Taylor CUSTOM BUILT Tubes

# 203-Z

## ZERO BIAS TUBE

The 203Z is an improved high mu zero bias version of the 203A and 203B. It has all the desirable characteristics of these tubes with two additional features of great merit; the amplification factor of the tube is high enough for zero bias class B operation at voltages up to 1000 and the plate lead is brought out the top greatly minimizing the chances of voltage breakdowns.

The 203Z is specifically designed for class B audio. Its characteristics and its low price will make it the most popular tube for this purpose. In practical application of class B audio the average late dissipation is low compared with the peak output and advantage of this fact has been taken to produce a tube of large capabilities at a low price. The conservative plate dissipation ratings of the tube is 65 watts. As this dissipation the tube shows no color whatever and under normal operating conditions the average plate dissipation will be less than this value under the maximum rated conditions so no color should show on the plate. If the tubes do show color it is an indication that the circuit is less efficient than it should be unless the input or type of operation are such as to result in excessive plate dissipation.

The no-signal or static plate current is about 35MA per tube at 1000 volts and about 45MA per tube at 1250 volts. Because the 203Z is a zero bias tube the grid starts to draw current as soon as excitation is applied the input transformer design requirements are less involved and excellent frequency response with minimum distortion is easily realized. The maximum average grid driving power is approximately 7 watts. Low impedance triodes such as 2A3's or 6A3's should be used in the driver stage.

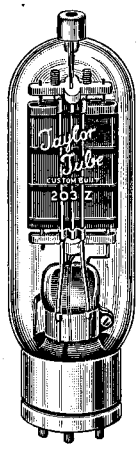
The 203Z is also suited for RF operation on frequencies below 15MC. At the maximum ratings of 1250 volts 175MA the input would be 219 watts, the output approximately 165 watts per tube, and the plate dissipation 55 watts per tube. For one tube the recommended bias resistor would be 2500 ohms. Half that value or 1250 ohms, would be correct for 2 tubes parallel or push-pull. For CW or buffer operation the rectified grid current should be 30MA or more and for phone operation should be 50MA or more. Under no conditions should the rectified grid current exceed the maximum rated value of 60MA. Expressed in terms of power, approximately 8 watts of grid drive are required for efficient CW or buffer operation or 15 watts for phone operation.

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

### 203Z CLASS B AUDIO DATA

| Supply Voltage | 150 | 200 | 260 | 300 | ←Audio Watts Output |
|---|---|---|---|---|---|
| 1250 | .175<br>15,800 | .233<br>11,800 | .306<br>9,000 | .350<br>7,900 | ←Max. Av. Ip<br>←Load Impedance plate to plate |
| 1100 | .204<br>11,600 | .272<br>8,750 | .352<br>6,700 | ←Max. Av. Ip<br>←Load Impedance plate to plate | |
| 1000 | .228<br>9,300 | .306<br>6,900 | ←Max. Av. Ip<br>←Load Impedance plate to plate | | |
| 900 | .259<br>7,200 | .345<br>5,400 | ←Max. Av. Ip<br>←Load Impedance plate to plate | | |

The chart above gives proper Class B Audio operating conditions for various outputs at different plate voltages. The most important value is the reflected load impedance which is given for the entire primary or plate to plate. The current value is 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% of this value.




# 203-Z

## 65 WATTS PLATE DISSIPATION

## METAL PLATE

## $8.00

## ZERO BIAS

### GENERAL CHARACTERISTICS

**Type 203Z**

| | |
|---|---|
| Filament Voltage, volts | 10 |
| Filament Current, amps | 3.25 |
| Plate Resistance, ohms | 16,700 |
| Mutual Conductance, uMhos | 5,900 |
| Amplification Factor | 85 |

Thoriated Tungsten Filament—NONEX GLASS

### GENERAL DIMENSIONS

| | |
|---|---|
| Maximum Length, inches | 8¼ |
| Maximum Diameter, inches | 2 5/16 |

### CLASS B AUDIO OPERATION

**Values for 2 Tubes**

| | |
|---|---|
| DC Plate Voltage | 1250 |
| Bias Volts—at 1000 Volts—0 | 4½ |
| Peak AF Grid to Grid Voltage | 220 |
| Zero Signal DC Plate Current, MA | 90 |
| Max. Signal Plate Current, MA | 350 |
| Plate to Plate Load, ohms | 7900 |
| Average Driving Power, watts | 8 |
| Power Output, watts | 300 |

CAUTION: These tubes have metal plates and do not have the carbon anode which is characteristic of other TAYLOR Transmitting Tubes. This does not mean that they will be any less efficient but it does mean that they will not stand as much abuse. The plate voltage should be reduced while making adjustments to prevent excessive heating. Properly handled, the efficiency of these tubes will be as great as though they had carbon anodes and their life will be equally as long.

### IMPORTANT

When operating 203Z's or any other tubes in parallel, it is recommended that precautions be taken to eliminate parasitic oscillation. For Class B audio, resistances of 50 to 100 ohms should be used in each plate lead. For RF amplifiers where tubes are used in parallel, the suppressing resistor should be used in the grid circuit and should be of 10 to 50 ohms and preferably non-inductive such as IRC No. NAB.