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

F-7174
IATRON *

ITT EXPORT CORPORATION
67 BROAD STREET · NEW YORK 4, N. Y.

TENTATIVE

DESCRIPTION:

THE F-7174 IS A 4 INCH IATRON (DIRECT VIEW STORAGE CATHODE-RAY TUBE) THAT PRODUCES A BRIGHT VISUAL DISPLAY OF ELECTRICALLY STORED INFORMATION. IT IS ELECTROMAGNETICALLY FOCUSED AND DEFLECTED. THE TUBE DISPLAYS BRIGHT IMAGES THAT CAN BE VIEWED IN DIRECT SUNLIGHT 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 ELECTRON GUNS, A WRITING GUN, WHICH WRITES THE INPUT SIGNAL ON A STORAGE MESH, AND A FLOOD GUN, WHICH ILLUMINATES THE VIEWING SCREEN IN ACCORDANCE WITH THE STORED SIGNAL.

GENERAL:

DIMENSIONS	SEE OUTLINE AND FUNCTIONAL SCHEMATIC	
NOMINAL TUBE DIAMETER	4	INCHES
MINIMUM USEFUL DISPLAY DIAMETER	3	INCHES
PHOSPHOR	P-20	ALUMINIZED
OPERATING POSITION		ANY
WEIGHT	0.89	POUNDS
CATHODE PRE-HEATING TIME	30	SECONDS
FOCUS METHOD		MAGNETIC
DEFLECTION METHOD		MAGNETIC

DIRECT INTER-ELECTRODE CAPACITANCES WITHOUT EXTERNAL SHIELD (APPROX.)

GRID #1 TO ALL OTHER ELECTRODES	2.5	UUF
WRITE CATHODE TO ALL OTHER ELECTRODES	8.0	UUF
FLOOD CATHODE	3.0	UUF
ANODE #1	3.7	UUF

MAXIMUM RATINGS

	FLOOD SECTION	
VIEWING SCREEN	18	KVDC
BACKING ELECTRODE	25	VDC
COLLECTOR	250	VDC
ANODE #4	150	VDC
ANODE #3	150	VDC
ANODE #2	150	VDC
ANODE #1	80	VDC
CATHODE	200	VDC
HEATER-CATHODE	125	VDC

* TRADEMARK OF THE INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

MAXIMUM RATINGS (CONTINUED)

WRITE SECTION

HEATER CATHODE	125	VDC	
CATHODE	-1000	VDC	
GRID #1	-150	VDC	RESPECT WRITE CATHODE
GRID #2	+500	VDC	RESPECT WRITE CATHODE
GRID #3			INTERNALLY CONNECTED TO ANODE #2
PEAK VOLTAGE BETWEEN GRID #2 AND GRID #1 OR GRID #3	500	VDC	

TYPICAL OPERATING VALUES:

FLOOD SECTION

VIEWING SCREEN	15	KVDC	(1.7 MA MAX.)
BACKING ELECTRODE	+10	VDC	AND ERASE PULSES
COLLECTOR	+180	VDC	.5 TO 1.7 MA
ANODE #4	+90	VDC	35 TO 300 UA
ANODE #3	+20	VDC	200 TO 500 UA
ANODE #2	+30	VDC	1 TO 1.5 MA
ANODE #1	+60	VDC	.5 TO 2.0 MA
CATHODE	0	VDC	4.7 MA MAX.
HEATER	6.3	V AC OR DC	1.4 A

WRITE SECTION

HEATER	6.3	V AC OR DC	.6 A
CATHODE	-450	VDC	.5 TO 1.5 MA
GRID #1 (CUT-OFF NOTE 1)	-35	VDC	RESPECT WRITE CATHODE
GRID #2	+150	VDC	RESPECT WRITE CATHODE
GRID #3			INTERNALLY CONNECTED TO ANODE #2

RANGE OF TYPICAL OPERATING ADJUSTMENTS:

ANODE #2	25 TO 40 VOLTS	ADJUST FOR BEST COLLIMATION
ANODE #3	10 TO 25 VOLTS	ADJUST FOR BEST COLLIMATION
GRID #1 (CUT-OFF NOTE 1)	-28 TO -46 VOLTS	
ERASE PULSES	3-12 VOLTS, 1.5 USEC. WIDE, 100-5000 PRF	ADJUST FOR DESIRED VIEWING TIME

TYPICAL PERFORMANCE:

RESOLUTION (NOTE 2) AT 50% OF FULL BRIGHTNESS	35	LINES PER INCH
BRIGHTNESS	15,000	FT. LAMBERTS
WRITING SPEED 20 VOLTS DRIVE TO 90%	25,000	INCHES PER SECOND
ERASE TIME (NOTE 3)	3	MILLISECONDS
VIEWING TIME (NOTE 4)	2	SECONDS
NUMBER OF HALF-TONE STEPS	4	

* TRADEMARK OF ITT

NOTES:

1. VISUAL CUT-OFF OF THE STORED, FOCUSED, STATIONARY SPOT.

2. RESOLUTION IS MEASURED BY THE SHRINKING RASTOR METHOD AT THE CENTER OF THE VIEWING SCREEN.

3. ERASE TIME IS THE SHORTEST TIME IN WHICH 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.

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 18 KV.

THE FULL VOLTAGE SHOULD NOT BE APPLIED TO THE VIEWING SCREEN INSTANTANEOUSLY. AN ORDINARY RC FILTER AT THE OUTPUT OF THE POWER SUPPLY PROVIDES ADEQUATE ASSURANCE THAT THE VOLTAGE BUILD UP WILL NOT BE TOO ABRUPT. THE MINIMUM RESISTANCE OF THE HIGH VOLTAGE LEAD SHOULD BE 1 MEGOHM.

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, 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 7065
ROANOKE, VIRGINIA

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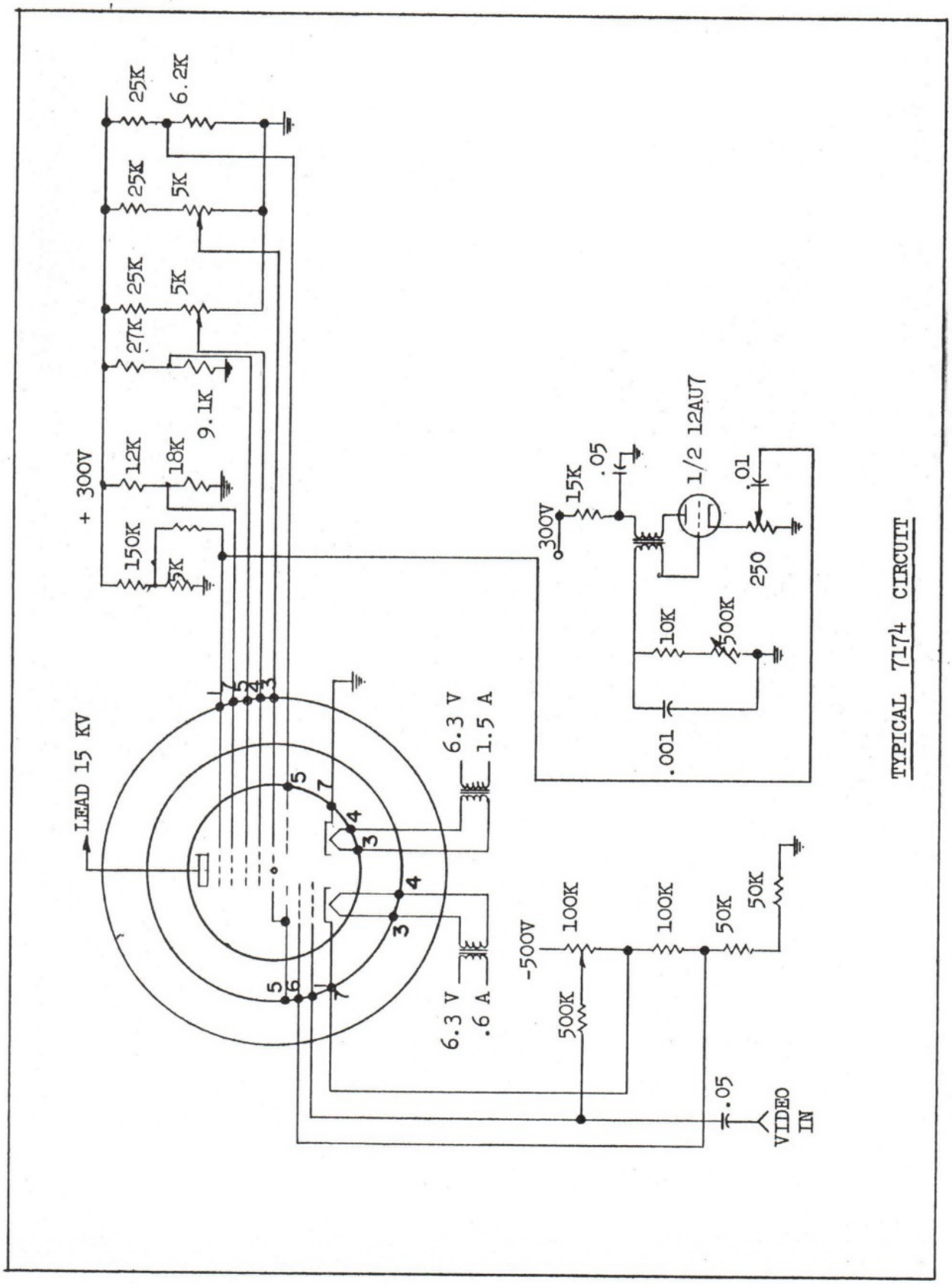
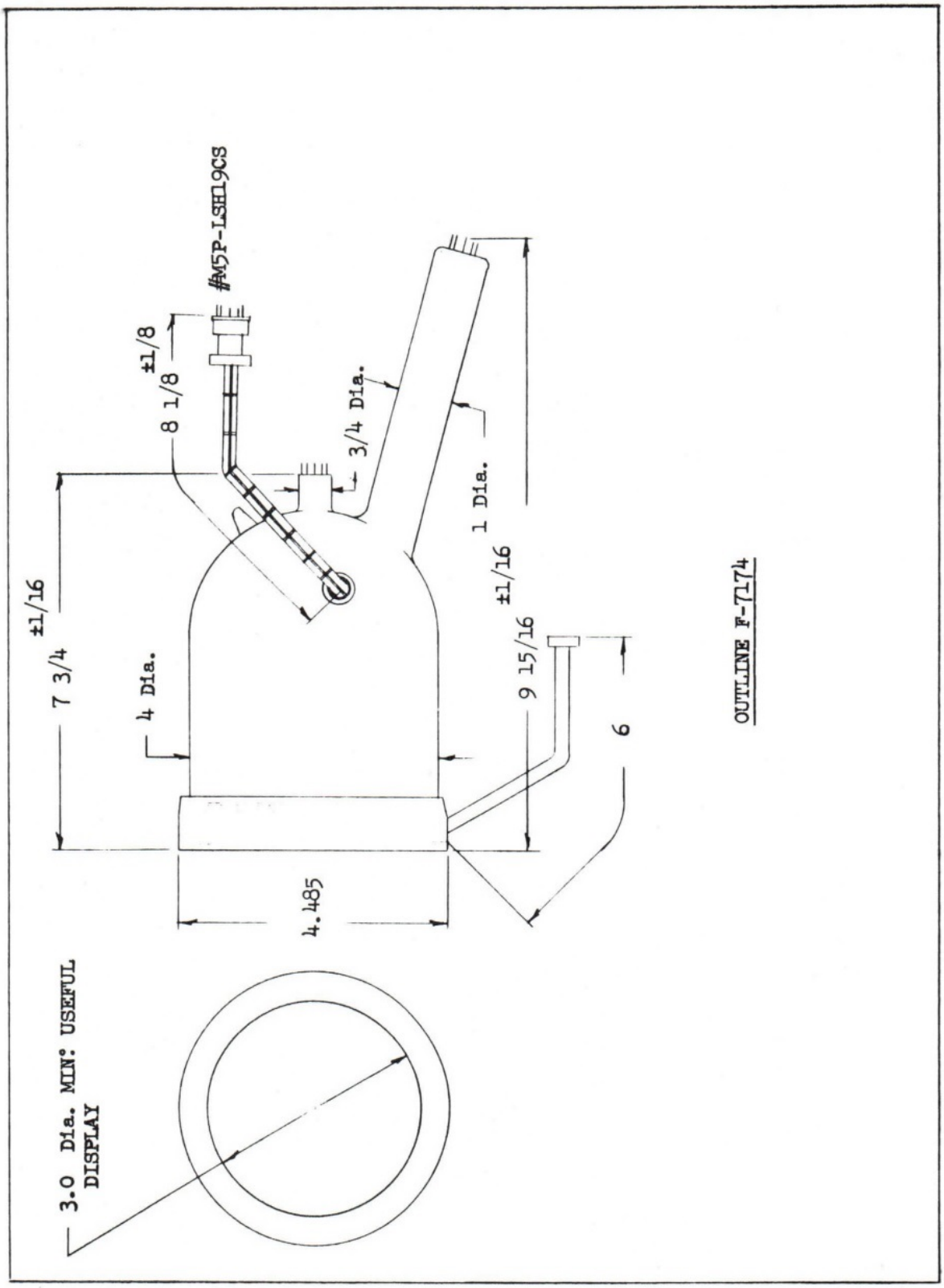
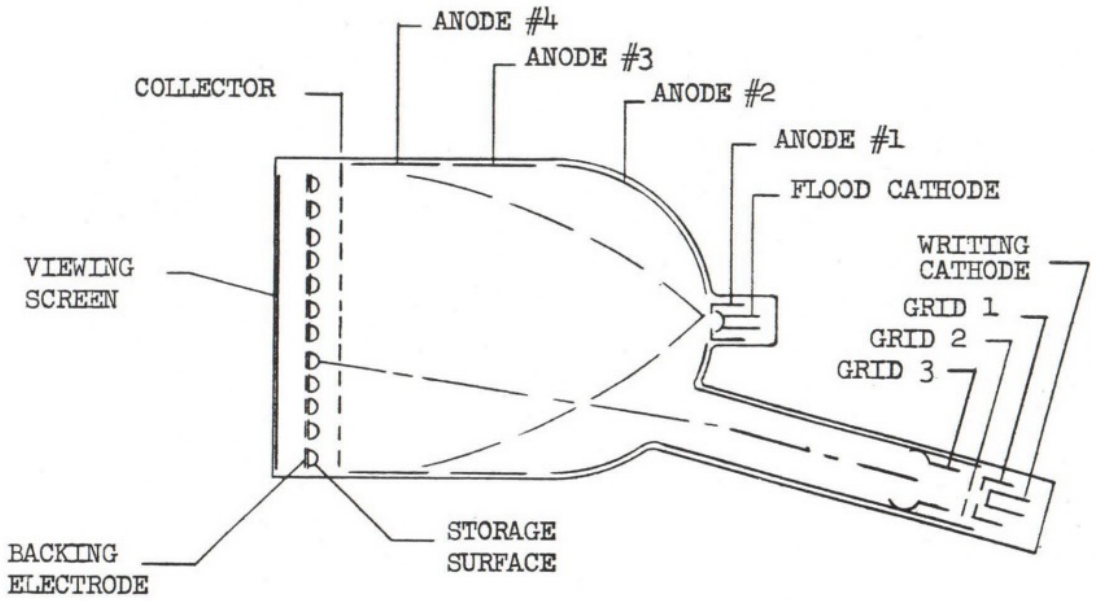


TYPICAL 7174 CIRCUIT

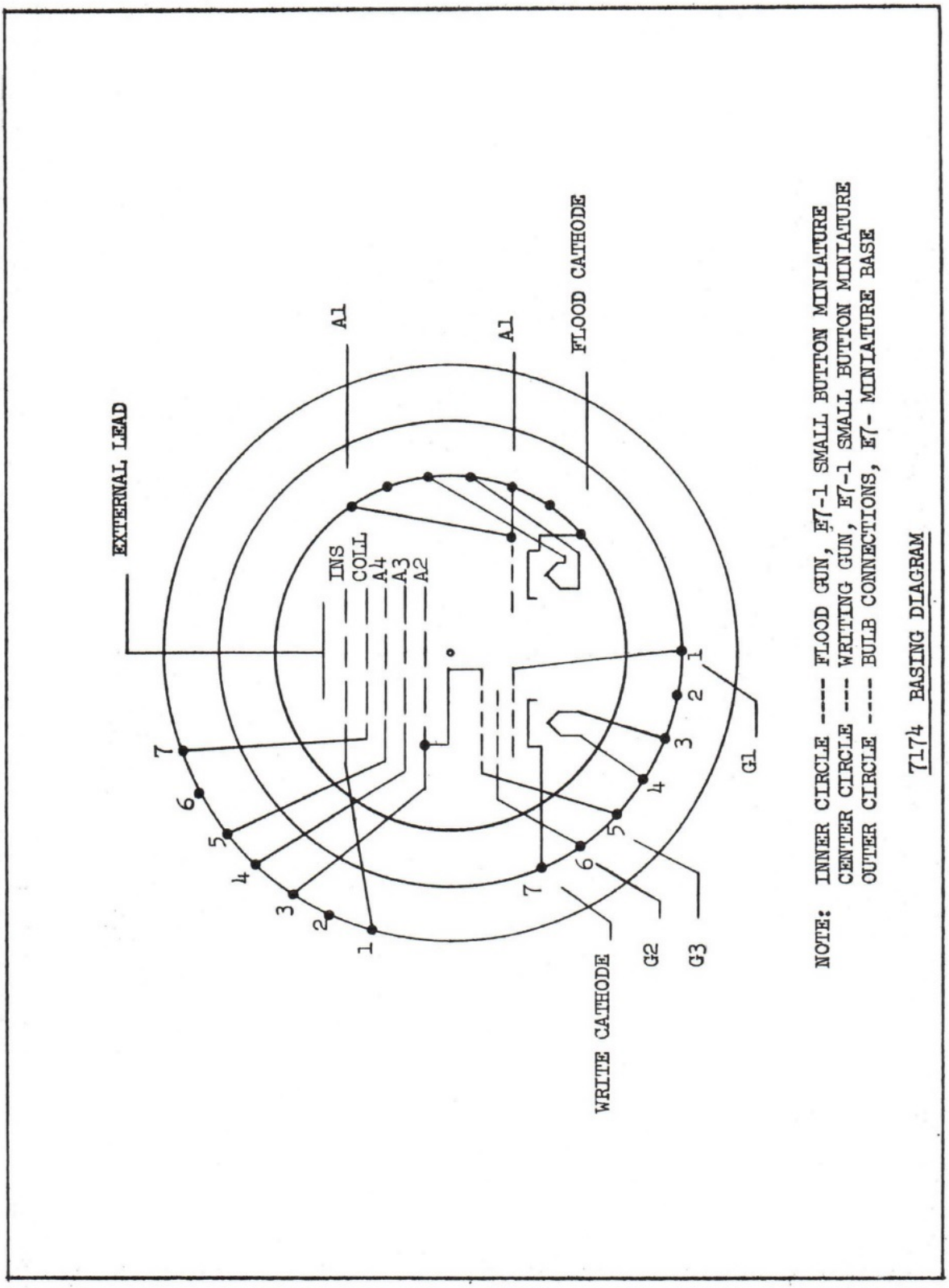


OUTLINE F-7174

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

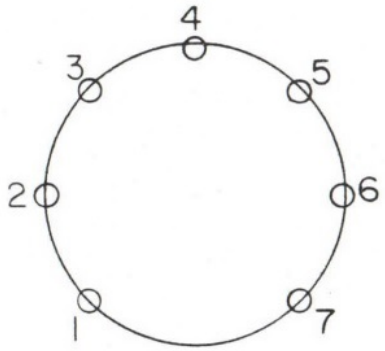


FUNCTIONAL SCHEMATIC
F-7174



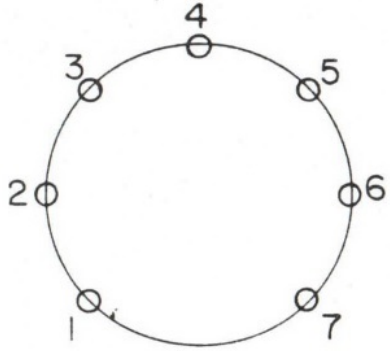
NOTE: INNER CIRCLE ---- FLOOD GUN, E7-1 SMALL BUTTON MINIATURE
CENTER CIRCLE --- WRITING GUN, E7-1 SMALL BUTTON MINIATURE
OUTER CIRCLE ---- BULB CONNECTIONS, E7- MINIATURE BASE

7174 BASING DIAGRAM



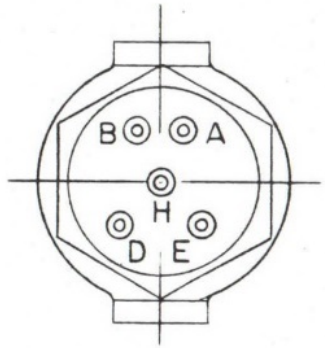
BOTTOM VIEW
FLOOD GUN

Pin	Element
1.	Anode #1
2.	N/C
3.	Heater
4.	Heater
5.	Anode #1
6.	N/C
7.	Cathode



BOTTOM VIEW
WRITE GUN

Pin	Element
1.	Grid #1
2.	N/C
3.	Heater
4.	Heater
5.	Grid #3, Anode #2
6.	Grid #2
7.	Cathode



WINCHESTER PLUG
M5P-LSH19CS

Pin	Element
A.	Rear Wall
B.	Center Wall
D.	Collector
E.	Front Wall
H.	Insulator

7174 PIN CONNECTIONS

SUPERSEDES OUTLINE DATED 7/61