

WIKA INSTRUMENT CORPORATION

Instruction Manual

GAUGE PRESSURE INDICATOR

Series 1500

Series 1000

Series 300

WIKA Instrument Corporation
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Lawrenceville, GA 30043
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<http://www.wika.com>

PLEASE NOTE: THIS EQUIPMENT HAS BEEN DESIGNED TO PROVIDE RELIABLE SERVICE; HOWEVER; BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THE EQUIPMENT, THIS INSTRUCTION MANUAL MUST BE READ, UNDERSTOOD AND OBSERVED. FAILURE TO DO SO CAN RESULT IN IMPROPER OPERATION WITH POSSIBLY HAZARDOUS CONSEQUENCES.

VERY IMPORTANT SAFETY PRECAUTIONS

This page provides in brief, information of urgent importance relative to SAFETY INSTALLATION - OPERATION & MAINTENANCE of this equipment.

WARNING

TO AVOID POSSIBLE SEVERE PERSONAL INJURY, OBSERVE THE FOLLOWING PRECAUTIONS:

THIS EQUIPMENT SHOULD BE INSTALLED, OPERATED AND SERVICED ONLY BY TRAINED, QUALIFIED PERSONNEL WHO ARE THOROUGHLY FAMILIAR WITH THE ENTIRE CONTENTS OF THIS INSTRUCTION BOOK.

IMPROPER USE OF THIS GAUGE MAY CAUSE EXPLOSION.

WHEN CLEANING THE FILTER WITH SOLVENT, PROVIDE ADEQUATE VENTILATION AND AVOID PROLONGED INHALATION OF VAPORS.

DO NOT DISCARD THIS INSTRUCTION BOOK UPON COMPLETION OF INSTALLATION. INFORMATION PROVIDED IS ESSENTIAL TO PROPER AND SAFE OPERATION AND MAINTENANCE.

ADDITIONAL OR REPLACEMENT COPIES OF THIS INSTRUCTION BOOK ARE AVAILABLE FROM:

WIKA Instrument Corporation
1000 Wiegand Boulevard
Lawrenceville, GA 30043 USA
Tel (888) WIKA-USA (888-945-2872)
FAX (770) 338-5118

NOTE

Minor part number changes may be incorporated into WIKA products from time to time that are not immediately reflected in the instruction book. If such a change apparently has been made in your equipment and does not appear to be reflected in your instruction book, contact your local WIKA sales office for information.

Please include the equipment serial number in all correspondence. It is essential for effective communication and proper equipment identification.

INTRODUCTION

This instruction book provides installation, operation and maintenance instructions for the WIKA Pressure Indicators Series 1500, Series 1000 and Series 300.

WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT, THIS EQUIPMENT SHOULD BE INSTALLED, OPERATED AND SERVICED ONLY BY TRAINED, QUALIFIED PERSONNEL WHO ARE THOROUGHLY FAMILIAR WITH THE ENTIRE CONTENTS OF THIS INSTRUCTION BOOK. IMPROPER USE OF THIS GAUGE MAY CAUSE EXPLOSION AND PERSONAL INJURY. READ INSTRUCTION BOOK BEFORE USING THIS EQUIPMENT.

General and Safety related information on the installation and use of pressure gauges should be followed. ASME B40.100 latest standards should be referenced as a guideline. A complete standard may be obtained from the AMERICAN SOCIETY OF MECHANICAL ENGINEERS; ASME, Three Park Avenue, New York, NY 10016-5990, 800-843-2763 (US/Canada), 973-882-1170 (outside North America), website: www.asme.org.

INSTALLATION

Protect the instrument from shock and vibration. In some cases, it may be necessary to provide shock mounted panels. Select a location to provide a minimum change in temperature. Avoid locations adjacent to heating units or otherwise subject to temperature changes. Access to pressure connections is required if the filter is to be removed for cleaning (see SERVICE NOTES).

CAUTION: Install external pressure relief valves as required to protect the mechanism from damage due to overpressure.

Dimension drawings are in the back of this book.

A note on a decal indicates when a Bourdon tube gauge has been calibrated for liquid service. Opening the bleed tube at the back or bottom of the case permits purging air to other gases in the system.

OPERATION

Over-Pressure Precautions For best performance, do not subject instruments to pressures above their range. Pressure in excess of 110% of range may distort the mechanism.

All instrument cases have plastic blow-out plugs in the back. If the pressure element should accidentally rupture, these plugs will blowout at less than 5 psig and vent the case to atmosphere.

Exercising Before the instrument is used for precise measurements, exercise it by alternately increasing and decreasing the applied pressure over the entire range of the instrument at least three times. Hold maximum and minimum pressures for two-minute periods.

Reading Unless otherwise noted, the instrument is calibrated to be read with the dial in the vertical position. When the instrument has a mirror on the dial, the pointer and its image should coincide so that only the pointer may be seen. On two-revolution instruments, an indicator shows the portion of the scale to be read.

All WIKA instruments are calibrated on increasing pressure. To avoid any effect of hysteresis, take readings on increasing pressure. Instruments are calibrated at 23°C. Unless wide temperature changes are experienced, the effect of temperature may be neglected. For further discussion, see CALIBRATION CHECK.

CALIBRATION CHECK

Although great care has been taken to stabilize the instrument during manufacturing, a small zero shift could occur before the instrument is put into service.

Optimum accuracy over the entire scale may be produced when the pointer is not exactly on zero at true zero pressure. A label affixed to the instrument case indicates what, if any, the zero offset is. This figure was obtained after the instrument was exercised as described under OPERATIONS.

It should be noted that the accuracy tolerance is the same at all points on the scale, zero included. However, the deviation is never outside the guaranteed accuracy as shown in the table, PERFORMANCE CAPABILITY.

If, after the instrument has been exercised, the pointer deviation is as specified, no adjustment is necessary. A slight discrepancy may be corrected by adjusting the pointer as described below.

A complete check of calibration of an instrument requires that it be exercised (see OPERATION-Exercising) and compared with a standard having a verified accuracy several times greater and a scale comparable in length to the instrument being checked. The standard must be corrected for all its inherent errors and must be corrected to standard conditions of gravity (980.665 cm/sec²) and temperature (0°C for mercury columns or 20°C water columns) where applicable.

While aneroid instruments are not subject to changes in reading due to gravity, they are affected by temperature. WIKA instruments read directly in terms of standard conditions (see preceding paragraph) at a temperature of 23°C unless otherwise indicated. If the calibration check is conducted at 23°C, the effect of temperature on the WIKA instrument need not be considered. At any other temperature, the temperature effect listed in the table PE PERFORMANCE CAPABILITY must be considered.

Note that this is not a correction factor but, rather, a tolerance that must be added to other tolerances being checked. When readings are taken on increasing pressures, they should fall within the specified accuracy tolerance given in the table. The difference between the up-scale reading and the down-scale reading is the hysteresis error and should fall within the specified limits.

Setting the Pointer If a calibration check shows the readings on increasing pressure at various points over the entire range are out by the same angular distance, the pointer may be reset. Adjustment is limited to a pointer movement of about 10 degrees.

Access to the pointer adjustment screw is obtained by removing a plug in the glass dial cover. The screw is flush with the face of the dial.

If the error is not linear and cannot be corrected with a simple pointer adjustment, the gauge should be returned to the factory for repair and/or recalibration.

WIKA maintains a fully equipped service center staffed with trained personnel to repair and recalibrate WIKA instruments.

SERVICE

Filter Each instrument is furnished with a filter screwed into the pressure connection. The filter screen may occasionally require cleaning. Clean as follows:

- a. Unscrew the filter plug by means of a screwdriver.
- b. Clean the filter with detergent and hot water or other suitable solvent. Reinstall the filter

WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY WHEN USING SOLVENTS, PROVIDE ADEQUATE VENTILATION AND AVOID PROLONGED INHALATION OF VAPORS.

Lubrication The mechanism does not require oil. The oil will interfere with proper functioning and introduce serious errors.

CAUTION: Do not oil the mechanism.

Dial Cover Glass dial covers on the panel mounted types may be cleaned with a damp cloth.

CAUTION: Exercise care when cleaning the plastic dial covers on portable instruments to prevent scratches.

Electrostatic charges on plastic dial covers during periods of low relative humidity may cause erratic pointer movement. To control this movement apply a static conductive cleaner to the dial cover. STATICIDE™ REGULAR from ACL, Inc, Elk Grove Village, Illinois or STATPROOF™ from Plastic System, Marlboro Massachusetts is available in spray bottles. The residual film is water soluble.

PERFORMANCE CAPABILITY				
SERIES	ACCURACY (1)	SENSITIVITY (1)	HYSTERISIS(1)	MAX. TEMP EFFECTS(2)
1500	0.066	0.01	0.1	0.1
1000	0.1	0.01	0.1	0.1
300	0.33	0.2	—	—

1 % FULL SCALE. FULL SCALE is the difference between the minimum and maximum dial reading. FULL SCALE of an instrument with a calibrated range of 0 a 800 mm Hg is 800 mm Hg where as FULL SCALE of an instrument with a calibrated range of 390 to 800 mm Hg is 410 mm Hg.

2 % Full Scale per 10°C from 23°C.
Except 230" and 300" Hg; 0.2% F.S.

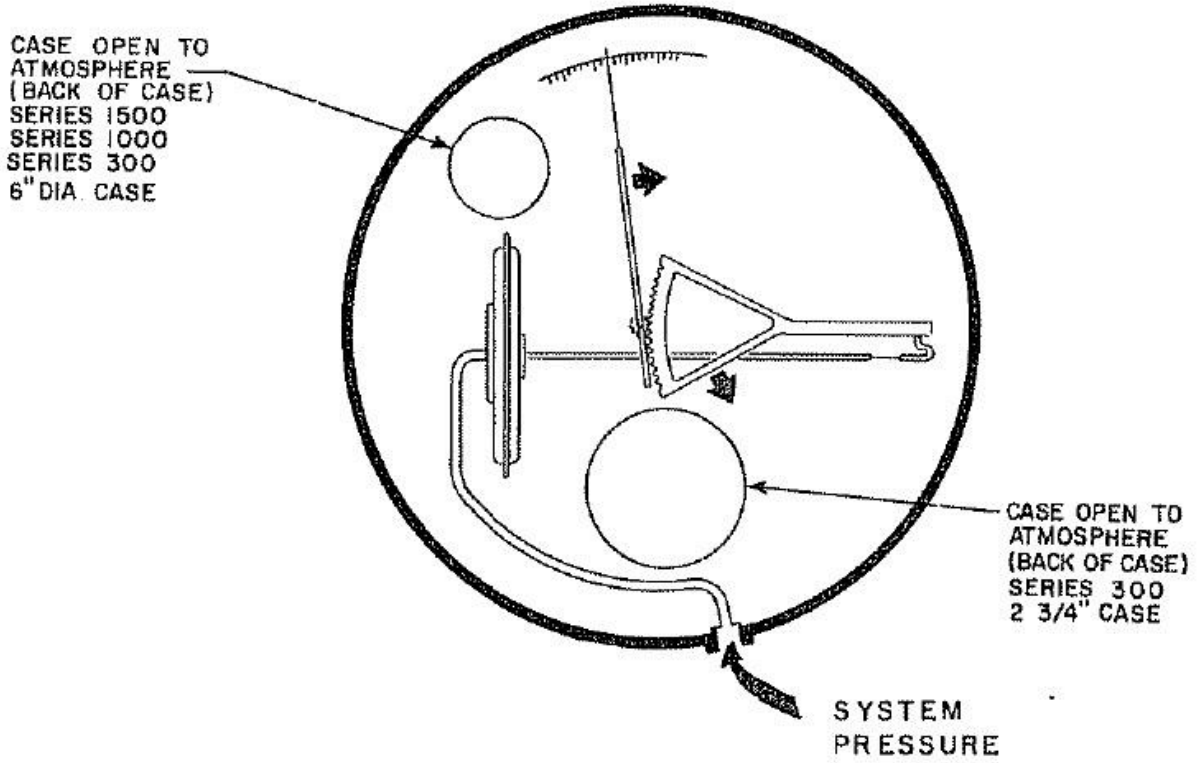
WARNING LABEL

The following warning label has been attached to the equipment and is listed below:

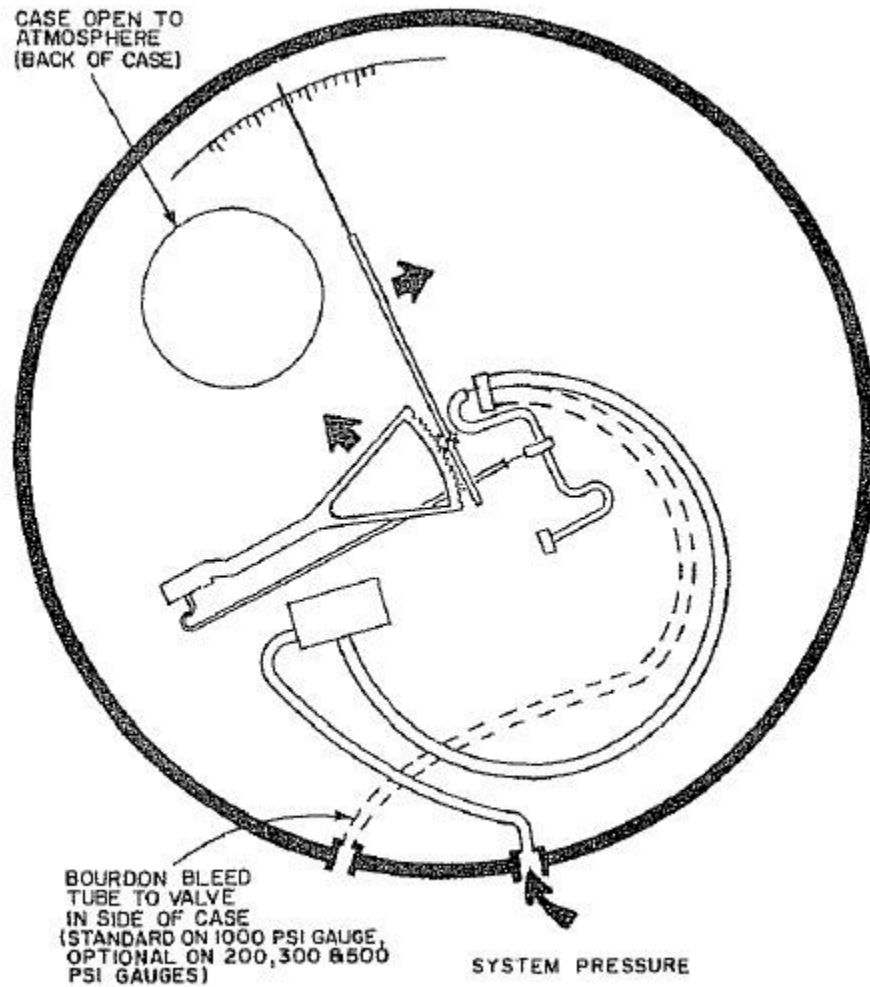
L2326: IMPROPER USE OF THIS GAUGE MAY CAUSE EXPLOSION & PERSONAL INJURY. READ INSTRUCTION BOOK BEFORE USING THIS EQUIPMENT.

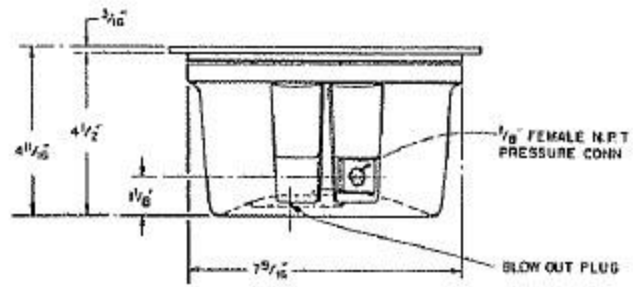
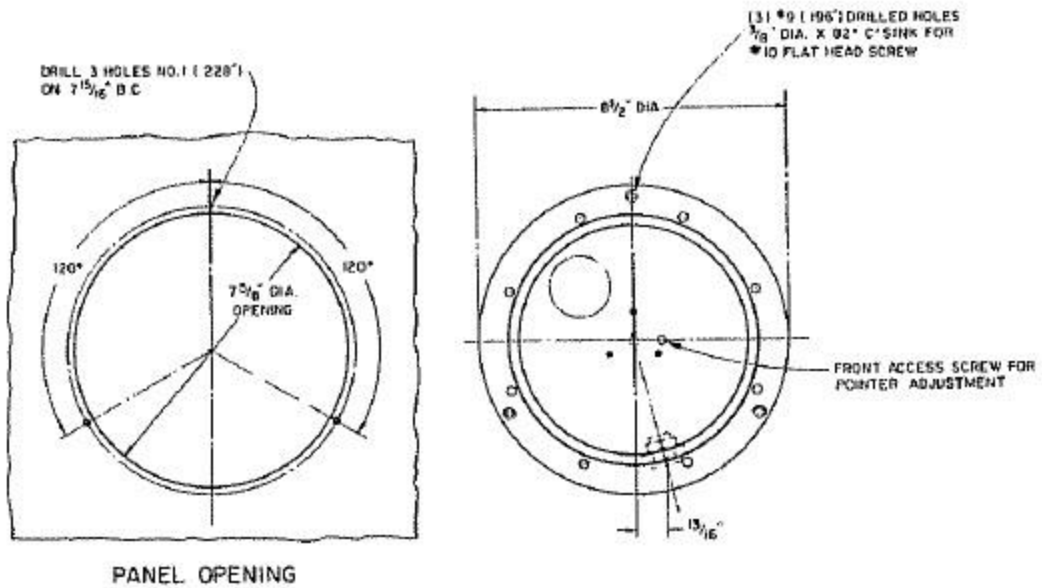
SERIES 1500 BELOW 200 PSIG
SERIES 1000 BELOW 200 PSIG
SERIES 300 ALL RANGES
DWG 620.050.170.011

For Precision Measurement of Gauge or
Compound Pressures & Vacuum



SERIES 1500 200 PSI AND OVER
SERIES 1000 200 PSI AND OVER
DWG 620.050.170.021



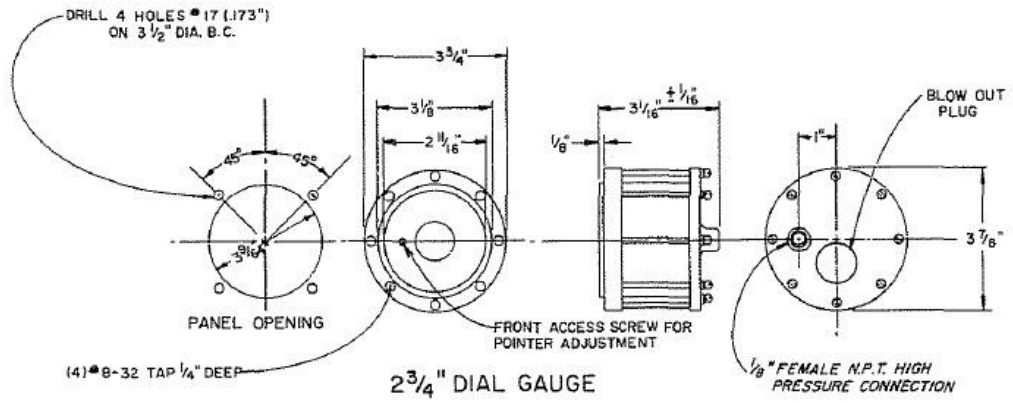


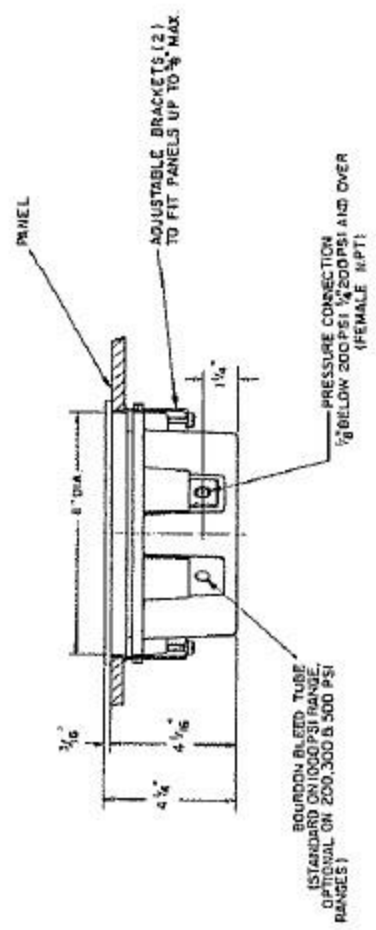
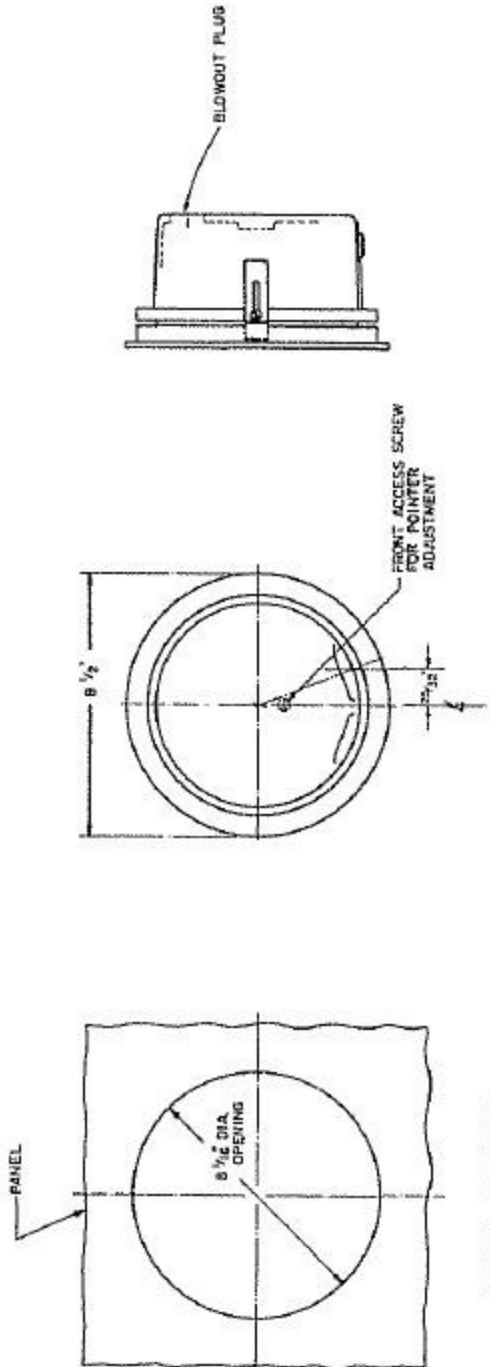
SERIES 300 GAUGE PRESSURE INDICATOR - DIMENSIONS
With 6" Dial

620.050.100.011

ISSUE 3 7-88

SERIES 300 GAUGE PRESSURE INDICATOR - DIMENSIONS
 With 2-3/4" Dial
 620,050,100,021
 ISSUE 2 4-86





SERIES 1000 GAUGE PRESSURE INDICATOR - DIMENSIONS

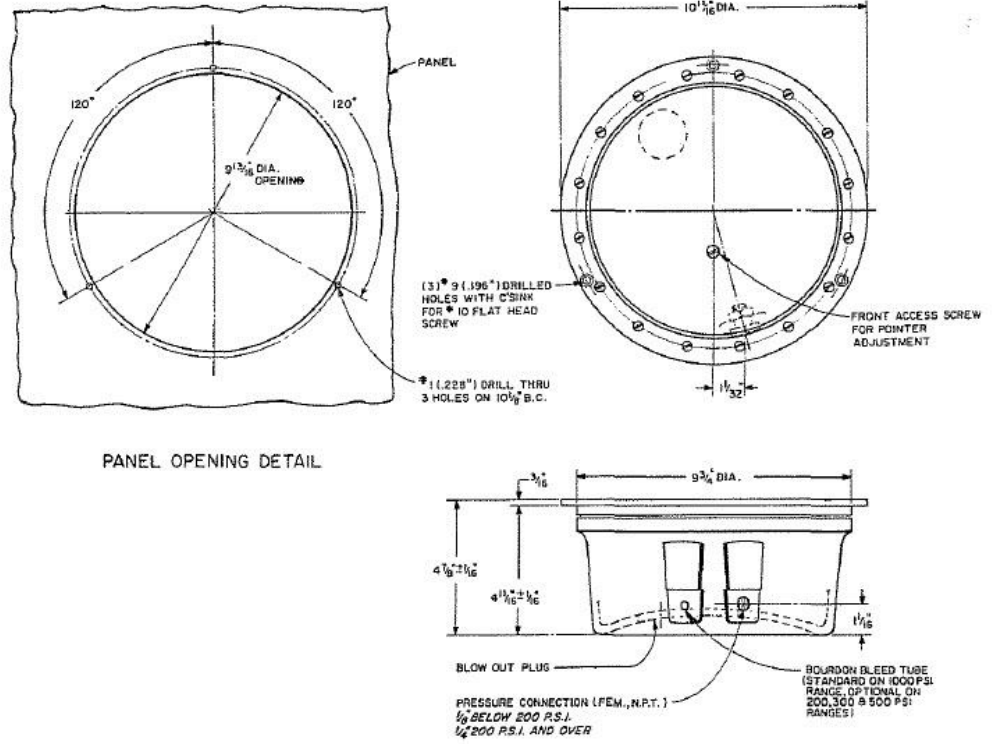
620.050.101.011

ISSUE 6 4-86

SERIES 1500 GAUGE PRESSURE INDICATOR - DIMENSIONS

620.050.102.011

ISSUE 6-4-86



PANEL OPENING DETAIL