ONE-TUBE XTAL RIG GIVES 150-WATT OUTPUT ON C-W

RCA 806 IS TOPS FOR HIGH-POWER HAM TRANSMITTERS

New enclosed plate increases power at 30 megacycles

Always a leader with amateurs for high-powered transmitters, the RCA 806 is finding even greater favor because of numerous design improvements. A totally enclosed tantalum plate conserves power by eliminating losses from bulb bombardment and stray electrons. At 30 megacycles, this provides the user with 75 watts of additional useful power per tube. As a plate modulated r-f power amplifier, the RCA 806 has a power output of 390 watts per tube with a driving power of only 38 watts. As an r-f power amplifier and oscillator in Class C telegraph service, the power

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HIGH-POWER CRYSTAL OSCILLATOR A REALITY WITH RCA-813 TETRODE

May be plate-modulated with 60% efficiency for carrier output of 100 watts

The long-cherished amateur dream of a one-tube crystal-controlled 'phone or cw transmitter comes very close to being realized with the new RCA-813 beam power tetrode. In plate-modulated service, 100% modulation can be obtained with good linearity, low distortion, and a carrier output of 100 watts! In cw telegraphy service, excellent keying can be accomplished in the screen circuit and a power output of 150 watts can be obtained! In neither case is the r-f current crystal excessive.

FOUR TELEVISION TUBES ANNOUNCED TO EXPERIMENTERS

Two Kinescopes provide black and white pictures

Three new Kinescopes and an improved Monoscope have just been made available to Amateurs and experimenters by all RCA Power Tube Distributors. These new tubes are:

RCA 906-P4 KINESCOPE
(3-inch Electrostatic-Deflection Type with White Phosphor) $15.00
RCA 1802-P4 KINESCOPE
(3-inch Electrostatic-Deflection Type with Green Phosphor) 23.75
RCA 1802-P4 KINESCOPE
(3-inch Electrostatic-Deflection Type with White Phosphor) 27.50
RCA 1899 MONOSCOPE
(Electromagnetic-Deflection Type) 95.00

Kinescope 906-P4 (similar to the well-known type 906) is a 3-inch cathode-ray tube which features a white fluorescent screen material for the black-and-white reproduction of television pictures. In addition to its low initial cost, this new type permits

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Beam Tetrode

High-Power Sensitivity and a power output in Class C service of 360 watts make the RCA-813 an excellent tube for medium power rigs. Elimination of neutralization in adequately shielded circuits and a driving power of less than 1 watt are other important features.
HAM TIPS from RCA

Four Television Tubes Announced To Experimenters

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of low circuit cost due to the low voltage at which its Anode No. 2 can be operated—only 800 volts. This feature is the result of improved electron-gun construction and the use of a conductive inner-bulb coating. The conductive coating minimizes defocusing-plate loading and prevents drifting of the pattern with changes in control-grid bias.

Two 5-inch Kinescopes

Kinescopes 1802-P1 and 1802-P4 are 5-inch cathode-ray tubes of the double-electrostatic-deflection type. These tubes are similar except for their fluorescent screens. The 1802-P4 has the new white-fluorescent screen, while the 1802-P1 has the standard green screen. Both types have an improved electron-gun construction and a conductive inner-bulb coating. The 1802-P1, being designed for television as well as for oscilloscopes, is especially good for the latter application due to the brilliant pattern and small spot-size it produces. In either tube, the deflection sensitivity is such that the beam may be deflected across the entire screen with no more voltage than is required for full deflection on 8-inch cathode-ray tubes.

Improved Monoscope

Monoscope RCA-1899 is a special form of cathode-ray tube used mainly for testing the performance of television equipment. In the operation of this tube, an electron beam is made to scan a test pattern printed on an electrode located in the screen end of the bulb. As a result of the secondary-emission effects produced by the scanning of the pattern, the tube generates a video signal. This signal, after amplification, is useful for testing television sets and for demonstrating television principles.

RCA 806 Is Tops For High-Power Ham Transmitters

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output is approximately 450 watts per tube with 80 watts driving power. Supplementing its fine performance is the mechanical design of the RCA 806. The filament structure and grid assembly are both double collars mounted, while rugged supports prevent possible glass fractures. Every precaution has been made to make the RCA 806 an outstandingly sturdy high-powered tube. It's tops in performance and tops in construction.

The low net price of $82.00, plus the many fine features of this tube, is making it a great favorite for replacement use. Your RCA Parts Distributor will be glad to give you further details pertaining to this fine RCA tube.

V-CUT CRYSTALS

Greatly Reduce Frequency Drift

Unusually high-power output, plus an extremely low temperature coefficient, make the RCA V-Cut Crystals ideal for amateur use. Crystals are supplied within 0.1% of specified frequency and are calibrated to an accuracy of 0.005% at calibration temperature. Temperature coefficient is 4 cycles or less per million per degree of centigrade on all bands. They are ideal for operation at the edge of amateur bands where extreme stability is required. RCA V-Cut Crystals are not to be confused with the usual amateur-type crystal and are supplied and calibrated on order only. Your RCA Amateur Equipment Distributor will be glad to furnish these units at the following prices, which include holder and calibration. (Allow two weeks for delivery after your distributor has placed order with us.)

Amateur Net

160, 80 and 40-meter band crystals $18.00
20-meter band crystals (up to 15 megacycle for doubling to high frequency end of 10-meter band) $22.00

RCA SOCKETS

Sturdy, well-built RCA sockets are available for many Transmitting Tubes. These sockets are manufactured by RCA and are built to the same high standards employed in RCA Transmitting Tubes.

Amateur Net

UT 541-A for RCA 805 and 806, 1.75
UT 101 for RCA 828 only, 1.20
UT 102 for RCA 828 only, 1.25
UT 103 for RCA 828 only, 1.25
UT 880-5 for RCA 804-A, etc., 4.65
UT 104 for RCA 813 only, 1.25

One-Tube Rig Has 150-Watt Output on C-W

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results on 40 meters were the same as those on 80 meters. The same circuit constants can be used for either cw or head 'phone operation.

 Easily Keyed Without "Chirping"

When the screen circuit is keyed, a receiver test shows that a clean-cut audio is obtained with no noticeable "chirping." This excellent keying characteristic is due to the fact that, with the key open, the crystal continues to oscillate feebly; thus, when the key is closed, the crystal starts off on the same frequency without causing chirps. The antenna load should not be coupled too tightly, as this may cause the crystal to stop oscillating when the key is up. Proper loading can be obtained, with correct circuit adjustments, without stopping the key-up oscillations. In order to key the high-screen voltage circuit safely (as regards the operator), it is absolutely essential to employ a suitable high-voltage keying relay, insulated for 3500 volts. Under no circumstances should an ordinary manual key be used in the screen circuit.

Operating Conditions

The operating conditions for circuit UC-14 are as follows:

For plate-modulated telephony: dc plate voltage, 1500 volts; plate current, 111 ma.; screen current, 15 ma.; d-c grid current, 5 ma.; r-f crystal current, 61 ma.; plate input, 167 watts; carrier output, 100 watts; and plate efficiency, 60 per cent.

For cw telephony: plate voltage, 1500 volts; plate current, 102 ma.; screen current, 18 ma.; d-c grid current, 7 ma.; r-f crystal current, 14.2 ma.; plate input 446 watts; carrier output, 150 watts; and plate efficiency, 61.5 per cent.

The 813 as a high-power crystal oscillator can be used to drive a plate-modulated one-kilowatt final amplifier stage directly—for example, two 80's in push-pull. Thus, the design of a high-power, band-switching transmitter for operation on the three lowest-frequency amateur bands (160, 80, and 40 meters) is greatly simplified, through the use of only two r-f stages.

TYPE RCA-813

CHARACTERISTICS AND RATINGS

Filament Voltage (AC or DC) 10.0 Volts
Filament Current 5.0 Ams.
Transconductance For plate cur. of 50 ma., 37.00 micros.
Direct Interelectrode Capacitance Grid-Plate (With external shield) 0.2 max. pfd.
Input 16.3 pfd.
Output 14.3 pfd.
1000 Volts
10000 Volts

Maximum Ratings and Typical Operating Conditions

As R-F Power Amplifier and Oscillator

- Class C Telegraph

Key-down conditions per tube without modulation

DC Plate Voltage 2000 max. V
DC Screen Voltage (Grid No. 2) 600 max. V
DC Grid Voltage (Grid No. 1) 2000 max. V
DC Plate Current 100 max. mA
DC Grid Current 25 max. Ma
Plate Input 300 max. V
Screen Voltage 100 max. V
Plate Disipation 100 max. W
Typical Operation:

DC Plate Voltage 1250 1500 2000 V
DC Screen Voltage 300 500 1000 V
DC Grid Voltage -60 -70 -90 V
Plate Resistance 2000 max. W
Voltage 100 max. W
RCA Plate Voltage 1000 max. W
DC Plate Current 100 ma.
DC Grid Voltage 15 ma.

Amateur Net:

UT 700-A, 102-A, 103-A, etc., $3.00
UT 701-A, 104-A, etc., 3.35
UT 702-A, 105-A, etc., 3.25
UT 703-A, 106-A, etc., 3.25

Colorful Carton

The new carton for RCA Power and Special Purpose Tubes is an unusually attractive four-color job. Look for it the next time you buy tubes for your amateur rig.