



OPERATING INSTRUCTIONS

360 Series Amplifier and G-180 Speaker System

Your model 360 Amplifier Head is unique -- it has been designed to be highly effective with the RMI G-180 speaker systems. The secret lies in having plenty of power and an Equalizer System for concentrating that power where you want it. Here is how to use it.

Variable Gain Inputs: Two special input circuits (unlike standard attenuators) allow unusually wide range of input levels without sacrificing dynamic range of your instrument. Input "clipping" is virtually eliminated. Both high and low impedance input signals are accepted without loss of level or any rise in distortion. Since this special circuit involves variable gain change in the preamp, rather than merely grounding the input signal, you will find a small amount of bass + mid gain remaining in the minimum position of the Gain control (fully counter-clockwise). If your instrument plugs into A.C. (does not apply to guitars), an A.C. potential could exist between your instrument and the amplifier. If you leave your amplifier ON while connecting the audio, have the audio cable connected to your instrument while connecting or disconnecting the audio from the amplifier. Otherwise, a substantial hum could occur even with the Gain control at minimum. Changing the Grounding Switch position will minimize, but not eliminate, this hum. However, this hum occurs only momentarily as the tip of the phone plug passes through the jack "ground."

Input Sensitivity: 47mv - 4.0 volts RMS yields full output into 4 ohms.

Input Impedance: 300k ohms Channel One or Two.

Input Both Channels: This feature was designed primarily for guitarists; however, it could be useful to other instrumentalists. The concept is simple; one input jack feeds both input channels. The benefits are flexibility; presetting and/or mixing Equalization settings. Example: set up a special EQ for Channel One, and a contrasting set up for Channel Two - raising the Gain control for Channel One will activate its EQ set up, and raising the Gain control of Channel Two will activate the other EQ set up. You can switch from one setting to the other, or you can mix the two together. In fact, the possibilities of mixing EQ settings are quite interesting. For example, boosting the treble on both channels will result in twice as much treble as possible on a single channel. You can even create two mid-range control bands at the same time by setting the Mid-Frequency controls of the two channels in different positions - the subtle shadings are nearly endless. Guitarists will find these controls becoming a part of their instrument as they discover new contours in frequency response. Keyboard people will find this unique contour control effective with certain makes of electric pianos and some specialized keyboards. Input Impedance: 150k ohms.

Reverb: A three-way switch assigns reverb to Channel One, Two, or Both. Reverb level is controlled by a knob. A jack labeled "Reverb Foot Switch" on the rear panel provides "Off/On" functions when used with a standard "shorting" foot switch available from most music dealers.

Equalization Controls: Placing all EQ controls in the 12 o'clock position renders the system "flat." This "flat" position will probably be preferred by most keyboard players due to the nature of their instruments; however, guitarists or players of solo instruments may desire emphasis or de-emphasis in certain portions of the audio range for coloring or penetration through the ensemble of the band or group. "Active" circuitry

provides "boost" and "cut" deviations from a flat response. Treble and Bass controls affect the upper and lower ends of the spectrum respectively, while the Mid Frequency control moves the mid-range band up and down to cover the space between Treble and Bass. The Mid control provides a "cut" or "boost" of the frequency band selected by the Mid Frequency control. When playing "flat" at moderate studio-type levels, you may desire a slight boost of Treble and Bass to compensate for inefficiencies in human hearing at these levels. If so, advance the Bass and Treble controls clockwise as needed. To achieve extra "loudness" without "clipping" output stage, cut bass and boost treble + mid, then increase gain accordingly.

Amplification:

150 watts RMS into 4 ohms @ less than 1% THD (driving two G-180's)
100 watts RMS into 8 ohms @ less than 1% THD (driving one G-180)
1M .15% @ 4 ohms with 1.0 volt input/20 volts composite output
1M .075% @ 8 ohms with 1.0 volt input/20 volts composite output
Bandwidth \pm 1db @ 40 - 100K Hz
Solid State and Short Circuit Proof

Power Requirements:

117 VAC 50/60 hz - 300 watts
4 ampere slo-blow cartridge fuse replaceable on rear panel.
ON/OFF/ON ground-reversing power switch.
If you defeat the power plug ground prong, do not touch amplifier and other electrical equipment that are grounded at the same time, unless they are connected together by a grounding audio cord.

G-180 Speaker System:

JBL 15" Full Range with two Piezo horn tweeters. A highly efficient unit with extra available Mid-Range Energy. Recommended for High Volume applications with RMI Electra-Pianos, Models KC-I and KC-II Keyboard Computers, or other instruments. Dual Parallel Jacks allow use of two model G-180's in parallel for additional power. 8 ohms each.

RMI - 360 AMPLIFIER

Service Package

This information is intended to assist a service technician in field repairs of the RMI 360 Amplifier. A firm knowledge of electronics on the part of the service technician is required to complete the repairs.

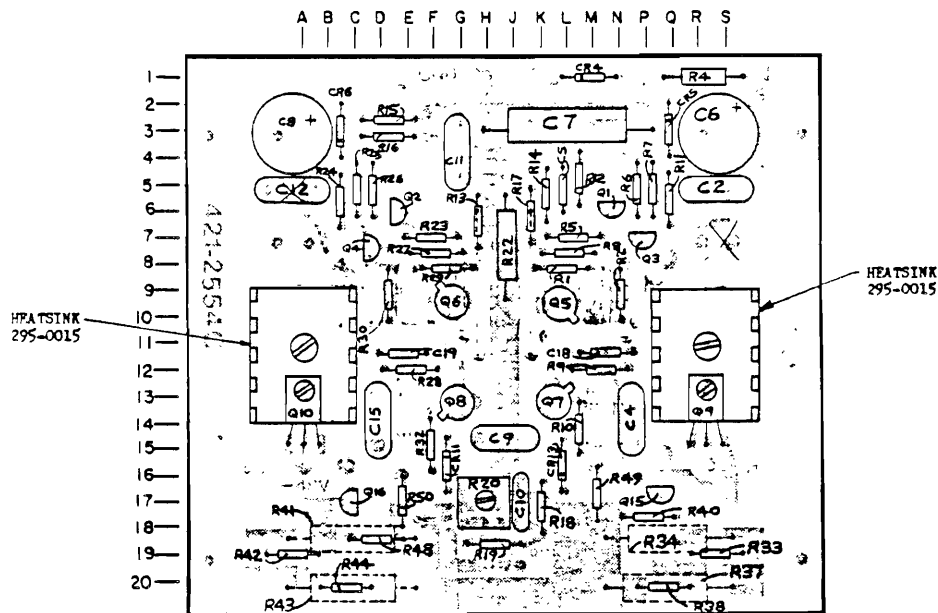
Service Hints

A. With Power Off

1. Check fuse; 110VAC - 4 amp slow blow, 220VAC - 2 amp slow blow.
2. Check plug in pre amp cable.
3. Check large capacitors for shorts.
4. Visual check circuit boards and heat sinking wiring.
5. Replace any obvious burned out parts.
6. Measure supply resistance to ground.
7. Measure biased resistance of diodes and transistors.
8. Measure outputs resistance to ground.
9. If output transistors are damaged, also check the four .33 ohm resistors (R34-37-41-43) found on the back panel.

B. With Power On

10. In replacing the output transistors the bias must be reset. First set R20 (bias pot) fully counter clockwise then (with new transistors in place) turn power on and read across one of the .33 ohm resistors. Adjust R20 until you read 5 mv. Caution--bias drifts as unit heats--reset to 5 mv.
11. Voltage measure supplies +48V.
12. For all other voltage measurements refer to schematics 1 & 2 of RMI 360 Amplifier. Unless otherwise stated, all measurements in this service package were made under a no load-on input situation. All panel controls were set in a flat position using a digital multimeter. Chassis ground was the reference point. Recorded values are averaged and will vary slightly from unit to unit.



TRANSISTORS

REF	TYPE	LOCATION
Q1	2N5210----	N-6
Q2	2N5087----	E-6
Q3	2N5210----	P-7
Q4	2N5087----	D-7
Q5	2N5679----	L-9
Q6	2N5681----	O-9
Q7	2N5681----	L-13
Q8	2N5679----	O-13
Q9	MJE213----	R-13
Q10	MJE253----	A-13
Q11	2N6631	
Q12	2N66031	
Q13	NOT ON BOARD	
Q14	2N6631	
Q15	2N3904----	P-17
Q16	2N3906----	C-17

DIODES

REF.	TYPE	LOCATION
CR1		
CR2		
CR3		
CR4	232-0017----	M-1
CR5	IN4744-----	Q-3
CR6	IN4744-----	C-3
CR7		
CR8		
CR9		
CR10		
CR11	232-0006----	G-16
CR12		
CR13	232-0006----	L-16

RESISTORS (CONT'D.)

REF.	VALUE	LOCATION
R24	10K -----	B-5
R25	100 Ω -----	C-5
R26	100 Ω -----	D-5
R27	820 Ω -----	F-8
R28	18K -----	E-12
R29	1.9K -----	F-8
R30	190 Ω -----	D-9
R31		
R32	150 Ω -----	F-15
R33	150 Ω -----	S-19
R34	11 Ω 5W, 5% -----	Q-19 -- NOTE 2
R35		
R36		
R37	33 Ω 5W, 5% -----	Q-20 -- NOTE 2
R38	120 Ω 5W, 5% -----	Q-20
R39		
R40	10 Ω 1/2 watt -----	P-18
R41	33 Ω 5W, 5% -----	C-18 -- NOTE 2
R42	150 Ω 1/2 watt -----	A-19
R43	11 Ω 5W, 5% -----	Q-20 -- NOTE 2
R44	120 Ω 1/2 watt -----	C-20
R45		
R46		
R47		
R48	10 Ω 1/2 watt -----	D-19
R49	100 Ω 1/2 watt -----	M-17
R50	100 Ω 1/2 watt -----	E-17
R51	68 Ω 1/2 W -----	

CAPACITORS

REF	VALUE	LOCATION
C2	.1 uF-----	S-5
C3		
C4	.1 uF-----	N-14
C5	1000 pF-----	L-5
C6	1500 uF/16W-----	S-3
C7	60 uF/25V N.P.-----	L-3
C8	1500 uF/16W-----	A-3
C9	.1 uF-----	J-15
C10	.01 uF-----	J-17
C11	.1 uF-----	3-4
C12	.1 uF-----	A-5
C13		
C14	.1 uF-----	D-14
C15		
C16		
C17		
C18	110 pF-----	M-12
C19	110 pF-----	E-12

RESISTORS

REF.	VALUE	LOCATION
R1	3.9K	L-8
R2	300 Ω	M-9
R3		
R4	6.8K/ $\frac{1}{2}$ W	R-1
R5	820 Ω	L-7
R6	100 Ω	P-5
R7	100 Ω	P-5
R8	820 Ω	L-8
R9	18K	M-12
R10	150 $\frac{1}{4}$ watt	J-14
R11	10K	Q-5
R12	1K	M-5
R13	27K	H-6
R14	27K	K-5
R15	6.8K	D-2
R16	6.8K	D-1
R17	1.5K	K-6
R18	7.1K	K-17
R19	680 Ω	H-19
R20	1K OH LOG.	H-17
R21		
R22	10 Ω / 2 W	J-7
R23	820 Ω	P-7

NOTES:

- 1) All resistors are $\frac{1}{4}$ watt, carbon film $\pm 10\%$ tolerance, unless specified otherwise.
- 2) R34, R37, R41, R43, are on opposite side of p.c. board.
- 3) Q9 and Q10 require HEATSINK 295-0015, (WAKEFIELD NO. 2602TH18E)

	REVISIONS
A	RETRAIN: DUE TO NEW LAYOUT AS PER ECO. 17-071
B	G.S. 8/16/77
C	R10, R3, R36, R40, R42, R44, R48, R49, AND R50 WERE CHANGED TO 78-071. <i>tw</i>
D	R.M.T. ECO 78-071. R.M. 8-8-78
E	ECO C137, C19 was 110P as per ECO 78-071. For 12, 19 LC
F	C5 WAS 110P C11, Q13 WAS ZNS305 C12, Q14 WAS ZNS745 LC <i>Q</i> April 12, 1979
G	Deleted C20 AS PER ECO 74-105 11/8/79 LC
H	Removed R3, R31, CR1, CR2, CR3, CR7, CR8, CR9, C1, C3, C13 AND C14. November 13, 1979 LC

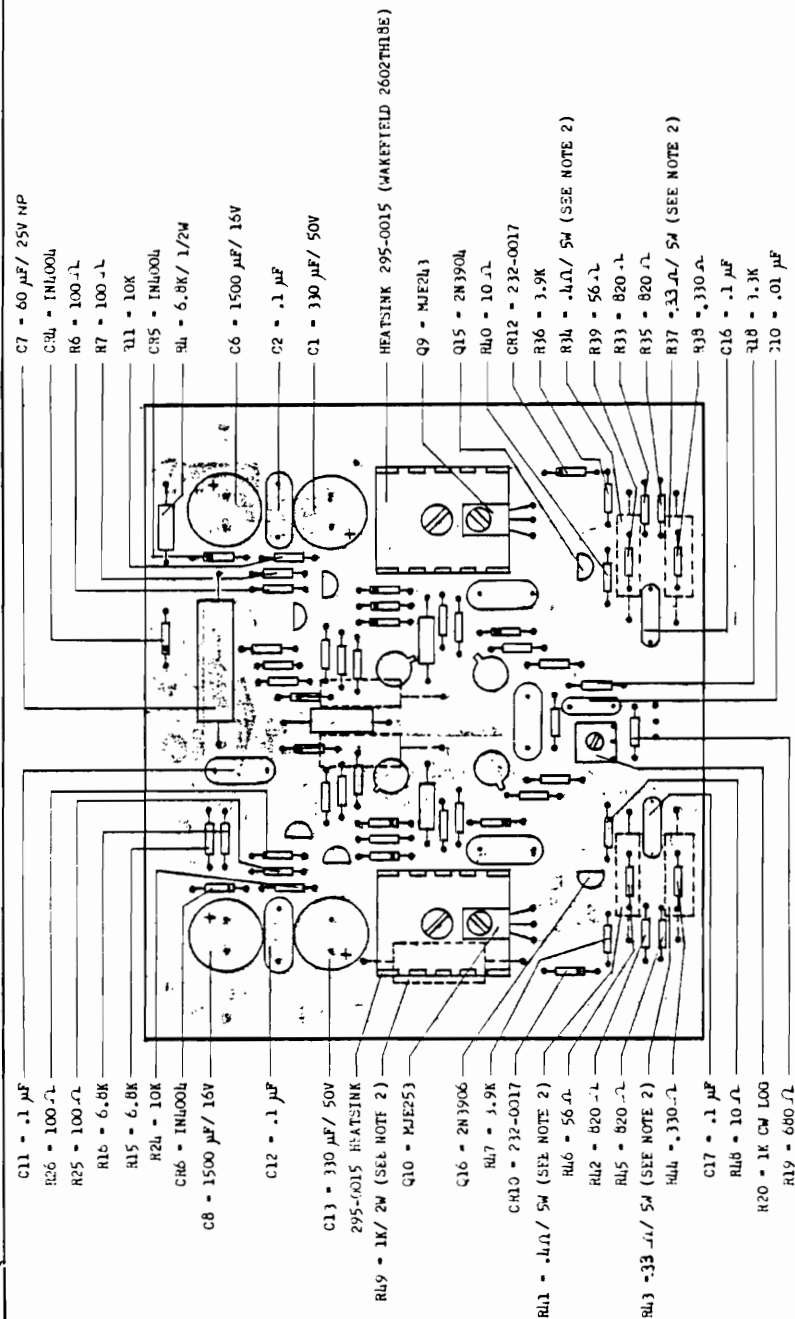
SCHEMATIC NO. 081-0545
P.C. BOARD NO. 421-2554C

ALLEN ORGAN CO.
MACUNGIE, PENNA.

P.C. BOARD ASSEMBLY FOR BACK PANEL OF
" RMI 360 AMPLIFIER " (PRE-AMP)

BY	G.S.	SCALE	FULL	MATERIAL
CHRD	Dr 8-13-77	DATE	3/16/77	NO.
		APPD.		904-5539

REVISIONS	CHANGES AS PER ECO 77-026 C.S. 4/28/77
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NOTE :

- 1) All resistors are $\frac{1}{4}$ WATT, CARBON FILM $\pm 10\%$ tolerance, unless specified otherwise.
- 2) R34, R37, R41, R43, R49, C14, C3 ARE ON OPPOSITE SIDE OF P.C. BOARD.

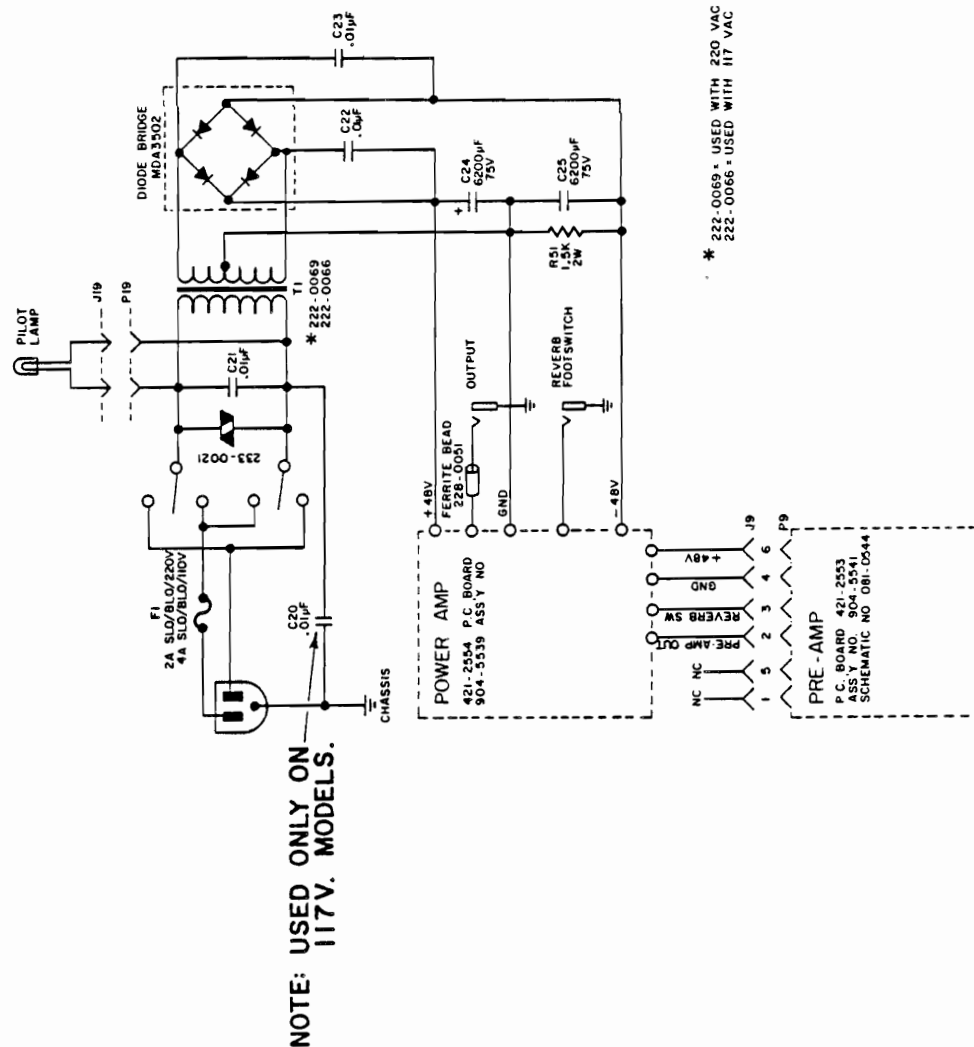
SUPERSEDED
BY REJ 'B'

SCHEMATIC NO. 081-0545
BOARD NO. 421-2554

ALLEN ORGAN CO.
MACUNGIE, PENNA.

P.C. BOARD ASSEMBLY FOR BACK PANEL OF
RMI 360 AMPLIFIER

BY	Q.S.	SCALE	FULL	MATERIAL
CHK'D	W 13 JAN 77	DATE	1/10/77	NO.
		APPRO.		904-5539



	222-0069 = USED WITH 220 VAC INPUT	222-0066 = USED WITH 117 VAC INPUT
* 222-0069 = USED WITH 220 VAC INPUT		
222-0066 = USED WITH 117 VAC INPUT		

P.C. BOARD NO 421-2554
ASSEMBLY NO 904-5539

ALLEN ORGAN CO.

Back Panel of RMI 360 Amplifier

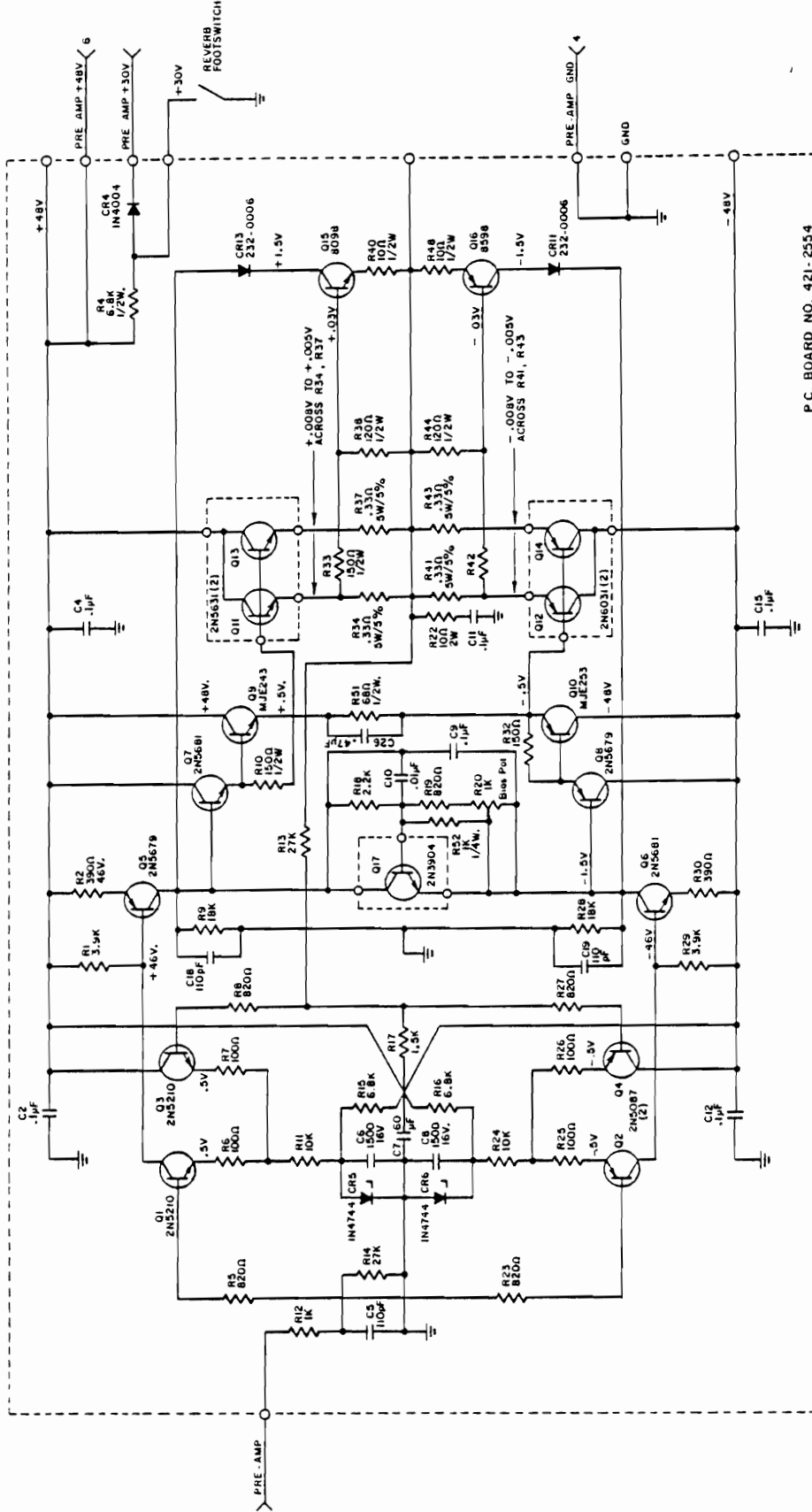
SV	SCALE	MATERIAL
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CHK'D,	DATE	NO
12	11/12/70	CL-12-12

081-0545
Sheet 2 of 2

REVISIONS	REDRAWN NO CHANGES 11/12/79 LO
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G



IN4004 • OUR PART NO. 232-0017

P.C. BOARD NO. 421-2554
ASSEMBLY NO. 904-5539

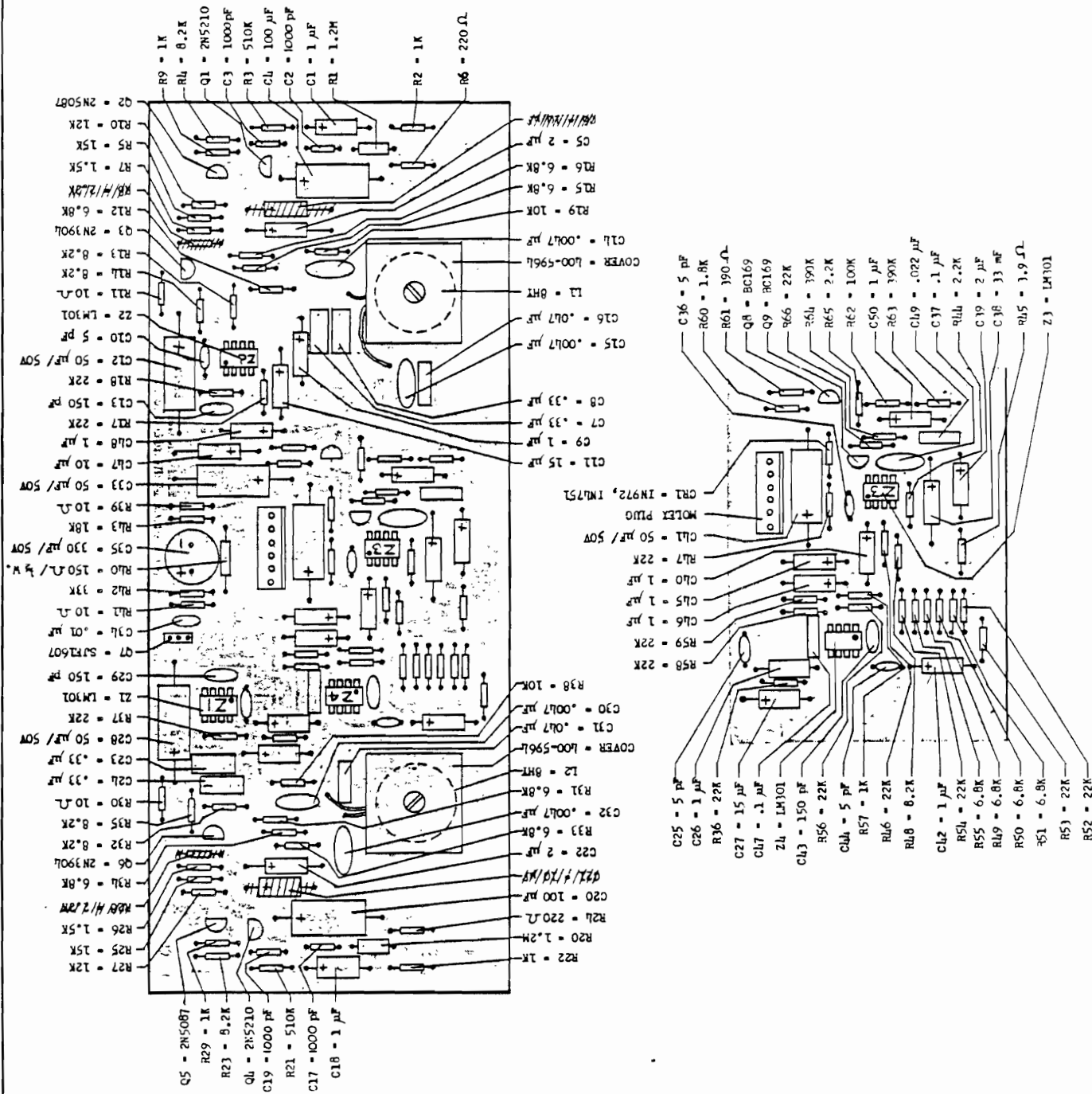
ALLEN ORGAN CO.
MACUNGIE, PENNA.

Block Panel of RMI 360 Amplifier

REV	LO	SCALE	MATERIAL
CHKD.	DATE	11/12/79	NO. Sheet 1 of 2
	APPD.		OBI-0545

K	REDAWN ELIMINATED
12	COMPONENTS
	NOV. 12, 1979 LO

REVISIONS	
GENERAL	REVISIONS
A	0.5. 1/17/77
B	R8, R29 (2.2K) C6, C21 (10µF) DELETED, R12, R15, R16, R31, R33, R34 WERE 6.8K, R64, R74 WERE 100K, R13, R14, R32, R35 WERE 8.2K, C14, C15, C30, C32 WERE .0047µF, R67, R68, R69, R70, R71, R72 AND C51, C2 WAS ADDED ECO 78-095 10/26/78 R.M. <i>pm</i>
C	C2, C1, C17, C19 WAS 1100PF AS DEL. <i>pm</i> ECO 78-026, Apr 12, 1979 12 <i>pm</i>



NOTE : 1) FOOT IS ON OPPOSITE SIDE OF BOARD.

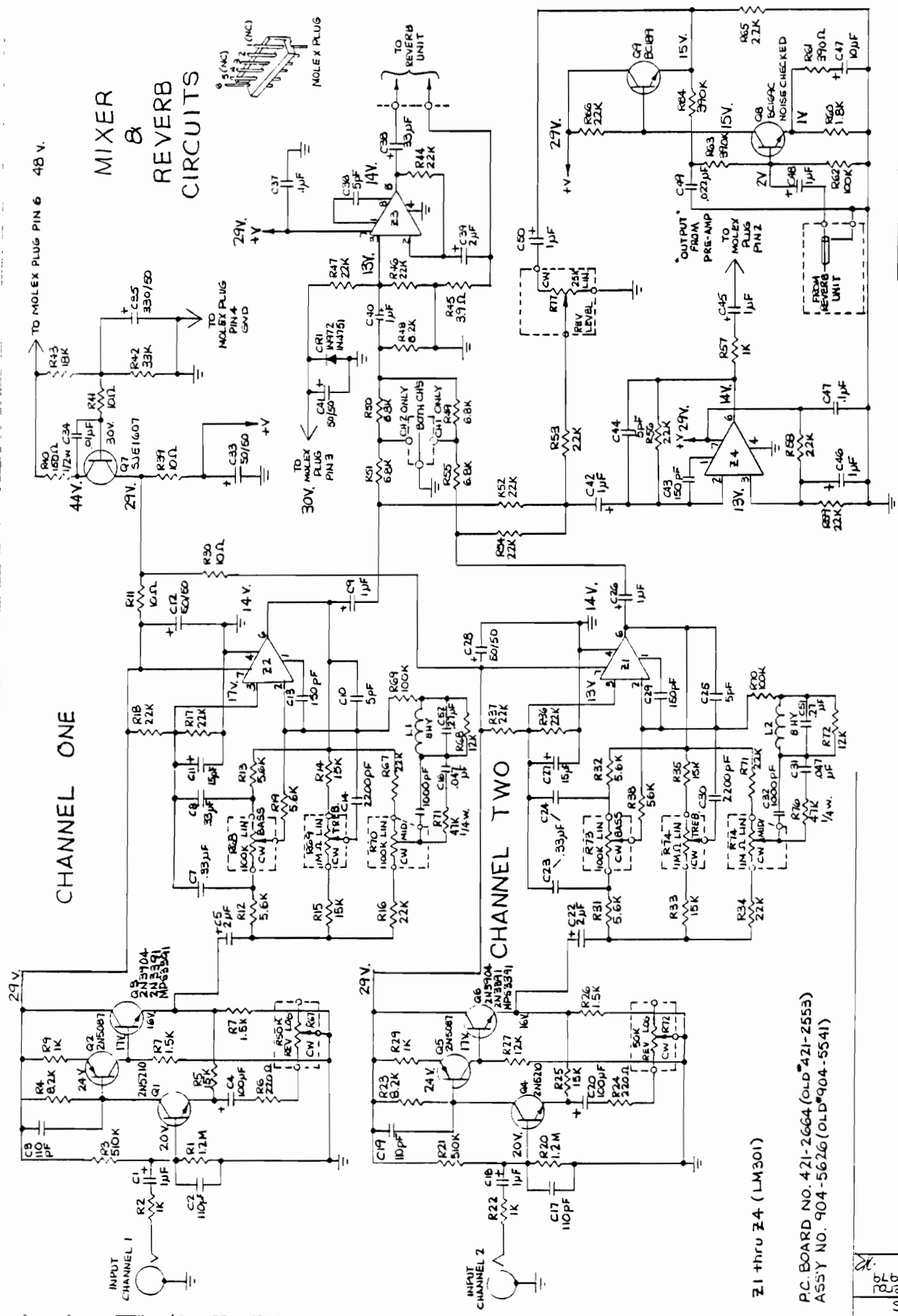
P.C. BOARD 121-2553
SCHEMATIC NO. 091-0511

ALLEN ORGAN CO.

MACUNGIE, PENNA.

P.C. BOARD ASSEMBLY FOR FRONT PANEL OF
EMI 360 AMP.

DATE	BY	CHKD	APP'D
0.5.	FULL	12/10/76	901-5511
12/10/76	J.M. To		

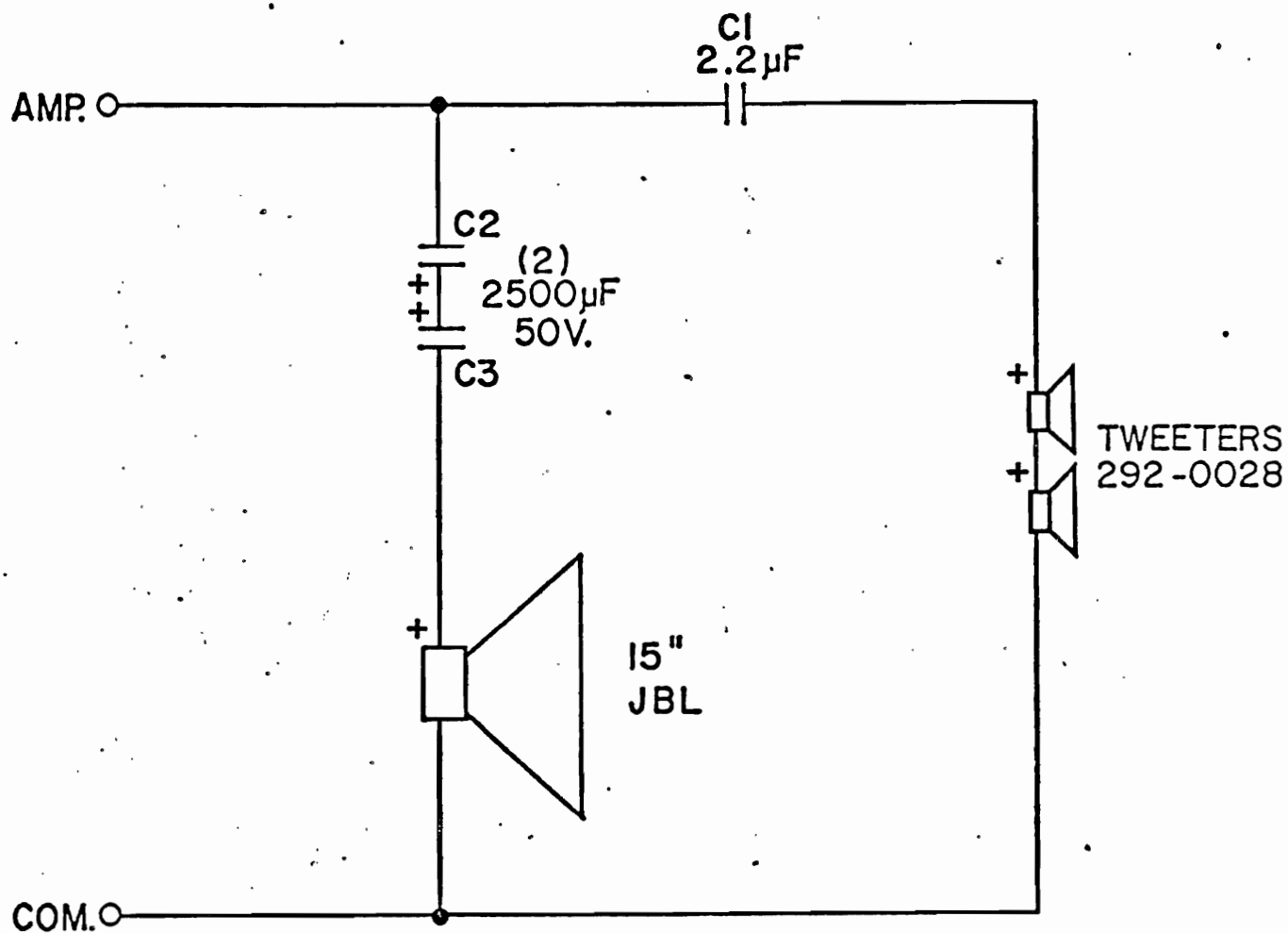


ALLEN ORGAN CO. MACUNGIE, PENNA.			
FRONT PANEL	PC BOARD	RM1	360
BY R.E.	SCALE	DATE	NO
CHEK	1778	8-16-79	081-0544

Revisions
 1. R.F. Redman General
 2. R.F. August 16, 1979

PC BOARD NO. 421-2664 (OLD#421-2553)
 ASSY NO. 904-5626 (OLD#904-5541)

Z1 thru Z4 (LM301)



REVISIONS

ALLEN ORGAN CO.
MACUNGIE, PENNA.

G-180. SPKR. CABINET

DATE	BY	REVISION	MATERIAL
10 JAN 77	LQ.	1/10/77	081-4074