

# PHILCO

## RECEIVING TUBE

### DATA SHEET

TENTATIVE

## 12DW8

### DIODE, DISSIMILAR DUO-TRIODE TUBE

#### DESCRIPTION

Type 12DW8 is a diode-dissimilar duo-triode designed to function as a combined second detector, first audio stage, and transistor driver stage in 12 volt hybrid automobile radios. Triode #1 is the first audio stage, triode #2 is the driver. The principal feature of the 12DW8 is its ability to operate with a 12 volt plate supply.

#### MECHANICAL DATA

|                              |                             |
|------------------------------|-----------------------------|
| Cathode .....                | Coated Unipotential         |
| Outline Drawing .....        | 6-2                         |
| Bulb .....                   | T6 $\frac{1}{2}$            |
| Base .....                   | E9-1 Small Button Miniature |
| Maximum Diameter .....       | $\frac{7}{8}$ inch          |
| Maximum Overall Length ..... | $2\frac{3}{16}$ inches      |
| Maximum Seated Height .....  | $1\frac{15}{16}$ inches     |
| Basing .....                 | 9JC                         |

|                         |                               |
|-------------------------|-------------------------------|
| 1—Triode #2 Plate       | 6—Triode #1 Plate             |
| 2—Triode #2 Grid        | 7—Triode #1 Grid              |
| 3—Triode #2 Cathode     | 8—Triode #1 and Diode Cathode |
| 4—Heater                | 9—Diode Plate                 |
| 5—Heater                |                               |
| Mounting Position ..... | Any                           |

#### ELECTRICAL DATA

##### Direct Interelectrode Capacitances

|                                               | Shielded* | Unshielded           |
|-----------------------------------------------|-----------|----------------------|
| Triode #1:                                    |           |                      |
| Grid to Plate (g to p) .....                  | 1.8       | 1.8 $\mu\mu\text{f}$ |
| Input: g to (h + k) .....                     | 2.9       | 1.6 $\mu\mu\text{f}$ |
| Output: p to (h + k) .....                    | 1.4       | 0.7 $\mu\mu\text{f}$ |
| Diode Plate to Triode #1 Grid (Maximum) ..... | 0.4       | 0.4 $\mu\mu\text{f}$ |

|                              |     |                      |
|------------------------------|-----|----------------------|
| Triode #2:                   |     |                      |
| Grid to Plate (g to p) ..... | 3.5 | 3.2 $\mu\mu\text{f}$ |
| Input: g to (h + k) .....    | 4.4 | 4.4 $\mu\mu\text{f}$ |
| Output: p to (h + k) .....   | 2.1 | 0.7 $\mu\mu\text{f}$ |

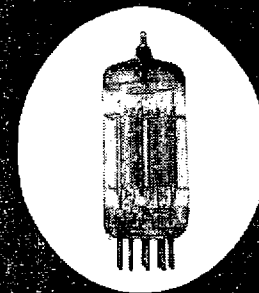
\*With external shield #315 connected to pin #8

##### Heater Characteristics

|                                               |            |
|-----------------------------------------------|------------|
| Heater Voltage .....                          | 12.6 volts |
| Heater Current .....                          | 450 ma     |
| Maximum DC Heater-Cathode Voltage             |            |
| Heater Negative with Respect to Cathode ..... | 16.0 volts |
| Heater Positive with Respect to Cathode ..... | 16.0 volts |

##### Maximum Ratings (Design Maximum Rating System) (Note 1)

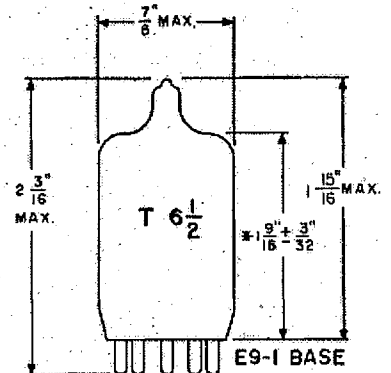
|                                | Triode #1 | Triode #2 | Diode     |
|--------------------------------|-----------|-----------|-----------|
| Plate Voltage .....            | 16.0      | 16.0      | volts     |
| Positive DC Grid Voltage ..... | 0         | 0         | volts     |
| Plate Dissipation .....        | 0.5       | 0.5       | 0.5 watts |
| Grid Circuit Resistance .....  | 1.5       | 1.5       | megohm    |



#### GENERAL DESCRIPTION

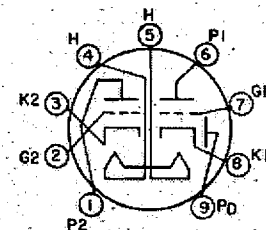
Diode, dissimilar duo-triode for use in hybrid auto radios.

#### DIMENSIONAL OUTLINE AND MECHANICAL SPECIFICATIONS



\* MEASURED FROM BASE SEAT TO BULB-TOP LINE  
AS DETERMINED BY RING GAUGE OF  $\frac{7}{16}$  I.D.

6-2



9JC

**BASING DIAGRAM**  
Bottom View of Base

### Typical Operating Conditions and Characteristics

|                                     | Triode #1 | Triode #2 | Diode     |
|-------------------------------------|-----------|-----------|-----------|
| Plate Supply Voltage .....          | 12.6      | 12.6      | volts     |
| Transconductance .....              | 2700      | 6500      | $\mu$ mho |
| Amplification Factor .....          | 9.5       | 6.4       |           |
| Plate Current .....                 | 1.9       | 7.5       | ma        |
| Average Diode Current @ 10 v....    |           |           | 20 ma     |
| Grid Voltage .....                  | 0         | 0         | volts     |
| Grid Resistor .....                 | 1.5       | 1.0       | megohms   |
| Plate Voltage Dropping Resistor ... | 100       | 100       | ohms      |

**NOTE 1**—Design maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron device of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions. The device manufacturer chooses these values to provide acceptable serviceability of the device, taking responsibility for the effects of changes in operating conditions due to variations in device characteristics. The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.