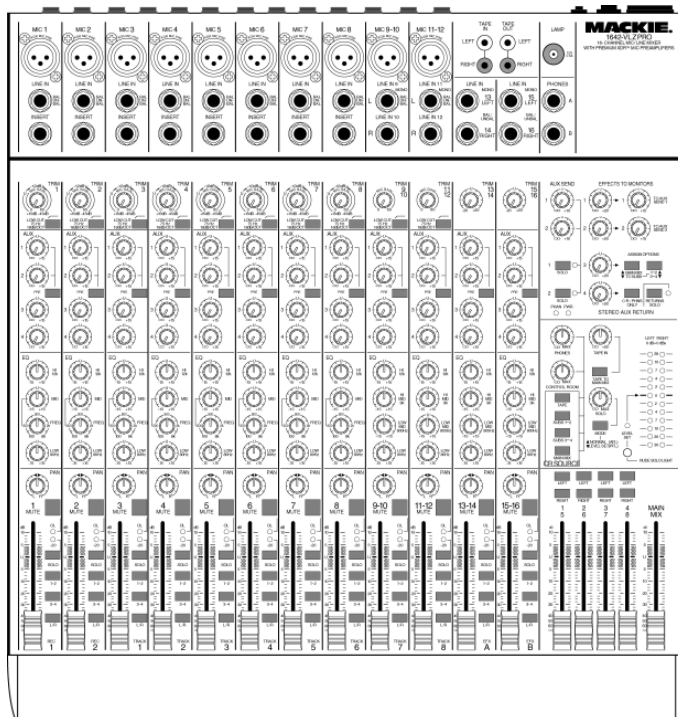


MACKIE®

1642-VLZ PRO

Compact mixer



SERVICE MANUAL

	SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY EXPERIENCED REPAIR TECHNICIANS ONLY <i>CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE</i>	
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	CAUTION AVIS RISK OF ELECTRIC SHOCK DO NOT OPEN <i>RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR</i>	
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CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED PERSONNEL

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE.

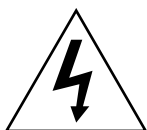
AVIS: POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE A LA PLUIE OU A L'HUMIDITE.

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UN PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS LAISSER AUCUNE PARTIE A DECOUVERT.

This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION :Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio energy and, if not installed properly and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'électrocution.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

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 Parts 8



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 Schematics and PCB layouts
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 Power supply board 249-1
 Mic input board 257-1

INTRODUCTION

	SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY EXPERIENCED REPAIR TECHNICIANS ONLY <i>CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE</i>	
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This manual contains basic service information. It is essential that you have a copy of the user's manual as this contains the complete operating instructions.

SERVICE TECHNICAL ASSISTANCE

Mackie Designs, Service Technical Assistance, is available 8AM - 5PM PST, Monday through Friday for Authorized Mackie Service Centers, at 1-800-258-6883. Feel free to call with any questions and speak with a carefully-calibrated technician. If one is not available, leave a detailed message and a qualified Mackoid will return your call asap.

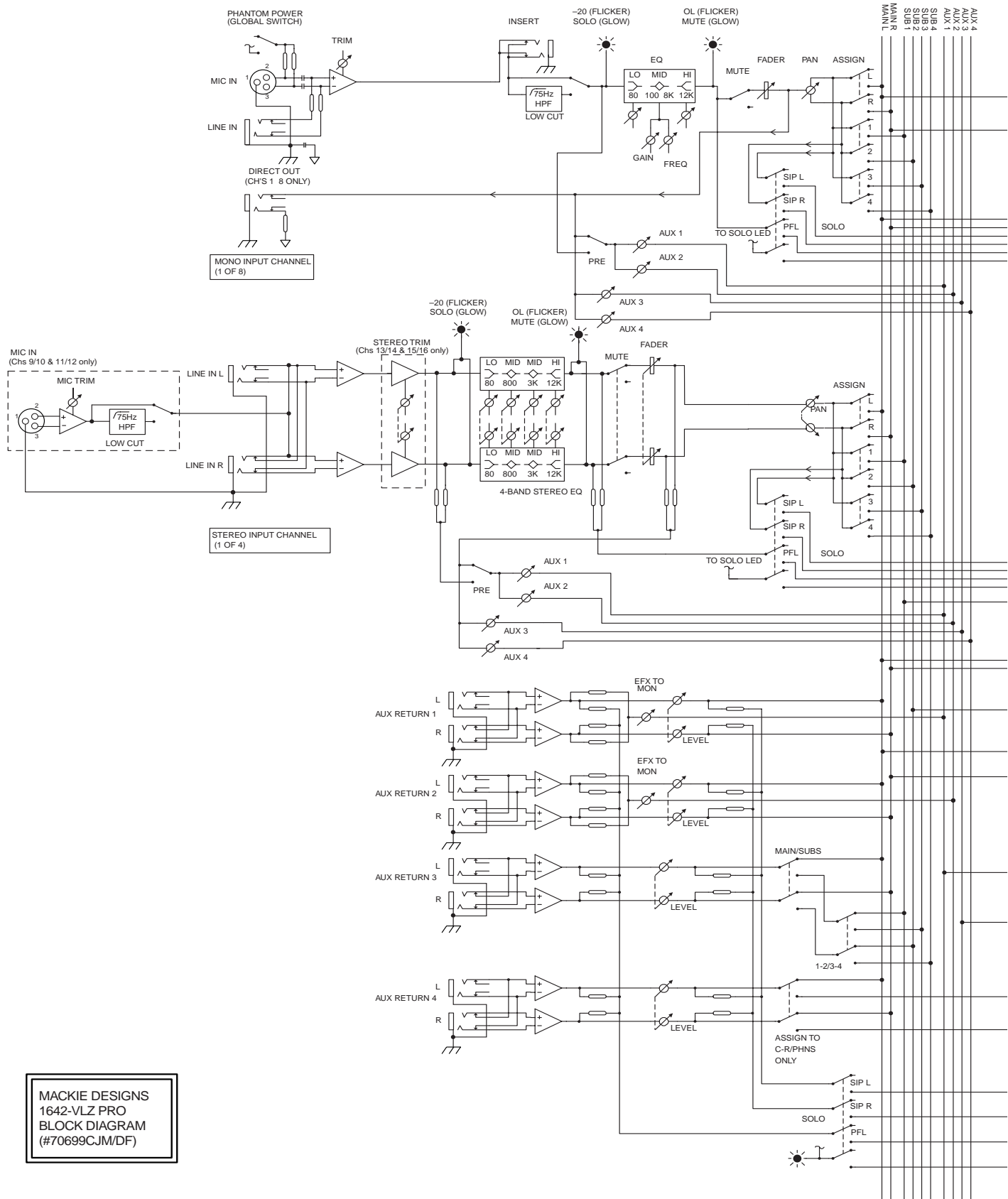
DISCLAIMER

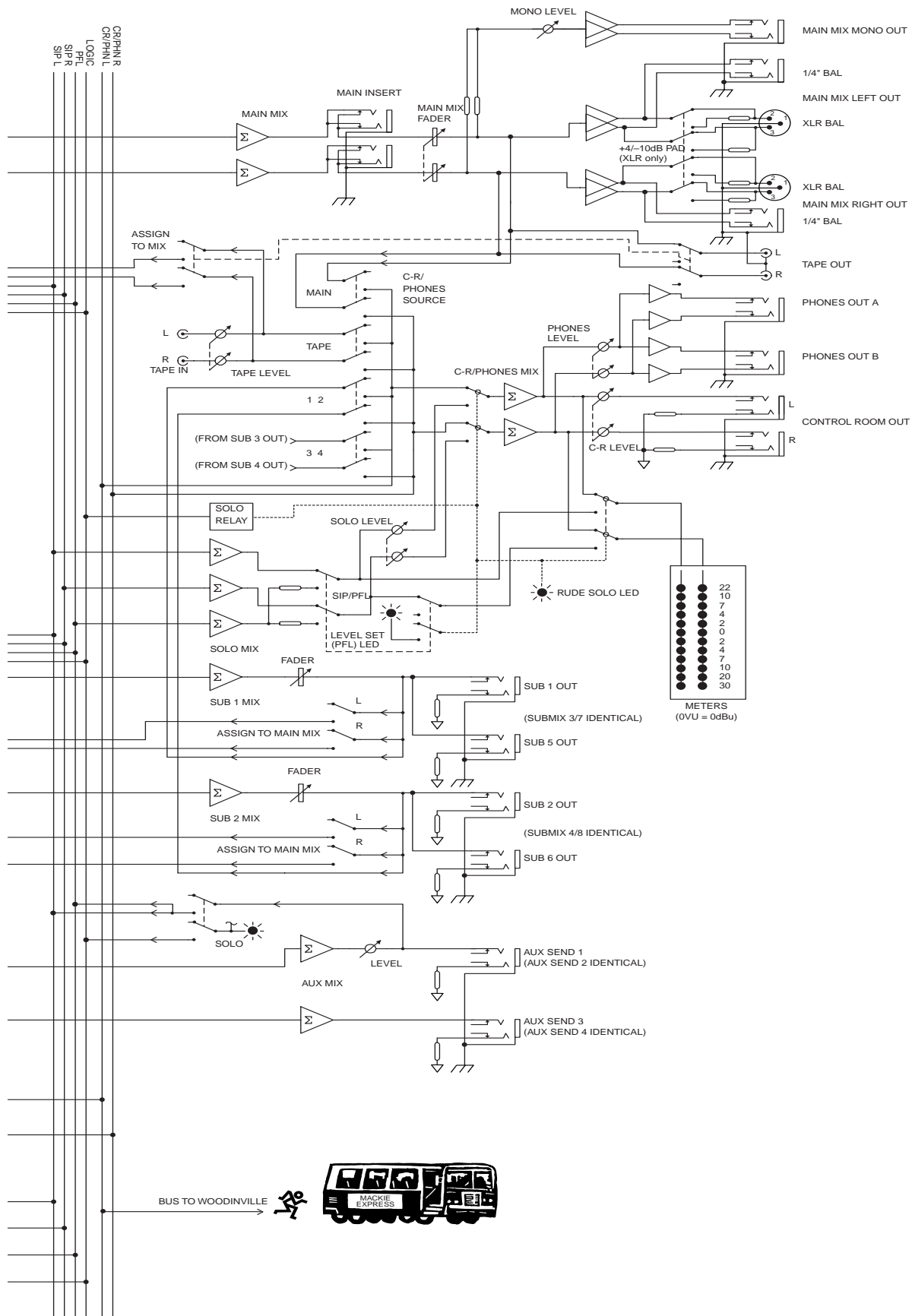
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Block Diagram

MACKIE DESIGNS
1642-VLZ PRO
BLOCK DIAGRAM
(#70699CJM/DF)





Specifications

Main Mix Noise

(20Hz–20kHz bandwidth, 1/4" Main Out, channel Trims @ unity gain, channel EQs flat, all channels assigned to Main Mix, odd channels panned left, even channels panned right)

Main Mix fader unity, channel faders down: –86.5dBu (90dB Signal to Noise Ratio, ref +4dBu)

Main Mix fader @ unity, channel faders @ unity: –84.0dBu

Total Harmonic Distortion (THD)

1kHz @ +14dBu: 20Hz–20kHz
 Mic in to Main out: below 0.0007%

Attenuation (Crosstalk)

(1kHz relative to 0dBu, 20Hz–20kHz bandwidth, Line in, 1/4" Main Out, Trim @ unity)

Channel Mute switch engaged: –84dBu

Channel Gain knob down: –84dBu

Frequency Response Mic input to any output

20Hz to 60kHz: +0dB/–1dB

20Hz to 100kHz: +0dB/–3dB

Equivalent Input Noise (EIN) Mic in to Insert Send out, max gain

150 Ω termination: –129.5dBm unweighted

Common Mode Rejection (CMR) Mic in to Insert Send out, max gain

1kHz: better than 90dB

Maximum Levels

Mic in: +22dBu

All other inputs: +22dBu

Main Mix 1/4" TRS and XLR outputs: +28dBu

All other outputs: +22dBu

Impedances

Mic in: 1.3 kΩ

Channel Insert return: 2.5 kΩ

All other inputs: 10 kΩ or greater

Tape out: 1.1 kΩ

All other outputs: 120 Ω

3 band EQ (Channels 1 - 8)

High Shelving: ±15db @ 12kHz

Mid Peaking: ±15dB, sweep 100Hz–8kHz

Low Shelving: ±15db @ 80Hz

Low Cut Filter: 18dB/octave, –3dB @ 75Hz

4-band EQ (Channels 9 - 16)

High Shelving: ±15db @ 12kHz

Hi Mid Shelving: ±15dB, 3kHz

Lo Mid Shelving: ±15dB, 800Hz

Low Shelving: ±15db @ 80Hz

Low Cut Filter (Ch9-12): 18dB/octave, –3dB @ 75Hz

Power Consumption

120VA.C., 50/60Hz, 40 watts

Fuse Ratings

120V: 1A Slo Blo, 5 x 20mm

220–240V: 0.5A Slo Blo, 5 x 20mm

Weight

18.2 lbs. (8.3kg)

Rack mounting

Optional rack ears are available which will allow the 1642-VLZ PRO to be mounted in a standard 19" rack. Allow ten rack spaces for the unit, and allow two empty rack spaces on top for room to plug things in.

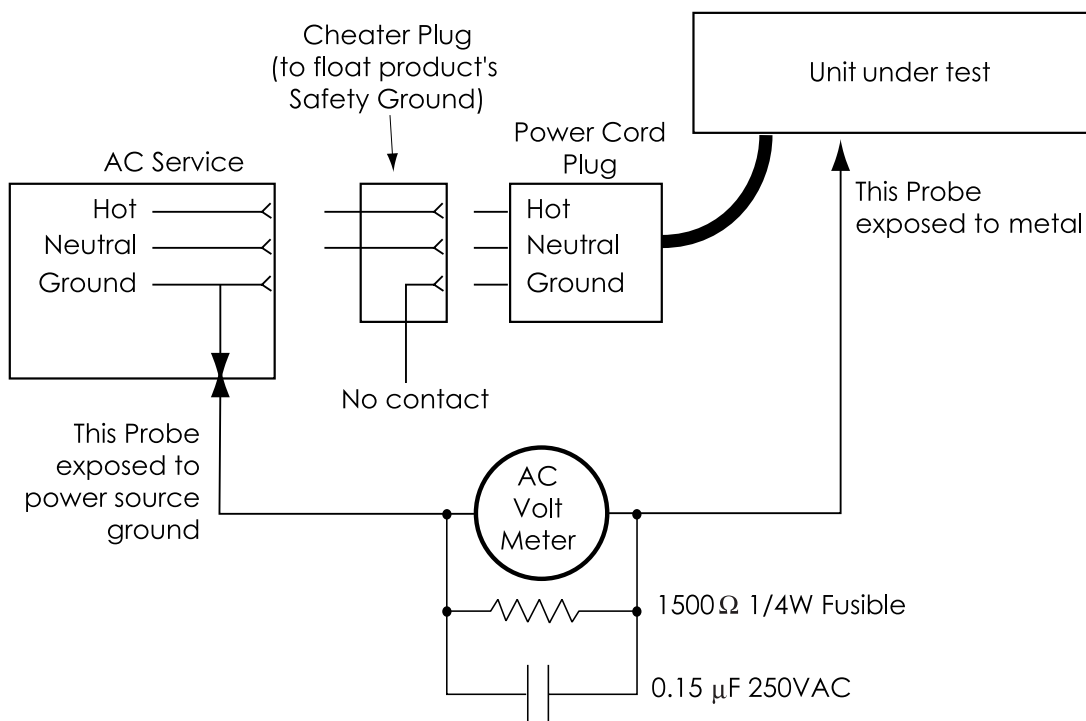
Safety test



You must perform the following leakage test before returning the unit to your customer. Take every safety precaution to protect yourself while doing this test.

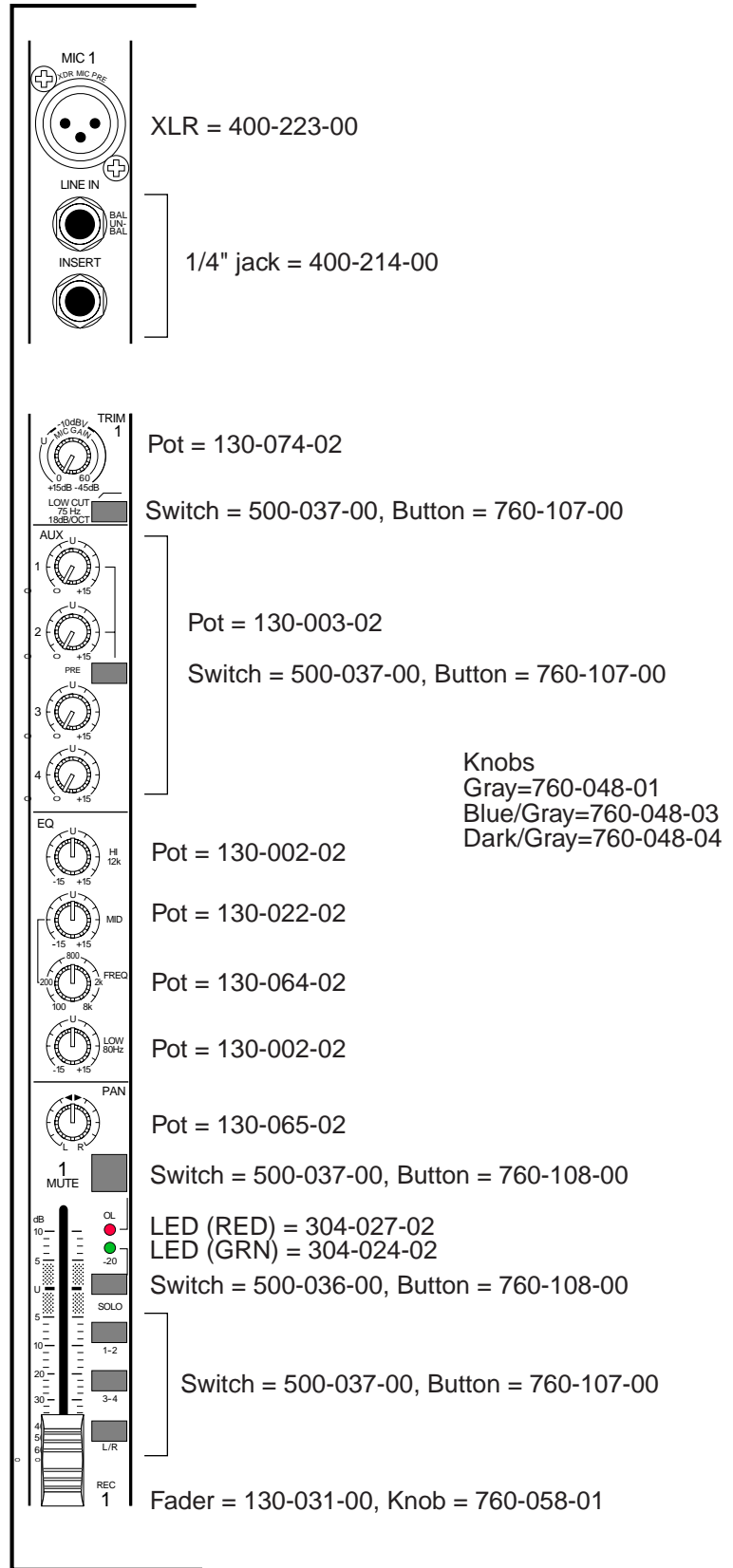


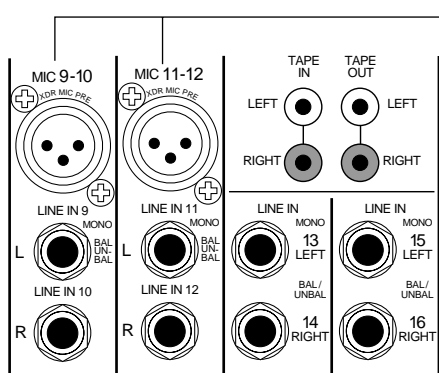
1. Make a small loading RC circuit as shown in the diagram below, and connect the AC volt meter between the AC power source ground and any exposed metal on the unit under test.
2. Connect the unit under test to an AC power source using a ground-lift adaptor, leaving the unit's safety ground floating. Turn the unit on.
3. The meter reading should be less than 750mVAC (note: this is equivalent to 0.5mA of leakage current).
4. Flip the plug over in the receptical so the hot and neutral are swapped. Verify that the reading is still less than 750mVAC.
5. If either reading is greater than 750mVAC, then you must investigate and repair the unit before returning it to your customer.



Quick Parts

Channels 1-8 have the same parts

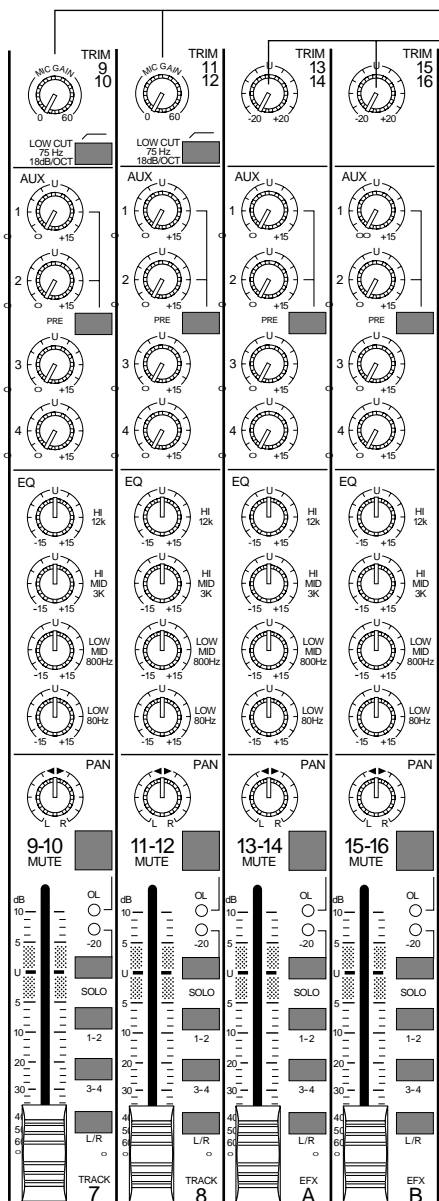




XLR = 400-223-00

Quad RCA jack = 400-022-00

1/4" jack = 400-214-00



Pot = 130-074-02

Pot = 130-061-02

Switch = 500-037-00, Button = 760-107-00

Pot = 130-003-02

Switch = 500-037-00, Button = 760-107-00

Knobs
 Gray=760-048-01
 Blue/Gray=760-048-03
 Dark/Gray=760-048-04

Pot = 130-061-02

Pot = 130-065-02

Switch = 500-036-00, Button = 760-108-00

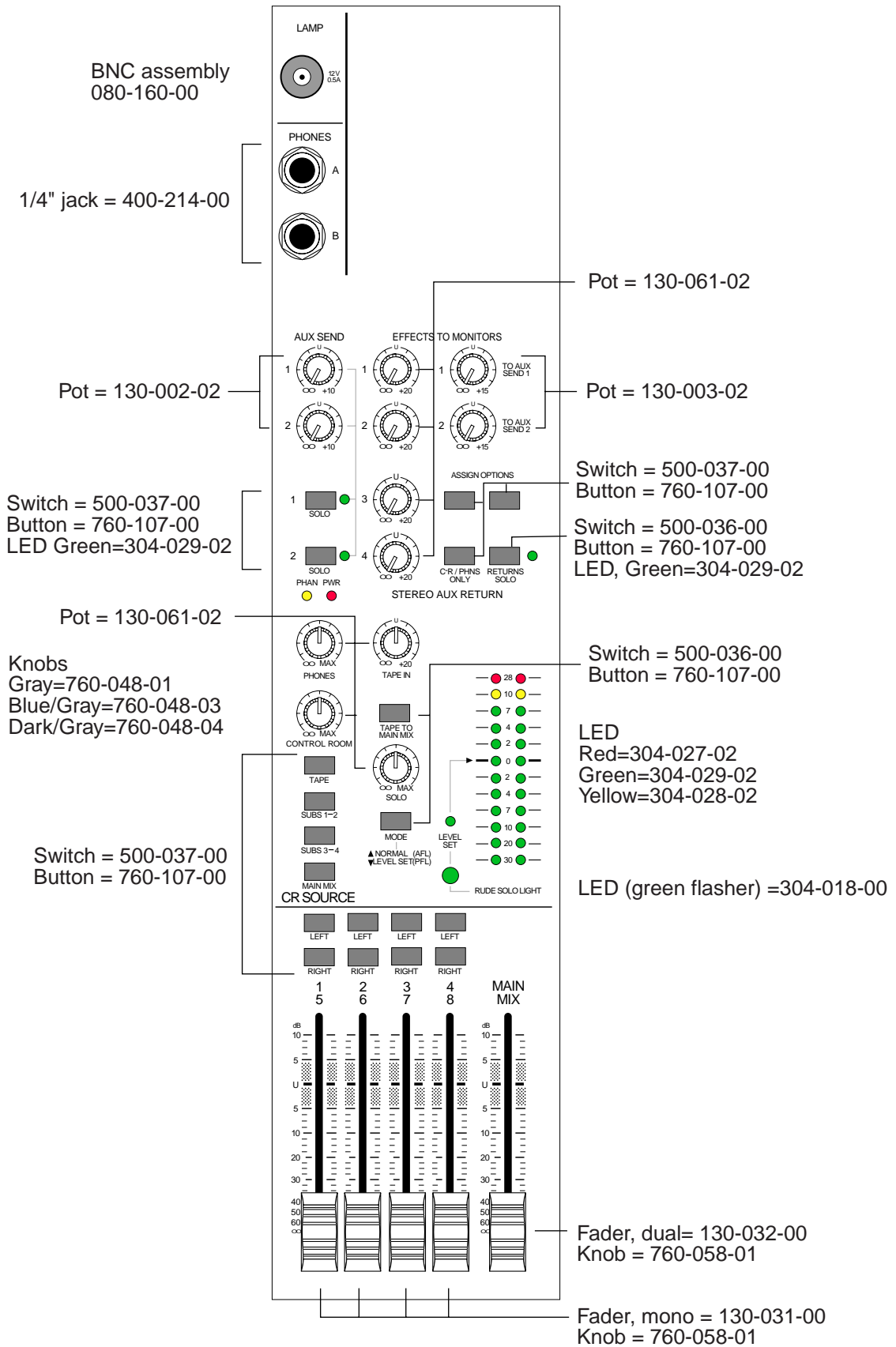
LED (RED) = 304-027-02
 LED (GRN) = 304-024-02

Switch = 500-036-00, Button = 760-108-00

Switch = 500-037-00, Button = 760-107-00

Fader, dual = 130-032-00, Knob = 760-058-01

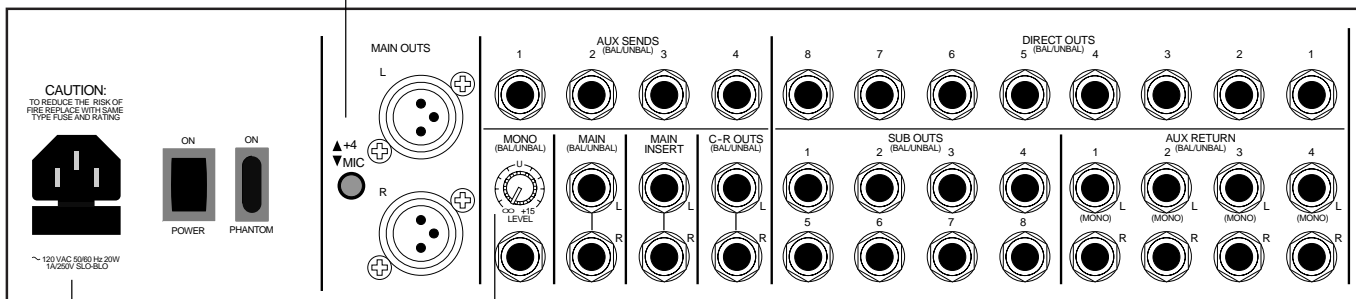
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Switch = 500-036-00
 Button = 760-150-00

XLR = 400-041-00

All 1/4" jacks = 400-214-00



IEC = 400-009-00
 Power Switch = 500-013-00
 Phantom Switch = 500-016-00

Pot = 130-003-02

1642-VLZ PRO PARTS LIST

Parts Numbering guide

- 040- Cables
- 055- Finished PCB Assy
- 100- Pots and resistors
- 200- Capacitors
- 300- Semiconductors
- 400- Jacks/Connectors
- 500- Switches
- 510- Fuses
- 550- Chassis Metalwork
- 600- Transformers
- 601- Inductors
- 610- Wires and Cables
- 640- AC line cords
- 700- Hardware
- 760- Knobs/Plastic
- 770- Fans
- 790- Misc./Packing
- 800- Printed Material
- 860- EPROM

PART#	DESCRIPTION	PAGES
090-127-00	Master Parts	A-2
055-247-00	Main Board	A-4
055-248-00	Jack board	A-9
055-249-00	Power supply board	A-10
055-257-00	Mic input board	A-11



Components noted with this symbol shall be replaced only by the component specified. This is required to maintain product safety.

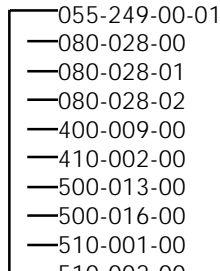
Master Parts List 090-127-xx

Part #	Description	Rev	Qty	Notes
040-078-00	DIS 18G 1007 7C .156 16.5	B	1	
040-365-00	RIB 28GA 16C 17IN 1642	A	2	
040-366-00	RIB 28GA 26C 3.5IN 1642	B	2	
040-366-01	RIB 28GA 26C 12.5IN 1642	A	1	
040-367-00	RIB 28GA 40C 3.5IN 1642	B	1	
040-375-00	CBL 18GA 1007 BLK QD 4"	A	1	
040-376-00	CBL 18GA 1007 RED QD 5"	A	1	
055-247-00-01	PCB ASSY MAIN 1642VLZ PRO	A2 A1	1	See page A-4
055-248-00-01	PCB ASSY POD 1642VLZ PRO	A2 A1	1	See page A-9
055-257-00-01	PCB ASSY MIC INPUT 1642	A1 A1	1	See page A-11
080-160-00	CBL ASSY 12" QDISC/BNC	B	1	BNC Assembly
550-454-00	SCN TOP PNL 1642VLZ PRO	C	1	Top panel
550-455-00	PNT BOTTOM 1642VLZ PRO	C	1	Bottom panel
551-075-00	PNT EXTR ARMREST 1642 VLZ	A	1	Arm rest
700-006-00	MCH 6-32X1/4 PHP BLKZC	A	10	
700-010-06	TF 6-32X1/2 PHP BLKZC	A	2	
700-011-00	MCH 4-40X1/4 BTNSKT BLKXO	A	19	
701-005-00	SM A-AB 6X1/4 PHP BLKZC	A	5	
701-016-00	5-20X5/16 PHP II TYP B BLK	A	25	
705-001-00	KEPNUT 6-32	A	5	
705-003-00	NUT HEX-SPLD W/400-214-00	A	AR (as required)	
710-002-00	WASHER-SPLD W/400-214-00	A	AR	
730-032-00	ADHESIVE 2 PART EPOXY 460	A	AR	
740-001-00	TYRAP 3-1/4L	A	2	
750-001-00	BUMPON ROUND BLK .63X.31	A	4	
760-007-00	BTN 10MM SMALL BLK		1	
760-048-01	KNOB 9MM LT GRY	B	22	
760-048-03	KNOB 9MM BLU/GRY	B	48	
760-048-04	KNOB 9MM DARK GRAY	B	62	
760-058-01	KNOB SLDR 22X8.26 MOLD LN	A	17	
760-059-10	ENDCAP RIGHT 1604-VLZ	B	1	
760-059-20	ENDCAP LEFT 1604-VLZ	B	1	
780-137-00	LIPSEAL MAIN 1642 PRO	A	1	
790-002-00	BAG POLY 12 X 18 2MIL	A	1	
790-011-00	BAG POLY 20 X 7 X 30 4MIL	A	1	
800-119-00	BOX 1642VLZ PRO	B	1	
810-043-00	FOAM END LT MOLD 1604 VLZ	A	1	
810-043-01	FOAM END RT MOLD 1604 VLZ	A	1	
820-200-00	OWNERS MANUAL 1642VLZ PRO	A	1	
—080-114-XX	SA PWR SPLY 1642VLZ PRO	A A1	1	See subassembly details on next page
—640-001-00	LC IEC SJT 10A/125V 6FT	D	1	
—640-002-02	LC JAPAN 12A 125VAC 8FT	C	1	For 100v model



Power supply subassembly 080-114-xx

Part #	Description	Rev	Qty	Notes
040-090-00	DIS 18G 1007 GRN 10 LUGX2	A	1	
040-151-00	DIS 18GA 1015 GRN 8IN LG	A	1	
040-341-00	DIS 18G 1015 GRN 2.5 LGTM	A	1	
055-249-00-01	PCB ASSY PS 1604VLZ PRO	A3 A1	1	See page A-10
—080-028-00	SA XRMR 1604VLZ 120V	A	1	For 120V models
—080-028-01	SA XRMR 1604VLZ 230V	A	1	For 230V model
—080-028-02	SA XRMR 1604VLZ 100V	A	1	For 100V model
—400-009-00	IEC W/FUSEHOLDER	A	1	
—410-002-00	INSL SILPAD .007 SELF ADH	A	2	
—500-013-00	SW RCKR SPST 6A PWR SFTY	A	1	
—500-016-00	SW RCKR SPST 6A/250V	A	1	
—510-001-00	FUSE SB 1A 5X20MM 250V UL	B	1	For 120V and 100 V models
510-002-00	FUSE SB .5A 5X20 250V IEC	B	1	For 230V model
550-211-00	SHIELD M6 - 1604VLZ 230V	A1	1	
550-462-00	CLAMP TO-220 X 4	A	1	
550-567-00	BRKT PWR SPLY 1642VLZ PRO	C	1	
611-038-00	WIR 18GA 1010 GN/YL 4 ST2	C	1	
700-035-06	TF 6-32X1/2 PHP CLRZC	A	2	
700-051-05	MCH 8-32X7/16 PHP BLKZC	A	4	
700-094-01	MCH 4-40 3/16 82DEG FLBLK		2	
705-001-00	KEPNUT 6-32	A	3	
730-001-00	THERMAL JOINT COMPOUND	A	AR	



Components noted with this symbol shall be replaced only by the component specified. This is required to maintain product safety.

055-247-00 Rev B Main pcb assembly

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
130-002-02	POT RTY 50KB 9MM MNO H TN	50KB	R35 R43 R49 R56 R137 R145 R153 R160 R261 R269 R277 R284 R375 R383 R390 R397
130-003-02	POTRTY 50KG 9MM MN TN PAN	50KG	R3 R12 R17-18 R27-28 R34 R42 R104 R113 R120-121 R130-131 R136 R144 R225 R234 R242-243 R252-253 R260 R268 R342 R351 R358-359 R368-369 R374 R382 R459 R476-477 R504 R600 R610 R621-622 R641-642 R661 R683 R793 R802-803 R815-816 R862 R1006-1007
130-022-02	POT RTY 10KB 9MM MONO TN	10KB	R36 R44 R138 R146 R262 R270 R376 R384
130-031-00	RESISTOR POT 60MM SLIDE MONO	10KD	R58 R77 R170 R189 R294 R313 R409 R428 R966 R973 R1125 R1132
130-032-00	RESISTOR POT 60MM SLIDE DUAL	50KD	R561 R580 R749 R947 R1140
130-061-02	POT 50KG 12MM DUAL WO SLV	50KG	R505-506 R530-531 R609 R662-663 R684-685 R705-706 R718-719 R792 R863-864 R884 R887 R908-909 R994-995 R1026-1027 R1062 R1065
130-064-02	POT 500KC 12MM DUL WO SLV	500KC	R48 R55 R152 R159 R276 R283 R389 R396
130-065-02	POT 10KCA 12MM DL WO SLV	10KC/10KA	R50 R57 R154 R161 R278 R285 R391 R398 R532 R707 R720 R910
130-074-02	RESISTOR POT 9MM HORIZ	10KZY	R2 R11 R103 R112 R224 R233 R341 R350 R458 R599
140-032-00	RES TF SM .1W 5% 20 OHM	20	5% R1053 R1111
140-037-00	RES TF SM .1W 5% 33 OHM	33	5% R1112
140-051-00	RES TF SM .1W 5% 120 OHM	120	5% R1074 R1085 R1108 R1122
140-057-00	RES TF SM .1W 5% 220 OHM	220	5% R70 R163 R182 R287 R306 R402 R421 R554 R571 R740 R759 R957 R1116-1117
140-061-00	RES TF SM .1W 5% 330 OHM	330	5% R1084 R1120
140-065-00	RES TF SM .1W 5% 470 OHM	470	5% R1083 R1119 R1121
140-066-00	RES TF SM .1W 5% 510 OHM	510	5% R7 R16 R21-23 R31-33 R72 R74 R91 R93 R108 R124-126 R165 R167 R184 R186 R203 R205 R214 R216 R220 R229 R236-238 R246-248 R289 R291 R308 R310 R323 R325 R329 R331 R337 R346 R352-354 R362-364 R404 R406 R423 R425 R435 R437 R446 R448 R453 R461 R470-472 R480-482 R489 R495 R503 R519 R525 R556 R558 R573 R575 R584 R586 R593 R595 R602 R617 R625-627 R634 R640 R645-647 R654 R660 R676 R682 R698 R704 R742 R744 R761 R763 R774 R776 R786 R788 R797 R807 R813 R819-821 R828 R834-835 R837 R845 R878 R898-899 R936-937 R959 R961 R970 R978 R980 R990-991 R1010 R1012 R1014 R1017 R1034 R1037 R1042-1043 R1049 R1052 R1060-1061 R1082 R1089-1090 R1093 R1096 R1098-1099 R1115 R1118 R1123 R1129 R1139 R1144 R1148 R1150-1151 R1154-1155
140-068-00	RES TF SM .1W 5% 620 OHM	620	5% R1081
140-073-00	RES TF SM .1W 5% 1K0 OHM	1K0	5% R507-515 R533-538 R541 R612 R616 R664-672 R686-694 R708-713 R716 R721-726 R729 R794 R798 R865-873 R911-916 R919

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PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
140-076-00	RES TF SM .1W 5% 1K3 OHM	1K3 5%	R19 R29 R122 R132 R244 R254 R360 R456 R466 R468 R988-989 R1080 R1146-1147 R1152-1153
140-077-00	RES TF SM .1W 5% 1K5 OHM	1K5 5%	R96 R99 R208 R211 R334 R431 R440 R443 R589 R598 R770 R779 R782 R791 R982-983
140-080-00	RES TF SM .1W 5% 2K0 OHM	2K 5%	R848 R996 R999-1001 R1029 R1031 R1054 R1068-1069 R1073 R1079 R1107
140-081-00	RES TF SM .1W 5% 2K2 OHM	2K2 5%	R63 R68 R82 R87 R175 R180 R194 R199 R299 R304 R318 R400 R414 R419 R547 R552 R563 R567 R732 R736 R751 R755 R949 R953
140-083-00	RES TF SM .1W 5% 2K7 OHM	2K7 5%	R927 R929 R941 R943 R946 R971 R987 R1092 R1094 R1104 R1106 R1130 R1133-1134 R1137-1138 R1145
140-085-00	RES TF SM .1W 5% 3K3 OHM	3K3 5%	R200-201 R212 R217 R432-433 R444 R449 R590 R597 R771 R778 R783 R790 R976 R984
140-086-00	RES TF SM .1W 5% 3K6 OHM	3K6 5%	R838 R851 R859 R1058
140-087-00	RES TF SM .1W 5% 3K9 OHM	3K9 5%	R37 R45 R139 R147 R263 R271 R377 R490 R496 R517 R539-540 R635 R655 R674 R696 R714-715 R727-728 R829 R874 R917-918 R1078
140-090-00	RES TF SM .1W 5% 5K1 OHM	5K1 5%	R1 R8 R10 R24-26 R60 R69 R79 R89 R92 R95 R100 R102 R109 R111 R117-119 R127-129 R162 R172 R181 R191 R204 R207 R215 R219 R221 R223 R230 R232 R239-241 R249-251 R286 R296 R305 R315 R324 R327 R330 R333 R338 R340 R347 R349 R355-357 R365-367 R401 R411 R420 R436 R439 R447 R454 R465 R473-475 R544 R553 R569 R582 R585 R588 R594 R606 R738 R757 R769 R775 R781 R787 R800-801 R804-805 R900 R907 R926 R928 R935 R942 R955 R968 R972 R975 R979 R1019-1020 R1023 R1025 R1032 R1035 R1045-1046 R1088 R1097 R1100-1102 R1105 R1114 R1127 R1131 R1135-1136
140-091-00	RES TF SM .1W 5% 5K6 OHM	5K6 5%	R51 R54 R148 R151 R155 R158 R272 R275 R279 R282 R385 R388 R392 R395 R526 R529
140-092-00	RES TF SM .1W 5% 6K2 OHM	6K2 5%	R40 R52 R134 R142 R149 R156 R258 R266 R273 R280 R372 R380 R386 R393 R499 R527
140-094-00	RES TF SM .1W 5% 7K5 OHM	7K5 5%	R521-522 R678-679 R700-701 R843 R879 R881 R1050 R1087
140-097-00	RES TF SM .1W 5% 10K OHM	10K 5%	R9 R41 R53 R59 R61 R78 R80 R101 R110 R135 R143 R150 R157 R171 R173 R190 R192 R222 R231 R259 R267 R274 R281 R295 R297 R314 R316 R339 R348 R373 R381 R387 R394 R410 R412 R455 R462 R483-488 R500 R518 R528 R542-543 R545 R570 R576-577 R603 R618 R628-633 R648-653 R675 R697 R717 R730 R739 R745-746 R758 R764-765 R799 R809 R822-827 R847 R875 R888 R890 R892 R897 R920 R956 R962-963 R967 R969 R1011 R1013 R1015-1016 R1076-1077 R1103 R1109 R1124 R1126 R1128 R1141-1142

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PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
140-101-00	RES TF SM .1W 5% 15K OHM	15K	5%
140-104-00	RES TF SM .1W 5% 20K OHM	20K	5%
140-108-00	RES TF SM .1W 5% 27K OHM	27K	5%
140-109-00	RES TF SM .1W 5% 30K OHM	30K	5%
140-111-00	RES TF SM .1W 5% 36K OHM	36K	5%
140-112-00	RES TF SM .1W 5% 39K OHM	39K	5%
140-114-00	RES TF SM .1W 5% 47K OHM	47K	5%
140-117-00	RES TF SM .1W 5% 62K OHM	62K	5%
140-123-00	RES TF SM .1W 5% 100K OHM	100K	5%
140-130-00	RES TF SM .1W 5% 200K OHM	200K	5%
140-147-00	RES TF SM .1W 5% 1M OHM	1M	5%
145-051-00	RES MF SM .1W 1% 3R32 OHM	3R32	1%
145-389-00	RES MF SM .1W 1% 10K0 OHM	10K0	1%
200-001-02	PLY .012UF 10% 100V TR	0.012	
200-003-02	PLY/FL .033UF 10% 100V TR	0.033	10%

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PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
200-005-02	PLY .0068UF 10% 100V TR	0.0068	C17-18 C52-53 C60-61 C105-106 C113-114 C152-153 C160-161 C211-212
200-011-02	PLY .0022UF 10% 100V TR	0.0022	C23 C65 C68 C118 C121 C165 C168 C230
200-015-02	PLY .0047UF 10% 100V PEI	0.0047 10%	C20 C55 C63 C108 C116 C155 C163 C214
200-052-02	PLY .0012UF 10% 100V TR	0.0012	C224-225 C287-288 C298-299 C381-382
212-001-00	CER .01UF 10% 50V X7R SM	0.01 10%	C476 C492-493
212-004-00	CER 220PF 5% 50V NPO SM	220PF 5%	C436-437 C504-505 C514-515 C520 C522
212-005-00	CER 20PF 5% 50V NPO SM	20PF 5%	C29 C72 C76 C126 C130 C174 C178 C244 C246 C320 C325 C357-360 C368 C371 C394 C397 C408-409 C411 C441 C443-444 C448 C454 C457 C462 C467 C470 C482 C484
212-006-00	CER 470PF 5% 50V NPO SM	470PF 5%	C78 C80 C84-85 C180 C182 C186-187 C252 C256 C329 C333 C335 C339 C425-426
212-009-00	CER 47PF 5% 50V NPO SM	47PF 5%	C21 C56 C64 C109 C117 C156 C164 C215 C348 C352 C419-422 C496-499 C502-503
212-010-00	CER .1 +80/-20 25V Z5U SM	.1UF -400	C11-12 C15-16 C26-28 C30-31 C35 C47-48 C50-51 C58-59 C71 C73-75 C77 C79 C83 C86 C99-100 C103-104 C111-112 C124-125 C127-129 C146-147 C150-151 C158-159 C171-173 C175-177 C179 C181 C185 C188 C192 C194 C204-205 C209-210 C218-219 C229 C241-243 C247-249 C254-255 C264-265 C272-273 C278-279 C282 C292-293 C321-323 C326-328 C331-332 C337-338 C342-343 C354 C356 C361-362 C365-366 C369-370 C375-376 C385-386 C389-391 C406 C412-418 C424 C427 C430-431 C440 C446 C463-465 C469 C477-480 C485-486 C488-491 C500-501 C508-509 C517 C521
212-018-00	CER 10PF 5% 50V NPO SM	10PF 5%	C14 C22 C57 C102 C110 C149 C157 C202 C206 C208 C216-217 C227-228 C270 C274 C276 C280 C290-291 C301-302 C363 C367 C384 C387-388 C461
212-031-00	CER 68PF 5% 50V NPO SM	68pF 5%	C263 C266 C269 C344
220-002-02	LYT 47UF 20% 25V RAD TR	47UF 20%	C3-4 C8-9 C19 C32-34 C39-40 C44-45 C54 C62 C81-82 C87-88 C92-93 C97 C107 C115 C131-135 C139-140 C144 C154 C162 C183-184 C189-190 C193 C198 C200-201 C207 C213 C222 C237-239 C245 C250-251 C253 C257 C261 C267-268 C275 C281 C285 C296 C307-309 C315-317 C319 C324 C330 C334 C336 C340-341 C345-347 C349-351 C353 C355 C372-374 C379 C392-393 C395-396 C402-404 C410 C423 C428-429 C432-435 C438-439 C442 C445 C447 C449-453 C455-456 C458-460 C466 C468 C471-475 C481 C483 C487 C494-495 C506-507 C510-513 C516 C518-519 C523-526

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PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
220-008-02	LYT 1UF 20% 50V RAD TR	1UF 10%	C233-234 C303-304 C311-312 C398-399
220-013-02	LYT .22UF 20% 50V RAD TR	.22UF 10%	C1-2 C6-7 C10 C13 C37-38 C42-43 C46 C49 C90-91 C95-96 C98 C101 C137-138 C142-143 C145 C148 C195-196 C199 C258-259 C262
220-014-00	LYT 2.2UF 20% 50V RAD	2.2UF 10%	C407
220-030-00	LYT 1000UF 20% 6.3V RAD	1000UF 10%	C5 C36 C41 C89 C94 C136 C141 C191 C197 C260
300-003-00	DIO SW DL4148 100V SM	DL4148	D3-4 D7-8 D11-12 D15-16 D19-20 D23-24 D27-28 D31-32 D35-36 D39-40 D43-44 D51-52 D54-55 D72-73 D77-79
302-002-03	DIO ZEN 1N5230B 4.7V SM	DL5230B	D75
304-018-00	DIODE LED T1-3/4 w/flasher	GREEN	D76
304-027-02	LED RED W/.425 SPACER TR	RED	D1 D5 D9 D13 D17 D21 D25 D29 D33 D37 D41 D46 D49 D56 D64
304-028-02	LED YEL W/.425 SPACER TR	YEL	D45 D57 D65
304-029-02	LED GRN W/.425 SPACER TR	GRN	D2 D6 D10 D14 D18 D22 D26 D30 D34 D38 D42 D47-48 D50 D53 D58-63 D66-71 D74 D80-87
310-002-02	XSTR PNP 2N4403 T/A	2N4403	Q9-10
311-004-00	XSTR SST112 SM	J112	Q4-7
311-005-00	XSTR NPN MMBTA06LT1 SM	IMBTA06	Q1-3 Q8
320-006-00	OPAMP 2068E	NJM 2068	U1-2 U4-6 U9-13 U16-18 U21-22 U25 U70-71 U73
320-012-00	OPAMP NJM4560M	NJM4560M	U3 U7-8 U14-15 U19-20 U23-24 U26-59 U64-65 U68-69 U72 U74
323-002-00	LM339D QUAD COMP SM	LM339	U60-63 U66-67
400-005-00	HDR 40P .100X2 STR		J3
400-043-00	HDR 26P .100X2 STR		J1-2 J4
400-048-00	CONNECTOR RTA 7P .156 X 1		J7
400-257-00	HDR 16P .10X2 STR		J5-6
450-247-00	PCB, 1642VLZ-PRO MAIN		Z1
500-036-00	SWITCH 4PDT PUSH V SNAPIN	4P2T	SW6 SW9 SW18 SW27 SW30 SW41 SW44 SW55 SW57-58 SW67-68 SW70-71 SW88-89 SW96-98
500-037-00	SWITCH 2PDT PUSH V SNAPIN	2P2T	SW1-5 SW7-8 SW10-17 SW19-26 SW28-29 SW31-40 SW42-43 SW45-54 SW56 SW59-66 SW69 SW72-87 SW90-95 SW99-102
601-002-00	INDUCTOR 4.7UH AX	4.7UH	L1-10
706-009-00	SPACER, NYLON, LED .385		Z2
706-033-02	STDF SWAGE NO.4 X .555L F		SO1-19
760-107-00	BTN 2 COLOR 9X5MM		BSW1-4 BSW6-7 BSW9-16 BSW18-25 BSW27-28 BSW30-39 BSW41-42 BSW44-53 BSW55-56 BSW58-66 BSW68-69 BSW71-87 BSW89-102
760-108-00	BTN 2 COLOR 9X9MM		BSW5 BSW8 BSW17 BSW26 BSW29 BSW40 BSW43 BSW54 BSW57 BSW67 BSW70 BSW88

055-248-00 Rev A Jackfield pcb assembly

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
130-003-02	POTRTY 50KG 9MM MN TN PAN	50KG	R95
140-051-00	RES TF SM .1W 5% 120 OHM	120 5%	R2 R4 R6 R8 R10 R12 R14 R18 R20-21 R24 R27 R30 R33 R36 R39 R41 R44 R46 R49 R51 R54
140-080-00	RES TF SM .1W 5% 2K0 OHM	2K 5%	R96
140-097-00	RES TF SM .1W 5% 10K OHM	10K 5%	R76 R97
140-123-00	RES TF SM .1W 5% 100K OHM	100K 5%	R15 R22 R25 R28 R31 R34 R37 R42 R47 R52 R66 R72 R77 R82 R87 R92 R134-137
141-051-00	RES TF SM .25W 5% 120 OHM	120 5%	R1 R3 R5 R7 R9 R11 R13 R16-17 R19 R23 R26 R29 R32 R35 R38 R40 R43 R45 R48 R50 R53 R65 R68 R73-74 R98-99 R102-106 R109-111
145-335-00	RES MF SM .1W 1% 2K74 OHM	2K74 1%	R75
145-361-00	RES MF SM .1W 1% 5K11 OHM	5K11 1%	R67 R69-71 R78-81 R83-86 R88-91 R93-94 R100-101 R107-108
145-389-00	RES MF SM .1W 1% 10K0 OHM	10K0 1%	R55-64 R112-133
212-004-00	CER 220PF 5% 50V NPO SM	220PF 5%	C26
212-005-00	CER 20PF 5% 50V NPO SM	20PF 5%	C18 C24
212-009-00	CER 47PF 5% 50V NPO SM	47PF 5%	C12 C14 C16-17 C45 C47-48 C50-51 C53-54 C56-57 C59-60 C62
212-019-00	CER 150PF 5% 50V SM	150PF 5%	C21-22 C29-30 C32-33 C35-36 C38
212-025-00	CAP CER .1UF 50V 10% X7R	.1UF 10%	C5-6 C39-44 C63-70
220-002-02	LYT 47UF 20% 25V RAD TR	47UF 20%	C1-4 C13 C15 C19-20 C23 C25 C27-28 C31 C34 C37 C46 C49 C52 C55 C58 C61
320-006-00	OPAMP 2068E	NJM 2068	U5-6 U8-9
320-012-00	OPAMP NJM4560M	NJM4560M	U1-4 U7
400-041-00	XLR VERT MALE PCMNT		J29 J31
400-214-00	JACK 1/4 V PCMNT 1MM WASH		J1-28 J30 J32-37
400-269-00	TERM QDISC RTA .250 PCMT		J100
400-341-16	HDR 16P .10X2 STR LCK		J105-106
400-341-26	HDR 26P .10X2 STR LCK		J104
450-248-00	PCB, 1642 JACKFIELD		Z50
500-036-00	SWITCH 4PDT PUSH V SNAPIN 4P2T		SW1
760-150-00	EXTENDER, BUTTON SQ CORE, .450"		Z51

055-249-00 Rev A Power supply pcb assembly

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
040-341-00	DIS 18AWG 1015 GRN 2.5IN LGTM		P2
100-008-00	RESISTOR CF	20 5%	R4-5
100-028-00	RESISTOR CF	130 5%	R9-10
100-059-00	RESISTOR CF	2K7 5%	R7-8
100-061-00	RESISTOR CF	3K3 5%	R11-12
100-080-00	RESISTOR CF	20K 5%	R1
100-104-00	RESISTOR CF	200K 5%	R2 R6
110-059-00	RESISTOR CF	2K7 5%	R15-16
110-072-00	RESISTOR CF	9K1 5%	R3 R17
122-043-00	RESISTOR MF	5.6 5%	R13-14
220-002-02	CAPACITOR LYTIC RADIAL TAPE	47UF 10%	C1-2
220-003-02	CAPACITOR LYTIC RADIAL TAPE	47UF 10%	C4-5 C13
220-005-02	CAPACITOR LYTIC RADIAL TAPE	470UF 10%	C10-11
220-006-00	CAPACITOR LYTIC RADIAL	2200UF 10%	C12
220-007-00	CAPACITOR LYTIC RADIAL	100UF 10%	C3
220-023-00	CAPACITOR LYTIC RADIAL	6,800UF 10%	C6-7
220-027-02	CAPACITOR LYTIC RADIAL TAPE	10UF 10%	C8-9
301-001-00	DIODE POWER	1N4002	D5-8 D10-19
301-003-00	DIODE POWER	1N5401	D1-4
302-014-00	DIODE ZENER	1N4756	D20
310-006-00	TRANSISTOR POWER NPN	TIP29C	Q1-2
321-008-00	I.C. ADJ POS 3 TERM VOLTAGE REGULATOR	LM317T	U2
321-009-00	I.C. ADJ NEG 3 TERM VOLTAGE REGULATOR	LM337T	U1
400-015-00	CONNECTOR STR 7P .156 X 1		P1
400-059-00	CONN QUICK DISC 250		E1-2
400-221-00	HDR 7P .156 LOCK KEY PIN6		P3
400-060-00	FUSE CLIP PCMT		Z4-5
450-249-00	PCB, 1604 VLZ II POWER SUPPLY		Z3
510-002-00	FUSE SB .5A 5X20 250V IEC		F1
706-008-00	STANDOFF, SWAGE 4-40 X .34"		Z1-2



055-257-00 Rev A Mic input pcb assembly

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
040-266-00	DIS 14GA BLKWHT 4.5" FG/TM		P1
115-081-00	RES .25W 1% 6R81 OHM	6.81 1%	R12-13 R40-41 R64-65 R91-92 R116-117 R144-145 R168-169 R196-197 R220-221 R246-247
115-373-00	RES MF .25W 1% 6K81 OHM	6K81 1%	R9 R14 R38 R42 R61 R66 R89 R95 R113 R118 R142 R146 R165 R170 R194 R198 R217 R222 R244 R248
140-065-00	RES TF SM .1W 5% 470 OHM	470 5%	R4 R8 R45 R49 R56 R60 R97 R101 R108 R112 R149 R153 R160 R164 R201 R205 R212 R216 R250 R252
140-074-00	RES TF SM .1W 5% 1K1 OHM	1K1 5%	R292-293
140-104-00	RES TF SM .1W 5% 20K OHM	20K 5%	R2 R51 R54 R103 R106 R155 R158 R207 R210 R253
140-123-00	RES TF SM .1W 5% 100K OHM	100K 5%	R20 R47 R72 R99 R124 R151 R176 R203 R261-262 R267 R270-272 R279 R282 R291 R296
141-051-00	RES TF SM .25W 5% 120 OHM	120 5%	R23 R50 R75 R102 R127 R154 R179 R206 R299-300 R303 R306-316
145-306-00	RES MF SM .1W 1% 1K50 OHM	1K50 1%	R5-6 R34-35 R57-58 R83-84 R109-110 R138-139 R161-162 R190-191 R213-214 R240-241
145-331-00	RES MF SM .1W 1% 2K49 OHM	2K49 1%	R1 R3 R7 R10 R15-16 R26 R29 R36-37 R39 R44 R48 R52-53 R55 R59 R62 R67-68 R78 R81 R88 R90 R93 R96 R100 R104-105 R107 R111 R114 R119-120 R130 R133 R140-141 R143 R148 R152 R156-157 R159 R163 R166 R171-172 R182 R185 R192-193 R195 R200 R204 R208-209 R211 R215 R218 R223-224 R231 R234 R242-243 R245 R249 R251 R254
145-361-00	RES MF SM .1W 1% 5K11 OHM	5K11 1%	R11 R21 R24-25 R27-28 R32-33 R63 R73 R76-77 R79-80 R82 R87 R115 R125 R128-129 R131-132 R136-137 R167 R177 R180-181 R183-184 R188-189 R219 R227 R229-230 R232-233 R238-239
145-365-00	RES MF SM .1W 1% 5K62 OHM	5K62 1%	R19 R22 R43 R46 R71 R74 R94 R98 R123 R126 R147 R150 R175 R178 R199 R202
145-389-00	RES MF SM .1W 1% 10K0 OHM	10K0 1%	R17-18 R30-31 R69-70 R85-86 R121-122 R134-135 R173-174 R186-187 R225-226 R236-237 R255-260 R263 R265 R268-269 R273-275 R277 R280-281 R283-290 R294-295 R297-298 R301-302 R304-305
212-001-00	CER .01UF 10% 50V X7R SM	0.01 10%	C4 C8 C36 C41 C49 C52 C80 C85 C93 C96 C124 C129 C137 C140 C168 C173 C181 C184 C211 C216
212-004-00	CER 220PF 5% 50V NPO SM	220PF 5%	C12 C34 C56 C78 C100 C122 C144 C166 C188 C209
212-006-00	CER 470PF 5% 50V NPO SM	470PF 5%	C5 C37 C50 C81 C94 C125 C138 C169 C182 C212 C238-239
212-010-00	CER .1 +80/-20 25V Z5U SM	.1UF -400	C2 C7 C11 C22 C24 C33 C35 C38 C46 C51 C55 C66 C68 C77 C79 C83 C90 C95 C99 C110 C112 C121 C123 C127 C134 C139 C143 C154 C156 C165 C167 C171 C178 C183 C187 C197 C199 C208 C210 C214 C222 C224-227 C236-237 C244 C247 C249 C253-255 C258

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PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
212-018-00	CER 10PF 5% 50V NPO SM	10PF 5%	C17-18 C27-28 C61-62 C71-72 C105-106 C115-116 C148-149 C159-160 C193-194 C202-203
212-019-00	CER 150PF 5% 50V SM	150PF 5%	C14-15 C29-30 C58-59 C73-74 C102-103 C117-118 C145-146 C161-162 C190-191 C204-205
212-031-00	CER 68PF 5% 50V NPO SM	68pF 5%	C218-221 C228-229 C232-235 C242-243 C245-246 C251-252
212-034-00	CER .022UF 10% 100V X7R	0.022 10%	C6 C26 C48 C70 C92 C114 C136 C158 C180 C201
212-036-00	CER 470PF 2% 50V NPO SMT	470PF 2%	C9-10 C31-32 C53-54 C75-76 C97-98 C119-120 C141-142 C163-164 C185-186 C206-207
212-037-00	CER 1000PF 2% 50V NPO SMT	1000PF 2%	C13 C16 C39-40 C57 C60 C82 C84 C101 C104 C126 C128 C147 C150 C170 C172 C189 C192 C213 C215
220-002-02	LYT 47UF 20% 25V RAD TR	47UF 20%	C19-21 C42-44 C63-65 C86-88 C107-109 C130-132 C151-153 C174-176 C217 C223 C230-231 C240-241 C248 C250 C256-257
220-003-02	LYT 47UF 20% 50V RAD TR	47UF 20%	C1 C3 C23 C25 C45 C47 C67 C69 C89 C91 C111 C113 C133 C135 C155 C157 C177 C179 C198 C200
300-003-00	DIODE SIGNAL SMD	DL4148	D5 D10 D15 D20 D25 D30 D35 D40 D45 D50
301-004-00	DIODE POWER SMD	DL4002	D1-4 D6-9 D11-14 D16-19 D21-24 D26-29 D31-34 D36-39 D41-44 D46-49
310-003-02	TRANSISTOR PNP, T&R	2SA1084	Q1-2 Q9-12 Q19-22 Q29-32 Q39-42 Q49-50
311-002-00	X-SISTOR PNP SMD	IMBT4403	Q3-8 Q13-18 Q23-28 Q33-38 Q43-48
320-006-00	I.C. LINEAR SMD	NJM 2068	U1-15
320-011-00	I.C. LINEAR	NJM 4560	U20-23
320-012-00	OPAMP NJM4560M	NJM4560M	U16-19
400-005-00	HDR 40P .100X2 STR		J103
400-022-00	RCA QUAD PCMNT		J36
400-043-00	HDR 26P .100X2 STR		J101-102
400-214-00	CONNECTOR JACK 1/4" VERT PC MOUNT		J2-3 J6-7 J9-10 J12-13 J15-16 J19-20 J22-23 J25-26 J28-29 J32-35 J37-40
400-223-00	CONNECTOR XLR PC MTG VERT FML		J1 J5 J8 J11 J14 J18 J21 J24 J27 J31 Z100
450-257-00	PCB, 1642 MIC/LINE INPUT		
601-004-00	FERRITE BEAD SMB	MLB40-5	L1-2 L4-5 L7-8 L10-11 L13-14 L16-17 L19-20 L22-23 L25-26 L28-29
601-007-00	CHOKE, COMMON MODE	50mH	L3 L6 L9 L12 L15 L18 L21 L24 L27 L30