



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.

T E N T A T I V E

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)

HEATER CATHODE
CATHODE
GRID #1
GRID #2
GRID #3
PEAK VOLTAGE BETWEEN GRID #2 AND
GRID #1 OR GRID #3

WRITE SECTION

125 VDC
-1000 VDC
-150 VDC RESPECT WRITE CATHODE
/500 VDC RESPECT WRITE CATHODE
INTERNALLY CONNECTED TO ANODE #2
500 VDC

TYPICAL OPERATING VALUES:

VIEWING SCREEN
BACKING ELECTRODE
COLLECTOR
ANODE #4
ANODE #3
ANODE #2
ANODE #1
CATHODE
HEATER

FLOOD SECTION

15 KVDC (1.7 MA MAX.)
/10 VDC AND ERASE PULSES
/180 VDC .5 TO 1.7 MA
/90 VDC 35 TO 300 UA
/20 VDC 200 TO 500 UA
/30 VDC 1 TO 1.5 MA
/60 VDC .5 TO 2.0 MA
0 VDC 4.7 MA MAX.
6.3 V AC OR DC 1.4 A

WRITE SECTION

HEATER
CATHODE
GRID #1 (CUT-OFF NOTE 1)
GRID #2
GRID #3

6.3 V AC OR DC .6 A
-450 VDC .5 TO 1.5 MA
-35 VDC RESPECT WRITE CATHODE
/150 VDC RESPECT WRITE CATHODE
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
BRIGHTNESS
WRITING SPEED
20 VOLTS DRIVE TO 90%
ERASE TIME (NOTE 3)
VIEWING TIME (NOTE 4)
NUMBER OF HALF-TONE STEPS

35 LINES PER INCH
15,000 FT. LAMBERTS
25,000 INCHES PER SECOND
3 MILLISECONDS
2 SECONDS
4

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.

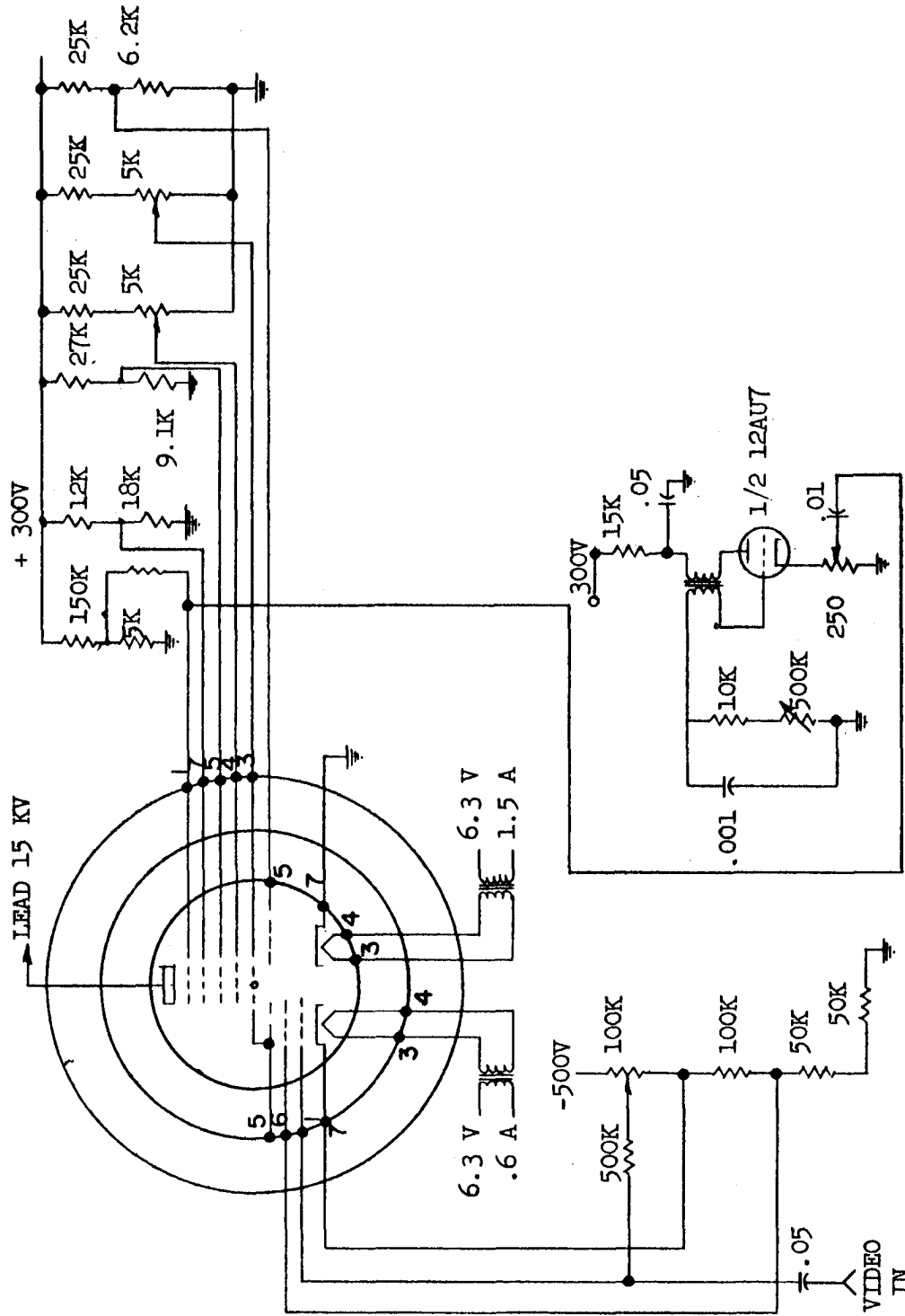
ADDITIONAL INFORMATION FOR SPECIFIC APPLICATIONS CAN BE OBTAINED FROM THE

ELECTRON TUBE APPLICATIONS SECTION
ITT COMPONENTS DIVISION
POST OFFICE BOX 7065
ROANOKE, VIRGINIA

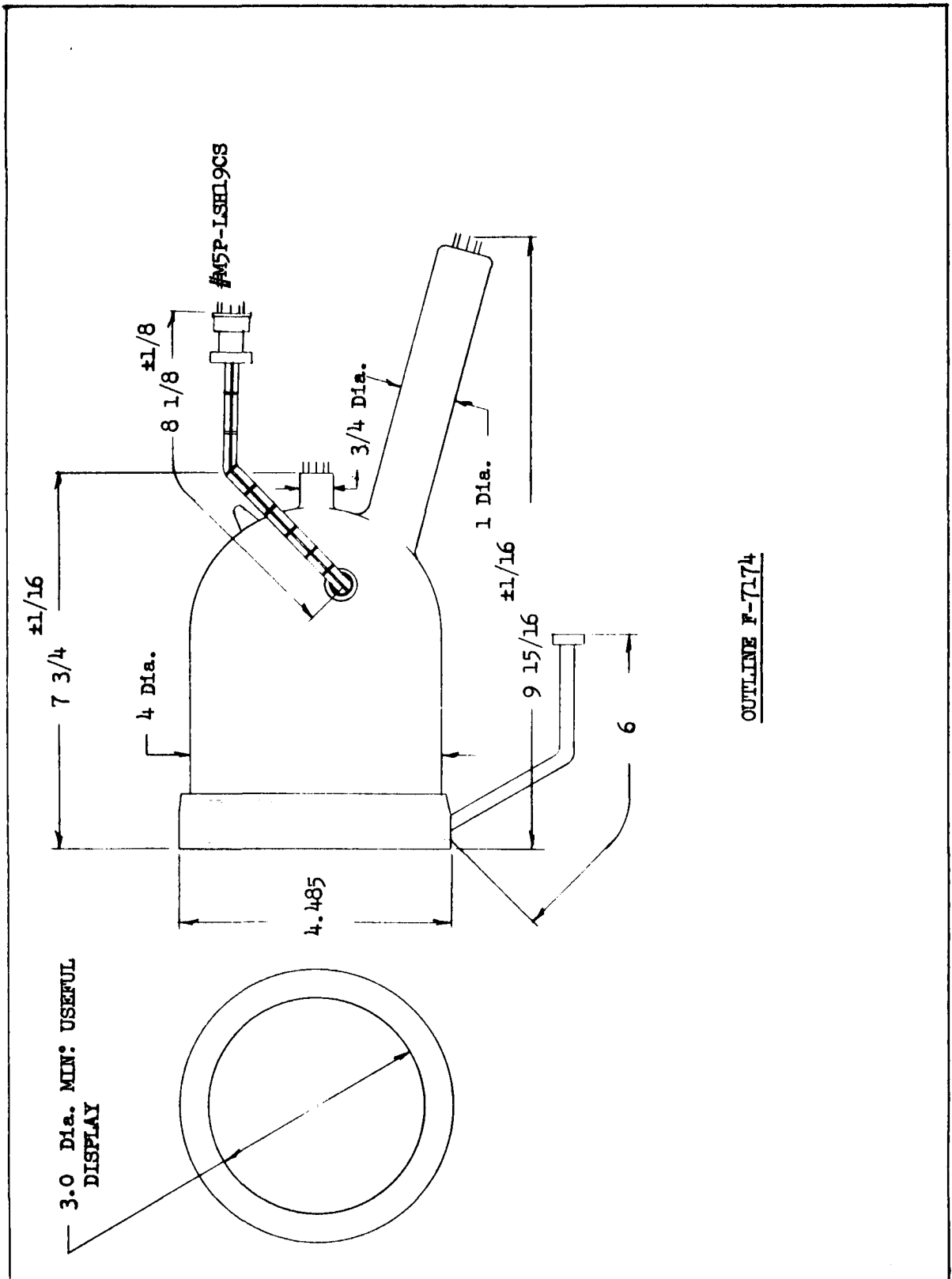
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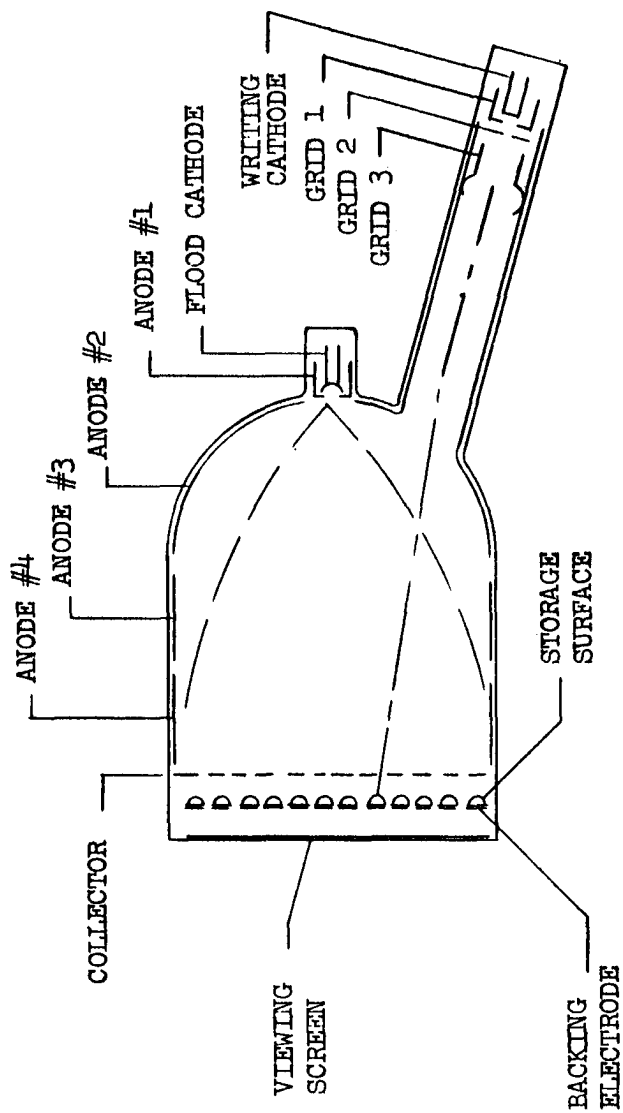


TYPICAL 7174 CIRCUIT



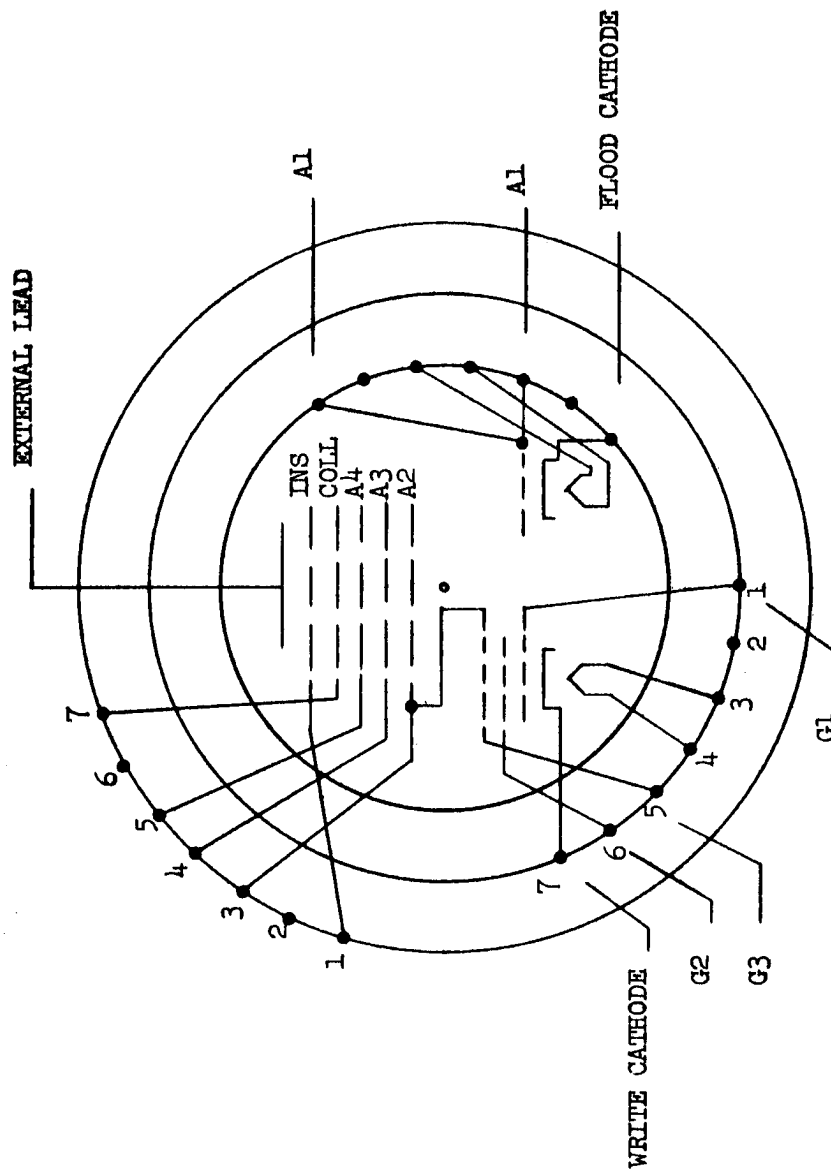
OUTLINE F-7174





FUNCTIONAL SCHEMATIC

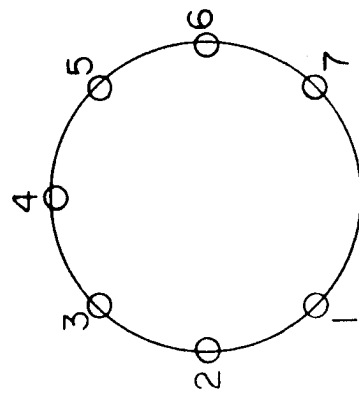
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NOTE: INNER CIRCLE ---- FLOOD GUN, E7-1 SMALL BUTTON MINIATURE
 CENTER CIRCLE ---- WRITING GUN, E7-1 SMALL BUTTON MINIATURE
 OUTER CIRCLE ---- BULB CONNECTIONS, E7-1 MINIATURE BASE

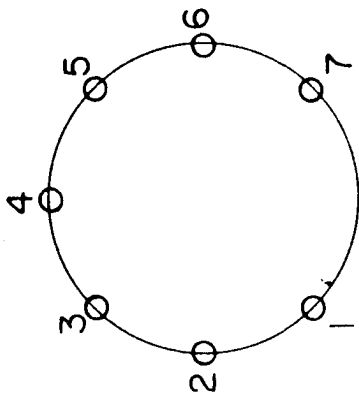
7174 BASING DIAGRAM





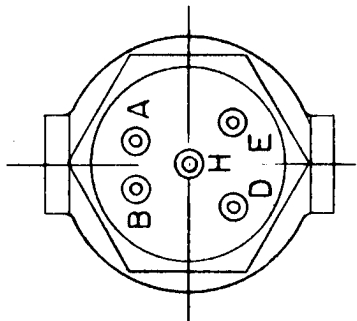
BOTTOM VIEW
FLOOD GUN

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