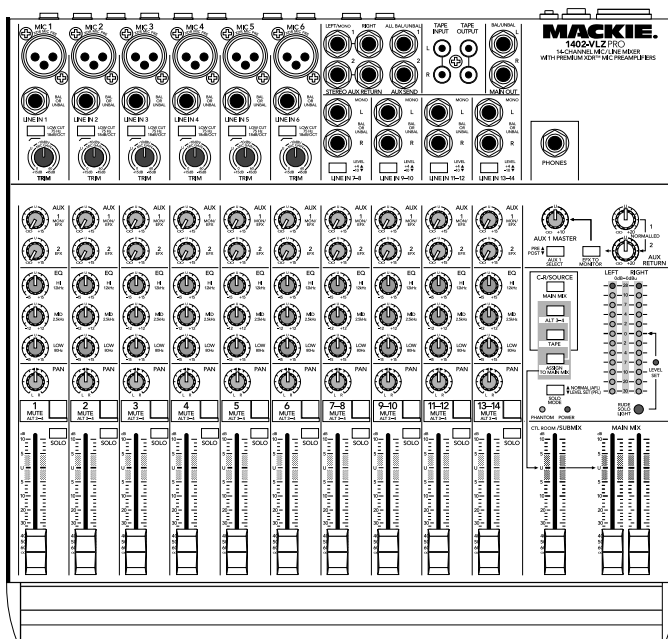


# MACKIE®

## 1402-VLZ PRO

14-CHANNEL MIC/LINE MIXER



## SERVICE MANUAL

 SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY  
EXPERIENCED REPAIR TECHNICIANS ONLY  
*CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE* 

 **CAUTION AVIS**   
RISK OF ELECTRIC SHOCK  
DO NOT OPEN  
*RISQUE DE CHOC ELECTRIQUE  
NE PAS OUVRIR*

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.

# CONTENTS

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     Schematics ..... 215-1  
     PCB Layout ..... 215-12  
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## 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.



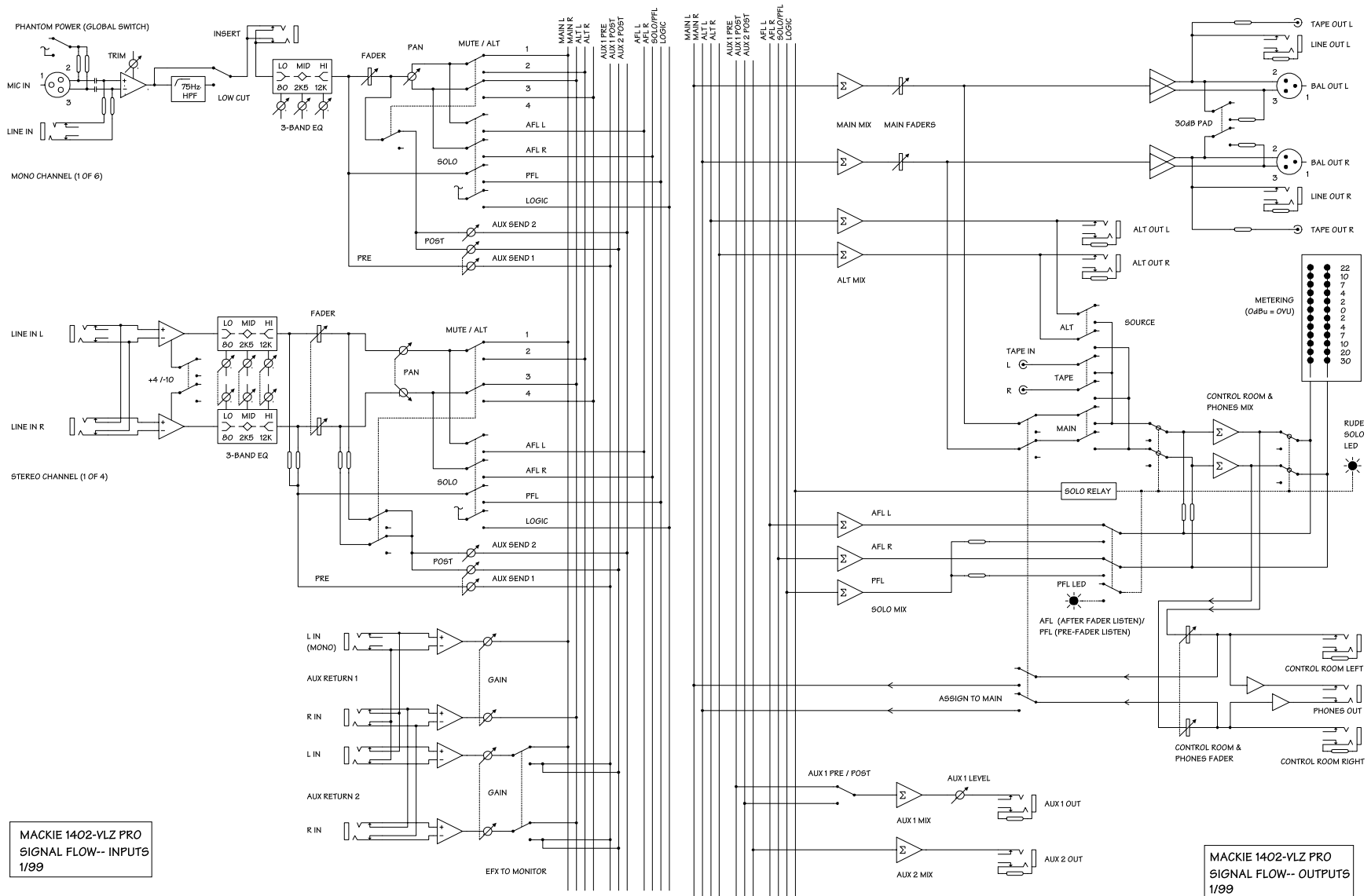
### SERVICE TECHNICAL ASSISTANCE

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

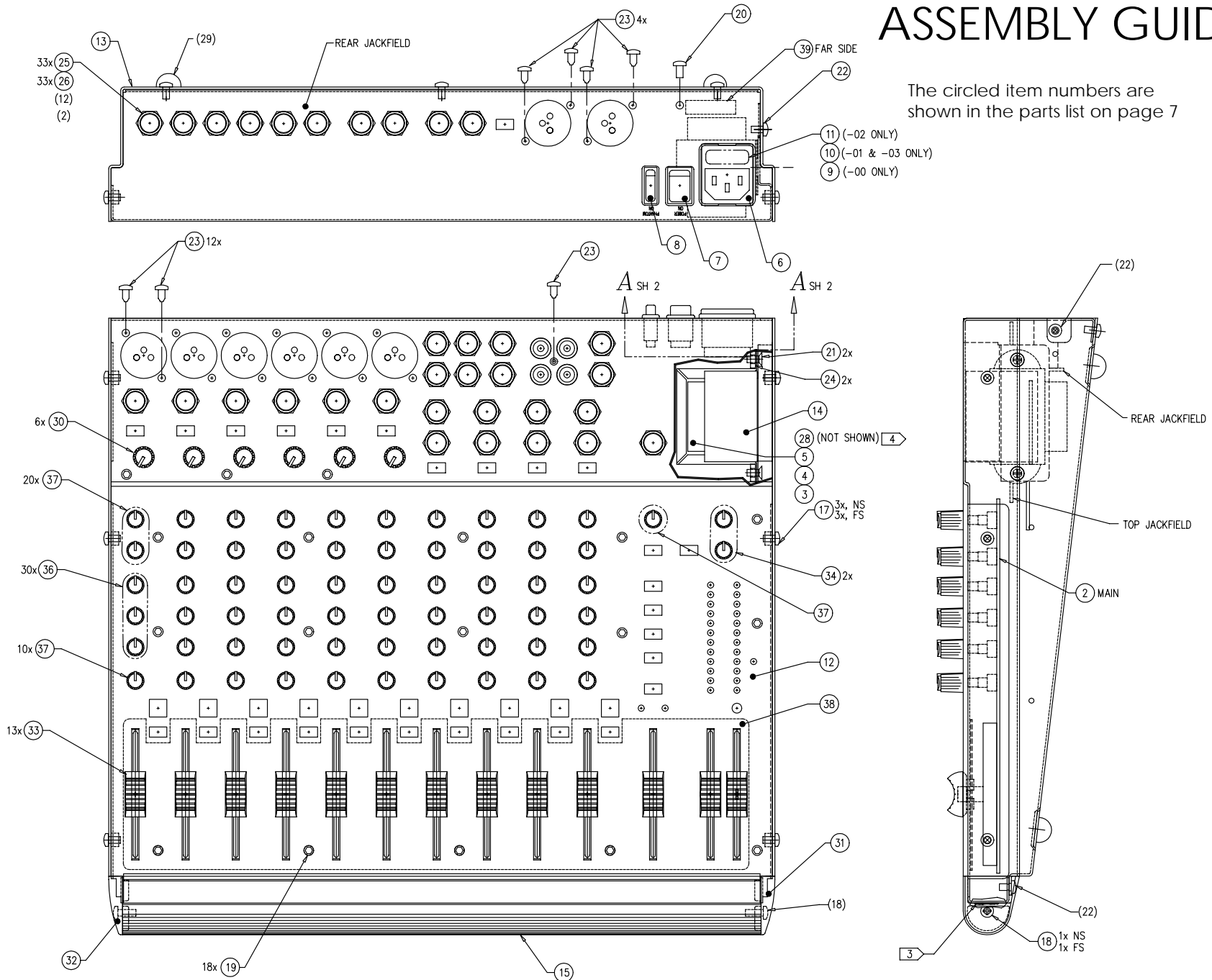
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# BLOCK DIAGRAM



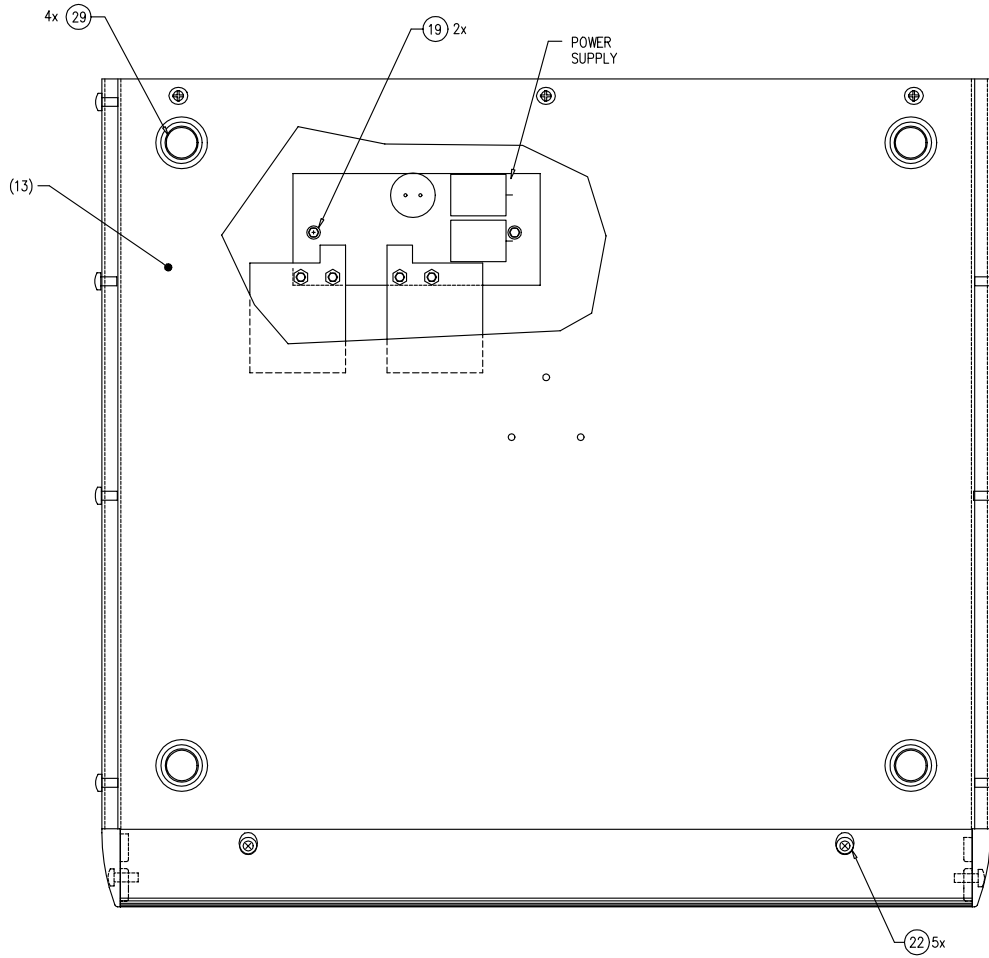
# ASSEMBLY GUIDE

The circled item numbers are shown in the parts list on page 7

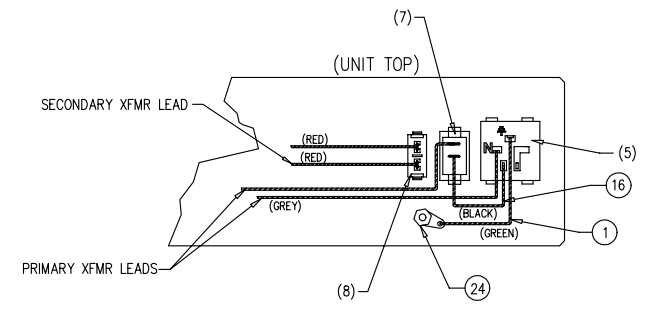


# ASSEMBLY GUIDE

The circled item numbers are shown in the parts list on page 7




BOTTOM VIEW



SECTION A-A  
FROM SH 1  
NOT TO SCALE

# PARTS LIST

## 090-100-00 Master BOM

PART NO.	DESCRIPTION	REV	QTY	NOTES	
	090-100-00	1402VLZ PRO 120V	C1	1	
①	040-056-00	18GA 1015 GRN 3.25IN with LUG	A	1	
②	055-215-00-01	PCB ASSY 1402-PRO	A1	1	See next pages for board components
③	080-007-00	SA XFMR 1402VLZ 120V	A	1	 NOTE: Use the correct voltage transformer and the correct fuse.
	080-007-01	SA XFMR 1402VLZ 230V	A	1	
	080-007-02	SA XFMR 1402VLZ 100V	A	1	
⑥	400-009-00	IEC W/FUSEHOLDER	A	1	
⑦	500-013-00	SW RCKR SPST 6A PWR SFTY	A	1	
⑧	500-016-00	SW RCKR SPST 6A/250V	A	1	
⑨	510-031-00	FUSE SB .5A 5X20 250V UL	A	1	
⑫	550-167-10	SCN CHAS TOP 1402VLZ PRO	F	1	
⑬	550-168-00	CHASSIS BOTTOM - 1402VLZ	A	1	
⑭	550-429-00	XFMR SHLD M6 VLZ PRO	A	1	
⑮	551-020-00	EXTR PNT ARMREST-1402VLZ	A	1	
⑯	611-006-00	WIR 18G 1010 BLK 1.25 ST2	D	1	
	640-001-00	LC IEC SJT 10A/125V 6FT	D	1	
⑰	700-010-00	TF 6-32X1/4 PHP BLKZC	A	6	
⑱	700-010-06	TF 6-32X1/2 PHP BLKZC	A	2	
⑲	700-011-00	MCH 4-40X1/4 BTNSKT BLKOX	A	20	
⑳	700-031-01	MCH 6-32X1/4 BTNPIN BLKZC	A	1	
㉑	700-036-02	MCH 6-32X1/4 FLT100DG CLR	A	2	
㉒	701-005-00	SM A-AB 6X1/4 PHP BLKZC	A	6	
㉓	701-016-00	5-20X5/16 PHPII TYP B BLK	A	17	
㉔	705-001-00	KEPNUT 6-32	A	3	
㉕	705-003-00	NUT (SPLD W/JACK)	A	AR	
㉖	710-002-00	WASHER (SPLD WITH JACK)	A	AR	
	720-007-00	TAPE DS 30MIL X 1.0W URTH	A	AR	
㉗	730-032-00	ADHESIVE 2 PART EPOXY 460	A	AR	
㉘	740-001-00	TYRAP 3-1/4L	A	1	
㉙	750-001-00	BUMPON ROUND BLK .63X.31	A	4	
㉚	760-034-10	ENDCAP RIGHT MICRO SERIES	B	1	
㉛	760-034-20	ENDCAP LEFT MICRO SERIES	B	1	
㉜	760-037-01	KNOB SLIDE 10X25MM MLDLIN	A	13	
㉝	760-048-01	KNOB 9MM LT GRY	B	2	
㉞	760-048-03	KNOB 9MM BLU/GRY	B	30	
㉟	760-048-04	KNOB 9MM DARK GRAY	B	31	
㊱	760-081-00	KNOB TRIM W/PNTR	A	6	
㊲	780-021-00	LIPSEAL - 1402VLZ	A	1	
	790-012-00	BAG POLY 16 X 20 4MIL		1	
	810-042-00	FOAM BACK MOLDED 12/1402		1	
	810-042-01	FOAM FRONT MOLDED 12/1402		1	
	820-033-01	OWN MNL - 1402VLZ PRO ENGLISH revA		1	



Item numbers in this column correspond to the circled numbers in the diagrams on pages 5 and 6

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

## 990-215-00 REV B, 1402 VLZ PRO Board

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
100-008-00	RESISTOR CF	20 5%	R142 R144
100-028-00	RESISTOR CF	130 5%	R103 R173
100-059-00	RESISTOR CF	2K7 5%	R82 R158
100-061-00	RESISTOR CF	3K3 5%	R89 R150
100-066-00	RESISTOR CF	5K1 5%	R111
100-080-00	RESISTOR CF	20K 5%	R191
100-104-00	RESISTOR CF	200K 5%	R114 R116
110-013-00	RESISTOR CF	33 5%	R101 R190
115-081-00	RES .25W 1% 6R81 OHM	6.81 1%	R47-48 R51-52 R55-56 R59-60 R63-64 R75-76
115-373-00	RESISTOR CF	6K81 1%	R44-45 R49-50 R53-54 R57-58 R61-62 R65-66
130-002-02	RESISTOR POT 9MM HORIZ	50KB	R432 R434 R436 R438 R440 R442 R479 R481 R483 R485 R487 R489 R529 R531-535
130-003-02	RESISTOR POT 9MM HORIZ	50KG	R382 R384 R386 R388 R390 R392 R394-397 R342
130-031-00	RESISTOR POT 60MM SLIDE MONO	10KD	R730-735 R742-743
130-032-00	RESISTOR POT 60MM SLIDE DUAL	50KD	R736-739 R741
130-060-02	RESISTOR POT 12MM HORIZ DUAL	50KB	R444 R446 R448 R450 R491-494 R536 R538 R540 R542
130-061-02	RESISTOR POT 12MM HORIZ DUAL	50KG	R343 R398 R324 R326 R328 R330 R332 R334 R336-339
130-065-02	RESISTOR POT 12MM HORIZ DUAL	10KC/10KA	R588-597
130-074-02	RESISTOR POT 9MM HORIZ	10KZY	R204-209
140-032-00	RESISTOR CF	20 5%	R708
140-037-00	RESISTOR CF	33 5%	R694
140-051-00	RESISTOR CF	120 5%	R22 R24-26 R34 R39 R102 R104 R695
140-057-00	RESISTOR CF	220 5%	R419-420 R424-425 R680 R683
140-061-00	RESISTOR CF	330 5%	R599 R623
140-065-00	RESISTOR CF	470 5%	R119-120 R123-124 R127-128 R131-132 R135-136 R139-140 R578 R616 R696
140-066-00	RES TF SM .1W 5% 510 OHM	510 5%	R307-309 R312 R626 R628 R631 R633 R663 R667 R315 R627 R359 R366 R566 R648 R617 R619 R671 R625 R674 R677 R679 R698-700 R702-704 R706 R719 R721 R723 R726 R728 R745 R757 R762 R774-776 R779-782 R784 R786 R788-789 R819
140-068-00	RESISTOR CF	620 5%	R549
140-072-00	RESISTOR CF	910 5%	R462-465 R469-478 R495-504 R550-553
140-074-00	RESISTOR CF	1K1 5%	R29 R33 R406-409 R433 R435 R437 R439 R441 R443 R445 R447 R449 R451 R712-715 R740 R744 R748 R766 R768-773 R777-778 R783 R785
140-076-00	RESISTOR CF	1K3 5%	R284 R286-287 R293 R296 R298 R411 R413 R415 R417 R453 R455 R457 R459 R480 R482 R484 R486 R488 R490 R522
140-080-00	RESISTOR CF	2K 5%	R221-223 R226 R229 R244-245 R247 R318 R349 R379 R399 R507 R720 R750 R753
140-083-00	RESISTOR CF	2K7 5%	R729
140-086-00	RESISTOR CF	3K6 5%	R629
140-087-00	RESISTOR CF	3K9 5%	R431



990-215-00 REV B continued

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
140-090-00	RESISTOR CF	5K1	5%	R112 R115 R216 R248-249 R265 R274 R288 R325 R327 R329 R331 R333 R335 R354-358 R361 R383 R385 R387 R389 R391 R393 R466 R528 R548 R560 R602-607 R610-614 R621-622 R634-644 R646-647 R678 R682 R697 R709-711 R717
140-091-00	RESISTOR CF	5K6	5%	R429
140-093-00	RESISTOR CF	6K8	5%	R402-405 R412 R414 R416 R418 R454 R456 R458 R460 R511 R516-519 R525 R527 R556-557 R562 R567-572
140-094-00	RESISTOR CF	7K5	5%	R428 R461 R645
140-097-00	RESISTOR CF	10K	5%	R19 R23 R32 R40 R110 R143 R181 R198 R239-240 R243 R289 R316 R319-321 R340 R344-347 R350-352 R362-364 R367-374 R377 R422 R430 R508-509 R513-514 R530 R537 R539 R541 R543 R554 R561 R563-565 R579 R581 R583 R585 R707 R746-747 R749 R751-752 R754 R764 R767
140-104-00	RESISTOR CF	20K	5%	R27-28 R152-156 R159 R188 R196 R200-203 R211 R218 R220 R224-225 R228 R231-232 R234 R236 R238 R241-242 R246 R467-468 R512 R520 R555 R558-559 R601 R716
140-109-00	RESISTOR CF	30K	5%	R322 R348 R381 R401 R410 R576-577 R649-660 R664 R668 R675-676 R681 R684-692 R718
140-111-00	RESISTOR CF	36K	5%	R317 R323 R353 R360 R375 R421 R426
140-114-00	RESISTOR CF	47K	5%	R506 R515 R587
140-117-00	RESISTOR CF	62K	5%	R285 R290 R292 R294-295 R297 R376 R378 R380 R400 R661-662 R665-666 R669-670 R672-673
140-123-00	RESISTOR CF	100K	5%	R423 R427 R452 R505 R521 R598 R600 R608-609 R615 R630 R722 R724-725 R727 R756 R758 R761 R787 R800
140-130-00	RESISTOR CF	200K	5%	R755 R790-799
140-147-00	RESISTOR CF	1M	5%	R523-524 R526 R544-547 R573-575 R580 R582 R584 R586 R632
141-051-00	RESISTOR TF SMT	120	5%	R1-7 R10-11 R13-17 R30-31 R41-42 R109 R113 R141 R157
145-000-00	RESISTOR SMT	0	5%	R813-818
145-051-00	RESISTOR MF SMT	3R32	1%	R192-195 R197 R210
145-182-00	RES MF SM .1W 1% 76R8 OHM	76.8	1%	R310 R314
145-201-00	RESISTOR TF SMT	121	1%	R8 R21
145-306-00	RES MF SM .1W 1% 1K50 OHM	1K50	1%	R43 R77-81 R83 R90-94
145-331-00	RESISTOR MF SMT	2K49	1%	R117-118 R121-122 R125-126 R129-130 R133-134 R137-138 R160-171 R174-178 R182-187 R189 R145-149 R151
145-361-00	RESISTOR MF SMT	5K11	1%	R9 R12 R18 R20 R251-252 R255-256 R259-260 R264 R267 R269 R275 R277 R279 R759-760 R763 R765 R801-812
145-365-00	RESISTOR MF SMT	5K62	1%	R46 R71-74 R84-88 R95-96
145-389-00	RESISTOR MF SMT	10K0	1%	R35-38 R67-70 R97-100 R105-108 R262 R270-273 R281-283 R291 R300-306 R253-254 R257-258 R261 R172 R263 R266 R268 R179-180 R199 R212 R276 R278 R280 R213-215 R217 R299 R219 R227 R230 R233 R235 R237 R250

# MACKIE. 1402 VLZ PRO SERVICE MANUAL

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
200-001-02	CAPACITOR MYLART&R	0.012		C246-249 C294 C296 C298 C300 C309-325 C327-329
200-002-02	CAPACITOR MYLART&R	0.018	10%	C253-258 C260-261 C268-281 C284-289
200-003-02	CAPACITOR MYLARTAPE	0.033	10%	C295 C297 C299 C301-305 C340 C342 C344 C347-348 C350-351 C353-354 C367 C371 C377 C399-406
212-001-00	CAPACITOR CERAMIC SMT	0.01	5%	C356 C509-520
212-003-00	CER 100PF 5% 50V NPO SM	100PF	5%	C93-94 C96-97 C105-109 C111-112 C132 C141-144 C503-508
212-004-00	CER 220PF 5% 50V NPO SM	220PF	5%	C427-428 C431-432 C440-441 C443 C455 C461-463 C465-467 C471-474 C497-502
212-005-00	CAPACITOR CERAMIC SMT	20PF	5%	C48-49 C55-56 C83-84 C86 C88 C92 C99 C182-185 C199-202 C205 C215 C217-218 C220 C222-223 C225 C227-229 C231 C235 C262 C265 C306-307 C388-389 C434
212-006-00	CER 470PF 5% 50V NPO SM	470PF	5%	C521-526 C5-6
212-009-00	CAPACITOR CERAMIC SMT	47PF	5%	C3-4 C20 C33 C50-52 C85 C409 C412 C414 C420 C422-423 C448-449
212-010-00	CAPACITOR CERAMIC SMT	.1UF	-400	C76 C87 C115-125 C140 C147-149 C175-178 C207 C211 C214 C216 C219 C221 C224 C245 C263-264 C283 C292 C308 C330 C345-346 C349 C352 C360-362 C383 C391-392 C408 C415-417 C419 C426 C438 C447 C451-454 C464 C468-470 C475
212-018-00	CAPACITOR CERAMIC SMT	10PF	5%	C100-104 C110 C126-130 C139 C339 C341 C343 C355 C357-359 C364 C368 C372 C384-387
212-019-00	CER 150PF 5% 50V SM	150PF	5%	C165 C167 C170 C172-174 C187-188 C191-192 C197-198
212-034-00	CAPACITOR CERAMIC SMT, X7R	0.022	10%	C491-496
212-036-00	CER 470PF 2% 50V NPO SMT	470PF	2%	C54 C57-62 C67 C69 C71 C73 C75
212-037-00	CER 1000PF 2% 50V NPO SMT	1000PF	2%	C31-32 C34-35 C38-45
220-002-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C7 C12-14 C29 C36-37 C46-47 C53 C63-64 C66 C68 C70 C72 C74 C77-82 C89-90 C98 C131 C133 C146 C150 C152 C155 C157-163 C181 C190 C196 C226 C230 C232-234 C236-244 C250-252 C259 C266-267 C282 C290-291 C293 C326 C331-338 C363 C365-366 C369-370 C373-376 C378-382 C390 C393-398 C407 C410-411 C413 C418 C421 C424 C429-430 C433 C435-437 C439 C442 C444-446 C450 C456-460 C476-490 C154 C164 C166 C168-169 C171
220-003-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C8-11 C15-16 C18-19 C22 C24 C27 C30 C95 C113
220-006-01	CAPACITOR LYTIC RADIAL	2200UF	10%	C1-2
220-007-00	CAPACITOR LYTIC RADIAL	100UF	10%	C91
220-013-02	CAPACITOR LYTIC RADIAL TAPE	.22UF	10%	C145 C153 C156 C179-180 C186 C189 C193-195 C203-204 C206 C208-210 C212-213
220-014-00	CAPACITOR LYTIC RADIAL KS	2.2UF	10%	C425
220-027-02	CAPACITOR LYTIC RADIAL TAPE	10UF	10%	C65 C114
220-030-00	CAPACITOR LYTIC RADIAL	1000UF	10%	C134-138 C151

990-215-00 REV B continued

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
300-003-00	DIODE SIGNAL SMD	DL4148	D36-41 D44-45 D48 D51 D76-77 D79
301-001-00	DIODE POWER	1N4002	D1-8 D21 D34 D42-43
301-004-00	DIODE POWER SMD	DL4002	D9-20 D22-33
302-001-00	DIODE ZENER	1N5261	D35
302-002-00	DIODE ZENER	1N5230	D78
304-002-00	DIODE LED T1-3/4 W/FLASHER	RED	D75
304-027-02	LED T1, T&R W/SPACER	RED	D46-47 D74
304-028-02	LED T1, T&R W/SPACER	YEL	D49-50 D73
304-029-02	LED T1, T&R W/SPACER	GRN	D52-72
310-003-02	TRANSISTOR PNP, T&R	2SA1084	Q1-12
310-006-00	TRANSISTOR POWER NPN	TIP29C	Q13 Q26
311-002-00	X-SISTOR PNP SMD	IMBT4403	Q14-25 Q27-32 Q39-40
311-004-00	TRANSISTOR JFET SMD	J112	Q33-37
311-005-00	X-SISTOR PNP SMD	IMBTA06	Q38
320-006-00	I.C. LINEAR SMD	NJM 2068	U7-15 U32-34 U42 U46-47 U49 U51 U55
320-011-00	I.C. LINEAR	NJM 4560	U4-5
320-012-00	I.C. LINEAR SMD	NJM4560M	U1 U3 U16-27 U29 U35-39 U44-45 U48 U50 U52-54 U56
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	U6
323-002-00	I.C. QUAD COMPARATOR SMD	LM339	U28 U30-31 U40-41 U43
400-022-00	CONNECTOR JACK QUAD RCA HORIZ		J24
400-030-00	CONNECTOR RTA 5P .156 X 1		J1
400-041-00	CONNECTOR XLR PC MTG VERT MALE		J12-13
400-214-00	CNCTOR JACK 1/4" VERT PC MOUNT W/1MM LW		J2-11 J14-17 J25-43
400-223-00	CONNECTOR XLR PC MTG VERT FML		J18-23
450-215-00	PCB, 1402VLZ PRO		Z1
500-036-00	SWITCH PUSH VERT PC MTG	4P2T	SW1 SW17-38
500-037-00	SWITCH PUSH VERT PC MTG	2P2T	SW2-16
550-166-00	HEATSINK, POWER SUPPLY		Z553-554
601-002-00	INDUCTOR, AXIAL	4.7UH	L19-24
601-004-00	FERRITE BEAD SMB	MLB40-5	L7-18
601-007-00	CHOKER, COMMON MODE	50mH	L1-6
620-031-00	FLAT CBL 5 PIN W/TABS .100	3.25"	E1-5
620-032-00	FLAT CBL 6 PIN W/TABS .100	5.25"	E6
660-002-00	JUMPER WIRE 24GA T&R		W1-44 W46-49
700-012-00	SCREW, PHP 4-40 X 3/8"		Z555-558
705-005-00	KEPNUT 4-40		Z559-562
706-009-00	SPACER, LED NYLON	0.385	Z128
706-013-00	STANDOFF, M/F #4 X .978"		Z970-972
706-033-02	STDF SWAGE NO.4 X .555L F		Z63-68 Z75-78 Z117-121
706-038-00	STDF NO.4 X .250L		Z79 Z81
730-001-00	THERMAL COAT COMPOUND		Z550
760-107-00	BTN 2 COLOR 9X5MM		Z61-62 Z96-101 Z103-111
760-108-00	BTN 2 COLOR 9X9MM		Z5 Z35-38 Z45-48 Z80
760-109-00	BTN 2 COLOR 9X5MM W/EXT		Z7 Z122-127 Z129-132

# MACKIE. 1402 VLZ PRO SERVICE MANUAL

