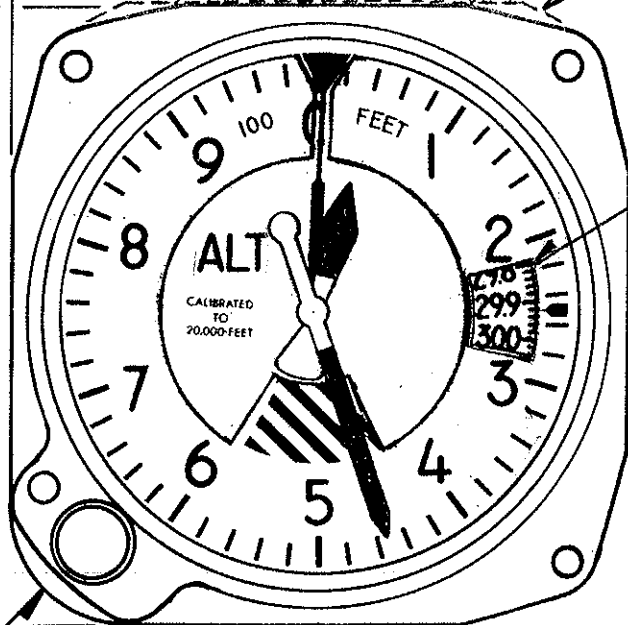


0.11 MAX

3.25+/-0.01

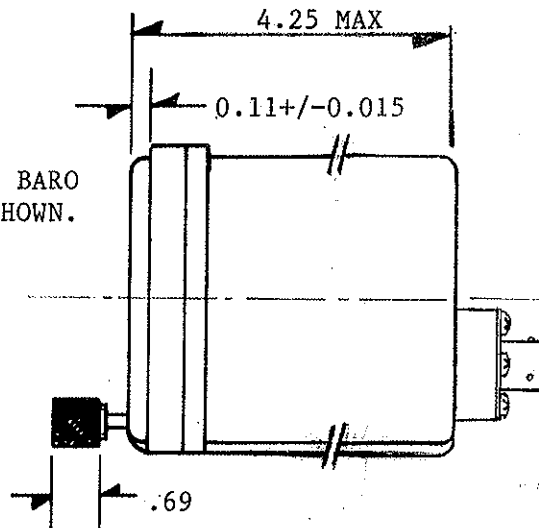
3.25+/-0.01



10,000 FT PTR CONFIG II

LIGHTED BEZEL AND TRAY (REFER TO NOTES ON PAGE 2).

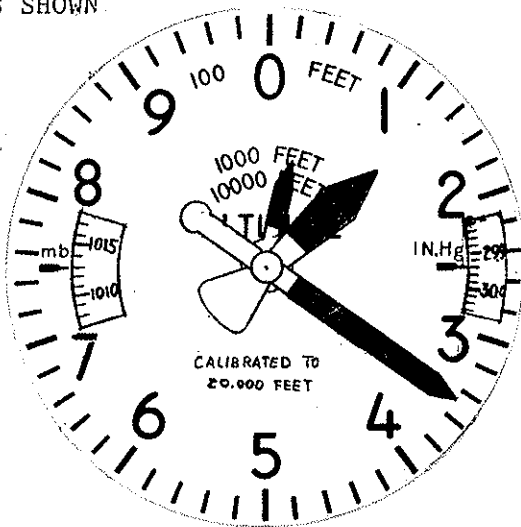
'IN.Hg' BARO DIAL SHOWN.



DT02H-8-3PN, OR EQUIV.

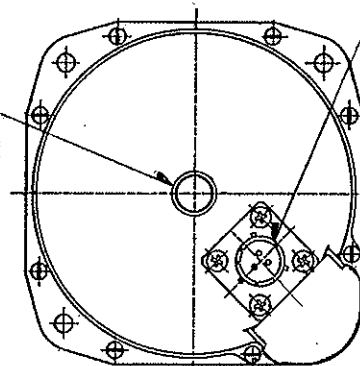
CASE PER MS33549, EXCEPT AS SHOWN.

1/8-27 N.P.T. PER MIL-P-7105



10,000 FT PTR CONFIG I

DUAL BARO DIAL CONFIG SHOWN.




REAR VIEW

- A - +5.000+/-0.001 VDC
- B - OUTPUT
- C - GROUND

WIRING DIAGRAM

"CALIBRATED TO 20,000 FEET" MARKING ON DIAL OR POINTER IS APPLICABLE TO 20K FT UNIT ONLY. DOTTED LINES REPRESENT EXTERNAL CONFIGURATIONS OF LIGHTED UNITS.

C	7/31/03	Chngd press port config (P1) & deleted mb scale units (P2)	70	D	3/6/09	CORRECTED VIB REQ. (Para. 2.2)	70	PREP. BY	J. Reed	11/8/02
A	1/9/03	Added lighted and close tel. versions	70	B	1/21/03	Corrected elec. conn. location (P1) & note to ptr. config. (P2)	70	APPR. BY	T. Kawawa	11/12/02
REV. DATE			CHK.	REV. DATE			CHK.	NAME		DATE

UNITED INSTRUMENTS, INC.

 3625 COMOTARA AVE.
 WICHITA, KS 67226

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UNITED INSTRUMENTS, INC.		CALIBRATED RANGE (FT.)	BARO SCALE	10K FT. POINTER CONFIGURATION	REMARKS
PART NO.	CODE NO.				
5934-3B	A.632	-1,000 to 20,000	IN.Hg	I	
5934P-3B	A.634	-1,000 to 20,000	IN.Hg	II	
5934D-3B	A.636	-1,000 to 20,000	DUAL	I	
5934PD-3B	A.637	-1,000 to 20,000	DUAL	II (NOTE 1)	
5934-3BD	A.638	-1,000 to 20,000	IN.Hg	I	Close Tolerance
5934P-3BD	A.640	-1,000 to 20,000	IN.Hg	II	Close Tolerance
5934D-3BD	A.642	-1,000 to 20,000	DUAL	I	Close Tolerance
5934PD-3BD	A.643	-1,000 to 20,000	DUAL	II (NOTE 1)	Close Tolerance
5934A-3B	A.644	-1,000 to 35,000	IN.Hg	I	
5934PA-3B	A.646	-1,000 to 35,000	IN.Hg	II	
5934AD-3B	A.648	-1,000 to 35,000	DUAL	I	
5934PAD-3B	A.649	-1,000 to 35,000	DUAL	II (NOTE 1)	
5934A-3BD	A.650	-1,000 to 35,000	IN.Hg	I	Close Tolerance
5934PA-3BD	A.652	-1,000 to 35,000	IN.Hg	II	Close Tolerance
5934AD-3BD	A.654	-1,000 to 35,000	DUAL	I	Close Tolerance
5934PAD-3BD	A.655	-1,000 to 35,000	DUAL	II (NOTE 1)	Close Tolerance

NOTE 1: The 10,000 ft disk pointer for the dual barometric dial (Config II, not shown) is approximately 1.46 inches (37 mm) in diameter, compared to the 10,000 ft disk pointer for the single barometric dial (Config II, shown on pg 1), which is approximately 1.58 inches (40 mm).

LIGHTED UNITS:

1. The lighted indicators are the same as unlighted indicators specified by this specification, UI5934-3B, except the lighting bezel (plastic wedge or HEA glass wedge type) and applicable light tray (5, 14, or 28 volt) are installed instead of the non-lighting bezel.
2. The bezel lighted indicator, equipped with a plastic wedge with uncoated cover glass, is identified with the letter 'P' suffixed to the code number of the basic indicators listed in the above table. A 28 volt light tray will be supplied with each unit, unless a different voltage tray, 5 or 14 volt, is specified. The lighting bezel and light tray part numbers are BA3-001-003 and BA(voltage)-24-BW3 of Bishop Aviation respectively.
3. The bezel lighted indicator, equipped with an HEA glass wedge, is identified with the letter 'H' suffixed to the code number of the basic indicators listed in the above table. A 28 volt light tray will be supplied with each unit, unless a different voltage tray, 5 or 14 volt, is specified. The lighting bezel and light tray part numbers are BA3-001-003G-901 and BA(voltage)-24-BW3G of Bishop Aviation respectively.

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1. GENERAL

1.1. Purpose: This specification defines standards of minimum performance and conditions under which these standards apply for the Model 5934 Altimeter supplied by United Instruments, Incorporated.

1.2. Description: The Model 5934 Sensitive Altimeter is for use on aircraft to indicate the height of the aircraft above a reference point, generally mean sea level, assuming standard conditions of temperature and pressure. The altimeter measures the existing barometric pressure. Since atmospheric pressure varies with altitude, this pressure is indicated on the dial in feet of altitude. The altimeter may be manually adjusted to variances in barometric pressure.

The sensing element (diaphragm assembly) and gear train are encased in a black thermoset plastic case with brass fitting boss. The altitude is indicated in a three-pointer display. An increase in altitude results in a clockwise rotation of the pointers.

1.3. Operating Limits: The Model 5934 Altimeter operates through a maximum calibrated range of -1,000 to 20,000 feet. The Model 5934A Altimeter operates through a maximum calibrated range of -1,000 to 35,000 feet.

1.4. Barometric Scale Adjustment: The barometric scale setting with its electrical output is adjustable by means of an adjustment knob located in the lower left hand corner of the altimeter. Due to the variances in the barometric pressure, it is necessary to set the barometric scale to the existing barometric pressure. The existing barometric pressure may be obtained from the weather station or control tower. Rotation of the knob for barometric scale adjustment results in rotation of the pointers on the altitude dial and a consistent change in the electrical output. An increase in barometric scale will result in an increase in the altitude as indicated on the dial. This relationship of pointers to barometric scale is based on standard conditions of pressure and temperature. Mechanical stops are provided to prevent incorrect readings of the pressure scale when the limits of the barometric scale are exceeded.

2. STANDARD TEST CONDITIONS:

2.1. Atmospheric Conditions: Unless otherwise specified, all tests required by this specification shall be conducted at an atmospheric pressure of approximately 29.92 inches of mercury, at an ambient temperature of approximately 25°C, and at a relative humidity of not greater than 85 percent.

2.2. Vibration to Minimize Friction: Unless otherwise specified, all tests for performance may be conducted with the instrument subjected to a vibration of 0.002 to 0.005 inch double amplitude at a frequency of 1,500 to 2,000 cycles per minute.

2.3. Position: Unless otherwise specified, all tests shall be made with the altimeter mounted in its normal operating position.

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3. INDIVIDUAL PERFORMANCE REQUIREMENTS:

- 3.1. Scale Error: With the barometric scale pressure at 29.92 inches of mercury, the altimeter shall be subjected successively to pressures corresponding to the altitude specified in Table I, up to the maximum calibrated range of the altimeter being tested. The reduction in pressure shall be made at a rate not in excess of 20,000 feet per minute to within approximately 2,000 feet of the test point. The test point shall be approached at a rate compatible with the test equipment. The altimeter shall be kept at the pressure corresponding to each test point for at least one minute, but not more than ten minutes, before the reading is taken. The error at all test points must not exceed the tolerances specified in Table I. Following a minimum delay of four hours, this test may be repeated and the altimeter shall meet tolerances as specified in Table I.
- 3.2. Hysteresis: The hysteresis test shall begin not more than fifteen minutes after the altimeter's initial exposure to the pressure corresponding to the upper limit of the scale error test prescribed in paragraph 3.1. While the altimeter is at this pressure, the hysteresis test shall commence. Pressure shall be increased at a rate simulating a descent in altitude at the rate of 5,000 to 20,000 feet per minute until within 3,000 feet of the first test point (50 percent of the maximum altitude). The test point shall then be approached at a rate of approximately 3,000 feet per minute. Within 10 seconds after the pressure has been stabilized at the test point, the instrument indication shall be within 100 ft. of the scale error reading obtained in Scale Error test. The altimeter shall be kept at this pressure for at least five minutes, but not more than fifteen minutes, before the reading is taken. The pressure shall be increased further in the same manner as before until the pressure corresponding to the second test point (40 percent of the maximum altitude) is reached. The altimeter shall be kept at this pressure for at least one minute, but not more than ten minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further in the same manner as before until atmospheric pressure is reached. The reading of the altimeter at either of the two test points shall not differ by more than 75 feet from the reading of the altimeter for the corresponding altitude recorded during the scale error test prescribed in paragraph 3.1.
- 3.3. After Effect: Not more than five minutes after the completion of the hysteresis test prescribed in paragraph 3.2, the reading of the altimeter (corrected for any change in atmospheric pressure) shall not differ from the original reading by more than 30 feet.
- 3.4. Friction: The altimeter shall be subjected to a steady rate of decrease of pressure of approximately 750 feet per minute. At each altitude listed in Table II, the altimeter reading will be noted before and after vibration. The difference will not exceed the tolerance shown.
- 3.5. Case leak: The leakage of the altimeter, when the pressure within it corresponds to an altitude of 18,000 feet, shall not change the altimeter reading by more than 100 feet during an interval of one minute.
- 3.6. Position Error: With atmospheric pressure applied to the instrument, the difference between pointer indication when the instrument is in normal operating position and when it is in any other position shall not exceed 20 feet.

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3.7. Barometric Scale

3.7.1. Barometric Scale Error: At constant atmospheric pressure, the barometric pressure scale shall be set at each of the pressures (falling within its range of adjustment) that are listed in Table III, and shall cause the pointer to indicate the equivalent altitude difference shown in Table III with a tolerance of 25 feet.

3.7.2. Barometric Correction Output: With application of specified power input, the output readings obtained at corresponding barometric settings in the order listed shall not exceed the tolerances specified in Table IV. The test shall be repeated at each test point marked with an asterisk in the reverse order.

3.8. Pointer Oscillation: There shall be no more than 20 feet of pointer oscillation when the instrument is subjected to vibration when mounted in normal operating position at frequencies to be varied uniformly from 5 to 50 cycles per second at a maximum double amplitude of .020 inches and a maximum acceleration of 1.5 g's; and 50 to 500 cycles per second at a maximum acceleration of 0.5 g's.

4. ENVIRONMENTAL CONDITIONS:

When installed in accordance with United Instruments, Incorporated instructions, the altimeter will function in the following environmental ranges:

4.1. Temperature: -30°C to 50°C

<u>Vibration:</u>	<u>C.P.S.</u>	<u>MAX. DOUBLE APLITUDE</u>	<u>MAX. ACCELERATION</u>
	5 to 120	0.036 inch	1.5 g
	120 to 500	--	0.5 g

4.3. Humidity: 0% to 95% at 32°C

4.4. Altitude: Model 5934: -1,000 feet to 20,000 feet
Model 5934A: -1,000 feet to 35,000 feet

5. INSTALLATION INSTRUCTIONS:

The aircraft static system must meet the requirements of FAR, Part 43, Appendix E. The altimeter connection to the static system must include a flexible hose or tubing to provide vibration isolation.

5.1. Fitting: The threads of the 1/8-27ANPT fitting to be inserted should be coated to prevent seizing or leaking.

5.2. Electrical Connector

5.2.1. Barometric Signal: Cannon KPT06B8-3S, or equivalent.

5.2.2. Wiring: Connector wiring shall be as shown on page 1 of this specification.

FUNCTIONAL TEST DATA

TABLE I
SCALE ERROR

<u>ALTITUDE</u> <u>(Feet)</u>	<u>EQUIVALENT PRESSURE</u> <u>(Inches of Mercury)</u>	<u>TOLERANCE</u> <u>(±Feet)</u>	
-1,000	31.018	20	*20
0	29.921	20	*20
500	29.385	20	*20
1,000	28.856	20	*20
1,500	28.335	25	*25
2,000	27.821	30	*30
3,000	26.817	30	*30
4,000	25.842	35	*35
6,000	23.978	40	*40
8,000	22.225	60	*60
10,000	20.577	80	*75
12,000	19.029	90	*75
14,000	17.577	100	*75
16,000	16.216	110	*75
18,000	14.942	120	*75
20,000	13.750	130	*75
22,000	12.636	140	*75
25,000	11.104	155	*75
30,000	8.885	180	*75
35,000	7.041	205	*205

NOTE: Scale error tolerances marked with an asterisk apply to the altimeters of which United Instruments Part No. ends with "-3BD".

TABLE II
FRICTION

<u>ALTITUDE</u> <u>(Feet)</u>	<u>TOLERANCE</u> <u>(± Feet)</u>
1,000	70
2,000	70
3,000	70
5,000	70
10,000	80
15,000	90
20,000	100
25,000	120
30,000	140
35,000	160

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TABLE III
PRESSURE - ALTITUDE DIFFERENCE

INCHES OF MERCURY SCALE		MILLIBAR SCALE	
PRESSURE (In.Hg)	ALTITUDE DIFFERENCE (Feet)	PRESSURE (Millibars)	ALTITUDE DIFFERENCE (Feet)
28.10	- 1,727	950	- 1,766
28.50	- 1,340	965	- 1,337
29.00	- 863	980	- 913
29.50	- 392	995	- 495
29.92	0	1,013	0
30.50	+ 531	1,030	+ 461
30.90	+ 893	1,045	+ 863
30.99	+ 974	1,050	+ 996

TABLE IV
BAROMETRIC CORRECTION OUTPUT

PRESSURE (In.Hg)	OUTPUT (VDC)	TOLERANCE (+/-VDC)
28.10	0.484	0.020
28.50	1.029	0.020
*29.00	1.701	0.020
29.50	2.364	0.020
*29.92	2.916	0.020
30.06	3.098	0.020
*30.50	3.664	0.020
30.90	4.174	0.020
30.99	4.288	0.020

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