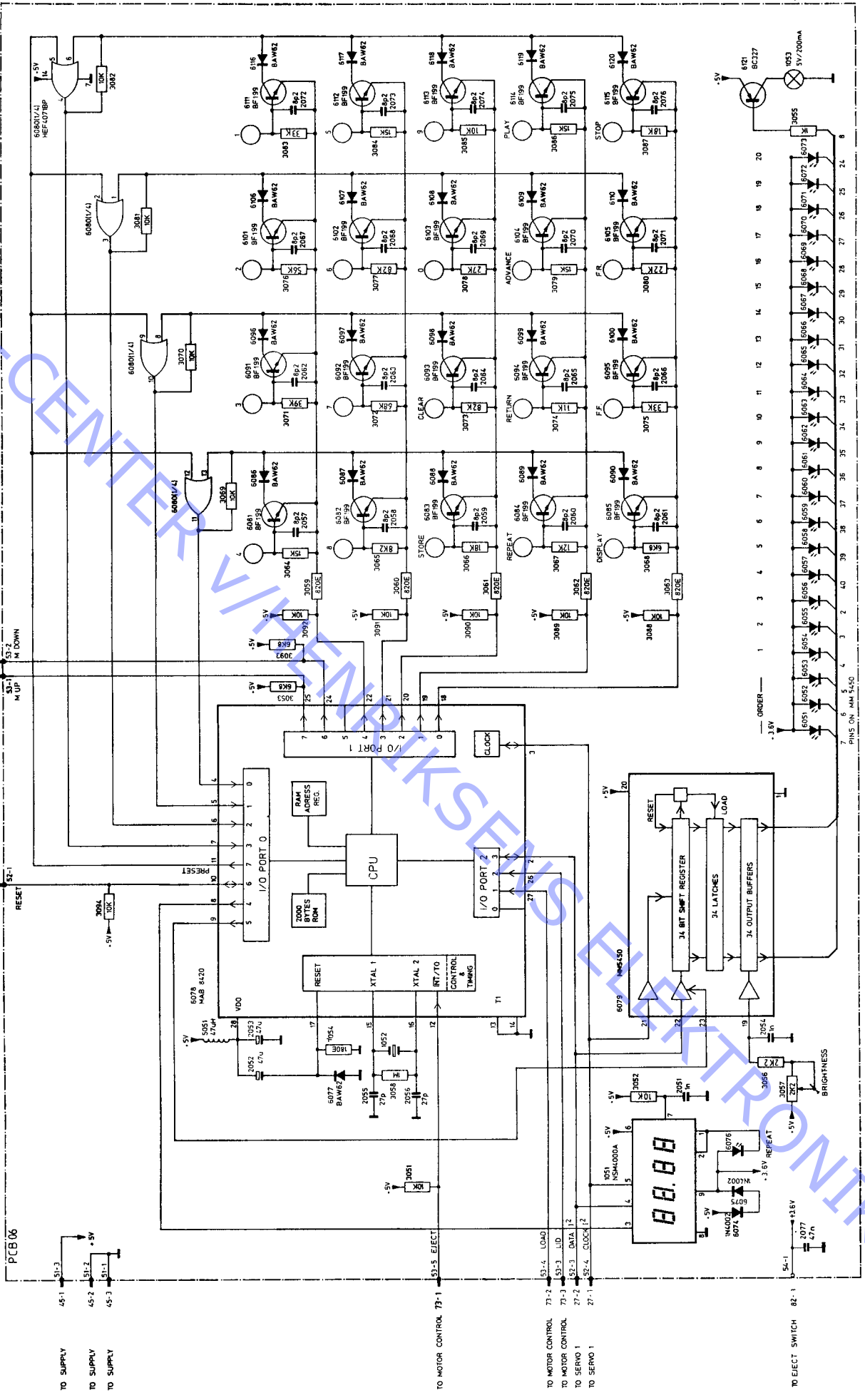
CONTROL AND DISPLAY



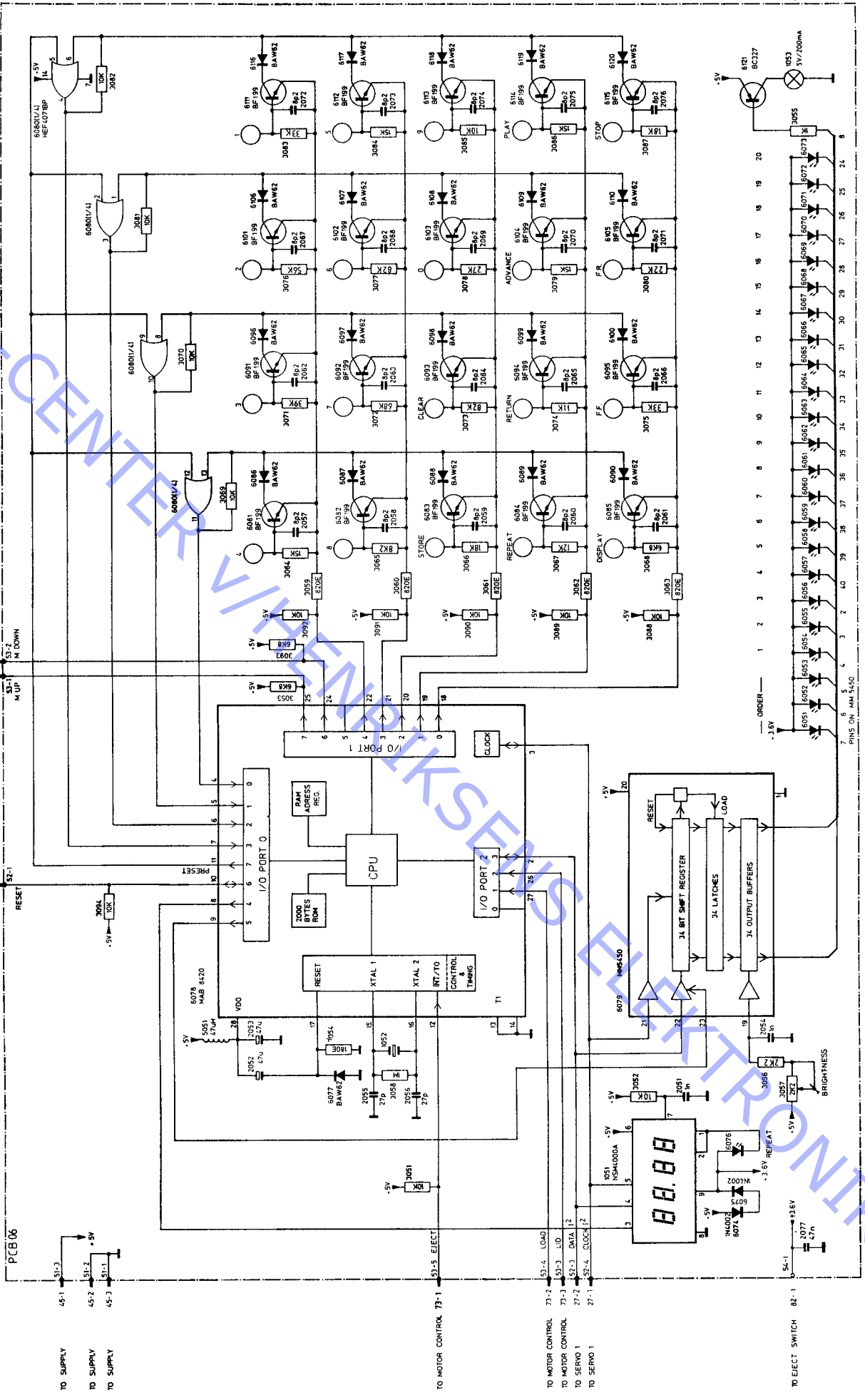
CONTROL AND DISPLAY



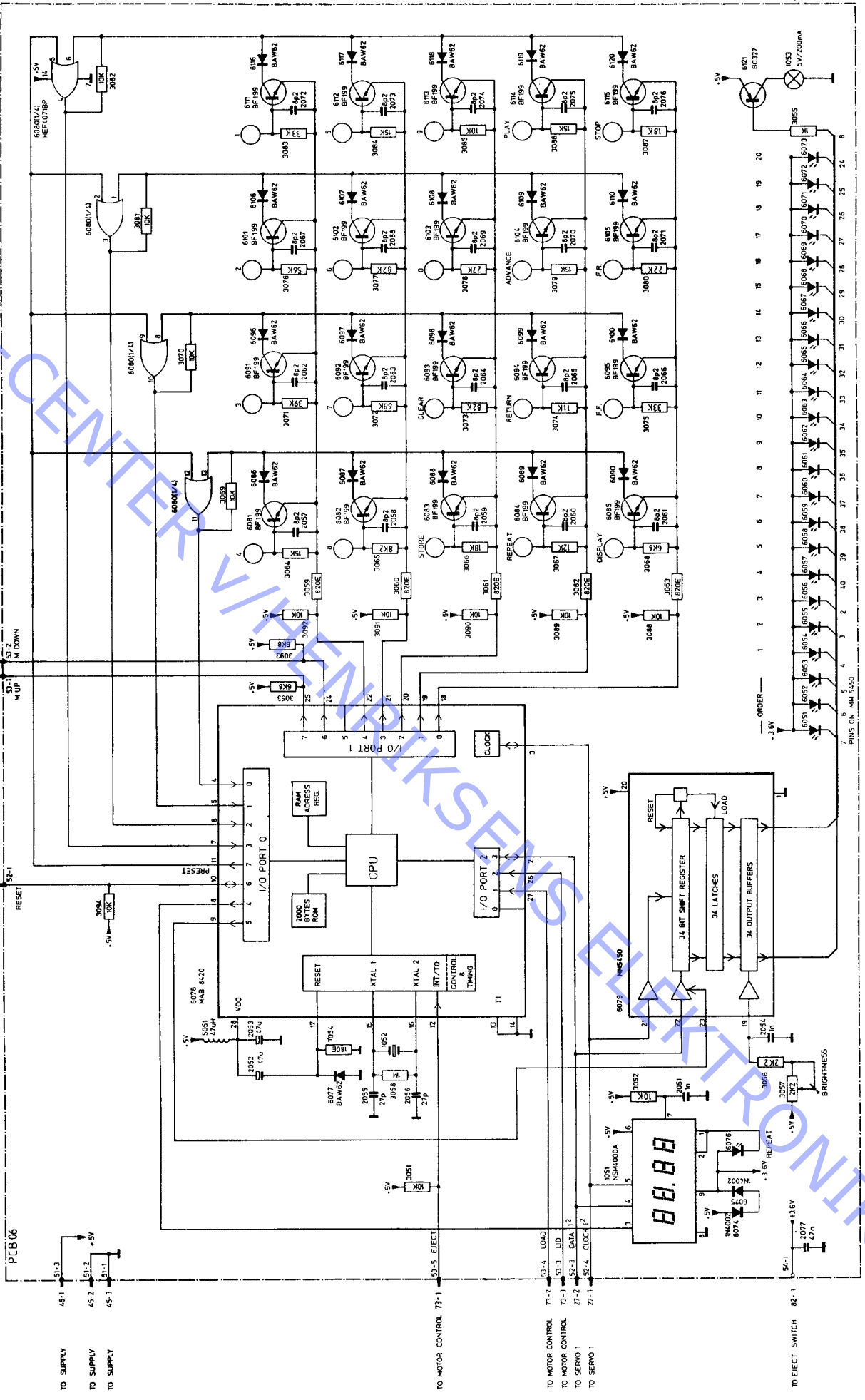
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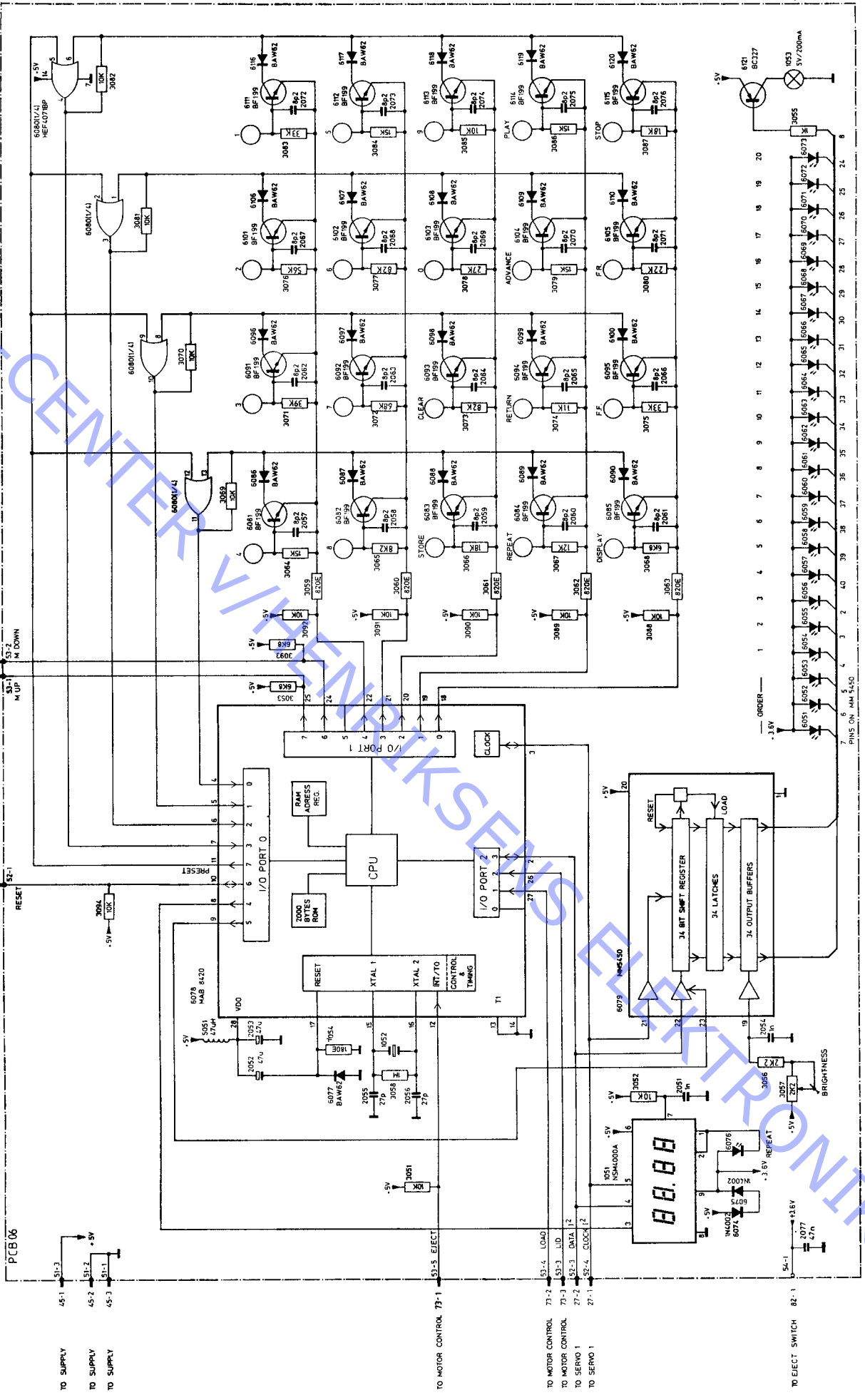
CONTROL AND DISPLAY



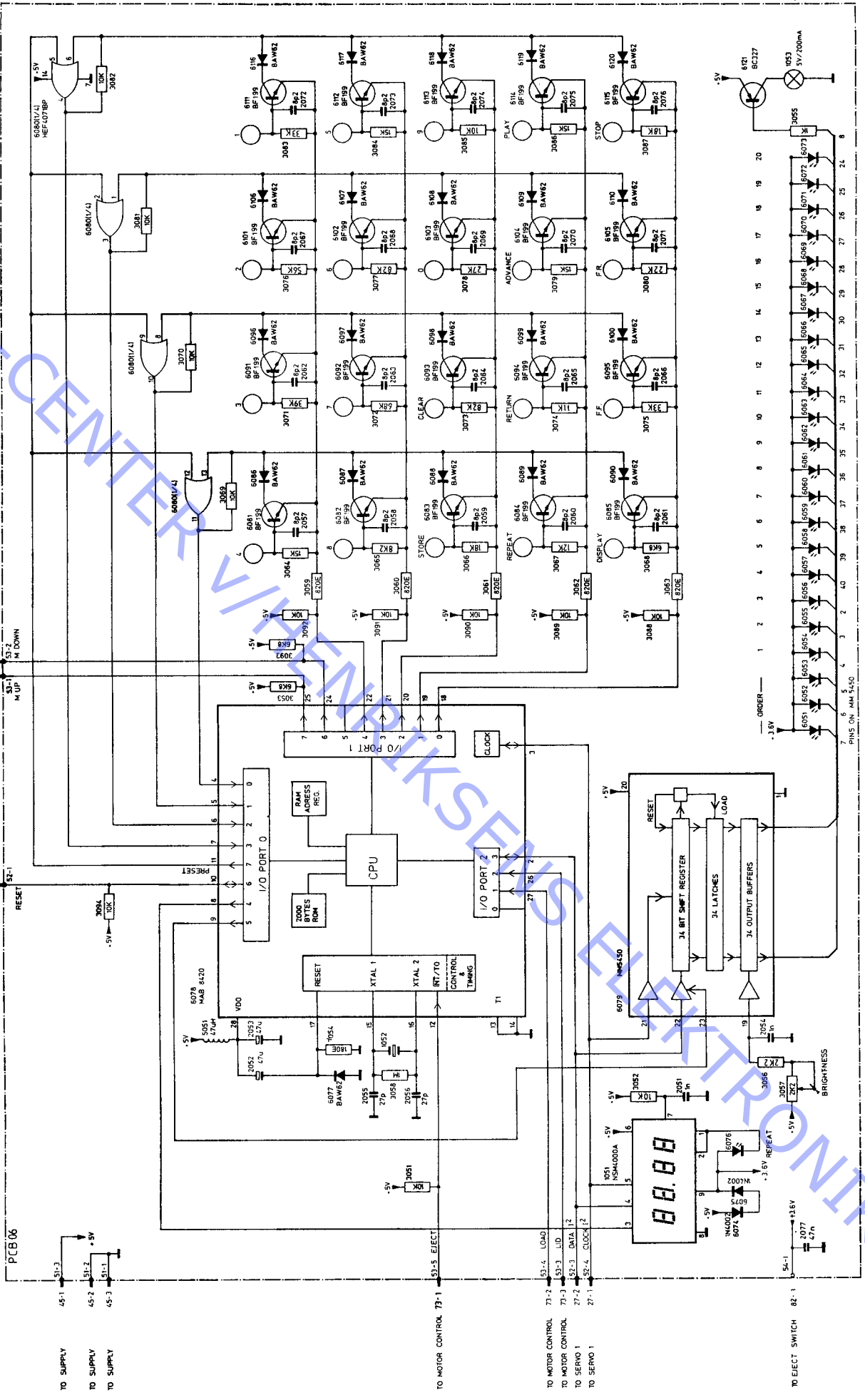
CONTROL AND DISPLAY



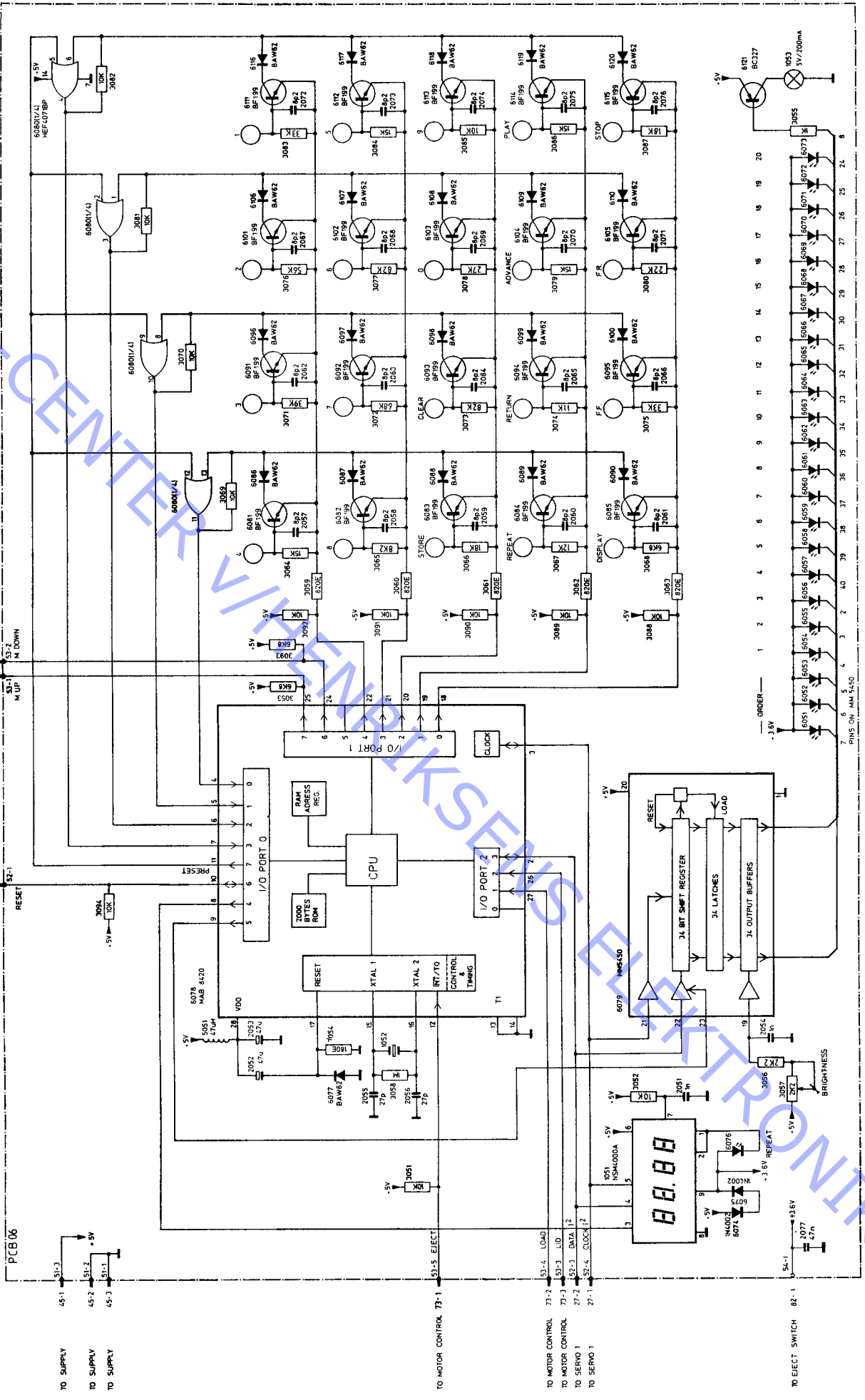
CONTROL AND DISPLAY



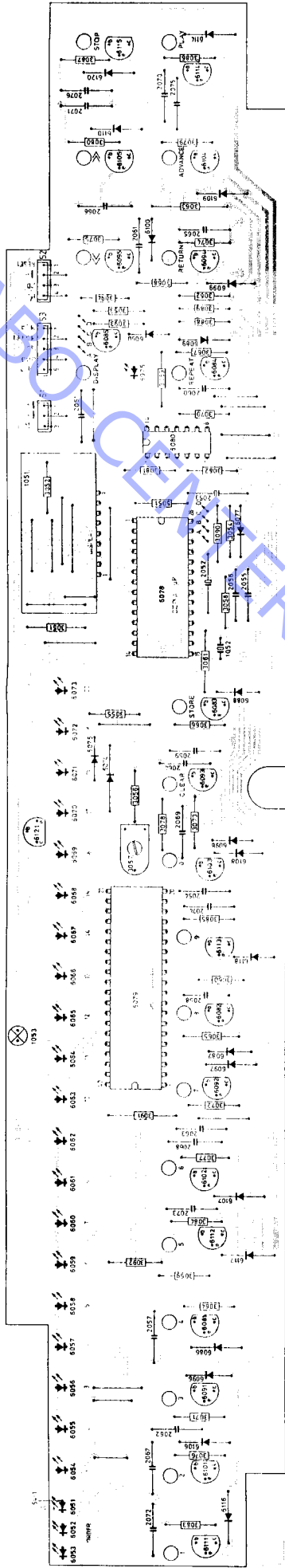
CONTROL AND DISPLAY



CONTROL AND DISPLAY



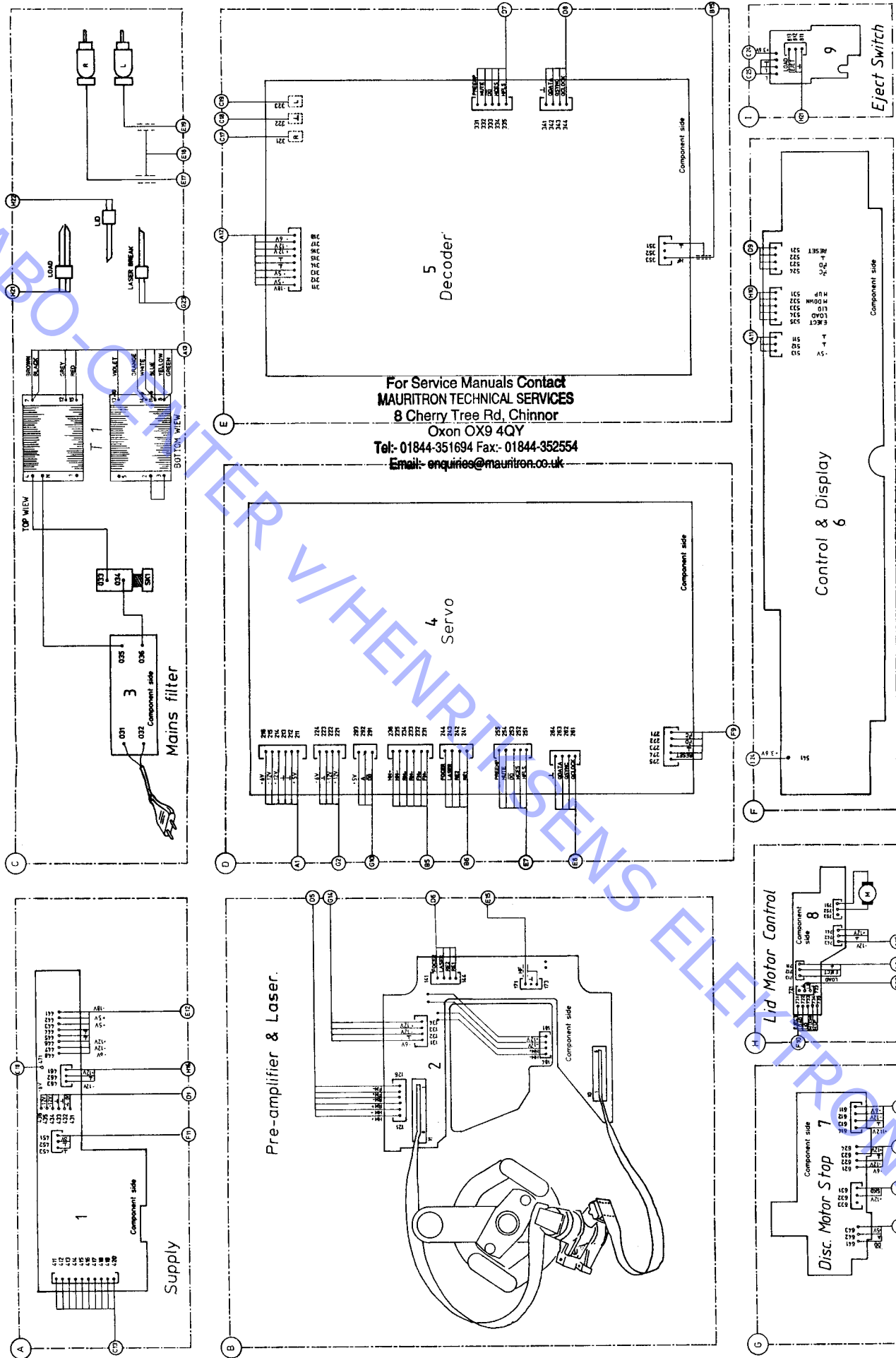
CONTROL AND DISPLAY 8005167 - PCB6



Semi-conductors

	20	42	124	136	209	230	
Transistors	6081-	8320281 42	BF 199				6111 8320281 42 BF 199
	6085						6115
	6091-	8320281 42	BF 199				6121 8320316 20 BC 327
	6095						
	6101	8320281 42	BF 199				
IC's	6078A	8340844 136	MAB 8440				6080Δ 8340816 136 HEF 4071 BP
	6079A	8340467 124	MM 5450N				
	6051-	8330143 30	Red				6086- 8300359 209 BAW 62
	6053						6090
	6054-	8330144 230	Green				6096- 8300359 209 BAW 62
Diodes	6073						6100
	6074	8300023 209	1N4002				6106- 8300359 209 BAW 62
	6075						6110
	6076	8330143 230	Reed				6116- 8300359 209 BAW 62
	6077	8300359 209	BAW 62				6120
Display	1051	8330146	NSM 4000A				

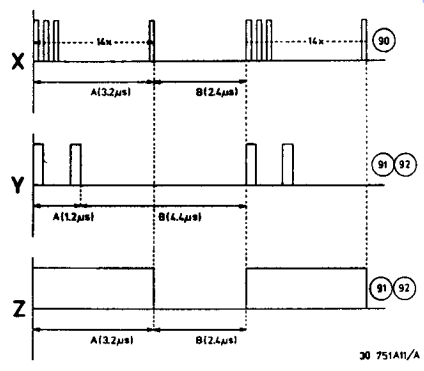
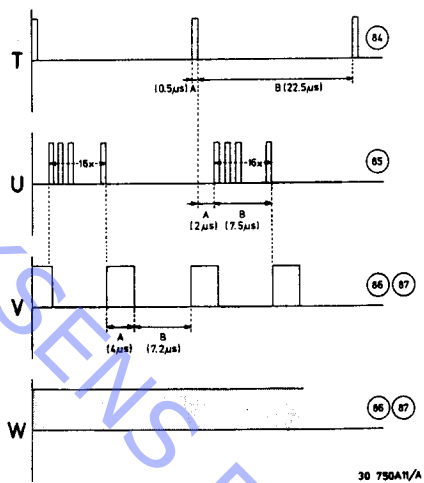
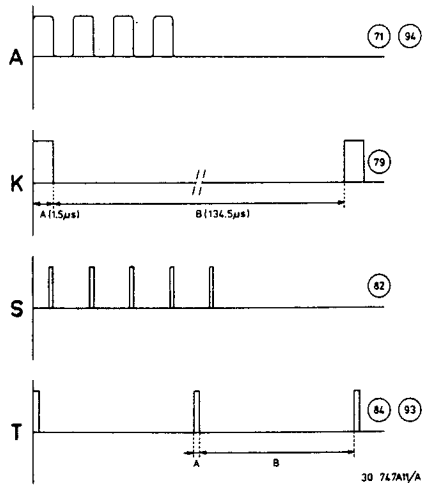
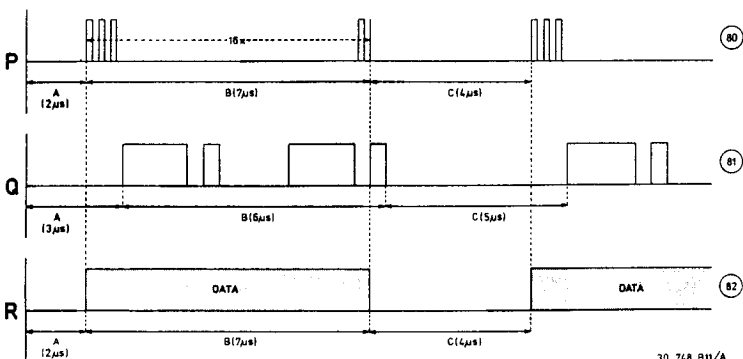
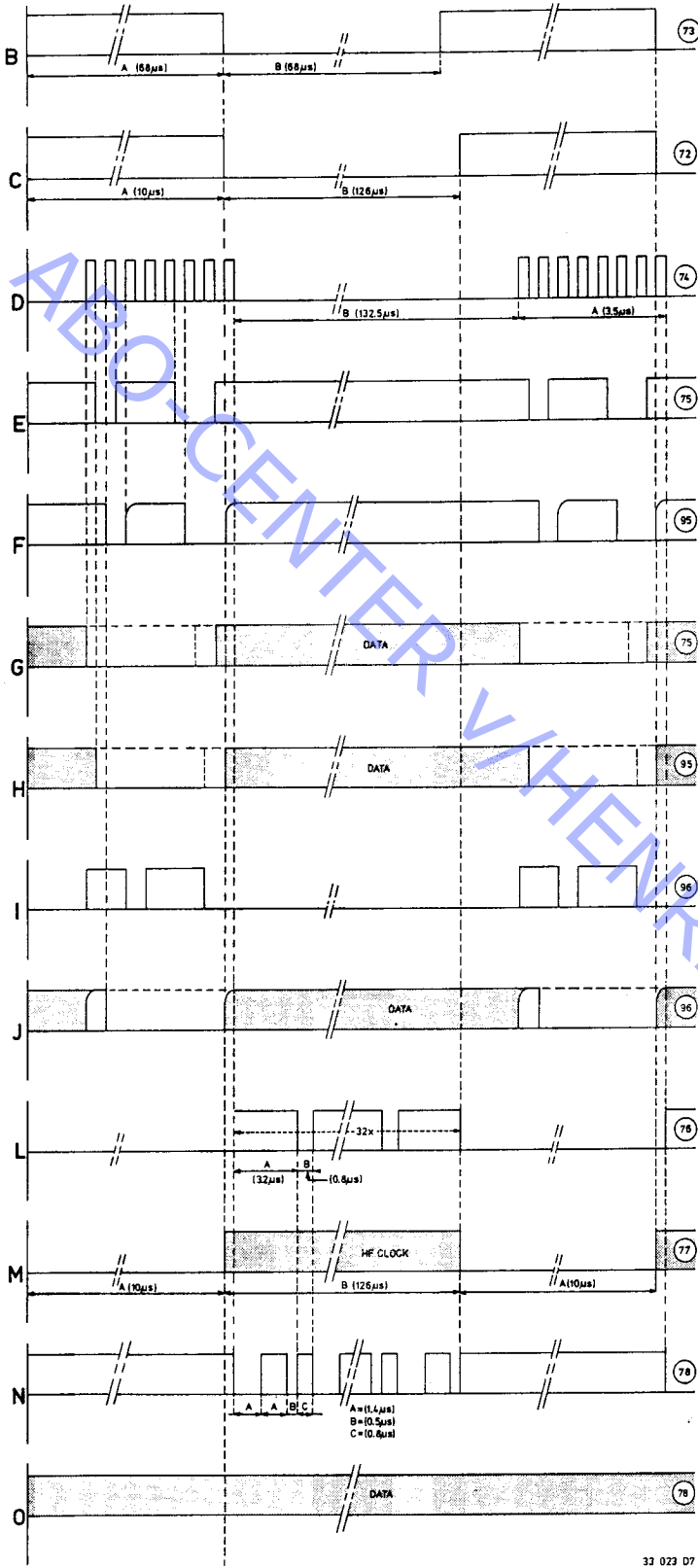
WIRING DIAGRAM



DECODING

Test Point	See	Position	Amplitude	f	Time base
71	A	pause/play	0-5 V	4,32 MHz	
72	C	pause/play	0-5 V		A = 10* μ s B = 126 μ s
73	B	pause/play*	0-5 V	7,35 KHz	A = 68 μ s B = 68 μ s
74	D	pause/play	5-0 V		A = 3,5 μ s B = 132,5 μ s
75	E	pause	5-0 V		A = 3,5 μ s B = 132,5 μ s
75	G	play	0-5 V	DATA	
76	L	pause/play	0-5 V		A = 3,2 μ s B = 0,8 μ s
77	M	pause/play	0-5 V		A = 10 μ s B = 126 μ s
78	N	pause	0-5 V		A = 1,4 μ s B = 0,5 μ s C = 0,8 μ s
78	O	play	5 V	DATA	
79	K	pause/play	0-5 V		A = 1,5 μ s B = 134,5 μ s
80	P	pause/play	0-5 V		A = 2 μ s B = 7 μ s C = 4 μ s
81	Q	pause/play	0-5 V		A = 3 μ s B = 6 μ s C = 5 μ s
81	R	play	0-5 V		A = 2 μ s B = 7 μ s C = 4 μ s
82		pause	5 V	DC	
82	S	play with Drop-out test record	0-5 V		
84	T	pause/play	0-5 V		A = 0,5 μ s B = 22,5 μ s
85	U	pause/play	0-5 V		A = 2 μ s B = 7,5 μ s
86	V	pause/play	0-5 V		A = 4 μ s B = 7,2 μ s
86	W	pause/play	0-5 V		DATA
87	V	pause/play	5 V		A = 4 μ s B = 7,2 μ s
87	W	play	5 V		DATA
90	X	pause/play	0-5		A = 3,2 μ s B = 2,4 μ s
91	Y	pause	0-5 V		A = 1,2 μ s B = 4,4 μ s
91	Z	play	0-5 V		A = 3,2 μ s B = 2,4 μ s
92	Y	pause	0-5 V		A = 1,2 μ s B = 4,4 μ s
92	Z	play	0-5 V		A = 3,2 μ s B = 2,4 μ s
93	T	pause/play	0-5 V		A = 0,4 μ s B = 5,5 μ s
94	A	pause/play	0-5 V	4,23 MHz	
95	F	pause	5-0 V		
95	H	play	5-0 V		
96	I	pause	0-5 V		
96	J	play	5-0 V		

* In pos. pause, signal is only present after the set was brought in play mode.



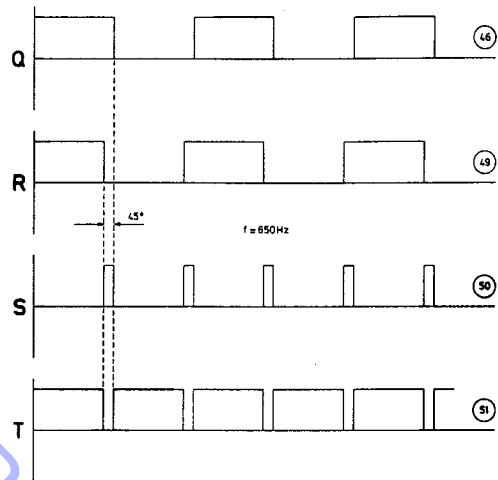
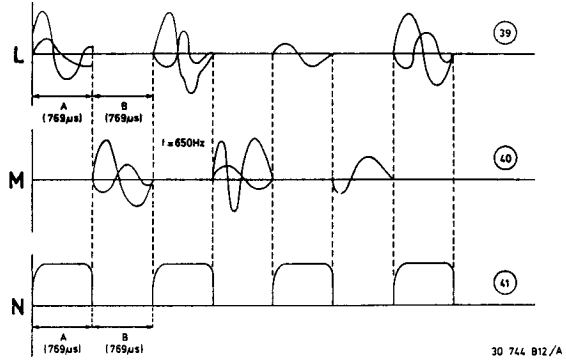
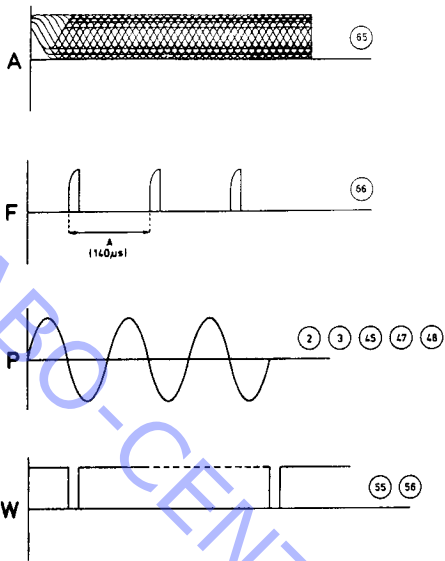
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SERVO

Test point	See	Position	Amplitude	f	Time base
29	P	stop	0.3 Vp-p		
39	L	play	0-4 Vp-p		A = 769 μ s B = 769 μ s
40	M	play	0-4 Vp-p		A = 769 μ s B = 769 μ s
41	N	play	6 Vp-p		A = 769 μ s B = 769 μ s
45	P	stop	9 Vp-p	650 Hz	
46	Q	stop	0-5 V	650 Hz	A = 769 μ s B = 769 μ s
47	P	stop	1.5 Vp-p	650 Hz	
48	P	stop	1 Vp-p	650 Hz	
49	R	stop	0-5 V	650 Hz	
50	S	stop	0-5 V	650 Hz	
51	T	stop	5-0 V	650 Hz	
55	W	play	5-0 V		
56	W	play (with drop out test record)	5-0 V		
65	A	play	1 Vp-p		
66	F	play	0.25-2.5 V		A = 140 μ s

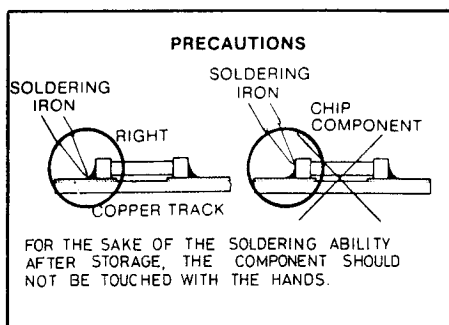
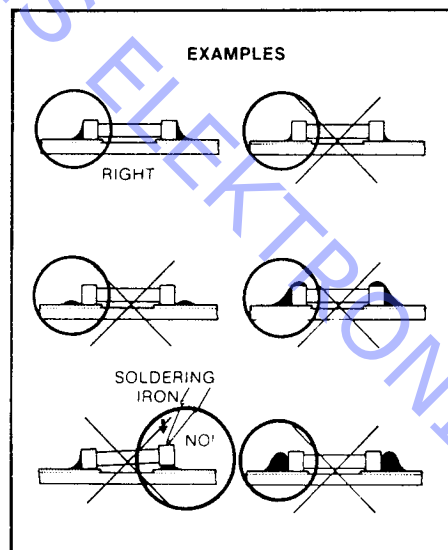
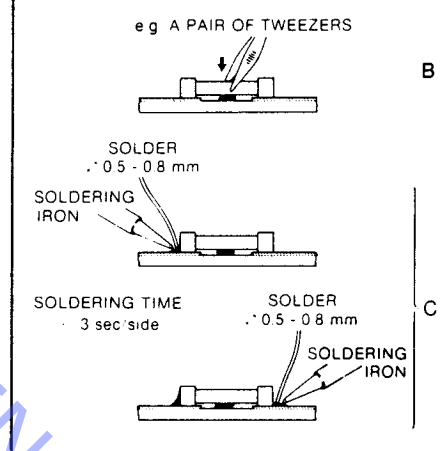
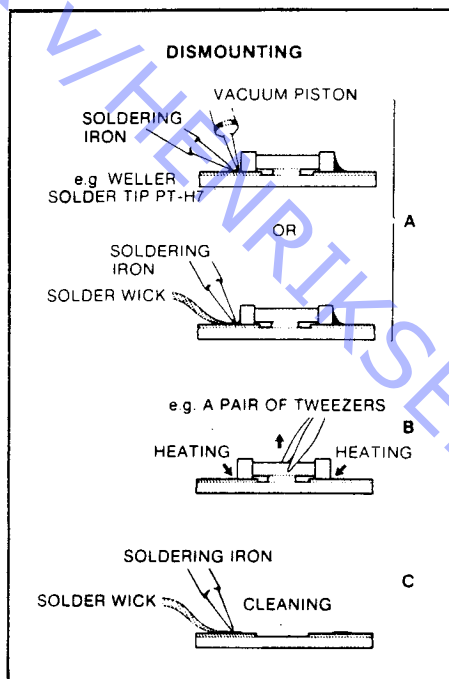
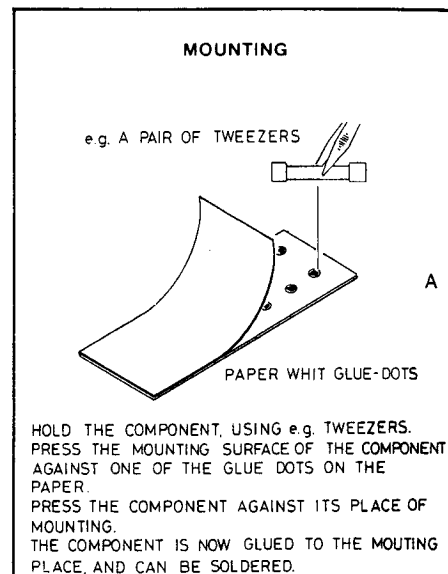
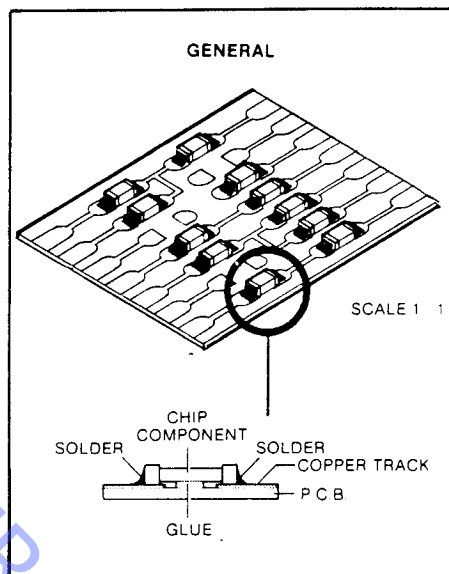
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LIST OF ELECTRICAL PARTS

In the player chip components have been applied. For insertion and removal of chip components see the figure below



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Chip capacitor



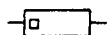







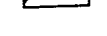

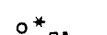


27pF	4000244	1.5nF	4000251
33pF	4000245	2.2nF	4000252
39pF	4000246	5.6nF	4000253
68pF	4000247	10nF	4000254
100pF	4000248	22nF	4000255
470pF	4000249	100nF	4000256
820pF	4000250		

Chip resistor 2% 0,125W 1206

2.2 Ω	5011216	13 k Ω	5011242
3.3 Ω	5011217	15 k Ω	5011243
47 Ω	5011269	18 k Ω	5011244
82 Ω	5011270	22 k Ω	5011245
100 Ω	5011218	24 k Ω	5011246
120 Ω	5011219	27 k Ω	5011247
150 Ω	5011220	33 k Ω	5011248
390 Ω	5011221	36 k Ω	5011249
470 Ω	5011222	47 k Ω	5011250
560 Ω	5011223	56 k Ω	5011251
620 Ω	5011224	68 k Ω	5011252
680 Ω	5011225	75 k Ω	5011253
820 Ω	5011226	82 k Ω	5011254
		91 k Ω	5011255
1 k Ω	5011227	100 k Ω	5011256
1.5 k Ω	5011228	120 k Ω	5011257
1.8 k Ω	5011229	130 k Ω	5011258
2.2 k Ω	5011230	150 k Ω	5011259
2.7 k Ω	5011231	180 k Ω	5011260
3.3 k Ω	5011232	220 k Ω	5011261
3.9 k Ω	5011233	270 k Ω	5011262
4.7 k Ω	5011234	330 k Ω	5011263
5.1 k Ω	5011235	360 k Ω	5011264
5.6 k Ω	5011236	470 k Ω	5011265
6.2 k Ω	5011237	820 k Ω	5011266
6.8 k Ω	5011238		
7.5 k Ω	5011239	1 M Ω	5011267
8.2 k Ω	5011240	5.6 M Ω	5011268
10 k Ω	5011241		

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Each parts number for chip component includes 10 pieces and glue dots.

	Carbon film 0.2 W 70°C 5%		Ceramic plate Tuning \leq 120 pF NP.0 2% Others -20/+80%	*a = 2.5 V b = 4 V c = 6.3 V d = 10 V e = 16 V f = 25 V g = 40 V h = 63 V j = 100 V l = 125 V m = 150 V n = 160 V q = 200 V r = 250 V s = 300 V t = 350 V u = 400 V v = 500 V w = 630 V x = 1000 V A = 1.6 V B = 6 V C = 12 V D = 15 V E = 20 V F = 35 V G = 50 V H = 75 V J = 80 V
	Carbon film 0.33 W 70°C 5%		Polyester flat foil 10%	
	Metal film 0.33 W 70°C 5%		Metalized polyester flat film 10%	
	Carbon film 0.5 W 70°C 5%		Polyester flat foil small size (Mylar) 10%	
	Carbon film 0.67 W 70°C 5%		Polysterene film/foil 1%	
	Carbon film 1.15 W 70°C 5%		Tubular ceramic	
			Miniature single	
			Subminiature tantalum \pm 20%	
	Chip component			

Power Supply 8005168 - PCB1

2451	4200220	33 μ F 16V	2463	4010162	47 nF 50V
2452	4200220	33 μ F 16V	2464	4010162	47 nF 50V
2453	4200121	22 μ F 40V	2465	4010162	47 nF 50V
2454	4200220	33 μ F 16V	2466	4010169	220 μ F 25V
2455	4200220	33 μ F 16V	2467	4010162	47 nF 50V
2456	4200220	33 μ F 16V	2468	4010162	47 nF 50V
2457	4200642	1500 μ F 25V	2469	4010163	22 nF 100V
2458	4200612	1000 μ F 25V	2470	4010163	22 nF 100V
2469	4200641	3300 μ F 16V	2471	4010162	47 nF 50V
2460	4200642	1500 μ F 16V	2472	4010162	47 nF 50V
2461	4200641	3300 μ F 16V	2473	4030020	1 nF 30V
2462	4010162	47 nF 50V			

**Pre. Ampl. & Laser
8005173 - PCB2**

P41	7220316	Plug 10 pol.			
3132	5370061	47 k Ω 20%	3146	5010047	120 k Ω 5% 1/4W
3138	5370006	2.2 k Ω 20%	3166	5020580	56 Ω 5% 1W
3140	5370050	1 k Ω 20%			

2120	4200414	33 μ F 16V	2123	4200414	33 μ F 16V
2121	4200414	33 μ F 16V	2124	4200414	33 μ F 16V
2122	4200414	33 μ F 16V			

1101	8005175	Thick film			
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Mains Filter 8005169 - PCB3

A11	7220472	Plug 8pol.	A12	7220471	Plug 6pol.
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2701	4010123	1 nF 400V	2703	4100253	100 nF 250V
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1701	6600037	Fuse 200mA	7500214	Fuse holder	
	6600059	Fuse 400mA			

5451	6850162	Coil 2x25mH			
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Servo 8005165 - PCB4

92T1	8013352	Transformer 5121/22/25	92F1	6609021	Thermal fuse 5121/22/25
	8013372	Transformer 5123		6609022	Thermal fuse 5123

3228	5011280	150 k Ω SFR 16T	3335	5010062	68 k Ω 5% 1/4W
3229	5011278	2.7 k Ω SFR 16T	3341	5010935	10 k Ω 5% 1/4W
3230	5010135	18 k Ω 5% 1/4W	3363	5010935	10 k Ω 5% 1/4W
3256	5020761	4.7 Ω 5% 1/4W	3379	5010935	10 k Ω 5% 1/4W
3273	5020761	4.7 Ω 5% 1/4W	3384	5011277	9.4 Ω PTC 60V
3291	5011279	47 k Ω SFR 16T	3385	5011277	9.4 Ω PTC 60V

2203	4200632	10 μ F 10V	2237	4130302	33 nF 10% 63V
2204	4130224	100 nF 10% 63V	2238	4100114	5.6 nF 2% 63V
2205	4100048	27 nF 1% 63V	2239	4100042	390 pF 2% 630V
2207	4200640	33 μ F 40V	2243	4130293	470 nF 10% 63V
2208	4010159	47 nF 50V	2244	4100259	680 pF 2% 250V
2209	4200639	47 μ F 25V	2246	4100025	6.8 nF 2% 63V
2211	4130224	100 nF 10% 63V	2247	4100025	6.8 nF 2% 63V
2214	4200486	4.7 μ F 50V	2250	4200414	33 μ F 16V
2215	4100262	390 nF 10% 100V	2251	4130224	100 nF 10% 63V
2216	4130302	33 nF 10% 63V	2256	4100195	1.8 nF 2% 63V
2217	4200633	6.8 μ F 16V	2257	4100025	6.8 nF 2% 63V
2218	4130302	33 nF 10% 63V	2261	4100025	6.8 nF 2% 63V
2219	4130224	100 nF 10% 63V	2262	4100025	6.8 nF 2% 63V
2220	4200634	33 μ F 10V	2264	4200640	33 μ F 40V
2228	4200638	1 μ F 25V	2265	4200640	33 μ F 40V
2233	4130293	470 nF 10% 63V	2266	4200640	33 μ F 40V
2236	4100114	5.6 nF 2% 63V	2267	4130155	1000 nF 10% 100V

1201	8090022	6.000MHz			
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5201	6850160	Coil 47uH	5203	6850160	Coil 47uH
5202	6850160	Coil 47uH			

P21	7220257	Plug 6pol.	P26	7220255	Plug 4pol.
P22	7220255	Plug 4pol.	P27	7220256	Plug 5pol.
P23	7220257	Plug 6pol.	P28	7220256	Plug 5pol.
P24	7220255	Plug 4pol.	P29	7220254	Plug 3pol.
P25	7220256	Plug 5pol.			

2391066	Spring for TR	7200056	Socket for IC
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Decoder 8005166 - PCB5

3574	5010066	1.8 k Ω 5% 1/4W	2583	5010065	100 Ω 5% 1/4W
3582	5010065	100 Ω 5% 1/4W	3595	5010066	1.8 k Ω 5% 1/4W
2501	4200646	22 nF 1% 63V	2580	4130293	0.47 μ F 10% 63V
2502	4200646	22 nF 1% 63V	2581	4130293	0.47 μ F 10% 63V
2504	4200121	22 μ F 40V	2593	4200121	22 μ F 40V
2507	4200121	22 μ F 40V	2601	4200648	5.1 nF 1% 63V
2513	4200121	22 μ F 40V	2602	4200649	15 nF 1% 63V
2515	4200426	1 μ F 50V	2603	4100146	2.2 nF 1% 63V
2517	4200121	22 μ F 40V	2605	4100146	2.2 nF 1% 63V
2518	4200647	150 μ F 6.3V	2606	4200650	1.2 nF 1% 63V
2519	4200121	22 μ F 40V	2608	4200121	22 μ F 40V
2558	2400121	22 μ F 40V	2624	4200121	22 μ F 40V
2566	4200648	5.1 nF 1% 63V	2625	4200121	22 μ F 40V
2567	4200649	15 nF 1% 63V	2627	4200121	22 μ F 40V
2568	4100146	2.2 nF 1% 63V	2628	4200121	22 μ F 40V
2570	4100146	2.2 nF 1% 63V	2630	4130293	0.47 μ F 10% 100V
2571	4200650	1.2 nF 1% 160V	2631	4130293	0.47 μ F 10% 100V
2573	4200121	22 μ F 40V			

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1504	8090047	4.2336MHz	1510	7600086	Relay
1507	7600086	Relay			
5501	6850161	Coil	5504	6850160	Coil 47uH
5503	6850160	Coil 47uH	5505	6850160	Coil 47uH
P31	7220328	Plug 8pol.	P35	7220254	Plug 3pol.
P33	7220256	Plug 5pol.	P36	7220257	Plug 6pol.
P34	7220255	Plug 4pol.			

Control and Display 8005167 - PCB6

3057	5370006	2.2 k Ω 20%			
2051	4200645	1 nF 20% 50V	2064	4200643	8.2 pF 10% 50V
2052	4200364	47 μ F 10V	2065	4200643	8.2 pF 10% 50V
2053	4200364	47 μ F 10V	2066	4200643	8.2 pF 10% 50V
2054	4200645	1 nF 20% 50V	2067	4200643	8.2 pF 10% 50V
2055	4200644	27 pF 5% 50V	2068	4200643	8.2 pF 10% 50V
2056	4200644	27 pF 5% 50V	2069	4200643	8.2 pF 10% 50V
2057	4200643	8.2 pF 10% 50V	2070	4200643	8.2 pF 10% 50V
2058	4200643	8.2 pF 10% 50V	2071	4200643	8.2 pF 10% 50V
2059	4200643	8.2 pF 10% 50V	2072	4200643	8.2 pF 10% 50V
2060	4200643	8.2 pF 10% 50V	2073	4200643	8.2 pF 10% 50V
2061	4200643	8.2 pF 10% 50V	2074	4200643	8.2 pF 10% 50V
2062	4200643	8.2 pF 10% 50V	2075	4200643	8.2 pF 10% 50V
2063	4200643	8.2 pF 10% 50V	2076	4200643	8.2 pF 10% 50V
1052	8090022	6.000MHz	5051	6850160	Coil 47uH
1053	8230089	200mA - 5V			
P51	7220254	Plug 3pol.	P53	7220256	Plug 5pol.
P52	7220255	Plug 4pol.			

Motor Stop 8005172 - PCB7

2802	4200414	33 μ F 16V			
P61	7220255	Plug 4pol.	P63	7220254	Plug 3pol.

Motor Control 8005170 - PCB8

2801	4200122	220 μ F 10V			
P71	7220254	Plug 3pol.	P74	7220254	Plug 3pol.
P72	7220254	Plug 3pol.	P75	7220254	Plug 3pol.

Eject Switch 8005174 - PCB9

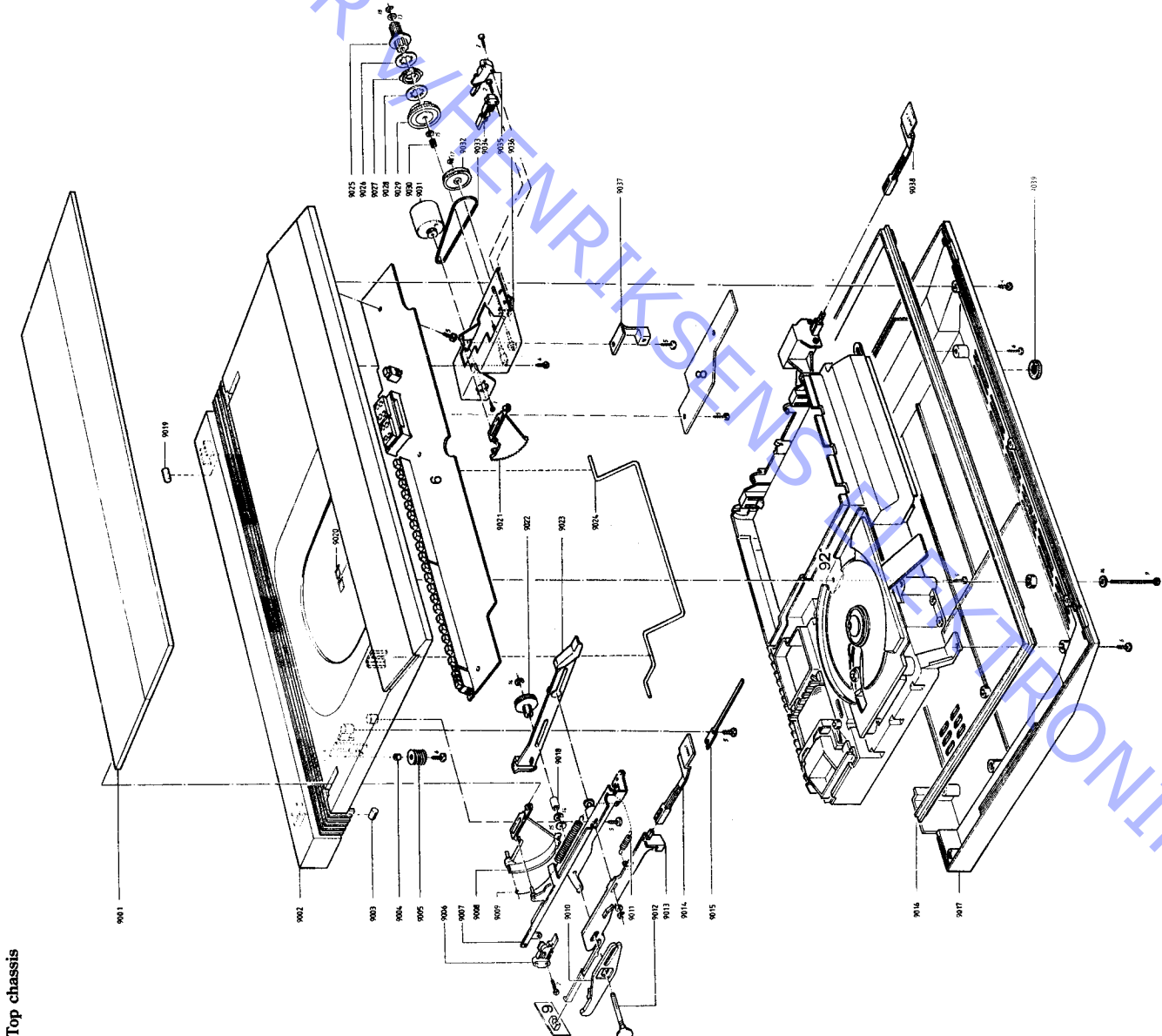
P82	7220254	Plug 3 pol.			
-----	---------	-------------	--	--	--

LIST OF MECHANICAL PART
Top chassis

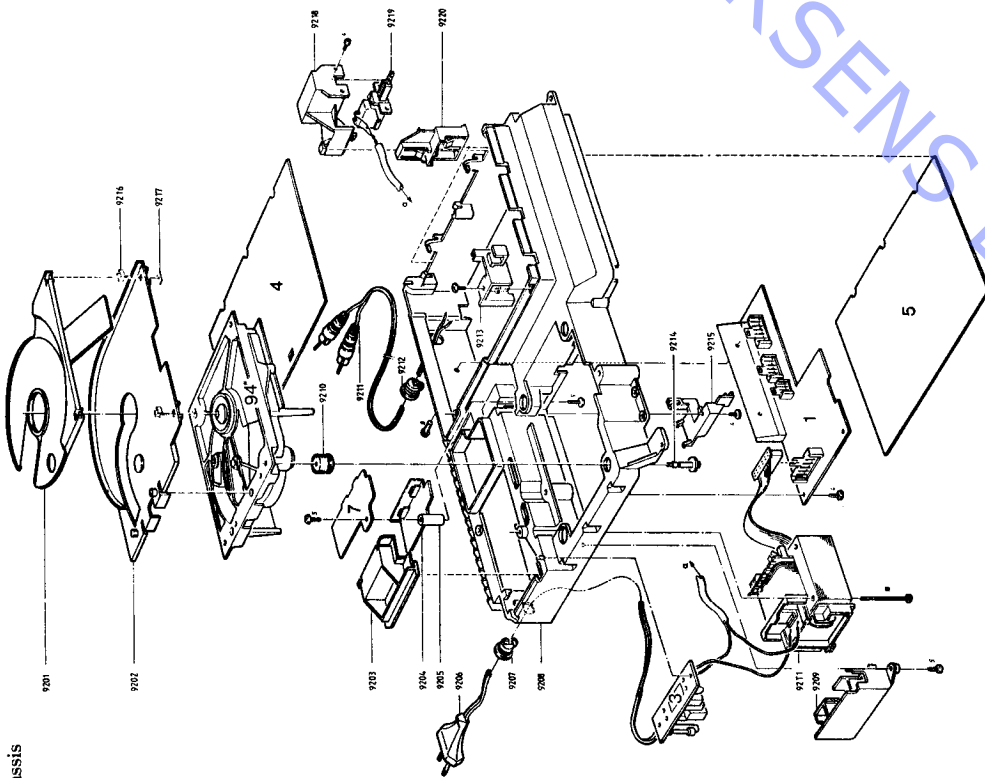
06Modul 8005167	Control PCB
9001	Dust cover
9002	Cabinet
9003	Plug
9004	Bushing
9005	Worm
9006	Switch
9007	Mount, plate
9008	Hinge, plate
9009	Spring, long
9010	Arm
9011	Spring, short
9012	Shaft
9013	Arm
9014	Arm
9015	Leaf spring
9016	Frame
9017	Bottom
9018	Bushing
9019	Plug
9020	Window
9021	Hinge, plate
9022	Gear wheel
9023	Bracket
9024	Ring
9025	Gear wheel
9026	Ring
9027	Ring
9028	Ring
9029	Gear wheel
9030	Spring
9031	Motor
9032	Pulley
9033	Belt
9034	Switch
9035	Switch
9036	Mount, plate
9037	Holder
9038	Arm
9039	Foot
9040	Window

08Modul 8005170	Motor Control PCB
3162248	Dust cover
3430353	Cabinet
3341052	Plug
2930094	Bushing
2709006	Worm
7400320	Switch
3124103	Mount, plate
3030089	Hinge, plate
2810202	Spring, long
2854113	Arm
2810201	Spring, short
2834092	Shaft
2854112	Arm
2854116	Arm
2815018	Leaf spring
3430354	Frame
3454403	Bottom
2930095	Bushing
3341052	Plug
3370151	Window
3030090	Hinge, plate
2700043	Gear wheel
2854114	Bracket
2514053	Ring
2700045	Gear wheel
2802045	Ring
2802046	Ring
2802045	Ring
2700044	Gear wheel
2812109	Spring
8400143	Motor
2722037	Pulley
2732078	Belt
7400320	Switch
7400320	Switch
3174102	Mount, plate
3152508	Holder
2854115	Arm
3035045	Foot
3370151	Window

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Main chassis



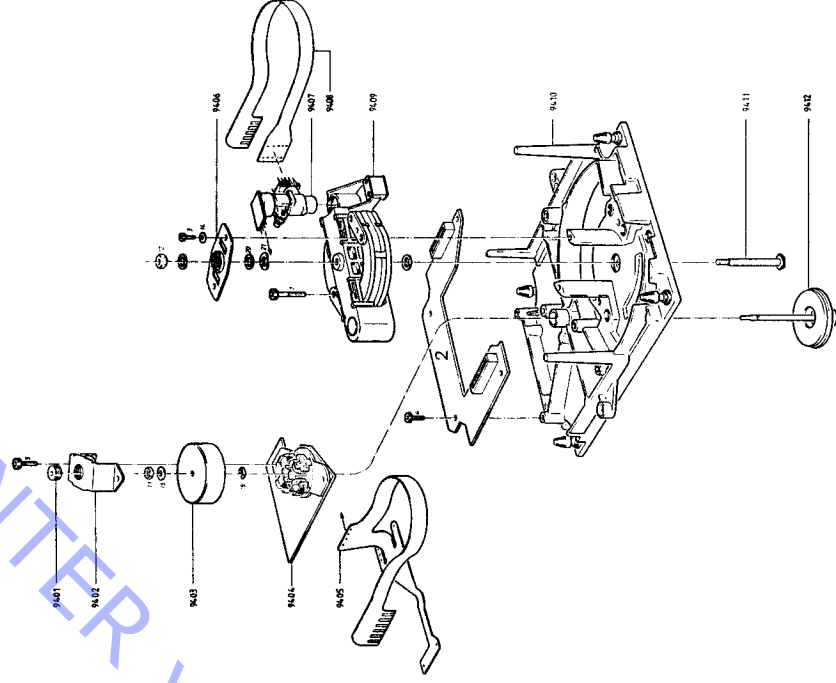
01	Modul 8005168	Supply PCB
03	Modul 8005169	Main Filter PCB
04	Modul 8005165	Servo PCB
05	Modul 8005166	Decoder PCB
07	Modul 8005166	Motor stop PCB
09	Modul 8005174	Eject Switch PCB
9201	3458401	Disc. platte
9202	3458399	Top plate
9203	3162249	Cover
9204	3162491	Holder
9205	2938244	Distance bushing
9206	6271102	Mains cable 5122/22
9207	6270251	Mains cable 5123
9208	6271091	Mains cable 5125
9209	2641119	Holder
9210	3114259	Chassis

9209	3131263	Housing	9215	3152490	Holder
9210*	2938239	Rubber bushing	9216	3030094	Hinge
9211	6270274	Signal lead	9217	2395051	Locking plate
9212	2641119	Holder	9218	3131262	Housing
9213	3152489	Holder	9219	7400321	Switch
9214	2039077	Screw	9220	3152488	Holder

92T1	8013352	Transformer	92F1	6609021	Thermal fuse
		5121/22/25			5121/22/25
	8013372	Transformer 5123		6609022	Thermal fuse 5123

*Upon replacement see servicetips page 8-1

Mechanism



02Modul 8005173 Pre. ampl. laser

9401	2072107	Adjustment screw	9407*	8330149	Light pin
9402	2510154	Bracket	9408	6141141	Flex print
9403	2871000	Rotor	9409	3131272	Housing
9404	3351000	Stator	9410	3114260	Chassis
9405	6141142	Flex print	9411	2038093	Bearing screw
9406	2905114	Spring	9412	2726153	Platter

*Upon replacement see service tips page 8-2

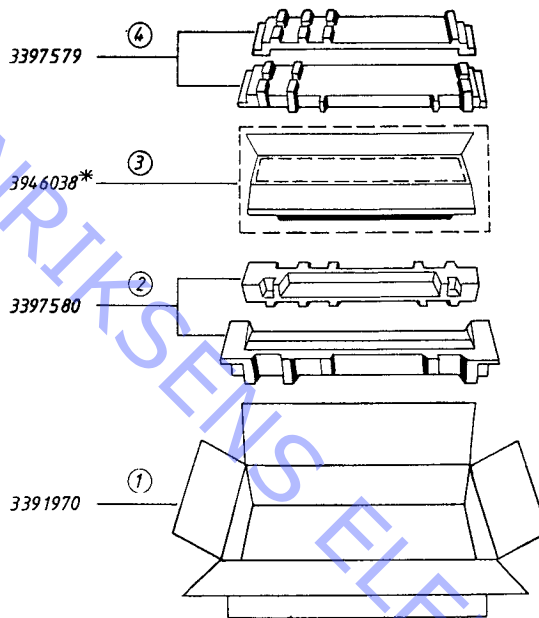
Parts not shown

3397579	Foam packing, upper	3634028	Laser simulator
3397580	Foam packing, bottom	3634029	Mirror
3391970	Wrapper	3634030	Glass disc
3629107	Blade T6 short	3634031	Test disc
3629037	Blade T8 short	3634032	Disc hold-down
3629102	Blade T10 long	3505412	Owner's Manual DK
3629038	Blade T10 short	3505413	Owner's Manual S
3629103	Blade T20 short	3505414	Owner's Manual SF
3629109	Screw driver T6	3505415	Owner's Manual GB
3629108	Screw driver T8	3505416	Owner's Manual D
3629047	Screw driver T10	3505417	Owner's Manual NL
3629104	Screw driver T20	3505418	Owner's Manual F
3634027	Support		

Screws, washers, etc.

1	2034073	Screw 2x3 DIN 84	11	2380129	Nut M2.5
2	2034074	Screw AM 2x3 DIN 7985	12	2380016	Nut M4
			13	2622348	Washer 2.2
3	2036058	Screw 2.5x6	14	2622218	Washer 3.2
4	2013126	Screw 2.9x8	15	2622390	Washer 4.3
5	2013127	Screw 2.9x9.5	16	2622035	Washer 2.7
6	2013130	Screw 2.9x13	17	2390094	Locking ring 1.5
7	2039078	Screw 2.9x18	18	2390001	Locking ring 2.5
8	2038220	Screw 3x12 DIN 84	19	2390002	Locking ring 3.0
9	2013131	Screw 2.9x45	20	2622399	Washer 3.5
10	2043036	Screw 4x35	21	2623002	Washer 3.5

Packing procedure



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*Foile 3946038 is sold by the metre

Lubrication

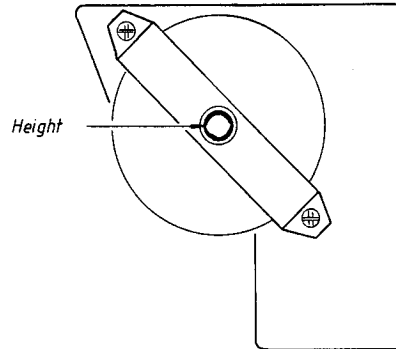
1. Arm 9011 sliding surface towards 9013
 Bracket 9007 sliding surface towards 9013
 Silicone paste P4
2. Arm 9008 sliding surface towards 9007 Isoflex PDL250

MECHANICAL ADJUSTMENTS

Height setting of the turntable

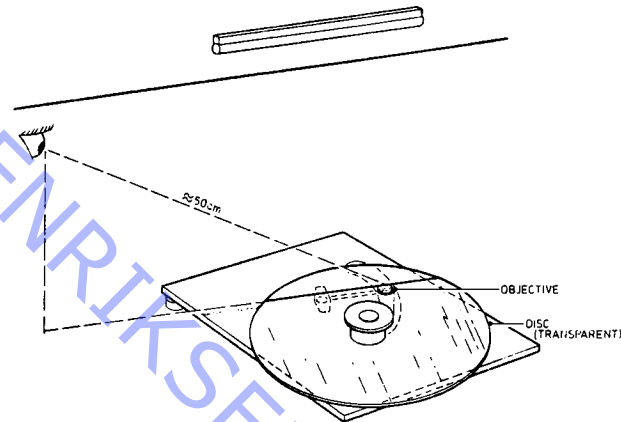
For this alignment the unit should be in the position of normal end use. The servicing supports 3634027 can be used here. Playback track 1 of disc 3634031. (Disc without defects). Connect a DC voltmeter between the *negative* of the focus motor and earth of the preamplifier print.

Adjust the height of the turntable with bearing screw in such a way, that the voltage is $0\text{ V} \pm 100\text{ mV}$. Seal hereafter the screw with sealing paint.



Checking the angle setting

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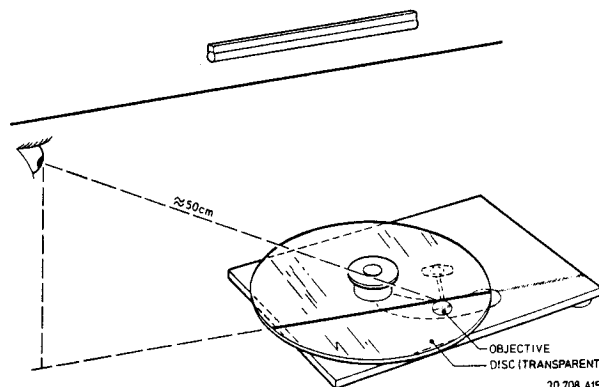
Place mirror 3634029 on the objective and glass disc 3634040 (with disc hold-down 3634032) on the turntable.

Locate the unit under a light source and under this light source a straight line should run (e.g. fluorescent tube with grid). Set the arm to mid-position. Turn the unit until the arm is parallel to the line under the light source (see fig.).

Look in the direction and in the prolongation of this line to its reflection on glass discs and mirror.

These lines should not be more than 4 mm apart:

Position the set in such a way that one line runs across the centre of the mirror. When the other line remains inside the mirror's surface, the distance is $\leq 4\text{ mm}$.



Rotate the CD mechanism through 90° relative to the previous position. The arm must be kept in mid-position (see fig.). Repeat the previous measurement.

Adjusting the angle setting

With respect to the adjustment of the angle between disc and light path, the factory has looked for a compromise between minimum angle deviation and minimum arm friction.

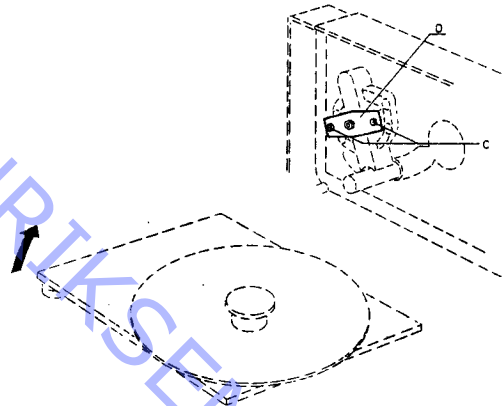
In the measurements show that the angle falls outside the tolerance given, the angle should *not* be adjusted for minimum deviation, but just within tolerance. The new setting should lie between the "old" setting and the optimum setting.

After adjustment, the friction of the arm should be checked. This is done by means of a spring-pressure gauge which is connected to the counterweight. The friction of the arm, measured over the total scanning deflection, is not allowed to exceed 30 mN.

When the friction appears to be too high, the angle should be reset to its old value. Then replace the arm by a new one and check the angle once more.

Adjustment of the angle is performed as follows:
Place the set on the servicing supports 3634027.

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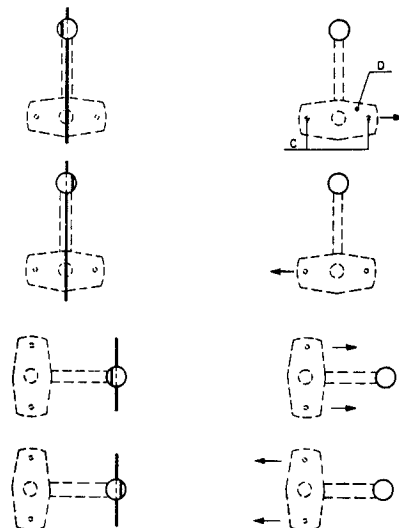
Loosen screws C (see fig.) until bearing plate D can be shifted.

Correct the angle setting by shifting the bearing plate in the direction indicated on the figure.

Tighten screws C ensuring that the setting does not drift. Double check the angle setting in two directions.

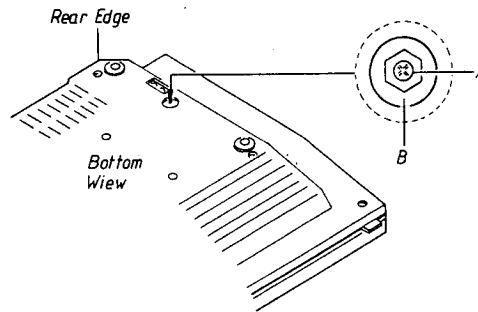
ATTENTION!

After setting the angle, the height setting of the turntable should be checked.



Height adjustment of lid

Before undertaking the height adjustment the set must be *fully* assembled, and the adjustment is made through a hole in the bottom plate of the set.



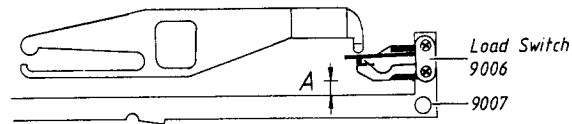
Loosen holding screw A.

Adjust the bushing B, using a 6 mm hexagon spanner, until the lid is flush with the upper edge of the control panel (± 0.5 mm).

Tighten the screw A.

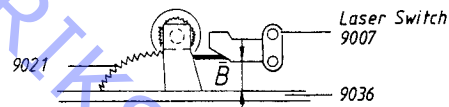
In case the adjustment is not within the tolerance range, this may cause failure of function in the eject system.

Load Switch



When fastening the load switch 9006, make sure the distance A between the lower part of the switch and the bracket 9007 is 3.4 mm.

Laser Switch



When fastening the laser switch 9034 make sure the distance B between the lower part of the switch and the bracket 9036 is 6.8 mm.

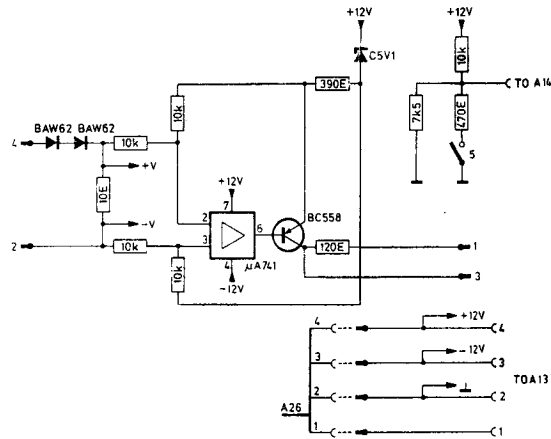
Spring 9009

When fitting spring 9009 in the bracket 9007, **always** mount the spring in the middle hole.

ELECTRICAL ADJUSTMENT Laser power supply

Since the light pin is very sensitive to static charges, care should be taken that during measurements and adjustments of the laser power supply the potentials of aids and yourself equal the potential of the CD mechanism.

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Check

The laser simulator PCB 3634028 should be used here. Take the flex PCB out of socket A11 and connect the switch simulator PCB with the socket. Remove plug A13 and insert it in the socket on the simulator PCB. Connect the plug with 4 wires to socket A13. Take out plug A14 and insert the plug with 1 wire in socket A14.

Set the switch on the simulator PCB in the OFF position and the mains switch in the ON position. Turn trimming resistor 3140 clockwise (max. R) and measure the voltage between points +V and -V on the simulator PCB. The voltage should be ≤ 15 mV.

Check of laser supply control:

Set the switch on the simulator PCB in the ON position and measure the voltage between points +V and -V on the simulator PCB.

Resistor 3140 clockwise (max. R):

$$U +V -V = 225 \text{ mV} \pm 45 \text{ mV.}$$

Resistor 3140 counterclockwise (min. R):

$$U +V -V = 750 \text{ mV} \pm 150 \text{ mV.}$$

Set resistor 3140 in mid-position.

This is a preliminary adjustment. After the simulator PCB has been removed the laser current must be adjusted.

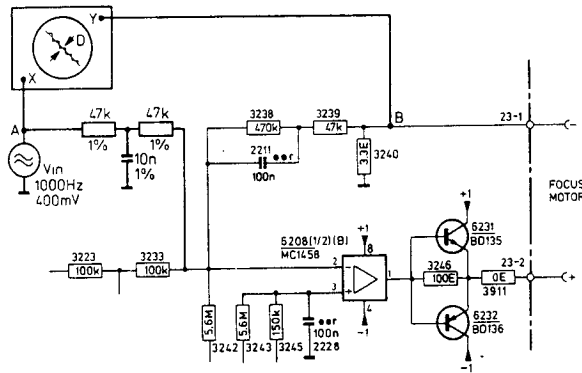
Adjusting the laser supply

Play track 1 of test disc 3634031 (disc without defects).

Connect a DC voltmeter across resistor 3308 on the servo PCB (= on emitter of transistor 6239 and ground).

Adjust the laser power supply with resistor 3140 until the voltage across resistor 3308 is 575 ± 75 mV.

Adjusting the focus bandwidth



Make a measuring arrangement according to the figure. Play track 1 of test disc 3634031 (disc without defects).

Adjust trimming resistor 3138 on PRE.AMPL. + LASER PCB for a 180° phase difference between signals A and B.

This corresponds with a minimum distance D in the Lissajous pattern.

$$R = 47 \text{ k}\Omega - 1\%$$

$$C = 10 \text{ nF} - 1\%$$

Focus offset

Trimming resistor 3132 should be in mid position.

Motor-control check (Hall)

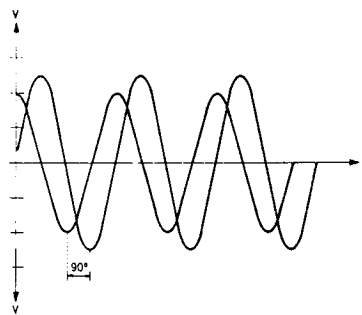
1. Disconnect the wire from PRE.AMPL. + LASER PCB to connector A18 pin 4 on the Hall motor control.
2. Connect channel A of a dual-beam oscilloscope to the emitter of transistor 6082, 6083 and channel B to the emitter of transistor 6084, 6085.
Position of oscilloscope: 2 V/div – 10 ms/div.
3. Switch the set on.
4. Apply a *negative* voltage to pin 4 of connector A18.
The voltage may *not* be applied until *after* the circuit has been connected to power supply voltage. Start from 0 V and slowly proceed to -5V. Now the motor should run.
When the motor runs the voltage can be brought to approx. -2.5 V.
The motor should continue to run then.
5. The oscilloscope should display sinusoid signals now (see fig. A).
After approx. 2 s they should lie symmetrically round the 0-axis and be shifted 90° relative to each other.
The maximum ratio of the amplitudes of these 2 signals is allowed to be 1:2.
6. The amplitude depends on the applied voltage.
The V-in/V-out pp ratio should lie between 1:2 and 1:3.
7. Determine at which V-in the motor runs at 600 rpm.
At 600 rpm the frequency of V-out is 30 Hz.
At this speed V-in should lie between -1.5V and 3.7V.

Conclusion:

When all these conditions are present motor and PCB may be considered on order.

If points 4, 5 and 6 are not correct, the fault should most probably be found in the electronics.

If points 4, 5 and 6 are correct and the voltage to be applied at point 8 is e.g. -4.5 V to obtain a motor speed of 600 rpm, there will most probably be something wrong mechanically E.g. the bearing friction is too high.



Check of the AGC and offset circuits

(See SERVO PCB).

Play track 1 of test disc 3634031 (Disc without defects).

The voltage between pin 1 of IC6212 and \perp should be $-4\text{ V} \pm 2\text{ V}$.

The voltage between pin 14 of IC6215 and \perp should be $-2.5\text{ V} \pm 2\text{ V}$.

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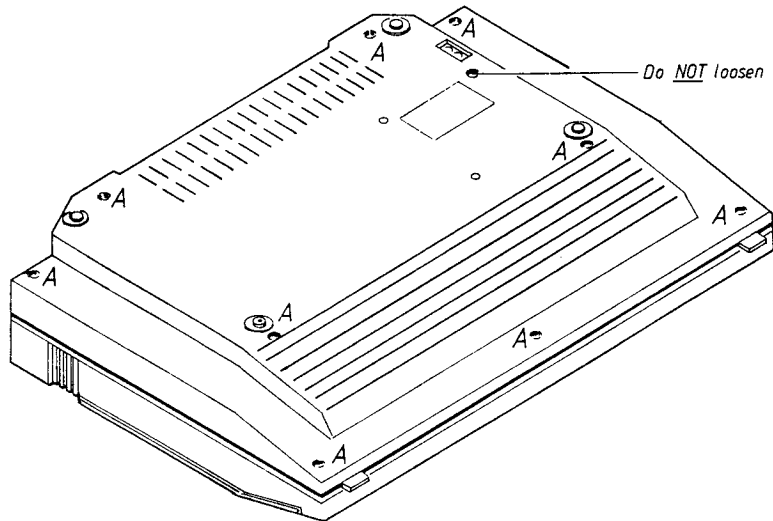
TECHNICAL SPECIFICATIONS

Frequency range	3-20,000 Hz \pm 0.3 dB
Signal-to-noise ratio	>96 dB
Dynamic range	>96 dB
Harmonic distortion	0.003% at 0 dB
Channel separation	>94 dB 20-20,000 Hz
Channel difference	<0.5 dB
Converter system	14 bit, oversampling 176.4 kHz
Low pass filter	Digital + analogue
Damping >20,000 Hz	>50 dB
Output	2 V RMS at 0 dB
Power supply	Type no. 5121: 220 V
	Type no. 5122: 240 V
	Type no. 5123: 120 V
	Type no. 5125: 240 V
Power frequency	50-60 Hz
Power consumption	25 watts
Dimensions W x H x D	42 x 7.5 x 31 cm (16 ¹ / ₂ " x 3" x 12 ³ / ₁₆ "
Weight	6 kg (13.2 lbs)

Subject to change without notice

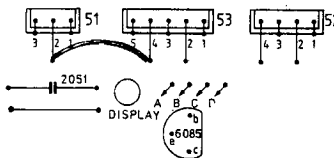
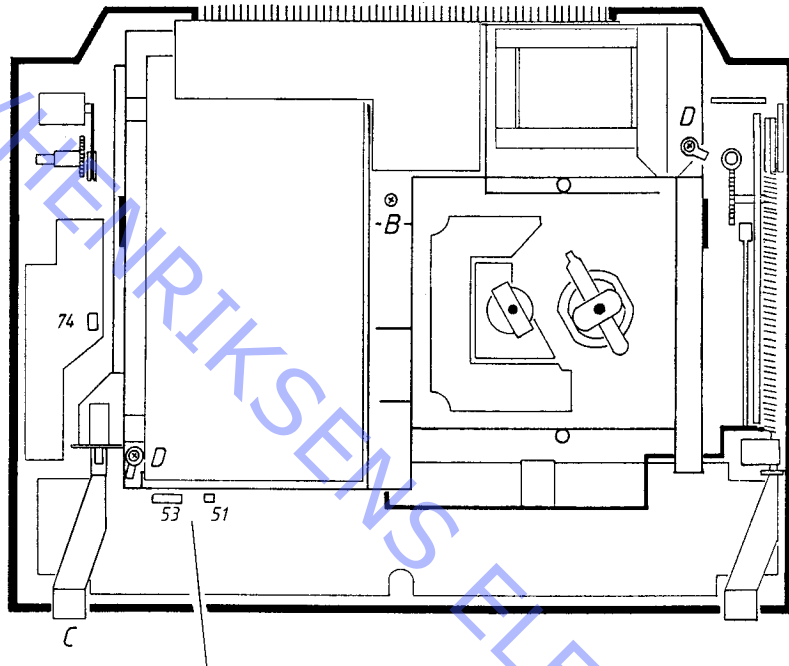
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DISMANTLING Bottom



Remove the screws A.

Top plate



Top Plate

Remove the screw B.

Remove the PLAY button C.

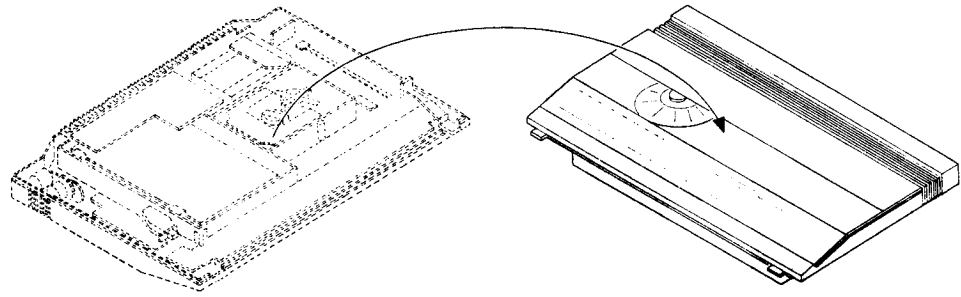
NB! The ON/OFF switch must be in position OFF when removing the button in order to avoid damaging the switch.

Remove the two ground connections D.

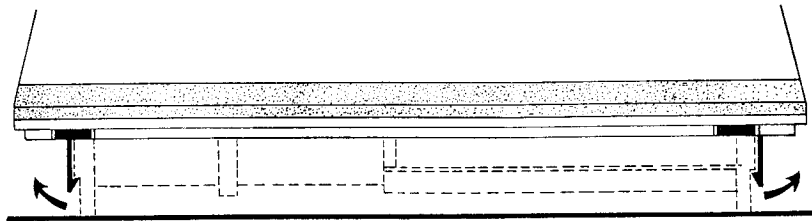
Remove plug 74 on the lid motor control PCB.

Then introduce a short-circuit from socket 53 pin 4 to 51 pin 1 ground on the control and display PCB.

NB! When plug 74 is removed and a short-circuit has been introduced between 53 pin 4 and ground, the dust cover functions cannot be operated.

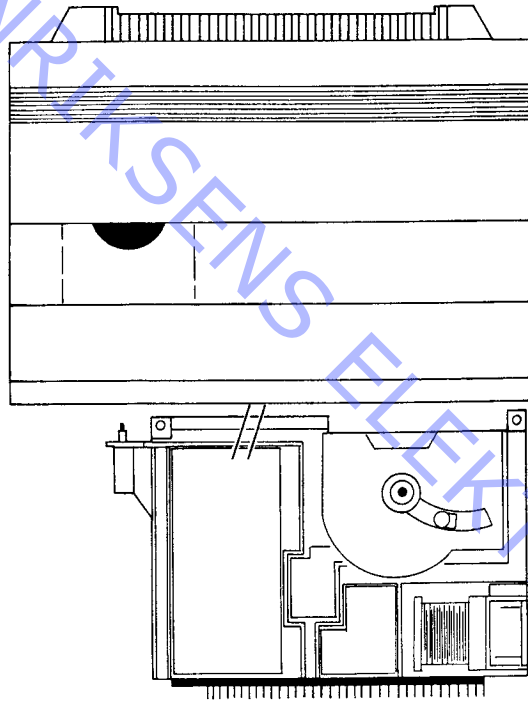


Turn over the set while supporting the chassis frame.



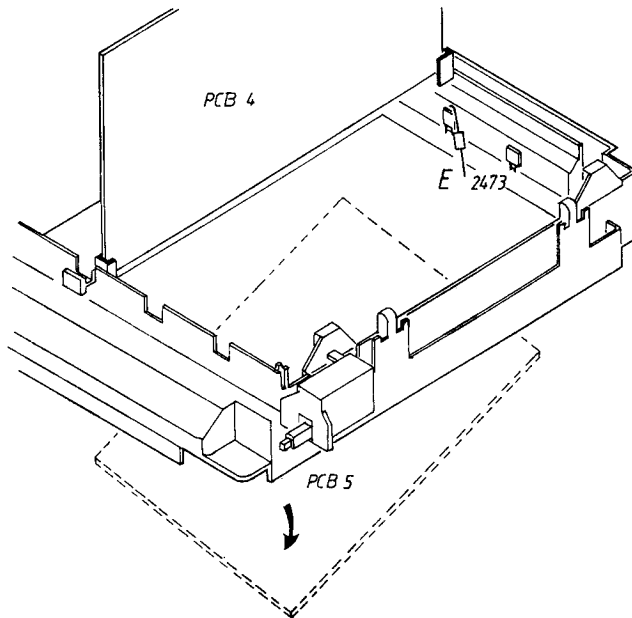
Tip out the two plastic tags.
Carefully lift off the top plate.
NB! Be aware of the cable connection between the top plate and the chassis frame.

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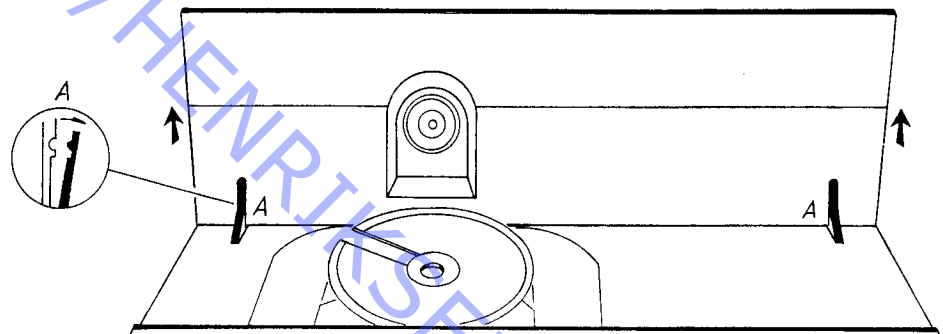
Place the top plate in front of the chassis frame as illustrated.

PCB4 and PCB5.



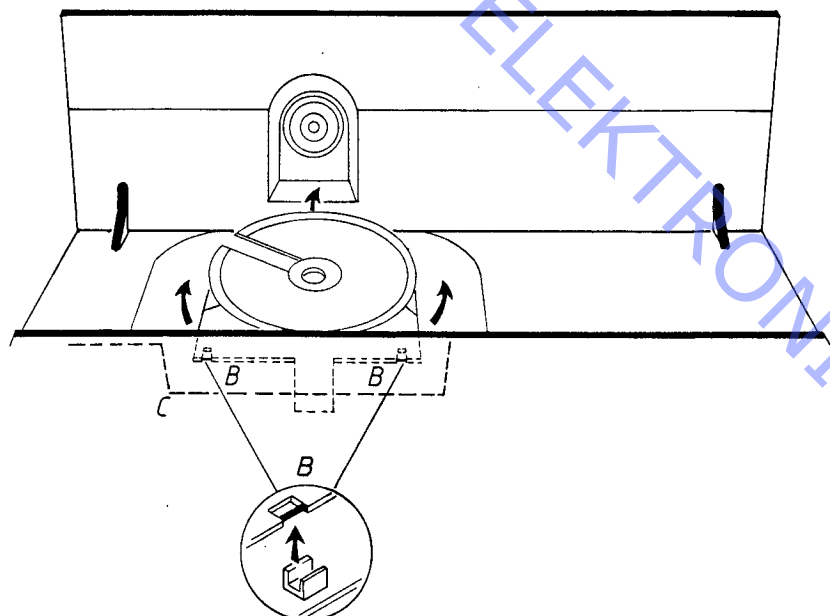
Tip up PCB4 and place in service position.
PCB5 cannot be tipped up until the capacitor E is desoldered.

Replacement of dust cover



Tip out the hinges A in both sides as illustrated.
The dust cover may now be pushed upwards.

Replacement of disc platter



Lift out the disc platter from the two clips B.
Pull the disc platter towards the dust cover. It is thereby disengaged.
NB! When mounting the disc platter, the tongue must be placed under the eject bar.

SERVICE TIPS

In order to prevent loose metal objects from getting in the CD mechanism it will be necessary to see to a clear repair station. Before the player is being used or service, the transportation screws should be removed. These screws have to be reapplied after servicing.

Ensure that the player is not resting on the shaft of the turntable motor or the light pin during repairs and measurements.

The player consists of various MOS ICs. Since MOS ICs are generally very sensitive to overload and overvoltage, servicing operations should be performed with the utmost care.

In the player chip components have been applied. For insertion and removal of chip components see page 2-1.

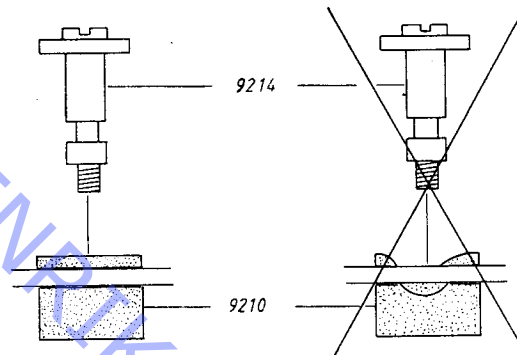
When the top part with the lid mechanism has to be demounted for repair, a loose hold-down should be employed.

Part no. for the disc hold down is 3634032.

For normal function of the set, when the top part is demounted the lid on the top part have to be closed.

Rubber bushing

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When replacing rubber bushings (pos. 9210) make sure the rubber is not stuck in the hole in the chassis.

Mechanism

Servicing the Radial and Focusing unit pos. 9409.

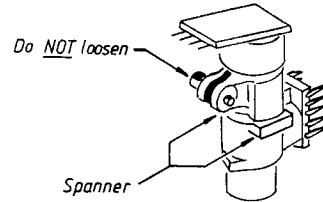
- Take the two flex PCBs out of the connectors on the preamplifier PCB.
- Disassemble the *defective* RAFOC unit by removing the 4 bolts no. 7 and shaft item number 9411.
- Remove shaft item number 9411 of the new RAFOC unit. Pay attention to the 3 intermediate washers item number 20 and spring washer item number 21 they should assume the same positions after assembly.

Mount the Radial and Focusing unit.

- Loosen the 4 bolts no. 7 until the bottom plate can be removed. Do not remove bolts no. 7 (they hold the new Radial and Focusing unit together).
- Mount the new Radial and Focusing unit on frame 9410. Ensure that the 3 intermediate washers 20 and spring washer 21 are positioned correctly before fixing shaft item number no. 7.
- Check that the arm moves freely and the angle setting as well (see check and possible adjustment of angle setting).

Replacing light-pin

- For replacing the light pin it is not necessary to remove the Radial and Focusing unit.



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The light pin can be removed by turning it anticlockwise by means of an open-ended spanner of 12 mm and afterwards pulling it out of the arm. During mounting, the light pin must be pushed into the arm as far as possible, and turned clockwise.

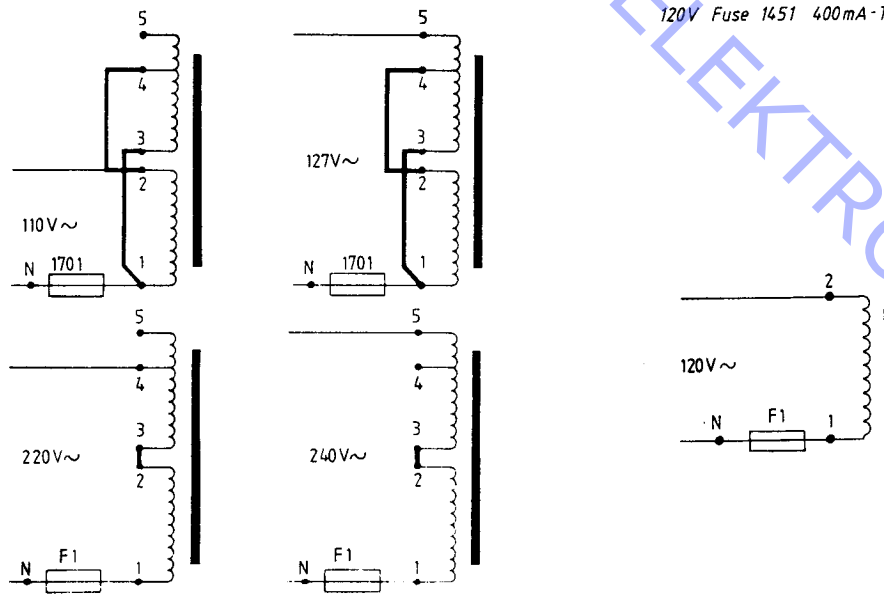
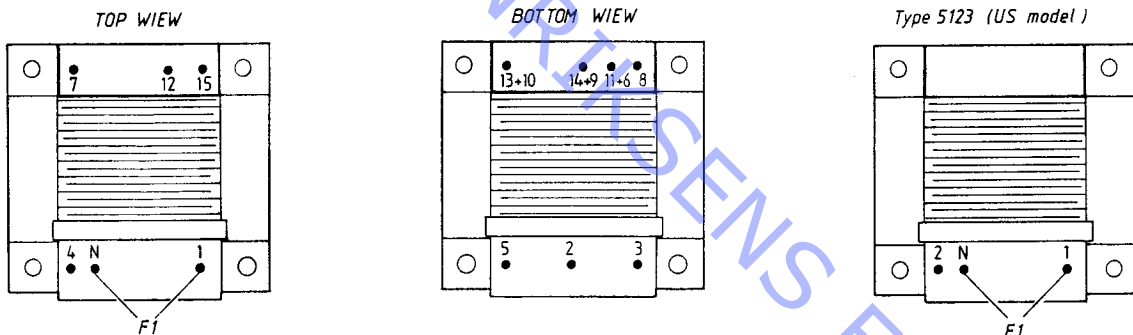
The CD-mechanism is provided with self-lubricating bearings and should thus not be lubricated.

Attention:

To prevent adjustments from changing, no screws other than those mentioned above should be loosened.

The light pin is much more sensitive to static charge than a MOS IC. Careless treatment during servicing may reduce life expectancy drastically. For this reason care should be taken that during servicing the potentials of the aids and yourself equal the potential of the mechanism.

Mains Transformer Wiring



F1 = 0.25A / 125°C

220/240V Fuse 1701 200mA-T
 110/127V Fuse 1701 400mA-T

INSULATION TEST

Each set **must** be insulation tested after having been dismantled. The test is to be made when the record player has been reassembled completely and is ready for delivery to the customer (with the transis screws tightened).

Make the insulation test as follows:

Short-circuit the two pins of the mains plug and connect one of the terminals of the insulation tester.

Set the mains switch in position ON.

Connect the other terminal of the insulation tester to one of the two screws placed on the heat sink on the back of the unit.

NOTE!

To avoid ruining the set it is essential that both insulation tester terminals are in really good mechanical contact.

Now slowly turn the voltage control of the insulation tester until a voltage of 15.2 kV is obtained. Hold it there for 1 second, then turn the voltage down again.

At no point during the testing procedure any flashovers are permissible.

ABO-CENTER V/HENRIKSENS ELEKTRONIK

TROUBLE SHOOTING GUIDE CDX

General checkpoints

In the detailed troubleshooting method which follows a number of general conditions, required for proper functioning of the player, will not be repeated.

Before starting the detailed troubleshooting method these general points should be checked.

- a: Ensure that disc and objective are clean (remove dust, fingerprints, etc.) and use undamaged discs.
- b: Check whether all power supply voltages are presents and have the correct level.

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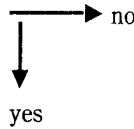
TO PAST INTO SERVICE MANUAL: BEOGRAM CD X

03-86

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ABO-CENTER V/HENRIKSENS ELEKTRONIK

TROUBLE SHOOTING GUIDE FOR BEOGRAM CDX



Before starting trouble shooting, place the CD in service position

Place a compact disc in the player and press play:

1. Lid closes?

→ Check all switches - OK? → Repair switches

↓
Check that 6IC6078 pin 24 goes high and pin 25 stays low → Check control and display circuit

↓
Check motor control circuit (PCB8), and lid mechanism

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2. Disc starts turning?

→ Does laser emit light? → Does 4IC6202 pin 6 supply a low level? → Check functions around 4IC6202, 4IC6201, control and display circuit

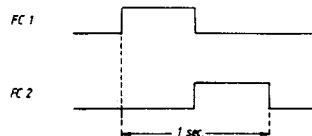
↓
Does laser emit sufficient light? (see service man. page. 5-1) → Check laser supply unit. (PCB 02) Check laser.

↓
Is laser angle correct in relation to disc? (see service manual page 4-2).

↓
REMOVE COMPACT-DISC. PRESS PLAY.

↓
Note if laser moves up and down approx. 3 times. Does the laser move?

→ Does 4IC6202 pins 12 and 13 supply the pulses shown? → Check functions around 4IC6202

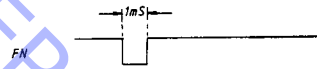


↓
Does voltage on E of 4TR6231/32 vary between approx. $\pm 5V$? → Check focus servo output (PCB 04)

↓
Check focus mechanism. Check connection between focus servo output and focus coil.

↓
PLACE COMPACT DISC IN PLAYER AGAIN PRESS PLAY

Does 4IC6205 pin 2 supply the pulse shown?



→ Does the focus error signal level change? (Plug 24-4 PCB 04)

→ Check output from 2IC6101 and laser diodes

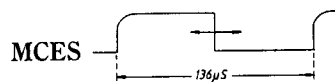
↓
Check voltages around 4IC6205.

Does FCO 4IC6202 pin 14 go low?

→ Check functions around 4IC6202 and 4IC6201.

Does 5IC6510 pin 4 supply a pulse with time constant of 136 μS ?

→ Check 5IC6510



Is MCES signal also present in 4R3261?

→ Check voltage around 4IC6205.

Measure voltage on E of 4TR6233. Voltage must be between -1.5 and -2.5V.

→ Check motor stop circuit (PCB 07). Check turntable motor amplifier (PCB 04)

↓
Check hall motor (see service manual page 5-2)

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↓

CAN ONLY BE MEASURED WHILE COMPACT DISC TURNS

3.

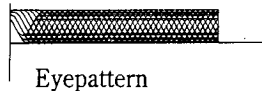
IF DISC STOPS TURNING, ACTIVATE PLAY AGAIN

COMPACT DISC
STARTS TURNING

(In some cases the disc
stops again)

Do green digits
light?

→ Can an eyepattern
signal (approx. 1 V_{pp})
be measured in test
point 65 (5IC6501
pin 7)?



→ Do HFLS, HFL and
 \overline{DO} (5IC6508) go high?
If no constant high signal
is measured it is
probably due to radial
servo circuit being defective.

→ Does \overline{RCO}
(4IC6211 Pin 9) go
high? Must remain constantly high.

→ Does laser move
towards center of disc
when starting up?
(lead in area)

Check h.f. amplifier

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→ Check automatic gain
control and offset control,
as follows:
Measure voltage on pin
14 of 4IC6215, voltage
must be $-2.7V \pm 2V$.
If this is kept the offset
control circuit is declared
OK.
If not check offset control.
Measure voltage of pin
1 of 4IC6212 to be $-4.3V \pm 2V$.
If this is kept the automatic
gain control circuit is
declared OK.
If not, check gain control.
If voltages are measured
in both circuits beyond
the tolerances indicated,
faults must be found in
circuits with influence
on both control circuits,
e.g. 650 Hz OSC or servo
signal paths loop.

→ Check radial servo output
(PCB 04).
Check control signals
for radial start up, e.g.
 μ DAC, RDIR, and RCO
4IC6211.
If OK

→ Try manually to lead laser
to spot on the disc
where there is certainly
a signal. Hold laser
around this spot while
simultaneously measuring
HFLS (5IC6508 pin
1): Is it now possible to
measure pulses on
HFLS. If not, check
drop-out HF level detector
(PCB05).

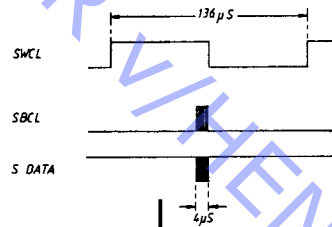
Does P-data (5IC6501 pin 5) go low?

→ Is the PLL circuit locked in? (5IC6501 pin 22 must change from approx. 1.8MHz in stop mode to 4.3 MHz in play mode).

→ Check eye-pattern
Check functions around 5IC6501.

Check functions around 5IC6501.

Are Q-data transmitted from 5IC6501 pins 2, 3, 4 to 4IC6201 pins 26, 27, 1?



→ Check functions around 5IC6501, 5IC6504, 4IC6201.

Check functions around display IC (6IC6078)

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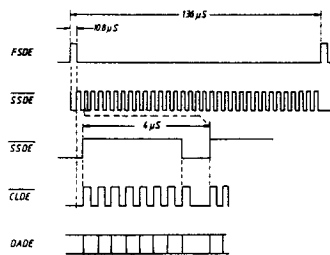
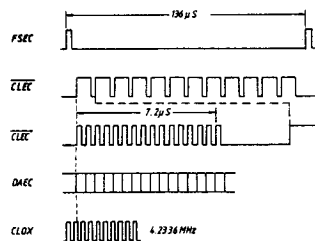
In order to see the signal sequences in an oscilloscope it is necessary to trigger on the signal shown at the top of the oscillogram.

The signals within each oscillogram must synchronize in order to consider the signal communication between the IC's to be OK.

Is signal present on the output of CD player?

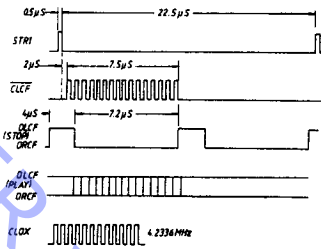
→ Is the UNEC flag between 5IC6510 and 5IC6514 low? (Data from ERCO to CIM OK?)

→ Check data transmission between DEMOD and ERCO. Are they OK?

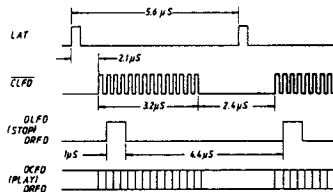


↓
Check data transmission
between ERCO/RAM.

↓
Check data transmission
between CIM and FIL.
Are they OK?



↓
Check data transmission
between FIL and DAC.
Are they OK?



↓
Check functions around
analogue output

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