# WIDE RANGE HIGH-QUALITY AMPLIFIERS

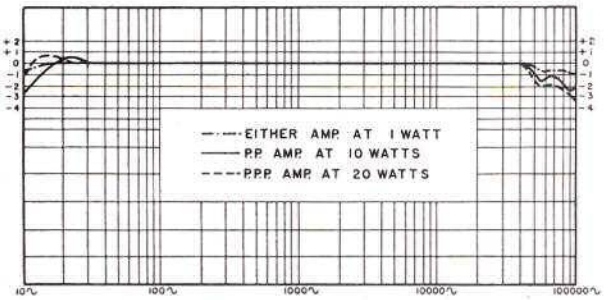
The two power amplifiers shown below have been developed in our laboratories to provide the critical listener with the utmost fidelity in music reproduction. Through the use of the highest quality components and the application of proven feedback techniques, two amplifiers of outstanding characteristics have been obtained. The amplifiers are essentially identical in circuitry, construction and performance, the principal difference being merely that of power output.

The table at the right gives performance specifications applicable to both amplifiers as indicated. From these figures it may be readily seen that because of their linearity and wide range, these amplifiers are ideal for laboratory applications outside the audio frequency range as well.

To assist the constructor in assembling these amplifiers, UTC has made each available in kit form. See page B for further details.

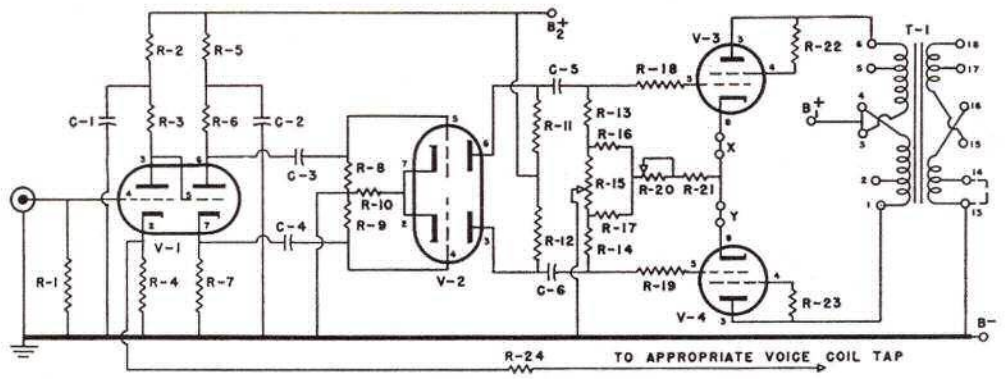
**SPECIFICATIONS**

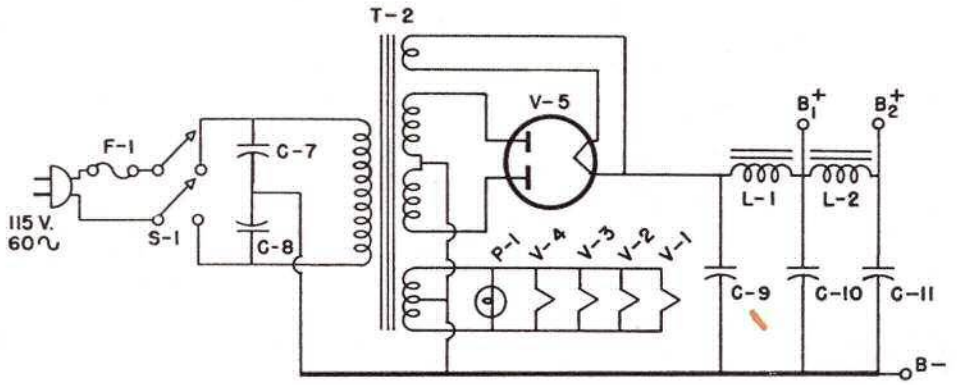
| | PUSH-PULL | PUSH-PULL PARALLEL |
|---|---|---|
| DISTORTION | 8 W — 0.1%<br>10 W — 0.3%<br>12 W — 1.0% | 16 W — 0.1%<br>20 W — 0.4%<br>24 W — 0.8% |
| DAMPING FACTOR | 25 | 25 |
| HUM | —75 db | —75 db |
| SENSITIVITY | 1.1 volt gives 8 watts | 1.2 volt gives 16 watts |




**FREQUENCY RESPONSE**

## UTC W-10 10-WATT WILLIAMSON AMPLIFIER




**PARTS LIST**

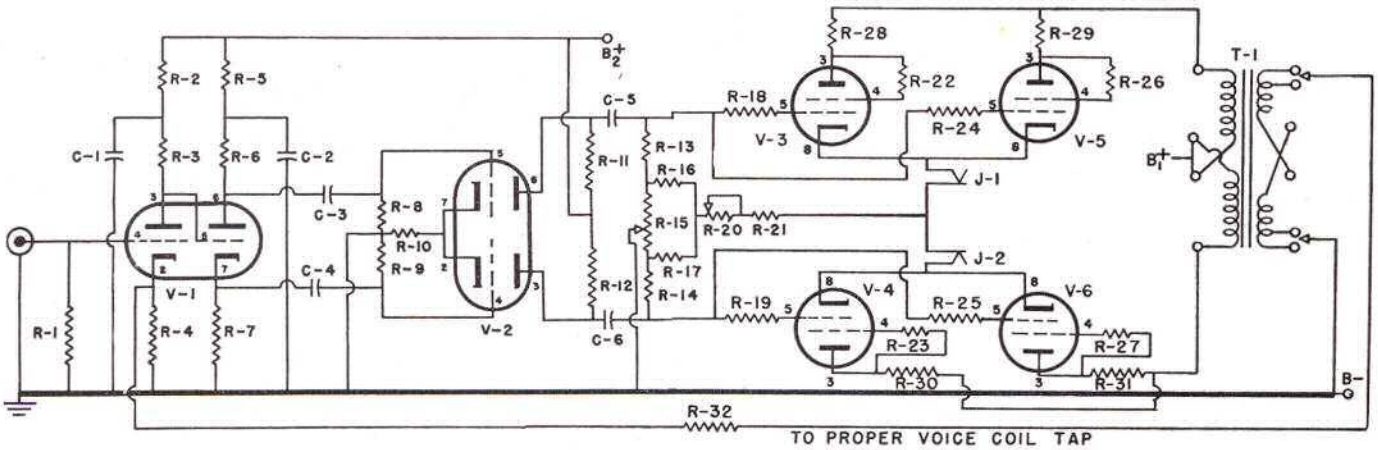
| | |
|---|---|
| T-1 | LS-63 |
| T-2 | LS-74 or R-113 |
| L-1 | CG-100 |
| L-2 | CG-48C |
| V-1, 2 | 7N7 |
| V-3, 4 | 1614 |
| V-5 | 5U4G |
| C-1, 2, 9, 10, 11 | 8 Mfd.-600 V.-elect. |
| C-3, 4 | .05 Mfd.-400 V.-paper |
| C-5, 6 | .25 Mfd.-600 V.-paper |
| C-7, 8 | .1 Mfd.-400 V.-paper |
| R-1, 8, 9 | 470 K |
| R-2 | 33 K, 1 W |
| R-3 | 47 K, 1 W |
| R-4 | 470 ohms |
| R-5 | 22 K, 1 W |
| R-6, 7 | 22 K, 1 W, matched |
| R-10 | 390 ohms |
| R-11, 12 | 47 K, 2 W, matched |
| R-13, 14 | 100 K |
| R-15, 20 | 100 ohms, 2 W, wirewound pot. |
| R-16, 17, 22, 23 | 100 ohms, 1 W |
| R-18, 19 | 1 K |
| R-21 | 150 ohms, 5 W |
| R-24 | *1200 √ Voice Coil Z |
| F-1 | 3 Amp. Fuse |
| P-1 | 6.3 V. Pilot Light |
| S-1 | DPST |

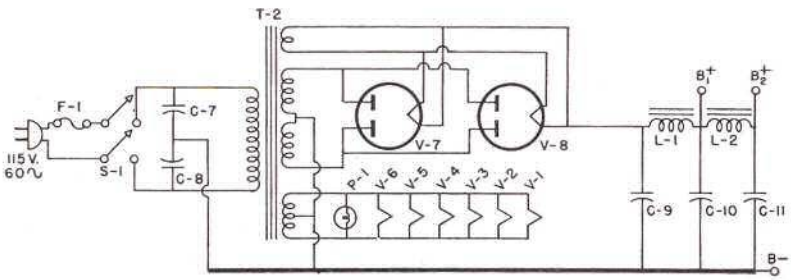
* 1200 times square root of voice coil impedance.

All resistors 10%, ½ watt except where noted otherwise.

Insert a 0-100 Ma. meter at X and one at Y. Adjust R-20 until sum of readings is 110 Ma. Adjust R-15 so that each meter reads 55 Ma.

# UTC W-20 20 WATT WILLIAMSON AMPLIFIER




**PARTS LIST**

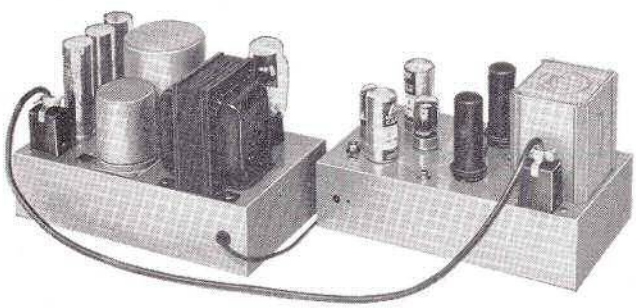
| | | | |
|---|---|---|---|
| T-1 | LS-60A | R-11, 12 | 47 K, 2 W, matched |
| T-2 | LS-74 | R-13, 14 | 100 K |
| L-1 | CG-102 | R-15, 20 | 50 ohms, 4 W, wirewound Pot. |
| L-2 | CG-48C | R-16, 17 | 50 ohms, 5 W |
| V-1, 2 | 7N7 | R-18, 19, 24, 25 | 1 K |
| V-3, 4, 5, 6 | 1614 | R-21 | 100 ohms, 10 W |
| V-7, 8 | 5U4 | R-22, 23, 26, 27 | 100 ohms, 1 W |
| C-1, 2, 9, 10, 11 | 8 Mfd.-600 V.-elect. | R-28, 29, 30, 31 | 47 ohms, 1 W |
| C-3, 4 | .05 Mfd.-600 V.-paper | R-32 | *1700 √ Voice Coil Z |
| C-5, 6 | .25 Mfd.-600 V.-paper | F-1 | 5-Amp. Fuse |
| C-7, 8 | .1 Mfd.-400 V.-paper | S-1 | DPST |
| R-1, 8, 9 | 470 K | P-1 | 6.3 V. Pilot Light |
| R-2 | 33 K, 1 W | J-1, 2 | Closed circuit jacks, insulated from chassis. |
| R-3 | 47 K, 1 W | | |
| R-4 | 470 ohms | | |
| R-5 | 22 K, 1 W | | |
| R-6, 7 | 22 K, 1 W, matched | | |
| R-10 | 390 ohms | | |

* 1700 times square root of voice coil impedance.

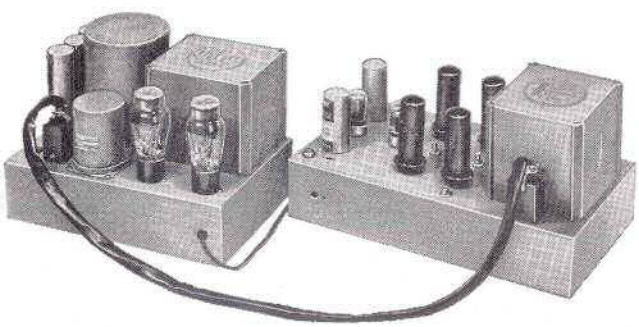
All resistors 10%, ½ watt except where noted otherwise.

Insert a 0-150 Ma. meter in J-1 and one in J-2. Adjust R-20 until sum of readings is 200 Ma. Adjust R-15 so that each meter reads 100 Ma.

# UTC AMPLIFIER KITS



W-10



W-20

The two deluxe amplifiers described above are available in **basic kit** form. The kits consist of the parts listed below. Other components such as tubes, resistors, etc. are **not** supplied, but may be readily secured from your local distributor. The chassis come completely punched and finished in baked grey enamel. A comprehensive instruction manual is included with each kit.

| W-10 | W-20 |
|---|---|
| LIST PRICE 75.00 | LIST PRICE 120.00 |
| 1 LS-63 Output Transformer | 1 LS-60A Output Transformer |
| 1 CG-100 Choke | 1 LS-74 Power Transformer |
| 1 CG-48C Choke | 1 CG-102 Choke |
| 1 R-113 Power Transformer | 1 CG-48C Choke |
| 1 W-10A Amplifier Chassis, 7" x 12" x 3" high | 1 W-20A Amplifier Chassis, 8½" x 15" x 3" high |
| 1 W-10P Power Supply Chassis, 7" x 12" x 3" high | 1 W-20P Power Supply Chassis, 8" x 12" x 3" high |
| 1 W-10 Instruction Manual | 1 W-20 Instruction Manual |

PRICE 25 CENTS

# Instruction Manual

UTC

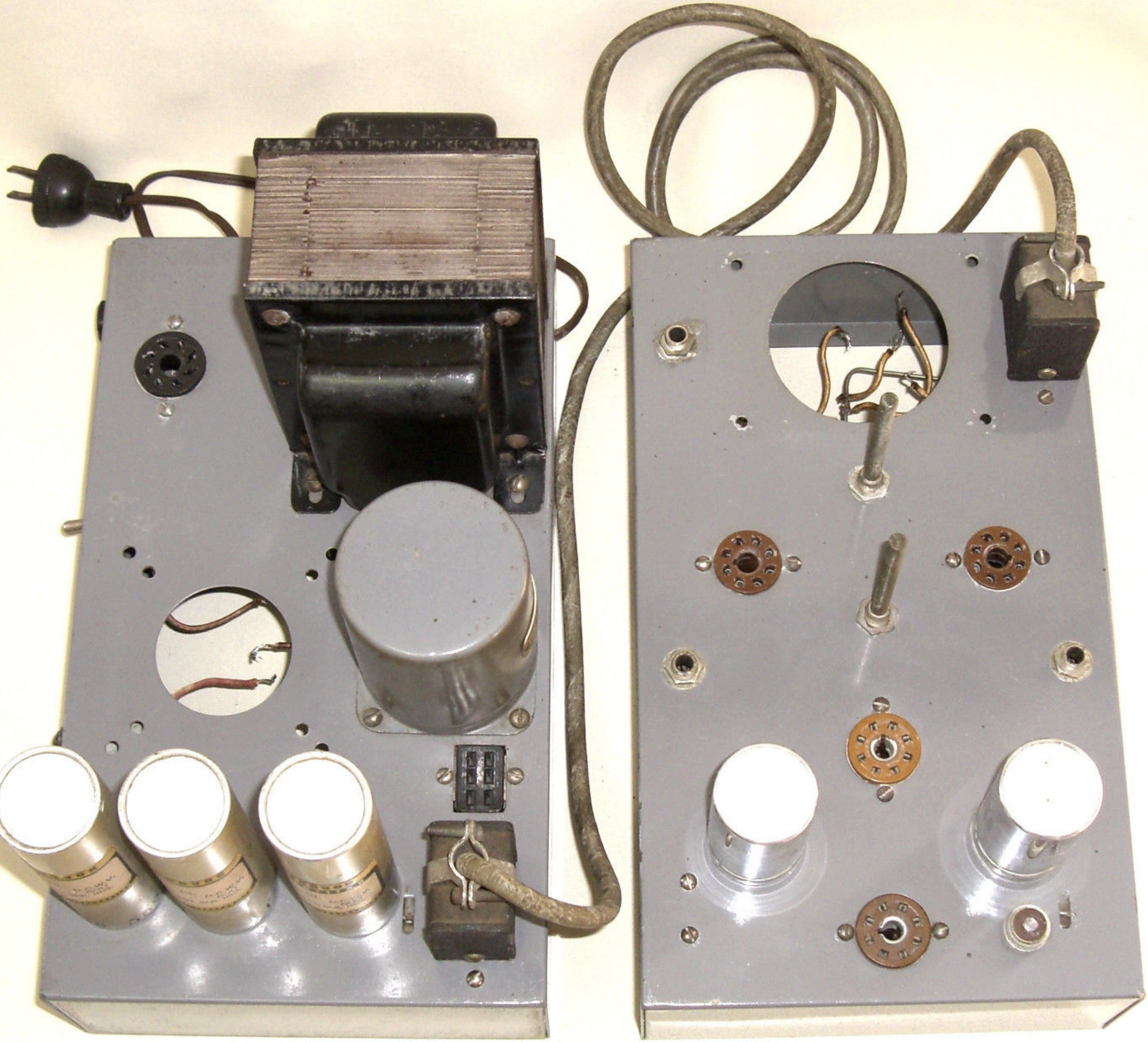
deluxe

Williamson

# AMPLIFIER KIT

**MODEL W-10 (10 WATTS)**

UNITED TRANSFORMER COMPANY • 150 VARICK STREET, NEW YORK 13, N. Y.



L-1

9

10

L-2

11

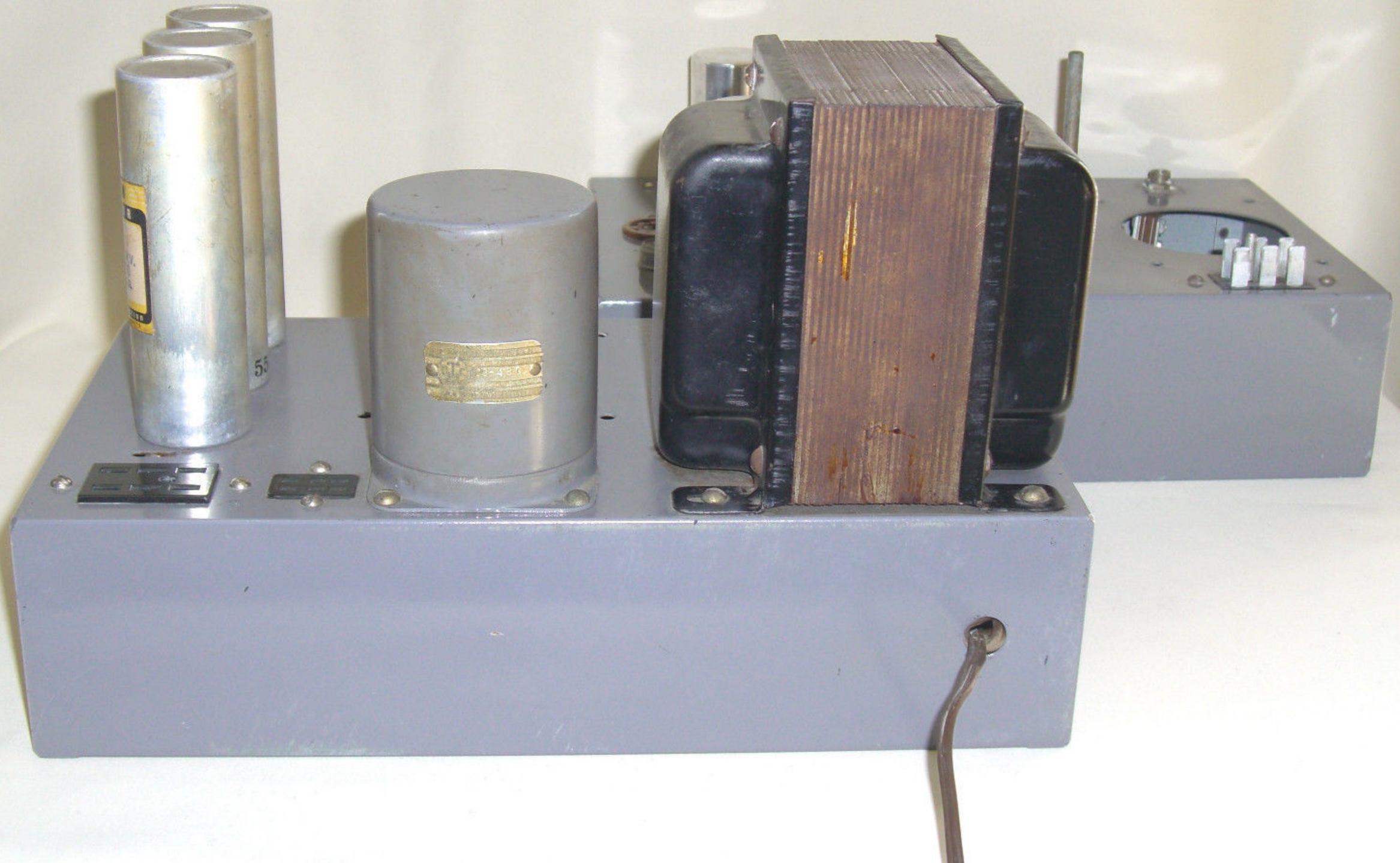
3

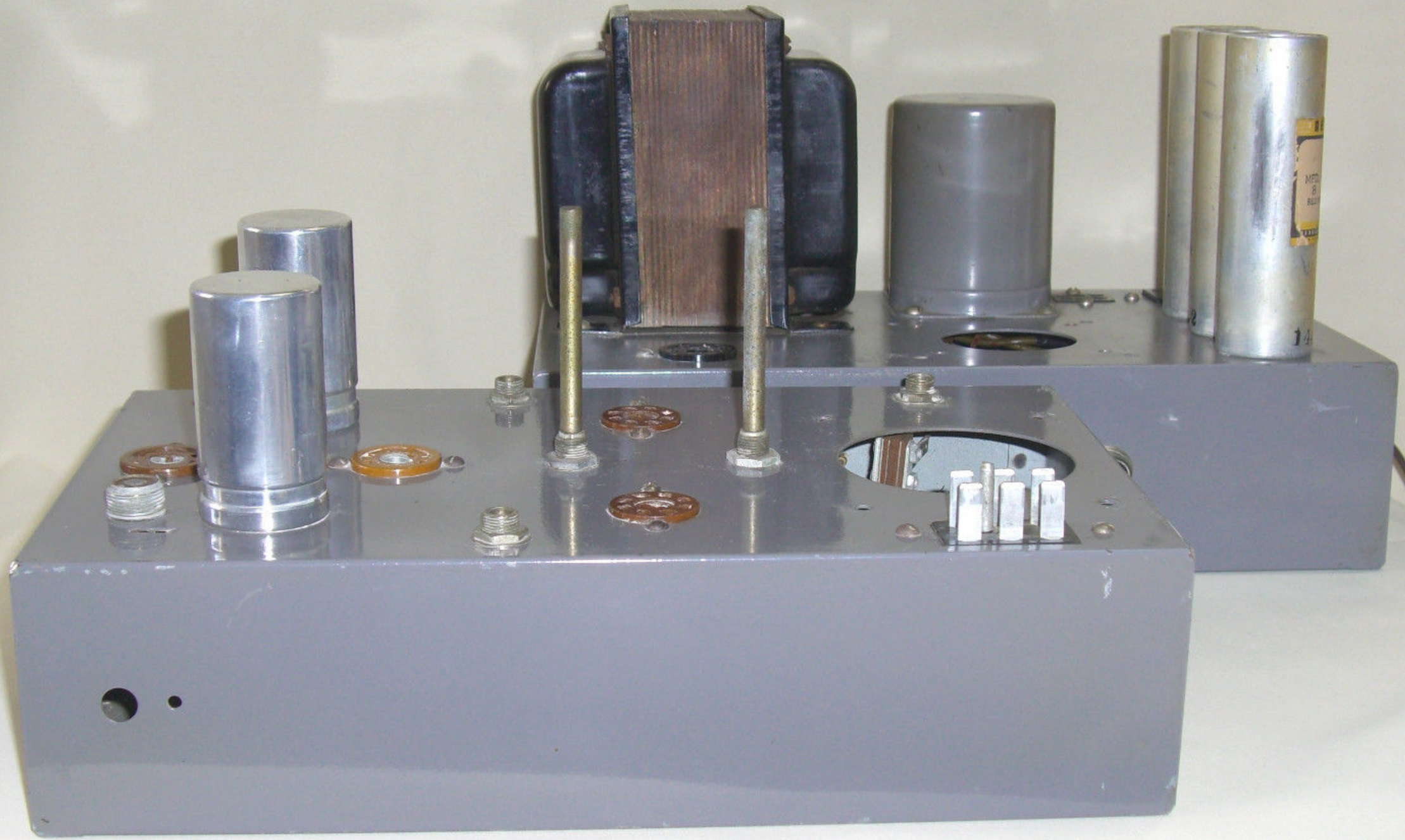
1

5

6


MFD.
8
RED






MFD.
8
RED POS. BLK
1446


FUSE

SPRAGUE
.05 MFD.
400 V.D.C.

SPRAGUE
.01 MFD.
KOOLOHM
SKT