FIELD MESH MAGNETIC FOCUS
SEMICONDUCTIVE TARGET MAGNETIC DEFLECTION

For Low-Light-Level Studio and Remote Color (Scene illumination—40 fc or less) and Black-and-White (Scene illumination—as low as 1 fc) TV Pickup Service

DATA

General:

Heater, for Unipotential Cathode:

Voltage (AC or DC) .... 6.3 ± 10% volts
Current at 6.3 volts .... 0.6 amp

Direct Inter electrode Capacitance:

Anode to all other electrodes ... 12 pf

Spectral Response .............. S-10

Wavelength of Maximum Response .... 4500 ± 300 angstroms

Photocathode, Semi-transparent:

Rectangular image (4 x 3 aspect ratio):

Useful size of .... 1.8" max. diagonal

Note: The size of the optical image focused on the photocathode should be adjusted so that its maximum diagonal does not exceed the specified value. The corresponding electron image on the target should have a size such that the corners of the rectangle just touch the target ring.

Orientation of ... Proper orientation is obtained when the vertical scan is essentially parallel to the plane passing through center of faceplate and pin 7 of the shoulder base.

Focusing Method ........ Magnetic
Deflection Method .......... Magnetic
Overall Length .......... 15.20" ± 0.25"
Greatest Diameter of Bulb .... 3.00" ± 0.06"
Minimum Deflecting-Coil Inside Diameter .... 2-3/8"
Deflecting Coil .......... Cleveland Electronics, Part No.0Y-1, or equivalent
Deflecting Coil Length .... 5"
Focusing Coil ........ Cleveland Electronics, Part No.0F-2, or equivalent
Focusing Coil Length .... 10"
Alignment Coil ........ Cleveland Electronics, Part No.0A-3, or equivalent
Alignment-Coil Length .... 15/16"
Photocathode Distance Inside End of Focusing Coil .... 1/2"

Operating Position ... The tube should never be operated in a vertical position with the diheptal-base end up nor in any other position where the axis of the tube with the base up makes an angle of less than 20° with the vertical.

Weight (Approx.) .......... 1lb 6oz
Socket ........ Cinch Part No.3M14, or equivalent
Keyed Jumbo Annular 7-Pin

**Bottom View**

- Pin 1 - Grid No.6
- Pin 2 - Photocathode
- Pin 3 - Do Not Use
- Pin 4 - Do Not Use
- Pin 5 - Grid No.5
- Pin 6 - Target
- Pin 7 - Do Not Use

Small-Shell Diheptal 14-Pin
(JEDEC No.B14-45)

**Bottom View**

- Pin 1 - Heater
- Pin 2 - Grid No.4 & Field Mesh
- Pin 3 - Grid No.3
- Pin 4 - Do Not Use
- Pin 5 - Dynode No.2
- Pin 6 - Dynode No.4
- Pin 7 - Anode
- Pin 8 - Dynode No.5
- Pin 9 - Dynode No.3
- Pin 10 - Dynode No.1, Grid No.2
- Pin 11 - Do Not Use
- Pin 12 - Grid No.1
- Pin 13 - Cathode & Suppressor
- Pin 14 - Heater

**Diagram**

**Maximum and Minimum Ratings, Absolute-Maximum Values:**

**Photocathode:**
- Voltage: $-550$ max. volts
- Illumination: $50$ max. fc

**Operating Temperature:**
- Of any part of bulb: $55$ max. °C
- Of bulb at large end of tube (Target section): $0$ min. °C

**Temperature Difference:**
- Between target section and any part of bulb hotter than target section: $5$ max. °C

**Grid-No.6 Voltage:** $-550$ max. volts

**Target Voltage:**
- Positive value: $10$ max. volts
- Negative value: $10$ max. volts

**Grid-No.5 Voltage:** $150$ max. volts

**Grid-No.4 Voltage:** $300$ max. volts

**Grid-No.3 Voltage:** $400$ max. volts

**Grid-No.2 & Dynode No.1 Voltage:** $350$ max. volts

**Grid-No.1 Voltage:**
- Negative bias value: $125$ max. volts
- Positive bias value: $0$ max. volts

**Voltage per Multiplier Stage:** $350$ max. volts

**Anode-Supply Voltage:** $1350$ max. volts
Peak Heater-Cathode Voltage:
- Heater negative with respect to cathode: 125 max. volts
- Heater positive with respect to cathode: 10 max. volts

Typical Operating Values:
- Photocathode Voltage (Image Focus): -400 to -540 volts
- Grid-No.6 Voltage (Accelerator) - Approx. 75% photocathode voltage: -300 to -405 volts
- Target-Cutoff Voltage: -3 to 1 volts
- Grid-No.5 Voltage (Decelerator): 0 to 125 volts
- Grid-No.4 Voltage (Beam Focus): 140 to 180 volts
- Grid-No.3 Voltage: 225 to 330 volts
- Grid-No.2 & Dynode-No.1 Voltage: 300 volts
- Grid-No.1 Voltage for Picture Cutoff: -45 to -115 volts
- Dynode-No.2 Voltage: 600 volts
- Dynode-No.3 Voltage: 800 volts
- Dynode-No.4 Voltage: 1000 volts
- Dynode-No.5 Voltage: 1200 volts
- Anode Voltage: 1250 volts
- Minimum Peak-to-Peak Blanking Voltage: 5 volts
- Field Strength at Center of Focusing Coil: 75 gausses
- Field Strength of Alignment Coil: 0 to 3 gausses

Performance Data:

With conditions shown under Typical Operating Values and with camera lens set to bring the picture highlights one stop above the "knee" of the accompanying Basic Light-Transfer-Characteristic Curve.

| Cathode Radiant Sensitivity at 4500 angstroms | 0.033 | a/w |
| Luminous Sensitivity | 40 | 65 | μa/Im |
| Anode Current (DC) | 30 | μa |
| Signal-Output Current (Peak to Peak) | 5 | μa |
| Ratio of Peak-to-Peak Highlight Video-Signal Current to RMS Noise Current for Bandwidth of 4.5 Mc | 37:1 |
| Photocathode Illumination at 2870° K Required to bring Picture Highlights one stop above the "Knee" of Light Transfer Characteristic | 0.007 | fc |
Peak-to-Peak Response to Square-Wave Test Pattern at 400 TV Lines per Picture Height (Per cent of large-area black to large-area white)k ......... 65 %

Made by Cleveland Electronics Inc., 1974 East 61st Street, Cleveland, Ohio.

Made by Cinch Manufacturing Company, 1026 South Homan Avenue, Chicago 24, Illinois.

The suppressor grid connected to the cathode and the field-mesh grid connected to grid No. 4 are not given as numbered grids in order to conform with industry practice of associating functional camera control knobs with specific grid numbers. For example, beam-focus control is generally associated with knob identified as 04 (grid No. 4), regardless of its position with respect to the cathode.

Dyadne-voltage values are shown under Typical Operating Values.

With 8092A operated in RCA-TK-11 or -TK-31 camera. Other cameras may require slightly different voltage ranges.

Adjust for best focus.

Normal setting of target voltage is +2 volts from target cutoff. The target supply voltage should be adjustable from -3 to 5 volts.

Adjust to give the most uniformly shaded picture near maximum signal.

Direction of current should be such that a north-seeking pole is attracted to the image end of the focusing coil, with indicator located outside of and at the image end of the focusing coil.

Measured with amplifier having flat frequency response.

SPECTRAL-SENSITIVITY CHARACTERISTIC OF PHOTOSENSITIVE DEVICE HAVING S-10 RESPONSE is shown at front of this Section.
NOTE 1: DOTTED AREA IS FLAT OR EXTENDS TOWARD DIHEPTAL-BASE END OF TUBE BY 0.060" MAX.

ANNULAR BASE GAUGE

ANGULAR VARIATIONS BETWEEN PINS AS WELL AS ECCENTRICITY OF NECK CYLINDER WITH RESPECT TO PHOTOCATHODE CYLINDER ARE HELD TO TOLERANCES SUCH THAT PINS AND NECK CYLINDER WILL FIT FLAT-PLATE GAUGE WITH:

a. SIX HOLES HAVING DIAMETER OF 0.065" ± 0.001" AND ONE HOLE HAVING DIAMETER OF 0.150" ± 0.001". ALL HOLES HAVE DEPTH OF 0.265" ± 0.001". THE SIX 0.065" HOLES ARE ENLARGED BY 45° TAPER TO DEPTH OF 0.047".
   ALL HOLES ARE SPACED AT ANGLES OF 51° 26' ± 5' ON CIRCLE DIAMETER OF 2.500" ± 0.001".

b. SEVEN STOPS HAVING HEIGHT OF 0.187" ± 0.001", CENTERED BETWEEN PIN HOLES, TO BEAR AGAINST FLAT AREAS OF BASE.

c. RIM EXTENDING OUT A MINIMUM OF 0.125" FROM 2.812" DIAMETER AND HAVING HEIGHT OF 0.126" ± 0.001".

d. NECK-CYLINDER CLEARANCE HOLE HAVING DIAMETER OF 2.200" ± 0.001".
BASIC LIGHT-TRANSFER CHARACTERISTIC

ILLUMINATION: TUNGSTEN LIGHT, DAYLIGHT, OR WHITE FLUORESCENT.
FOR SMALL-AREA HIGHLIGHTS.

TYPICAL SIGNAL OUTPUT — MICROAMPERES

HIGHLIGHT ILLUMINATION ON PHOTOCATHODE — FOOTCANDLES

92CS-12066