



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

FW-223
IATRON *

T E N T A T I V E

DESCRIPTION:

THE FW-223 IS A 5 INCH IATRON (DIRECT VIEW STORAGE CATHODE-RAY TUBE) THAT PRODUCES A BRIGHT VISUAL DISPLAY OF ELECTRICALLY STORED INFORMATION.

IT IS MAGNETICALLY DEFLECTED AND ELECTROSTATICALLY FOCUSED. 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 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 GUN TO A MINIMUM.

GENERAL:

DIMENSIONS	SEE OUTLINE AND OPERATIONAL SCHMATIC ATTACHED
NOMINAL TUBE DIAMETER	5 INCHES
MINIMUM USEFUL DISPLAY DIAMETER	4 INCHES
PHOSPHOR	P-20 ALUMINIZED
OPERATING POSITION	ANY
CATHODE PRE-HEAT TIME	60 SECONDS
FOCUS	ELECTROSTATIC
DEFLECTION	MAGNETIC

TYPICAL OPERATING VOLTAGES:

	<u>FLOOD SECTION</u>
VIEWING SCREEN	/10 KV
BACKING ELECTRODE	/10 VDC AND ERASE PULSES
COLLECTOR	/200 VDC
ANODE #5	/145 VDC
ANODE #4	/32 VDC ADJUST FOR BEST COLLIMATION
ANODE #3	/12 VDC ADJUST FOR BEST COLLIMATION
ANODE #2	/19 VDC ADJUST FOR BEST COLLIMATION
ANODE #1	/16 VDC ADJUST FOR BEST COLLIMATION
CATHODE	0 VOLTS
HEATER	6.3 AC OR DC 2.1 A

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WRITE SECTION

HEATER	6.3	V AC OR DC	.6 A
CATHODE	-1000	VDC	
GRID #1 (CUTOFF - NOTE 1)	-50	VDC	RESPECT WRITE CATHODE
GRID #2, #4 (INTERNAL CONNECTION)	0	VDC	
GRID #3 (FOCUS)	/200 TO /500		RESPECT WRITE CATHODE

TYPICAL PERFORMANCE:

RESOLUTION (NOTE 2)		
200 FT. LAMBERTS	120	LINES PER INCH
1500 FT. LAMBERTS	50	LINES PER INCH
LIGHT OUTPUT	2500	FT. LAMBERTS
WRITING SPEED		
TO 1500 FT. LAMBERTS	70000	INCHES PER SECOND
ERASE TIME (NOTE 3)	10	MILLISECONDS
VIEWING TIME (NOTE 4)	30	SECONDS MAXIMUM

NOTES:

1. VISUAL CUTOFF OF THE STORED, FOCUSED, UNDEFLECTED SPOT.
2. MEASURED BY THE SHRINKING RASTER METHOD AT THE CENTER OF THE TUBE.
3. ERASE TIME IS THE SHORTEST TIME THAT INFORMATION CAN BE REMOVED FROM THE TUBE AFTER BEING STORED AT FULL BRIGHTNESS.
4. VIEWING TIME IS THE TIME THAT A SIGNAL STORED AT FULL BRIGHTNESS ANYWHERE IN THE DISPLAY AREA CAN BE VIEWED WITH ERASE PULSES 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 INSTANTANEOUSLY. 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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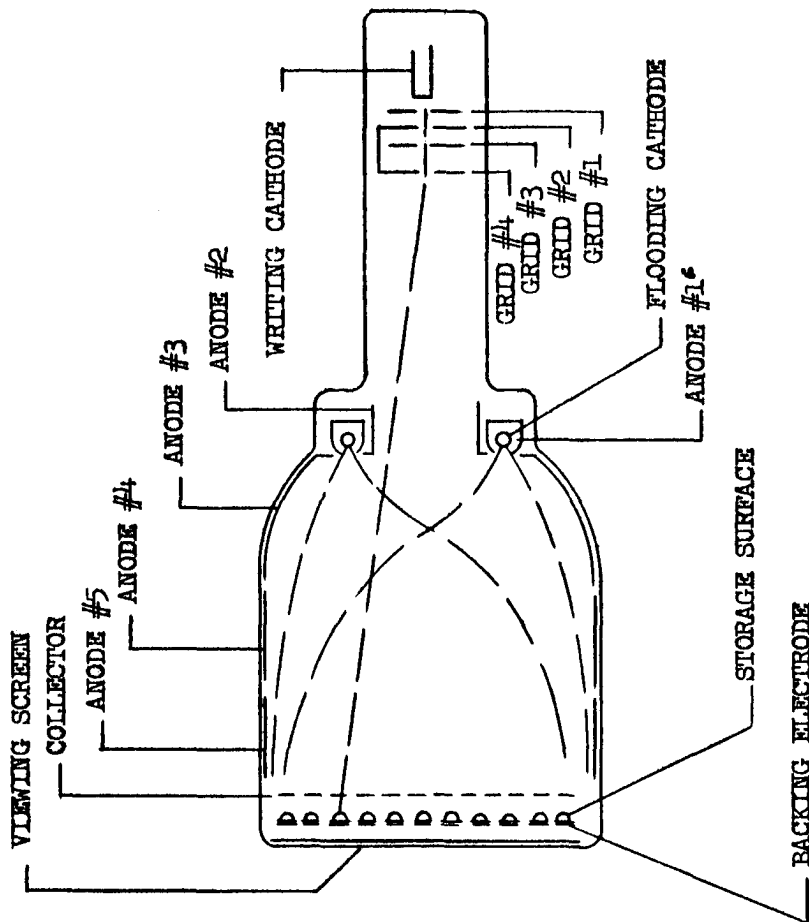


FIGURE 1 OPERATIONAL SCHEMATIC - FW-223

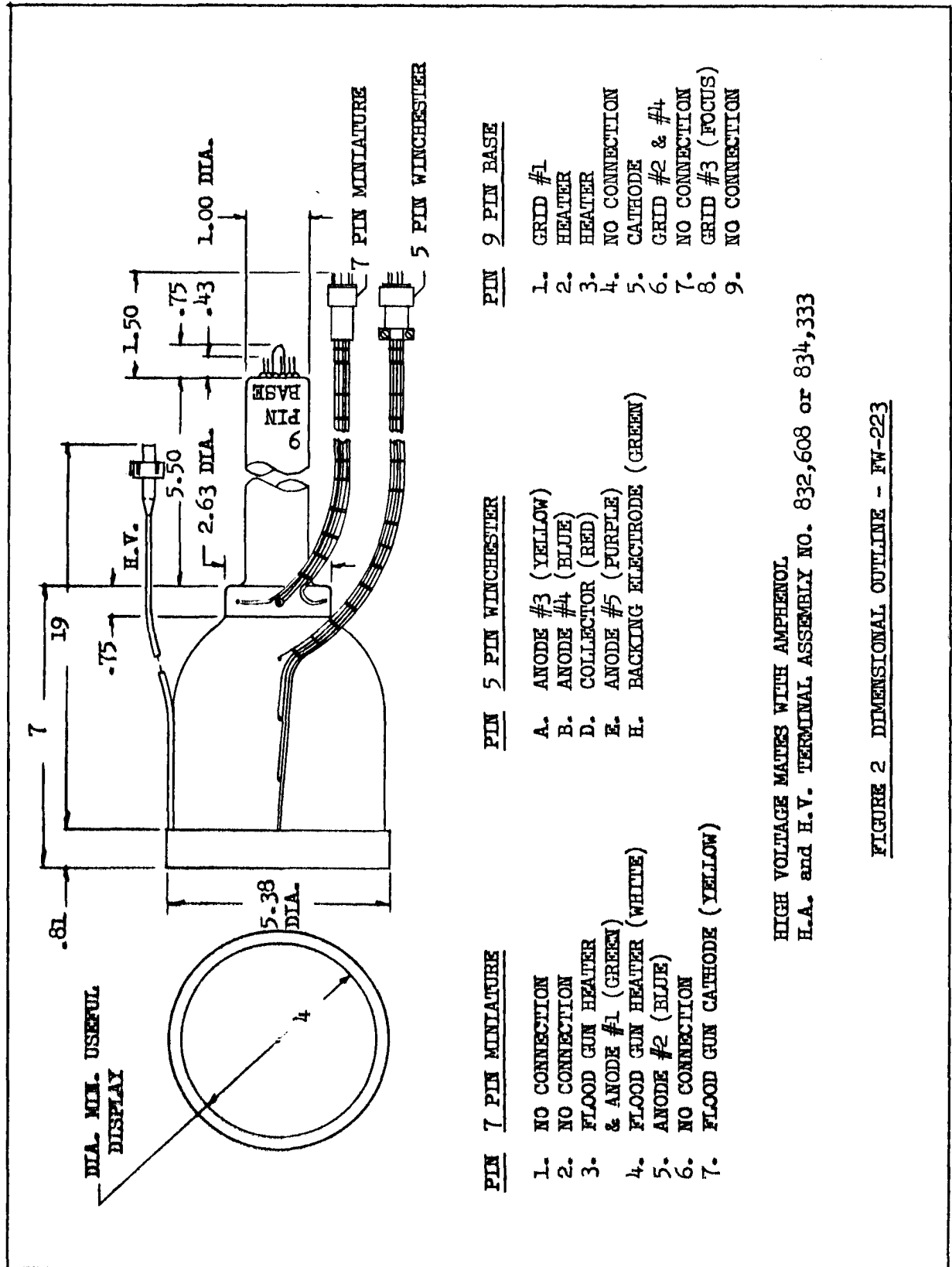


FIGURE 2 DIMENSIONAL OUTLINE - FW-223