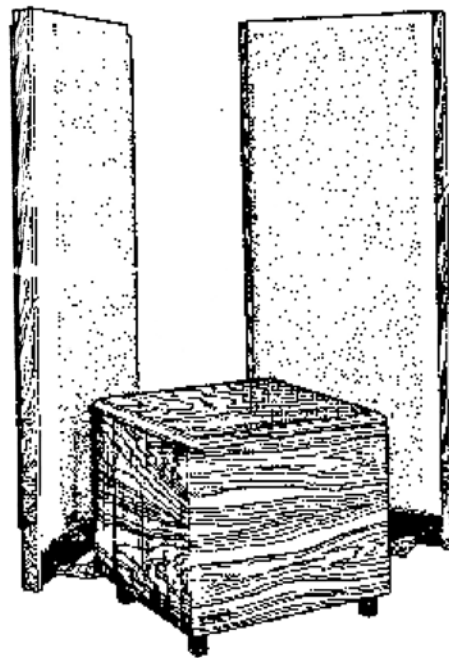


PHASE III - LOUDSPEAKER SYSTEM



Service Manual

CONTENTS

1-0. Specifications.....	3
2-0. Circuit Description.....	4
3-0. Schematics and Design History.....	5
4-0. Motion Control Module Test & Alignment Procedure.....	18
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Prepared 4/78

1-0.

TECHNICAL
SPECIFICATIONS

Driver Compliment: 2 ea. 12" bass drivers
4 ea. 8" midbass drivers
4 ea. 4" midrange drivers
6 ea. 2" cone tweeters
2 ea. 1" soft-dome tweeters

Frequency Response: 24Hz to 20Kz \pm 3db

Nominal Impedance: 6 ohms

Maximum Power Input: 350 RMS watts per channel

Maximum Continuous Power Input: 100 RMS watts below 200Hz

Minimum Power Required: 50 RMS watts per channel

Sound Pressure Level: 80db at 1 meter on axis with 1 watt
of input at 1,000 Hz

Motion Control Module:

Input Impedance: 22K ohms

Output Impedance: less than 600 ohms

Maximum Output Voltage: 8 volts RMS

Distortion: less than 0.1%

Hum and Noise: less than 100 microvolts

2-0.

CIRCUIT DESCRIPTION
MOTION CONTROL MODULE

In sections B4 and D4 operational amplifiers Z1-C and Z1-D serve as active 12db/octave subsonic filters with high pass gain of 6db. The signal path then splits to section C3, ambience circuitry, and sections B3 and D3 which incorporate high frequency and midrange tone shaping circuits. Front panel-mounted switches S1-A and S1-B allow switchable high frequency response selection. Op amps Z2-A and Z2-B incorporate switchable midrange response through front panel-mounted switches S2-A and S2-B, and also low frequency through front panel-mounted switches S3-A and S3-B.

Z2-C and Z2-D in section 2 are output buffers with high frequency boost.

Z1-A in section C4 is a difference amplifier which supplies a weighted L-R signal to the left channel through Z2-A. Z1-B acts as an inverter buffer supplying a R-L signal to the right channel through Z2-B. The amount of ambience mix is governed by potentiometer R501, front panel-mounted.

Q1 and associated circuitry provides time delay output switching through relay K1. Response time is 1 to 2 seconds after turn-on and instantaneous at turn-off.

3-0.

SCHEMATICS AND DESIGN HISTORY

For Panel Serial Numbers 1736 and Earlier:

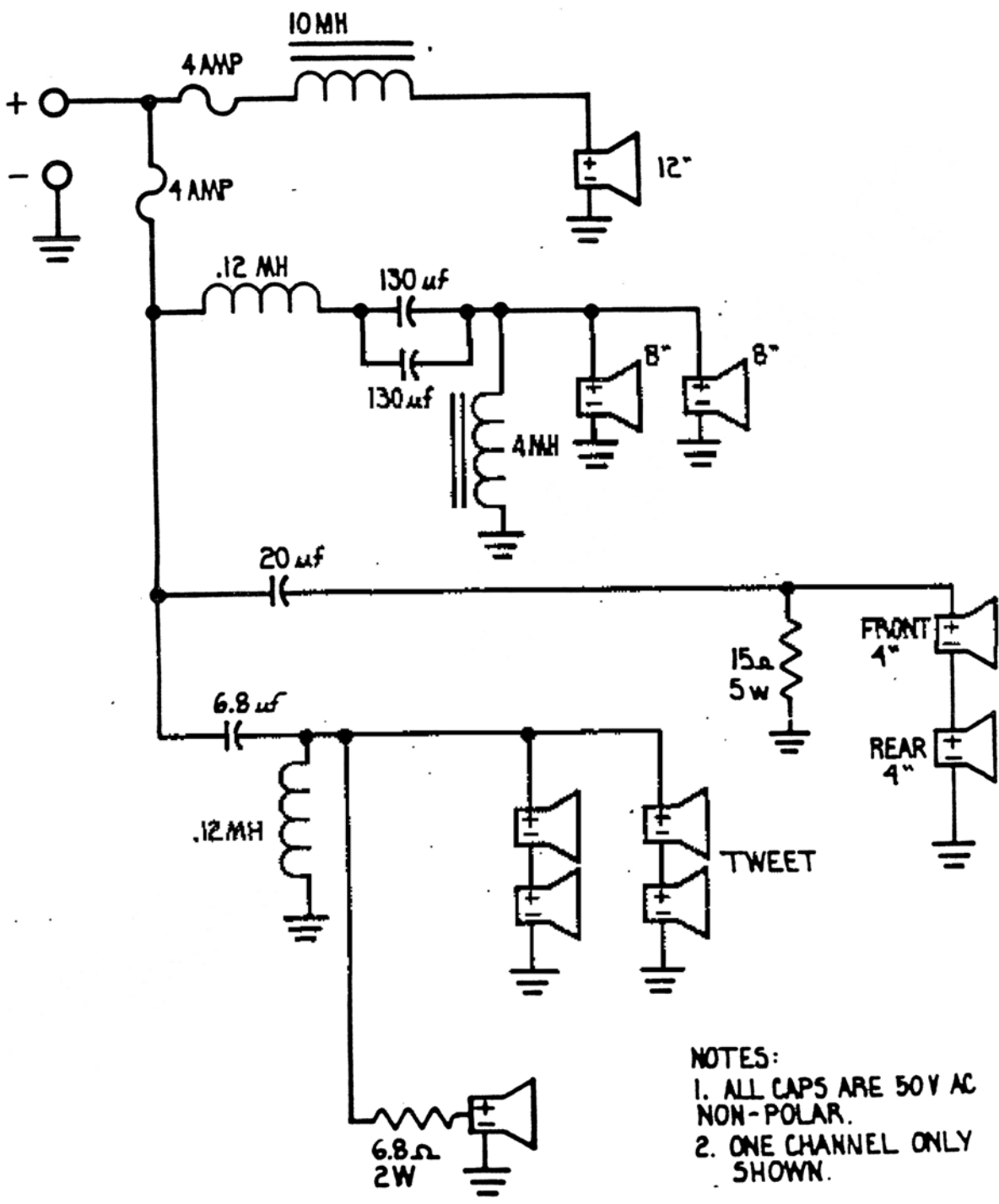
- Diagram III-1: Phase III System Schematic
- III-2: Crossover Assembly Layout
- III-3: Panel Assembly Layout
- III-4: Motion Control Module Schematic
- III-5: Motion Control Module Assembly Layout
(also see Diagram III-11)

For Panel Serial Numbers 1737 and Forward:

- Diagram III-6: Phase III System Schematic
- III-7: Crossover Assembly Layout
- III-8: Panel Assembly Layout
- III-9: Motion Control Module Schematic
- III-10: Motion Control Module Assembly Layout

For All Panel Serial Numbers:

- Diagram III-11: Motion Control Module Chassis Transformer Layout
- III-12: Bass Commode Assembly Layout



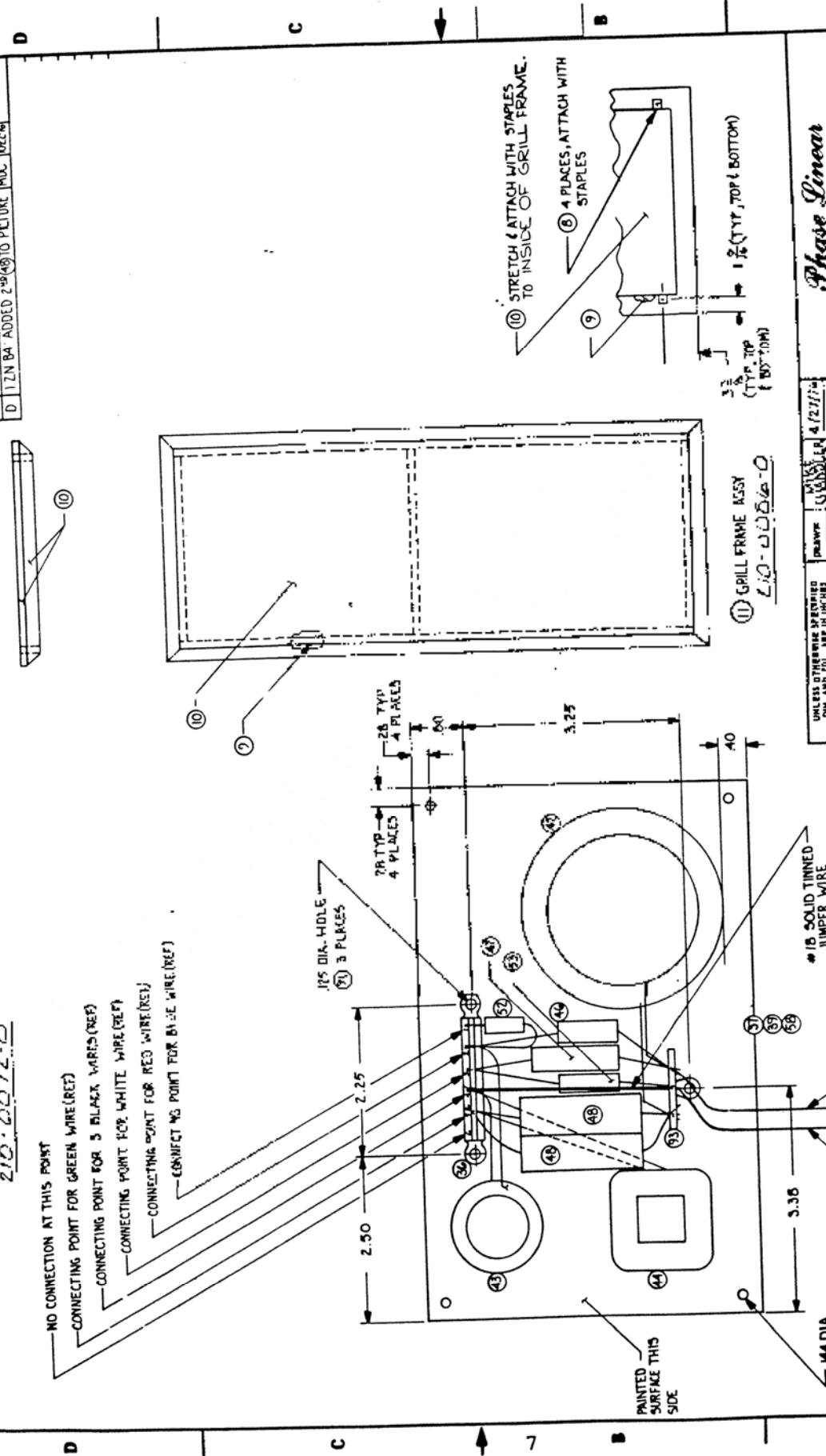
NOTES:
 1. ALL CAPS ARE 50V AC NON-POLAR.
 2. ONE CHANNEL ONLY SHOWN.

PHASE LINEAR			SCHEMATIC PHASE III SPEAKER	
DRAWN	RAT	1-19-78	PANEL SERIAL NUMBER 1736 AND EARLIER	REV
CHECKED				
APPROVED				

6 DIAGRAM III-1

REV	DESCRIPTION	BY	DATE	APPROVED
A	1 REVISED SHEET	MDC	6/7/74	
B	1 EXTENSIVELY REVISED CROSSOVER	MDC	7/9/74	
C	1 EXTENSIVELY REVISED CROSSOVER	MDC	8/5/74	
D	1 2N BA - ADDED 2-174(8) TO PICTURE	MDC	10/22/74	

Z10-0072-0

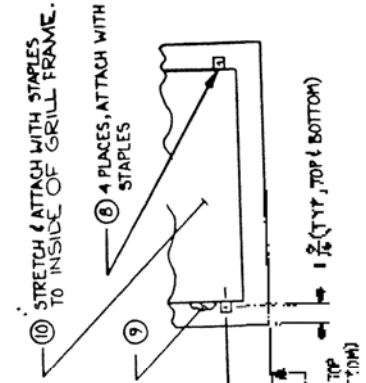


- NO CONNECTION AT THIS POINT
- CONNECTING POINT FOR GREEN WIRE (REF)
- CONNECTING POINT FOR 5 BLACK WIRES (REF)
- CONNECTING POINT FOR WHITE WIRE (REF)
- CONNECTING POINT FOR RED WIRE (REF)
- CONNECT NO POINT FOR BLUE WIRE (REF)

- 1/16 DIA. HOLE (1) 3 PLACES
- 28 TYP 4 PLACES
- 1/8 DIA. HOLE (2) 3 PLACES
- 7/8 TYP 4 PLACES
- 2.50
- 2.25
- 3.25
- 40
- 3.35
- 1/4 DIA. 4 HOLES
- PAINTED SURFACE THIS SIDE

- 10 SOLID TINNED JUMPER WIRE
- BLACK WIRE (3) THRU FUSE BLOCK (5) TO BLACK BINDING POST (6)
- RED WIRE (2) TO RED BINDING POST (6)
- 15 DIA. HOLE (1) 3 PLACES
- 28 TYP 4 PLACES
- 7/8 TYP 4 PLACES
- 1/8 DIA. HOLE (2) 3 PLACES
- 40
- 3.35
- 1/4 DIA. 4 HOLES

- 11 GRILL FRAME ASSY Z10-0072-0
- 29 CROSSOVER NETWORK ASSY



REV		DATE		APPROVED	
1	4/27/74	MDC	4/27/74		
2	6/11/74	MDC	6/11/74		

DATE	BY	STATUS
4/27/74	MDC	DESIGNED
6/11/74	MDC	CHECKED
6/11/74	MDC	APPROVED

REV	DATE	BY	STATUS
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2	6/11/74	MDC	CHECKED
3	6/11/74	MDC	APPROVED

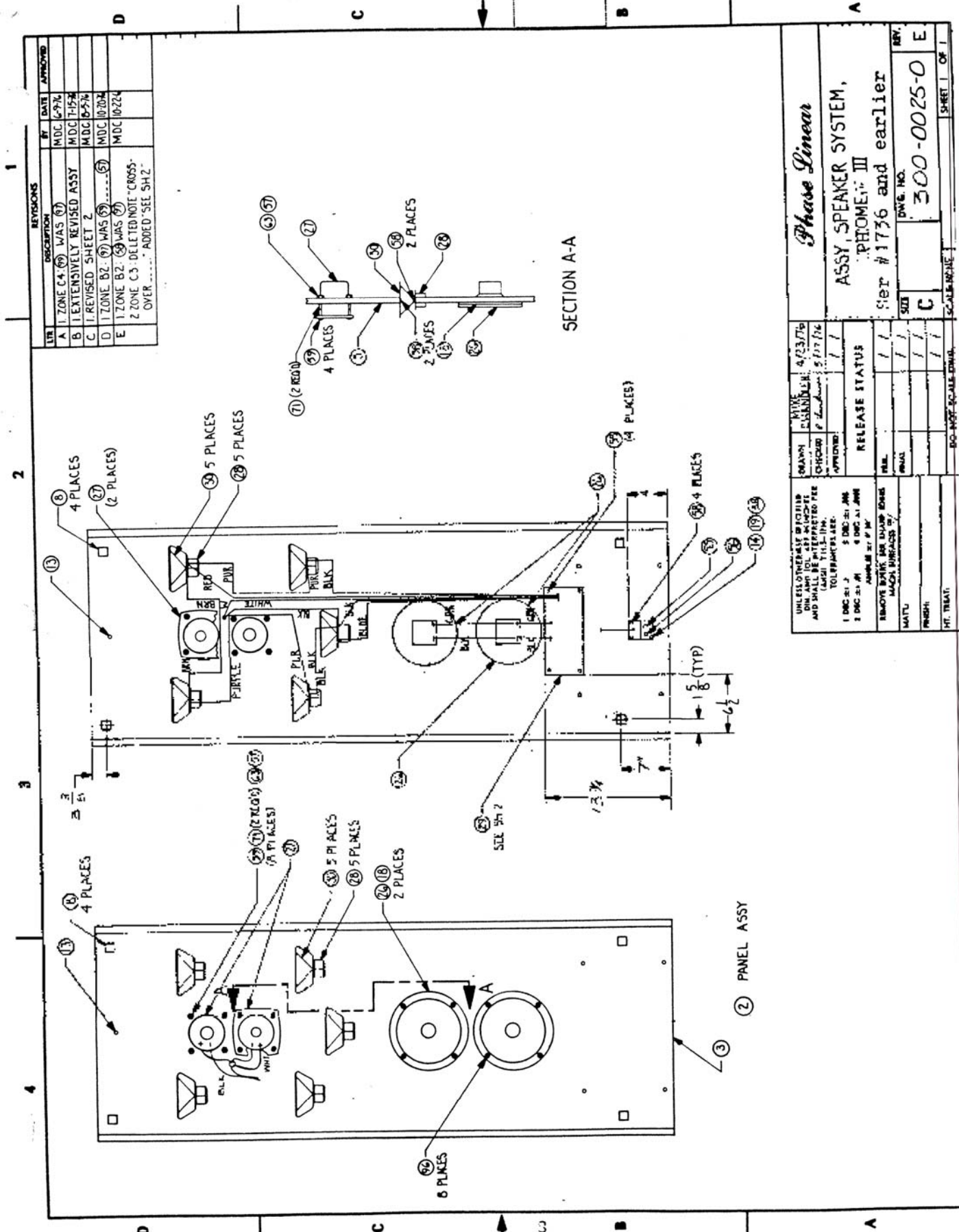
DATE	BY	STATUS
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6/11/74	MDC	CHECKED
6/11/74	MDC	APPROVED

DATE	BY	STATUS
4/27/74	MDC	DESIGNED
6/11/74	MDC	CHECKED
6/11/74	MDC	APPROVED

REV	DATE	BY	STATUS
1	4/27/74	MDC	DESIGNED
2	6/11/74	MDC	CHECKED
3	6/11/74	MDC	APPROVED

DATE	BY	STATUS
4/27/74	MDC	DESIGNED
6/11/74	MDC	CHECKED
6/11/74	MDC	APPROVED

DATE	BY	STATUS
4/27/74	MDC	DESIGNED
6/11/74	MDC	CHECKED
6/11/74	MDC	APPROVED

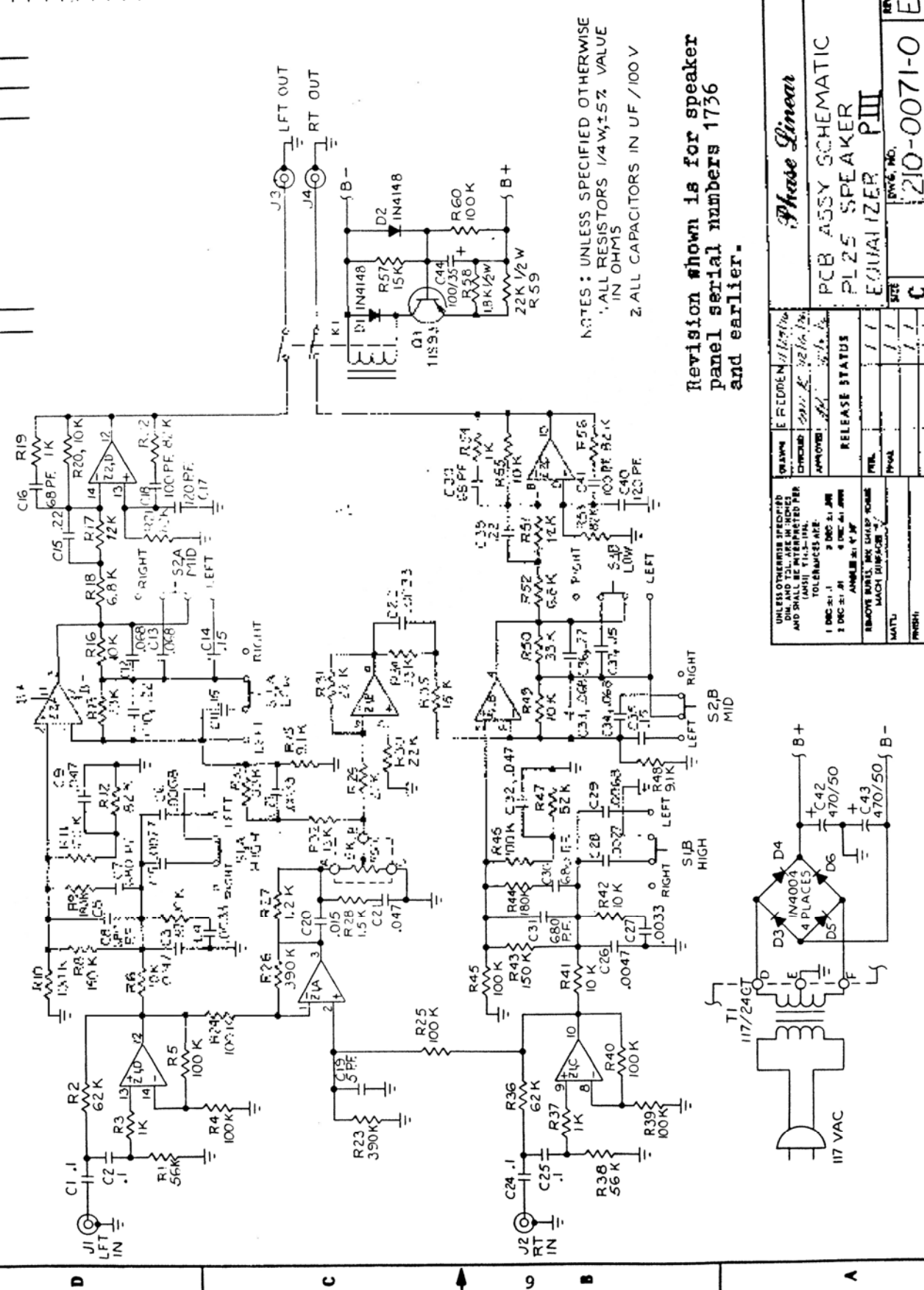


REVISIONS		BY	DATE	APPROVED
A	1. ZONE C4 (6) WAS (6)	MDC	6-27-54	
B	1. EXTENSIVELY REVISED ASSY	MDC	7-15-54	
C	1. REVISED SHEET 2	MDC	8-5-54	
D	1. ZONE B2 (6) WAS (5).....(5)	MDC	10-20-54	
E	1. ZONE B2 (5) WAS (6)	MDC	10-22-54	
	2. ZONE C3 - DELETED NOTE "CROSS-OVER" ADDED - SEE SH 2			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND SHALL BE INTERPRETED TO TOLERANCES ARE:		DATE	4/23/76
1 DEC. 21.3	5 DEC. 21.3	DESIGNED BY	6/17/76
2 DEC. 21.3	4 DEC. 21.3	APPROVED BY	
3 DEC. 21.3	3 DEC. 21.3	RELEASE STATUS	
4 DEC. 21.3	APPROVAL BY		
5 DEC. 21.3	REMOVE DIMS FOR ENLARGED DIMS		
6 DEC. 21.3	MATCH UNLESS NOTED		
7 DEC. 21.3			
8 DEC. 21.3			
9 DEC. 21.3			
10 DEC. 21.3			
11 DEC. 21.3			
12 DEC. 21.3			
13 DEC. 21.3			
14 DEC. 21.3			
15 DEC. 21.3			
16 DEC. 21.3			
17 DEC. 21.3			
18 DEC. 21.3			
19 DEC. 21.3			
20 DEC. 21.3			
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23 DEC. 21.3			
24 DEC. 21.3			
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91 DEC. 21.3			
92 DEC. 21.3			
93 DEC. 21.3			
94 DEC. 21.3			
95 DEC. 21.3			
96 DEC. 21.3			
97 DEC. 21.3			
98 DEC. 21.3			
99 DEC. 21.3			
100 DEC. 21.3			

Phase Linear
 ASSY, SPEAKER SYSTEM,
 PHOME, III
 Ser #1736 and earlier
 DWG. NO. 300-0025-0
 REV. C

1
2
3



REV	DESCRIPTION	BY	DATE	APPROVED

NOTES: UNLESS SPECIFIED OTHERWISE
 1. ALL RESISTORS 1/4W, 5% VALUE
 IN OHMS
 2. ALL CAPACITORS IN UF /100 V

Revision shown is for speaker panel serial numbers 1736 and earlier.

DESIGN		E. REDDEN 11/27/76	
CHANGED	BY	DATE	REASON
APPROVED	BY	DATE	
RELEASE STATUS			
PART			
DRAWING NO.		210-0071-0	REV. E
SCALE			
DO NOT SCALE DRAWING			
SHEET 2 OF 2			

Phase Linear
 PCB ASSY SCHEMATIC
 PL25 SPEAKER
 EQUALIZER PIII

UNLESS OTHERWISE SPECIFIED DIMS AND TOL. ARE IN INCHES AND DECIMAL FRACTIONS THEREOF. TOLERANCES ARE:
 1 DIM. ± .1
 2 DIM. ± .05
 3 DIM. ± .02
 4 DIM. ± .01
 5 DIM. ± .005
 6 DIM. ± .0025

REMOVE BURLS, BRK CHIPS, SPALLS, SLAGS, INCLUSIONS, ETC. FROM EACH SURFACE.

DATE: 11/27/76

BY: E

REV. E

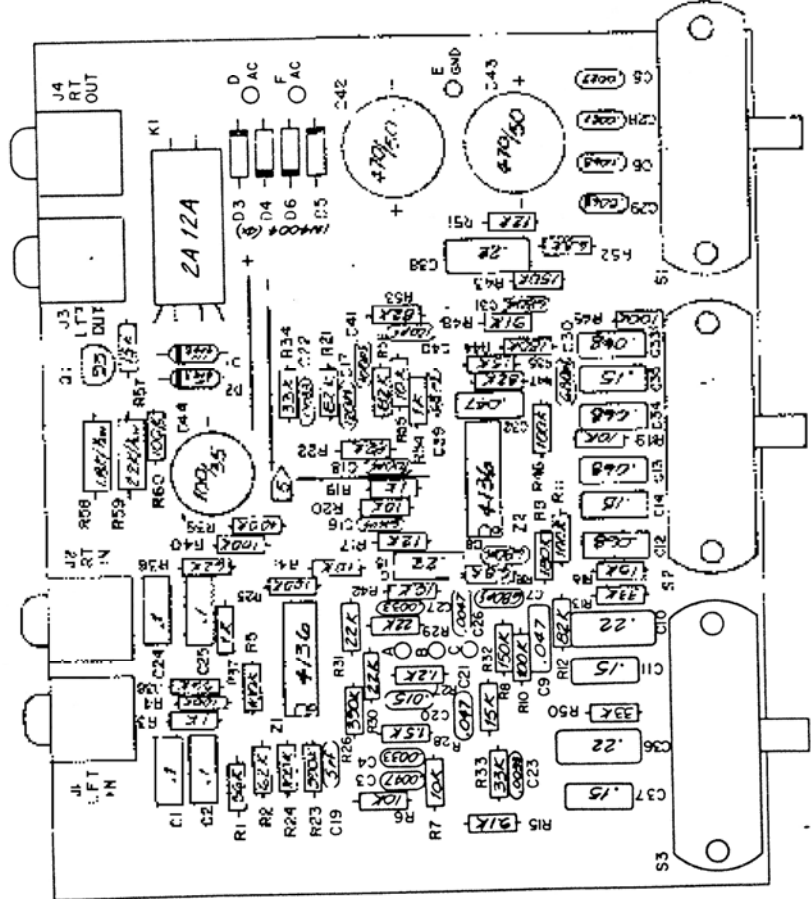
SCALE:

DO NOT SCALE DRAWING

SHEET 2 OF 2

ATTACHMENTS 012345

REV	DESCRIPTION	BY	DATE	APPROVED
1	New PCB Commercially Revised	SMK	11/94	



- NOTES: UNLESS OTHERWISE SPECIFIED
1. FOR SCHEMATIC SEE SMT 20F2
 2. ALL RESISTORS 4W 5% VALUE IN OHMS
 3. CAPACITORS IN 1A (MFD)
 4. C17,18,40,41 ARE 10%
- ⊠ JUMPER 22AWG SOLID WHT
R/W 124-0082-0

Revision shown is for speaker panel serial numbers 1736 and earlier.

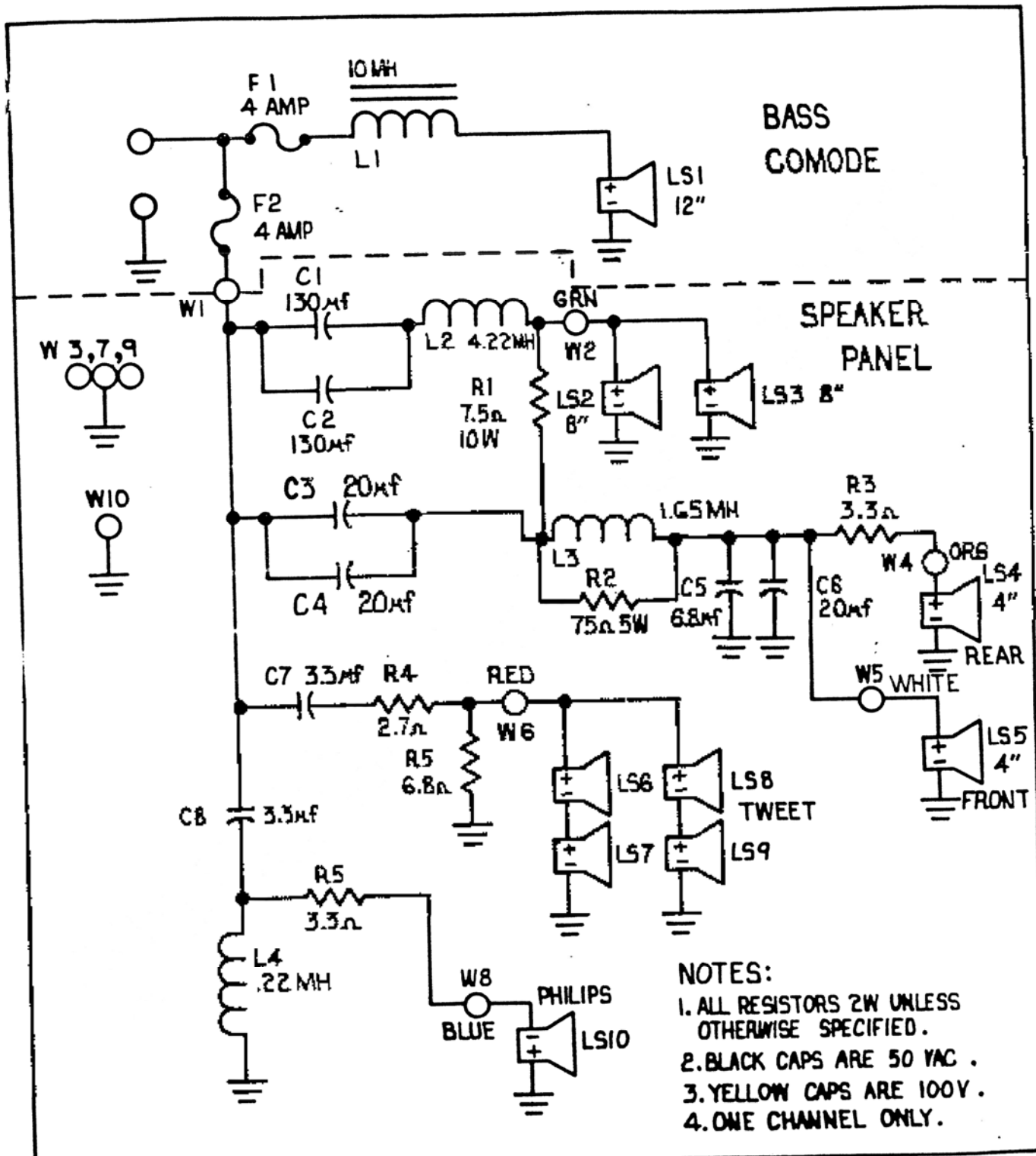
PL25 REVE 06612

UNLESS OTHERWISE SPECIFIED DIMS AND TOL ARE IN INCHES AND FRACTIONS THEREOF TOLERANCES ARE:		QWANT	5000	0.13076
1 DIM ± .1	1 DIM ± .005	QFORM	PL25	PL25 PCB
2 DIM ± .1	1 DIM ± .005	APPROVED	SMK	11/94
3 DIM ± .1	1 DIM ± .005	RELEASE STATUS		
REMOVE BURRS AND SHARP EDGES		FIN		
MATCH MOUNTING		FINISH		
HT. TREAT.		SCALE		
DO NOT SCALE DIMS.		SIZE	C	
		QWANT NO		
		REV		
		REV	210-00710	E
		SHEET / OF 2		

Phase Linear
PCB ASSY, PL25
SPEAKER EQUALIZER

ATTACHMENT 345

DIAGRAM T11-5

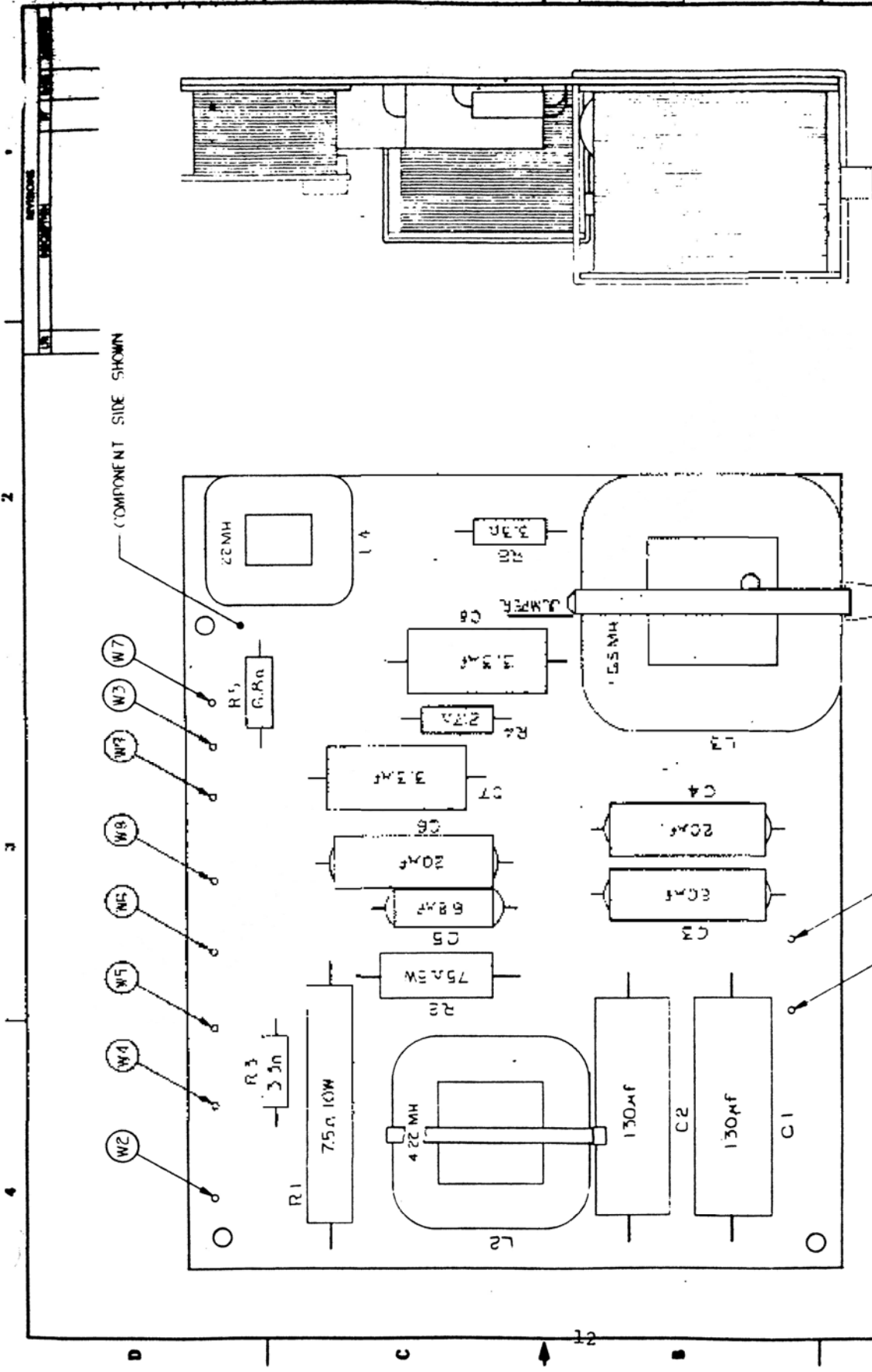


PHASE LINEAR

SCHMATIC
PHASE III SPEAKER

DRAWN	R. CLARK	11-22-77
CHECKED		
APPROVED		

Serial Number 1736 Forward	REV
----------------------------	-----



UNLESS OTHERWISE SPECIFIED DIM. AND TOL. ARE IN INCHES AND SHALL BE INTERPRETED PER (ASPI) TELL FILE TOLERANCE ARE		DRAWN	34	DATE	11/25/77
1 INC. 21.1	1 INC. 49. 200	CHECKED			
1 INC. 21.1	1 INC. 21. 400	APPROVED			
1 INC. 21.1	1 INC. 21. 400	RELEASE STATUS			
1 INC. 21.1	1 INC. 21. 400	FILE			
1 INC. 21.1	1 INC. 21. 400	PHYS.			
1 INC. 21.1	1 INC. 21. 400	TEST			
1 INC. 21.1	1 INC. 21. 400	WIR			
1 INC. 21.1	1 INC. 21. 400	CD			
1 INC. 21.1	1 INC. 21. 400	LOT TREAT.			

Phase Linear

PCB ASSEMBLY

PHASE III SPEAKER

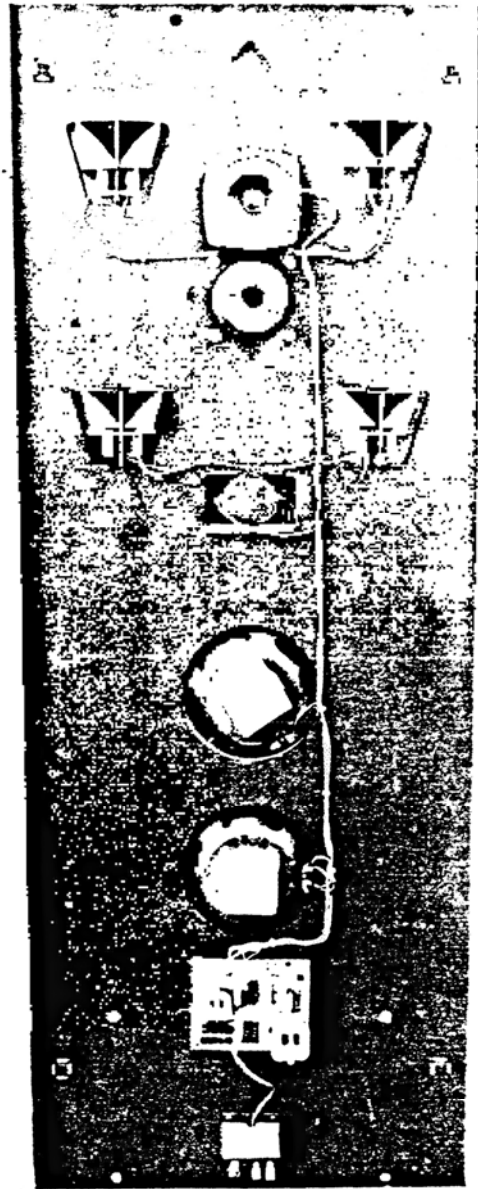
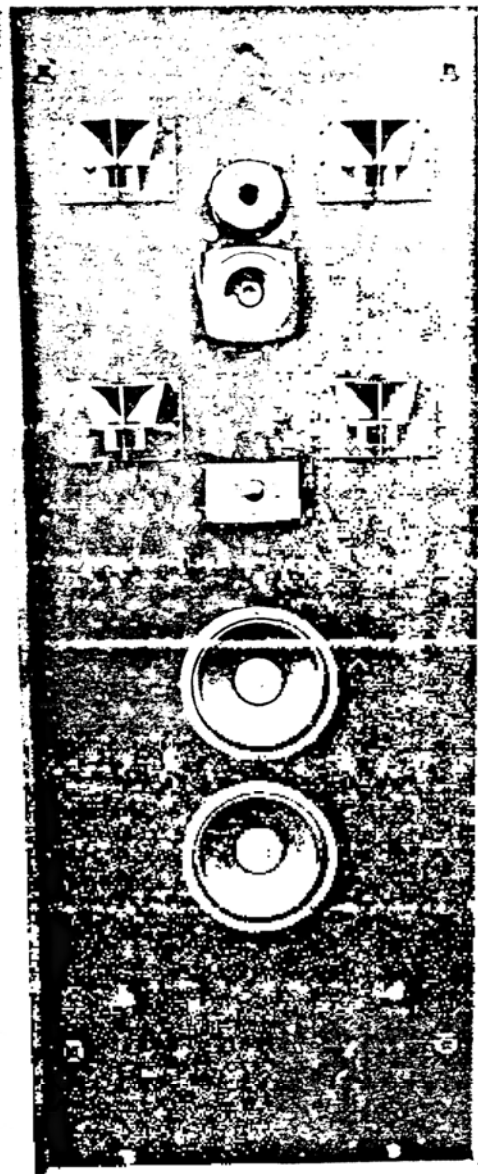
DATE: 11/25/77

REV: C

DRW: 34

210-0077-0

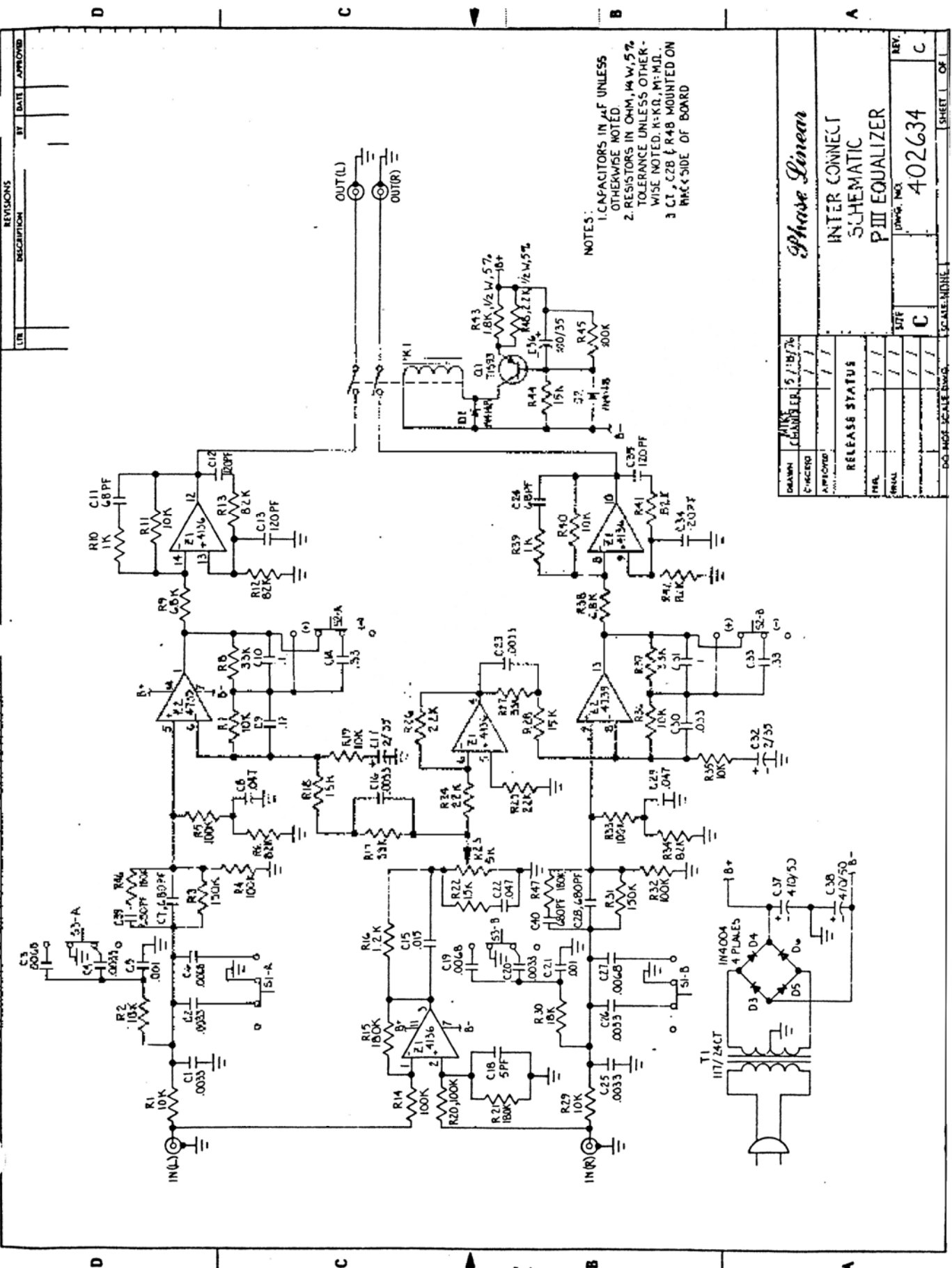
- NOTES:
1. ALL RESISTORS 2W UNLESS OTHERWISE SPECIFIED.
 2. BLACK CAPACITORS ARE 50 VAC.
 3. YELLOW CAPACITORS ARE 100 VAC.



Panel, Serial #1736 Forward

DIAGRAM III-8

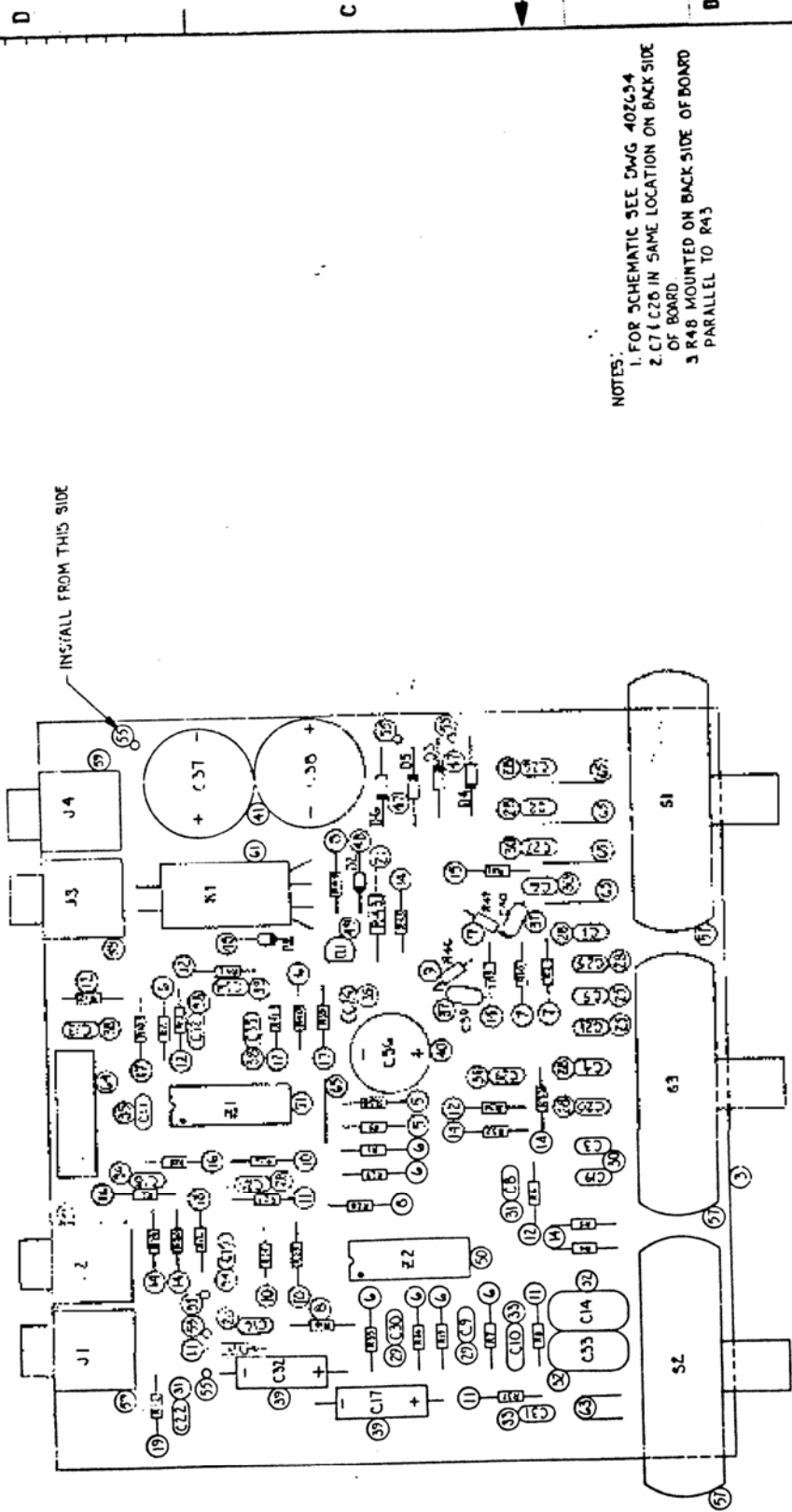
REV.	DESCRIPTION	BY	DATE	APPROVED



- NOTES:
1. CAPACITORS IN pF UNLESS OTHERWISE NOTED.
 2. RESISTORS IN OHMS, 1/4W, 5% TOLERANCE UNLESS OTHERWISE NOTED. R3, R4, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45 MOUNTED ON REVERSE SIDE OF BOARD.

DATE	5/18/76
DESIGNED BY	
CHECKED BY	
APPROVED BY	
RELEASE STATUS	
FILE	
FINAL	
SCALE	
SCALE INCHES	
SCALE MM	
SCALE INCHES	
SCALE MM	
REV.	C
DWG. NO.	402634
SHEET	1 OF 1

Phase Linear
 INTERCONNECT
 SCHEMATIC
 PIII EQUALIZER



NOTES:
 1. FOR SCHEMATIC SEE DWG 402634
 2. C7 & C26 IN SAME LOCATION ON BACK SIDE OF BOARD
 3. R48 MOUNTED ON BACK SIDE OF BOARD PARALLEL TO R43

O4 ASSY PL25 41600

01-SAME AS 02 EXCEPT C1 & C25 ARE .001 & C4 & C25 ARE .47
 02-SAME AS 03 EXCEPT C5 & C21 ARE .0033 AND ALL JUMPER WIRES .4 LG
 03-SAME AS 04 EXCEPT C16 & C25 ARE .0008, C2 & C26 ARE .0015, C6 & C27 ARE .0033,
 C9 & C30 ARE .033, C12, C13, C34 & C35 ARE .100 PF, R15 & R21 ARE 220K, C7 & C28 ARE ON
 TOP OF BOARD & R43 IS 1K, 1/2W
 04-SHOWN

UNLESS OTHERWISE SPECIFIED DIMENSIONS SHALL BE IN MILLIMETERS (INCH) TYPICAL (INCH) TOLERANCE		DATE	REV.	5/18/76
1 DRG BY: J	2 DRG BY: M	3 DRG BY: J	4 DRG BY: J	5 DRG BY: J
REMOVE PARTS, THE SHARP ENDS EACH SURFACE		RELEASE STATUS		
MATERIAL		SIZE		
FINISH		C		
MT. TREAT.		SCALE: NONE		
		DRAWN: CUBBER		
		APP'D		

Phase Linear

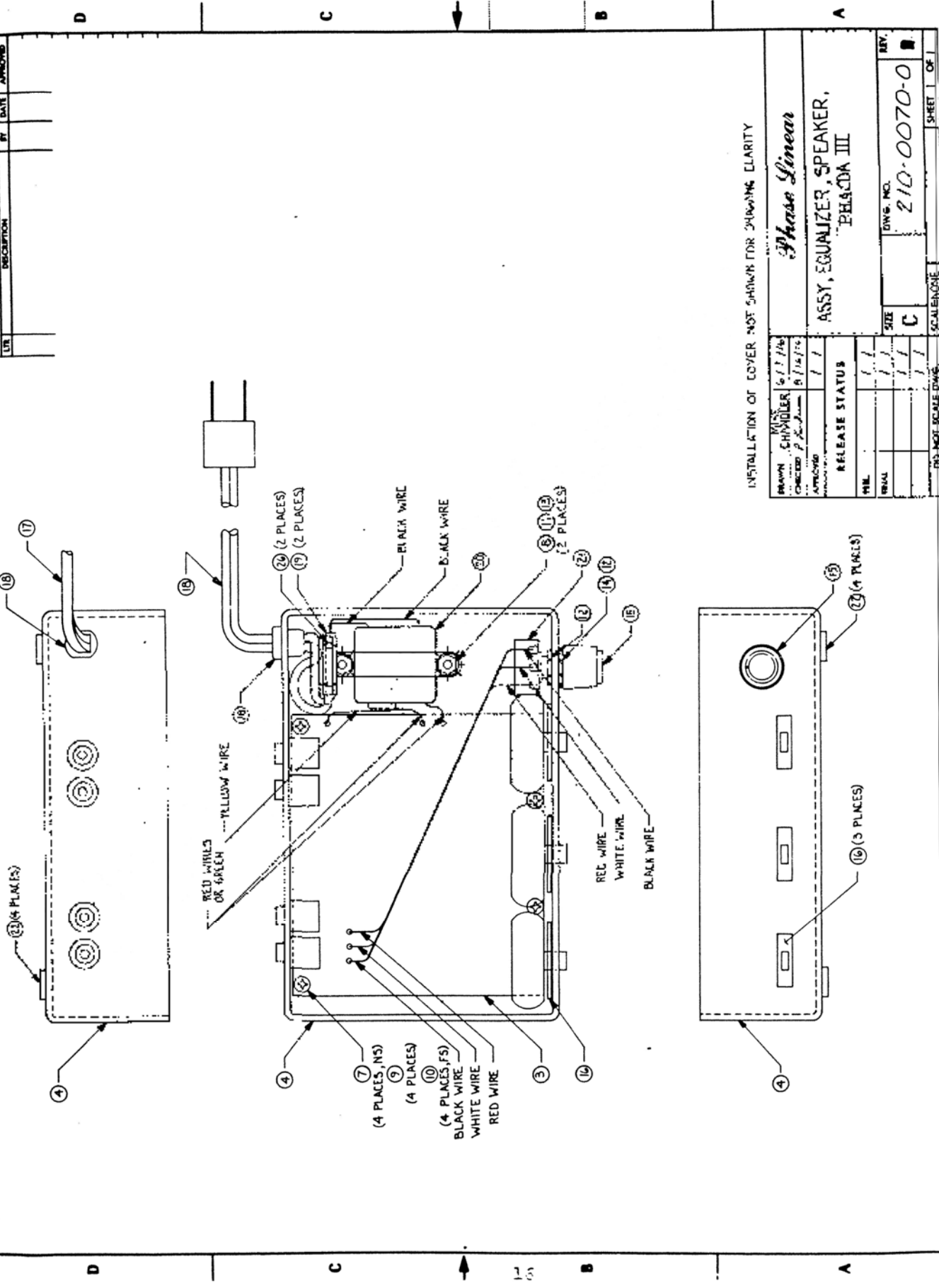
PCB ASSY, PL25
 SPEAKER EQUALIZER
 P III

REV. C
 P.W.G. NO. 402626
 SHEET 1 OF 1

ATTACHMENTS 012345

REVISIONS	
BY	DATE / APPROVED

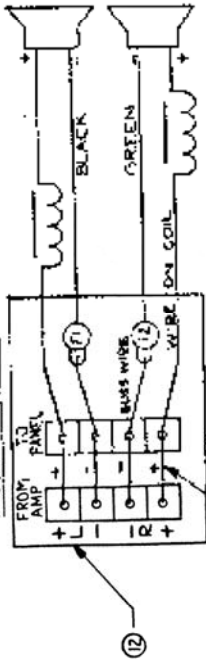
1
2
3
4



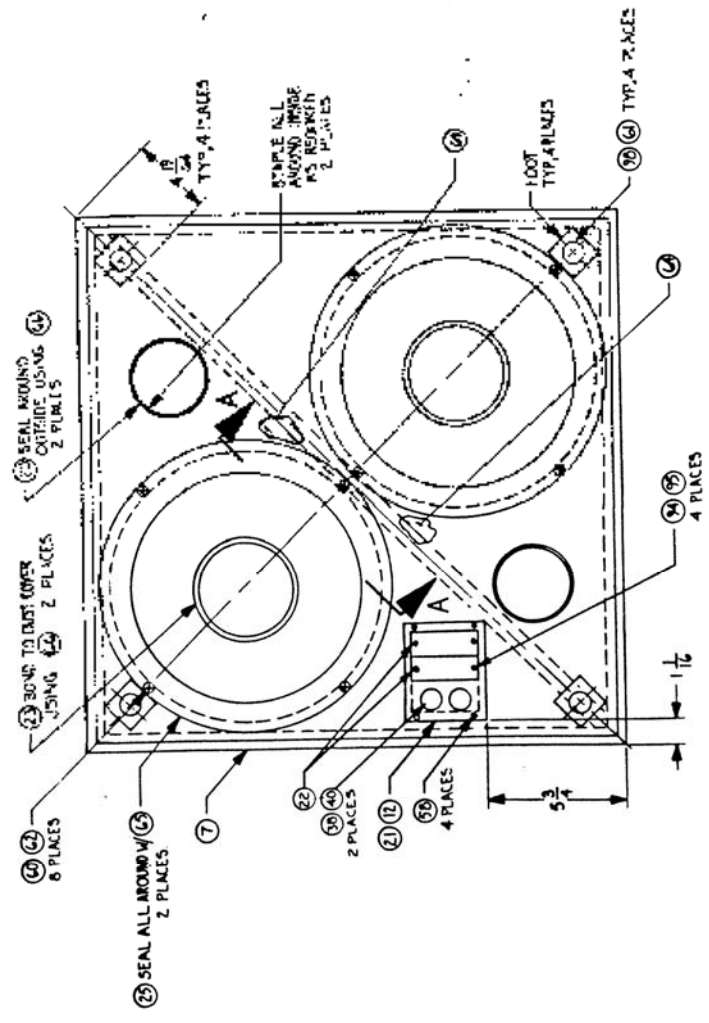
INSTALLATION OF COVER NOT SHOWN FOR CLARITY

DESIGNED BY P. J. ...	DATE 6/17/66	APPROVED BY B. J. ...	DATE 6/17/66
RELEASE STATUS			
MIL			
DRAWN BY CHANDLER		DATE 6/17/66	
CHECKED BY P. J. ...		DATE 6/17/66	
APPROVED BY B. J. ...		DATE 6/17/66	
Phase Linear ASSY, EQUALIZER, SPEAKER, PHASDA III			
SIZE C	DWG. NO. 210-0070-0	REV. 	SHEET OF 1

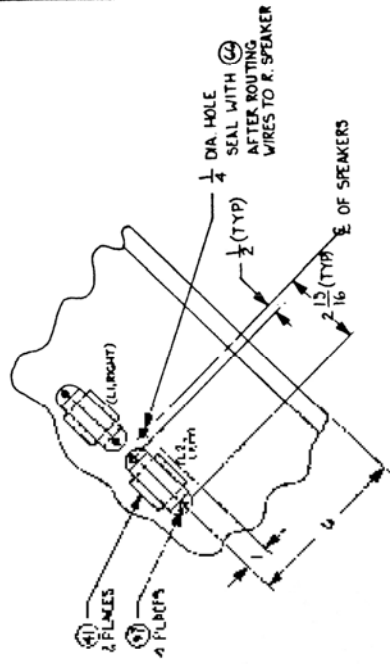
DO NOT SCALE DIMS. SCALE 1/1



21 WIRING DIAGRAM



26 BASS SPEAKER ASSY



SECTION A-A

REVISIONS		BY	DATE	APPROVED
1	REVISED SHEET 1		MDC 6-74	
2	1 2N BZ 183 DELETED (C)		CALLOUTS MDC 7/74	
3	2 2N BZ (4) W/AS (3)			
4	3 2N BA ADDED (2) TO CALLOUT			

UNLESS OTHERWISE SPECIFIED DIM. AND TOL. ARE IN INCHES AND DECIMALS THEREOF UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: 1 DEC. 21-1 .1 1 DEC. 21-2 .01 2 DEC. 21-1 .1 1 DEC. 21-2 .01 3 DEC. 21-1 .1 1 DEC. 21-2 .01 4 DEC. 21-1 .1 1 DEC. 21-2 .01		DRAWN: S. J. / T. W. CHECKED: S. J. / T. W. APPROVED:	DATE: 5/4/76 SCALE: 1:1 SHEET 1 OF 1
RELEASE STATUS: PREL. / / / / / / / / / / / / / / / / FINAL. / / / / / / / / / / / / / / / / MATH. / / / / / / / / / / / / / / / / FINISH. / / / / / / / / / / / / / / / / MT. TREAT. / / / / / / / / / / / / / / / /		ASSY, SPEAKER SYSTEM, PHASE III DWG. NO. Z 10-0069-0	REV. B SIZE C SCALE: TITRE
ATTACHMENTS 012345		DO NOT SCALE DIMS.	

4-0. MOTION CONTROL MODULE TEST AND ALIGNMENT PROCEDURE

Input signal shall be 250mV @ 2K Hz. Unless otherwise stated all dB measurements are ± 1 dB

For Phase III Systems with Panel Serial Numbers 1736 and Earlier:

- 4-1: With all trim controls set at "0" position drive the inputs with a 250mV 2K Hz signal and obtain a 0dB reference at the outputs.
- 4-2: Repeat step 4-1 with a 1K Hz signal and verify a signal boost of 2dB from the 0dB reference. Switch the "MYD" control to "+" position and verify another signal boost of 1.5dB. Switch control from "+" position to "-" position and verify a signal drop of 2.5dB. Return control to "0" position.
- 4-3: Repeat step 4-1 with a 30 Hz signal and verify a signal boost of 8.5dB from the 0dB reference. Switch the "LOW" trim control to the "+" position and verify another signal boost of 6dB. Switch control from "+" position to "-" position and verify a signal drop of 7.5dB. Return control to "0" position.
- 4-4: Repeat step 4-1 with a 20K Hz signal and verify a signal boost of 4dB from the 0dB reference. Switch "HIGH" control to "+" position and verify another signal boost of 6db. Switch control from "+" position to "-" position and verify a signal drop of 9.5dB. Return control to "0" position.
- *4-5: Repeat step 4-1. With the "Spatial Imaging" control set fully counterclockwise unplug the right channel input and verify that the right channel output has dropped 50dB, ± 3 dB. Now turn the Spatial Imaging control fully clockwise and verify that the right channel output is now inverted and 10dB lower than the left channel, ± 3 dB.

(* Signal input may have to be increased in order to obtain separation measurements.

For Phase III Systems with Panel Serial Numbers 1736 and forward:

- 4-6: With all trim controls set at "0" position drive the inputs with 250mV 2K Hz signal and obtain a 0dB reference.
- 4-7: Repeat step 4-6 with a 200 Hz signal and verify another boost of 2dB. Switch "MID" control to "+" position and verify another signal boost of 2dB. Switch control from "+" position to "-" position and verify a signal drop of 4dB. Return control to "0" position.
- 4-8: Repeat step 4-6 with a 30 Hz signal and verify a signal boost of 3dB from the 0dB reference. Switch "LOW" control to "+" position and verify another signal boost of 2dB. Switch control from "+" position to "-" position and verify signal drop of 6db. Return control to "0" position.
- 4-9: Repeat step 4-6 with a 20K Hz signal and verify a signal boost of 3 db from the 0dB reference. Switch "HIGH" control to "+" position and verify another signal boost of 4dB. Switch control from "+" position to "-" position and verify a signal drop of 8dB. Return control to "0" position.
- (*)4-10: Repeat step 4-6. With the "Spatial Imaging" control set fully counterclockwise unplug the right channel input and verify that the right channel output has dropped 50db, \pm 3dB. Now turn the Spatial Imaging control fully clockwise and verify that the right channel output is now inverted and 10dB lower than the left channel, \pm 3dB.

(*) Signal input may have to be increased in order to obtain separation measurements.

5-0. SPEAKER PANEL AND BASS COMMODE TEST PROCEDURE

Panel Test:

Phase III speaker panels are tested at the factory in a special acoustic environment. The test procedure involves the use of a sweep signal oscillator, pink noise generator, sound pressure level meter, and realtime analyzer.

Since most repair facilities are not equipped with such speaker testing equipment the easiest method of testing the speakers is to simply listen to them since most speaker failures are audibly straightforward. A defective driver will normally manifest itself by either giving no audible sound whatsoever, or giving a definite audible distortion or breaking up of the signal.

To give the panels a listening test drive them with a low noise signal source (e.g., sine wave sweep oscillator, or quiet record or tape with fairly dynamic material) at various sound pressure levels and listen to each driver in the panel. In the case of the tweeters it may be necessary to make a "listening tube" by rolling up a piece of paper and listen to each tweeter through this tube as sometimes a tweeter may be hard to hear by merely placing your ear close to it. Verify that there is 1) sound coming from each driver, and 2) that there is no audible break-up or distortion.

If an entire set of drivers goes silent, such as all of the tweeters, both midrange drivers, etc., the problem probably lies with the crossover assembly and it may be necessary to give each component on the crossover board which is in circuit with the set of drivers a continuity check (refer to the appropriate crossover schematic in Section III).

Bass Commode Test:

The bass commode is tested at the factory using a sweep signal oscillator (with amplification) and is driven in a sweep mode from around 100Hz down to 5Hz. This allows not only an audible check of each driver's performance, but offers an audible check for air leaks or vibrations in the cabinet.

To test the bass commode the same sort of test may be utilized, or if a signal oscillator isn't available it may be driven with a low noise record or tape which contains suitable bass material. Verify that both drivers give an audible signal and that the material is free of distortion, break-up, rattles or air leaks.

6-0.

PHASE III PARTS LIST

<u>Description</u>	<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>
12" Bass Driver.....	129-0039-0	Cap, 130/50V NP.....	127-0087-0
8" Midbass Driver.....	129-0040-0	Cap, 20/50V NP.....	127-0086-0
4" Midrange Driver.....	129-0041-0	Cap, 6.8/50V NP.....	127-0085-0
2" Cone Tweeter.....	129-0042-0	Cap, 3.3/100V NP	127-0115-0
1" Soft-Dome Tweeter.....	129-0082-0	Res., 75 Ohm 5W.....	128-0375-0
Crossover Assy:		Res., 15 Ohm 5W.....	128-0363-0
Ser#1736 & Earlier.....	210-0072-0	Res., 7.5 Ohm 10W.....	128-0376-0
Ser#1736 & Forward.....	210-0077-0	Res., 8.2 Ohm 2W.....	128-0361-0
ABS Plastic Tweeter Bracket: 3-pc.		Res., 6.8 Ohm 2W.....	128-0373-0
Left.....	141-0144-0	Res., 3.3 Ohm 2W.....	128-0360-0
Right.....	141-0145-0	Res., 2.7 Ohm 2W.....	128-0374-0
Ring.....	143-0014-0	Binding Post (red)....	121-0007-0
Tweeter Cone Deflector...142-0019-0		Binding Post (black)..	121-0008-0
8" Mounting Gasket.....	121-0084-0	Fuseholder (AGC).....	121-0010-0
Speaker Panel (raw).....	130-0004-0	Fuse, AGC-4.....	121-0104-0
Walnut Panel Side Strip..130-0009-0		Motion Control Module.	210-0070-0
Walnut Panel Foot.....	130-0007-0	IC, RC4136.....	126-0027-0
Metal Panel Foot.....	141-0047-0	IC, RC4739.....	126-0029-0
Grille Frame.....	130-0006-0	Relay, 2V reed.....	129-0044-0
Grille Frame Assy.....	210-0086-0	Jack, RCA, PCB-mount..	121-0022-0
Bass Cabinet (raw).....	130-0005-0		
Bass Inductor.....	125-0014-0		
Bass Terminal Board Assy.	210-0074-0		
Push-connect Term. Strip.	121-0064-0		
Bass Cabinet Foot.....	130-0010-0		

NOTE: Whenever ordering parts BE SURE TO INCLUDE THE PANEL SERIAL NUMBER OF THE SPEAKER SYSTEM.

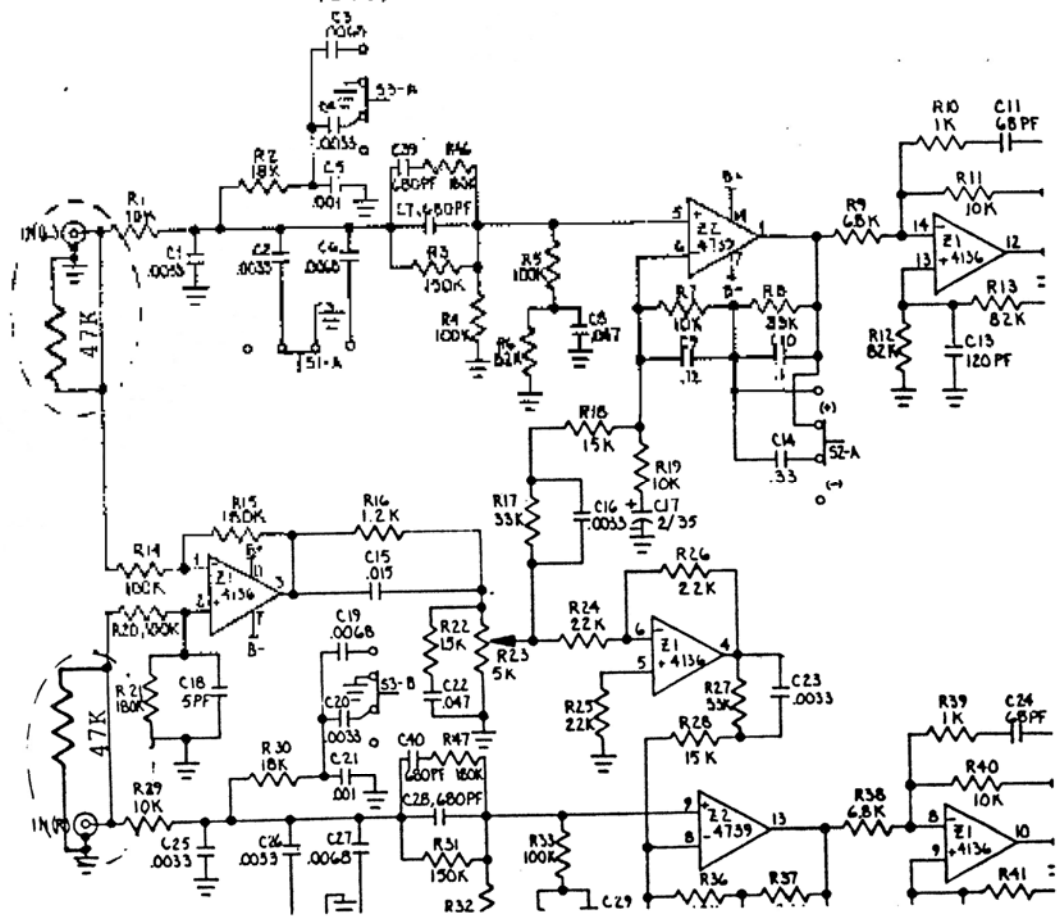
SERVICE BULLETIN

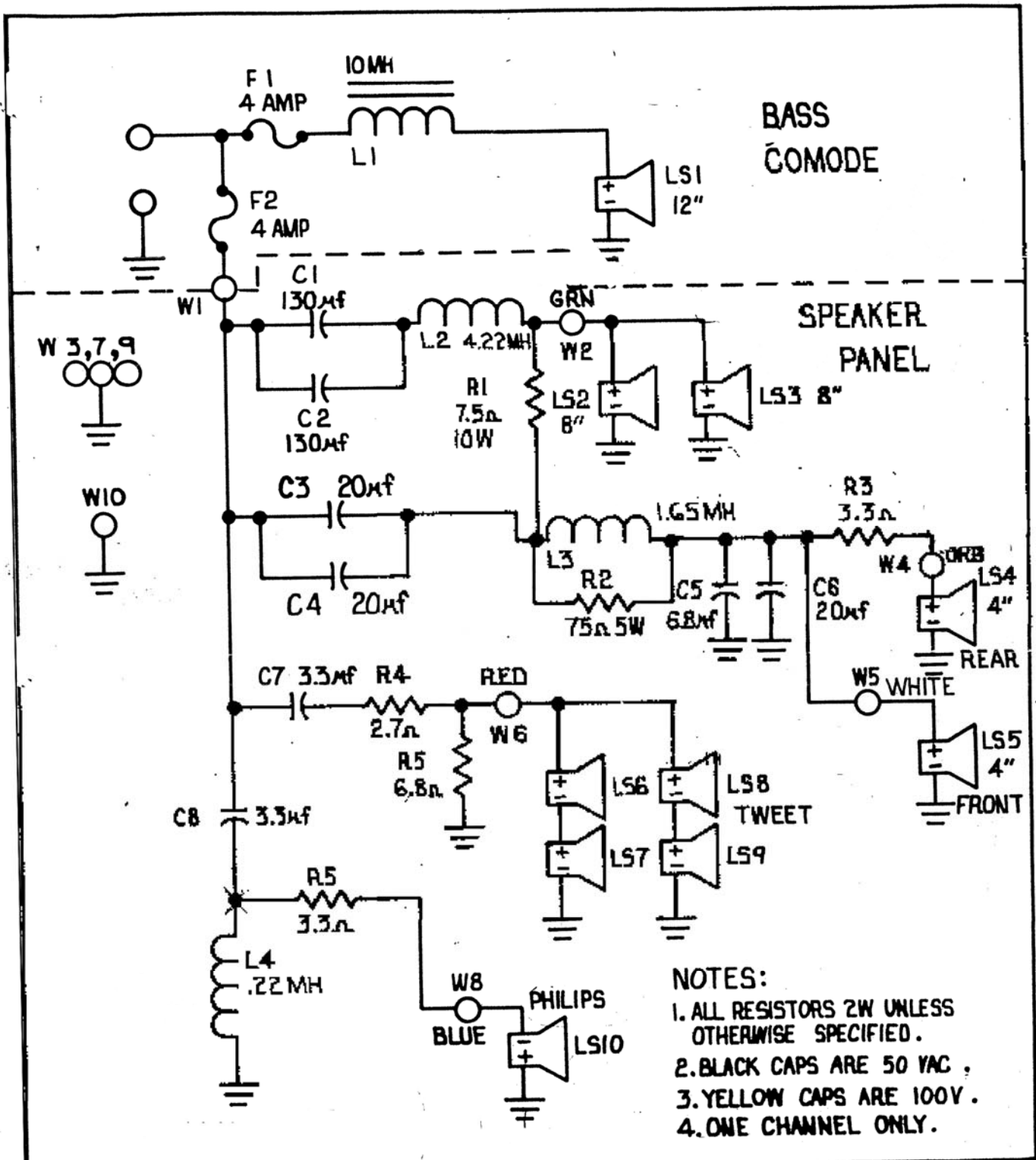
SUBJECT: Phase III Motion Control Module

We have discovered that due to the positive feedback used in one of the frequency contouring stages the Motion Control Module will oscillate (10v AC @ about 200Hz) if the inputs are opened. This can happen when switching the tone controls in and out on a preamp which has a non-shorting tone switch (such as the Phase 2000). To arrest this oscillation the inputs should be referenced to ground through a 47K-ohm resistor. The resistor should be soldered on the foil side of the PC board from each input hot (+) to the ground plane provided for the shorting input jacks.

Thus far the oscillation has proven to be a rare complaint but can be a potential hazard to unfused speakers. If you have any further questions feel free to contact the factory service department at the following address:

PHASE LINEAR
20121-48th AVE. WEST
LYNNWOOD, WA 98036
(206) 774-8848





PHASE LINEAR

SCHEMATIC
PHASE III SPEAKER

DRAWN	R. CLARK	11-22-77
CHECKED		
APPROVED		

Serial Number 1736 Forward

REV