

*Excellence in Electronics***TYPE  
CK5656**

The CK5656 is a heater-cathode type, double tetrode of miniature construction, suitable for push-pull Class A and Class C RF amplifier service up to a frequency of 400 megacycles. The screen grids for the two sections are connected internally and are by-passed to the common cathode terminals by an internal condenser of approximately 15  $\mu\mu\text{f}$  capacitance. This terminal arrangement, by reducing the RF impedance between the separate screen grids and cathodes, permits the use of push-pull RF circuits which provide higher input impedance and lower plate circuit losses than other miniature tube types in the 200 to 400 megacycle frequency range.

**MECHANICAL DATA**ENVELOPE: T-6½ GlassBASE: Miniature Button 9-PinTERMINAL CONNECTIONS:

|                            |                            |
|----------------------------|----------------------------|
| Pin 1 Grid #2 (Both Units) | Pin 6 Cathode (Both Units) |
| Pin 2 Grid #1 (Unit #1)    | Pin 7 Plate (Unit #2)      |
| Pin 3 Grid #1 (Unit #2)    | Pin 8 Plate (Unit #1)      |
| Pin 4 Heater               | Pin 9 Cathode (Both Units) |
| Pin 5 Heater               |                            |

MOUNTING POSITION: Any**ELECTRICAL DATA**DIRECT INTERELECTRODE CAPACITANCES: Each Unit (Without External Shield) ( $\mu\mu\text{f}$ s)

|                                    |           |
|------------------------------------|-----------|
| Grid #1 to Plate                   | 0.06 max. |
| Grid #1 to All Others Except Plate | 3.6       |
| Plate to All Others Except Grid    | 1.5       |
| Common Screen to Cathode Internal  |           |
| By-pass Condenser (approx.)        | 15        |

RATINGS - ABSOLUTE MAXIMUM VALUES - CLASS A1:

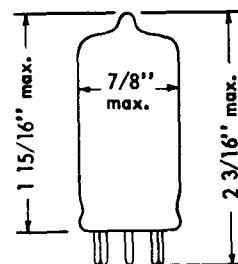
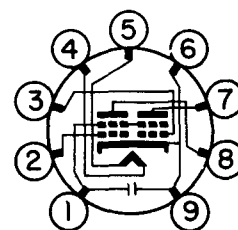
|                                             |                 |
|---------------------------------------------|-----------------|
| Heater Voltage (ac or dc)                   | 6.3 ± 10% volts |
| Plate Voltage                               | 250 volts       |
| Grid #2 Voltage                             | 165 volts       |
| Plate Dissipation, Each Section             | 3.0 watts       |
| Grid #2 Dissipation                         | 1.5 watts       |
| Plate Current, Each Section                 | 20 ma.          |
| Heater-Cathode Voltage                      | 100 volts       |
| DC Grid #1 Circuit Resistance, Each Section | 100,000 ohms    |

CHARACTERISTICS AND TYPICAL OPERATION - CLASS A1: (Each Unit)

|                                                                   |                       |
|-------------------------------------------------------------------|-----------------------|
| Heater Voltage (ac or dc)                                         | 6.3 volts             |
| Heater Current (Total For Both Units)                             | 0.40 amps.            |
| Plate Voltage                                                     | 150 volts             |
| Grid #2 Voltage                                                   | 120 volts             |
| Grid #1 Voltage                                                   | -2.0 volts            |
| Plate Resistance (approx.)                                        | 60,000 ohms           |
| Transconductance                                                  | 5800 $\mu\text{mhos}$ |
| Plate Current                                                     | 15.5 ma.              |
| Grid #2 Current                                                   | 2.7 ma.               |
| Grid #1 Voltage (approx.) for Plate Current = 200 $\mu\text{a}$ . | -8.5 volts            |

RATINGS ABSOLUTE MAXIMUM VALUES - PUSH-PULL CLASS C TELEGRAPHY: (Cont. Service)*(Values are total for both units unless otherwise noted)*

|                                             |                 |
|---------------------------------------------|-----------------|
| Heater Voltage (ac or dc)                   | 6.3 ± 10% volts |
| Plate Voltage                               | 220 volts       |
| Grid #2 Voltage                             | 165 volts       |
| Negative Grid #1 Voltage                    | -50 volts       |
| Plate Dissipation, Each Section             | 2.5 watts       |
| Grid #2 Dissipation                         | 1.5 watts       |
| Plate Current, Each Section                 | 17.5 ma.        |
| Grid #1 Current, Each Section               | 4.0 ma.         |
| Heater-Cathode Voltage                      | 100 volts       |
| DC Plate Input Power                        | 7.0 watts       |
| DC Grid #1 Circuit Resistance, Each Section | 50,000 ohms     |



BOTTOM VIEW

9F

Tentative Data

**RAYTHEON MANUFACTURING COMPANY**

RECEIVING AND CATHODE RAY TUBE OPERATIONS



## DOUBLE TETRODE

## ELECTRICAL DATA (Cont'd)

RATINGS ABSOLUTE MAXIMUM VALUES - PUSH-PULL CLASS C TELEGRAPHY INTERMITTENT "PUSH-TO-TALK" SERVICE :

(Values are total for both units unless otherwise noted)

|                                             |                 |
|---------------------------------------------|-----------------|
| Heater Voltage (ac or dc)                   | 6.3 ± 10% volts |
| Plate Voltage                               | 250 volts       |
| Grid #2 Voltage                             | 165 volts       |
| Negative Grid #1 Voltage                    | -50 volts       |
| Plate Dissipation, Each Section             | 3.5 watts       |
| Grid #2 Dissipation                         | 1.8 watts       |
| Plate Current, Each Section                 | 25 ma.          |
| Grid #1 Current, Each Section               | 4.0 ma.         |
| Heater-Cathode Voltage                      | 100 volts       |
| DC Plate Input Power                        | 11 watts        |
| DC Grid #1 Circuit Resistance, Each Section | 50,000 ohms     |

CHARACTERISTICS AND TYPICAL OPERATION - PUSH-PULL CLASS C 225 MEGACYCLE RF AMPLIFIER

INTERMITTENT "PUSH-TO-TALK" SERVICE :

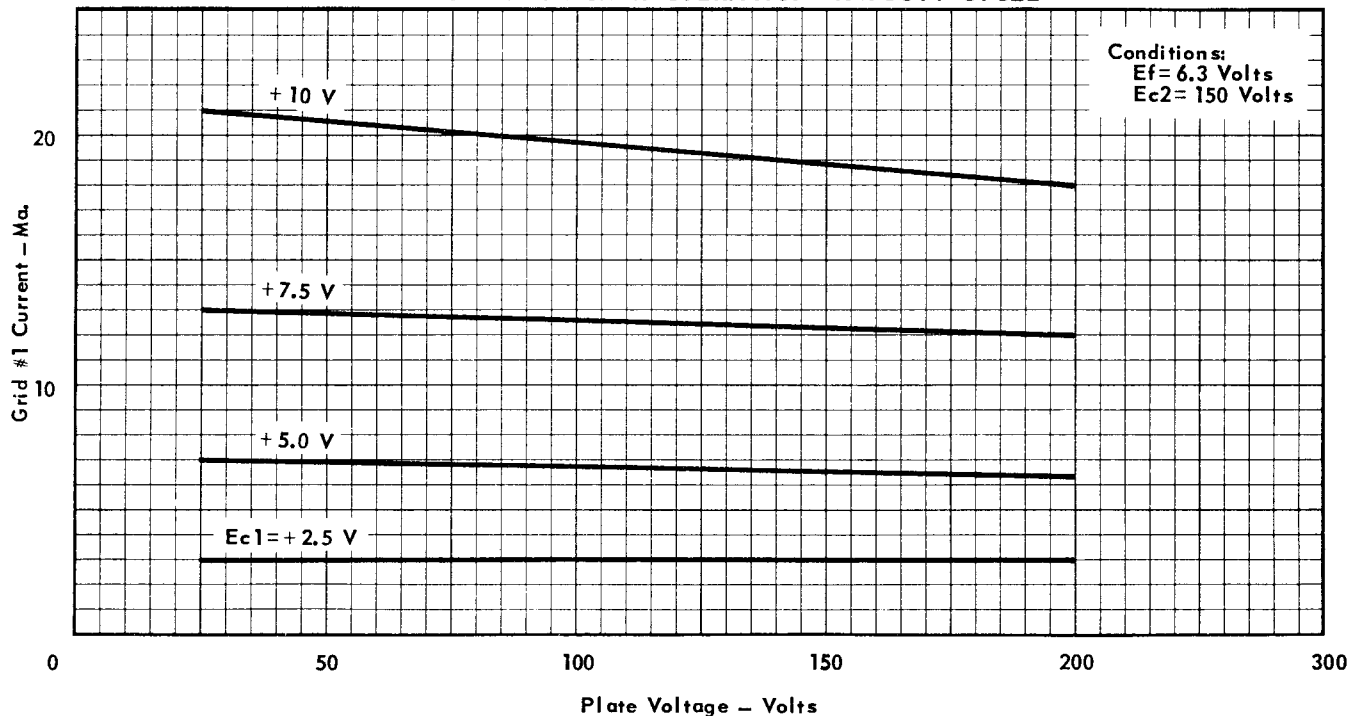
(Values are total for both units unless otherwise noted)

|                                                   |            |
|---------------------------------------------------|------------|
| Heater Voltage (ac or dc)                         | 6.3 volts  |
| Heater Current                                    | 0.40 amps. |
| Plate Voltage                                     | 220 volts  |
| Grid #2 Voltage (approx.) ●                       | 110 volts  |
| DC Grid #1 Voltage                                | -15 volts  |
| or Separate Grid #1 Resistance for Each Section ■ | 5,000 ohms |
| Peak RF Grid #1 to Grid #1 Voltage                | 50.0 volts |
| Plate Current                                     | 45 ma.     |
| Grid #2 Current                                   | 10.5 ma.   |
| Grid #1 Current, Each Section                     | 3.0 ma.    |
| DC Plate Input Power                              | 10 watts   |
| Useful RF Power Output, 225 Mc.                   | 4.6 watts  |

● Adjust for the required plate current.

■ It is recommended that the push-pull RF grid signal be carefully balanced. The use of a separate dc grid resistance for each section from the rectified grid current, provides some compensation for unbalanced RF grid drive voltage.

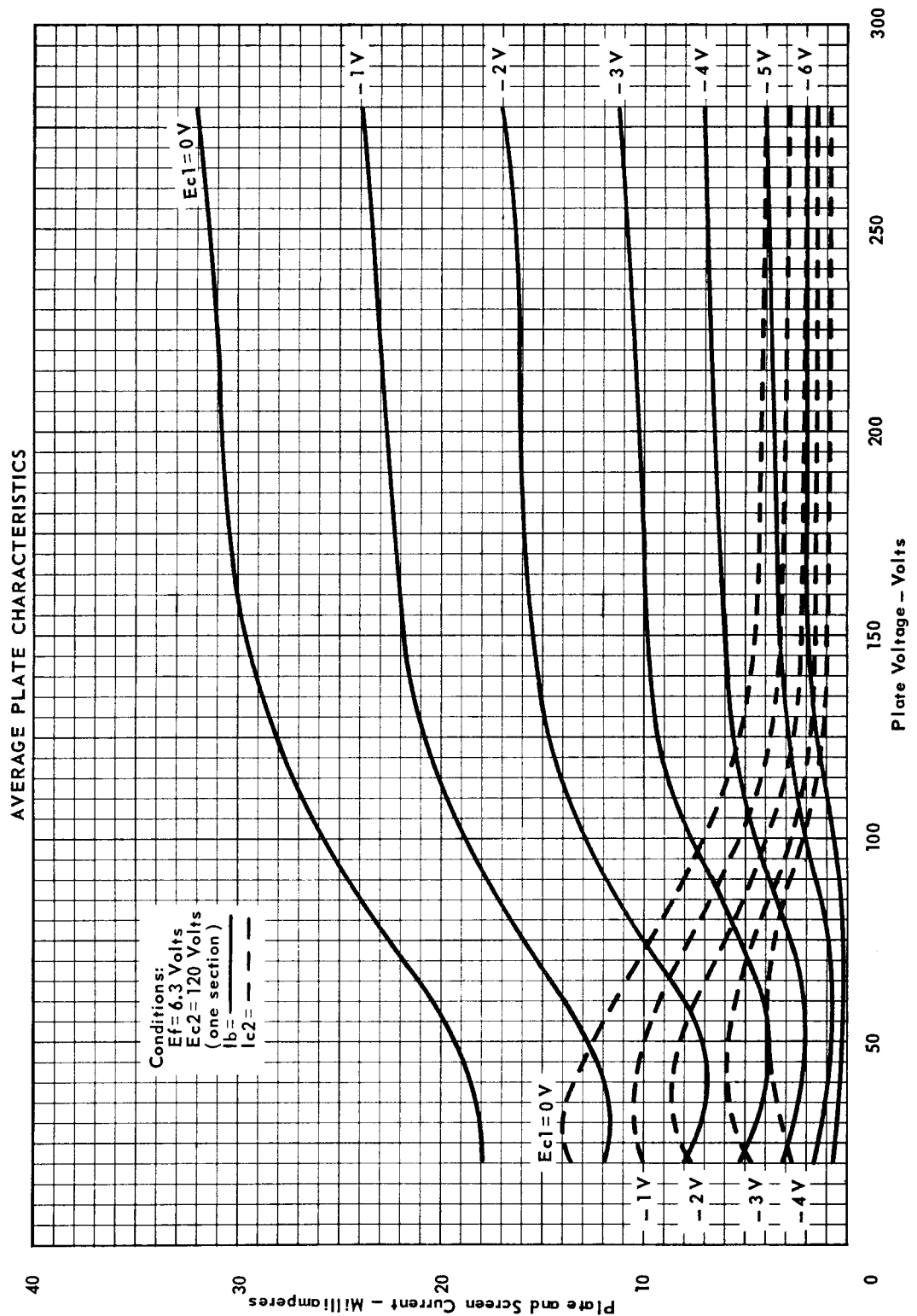
AVERAGE PLATE CHARACTERISTICS - 10 % DUTY CYCLE



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RECEIVING AND CATHODE RAY TUBE OPERATIONS

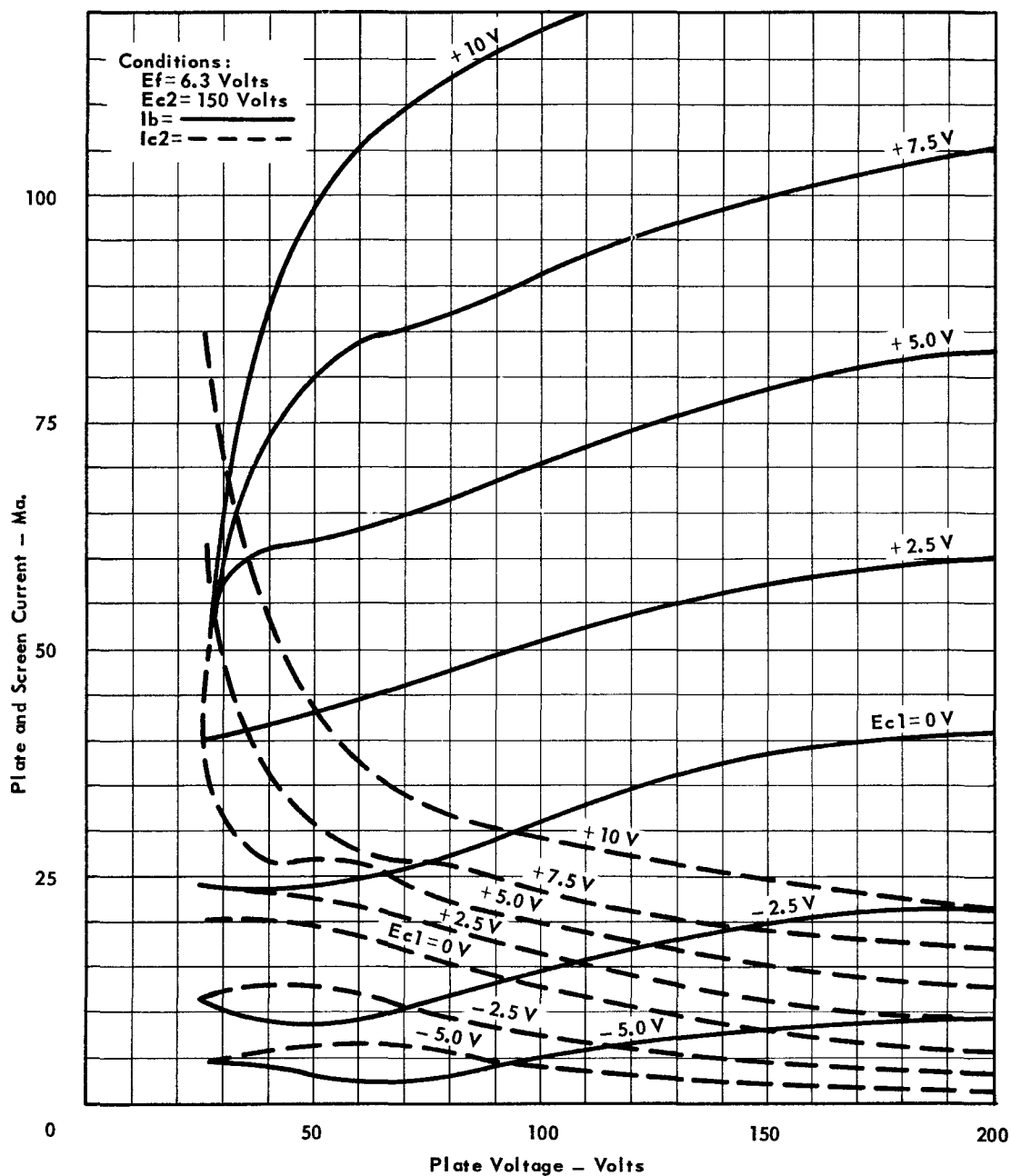
# DOUBLE TETRODE





## DOUBLE TETRODE

AVERAGE PLATE CHARACTERISTICS - 10% DUTY CYCLE



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 RECEIVING AND CATHODE RAY TUBE OPERATIONS