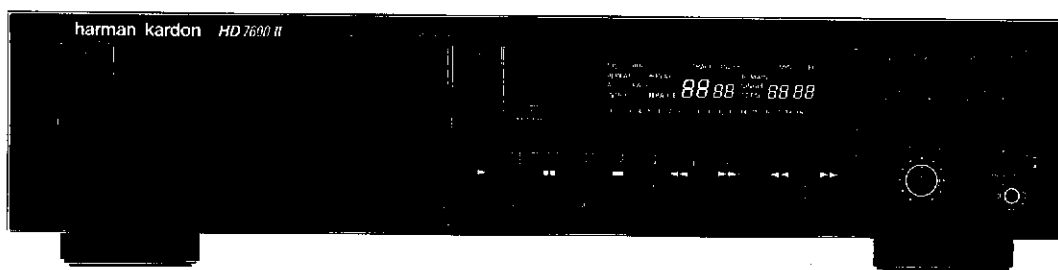


The Harman Kardon Model HD7600 II COMPACT DISC PLAYER

Manual 159A

HD7600 II

Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- **UA** : North America area model
- **BK** : North America area model Black version
- **I** : International model
- **IB** : International model Black version
- **BB** : Australia model Black version
- **WB** : Asia/Oseania model Black version
- **NB** : Japan model Black version

harman/kardon

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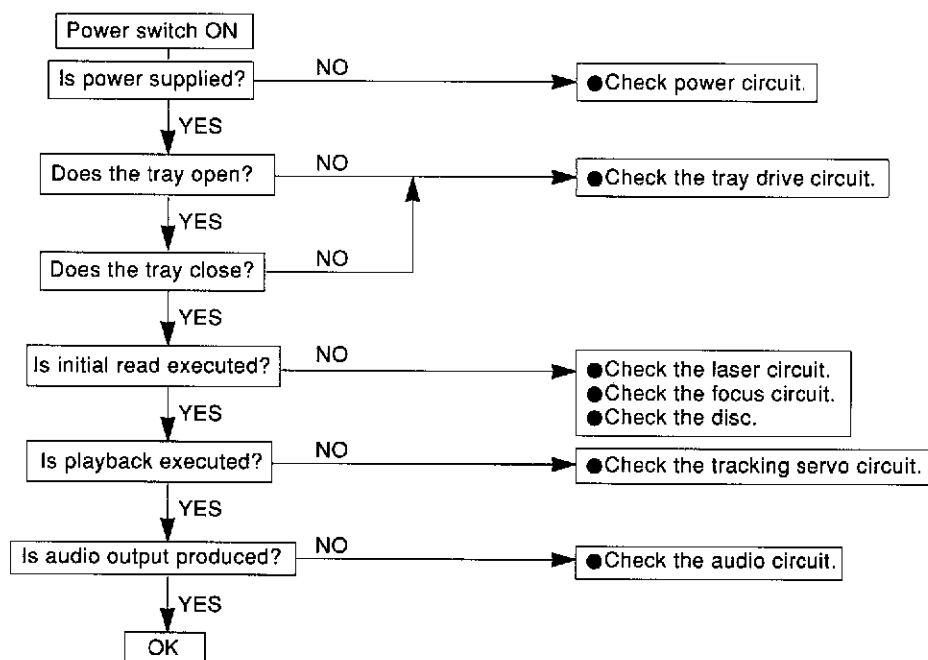


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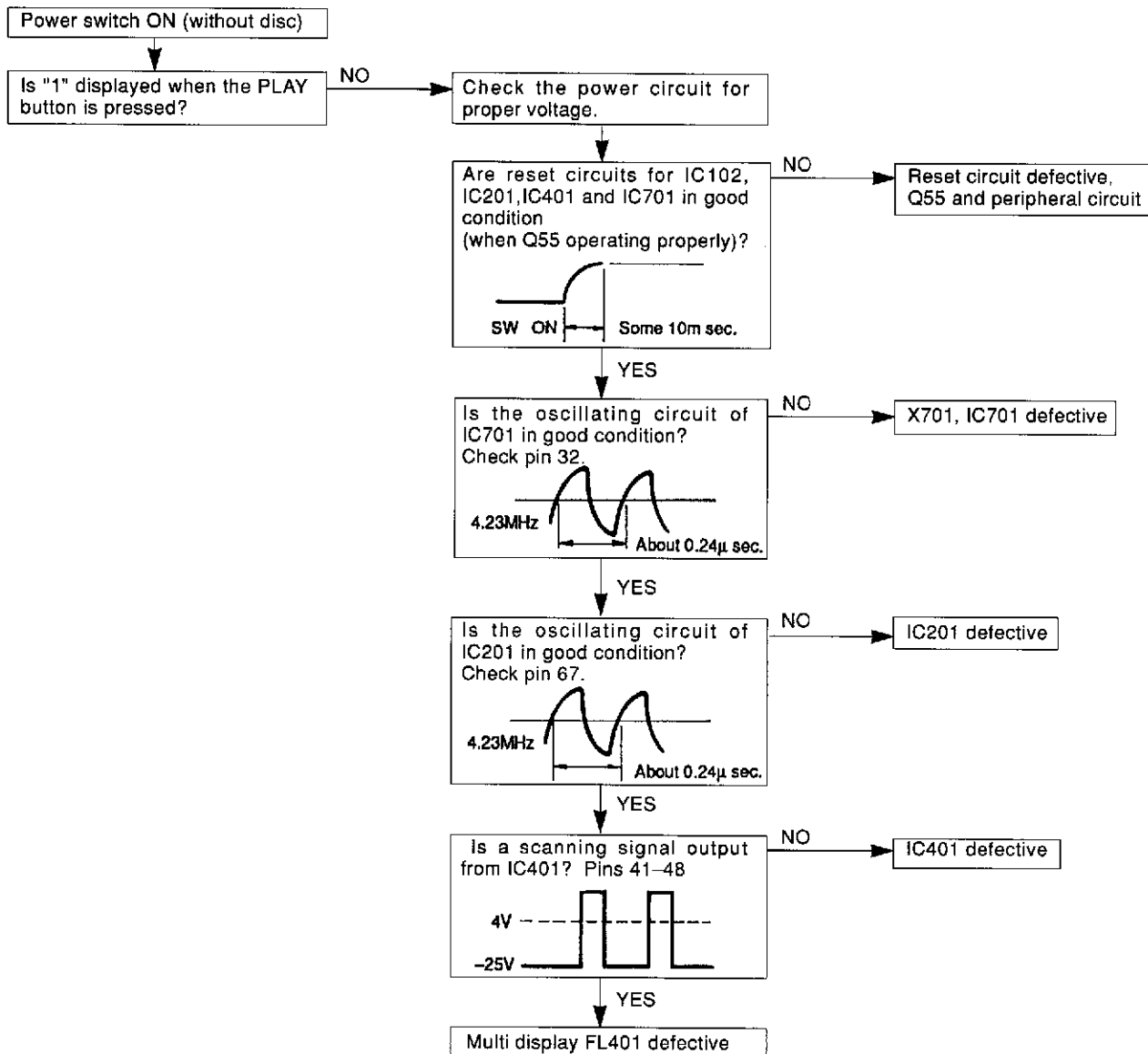
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TROUBLE SHOOTING

When a trouble has occurred, first check the pick-up lens for dirt and each connector for tight and secure connection. If the problem persists after checking both of these items, use the following check procedures.



(1) When Multi Display fails to light properly



IC number	Terminal number	Port name	Terminal code	I/O	Output description
IC202	11	A3		I	Address input.
	12	A2		I	Address input.
	13	A1		I	Address input.
	14	A0		I	Address input (row address only)
	15	DQ3		I/O	Data I/O.
	16	CAS		I	Column address strobe input.
	17	DQ4		I/O	Data I/O.
	18	Vss		—	Power supply (0V).
IC203	1	VSENCE1			
	2	OUT1		O	Output terminal 1.
	3	-VIN1		I	Negative power supply.
	4	+VIN1		I	Positive input 2.
	5	VEE			Negative input 2.
	6	+VIN2		I	Positive power supply.
	7	-VIN2		I	Negative input 2.
	8	OUT2		O	Output terminal 2.
	9	VSENCE2			
	10	Vcc			Positive power supply.
IC401	1	Vcc			Positive power supply.
	2	P65		I/O	
	3	P64		I/O	
	4	P63		I/O	
	5	P62		I/O	
	6	P61		I/O	
	7	P60		I/O	
	8	P27	I/O port	I/O	Disc tray open direction driving output.
	9	P26	I/O port	I/O	Disc tray close direction driving output.
	10	P25	I/O port	I/O	
	11	P24	I/O port	I/O	Serial data output.
	12	P23	I/O port	I/O	Serial data output.
	13	P22	I/O port	I/O	Data latch clock output.

If the frequency is to be doubled as the first step in increasing the sampling frequency of the signal, zero-level data is added between the data marked with X in Fig. 12(b). In the original signal sequence sampled at 44.1kHz, there are data only at the points of the sampling timing, while the intervals between those points have all been made zero-level. Introducing zero data in these intervals does not change the original data in any way, nor is the frequency distribution altered. Only the sampling frequency is doubled.

Passing this data in its modified form through a digital filter with the characteristic shown in Fig.12(c) causes the portion corresponding to N_1 to be eliminated, resulting in a signal sequence with the frequency distribution shown in (d). This signal sequence possesses exactly the same shape as that obtained for the signal in Fig. 11(b), sampled at 88.2kHz.

In other words, this method enables the sampling frequency to be doubled.

The digital filter used in this unit is a Finite Impulse Response type. Its circuit diagram is shown in Fig. 13.

The sampling frequency of this unit has been quadrupled, and the phase characteristic has been improved by using a softer analog low-pass filter.

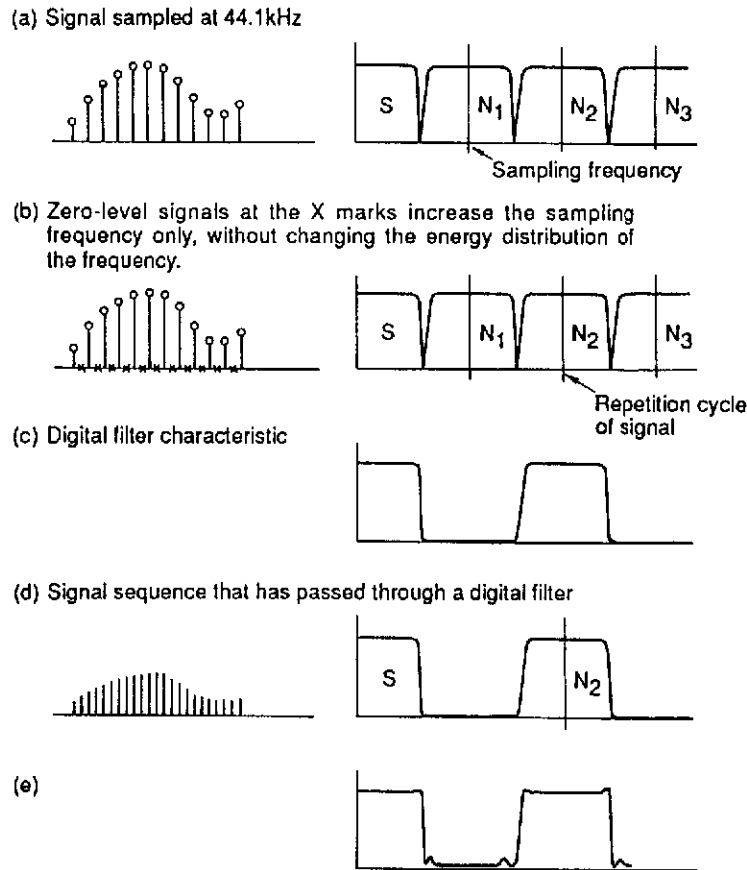


Fig. 12

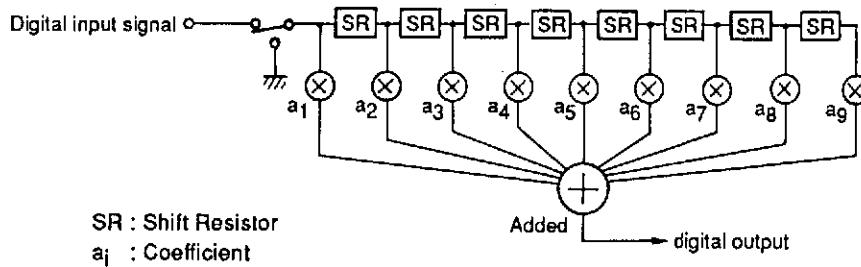
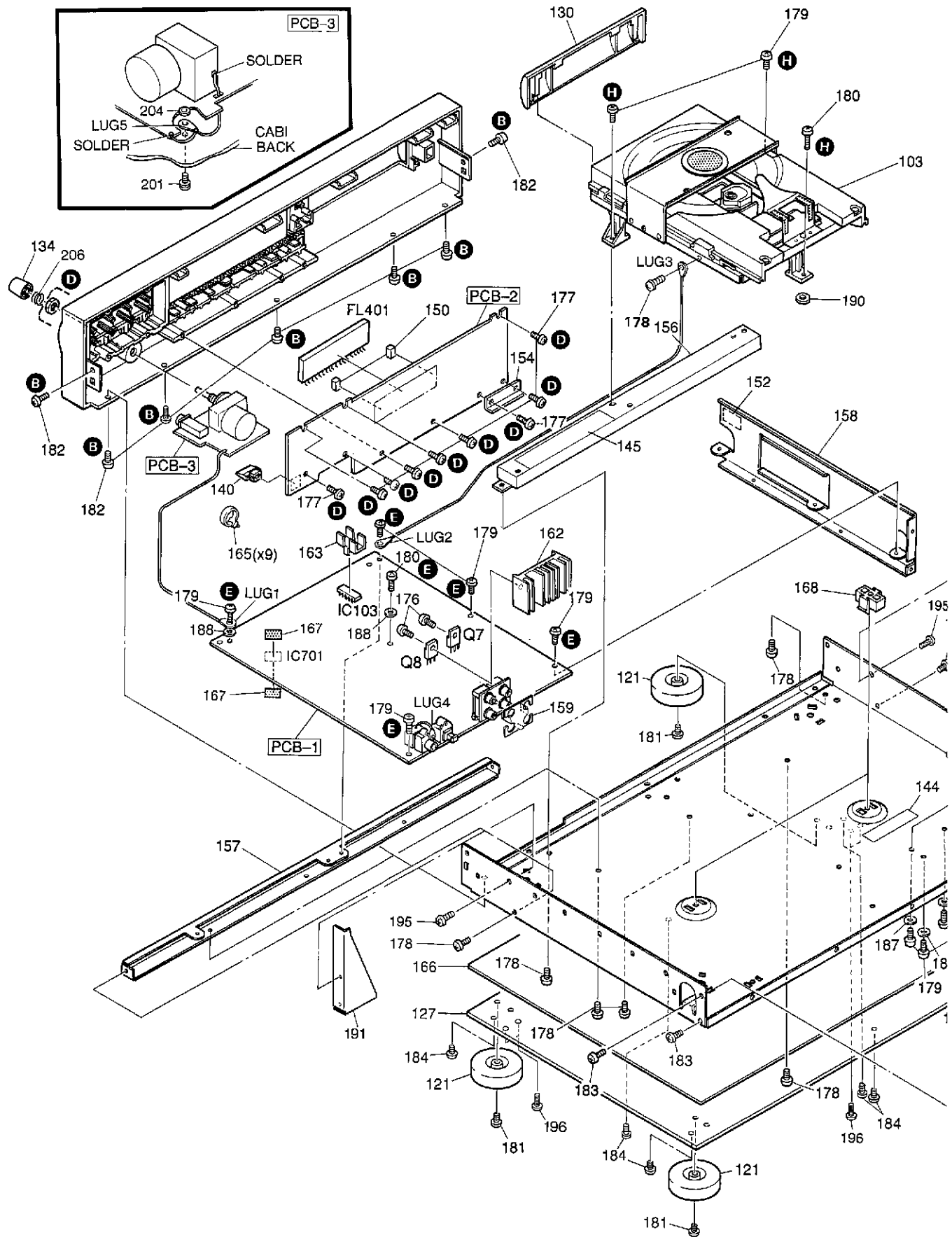


Fig. 13

GENERAL UNIT
EXPLODED VIEW



ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description	Ser. No.	Ref. No.	Part No.	Description
PCB-1 MAIN P.C. BOARD							
CAPACITORS							
567	C2	5354-104593	CAP, MYL .1 μ	584	C212	5353-220534	CAP, MCA 22p
567	C3	5354-104593	CAP, MYL .1 μ	568	C213	5354-104593	CAP, MYL .1 μ
567	C4	5354-104593	CAP, MYL .1 μ	553	C214	5345-107D0962	CAP, MINI ELE 100 μ /25V
567	C5	3554-104593	CAP, MYL .1 μ	553	C215	5345-107D0962	CAP, MINI ELE 100 μ /25V
567	C6	5354-104593	CAP, MYL .1 μ	586	C301	5353-181534	CAP, MCA 180p
548	C7	5345-226F0962	CAP, MINI ELE 22 μ /50V	586	C302	5353-181534	CAP, MCA 180p
544	C9	5345-477E0962	CAP, MINI ELE 470 μ /35V	590	C303	5345-S06DM227	CAP, MINI ELE 220 μ /25V
543	C10	5345-228D0962	CAP, MINI ELE 2200 μ /25V	590	C304	5345-S06DM227	CAP, MINI ELE 220 μ /25V
543	C11	5345-228D0962	CAP, MINI ELE 2200 μ /25V	572	C305	5359-2735851	CAP, PPP .027 μ
546	C12	5345-477C0962	CAP, MINI ELE 470 μ /16V	572	C306	5359-2735851	CAP, PPP .027 μ
546	C13	5345-477C0962	CAP, MINI ELE 470 μ /16V	573	C307	5359-3915851	CAP, PPP 390p
630	C14	5345-S06CM108	CAP, MINI ELE 1000 μ /16V	573	C308	5359-3915851	CAP, PPP 390p
630	C15	5345-S06CM108	CAP, MINI ELE 1000 μ /16V	573	C309	5359-3915851	CAP, PPP 390p
541	C16	5345-228C0962	CAP, MINI ELE 2200 μ /16V	573	C310	5359-3915851	CAP, PPP 390p
541	C17	5345-228C0962	CAP, MINI ELE 2200 μ /16V	574	C311	5359-1525851	CAP, PPP 1500p
547	C18	5345-227B0962	CAP, MINI ELE 220 μ /10V	574	C312	5359-1525851	CAP, PPP 1500p
547	C19	5345-227B0962	CAP, MINI ELE 220 μ /10V	571	C313	5345-S06DM227	CAP, MINI ELE 220 μ /25V
545	C20	5345-108C0962	CAP, MINI ELE 1000 μ /16V	571	C314	5345-S06DM227	CAP, MINI ELE 220 μ /25V
545	C21	5345-108C0962	CAP, MINI ELE 1000 μ /16V	561	C315	5345-S06BM107	CAP, MINI ELE 100 μ /10V
556	C22	5345-106F0962	CAP, MINI ELE 10 μ /50V	561	C316	5345-S06BM107	CAP, MINI ELE 100 μ /10V
550	C51	5345-226D0962	CAP, MINI ELE 22 μ /25V	587	C317	5353-050534	CAP, MCA 5p
550	C52	5345-226D0962	CAP, MINI ELE 22 μ /25V	587	C318	5353-050534	CAP, MCA 5p
549	C53	5345-107B0962	CAP, MINI ELE 100 μ /10V	590	C319	5345-S06DM227	CAP, MINI ELE 220 μ /25V
551	C54	5345-106F0962	CAP, MINI ELE 10 μ /50V	590	C320	5345-S06DM227	CAP, MINI ELE 220 μ /25V
551	C55	5345-106F0962	CAP, MINI ELE 10 μ /50V	559	C501	5345-476D0962	CAP, MINI ELE 47 μ /25V
530	C56	5354-473593	CAP, MYL .047 μ	559	C502	5345-476D0962	CAP, MINI ELE 47 μ /25V
542	C57	5345-108D0962	CAP, MINI ELE 1000 μ /25V	584	C503	5353-220534	CAP, MCA 22p
552	C58	5345-105F0962	CAP, MINI ELE 1 μ /50V	584	C504	5353-220534	CAP, MCA 22p
568	C59	5354-104593	CAP, MYL .1 μ	585	C601	5353-330534	CAP, MCA 33p
549	C101	5345-107B0962	CAP, MINI ELE 100 μ /10V	585	C602	5353-330534	CAP, MCA 33p
583	C102	5353-100534	CAP, MCA 10p	588	C603	5353-820534	CAP, MCA 82p
583	C103	5353-100534	CAP, MCA 10p	588	C604	5353-820534	CAP, MCA 82p
583	C104	5353-100534	CAP, MCA 10p	590	C605	5345-S06DM227	CAP, MINI ELE 220 μ /25V
579	C105	5359-3325851	CAP, PPP 3300p	590	C606	5345-S06DM227	CAP, MINI ELE 220 μ /25V
569	C106	5354-333593	CAP, MYL .033 μ	562	C701	5345-S06FM106	CAP, MINI ELE 10 μ /50V
569	C107	5354-333593	CAP, MYL .033 μ	562	C702	5345-S06FM106	CAP, MINI ELE 10 μ /50V
577	C108	5359-1035851	CAP, PPP .01 μ	562	C703	5345-S06FM106	CAP, MINI ELE 10 μ /50V
554	C109	5345-476B0962	CAP, MINI ELE 47 μ /10V	562	C704	5345-S06FM106	CAP, MINI ELE 10 μ /50V
554	C110	5345-476B0962	CAP, MINI ELE 47 μ /10V	562	C705	5345-S06FM106	CAP, MINI ELE 10 μ /50V
554	C111	5345-476B0962	CAP, MINI ELE 47 μ /10V	562	C706	5345-S06FM106	CAP, MINI ELE 10 μ /50V
557	C112	5345-474F0962	CAP, MINI ELE .47 μ /50V	587	C707	5353-050534	CAP, MCA 5p
589	C113	5345-226D0962	CAP, MINI ELE 22 μ /25V	587	C708	5353-050534	CAP, MCA 5p
570	C114	5354-823593	CAP, MYL .082 μ	561	C709	5345-S06BM107	CAP, MINI ELE 100 μ /10V
580	C115	5359-6815851	CAP, PPP 680p	547	C710	5345-227B0962	CAP, MINI ELE 220 μ /10V
565	C116	5354-274593	CAP, MYL .27 μ	555	C711	5345-S06DM477	CAP, MINI ELE 470 μ /25V
560	C117	5342-105F0962	CAP, ELE BP 1 μ /50V	784	C801	5345-476C0962	CAP, MINI ELE 47 μ /16V
568	C118	5354-104593	CAP, MYL .1 μ	782	C802	5345-106F0962	CAP, MINI ELE 10 μ /50V
581	C119	5359-4725851	CAP, PPP 4700p	785	C803	5353-560534	CAP, MCA 56p
577	C121	5359-1035851	CAP, PPP .01 μ	783	C804	5345-336C0962	CAP, MINI ELE 33 μ /16V
558	C122	5354-684593	CAP, MYL .68 μ	784	C805	5345-476C0962	CAP, MINI ELE 47 μ /16V
582	C123	5359-3925851	CAP, PPP 3900p	781	C806	5354-104593	CAP, MYL .1 μ
575	C124	5359-1515851	CAP, PPP 150p	RESISTORS			
556	C125	5345-106F0962	CAP, MINI ELE 10 μ /50V	606	R3	5134-222J25P	RES, CBN 1/4P 2.2K
557	C126	5345-474F0962	CAP, MINI ELE 47 μ /50V	606	R4	5134-222J25P	RES, CBN 1/4P 2.2K
564	C127	5354-563593	CAP, MYL .056 μ	598	R5	5134-471J25P	RES, CBN 1/4P 470
554	C128	5345-476B0962	CAP, MINI ELE 47 μ /10V	598	R6	5134-471J25P	RES, CBN 1/4P 470
554	C129	5345-476B0962	CAP, MINI ELE 47 μ /10V	611	R7	5134-101J25P	RES, CBN 1/4P 100
568	C130	5354-104593	CAP, MYL .1 μ	611	R8	5134-101J25P	RES, CBN 1/4P 100
568	C131	5354-104593	CAP, MYL .1 μ	620	R9	5135-4R7522	RES, CBN 1/2P 4.7
568	C132	5354-104593	CAP, MYL .1 μ	620	R10	5135-4R7522	RES, CBN 1/2P 4.7
553	C133	5345-107D0962	CAP, MINI ELE 100 μ /25V	609	R13	5134-152J25P	RES, CBN 1/4P 1.5K
553	C134	5345-107D0962	CAP, MINI ELE 100 μ /25V	609	R14	5134-152J25P	RES, CBN 1/4P 1.5K
579	C201	5359-3325851	CAP, PPP 3300p	598	R15	5134-471J25P	RES, CBN 1/4P 470
576	C202	5359-5625851	CAP, PPP 5600p	598	R16	5134-471J25P	RES, CBN 1/4P 470
578	C203	5359-4715851	CAP, PPP 470p	611	R17	5134-101J25P	RES, CBN 1/4P 100
566	C204	5354-154593	CAP, MYL 15 μ	611	R18	5134-101J25P	RES, CBN 1/4P 100
561	C206	5345-S06BM107	CAP, MINI ELE 100 μ /10V	619	R19	5135-2R2522	RES, CBN 1/2P 2.2
563	C207	5345-106F0962	CAP, MINI ELE 10 μ /50V	619	R20	5135-2R2522	RES, CBN 1/2P 2.2
578	C209	5359-4715851	CAP, PPP 470p	592	R21	5134-103J25P	RES, CBN 1/4P 10K
578	C210	5359-4715851	CAP, PPP 470p	592	R22	5134-103J25P	RES, CBN 1/4P 10K
568	C211	5354-104593	CAP, MYL .1 μ	617	R23	5134-473J25P	RES, CBN 1/4P 47K
				594	R24	5134-223J25P	RES, CBN 1/4P 22K
				592	R25	5134-103J25P	RES, CBN 1/4P 10K
				593	R26	5134-102J25P	RES, CBN 1/4P 1K

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