

9 - 39
Type HY 615

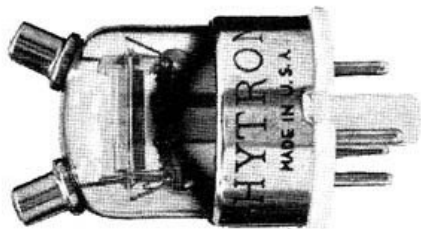
Engineering Bulletin

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PHYSICAL DATA

Plate
Grid
Bulb
Base
Insulation
Plate Lead
Grid Lead
Max. Overall Length
Max. Overall Diameter
Net Weight

Processed Nickel
Molybdenum-Nickel
T-9
Special Octal 5 Pin
Ceramic
Metal Top Cap
Metal Top Cap
2-7/16"
1-5/16"
1-1/8 oz.



ELECTRICAL CHARACTERISTICS

Heater Voltage
(A.C. or D.C.)
Heater Current
D.C. Plate Voltage
D.C. Plate Current
D.C. Grid Current
Amplification Factor
Mutual Conductance
Plate Resistance
Plate Dissipation

6.3 volts
0.15 amp.
300 volts max.
20 ma. max.
4 ma. max.
22
2200 umhos
10000 ohms
3.5 watts max.

(actual size)

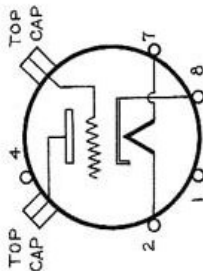
INTER-ELECTRODE CAPACITANCE

Grid to Plate
Grid to Cathode
Plate to Cathode

1.7 mmf.
1.4 mmf.
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



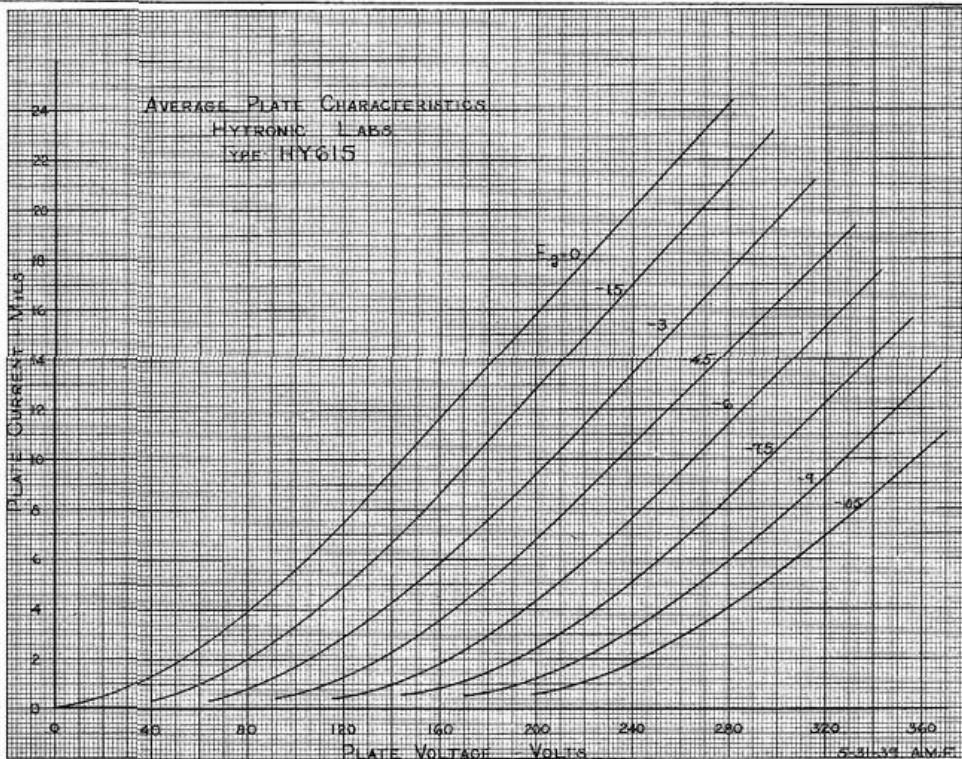
BOTTOM VIEW

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 capacities. 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	300	max. volts
D.C. Plate Current	20	max. ma.
D.C. Grid Current	4	max. ma.

Typical Operation:**

D.C. Plate Voltage	300	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:

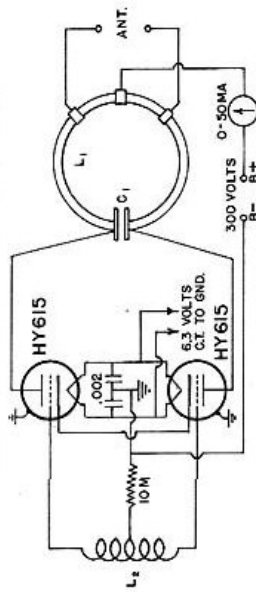
	Biased	Grid Leak
Plate Supply Voltage#	250	180 volts
Grid Voltage	7	approx. 180
Load Resistance	0.25	volts
Plate Current	##	0.5 megohm
Self-Bias Resistor	50,000 approx.	##
Grid Leak	---	ohms
Grid Condenser	---	1. to 5.0 megohms
		0.00025 mfd.

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.

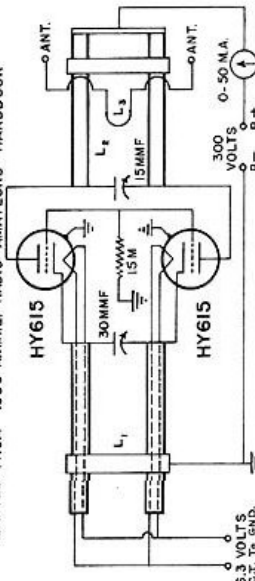
T.N.T. ULTRA-HIGH-FREQUENCY OSCILLATOR



224 MC } L_1 - $\frac{1}{2}$ " 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 $\frac{1}{32}$ "

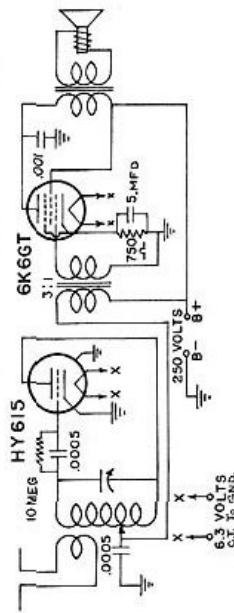
TUNED-PLATE TUNED-CATHODE OSCILLATOR

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



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