

Taylor

**CUSTOM
BUILT**

Tubes

203-Z ZERO BIAS TUBE 65 WATTS PLATE DISSIPATION Nickel Anode **\$8.00** 300 WATTS CLASS B OUTPUT



The 203-Z is an improved high mu zero bias version of the 203-A and 203-B type, specially designed for Class B Audio use. In practical application of Class B Audio the average plate dissipation is low compared with the peak output, so the use of the nickel anode with lower Safety Factor will in no way interfere with long-life and fine performance. The static plate current will be 35 ma. per tube at 1000 volts and 45 ma. at 1250 volts.

Regular Class B input and output transformers as manufactured for type 203-A tubes by Thordarson, Utah, Jefferson, General, Stancor, United, Kenyon, Inca, etc., may be used with the 203-Z tubes.

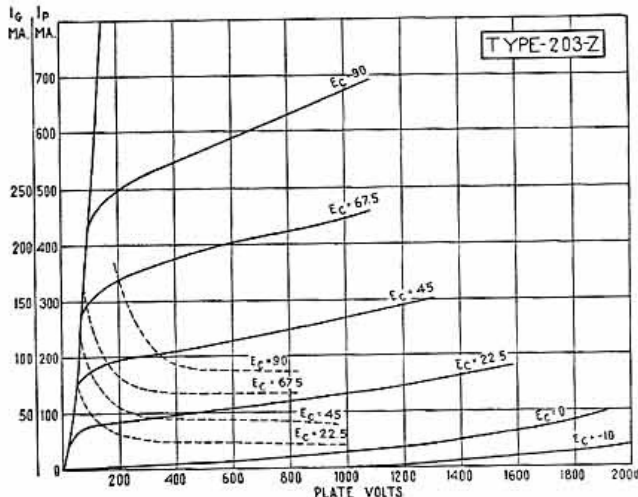
ZERO BIAS TUBES

Zero Bias Tubes have a high amplification factor so that the static plate current at the rated plate voltage is at a value well below the rated plate dissipation of the tube with the grid return connected directly to the filament center tap.

The Zero Bias type of tube approaches the ideal for Class B audio amplifier use. Since the grid has no negative potential supplied from batteries or power pack, current will flow from grid to filament over the entire positive portion of the input cycle. The impedance of the grid filament circuit is constant enough to reflect a fairly uniform load resistance to the plate circuit of the driver stage, which is important in securing good quality.

Zero Bias tubes are very efficient and very easy to control when operated at their rated plate voltages. Raising the plate voltage slightly and applying a small amount of negative bias does not disturb the wave form to any great extent; however, excessive plate voltage with a corresponding increase of bias will distort the wave form to undesirable proportions.

In examining the characteristics of a good driver tube for a Class B audio amplifier, we find, for example, the 2A3 has an amplification factor of 4.2 when operating into the primary of a transformer whose secondary is unloaded, or working into grids that are negative and hence not drawing current. AC voltage applied to the grids in excess of the negative bias voltage causes current to flow reflecting load to the driver stage. The 2A3's operating at optimum load impedance have a voltage gain of 2.7. It is obvious that shifting the voltage gain of the driver tube from 4.2 to 2.7 during the input cycle results in distortion. To minimize this shifting of the voltage gain, Zero Bias tubes should be operated at the Manufacturers' ratings.



GENERAL CHARACTERISTICS

Filament Volts	10
Filament Current, amps.....	3.25
Amplification Factor	85
Plate Dissipation, watts.....	65

Overall Dimensions

Maximum Length, inches.....	8 1/4
Maximum Diameter, inches.....	2 1/8
50 Watt Base	Nonex Glass

CLASS B AUDIO

Maximum Ratings

D. C. Plate Volts	1250
D. C. Plate Current, ma.....	175
Plate Dissipation, watts.....	65

Typical Operating Conditions for Two Tubes

D. C. Plate Volts	1000	1250
D. C. Plate Current, ma. (max. signal).....	350	350
D. C. Plate Current, ma. (zero signal).....	60	50
D. C. Grid Bias Volts.....	0	-4.5
Power Output, watts.....	230	300
Driving Power, watts.....	6.5	6.75
Peak Grid to Grid, volts.....	206	215
Plate to Plate Load, ohms.....	6200	8000

CLASS B AUDIO DATA

The chart below gives the maximum average value as would be indicated on the plate current meter with sine wave input. For the same peak output with voice input the maximum average plate current will be approximately 50 to 60 per cent of this value.

Supply Voltage	150	200	250	300	Audio Watts Output
1250	170	230	300	350	←Max. Av. Ip.
	17500	12500	9500	8000	←Plate to Plate load
	135	165	195	215	←Grid to Grid Volts
	2.5	3.9	5.6	6.75	←Watts drive
1100	200	270	350		←Max. Av. Ip.
	12700	9000	7000		←Plate to Plate load
	149	183	215		←Grid to Grid Volts
	3.1	5.0	6.75		←Watts drive
1000	220	320			←Max. Av. Ip.
	10000	6900			←Plate to Plate load
	150	203			←Grid to Grid Volts
	3.4	6.4			←Watts drive
900	250	350			←Max. Av. Ip.
	7900	5400			←Plate to Plate load
	164	206			←Grid to Grid Volts
	4.1	6.5			←Watts drive