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

TENTATIVE

DESCRIPTION:

THE D-3001 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 THAT CAN BE VIEWED IN DIRECT DAYLIGHT, AND THE TUBE FEATURES THE ABILITY TO WRITE, STORE AND ERASE SIGNAL INFORMATION AT THE WILL OF THE OPERATOR. GRAY SHADES ARE PRODUCED IN ACCORDANCE WITH THE AMPLITUDE VARIATIONS OF THE INPUT SIGNAL. THE TUBE HAS TWO ELECTRON GUNS, A WRITING GUN WHICH WRITES THE INPUT SIGNAL ON AN INSULATOR STORAGE SCREEN, AND A FLOOD GUN WHICH ILLUMINATES THE PHOSPHOR IN ACCORDANCE WITH THE STORED SIGNAL.

GENERAL:

DIMENSIONS	SEE OUTLINE ATTACHED
NOMINAL TUBE DIAMETER	5 INCHES
MINIMUM USEFUL DISPLAY DIAMETER	4 INCHES
PHOSPHOR	P-20 ALUMINIZED
OPERATING POSITION	ANY
WEIGHT (APPROXIMATE)	2 LB. 8 OZ.
CATHODE PRE-HEATING TIME	30 SECONDS
FOCUS METHOD	ELECTROSTATIC
DEFLECTION METHOD	ELECTROSTATIC

MAXIMUM RATINGS:

	FLOOD SECTION
VIEWING SCREEN	∱10 KV
BACKING ELECTRODE	∱25 V
COLLECTOR	∱250 V
ANODE #4	∱150 V
ANODE #3	∱150 V
ANODE #2	∱150 V
ANODE #1	∱80 V
HEATER-CATHODE VOLTAGE	∱125 V

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WRITE SECTION

WRITE CATHODE	-1000 V	
GRID #1	NEGATIVE VOLTAGE	RESPECT WRITE CATHODE 150 V
	POSITIVE VOLTAGE	RESPECT WRITE CATHODE 0 V
GRID #2	±150 V	
GRID #3	±500 V	RESPECT WRITE CATHODE
HEATER-CATHODE VOLTAGE	±125 V	
GRID #2 TO ANY DEFLECTING ELECTRODE	±500 V	

TYPICAL OPERATING VALUES:

FLOOD SECTION

VIEWING SCREEN	±8.5 KV DC	1.0 MA (MAX.)	
BACKING ELECTRODE	±10 VDC		
COLLECTOR	±180 VDC	2.0 MA (MAX.)	
ANODE #4	±90 VDC	1.5 MA (MAX.)	
ANODE #3	±20 VDC	1.5 MA (MAX.)	
ANODE #2	±30 VDC	1.8 MA (MAX.)	
ANODE #1	±60 VDC	5.0 MA (MAX.)	
FLOOD CATHODE	0 VDC	10.0 MA (MAX.)	
HEATER	6.3 V AC OR DC	1.4 A	

WRITE SECTION

WRITE CATHODE	-750 VDC	3.0 MA (MAX.)	
GRID #1 CUTOFF (NOTE 1)	-60 VDC	RESPECT WRITE CATHODE	
GRID #2	0 VDC		
GRID #3	±165 VDC	RESPECT WRITE CATHODE	
HEATER	6.3 V	AC OR DC .6 A	
MEAN DEFLECTION PLATE VOLTAGE	0 V		

RANGE OF TYPICAL OPERATING ADJUSTMENTS:

ANODE #2	25 TO 35	VDC	ADJUST FOR BEST COLLIMATION
ANODE #3	15 TO 30	VDC	ADJUST FOR BEST COLLIMATION
GRID #1 CUTOFF (NOTE 1)	-60 TO -120	VDC	
GRID #3 FOCUS	±105 TO 210	VDC	ADJUST FOR BEST FOCUS
ERASE PULSES	0 TO 10	VOLT AMPLITUDE, 1 USECOND WIDE, 100-5000 PRF - ADJUST FOR DESIRED VIEWING TIME.	

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TYPICAL PERFORMANCE:

RESOLUTION (NOTE 2)		
50% OF FULL BRIGHTNESS	60	LINES/INCH
BRIGHTNESS	2,000	FT. LAMBERTS
WRITING SPEED		
20 VOLT DRIVE TO 50% BRIGHTNESS	20,000	INCHES/SECOND
40 VOLT DRIVE TO 50% BRIGHTNESS	40,000	INCHES/SECOND
ERASE TIME (NOTE 3)	12	MILLISECONDS
VIEWING TIME (NOTE 4)	20	SECONDS
STORAGE TIME (NOTE 5)	20	SECONDS
DEFLECTION FACTOR		
D1-D2	40 TO 49	VOLTS/INCH
D3-D4	38 TO 47	VOLTS/INCH
HALF-TONE STEPS	4	(MINIMUM)

ENVIRONMENTAL DATA:

AMBIENT TEMPERATURE RANGE		
OPERATING	-55° TO +71°	C
NON-OPERATING	-65° TO +100°	C
ALTITUDE	70,000	FEET
VIBRATION (CONTINUOUS)	3G, 5 CPS TO 500	CPS
SHOCK (3 AXES)		
OPERATING	15G FOR 40	MS, 18 IMPACTS
OPERATING	25G FOR 5	MS, 6000 IMPACTS
NON-OPERATING (CRASH SAFETY)	30G FOR 11	MS, 2 IMPACTS

NOTES:

1. VISUAL CUTOFF OF THE STORED, FOCUSED, UNDEFLECTED SPOT.

2. RESOLUTION IS MEASURED BY THE SHRINKING RASTER METHOD AT THE CENTER OF THE TUBE.

3. ERASE TIME IS THE SHORTEST TIME IN WHICH A SIGNAL CAN BE REMOVED FROM THE TUBE AFTER BEING STORED AT FULL BRIGHTNESS.

4. VIEWING TIME IS THE MINIMUM TIME THAT A SIGNAL STORED AT FULL BRIGHTNESS ANYWHERE IN THE DISPLAY AREAS CAN BE VIEWED WITH ERASE PULSES CONTINUOUSLY APPLIED TO COUNTERACT ION WRITING.

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5. STORAGE TIME IS THE TIME REQUIRED FOR THE BRIGHTNESS TO INCREASE FROM CUTOFF TO 50 PER CENT OF FULL VALUE IN THE ABSENCE OF ERASE PULSES.

SPECIAL PRECAUTIONS:

OBSERVE MAXIMUM RATINGS TO AVOID POSSIBLE DAMAGE TO THE TUBES. IN PARTICULAR THE VIEWING SCREEN VOLTAGE SHOULD BE LIMITED SO AS TO NEVER EXCEED 10 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 MINIMUM RESISTANCE OF THE HIGH VOLTAGE CIRCUIT SHOULD BE 1 MEG OHM.

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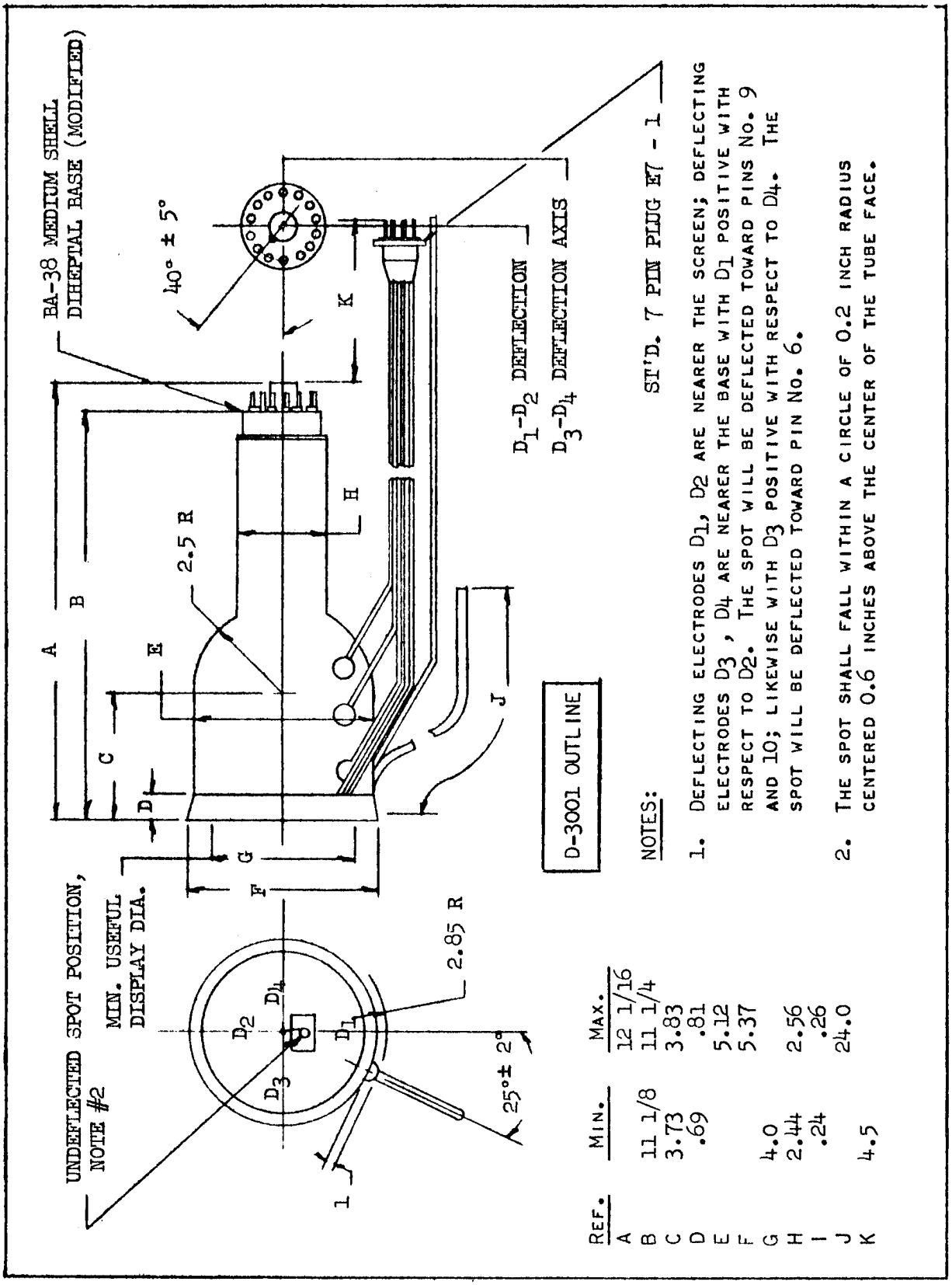
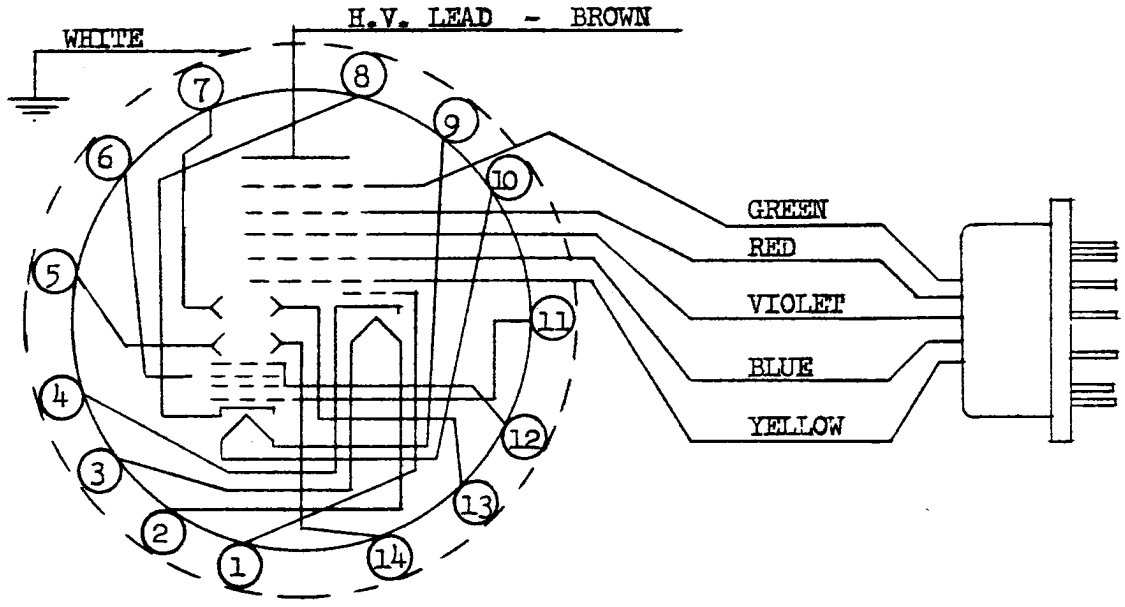


D-3001 OUTLINE

REF.	MIN.	MAX.
A		12 1/16
B	11 1/8	11 1/4
C	3.73	3.83
D	.69	.81
E		5.12
F		5.37
G	4.0	
H	2.44	2.56
I	.24	.26
J		24.0
K	4.5	

NOTES:

1. DEFLECTING ELECTRODES D_1, D_2 ARE NEARER THE SCREEN; DEFLECTING ELECTRODES D_3 , D_4 ARE NEARER THE BASE WITH D_1 POSITIVE WITH RESPECT TO D_2. THE SPOT WILL BE DEFLECTED TOWARD PINS No. 9 AND 10; LIKEWISE WITH D_3 POSITIVE WITH RESPECT TO D_4. THE SPOT WILL BE DEFLECTED TOWARD PIN No. 6.
2. THE SPOT SHALL FALL WITHIN A CIRCLE OF 0.2 INCH RADIUS CENTERED 0.6 INCHES ABOVE THE CENTER OF THE TUBE FACE.



14 PIN BASE

1	ANODE #1
2	FLOOD HEATER
3	FLOOD HEATER
4	FLOOD CATHODE
5	D-3
6	GRID #3 (FOCUS)
7	D-1
8	WRITE CATHODE
9	WRITE HEATER
10	WRITE HEATER
11	GRID #1
12	GRID #2
13	D-2
14	D-4

FLYING LEADS

WHITE SMALL DIAMETER ELECTROSTATIC SHIELD
BROWN LARGE DIAMETER VIEWING SCREEN

D-3001

E7-1 PIN CONNECTIONS

1	BACKING ELECTRODE
2	N/C
3	ANODE #2
4	ANODE #3
5	ANODE #4
6	N/C
7	COLLECTOR