



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		μuf
Grid to Cathode	3.0		μuf
Plate to Cathode	10.5		μuf
Pentode Connection			
Grid to Plate	0.007 max.		μuf
Input	4.6		μuf
Output	6.5		μuf
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 ConnectionTypical 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)	100000	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 RADIONRON DIVISION
RCA MANUFACTURING COMPANY, INC.

DATA

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(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.

