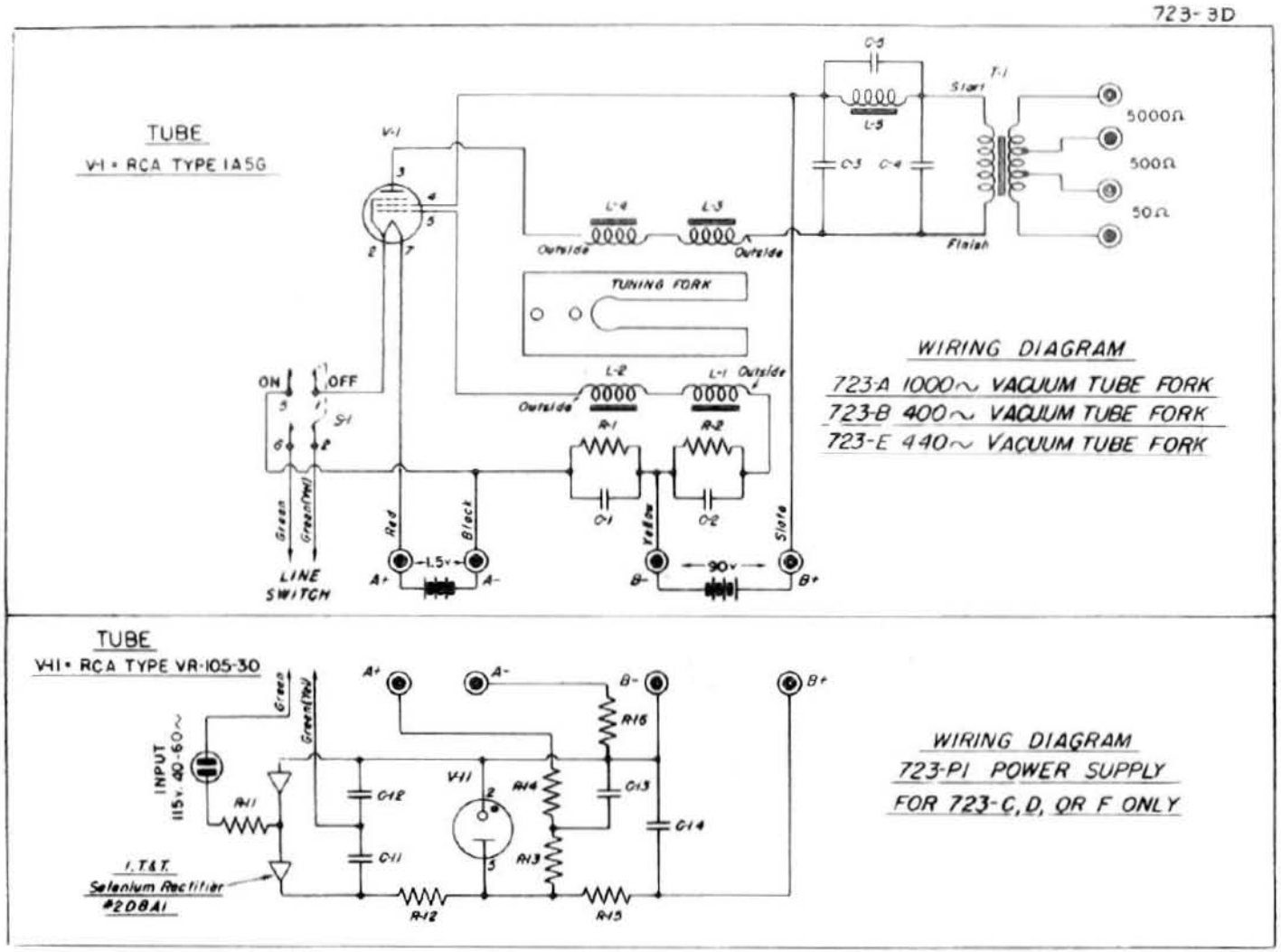
General Radio Type 723 Tuning Fork Frequency Standard



PARTS LIST FOR TYPE 723 VACUUM-TUBE FORK

Frequency	R-1	R-2	C-1	C-2	C-3	C-4	C-5
1000 cycles	1000 Ω	3.3 KΩ	0.2 μf	0.1 μf	0.02 μf	0.02 μf	0.0015 μf
400 cycles	1500 Ω	1 MΩ	1 μf	0.02 μf	0.03 μf	0.04 μf	0.003 μf
440 cycles	1500 Ω	1 MΩ	1 μf	0.02 μf	0.03 μf	0.04 μf	0.0025 μf

OPERATING INSTRUCTIONS FOR TYPE 723 VACUUM-TUBE FORK

DESCRIPTION: This instrument is an electro-mechanical oscillator, whose frequency is determined by a vacuum-tube-driven tuning fork. The output system consists of a filter and transformer, to suppress harmonics and to provide three output impedances. The instrument should be operated with the panel in a horizontal position only. Points are available on the panel for checking supply voltages.

FREQUENCY: The nominal operating frequency is 1000 cycles for the Type 723-A and Type 723-C, 400 cycles for the Type 723-B and Type 723-D, and 440 cycles for the Type 723-E and Type 723-F. This frequency is adjusted within $\pm 0.05\%$ at 77°F, and is independent of changes in load impedance, and normal variations in power supply voltages.

OUTPUT: The output power into matched load impedances is at least 50 milliwatts, and is independent of line-voltage fluctuations when the oscillator is operated from a Type 723-P1 Power Supply. On battery operation, the output will drop slightly as the batteries age. The starting time is approximately 10 seconds for the Type 723-A, and 20 seconds for the Type 723-B.

WAVEFORM: The harmonic content of the output voltage is less than 0.5%, when connected to load impedances equal to, or greater than, the nominal output impedance. The hum level is less than .08% when operating with the Type 723-P1 Power Supply. If hum is excessive, reverse power leads to a-c line.

TEMPERATURE: When batteries are used, the temperature coefficient of frequency is —0.008% per degree F. Operation with the Type 723-P1 Power Supply results in an initial frequency drift downward, within the first two hours, of approximately .15% to .2%, at which time equilibrium is reached. Most of this drift occurs in the first 30 minutes, and is caused by heat generated within the unit. Humidity has no effect upon the operation of the instrument.

BATTERIES: The unit may be operated from batteries, which will fit within the lower compartment of the cabinet. Batteries required are 1 Burgess Type 4FA (1.5-v A battery) and 2 Burgess Type Z30N (45-v B batteries) connected in series. Disregard the two green leads connected to the panel ON-OFF switch and also the 115-volt, 40-60 cycle, nameplate located on the side of the cabinet. Replace batteries when the voltage falls below 1.1 and 82 volts, respectively, for the "A" and "B" batteries.

A-C POWER SUPPLY: When the Type 723-P1 Power Supply is used, connect the two green leads from the panel ON-OFF switch to the terminals marked LINE SW. on the Type 723-P1. The panel switch will now disconnect the 115-volt, 60-cycle, line.

For 230-volt operation a special autotransformer is used and the cabinet nameplate is reversed to read 230 volts, 40-60 cycles.

The operation of the Type 723-P1 Power Supply is independent of line voltage variations between 105 to 125 (210 to 250) volts.

TUBES: The Type 1A5G Tube used in the oscillator, and the Type VR-105-30 Tube used in the Power Supply can be replaced without affecting the operating characteristics of the instrument.

PARTS LIST FOR TYPE 723-P1 POWER SUPPLY

R-11 = 170 Ω	R-14 = 1000 Ω	C-11, C-12, C-13, C-14 — 40 μf each
R-12 = 650 Ω	R-15 = 4.7 KΩ	
R-13 = 1000 Ω	R-16 = 100 Ω	

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Form 570-C