2F21

MONOSCOPE

Electrostatic Focus
Magnetic Deflection

"Indian-Head" Pattern

5"-Diameter Bulb
12-1/2" Length

RCA-2F21 is a special form of cathode-ray tube in which an electron beam is made to scan a test pattern printed on an electrode. As a result of secondary-emission effects produced by the scanning of the pattern, the tube generates a video signal voltage. This signal is useful for testing the video performance of television transmitters and receivers.

The 2F21 has the "Indian-Head" pattern which contains calibrated resolution wedges to show how much detail the television equipment can resolve, while other parts of the pattern provide for testing linearity of scanning, phase response, amplitude response and general quality of picture reproduction. The 2F21 is capable of resolving 500-line detail in its pattern, and of providing a high signal-to-noise ratio.

DATA

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3 ± 10%	volts
Current	0.6	ampere
Direct Interelectrode Capacitances:		
Grid No. 1 to all other electrodes	7	μμf
Pattern electrode to grid No. 4	5	μμf
Pattern:		
Type	See illustration on next page	
Dimensions (Approx.)	2-5/16" x 3-1/16"	
Calibration	Up to 500 lines	
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Maximum Deflection Angle	40°	
Overall Length	12-7/16" + 1/4" - 7/16"	
Greatest Diameter of Bulb	5-1/16" max.	
Caps (Two)	Recessed Small Ball (JETEC No. J1-22)	
Base	Long Medium-Shell Small 6-Pin	
Mounting Position	Any	
Weight (Approx.)	14-3/4 oz	

Maximum Ratings, *Design-Center Values*:

PATTERN-ELECTRODE VOLTAGE	1500 max.	volts
GRID-No. 4 (COLLECTOR) VOLTAGE	1500 max.	volts
GRID-No. 3 (FOCUSING ELECTRODE) VOLTAGE	600 max.	volts
GRID-No. 2 (ACCELERATING ELECTRODE) VOLTAGE	1600 max.	volts
GRID-No. 1 (CONTROL ELECTRODE) VOLTAGE:		
Negative bias value	125 max.	volts
Positive bias value	0 max.	volts

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

2F21-9-54
Photolithographed
in U. S. A.

Maximum Ratings, *Design-Center Values (Cont'd)*:

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	125 max.	volts
Heater positive with respect to cathode	125 max.	volts

Typical Operation:▲

Pattern-Electrode Voltage	1000	volts
Grid-No.4 Voltage	1050	volts
Grid-No.3 Voltage for Focus with Grid-No.4 Current of 0.5 μamp.	240 to 360	volts
Grid-No.2 Voltage	1000	volts
Grid-No.1 Voltage for Visual Cutoff on Monitor	-10 to -70	volts
Internal Resistance between Grid-No.4 and Pattern Electrode	Greater than 1 meg.	
Grid-No.4 Current (Approx.)	0.5	μamp
Pattern-Electrode Signal Current (Peak-to-Peak)	0.3 to 0.7	μamp
Resolution Capability▲▲	500	lines

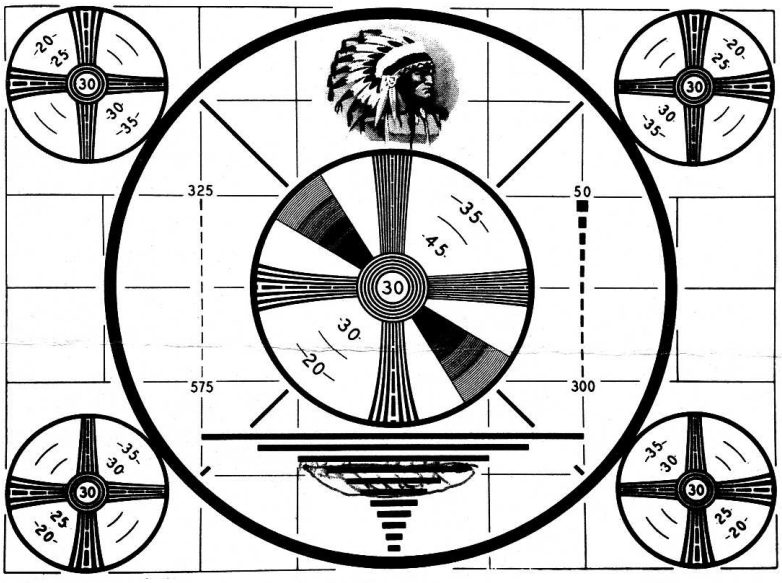
Maximum Circuit Value:

Grid-No.1-Circuit Resistance	1.5 max.	megohms

▲ Deflection must be maintained at all times. When scanned area does not cover entire pattern, the beam current should be reduced accordingly and time of operation limited to prevent damaging the pattern.

▲▲ With full scanning.

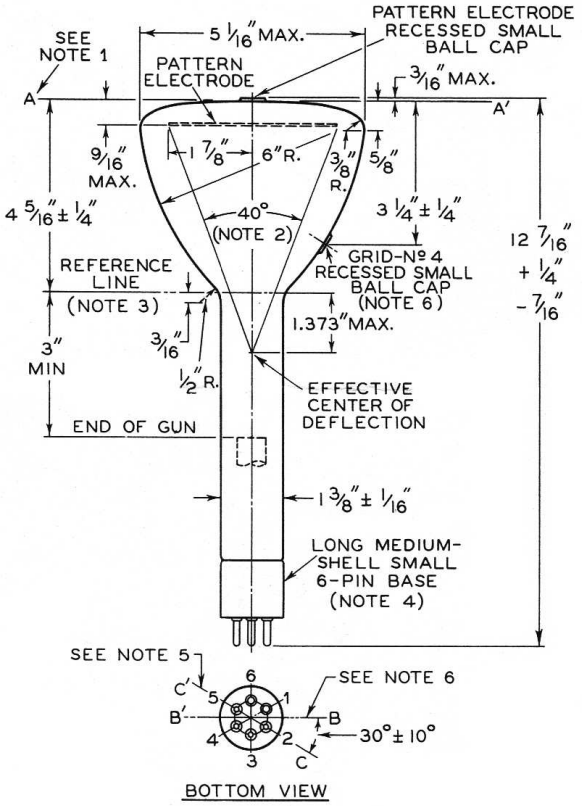
PATTERN



92CS-6665

2F21

DIMENSIONAL OUTLINE



NOTE 1: LINE AA' IS PERPENDICULAR TO THE AXIS OF THE TUBE AND INTERSECTS THE FACE CONTOUR 1/2" FROM THE AXIS OF THE TUBE.

NOTE 2: DEFLECTION ANGLE BETWEEN DIAGONALLY OPPOSITE CORNERS OF PATTERN.

NOTE 3: REFERENCE LINE IS DETERMINED BY POSITION WHERE GAUGE 1.438" ± 0.003" I.D. AND 2" LONG WILL REST ON BULB CONE.

NOTE 4: ℄ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF THE BOTTOM OF THE BASE.

NOTE 5: MINOR AXIS OF PATTERN ELECTRODE MAY VARY FROM PLANE CC' THROUGH PIN 2 AND TUBE AXIS BY 10°. TOP EDGE OF PATTERN IS ON SAME SIDE OF TUBE AS PIN 5.

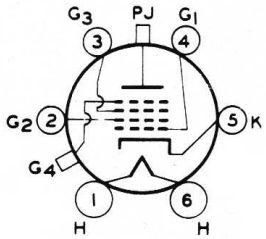
NOTE 6: BB' INDICATES PLANE THROUGH TUBE AXIS AND GRID-No.4 TERMINAL.

92CM-6653R1

SOCKET CONNECTIONS

Bottom View

PIN 1: HEATER
PIN 2: GRID No. 2
PIN 3: GRID No. 3
PIN 4: GRID No. 1
PIN 5: CATHODE



IN 6: HEATER
END CAP: PATTERN ELECTRODE
SIDE CAP: GRID No.4