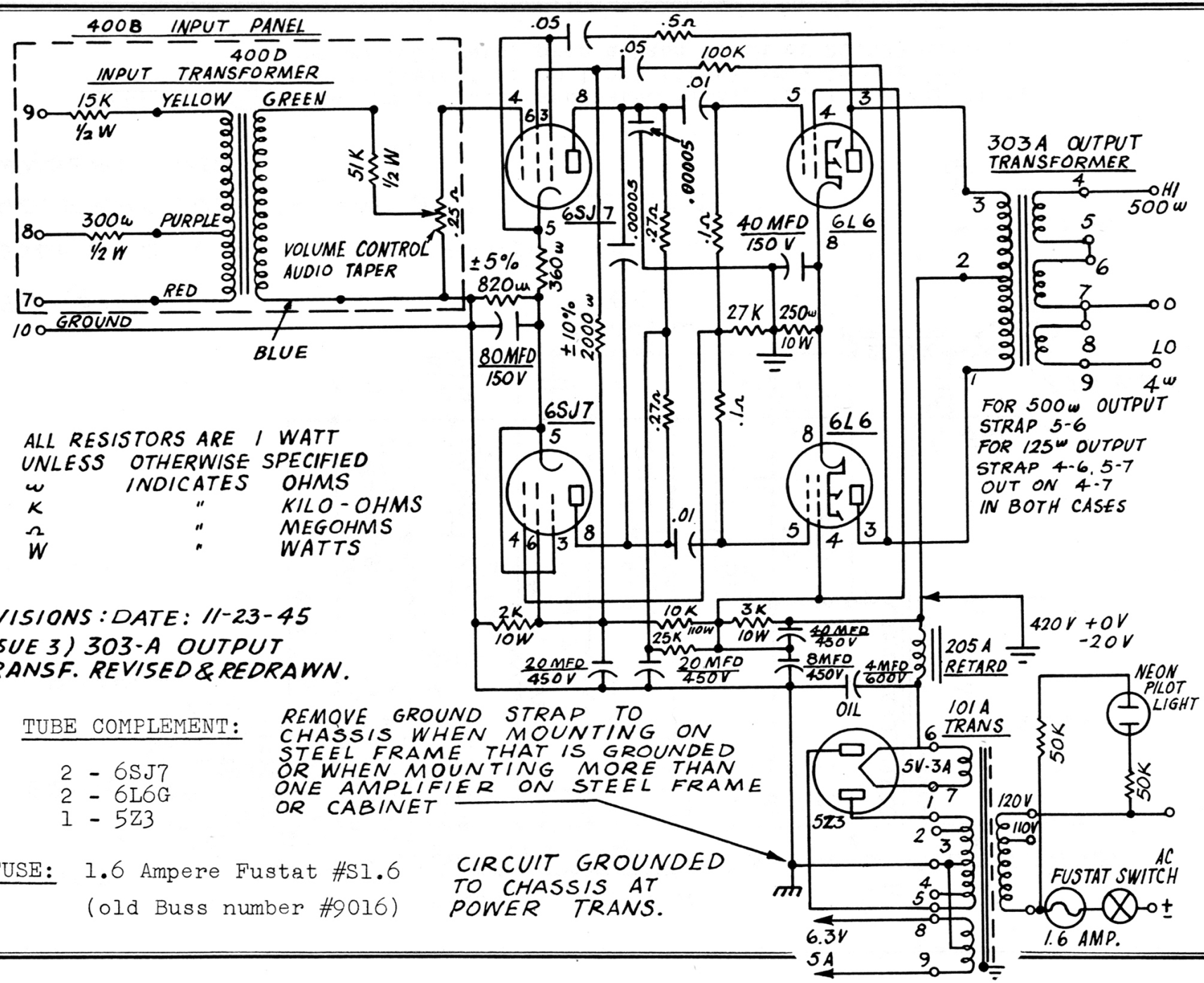
MODEL 110-A

LANGEVIN MFG. CORP.



ALL RESISTORS ARE 1 WATT
UNLESS OTHERWISE SPECIFIED

ω	INDICATES	OHMS
K	"	KILO-OHMS
Ω	"	MEGOHMS
W	"	WATTS

REVISIONS: DATE: 11-23-45
(ISSUE 3) 303-A OUTPUT
TRANSF. REVISED & REDRAWN.

TUBE COMPLEMENT:

2 - 6SJ7
2 - 6L6G
1 - 5Z3

FUSE: 1.6 Ampere Fustat #S1.6
(old Buss number #9016)

REMOVE GROUND STRAP TO CHASSIS WHEN MOUNTING ON STEEL FRAME THAT IS GROUNDED OR WHEN MOUNTING MORE THAN ONE AMPLIFIER ON STEEL FRAME OR CABINET

CIRCUIT GROUNDED TO CHASSIS AT POWER TRANS.

MODEL 110-A

TYPE: Two stage, medium gain, 20 Watt power amplifier for use in sound systems or as a monitor amplifier with speech input equipment.

TYPICAL ELECTRICAL CHARACTERISTICS:

Gain: From 600 ohm source - approximately 43 db on bridging input connection (7-9). Approximately 63 db on the high gain connections (7-8).

Operates From: Nominal source impedance of 600 ohms. High gain connections 0-1000 ohms working range. Bridging connections 0-25,000 ohms working range.

Operates Into: Load impedance of 500, 125, or 4 ohms.

Output Power: Approximately 20 Watts +43 V.U. with less than 5% R.M.S. total harmonic distortion at 400 Cycle single frequency. Approximately 15 Watts at less than 5% R.M.S. total harmonic distortion at 400 Cycle frequency available with reduced plate voltage to prolong tube life.

Output Noise: Unweighted, 70 db below +43 V.U. (27 db below .001 Watts).

FREQUENCY CHARACTERISTICS: Production run ± .5 to 1 db over the range 30-15,000 Cycles.

Volume Control: .250,000 ohm gain control in secondary of input transformer with 40 db range effective on both inputs intended as a means of infrequent gain adjustment rather than continuous control of levels.

Power Consumption: 150 V. A. maximum at 120 Volts.

EXTERNAL CONNECTIONS:

TERMINAL NUMBERS	TERMINAL CONNECTIONS
7-8	600 ohms nominal. High gain, Working Range 0-1000 Ohms.
7-9	25.000 ohms nominal. Bridging connection for 600 ohms nominal source impedance. Working Range 0-25,000 Ohms.
10	Ground.
0-LO (Output Connections)	4 ohms nominal load impedance (Range 1-8 ohms)
0-HI (Output Connections)	500 ohms nominal load impedance (Range 250-1000 Ohms). 125 Ohms by changing strap on output transformer.

NOTES:

1. On unbalanced INPUT circuits, the grounded side should be connected to Terminal #7.
2. For 20 Watt Power Output, use taps #1 and #5 on the 101-A Power Transformer.
3. For 15 Watt Power Output, use taps #2 and #4 on the 101-A Power Transformer.
4. For AC Line Voltages, 105-115 Volts, use the 110 Volt tap on the Power Transformer.
5. For AC Line Voltages, 115-125 Volts, use the 120 Volt tap on the Power Transformer.
6. When mounting amplifier to a grounded steel frame, or when mounting more than one amplifier on a steel frame or cabinet, remove and tape the circuit ground from the power transformer mounting lug. This is to prevent circulating ground loops that bring up the noise level.

MODEL 110-C

TYPE: Three stage, dual input, high gain at low impedance input, medium gain at high impedance input, 20 Watt power amplifier for use in program distribution systems from telephone lines, and for announcements from a low impedance microphone.

TYPICAL ELECTRICAL CHARACTERISTICS:

Gain: Approximately 102 db from low impedance source 30 and 250 ohms. Approximately 61 db from 600 ohm source. Approximately 42 db bridging 600 ohm nominal source.

Operates From: Nominal source impedance of 30 or 250 ohms on the high gain connections, 0-1000 ohms on the medium gain, and 0-25,000 ohms on the bridging connections.

Operates Into: Load impedance of 500, 125, or 4 ohms.

Output Power: Approximately 20 Watts +43 V.U. with less than 5% R.M.S. total harmonic distortion at 400 Cycle single frequency. Approximately 15 Watts at less than 5% R.M.S. total harmonic distortion at 400 Cycle single frequency available with reduced plate voltage to prolong tube life.

Output Noise: 60 db below +43 V.U. (17 db below .001 Watt) Measurement made with 1612 Tube or selected 6L7 Tube.

FREQUENCY CHARACTERISTIC: Production run *.75 to 1.5 db over the range 30-15,000 Cycles.

Volume Control: Medium gain input 250,000 ohm gain control in secondary of input transformer with 40 db range, intended as a means of infrequent gain adjustment rather than continuous control of levels. (See Note 6).

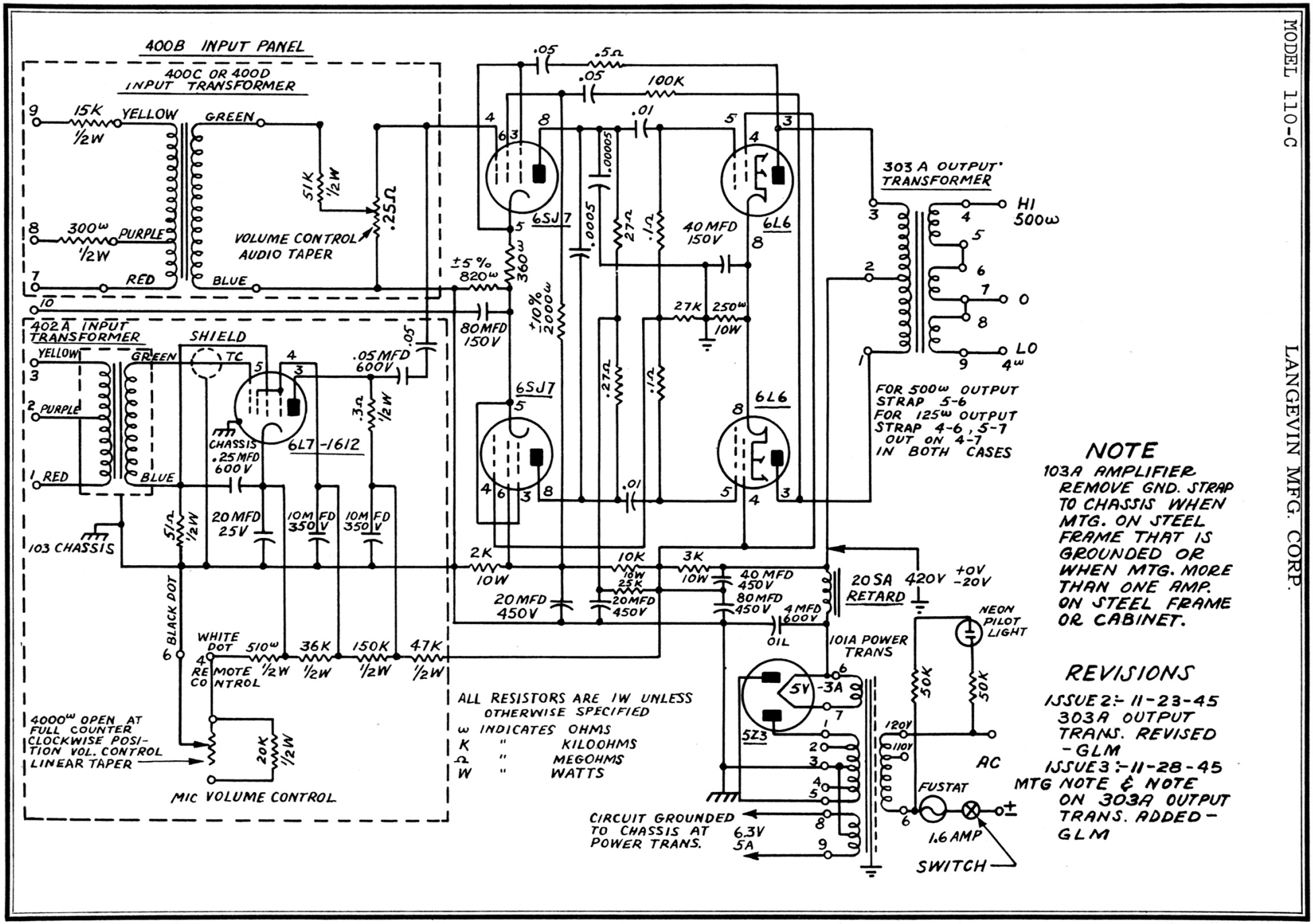
Power Consumption: 150 V. A. maximum at 120 Volts.

EXTERNAL CONNECTIONS:

TERMINAL NUMBERS	TERMINAL CONNECTIONS	
1-2	30 Ohms nominal. Working Range 10-60 Ohms (See Note 1.)	High Gain Input
1-3	120 Ohms nominal. Working Range 60-250 Ohms (See Note 1.)	
4	Remote Volume Control	
6	Ground return for Remote Volume Control	
7-8	600 Ohms nominal. High Gain. Working Range 0-1000 Ohms.	Medium Gain Input
7-9	25,000 Ohms nominal. Bridging connection for 600 Ohm nominal source impedance. Working Range 0-25,000 Ohms.	
10	Ground	
0-LO (output connections)	4 Ohms nominal load impedance (Range 1-8 Ohms)	
0-HI (output connections)	500 Ohms nominal load impedance (Range 250-1000 Ohms 125 Ohms by changing strap on output transformer) For 500 Ohms output, strap 5-6 For 125 Ohms output, strap 4-6, 5-7 Out on 4-7 in both cases.	

LANGEVIN MFG. CORP.

MODEL 110-A
MODEL 110-C



NOTE

103A AMPLIFIER REMOVE GND. STRAP TO CHASSIS WHEN MTG. ON STEEL FRAME THAT IS GROUNDED OR WHEN MTG. MORE THAN ONE AMP. ON STEEL FRAME OR CABINET.

REVISIONS

ISSUE 2:- 11-23-45
303A OUTPUT TRANS. REVISED - GLM
ISSUE 3:- 11-28-45
MTG NOTE & NOTE ON 303A OUTPUT TRANS. ADDED - GLM

110-C AMPLIFIER

NOTES:

1. On unbalanced INPUT circuits, ground Terminals #1 or #7, OR BOTH, to Terminal #10 as required.
2. For 20 Watt Power Output, use taps #1 and #5 on the 101-A Power Transformer.
3. For 15 Watt Power Output, use taps #2 and #4 on the 101-A Power Transformer.
4. For AC Line Voltages 105-115 Volts, use the 110 Volt tap on the Power Transformer.
5. For AC Line Voltages 115-125 Volts, use the 120 Volt tap on the Power Transformer.
6. Remote Volume Control - The Volume Control on the amplifier may be moved to a remote location or may be paralleled by a 4000 ohm linear taper potentiometer with an open on the full counter-clockwise position, and the entire unit shunted with a 20,000 ohm resistor as shown in the Schematic Diagram for the 103-A Amplifier. Volume Control NOTE in use, should be left in the OFF position.
7. When mounting amplifier to a grounded steel frame, or when mounting more than one amplifier on a steel frame or cabinet, remove and tape the circuit ground from the power transformer mounting lug. This is to prevent circulating ground loops that bring up the noise level.

CAUTION - Due to the extended frequency range and high gain in this amplifier, careful shielding and grounding of all Input Circuits and proper separation from Output Circuits must be observed. Output connections and Remote Volume Control connections may be run in twisted pairs.

TUBE COMPLEMENT: 1 - 1612 OR 6L7 OR 6L7G; 2 - 6L6G; 2 - 6SJ7; 1 - 5Z3

FUSE: 1.6 Ampere Fustat #S1.6 (Old Buss #9016)

LANGEVIN MFG. CORP. MODEL 110-C