

MODEL 103-A

TYPE

One stage, electronic volume control, pre-amplifier. Transformer input. High impedance output. Designed for use as part of Langevin type 102 and 108 series amplifiers.

TYPICAL ELECTRICAL CHARACTERISTICS

GAIN: Approximately 35 db.

VOLUME CONTROL: (not supplied) IRC 4000 ohms with open at full counter-clockwise position. linear taper, with 20,000 ohms BT₂ resistor shunted across the control - connected as shown in schematic diagram #1956. Range 40 db.

OPERATES FROM: Source impedance of 30 or 250 ohms (-32 VU Maximum input).

OPERATES INTO: Grid circuit of 150,000 ohms (lower values of grid resistor reduce low frequency response, high values increase gain and electronic volume control "bloop" noise).

OUTPUT: 1.7 volts across 150,000 ohms resistance load with -52 dbm (.001 watt reference) input to the 30 ohm tap.

2.4 volts across 150,000 ohms resistance load with -52 dbm (.001 watt reference) input to the 250 ohm tap. This measurement is made with a 1612 tube or a selected 6L7 tube.

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

EXTERNAL POWER SUPPLY REQUIREMENTS: FILAMENT 6.3 volts AC, .3 amperes, center tap of supply to be grounded. PLATE 275 volts at 1 milliamperes, supply to have less than .1% ripple.

EXTERNAL CONNECTIONS

INPUT

Red-Purple
Red-Yellow

POWER

Red dot
Black dot
White dot

OUTPUT

Green dot

EXTERNAL CONNECTIONS

30 ohms nominal. Working range 10-60 ohms
120 ohms nominal. Working range 60-250 ohms.

B 275 Volts DC
B- and volume control return
Volume control

Output to 150,000 ohms grid resistor load

NOTES

1. On unbalanced INPUT circuits, the grounded side should be connected to the "red" input lead.
2. The volume control may be located at the remote location. More than one volume control may be used if connected in parallel and the control NOT in use, be left in the OFF position.

CAUTION

Due to the extended frequency range and high gain in this amplifier, careful shielding and grounding of all input and proper separation from output and power circuits must be observed. Output circuits should be short as possible, and if shielding is necessary, use low capacity shielded cable. Remote volume control connections may be run in twisted pairs.

TUBE COMPLEMENT

1 - 1612 OR 6L7

MODEL 103-B

TYPE: One stage, electronic volume control, pre-amplifier. Resistance input. High impedance output. Designed for use as part of Langevin 102 series Amplifiers.

TYPICAL ELECTRICAL CHARACTERISTICS

Voltage Gain: Approximately 2.

Volume Control: (Not Supplied) IRC 4000 Ohms with open at full counter clockwise position, linear taper, with 20,000 Ohm BT₂ resistor shunted across the control - connected as shown in Schematic Diagram #2225. Range 40 db.

Operates From: One, or more, 103-A Amplifiers.

Operates Into: Grid circuit of 150,000 Ohms (lower values of grid resistor reduce low frequency response, high values increase gain and electronic volume control "bloop" Noise.

Input: Maximum .75 Volts 400 Cycles R.M.S.

Output: Approximately 1.5 volts across 150,000 ohms resistance load with .75 volts to Yellow Dot Terminal.

Output Noise: 58 db below 1.5 volts Output over band width 20 KC.

Frequency Response: Production run 1 db over the range 30-15,000 Cycles

EXTERNAL POWER SUPPLY REQUIREMENTS:

Filament: 6.3 Volts AC, .3 Amperes, center tap of supply to be grounded.

Plate: 275 Volts at 1 Milliampere, supply to have less than .1% ripple.

EXTERNAL CONNECTIONS

INPUT

Yellow Dot

POWER

Red Dot
Black Dot
White Dot

OUTPUT

Green Dot

EXTERNAL CONNECTIONS

Output (Green Dot) of 103-A Amplifier

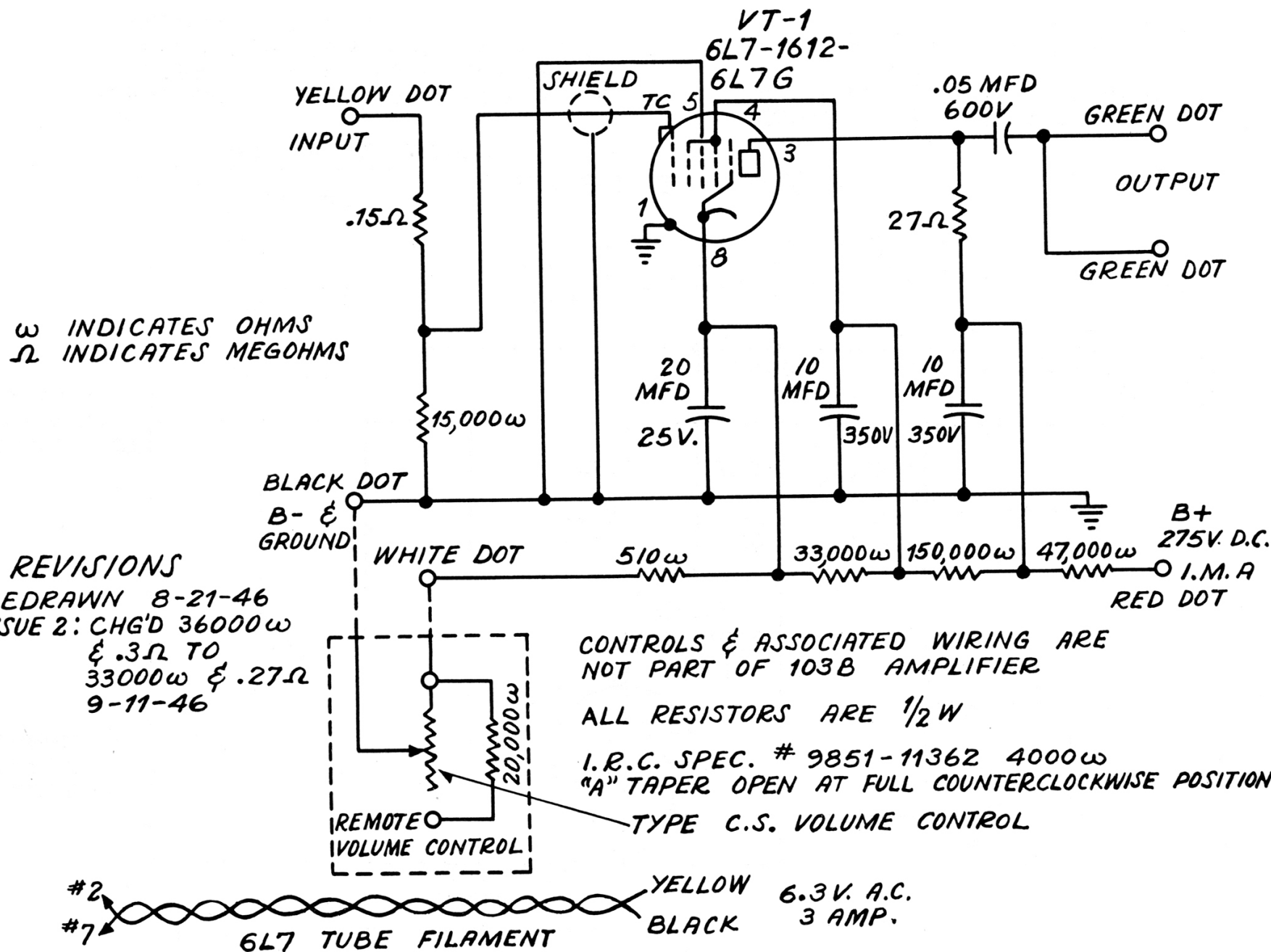
B 275 Volts DC
B- and Volume Control Return
Volume Control

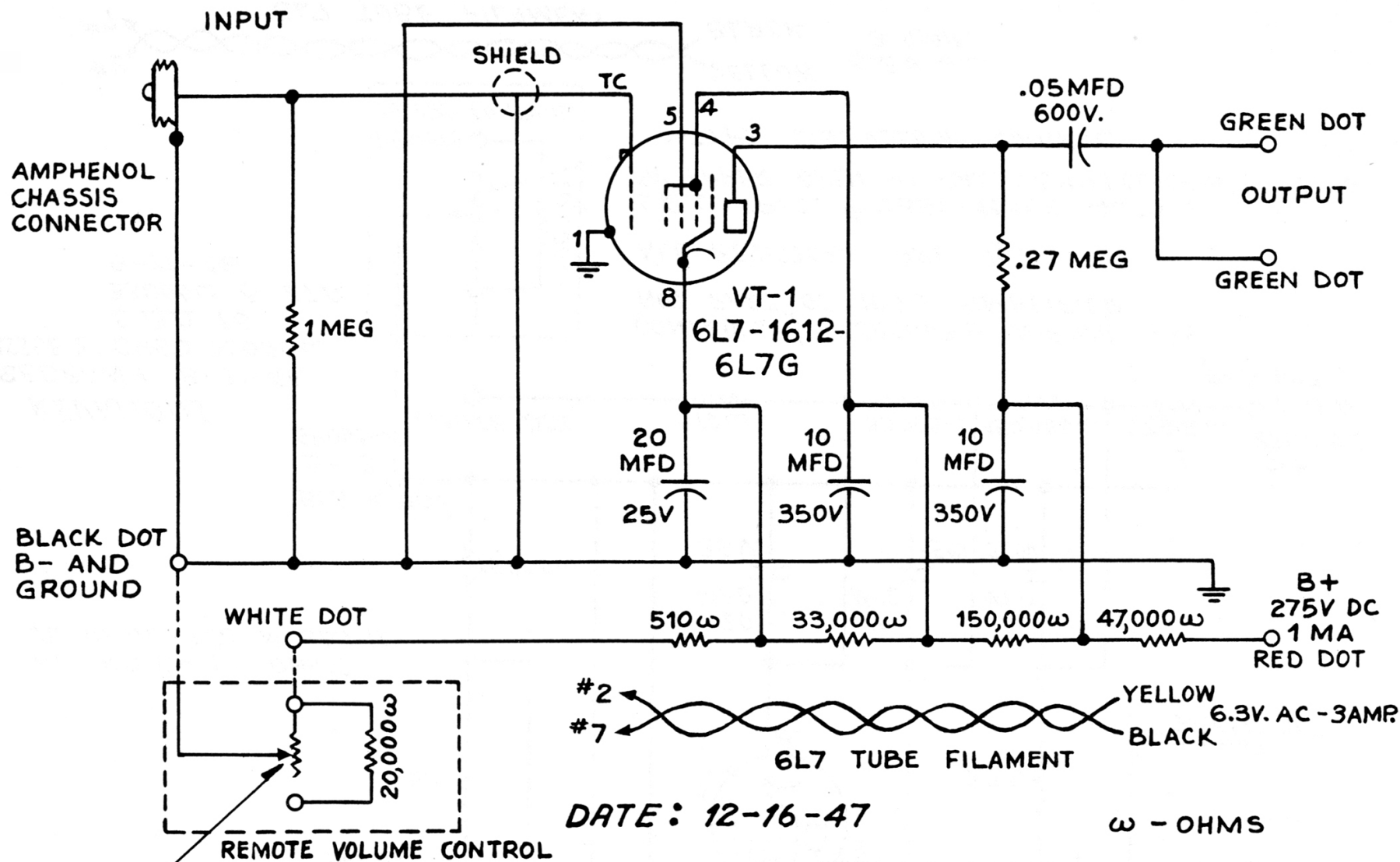
Output to 150,000 Ohms grid resistor load

NOTES:

1. The Volume Control may be located at a remote location. More than one volume control may be used if connected in parallel and the control NOTE in use, should be left in the OFF position.

CAUTION - Due to the extended frequency range and low level operation of this Amplifier, proper separation between input, output, and power circuits must be observed. Input and Output circuits should be short as possible, and if shielding is necessary use low capacity shielded cable. Remote Volume Control connections may be run in twisted pairs. Use tube shield supplied with glass tubes or grid cap shield on metal tubes.





IRC SPEC. #9851/11362 4000 ω "A"
TAPER OPEN AT FULL COUNTER
CLOCKWISE POSITION TYPE C.S.
VOLUME CONTROL

CONTROLS & ASSOCIATED WIRING ARE
NOT PART OF 103-C AMPLIFIER

ALL RESISTORS ARE $\frac{1}{2}$ W