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ATMOSPHERIC AMBIENT AIR TEMPERATURE MONITORING SYSTEM AND PROBE THEREFOR

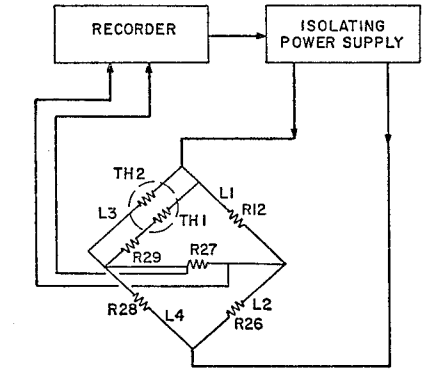
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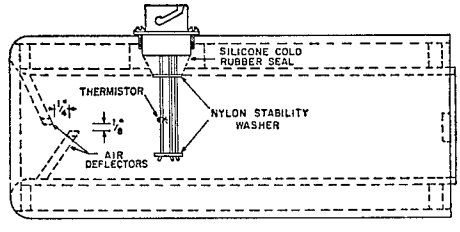
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7 Sheets Drawings. 10 Pages of Specification





An aircraft-mounted air temperature measuring system (FIG. 1) having an effective linear temperature/resistance response of about ±0.15° C. over its full span of about −30° F. to about 120° F., comprising a probe housing for a dual element thermistor, said thermistor being a part of one of four legs of an electrical bridge in combination with readout means, power supply means, and a load resistor connected against two junctions of said bridge to provide voltage reading for said readout means. The bridge circuit is provided with switching for 8 ranges and is easily calibrated. Improved readout accurracy and resolution is obtained by using a readout device having a full-scale range that is only a portion of the total range of the thermistor-bridge combination. The use of multiple resistor in two legs of the bridge permits a switch, inserted between one end of the load resistor and a junction of two legs of said bridge, to change the location of the effective junction between said two legs. Variable resistors in these said two legs permit vernier adjustment of this location. Design of the probe housing (FIG. 6) minimizes interference from radiant heat energy, thereby enabling the thermistor sensor to respond only to the heat energy contained in the air flowing thereover.

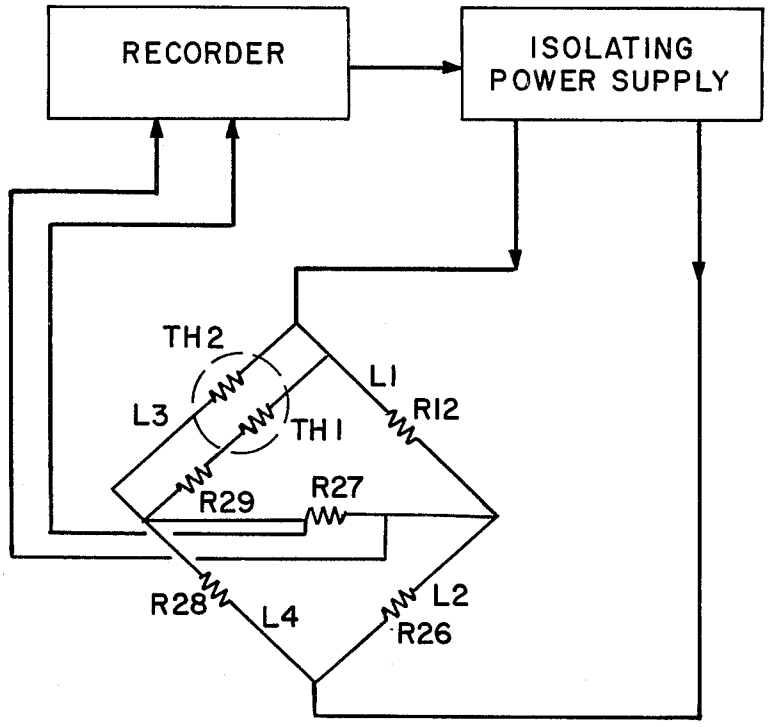

RECORDER
ISOLATING
POWER SUPPLY
TH2
L3
TH1
L1
RI2
R29
R27
R28
L4
L2
R26

Fig. 1

ATMOSPHERIC AMBIENT AIR TEMPERATURE MONITORING SYSTEM AND PROBE THEREFORE

Original Filed July 25, 1974

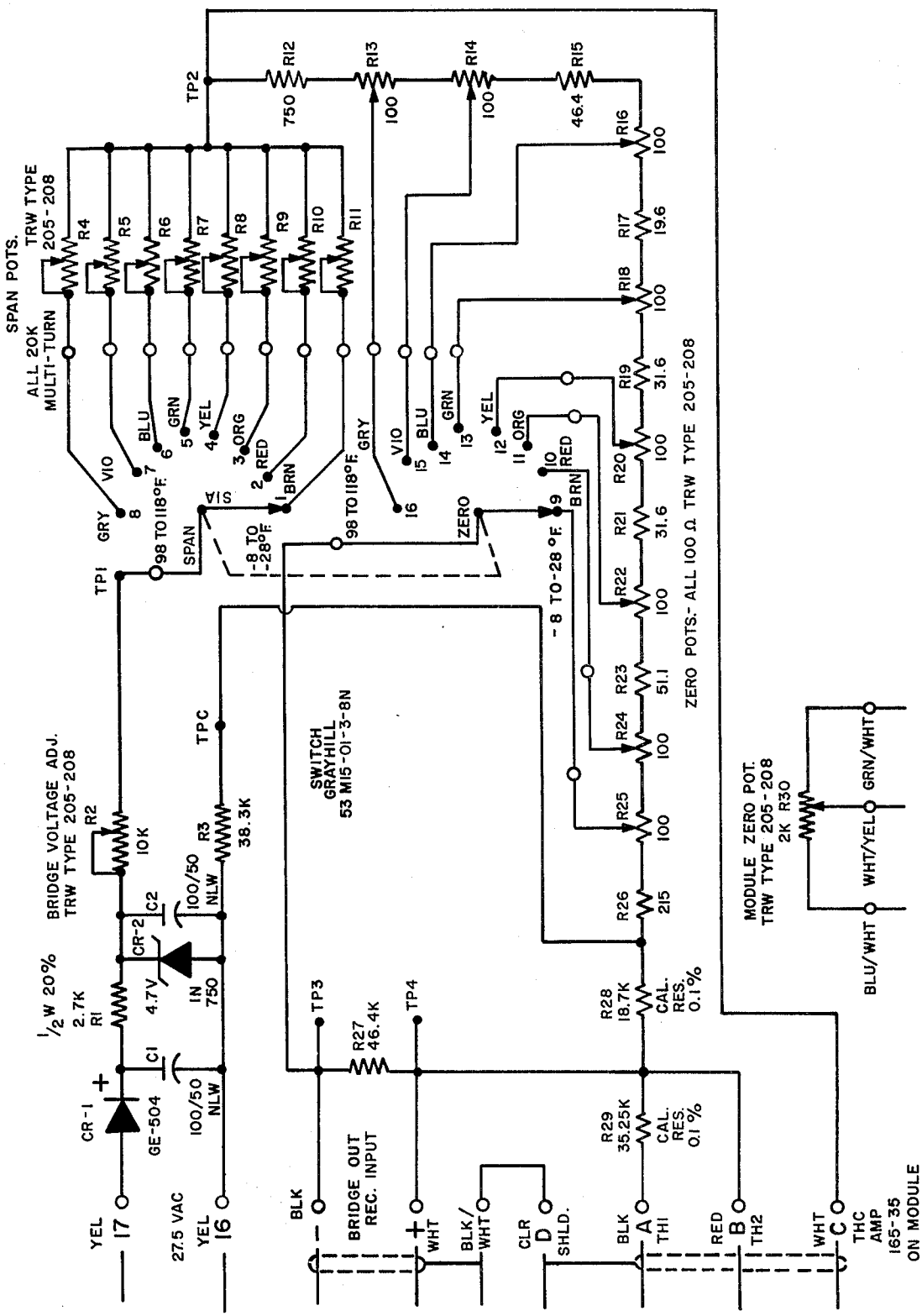
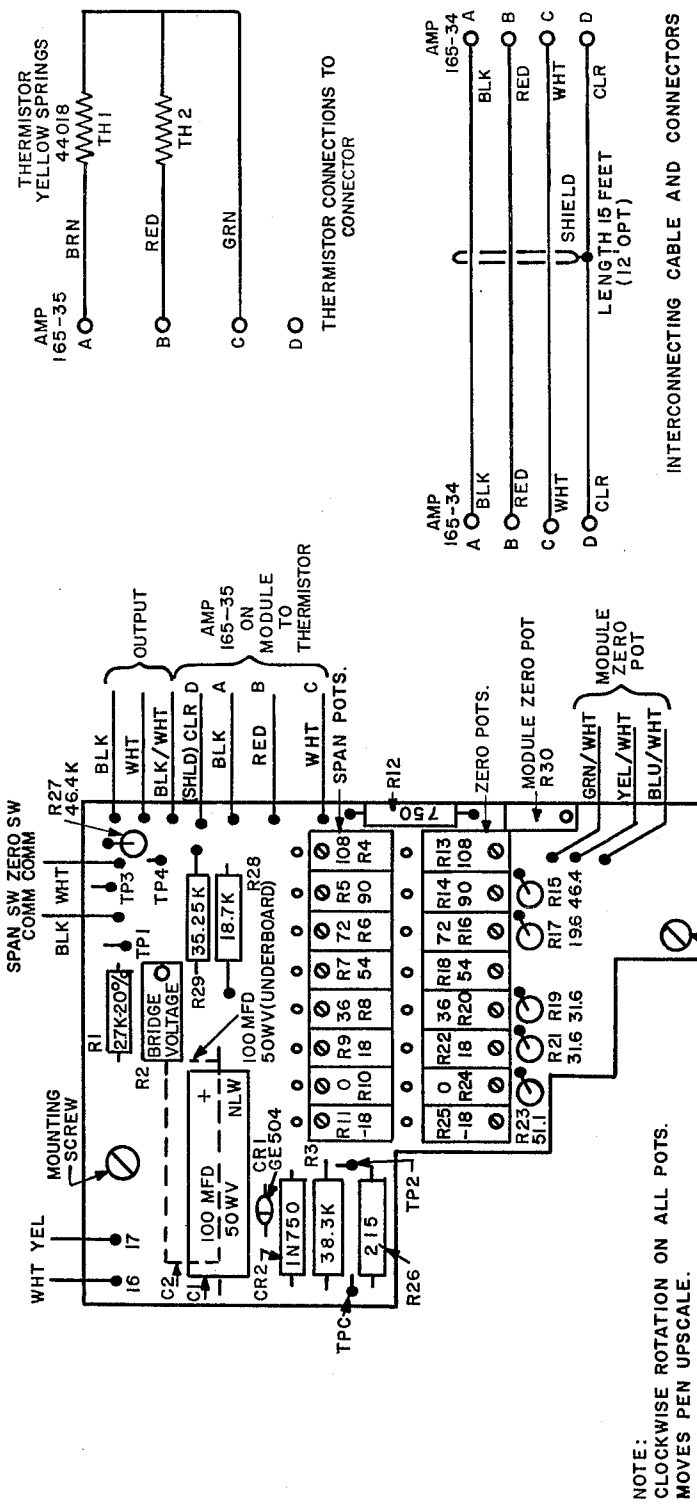


Fig. 2



RANGE SWITCH TO PC BOARD				
SWITCH POSITION	TEMP. RANGE	SPAN TERM	ZERO TERM	WIRE COLOR
1	-18	1	9	BROWN
2	0	2	10	RED
3	18	3	11	ORANGE
4	36	4	12	YELLOW
5	54	5	13	GREEN
6	72	6	14	BLUE
7	90	7	15	VIOLET
8	108	8	16	GRAY

Fig. 3

ATMOSPHERIC AMBIENT AIR TEMPERATURE MONITORING SYSTEM AND PROBE THEREFORE

Original Filed July 25, 1974

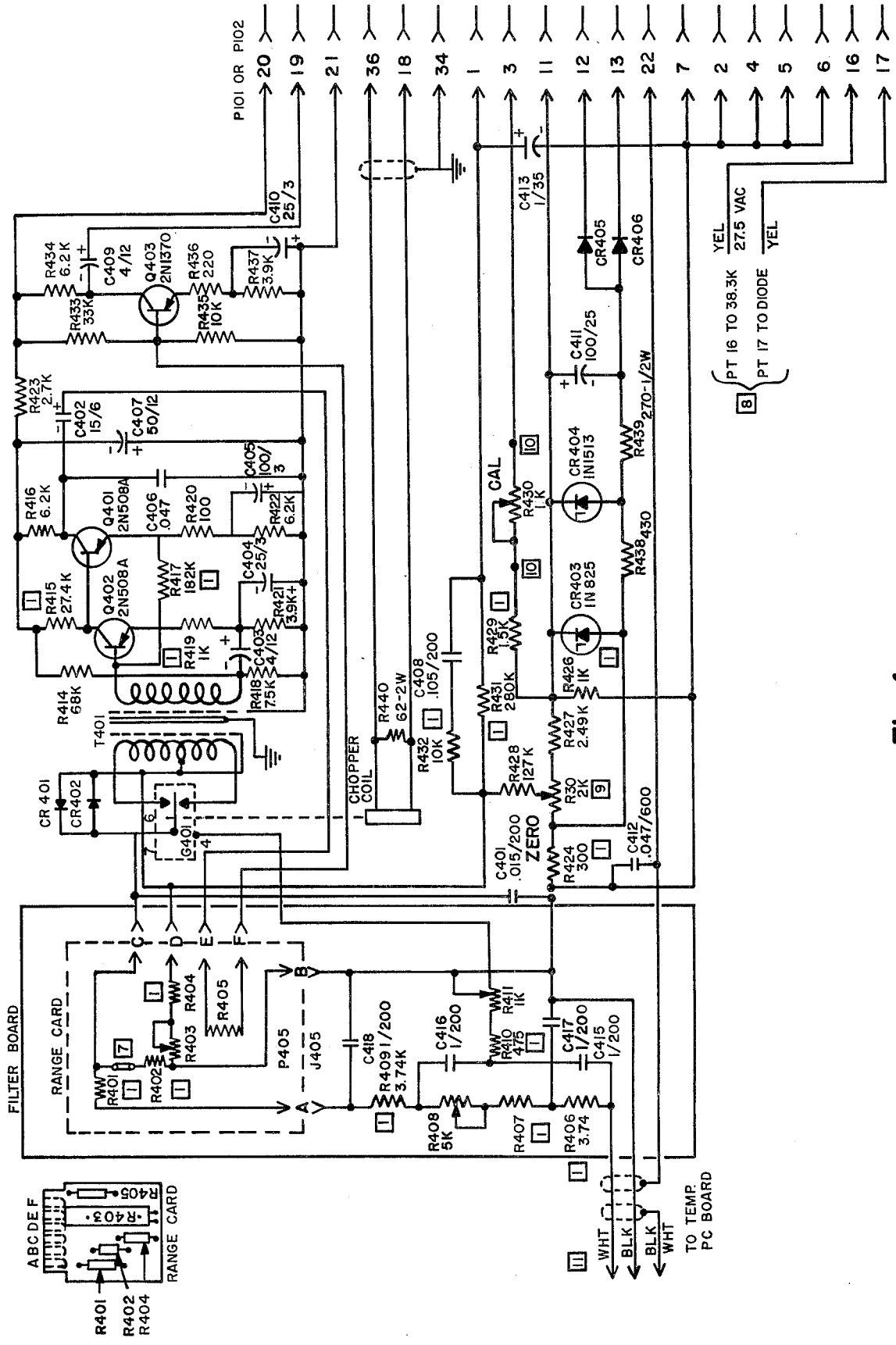
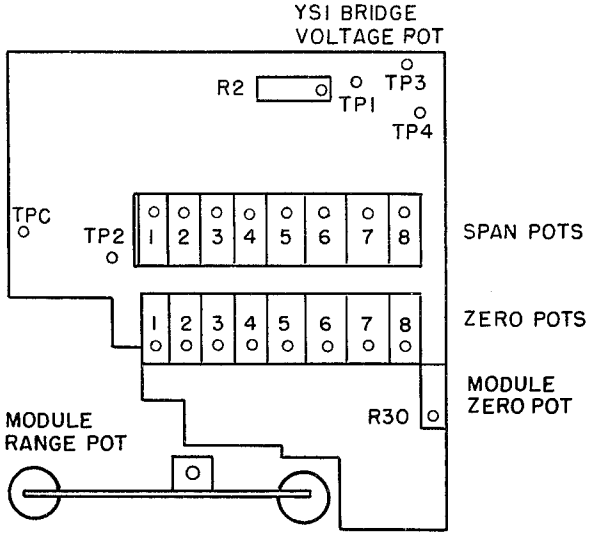


Fig. 4

TO TEST HP-YSI MARK 5 MODULES (RANGE TEMP. BRIDGE) SET UP AND CALIBRATION.

PRODUCTION MODULES



RANGE	°F
1	-18
2	0
3	+18
4	36
5	54
6	72
7	90
8	108

1. TO SET ZERO ON MODULE-
   CONNECT MODULE TO RECORDER AND PLACE JUMPER BETWEEN TP3 AND TP4 AND SET MODULE ZERO POT FOR ZERO ON RECORDER.

2. TO SET RANGE OF MODULE-
   WITH RESISTANCES SET ON DECADE BOXES TO GIVE 10MV READING BETWEEN TP3 AND TP4, USING FLUKE VOLTMETER, ADJUST RANGE POT ON MODULE RANGE CARD FOR FULL SCALE.

3. REPEAT 1 AND 2 ABOVE UNTIL ZERO AND SPAN IS SET.

4. TO SET BRIDGE POT-
   TURN ADJUSTMENT FULLY CW. TURN POT 5 TURNS CCW AND THIS SHOULD BE STARTING POINT. IF ALL SPANS CAN BE CALIBRATED, NO FURTHER ADJUSTMENT IS NECESSARY. IF ANY RANGE DOES NOT SPAN CORRECTLY THIS CONTROL SHOULD BE ADJUSTED TO PROVIDE MORE OR LESS D.C. VOLTAGE AS NEEDED TO THE BRIDGE.

5. SPAN AND ZERO POTS ARE IN LOCATIONS SHOWN ABOVE. SET IN TEST RESISTANCES ON DECADE BOXES AND CALIBRATE.

Fig. 5

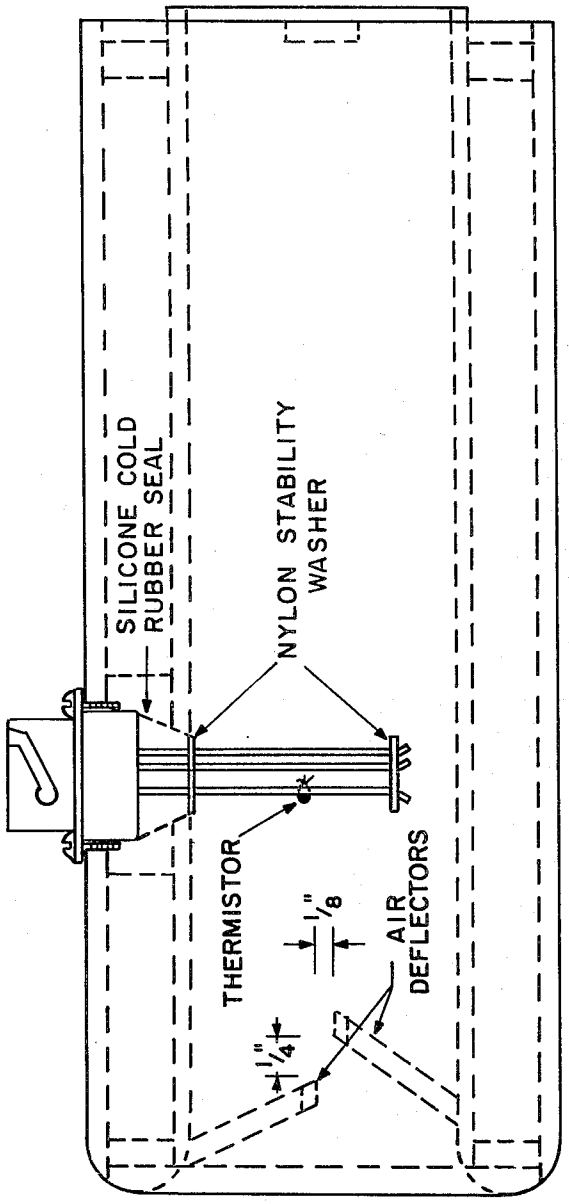
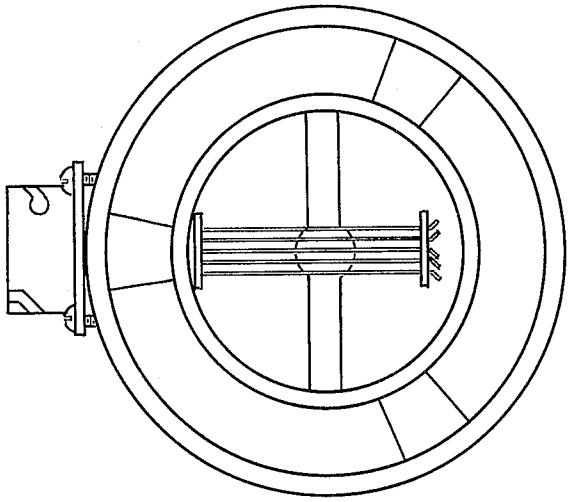

SILICONE COLD
RUBBER SEAL
NYLON STABILITY
WASHER
THERMISTOR
1/8"
AIR
DEFLECTORS
1/4"

Fig. 6



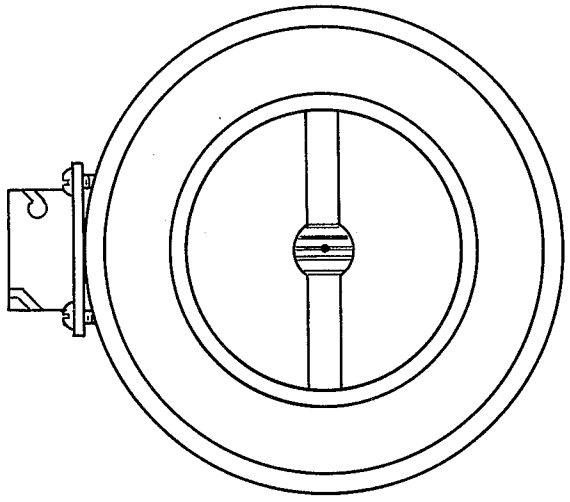


Fig. 7