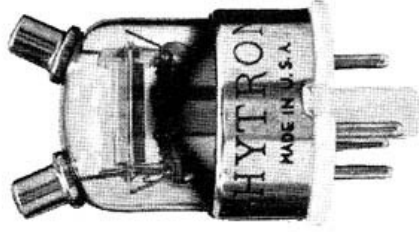


9 - 39
Type HY 615

Engineering Bulletin
615 - 1



(actual size)

PHYSICAL DATA

- | | |
|-----------------------|---------------------|
| Plate | Processed Nickel |
| Grid | Molybdenum-Nickel |
| Bulb | T-9 |
| Base | Special Octal 5 Pin |
| Insulation | Ceramic |
| Plate Top Cap | Metal Top Cap |
| Grid Lead | Metal Top Cap |
| Max. Overall Length | 2-7/16" |
| Max. Overall Diameter | 1-5/16" |
| Net Weight | 1-1/8 oz. |

ELECTRICAL CHARACTERISTICS

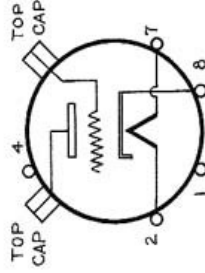
- | | |
|-------------------------------|----------------|
| Heater Voltage (A.C. or D.C.) | 6.3 volts |
| Heater Current | 0.15 amp. |
| D.C. Plate Voltage | 300 volts max. |
| D.C. Plate Current | 20 ma. max. |
| D.C. Grid Current | 4 ma. max. |
| Amplification Factor | 22 |
| Mutual Conductance | 2200 umhos |
| Plate Resistance | 10000 ohms |
| Plate Dissipation | 3.5 watts max. |

INTER-ELECTRODE CAPACITANCE

- | | |
|------------------|----------|
| Grid to Plate | 1.7 mmf. |
| Grid to Cathode | 1.4 mmf. |
| Plate to Cathode | 1.7 mmf. |

BASE PIN CONNECTIONS

- | |
|--------------------------|
| 1 - Metal Shell |
| 2 - Heater |
| 4 - No Connection |
| 7 - Heater |
| 8 - Cathode |
| Cap above #2 Pin - Plate |
| Cap above #7 Pin - Grid |



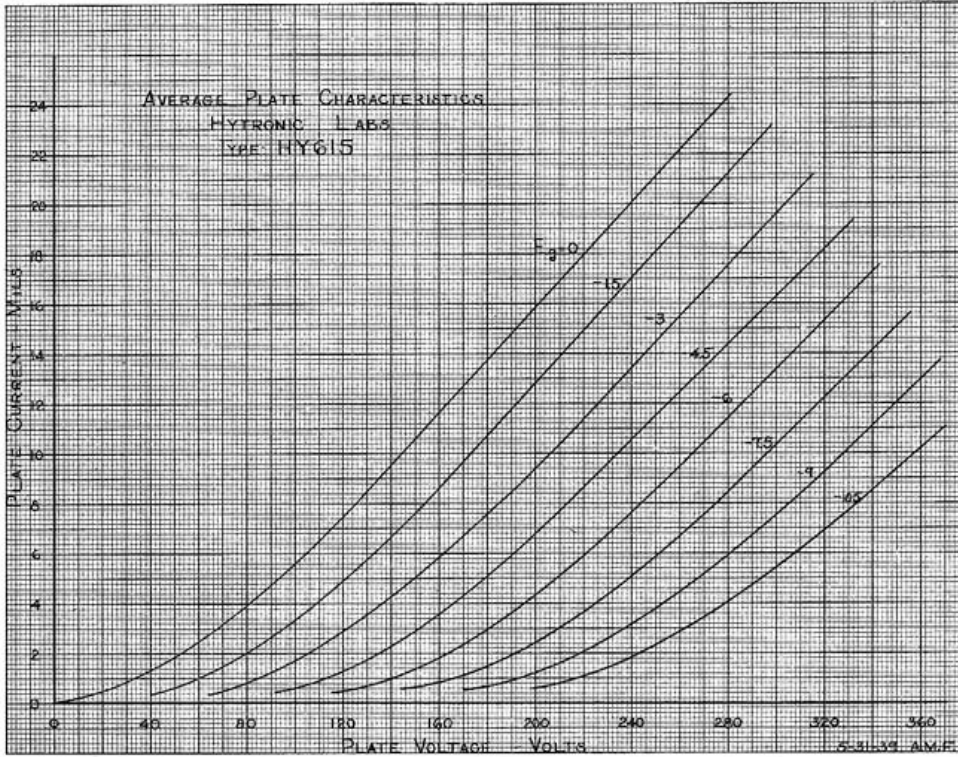
BOTTOM VIEW

ULTRA HIGH FREQUENCY OSCILLATOR, R. F. AMPLIFIER, DETECTOR

The Hytron HY615 Triode was designed for the primary purpose of making available for Amateur use, a tube affording high efficiency at ultra-high frequencies embodying the same rugged physical construction afforded by all high power tubes. The tube features short connection leads, relatively small internal elements resulting in low inter-electrode capacitance. The tube may be universally employed as an oscillator, amplifier or detector and will operate with extremely high efficiency in these services at frequencies up to 300 megacycles.

Product of HYTRON LABORATORIES Salem, Mass.

CONTINUOUS-DUTY RATINGS
USED IN THIS BULLETIN



DIVISION OF

HYTRON CORPORATION - SALEM, MASS., U.S.A.



GENERAL DESCRIPTION

The Hytron HY615 is recommended for use as a low power, ultra-high frequency oscillator in transmitters and super-heterodyne receivers. The HY615 will operate with remarkable stability and efficiency as a bias or grid leak detector and as a super-regenerative self-quenched detector in properly designed circuits.

It is important that all R.F. grounds such as shields, condensers and coil returns be grounded close to the cathode return of the tube to obtain full efficiency at ultra-high frequencies. All connection leads must be short and of heavy enough material to avoid losses due to R.F. resistance.

R. F. POWER AMPLIFIER AND OSCILLATOR CLASS "C"
(Plate Modulated or C.W.)

D.C. Plate Voltage 500 max. volts
D.C. Plate Current 20 max. ma.
D.C. Grid Current 4 max. ma.

Typical Operation:*

D.C. Plate Voltage 500 volts
Grid Voltage -35 approx. volts
D.C. Plate Current** 20 approx. ma.
D.C. Grid Current** 1.4 approx. ma.
R.F. Power Output** 3.5 approx. watts

* At 240 megacycles. Only moderate reduction in this value will be found for frequencies as high as 300 megacycles. Above this frequency, the power output decreases as the frequency is increased.

**Subject to wide variations controlled by circuit constants and operating characteristics of associated input and output circuits.

DETECTOR OPERATION

Typical Circuit Conditions:

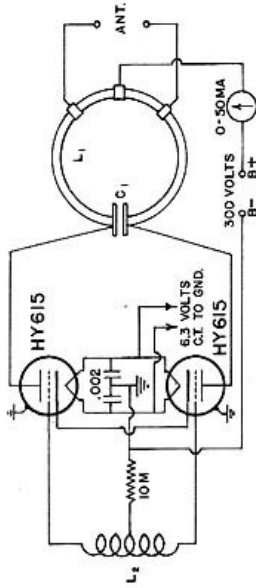
	Biased	Grid Leak
Plate Supply Voltage#	250 volts	180 volts
Grid Voltage	-7 approx.	## volts
Load Resistance	0.25 ##	0.5 megohm
Plate Current	##	## ma.
Self-Bias Resistor	50,000 approx.	## ohms
Grid Leak	---	1. to 5.0 megohms
Grid Condenser	---	0.00025 mfd.

#This is a plate supply voltage value. The voltage effective at plate will be plate supply voltage less voltage drop in load caused by plate current.

**Grid returns through grid leak to cathode.

##Adjusted to 0.25 ma. approximate with no input signal.

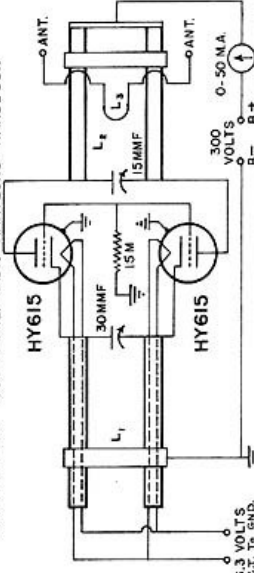
T.N.T. ULTRA-HIGH-FREQUENCY OSCILLATOR



224 MC } L_1 - $\frac{1}{4}$ " COPPER TUBING 2 $\frac{1}{2}$ " DIAMETER
OPERATION } L_2 - 6 TURNS #16 WIRE $\frac{1}{8}$ " FORM - $1\frac{1}{2}$ " LONG C.T.
} C_1 - $\frac{1}{32}$ " COPPER DISCS - 1" DIAMETER SPACED $\frac{1}{32}$ "

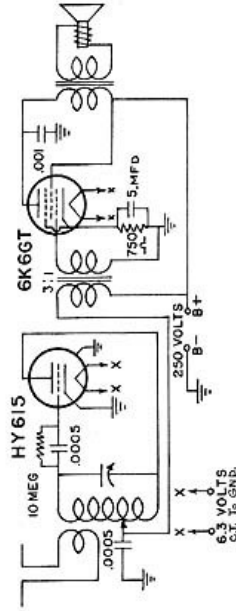
TUNED-PLATE TUNED-CATHODE OSCILLATOR

ADAPTED FROM 1939 A.R.R.L. RADIO AMATEURS' HANDBOOK



224 MC } L_1 - $\frac{1}{4}$ " O.D. COPPER TUBING 10" LONG SPACED $\frac{3}{16}$ "
OPERATION } L_2 - PLATE LINE $\frac{1}{4}$ " O.D. TUBING 6" LONG SPACED $\frac{1}{4}$ "
} L_3 - ANTENNA LINK APPROX. 4 $\frac{1}{2}$ " LONG

ULTRA-HIGH-FREQUENCY RECEIVER USING SUPER-REGENERATIVE SELF-QUENCHING DETECTOR



ANTENNA COUPLING CAN BE ACCOMPLISHED THROUGH SEVERAL METHODS DEPENDING UPON FREQUENCY RANGE OF RECEIVER AS SHOWN ABOVE AND AT RIGHT