

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



9 - 39
Type HY 615

Engineering Bulletin

615 - 1

PHYSICAL DATA



(actual size)

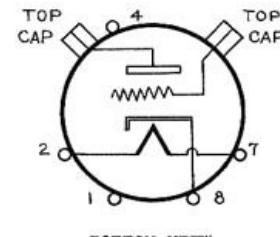
Plate Processed Nickel
Grid Molybdenum-Nickel
Bulb T-9
Base Special Octal 5 Pin
Insulation Ceramic
Plate Lead Metal Top Cap
Grid Lead Metal Top Cap
Max. Overall Length 2-7/16"
Max. Overall Diameter 1-5/16"
Net Weight 1-1/8 oz.

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 capacitances. 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 HYTRONIC LABORATORIES Salem, Mass.
CONTINUOUS-DUTY RATINGS
USED IN THIS BULLETIN

HYTRON TYPE HY615

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	ma.
D.C. Grid Current**	1.4	approx. ma.
R.F. Power Outputs**	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

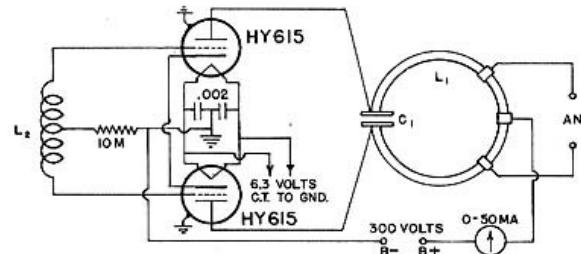
<u>Typical Circuit Conditions:</u>	<u>Biased</u>	<u>Grid Leak</u>
Plate Supply Voltage#	250	180 volts
Grid Voltage	-7 approx.	# volts
Load Resistance	0.25	0.5 megohm
Plate Current	#	# ma.
Self-Bias Resistor	50,000 approx.	- ohms
Grid Leak	---	1. to 5.0 megohms
Grid Condenser	---	0.00025 mfd.

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.

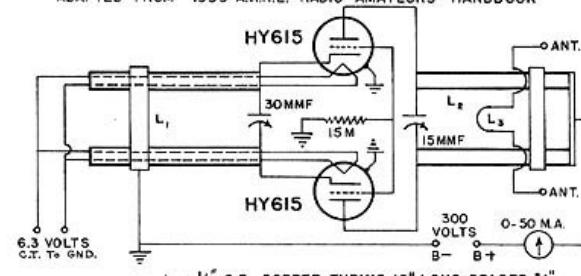
##Grid returns through grid leak to cathode.

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

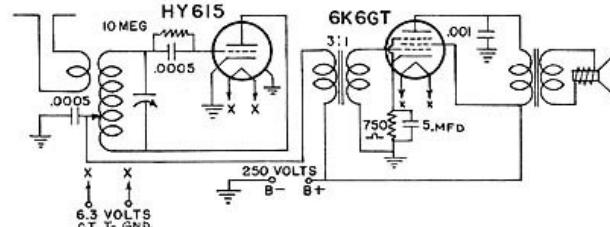
T.N.T. ULTRA-HIGH-FREQUENCY OSCILLATOR



224 MC }
OPERATION } L₁ - 1/4" COPPER TUBING 2 1/4" DIAMETER
L₂ - 6 TURNS 16 WIRE 1/4" FORM - 1 1/2" LONG C.T.
C₁ - 1/2" COPPER DISCS - 1" DIAMETER SPACED 1/2"

TUNED-PLATE TUNED-CATHODE OSCILLATOR
ADAPTED FROM 1939 A.R.R.L. RADIO AMATEURS' HANDBOOK

224 MC }
OPERATION } L₁ - 1/4" O.D. COPPER TUBING 10" LONG SPACED 1/4"
L₂ - PLATE LINE 1/4" O.D. TUBING 6" LONG SPACED 1/4"
L₃ - ANTENNA LINK APPROX. 4 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

