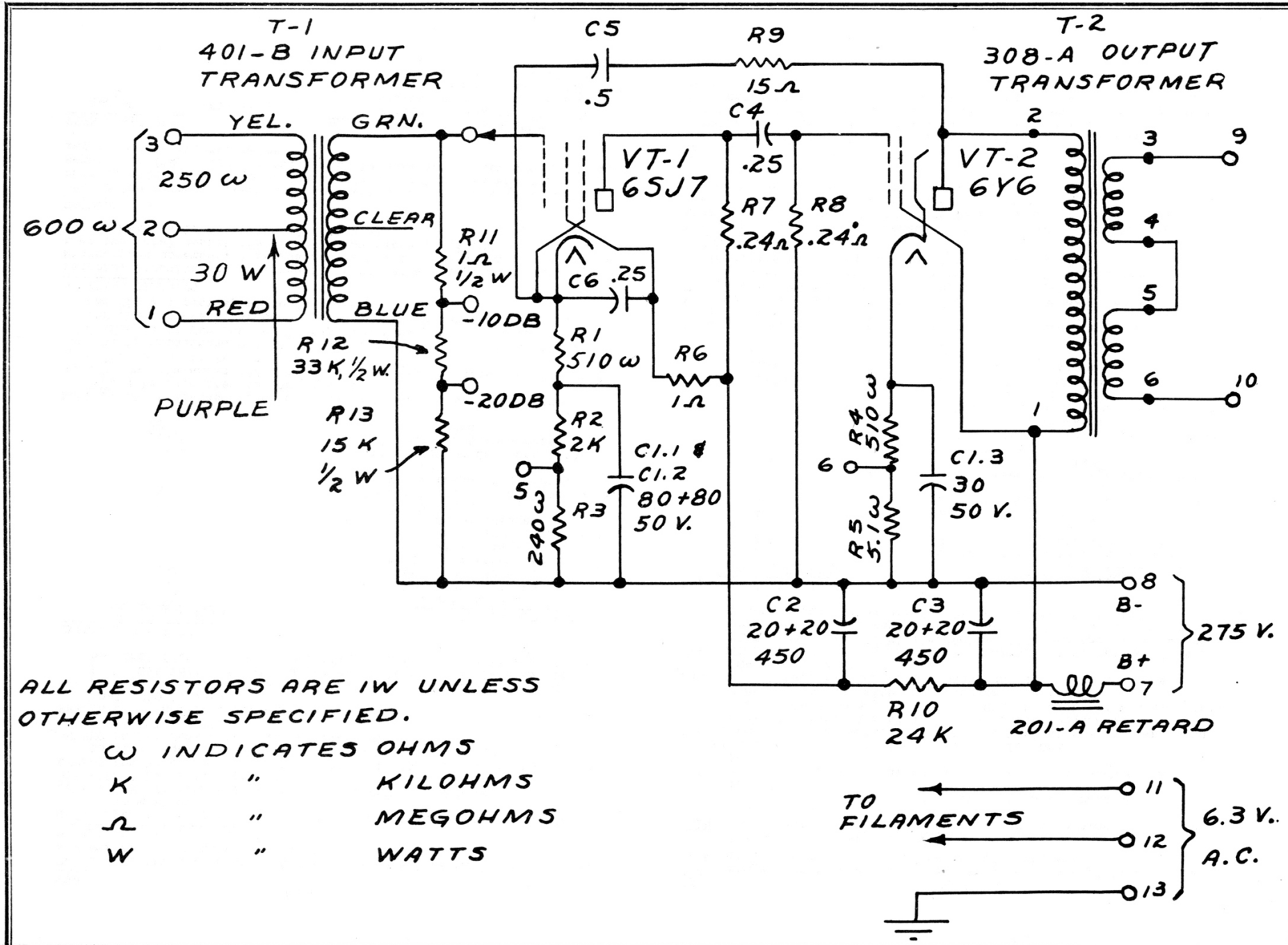


ALL RESISTORS ARE 1W UNLESS OTHERWISE SPECIFIED.

ω INDICATES OHMS
K " KILOHMS
Ω " MEGOHMS
W " WATTS

LANGEVIN MFG. CORP.

MODEL 102-A

MODEL 102-A

TYPE

Two stage, fixed gain amplifier for use as a line amplifier in sound systems or speech input eqyipment.

TYPICAL ELECTRICAL CHARACTERISTICTS

GAIN: Approximately 55 db with provision for decreasing to 45 db or 35 db maximum.
OPERATES FROM: Source impedance of 30, 250 or 600 Ohms.
OPERATES INTO: Load impedance of 150 or 600 Ohms.
OUTPUT POWER: Approximately 0.6 Watt (28 DBM) with less than 1% RMS total harmonic distortion at 400 Cycle single frequency.
OUTPUT NOISE: Unweighted, 85 db below 28 DBM (57 db below .001 Watt). SEE SPECIAL NOTE.
FREQUENCY CHARACTERISTICS: Production run 5 to 1 db over the range 30-15,000 Cycles.
ETERNAL POWER SUPPLY REQUIREMENTS: FILAMENT 6.3 Volts, 0.75 Amperes. PLATE 275 Volts, 31 Milliamperes. (Filament and Plate may be obtained from 201 series Rectifiers or from 101 series Amplifiers.

EXTERNAL CONNECTIONS

TERMINAL NUMBER	EXTERNAL CONNECTIONS
1-2	30 Ohm input (Note 1)
2-3	250 Ohm input (Note 2)
1-3	600 Ohm input (Note 1)
5	Plate Current Meter (positive) First Stage
6	Plate Current Meter (positive) Second Stage
7	B 275 Volts DC
8	B- 275 Volts DC and Plate Current Meter (negative) Circuit Ground
9-10	Output 150 or 600 Ohms (Note 3)
11-12	6.3 Volts AC 0.75 Amperes
13	Chassis Ground

NOTE 1: On unbalanced 30 or 600 Ohm INPUT circuits, the grounded side should be connected to Terminal #1.
NOTE 2: On unbalanced 250 Ohm INPUT circuits, the grounded side should be connected to Terminal #2.
NOTE 3: On unbalanced OUTPUT circuits, the grounded side should be connected to Terminal #10. Supplied strapped for 600 Ohms; for 150 Ohms remove strap on Output Transformer between Terminals #4 and #5, and restrap #3 to #5 and #4 to #6.

METERING CIRCUITS

Metering Circuits are designed for a percentage type meter with a 200 Microampere movement. A series resister should be added of such value that the total resistance of meter and resistor is 1000 Ohms. 100% on the meter will be at 75% of full scale.

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 may be run in twisted pairs.

TUBE COMPLEMENT

1-6SJ7 1-6V6 or 6V6GT

NOTE: Unweighted noise generated within a 102-A Amplifier is equivalent to an input signal of -112 DBM (db below .001 Watt) over a band width of 20,000 Cycles.

MODEL 102-B

TYPE

Three stage, electronic controlled variable gain amplifier for use as a microphone to line amplifier in sound systems.

TYPICAL ELECTRICAL CHARACTERISTICS

GAIN: Approximately 9 db with provision for decreasing to 8 db or 7 db maximum.
VOLUME CONTROL: IRC #9851-11362, 4000 Ohms (not furnished), approximately 40db range.
OPERATES FROM: Source impedance of 30 or 250 Ohms (-32DBM maximum input).
OPERATES INTO: Load impedance of 150 or 600 Ohms.
OUTPUT POWER: Approximately 0.6 watt (28DBM) with less than 1% total harmonic distortion at 400 cycle single frequency.
OUTPUT NOISE: Unweighted, 55db below 28 DBM (27db below .001 watt). Measurement made with 1612 Tube or selected 6L7 Tube.
FREQUENCY CHARACTERISTICS: Production run 1db over the range 30-15,000 Cycles.
EXTERNAL POWER SUPPLY REQUIREMENTS: FILAMENT 6.3 Volts 1.05 Amperes. PLATE 275 Volts, 32 Milliamperes. (Filament and Plate may be obtained from 201 series Rectifiers or from 101 series Amplifiers through an external voltage dropping resistor).

EXTERNAL CONNECTIONS

TERMINAL NUMBERS	EXTERNAL CONNECTIONS
1-2	30 Ohm input (Note 1) Range 10-60 Ohms
1-3	120 Ohm input (Note 1) Range 60-250 Ohms
4	Remote Volume Control
5	Plate Current Meter (positive) Second Stage
6	Plate Current Meter (positive) Third Stage
7	B 275 Volts DC
8	B 275 Volts DC, Plate Current Meter (negative), Remote Volume Control return lead, and Circuit Ground
9-10	Output 150 or 600 Ohms (Note 2)
11-12	6.3 Volts 1.05 Amperes
13	Chassis Ground

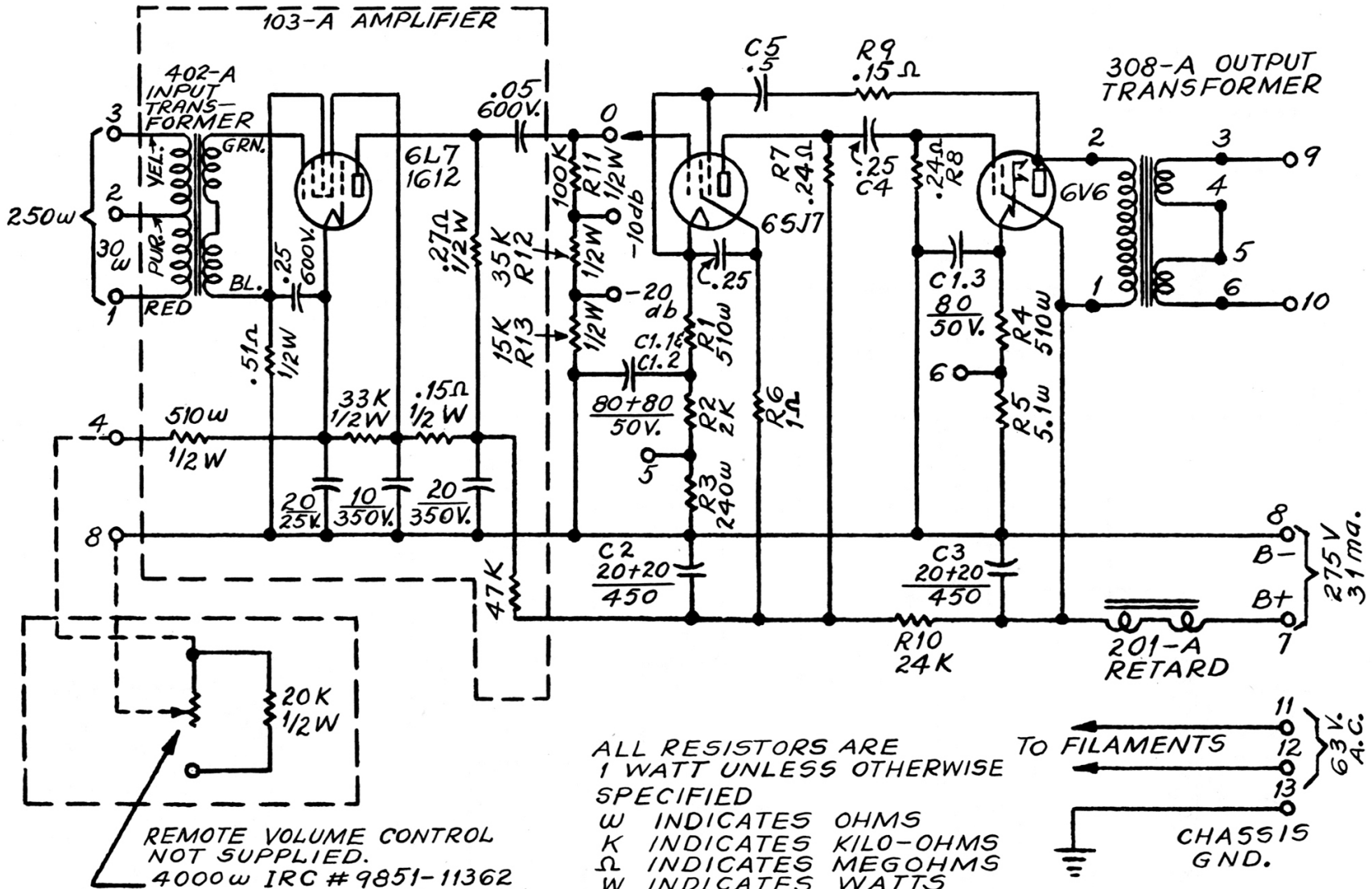
NOTE 1: On unbalanced IMPUT circuits, the grounded side should be connected to Terminal #1.
NOTE 2: On unbalanced OUTPUT circuits, the grounded side should be connected to Terminal #10. Supplied strapped for 600 Ohms. Remove strap on Output Transformer, for 150 Ohms, between Terminals 4 & 5, and restrap 3 to 5 and 4 to 6.

METERING CIRCUITS

Metering Circuits are designed for a percentage type meter with a 200 Microampere movement. A series resistor should be added of such value that the total resistance of meter and resistor is 1000 Ohms. 100% on the meter will be at 75% of full scale.

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.



ALL RESISTORS ARE 1 WATT UNLESS OTHERWISE SPECIFIED
w INDICATES OHMS
K INDICATES KILO-OHMS
Ω INDICATES MEGOHMS
W INDICATES WATTS

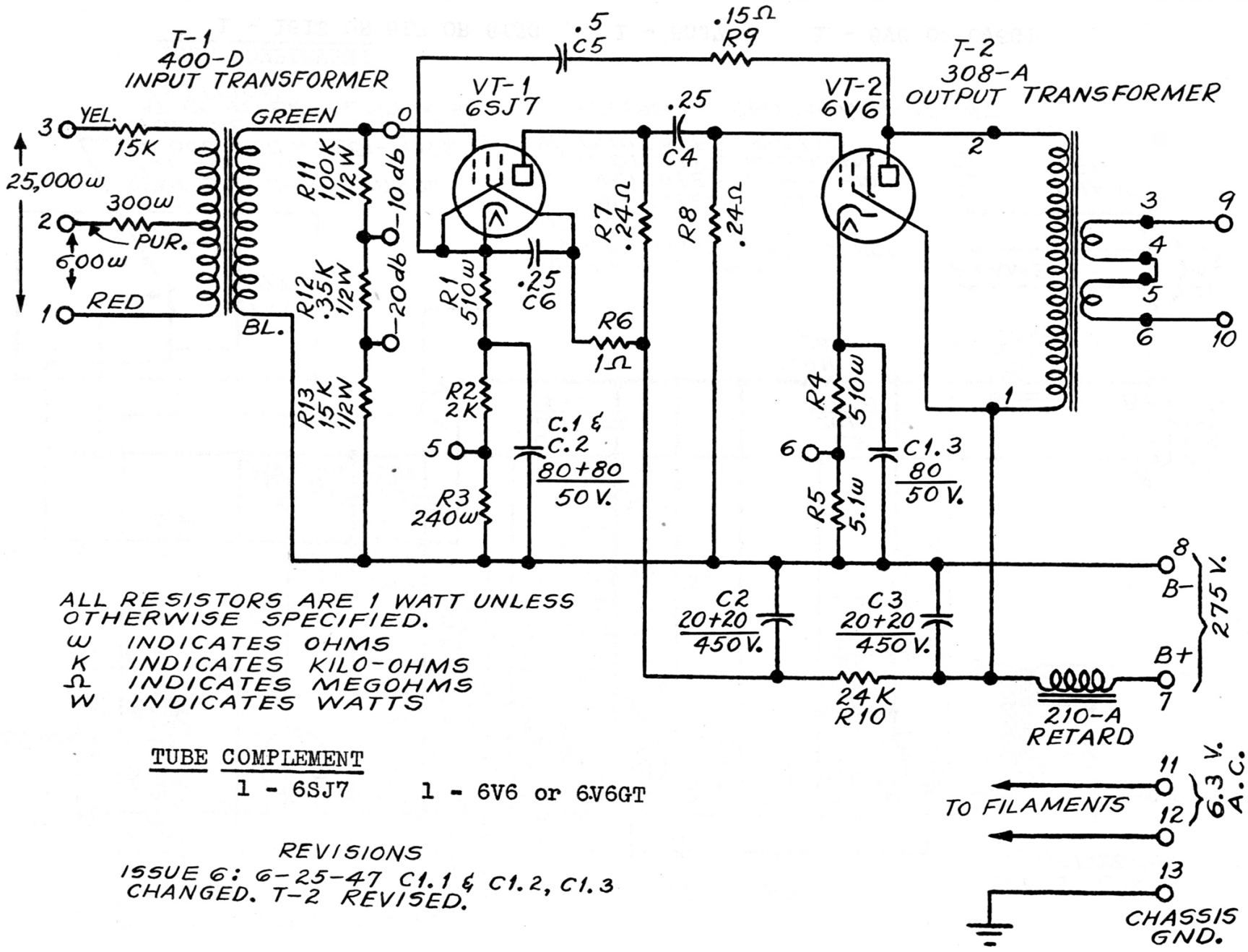
REVISED & REDRAWN 7-16-47

TUBE COMPLEMENT

1 - 1612 OR 6L7 OR 6L7G 1 - 6SJ7 1 - 6V6 OR 6V6GT

LANGEVIN MFG. CORP.

MODEL 102-B



ALL RESISTORS ARE 1 WATT UNLESS OTHERWISE SPECIFIED.

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

TUBE COMPLEMENT

1 - 6SJ7 1 - 6V6 or 6V6GT

REVISIONS

ISSUE 6: 6-25-47 C1.1 & C1.2, C1.3 CHANGED. T-2 REVISED.

TYPE

Two stage, fixed gain amplifier for use as a bridging or line amplifier in sound systems or speech input equipment.

TYPICAL ELECTRICAL CHARACTERISTICS

GAIN: Approximately 55db for the 600 Ohm non-bridging input and 3 db for the bridging input when operated from a 600 Ohm source with provision for decreasing the gain 10 or 20 db.

VOLUME CONTROL: IRC #25,000 Ohm "C" Taper (not supplied) may be used on the bridging input. This Control should be located as near as possible to the amplifier.

OPERATES FROM: Source impedance of 600 Ohms nominal impedance.

OPERATES INTO: Load impedance of 150 or 600 Ohms.

OUTPUT POWER: Approximately 0.6 watts (28 DBM) with less than 1% RMS total harmonic distortion at 400 Cycles single frequency.

OUTPUT NOISE: Unweighted, 85db below 28 DBM (57 db below .001 watt).

FREQUENCY CHARACTERISTIC: Production run 1 db over the range 30-15,000 Cycles.

EXTERNAL POWER SUPPLY REQUIREMENTS: FILAMENT 6.3 Volts, 0.75 amperes. PLATE 275 volts, 31 Milliamperes. (Filament and Plate may be obtained from the 201 series Rectifiers or from 101 series Amplifiers).

EXTERNAL CONNECTIONS

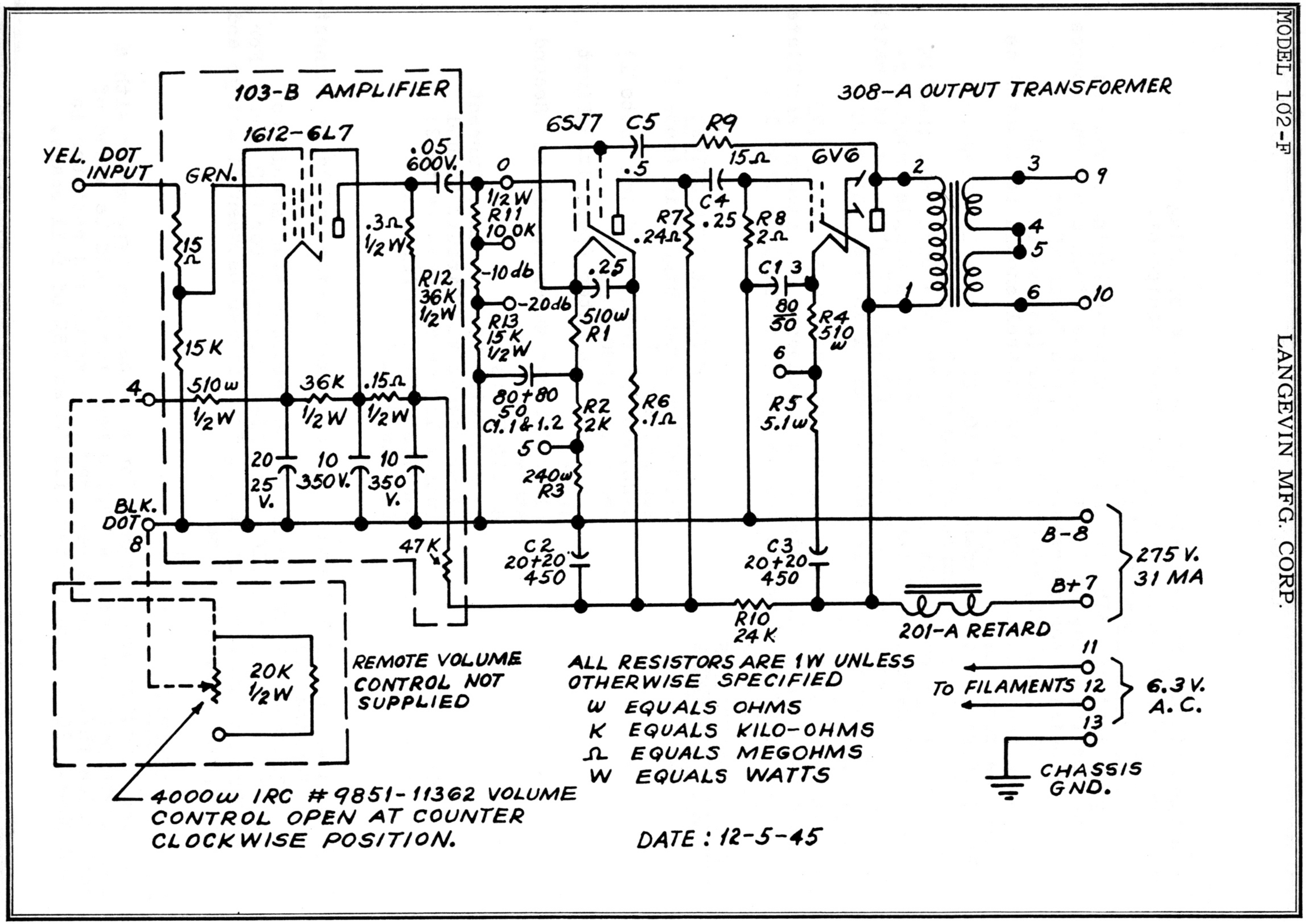
TERMINAL NUMBERS	EXTERNAL CONNECTIONS
1-2	0-1000 Ohm input High Gain (Note 1) Nominal 600 Ohms
1-3	0-25,000 Ohm input Bridging (Note 1) Nominal 25,000 Ohms
5	Plate Current Meter (positive) First Stage
6	Plate Current Meter (positive) Second Stage
7	B 275 Volts DC
8	B- 275 Volts DC and Plate Current Meter (negative) Circuit Ground
9-10	Output 150 or 600 Ohms (Note 2)
11-12	6.3 Volts AC 0.75 Amperes
13	Chassis Ground

NOTES

1. On unbalanced INPUT circuits, the grounded side should be connected to Terminal #1.
2. On unbalanced OUTPUT circuits, the grounded side should be connected to Terminal #10. Supplied strapped for 600 Ohms. For 150 Ohms remove strap on Output Transformer between #4 and #5 and restrap #3 to #5 and #4 to #6.

METERING CIRCUITS

Metering Circuits are designed for a percentage type meter with a 200 Microampere movement. A series resistor should be added of such value that the total resistance of meter and resistor is 1000 Ohms. 100% on the meter will be at 75% of full scale.



MODEL 102-F
LANGEVIN MFG. CORP.
103-B AMPLIFIER
1612-6L7
308-A OUTPUT TRANSFORMER
6SJ7
6V6
C5
R9
15Ω
.5
C4
.25
YEL. DOT INPUT
GRN.
.05 600V.
0
1/2 W
R11
10.0K
-10 db
-20db
R12 36K 1/2W
R13 15K 1/2W
.3Ω 1/2W
15 Ω
15 K
510w 1/2W
36K 1/2W
.15Ω 1/2W
20 25 V.
10 350V.
10 350 V.
4
BLK. DOT 8
47K
80+80 50 C1.1 & 1.2
.25
510w R1
R2 2K
5
240w R3
R6 .1Ω
R7 .24Ω
R8 2Ω
C1 3
80 50
R4 510 w
6
R5 5.1w
C2 20+20 450
C3 20+20 450
R10 24K
201-A RETARD
B-8
B+7
275 V. 31 MA
2
3
9
4
5
1
6
10
REMOTE VOLUME CONTROL NOT SUPPLIED
20K 1/2W
4000w IRC #9851-11362 VOLUME CONTROL OPEN AT COUNTER CLOCKWISE POSITION.
ALL RESISTORS ARE 1W UNLESS OTHERWISE SPECIFIED
w EQUALS OHMS
K EQUALS KILO-OHMS
Ω EQUALS MEGOHMS
W EQUALS WATTS
11
To FILAMENTS 12
13
6.3 V. A.C.
CHASSIS GND.
DATE : 12-5-45

TYPE

MODEL 102-F

Three stage, high impedance input, variable gain amplifier for use as a line amplifier in sound systems and incorporating an electronically controlled master stage for use with 103-A pre-amplifiers.

TYPICAL ELECTRICAL CHARACTERISTICS

MAXIMUM GAIN: 0 dbm (.001 watt) output with approximately 3.5 millivolts input.

VOLUME CONTROL: (not supplied). IRC #9851-11362, 4000 ohms with open at full counter-clockwise position; linear taper with 20,000 ohm 1/2 watt resistor shunted across the control. Approximately 40 db range.

OPERATES FROM: One or more 103-A pre-amplifiers.

OPERATES INTO: Load impedance of 150 or 600 ohms.

INPUT: Maximum 0.75 volts.

OUTPUT POWER: Approximately 0.6 watts (28 dbm) with less than 1% total RMS harmonic distortion at 400 cycles single frequency.

OUTPUT NOISE: Unweighted 55 db below 28 dbm (27 db below .001 watt). Measurement made with 1612 tube or selected 6L7 tube.

FREQUENCY RESPONSE: Production run -0.5 to 1 db over the range 30-15,000 cycles.

EXTERNAL POWER SUPPLY REQUIREMENTS: FILAMENT: 6.3 volts AC, 1.05 amperes. PLATE: 275 volts, 32 milliamperes. Filament and Plate may be obtained from 201 type rectifiers or, from 101 type amplifiers through an external voltage dropping resistor.

EXTERNAL CONNECTIONS

TERMINAL NUMBERS	EXTERNAL CONNECTIONS
Yellow Dot (input)	Output (green dot of 103-A amplifier)
4	Remote volume control
5	Plate current meter (positive) second stage
6	Plate current meter (positive) third stage
7	B 275 volts DC
8	B- 275 volts DC plate current meter (negative) Remote volume control return lead, and circuit ground.
9-10	Output 150 or 600 ohms (NOTE 1)
11-12	6.3 volts AC 1.05 amperes
13	Chassis ground

NOTE 1: On unbalanced OUTPUT circuits, the grounded side should be connected to Terminal #10. Supplied strapped for 600 ohms. For 150 ohms remove strap on output transformer between Terminals #4 and #5 and restrap #3 to #5 and #4 to #6.

METERING CIRCUITS

Metering Circuits are designed for a percentage type meter with a 200 microampere movement. A series resistor should be added of such value that the total resistance of meter and resistor is 1000 ohms. 100% on the meter will be at 75% of full scale.

CAUTION

Due to the extended frequency range and high gain in this amplifier, the input circuit connecting to the output of the 103-A pre-amplifier should be run direct and as short as possible. Output connections and remote volume control connections may be run in twisted pairs.

TUBE COMPLEMENT

1 - 1612 OR 6L7 OR 6L7G 1 - 6SJ7 1 - 6V6 OR 6V6GT

MODEL 102-G

TYPE: Two stage fixed gain amplifier used as a line amplifier in sound systems or speech input equipment.

TYPICAL ELECTRICAL CHARACTERISTICS

Gain: Approximately 55 db with provision for decreasing to 45 db or 35 db maximum.

Operates From: Source impedance of 150 or 600 Ohms.

Operates Into: Load impedance of 600 or 150 Ohms.

Output Power: Approximately 0.6 Watt (+28 DBM) with less than 1% RMS total harmonic distortion at 400 Cycles single frequency.

Output Noise: Unweighted, 85 db below +28 DBM (57 db below .001 Watt). SEE SPECIAL NOTE.

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

EXTERNAL POWER SUPPLY REQUIREMENTS: - Filament 6.3 Volts, 0.75 amperes.

Plate 275 Volts, 31 Milliamperes. (Filament and Plate may be obtained from 201 Rectifiers or from 101 Series Amplifiers).

EXTERNAL CONNECTIONS

TERMINAL NUMBERS	EXTERNAL CONNECTIONS
1-2	150 Ohm Input (Note 1)
1-3	600 Ohm Input (Note 1)
5	Plate Current Meter (positive) First Stage
6	Plate Current Meter (positive) Second Stage
7	B + 275 Volts DC
8	B- 275 Volts DC and Plate Current Meter Chassis Ground (negative)
9-10	Output 600 Ohms or 150 Ohms (Note 2)
11-12	6.3 Volts AC 0.75 Amperes
13	Chassis Ground

NOTE 1: On unbalanced 150 or 600 Ohm INPUT circuits, the grounded side should be connected to Terminal #1

NOTE 2: On unbalanced OUTPUT circuits, the grounded side should be connected on Terminal #10. Supplied strapped for 600 Ohms, for 150 Ohms remove the strap on Output Transformer between Terminals #4 and #5 and restrap #3 to #5 and #4 to #6.

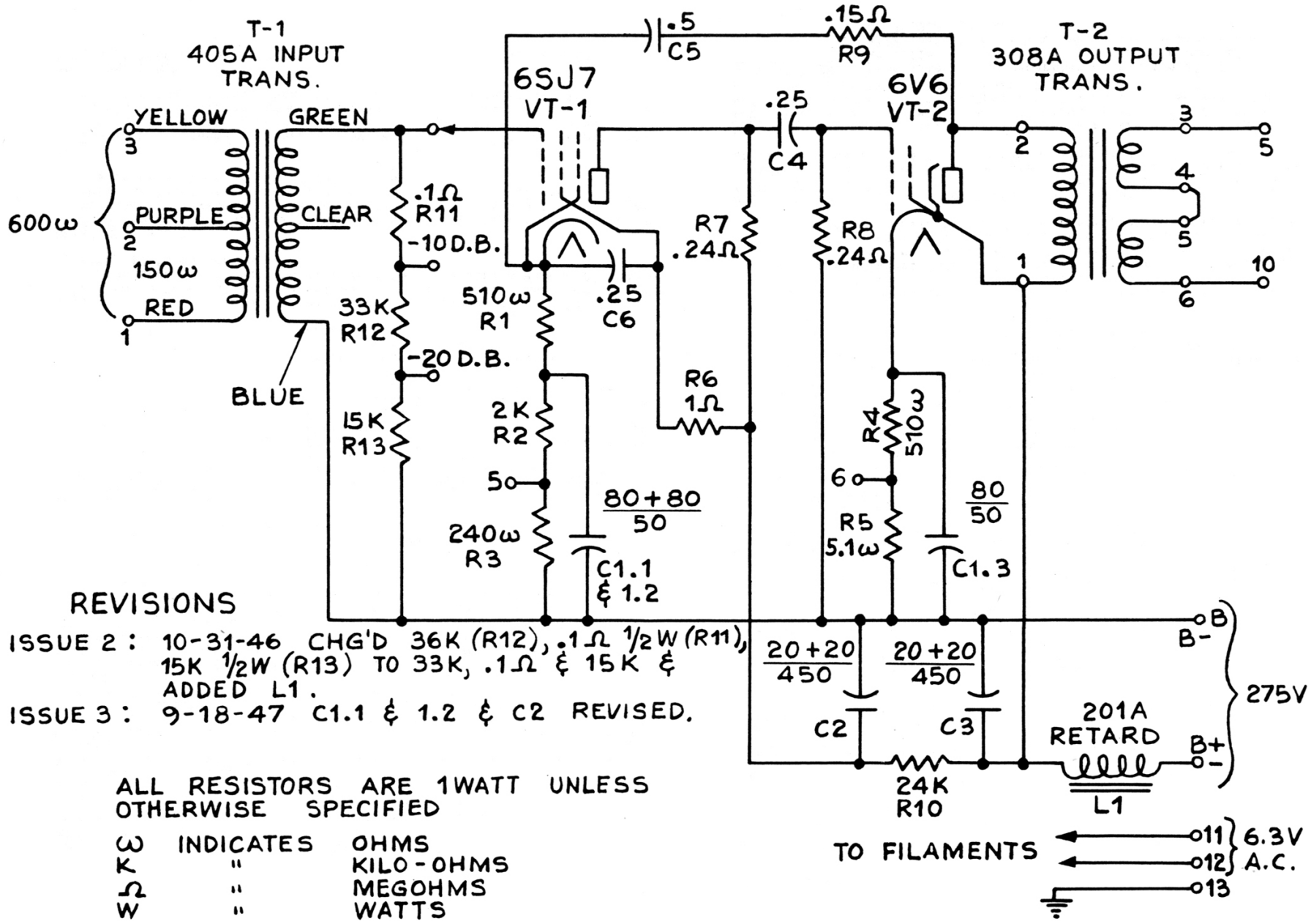
METERING CIRCUITS: Metering Circuits are designed for a percentage Type meter with a 200 Microampere movement. A series resistor should be added of such value that the total resistance of meter and resistor is 1000 Ohms. 100% on the meter will be at 75% of full scale.

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. Out put connections may be run in twisted pairs.

SPECIAL NOTE: Unweighted noise generated within the 102-G Amplifier is equivalent to an input signal of -112 dbm (db below .001 Watt) over a band width of 20,000 Cycles.

LANGEVIN MFG. CORP.

MODEL 102-F
MODEL 102-G



REVISIONS

ISSUE 2 : 10-31-46 CHG'D 36K (R12), .1Ω 1/2W (R11), 15K 1/2W (R13) TO 33K, .1Ω & 15K & ADDED L1.

ISSUE 3 : 9-18-47 C1.1 & 1.2 & C2 REVISED.

ALL RESISTORS ARE 1WATT UNLESS OTHERWISE SPECIFIED

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

MODEL 102-G

LANGEVIN MFG. CORP.