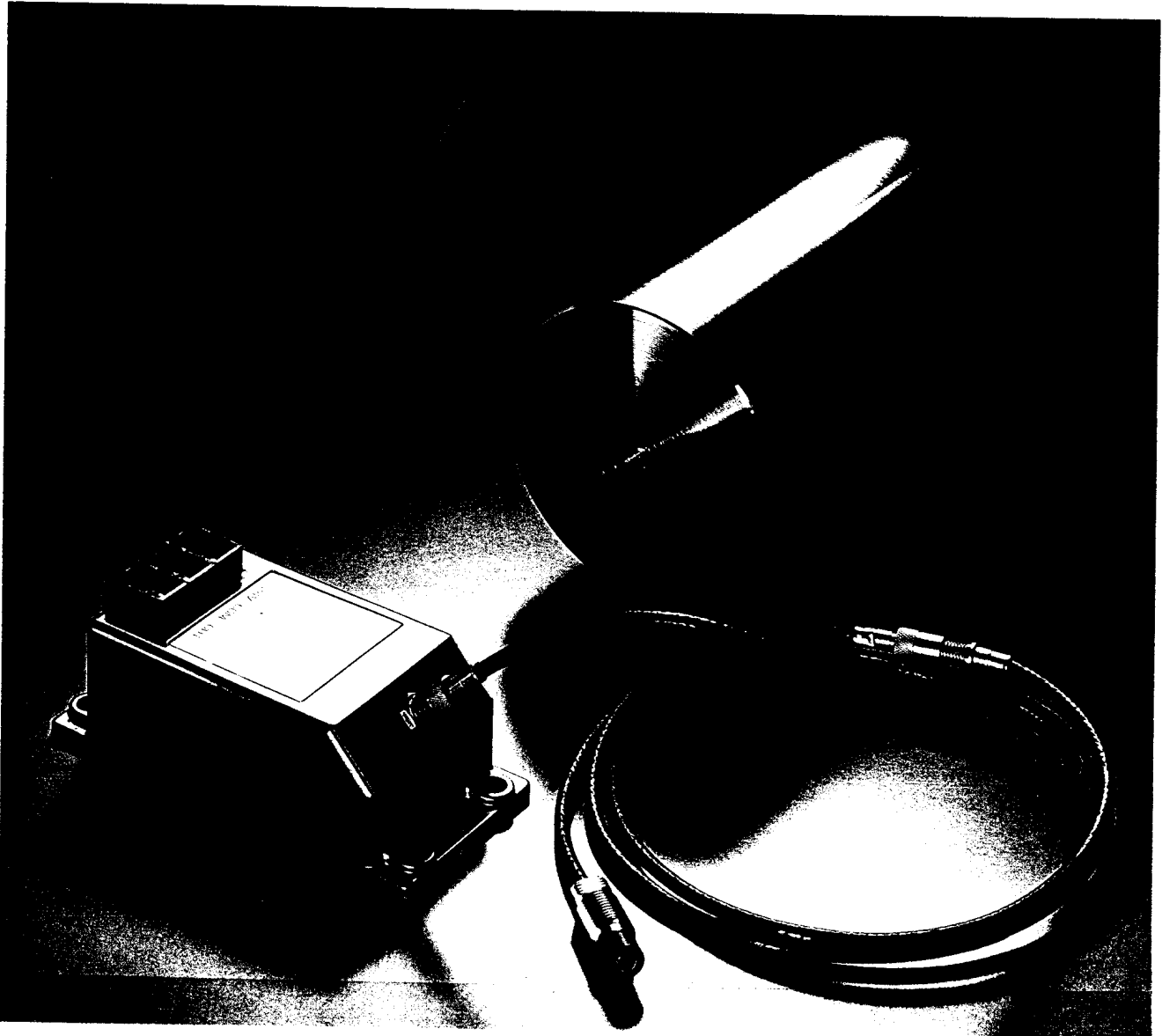




Instruction Manual No. 412537-198 Sh. 1
Rev. Ltr. Date 01-12-83 By: MDHicho

Instruction Manual
For
Vitec API Model
Non-Contact Probe Assembly





INDEX

API Probe Specifications	Page 2
Outline Dimensions/Mechanical ...	Page 3
Materials	Page 5
Sensor Interchangeability	Page 5
Storage Temperature	
Max. allowable capacitive load ..	
Sensor Mounting Affect	Page 6
Sensor Tip Dia.	Page 7
Sensor Tip Length	



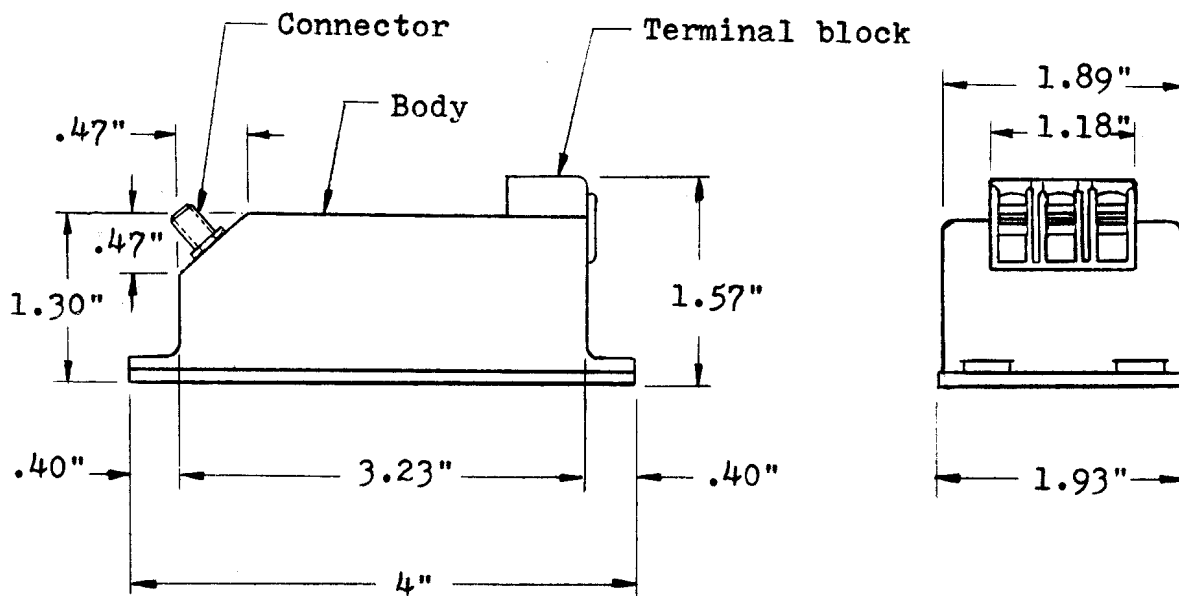
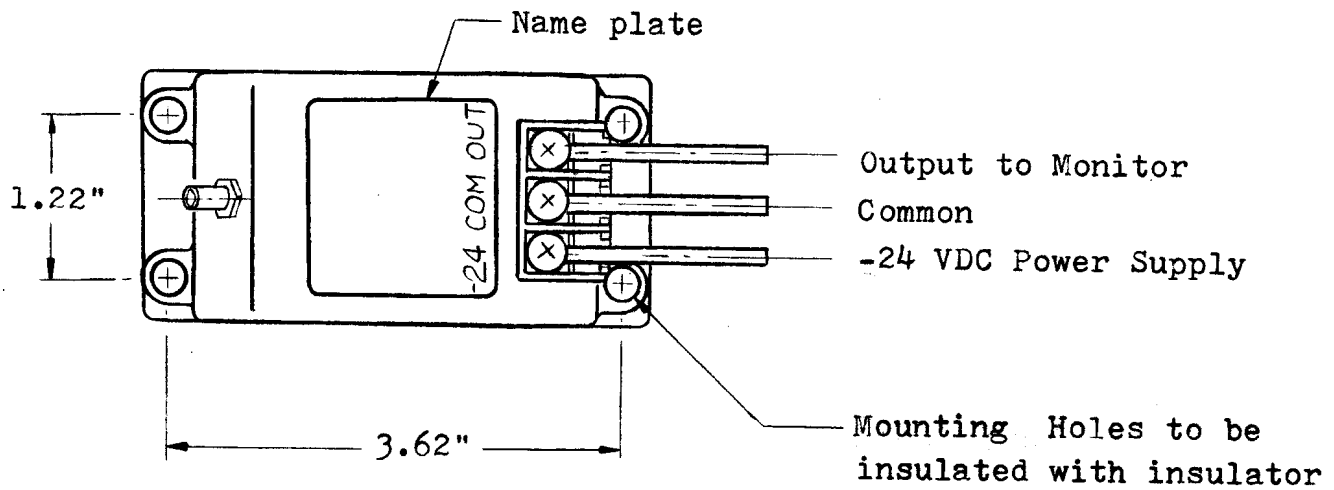
SPECIFICATIONS

VITEC API MODEL NON-CONTACT PROBE SYSTEM

<u>LINEAR RANGE</u>	= 80 Mils (at -24 VDC power supply, and 75°F)
<u>MEASURED OBJECT</u>	4140 Steel
<u>SCALE FACTOR</u>	200 MV/Mil
<u>SCALE FACTOR DEVIATION</u>	± 5%
<u>RESPONSE FREQUENCY</u>	DC to 10K Hz Flat -3db at 33 KHz
<u>OUTPUT IMPEDANCE</u>	50 Ohm (Current 5 ma Max)
<u>PROBE INTERCHANGEABILITY</u>	Less than ± 4% at scale factor deviation
<u>SENSOR OPERATING TEMPERATURE</u>	-40°F to 350°F
<u>EXTENSION CABLE OPERATING TEMPERATURE</u>	-40°F to 350°F
<u>DRIVER OPERATING TEMPERATURE</u>	-36°F to 176°F
<u>POWER SUPPLY REQUIREMENTS</u>	-17.5 VDC to -26 VDC (max. linear range at -24 VDC)
<u>CURRENT REQUIREMENTS</u>	15 ma.

Outline Dimensions / Mechanical

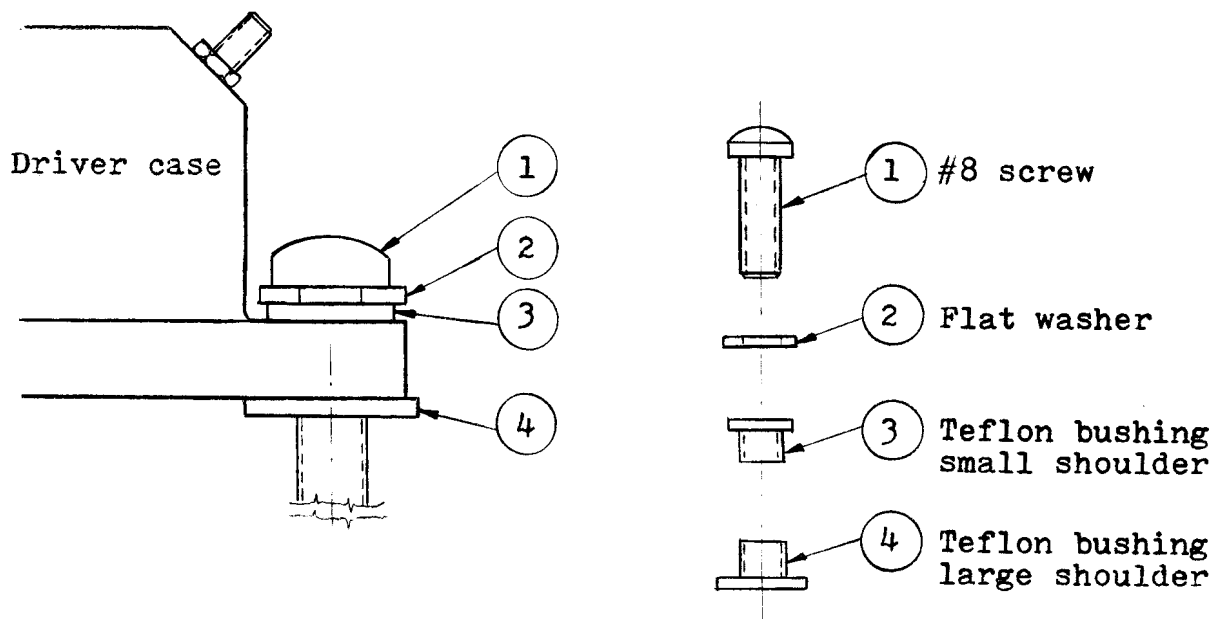
A. Dimensions:



A. (continued) Dimensions, mounting

When mounting the driver, it is a good practise to avoid locations with high vibration, high temperature or high humidity.

The driver should be mounted with the supplied hardware as illustrated in figure A-1.



A-1 Figure



B. Materials:

1. Probe

- . Sensor tip, Epoxy Resin
- . Threaded Portion, Stainless Steel (300 Series)
- . Sensor Cable, .14 O.D.
 - Outer Cover, FEP
 - Outer Conductor, Silver Plated Copper
 - Insulating Material, TFE
 - Internal Conductor, Gold Plated Copper welded wire
- . Connector, .27 O.D.
 - Case, Silver Plated Brass
 - Insulating Material, TFE
 - Inner Conductor, Gold Plated Beryllium Copper
- . Armor (Optional) .32 O.D.

2. Extension Cable

- . Connector, .27 O.D.
 - Case, Silver Plated Brass
 - Insulating Material, TFE
 - Internal Conductor, Gold Plated Beryllium Copper
 - Impedance 95 ohms
- . Cable, .14 O.D.
 - Outer cover, FEP
 - Outer Conductor, Silver Plated Copper wire
 - Insulating Material, TFE
 - Inner Conductor, Silver Plated Copper welded wire
- . Armor (Optional) .32 O.D.

3. Driver

- . Case, Die cast aluminum
- . Connector, Silver Plated Brass
- . Terminal Block
 - Material, PBT
 - Plate, Tin plated brass
 - Screws, Nickel plated brass

C. Sensor Interchangeability:

Sensor, Within $\pm 4\%$
Driver, within $\pm 1\%$
Extension Cable, within $\pm 1\%$

D. Storage Temperature:

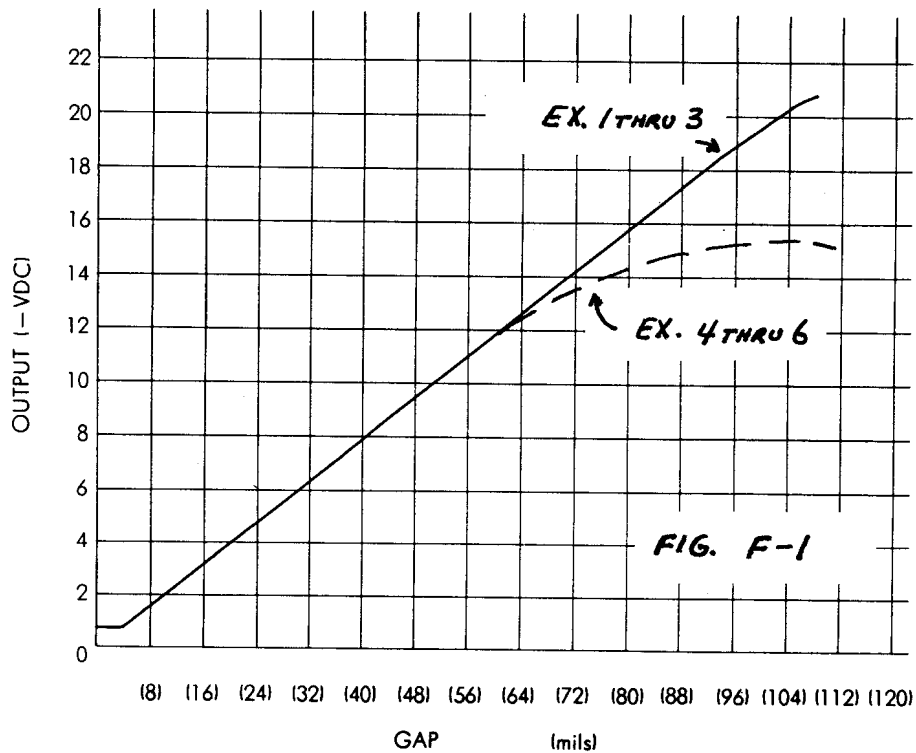
Sensor -6°F to $+266^{\circ}\text{F}$
Ext. Cable -6°F to $+266^{\circ}\text{F}$
Driver -21°F to $+257^{\circ}\text{F}$

E. Max. allowable capacitive load:

Less than $0.05 \mu\text{F}$ (when used as intrinsically safe)

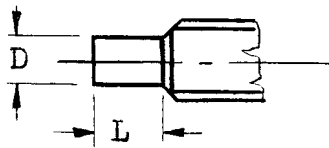
F. Sensor Mounting Affect

The presence of metal near the probe tip will affect the transducer's output. In general, metal around the probe tip will attenuate the transducer's output at the high end (large gap), as illustrated in figure F-1.



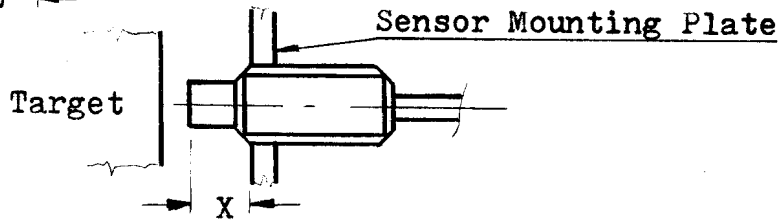
Representative mounting proportions have been illustrated in examples 1 through 6 following.

Shaft diameter, target dimensions, and type of target metal also affect the output of a non-contact probe. The effect of these variables are illustrated on the graphs following.



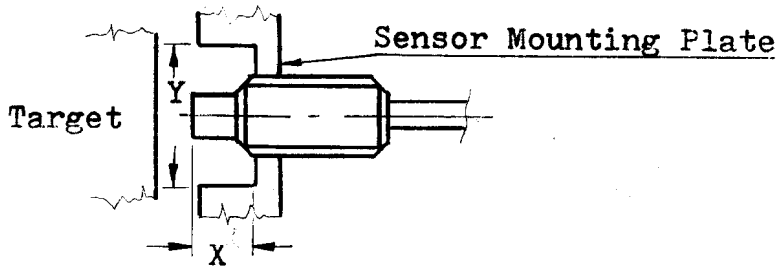
D = Sensor Tip Dia.
L = Sensor Tip Length

Ex.1



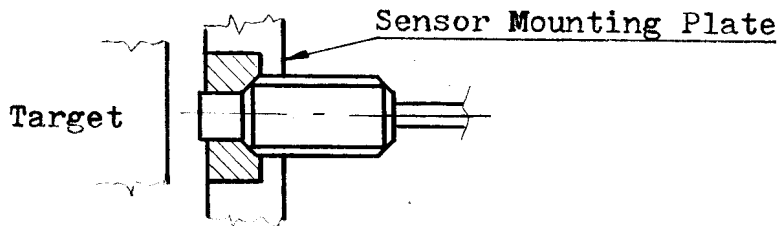
$X > L + .04"$
No effect

Ex.2



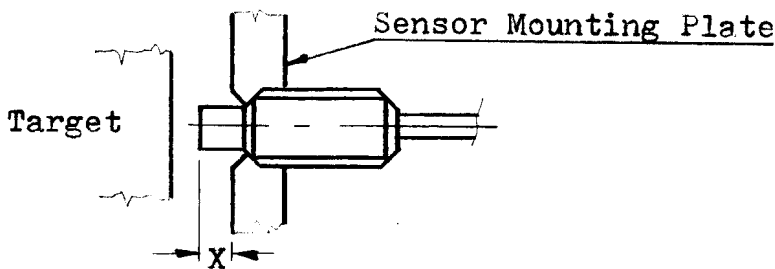
$X > L + .04"$
 $Y > 3 \times D$
No effect

Ex.3



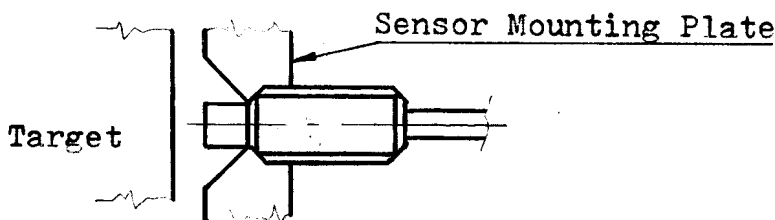
Same as Ex. 2
Resin or insulating material.
No effect

Ex.4



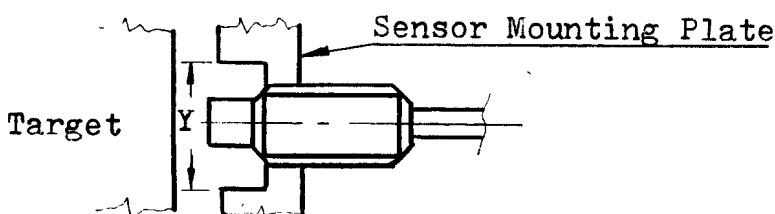
$X < L + .04"$
There is effect

Ex.5

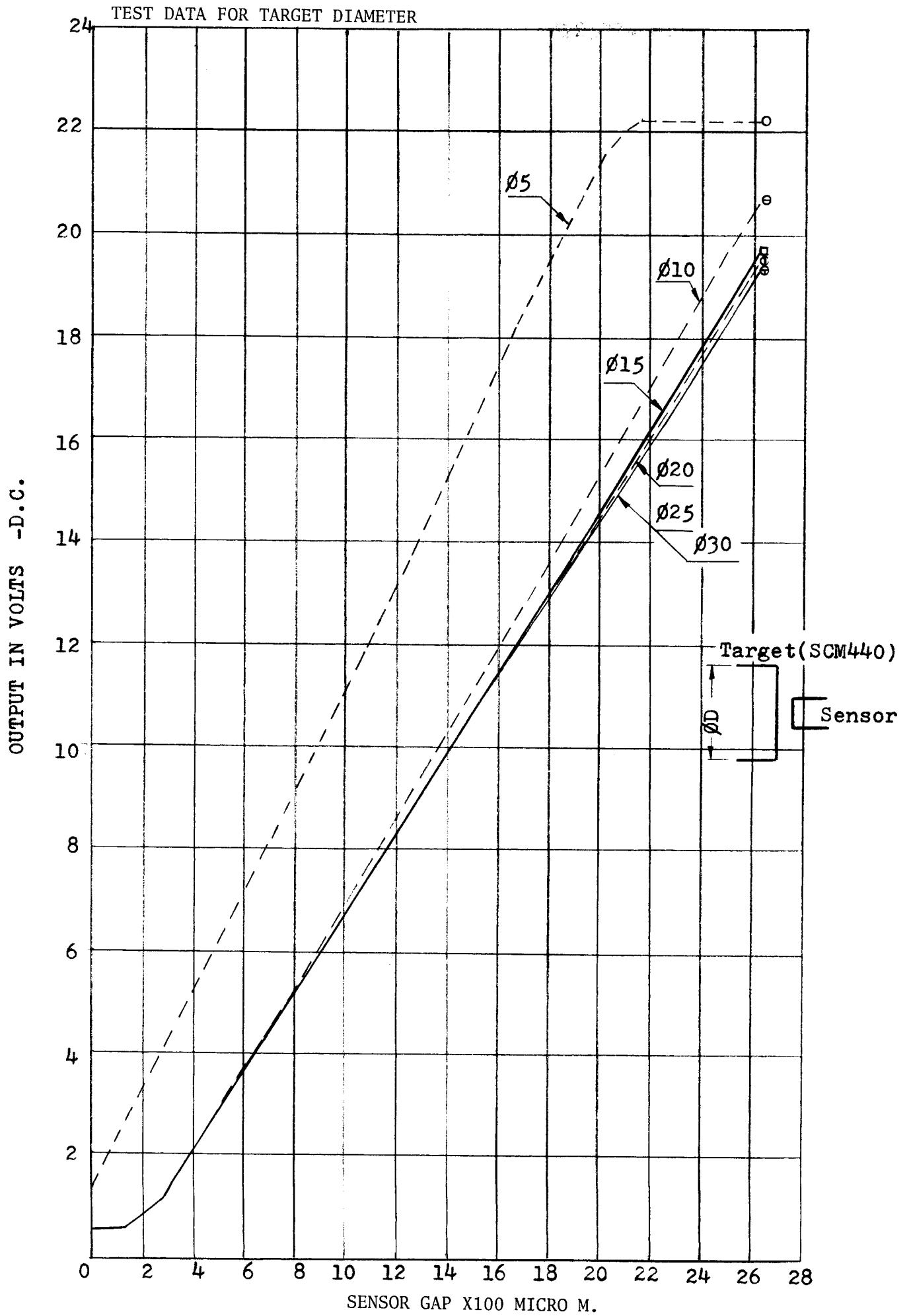


There is effect

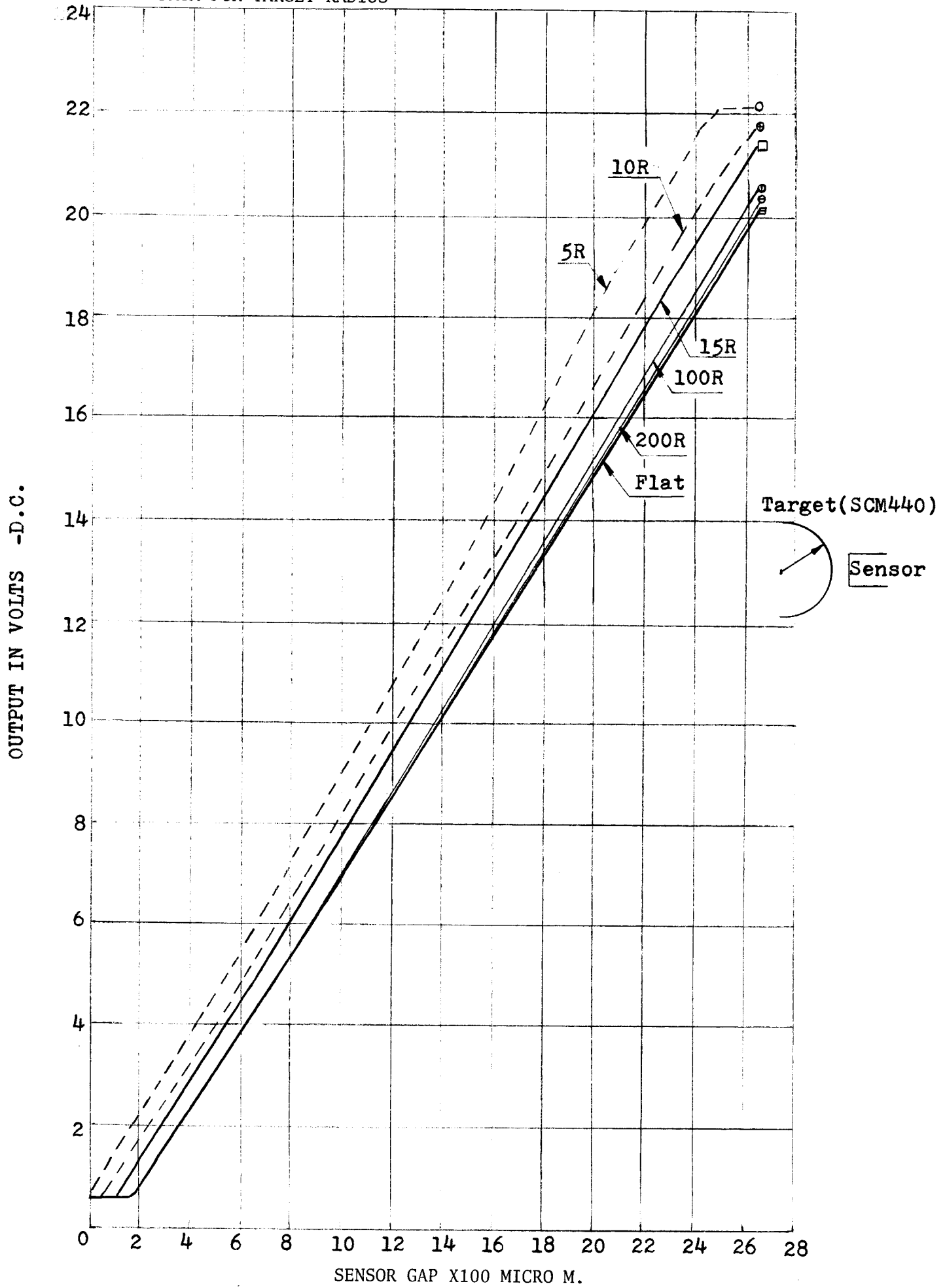
Ex.6



$Y < 3 \times D$
There is effect

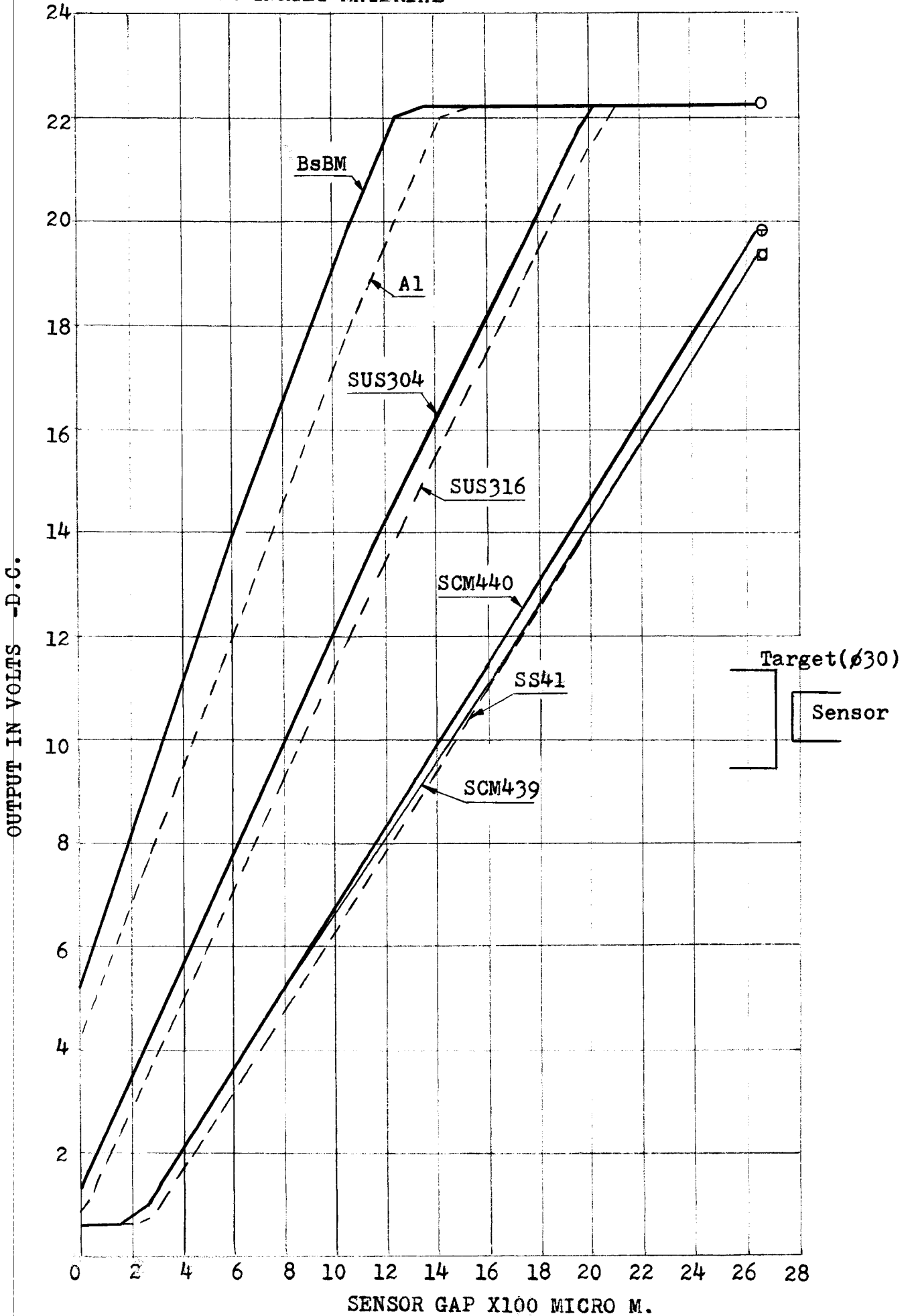


TEST DATA FOR TARGET RADIUS



01-12-83

TEST DATA FOR TARGET MATERIAL





TEST DATA FOR POWER SUPPLY

