956

Super-Control R-F Amplifier Pentode
(Acorn Type)

RCA-956 is a heater-cathode tube of the remote cut-off type for use by radio amateurs and experimenters as a radio- and intermediate-frequency amplifier, or mixer, in receivers operating at wavelengths as low as 0.7 meter. The super-control feature of the 956 makes the tube very effective in reducing cross-modulation and modulation-distortion over the entire range of received signals. This feature also makes the tube well adapted to circuits incorporating automatic volume control without the necessity for using local-distance switches or antenna potentiometers. At a wavelength of one meter, the 956 is capable of giving a gain of four or more when it is used as an r-f amplifier in circuits of conventional design. Higher gains are, of course, attainable at longer wavelengths. Operation at short wavelengths is made possible by means of an unconventional tube structure having small size, close electrode spacing and short terminal connections.

TENTATIVE CHARACTERISTICS

HEATER VOLTAGE (A.C. or D.C.)	6.3	Volts
HEATER CURRENT	0.15	Ampere
PLATE VOLTAGE	250 *max.*	Volts
SCREEN VOLTAGE	100 *max.*	Volts
GRID VOLTAGE (Minimum)	-3	Volts
SUPPRESSOR	Connected to cathode at socket	
PLATE CURRENT	5.5	Milliamperes
SCREEN CURRENT	1.8	Milliamperes
PLATE RESISTANCE	0.8	Megohm
AMPLIFICATION FACTOR	1440	
MUTUAL CONDUCTANCE	1800	Micromhos
MUTUAL CONDUCTANCE (At -45 volts bias)	2	Micromhos
GRID-PLATE CAPACITANCE (With shield-baffle)	0.007 *max.*	μμf
INPUT CAPACITANCE	2.7	μμf
OUTPUT CAPACITANCE	3.5	μμf

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OVERALL LENGTH	1-11/16" ± 3/16"
OVERALL DIAMETER	1-3/32" ± 1/16"
BULB	T-4½
TERMINAL MOUNTING (For connections, see page 4)	Special

INSTALLATION

The 956 may be held by means of a special socket or by means of a mounting using the clips supplied with each tube. The two small clips are for the control grid and the plate terminal at the bottom and top of the bulb, respectively. The five large clips may be fastened to a supporting insulator (see Terminal Mounting Template, page 4). *Do not attempt to solder connections to the terminals* as the heat of the soldering operation is almost certain to crack the bulb seal.

The *heater* should be operated at its recommended value. Under any condition of operation, the heater voltage should not deviate more than plus or minus 10% from the normal value of 6.3 volts. Series heater operation of the 956 is not recommended.

The *screen* voltage may be obtained from a potentiometer or bleeder circuit across the B-supply source. Due to the screen current characteristics of the 956, a resistor in series with the high-voltage supply may be employed for obtaining the screen voltage provided the cathode-resistor method of bias control is used. This method, however, is not recommended if the high-voltage B-supply exceeds 250 volts.

Shielding of each r-f amplifier stage employing the 956 is required in order to prevent interstage coupling. A convenient method of shield construction is illustrated on page 3. It may be desirable, depending upon circuit requirements, to provide a small collar on the baffle hole in order to increase the shielding effect.

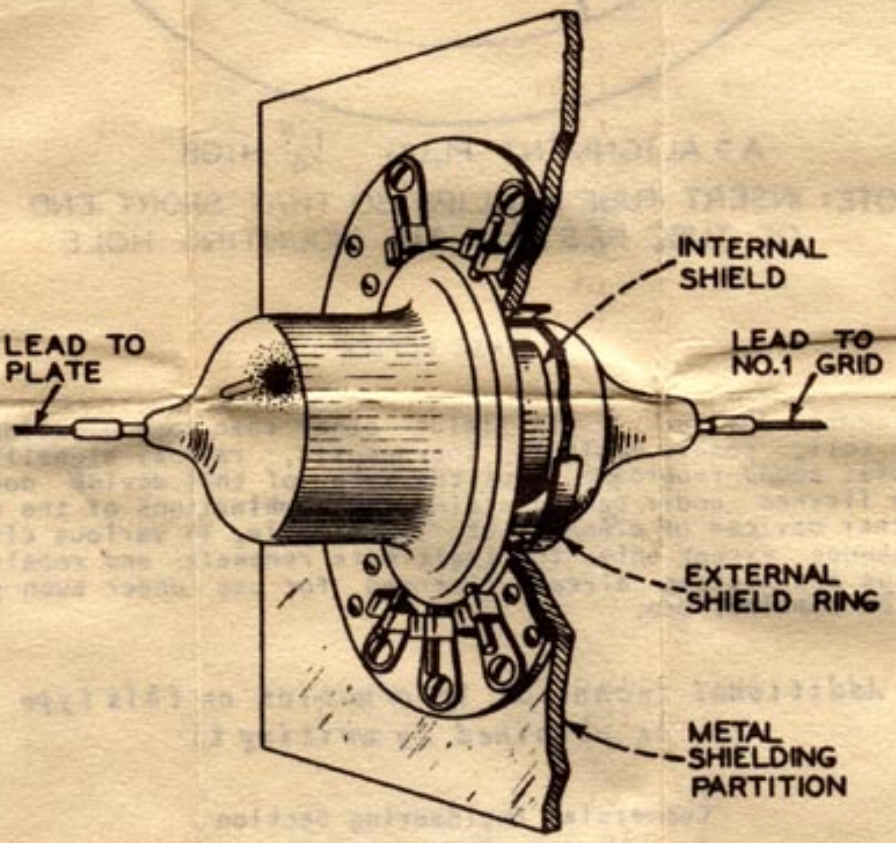
R-F grounding by means of condensers placed close to the tube terminals is required if the full capabilities of the 956 are to be realized at the ultra-high frequencies. Conventional by-passing methods and grounding are not adequate. It is important in cases of the plate and control-grid circuits that separate

r-f grounding returns be made to a common point 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 return or supply lead for the control grid, the screen, the suppressor, the plate, and the heater.

APPLICATION

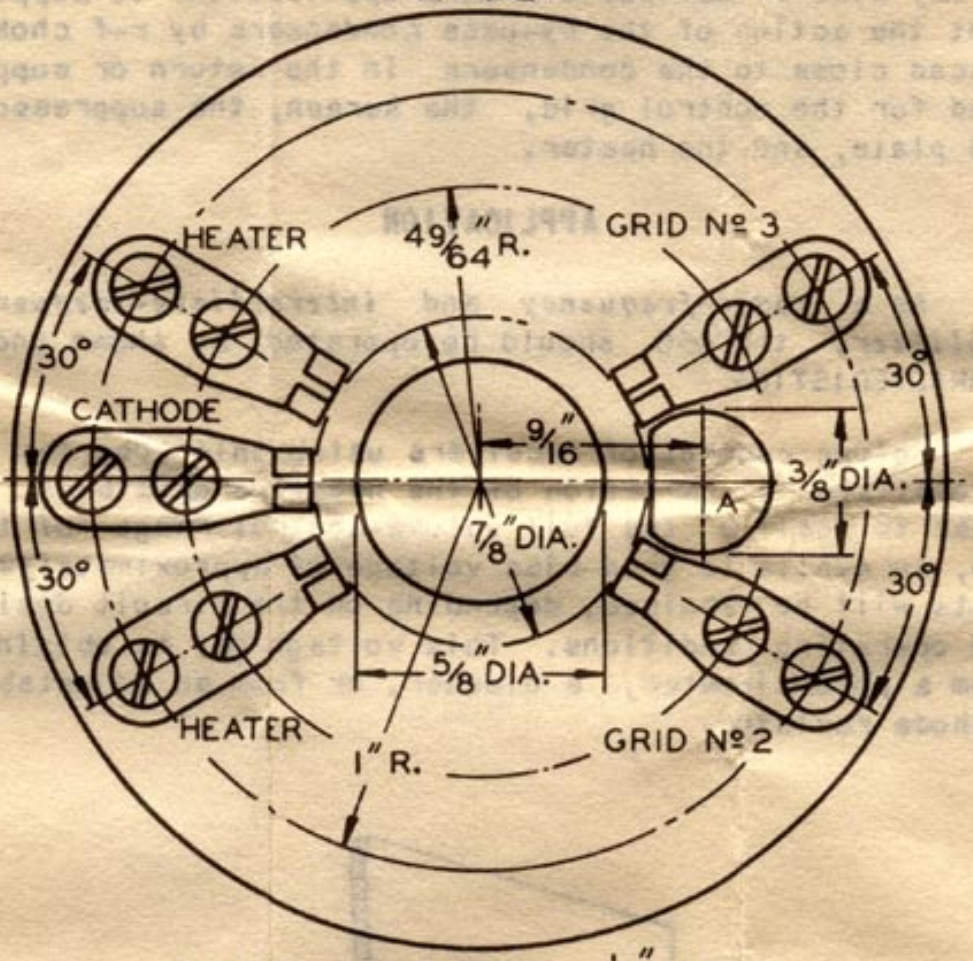
As a *radio-frequency* and *intermediate-frequency amplifier*, the 956 should be operated as shown under CHARACTERISTICS.

Volume control of receivers using this tube may be accomplished by variation of the negative grid bias. In order to realize the full volume-control range of the 956, an available grid-bias voltage of approximately-50 volts will be required, depending on the circuit design and operating conditions. This voltage may be obtained from a potentiometer, a bleeder, or from an adjustable cathode resistor.



TERMINAL MOUNTING TEMPLATE

TOP VIEW



A = ALIGNMENT PLUG 1/4" HIGH

NOTE: INSERT TUBE IN CLIPS SO THAT SHORT END OF TUBE RESTS IN THE MOUNTING HOLE

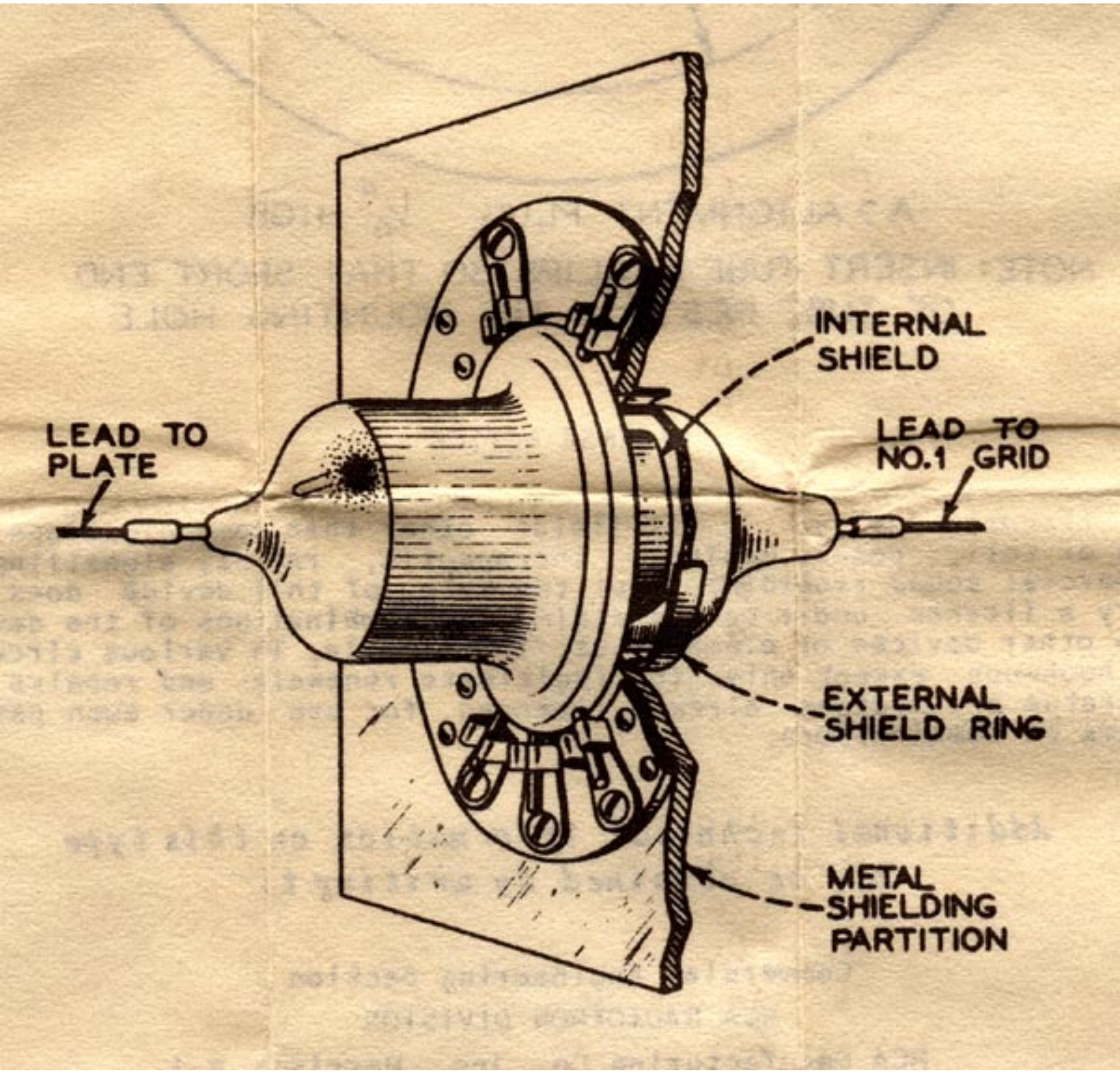
LICENSE NOTICE

Licensed for use in all fields other than communications for hire or toll, power, medical, therapeutic, railway signalling or commercial sound recording, but the sale of this device does not carry a license under patent claims on combinations of the device with other devices or elements as, for example, in various circuits and hook-ups except only for legitimate renewals and repairs in apparatus and systems already licensed for use under such patent claims on combinations.

Additional technical information on this type may be obtained by writing to

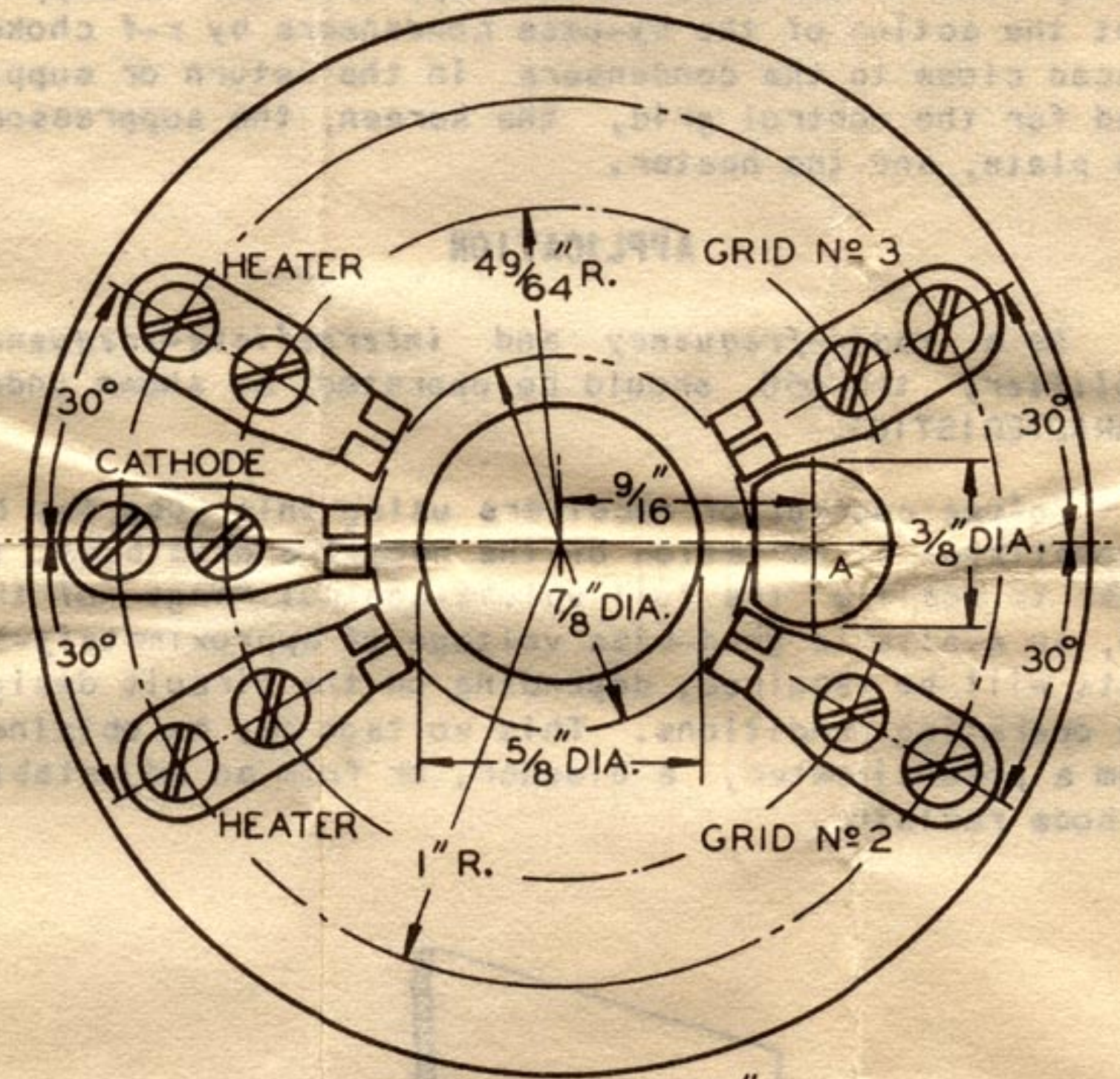
Commercial Engineering Section
RCA RADIOTRON DIVISION
RCA Manufacturing Co., Inc., Harrison, N.J.

Photolithographed in U.S.A.


INTERNAL SHIELD
LEAD TO PLATE
LEAD TO NO.1 GRID
EXTERNAL SHIELD RING
METAL SHIELDING PARTITION

TERMINAL MOUNTING TEMPLATE

TOP VIEW



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