

**Amperex<sup>®</sup> ELECTRONIC CORPORATION**  
210 DUFFY AVENUE, HICKSVILLE, L. I., N. Y.

**TUBE TYPE**  
**7645**

The 7645 is a miniature twin tetrode designed for use in communication equipment as a frequency multiplier and for special amplifier service. The 7645 is identical in characteristics to the 6939 except that the bulb is reduced in height and the internal neutralization is removed. As a tripler it can deliver an actual plate power output of 1.5 watts CCS and 1.75 watts ICAS. Maximum ratings apply to 500 Mc.

The 7645 features a frame grid construction which results in improved performance and reliability.

#### GENERAL CHARACTERISTICS

##### MECHANICAL

|                       |                          |
|-----------------------|--------------------------|
| Max. Bulb Temperature | 225°C                    |
| Max. Overall Length   | 2-3/16 inches            |
| Max. Seated Height    | 1-15/16 inches           |
| Max. Diameter         | 7/8 inch                 |
| Base                  | Noval, 9 pin, JETEC E9-1 |

##### ELECTRICAL

|                |                                 |                            |
|----------------|---------------------------------|----------------------------|
| Cathode        | Indirectly heated, oxide coated |                            |
|                | <u>Parallel</u> <sup>1</sup>    | <u>Series</u> <sup>1</sup> |
| Heater Voltage | 6.3                             | 12.6 volts                 |
| Heater Current | 0.6                             | 0.3 amp                    |

##### Direct Interelectrode Capacitances

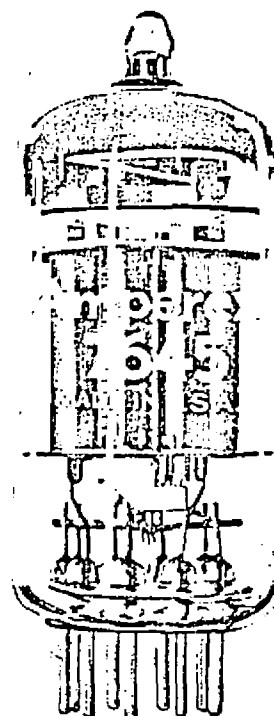
|                     |                  |                             |
|---------------------|------------------|-----------------------------|
|                     | <u>Each Unit</u> | <u>Both Units Push-Pull</u> |
| Output              | 1.6              | 0.95 pf                     |
| Input               | 6.4              | 3.8 pf                      |
| Plate to Grid No. 1 | 0.15             | pf                          |

##### Amplification Factor (Each Unit)

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Grid No. 2 to Grid No. 1 ( $E_b = E_{c2} = 150$ V; $I_b = 25$ ma) | 31 |
|-------------------------------------------------------------------|----|

##### Mutual Conductance (Each Unit)

|                                          |                  |
|------------------------------------------|------------------|
| ( $E_b = E_{c2} = 150$ V; $I_b = 25$ ma) | 10,500 micromhos |
|------------------------------------------|------------------|



**Amperex**

1. Occasional operation at 6.7 V or 7.0 V with parallel connected heaters (11.4 or 14.0 V with series connection) is possible with battery supply (mobile operation).

FREQUENCY MULTIPLIER AND TRIPLER  
MAXIMUM RATINGS, ABSOLUTE VALUES  
(FREQUENCY UP TO 500 MC)

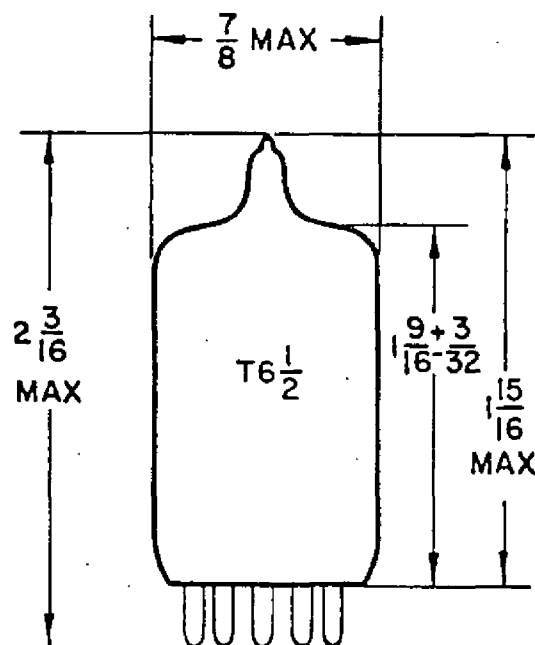
|                                    | <u>CCS</u> | <u>ICAS</u>  |
|------------------------------------|------------|--------------|
| Plate Voltage                      | 250        | 250 volts    |
| Plate Current                      | 2x30       | 2x40 ma      |
| Plate Dissipation                  | 2x2.75     | 2x3.5 watts  |
| Plate Input Power                  | 2x3.6      | 2x4.5 watts  |
| Grid No. 2 Voltage                 | 200        | 200 volts    |
| Grid No. 2 Dissipation             | 2x1.5      | 2x1.75 watts |
| Grid No. 1 Voltage                 | -100       | -100 volts   |
| Grid No. 1 Dissipation             | 2x0.1      | 2x0.12 watts |
| Grid No. 1 Current                 | 2x3        | 2x4 ma       |
| Cathode Current                    | 2x35       | 2x40 ma      |
| Voltage Between Cathode and Heater | ±100       | ±100 volts   |

TYPICAL OPERATION

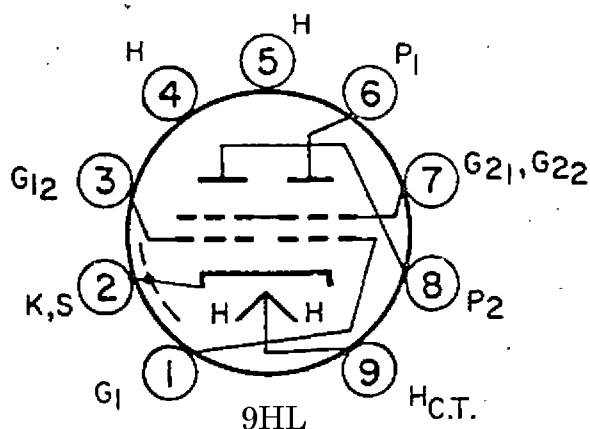
|                                    | <u>CCS</u> | <u>ICAS</u>  |
|------------------------------------|------------|--------------|
| Frequency                          | 166.6-500  | 166.6-500 Mc |
| Plate Voltage                      | 170        | 200 volts    |
| Grid No. 2 Voltage                 | 150        | 185 volts    |
| Grid No. 1 Resistance <sup>2</sup> | 100        | 100 k ohms   |
| Plate Current                      | 2x20       | 2x20 ma      |
| Grid No. 2 Current                 | 10.0       | 11.0 ma      |
| Grid No. 1 Current                 | 2x1.0      | 2x1.0 ma     |
| Driving Power <sup>3</sup>         | 1.1        | 1.1 watt     |
| Plate Input Power                  | 2x3.4      | 2x4.0 watts  |
| Plate Dissipation                  | 2x2.65     | 2x3.1 watts  |
| Grid No. 2 Dissipation             | 2x0.75     | 2x1.0 watts  |
| Output Power                       | 1.5        | 1.75 watts   |
| Useful Power in Load               | 1.2        | 1.4 watt     |
| Circuit Efficiency                 | 80         | 80 %         |

2. Each section.

3. Includes circuit losses.



6-2



### PIN CONNECTIONS

- 1- CONTROL GRID, UNIT NO.1
- 2- CATHODE & BEAM PLATES
- 3- CONTROL GRID, UNIT NO.2
- 4- HEATER
- 5- HEATER
- 6- PLATE, UNIT NO.1
- 7- SCREEN GRID
- 8- PLATE, UNIT NO.2
- 9- HEATER CENTER TAP

