DU MONT MODEL 256-D

FREQUENCY RESPONSE

Vertical Amplifier Down 3 db at 8 Mc

SWEEP CIRCUITS

A sweeps: 1,000, 100, 25, 10, 4 microseconds; in addition, a 4,500-microsecond sweep for observing the entire duty cycle at repetition rates above 300 per second.

R sweeps: 25, 10, 4 microseconds which may be delayed to cover any portion of the 100-microsecond *A* Sweep. The delay is read directly on a dial with an accuracy of ±0.1% in the 4-to-100-microsecond or 5-to-1,000-microsecond regions.

DEFLECTION FACTORS

Vertical Amplifier 0.25 rms volts/inch
Vertical-Deflection Plates 79 d-c volts/inch

LINE RATING 115 volts, 60 cps, ±10%

The schematic circuit diagram and tube complement of Model 256-D is shown in Fig. 22-14A. A block diagram is shown in Fig. 22-14B. This instrument, a relatively specialized apparatus, is a revised form of the 256-B *A/R* range scope. The time scale of the instrument has been changed from yards to microseconds.

Trigger Circuits

Triggering may be obtained either from an internal trigger generator of variable rate or from an external signal of positive or negative polarity. Timing markers are available for use only when the internal trigger generator is used. At this time, the markers appearing on the sweep are also available at the Z IN-MARKER OUT terminal.

Sweep-Delay Circuit, Pick-Off-Diode, and Delay Amplifiers

The sweep-delay circuit consists essentially of a compensated linear-sawtooth circuit which is connected to a *pick-off diode*. The voltage at which this diode conducts is controlled through a bleeder network by a ten-turn, helically wound potentiometer. A dial attached to this potentiometer permits reading off the delay time directly. The output of the pick-off diode is amplified by tubes *V105A* and *V105B* and serves as the delayed trigger for the rest of the circuits.

R-Gate and Sweep Generators

The circuit for the *R*-gate generator consists of a special blocking oscillator which provides a positive signal for intensifying the cathode-ray tube during the *R* sweeps, a negative signal to act as the movable marker, and a negative gate for initiating the *R* sweeps.

Crystal Oscillator

The crystal oscillator is a conventional crystal-controlled triode oscillator. The crystal frequency is 100 kc which gives timing marks of 10 μsec apart. It drives the 10-μsec marker generator.

Marker Generators

The marker generators are conventional blocking oscillators. The 10-μsec marker generator is triggered by the crystal oscillator. The 50-μsec marker generator is triggered by the 10-μsec markers. The output of the marker generators when used on the sweeps appear as intensity markers (—) or blanking markers (+), because they are impressed upon the *cathode* of the cathode-ray tube. The 10-μsec marker generator is driven by the pulses from the crystal oscillator. The 50-μsec marker generator *V110A* is a conventional blocking oscillator which is triggered from the 10-μsec marker generator by the positive 10-μsec markers impressed upon the grid of *V110A*.

Trigger Circuits

The *trigger-divider gate generator V110B* is a blocking oscillator triggered in the cathode circuit from the +50-μsec markers. This blocking oscillator divides the repetition rate and generates a 16-μsec gate. The output of the oscillator is a gate which is fed to the *trigger generator*.

One triode of *V111* is used as coincidence circuit for the trigger-divider gate and a 10-μsec marker. When a marker is coincident with the gate, the trigger generator is fired. Another triode, the trigger generator is a conventional blocking oscillator, but it is biased off to prevent free running. A negative trigger is used to feed the *A* gate, and a positive trigger is used to feed the trigger cathode-follower output tube. The *trigger output* is a conventional phase splitter and is used to furnish either a positive or negative trigger for external use. The positive trigger is also used to trigger the *R* gate and hence the *R* sweeps when an undelayed sweep is desired.

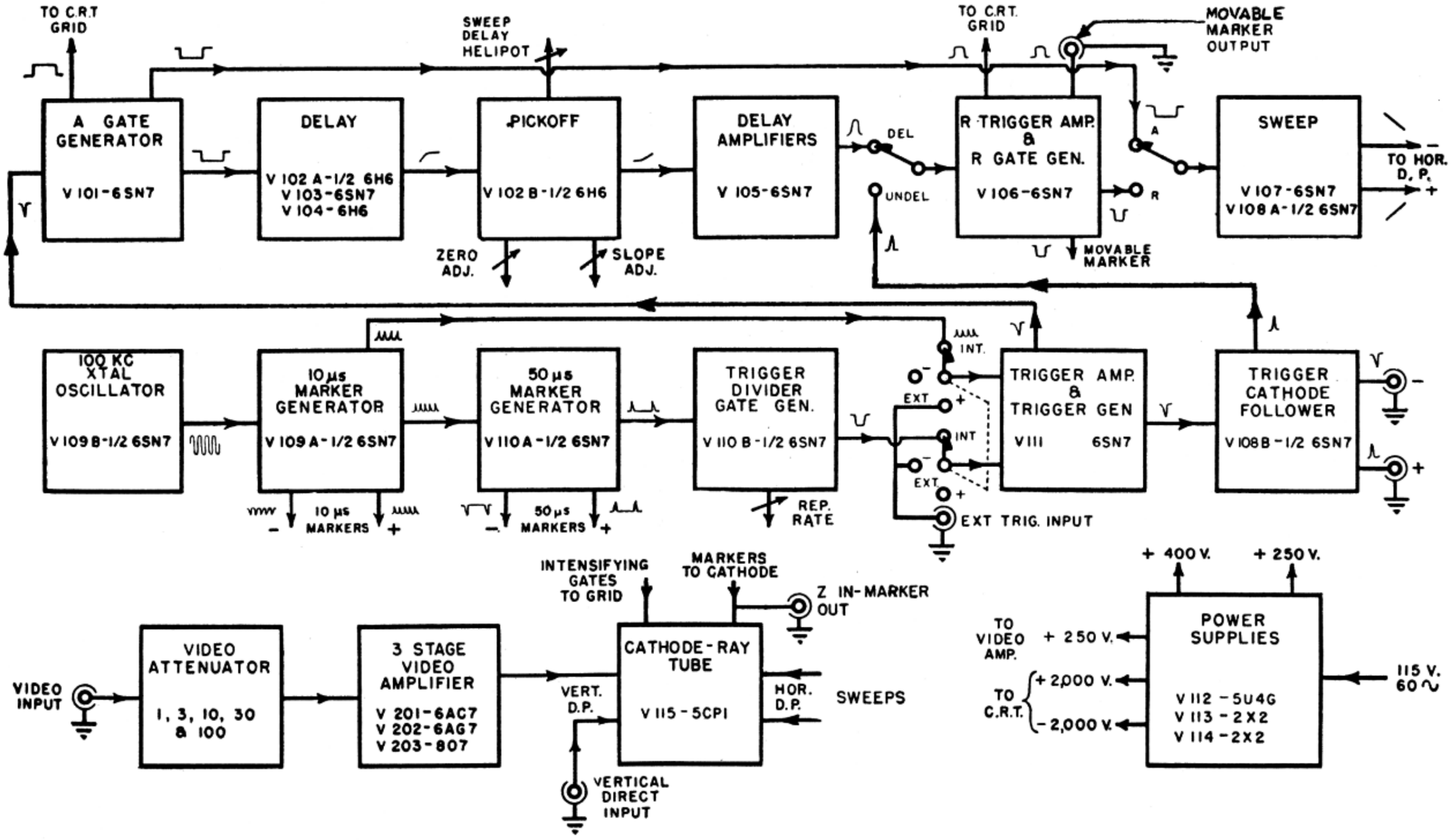
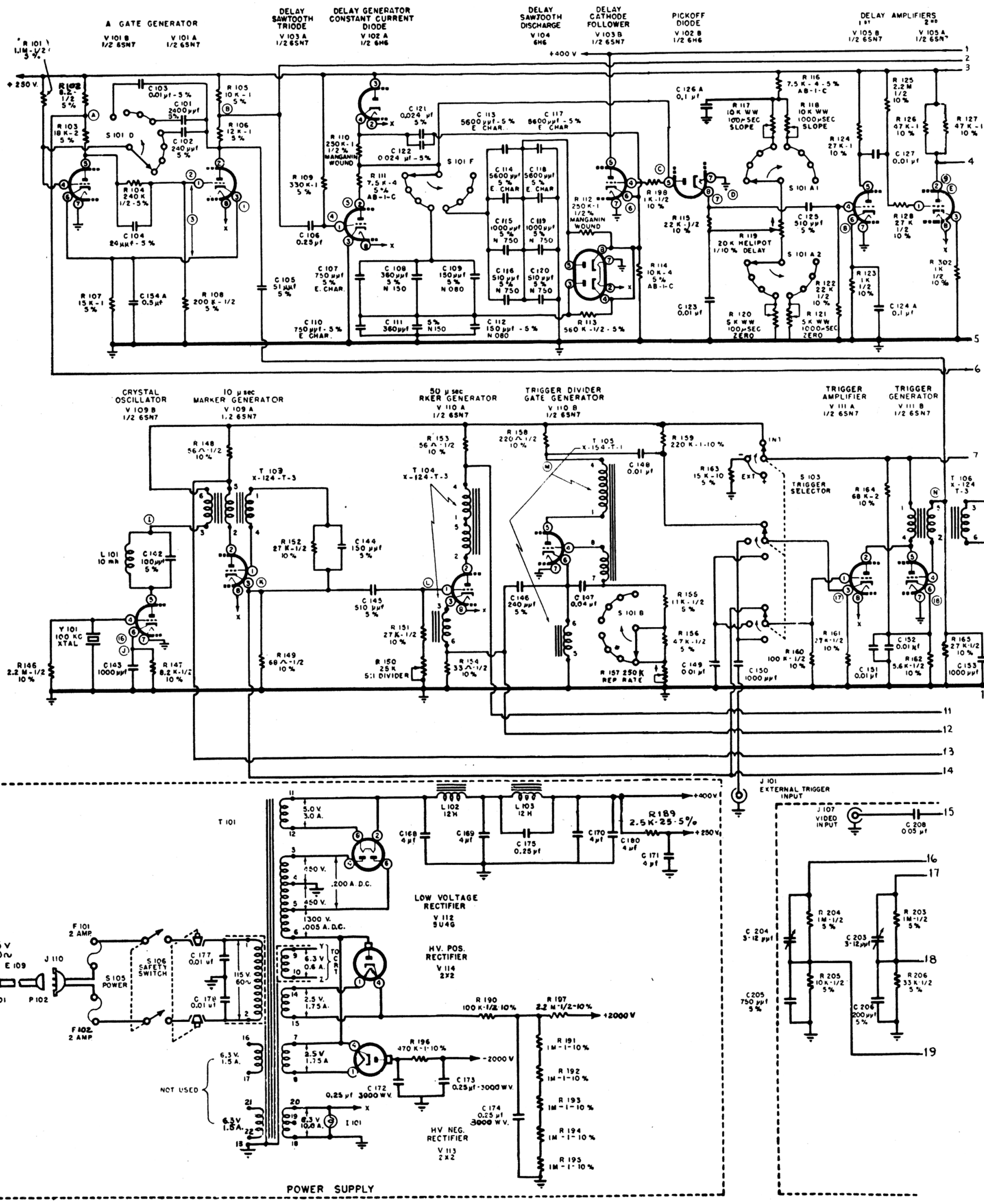


Fig. 22-14B.—Block diagram of Du Mont Model 256-D.

Courtesy Du Mont Labs.



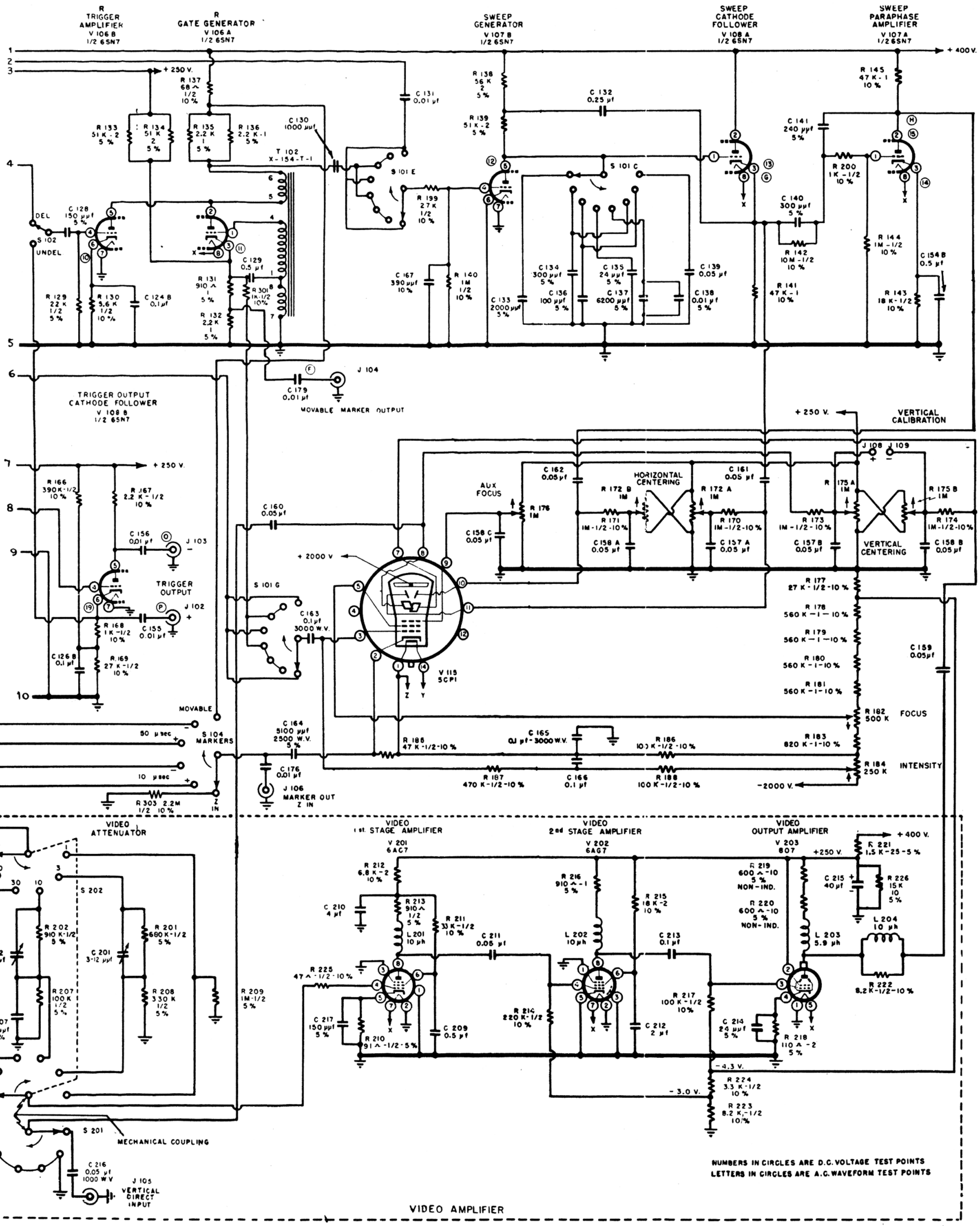


Fig. 22-14A.—Schematic of Du Mont Model 256-D.

Courtesy Du Mont Labs.