



1603

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TRIPLE-GRID DETECTOR AMPLIFIER*For applications critical as to microphonics, noise, and hum*

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.
Direct Interelectrode Capacitances:▲		
Triode Connection (Approx.) - Grids #2 & #3 tied to plate		
Grid to Plate	2.0	μf
Grid to Cathode	3.0	μf
Plate to Cathode	10.5	μf
Pentode Connection		
Grid to Plate	0.007 max.°	μf
Input	4.6	μf
Output	6.5	μf
Overall Length	4-11/16" to 4-15/16"	
Seated Height	4-1/16" to 4-5/16"	
Maximum Diameter	1-9/16"	
Bulb	ST-12	
Cap	Small Metal	
Base	Small 6-Pin	
Pin 1 - Heater	Pin 5 - Cathode	
Pin 2 - Plate	Pin 6 - Heater	
Pin 3 - Screen	Cap - Grid	
Pin 4 - Suppressor		
Mounting Position		Any



BOTTOM VIEW

SINGLE-TUBE AMPLIFIER

Plate Voltage					250 max. volts
Screen Voltage					180 max. volts
Typical Operation and Characteristics - Class A ₁ Amplifier:					
	Pentode Connection			Triode Connection	
Plate	100	250	250	180	250 volts
Screen	100	100	180	—	— volts
Grid	—3	—3	—3	—5.3	—8 volts
Suppressor	Tied to cath. at socket				
Amp. Fact.	—	—	—	20●	20●
Plate Res.	1.0	□	0.9	0.011	0.0105 megohm
Transcond.	1185	1225	2000	1800	1900 μmhos
Grid Bias #	—7	—7	—	—	— volts
Plate Cur.	2	2	8.3	5.3	6.5 ma.
Screen Cur.	0.5	0.5	2.1	—	— ma.

□ Greater than 1.5. ° Approx. # Approx., for cath. cur. cut-off.

PUSH-PULL AMPLIFIER - Triode Connection*Typical Operation - Class A₁ Amplifier:**Unless otherwise specified, values are for 2 tubes*

Plate	90	volts
Grid	-2.5	volts
Cathode Resistor	625	ohms
Plate Current	4.0	ma.
Load Res. (plate to plate)	10000	ohms
Power Output	40	mw.

DETECTOR*Typical Operation as Biased Detector:*

Plate Supply	100 100 250 250	volts
Screen	12 30 50 100	volts
Grid	-1.16 -1.83 -1.95 -4.3	volts
Cathode Res.	18000 10000 3000 10000	ohms
Suppressor	Connected to cathode at socket	
Cath. Cur. (no sig.)	0.063 0.183 0.65 0.43	ma.
Plate Resistor	1.00 0.25 0.25 0.50	megohm
Blocking Condenser	0.01 0.01 0.03 0.03	μf
Grid Resistor *	1.00 0.50 0.25 0.25	megohm
R-F Signal (RMS)**	1.05 1.60 1.18 1.37	volts

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.

▲ The internal shield in the dome of the 1603 is connected to the cathode within the tube.

° With close-fitting shield connected to cathode.

◇ Voltage at plate will be "Plate Supply" voltage minus voltage drop in plate resistor caused by plate current.

* For the following amplifier tube.

** See next page.

← Indicates a change.

Dec. 1, 1941

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

DATA



TRIPLE-GRID DETECTOR AMPLIFIER

(continued from preceding page)

** With these signal values modulated 20%, the voltage output under each set of conditions is 17 peak volts at the grid of the following amplifier. This value is sufficient to insure full audio output from a 42 (for 6.3-volt operation) or a 2A5 (for 2.5-volt operation) under 250-volt plate conditions.

For Curves, refer to Types 6J7 and 57. For additional Data, refer to RESISTANCE-COUPLED AMPLIFIER CHART.

