



T E N T A T I V E

DESCRIPTION:

THE FW-212 IS A 5-INCH IATRON (DIRECT VIEW STORAGE CATHODE-RAY TUBE) THAT PRODUCES A BRIGHT VISUAL DISPLAY OF ELECTRICALLY STORED INFORMATION. IT IS ELECTROSTATICALLY FOCUSED AND DEFLECTED. THE TUBE DISPLAYS BRIGHT IMAGES ON A DARK BACKGROUND THAT CAN BE VIEWED IN DIRECT DAYLIGHT, AND FEATURES THE ABILITY TO WRITE, STORE, AND ERASE INFORMATION AT WILL. GREY SHADES ARE PRODUCED IN ACCORDANCE WITH AMPLITUDE VARIATIONS OF THE INPUT SIGNAL. THE TUBE HAS TWO CONCENTRIC ELECTRON GUNS, A WRITING GUN, WHICH WRITES THE INPUT SIGNAL ON A STORAGE MESH, AND A FLOOD GUN, WHICH ILLUMINATES THE PHOSPHOR IN ACCORDANCE WITH THE STORED SIGNAL. THE CONCENTRIC ARRANGEMENT OF THE GUNS REDUCES DISTORTION OF THE WRITING BEAM TO A MINIMUM.

GENERAL:

DIMENSIONS	SEE OUTLINE AND FUNCTIONAL SCHEMATIC
NOMINAL TUBE DIAMETER	5 INCHES
MINIMUM USEFUL DISPLAY DIAMETER	4 INCHES
PHOSPHOR	P-20 ALUMINIZED
OPERATING POSITION	ANY
CATHODE PRE-HEATING TIME	60 SECONDS
FOCUS	ELECTROSTATIC
DEFLECTION	ELECTROSTATIC

OPERATING VALUES:

FLOOD SECTION

VIEWING SCREEN	10	KV DC	600	MA MAX.	
BACKING ELECTRODE	f10	VDC	AND ERASE	PULSES	
COLLECTOR	f150	VDC	1000	UA	
ANODE #5	f100	VDC	25	UA	
ANODE #4	f20	VDC	(0 TO 50	VOLTS ADJUSTABLE)	200 UA
ANODE #3	f16	VDC	(0 TO 50	VOLTS ADJUSTABLE)	300 UA
ANODE #2	f45	VDC	(0 TO 50	VOLTS ADJUSTABLE)	3000 UA
ANODE #1	f12	VDC	(0 TO 20	VOLTS ADJUSTABLE)	25 MA
CATHODE	0	VDC			30 MA
HEATER	6.3	V	AC OR DC	2.1 A	

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WRITING SECTION

CATHODE	-1500	VDC	2 MA
GRID #1 (CUTOFF - NOTE 1)	-35	VDC	RESPECT WRITE CATHODE
GRID #2	0	VDC	2 MA
GRID #3 (FOCUS)	±300	VDC	RESPECT WRITE CATHODE
GRID #4	0	VDC	
HEATER	6.3	V	AC OR DC .6 A
DEFLECTION SENSITIVITY			APPROXIMATELY 85 VOLTS / INCH
MEAN DEFLECTION PLATE VOLTAGE	0 TO ±60	VDC	ADJUST FOR LEAST ASTIGMATISM

TYPICAL PERFORMANCE

RESOLUTION (NOTE 2)			
200 FT. LAMBERTS	90	LINES/INCH	
1000 FT. LAMBERTS	60	LINES/INCH	
2500 FT. LAMBERTS	35	LINES/INCH	
BRIGHTNESS	2500	FT. LAMBERTS	
WRITING SPEED			
20 VOLTS DRIVE, WRITING TO 1,000 FT. LAMBERTS	35,000	INCHES PER SECOND	
ZERO BIAS, WRITING TO 1,000 FT. LAMBERTS	70,000	INCHES PER SECOND	
ERASE TIME (NOTE 3)	5	MILLISECONDS	
VIEWING TIME (NOTE 4)	30	SECONDS MAXIMUM	

NOTES:

1. VISUAL CUTOFF OF STORED, FOCUSED, UNDEFLECTED SPOT.
2. RESOLUTION MEASURED AT TUBE CENTER BY THE SHRINKING RASTER METHOD.
3. ERASE TIME IS THE SHORTEST TIME THAT INFORMATION CAN BE REMOVED AFTER BEING STORED AT 100% BRIGHTNESS.
4. MINIMUM TIME THAT A SIGNAL STORED AT FULL BRIGHTNESS ANYWHERE IN THE DISPLAY AREA CAN BE VIEWED WITH ERASE PULSES CONTINUOUSLY APPLIED TO COUNTERACT ION WRITING.

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SPECIAL PRECAUTIONS:

OBSERVE MAXIMUM RATINGS TO AVOID POSSIBLE DAMAGE TO THE TUBE. IN PARTICULAR THE VIEWING SCREEN VOLTAGE SHOULD BE LIMITED SO AS TO NEVER EXCEED 12 KV.

THE FULL VOLTAGE SHOULD NOT BE APPLIED TO THE VIEWING SCREEN INSTANEOUSLY. AN ORDINARY RC FILTER AT THE OUTPUT OF THE POWER SUPPLY WILL PROVIDE ADEQUATE ASSURANCE THAT THE VOLTAGE BUILD-UP WILL NOT BE TOO ABRUPT. THE VIEWING SCREEN POWER SUPPLY SHOULD HAVE A SERIES RESISTANCE OF AT LEAST 1 MEG OHM.

REPEATED BOMBARDMENT WITH A HIGH CURRENT FOCUSED BEAM ON A SMALL AREA OF THE STORAGE SURFACE CAN BURN A DARK IMAGE INTO THE DISPLAY WHICH MAY REMAIN FOR SEVERAL HOURS OR EVEN PERMANENTLY. THEREFORE, THE DEFLECTION VOLTAGES SHOULD BE APPLIED BEFORE OPERATING THE WRITING BEAM.

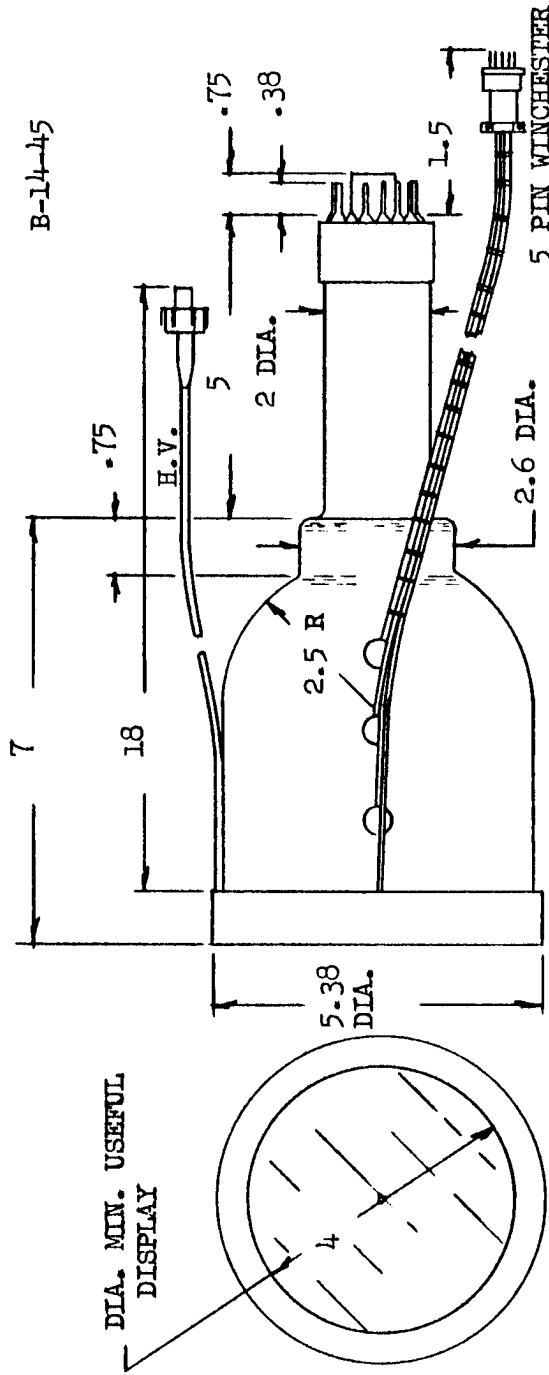
ADDITIONAL INFORMATION FOR SPECIFIC APPLICATIONS CAN BE OBTAINED FROM THE

ELECTRON TUBE APPLICATIONS SECTION
ITT COMPONENTS DIVISION
POST OFFICE BOX 412
CLIFTON, NEW JERSEY

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ELECTRON TUBE DEPARTMENT ■ COMPONENTS DIVISION
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY



B-14-45

DIA. MIN. USEFUL
DISPLAY

- | | | | | | |
|------------|----|------------------------------|------------|---|-------------------|
| <u>PIN</u> | 1 | WRITING GUN HEATER | <u>PIN</u> | A | ANODE 3 |
| | 2 | GRID 3 | | B | ANODE 4 |
| | 3 | DEFLECTION ELECTRODE 2 | | D | COLLECTOR |
| | 4 | GRID 5 | | E | ANODE 5 |
| | 5 | GRIDS 2, 4, & 6 | | H | BACKING ELECTRODE |
| | 6 | ANODE 2 | | | |
| | 7 | DEFLECTION ELECTRODE 3 | | | |
| | 8 | FLOOD GUN CATHODE | | | |
| | 9 | FLOOD GUN HEATER | | | |
| | 10 | FLOOD GUN HEATER & ANODE 1 | | | |
| | 11 | GRID 1 | | | |
| | 12 | DEFLECTION ELECTRODE 4 | | | |
| | 13 | DEFLECTION ELECTRODE 1 | | | |
| | 14 | WRITING GUN HEATER & CATHODE | | | |
- H.V. MATES WITH AMP.
H.A. & H.V. TERMINAL ASSEMBLY

FIGURE 2 DIMENSIONAL OUTLINE FW-212