



957 • 958 • 959

(Acorn\* Types)

RCA-957, 958, and 959 are a new series of Acorn tubes having low-current filaments of the coated type. These tubes are designed for use by amateurs and experimenters working at the ultra-high frequencies. Their economy of filament and plate power and small sizes make them particularly useful in compact portable and other battery-operated equipment where minimum size and weight are important features. The filament of each of these three types can be operated without series resistance directly from a single flashlight dry cell.

The 957 is a triode having a moderately high amplification factor. It may be used as a detector, amplifier, and oscillator. The 958 is a triode especially designed for transmitting service as an oscillator and radio-frequency amplifier. It may also be used as an audio power output tube. Useful audio output for headphone operation may be obtained with plate voltage down to 45 volts, or lower. The 959 is a sharp cut-off pentode intended for use as an r-f amplifier and detector. It may also be used as a resistance-coupled a-f amplifier having moderate gain.

The excellent performance of these tubes at the ultra-high frequencies is due to an unconventional structure having small size, close electrode spacing, and short terminal connections.

#### TENTATIVE RATINGS and CHARACTERISTICS

	957	958	959	
FILAMENT VOLT. (D.C.)	1.25	1.25	1.25	Volts
FILAMENT CURRENT	0.05	0.10	0.05	Ampere
PLATE VOLT. (Max.)	135	135	135	Volts
SUPPRESSOR	-	-	**	
SCREEN VOLT. (Max.)	-	-	67.5	Volts
GRID VOLT. #1	-5	-7.5	-3	Volts
PLATE CURRENT	2	3	1.7	Milliamperes

\*. \*\*. 48: See end of Labelation.

SCREEN CURRENT	-	-	0.4	Milliampere
PLATE RES. (Approx.)	24600	10000	80000	Ohms
AMPLIFICATION FACTOR	16	12	480	
TRANSCONDUCTANCE	650	1200	600	Micronhos
DIRECT INTERELECTRODE CAPACITANCES:				
Grid-Plate	1.8	2.6	0.015*	$\mu\mu\text{f}$
Grid-Filament	0.5	0.7	-	$\mu\mu\text{f}$
Plate-Filament	1.2	1.1	-	$\mu\mu\text{f}$
Input	-	-	1.8	$\mu\mu\text{f}$
Output	-	-	3	$\mu\mu\text{f}$
BULB	T-4 $\frac{1}{2}$	T-4 $\frac{1}{2}$	T-4 $\frac{1}{2}$	
TERMINAL MOUNTING	Special	Special	Special	

\* Registered trademark.

\*\* Connected to minus filament at mounting.

# Maximum, with shield baffle.

## Maximum resistance in grid circuit should not exceed 0.5 meg.

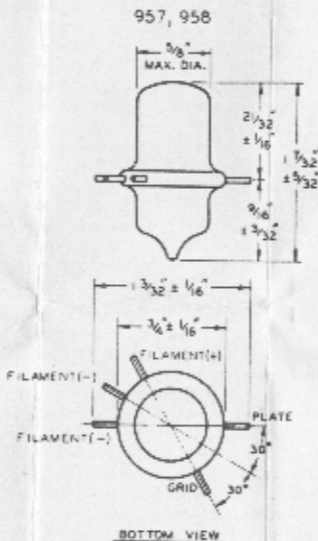
### INSTALLATION and APPLICATION

The terminals of these tubes fit the standard Acorn-tube mounting. A plate clip and a grid clip are supplied with the 959. Terminal connections are shown on pages 3 and 4. Since the tube terminals are located symmetrically, the socket should have a stop of insulating material opposite the center filament clip. This stop prevents insertion of the filament terminals in the wrong clips. The center filament terminal of each tube type is connected within the tube to the negative side of the filament. The terminal mounting of these tubes may be mounted to hold the tubes in either a vertical or a horizontal position. When the tubes are mounted in a horizontal position, the plate should be in a vertical plane (on edge). Do not solder connections to the terminals.

The filament of each of these types is designed for operation at 1.25 volts and can be operated without a series resistance directly from a dry cell. The negative filament terminal should be connected to the negative battery terminal. Parallel operation is recommended. Series operation is permissible if the current of each tube filament circuit is adjusted to its rated value by the use of a shunt resistor. For example, when the 958 is operated in series with the 957 and 959, shunt resistors of 25 ohms each should be connected across the filament terminals of the latter tubes. Series-parallel operation of these tubes is not recom-

mended because failure of one tube may cause excessive voltage across the other tubes.

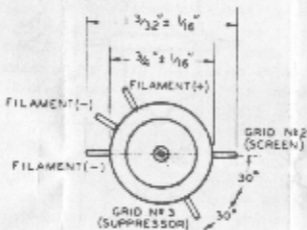
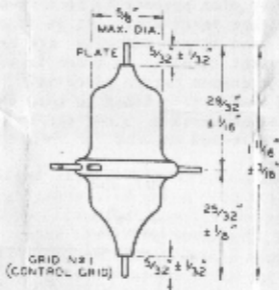
*R-F* by-passing of the tubes at the socket terminals by means of high-quality condensers is essential in order to provide the shortest possible circuit returns and to realize the full capabilities of the tubes at the ultra-high frequencies. Conventional by-passing methods are not adequate. One convenient method of by-passing is to use ribbon leads to the clips and to insulate these by mica spacers to form by-pass condensers right at the tube terminals. It is important that the grid, plate, and screen circuits are by-passed to the negative filament terminal in order to avoid *r-f* interaction through common return circuits. It may also be advisable in some applications to supplement the action of the by-pass condensers by *r-f* chokes placed close to the condensers in the returns or in the electrode supply leads.



92C-4999



959

BOTTOM VIEW

92C-5000