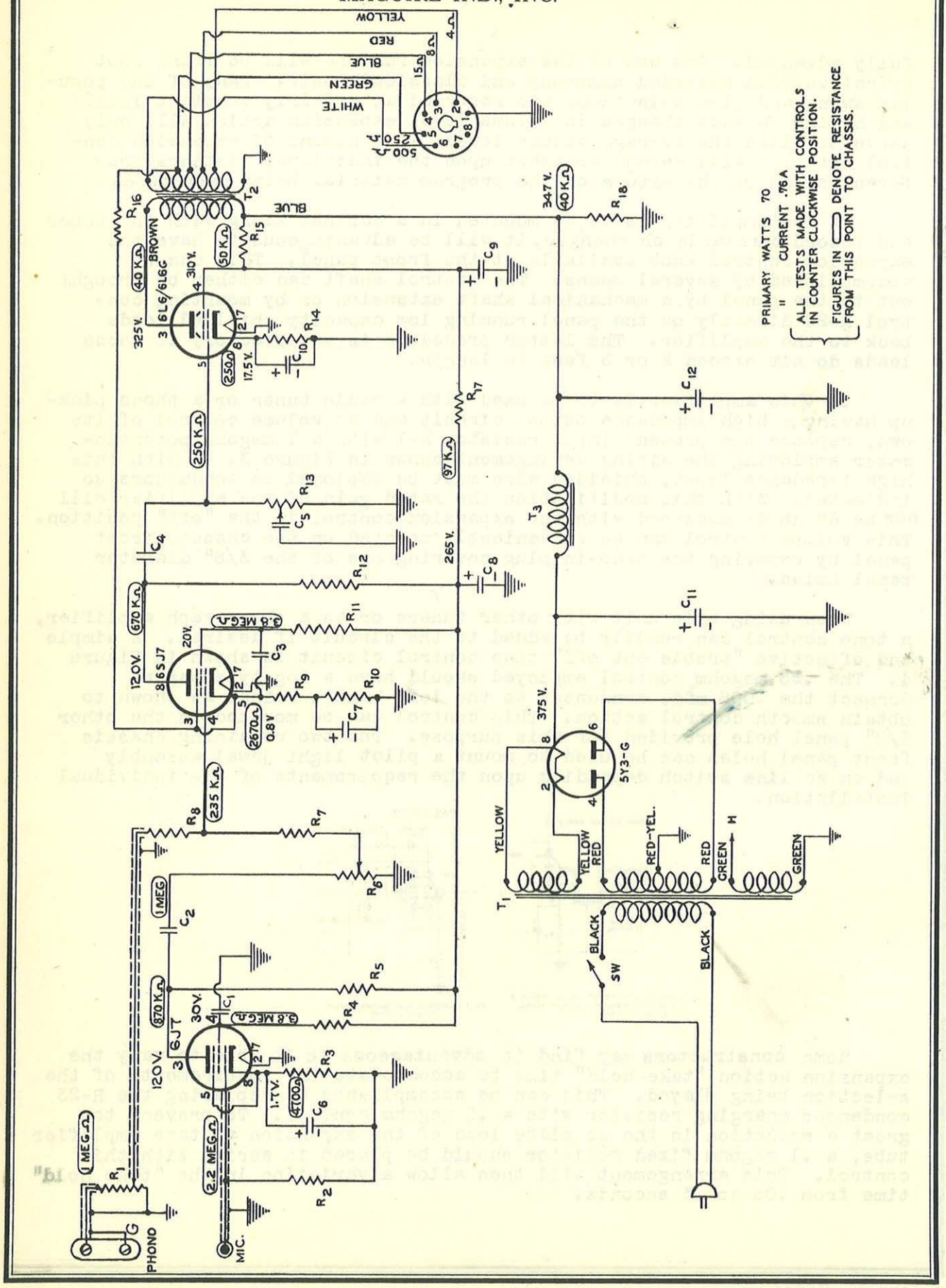
MODELS T-31W08

THORDARSON ELEC. MFG. DIV.
MAGUIRE IND., INC.



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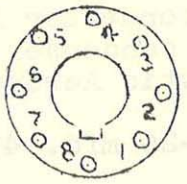
TUBES:

Tubes play a very important part in the successful operation of modern high gain amplifiers. When supplied with the amplifier they are especially tested for elimination of hum and microphonics. If the amplifier was purchased less tubes, select the best grade available. Inferior or defective tubes should be avoided. Do not remove tubes from amplifier until the switch has been turned off and the tubes have had time to cool.

MATCHING SPEAKER IMPEDANCES:

Make speaker voice coil or line connections to the speaker connector receptacle (with 8 prong plug furnished). Correct impedance matching is important for good quality. The following illustration shows the speaker receptacle.



Speaker Impedance	Connect to
4 ohms	1 and 2
8 ohms	1 and 3
15 ohms	1 and 4
250 ohms	1 and 5
500 ohms	1 and 6

In all cases 1 is internally grounded and should be used as external ground.

Connect one speaker lead to the prong of the 8 contact speaker plug which corresponds to contact 1 of the receptacle shown in the sketch. Solder the other speaker lead to the contact which corresponds to the impedance of the loud speaker.

Where power line disturbances cause hum and noise, the amplifier should be grounded. Connect a wire from the G terminal on the "PHONO" terminal board and fasten the other end to a water pipe or hot water or steam radiator.

Analysis: In testing the amplifier voltages the supply current should be 117 volts, 60 cycles. If it is impossible to adjust to this value, allowance must be made in the readings in addition to the 6 per cent tolerances permitted. All connections should be inspected and soldered if found to be loose.

The voltages given in the circuit diagram is from the points indicated to chassis or ground. Control grid voltages should be measured across the bias resistor of the tube specified. Resistance measurements are made from points specified to ground with amplifier turned off.

POWER OUTPUT:

Power measurements to be accurate are made with a 500 ohm load resistor connected across the 500 ohm input terminals of the amplifier. Connect an oscilloscope and output voltmeter or db level indicator also to the output terminals. The audio oscillator should be wired into the phono circuit and adjusted to 400 cycles. Advance the phono volume control to the maximum "ON" position, and adjust the output of the audio oscillator to a point where distortion begins to show on the oscilloscope. In most cases it is not possible to distinguish less than 5 per cent distortion on the average service oscilloscope. Therefore, at the point where the sine wave begins to distort the distortion is about 5 per cent. If the output meter is calibrated in db or volts it will be necessary to refer to a table to determine the output power in watts.

$$\text{Watts output} = \frac{E2}{R \text{ (load resistance)}}$$

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Transformers and Choke

T-1	Power Transformer T-22R31
T-2	Output Transformer T-22S70
T-3	Filter Choke T-20C53

Condensers

C-1	.1 mfd. 400 V paper condenser Aerovox 484
C-2	.05 mfd. 400 V paper condenser Aerovox 484
C-3	.1 mfd. 400 V paper condenser Aerovox 484
C-4	.05 mfd. 400 V paper condenser Aerovox 484
C-5	.005 mfd. 400 V paper condenser Aerovox 484
C-6	25 mfd. 25 V electrolytic Aerovox PRS-25
C-7	20)
C-8	10) Triple unit 10-10-20 mfd. 450-450-25 V.
C-9	10) Mallory FP-332
C-10	20)
C-11	10) Triple unit as above
C-12	10)

Resistors

R-1	1 meg. Vol. control (phone)
R-2	2.2 meg. 1/3 W. carbon resistor IRC BTR
R-3	4700 ohm 1/2 W. carbon resistor IRC BTS
R-4	3.3 meg. 1/2 W. carbon resistor " "
R-5	470 K 1/2 W. carbon resistor " "
R-6	1 meg. Vol. control (mic)
R-7	470 K 1/2 W. carbon resistor " "
R-8	470 K 1/2 W. carbon resistor " "
R-9	470 ohms 1/2 W. carbon resistor " "
R-10	2200 ohms 1/2 W. carbon resistor " "
R-11	3.3 meg. 1/2 W. carbon resistor " "
R-12	470 K 1/2 W. carbon resistor " "
R-13	250 K tone control & switch
R-14	250 ohm 10 watt ohmite resistor
R-15	10 K 1 W. carbon resistor IRC BTA
R-16	100 K 1/2 W. carbon resistor IRC BTS
R-17	47 K 1/2 W. carbon resistor " "
R-18	40 K 10 W. ohmite resistor

Selected Tubes: 6J7
6SJ7
6L6/6L6G
5Y3G