

# Screen Modulator from MD-141 / GRT-3 Transmitter.

Modulates 4x150 screens by sampling plate voltage and using cathode follower

## 2.7 Screen Modulator

Referring to Figure 3-13, components of the screen modulator circuit are located in the monitor-screen modulator assembly. V-706, connected as a triode and used as a cathode follower, is the screen modulator tube. The plate is connected through three OB2 voltage regulator tubes that are connected in series to the plus 850 volt unmodulated power supply.

The dc bias to this tube is the difference between the voltage drop across the cathode resistor and the voltage drop across a portion of potentiometer R-719. This potentiometer is connected between the plus 250 volt power supply and ground. The tap is adjusted to obtain the correct grid bias on the tube. This bias determines the amount of plate current that will pass through the tube, which in turn determines the voltage across the cathode resistor. This voltage (approximately 190 volts) is applied as screen voltage to the power amplifier stage. Therefore, the potentiometer adjusts the screen voltage on the power amplifier stage. A portion of the audio voltage from the modulated high voltage is fed through capacitor C-710 to the grid of the screen modulator tube. This audio voltage on the grid of the screen modulator tube causes the screen voltage on the power amplifier stage to vary at the audio rate. The amount of audio voltage that is fed to the grid of the screen modulator tube is adjusted by potentiometer R-723 so that the modulated output of the transmitter is linear. The tune-operate switch S-801 reduces the screen voltage on the power amplifier stage by inserting an additional resistor R-726 in the cathode circuit of the screen modulator tube. This resistor reduces the plate current of the screen modulator tube, which in turn will reduce the voltage drop across the cathode resistor R-725. Since the voltage drop across R-725 is the screen voltage for the power amplifier stage, this drop in screen voltage will reduce the power output of the transmitter.





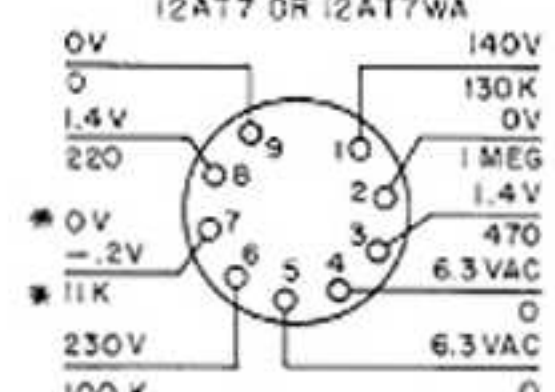
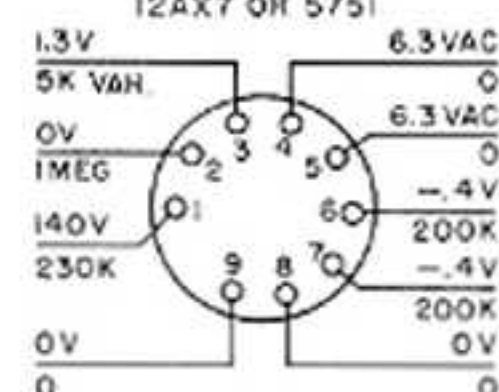
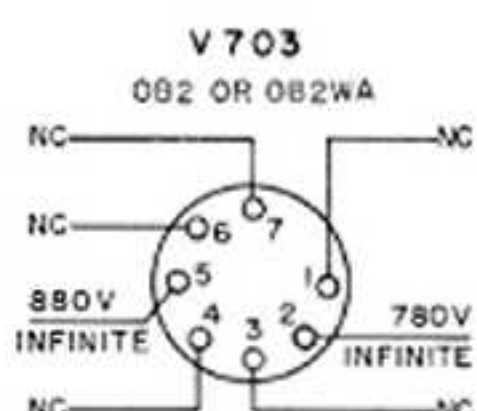
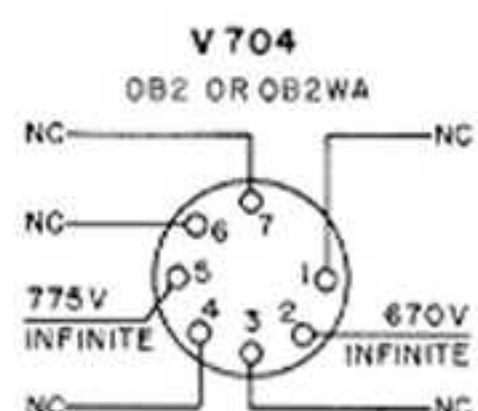
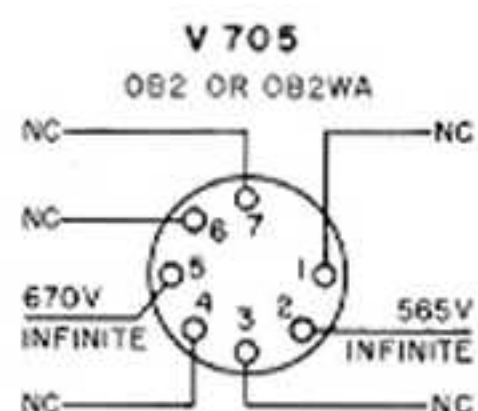
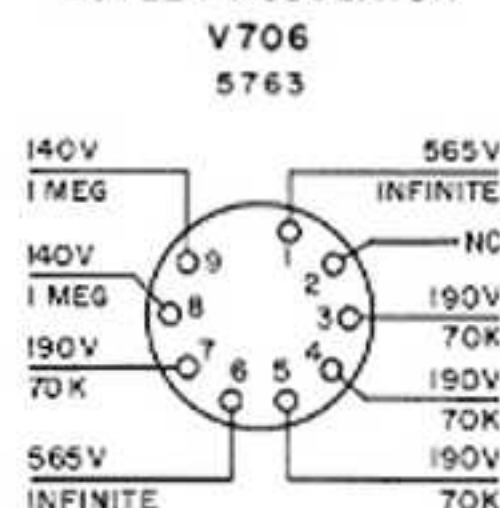


# SCREEN MODULATOR

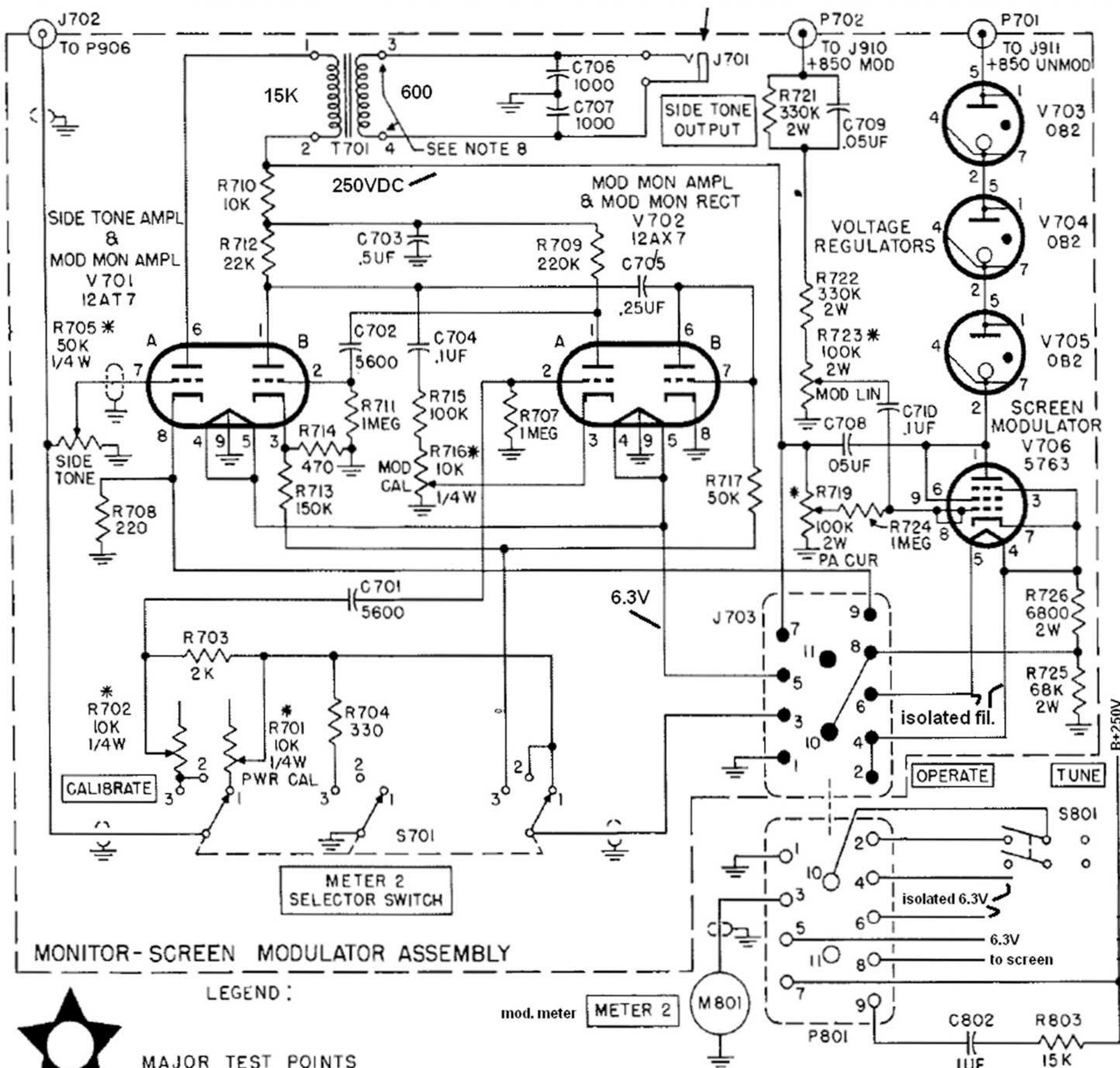
# VOLTAGE REGULATORS

# MODULATION MONITOR AMPL & MODULATION MONITOR RECT

# SIDE TONE AMPL & MODULATION MONITOR AMPL



# MONITOR-SCREEN MODULATOR ASSEMBLY



# LEGEND :

MAJOR TEST POINTS



MONITOR-SCREEN  
MODULATOR

P801

P906

V706

V705

V704

V703

V702

V701

P702

P701

J703

J702

CAPTIVE SCREW

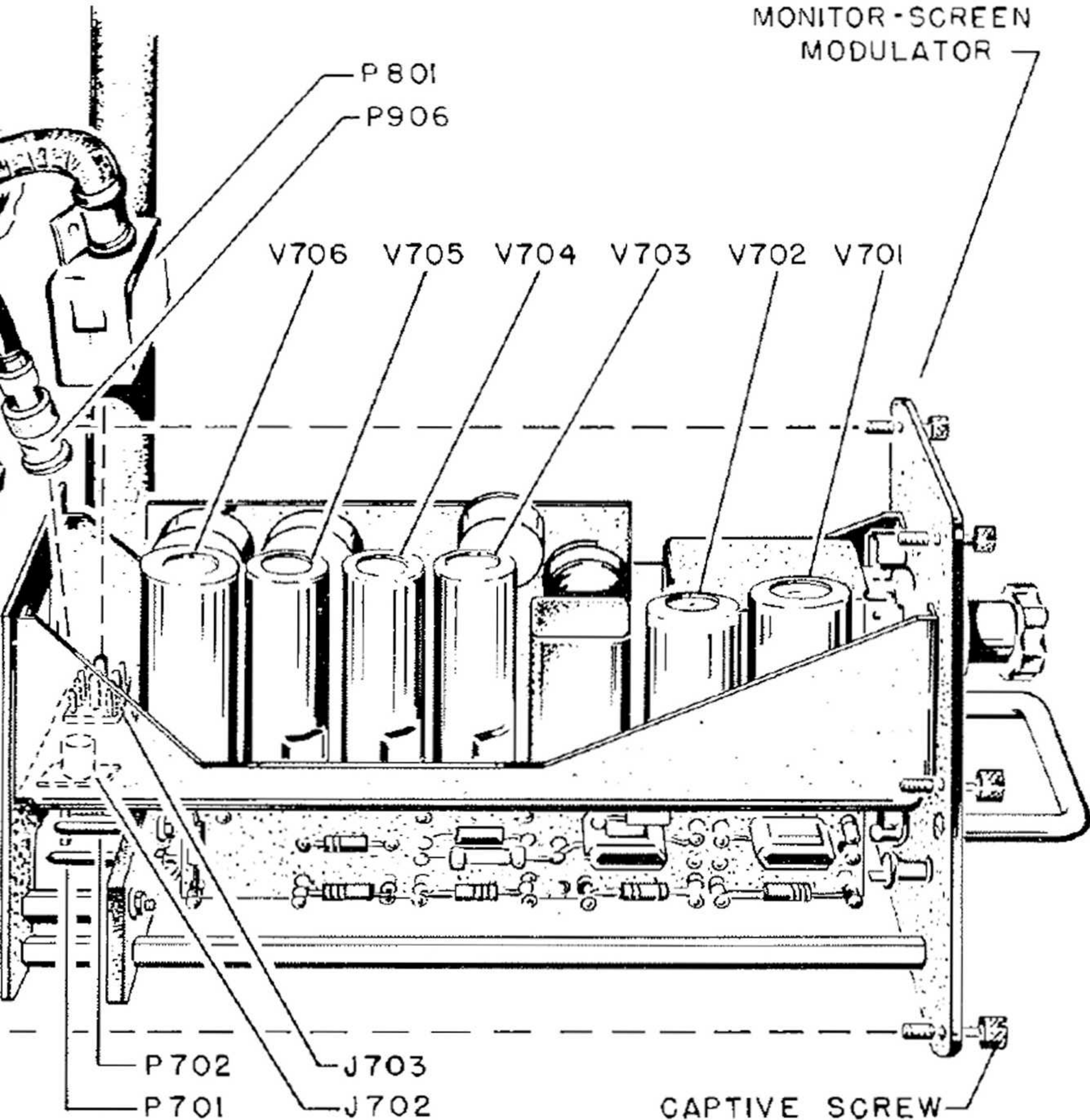


TABLE 6-8. TRANSMITTER TUBE SOCKET VOLTAGES AND RESISTANCES (CONT)

Tube Number	Pin Number	Voltage	Resistance to Ground (Ohms)
V701 (12AT7) or (12AT7WA)	1	140	130K
	2	0.0	1.0 meg
	3	1.4	470
	4	6.3 ac	0.0
	5	6.3 ac	0.0
	6	230	100K
	7	*0.0 -0.2	*11K
	8	1.4	220
	9	0.0	0.0
V702 (12AX7) or (5751)	1	140	230K
	2	0.0	1.0 meg
	3	1.3	5000 Variable
	4	6.3 ac	0.0
	5	6.3 ac	0.0
	6	-0.4	200K
	7	-0.4	200K
	8	0.0	0.0
	9	0.0	0.0
V703 (OB2) or (OB2WA)	1	No connection	No connection
	2	780	Infinite
	3	No connection	No connection
	4	No connection	No connection
	5	880	Infinite
	6	No connection	No connection
	7	No connection	No connection
V704 (OB2) or (OB2WA)	1	No connection	No connection
	2	670	Infinite
	3	No connection	No connection
	4	No connection	No connection
	5	775	Infinite
	6	No connection	No connection
	7	No connection	No connection
V705 (OB2) or (OB2WA)	1	No connection	No connection
	2	565	Infinite
	3	No connection	No connection
	4	No connection	No connection
	5	670	Infinite
	6	No connection	No connection
	7	No connection	No connection
V706 (5763)	1	565	Infinite
	2	No connection	No connection
	3	190	70K
	4	190	70K
	5	190	70K
	6	565	Infinite
	7	190	70K
	8	140	1 meg
	9	140	1 meg
V901 (4X150A)	1	240	100K
	2	0.0	0.0
	3	6.0 ac	0.0
	4	0.0	0.0
	5	No connection	No connection
	6	0.0	0.0
	7	0.0	0.0
	Grid	y -135	13K
	Plate	x 1350	Infinite

\* Dependent upon setting of side tone output gain control R705.

(continued on the next page)