

Western Electric Company

No. 124-E AMPLIFIER

COMMERCIAL PRODUCTS APPARATUS REFERENCE SHEET

NO	I-30
AMPLIFIER	
124E	

4-15-41

GENERAL

This is a general purpose power amplifier for use when a gain control is required. It replaces the 94D Amplifier.

ELECTRICAL CHARACTERISTICS

Gain (W.E. Tubes)*	These depend on the input strapping used.
Source Impedance)	See individual arrangements below.
Internal	
Input Impedance)	
Gain Control	38 db in 2 db steps
Load Impedance	1-1200 ohms Nominal load impedances - 600, 150, 30, 16, 7.5 or 1.75 ohms See strapping data on schematic
Internal Output Impedance	3/4 of nominal load impedance
Output Power	12 watts, 2.0% total harmonics at 400 cycles into nominal load impedance May be reconnected for 20 watts with 5% harmonic content
Output Noise	Unweighted, -37 db relative to .001 watt
Maximum Input	Depends on input strapping used. See individual arrangements below.
Power Supply	105-125 volts, 50-60 cycles Using 12 watt output, 1.1 amperes, 105 watts Using 20 watt output, 1.25 amperes, 125 watts Fused with 1.25 amp. Buss Fustat on chassis Power switch furnished

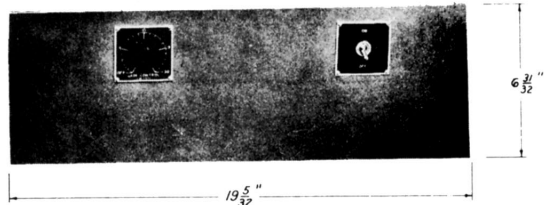
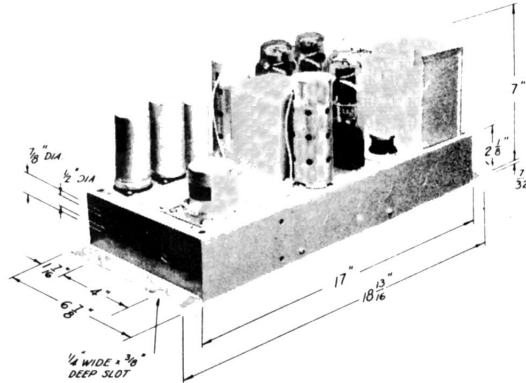
*Gain 0.7 db less with RCA tubes

EQUIPMENT CHARACTERISTICS

Dimensions	See photograph.
Weight	20 pounds, approx.
Vacuum Tubes	W.E. or R.C.A. 2-348A or 2-6J7 or 6J7G 2-350B or 2-6L6 or 6L6G 1-274B or 1-5T4 or 5U4G
Finish	Chassis, Aluminum Lacquer Mat, Black enamel - Code 124E-3 Aluminum Gray - Code 124E-15

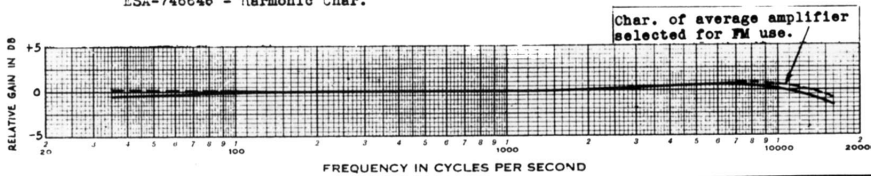
REFERENCES

25X-675954 - Assembly	Photographs	92119
ESX-676195 - Schematic		87961
ESX-676196 - Wiring Diagram		
ESa-746646 - Harmonic Char.		

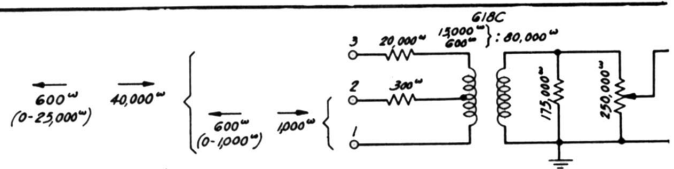


Connections - All external connections are normally made to terminals under the chassis, and knockouts are provided in the ends of the chassis to admit the wires. Additional knockouts are provided in the sides of the chassis where sockets may be installed if plug and socket connections are desired. Plugs and sockets which may be used are as follows:

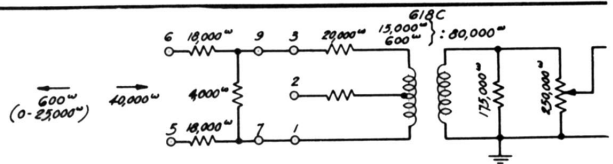
- Connectors to mount on chassis:
- For Input Circuit - Amphenol PC4F Compact Chassis Connector
 - For Output Circuit - Amphenol PC3F Compact Chassis Connector
 - For Power Circuit - H&H #754 Flush Receptacle
- Connectors to use on cords:
- For Input Circuit - Amphenol MC4M Microphone Connector
 - For Output Circuit - Amphenol MC3M Microphone Connector
 - For Power Circuit - H&H MB Cap



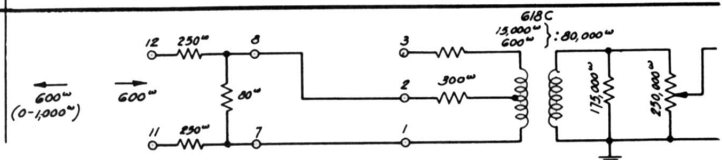
124E Amplifier - Input Arrangement #1
Gain 30 db - Bridging Input - Terminals 1 & 3
 63 db - High Gain Input - Terminals 1 & 2
Measured between nominal impedances
Gain Control 38 db in 2 db steps
Maximum Input 25V. single freq. - Bridging Input
 5V. single freq. - High Gain Input
Use General purpose where gain control is desired.
 Replaces 94D Amplifier.



124E Amplifier - Input Arrangement #2
Gain 30 db Measured between nominal impedances
Gain Control 38 db in 2 db steps
Maximum Input 100V. single freq.
Use Same as for Input Arrangement #1 when higher input levels are available.



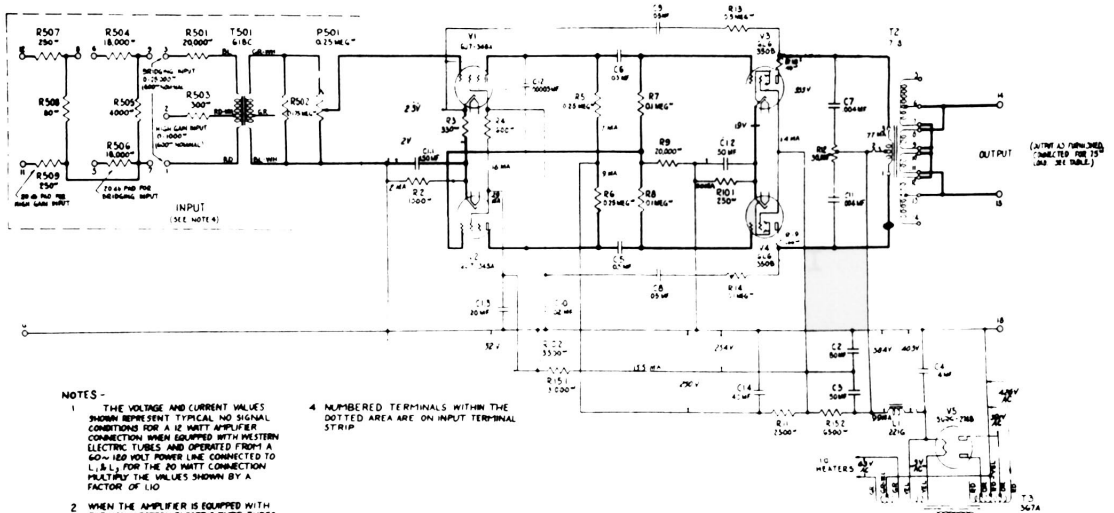
124E Amplifier - Input Arrangement #3
Gain 43 db Measured between nominal impedances
Gain Control 38 db in 2 db steps
Maximum Input 10V Single Freq.
Use Same as for Input Arrangement #1 when higher input levels are available and where a 600 ohm internal input impedance is desired.



OVER

No. 124-E AMPLIFIER

SCHEMATIC

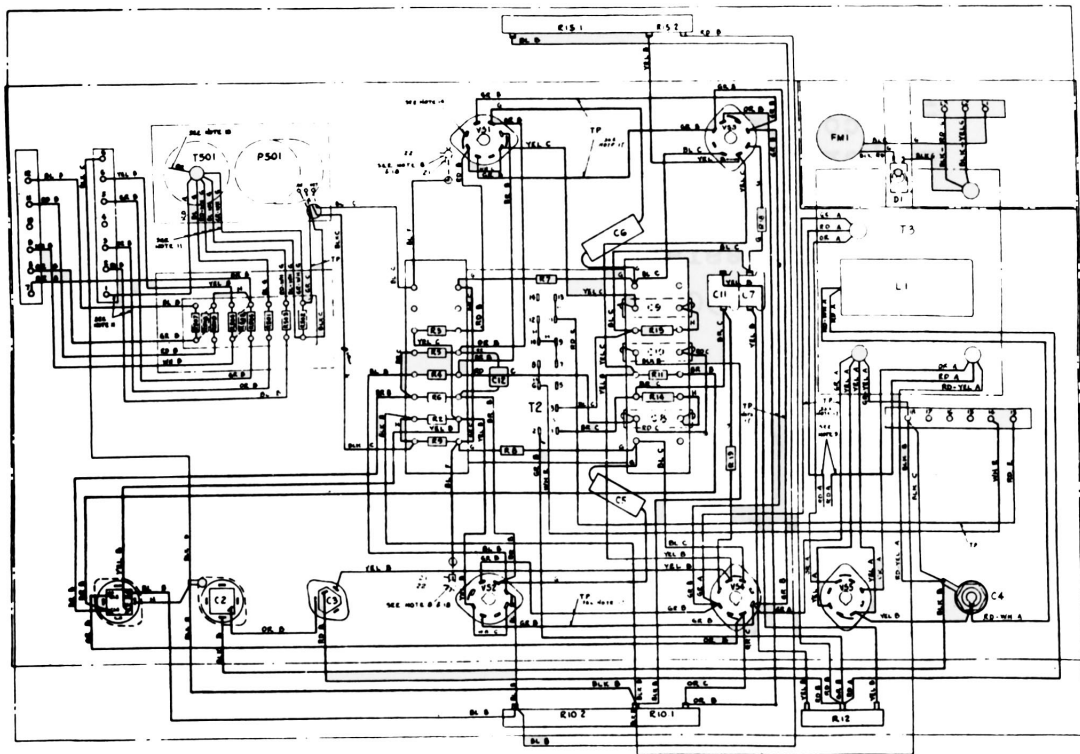


- NOTES -
1. THE VOLTAGE AND CURRENT VALUES SHOWN REPRESENT TYPICAL AND SIGNAL CONDITIONS FOR A 12 WATT AMPLIFIER CONNECTION WHEN EQUIPPED WITH WESTERN ELECTRIC TUBES AND OPERATED FROM A 60-100 HERTZ POWER LINE CONNECTED TO L. 1. 1. 1. FOR THE 10 WATT CONNECTION MULTIPLY THE VALUES SHOWN BY A FACTOR OF 1.40
 2. WHEN THE AMPLIFIER IS EQUIPPED WITH THE NON-WESTERN ELECTRIC TYPE TUBES INDICATED (INCLUDING 500MG RECTIFIER) MULTIPLY THE VALUES SHOWN BY FACTORS OF 1.07 OR 1.05 FOR THE 12 WATT CONNECTION RESPECTIVELY (EXCEPTION - THE G.L.G. SCREEN CURRENT IS APPROXIMATELY 150 MA IN EITHER CASE)
 3. THE VALUES OF CURRENT, VOLTAGE AND RESISTANCE SHOWN ARE AVERAGE VALUES. IN SPECIFIC INSTANCES THEY MAY BE AT VARIANCE WITH VACUUM TUBE HAND BOOK DATA AND ARE INTENDED ONLY AS AN AID IN SERVICING THE AMPLIFIER. READINGS SHOULD BE TAKEN WITH THE EQUIPMENT OF A "VOLT OHMMETER" WHOSE RESISTANCE IS AT LEAST 1000 OHMS PER VOLT.

4. NUMBERED TERMINALS WITHIN THE DOTTED AREA ARE ON INPUT TERMINAL STRIP

INPUT TRANSFORMER TERMINATION (Ω)

WATTAGE	100% TONE	50% TONE	25% TONE	12.5% TONE
12	14.7	14.7	14.7	14.7
10	14.7	14.7	14.7	14.7
8	14.7	14.7	14.7	14.7
6	14.7	14.7	14.7	14.7
4	14.7	14.7	14.7	14.7
2	14.7	14.7	14.7	14.7



- NOTES:
1. "A" WIRE IS USED THROUGHOUT TO SPEAKER IN CABLE
 2. "B" WIRE IS USED FOR TONE IN CABLE
 3. "C" WIRE IS USED FOR TONE IN CABLE
 4. "D" WIRE IS USED FOR TONE IN CABLE
 5. "E" WIRE IS USED FOR TONE IN CABLE
 6. "F" WIRE IS USED FOR TONE IN CABLE
 7. "G" WIRE IS USED FOR TONE IN CABLE
 8. "H" WIRE IS USED FOR TONE IN CABLE
 9. "I" WIRE IS USED FOR TONE IN CABLE
 10. "J" WIRE IS USED FOR TONE IN CABLE
 11. THESE WIRE WELDS ARE NOT USED UNLESS THEY ARE CUT SHORT AND TAPPED
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Apparatus List

<u>Desig. No.</u>	<u>Apparatus</u>
	International Resistance Company Type BT1/2 Resistors (Continued)
R5, R6	0.25 Megohm
R7, R8	0.1 Megohm
R9, R501	20,000 Ohms
R11	2,500 Ohms
R502	.175 Megohm
R503	300 Ohms
R504, R506	18,000 Ohms
R505	4,000 Ohms
R507, R509	250 Ohms
R10	Type MW4 3750 Ohm resistor with tap at 250 Ohms ± 5%
R12	Type EM 30000 Ohm resistor with center tap, type "C" coating, type 2 terminals, 2 centering washers & 2 mica washers.
R13	Type BT1 Resistor 0.5 megohm ± 5%
R14	Type Bt1 Resistor 0.1 megohm ± 5 %
R15	Type MW 19,500 Ohm resistor with tap at 6500 Ohms.
R18, R19	Type BW1/2 100 Ohm resistor.
R508	Type BW1/2 80 Ohm resistor.
F1	Bussmann Mfg. Co. #9012 1.25 Amp. Fuse.
Shields for V1 & V2	Aluminum Goods Mfg. Co. #01758 Shield, without flutes, and #01114 cap. 02352 tube shield base.
VS1, VS2, VS3 VS4 VS5	KS-10067 vacuum tube socket (Eby type 69-PG-1-E)

All apparatus is Western Electric unless otherwise
specified.

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ESL-680390, Issue 1
Sheet 2 of 2 Sheets

Western Electric Company

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Apparatus List

Desig.No.

Apparatus

Western Electric Apparatus

- T101 618C Input Transformer
T2 171C Output Transformer
T3 367A Transformer
L1 221G Retard Coil
D1 Switch per ESO-676800-11
P501 Potentometer per ESO-676028-3

Mallory Condensers

- C1 Type FP 4 section. Insulating mounting plate
(40 mf 450V. Δ)(50 mf 150V. \square)(20 mf 150V Δ)
(150 mf 25V.). 1-3/8" dia. can.
C2 Type FP 80 mf 450V. 1-3/8" dia. can with in-
sulating mounting plate & #A-93280-2 insulating
tube.
C3 Type FP 50 mf 350V. 1" dia. can with insu-
lating mounting plate & #A-93280-2 insulating
tube.

Cornell-Dubilier Condensers

- C4 Cat. # TLA-6040 4 mf 600V. with alum. fin. &
insulating cover
C5,C6 Cat. # TVC-6S5-6 (.05 mf 600V. Insulating sleeve,
Mounting strap).
C7,C11 Cat. # 4-6D4 (.004 mf)
C8,C9 Cat. # TVC-6S5-4 (.05 mf 600V. Insulating sleeve,
No mounting strap).
C10 Cat. # TVC-6S2-4 (.02 mf 600V. Insulating sleeve,
No mounting strap).
C12 Cat. # 5W-5Q5 (.00005 mf)

International Resistance Company

Type BT1/2 Resistors

- R2 1000 Ohms \pm 5%
R3 330 Ohms \pm 5%
R4 1600 Ohms \pm 5%

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ESL-680390, Issue
Sheet 1 of 2 Sheets