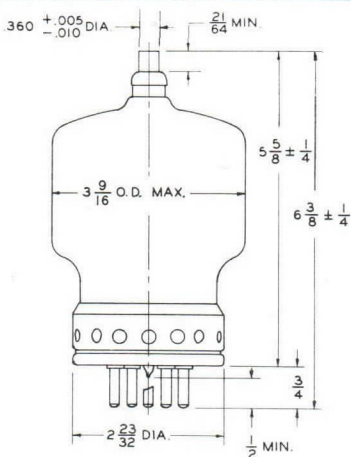


PL-175A

Beam Pentode



The PL-175A is a 400-watt plate dissipation beam pentode which incorporates the exclusive Penta vane-type suppressor grid. In most cases, the tube may be used to replace directly the 4-400A, with no circuit modifications, and only slight readjustment of tuning controls. In Class-AB₁ amplifier applications, such replacement can result in 20% to 40% greater output. The suppressor grid terminates in the tube base shell, and is designed to be operated at zero voltage. The base shell must be grounded to the chassis by means of suitable spring clips.

ELECTRICAL CHARACTERISTICS

Filament -- Thoriated Tungsten

Voltage - - - - - 5.0 volts

Current - - - - - 14.5 amperes

Grid-Screen Amplification Factor - - - - - 4.5

Interelectrode Capacitances

Grid-Plate - - - - - 0.06 μ fd.

Input - - - - - 15.1 μ fd.

Output - - - - - 9.8 μ fd.

MECHANICAL CHARACTERISTICS

Base - - - - - 5-pin, metal shell

Maximum Overall Dimensions

Length - - - - - 6.63 inches

Diameter - - - - - 3.56 inches

Mounting Position - - - - - Vertical, base up or down

MAXIMUM RATINGS — CCS (Continuous Commercial Service)

	Class-AB ₁ R-F or Audio	Class-C CW or FM	
D-C Plate Voltage	4000	4000	max. volts
D-C Screen Voltage	1000	600	max. volts
D-C Suppressor-Grid Voltage	100	100	max. volts
D-C Plate Current	350	350	max. ma
Screen-Grid Input	25	25	max. watts
Plate Dissipation	400	400	max. watts



PENTA LABORATORIES, INC.

312 NORTH NOPAL STREET • SANTA BARBARA, CALIFORNIA



PL-175A

TYPICAL OPERATION — Class C C-W or FM Amplifier Grounded-Cathode Circuit

D-C Plate Voltage	2000	2000	2500	2500	3000	3000	4000	4000	volts
D-C Screen-Grid Voltage	500	600	500	600	500	600	500	600	volts
D-C Suppressor-Grid Voltage	0	0	0	0	0	0	0	0	volts
D-C Control-Grid Voltage	-160	-180	-160	-180	-160	-180	-180	-200	volts
D-C Plate Current	350	350	350	350	350	350	350	350	ma
D-C Screen-Grid Current	46	42	41	40	38	36	34	29	ma
D-C Control-Grid Current	14	8	12	7	11	6	10	6	ma
Peak R-F Control-Grid Voltage	226	226	218	226	214	218	236	239	volts
Driving Power (approx.)	3.1	1.8	2.6	1.6	2.4	1.3	2.4	1.4	watts
Plate Power Input	700	700	875	875	1050	1050	1400	1400	watts
Plate Dissipation (approx.)	200	190	230	220	275	265	360	345	watts
Useful Power Output ¹	460	470	590	600	705	715	945	960	watts

TYPICAL OPERATION — Class AB₁ Linear R-F Amplifier² Single-Sideband, Suppressed Carrier; Grounded-Cathode Circuit

D-C Plate Voltage	2000	2500	3000	3500	volts
D-C Screen-Grid Voltage	750	750	750	750	volts
D-C Suppressor-Grid Voltage	0	0	0	0	volts
D-C Control-Grid Voltage ³	-135	-143	-150	-160	volts
Zero-Signal D-C Plate Current	125	100	80	75	ma
Zero-Signal D-C Screen Current	3	1	1	1	ma
Maximum-Signal D-C Plate Current	350	350	350	350	ma
Maximum-Signal D-C Screen Current	37	35	29	24	ma
Maximum-Signal Peak R-F Grid Voltage	135	143	150	160	volts
Intermodulation Distortion Level ⁴					
Third Order	-39	-34	-31	-31	db
Fifth Order	-42	-41	-40	-40	db
Maximum-Signal Plate Power Input	700	875	1050	1225	watts
Maximum-Signal Plate Dissipation (approx.)	225	265	305	345	watts
Maximum-Signal Useful Power Output ¹	445	570	680	790	watts

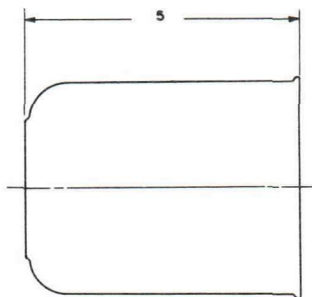
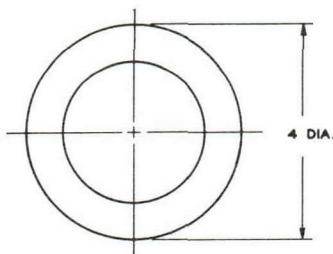
¹ Actual useful power delivered to load from typical amplifier. So-called "plate power output" is approximately 10 per cent higher than values shown.

² D-C Current values shown are for peak conditions, or for single-tone modulation at full signal.

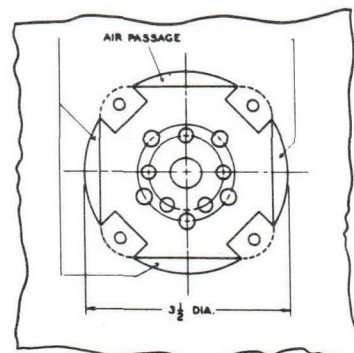
³ Approximate value; adjust to give stated zero-signal plate current.

⁴ Referenced against maximum-signal (or PEP) output. Two equal tones. No degenerative feedback.

COOLING — Forced air cooling of the seals at the base end of the PL-175A is required in all classes of service. A flow of 5 c.f.m. of cooling air should be passed through the base. Adequate envelope cooling at 400 watts plate dissipation requires 15 c.f.m. of cooling air past the envelope and across the plate seal. Proper distribution of cooling air may be obtained by the use of a type PL-C1 chimney, with chassis cut out as shown below.



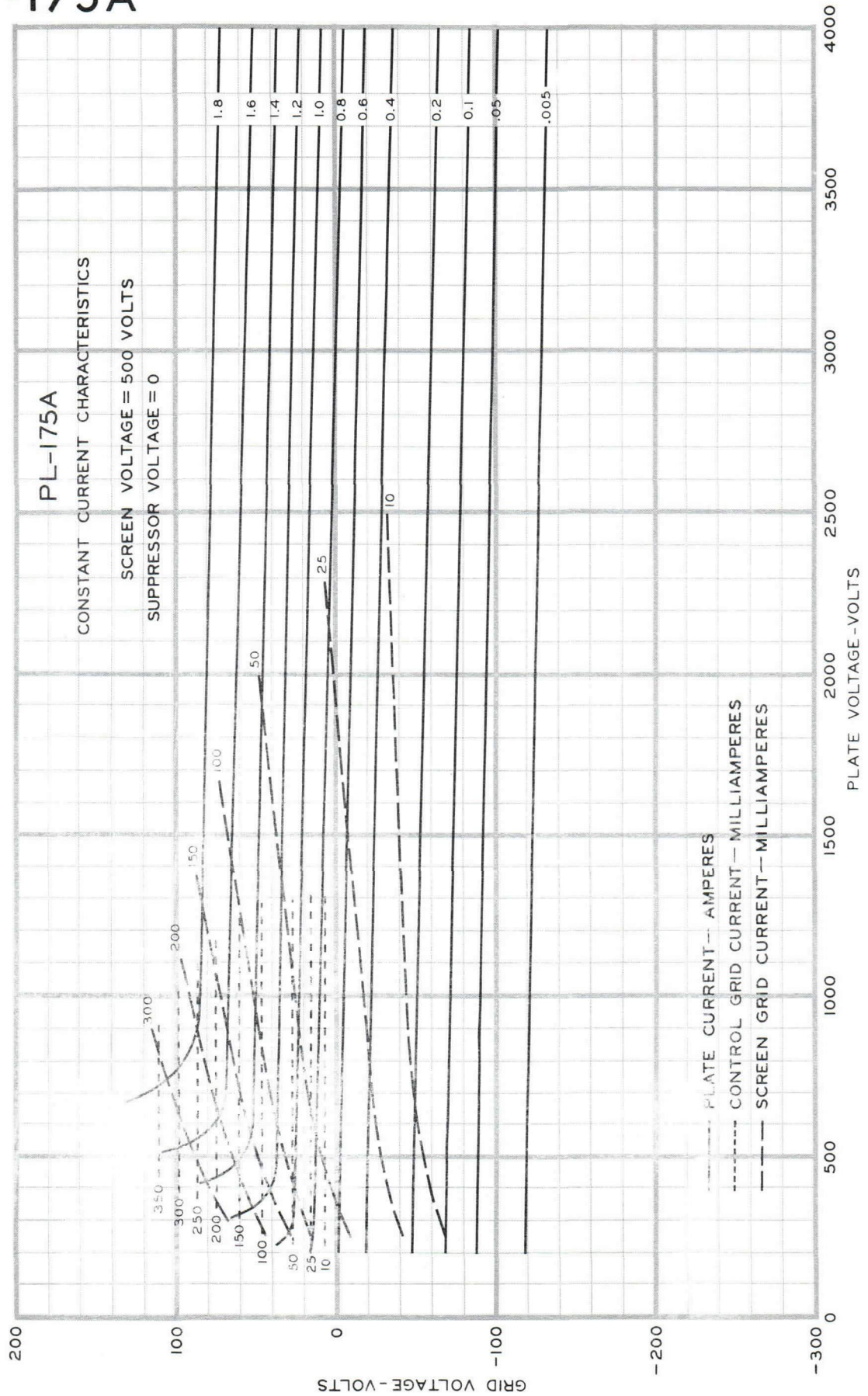
PL-C1
CHIMNEY



CHASSIS CUT-OUT AND SOCKET MOUNTING FOR
PROPER AIR DISTRIBUTION FROM PRESSURIZED CHASSIS
(JOHNSON NO. 122-275 SOCKET)



PL-175A





PL-175A

