Meriam Instrument
a Scott Fetzer company
10920 MADISON AVENUE • CLEVELAND, OHIO 44102
(216) 281-1100 FAX (216) 281-0228

MODEL 34FB2TM
(English Units)

MODEL 34MB2TM
(Metric Units)

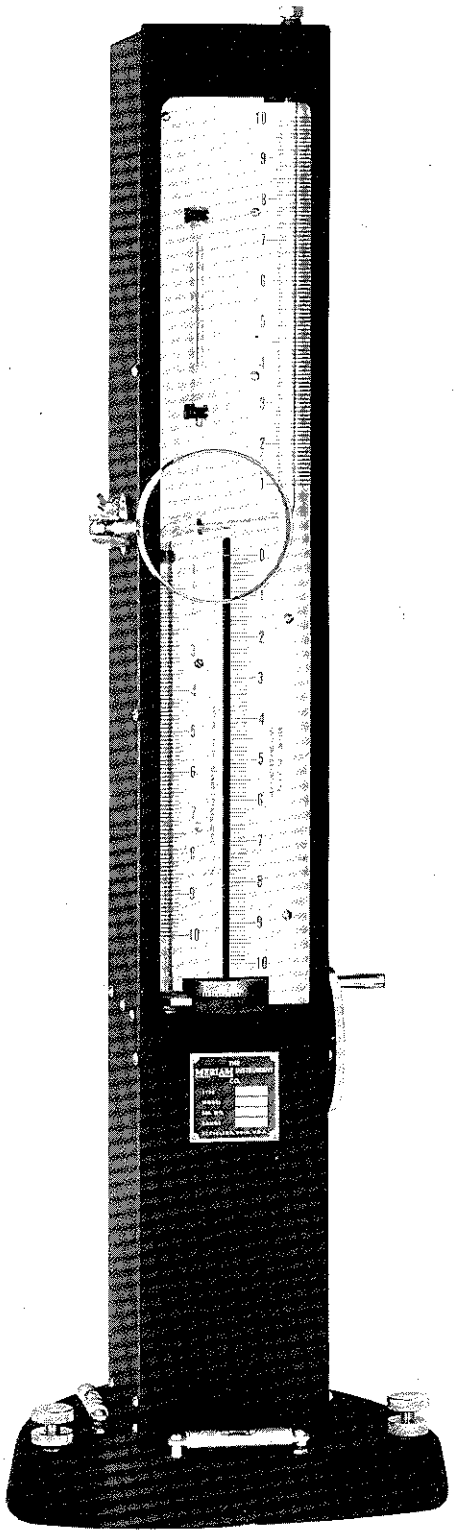
DESCRIPTION AND FUNCTION

The Meriam Micromanometer is a sensitive manometer indicating pressures, vacuums, or differential pressures to 0.001" water pressure.

The unit is an accurate primary standard for checking and calibrating low pressure or vacuum gauges, draft gauges, inclined manometers, and low pressure diaphragm or bellows controls. Although a calibrating standard, it may be used as a conventional manometer.

The Meriam Micromanometer is simple to operate, surpassing other precision pressure instruments. Readings on the micromanometer can be achieved quickly and accurately.

The true measurement of a given pressure, vacuum, or differential pressure is the distance traveled by the instrument well from the initial calibrating position. All readings are taken with the meniscus positioned at the reference calibrating point. Because of this the variation in the indicating tube inside diameter and indicating fluid level change in the well do not influence the accuracy of the instrument.



CONSTRUCTION

The Meriam Micromanometer is of special well type manometer design incorporating a well movable in the vertical plane by means of a precision lead screw. The vertical distance traveled by the instrument well is measured by means of an indicator pointer attached to the well, moving along a uniformly graduated scale and a micrometer wheel attached directly to the lead screw.

CONSTRUCTION (Continued)

The lead screw is rotated by means of an operating wheel at the base of the instrument through a gear mechanism. As the gear mechanism provides only the necessary torque to rotate the lead screw, gear wear or play will not affect the accuracy of measurement.

The glass indicating tube is rigidly supported within the instrument frame. The inclined tube portion of the indicating tube is at a minimum slope angle to give a high degree of sensitivity for accurate reading of the indicating fluid meniscus. An etched hair line on the inclined tube provides a fixed reference point for all measurements. The indicating tube is connected to the instrument well by means of a flexible tube.

All metal parts of the instrument in contact with the indicating fluid are fabricated of stainless steel. The exterior surfaces are finished in a fine, black, baked crackle. A clear plastic cover in a detachable cover frame gives full vision of all scales and protects the unit from dust and moisture.

For the initial adjustment of the indicating fluid meniscus in the sloping portion of the indicating tube, the instrument well is adjustable vertically, independent of the operating lead screw. A locking screw is provided on the well adjustment mechanism to insure the well setting after adjustment.

Standard ¼" N.P.T. pressure connections are provided at the top of the unit. Independent connections permit micromanometer operation under pressure, vacuum, or differential pressure conditions.

The instrument unit is assembled to a heavy cast iron base. Three leveling screws are provided in the base for leveling the unit, the level position being indicated by two individual levels.

SPECIFICATIONS:

MODEL: 34FB2 TM or 34MB2 TM

TYPE: Micromanometer

RANGE: 10", 20"

PRESSURE RATING: 20 PSIG

MOUNTING: Table stand with two levels and leveling screws

INDICATING TUBE & PACKING: Borosilicate glass and neoprene

BODY CONSTRUCTION: Aluminum Frame

WETTED PARTS MATERIAL: Stainless Steel

SCALE FINISH: White non-glare, black graduations

FINISH: Baked Black Crackle

SCALE GRADUATIONS:

Model 34FB2: English Units
Scale: Inches & Tenths
Micrometer Wheel: .001"

Model 34MB2: Metric Units
Scale: Millimeters
Micrometer Wheel: 0.01 millimeters

ACCESSORIES:
Pressure-Vacuum Variator Model 971A3
Vernier Variator Model 971B3

SPECIAL FEATURES:
Micrometer wheel for readings to .001" or .01 MM
Magnifier for easy reading
Thermometer mounted in case

WEIGHT: 10" range – 145 lbs.
20" range – 200 lbs.

INDICATING FLUID
(initial fill supplied with instrument):
Meriam 1000 Green Concentrate with water
4 ounces required to fill

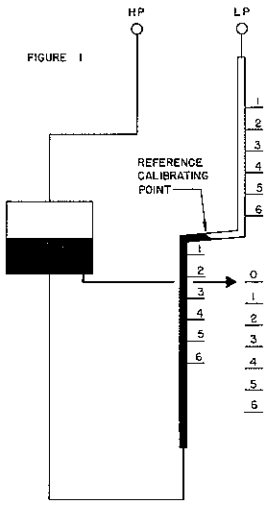
INSTRUCTIONS: File No. 341FB2TM:440

TO ORDER, SPECIFY:

1. QUANTITY
2. MODEL
3. RANGE
4. ACCESSORIES
5. SPARE PARTS

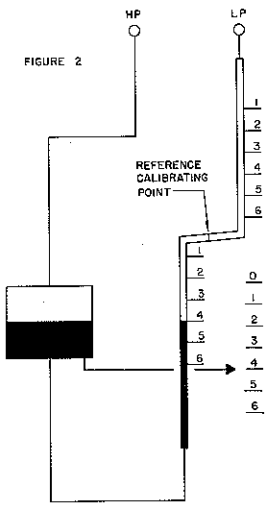
PRINCIPLE OF OPERATION

In Fig. 1, in schematic form, the micromanometer is shown when both outlet connections are vented to atmosphere. Under this condition the top of the indicating fluid meniscus in the inclined



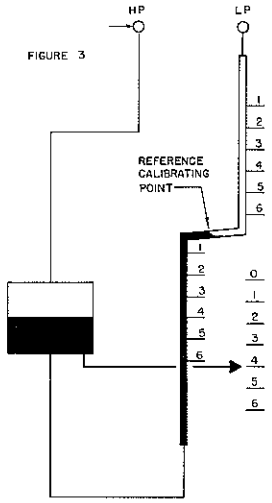
tube is at the reference calibrating point. The well position indicator is at the zero graduation on the scale directly below the inclined tube, and the micrometer wheel at the base of the unit indicates zero reference setting. If the indicating fluid meniscus can not be set to the reference calibrating point with the well indicator and the micrometer wheel at zero, adjust the well until the indicating fluid meniscus is positioned properly at the reference calibrating point.

To measure pressure above atmospheric pressure very accurately, lower the well to the desired pressure with the crank handle located on the side of the mircomanometer. The fluid level in the tube will drop (Fig. 2). Use the micrometer wheel



at the base of the unit to read to one thousandth of an inch. Connect the pressure source to the high pressure connection and make sure the low pressure connection is vented to atmosphere. Now apply pressure to bring the meniscus back to the reference calibration point (Fig. 3).

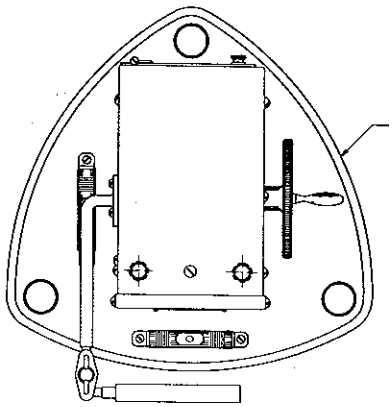
To continue to read pressures up scale, again lower the well to the desired pressure. The fluid in the tube will drop. Use the micrometer wheel to read to one thousandth of an inch. Apply pressure to bring the meniscus back to the reference calibration point.



To measure a vacuum, the procedure is exactly the same as above. Lower the well to the desired vacuum. The fluid level in the tube will drop. Use the micrometer wheel to read to one thousandth of an inch. Connect the vacuum source to the low pressure connection and make sure the high pressure connection is vented to atmosphere. Now apply vacuum to bring the meniscus back to the reference calibration point.

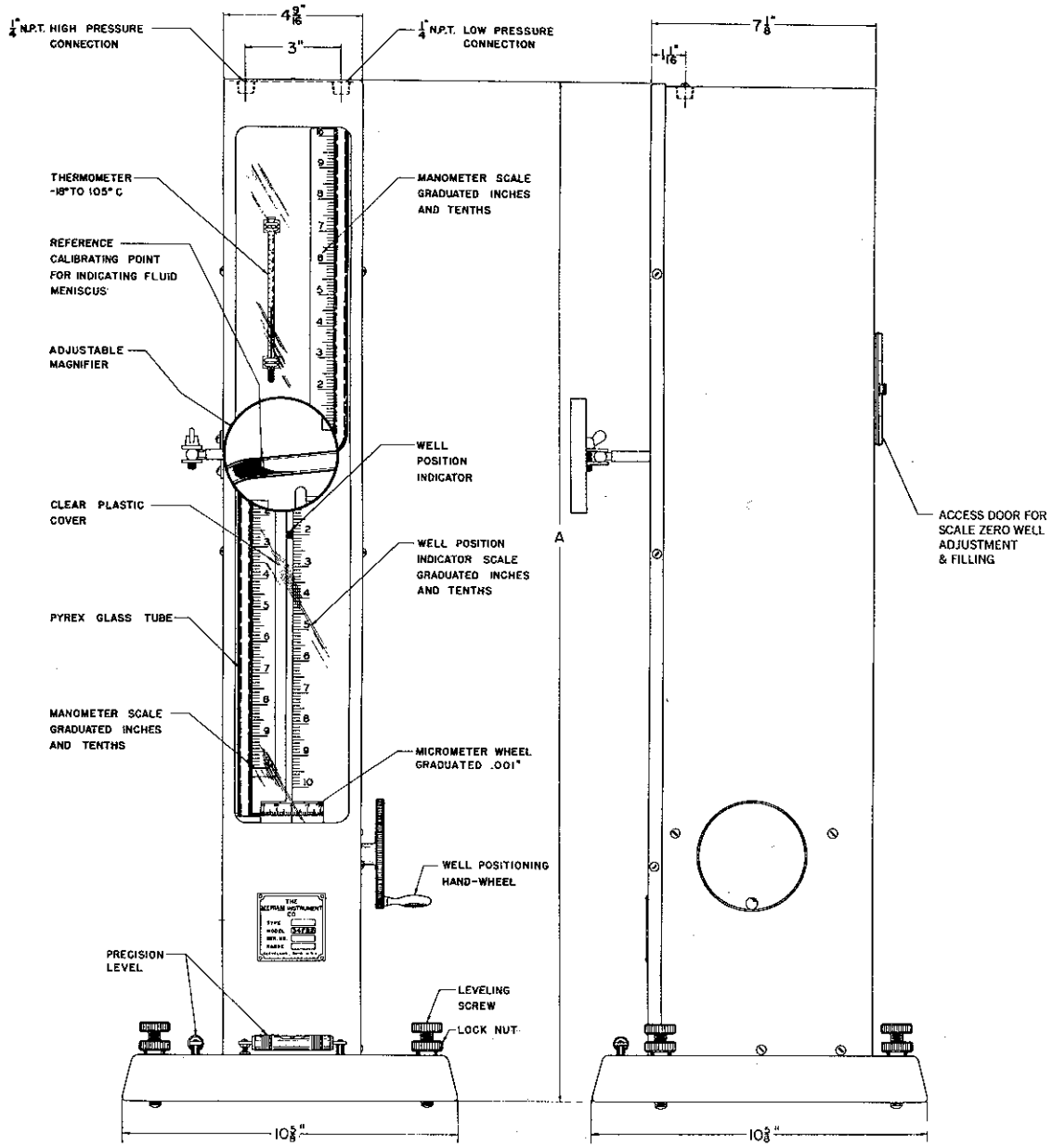
In measuring a differential pressure, the high pressure side is always connected to the well connection. The lower pressure side is always connected to the indicating tube. Follow the above out lined procedure.

To use the micromanometer as a conventional manometer, set the well at the initial calibration position. Read the measured pressure, vacuum, or differential, using the scales immediately adjacent to the indicating tube legs.



RANGE INCHES OF WATER	A	APPROX. SHIPPING WEIGHT
10	36"	145 LBS.
20	60"	200 LBS

RANGE MM	A	APPROX. SHIPPING WEIGHT
254	914 MM	65.8 Kg
508	1524 MM	90.7 Kg



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MICROMANOMETER

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