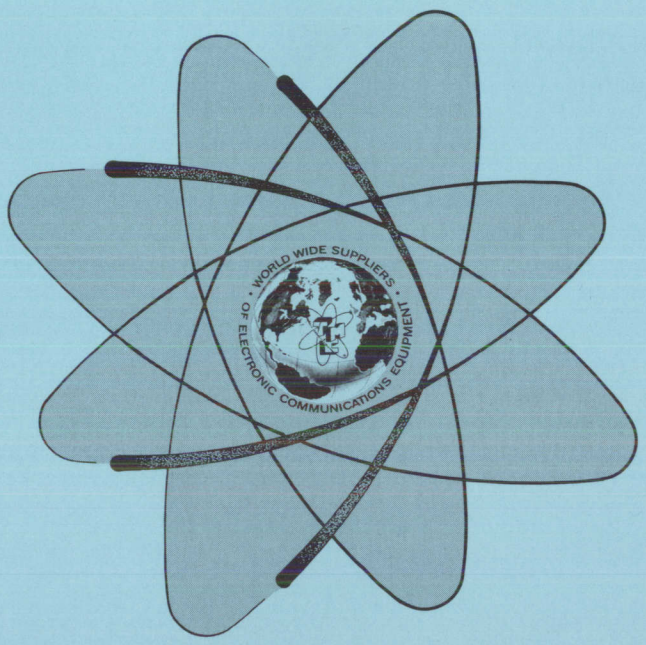
PRELIMINARY

TECHNICAL MANUAL

for

LINEAR POWER AMPLIFIER

MODEL HFLA-1K(3P)



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, ONTARIO

Printed in U.S.A.

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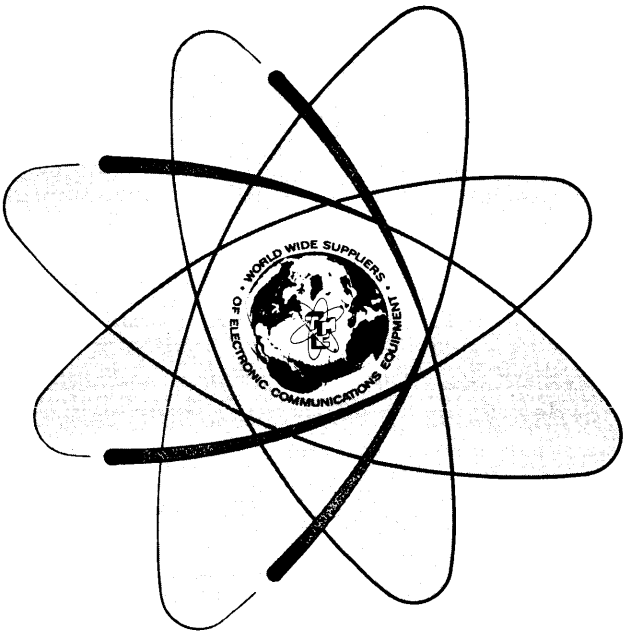


THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, ONTARIO

Printed in U.S.A.

IN 1081 ISSUE DATE: JUNE 1973

NOTICE

THE TECHNICAL MATERIEL CORPORATION
COMMUNICATIONS ENGINEERS
700 FENIMORE ROAD MAMARONECK, N. Y.

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes,* fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purposes for which the same is designed, for a period of one year from the date of delivery F.O.B. factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction.

2. That the defect is not the result of damage incurred in shipment from or to the factory.

3. That the equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise.

4. That any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

Electron tubes*furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

At TMC's option any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the Buyers sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

*Electron tubes also include semi-conductor devices.

PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

PROCEDURE FOR ORDERING REPLACEMENT PARTS

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

THE TECHNICAL MATERIEL CORPORATION
Engineering Services Department
700 Fenimore Road
Mamaroneck, New York

LINEAR POWER AMPLIFIER
Model HFLA-1K(3P)

A-1. Introduction

The HFLA-1K(3P) Linear Power Amplifier is similar to the HFLA-1K. The technical manual for the HFLA-1K will apply to the HFLA-1K(3P), when the additions, deletions and corrections outlined in this addendum have been incorporated.

A general description of the modifications requiring the model number change, from HFLA-1K to HFLA-1K(3P), is provided in paragraph A-2. Additionally, the effect of the modifications on particular sections of the technical manual is discussed in paragraph A-3.

A-2. Discussion of Equipment Modifications

The HFLA-1K(3P) linear amplifier is a modified version of the HFLA-1K linear amplifier, designed to allow operation from a three phase primary power source of 230 vac. In the HFLA-1K(3P), an AP154 high voltage power supply replaces the AP152 high voltage power supply used in the HFLA-1K. The AP154 high voltage power supply is capable of operation from a three phase primary power source of 230 vac.

A-3. Technical Manual Corrections

The following nomenclature references in the HFLA-1K technical manual should be changed accordingly:

(1) HFLA-1K to HFLA-1K(3P)

(2) AP152 to AP154

In section 1 of the HFLA-1K technical manual, the primary power specification in Table 1-2 should be changed from "115/230 vac, single phase, 50/60 Hz" to "230 vac, three phase, 50/60 Hz."

In section 2 of the HFLA-1K technical manual, change paragraph 2-2. Power Requirements to read: The HFLA-1K(3P) requires a three phase source of 230 vac 50/60 Hz, at approximately 3.75 kw.

In the installation procedure, paragraph 2-3, change step 8.c. to read: Place an ac voltmeter across two phases of the three phase input of the high voltage transformer T101 located in the AP154, High Voltage Power Supply. The meter should be on the 300 vac range.

In section 4 of the HFLA-1K technical manual, change the first sentence in paragraph 4-3. b. to read: The three phase primary power input of 230 vac is applied to the power input of the transmitter and routed to one side of the MAIN POWER breaker CB101.

On Figure 4-2. AC Power Distribution, change the upper left hand block designation from AP152 to AP154. Redraw the power input at J101 as a three Ø input by adding a third input line and marking it pins D and E. Change "115 VAC SINGLE Ø INPUT" to "230 VAC THREE Ø INPUT."

In section 5 of the HFLA-1K technical manual, delete all references to 115 vac fuses on the BLOWER, FILAMENT and L.V fuse functions.

Replace Figure 5-5. AP-152 Top View with the new Figure 5-5. AP-154 Top View, supplied with this addendum.

In section 6 of the HFLA-1K technical manual, replace the Parts List for AP152 H/V Power Supply with the new Parts List for AP154, supplied with this addendum.

In section 7 of the HFLA-1K technical manual, replace Figure 7-2. Schematic Diagram, High Voltage Power Supply AP152 with the new Figure 7-2. Schematic Diagram, High Voltage Power Supply AP154, supplied with this addendum.

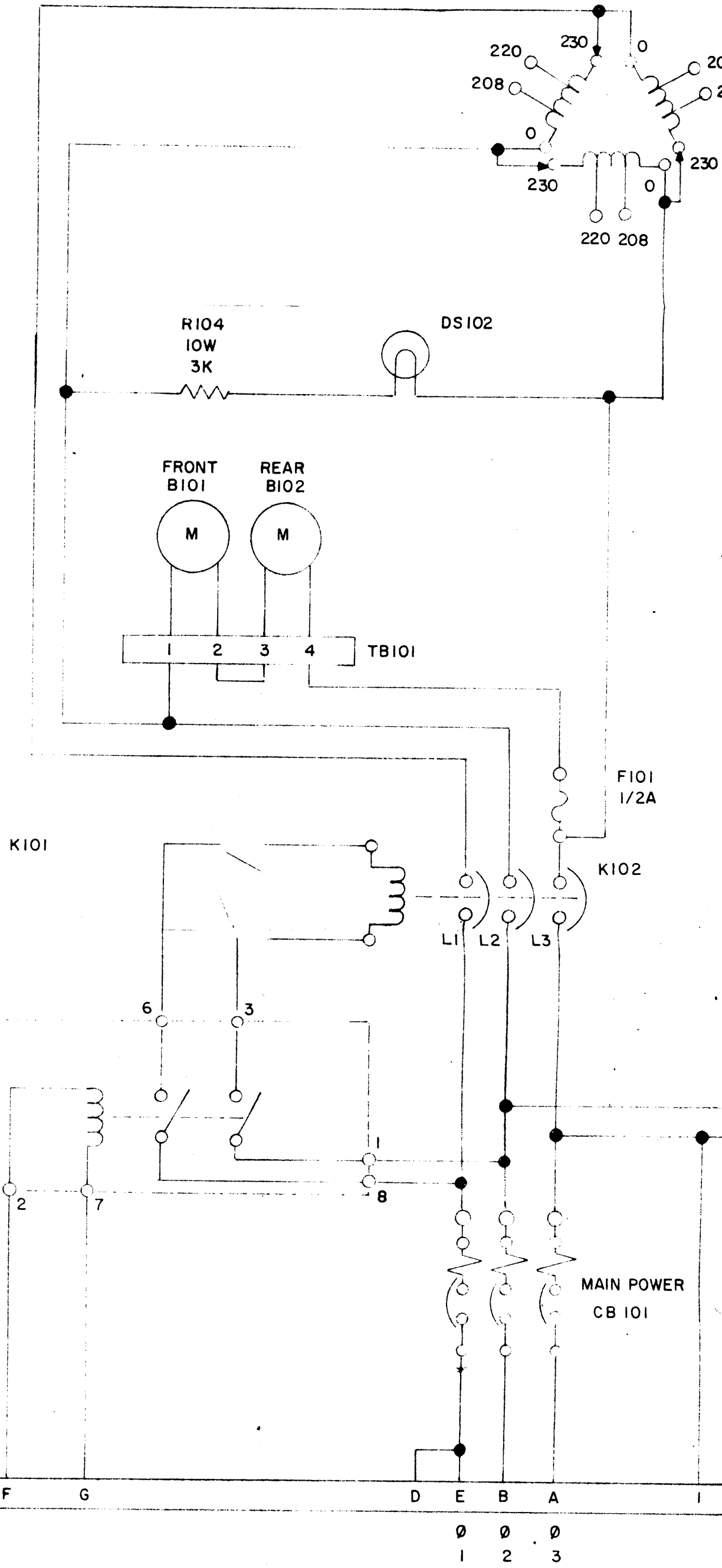
This completes the changes required in the HFLA-1K technical manual to addend it to HFLA-1K(3P) technical manual.

To be supplied

Figure 5-5. AP-154 Top View

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A101	Assembly, PC Board, Rect	A-4949*
A102	Assembly, PC, Board, Zener	A-4875*
B101	Fan, Vent	BL106-2
B102	Same as B101	
C101 and C102	Capacitor, Fixed, Film	CN109
CB101	Circuit, Breaker	SW556
DS101	Lamp, Incand	BI105-1
DS102	Same as DS101	
F101	Fuse, Circuit	FU102-.500
K101	Rel, plug-in	RL168-2C-5-24DC
K102	Contactor Magnetic	RL171-1
L101 and L102	React, 5H	TF5034
R101	Res, Fixed, WW 160W	RW117-39
R102	Same as R101	
R103	Resistor, Fxd, WW 55W	RW115-101-55
R104 and R105	Resistor, Fxd, WW 10W	RW109-30
T101	Xfmr, 3-p	TF426
TB101	Terminal, Bd, Barr	TM102-4
XDS101	Socket, Lamp	TS136-2FS
XDS102	Socket, Lamp	TS136-1FS
XF101 XK101	Fuse holder Soc, Rel	FH105 TS101

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
	A4949 Assembly, Board, PC Rect	
A101CR1 thru A101CR6	Rect, Scond, Dev	DD140
A101CR7	Bridge, 3 Phase	DD129
A101R1	Resistor, Fixed WW 20W	RW110-3
A101R2	Resistor, Fixed, WW 20W	RW110-7
	A-4875 Assembly, Board, PC Zener	
A102CR1	Scond, Dev, Dio	1N2846A
A102CR2	Same as A103CR1	
A102R1	Resistor, Fixed, Comp	RC42GF274J
A102R2	Resistor, Fixed, Comp	RC42GF124J
A102R3	Resistor, Fixed, WW 25W	RW111-33
A102R4	Same as A103R3	
A102R5	Resistor, Fixed, WW 50W	RW105-32
A102R6	Resistor, Fxd, WW 50W	RW105-35
A102R7	Same as A103R6	
A102R8	Resistor, Fixed, Comp	RC42GF101J
A102R9	Same as A103R8	


220
230
208
0
0
230
220 208
R104
10W
3K
DS102
FRONT
B101
REAR
B102
M
M
1 2 3 4
TB101
F101
1/2A
K101
K102
L1 L2 L3
6
3
1
2
7
8
MAIN POWER
CB 101
J101
F G D E B A I
Ø Ø Ø
1 2 3

T101

30 0 208 220 230 0 220 208

8 10 9

Ø3 Ø2 Ø1

CR6 CR5 CR4 CR3 CR2 CR1

R1 20W 5Ω

5 6 7

CR7 AC AC AC + -

DD129

R2 50Ω 20W

1.5 - 1.5 +

L102 5H

C102 4 4KV

F101 1/2A

K102

A102 (A4375)

5 3

R3 10K 25W

R5 15K 50W

R4 10K 25W

R6 30K 50W

R9 100 2W

CR2 IN2846A

R8 100 2W

CR1 IN2846A

4

R2 120K 2W

R1 270K 2W

R7 30K 50W

6 7 1 2

1.5KV

DS101 MAIN POWER

R105 10W 3K

MAIN POWER CB 101

A I H C J K L

Ø 3

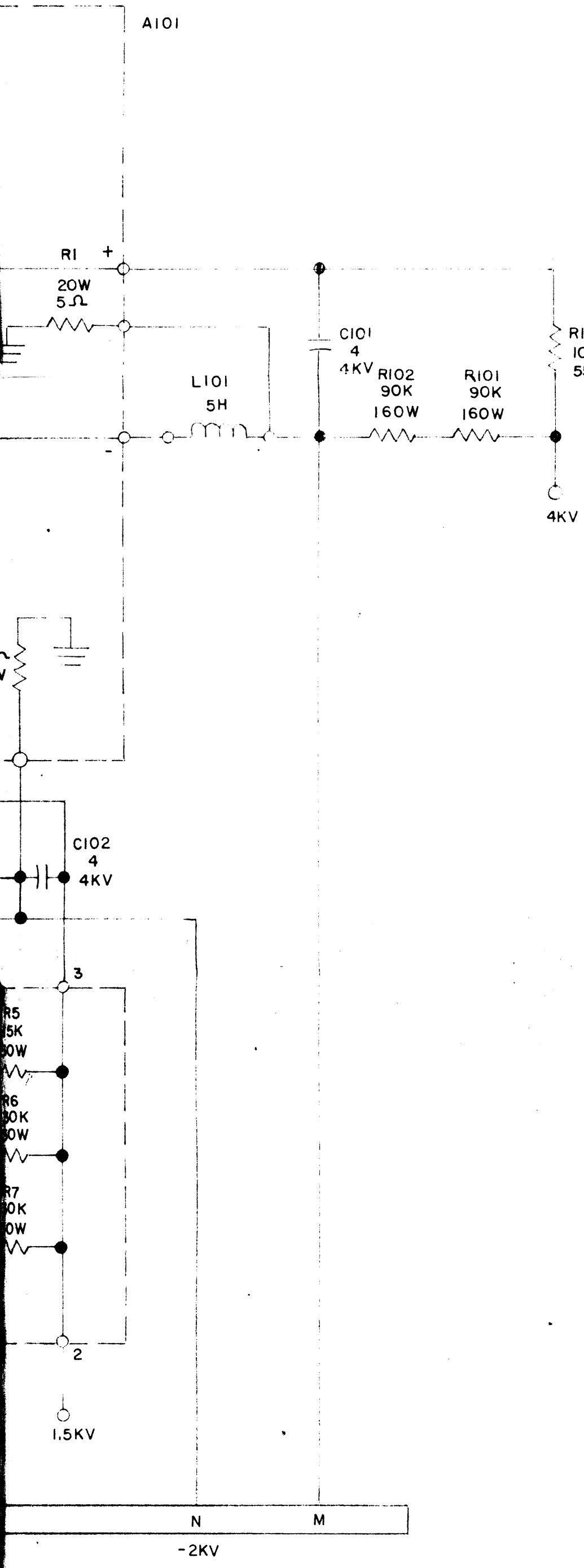
3 | 2 | 1

REVISIONS							
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	DATE	APPROVED

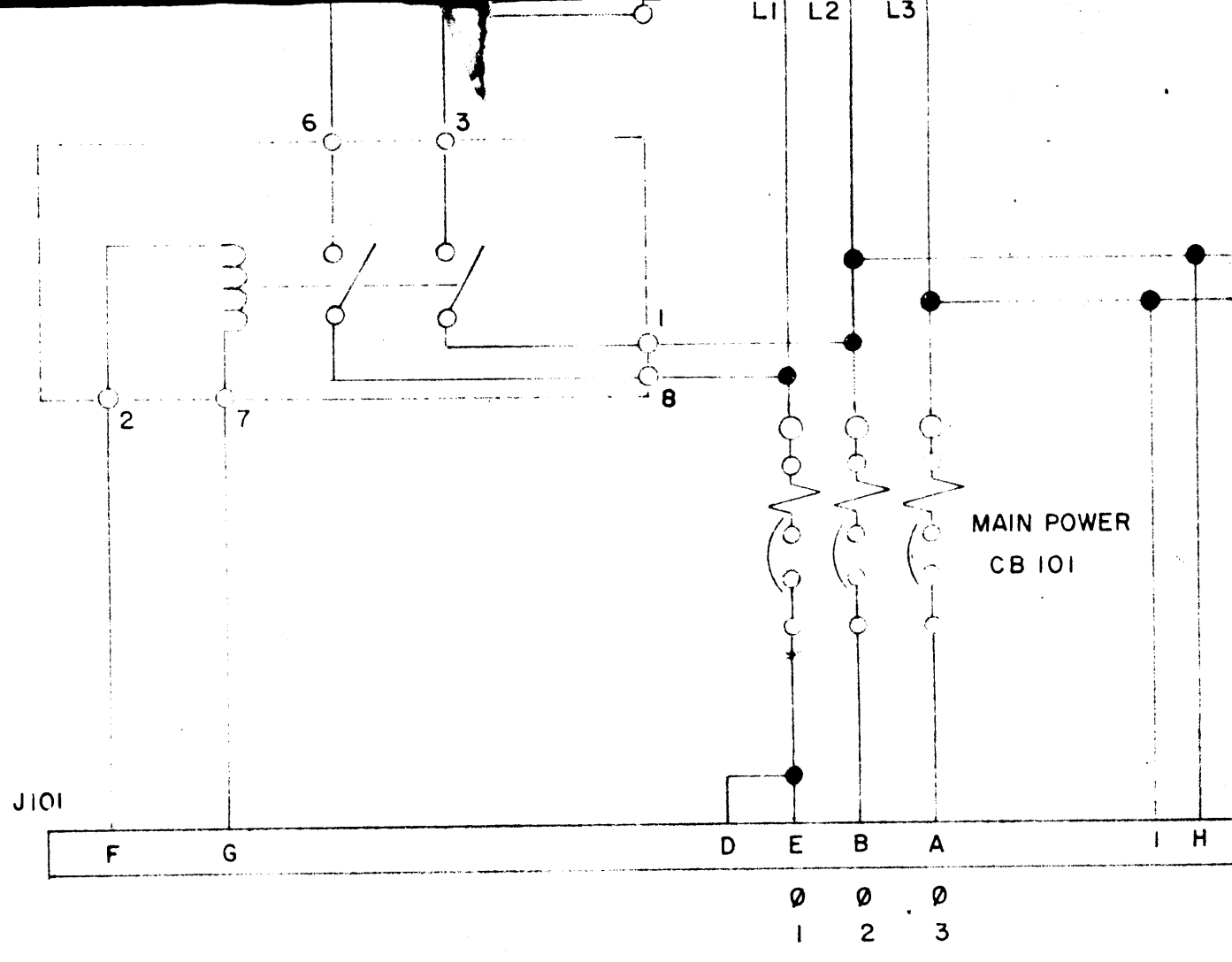
D

C

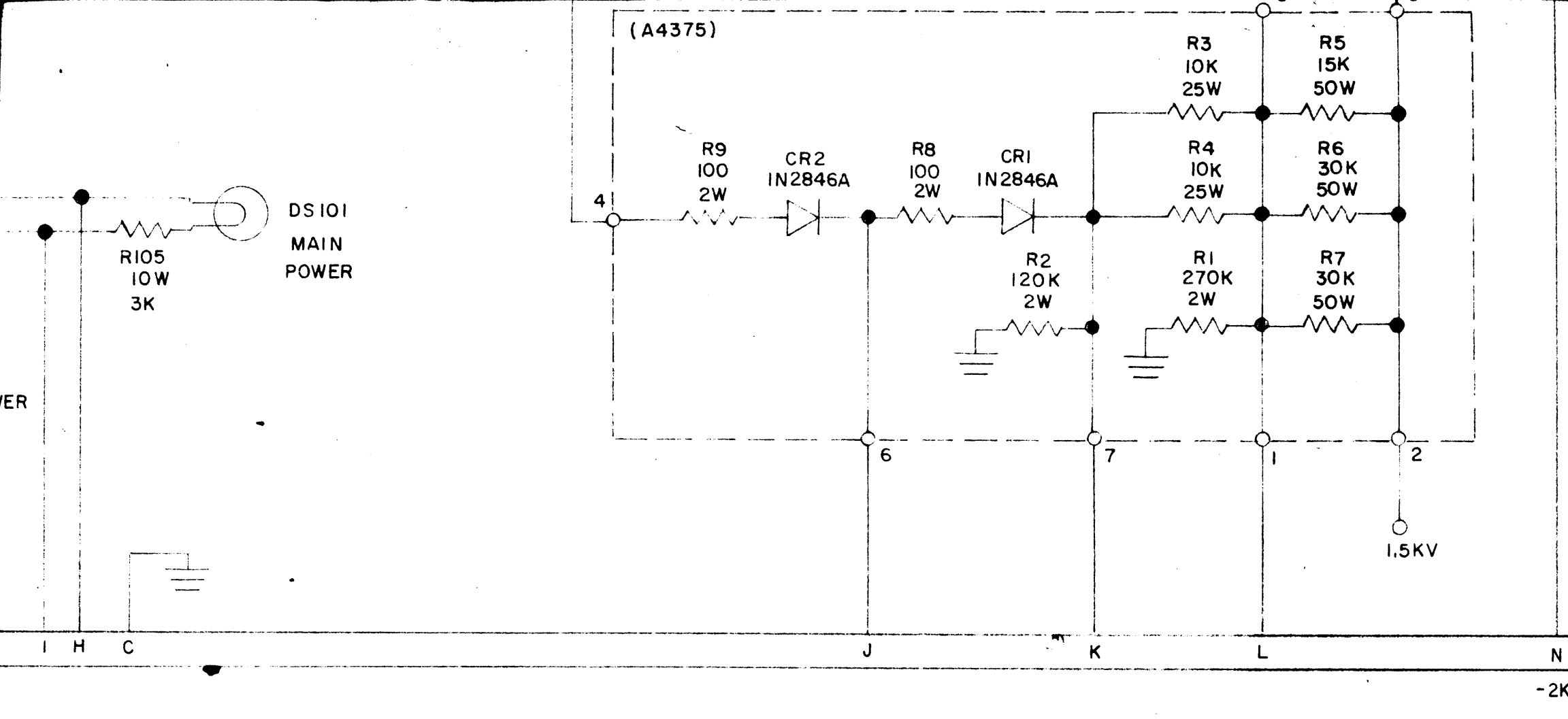
B



LAST SYMBOL			MISSING SYMBOL
A101	A102		
CR7	R9	B102	
R2	CR2	C102	
		CB101	
		DS102	
		F101	
		J101	
		K102	
		L102	
		R105	
		TB101	
		T101	



8 7 6



AP154

QTY / UNIT	MODEL USED ON	ASS'Y NO.

APPLICATION

	CODE	

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UNLESS OTHE
DIMENSIONS
AND INCLUDE C
OR PLATI

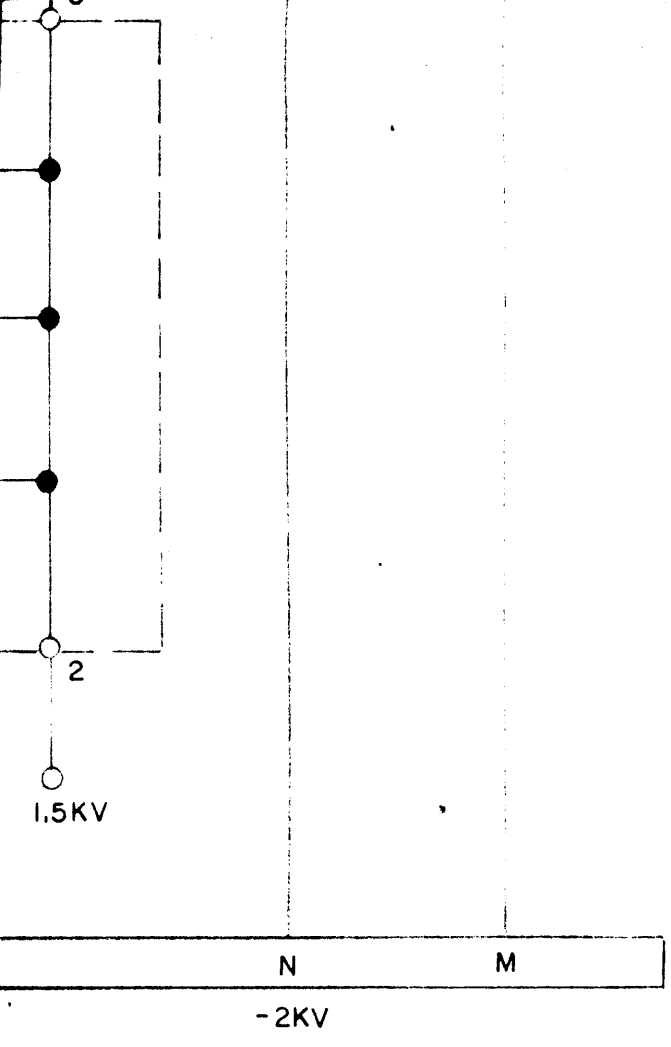
TOLER

DECIMALS
.X ± 05
.XX ± 01
.XXX ± .005

MATERIAL

FINISH

5 4 3



LAST SYMBOL			MISSING SYMBOL
A101	A102		
CR7	R9	B102	
R2	CR2	C102	
		CB101	
		DS102	
		F101	
		J101	
		K102	
		L102	
		R105	
		TB101	
		T101	

B

A

QTY. REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	FINAL APPROVAL	DATE
	MECH. DES.	DATE
TOLERANCES ON DECIMALS: .X ± 05, .XX ± 01, .XXX ± .005 FRACTIONS: ± 1/64 ANGLES: ± 0° -30'	ELECT. DES.	DATE
	CHECKED	DATE
	DRAWN	DATE
MATERIAL		
FINISH		

THE TECHNICAL MATERIEL CORP.
MAMARONECK, NEW YORK

Figure 7-2. Schematic Diagram, High Voltage Power Supply AP154

7-5/7-6

3 2 1