OPERATING AND SERVICING MANUAL

MODEL 608C
VHF SIGNAL GENERATOR

SERIALS PREFIXED: 369-

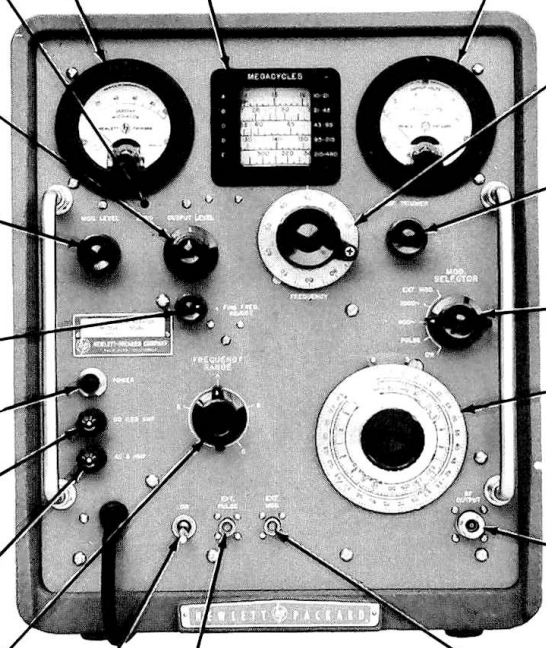
608C005-1/6-59

SPECIFICATIONS

FREQUENCY RANGE:	10 mc to 480 mc in 5 bands.
TUNING CONTROL:	Frequency control mechanism provides a main dial calibrated in megacycles and a vernier dial for interpolation purposes. Total scale length: Approx. 45". Calibration: Every other megacycle 130 to 270 mcs; every 5 mcs above 270 mcs.
VERNIER CONTROL:	A separate vernier control allows variations of about ±25 kc (at high frequencies) to provide precise frequency setting for sensitivity checks of extremely selective receivers.
FREQUENCY CALIBRATION ACCURACY:	Within ±1% over entire frequency range.
RESETTABILITY:	Better than ±0.1% after initial instrument warm-up.
FREQUENCY DRIFT:	Less than 0.005% over a 10 minute interval after initial instrument warm-up, (15°C to 35°C ambient). When frequency is changed by dial, instrument must restabilize one minute for each 10% frequency change. When frequency is changed by bandswitching, 10 minutes are required to restabilize.
OUTPUT LEVEL:	0.1 microvolt to 1.0 volt (into a 50-ohm resistive load). Attenuator dial calibrated in volts and dbm. (0 dbm equals 1 milliwatt in 50 ohms.)
OUTPUT VOLTAGE ACCURACY:	±1 db over entire frequency and attenuation range (into a 50 ohm resistive load).
GENERATOR IMPEDANCE:	50 ohms, maximum SWR 1.2.
INTERNAL MODULATION FREQUENCIES:	400 cps ±10% and 1,000 cps ±10%.

SPECIFICATIONS (CONT'D.)

EXTERNAL AM MODULATION:	From 0 to 95% at output levels of 0 dbm and below from modulation frequencies 20 cps to 20 kc. Input requirements, 0.5v rms across 15K ohms.
MODULATION METER ACCURACY:	±10% of reading 30% to 95% modulation.
ENVELOPE DISTORTION:	Less than 5% at 30% sine wave modulation and less than 10% at 50% sine wave modulation.
EXTERNAL PULSE MODULATION:	Positive 5 volt peak pulse required. 40 mc to 220 mc; combined rise and decay time of rf pulse less than 4 microseconds. 220 mc to 420 mc; combined rise and decay time of rf pulse less than 1 microsecond. Residual level at least 20 db below 1 volt peak pulse output.
INCIDENTAL FREQUENCY MODULATION:	Less than .0025% at 30% amplitude modulation for RF output frequencies from 21 to 480 mc.
LEAKAGE:	Negligible; permits receiver sensitivity measurements down to at least 0.1 microvolt.
POWER:	115/230 volts ±10%, 50/1000 cps. Approximately 220 watts.
DIMENSIONS:	Cabinet Model: 13-1/4" wide, 16-3/8" high, 21" deep. Rack Model: 19" wide, 14" high, 21" deep. 18" deep behind panel.
WEIGHT:	Cabinet Model: Net 62 lbs., shipping 88 lbs. Rack Model: Net 62 lbs., shipping 91 lbs.
ACCESSORIES AVAILABLE:	℗ 608A-16D Output Cable provides 50 ohm termination and standard binding posts at the end of a 24" length of cable. Allows direct connection of the signal generator to high impedance circuits. ℗ 608A-95A Fuse Holder provides protection of the attenuator elements when the 608 is used for transceiver tests.



Read the frequency of the r-f output signal directly in megacycles

Read the percent modulation of the r-f output signal

Read r-f power level fed to the output attenuator

Set the modulation meter circuits electrical to zero with instrument in operation and no modulation applied

Select output frequency in combination with FREQUENCY RANGE switch

Adjust the r-f power level fed to output attenuator

Tune r-f power amplifier circuit for maximum output as indicated on OUTPUT VOLTS meter

Adjust modulation percentage to desired value as indicated on modulation meter

Select for desired type of modulation

Adjust output frequency in small increments

Select and read the r-f output level at the RF OUTPUT jack in microvolts, millivolts, and DBM

Indicates when circuits are energized

Internal d-c power supply fuse

Output connector for r-f output signal (see CAUTION)

Main power source fuse

Select frequency range indicated by pointer on the MEGACYCLES dial

Connect sine wave signal from external source for modulation of r-f output signal

Main power switch -- turn ON all circuits of the signal generator

Connect pulse signal from external source for modulation of the r-f output signal

Figure 2-1. Model 608C Front Panel Controls

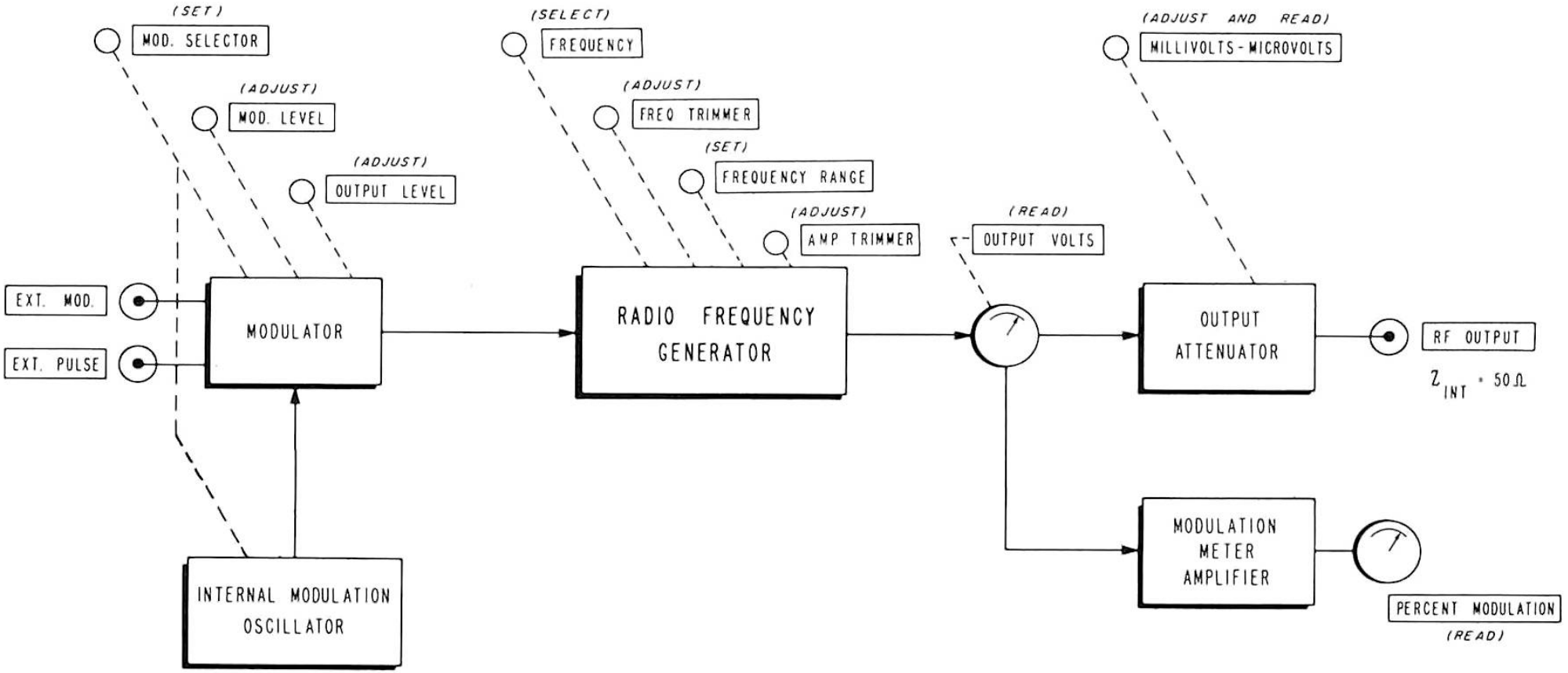


Figure 2-2. Diagram Showing Relationships of Front Panel Controls to Major Circuits

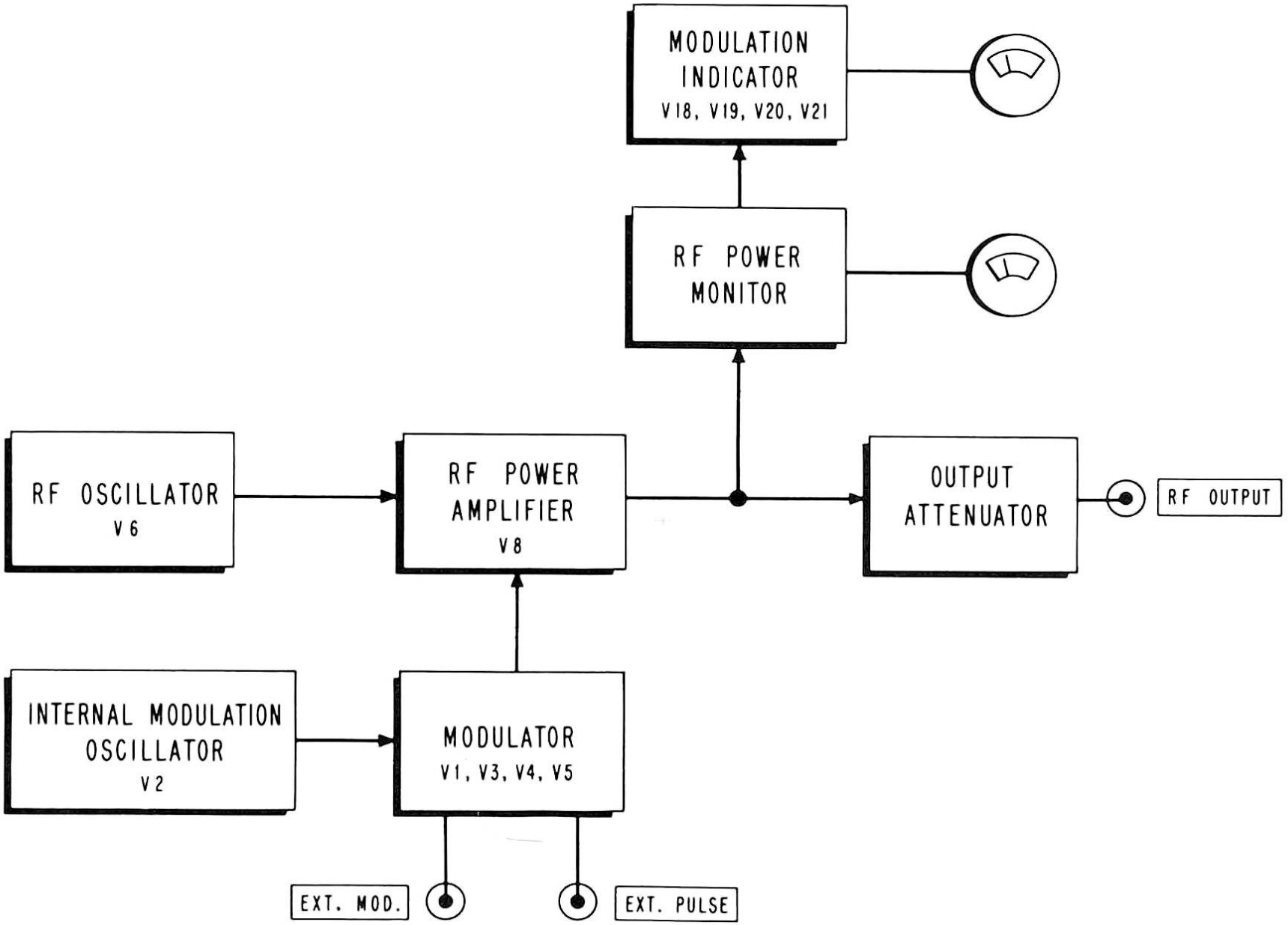


Figure 3-1. Block Diagram for Model 608C

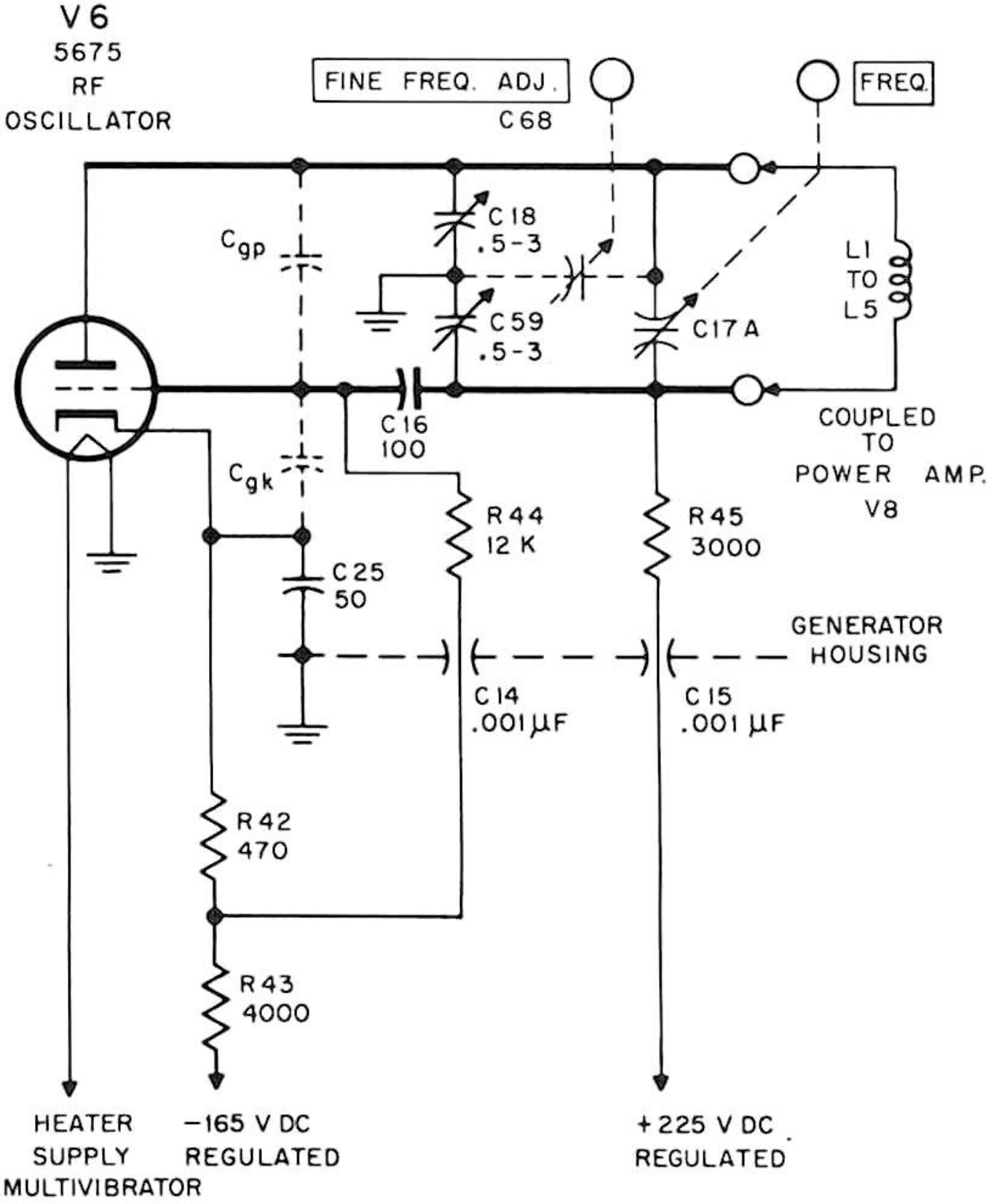


Figure 3-3. Schematic Diagram of Radio Frequency Oscillator

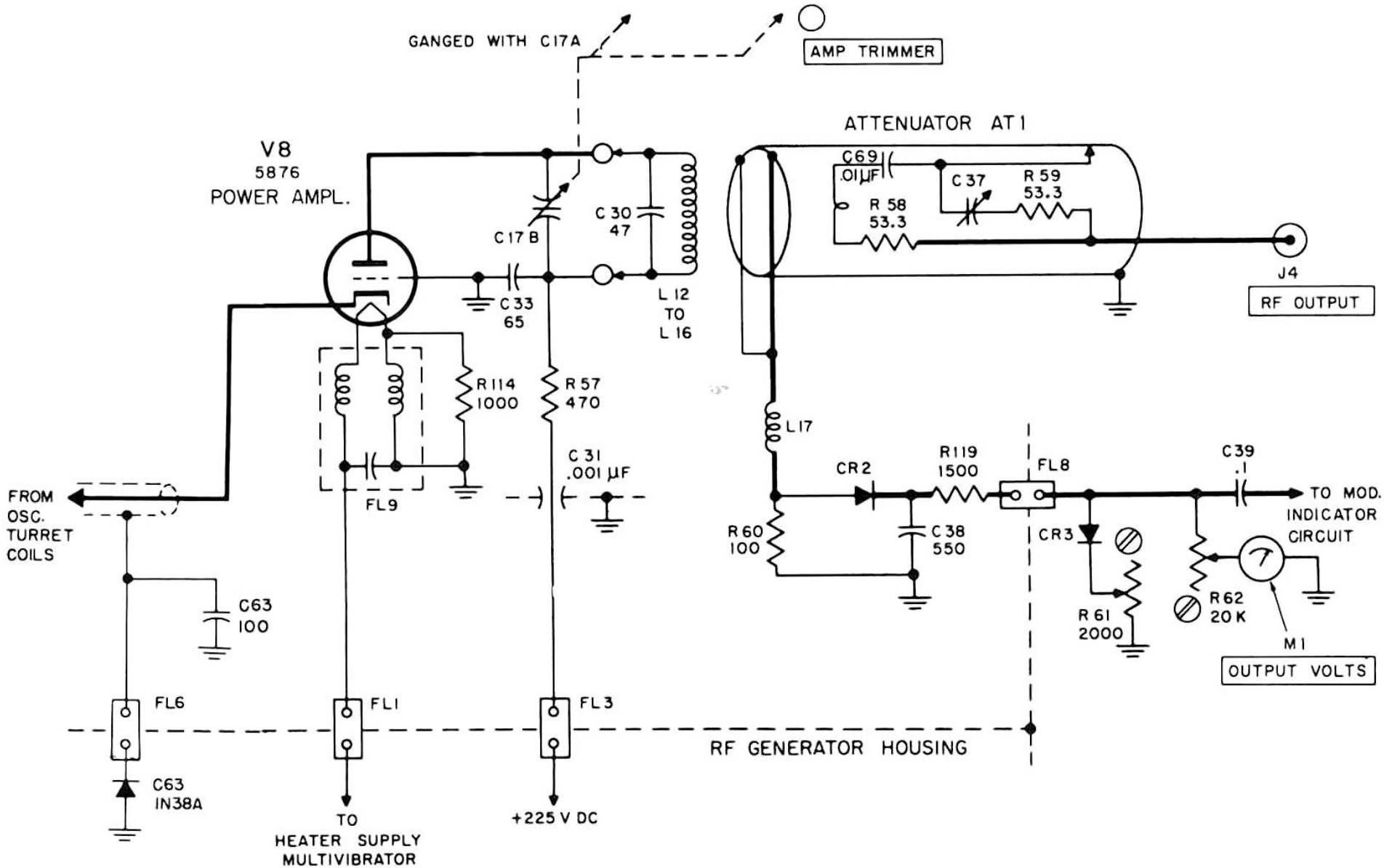


Figure 3-5. Schematic Diagram of Radio Frequency Power Amplifier

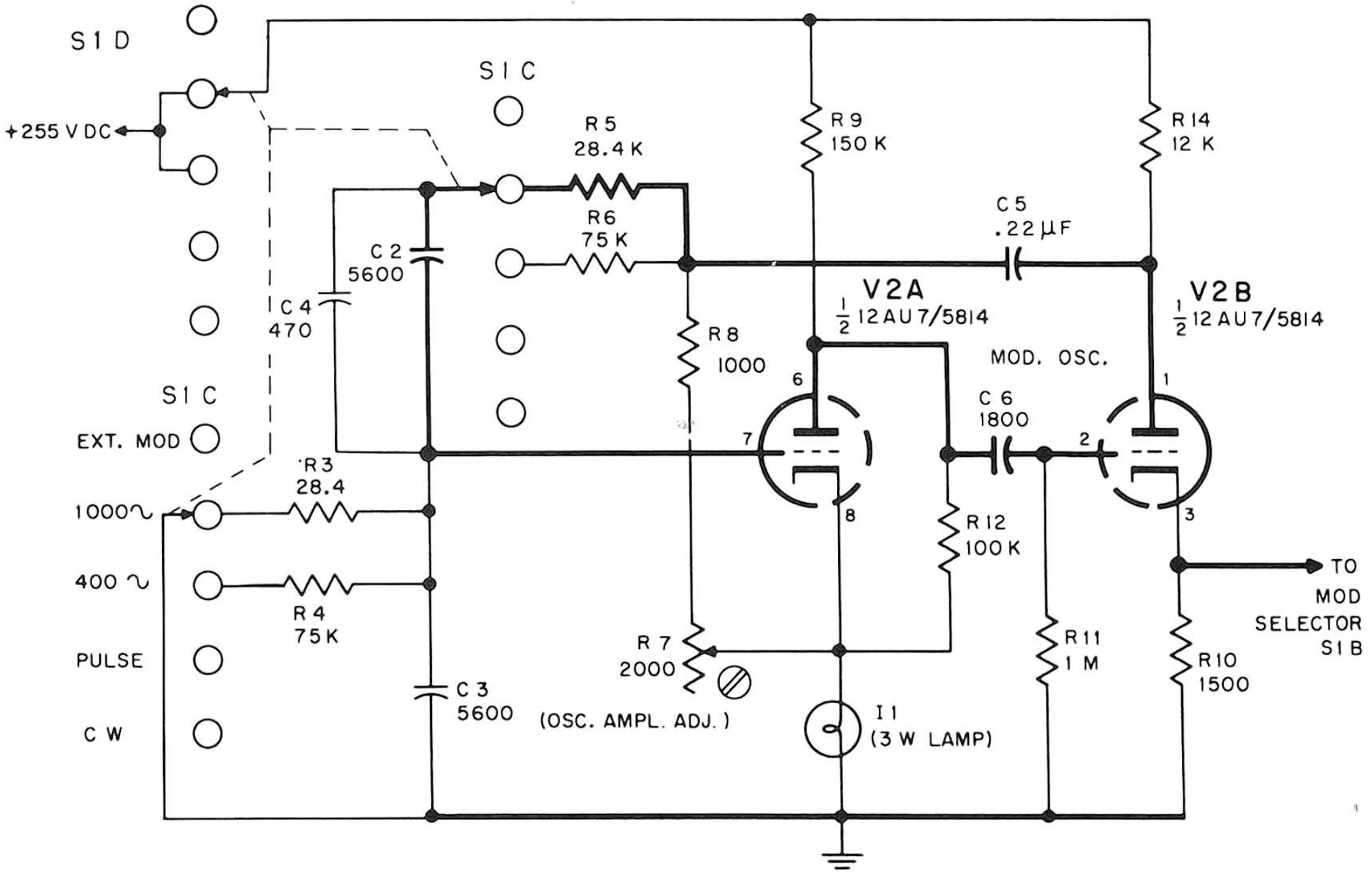


Figure 3-7. Schematic Diagram of Internal Modulation Oscillator

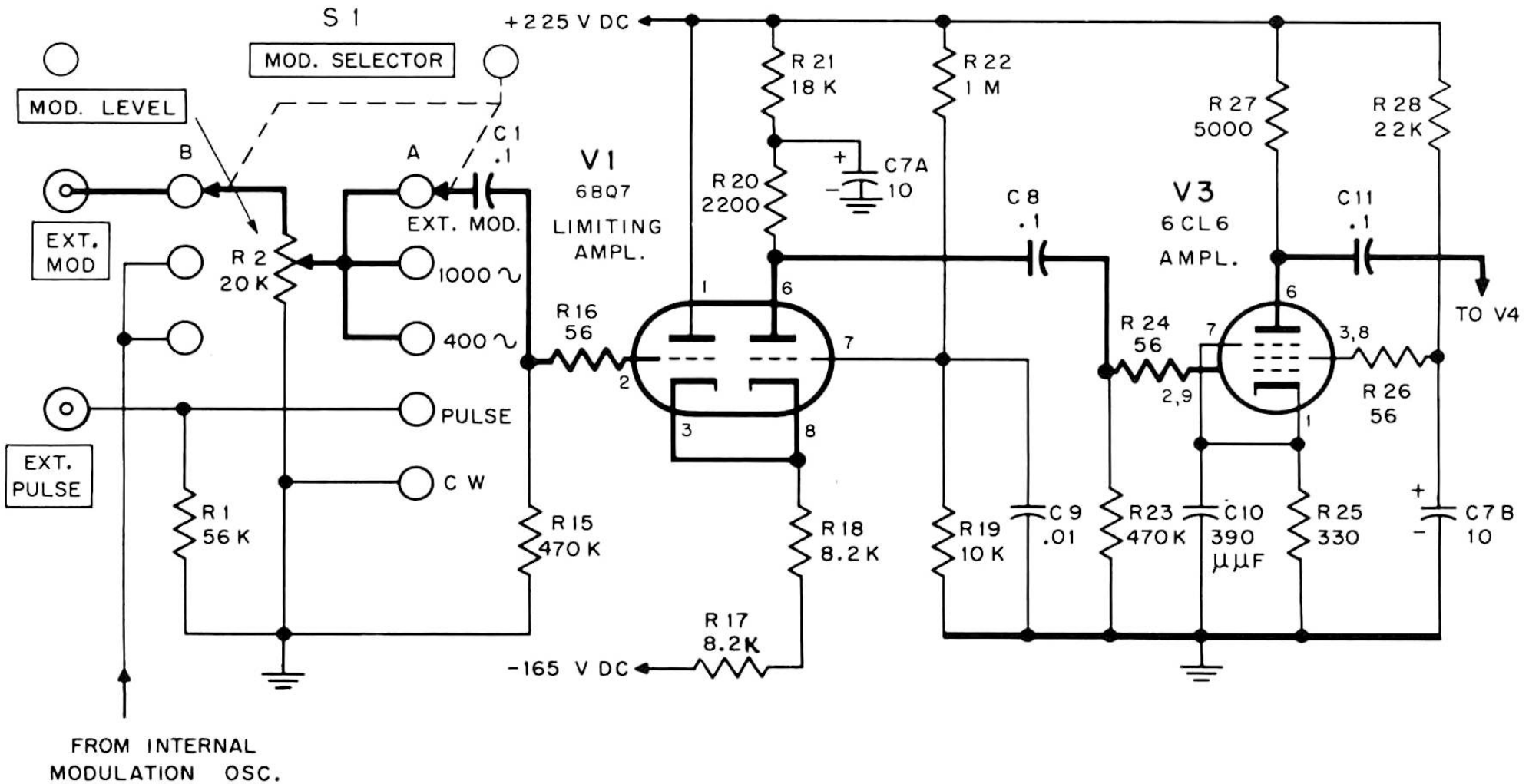


Figure 3-8. Schematic Diagram of Modulation Limiter and Amplifier

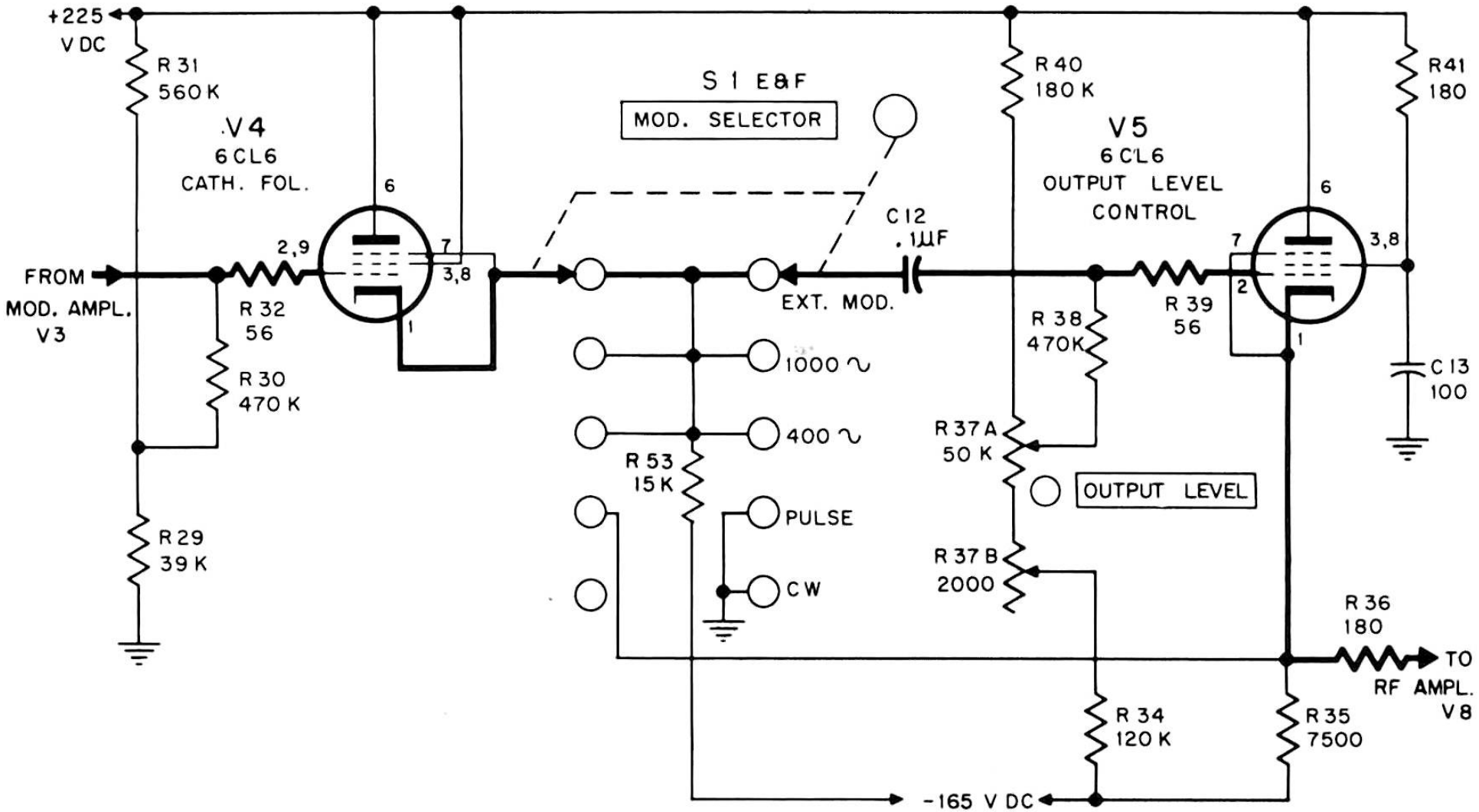


Figure 3-9. Schematic Diagram of Modulation Cathode Follower and Output Level Control Stages

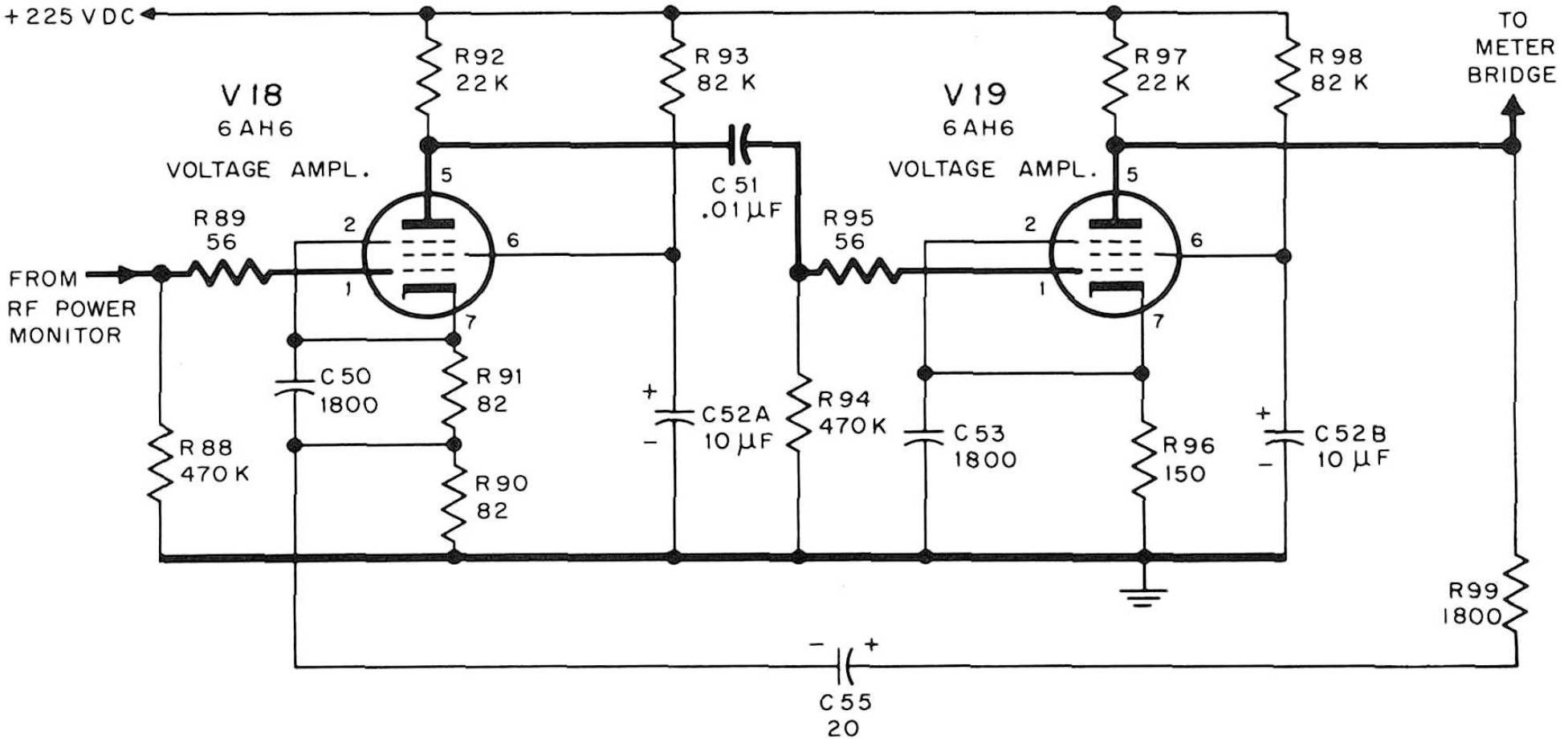


Figure 3-10. Schematic Diagram of Modulation Indicator Amplifier

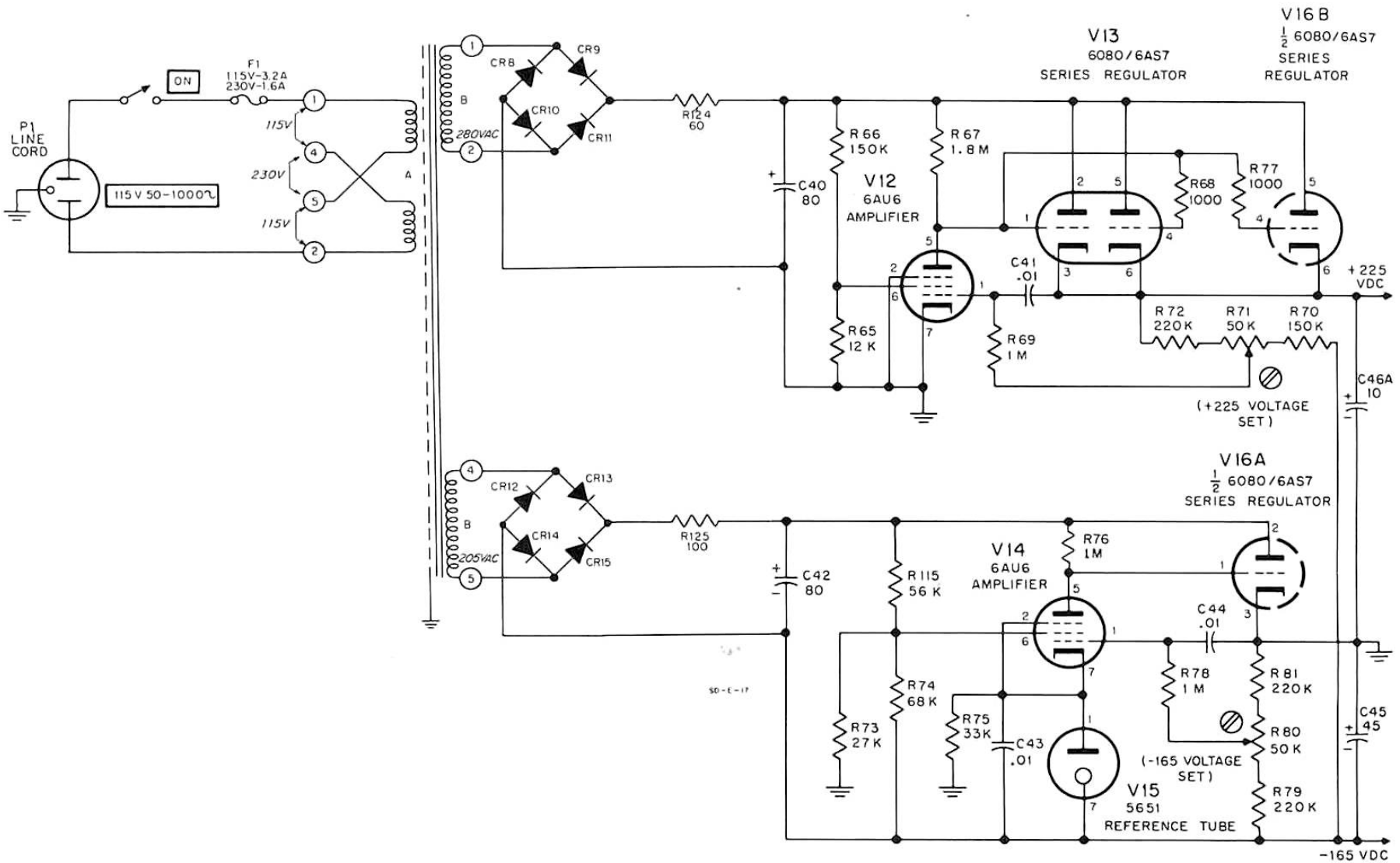
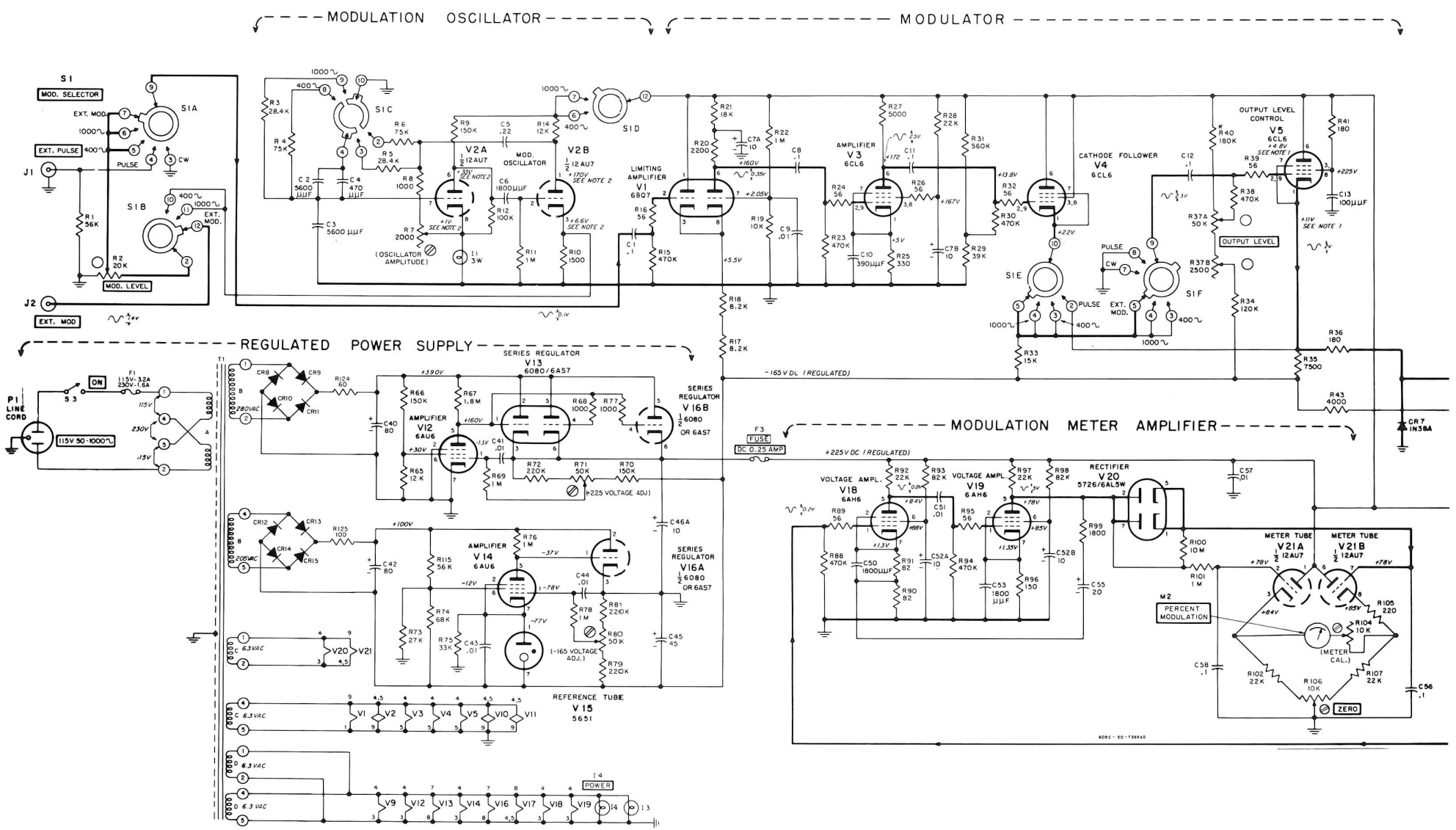
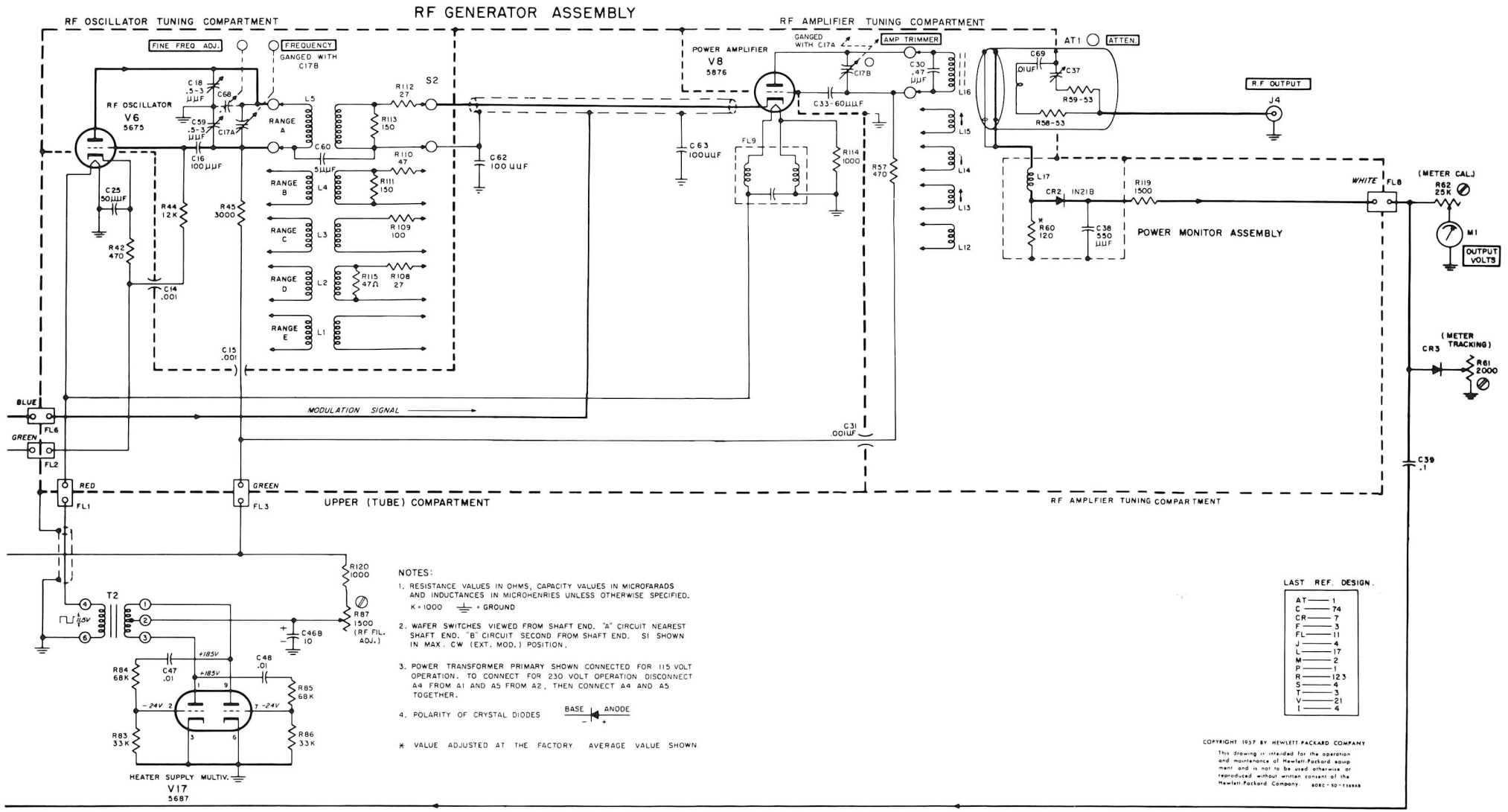


Figure 3-12. Schematic Diagram of Regulated Power Supplies


MODULATION OSCILLATOR
MODULATOR
REGULATED POWER SUPPLY
MODULATION METER AMPLIFIER
MOD. SELECTOR
EXT. MOD.
EXT. PULSE
PULSE
CW
MOD. LEVEL
MOD. OSCILLATOR
(OSCILLATOR AMPLITUDE)
LIMITING AMPLIFIER
AMPLIFIER
CATHODE FOLLOWER
OUTPUT LEVEL CONTROL
OUTPUT LEVEL
SERIES REGULATOR
SERIES REGULATOR
SERIES REGULATOR
REFERENCE TUBE
FUSE
DC 0.25 AMP
VOLTAGE AMPL.
VOLTAGE AMPL.
RECTIFIER
METER TUBE
METER TUBE
PERCENT MODULATION
(METER CAL.)
ZERO
POWER
LINE CORD
ON
115V 50-1000~
-165 V DC (REGULATED)
+225 V DC (REGULATED)
+225 VOLTAGE ADJ.
(-165 VOLTAGE ADJ.)

RF GENERATOR ASSEMBLY



NOTES:

1. RESISTANCE VALUES IN OHMS, CAPACITY VALUES IN MICROFARADS AND INDUCTANCES IN MICROHENRIES UNLESS OTHERWISE SPECIFIED. K = 1000 ⏚ = GROUND
2. WAFER SWITCHES VIEWED FROM SHAFT END. "A" CIRCUIT NEAREST SHAFT END. "B" CIRCUIT SECOND FROM SHAFT END. S1 SHOWN IN MAX. CW (EXT. MOD.) POSITION.
3. POWER TRANSFORMER PRIMARY SHOWN CONNECTED FOR 115 VOLT OPERATION. TO CONNECT FOR 230 VOLT OPERATION DISCONNECT A4 FROM A1 AND A5 FROM A2, THEN CONNECT A4 AND A5 TOGETHER.
4. POLARITY OF CRYSTAL DIODES BASE — ANODE (− / +)

* VALUE ADJUSTED AT THE FACTORY AVERAGE VALUE SHOWN

LAST REF. DESIGN.

AT	1
C	74
CR	7
F	3
FL	11
J	4
L	17
M	2
P	1
R	123
S	4
T	3
V	21
I	4