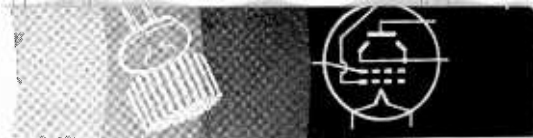




# ACORN TUBE DATA



## U - H - F A C O R N T Y P E S \*

| Type | List Prices | Type | List Prices | Type | List Prices |
|------|-------------|------|-------------|------|-------------|
| 954  | .....\$5.00 | 956  | .....\$5.00 | 958  | .....\$3.00 |
| 955  | ..... 3.00  | 957  | ..... 3.00  | 959  | ..... 5.00  |

The RCA Acorn tubes are designed for use by experimenters and amateurs particularly at the ultra high frequencies. These remarkable short-wave tubes, assembled with the aid of a microscope, provide unusual r-f gain with remarkable efficiencies at wavelengths as low as 0.7 to 0.5 meter! Operation of the Acorn tubes at such short wavelengths is made possible by the use of an unconventional tube structure having extremely small size, close electrode spacing, and short terminal connections. Maximum height of the pentode types is only 1 7/8"; maximum height of the triode types is only 1 3/4".

RCA-954, 955, and 956 are the 6.3-volt heater-cathode types. The 954 is a pentode. As an r-f amplifier, this tube is capable of gains of three or more in circuits of conventional design. It is capable of working at wavelengths as short as 0.7 meter. The 955 is a triode well suited for use as a detector or r-f amplifier in u-h-f receivers. It is also well suited as an oscillator in "fly-power" transmitters operating at frequencies unreachable with ordinary tubes. RCA-955 is capable of giving an output of 1/2 watt at 5 meters and with only moderate reduction in this value for wavelengths as low as 1 meter. The 956 is a pentode of the remote cut-off type for use as a radio- and intermediate-frequency amplifier, or a mixer, in receivers operating at wavelengths as low as 0.7 meter. The 956 is capable of giving a gain of 4 or more when it is used as an r-f amplifier in circuits of conventional design.

RCA-957, 958, and 959 are a new series of Acorn tubes having low-current filaments of the coated type. 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 r-f 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.

Tubes are Actual Size ➡



\* Registered trademark.

### 954 • 955 • 956 RATINGS and CHARACTERISTICS As an Amplifier—Class A

|                                     | 954    | 955   | 956     |           |
|-------------------------------------|--------|-------|---------|-----------|
| HEATER VOLTAGE (A.C. or D.C.)       | 6.3    | 6.3   | 6.3     | Volts     |
| HEATER CURRENT                      | 0.15   | 0.15  | 0.15    | Ampere    |
| MAX. PLATE VOLTAGE                  | 250    | 250   | 250     | Volts     |
| SUPPRESSOR                          | †      | —     | †       | Volts     |
| MAX. SCREEN VOLTAGE                 | 100    | —     | 100     | Volts     |
| GRID VOLTAGE                        | -3     | -7    | -3 min. | Volts     |
| PLATE CURRENT                       | 2      | 6.3   | 5.5     | Ma.       |
| SCREEN CURRENT                      | 0.7    | —     | 1.8     | Ma.       |
| PLATE RESIST. (Approx.)             | *      | 11400 | 800000  | Ohms      |
| AMPLIFICATION FACTOR                | §      | 25    | 1440    |           |
| TRANSCONDUCTANCE                    | 1400   | 2200  | 1800    | Micromhos |
| DIRECT INTERELECTRODE CAPACITANCES: |        |       |         |           |
| Grid-Plate                          | 0.007‡ | 1.4   | 0.007‡  | μμf       |
| Grid-Cathode                        | —      | 1.0   | —       | μμf       |
| Plate-Cathode                       | —      | 0.6   | —       | μμf       |
| Input                               | 3      | —     | 2.7     | μμf       |
| Output                              | 3      | —     | 3.5     | μμf       |

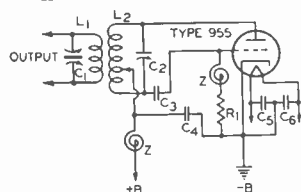
TERMINAL MOUNTING ..... RCA type STK-9925  
 † Connected to cathode at terminal mounting. § Greater than 2000.  
 \* Greater than 1.5 megohms. ‡ Maximum with shield baffle.

### 957 • 958 • 959 RATINGS and CHARACTERISTICS As an Amplifier—Class A

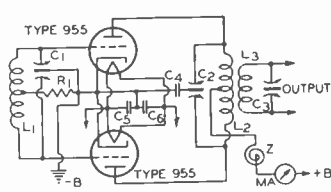
|                                     | 957   | 958   | 959    |           |
|-------------------------------------|-------|-------|--------|-----------|
| FILAMENT VOLTAGE (D.C.)             | 1.25  | 1.25  | 1.25   | Volts     |
| FILAMENT CURRENT                    | 0.05  | 0.10  | 0.05   | Ampere    |
| PLATE VOLTAGE (Max.)                | 135   | 135   | 135    | Volts     |
| SUPPRESSOR                          | —     | —     | *      |           |
| SCREEN VOLTAGE (Max.)               | —     | —     | 67.5   | Volts     |
| GRID VOLTAGE†                       | -5    | -7.5  | -3     | Volts     |
| PLATE CURRENT                       | 2     | 3     | 1.7    | Ma.       |
| SCREEN CURRENT                      | —     | —     | 0.4    | Ma.       |
| PLATE RES. (Approx.)                | 24600 | 10000 | 800000 | Ohms      |
| AMPLIFICATION FACTOR                | 16    | 12    | 480    |           |
| TRANSCONDUCTANCE                    | 650   | 1200  | 600    | Micromhos |
| DIRECT INTERELECTRODE CAPACITANCES: |       |       |        |           |
| Grid-Plate                          | 1.8   | 2.6   | 0.015‡ | μμf       |
| Grid-Filament                       | 0.5   | 0.7   | —      | μμf       |
| Plate-Filament                      | 1.2   | 1.1   | —      | μμf       |
| Input                               | —     | —     | 1.8    | μμf       |
| Output                              | —     | —     | 3      | μμf       |

TERMINAL MOUNTING ..... RCA type STK-9925  
 \* Connected to minus filament at mounting.  
 † Maximum, with shield baffle.  
 ‡ Maximum resistance in grid circuit should not exceed 0.5 meg.

### ULTRA-HIGH-FREQUENCY HARTLEY OSCILLATOR



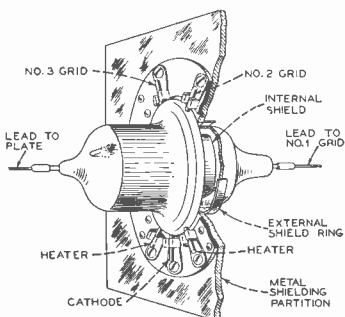
### PUSH-PULL OSCILLATOR TUNED-PLATE TUNED-GRID TYPE



L1 C1, L2 C3=Depend on frequency range desired

C3=0.00005 μf  
 C1 C5 C6=0.0001 μf  
 R1=20000 to 25000 ohms, 1/2 watt  
 Z=R-F choke

L1 C1, L2 C3, L3 C5=Depend on frequency range desired  
 C1 C5 C6=0.0001 μf  
 R1=10000 to 12500 ohms, 1/2 watt

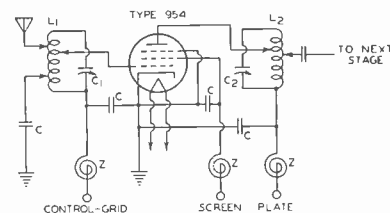


TYPICAL SHIELD CONSTRUCTION

\* B.C.=Bare Copper □ S.L.=Single layer

Note: The above data are necessarily approximate. For ultra-high frequencies, coils L1 and L2 may be tapped at suitable points determined by test to reduce effect of tube loading on circuit impedances. Since electronic plate loading is not serious in a pentode, the use of coil L2 with tapped plate connection may not be necessary to give satisfactory results. The condensers should all be of high quality and be designed for u-h-f operation.

### TYPICAL R-F AMPLIFIER CIRCUIT



| WAVE-LENGTH RANGE                        | 2.75 TO 5.3 METERS APPROX. | 1 TO 3 METERS APPROX. | 0.8 METER APPROX. |
|--|----------------------------|-----------------------|-------------------|
| TURNES L1, L2 WIRE OUTSIDE DIA. (LENGTH) | 10 N#16 B.C.* 3/4          | 4 N#16 B.C.* 3/4      | 5 N#30 B.C.* 1/4  |
| C1, C2 (VARIABLE)                        | 3 TO 25 μμf                | 3 TO 25 μμf           | 3 TO 4 μμf        |
| C  | 100 TO 500 μμf             | 100 TO 500 μμf        | 100 TO 500 μμf    |
| TURNES Z WIRE OUTSIDE DIA. (WINDING)     | 15 N#30 1/4 S.L.□          | 15 N#30 1/4 S.L.□     | 15 N#30 1/4 S.L.□ |