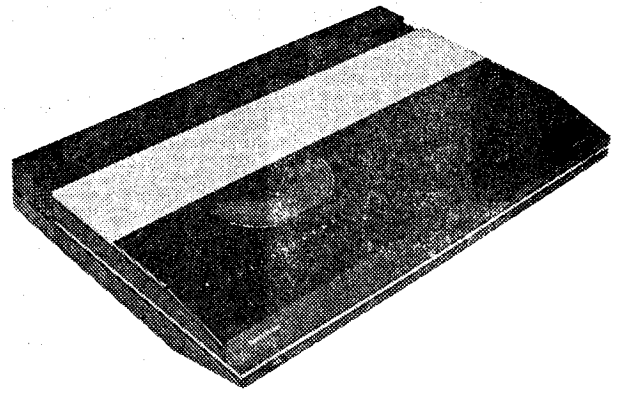


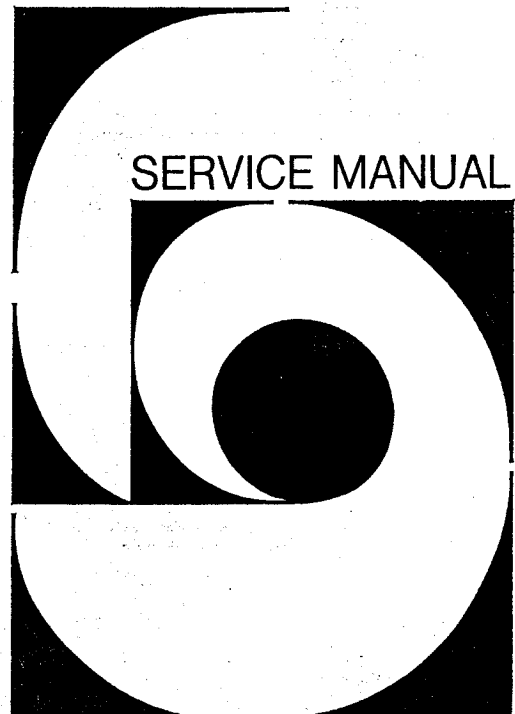
Bang & Olufsen



Beogram CDX Type 5121/22/23/25

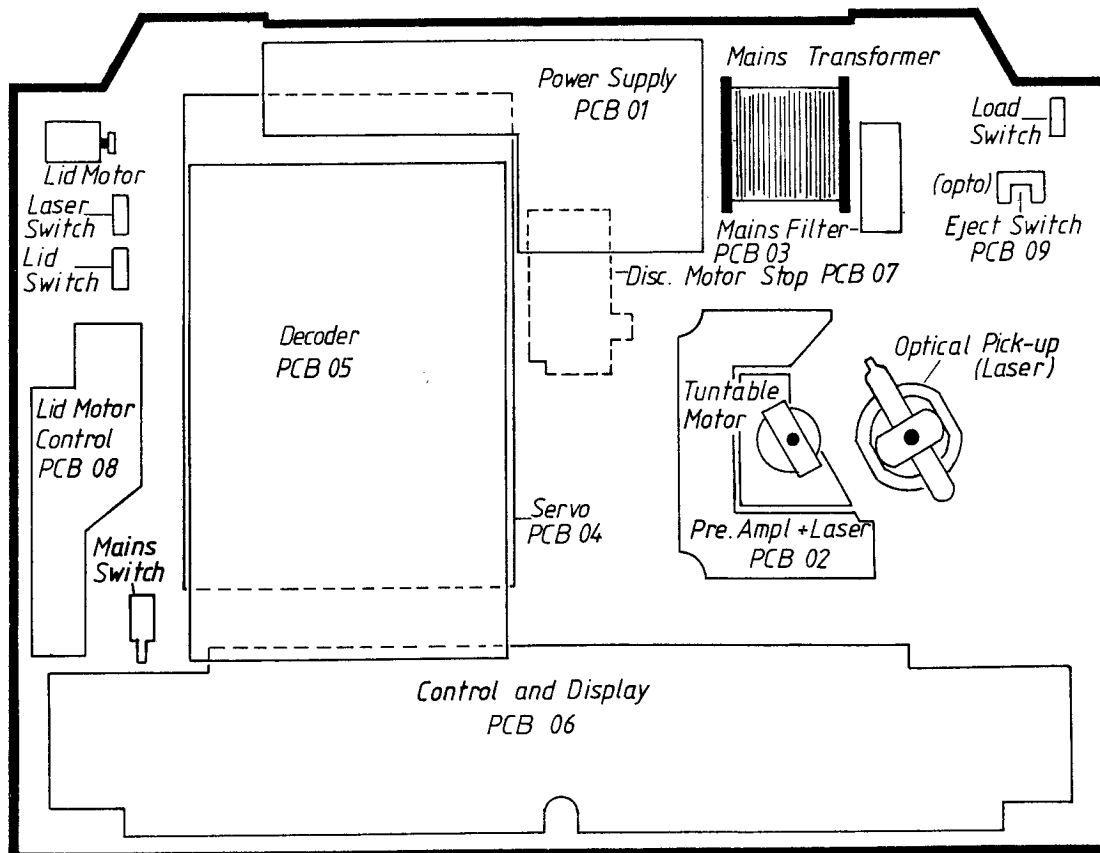
1056

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



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		

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.

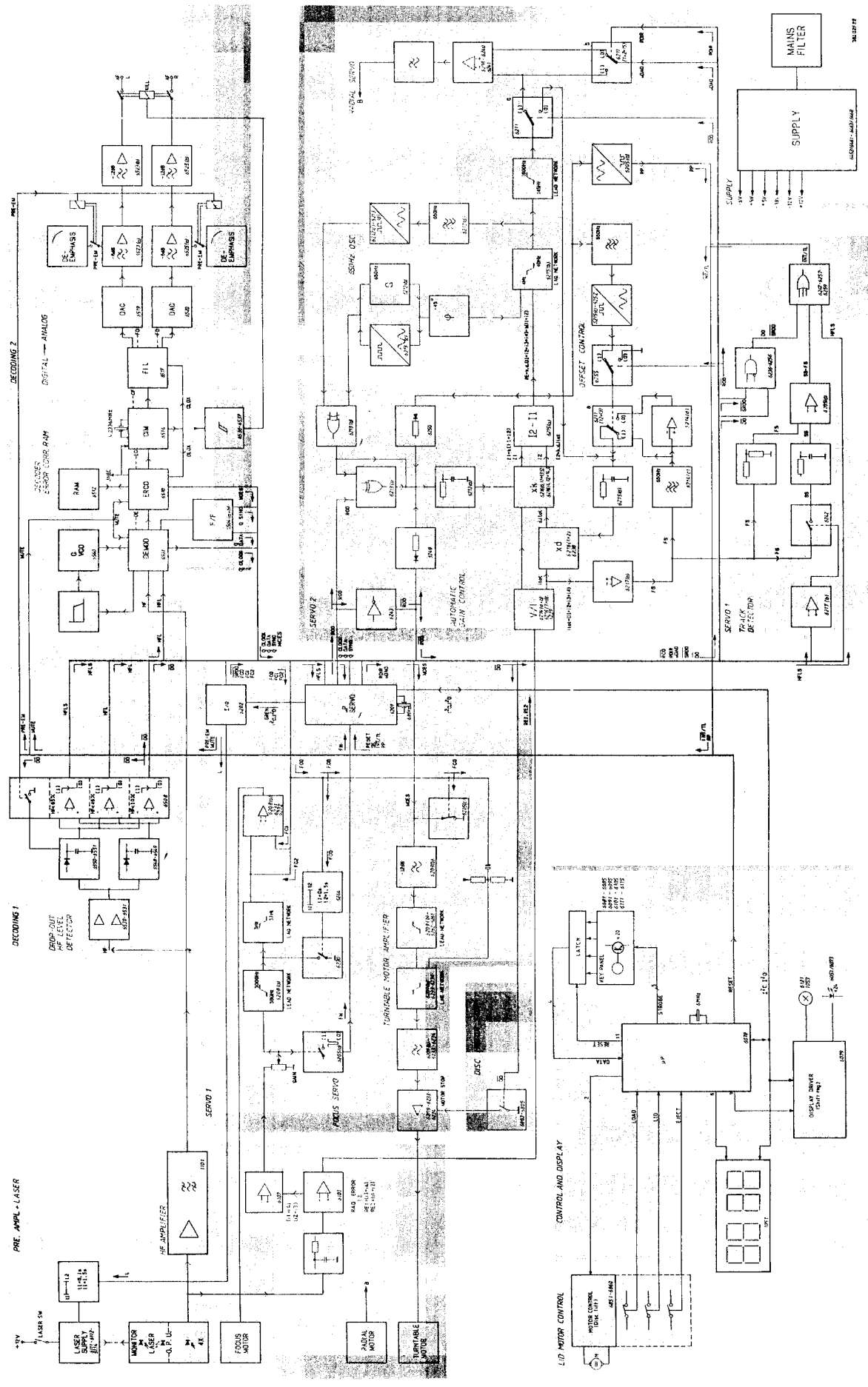
System of co-ordinates

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

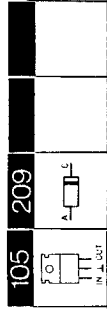
The position numbers with attached co-ordinate designation can be found at the top of the diagram pages and next to the PCB drawings.

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BLOCK DIAGRAM

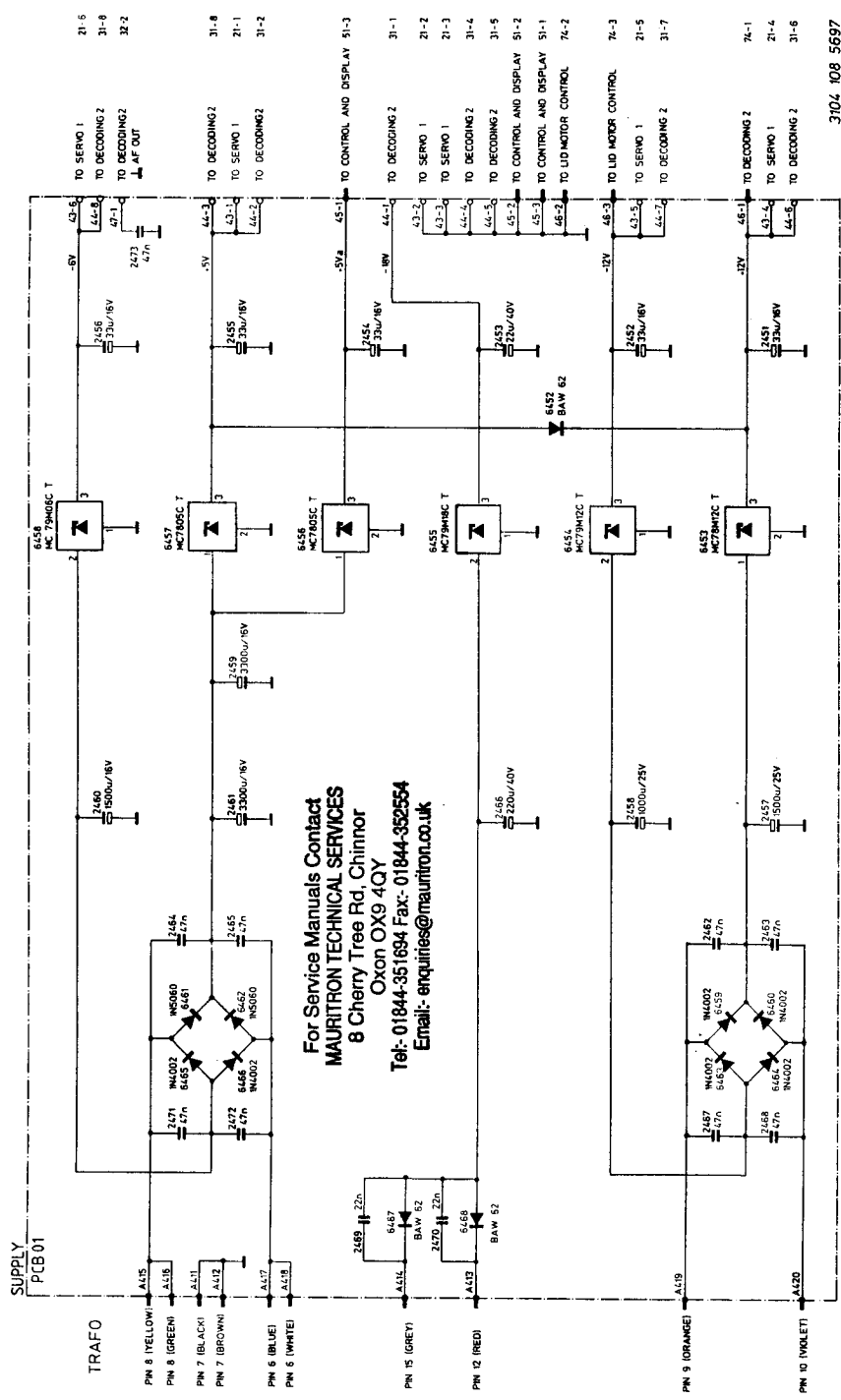
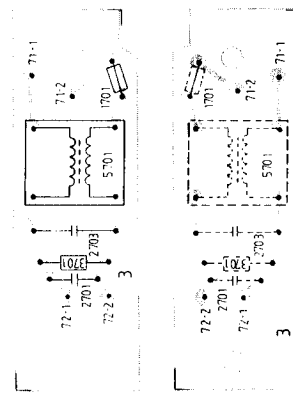
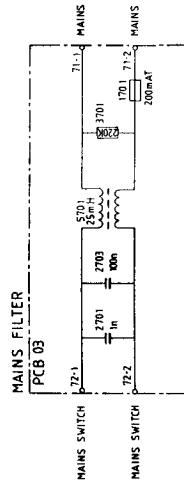


Semi-conductors



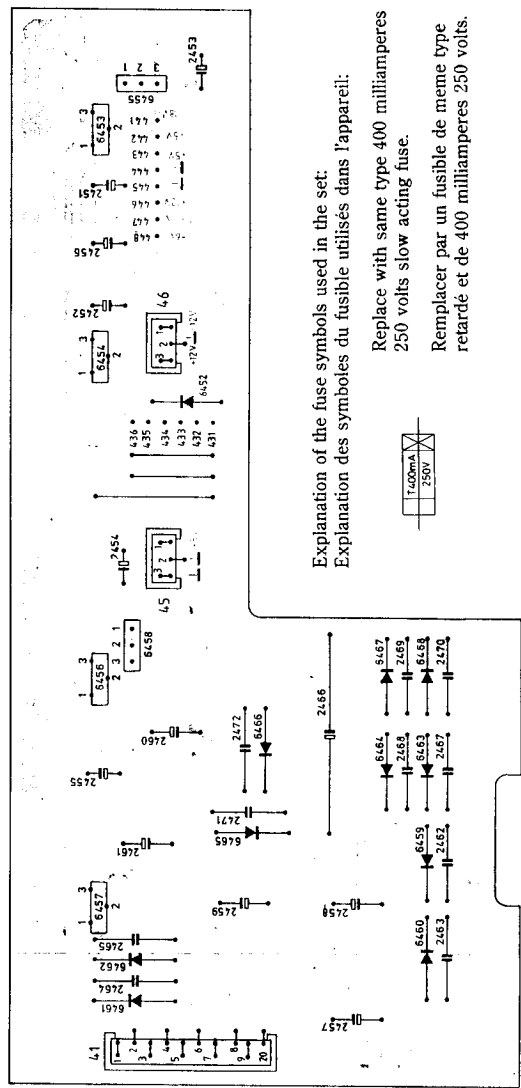
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6454	8340356	105	MC79M12C
6455	8340814	105	MC79M18C
6456	8340065	105	MC7805C
6457			
6458	8340815	105	MC79M064
6452	8300359	209	BAW 62
6459-	8300023	209	1N4002
6460			
6461	8300436	209	1N5060
6462			
6463-	8300023	209	1N4002
6466			
6467	8300359	209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

Diodes



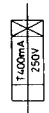
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3104 108 5697

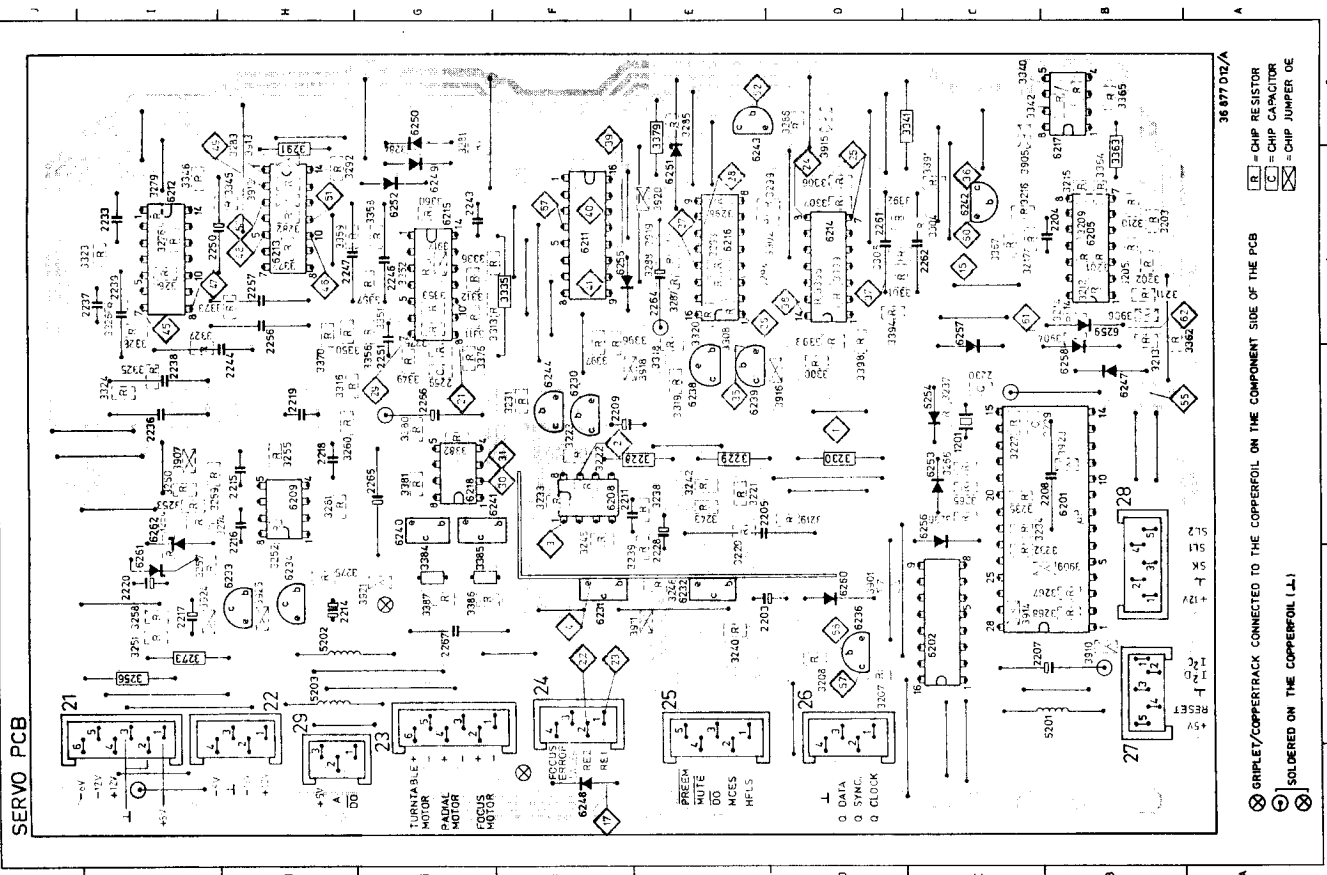


Explanation of the fuse symbols used in the set.
 Explanation des symboles du fusible utilisés dans l'appareil:

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 8005165 - PCB4



1201	C3	3208	E3	2219	H4	2288	E2	2237	H4	2249	G4	2255	G4	2265	G4	2273	G4	2281	G4	2289	G4	2297	G4	2305	G4	2313	G4	2321	G4	2329	G4	2337	G4	2345	G4	2353	G4	2361	G4	2369	G4	2377	G4	2385	G4	2393	G4	2401	G4	2409	G4	2417	G4	2425	G4	2433	G4	2441	G4	2449	G4	2457	G4	2465	G4	2473	G4	2481	G4	2489	G4	2497	G4	2505	G4	2513	G4	2521	G4	2529	G4	2537	G4	2545	G4	2553	G4	2561	G4	2569	G4	2577	G4	2585	G4	2593	G4	2601	G4	2609	G4	2617	G4	2625	G4	2633	G4	2641	G4	2649	G4	2657	G4	2665	G4	2673	G4	2681	G4	2689	G4	2697	G4	2705	G4	2713	G4	2721	G4	2729	G4	2737	G4	2745	G4	2753	G4	2761	G4	2769	G4	2777	G4	2785	G4	2793	G4	2801	G4	2809	G4	2817	G4	2825	G4	2833	G4	2841	G4	2849	G4	2857	G4	2865	G4	2873	G4	2881	G4	2889	G4	2897	G4	2905	G4	2913	G4	2921	G4	2929	G4	2937	G4	2945	G4	2953	G4	2961	G4	2969	G4	2977	G4	2985	G4	2993	G4	3001	G4	3009	G4	3017	G4	3025	G4	3033	G4	3041	G4	3049	G4	3057	G4	3065	G4	3073	G4	3081	G4	3089	G4	3097	G4	3105	G4	3113	G4	3121	G4	3129	G4	3137	G4	3145	G4	3153	G4	3161	G4	3169	G4	3177	G4	3185	G4	3193	G4	3201	G4	3209	G4	3217	G4	3225	G4	3233	G4	3241	G4	3249	G4	3257	G4	3265	G4	3273	G4	3281	G4	3289	G4	3297	G4	3305	G4	3313	G4	3321	G4	3329	G4	3337	G4	3345	G4	3353	G4	3361	G4	3369	G4	3377	G4	3385	G4	3393	G4	3401	G4	3409	G4	3417	G4	3425	G4	3433	G4	3441	G4	3449	G4	3457	G4	3465	G4	3473	G4	3481	G4	3489	G4	3497	G4	3505	G4	3513	G4	3521	G4	3529	G4	3537	G4	3545	G4	3553	G4	3561	G4	3569	G4	3577	G4	3585	G4	3593	G4	3601	G4	3609	G4	3617	G4	3625	G4	3633	G4	3641	G4	3649	G4	3657	G4	3665	G4	3673	G4	3681	G4	3689	G4	3697	G4	3705	G4	3713	G4	3721	G4	3729	G4	3737	G4	3745	G4	3753	G4	3761	G4	3769	G4	3777	G4	3785	G4	3793	G4	3801	G4	3809	G4	3817	G4	3825	G4	3833	G4	3841	G4	3849	G4	3857	G4	3865	G4	3873	G4	3881	G4	3889	G4	3897	G4	3905	G4	3913	G4	3921	G4	3929	G4	3937	G4	3945	G4	3953	G4	3961	G4	3969	G4	3977	G4	3985	G4	3993	G4	4001	G4	4009	G4	4017	G4	4025	G4	4033	G4	4041	G4	4049	G4	4057	G4	4065	G4	4073	G4	4081	G4	4089	G4	4097	G4	4105	G4	4113	G4	4121	G4	4129	G4	4137	G4	4145	G4	4153	G4	4161	G4	4169	G4	4177	G4	4185	G4	4193	G4	4201	G4	4209	G4	4217	G4	4225	G4	4233	G4	4241	G4	4249	G4	4257	G4	4265	G4	4273	G4	4281	G4	4289	G4	4297	G4	4305	G4	4313	G4	4321	G4	4329	G4	4337	G4	4345	G4	4353	G4	4361	G4	4369	G4	4377	G4	4385	G4	4393	G4	4401	G4	4409	G4	4417	G4	4425	G4	4433	G4	4441	G4	4449	G4	4457	G4	4465	G4	4473	G4	4481	G4	4489	G4	4497	G4	4505	G4	4513	G4	4521	G4	4529	G4	4537	G4	4545	G4	4553	G4	4561	G4	4569	G4	4577	G4	4585	G4	4593	G4	4601	G4	4609	G4	4617	G4	4625	G4	4633	G4	4641	G4	4649	G4	4657	G4	4665	G4	4673	G4	4681	G4	4689	G4	4697	G4	4705	G4	4713	G4	4721	G4	4729	G4	4737	G4	4745	G4	4753	G4	4761	G4	4769	G4	4777	G4	4785	G4	4793	G4	4801	G4	4809	G4	4817	G4	4825	G4	4833	G4	4841	G4	4849	G4	4857	G4	4865	G4	4873	G4	4881	G4	4889	G4	4897	G4	4905	G4	4913	G4	4921	G4	4929	G4	4937	G4	4945	G4	4953	G4	4961	G4	4969	G4	4977	G4	4985	G4	4993	G4	5001	G4	5009	G4	5017	G4	5025	G4	5033	G4	5041	G4	5049	G4	5057	G4	5065	G4	5073	G4	5081	G4	5089	G4	5097	G4	5105	G4	5113	G4	5121	G4	5129	G4	5137	G4	5145	G4	5153	G4	5161	G4	5169	G4	5177	G4	5185	G4	5193	G4	5201	G4	5209	G4	5217	G4	5225	G4	5233	G4	5241	G4	5249	G4	5257	G4	5265	G4	5273	G4	5281	G4	5289	G4	5297	G4	5305	G4	5313	G4	5321	G4	5329	G4	5337	G4	5345	G4	5353	G4	5361	G4	5369	G4	5377	G4	5385	G4	5393	G4	5401	G4	5409	G4	5417	G4	5425	G4	5433	G4	5441	G4	5449	G4	5457	G4	5465	G4	5473	G4	5481	G4	5489	G4	5497	G4	5505	G4	5513	G4	5521	G4	5529	G4	5537	G4	5545	G4	5553	G4	5561	G4	5569	G4	5577	G4	5585	G4	5593	G4	5601	G4	5609	G4	5617	G4	5625	G4	5633	G4	5641	G4	5649	G4	5657	G4	5665	G4	5673	G4	5681	G4	5689	G4	5697	G4	5705	G4	5713	G4	5721	G4	5729	G4	5737	G4	5745	G4	5753	G4	5761	G4	5769	G4	5777	G4	5785	G4	5793	G4	5801	G4	5809	G4	5817	G4	5825	G4	5833	G4	5841	G4	5849	G4	5857	G4	5865	G4	5873	G4	5881	G4	5889	G4	5897	G4	5905	G4	5913	G4	5921	G4	5929	G4	5937	G4	5945	G4	5953	G4	5961	G4	5969	G4	5977	G4	5985	G4	5993	G4	6001	G4	6009	G4	6017	G4	6025	G4	6033	G4	6041	G4	6049	G4	6057	G4	6065	G4	6073	G4	6081	G4	6089	G4	6097	G4	6105	G4	6113	G4	6121	G4	6129	G4	6137	G4	6145	G4	6153	G4	6161	G4	6169	G4	6177	G4	6185	G4	6193	G4	6201	G4	6209	G4	6217	G4	6225	G4	6233	G4	6241	G4	6249	G4	6257	G4	6265	G4	6273	G4	6281	G4	6289	G4	6297	G4	6305	G4	6313	G4	6321	G4	6329	G4	6337	G4	6345	G4	6353	G4	6361	G4	6369	G4	6377	G4	6385	G4	6393	G4	6401	G4	6409	G4	6417	G4	6425	G4	6433	G4	6441	G4	6449	G4	6457	G4	6465	G4	6473	G4	6481	G4	6489	G4	6497	G4	6505	G4	6513	G4	6521	G4	6529	G4	6537	G4	6545	G4	6553	G4	6561	G4	6569	G4	6577	G4	6585	G4	6593	G4	6601	G4	6609	G4	6617	G4	6625	G4	6633	G4	6641	G4	6649	G4	6657	G4	6665	G4	6673	G4	6681	G4	6689	G4	6697	G4	6705	G4	6713	G4	6721	G4	6729	G4	6737	G4	6745	G4	6753	G4	6761	G4	6769	G4	6777	G4	6785	G4	6793	G4	6801	G4	6809	G4	6817	G4	6825	G4	6833	G4	6841	G4	6849	G4	6857	G4	6865	G4	6873	G4	6881	G4	6889	G4	6897	G4	6905	G4	6913	G4	6921	G4	6929	G4	6937	G4	6945	G4	6953	G4	6961	G4	6969	G4	6977	G4	6985	G4	6993	G4	7001	G4	7009	G4	7017	G4	7025	G4	7033	G4	7041	G4	7049	G4	7057	G4	7065	G4	7073	G4	7081	G4	7089	G4	7097	G4	7105	G4	7113	G4	7121	G4	7129	G4	7137	G4	7145	G4	7153	G4	7161	G4	7169	G4	7177	G4	7185	G4	7193	G4	7201	G4	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DECODER 8005166 - PCB5

1506	C5	3200	A5	3208	B3	3214	B2	3218	B1	3224	A2	3230	C2	3236	C1	3242	C3	3248	E3	3254	E4	3260	E5	3266	E6	3272	E7	3278	E8	3284	E9	3290	B8	3296	B7	3302	B6	3308	B5	3314	B4	3320	B3	3326	B2	3332	B1	3338	A8	3344	A7	3350	A6	3356	A5	3362	A4	3368	A3	3374	A2	3380	A1	3386	B8	3392	B7	3398	B6	3404	B5	3410	B4	3416	B3	3422	B2	3428	B1	3434	A8	3440	A7	3446	A6	3452	A5	3458	A4	3464	A3	3470	A2	3476	A1	3482	B8	3488	B7	3494	B6	3500	B5	3506	B4	3512	B3	3518	B2	3524	B1	3530	A8	3536	A7	3542	A6	3548	A5	3554	A4	3560	A3	3566	A2	3572	A1	3578	B8	3584	B7	3590	B6	3596	B5	3602	B4	3608	B3	3614	B2	3620	B1	3626	A8	3632	A7	3638	A6	3644	A5	3650	A4	3656	A3	3662	A2	3668	A1	3674	B8	3680	B7	3686	B6	3692	B5	3698	B4	3704	B3	3710	B2	3716	B1	3722	A8	3728	A7	3734	A6	3740	A5	3746	A4	3752	A3	3758	A2	3764	A1	3770	B8	3776	B7	3782	B6	3788	B5	3794	B4	3800	B3	3806	B2	3812	B1	3818	A8	3824	A7	3830	A6	3836	A5	3842	A4	3848	A3	3854	A2	3860	A1	3866	B8	3872	B7	3878	B6	3884	B5	3890	B4	3896	B3	3902	B2	3908	B1	3914	A8	3920	A7	3926	A6	3932	A5	3938	A4	3944	A3	3950	A2	3956	A1	3962	B8	3968	B7	3974	B6	3980	B5	3986	B4	3992	B3	3998	B2	4004	B1
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Semi-conductors

20	102	103	136	209	214

Transistors

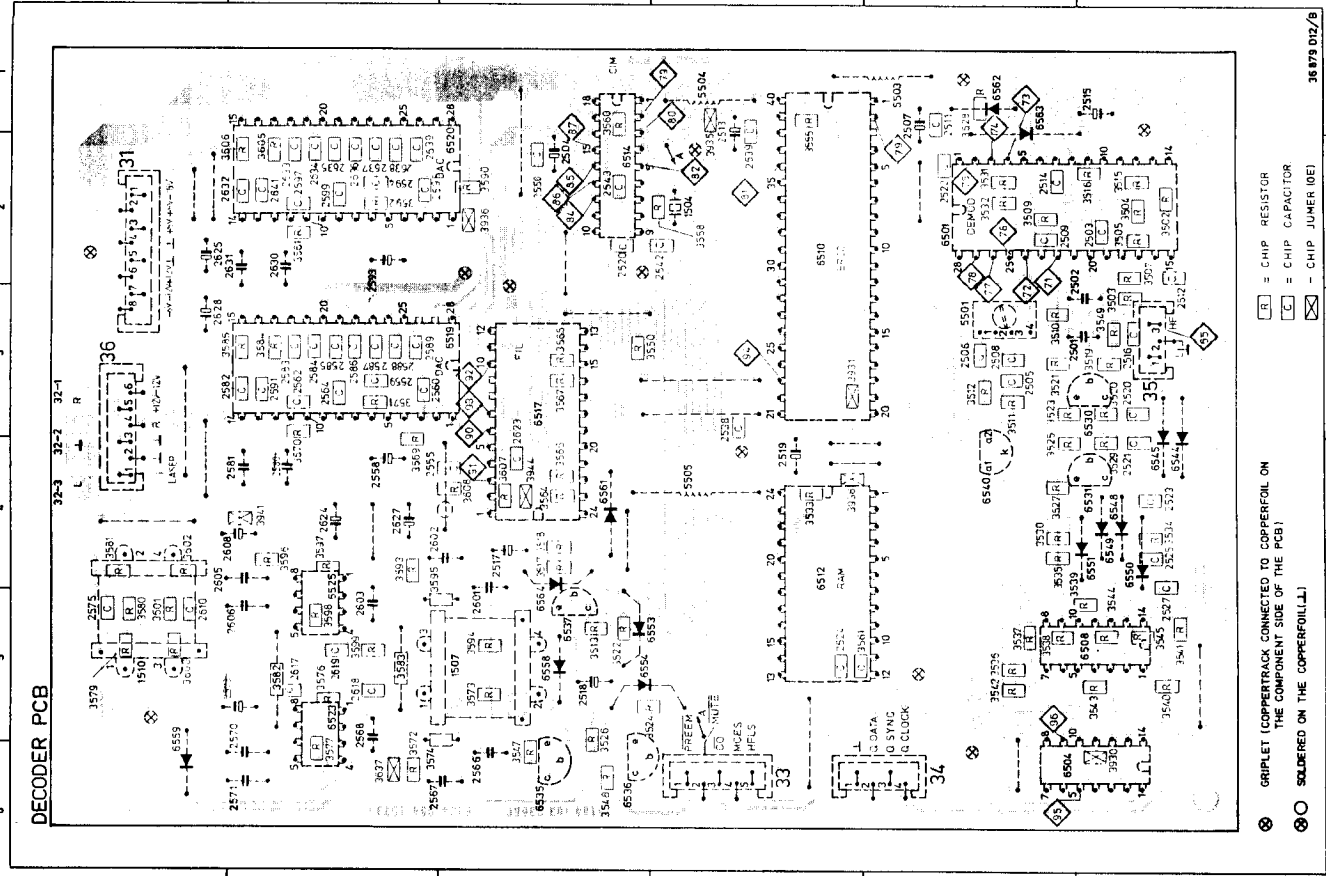
6530	8320108 20	BC 548B	6537	8320108 20	BC 548B
6531			6540		
6535	8230104 20	BC 558B			
6536					

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

6550	8300245 214	BAX 18
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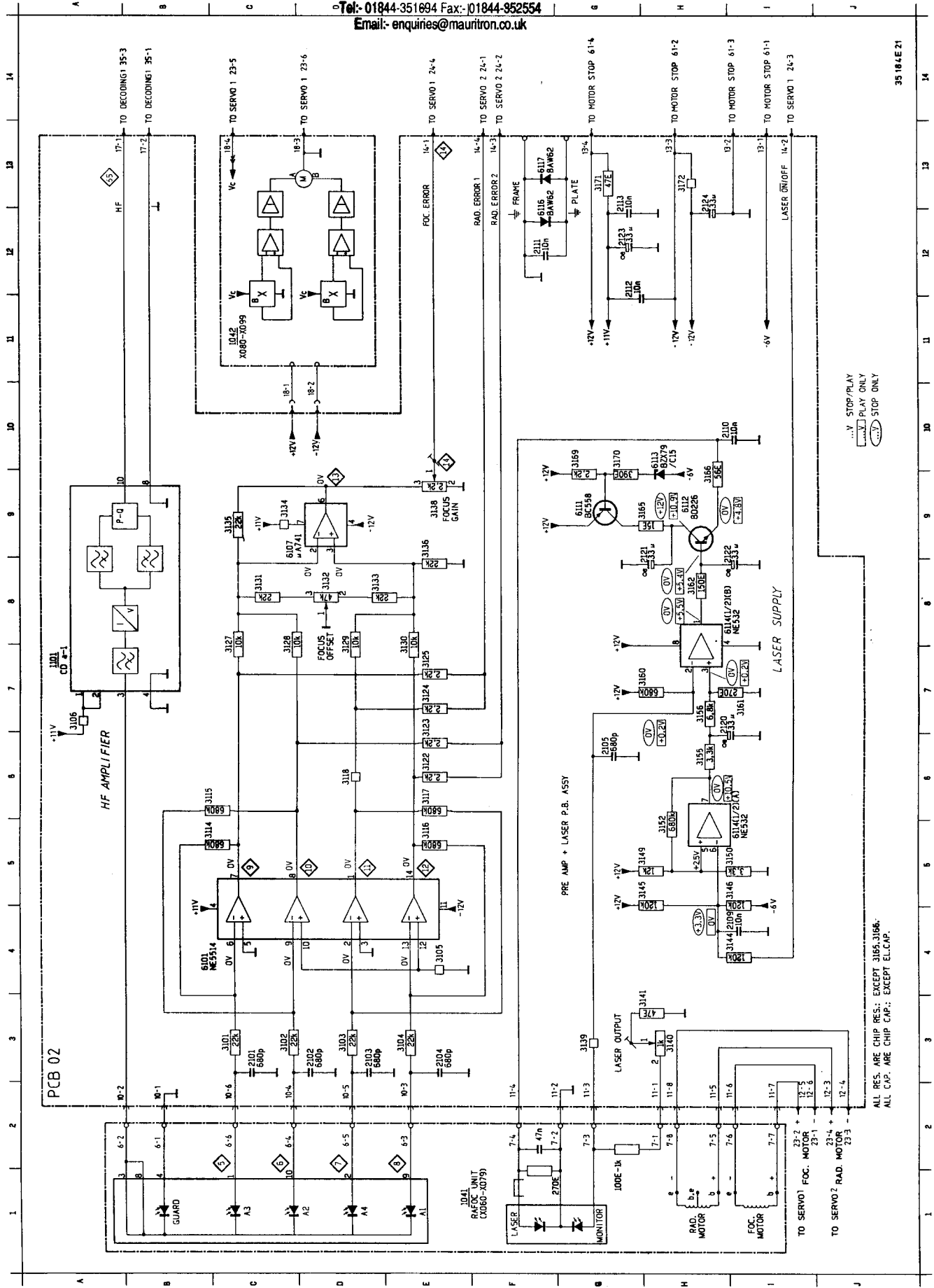
□ R = CHIP RESISTOR
 □ C = CHIP CAPACITOR
 □ D = CHIP JUMPER (OE)
 ⊗ GRIPLET (COPPERTRACK CONNECTED TO COPPERFOIL ON THE COMPONENT SIDE OF THE PCB)
 ⊙ SOLDERED ON THE COPPERFOIL(L)

DECODER 8005166 - PCB5

1504	C1	1503	D2	1508	B1	1514	B1	1519	C4	1524	C5	1534	C5	1539	C4	1544	B1	1549	C4	1554	C2	1559	E3	1564	E6	1569	F5
1507	D5	1508	B1	1511	B1	1516	A1	1521	A4	1526	A5	1531	A4	1536	A4	1541	A4	1546	A4	1551	A4	1556	E3	1561	E6	1566	F5
1510	F5	1505	B1	1510	B1	1515	A1	1520	A4	1525	A5	1530	A4	1535	A4	1540	A4	1545	A4	1550	A4	1555	E3	1560	E6	1565	F5
1513	F5	1508	B1	1513	B1	1518	A1	1523	A4	1528	A5	1533	A4	1538	A4	1543	A4	1548	A4	1553	A4	1558	E3	1563	E6	1568	F5
1516	F5	1511	B1	1516	B1	1521	A1	1526	A4	1531	A5	1536	A4	1541	A4	1546	A4	1551	A4	1556	A4	1561	E3	1566	E6	1571	F5
1519	F5	1514	B1	1519	B1	1524	A1	1529	A4	1534	A5	1539	A4	1544	A4	1549	A4	1554	A4	1559	A4	1564	E3	1569	E6	1574	F5
1522	F5	1517	B1	1522	B1	1527	A1	1532	A4	1537	A5	1542	A4	1547	A4	1552	A4	1557	A4	1562	A4	1567	E3	1572	E6	1577	F5
1525	F5	1520	B1	1525	B1	1530	A1	1535	A4	1540	A5	1545	A4	1550	A4	1555	A4	1560	A4	1565	A4	1570	E3	1575	E6	1580	F5
1528	F5	1523	B1	1528	B1	1533	A1	1538	A4	1543	A5	1548	A4	1553	A4	1558	A4	1563	A4	1568	A4	1573	E3	1578	E6	1583	F5
1531	F5	1526	B1	1531	B1	1536	A1	1541	A4	1546	A5	1551	A4	1556	A4	1561	A4	1566	A4	1571	A4	1576	E3	1581	E6	1586	F5
1534	F5	1529	B1	1534	B1	1539	A1	1544	A4	1549	A5	1554	A4	1559	A4	1564	A4	1569	A4	1574	A4	1579	E3	1584	E6	1589	F5
1537	F5	1532	B1	1537	B1	1542	A1	1547	A4	1552	A5	1557	A4	1562	A4	1567	A4	1572	A4	1577	A4	1582	E3	1587	E6	1592	F5
1540	F5	1535	B1	1540	B1	1545	A1	1550	A4	1555	A5	1560	A4	1565	A4	1570	A4	1575	A4	1580	A4	1585	E3	1590	E6	1595	F5
1543	F5	1538	B1	1543	B1	1548	A1	1553	A4	1558	A5	1563	A4	1568	A4	1573	A4	1578	A4	1583	A4	1588	E3	1593	E6	1598	F5
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1597	F5	1592	B1	1597	B1	1602	A1	1607	A4	1612	A5	1617	A4	1622	A4	1627	A4	1632	A4	1637	A4	1642	E3	1647	E6	1652	F5
1600	F5	1595	B1	1600	B1	1605	A1	1610	A4	1615	A5	1620	A4	1625	A4	1630	A4	1635	A4	1640	A4	1645	E3	1650	E6	1655	F5
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1663	F5	1658	B1	1663	B1	1667	A1	1672	A4	1677	A5	1682	A4	1687	A4	1692	A4	1697	A4	1702	A4	1707	E3	1712	E6	1717	F5
1666	F5	1661	B1	1666	B1	1671	A1	1676	A4	1681	A5	1686	A4	1691	A4	1696	A4	1701	A4	1706	A4	1711	E3	1716	E6	1721	F5
1669	F5	1664	B1	1669	B1	1674	A1	1679	A4	1684	A5	1689	A4	1694	A4	1699	A4	1704	A4	1709	A4	1714	E3	1719	E6	1724	F5
1672	F5	1667	B1	1672	B1	1682	A1	1687	A4	1692	A																

- 1101 A 7 2104 E 3
- 2101 C 3 2105 G 6
- 2102 D 3 2109 I 4
- 2103 E 3 2110 H 0
- 3101 C 3 3105 E 4
- 3102 C 3 3106 A 7
- 3103 D 3 3108 G 2
- 3104 E 3 3110 H 0
- 3105 E 4 3111 F 2
- 3106 A 7 3112 G 2
- 3107 B 7 3113 G 3
- 3108 G 2 3114 H 0
- 3109 H 2 3115 H 1
- 3110 H 1 3116 I 1
- 3111 F 2 3117 E 6
- 3112 G 2 3118 D 6
- 3113 G 3 3119 D 6
- 3114 H 0 3120 E 6
- 3115 H 1 3121 E 6
- 3116 I 1 3122 E 6
- 3117 E 6 3123 E 7
- 3118 D 6 3124 E 7
- 3119 D 6 3125 E 7
- 3120 E 6 3126 E 7
- 3121 E 6 3127 C 8
- 3122 E 6 3128 C 8
- 3123 E 7 3129 C 8
- 3124 E 7 3130 D 8
- 3125 E 7 3131 D 8
- 3126 E 7 3132 C 9
- 3127 C 8 3133 C 9
- 3128 C 8 3134 C 9
- 3129 C 8 3135 C 9
- 3130 D 8 3136 H 3
- 3131 D 8 3137 H 3
- 3132 C 9 3138 H 3
- 3133 C 9 3139 H 3
- 3134 C 9 3140 H 3
- 3135 C 9 3141 I 3
- 3136 H 3 3142 I 3
- 3137 H 3 3143 I 4
- 3138 H 3 3144 I 4
- 3139 H 3 3145 G 5
- 3140 H 3 3146 G 5
- 3141 I 3 3147 F 5
- 3142 I 3 3148 F 5
- 3143 I 4 3149 G 5
- 3144 I 4 3150 I 5
- 3145 G 5 3151 I 5
- 3146 G 5 3152 H 6
- 3147 F 5 3153 H 6
- 3148 F 5 3154 H 6
- 3149 G 5 3155 H 6
- 3150 I 5 3156 H 7
- 3151 I 5 3157 H 7
- 3152 H 6 3158 I 7
- 3153 H 6 3159 I 7
- 3154 H 6 3160 C 9
- 3155 H 6 3161 C 9
- 3156 H 7 3162 C 9
- 3157 H 7 3163 C 9
- 3158 I 7 3164 C 9
- 3159 I 7 3165 C 9
- 3160 C 9 3166 H 9
- 3161 C 9 3167 H 9
- 3162 C 9 3168 H 9
- 3163 C 9 3169 H 9
- 3164 C 9 3170 G 9
- 3165 C 9 3171 G 9
- 3166 H 9 3172 H 3
- 3167 H 9 3173 H 3
- 3168 H 9 3174 H 3
- 3169 H 9 3175 H 3
- 3170 G 9 3176 H 0
- 3171 G 9 3177 H 0
- 3172 H 3 3178 H 0
- 3173 H 3 3179 H 0
- 3174 H 3 3180 H 0
- 3175 H 3 3181 H 0
- 3176 H 0 3182 H 0
- 3177 H 0 3183 H 0
- 3178 H 0 3184 H 0
- 3179 H 0 3185 H 0
- 3180 H 0 3186 H 0
- 3181 H 0 3187 H 0
- 3182 H 0 3188 H 0
- 3183 H 0 3189 H 0
- 3184 H 0 3190 H 0
- 3185 H 0 3191 H 0
- 3186 H 0 3192 H 0
- 3187 H 0 3193 H 0
- 3188 H 0 3194 H 0
- 3189 H 0 3195 H 0
- 3190 H 0 3196 H 0
- 3191 H 0 3197 H 0
- 3192 H 0 3198 H 0
- 3193 H 0 3199 H 0
- 3194 H 0 3200 H 0

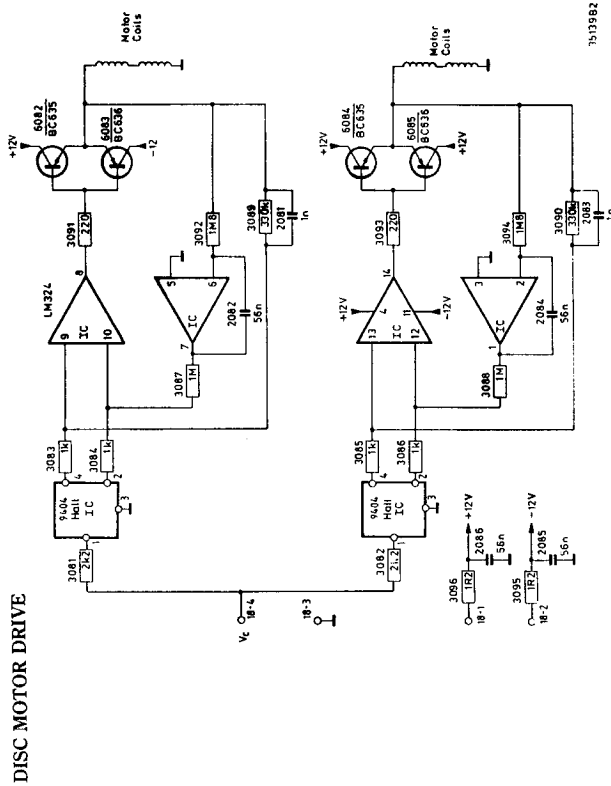
For Service Manuals Contact
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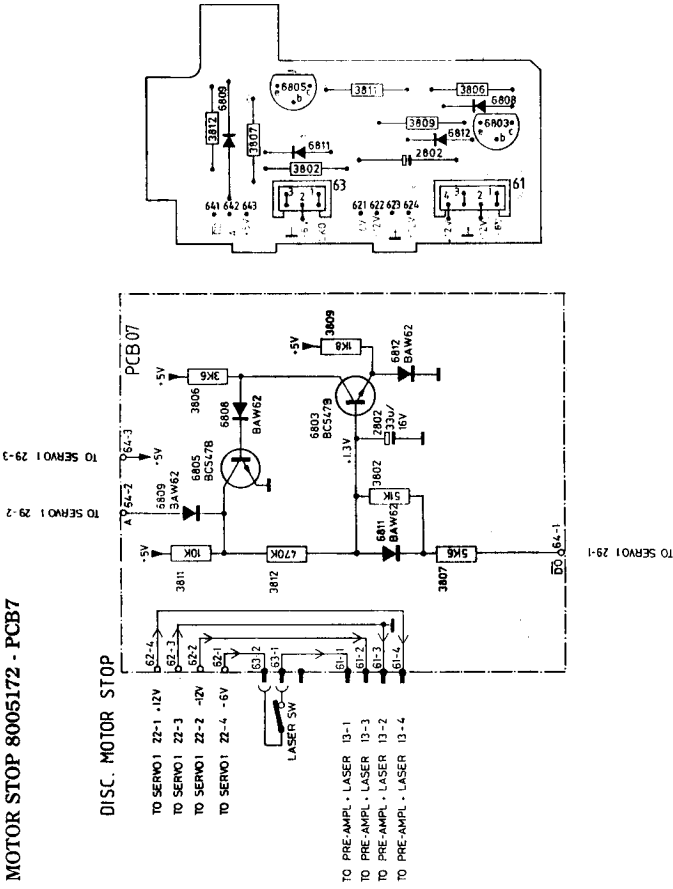
...V STOP/PLAY
 ...V PLAY ONLY
 ...V STOP ONLY

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

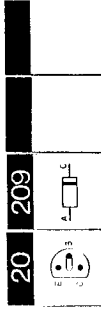
MOTOR STOP 8005172 - PCB7



7513862



Semi-conductors



Transistors

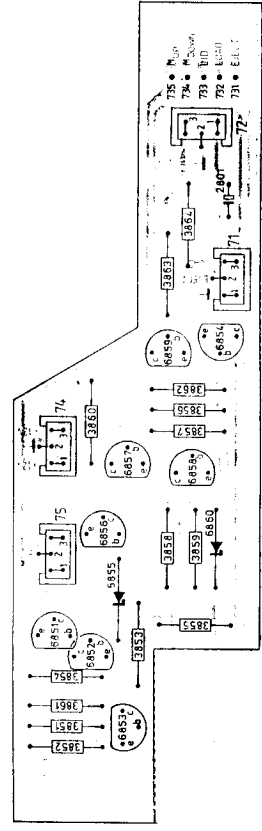
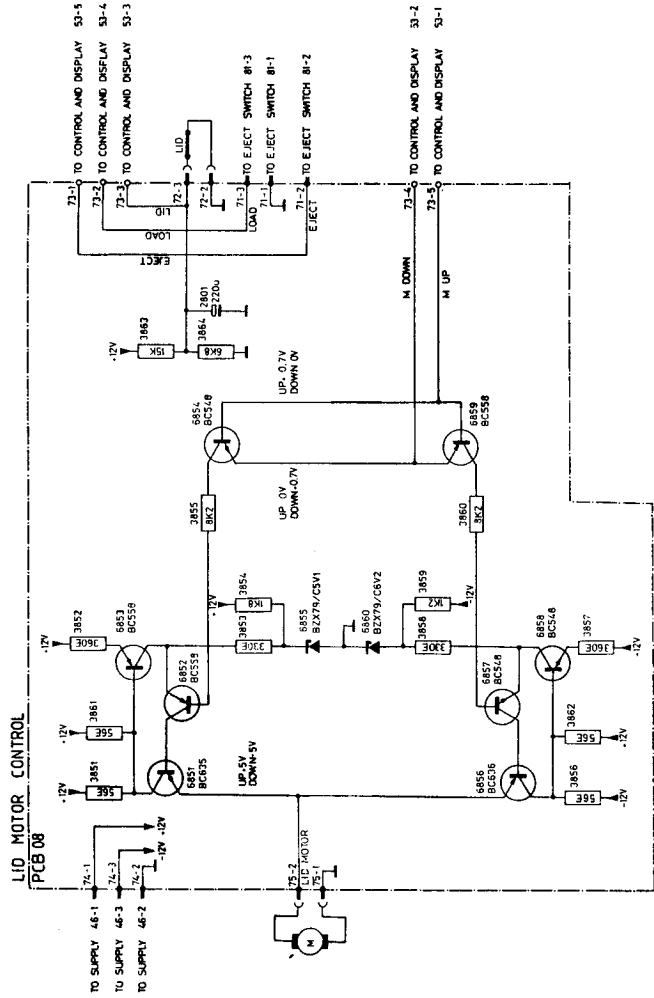
6803	8320097 20	BC 547C
6805		

Diodes

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

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MOTOR CONTROL 8005170 - PCB8



Semi-conductors

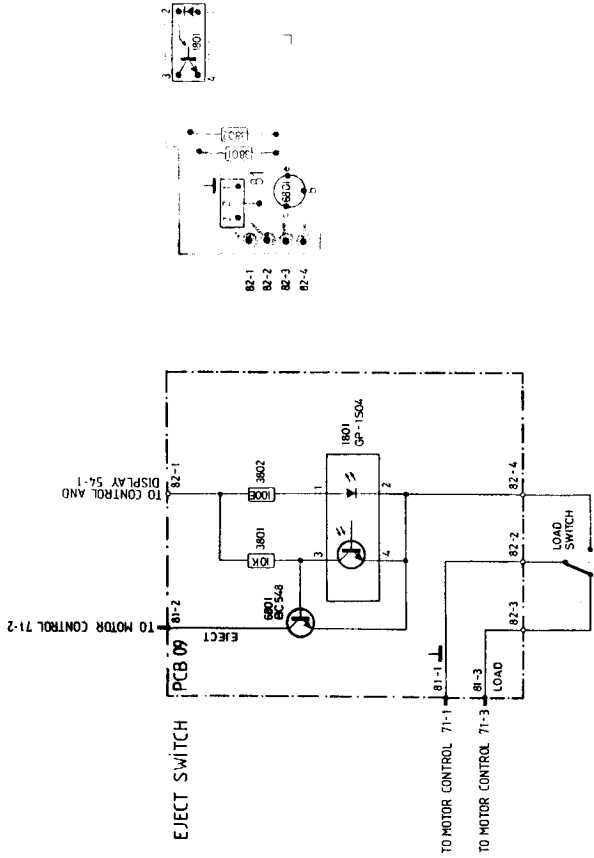
17	20	209				

Transistors

6851	8320378 17	BC 635	6856	8320632 17	BC 636
6852	8320104 20	BC 558B	6857	8320108 20	BC 548B
6853			6858		
6854	8320108 20	BC 548B	6859	8320104 20	BC 558B
6855	8300169 209	BZX79/CSV1	6850	8300201 209	BZX79/CSV2

Diodes

EJECT SWITCH 8005174 - PCB9



Transistors

6801	8320108 20	BC 548B
1801	8330156	GP-ISO4

Opto.

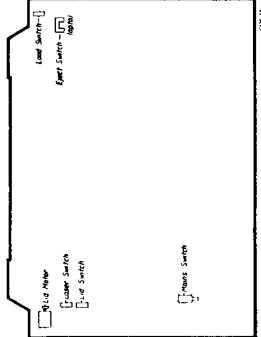
Switch survey

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

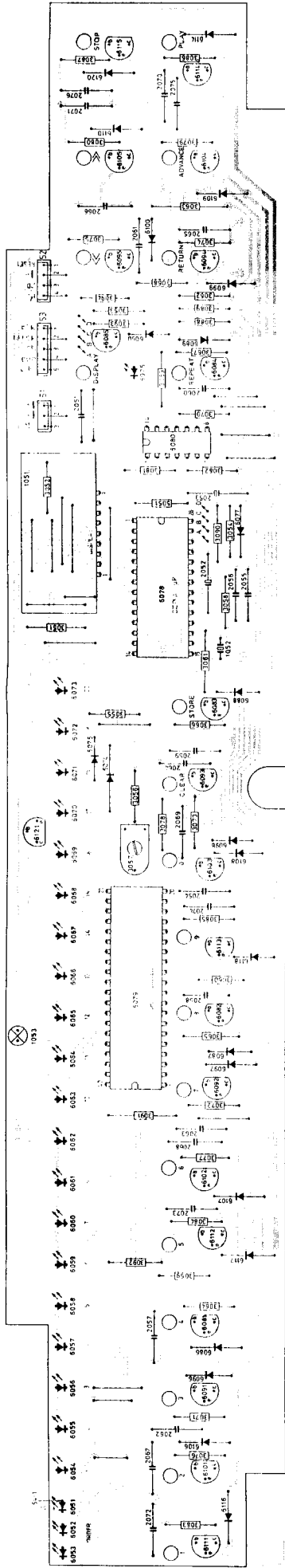
- LOAD is off
- LASER is on
- LID is on
- EJECT pin 12 of IC6078 is high

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.



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			

IC's

6101	8320281 42 BF 199
6105	
6078A	8340844 136 MAB 8440
6079A	8340467 124 MM 5450N

Diodes

6051-	8330143 30 Red	6086-	8300359 209 BAW 62
6053		6090	
6054-	8330144 230 Green	6096-	8300359 209 BAW 62
6073		6100	
6074	8300023 209 1N4002	6106-	8300359 209 BAW 62
6075		6110	

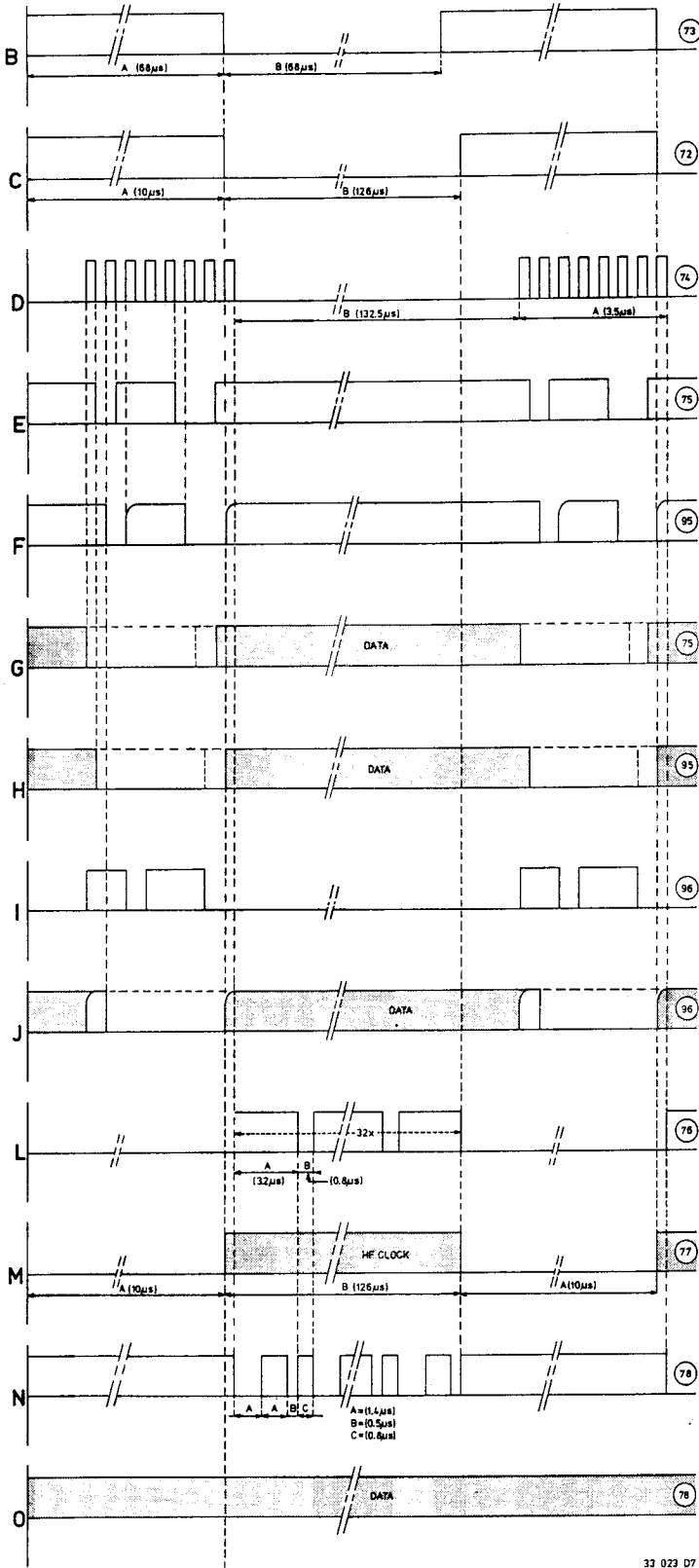
Display

6076	8330143 230 Reed	6116-	8300359 209 BAW 62
6077	8300359 209 BAW 62	6120	
1051	8330146 NSM 4000A		

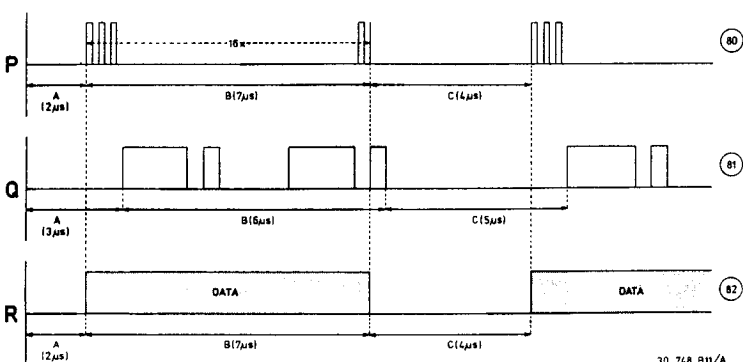
DECODING

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		

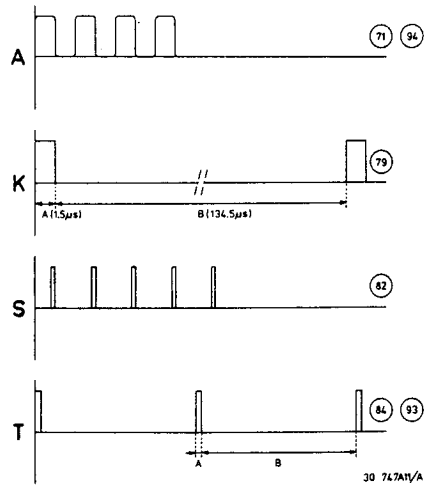
* In pos. pause, signal is only present **after** the set was brought in play mode.



33 023 D7



30 748 B11/A



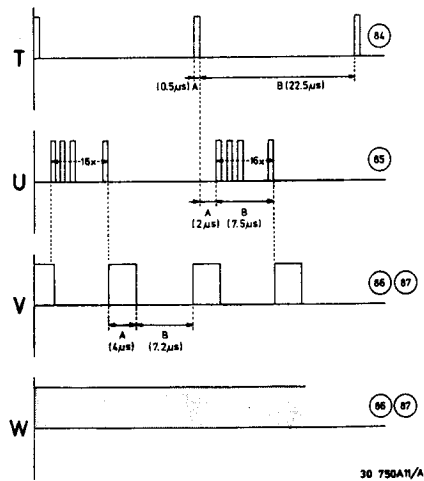
30 747A1/A

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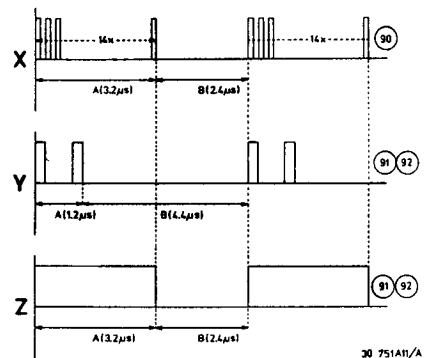
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Email:- enquiries@mauritron.co.uk



30 750A1/A

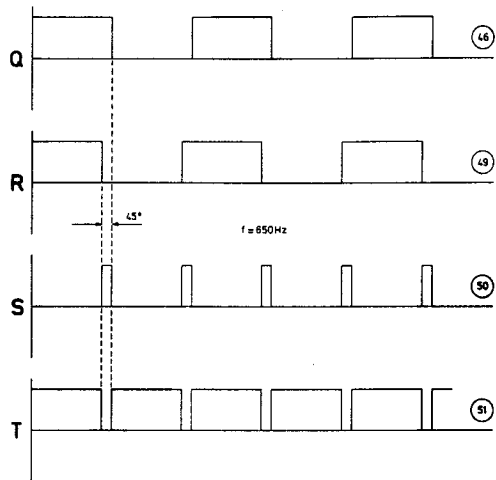
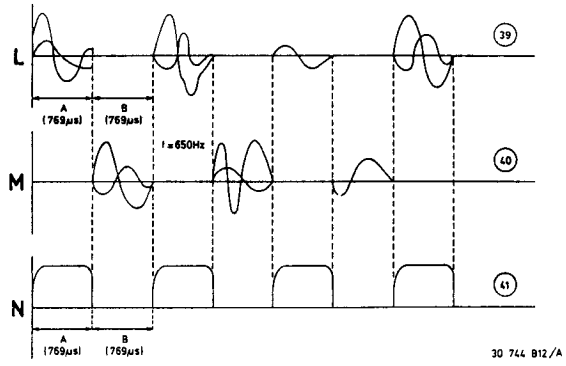
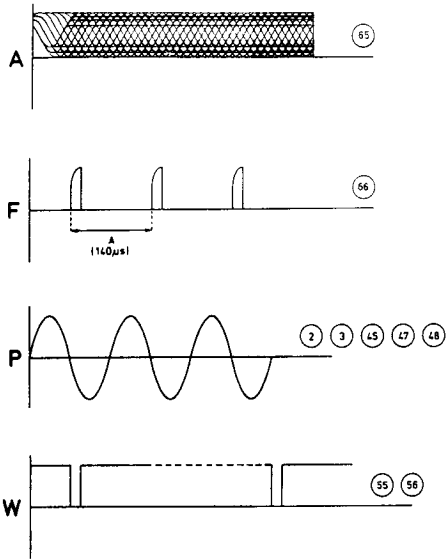


30 751A1/A

SERVO

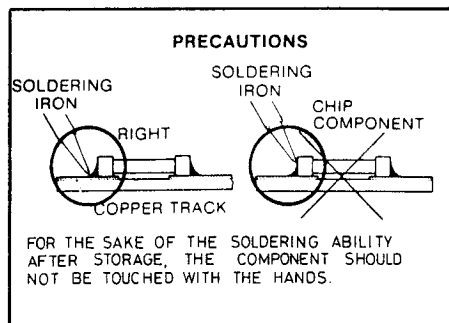
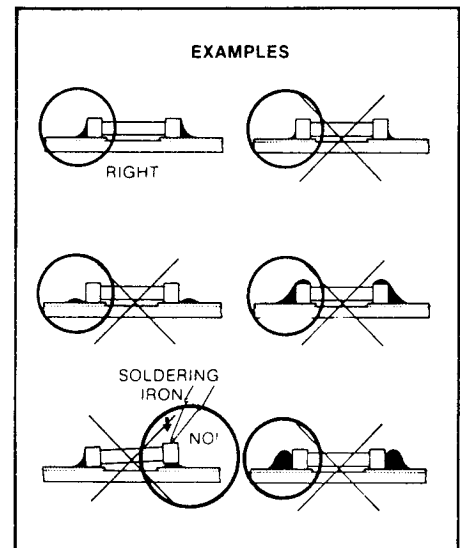
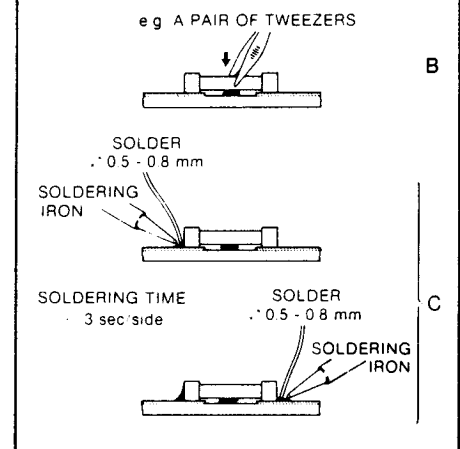
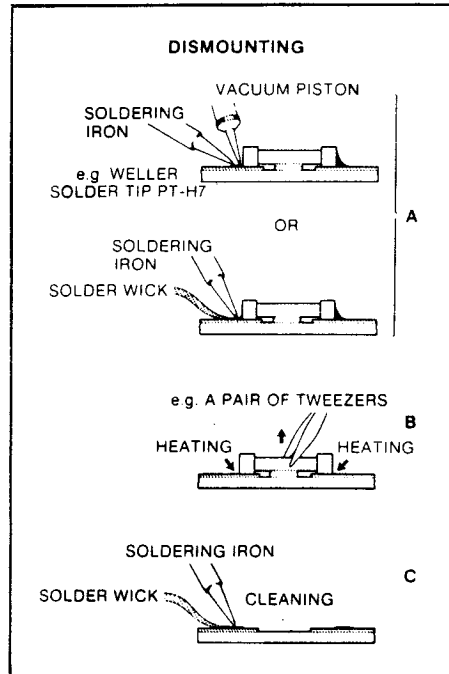
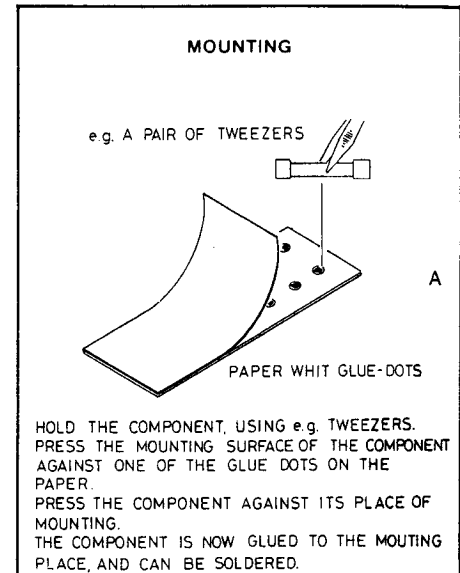
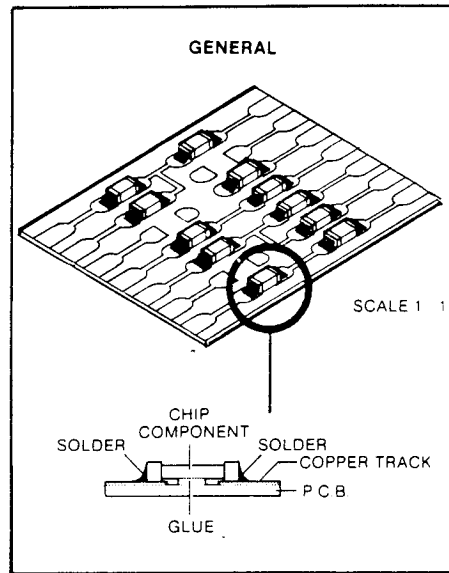
Test point	See	Position	Amplitude	f	Time base
29	P	stop	0.3 Vp-p		
39	L	play	0-4 Vp-p		A = 769 μ s B = 769 μ s
40	M	play	0-4 Vp-p		A = 769 μ s B = 769 μ s
41	N	play	6 Vp-p		A = 769 μ s B = 769 μ s
45	P	stop	9 Vp-p	650 Hz	
46	Q	stop	0-5 V	650 Hz	A = 769 μ s B = 769 μ s
47	P	stop	1.5 Vp-p	650 Hz	
48	P	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


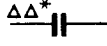
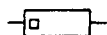
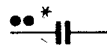



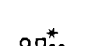


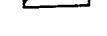
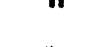
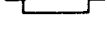
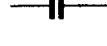

27pF	4000244	1.5nF	4000251
33pF	4000245	2.2nF	4000252
39pF	4000246	5.6nF	4000253
68pF	4000247	10nF	4000254
100pF	4000248	22nF	4000255
470pF	4000249	100nF	4000256
820pF	4000250		

Chip resistor 2% 0,125W 1206

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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		

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 I = 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	
	Chip component		Miniature single	
			Subminiature tantalum \pm 20%	

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.	
2701	4010123	1 nF 400V	2703	4100253	100 nF 250V		
1701	6600037	Fuse 200mA	7500214	Fuse holder			
	6600059	Fuse 400mA					
5451	6850162	Coil 2x25mH					
92T1	8013352	Transformer 5121/22/25	92F1	6609021	Thermal fuse 5121/22/25		
	8013372	Transformer 5123		6609022	Thermal fuse 5123		

Servo 8005165 - PCB4

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.

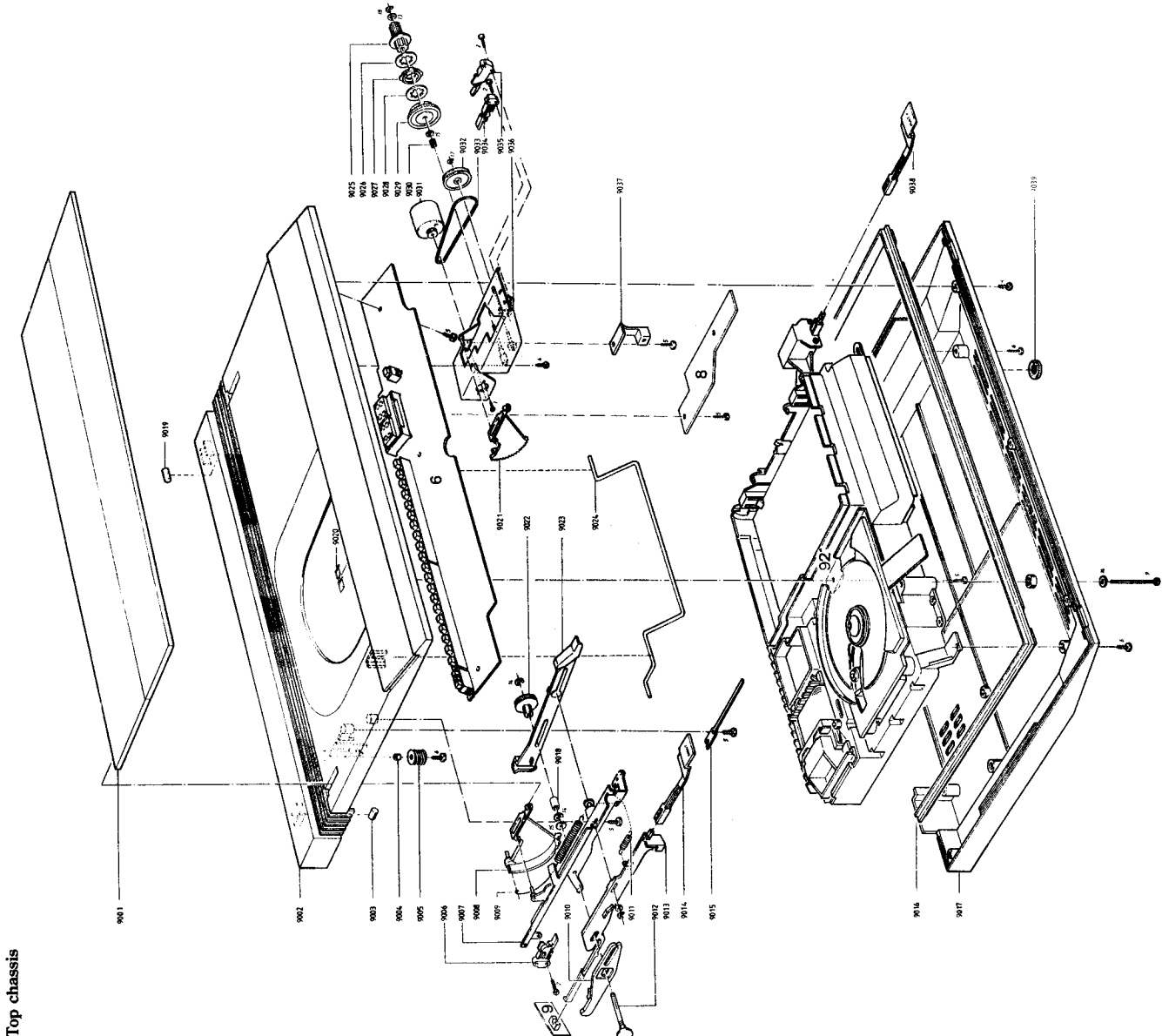
Motor Control 8005170 - PCB8

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.			
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LIST OF MECHANICAL PART
Top chassis



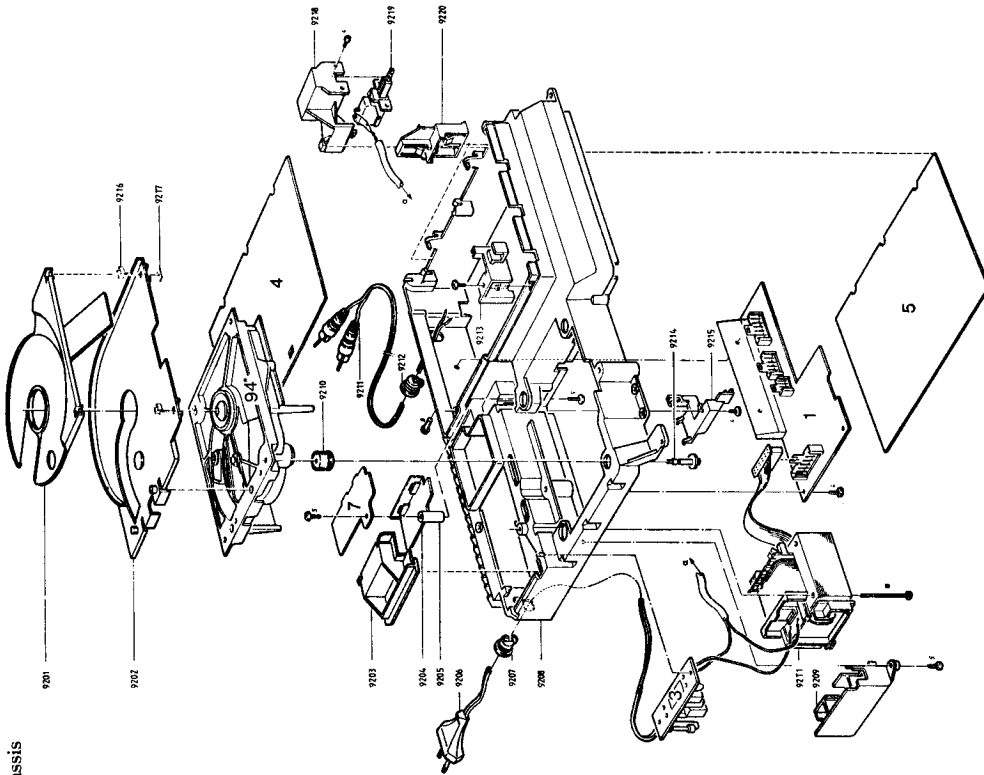
06Modul 8005167 Control PCB

08Modul 8005170 Motor Control PCB

9001	3162248	Dust cover
9002	3430353	Cabinet
9003	3341052	Plug
9004	2930094	Bushing
9005	2709006	Worm
9006	7400320	Switch
9007	3124103	Mount, plate
9008	3030089	Hinge, plate
9009	2810202	Spring, long
9010	2854113	Arm
9011	2810201	Spring, short
9012	2834092	Shaft
9013	2854112	Arm
9014	2854116	Arm
9015	2815018	Leaf spring
9016	3430354	Frame
9017	3454403	Bottom
9018	2930095	Bushing
9019	3341052	Plug
9020	3370151	Window
9021	3030090	Hinge, plate
9022	2700043	Gear wheel
9023	2854114	Arm
9024	2514053	Bracket
9025	2700045	Gear wheel
9026	2802045	Ring
9027	2802046	Ring
9028	2802045	Ring
9029	2700044	Gear wheel
9030	2812109	Spring
9031	8400143	Motor
9032	2722037	Pulley
9033	2732078	Belt
9034	7400320	Switch
9035	7400320	Switch
9036	3174102	Mount, plate
9037	3152508	Holder
9038	2854115	Arm
9039	3035045	Foot
9040	3370151	Window

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Main chassis



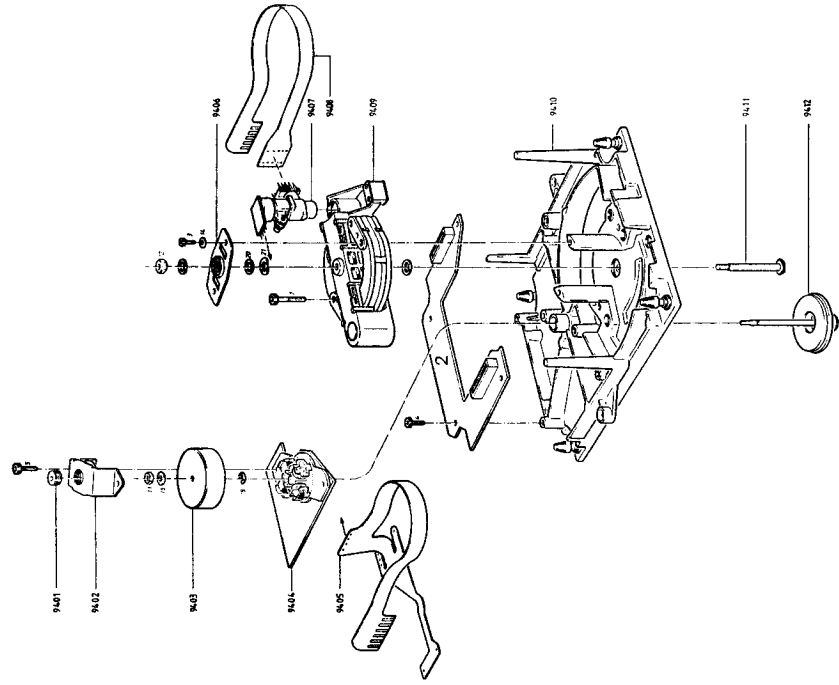
01	Modul 8005168	Supply PCB		
03	Modul 8005169	Main Filter PCB		
04	Modul 8005165	Servo PCB		
05	Modul 8005166	Decoder PCB		
07	Modul 8005166	Motor stop PCB		
09	Modul 8005174	Eject Switch PCB		
9201	3458401	9206	6271102	Mains cable 5122/22
9202	3458399		6270251	Mains cable 5123
9203	3162249		6271091	Mains cable 5125
9204	3162491	9207	2641119	Holder
9205	2938244	9208	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 5121/22/25	92F1	6609021	Thermal fuse 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

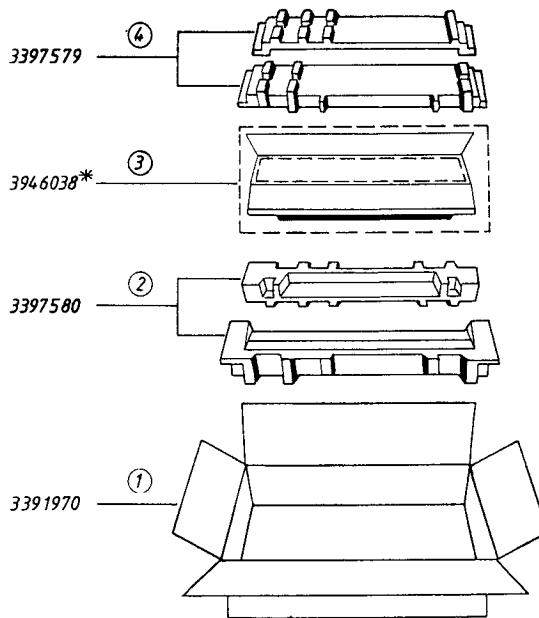
Parts not shown

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

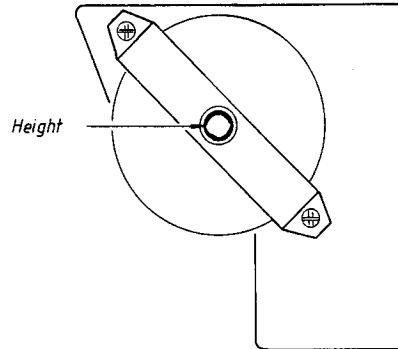
1. Arm 9011 sliding surface towards 9013
 Bracket 9007 sliding surface towards 9013
 Silocone paste P4
2. Arm 9008 sliding surface towards 9007 Isoflex PDL250

MECHANICAL ADJUSTMENTS

Height setting of the turntable

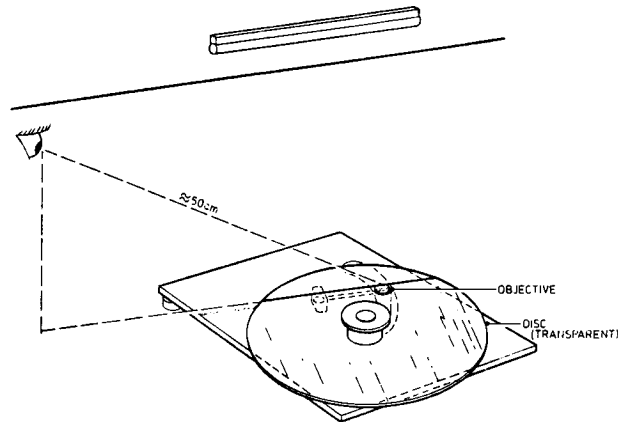
For this alignment the unit should be in the position of normal end use. The servicing supports 3634027 can be used here. Playback track 1 of disc 3634031. (Disc without defects). Connect a DC voltmeter between the *negative* of the focus motor and earth of the preamplifier print.

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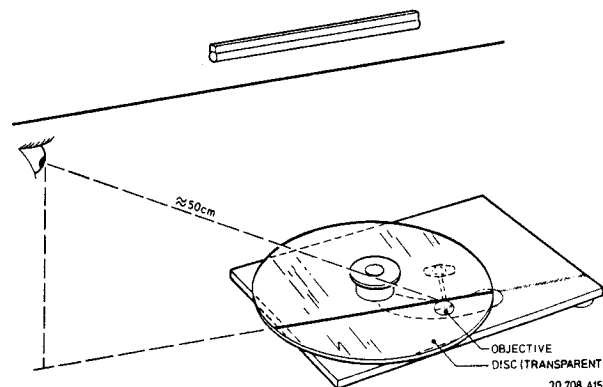
Place mirror 3634029 on the objective and glass disc 3634040 (with disc hold-down 3634032) on the turntable.

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.

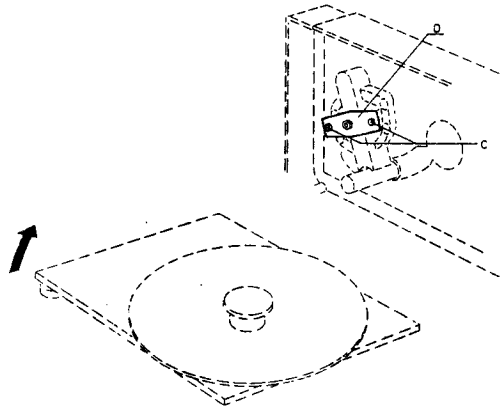
In the measurements show that the angle falls outside the tolerance given, the angle should *not* be adjusted for minimum deviation, but just within tolerance. The new setting should lie between the "old" setting and the optimum setting.

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.

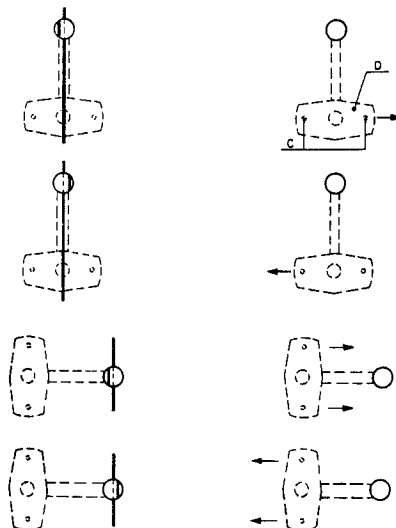
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Loosen screws C (see fig.) until bearing plate D can be shifted. Correct the angle setting by shifting the bearing plate in the direction indicated on the figure. Tighten screws C ensuring that the setting does not drift. **Double check** the angle setting in two directions.

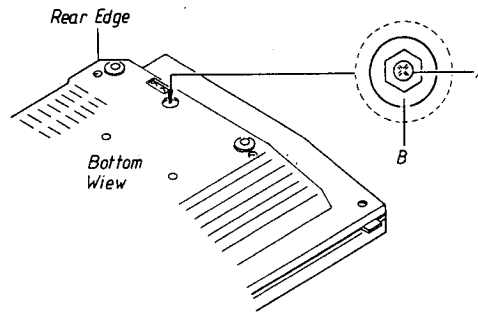
ATTENTION!

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.



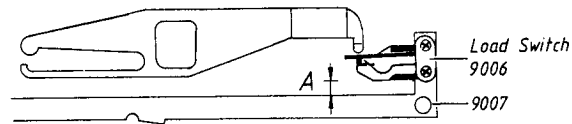
Loosen holding screw A.

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.

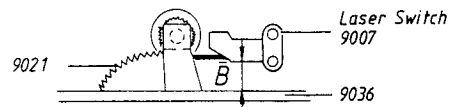
In case the adjustment is not within the tolerance range, this may cause failure of function in the eject system.

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.

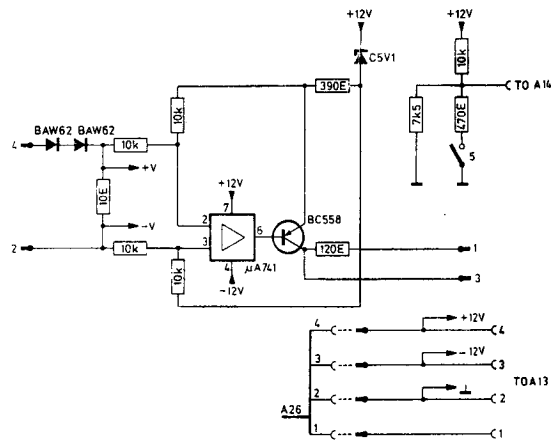
Spring 9009

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.

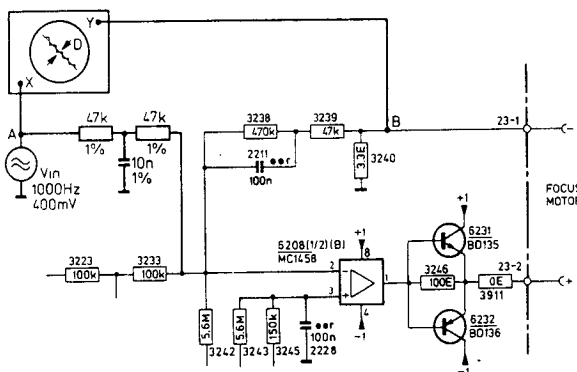
Adjusting the laser supply

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)

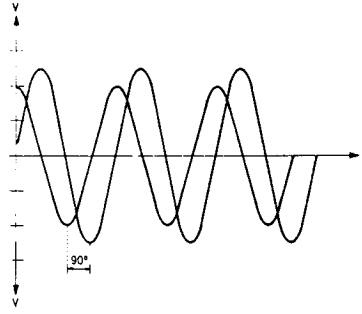
1. Disconnect the wire from PRE.AMPL. + LASER PCB to connector A18 pin 4 on the Hall motor control.
2. Connect channel A of a dual-beam oscilloscope to the emitter of transistor 6082, 6083 and channel B to the emitter of transistor 6084, 6085.
Position of oscilloscope: 2 V/div – 10 ms/div.
3. Switch 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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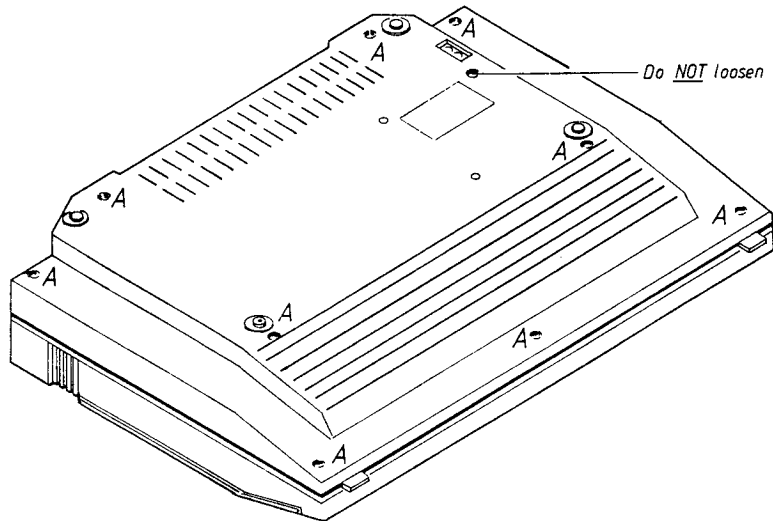
TECHNICAL SPECIFICATIONS

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

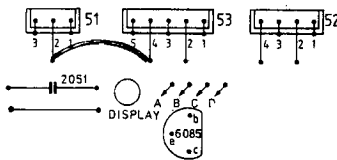
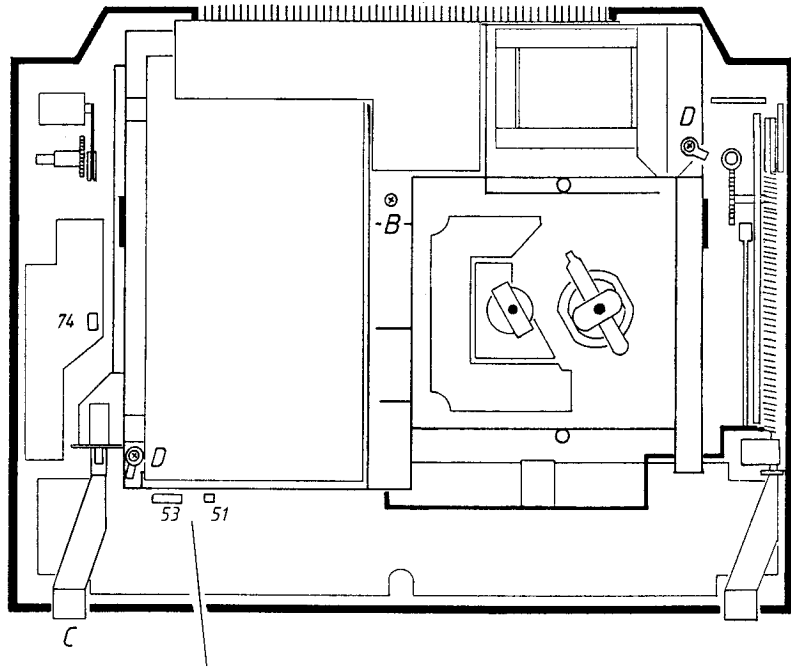
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DISMANTLING Bottom



Remove the screws A.

Top plate



Top Plate

Remove the screw B.

Remove the PLAY button C.

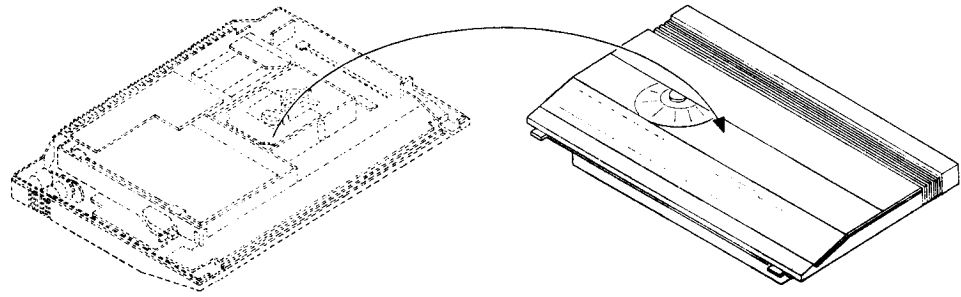
NB! The ON/OFF switch must be in position OFF when removing the button in order to avoid damaging the switch.

Remove the two ground connections D.

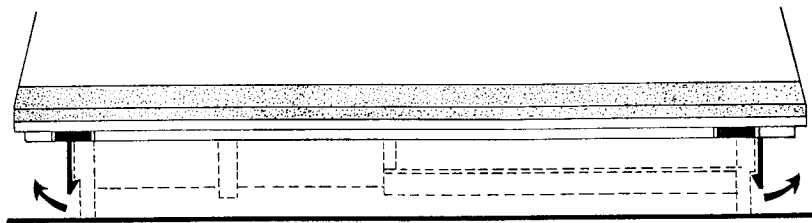
Remove plug 74 on the lid motor control PCB.

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.

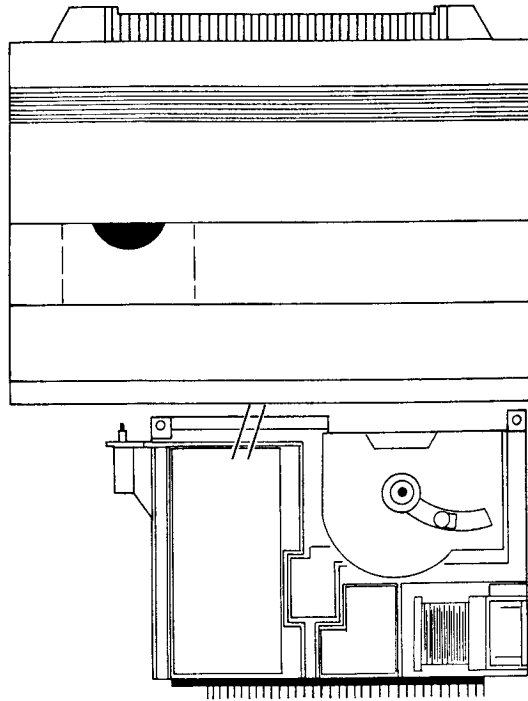


Turn over the set while supporting the chassis frame.



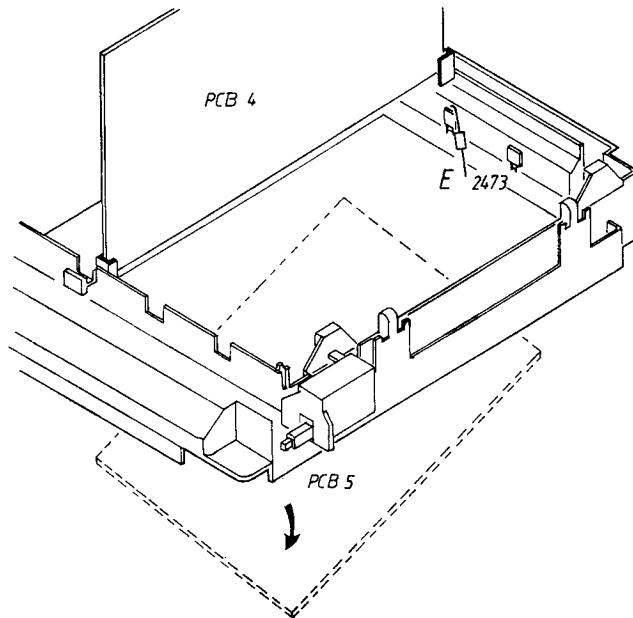
Tip out the two plastic tags.
Carefully lift off the top plate.
NB! Be aware of the cable connection between the top plate and the chassis frame.

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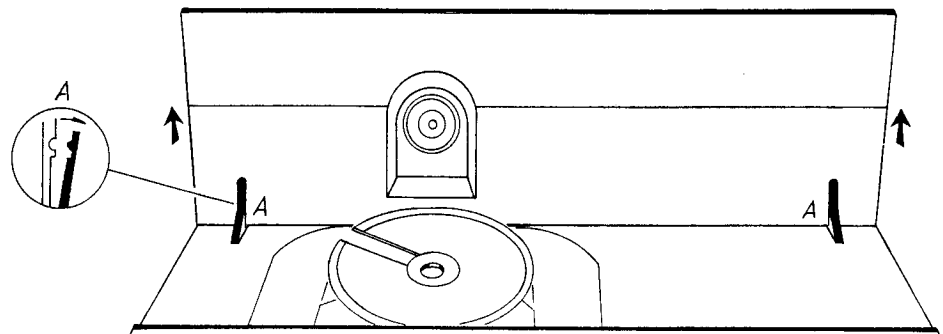
Place the top plate in front of the chassis frame as illustrated.

PCB4 and PCB5.



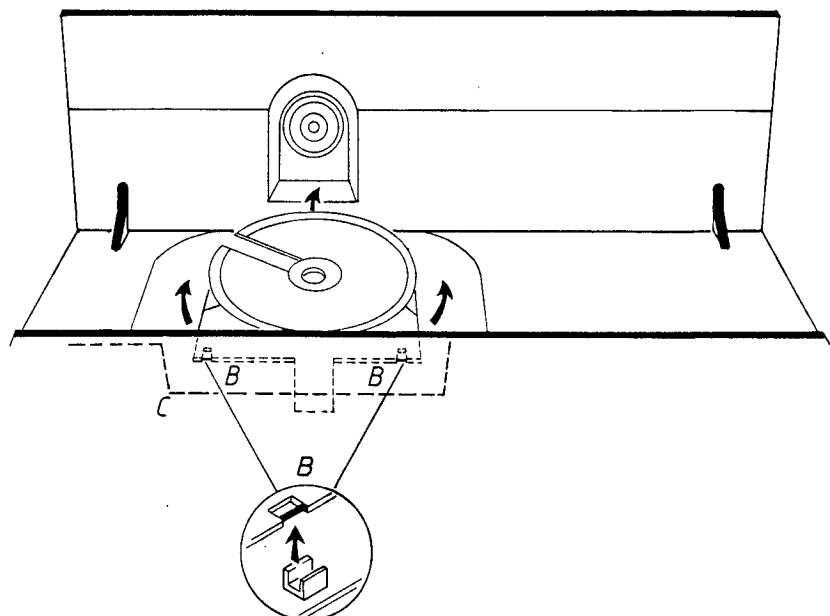
Tip up PCB4 and place in service position.
PCB5 cannot be tipped up until the capacitor E is desoldered.

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.

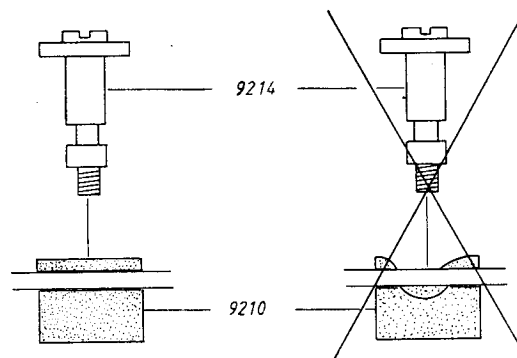
When the top part with the lid mechanism has to be demounted for repair, a loose hold-down should be employed.

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.

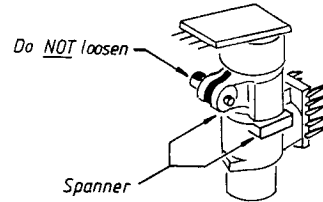
- Take the two flex PCBs out of the connectors on the preamplifier PCB.
- Disassemble the *defective* RAFOC unit by removing the 4 bolts no. 7 and shaft item number 9411.
- Remove shaft item number 9411 of the new RAFOC unit. Pay attention to the 3 intermediate washers item number 20 and spring washer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

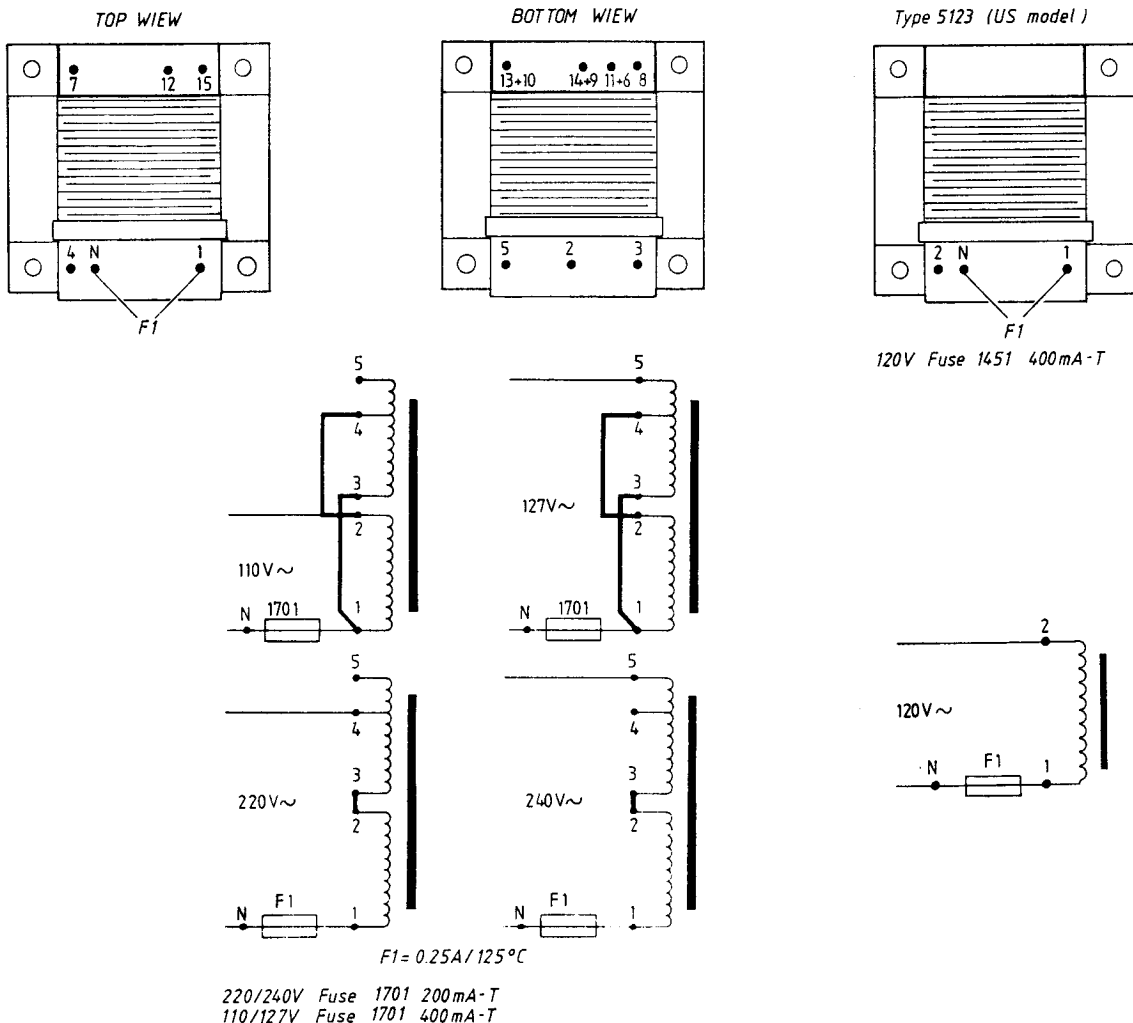
The CD-mechanism is provided with self-lubricating bearings and should thus not be lubricated.

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



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.

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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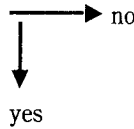
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TO PAST INTO SERVICE MANUAL: BEOGRAM CD X

03-86

3538642

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

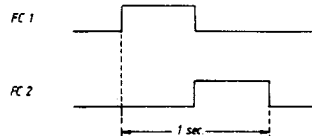
↓
Does laser emit sufficient light? (see service man. page. 5-1) → Check laser supply unit (PCB 02) Check laser.

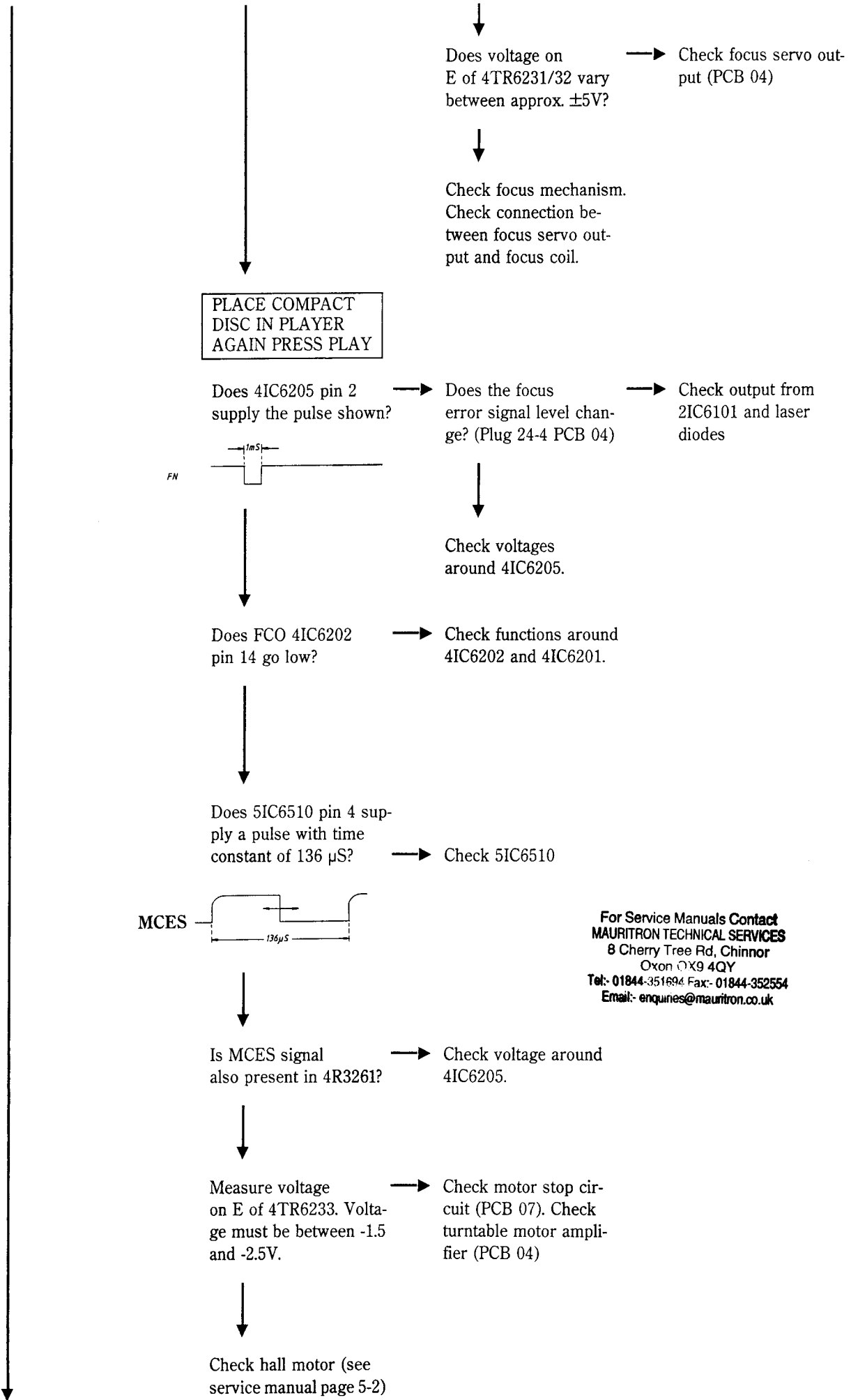
↓
Is laser angle correct in relation to disc? (see service manual page 4-2).

↓
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





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CAN ONLY BE MEASURED WHILE COMPACT DISC TURNS

3.

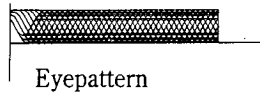
IF DISC STOPS TURNING, ACTIVATE PLAY AGAIN

COMPACT DISC
STARTS TURNING

(In some cases the disc
stops again)

Do green digits
light?

→ Can an eyepattern
signal (approx. 1 Vpp)
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 con-
stantly high.

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

↓

Check h.f. amplifier

→ 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 auto-
matic 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 ser-
vo signal paths loop.

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

↓

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

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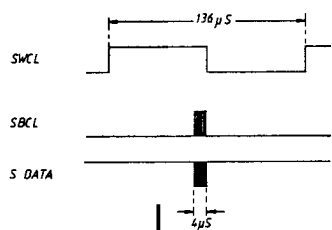
Does P-data (5IC6501 pin 5) go low?

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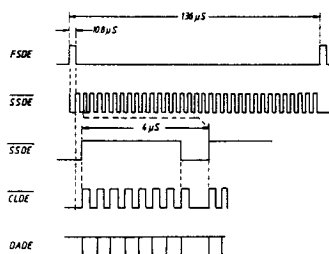
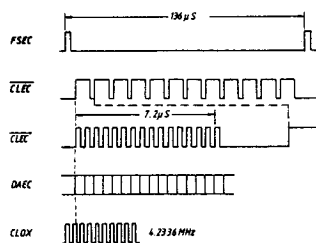
In order to see the signal sequences in an oscilloscope it is necessary to trigger on the signal shown at the top of the oscillogram.

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?

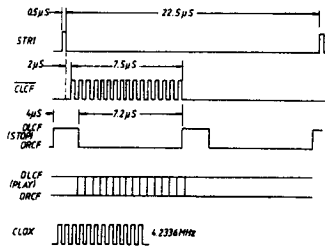
→ Is the UNEC flag between 5IC6510 and 5IC6514 low? (Data from ERCO to CIM OK?)

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

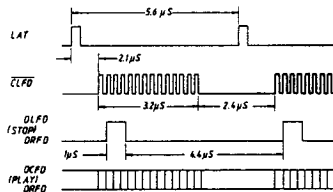


↓
Check data transmission
between ERCO/RAM.

↓
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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