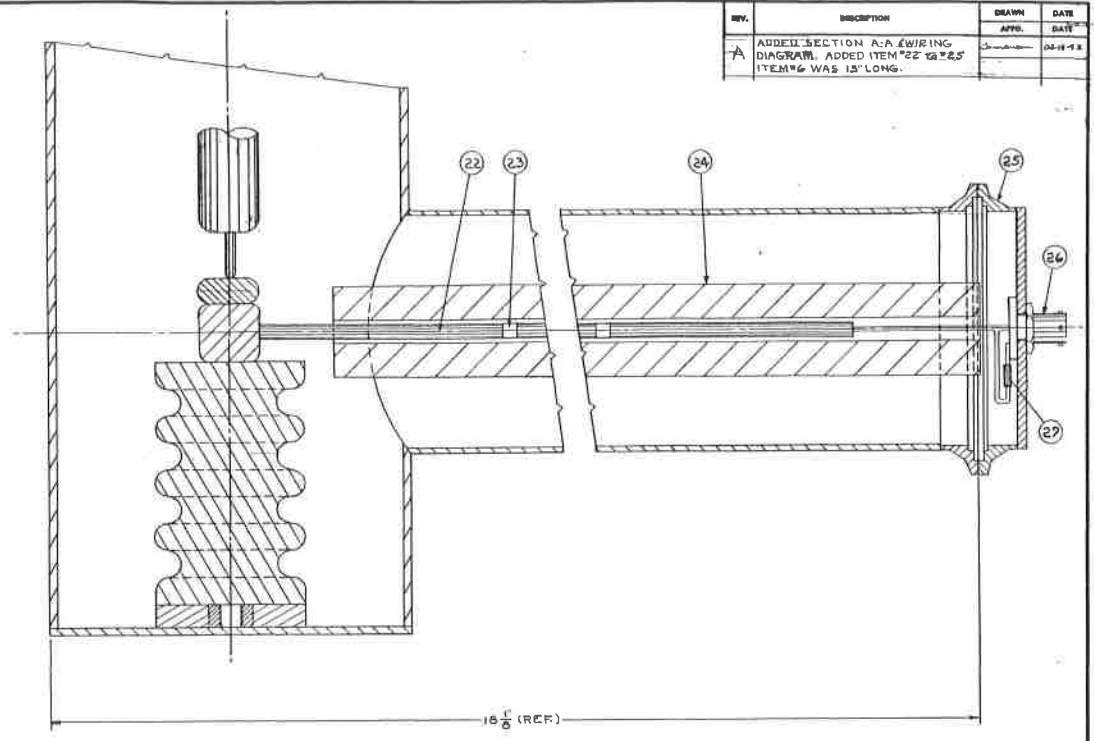
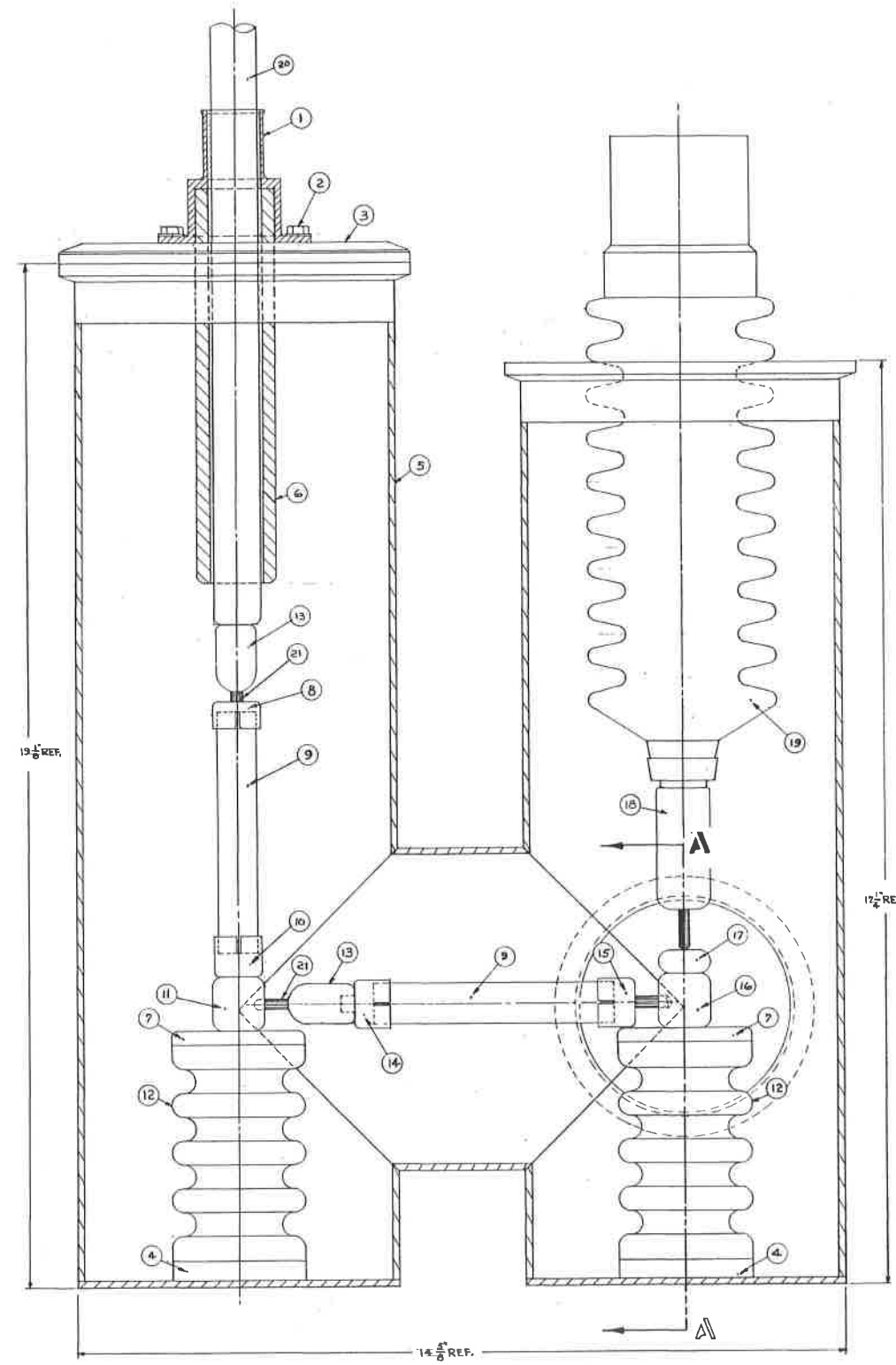
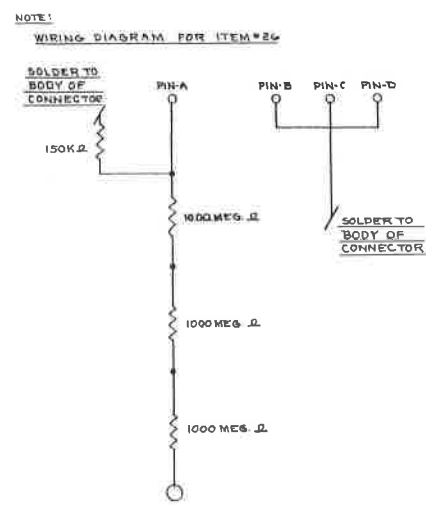


REV.	DESCRIPTION	DATE
A	ADDED SECTION A-A WIRING DIAGRAM. ADDED ITEM #22 TO #25 ITEM #6 WAS 13' LONG.	02-11-53



SECTION A-A



ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY.
27		150K.Ω RESISTOR	1
26		4 PIN CONNECTOR SEALTRON MFG.#97E14-615-8-44P-SP-56	1
25	MB-70512	END FLANGE-ASSEMBLY	1
24	MB-70434	DIVIDER INSULATOR	1
23	MB-70424	H.V. DIVIDER COUPLING	2
22		RESISTOR - K01-PYROFILM PVC-1000MEG OHMS 40KV	3
21	MB-70371	PLUNGER	2
20		RS-220 CABLE	1
19		HIGH VOLTAGE BUSHING 100KV CERMASEAL #802C6523-1	1
18	MB-70362	H.V. BUSHING TERMINATION-METAL	1
17	MB-70370	H.V. NUT	1
16	MB-70359	H.V. SPACER	1
15	MB-70366-A	CROSS RESISTOR END	1
14	MB-70364	CROSS RESISTOR END ADAPTER	1
13	MB-70360	H.V. TERMINATION (RS220)	2
12		CERMASEAL #947B9373-1	2
11	MB-70363	H.V. SPACER	1
10	MB-70363	SURGE RESISTOR-BOTTOM CAP	1
9		RESISTOR MWP 5-MEG W/8234 TRW	2
8	MB-70361	SURGE RESISTOR-TOP CAP	1
7	MB-70357	H.V. STANDOFF END CAP (TOP)	2
6	MB-70369-A	1 1/2" OD X 1/4" WT. X 7 1/2" LONG 640 TUBE	1
5	ME-70356	SURGE BOX WELDING-ASSEMBLY	1
4	MB-70358	H.V. STANDOFF END CAP (BOTTOM)	2
3	MC-70367-A	SURGE BOX COVER	1
2		10-32 HEK HD. 2 1/2" LG. 7/16" DIA. S.S.	4
1	MC-70366-A	H.V. CABLE BUSHING (RS-220)	1

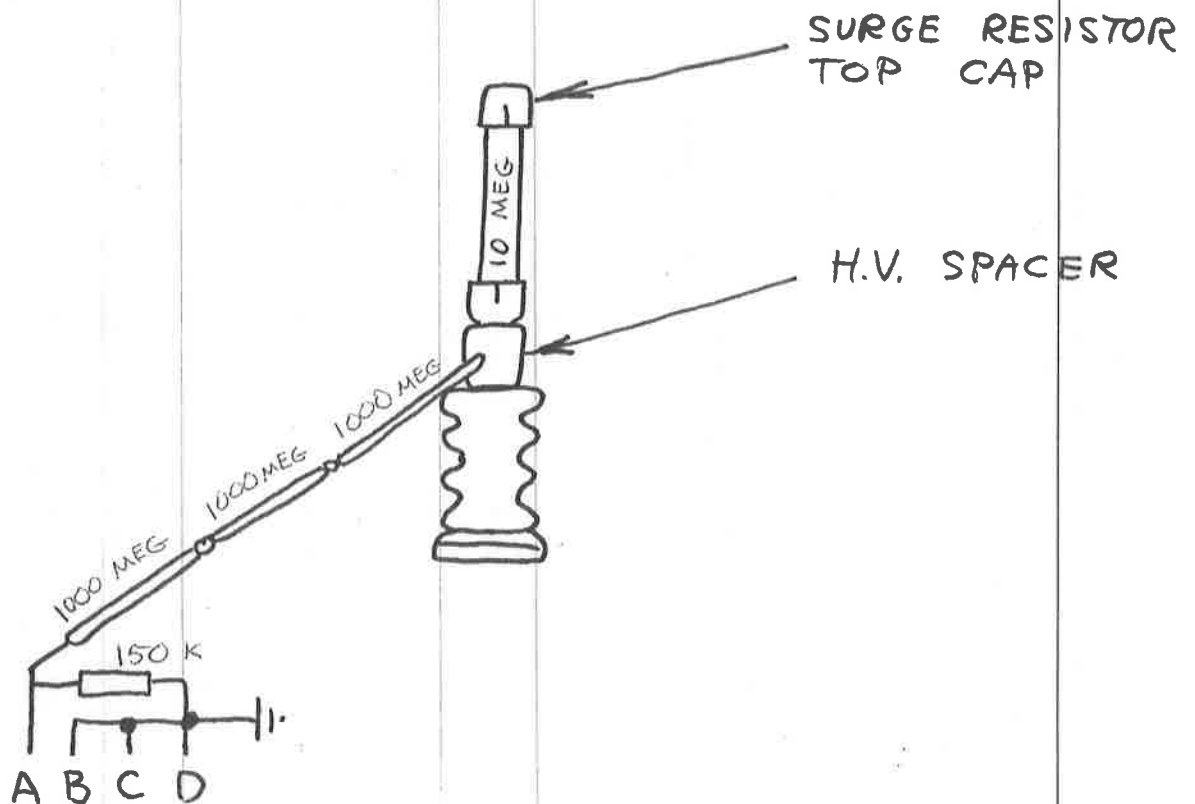
PARTS LIST	
UNLESS OTHERWISE SPECIFIED	ORIGINATOR C. CRAWFORD
FRACTIONAL DECIMALS	DECIMALS
ANGLES	DEGREES
1. BREAK ALL SHARP EDGES 1/32" MAX.	APPROVED
2. DO NOT SCALE DIMS.	USED ON
3. DIMENSIONS IN ACCORD WITH THIS Dwg.	MATERIAL
4. MAX. ALL MACHINED SURFACES	

FERMI NATIONAL ACCELERATOR LABORATORY UNITED STATES DEPARTMENT OF ENERGY	
ELECTROSTATIC SPLITTER	
ZEUS 50 SURGE BOX	
SURGE BOX ASSEMBLY	
SCALE	FILMED DRAWING NUMBER
1/4" = 1"	0524-ME-70355
REV.	
A	

EXTRACTION SURGE BOX MULTIMETER TEST

2-2-89

1. TEST PINS B, C, D ON READ OUT CONNECTOR FOR PROPER GROUND
2. TEST PIN A TO GROUND SHOULD READ $150\text{ K } \Omega \pm 5\%$
3. TEST PIN A TO H.V. SPACER SHOULD READ $3000\text{ MEG } \Omega \pm 5\%$ OR BETWEEN $.2\text{ TO } .5\text{ NANO SIEMENS (NS)}$
4. TEST H.V. SPACER TO SURGE RESISTOR TOP CAP SHOULD READ $10\text{ MEG } \pm 5\%$



USE HI-POT TEST DATED 3-18-82
FOR INDICATION OF SPARKS OR
ELECTRICAL BREAKDOWN



3/18/82

PROCEDURE FOR TESTING SEPTUM SURGE BOXES

All surge boxes will be tested before installation into any on-line septum. The procedure is as follows:

Extraction

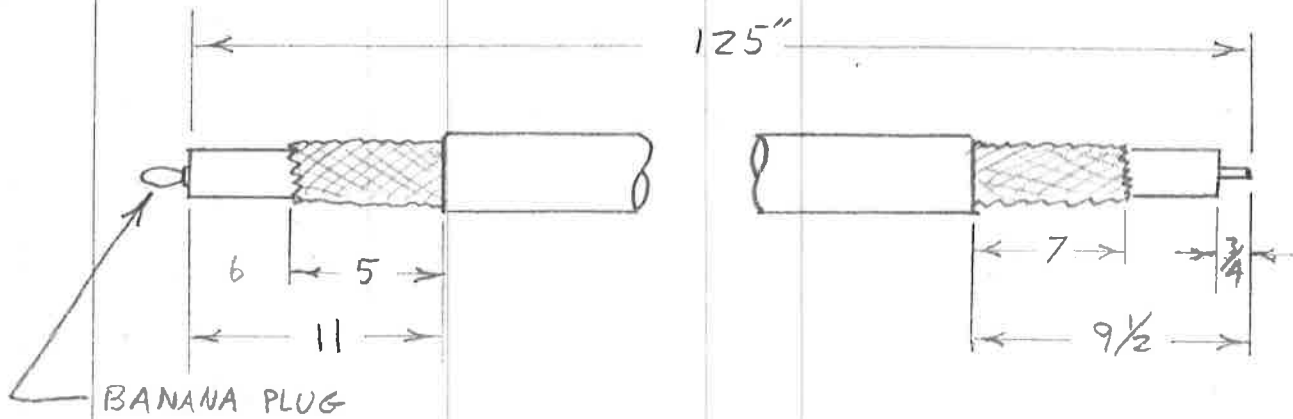
1. Test pin "B" on readout connector to insure that it is properly grounded.
2. Blank off the vacuum end of the surge box.
3. Test resistance of surge resistor in place. The acceptable range is 9 to 11 Megohms.
4. Fill surge box with clean Diala AX oil.
5. Hi-Pot to 100KV and leave at this voltage for 5 minutes. If everything is functioning properly, the current indicated at the power supply will be 0.05 mA. Any indication of sparks or breakdown (Noises or current pulses) are cause for rejection.
6. With the HV still on, test pin "A" on the readout connector with a high input impedance device such as an oscilloscope. The voltage on this pin should be the HV divided by 10,000, that is, at 100KV you should see -10Volts on pin "A".

Splitter

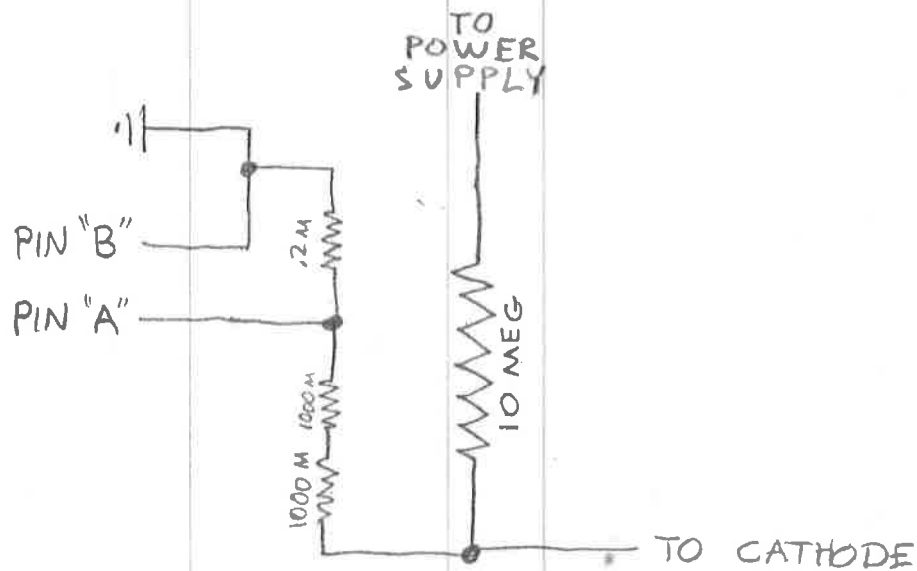
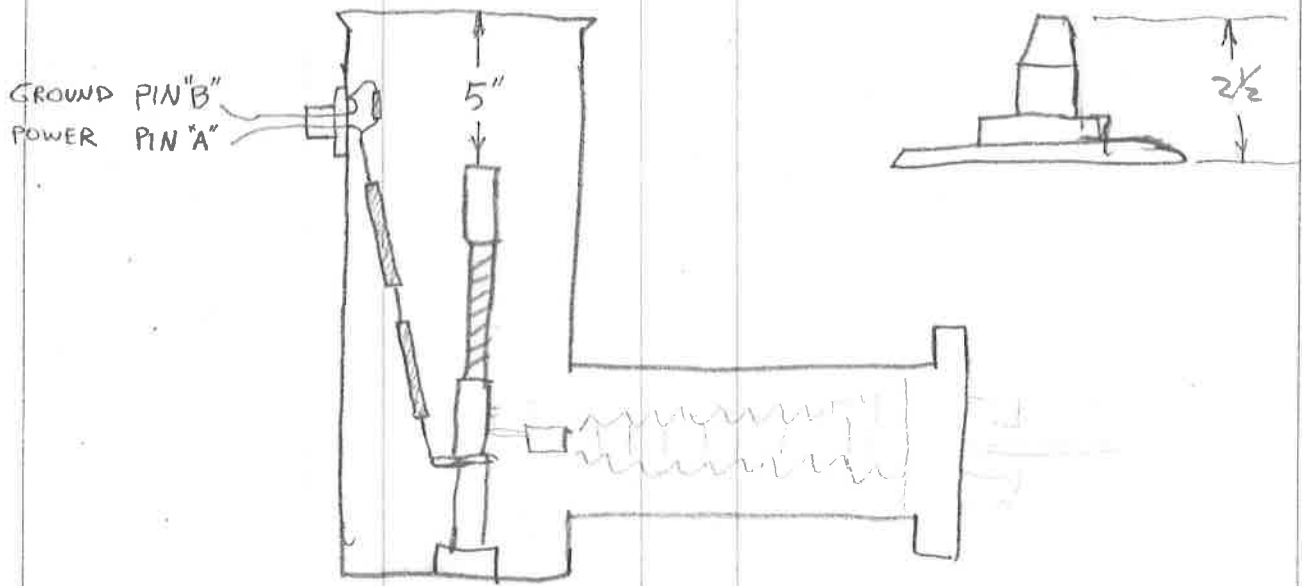
Same as above, only you do not have to blank off the vacuum end, simply fill with oil and test.

When the surge box has been tested, place a tag on the box stating that it has passed the Hi-Pot test, the date, and the name of the person that did the test.

EXTRACTION SEPTA CABLES



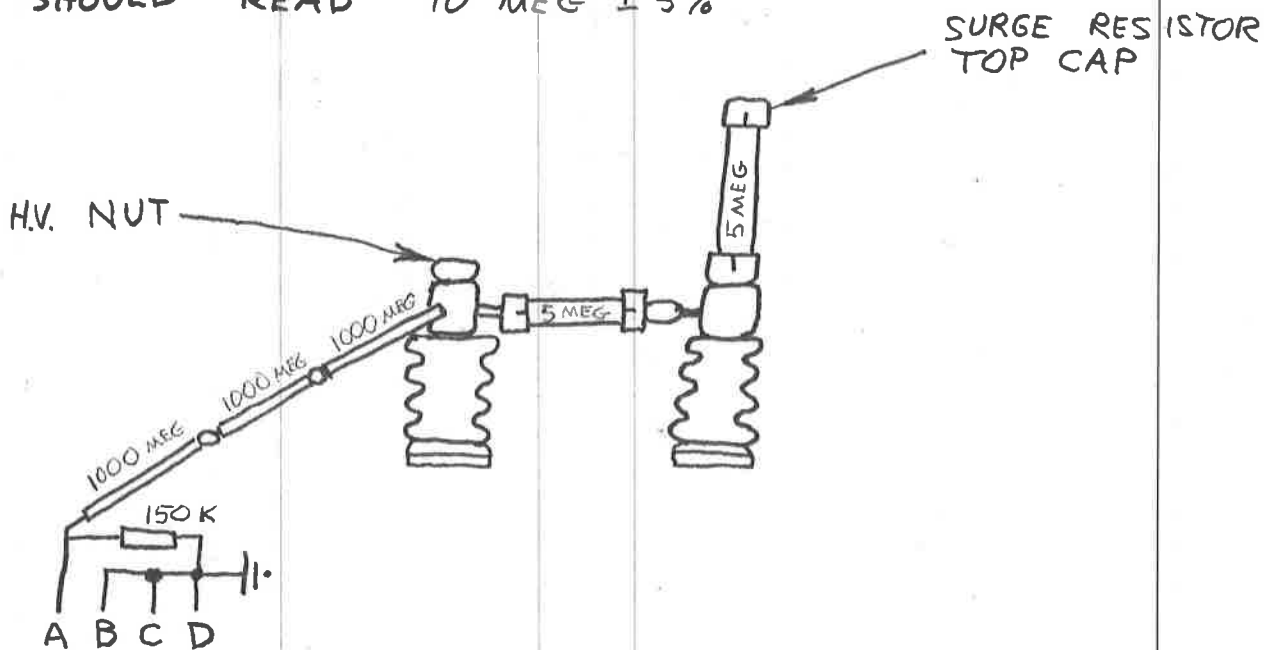
EXTRACTION SURGE BOX PRE 1982 STYLE



SPLITTER SURGE BOX MULTIMETER TEST

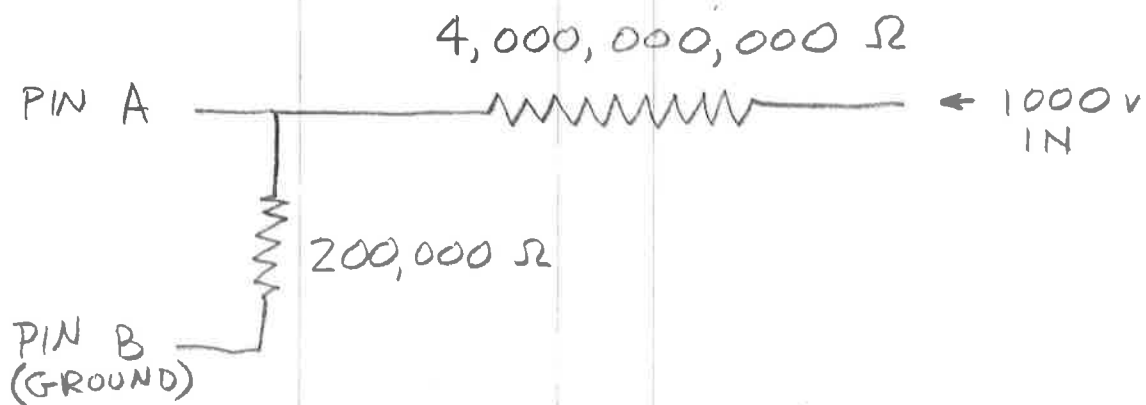
2-2-84

1. TEST PINS B, C, D ON READOUT CONNECTOR FOR PROPER GROUND
2. TEST PIN A TO GROUND SHOULD READ $150\text{ K } \Omega \pm 5\%$
3. TEST PIN A TO H.V. NUT SHOULD READ $3000\text{ MEG } \Omega \pm 5\%$
ON THE FLUKE MULTIMETER SET ON THE CONDUCTANCE RANGE THE METER SHOULD READ BETWEEN .2 TO .5 NANOSIEMENS (nS)
4. TEST H.V. NUT TO SURGE RESISTOR TOP CAP SHOULD READ $10\text{ MEG } \pm 5\%$



USE HI-POT TEST DATED 3-18-82
FOR INDICATION OF SPARKS OR
ELECTRICAL BREAKDOWN

11-19-86



WITH 1000 VOLTS IN YOU SHOULD GET
.0500 VOLTS OUT OF PIN A

$$\frac{\text{WHAT VOLTAGE SHOULD BE}}{\text{VOLTAGE READBACK PIN A}} = \frac{\text{MULTIPLY}}{\text{FACTOR}} \times 200,000 =$$

WHAT COMBINATON OF RESISTORS SHOULD BE

EXAMPLE:

1000 v IN .04918 v OUT

$$\frac{.0500}{.04918} = 1.01677 \times 200,000 = 203334 \Omega$$

203334 - 200000 = 3334 Ω RESISTOR
SHOULD BE ADDED IN SERIES