DU MONT MODELS 208 AND 208-B

FREQUENCY RESPONSE
- Vertical Amplifier 2 cps to 100,000 cps, ±10%
- Horizontal Amplifier 2 cps to 100,000 cps, ±10%
- Sweep Circuit 2 cps to 50,000 cps

DEFLECTION FACTORS
- Vertical Amplifier 0.010 rms volts/inch
- Vertical-Deflection Plates 21 rms volts/inch
- Horizontal Amplifier 0.5 rms volts/inch
- Horizontal-Deflection Plates 22 rms volts/inch

LINE RATING 115-230 volts, 40-60 cps

TUBE COMPLEMENT

Type	*Function*
6SN7GT (V1, V4)	Impedance Transformation Y-Axis Input Stage, Y-Axis Positioning Amplifier
6SN7GT (V2, V3)	Y-Axis Amplifier
6V6 (V5, V6)	Y-Axis D-C Coupled Phase-Inversion Amplifiers
6Q5G (V7)	Sawtooth Sweep Oscillator
6SN7GT (V8, V9)	Impedance Transformation X-Axis Input Stage, X-Axis Positioning Amplifier
6V6 (V10, V11)	X-Axis D-C Coupled Phase-Inversion Amplifiers
5LP-A (V12)	Cathode-Ray Tube
80 (V13)	High-Voltage Half-Wave Rectifier
80 (V14)	Low-Voltage Full-Wave Rectifier
6X5GT/G (V15)	Half-Wave Negative Supply Rectifier
6V6 (V16)	Series-Voltage Regulator
6SJ7 (V17)	Voltage-Regulator Control Tube
991 (V18)	Neon Tube Voltage Regulator

The schematic circuit diagram of Model 208-B is shown in Fig. 22-9. The only differences between Models 208 and 208-B are that 6SN7GT tubes are used in Model 208-B, where Model 208 uses type 6F8G tubes instead; also the 5LP- series cathode-ray tubes in Model 208 have been replaced with 5LP-A series in Model 208-B which are tubes of more recent design. The analysis to follow will be with respect to Model 208-B. However, whatever is said regarding the circuit analysis of Model 208-B will also hold true for Model 208.

Input Circuits

A two-step attenuator is used in the vertical input section. This attenuator, whether in the "Under 25 volt rms" input position or "Under 250 volt rms" input position, controlled by switch *S1* as shown on the schematic, limits the signal voltage input to the first stage to 25 volts rms or less. When switch *S1* is in the "Under 250 volt rms" position, a voltage-divider network is inserted in the input section and the signal voltage splits up in such a manner that the voltage drop across the input grid circuit, consisting of *R2, R3,* and *C3* all in parallel, is about 10 per cent of the input signal. The remaining 90 per cent of the signal voltage appears across the parallel circuit of *R1* and *C2*. This input switch attenuator is employed to prevent overloading of the input stage. The input impedance is essentially the same for each position of the switch.

The input stage in the vertical section is in the form of an impedance transforming circuit. This arrangement permits the use of a low-impedance vertical gain control with a minimum amount of frequency discrimination and at the same time provides for a high-impedance input. This input stage is a cathode-follower circuit which utilizes one triode section *V1* of a 6SN7GT tube.

Positioning Control

The output from *V3* is fed to the grid circuit of *V4* which is a "positioning amplifier." This amplifier is also arranged in the form of a cathode-follower circuit, with the signal appearing across the cathode load. In this cathode circuit, the 15,000-ohm potentiometer *R16* which functions as the positioning control is in series with a 300,000-ohm resistor; the total signal voltage appearing across these two resistors.

With a d-c potential of —280 volts at the bottom of *R17* and the direct current of *V4* flowing through the cathode circuit, the potential across *R16* is such that the cathode side of this resistor is 7.2 volts positive as compared to a negative voltage of —7.1 volts at its other end. This means that, at approximately the center of *R16,* the d-c voltage is zero. Thus we can understand how this potentiometer can function as a positioning control. The variable arm of *R16* is coupled directly to the grid of *V5,* a 6V6 tube acting as part of a direct-coupled phase-inverter circuit. Since the coupling is direct, both the signal and d-c voltages in the cathode load circuit of *V4* are fed to the grid of *V5.* The 15,000-ohm value of *R16* is small compared to that of *R17,* hence the change in signal voltage fed to *V5,* as *R16* is varied, is considered to be negligible. This variation of *R16* effectively controls only the d-c level of voltage input to the grid of *V5.* Since the signal voltage as well as the positioning voltage are applied together to the grid of *V5,* the signal voltage will move the screen spot about whatever positive value it assumes. The X-axis amplifier circuit is essentially the same as the Y-axis except that a two-stage amplifier is not employed after the impedance transformation stage.

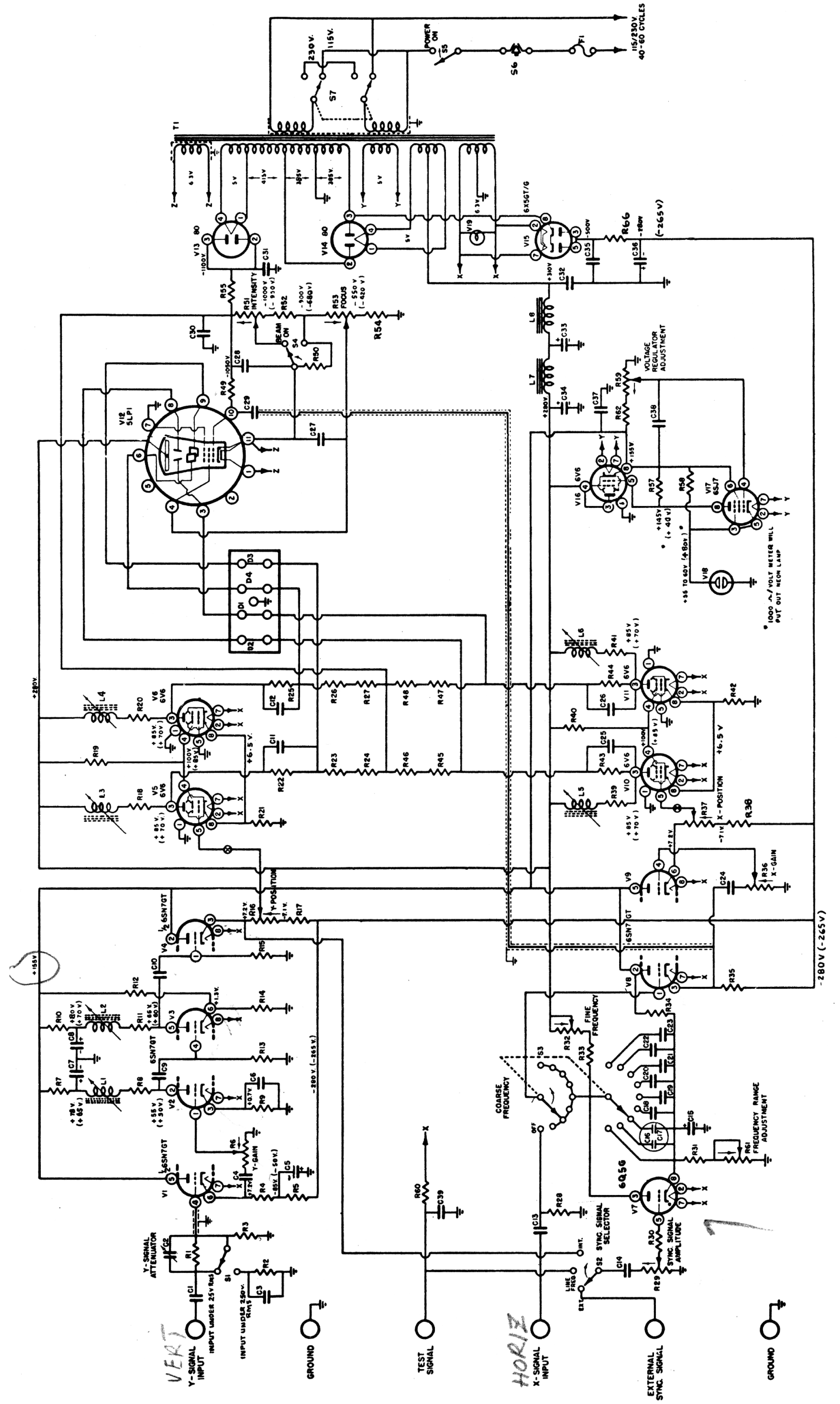
PARTS LIST FOR DU MONT MODELS 208 AND 208-B

C1—0.5μf. 600V.
C2—4-30μμf. trimmer
C3—200μμf. 500V.
C4—8μf. 200V.
C5—24μf. 350V. elec.
C6—0.005μf. 500V.
C7—30μf. 150V. elec.
C8—30μf. 150V. elec.
C7 and C8 common neg.
C9—1μf. 200V.
C10—1μf. 200V.
C11—0.25μf. 400V.
C12—0.25μf. 400V.
C13—0.25μf. 400V.
C14—0.1μf. 1000V.
C15—25μf. 50V. elec.
C16—1μf. 400V.
C17—0.2μf. 400V.
C16-C17 common can
C18—0.04μf. 400V.
C19—0.01μf. 400V.
C20—2500μμf. 500V.
C21—600μμf. 500V.
C22—125μμf. 500V.
C23—70μμf. 500V.
C24—8μf. 200V.
C25—0.25μf. 400V.
C26—0.25μf. 400V.
C27—0.1μf. 1000V.
C28—0.1μf. 1000V.
C29—50μμf. 1200V.
C30—0.5μf. 1500V.
C31—0.5μf. 1500V.
C32—1μf. 1000V.
C33—16μf. 450V. elec.
C34—40μf. 450V. elec.
C35—1μf. 1000V.
C36—16μf. 450V.
C37—1μf. 200V.
C38—1μf. 200V.
C39—0.1μf. 1000V.

F1—1.5 amps. fuse

L1—1-3.1mh.
L2—1-3.1mh.
L3—7-19mh.
L4—7-19mh.
L5—7-19mh.
L6—7-19mh.
L7—8h 325 ohms d.c.
L8—8h 325 ohms d.c.

R1—2meg. ½W. ±5%
R2—250K ½W. ±5%
R3—2meg. ½W.
R4—100K 1W.
R5—250K 1W.
R6—100K pot.
R7—25K 1W.
R8—8K 1W.
R9—250 ohm ½W.
R10—25K 1W.
R11—8K 1W.
R12—50K 1W.
R13—1meg. ½W.
R14—250 ohm ½W.
R15—1meg. ½W.
R16—15K pot.
R17—300K 1W.
R18—25K 10W.
R19—150K 1W.
R20—25K 10W.
R21—400 ohm 1W.
R22—750K 1W.
R23—5meg. 1W.
R24—5 meg. 1W.
R25—750K 1W.
R26—5meg. 1W.
R27—5meg. 1W.
R28—5meg. ½W.
R29—100K pot.
R30—10K ½W.
R31—500 ohm ½W.
R32—5meg. pot.
R33—500K 1W.
R34—39K 3W.
R35—250K 1W.
R36—500K pot.
R37—15K pot.
R38—300K 1W.
R39—25K 10W.
R40—150K 1W.
R41—25K 10W.
R42—400 ohm 1W.
R43—750K 1W.
R44—750K 1W.
R45—5meg. 1W.
R46—5meg. 1W
R47—5meg. 1W.
R48—5meg. 1W.
R49—100K ½W.
R50—1meg. ½W.
R51—100K pot.
R52—200K 1W.
R53—500K pot.
R54—1meg. 1W.
R55—50K 1W.
R56—47K 3W.
R57—500K 1W.
R58—100K 1W.
R59—500K pot.
R60—10K ½W.
R61—1K pot.
R62—500K 1W.



Courtesy Du Mont Labs.

Fig. 22-9.—Schematic of Du Mont Model 208-B.