MSI range

MSIC-MSIV-MSIW
MSIC2-MSIV2-MSIW2
MSIC3-MSIV3

MSITDcontroller - MSIP

Service Manual

I. MSI CABINETS REFERENCE GUIDE

I.1. MSIC MSIC2 MSIC3

GROUP	PART DESIGNATION		PART NAME MSIC Dates : Serial N.	PART NAME MSIC Dates : Serial N.	PART NAME MSIC2 Dates : Serial N.	PART NAME MSIC3 Dates : Serial N.
Transducers	HF	Driver	HPA 1008	HPA 6818	HPA 6818	HPA 6818
		Horn	PAVHM	PAVHM	PAVHM	PAVHM
		Spare diaphragm & ferrofluid	HPAD16 [a]	HPARK	HPARK	HPARK
	MF	Loudspeaker (x 2)	SI.HPM	SI.HPM	SI.HPM	SI.HPM
		Horn	PAVBM	PAVBM	PAVBM	PAVBM
	LF	Loudspeaker (x2)	MSI.HPB [b]	MSI.HPB [b]	MSI/2HPB	MSI/3HPB
		Recone kit	MSI.HPBK	MSI.HPBK	MSI/2HPBK	MSI/3HPBK
Passive crossover	Complete filter		FPMSI / 1B	FPMSI /R/2B/02	FPMSI /R/2B/03	FPMSI
	Spare parts		see separate parts list	see separate parts list	see separate parts list	see separate parts list
Required controller	Complete unit					
	Spare parts		see separate parts list	see separate parts list	see separate parts list	see separate parts list
Miscellaneous	Front foam		MSI MFACW	MSI MFACW	MSI MFACW	MSI MFACW
	Grille foam		MSI MGACW	MSI MGACW	MSI MGACW	MSI MGACW
	Flying rail (short)(x 3)		FLYRAIL3	FLYRAIL3	FLYRAIL3	FLYRAIL3
	Flying rail (long)		FLYRAIL6	FLYRAIL6	FLYRAIL6	FLYRAIL6
	Rings for Flying rail					
	Ferrofluid for HF driver					
	TAD HF driver (option)		MSICTAD	MSICTAD	MSICTAD	MSICTAD

[a] The original HF diaphragms of Version J (ref HPAJK) are no longer available ; replacement with the HPAD16 part - equivalent to JBL D16R2425 - may not achieve 100% of the initial performance. For improved performance and total compatibility with other MSI systems it is recommended to upgrade the HF section into Vers R/2B.

[b] MSI.HPB is no longer available.

I.2. MSIV MSIV2 MSIV3

GROUP	PART DESIGNATION	PART NAME MSIV Dates : Serial N. :	PART NAME MSIV Dates : Serial N. :	PART NAME MSIV2 Dates : Serial N. :	PART NAME MSIV3 Dates : Serial N. :
Transducers	HF Driver	HPA 1008	HPA 6818	HPA 6818	HPA 6818
	Horn	PAVHM	PAVHM	PAVHM	PAVHM
	Spare diaphragm& ferrofluid	HPAD16 [a]	HPARK	HPARK	HPARK
	MF Loudspeaker (x 2)	SI/MSI HPM	SI/MSI HPM	SI/MSI HPM	SI/MSI HPM
	Horn	PAVBM	PAVBM	PAVBM	PAVBM
	LF Loudspeaker	MSI.HPB [b]	MSI.HPB [b]	MSI/2HPB	MSI/3HPB
	Recone kit	MSI.HPBK	MSI.HPBK	MSI/2HPBK	MSI/3HPBK
Passive crossover	Complete filter	FPMSI / 1B	FPMSI /R/2B/02	FPMSI /R/2B/03	FMSI
	Spare parts	see separate parts list	see separate parts list	see separate parts list	see separate parts list
Required controller	Complete unit				
	Spare parts	see separate parts list	see separate parts list	see separate parts list	see separate parts list
Miscellaneous	Front foam	MSI MFAV	MSI MFAV	MSI MFAV	MSI MFAV
	Grille foam	MSI MGAV	MSI MGAV	MSI MGAV	MSI MGAV
	Flying rail (short)(x 3)	FLYRAIL3	FLYRAIL3	FLYRAIL3	FLYRAIL3
	Flying rail (long)	FLYRAIL6	FLYRAIL6	FLYRAIL6	FLYRAIL6
	Rings for Flying rail				
	Ferrofluid for HF driver				

[a] The original HF diaphragms of Version J (ref HPAJK) are no longer available ; replacement with the HPAD16 part - equivalent to JBL D16R2425 - may not achieve 100% of the initial performance. For improved performance and total compatibility with other MSI systems it is recommended to upgrade the HF section into Vers R/2B.

[b] MSI.HPB is no longer available.

I.3. MSIW MSIW2

GROUP	PART DESIGNATION	PART NAME MSIW Dates : Serial N. :	PART NAME MSIW Dates : Serial N. :	PART NAME MSIW2 Dates : Serial N. :
Transducers	HF Driver	HPA 1008	HPA 6818	HPA 6818
	Horn	PAVHM	PAVHM	PAVHM
	Spare diaphragm& ferrofluid	HPAD16 [a]	HPARK	HPARK
	MF Loudspeaker (x 2)	SI/MSI HPM	SI/MSI HPM	SI/MSI HPM
	Horn	PAVBM	PAVBM	PAVBM
	LF Loudspeaker	MSI.HPB [b]	MSI.HPB [b]	MSI/2 HPB
	Recone kit	MSI.HPBK	MSI.HPBK	MSI/2 HPBK
Passive crossover	Complete filter	FPMSI / 1B	FPMSI /R/2B/02	FPMSI /R/2B/03
	Spare parts	see separate parts list	see separate parts list	see separate parts list
Required controller	Complete unit			
	Spare parts			
Miscellaneous	Front foam	MFACW	MFACW	MFACW
	Grille foam	MGACW	MGACW	MGACW
	Flying rail (short)(x 3)	FLYRAIL3	FLYRAIL3	FLYRAIL3
	Flying rail (long)	FLYRAIL6	FLYRAIL6	FLYRAIL6
	Rings for Flying rail			
	Ferrofluid for HF driver			

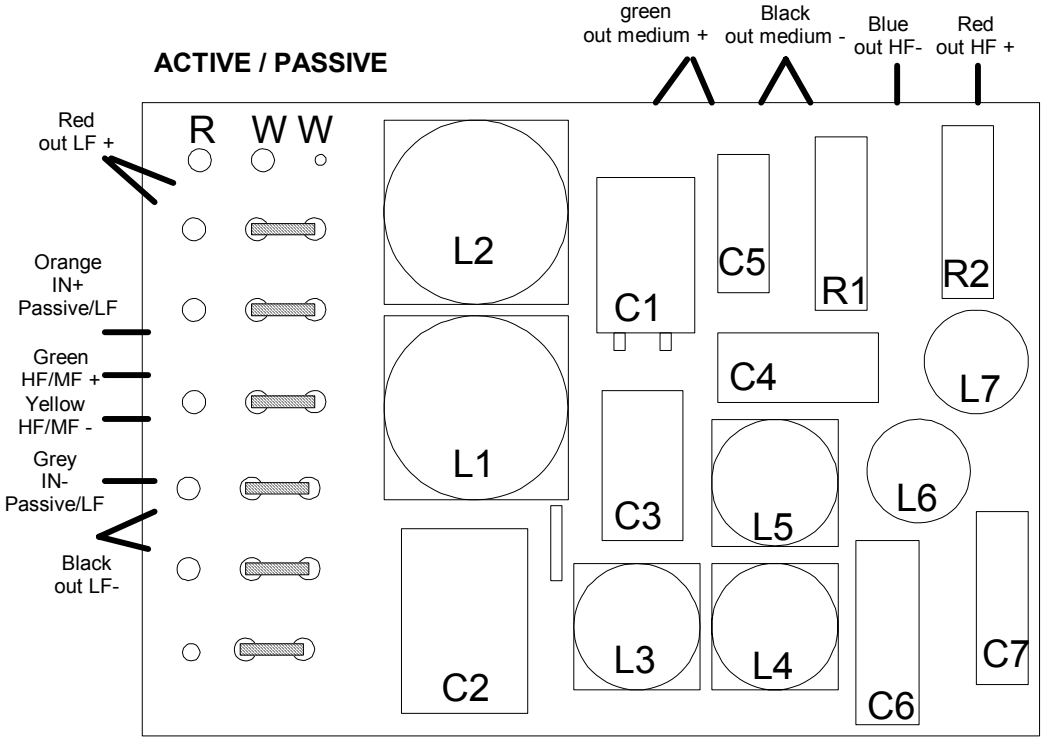
[a] The original HF diaphragms of Version J (ref HPAJK) are no longer available ; replacement with the HPAD16 part - equivalent to JBL D16R2425 - may not achieve 100% of the initial performance. For improved performance and total compatibility with other MSI systems it is recommended to upgrade the HF section into Vers R/2B.

[b] MSI.HPB is no longer available.

I.4. PASSIVE NETWORKS

*I.4.a.1.MSIC/MSIV/MSIW **Version** : 1b **Parts list***

REFERENCE	VALUE	RATING
R1	15Ω	20 W type RWS
R2	15Ω	20 W type RWS
L1	1.85mH	500 g
L2	1.3mH	300 g
L3	1.1mH	100 g
L4	0.80mH	100 g
L5	0.80mH	100 g
L6	0.33mH	30 g
L7	0.22mH	30 g
C1	200µF	non polarised 110VDC
C2	50µF	polypro 100 V
C3	25µF	polypro 100 V
C4	8µF	polypro 100 V
C5	10µF	polypro 100 V
C6	9µF	polypro 100 V
C7	8µF	polypro 100 V



I.4.a.2.*MSIC/MSIV/MSIW* ***Version*** *: 1b :* ***Component Layout***

I.4.a.3. *MSIC/MSIV/MSIW* ***Version*** *: 1b :* ***Schematic***

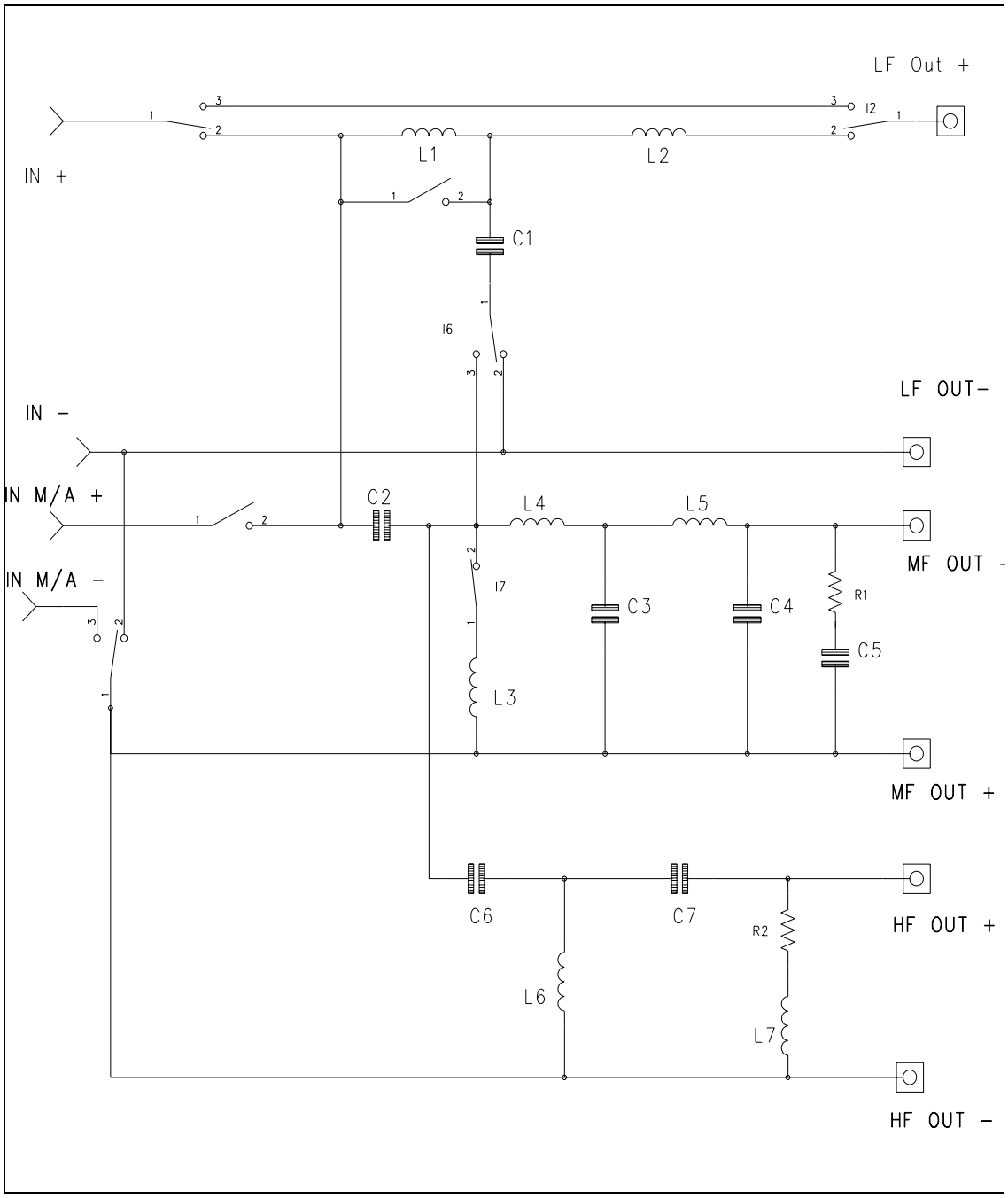
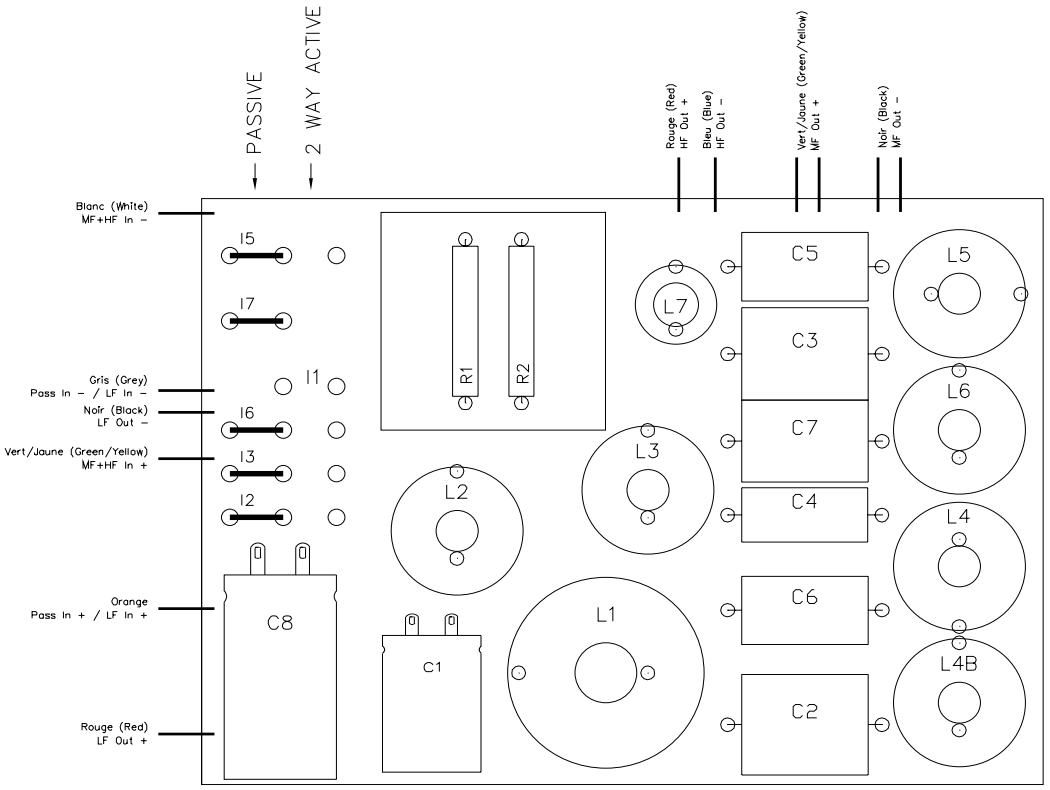


Figure 1 FMSI ver 1B Schematic

I.4.a.4. MSIC/MSIV/MSIW ***Version : R/2B***

REFERENCE	VALUE	VALUE	RATING
	R/2B/02	R/2B/03	
R1	15 Ω	15 Ω	20 W type RWS
R2	0.68 Ω	0.68 Ω	20 W type RWS
L1	2.4mH	1.85mH	500 g
L2	1.3mH	0.8mH	300 g
L3	1.5mH	1.5mH	100 g
L4	0.85mH	0.85mH	100 g
L4B	0.4mH	0.4mH	100 g
L5	0.4mH	0.4mH	100 g
L6	0.15mH	0.15mH	30 g
L7	0.47mH	0.47mH	30 g
C1	150µF	150µF	chimique non polarisé 110VDC
C2	25µF	25µF	polypro 100 V
C3	20µF	20µF	polypro 100 V
C4	6µF	6µF	polypro 100 V
C5	10µF	10µF	polypro 100 V
C6	12µF	10 µF	polypro 100 V
C7	10µF	12µF	polypro 100 V
C8	1000µF	1000µF	chimique non polarisé 110VDC

I.4.a.5.MSIC/MSIV/MSIW ***Version : R/2B***



I.4.a.6.MSIC/MSIV/MSIW ***Version : R/2B***

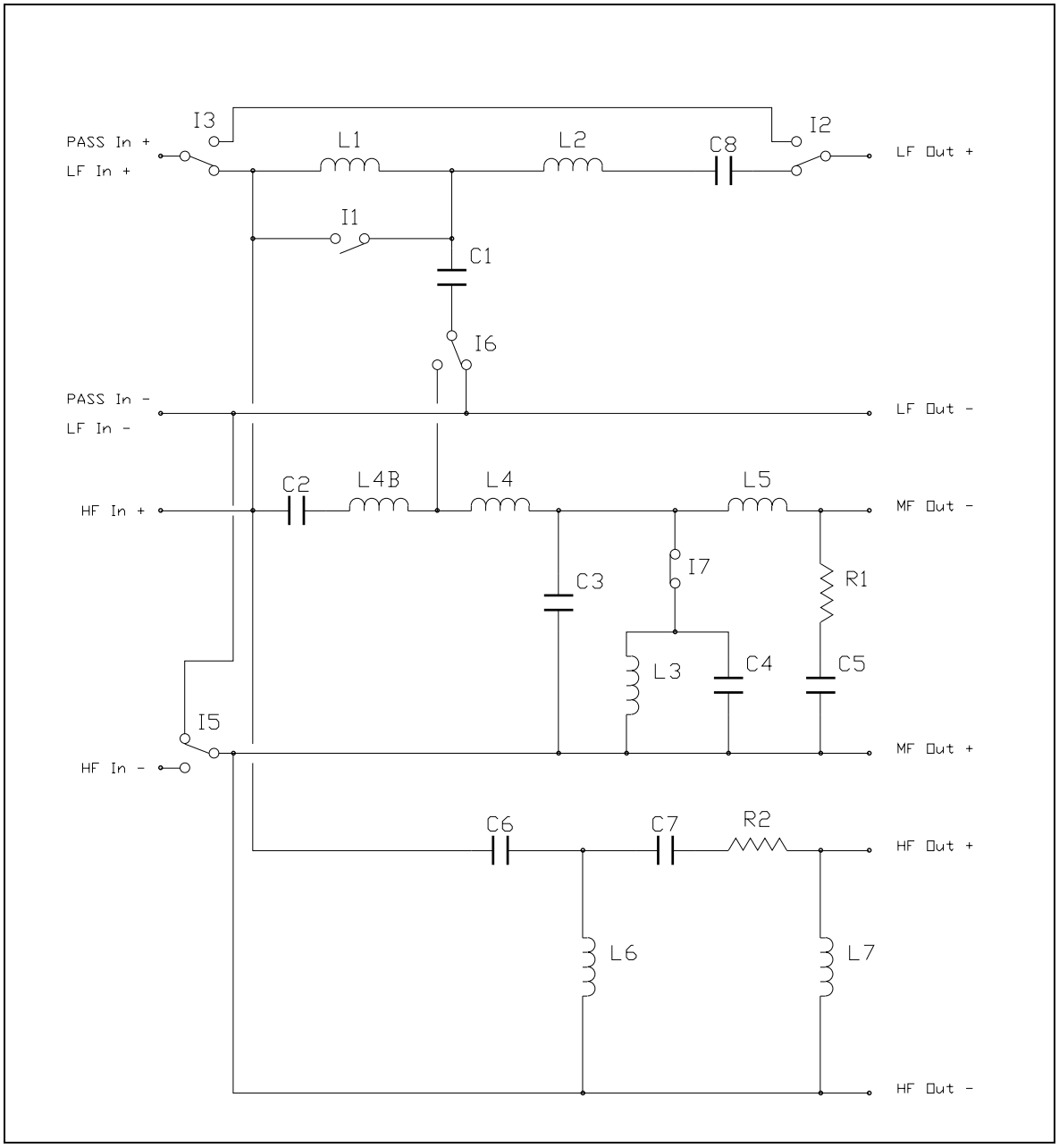


Figure 2 : FMSI ver. R/2B - Schematic

II. SERVICE INSTRUCTIONS

II.1. Using HPAD16 (JBL D16R2425) Diaphragm in MSI instead of HPAJK

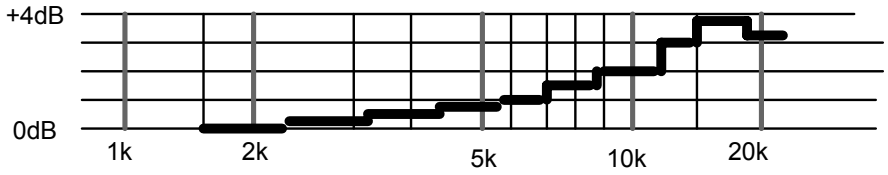
To avoid to upgrade of some old cabinets, JBL Diaphragm D16R2425 can be use in early version of SI, MSI and PC in replacement of the original diaphragm, with the following restrictions.

II.1.a. Mechanical, electrical and acoustical compatibility

JBL D16R2425 diaphragms are mechanically compatible with HPA 1008 (SI & MSI) & HPA 1048 (PC) diaphragms.

Electrical impedance is nearly the same and has only a slight influence (between 0 and +1 dB) on the passive crossover. **However a polarity invertion must be made.** (See below).

The acoustical response curve is quite close to the original one with a progressive loss of high frequencies reaching 3 or 4 dB at the higher frequencies. Here is the typical correction which should be made on a 1/3 octave equalizer (constant Q).



II.1.b. Mounting and using JBL Diaphragms

Positioning the diaphragm is not different with the JBL one, you could have to press a little more in order to achieve a good contact at the joint face.

POLARITY INVERTION : connect the black terminal on the cover with the red wire on the diaphragm.

A final check for proper sound quality can be done by applying a 2 V rms. sine wave swept from 1 kHz to 15 kHz. (NB : this assumes that the driver is connected to the horn). If distortion is too important (usually near 1k or 2k), control the tightening of the screws, and eventually reverse the position of the diaphragm in the gap. If it is not sufficient, use spacing washers (0.2mm) under the diaphragm ring (around the screws holes). Doing so will induce another loss in the high frequencies (above 7k, 1dB at 10k, max 2.5dB at 14k)

III. MSI TDCONTROLLER PARTS LIST

Nomenclature MSI TD Carte MŠre (Partie lin,aire)(Carte avec trimmres de gain)
Mise … jour : 15 Janvier 1993
Version Nø :4A

REFERENCE		TYPE	VALEUR	TOL	RATING
Left/Both	Rigth				
CN M1		MOLEX-10-45-1081			
CN M2		MOLEX-10-45-1081			
CN M3		MOLEX-10-45-1081			
CN M4		MOLEX-10-45-1081			
C1		chimique	2200µF		25V
C101	C1101	Ceramique	680pF	5%	
C102	C1102	Ceramique	680pF	5%	
C103	C1103	Ceramique	33pF	5%	
C104	C1104	Ceramique	33pF	5%	
C11		CPM 63V	100nF	5%	
C12		CPM 63V	100nF	5%	
C13		chimique	100µF		25V
C14		CPM 63V	100nF	5%	
C15		CPM 63V	100nF	5%	
C16		chimique	100µF		25V
C2		CPM 63V	100nF	5%	
C201	C1201	CPM 63V	220nF	5%	
C202	C1202	CPM 63V	220nF	5%	
C203	C1203	CPM 63V	22nF	5%	
C204	C1204	CPM 63V	1nF	5%	
C21		chimique	470µF		25V
C213	C1213		NC		
C22		chimique	10µF		25V
C23		chimique	100µF		25V
C3		chimique	100µF		25V
C301	C1301	Ceramique	47pF	5%	
C311	C1311	CPM 63V	68nF	5%	
C312	C1312	CPM 63V	6,8nF	5%	
C321	C1321	CPM 63V	15nF	5%	
C322	C1322	CPM 63V	1nF	5%	
C331	C1331	CPM 63V	1,5nF	5%	
C332	C1332	CPM 63V	1,5nF	5%	
C341	C1341	CPM 63V	1nF	5%	
C342	C1342	CPM 63V	1nF	5%	
C352	C1352	CPM 63V	1,5nF	5%	
C4		CPM 63V	100nF	5%	
C401	C1401	Ceramique	100pF	5%	
C402	C1402	Ceramique	680pF	5%	
C403	C1403	CPM 63V	1,5nF	5%	
C404	C1404	Ceramique	100pF	5%	
C406	C1406	CPM 63V	330nF	5%	
C5		chimique	2200µF		25V

C501	C1501	CPM 63V	220nF	5%	
C502	C1502		NC		
C503	C1503	CPM 63V	100nF	5%	
C504	C1504	CPM 63V	220nF	5%	
C505	C1505		NC		
C506	C1506	CPM 63V	100nF	5%	
C511	C1511	CPM 63V	470nF	5%	
C512	C1512	CPM 63V	470nF	5%	
C513	C1513		NC		
C520	C1520	chimique	100µF		25V
C521	C1521	chimique	100µF		25V
C6		CPM 63V	100nF	5%	
C601	C1601	CPM 63V	100nF	5%	
C602	C1602	CPM 63V	100nF	5%	
C603	C1603	CPM 63V	100nF	5%	
C604	C1604	CPM 63V	100nF	5%	
C611	C1611	CPM 63V	1,5nF	5%	
C612	C1612	CPM 63V	1nF	5%	
C620	C1620	chimique	100µF		25V
C621	C1621	chimique	100µF		25V
C7		chimique	100µF		25V
C701	C1701	CPM 63V	10nF	5%	
C711	C1711	CPM 63V	10nF	5%	
C721	C1721	CPM 63V	10nF	5%	
C731	C1731	CPM 63V	10nF	5%	
C741	C1741	CPM 63V	10nF	5%	
C751	C1751	CPM 63V	10nF	5%	
C761	C1761	CPM 63V	10nF	5%	
C771	C1771	CPM 63V	10nF	5%	
C8		CPM 63V	100nF	5%	
C801	C1801		NC		
C811	C1811		NC		
D1	PONT	WO4G			1.5A/400V
D201	D1201	1N4148			
D21		1N4001			
D22		1N4001			
D23		1N4001			
D24		1N4001			
D25		ZENER 5,1V			
D26		1N4001			
D401	D1401	1N4148			
D402	D1402	1N4148			
D601	D1601	1N4148			
D602	D1602	1N4148			
FUSE 1			0.25A		250V
IC101	IC1101	TL074			
IC301	IC1301	TL074			
IC401	IC1401	TL074			
IC501	IC1501	TL074			
IC503	IC1503	NE5532			
IC601	IC1601	TL074			
IC603	IC1603	NE5532			
IC701	IC1701	TL074			

IC702	IC1702	TL074			
IC801		TL074			
LED1		5mm red			
LED2		5mm green			
P401	P1401		10KA	5%	
P402	P1402		10KA	5%	
P511	P1511		10KA	5%	
P611	P1611		10KA	5%	
REG1		uA7815			
REG2		uA7915			
REG3		uA78L12			
REG4		uA79L12			
REG5		uA7812			
RV501	RV1501	T10FH	2,2kΩ	20%	
RV601	RV1601	T10FH	2,2kΩ	20%	
RY 1	RY 11	G5V-2 12V			
RY 2	RY 22	G5V-2 12V			
R1			1kΩ	1%	
R101	R1101		681kΩ	1%	
R102	R1102		681kΩ	1%	
R103	R1103		18,2kΩ	1%	
R104	R1104		18,2kΩ	1%	
R105	R1105		18,2kΩ	1%	
R106	R1106		17,8kΩ	1%	
R107	R1107	T63YB	1kΩ	10%	
R201	R1201		5,49kΩ	1%	
R202	R1202		68,1kΩ	1%	
R203	R1203		2kΩ	1%	
R204	R1204		1,5kΩ	1%	
R22			82,5kΩ	1%	
R23			1kΩ	1%	
R24			1kΩ	1%	
R25			1kΩ	1%	
R26			10kΩ	1%	
R27			1kΩ	10%	1/2W
R28			1kΩ	10%	1/2W
R301	R1301		15kΩ	1%	
R302	R1302		15kΩ	1%	
R303	R1303		NC		
R311	R1311		0kΩ		
R312	R1312		NC		
R313	R1313		20kΩ	1%	
R314	R1314		681kΩ	1%	
R321	R1321		NC		
R322	R1322		0kΩ		
R323	R1323		27,4kΩ	1%	
R324	R1324		82,5kΩ	1%	
R331	R1331		NC		
R332	R1332		0kΩ		
R333	R1333		10kΩ	1%	
R334	R1334		121kΩ	1%	

R341	R1341		0kΩ		
R342	R1342		NC		
R343	R1343		27,4kΩ	1%	
R344	R1344		1MkΩ	1%	
R401	R1401		2,74kΩ	1%	
R402	R1402		1kΩ	1%	
R403	R1403		10kΩ	1%	
R404	R1404		6,81kΩ	1%	
R405	R1405		4,64kΩ	1%	
R406	R1406		4,64kΩ	1%	
R407	R1407		6,81kΩ	1%	
R408	R1408		2,74kΩ	1%	
R409	R1409		10kΩ	1%	
R410	R1410		10kΩ	1%	
R501	R1501		3,01kΩ	1%	
R502	R1502		2,74kΩ	1%	
R503	R1503		3,01kΩ	1%	
R504	R1504		2,74kΩ	1%	
R511	R1511		33,2kΩ	1%	
R512	R1512		68,1kΩ	1%	
R513	R1513		5,11kΩ	1%	
R516	R1516		39,2kΩ	1%	
R517	R1517		9,09kΩ	1%	
R518	R1518		39,2kΩ	1%	
R519	R1519		10kΩ	1%	
R520	R1520		10kΩ	1%	
R521	R1521		4,64kΩ	1%	
R522	R1522		121kΩ	1%	
R523	R1523		5,11kΩ	1%	
R524	R1524		11kΩ	1%	
R525	R1525		100kΩ	1%	
R526	R1526		10kΩ	1%	
R527	R1527		5,11kΩ	1%	
R528	R1528		121kΩ	1%	
R529	R1529		4,64kΩ	1%	
R530	R1530		11kΩ	1%	
R531	R1531		100kΩ	1%	
R532	R1532		10kΩ	1%	
R540	R1540		0kΩ		
R541	R1541		0kΩ		
R543	R1543		10kΩ	1%	
R601	R1601		3,32kΩ	1%	
R602	R1602		6,81kΩ	1%	
R603	R1603		3,32kΩ	1%	
R604	R1604		6,81kΩ	1%	
R611	R1611		3,32kΩ	1%	
R612	R1612		3,32kΩ	1%	
R613	R1613		5,11kΩ	1%	
R616	R1616		33,2kΩ	1%	
R617	R1617		9,09kΩ	1%	

R618	R1618		33,2kΩ	1%	
R619	R1619		10kΩ	1%	
R620	R1620		10kΩ	1%	
R621	R1621		4,64kΩ	1%	
R622	R1622		121kΩ	1%	
R623	R1623		5,11kΩ	1%	
R624	R1624		11kΩ	1%	
R625	R1625		100kΩ	1%	
R626	R1626		10kΩ	1%	
R627	R1627		5,11kΩ	1%	
R628	R1628		121kΩ	1%	
R629	R1629		4,64kΩ	1%	
R630	R1630		11kΩ	1%	
R631	R1631		100kΩ	1%	
R632	R1632		10kΩ	1%	
R640	R1640		0kΩ		
R641	R1641		0kΩ		
R643	R1643		10kΩ	1%	
R701	R1701		2kΩ	1%	
R702	R1702		2kΩ	1%	
R703	R1703		11kΩ	1%	
R711	R1711		2kΩ	1%	
R712	R1712		2kΩ	1%	
R713	R1713		11kΩ	1%	
R721	R1721		2kΩ	1%	
R722	R1722		2kΩ	1%	
R723	R1723		11kΩ	1%	
R731	R1731		2kΩ	1%	
R732	R1732		2kΩ	1%	
R733	R1733		11kΩ	1%	
R741	R1741		2kΩ	1%	
R742	R1742		2kΩ	1%	
R743	R1743		11kΩ	1%	
R751	R1751		2kΩ	1%	
R752	R1752		2kΩ	1%	
R753	R1753		11kΩ	1%	
R761	R1761		2kΩ	1%	
R762	R1762		2kΩ	1%	
R763	R1763		11kΩ	1%	
R771	R1771		2kΩ	1%	
R772	R1772		2kΩ	1%	
R773	R1773		11kΩ	1%	
R781	R1781		NC		
R782	R1782		NC		
R783	R1783		0kΩ		
R784	R1784		0kΩ		
R801	R1801		5,49kΩ	1%	
R803	R1803		221kΩ	1%	
R804	R1804		100kΩ	1%	
R806	R1806		221kΩ	1%	

R807	R1807		5,49kΩ	1%	
R811	R1811		5,49kΩ	1%	
R813	R1813		221kΩ	1%	
R814	R1814		100kΩ	1%	
R816	R1816		221kΩ	1%	
R817	R1817		5,49kΩ	1%	
R9			0kΩ		
SW1		SHADOW F2U			
SW2		MFP 220			
SW3		SHADOW F2U			
TR21		BC548			
TR22		BD135			
TR23		BC548			
T1	T2	ST 139 C			
T3	T4	ST 139 C			
T5		2x15V			30VA
XLR1	XLR11	XLR 3 MDH			
XLR2	XLR12	XLR 3 MDH			
XLR3	XLR13	XLR 3 FDH			
XLR4	XLR14	XLR 4 MP			

IV. MSIP LIST