

duced to 80 per cent; at 75 Mc, to 64 per cent. Class C Telegraphy maximum plate dissipation, CCS 50 watts, ICAS 65 watts. Requires Small five-contact socket and may be mounted in vertical position with base down, or in horizontal position with pins 2 and 4 in vertical plane. OUTLINE 48, *Outlines* Section. Plate shows no color when tube is operated at maximum CCS ratings, and shows a barely perceptible red color at maximum ICAS ratings.

FILAMENT VOLTAGE (AC/DC).....	10	volts
FILAMENT CURRENT.....	3.25	amperes
TRANSCONDUCTANCE (For plate current of 39 milliamperes).....	3300	μ hos
DIRECT INTERELECTRODE CAPACITANCES:		
Grid No.1 to plate.....	0.15 <i>max</i>	μ f
Grid No.1 to filament, grid No.3, and grid No.2.....	13.5	μ f
Plate to filament, grid No.3, and grid No.2.....	13.5	μ f

RF POWER AMPLIFIER AND OSCILLATOR—Class C Telegraphy# and RF POWER AMPLIFIER—Class C FM Telephony

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE.....	1250 <i>max</i>	1500 <i>max</i>	volts
DC GRID-NO.2 (SCREEN-GRID) VOLTAGE.....	400 <i>max</i>	400 <i>max</i>	volts
DC GRID-NO.1 (CONTROL-GRID) VOLTAGE.....	-300 <i>max</i>	-300 <i>max</i>	volts
DC PLATE CURRENT.....	150 <i>max</i>	150 <i>max</i>	ma
DC GRID-NO.1 CURRENT.....	15 <i>max</i>	15 <i>max</i>	ma
PLATE INPUT.....	180 <i>max</i>	225 <i>max</i>	watts
GRID-NO.2 INPUT.....	10 <i>max</i>	10 <i>max</i>	watts
PLATE DISSIPATION.....	50 <i>max</i>	65 <i>max</i>	watts

Typical Operation:

DC Plate Voltage.....	1000	1250	1500	volts
DC Grid-No.3 (Suppressor-Grid) Voltage ^Δ	0	0	0	volts
DC Grid-No.2 Voltage [®]	300	300	300	volts
From series resistor of.....	40000	42000	50000	ohms
DC Grid-No.1 Voltage [†] ϕ	-70	-80	-90	volts
From grid-No.1 resistor of.....	7000	8000	9000	ohms
From cathode resistor of.....	395	455	490	ohms
Peak RF Grid-No.1 Voltage.....	150	165	170	volts
DC Plate Current.....	150	144	150	ma
DC Grid-No.2 Current.....	17.5	22.5	24	ma
DC Grid-No.1 Current (Approx.).....	10	10	10	ma
Driving Power (Approx.).....	1.35	1.5	1.5	watts
Power Output (Approx.).....	100	130	160	watts

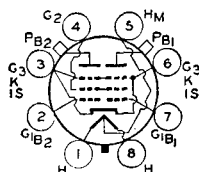
Key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

^Δ Grid-No.3 should be connected to the mid-tap on the filament-transformer secondary winding or to the negative end of filament operated on dc.

[®] Obtained from separate source, from plate-voltage supply with a voltage divider, or through series resistor of value shown. If preceding stage is keyed, partial fixed bias is required.

[†] For ac filament supply.

ϕ Obtained preferably from grid-No.1 resistor or from a combination of grid-No.1 resistor with either fixed supply or cathode resistor.



TWIN BEAM POWER TUBE

Heater-cathode type used as af power amplifier and modulator and as rf power amplifier and oscillator. May be used with full input up to 125 Mc.

For operation at 175 Mc, plate voltage

and plate input should be reduced to 80 per cent of maximum ratings; at 200 Mc, to 70 per cent. Class C Telegraphy maximum plate dissipation (per tube), CCS 20 watts, ICAS 25 watts. Requires Octal socket and may be mounted in any position. OUTLINE 25, *Outlines* Section. Plates show no color when tube is operated at maximum CCS or ICAS ratings.

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RCA Transmitting Tubes

HEATER ARRANGEMENT	Series	Parallel	
HEATER VOLTAGE (AC/DC).....	12.6 ± 10%	6.3 ± 10%	volts
HEATER CURRENT.....	0.8	1.6	amperes
TRANSCONDUCTANCE (Each unit, for plate current of 25 milliamperes.).....	4000		μmhos
MU-FACTOR, Grid No.2 to Grid No.1., (Each unit).....	6.5		
DIRECT INTERELECTRODE CAPACITANCES (Each unit):			
Grid No.1 to plate.....	0.22 max		μf
Grid No.1 to cathode, grid No.3, internal shield, grid No.2, and heater mid-tap.....	14.0		μf
Plate to cathode, grid No.3, internal shield, grid No.2, and heater mid-tap.....	8.5		μf

PUSH-PULL AF POWER AMPLIFIER AND MODULATOR—Class AB₂

Values are on a per-tube basis

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE.....	400 max	500 max	volts
DC GRID-NO.2 (SCREEN-GRID) VOLTAGE.....	225 max	225 max	volts
MAXIMUM-SIGNAL DC PLATE CURRENT [■]	150 max	150 max	ma
MAXIMUM-SIGNAL PLATE INPUT [■]	60 max	75 max	watts
MAXIMUM-SIGNAL GRID-NO.2 INPUT [■]	4.5 max	4.5 max	watts
PLATE DISSIPATION [■]	20 max	25 max	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode.....	100 max	100 max	volts
Heater positive with respect to cathode.....	100 max	100 max	volts

Typical Operation:

DC Plate Voltage.....	400	500	volts
DC Grid-No.2 Voltage [♦]	125	125	volts
DC Grid-No.1 (Control-Grid) Voltage.....	-15	-15	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage.....	60	60	volts
Zero-Signal DC Plate Current.....	20	22	ma
Maximum-Signal DC Plate Current.....	150	150	ma
Maximum-Signal DC Grid-No.2 Current.....	32	32	ma
Effective Load Resistance (Plate to plate).....	6200	8000	ohms
Maximum-Signal Driving Power (Approx.).....	0.36	0.36	watt
Maximum-Signal Power Output (Approx.).....	42	54	watts

■ Averaged over any audio-frequency cycle of sine-wave form.

♦ In applications requiring the use of grid-No.2 voltages above 135 volts, provision should be made for the adjustment of grid-No.1 bias for each unit separately. The necessity for this adjustment at the lower grid-No.2 voltages depends on the distortion requirements and on whether the plate-dissipation rating is exceeded at zero-signal plate current.

♠ Obtained preferably from a separate source, or from the plate-voltage supply with a voltage divider.

PLATE-MODULATED PUSH-PULL RF POWER AMPLIFIER—Class C Telephony

Carrier conditions per tube for use with a maximum modulation factor of 1.0

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE.....	325 max	400 max	volts
DC GRID-NO.2 VOLTAGE.....	225 max	225 max	volts
DC GRID-NO.1 VOLTAGE.....	-175 max	-175 max	volts
DC PLATE CURRENT.....	125 max	150 max	ma
DC GRID-NO.1 CURRENT.....	7 max	7 max	ma
PLATE INPUT.....	40 max	60 max	watts
GRID-NO.2 INPUT.....	4 max	4 max	watts
PLATE DISSIPATION.....	13.5 max	20 max	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode.....	100 max	100 max	volts
Heater positive with respect to cathode.....	100 max	100 max	volts

Typical Operation:

DC Plate Voltage.....	325	400	volts
DC Grid-No.2 Voltage [♦]	165	175	volts
From series resistor of.....	10000	15000	ohms
DC Grid-No.1 Voltage [♠]	-45	-45	volts
From grid-No.1 resistor of.....	11250	15000	ohms
Peak RF Grid-No.1-to-Grid-No.1 Voltage.....	112	116	volts
DC Plate Current.....	123	150	ma
DC Grid-No.2 Current.....	16	15	ma
DC Grid-No.1 Current (Approx.).....	4	3	ma
Driving Power (Approx.).....	0.2	0.16	watt
Power Output (Approx.).....	30	45	watts

Maximum Circuit Values:

- Grid-No.1-Circuit Resistance 15000 *max* ohms
- ♣ Obtained preferably from separate source modulated along with the plate supply, or from the modulated plate supply through series resistor of value shown.
- ♠ In applications requiring the use of grid-No.2 voltage above 135 volts, provision should be made for the adjustment of grid-No.1 bias for each unit separately. The necessity for this adjustment at lower grid-No.2 voltages depends on the distortion requirements and on whether the plate-dissipation rating is exceeded at zero-signal plate current.
- ♢ Obtained from grid-No.1 resistor or from a combination of grid-No.1 resistor with either fixed supply or cathode resistor.

PUSH-PULL RF POWER AMPLIFIER AND OSCILLATOR—Class C Telegraphy#

and PUSH-PULL RF POWER AMPLIFIER—Class C FM Telephony

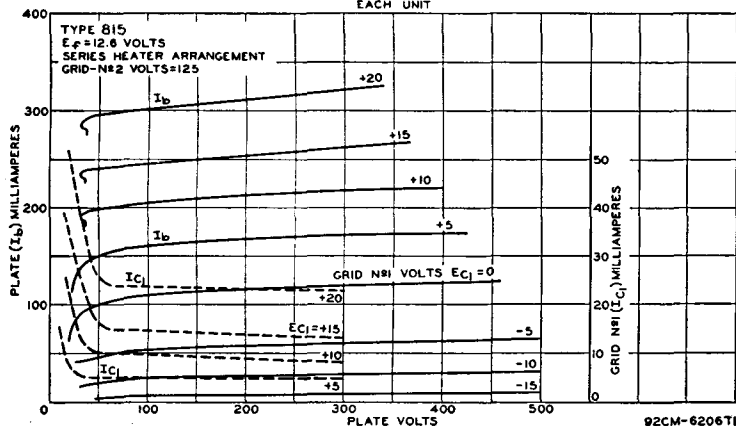
Maximum Ratings:

	CCS	ICAS	
DC PLATE VOLTAGE	400 <i>max</i>	500 <i>max</i>	volts
DC GRID-No.2 VOLTAGE	225 <i>max</i>	225 <i>max</i>	volts
DC GRID-No.1 VOLTAGE	-175 <i>max</i>	-175 <i>max</i>	volts
DC PLATE CURRENT	150 <i>max</i>	150 <i>max</i>	ma
DC GRID-No.1 CURRENT	7 <i>max</i>	7 <i>max</i>	ma
PLATE INPUT	60 <i>max</i>	75 <i>max</i>	watts
GRID-No.2 INPUT	4.5 <i>max</i>	4.5 <i>max</i>	watts
PLATE DISSIPATION	20 <i>max</i>	25 <i>max</i>	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	100 <i>max</i>	100 <i>max</i>	volts
Heater positive with respect to cathode	100 <i>max</i>	100 <i>max</i>	volts

Typical Operation:

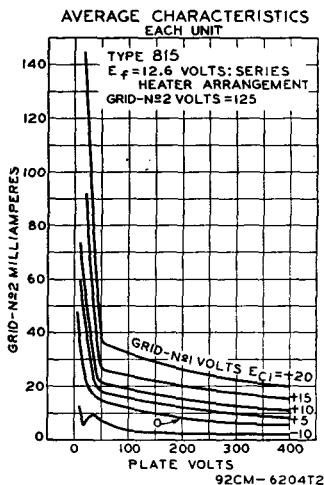
DC Plate Voltage	400	500	volts
DC Grid-No.2 Voltage ♣	145	200	volts
From a series resistor of	15000	17500	ohms
DC Grid-No.1 Voltage ♢	-45	-45	volts
From grid-No.1 resistor of	10000	13000	ohms
From cathode resistor of	260	265	ohms
Peak RF Grid-No.1-to-Grid-No.1 Voltage	116	112	volts
DC Plate Current	150	150	ma
DC Grid-No.2 Current	17	17	ma
DC Grid-No.1 Current (Approx.)	4.5	3.5	ma
Driving Power (Approx.)	0.23	0.18	watt
Power Output (Approx.)	44	56	watts

AVERAGE CHARACTERISTICS
EACH UNIT



Maximum Circuit Values:

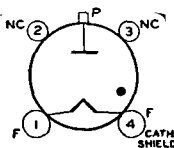
- Grid-No.1-Circuit Resistance..... 15000 max ohms
- † Key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.
- ‡ Obtained from separate source, from plate-voltage supply with a voltage divider, or through series resistor of value shown. Grid-No.2 voltage must not exceed 600 volts under key-up conditions.
- ♦ In applications requiring the use of grid-No.2 voltages above 135 volts, provision should be made for adjustment of grid-No.1 bias for each unit separately. The necessity for this adjustment at lower grid-No.2 voltages depends on the distortion requirements and on whether the plate-dissipation rating is exceeded at zero-signal plate current.
- ^ Obtained from fixed supply, by grid-No.1 resistor, by cathode resistor, or by combination methods.



HALF-WAVE MERCURY-VAPOR RECTIFIER

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Coated-filament type used in power supply of transmitting and industrial equipment. Maximum peak inverse anode volts, 7500; maximum average anode amperes, 125. Requires



Small four-contact socket and may be mounted in vertical position only, base down. OUTLINE 26, *Outlines* Section.

FILAMENT VOLTAGE (AC)°.....	2.5 ± 10%	volts
FILAMENT CURRENT.....	2.0	amperes
TUBE VOLTAGE DROP (Approx.).....	15	volts

° Filament voltage must be applied at least 10 seconds before the application of anode voltage.

HALF-WAVE RECTIFIER

Maximum Ratings (For power-supply frequency of 60 cps):

PEAK INVERSE ANODE VOLTAGE.....	7500 max	volts
ANODE CURRENT:		
Peak.....	500 max	ma
Average ‡.....	125 max	ma
Fault, for duration of 0.1 second maximum.....	5 max	amperes
CONDENSED-MERCURY-TEMPERATURE RANGE.....	20 to 60	°C

‡ Averaged over any interval of 30 seconds maximum.