



**ROCHESTER  
GAUGES, INC.**

## Five Bolt Sender Installation



ISO 9001:2008 CERTIFIED

**MS-514**  
(Mounting  
Standard)

**Five Bolt Sender Installation**

### **READ COMPLETELY BEFORE ATTEMPTING INSTALLATION\***

**WARNING:** Improper installation or use of this product may cause serious injury or property damage.

**These instructions are prepared to assist tradesmen and others generally familiar with liquid storage tank equipment. Most consumers are not qualified to perform the installation described below. If you have any questions concerning installation or operation of the sender or gauge, contact Rochester Gauges, Inc. or one of our authorized distributors for assistance.**

#### **TOP MOUNTED SENDERS**

Install sender or gauge using either P/N 0015-00423 (small O.D.) or 0015-00716 (large O.D.) Buna'N gasket. Use #10-32 (or equivalent) screws to secure the gauge head to the tank or gauge mounting pad. Torque screws to 20-25 in. lbs. torque, except for black plastic gauge heads, use 10 in. lbs. torque. For the most consistent results, torque using calibrated torque application device.

#### **SIDE OR BOTTOM MOUNTED SENDERS**

Install sender or gauge using either P/N 0015-00423 or 0015-00716 Buna'N gasket. Use #10-32 (or equivalent) screws to secure the gauge head to the gauge mounting pad. See Ds-716 for mounting pad details.

**CAUTION:** To prevent leakage at the mounting screws, one or more of the following options must be utilized:

- A. Use mounting pad with blind screw holes.
- B. Use screws with integral O-Ring seals under the heads.
- C. Use nylon sleeves (NYL-TITE) under the screw heads.

Torque mounting screws to 20-25 in. lbs. torque except for black plastic gauge heads, use 10 in. lbs. torque. Torque must be applied using calibrated and certified torque application device.

#### **MAINTENANCE AND QUALITY ASSURANCE CONSIDERATIONS**

For Quality Assurance applications, installation torque should be controlled at initial installation and application of torque using a calibrated torque device. Regularly verify the calibration and functional condition of the torque application device. Since this is not a metal to metal joint, the torque and screw clamp load will naturally relax as the gasket flows to a normal condition. Do not use a torque wrench to verify the correct screw installation torque after the initial installation. Never re-torque just to restore to 20-25 in. lbs.

**CAUTION:** Do not over torque. Do not re-torque later unless leaking.

Excessive torque/or re-torquing will warp or distort the gauge head. The gaskets underneath gauge heads that are warped during installation or re-torquing are probably over-compressed or pinched in at least one area. Pinching or over-compression of gaskets can dramatically reduce their service-life and may result in failure (leakage) in service, especially after exposure to temperature and vibration.

#### **GENERAL RECOMMENDATIONS**

For critical applications, installation should be specifically engineered for your application. Use of safety wires on the screw heads is usually recommended.

#### **SENDER ELECTRICAL CONNECTIONS**

Usually the mounting screws ground the head to the tank. However, in some cases it may be necessary to connect the head to a suitable chassis grounding point. System voltage should not be applied to the Sender terminal. The excitation from the fuel quantity indicator, must be current & voltage limited, and incapable of causing ignition of the fuel vapor when Sender lead wire is shorted to ground. Care must be taken to insure that the bottom nut on the terminal stud is not disturbed when the electrical connection is made. The bottom terminal stud nut torque is factory set to provide the correct terminal stud seal preload.

#### **NUTS ON ELECTRICAL TERMINALS SHOULD BE TIGHTENED AS FOLLOWS:**

#6 - 6 IN. LB.

#8 - 12 IN. LB.

#10 - 14 IN. LB.

**CAUTION:** Always use back-up wrench when tightening terminal nuts.

#### **SENDER AND GAUGE REMOVAL WARNING:**

Should it appear necessary, for any reason, to remove the gauge from the tank, do not attempt removal unless under competent supervision with all due precautions taken against the hazards of escaping liquid or vapor.

\* Materials and specifications are subject to change without notice.

See reverse side for dimensional data, materials of construction, performance, and advice on how to order.

The Measure of Excellence

05/15/09

SEE MS-514 FOR 5 BOLT HOLE GAUGES

MS-502 SR. GAUGES

DRAWING NUMBER  
DS-716

INSTALLATION INSTRUCTIONS FOR GAUGES EQUIPPED WITH PLASTIC HEADS AS USED ON 7740, 8500 & 8700 SERIES.

1. FLAT WASHER IS REQUIRED.
2. TORQUE IN CROSSING PATTERN.
3. OVER TORQUING OR PLACING A LOCK-WASHER AGAINST THE PLASTIC HEAD MAY CAUSE STRESS CRACKING AFTER UNIT IS PUT INTO SERVICE.
4. 8500 SERIES:  
TORQUE TO APPROXIMATELY 20 IN. LBS.
5. 7740 & 8700 SERIES:  
TORQUE TO APPROXIMATELY 10 IN. LBS.
6. FOR BEST RESULTS USE A CALIBRATED TORQUING DEVICE.

NOTES:  
 1. DRILL 5.5MM [216/221] DIA. X 3/4" +0/-1/16" CYL. DEPTH. TAP 1/4-28 NF-2 X 1/2/+1/16/-0 FULL TH'D DEPTH. TYP. 4 PLCS.  
 2. DRILL LETTER 1 [272/279] DIA. X 3/4" +0/-1/16 CYL. DEPTH. TAP 5/16-24 NF-2 X 1/2" +1/16/-0 FULL TH'D DEPTH. TYP. 4 PLCS.  
 3. TAPPED HOLES TO BE  $\perp$  TO FACE WITHIN 1/2".  
 4. GASKET RECESS TO BE  $\odot$  TO BORE WITHIN .030 T.I.R.  
 5. TAPPED HOLES TO BE  $\odot$  TO GASKET RECESS WITHIN .025 T.I.R.  
 6. ALL SR. GAUGES REQUIRE THE 2-1/2" B.C. AND GASKET RECESS, BUT SOME SR. GAUGES USE 5/16-24 TAPPED HOLES INSTEAD OF THE 1/4-28 HOLES. (REF. NOTES 1 & 2).

LET

REVISIONS

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REVISED 5 HOLE PATTERN; REVISED MS-514 NOTE; REDRAWN ON CAD.

16467

E.R.#

5/11/04

DATE LET

REVISIONS

DO NOT SCALE DRAWING

SCALE NONE

SUPERSEDES 4/29/88

DATE 5/11/04

E.R.# 16467

CHK.  $\$$

PART NAME INSTALLATION INSTRUCTIONS

DRAWING NUMBER DS-716

**ROCHESTER GAUGES, INC.,** OF TEXAS  
DALLAS, TEXAS, U.S.A.